UiT The Arctic University of Norway

Faculty of Humanities, Social Sciences and Education

Healthcare Delivery and Emergency Preparedness on Svalbard

A Study of Norwegian and Russian Practices and Cooperation

Turid Austin Wæhler

A dissertation for the degree of Philosophiae Doctor – February 2023

Photograph by Jarle Wæhler, Svalbard (July 2006)

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Summary

The aim of this thesis is to explore Norwegian and Russian approaches to healthcare delivery and emergency preparedness on Svalbard and to examine potential effects from a closer cooperation. The methods were interdisciplinary. A systematic review was performed to assess studies about health on Svalbard (article 1). Thereafter, a literary analysis explored concepts of health and illness in Norwegian and Russian fiction (article 2). Finally, through a semi-structured interview study, Norwegian and Russian stakeholders were questioned about approaches to and potential for cooperation in healthcare and emergency preparedness (article 3). Overall, the findings show no evidence of an increased risk for specific diseases on Svalbard but indicate particular challenges in terms of local fauna and occupational health. Examples include a small possibility of being attacked by polar bears and an increased risk of mining- and snowmobile accidents. The health challenges on Svalbard are otherwise comparable to mainland Norway. Furthermore, the findings show that Norway and Russia experience roughly the same challenges related to healthcare delivery and emergency preparedness, and that there is a certain level of cooperation between the countries in these fields. Factors such as existing relations and communication systems facilitate further cooperation, while different systems for healthcare delivery and emergency preparedness and differences in language and culture are potential obstacles. Expanding cooperation between the countries is considered to entail positive effects. However, the war in Ukraine and consequent EU sanctions against Russia are substantial obstacles to extended cooperation between Norway and Russia on Svalbard.

Sammendrag

Målet med denne avhandlingen er å utforske norsk og russisk tilnærming til helsetjenester og beredskap på Svalbard, og å undersøke mulige effekter av tettere transnasjonalt samarbeid på disse områdene. For å oppnå dette målet, er tverrfaglige metoder benyttet. En systematisk litteraturgjennomgang ble utført for å kartlegge vitenskapelige studier om helse på Svalbard (artikkel 1). En litteraturanalyse utforsket begrepene helse og sykdom i fiksjonsskildringer med handling lagt til Svalbard (artikkel 2). I en semistrukturert intervjustudie ble norske og russiske aktører utspurt om tilnærminger til og muligheter for samarbeid innen helse og beredskap på Svalbard (artikkel 3). Resultatene viser samlet sett at det ikke er økt risiko for spesifikke sykdommer på Svalbard. Samtidig medfører Svalbards geografiske beliggenhet enkelte helseutfordringer knyttet til fauna og yrkesliv. Det er for eksempel en liten mulighet for å bli angrepet av isbjørn og risiko for gruve- og snøscooterulykker. Helseutfordringene på Svalbard er ellers sammenlignbare med fastlands-Norge. Videre viser funnene at Norge og Russland opplever omtrent de samme utfordringene knyttet til helse og beredskap på Svalbard, og at det finnes endel samarbeid mellom landene på disse områdene. Faktorer som eksisterende relasjoner og systemer for kommunikasjon fasiliterer videre samarbeid, mens ulike helse- og beredskapssystemer og forskjeller i språk og kultur kan være til hinder. Utvidelse av samarbeid på tvers av nasjonene kan gi positive effekter. Imidlertid er krigen i Ukraina og medfølgende EU-sanksjoner mot Russland substansielle hindringer for helse- og beredskapssamarbeid mellom Norge og Russland.

Резюме

Цель данной диссертации – исследовать норвежские и российские подходы к оказанию медицинской помощи и обеспечению готовности к чрезвычайным ситуациям на Шпицбергене, а также обсудить возможные последствия более близкого сотрудничества. Методы были междисциплинарными. Осуществлен систематический обзор научных статей о здравоохранении на Шпицбергене (статья 1). Историко-литературный анализ был сосредоточен на освещении представлений о здоровье и болезни в норвежской и советской художественной литературе о Шпицбергене (статья 2). Проведены полуструктурированные интервью с норвежскими и российскими респондентами, чтобы осветить возможности сотрудничества в сферах здравоохранения и обеспечения готовности к чрезвычайным ситуациям (статья 3). Систематический обзор не выявил доказательств повышенного риска или распространенности определенных заболеваний на Шпицбергене. Историко-литературный анализ показал, что практически одни и те же проблемы со здоровьем были актуальны как для советских, так и для норвежских жителей Шпицбергена в 1950-е годы и что географическое положение Шпицбергена оказывает известное влияние на здоровье жителей архипелага. Результаты последней статьи демонстрируют, что существуют и предпосылки, и препятствия для дальнейшего сотрудничества в области оказания медицинской помощи и обеспечения готовности к чрезвычайным ситуациям, и что такое сотрудничество может принести дополнительные преимущества, если оно будет расширено. Риски для здоровья на Шпицбергене представляются такими же, как и в материковой части Норвегии. Есть как сходства, так и различия в том, как Норвегия и Россия подходят к этим рискам. Сотрудничество двух стран в оказании медицинской помощи и обеспечении готовности к чрезвычайным ситуациям работает достаточно хорошо, но может принести дополнительные преимущества, если его развивать. Война в Украине и международные санкции против России являются главными препятствиями для любого сотрудничества на Шпицбергене в ближайшем обозримом будущем.

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Preface

Healthcare delivery and emergency preparedness on Svalbard are not widely explored research topics. The systematic review that was conducted as part of this thesis shows that there are significant knowledge gaps. This is exemplified by the fact that there are no scientific studies about mining health on Svalbard. This is surprising when considering that coal mining for many decades was the main industry on Svalbard and at times employed more than 80 per cent of the workforce. Obtaining a representative overview on healthcare delivery and emergency preparedness issues on the archipelago thus requires a broad spectre of different sources. Combining data from scientific studies, literature analysis and research interviews secures a transdisciplinary and solid foundation for exploring these topics. Such a combination has, to the best of my knowledge, never been conducted on issues concerning healthcare delivery and emergency preparedness on Svalbard and this thesis is thus a unique endeavour.

Writing a thesis about cooperation between Norway and Russia in 2023 compels particular clarification. The topic of this thesis embodies some of the radical change in relations that has taken place between East and West – and Russia and Norway – the last years. When this project was designed in 2019, cooperation was still the guiding principle in Norway's foreign policy towards Russia. Although Norway historically has pursued a balance between deterrence and reassurance in its relations to Russia, cooperation and coexistence has been the core of Norway's foreign relations with Russia since the dissolution of the Soviet Union. This approach certainly took a hit in February 2022, when most cooperation between Russia and Western countries were put to an immediate stop due to Russia's full-scale invasion of Ukraine.

Nowadays, there are not many places where Russia and the West coexist to such a degree as on Svalbard. Due to the current situation with Russia waging war against one of its neighbours, it is important to question whether a continued cooperation with Russia can be warranted, even on Svalbard. One could argue that it is inexcusable to cooperate with Russia, in any form, while the country wages war. I choose, however,

to defend a different stance. Developing solid structures and relations for healthcare delivery and emergency preparedness provides too immense benefits to bypass without further discussion. Continued cooperation, in certain fields, makes sense also in the broader picture. Russia and the West will likely at one point, when the war in Ukraine is over, resume more extensive cooperation. This cooperation will be sturdier and faster to resume if certain relations and structures are already in place. Cooperation on practical matters, such as healthcare delivery and emergency preparedness, may thus be a small but important piece of the puzzle to secure a framework for peace between Russia and the West.

Tromsø/Oslo, February 2023

List of articles

- Article 1 (published)

  Wæhler, T. A. & Ingebrigtsen, T. (2022). Health risks, emergency preparedness and Norwegian-Russian cooperation on Svalbard. A systematic review. *International Journal of Circumpolar Health 81* (1), 1-17. doi.org/10.1080/22423982.2022.2049055.

- Article 2 (published)

  Wæhler, T. A. (2022). Health Through the Space Lens: Fictional Representations of Health and Illness in Svalbard's Mining Towns in the 1950s. *Poljarnyj vestnik: Norwegian Journal of Slavic Studies 25*, 51–71. doi.org/10.7557/6.6572.

- Article 3 (published)

  Wæhler, T. A. (2023). Arctic cooperation between Norway and Russia in healthcare delivery and emergency preparedness on Svalbard: Barriers and facilitators. *Polar Geography 46* (2-3), 1-19. doi.org/10.1080/1088937X.2023.2264893.

Abbreviations

CASP – Critical Appraisal Skills Programme

DSM-IV – Diagnostic and Statistical Manual of Mental Disorders, fourth edition

EMERCOM – Emergency Control Ministry of Russia

GRADE – Grading of Recommendations, Assessment, Development and Evaluation

GRADE CERQual – Confidence in the Evidence from Reviews of Qualitative Research

IAMSAR – International Aeronautical and Maritime Search and Rescue

ICAO – International Civil Aviation Organization

ICD – International Classification of Diseases

IMO – International Maritime Organization

JRCC – Joint Rescue Coordination Centres

JSC – Joint stock company

N, No, Nos. – Number(s)

NSD – Norwegian Centre for Research Data

PRISMA – Preferred Reporting Items for Systematic Reviews and Meta-analyses

R – Respondent(s)

RHF – Regional Health Authority

SAR – Search and rescue

SAREX – Search and Rescue Exercise

STROBE – Strengthening of the reporting of observational studies in epidemiology

UiT – The University of Tromsø

UNN – The University Hospital of Northern Norway

VFR – Visual Flight Rules

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Notes on transliteration

Russian names and words in the thesis are transliterated from Cyrillic to the Latin script according to a modified version of the Library of Congress system.

Certain variations in the transliteration style exist between the articles that the thesis consists of and the introductory chapter. This is due to different traditions for transliteration in the journals where the articles have been published.

All translations from Russian into English and from Norwegian and English into Russian are mine, quality-checked by a native Russian speaker.

Part 1 Introductory chapter

Overview of the introductory chapter

The introductory chapter consists of five parts. The first part provides background information and explores topics that illuminate different aspects of healthcare delivery and emergency preparedness on Svalbard. Moreover, this part offers an overview of previous research and places this research project into the body of existing literature. Furthermore, a theoretical framework based on risk theory is outlined before this part provides a thorough presentation of the research questions and overarching aims. The part ends with defining concepts essential for the thesis. The second part presents the specific methods that have been employed, i.e. systematic review, literary analysis and semi-structured interviews. The third part presents the findings. This provides foundation for the fourth part, which discusses the articles' findings by interpreting them against the backdrop of risk theory. Also, the thesis' main strengths and weaknesses are assessed and recommendations for further research provided. The fifth and last part offers concluding remarks.

1 Introduction

1.1 Background information

1.1.1 Recent human presence on Svalbard

In the past century or so, the continuous human presence on Svalbard has been mostly linked to mining. Yet mining on Svalbard is not only a question of resource extraction. Arlov (2008) and Holtsmark (2015) claim that the main reason why Norway and Russia have continued mining activities on the archipelago is because of governmental interests and national consolidation. It is explicitly stated by the current Norwegian government that the High North, or *nordområdene*[1] (of which Svalbard is an inextricable part), is among the main priorities of Norwegian foreign policy and that Norway should strive to develop this area, including an interaction with Russia (Meld. St. 9 (2020–2021), p. 26).

Since the official discovery of Svalbard in 1596 by the Dutch explorer Willem Barents, the archipelago for centuries had the status of a no man's land. With the location of coal on Svalbard, clarification of territorial rights became vital and the Svalbard Treaty – signed in 1920 and entered into force in 1925 – assigned Svalbard's sovereignty to Norway and the right to engage in commercial activities, such as coal mining, to the signatories (Holtsmark, 2015).

Coal has been extracted on Svalbard at an industrial scale since the beginning of the 20th century. Although Great Britain, the Netherlands, Norway, Russia, Sweden, and the United States were all initially involved, only Norway and Russia have been engaged in the coal extraction since the 1930s until present (Catford, 2002; Holtsmark, 2015). Norway has operated mines in Longyearbyen, Svea and Ny-Ålesund through the company Store Norske Spitsbergen Kulkompani (usually referred to as the Store Norske). Russia has had mining activities operated by the state-owned Trust

[1] In Norwegian, the term «nordområdene» roughly coincides with the term «Arctic», but with a somewhat more political overtone. «Nordområdene» is often used in a political context of development, resource extraction and military strategy. «Arktis» is a neutral word referring to nature and the geographical area, rather than the area's strategic importance.

Arktikugol in Grumant, Pyramiden and Barentsburg. Today, only the mines in Barentsburg and Longyearbyen are productive. Due to economic recession and increasing environmental focus, the Norwegian government has decided to close mine number 7, the last Norwegian-owned mine that is still active, in 2025. The situation is similar in Barentsburg, where the main reason to continue mining activity is to ensure energy supply to Barentsburg.

In both settlements tourism is a growing industry, and both Store Norske and Trust Arktikugol are increasingly engaging with it. Tourism poses challenges with regard to both the protection of the fragile Arctic environment and in terms of healthcare delivery and emergency preparedness for a growing number of people. Scientific research is another growing branch on Svalbard. Research in arctic biology, geology, geophysics and technology are of special significance to the area (Pedersen, 2021). Researchers from more than twenty different countries are engaged in various projects. Just as with tourism, the growing influx of researchers have potential consequences for the health and emergency preparedness systems because more people put pressure on the existing health and emergency preparedness resources there.

The military aspect cannot be bypassed in a context where strategic presence is of such an importance as on Svalbard. Although article 9 of the Svalbard Treaty prohibits military troops, naval bases, fortifications and the use of Svalbard for war-like purposes, the archipelago is not completely demilitarised (Totland, 2016). Military vessels from the Norwegian Coast Guard can for instance dock in the harbours, and military airplanes on transport missions are allowed stopovers at the airports. And despite Soviet protests at the time, the Svalbard Treaty did not prevent Norway from becoming a NATO member, implying that an attack on Svalbard is considered an attack on Norway – and therefore on the NATO alliance.

1.1.2 Healthcare delivery and emergency preparedness on Svalbard

It is often stated that the population on Svalbard is selected, as it consists of relatively young people without chronic health issues (Hanoa, 2017; Statistics Norway, 2023).

This was probably more pronounced when Svalbard was merely a coal mining society. An aspect that is often missing in this context, is that Svalbard has been a duty free and low taxation area, resulting in availability of cheap alcohol and tobacco, which is known to be associated with health issues. Impaired health could also be a consequence of insufficient social networks, as (one may assume) could be associated with a lifestyle labouring far away from family and friends. Moreover, living single, as many workers do, is associated with unhealthy food habits (see Miki et al., 2021; Ruddock et al, 2021 and Schirmer et al., 1991). Nevertheless, miners on Svalbard have traditionally lived together in barracks with all meals served in the workers' canteen (Evjen, 2006). Still, even after the 1990s policy change towards a more family-oriented lifestyle on Svalbard single households remained more common there than on the Norwegian mainland (Statistics Norway, 2009).

The Norwegian state is responsible for emergency preparedness on Svalbard, including the waters surrounding the archipelago (Hovden, 2012). The Norwegian search and rescue area (commonly referred to as the SAR area) is defined and regulated through conventions anchored in the UN, more specifically International Maritime Organization (IMO) and International Civil Aviation Organization (ICAO). The SAR service is managed by the Norwegian Ministry of Justice and Public Security and is organised through two Joint Rescue Coordination Centres (JRCCs) (one in southern Norway and one in northern Norway including Svalbard) and several local SAR centres. Each police district in Norway, including the Governor of Svalbard (who represents the Norwegian government in exercising its sovereignty over the Svalbard archipelago), constitutes a local SAR centre (Rottem, 2014). Russo-Norwegian collaboration about healthcare delivery is regulated by the bilateral agreement between the Norwegian Ministry of Health and Care Services and the Ministry of Health of the Russian Federation of 25 September 1994 (Embassy of the Russian Federation in Norway, 2023). There is an additional agreement between Northern Norway Regional Health Authority (Helse Nord RHF) and the regional ministries of health in the Arkhangelsk oblast and Murmansk oblast regulating health cooperation in the northern areas of Norway and Russia (Helse Nord RHF, 2017).

Which health risks were described by concurrent sources during the first decades of residence? A certain image can be drawn from the newspaper *Poliarnaia kochegarka* [Polar furnace], published by Trust Arktikugol in the Soviet settlements. The newspaper reported about events taking place in Barentsburg, Grumant and Pyramiden, and was issued regularly up to three times per week from 1948 until 1991. Also the Norwegian newspaper *Svalbardposten* [Svalbard press], issued weekly from 1948, reported about cases related to health and illness. It is apparent when consulting both these newspapers that accidents – both occupational and leisure-related – constituted a major health risk in the first decades of mining activities. Titles such as *Eye injuries and first aid for the eyes* (Nasekin, 1949), *How to provide first aid in accidents* (Marmorshtein, 1949) (in *Poliarnaia kochegarka*) and *Work stoppage in case of fatal accidents* (Unsigned, 1956) (in *Svalbardposten*) testify that accidents did take place from time to time. A noteworthy aspect in the Soviet newspaper is the focus on how injuries among miners were considered negative for the coal output. Doctor S Marmorshtein wrote in 1949 that miners «should be well acquainted with measures to combat occupational hazards and should be especially able to provide first aid to themselves and their comrades in case of accidents and acute poisoning», because first aid was considered directly beneficial for the production: «Self-help is of great importance for the production» (Marmorshtein, 1949). Marmorshtein was further referring to data from Soviet mines in Donbas, which disclosed that performing first aid in cases of minor injuries could reduce the average healing time from 4.2 days to 1.7 days. First aid measures could thus help achieve the post-war five-year plan targets and the recovery of the national economy. For his part, the head doctor at Barentsburg hospital in 1967, S I Filippov, emphasised that the production was affected by injuries, causing delays in the extraction of «hundreds of tons of unmined coal!». He appealed to the mining company that it was their responsibility to keep all workers safe (Filippov, 1967).

Moreover, infectious diseases like the flu were repeatedly discussed in both newspapers, as they certainly could take their toll in an isolated community like

Svalbard. Until the airport in Longyearbyen opened in 1975, there was practically no physical contact with the outside world in wintertime due to the icing of the sea, accordingly the immunity in the Svalbard communities against the flu virus was low. It is evident from the coverage in *Svalbardposten* before the opening of the airport and the all-year traffic to and from Svalbard that the flu would hit hard each spring when the first boat or mail plane would come to the archipelago (see for instance Unsigned, 1959; Unsigned, 1965b; or Unsigned, 1968). Prophylactic measures were frequently discussed (see for instance Rogozhkina, 1965; Kharchenko, 1972; or Shmal', 1986). Interestingly, many preventive measures were the same as we know today for COVID-19, such as disinfection, isolation of patients, ventilation, etc.

Several SAR operations are also described in the newspapers. Often, such operations are examples of Russo-Norwegian cooperation, such as the Maxim Gorkiy accident in 1989 (Vorob'ev, 1989), or the Russian fisherman who was picked up by a Soviet helicopter and transported to the hospital in Longyearbyen, where he received surgical treatment (Sedoy, 1990a). Language might have been an issue, as few Norwegians spoke Russian and vice versa (English and German had a higher chance of being used by both Norwegians and Russians but the proficiency in either language was by no means guaranteed). This time, however, it was emphasised that the language barrier was minimised thanks to the Governor's interpreter (Sedoy, 1990a).

It is worth mentioning that child births on Svalbard were frequently addressed in *Poliarnaia kochegarka*, but almost unaddressed in *Svalbardposten.* Did the Soviets have any ulterior motive with emphasising the emergence of new Soviet citizens on Svalbard? Nevertheless, children born in the Soviet settlements were often characterised as healthy. In the 1930s and early 1940s, they apparently also had a higher birth weight than children born on the mainland (Unsigned, 1941b). If true, could this be because people that overwintered on Svalbard were a selected group with good health? Or could the heavier babies be a result of the nutritious diet, served to employees at Trust Arktikugol, future mothers included? Furthermore, it is noteworthy and conspicuous that all new-borns seemed to be in good shape. In today's Russia

(2023), the child mortality rate is 5.8 per 1,000 live births (UN IGME, 2023). It is quite unlikely that the rate was lower in the Russian settlements on Svalbard during the period when *Poliarnaia kochegarka* was published. Contrary, the rate in the Soviet Union was 22 per 1,000 in 1990 and 38 per 1,000 in 1970 (UN IGME, 2023). There is, however, no lack of descriptions of remarkable births in *Poliarnaia kochegarka.* Examples include a dramatic delivery resulting in a caesarean section in 1965 (Sergeeva, 1965), and a birth in Pyramiden in 1960, which was so complicated that the doctor from Barentsburg was called for. This was the first time an off-roader was driven between the settlements, and the dramatic birth proceedings were certainly a motivating factor for the doctor to test the new vehicle (Kirillov, 1966). Moreover, it is evident from *Poliarnaia kochegarka* that some children needed acute treatment after birth, such as the baby delivered in the operating theatre in Barentsburg hospital in 1964, who was saved by blood transfer from the head doctor (Kosareva, 1964). The parents, who wrote a stirring letter of gratitude after the birth, certainly had reason to feel grateful (Fokin, 1973).

1.1.3 Health aspects in the Norwegian settlements

Longyearbyen has evolved from being a traditional «company town» to a modern family community with relatively well-developed health services and welfare facilities resembling a mainland municipality. It was against this backdrop that the Norwegian government in 2015 updated regulations concerning healthcare delivery and emergency preparedness. The main purpose was to equalise the health legislation with that of mainland Norway, and not to introduce new types of services (Meld. St. 32 (2015–2016), p. 33). The healthcare service on Svalbard is organised differently from the Norwegian mainland. The hospital provides medical treatment and minor surgical procedures, in addition to some types of healthcare services that are not normally offered in hospitals, such as general practice medicine, midwifery, physiotherapy and dental treatment. Longyearbyen is not a community with health services needed for all phases of life. Healthcare services of a prolonged nature, such as nursing home stays and practical assistance, are therefore not supplied. Patients in need of more advanced

health services than what is available at Longyearbyen Hospital, are referred to their home municipalities on the mainland (Meld. St. 32 (2015–2016), p. 47).

Traditionally, the Store Norske was responsible for providing healthcare services in agreement with the regulations in the Norwegian Mining Code of 1925. Accordingly, the mining company managed the hospital in Longyearbyen from 1928 to 1981. After that, the Norwegian state assumed responsibility (Hanoa, 2017). Since 2002, the hospital has been organised as a department at the University Hospital of Northern Norway Health Trust (UNN HF) under the Northern Norway Regional Health Authority (Helse Nord RHF), in accordance with the Norwegian Health Administration Act. The hospital, ready for the emergency response 24 hours a day, has six beds and is staffed with four doctors – of whom one is a surgeon and three are general specialists – six nurses, plus other health workers, including a dentist and a midwife, and administrative personnel (Ylvisåker, 2017).

1.1.4 Health aspects in the Soviet/Russian settlements

The hospital in Barentsburg is funded and operated by Trust Arktikugol. It undertakes smaller medical tasks, whilst patients in need of comprehensive treatment are transported to the home country (Russia or Ukraine, as there are many Ukrainian citizens and ethnic Ukrainians working in Barentsburg). In acute cases, the patients are transferred to Longyearbyen Hospital or to UNN in Tromsø. According to the Norwegian Ministry of Health and Care Services, there has been an increasing level of cooperation between the Barentsburg and Longyearbyen hospitals regarding patients from Barentsburg (Norwegian Ministry of Health and Care Services, 2013).

According to the Mining Code, all Soviet/Russian settlements had healthcare facilities since the beginning (Hanoa, 2017). There were hospitals in Barentsburg, Grumant and Pyramiden. The two latter settlements were abandoned in 1961 and 1998, respectively. An instruction from the USSR Council of Ministers to the USSR Ministry of Health in 1946 allows insight into how healthcare was organised (Council of Ministers of the USSR, 1946). The Ministry of Health was instructed to establish clinics in the three

settlements with 10 beds each. Each clinic would be furnished with necessary staff, tools, medicine, and equipment, such as X-ray instruments and UV lamps. Each clinic was to be staffed with a general practitioner, a surgeon, an ophthalmologist, a dentist, and a radiographer. According to a doctor in Barentsburg in the 1950s, the hospitals were supplied with medicine in sufficient quantities and provided conditions for performing any surgical operation (Mikhailov, 1983). There were, however, differences in how these instructions were implemented, reflecting the size and activity of each settlement. The hospital in Grumant was established first, in 1931. In 1949 it was described as well-equipped, with one doctor and two nurses employed (Shmatova, 2015). This hospital had never moved out into a separate building but was located in a residential building until it was shut in 1961. Already in 1940, the hospital in Barentsburg was described as well-equipped and staffed with two doctors and four nurses (Portsel, 2011). In 1978, it moved into a new and modern building. The head doctor in Barentsburg also supervised the hospitals in Grumant and Pyramiden. The hospital in Pyramiden opened in 1946 and was located in a residential building with 6-7 beds until 1976, when a new and modern hospital in a two-story building was opened. The new hospital was designed for 25 beds and included a pharmacy and a family apartment for the head doctor, in addition to an outpatient clinic, operation theatres, dining room and offices.

During the collapse of the USSR and the first post-Soviet years, medical care in Barentsburg declined, and Pyramiden was abandoned. Yet since the early 2000s, efforts have been made to re-establish an appropriate level (Portsel, 2011). Today, the hospital has a medical team consisting of one doctor, one dentist, two nurses, and a handful of other health workers and administrative personnel (Damydyuk, 2020). Since 2014, Trust Arktikugol has had an agreement with Hospital No. 85 in Moscow, which provides telehealth services and medical examinations performed by an outreach team twice a year (Vasyuk, 2017). This team includes almost 20 specialists, such as a general practitioner, a dermatologist, an ophthalmologist, an obstetrician-gynaecologist, a surgeon and a neurologist, in addition to nurses and laboratory assistants (Shmatova, 2015). Such advanced healthcare facilities and expertise that is

offered to inhabitants on Svalbard is not common in similarly remote and isolated communities of the same size as Longyearbyen and Barentsburg, within the circumpolar areas. Still, the harsh natural environment in the far north pose considerable health challenges.

1.2 Previous research

Several previous studies investigating health in the circumpolar north, conclude that healthcare delivery in remote areas is challenged by remoteness to advanced health facilities, lack of professional health workers, and inadequate infrastructure (Artuso, 2012; Bennett et al., 2019; Farmer et al., 2012; Morales et al., 2020; Royle, 1995). Furthermore, previous studies indicate that there is a slightly increased risk for disease in circumpolar areas, due to psychological effects of long periods of isolation and extreme physical environment and potential negative effects of environmental contaminants (Hueffer et al., 2019; Palinkas & Suedfeld, 2008; Sonne et al., 2023; Van Oostdam et al., 1999). The latter is applicable for a population that has a diet consisting of a significant amount of carnivores on top of the food chain. Examples include seal, whale, and different fish species, which is typical traditional food among indigenous groups in the Arctic. This is, however, probably not applicable for Svalbard, as there is no indigenous population on the archipelago and most food is imported. Studies from Northern Canada, Finnish Lapland and the United States found that snowmobile accidents contribute to health challenges (Do et al., 2013; King et al., 2022; Soininen & Hantula, 1992). Furthermore, there are studies from Greenland and Canada showing that mine workers struggle with health challenges, such as spinal disorders, traumatic lesions and exposure to heavy metals (Durand-Moreau et al., 2022; Gottlieb, 1990; Mongeau et al., 2020; Nørregaard et al., 2018), which are common health problems among miners in general (Sahoo & Rout, 2023; Shumate et al., 2017; Stephens & Ahern, 2001. There are several studies looking into health in small and isolated (island) communities that have detected complications related to inbreeding, caused by a limited gene pool (Duffy et el., 2019; Hasselgren & Norén, 2019; Lynch et al., 2018; Polvi et al., 2013, Royle, 1995). Svalbard is a high turnover

society with an average staying period of seven years (Hovelsrud et al., 2020), this is hardly relevant for the archipelago.

Svalbard has unique healthcare facilities compared with other isolated communities as described above. However, the potential for developing further these facilities through transnational cooperation, remains unexplored. Looking into previous research about international cooperation in healthcare delivery and emergency preparedness is thus considered useful to explore the potential for increased cooperation on Svalbard. Such cooperation has for instance taken place between Alaska and Russia in emergency medicine, mental health, and dental treatment (Allen et al., 1992; Johnson et al., 1992; Richards et al., 1992); between Dutch Sint Maarten and the French overseas collectivity of Saint Martin on the island Saint Martin in the Caribbean (Henry et al., 2017); between Canada and USA with concern for indigenous health (Inuit Circumpolar Council Canada, 2015); between Denmark (Greenland) and Canada (Rønn et al., 2017); and between Japan and Indonesia in combating the COVID-19 outbreak (Azmi et al., 2023). In general, a rising awareness of similarities among Arctic actors has made pan-Arctic cooperation, including that in health and emergency preparedness, possible through the development of international bodies such as the Arctic Council (Huppert & Chuffart, 2017; Sydnes et al., 2017). International cooperation on Svalbard has been described as promising (Kelman et al., 2020). This changed in 2022 after the Russian full-scale invasion of Ukraine, when Norway (as a NATO member and Ukraine and sanctions supporter) and Russia found themselves in a mode of conflict. Since then, most cooperation projects including Russia have been put on ice, in the Arctic and elsewhere. With reference to emergency preparedness, Svalbard is presented as a suitable example of a place where people often have to rely on collaboration concerning multinational disaster-related activities (Duda et al., 2022). Within healthcare delivery, too, multinational cooperation has been described as beneficial (Hutchinson, 2005).

As elaborated in article 1, there are studies that explore health risks on Svalbard in particular. Studies of health challenges and emergency preparedness on Svalbard have

thus been published previously but the evidence they provide has not been reviewed and synthesised. Likewise, there are no studies that examine whether an increased cooperation in healthcare delivery and emergency preparedness between Norway and Russia may increase the quality of these services. Covering this knowledge gap, as this thesis aims at contributing to, is therefore a necessity.

1.3 Theoretical framework

1.3.1 Risk theory

Healthcare delivery and emergency preparedness can hardly be discussed without including the concept of risk, as risk is present in all situations involving exposure to danger. There is no agreed definition of the concept of risk and there are different ways of understanding the concept. Some definitions are based on probability, chance or expected values, others on danger or uncertainties about the future (Aven, 2012). In this thesis, aspects related to danger and uncertainties are most relevant. In modern society, risk plays a key role in both individual and collective decision-making and provides a way of predicting futures and accounting for mistakes in the past (Alaszewski, 2021).

Risk theory deals with people's behaviour in certain situations, which can have a dramatic impact on their health. Risk is therefore a basic concept in emergency preparedness, when saving lives in medically critical circumstances. Risk is also fundamental in healthcare delivery, as healthcare basically implies calculating different risks. Thus, a theoretical starting point for this thesis is that risk is a fundamental element in both healthcare delivery and emergency preparedness.

Simply put, risk theory attempts to explain the decisions people make when they are faced with uncertainties about the future (Roeser, 2013). The word «risk» itself might be traced back to the Italian word *risco*. This is a nautical expression used to define threats to sailors and naval trades and is linked to sea insurance companies in Genoa in the 14th century (Liuzzo et al., 2014). The concept was discussed among Enlightenment thinkers, to whom the risk concept provided a means of creating a more

rational society through science-based decisions (Alaszewski, 2021). It was nevertheless not before the 20th century that research in the field escalated, when more critical approaches emerged as to how the risk concept is applied as a form of social control. In the late 1960s, less than 1000 scientific publications about risk theory had come out. At the end of the 1980s, the number had increased to more than 80 000 (Skolbekken, 2010). The reason for this is linked to the development of modern sciences, including probability theory and epidemiology. Perhaps as a result of modernisation, the mindset in the Western world has developed from a fatalistic approach to risk to a more action-oriented understanding (Skolbekken, 2010).

Risk theory is considered beneficial for linking together the three articles of this thesis and will be applied as a framework for discussing Norway's and Russia's approaches to healthcare delivery and emergency preparedness on Svalbard, and as a means to unite the different disciplines this thesis employs. In the following, several different approaches to risk are applied to illuminate the role of risk in healthcare delivery and emergency preparedness on Svalbard: Ulrich Beck and Anthony Giddens' analyses of the modern society as a risk society; Mary Douglas' works on cultural theory; Michel Foucault's analysis of risk as a form of power in modern societies; and – ultimately – Paul Slovic's quantitative approach to risk perception which highlights differences in risk perception between different cultures. These approaches illuminate risk from different perspectives and contribute towards understanding such different societies as Norway and Russia in a risk context. When combined, they provide valuable insight both in the role of risk in healthcare delivery and emergency preparedness, and the dynamics between Norway and Russia in a cooperation context.

Before exploring the risk concept through the above-named approaches, the implications of the connection between health sciences and human sciences, including positive and post-positive knowledge, and qualitative and quantitative methodology need to be introduced. The divide between each of these concept pairs is a potential source of confusion. Thus, the division between these different sciences and

methodologies requires clarification to prepare the ground for exploring the risk concept further in an interdisciplinary context.

1.3.2 Risk in health sciences versus human science

The literature on risk has to a certain degree been characterised by the debate between critical realist, constructivist and post-structuralist approaches to risk (Clapton, 2011). The ontological question of whether risks can be described as real or not is the core in this debate. According to critical realists, risks are real and tangible factors. Constructivists, on the contrary, perceive risk as social constructs. In this understanding, what matters is how people perceive and reply to risk. The post-constructivist approach view argue that risks are indeed objective factors, but what matters is how the concept of risk is used as a means of governing society (McLean et al., 2009).

The epistemological difference between these approaches influences how risks are dealt with, also from a practical perspective. If risks are objective factors, they can be assessed independently. Conversely, if what matters is how risks are perceived and/or applied as a means of governing society, it is more valuable to take into account the values and perspectives of those identifying and managing the risks (Clapton, 2011). Both approaches are useful. On the one hand, assessing risks as objective factors allows for identifying contemporary risks, e.g. the probability for a helicopter accident on Svalbard. On the other hand, seeing risk as a subjective value allows for breaking up the concept of risk and assessing how risk is applied by different actors in society (Mythen & Walklate, 2008). Again, using the example of a helicopter crash on Svalbard, the latter approach would not exclusively assess the probability of an actual accident but also consider how the probability of such an accident is perceived and applied by different actors in society.

Due to interdisciplinarity, the research questions in this thesis (see part 1.4.2) are best explored through a combined perspective of health sciences, humanities, and social sciences. The health sciences perspective captures the elements of health systems and

public health that are crucial to illuminate when studying healthcare delivery and emergency preparedness. The humanities and social sciences perspective accounts for the dynamics of cooperation and human interaction within the research area.

The divide between health sciences and human sciences, including positive and post-positive knowledge and qualitative and quantitative methodology, is as mentioned above a potential source of confusion that requires clarification. This balancing between disciplines touches upon a basic question in the theory of science, namely whether there is a fundamental divide between natural and human sciences, or between positive and post-positive knowledge and qualitative and quantitative methods. Some argue that from a natural sciences perspective, or naturalism, which embraces positivist knowledge, methodology emphasising prediction, scientific laws, and causal inferences (i.e. quantitative methods), should be the gold standard. Others argue that, from a human sciences viewpoint, or interpretivism, which put more weight on post-positivist knowledge, such methodology is unsuitable in human sciences, as the aim here is to understand human actions and not to provide causal explanations or predictions (Hollis, 2012). The latter approach will typically apply qualitative rather than quantitative methods. Put differently, one could say that whilst the former approach is useful for explaining actions and phenomena, the latter allows for an understanding of why specific actions and phenomena happen. Further, one could talk about an epistemological divide between a positivist approach seeking the «truth», and a post-positivist approach which does not consider there to be a universal truth. The positivist approach seeks to find causal mechanisms and social laws in order to understand a phenomenon, whereas the post-positivist one seeks to unveil the factors that motivates the actors in different actions (Wendt, 1998). As will become evident in the discussion section of this introductory chapter (see part 4), the way a risk is perceived is decisive to how that risk is managed. The perception of a risk is thus as important as the risk itself in how risks are dealt with.

This thesis aims indeed to take into account the risk concept from a critical realist perspective and treat relevant risks as objective factors. However, the overall aim of

this thesis is to analyse how risk is being applied in a cooperative setting. Seeing risks through a constructivist lens and assessing how risks are anticipated and managed by different actors will thus be my main approach. This approach allows both describing different risks and discussing how these risks are understood and considered.

1.3.3 Risk theory from a sociological perspective

In order to understand risk from a societal perspective and to assess how such different societies as Norway and Russia relate to both risk and cooperation, it may be useful to address risk from a sociological perspective, as sociology deals with social causes and consequences of human behaviour. The interest in risk in a sociological context was first manifested in Ulrich Beck's description of the risk society in the 1980s (Beck, 1992). Ulrich Beck's theory of the risk society represents one of the most significant theoretical contributions to a sociological understanding of risk (Beck and Kewell, 2014). According to Beck, modern society can be characterised as a risk society. From this perspective, the risk society is seen as a result of modernisation, or as a successor to the industrial society. Modernisation has introduced many hazards and insecurities, such as pollution, nuclear waste, and new diseases, to mention a few, referred to by Beck as «manufactured uncertainties». According to him, modernisation can be described as a technological development in itself, but more importantly, modernisation defines the shift in mindsets and social organisation that technological developments have led to, such as changes in lifestyle, structures of power and influence, forms of political repression and participation, views of reality, and norms of knowledge. Thus Beck treated risk as an essentially modern phenomena and argued that risks in the modern society can often be seen as a product of its technologies. Beck argued that whilst humans have always been exposed to a certain level of risk, for instance natural disasters, these have usually been clear, apparent and perceived as produced by non-human forces. Modern societies, however, are exposed to risks that are the results of the modernisation process itself. Besides, many modern risks, such as air pollution or radiation, are invisible (Alaszewski, 2021). As risk springs out from more sources than before, the focus on risk is increasing.

Following this logic, one could assume that Beck's views were grounded in the growing public anxiety about the challenges that scientific and technological progress created (Alaszewski, 2021). Further, Beck argued that in the late modern society, traditional forms of social differentiation based on occupation, social class and wealth had been increasingly replaced by exposures to the novel risks of modernity. One could perhaps argue that wealth predisposes less risk, as a wealthy person may have resources that make it possible to avoid or mitigate risk. According to Beck (1992), however, risk can affect everyone regardless of societal class. In other words, no one is free from risk.

The concept of reflexive modernisation cannot be bypassed when discussing Beck's approach to risk. The concept of reflexivity refers to the interplay of subject and object (Bryant, 2002), while the idea that society changes itself is based on how society views itself. Following Beck, social change happens in three stages: pre-modernity, modernity, and reflexive modernity. Pre-modernity defines society before industrialisation, modernity is consistent with the industrial society and reflexive modernity is coextensive with the risk society. Considering that the basic foundation of the industrial society is the distribution of goods, the distribution of «bads», or more precisely risks, is the key foundation of the risk society. For Beck, the consequences of industrial development are a set of risks, and these risks can be dealt with in a reflexive process. For a society to evolve, modernisation must become reflexive. This reflexiveness manifests itself in diverse forms of social critique, for instance in the shape of environmental protest, which can be seen as public scepticism about the consequences of scientific and technological progress (Beck, 1992).

This view is echoed by the British sociologist Anthony Giddens, who, like Beck, has made significant contributions to risk theory in a sociological context. Like Beck, Giddens addresses modern society as a risk society. He describes risk society as a society where people live on «a high technological frontier which absolutely no one completely understands, and which generates a diversity of possible futures» (Giddens, 1999). And like Beck, Giddens holds that new types of risk define modern

societies. These new risks are global and can be seen as a product of modern technologies and thus require special expertise and technology to be identified and managed (Alaszewski, 2021). Furthermore, Giddens presumes that individual vulnerability has increased as risk has become globalised. In modern societies, the protection of tighter networks that provide both identity and protection in smaller societies is lost, which leaves people in modern societies to construct their own identity and take responsibility for their own protection (Giddens, 1991). Beck and Giddens agree that providing protection from risk in late modern society depends on knowledge rather than wealth. Locating and applying this knowledge is challenged by the fact that there is not one unique source of authority but a plethora of experts and expertise (Giddens, 1991). Such different sources often provide conflicting explanations and individuals must choose which source to trust. The absence of a comprehensive and undivided source of knowledge, this may result in uncertainty and a potential distrust of sources that claim authority (Giddens, 1990). The challenges of trusting authorities are evident in the context of international cooperation, which will be discussed later in this thesis (see part 4).

1.3.4 Risk theory from a cultural perspective

This thesis discusses differences between countries in risk perception, as well as how these countries cooperate with regard to risk. Looking at risk from a cultural perspective captures dynamics rooted in the different countries' cultural mindsets, which allows for analysing risk against a broader backdrop of culture, history and philosophy. I thus consider applying risk theory from a cultural perspective as particularly useful.

Like Beck and Giddens, Mary Douglas and Aaron Wildavsky believed the perception of risk to be dependent on cultural patterns tied to structural forms of social organisation, rather than being individual (Beck and Kewell, 2014). Moreover, Douglas introduced the concept of risk as a socially constructed phenomenon. Central to Douglas' cultural theory of risk is that each culture is biased towards highlighting certain risks and downplaying others (Douglas, 1985). Between different cultures,

there is a substantial disagreement over what is risky, how risky it is, and what to do about it. To explain how different types of social structure impact on risk perception, Douglas and Wildavsky developed a grid-group model (Linsley & Shrives, 2009).The grid dimension of the model represents the degree of autonomy for an individual in the society. In a high-grid state there will typically be substantial social constraints for members of the society, whereas a low-grid state indicates a state where there are no such constraints. Further, the group dimension relates to an individual's commitment to the community. In a high-group state there is likely to be solidarity between the members, whereas a low-group state will be low on cohesion. Accordingly, the grid-group model differentiates between four cultural groups; individualists, egalitarians, hierarchists and fatalists (Linsley & Shrives, 2009). From this perspective, a hierarchical society, such as Russia, will prioritise system maintenance over the survival of individuals. This can imply sacrificing the welfare of a few for the benefit of the whole.

Dan Kahan (2012) draws upon Douglas's cultural approach when fitting cultural worldviews into a matrix with two axes, «group» and «grid», where the first ranges from individualism to solidarity, and the other from hierarchy to egalitarianism. This enables cultural worldviews to be measured and explains how culture shapes risk perception. As will be discussed later in this chapter (chapter 4), this can easily be translated into a Russo-Norwegian context. Whereas hierarchy is a dominant tendency in Russia's society, egalitarianism is a central tendency in societies in the West, such as Norway. The Russian society is characterised by the so-called verticality of power (Gel'man & Ryzhenkov, 2011), i.e. military-style top-down subordination and weak grass-root initiatives. By contrast, the Norwegian social democracy is characterised by more equally balanced horizontal power structures and concepts such as *dugnad*, i.e. the community's self-help, organised without much reliance on a higher authority (Simon & Mobekk, 2019).

The influence of social and political factors is central when discussing how different worldviews influence risk perceptions. Fatalists tend to think that life is preordained

and cannot be changed. Hierarchists prefer a society where power is centralised at a high level, whereas egalitarians favour a world where power is distributed more evenly (Slovic, 2016). A central element in this context is fatalism, in Russian culture often expressed as *avos'*. The Russian *avos*' describes a philosophy or attitude considering life as ultimately unpredictable and unalterable. The practical connotation is that possible problems or perils are ignored or shrugged off and that safety measures are considered unnecessary. The *avos*' is closely linked with the concept of inescapable fate (*sud'ba* in Russian), with both elements essential for Russian culture (Humphrey, 2018).

It may well be that the distinction between fatalism/free choice (as well as collectivism/individualism) stems from a philosophical divide between East and West. For centuries, there has been a conflict between the philosophies of «Westernisers» and «Slavophiles» in Russia. Whilst Westernisers have argued that Russia should go along with European philosophies and practices, Slavophiles have been more prone to seek inspiration from Eastern thinking. Both fatalism and collectivism have strong roots in the latter (Hamburg & Poole, 2010). A significant question in this regard is whether people in the Eastern parts of the world are more prone to appreciate the collective, whilst people in the West to a larger extent value individualism (Laruelle, 2022). These perspectives are essential when discussing how Norway and Russia address healthcare delivery and emergency preparedness in cooperation context, which is what this thesis aims to do.

1.3.5 Risk and biopolitics

Douglas, Beck, and Giddens highlight in different ways how risk reflects the development of modern society (Alaszewski, 2021). Michel Foucault takes these perspectives further when he discusses how risk is applied as an instrument of social control. Foucault's concept of biopolitics, i.e. how politics relates to the health of people in society, is useful when discussing international cooperation about healthcare delivery and emergency preparedness. As will become evident later in this thesis,

these perspectives are helpful when looking at how healthcare delivery is used as a political tool to secure the presence of Norwegians and Russians on Svalbard.

Foucault views scientific knowledge as the core of professional discourses defining safety and risk. He holds that the basis of professional power originated among Enlightenment thinkers and their emphasis on rationality and scientific knowledge. For Foucault, such power was manifested in institutions as asylums, workhouses, and hospitals, where professionals developed their discourse and defined boundaries between the normal and the abnormal (Alaszewski, 2021). In the 20th century, this power moved out of institutions into the wider community. With the development of modern society came new knowledge about illness, and more importantly, about what causes illness. According to Armstrong (1995), this new evidence has changed the nature of illness through a medical concept of risk, because the risk element has opened for a space of future illness potential rather than just judging symptoms. Alaszewski (2021) explains this new perspective as the divide between health and illness has been replaced by a continuation of risks, where the probability of developing disease is as critical as the disease itself. If a person is in a risk group of developing, say, coronary heart disease, being in the risk group will have major consequences in itself. Foucault's analysis of the ways in which professional discourses create and maintain the barriers between normality and safety on the one hand and abnormality or risk on the other, is useful when discussing cooperation in healthcare delivery and emergency preparedness because ways in which risks are defined and managed are at the core of such cooperation. As will be discussed further in this thesis, the difference in risk perceptions is a challenge for international cooperation.

Moreover, Foucault's philosophy is central to understanding risk from a health and illness perspective, as knowledge about risk is a prerequisite for biopolitics (i.e. how politics regulates human life, see Thelle; 2001), which is a crucial element for the regulation of life in post-modern society. According to Foucault, society is controlled through institutions such as the police, intelligence service, and diplomacy, and

through biopolitics by controlling life, health, education and welfare systems as necessary components for the society maintenance (Foucault, 1978). Biopolitics offers a useful tool to explore issues related to healthcare delivery and emergency preparedness on Svalbard. One of the main health challenges on Svalbard concerns access to healthcare (Helse Nord RHF, 2010). The question of the right to health services for a small population versus a larger one may be fruitful to discuss against the backdrop of biopolitics. The concept of biopolitics as defined by Foucault is that of politics related to the health of people in society, or as a «politicisation of life» (Foucault et al., 2010). More specifically, biopolitics is seen as a form of power that regulates populations and the life of individuals in society.

A noteworthy perspective that crystallises when studying how health risks are managed in small and remote communities like Svalbard is that the existence of each individual becomes more important for the upholding of the community as a whole, compared to elsewhere. There are two potential consequences of this approach. One possible scenario is that the biopolitical control executed by the state is more extensive than elsewhere. An opposite scenario is that the state may display a more extensive acceptance of deviations from regular health norms than elsewhere, as long as the situation is not life-threatening. As will become evident in the discussion section of this introductory chapter, these perspectives are crucial when looking at how healthcare delivery and emergency preparedness are regulated in an international context on Svalbard.

1.3.6 Risk theory and the psychometric paradigm

When looking at risk in an international cooperation context, highlighting cultural differences in risk perception, such as for instance Mary Douglas and Michel Foucault have done, is considered useful. This approach captures the dynamics embedded in cultural mindsets, which allows for analysing risk against a broader backdrop of culture, history and philosophy. Another significant contributor to risk theory who has addressed cultural differences in risk perception, is the American psychologist Paul

Slovic. He and his colleagues are known for having invented a psychometric paradigm and conducting studies of risk perception in many countries.

In psychology, psychometrics refers to testing and measurement. A central aspect in the psychometric approach is that knowledge and attitudes can be quantified (see Bauer & Hussong, 2009; Eliot, 2012; or Maddocks, 2019). Slovic's framework assumes that risk is subjectively defined by individuals who may be influenced by psychosocial, social, institutional and cultural factors, and that risk is an entity that can be measured quantitatively, and thereby partly predicted (Slovic, 2016).

Studies applying psychometric techniques indicate that there for instance are differences between Americans and Hungarians in risk perception. Further, it is suggested that people holding an egalitarian preference for wealth and power distribution have a higher perceived risk for a wide range of hazards (Rodionova et al., 2009). Slovic and Peters (2006) indicates that there are strong correlations between worldviews and attitudes towards nuclear power. These perspectives echo Douglas and Foucault in finding cultural differences in risk perception. Following the logic of Douglas and Wildavsky's grid-group model, Slovic suggests that egalitarians tend to be anti-nuclear, whereas persons with a hierarchic worldview tend to be pro-nuclear. People who prefer a hierarchical social model, have a much lower risk perception. This applies not only to nuclear threats, but to risk in general, including other health risks (Slovic, 2016). By contrast, other studies have shown that people in Western countries, for instance France, Italy and the United States, overall have a higher sense of risk perception than people living in Central and Eastern European countries, for example Hungary (Slovic, 2016). In the discussion part of this introductory chapter (part 4), differences in risk perception between Norwegians and Russians will be addressed.

Slovic (1981) also saw differences in risk perceptions between experts and lay persons, especially with regard to the probability and consequences of catastrophic accidents. He found that the degree of adjustment to make risk levels accepted by both

experts and lay persons is strongly determined by the perceived level of risk, meaning that the greater the perceived risk, the greater the desired solution. Following Slovic, attempts to control risks and to determine necessary government policies will not succeed unless both experts and lay persons have a good understanding of the risk situation (Slovic, 2000).

In this context, it is reasonable to question whether there are differences in how lay persons and professionals view and assess risk on Svalbard. Also, if one finds that Norwegians attach risks on Svalbard a higher significance than Russians do, one could assume that Norwegian safety regulations are more comprehensive than the Russian ones. These perspectives will be further debated in the discussion section (part 4).

In conclusion, the approaches outlined above illuminate risk from different perspectives. Together, they contribute to understanding the dynamics of Norwegian-Russian cooperation in healthcare delivery and emergency preparedness in a risk context. Combined, these approaches support the theoretical starting point for this thesis, of risk as a fundamental element in both healthcare delivery and emergency preparedness. This is because the notion of risk is central for both healthcare delivery and emergency preparedness and plays a vital role in individual and collective decision-making.

1.4 Aim, research questions and definitions

1.4.1 The overarching aim

The aim of this thesis has been to account for Norwegian and Russian approaches to healthcare delivery and emergency preparedness on Svalbard and to assess potential effects from a closer cooperation within these fields. There are several reasons why this is an important topic. Firstly, exploring approaches to healthcare delivery and emergency preparedness and identifying areas of potential cooperation may lead to a higher quality of services vital for the wellbeing and safety of people inhabiting Svalbard in particular and the Arctic in general. Secondly, such a study may provide a suitable example of challenges to healthcare delivery and emergency preparedness in

remote island communities elsewhere. Finally, the study may help with addressing challenges to international cooperation in conflicted areas.

1.4.2 Research questions

The overarching research question for this study is:

«What are the opportunities for cooperation between Norway and Russia in healthcare delivery and emergency preparedness on Svalbard?»

This research question is divided into the following subquestions:

1) What are the health risks and how is the healthcare delivery and emergency preparedness system on Svalbard organised to address these risks?
2) How are different cultural perceptions and interpretations of health and illness expressed in literary texts about Svalbard?
3) How can cooperation in healthcare delivery and emergency preparedness on Svalbard be organised to withstand changing political dynamics between Norway and Russia?

1.4.2.1 Background for the research questions

To examine how the systems for healthcare delivery and emergency preparedness are organised and managed, it is necessary to comprehend the relevant health risks the health system is built around. Thus, the first study is a systematic review conducted to investigate health risks and the organisation of healthcare delivery and emergency preparedness systems on Svalbard. A systematic review is admittedly no exhaustive method to explore these topics. The review did nevertheless indicate relevant health challenges on Svalbard as well as establish that research data on this topic are limited.

As has been outlined in the theory section (1.3), health and illness are perceived differently in different cultures and the organisation and management of health systems are deeply rooted in a particular culture. Detecting cultural perceptions and

interpretations of health and illness may thus add perspectives to how Norway and Russia address issues related to health and illness and how they organise systems for healthcare delivery and address emergency preparedness issues on Svalbard. Consequently, the second study dealt with cultural perceptions and interpretations of health and illness in a Svalbard setting expressed in literary texts with an illness narrative. This method afforded comprehensive nuances to the findings from the systematic review.

After having established the main health challenges and elucidated the systems for healthcare delivery and emergency preparedness, one overarching question emerged, namely how cooperation in healthcare delivery and emergency preparedness on Svalbard can be organised to withstand the changing political dynamics between Norway and Russia. Semi-structured interviews with stakeholders directly engaged in organisation and management of healthcare delivery and emergency preparedness from both Norway and Russia turned out to be a useful method of collecting relevant data.

Together, the overarching research question and the three subquestions illuminate in what way Norway and Russia approach healthcare delivery and emergency preparedness on Svalbard, as well as survey potential effects from a closer cooperation within this field.

1.4.3 Definitions

The terms «healthcare» and «emergency preparedness» are linked because health and healthcare are often constituting elements in emergency preparedness. In this thesis, healthcare is defined as a set of services and treatment a country or an organisation provides for the ill and injured (WHO, 1946). Preparedness, or emergency preparedness, is a vast field that can encompass a broad range of crises and activities both within and beyond the healthcare delivery field. Before applying the concept in the analysis it requires a thorough discussion.

1.4.3.1 Unpacking the preparedness concept

Essentially, preparedness encompasses the combined measures implemented before an emergency event occurs in order to mitigate the damage it causes. It includes all planning and resources that are devoted to preventing distress during and after the event has taken place. Furthermore, preparedness consists of measures taken by individuals, communities, countries, regions, institutions, or states, to combat the potential harmful effects of threats. As the level of preparedness increases, the vulnerability of the community at risk decreases (Unsigned, 2014).

According to Staupe-Delgado and Kruke (2018), preparedness in general can be treated as a conceptual piece of a greater theoretical picture that only can only be understood as an umbrella concept covering concrete tasks and activities. The concept can include both civil and military efforts in crisis management and encompasses activities as diverse as risk analysis, preparedness planning, resource allocation, training, and exercising, taking part in actual emergency situations, and feedback and learning. Moreover, preparedness includes measures such as early warning, evacuation, stocking equipment and establishing appropriate governance and coordination structures (Staupe-Delgado & Kruke, 2018).

From an overall perspective, the study of emergencies and disasters is known under many different notions, such as «disaster studies», «crisis management», «emergency management», or «societal security». The lack of one specific notion combined with the use of different descriptive nouns such as «disaster» preparedness or «emergency» preparedness, may lead to conceptual ambiguity and incoherence (Staupe-Delgado & Kruke, 2018). In this thesis, the term «emergency preparedness» is applied because preparedness in terms of emergencies, more specifically accidents and search and rescue (SAR) activities, constitutes the core of preparedness situations in a healthcare delivery context on Svalbard. Also, as will become evident in this thesis, accidents and SAR activities are precisely the emergency situations on Svalbard that have been most relevant in terms of Russo-Norwegian cooperation.

Because emergency preparedness is a debated and complex concept, it requires further clarification and operationalisation by recourse to more specific factors. What is more, the term is somewhat empirical rather than conceptual or theoretical (Kirschenbaum, 2002). Without structured and objective research of the responses and measures that are taken to prevent or mitigate the effects of disasters and emergencies, it is not possible to learn from experiences and develop strategies to improve future preparedness interventions. (Unsigned, 2014).

According to Staupe-Delgado and Kruke (2018), definitions of preparedness cover seven main characteristics. Firstly, preparedness is described as an active, continuous, and anticipatory phenomenon. In practice, this implies that preparedness involves taking active steps to prevent emergencies or escalation of emergencies, that preparedness is seen as a process, not a product in itself, and that anticipation – or more specifically prevention – is the basis of emergency planning. These are the core characteristics of the concept and are applied in most conceptualisations of preparedness. Moreover, broader uses of the preparedness concept also cover phenomena that are social, planned, non-structural and enabling. Social aspects of preparedness deal with how social capital and culture function as barriers or assets for effective preparedness. Further, planning including training and networking, is a vital part of emergency and reflects the non-structural nature of preparedness because the core function of preparedness is to anticipate problems in disasters and make sure that resources for response are in place before they are actually needed. Enabling these resources for effective response during an emergency is often highlighted as one of the core functions of preparedness.

Healthcare delivery is a vital part of emergency preparedness. On the one hand, in addition to increasing morbidity, mortality and disability, emergencies may result in severe damages of the health system and affect health service delivery directly through destruction of health facilities, interruption of health programmes, loss of health staff, and overburdening of clinical services (WHO, 2019). On the other hand, there is a

clear link between emergencies, accidents, and healthcare delivery, as accidents are emergency situations when healthcare delivery is often required.

The link between emergency preparedness and healthcare delivery is manifested on Svalbard, where accidents and SAR activities comprise the core of preparedness situations, as well as entail cooperation between Norwegian and Russian stakeholders.

1.4.3.2 Cooperation and security

As will be made evident in this thesis, cooperation concerning emergency preparedness including healthcare delivery involves practical measures and events that may be complicated when the actors concerned are in a state of conflict. The current situation, where Norway (as a NATO member and Ukraine and sanctions supporter) and Russia are in a mode of conflict, illustrates how geopolitical issues are reflected and how security issues unfold on Svalbard. Norwegian stakeholders arguing for a boycott of Russian companies and Russia staging a military-style propaganda parade in Barentsburg (Nilsen, 2023), as described in article 3, are only a couple of examples.

Irrespective of the ongoing tensions, as long as the Norwegian state is responsible for emergency preparedness on Svalbard, Norway must ensure safety for Russian citizens on Svalbard. This has not been changed by the fact that Russia has instigated a full-scale war against Ukraine. Furthermore, the need for protecting territorial borders balances side by side the potential advantages of cooperation from a security perspective. Against the backdrop of collective security, one could assume that states which engage in cooperation and rely on the same structures and organisation, just as Norway and Russia do on Svalbard, will benefit from keeping tensions low. When looking at international cooperation through a liberalist lens, one could assume that two states that should benefit from cooperation, will cooperate (Hurd, 2021). This view is rooted in Kant's theory of the perpetual peace, which suggests that states, through increased political and economic cooperation, will end up in a political system that is characterised by continual peace and cooperation (Kant, 1775). This assumption makes sense in a Svalbard context. Historically, cooperation between Norway and

Soviet Russia took place at a time when the international cooperation between East and West deteriorated, because it was in the interests of Norway and Russia to cooperate regardless. This is the case also today, where cooperation in the sphere of healthcare delivery and emergency preparedness on Svalbard is considered too important for both Norway and Russia to terminate.

2 Methods

The following research methods were applied here: systematic review (in article 1), literary analysis (in article 2) and semi-structured interviews (in article 3). This combination was applied because the research questions and associated studies are interdisciplinary in nature and represent diverse research fields, i.e. health sciences, humanities and social sciences. The systematic review makes it clear that there is limited data about health and illness in a Svalbard context. Including fictional accounts through literary analysis is helpful for gaining additional perspectives on these issues. Moreover, conducting semi-structured interviews is useful to fill some of the remaining knowledge gaps and to gain additional insight on the research topic. The use of different methods and data sources, known as methodological triangulation, is essential to cover the interdisciplinary research topic and to address the different research questions from various angles. This methodological triangulation is one of the greatest strengths of this thesis.

2.1 Systematic review

In the first article, a systematic review was conducted. A list of relevant search words was developed and a test search undertaken to identify the most suitable databases and search word combinations. The databases PubMed, Scopus, CyberLeninka and Web of Science were selected because they produced most relevant articles. The excluded databases generated either few results (Norwegian Open Research Archives and American Bibliography of Slavic and East European Studies), or results that only partially met the inclusion criteria (eLibrary and OpenGrey). The test search also showed that the list of search words was too wide and unspecific. For example, combinations such as «health + north» or «crisis + polar» produced a vast number of articles, very few of which turned out to be relevant. The relevant articles were covered by more narrow search word combinations, including the words «Svalbard» or «Spitsbergen». The list of search words was grouped into three categories: 1) healthcare, 2) emergency preparedness, and 3) Svalbard. Search words were combined from categories 3 (Svalbard), and 1 (healthcare) or 2 (emergency preparedness).

Peer-reviewed academic articles that reported quantitative or qualitative studies of human health and/or emergency preparedness on Svalbard in English, Russian or a Scandinavian language were included. Studies of pollutants without direct connection to human health, the surrounding waters and animal health were excluded.

The initial search retrieved 543 citations. After eligibility screening and removal of duplicates, 40 remained. These underwent full-text assessment and 23 were removed because they did not fulfil the eligibility criteria. One additional article was included after screening the reference lists of the assessed articles. Finally, 18 articles published between 1999 and 2017 (median year 2002) were included for the full text review.

CASP (Critical Appraisal Skills Programme) checklists, Grading of Recommendations, Assessment, Development and Evaluation (GRADE) and Confidence in the Evidence from Reviews of Qualitative Research (GRADE-CERQual) were applied in order to rate the level of confidence in findings. The CASP checklists were developed to critically appraise the validity, risk of bias, study design, results and implications for practice of single studies (Heather Menzies et al., 2019). The quantitative studies that were included had an observational design and therefore the checklist for cohort studies was applied. For the qualitative studies, the checklist for qualitative studies was applied. GRADE was used to rate the confidence of synthesised evidence from quantitative findings. GRADE provides a systematic approach to assess the quality of study designs, risk of bias, imprecision, inconsistency, indirectness, and magnitudes of effects (Guyatt et al., 2011). Confidence in findings from observational studies is initially rated as low and then potentially up- (to moderate or high) or down-rated (to very low). GRADE-CERQual was used to rate the confidence of synthesised evidence from qualitative findings (Lewin et al., 2018b). GRADE-CERQual provides a systematic approach when assessing study designs, methodological limitations, coherence, adequacy of data, and relevance of the findings. Confidence in findings from quantitative studies is initially rated as high, and then potentially downrated to moderate, low or very low (Lewin et al., 2018a).

The review process was initiated at an early stage of the research project. A complementary search was conducted at the end of the project period. It did not identify additional research literature of noteworthy significance.

2.2 Literary analysis

The second article explores cultural perceptions and interpretations of health and illness through an analysis of two literary texts about Svalbard, namely *Longyearbyen* (2020) by the Norwegian author Heidi Sævareid and *The Arctic Novel* [Arkticheskii roman] (1964) by the Soviet author Vladlen Anchishkin. These particular novels were chosen because both use 1950s Svalbard as a setting for portraying issues related to health and illness, thus making comparisons feasible. Fiction was chosen as a point of entry into comparative summative experience of health workers and patients on Svalbard during the Cold War, unobtainable by any other means. This thesis demonstrates that there is limited data about health and illness in a Svalbard context. Including relevant fictional accounts is therefore a useful way of gaining additional perspectives on these issues.

The analysis applies aspects of the *Textpraxis methodology* by Gaasland and Greve (Greve, 2007), a technique for studying literary texts. It provides a list of tasks aimed at elucidating the contribution of all textual components to the text's message and is therefore a useful systematic procedure to establish the communicative value of literary works. The analysis explores the role that Svalbard as a spatial construct plays in the chosen texts, i.e. how the setting of Svalbard affects the novels' portrayal of health and illness. *Longyearbyen* and *The Arctic Novel* are quite diverse in terms of theme, structure, and context, and are written more than 50 years apart. Nevertheless, both novels use Svalbard of the 1950s as a setting for exploring issues related to health and illness. The fact that both novels make health issues central to their plots, and also share the temporary node of the 1950s, makes them suitable for discussing cultural perceptions about health and illness in a Svalbard context. The novels also offer a rare

insight into life among health workers in both Russian and Norwegian settlements on Svalbard.

Exploring cultural perceptions and interpretations in fiction follows in the tradition of the research field Literature and Medicine. The field has developed within medical humanities, an interdisciplinary research field that links medicine, humanities and social sciences (Charon, 2017). Medical humanities are central in the education of medical practitioners, where health sciences may apply humanistic perspectives to explore perceptions of health and illness from various angles (Helman, 2007). The formalisation of medical humanities as an academic discipline has been gradually introduced across the world, including Russia (Miller et al., 2021). One of the core ideas is that consulting narratives of illness can deepen our understanding of disease and injury from the patient's perspective (Cole et al., 2015). Although fiction does not directly represent reality, fictional representations can provide an arena for discussion and reflection. Narratives of health and illness can thus provide an essential supplement to the knowledge of biomedical science (Cole et al., 2015). Literary portrayals used in medical humanities are beneficial for examining data that could not otherwise be obtained via e.g. health surveys and patients' medical histories. In this thesis, perspectives from health sciences, humanities and social sciences are combined and utilised to unpack various issues of Norwegian and Russian approaches to healthcare delivery and emergency preparedness on Svalbard.

Fiction does indeed reflect the real world to a certain degree (Bernhardsson, 2010), but one may question to what degree fictional representations are suitable for producing solid data, in this context about health and illness on Svalbard, as these fields are usually explored through medicine. Rather than producing solid data on its own, fiction can provide additional perspectives onto the data obtainable from various (other) sources. In this thesis, fiction adds useful angles on the data produced by the systematic review and the semi-structured interviews.

The questions whether fiction's portrayal of reality is representative enough, and about the divide between fact and fiction have influenced Western literature and the understandings of literature since ancient times. Plato introduced the concept of *mimesis* in the 4th century BCE and the representation of the real world in art and literature has been discussed against this backdrop ever since (Derrida, 1997). The discussion about how to approach truth and reality resonates in the epistemological divide between the positivist approach seeking an objective truth on the one side, and the post-positivist approach leaning more on empirical evidence on the other side (Tygstrup & Holm, 2007), as explained in part 1.3.2. in this thesis.

Metaphors are essential when depicting reality in literature. Metaphors are pictures and representations of matters and events, and act as substitutes when describing reality. Susan Sontag has illustrated how illness, and diagnoses of illnesses in particular, can be seen as metaphors (Cole et al., 2015). Sontag identified similarities in how illnesses such as cancer, tuberculosis and HIV/AIDS are associated with the patient's personality and actions. One of her main arguments was that the language used to describe certain illnesses holds the patient responsible for whatever illness he or she has. Additionally, Sontag argued that the use of illness metaphors makes patients feel as if their illness is a result of their personal characteristics rather than lack of effective treatment, and that the use of metaphors thus should be avoided, at least when discussing health and illness (Sontag, 1978). Fictional portrayals of Svalbard often depict Svalbard as a desolate place, physically detached from the rest of the world. In Longyearbyen, Svalbard can be regarded as a representation of Eivor's feelings of loneliness and estrangement. Furthermore, Svalbard is portrayed as exotic. In *The Arctic Novel*, the medical tasks performed by Raisa, for instance cold injuries, hypothermia and work accidents in the mines are typical for Svalbard and underline Svalbard's exotic features. Both novels are named on the basis of geographical setting, and this indicates that the setting, i.e. Svalbard, is of paramount importance.

Literature studies will never replace the quantitative knowledge obtained from systematic medical studies e.g. on prevalence of different conditions in a society.

Rather, fiction may offer additional perspectives and knowledge to already established approaches from the medical field, especially by offering an arena for discussion and reflection. Additionally, fiction may provide a useful supplement in fields where medical literature is lacking, such as for health on Svalbard. Moreover, since fiction is based in reality, it can be used as an instrument to illuminate cultural understandings of health and illness (Tygstrup & Holm, 2007). This is a valuable contribution to my exploration of Norwegian and Russian approaches to healthcare delivery and emergency preparedness. Furthermore, fiction is a valuable tool when exploring health and illness from a spatial perspective, as it may illustrate how the physical environment, in this case Svalbard, can affect our perception of such themes (Bondevik & Stene-Johansen, 2011). Exploring descriptions of health and illness in *Longyearbyen* and *The Arctic Novel* may thus provide new understandings about the challenges of healthcare provision on Svalbard and about how Norway and Russia approach challenges related to healthcare delivery and emergency preparedness.

Narrative medicine has been essential in the works of famous Russian writers such as Anton Chekhov, Mikhail Bulgakov, Alexander Solzhenitsyn, and Julia Voznesenskaya. Chekhov did at one point apply for a position at Moscow University's Medical School, stating that medical students would benefit from an interdisciplinary approach, and that they should read literary texts to understand their profession better (Miller et al., 2021). In a context characterised by censorship and control, fiction has been used to comment on political and social conditions (Miller et al., 2021). In Chekhov's *Ward No.6* (1892), Solzhenitsyn's *Cancer Ward* (1966) and Voznesenskaya's *Women's Decameron* (1985), writers use the medical ward as a microcosm and the power dynamic of the doctor-patient relationship to describe the leader-people dynamics in society as a whole (Brintlinger, 2021). Through Chekhov's *Ward No.6*, which depicts a psychiatric unit, readers get a picture of Russia suffering from an incurable illness that is likely to affect the society for the unforeseeable future (Brintlinger, 2021). Just as Chekhov's work can be seen as a criticism of Tsarist Russia, Solzhenitsyn's *Cancer Ward* has been read as a critique of the Stalinist society. Solzhenitsyn uses the dynamics between doctors and patients to illuminate the

society's two-facedness. Just like Chekhov, he uses the medical ward as a miniature model of society (Brintlinger, 2021). Moreover, the segregated ward also functions as a partial equivalent of labour camps, where Solzhenitsyn served several years of imprisonment. Julia Voznesenskaya also served a term of forced labour and later used her experiences in writings criticising the Russian/Soviet society. In her *Women's Decameron*, a book about ten women in a maternity ward, the ward is a picture of Soviet society in the 1980s. Voznesenskaya was among the first to use mainly female characters. A more contemporary example is the author and cardiologist Maxim Osipov (born 1963), who uses the medical ward as a stand-in for the Russian society, too, and his stories often feature doctors as principal characters (Papinchak, 2019).

The abovementioned examples show how the illness theme is applied in the Russian narrative tradition to illuminate different aspects of life in society. As will become evident from the literary analysis in article 2, in *Longyearbyen* and *The Arctic Novel* the ward is also used to reflect the society dynamics both inside and outside the ward itself.

2.3 Semi-structured interviews

In the third study, semi-structured interviews (N=10) were performed with stakeholders engaged at various levels in healthcare delivery and emergency preparedness in Norway and Russia.

Research interviews can provide comprehensive information and are particularly useful for exploring respondents' experiences and perceptions (Thagaard, 2018). Semi-structured interviews allow for free conversations around pre-determined topics. The respondent may contribute information that the researcher did not expect to come across in the first place. The researcher can ask follow-up questions as the interview proceeds, allowing for a richer exploration of the topic (Brinkmann & Kvale, 2015). The interviews were conducted until relative saturation was reached (Bryman, 2012), meaning that no new themes emerged.

Four interviews were conducted before and six after Russia's full-scale invasion of Ukraine in February 2022. The invasion affected the relationship between Norway and Russia and became a topic in the last interviews.

I utilised what Patton refers to as purposive sampling to recruit respondents (Patton, 2002). This implies choosing available respondents who possess qualifications and positions relevant for the research topics. The snowball method was applied when the respondents pointed at other potential respondents who could contribute. The participants have been de-identified and are referred to by the numbers R1[2], R2, etc. De-identification was chosen in order to make the respondents feel free to discuss sensitive subjects, if relevant, without being recognised. The interview study was reported to the Norwegian Centre for Research Data (NSD) and the data have been treated with confidentiality. Personal data, including digital recordings, will be deleted from all archives by the end of the project.

Each interview was transcribed and analysis initiated, in parallel with continued data collection. The data were analysed through coding. Keywords deriving from the interviews and the literature analyses were identified and connected to different text segments. In the initial coding process, data with similar characteristics were grouped and examined for cohesiveness and variation. Depending on the content, the same data could be coded into more than one group. The analysis continued in a process where the coded data were matched with the data from the literature analyses. The data collection was completed when new data stopped making significant changes in the result patterns.

Instead of following one specific mode of analysis, a mix of methods and techniques has been applied, meaning that the knowledge of the subject matter of analysis has been emphasised more than the application of specific analytical techniques (Brinkmann & Kvale, 2015). This procedure is known as bricolage and can be described as a practice of making do with the materials one has at hand. The

[2] R = respondent

researcher engages several methods and theoretical positions depending on the context, subsequently embracing the complexity of qualitative research (Yardley, 2019). Such an approach is well-suited for this study, as it encompasses the versatility and interdisciplinarity of the topic. The specific combination of empirical research and diverse analytical methods is particular to this thesis and manifests the interdisciplinary nature of this research project.

2.4 Challenges with interdisciplinarity and a mixed-method approach

This interdisciplinary thesis applies a mixed-method approach (i.e. systematic review, literary analysis and semi-structured interviews) to combine different research fields (i.e. health sciences, humanities and social sciences). There are substantial challenges with combining different methods and research fields, which will be examined thoroughly in the discussion (part 4).

2.5 Conducting a research project in the shadow of the Russian-Ukrainian war

Russo-Norwegian relations can hardly be discussed without addressing the ongoing war in Ukraine. The war and the subsequently changed relations between East and West have directly impacted on this research project. Most prominent in this regard have been the challenges with recruiting Russian respondents to the semi-structured interview study.

Throughout history, the Cold War notwithstanding, Norway and Russia have mostly enjoyed peaceful bilateral relations. After the dissolution of the Soviet Union in 1991, Norway has experienced an increased cooperation with Russia in many fields, such as fisheries, trade, environmental protection, together with healthcare delivery and emergency preparedness. Especially the Barents cooperation that prospered through the 1990s and the 2000s was a token of new political reality where Norway and Russia engaged in cooperation. However, since Russia illegally annexed Crimea in 2014,

increased tensions between NATO and Russia and the following EU sanctions towards Russia have influenced not only the international cooperation at large but also the bilateral cooperation between Norway and Russia (Onsager & Stuvøy, 2022).

The work with this thesis first started in 2019, when the relations between Norway and Russia were decent and cooperation existed in many areas, despite the sanctions that Norway had adopted in 2014, after the Russian annexation of Crimea and the military conflict in Donbas. Since then, Russia has initiated a full-scale war against Ukraine. Norway supports the EU sanctions against Russia and bilateral cooperation between Norway and Russia is now at an absolute minimum. Norway as a NATO member and strong supporter of Ukraine is opposing Russia to a much higher extent than it used to between Spring 2014 and February 2022. This is felt also on Svalbard, where the Svalbard Tourism Council in Longyearbyen has argued for a boycott of Russian companies and there is now possibly less contact between Norwegian and Russian actors than ever before (see Larsen, 2022; Longman, 2022; and Dell'Orto, 2023). Norway's temporary refusal to allow transport of goods from the Russian mainland to Barentsburg in June 2022, on the grounds of war-induced sanctions, is an example of deteriorating relations between Norway and Russia on Svalbard (see Johansen & Kalinina 2022, and Dell'Orto, 2023). This is also an illustration of how emergency preparedness measures are complicated by the fact that the involved actors are in a state of conflict. The goods in the example above included equipment necessary for preparedness purposes, e.g. medical gear. If the transport had not reached Barentsburg in the end, a likely scenario could have been that the Russian settlement would have been left without essential equipment to be used in emergency situations. Norway's recent refusal of a Russian application to collect sediment samples from the seabed outside Svalbard (Andresen, 2022) is another example of Norwegian-Russian disagreement on Svalbard.

Against this backdrop, it is timely to pose the question of whether cooperation between Norway and Russia in healthcare delivery and emergency preparedness is desired or even feasible for the time being. On the one side, it is easy to argue that

cooperation with Russia in any form is completely inappropriate as long as the country wages a war against one of its neighbours. On the other side, however, the benefits from continuing and developing structures and relations within healthcare delivery and emergency preparedness are too immense to bypass without any further discussion. Thus, an uttermost attention should be applied to securing well-functioning relevant structures. Also, it adds to the picture that most of the inhabitants in Barentsburg are of Ukrainian origin. Approximately two-thirds of the roughly 300 inhabitants in Barentsburg are Ukrainian, mostly from the Donetsk and Luhansk regions in eastern Ukraine, which historically have had close ties to Russia (see Harvey, 2022 and Molven, 2023). Still, some 50 people left Barentsburg in the months following Russia's full-scale invasion of Ukraine, in what has been described as a sign of tensions between Ukrainians and Russians on Svalbard (Larsen, 2022, «Ukraine war casts,» 2022). Nevertheless, any measures taken to decrease cooperation on Svalbard may potentially have direct and negative consequences for Ukrainian citizens there, too.

It is important to remember that Russia and the West at one point, when the war is over, will likely inevitably resume cooperation. This cooperation will be much more solid and faster to reinstate if certain relations and structures are already in place. Cooperating on practical matters, such as healthcare delivery and emergency preparedness, may thus be a small but important piece of the puzzle to secure a framework for peace between Russia and the West. Svalbard may be a limited geographical area but is also one of few places where Russia cooperates on a daily basis with a NATO country. This was exemplified in June 2023 during a complicated and resource-demanding rescue mission at 86 degrees North between Svalbard and the North Pole, when one of the Svalbard Governor's Super Puma rescue helicopters transported a patient from a Russian research vessel to the hospital in Longyearbyen, in what in fact was the world's northernmost evacuation of a patient ever (Isachsen, 2023). This episode illustrates that international cooperation is not a choice but an absolute necessity in order to conduct reliable and solid healthcare delivery and emergency preparedness not only on Svalbard, but in the Arctic in general.

3 Results

3.1 Article 1

Published.

Wæhler, T. A. & Ingebrigtsen, T. (2022). Health risks, emergency preparedness and Norwegian-Russian cooperation on Svalbard. A systematic review. *International Journal of Circumpolar Health 81* (1), 1-17. doi.org/10.1080/22423982.2022.2049055

The data retrieved from 18 articles covering human health and/or emergency preparedness according to specific eligibility criteria were analysed and a mixed-method quantitative and qualitative narrative synthesis presented.

The data were grouped into five thematic categories: 1) Diseases, 2) Risk factors for diseases, 3) Traumatic injuries, 4) Search and rescue, and 5) (Russo-Norwegian cooperation in healthcare delivery and emergency preparedness. The quality of evidence in the included articles were overall low. GRADE rated the confidence in the quantitative findings in the thematic categories as follows: 1) Diseases: low, 2) Risk factors for diseases: low to very low, and 3) Traumatic injuries: moderate and very low. GRADE-CERQual rated the confidence in the qualitative findings in the thematic categories 2 (Risk factors for diseases) as very low and 4 (Search and rescue) as high. There were no quantitative findings in categories 4 (Search and rescue) and 5 (Russo-Norwegian cooperation in healthcare delivery and emergency preparedness) and no qualitative findings in categories 1 (Diseases), 3 (Traumatic injuries) and 5 (Russo-Norwegian cooperation in healthcare delivery and emergency preparedness).

Diseases

Three articles showed no indication of an increased prevalence among residents on Svalbard of middle ear infection, migraine, and depression, respectively.

Risk factors for diseases

Nine articles reported findings from studies of risk factors for diseases. Two reported no differences in health outcomes for different shift schedules for Norwegian mine workers. Three reported changes in temporal patterns in metabolic indices, serum lipid profiles and hospital attendance for health incidents among Russian miners in Barentsburg. One study surveyed risk factors for coronary heart disease in the Norwegian population and found no differences in risk profiles between Svalbard and mainland inhabitants. Another compared self-reported alcohol consumption with public sales statistics and found that self-reported consumption only accounted for 40 percent of the sales volume. One study reported results from a quantitative study of how young people experience the risk of snowmobile accidents. Overall, the confidence of these findings was rated as very low because of substantial flaws in the study designs and failure to control the confounders.

Traumatic injuries

Five articles indicated a gradual shift from predominantly occupational injuries to leisure-related accidents. The studies confirmed a small and unique risk of being injured or killed by polar bears. Findings showed no difference in overall injury rates between Svalbard and mainland Norway but indicated a significantly higher risk of being injured in a snowmobile accident for Svalbard residents, and a correspondingly lower risk of being injured in other traffic accidents.

Search and rescue

One article found that the local population was an important resource in search and rescue, that professionals expected volunteers to contribute, and that the collaboration between different actors in SAR activities was successful.

Russo-Norwegian cooperation in healthcare delivery and emergency preparedness

None of the articles addressed the Russo-Norwegian cooperation in healthcare delivery and emergency preparedness.

Knowledge gaps concerning how healthcare delivery and emergency preparedness are organised were discovered. They include the lack of evidence about occupational hazards and disease among miners, and about the Russo-Norwegian cooperation in health and emergency preparedness.

3.2 Article 2

Published.

Wæhler, T. A. (2022). Health Through the Space Lens: Fictional Representations of Health and Illness in Svalbard's Mining Towns in the 1950s. *Poljarnyj vestnik: Norwegian Journal of Slavic Studies 25*, 51–71. doi.org/10.7557/6.6572.

The second article discusses cultural perceptions and interpretations of health and illness in a Svalbard context in the novels *Longyearbyen* (2020) by the Norwegian writer Heidi Sævareid and *The Arctic Novel* (1964) by the Soviet writer Vladlen Anchishkin. Both novels use Svalbard of the 1950s as a setting for portraying issues related to health and illness. It is evident from the analyses that such issues were essential for the descriptions of both Norwegian and Soviet settlements on Svalbard during the period depicted. Many of the same diseases and incidents, such as mining injuries, accidental hypothermia, and appendicitis, are depicted in both novels, written independently of each other. In *Longyearbyen*, psychiatric issues, and the lack of access to psychiatric treatment are among the health problems that are described thoroughly. An interesting difference is that *The Arctic Novel* does not contain references to psychiatric diseases, even though they were presumably relevant for the inhabitants on Svalbard, irrespectively of their place of origin and social background.

Other similarities can be found in the descriptions of clinical facilities. In *The Arctic Novel*, the Soviet hospital in Grumant is portrayed as well-furnished in terms of appliances, but less so when it comes to manpower. The hospital in *Longyearbyen* is also described as quite new and modern in terms of its equipment, supplied with necessary drugs and new central heating. However, the lack of proper facilities to treat

psychiatric patients is mentioned several times throughout the book, and so is the lack of manpower.

Gender is somewhat differently depicted. Raisa from *The Arctic Novel* is a female doctor, torn between her duties at work and family obligations. Eivor from *Longyearbyen* is torn between her own personal needs, and her obligations as a housewife and mother in a marriage with a doctor. The women's fates are similar in terms of being torn between reality and expectations, but disparate in terms of being employed and being a housewife.

One of the overarching themes is how the spatial setting directly affects health and illness. Living on Svalbard has clear effects for the health and well-being of the main characters in both novels. Svalbard's environment makes Eivor feel constantly gloomy, and Jens develops a mental disorder, perhaps as a result of a winter depression. Raisa clearly identifies herself through her occupation as a medical doctor. The clinical tasks she performs are typical for Svalbard, such as cold injuries, accidental hypothermia, and work accidents in the mines. The influence that surroundings exert on an individual can thus be said to be one of the main themes in both books. Another fundamental theme is how individuals fit into a larger context. In both novels, the chief characters struggle to find a balance between family obligations and their own personal desires.

3.3 Article 3

Published.

Wæhler, T. A. (2023). Arctic cooperation between Norway and Russia in healthcare delivery and emergency preparedness on Svalbard: Barriers and facilitators. *Polar Geography 46* (2-3), 1-19. doi.org/10.1080/1088937X.2023.2264893.

The results indicate that Norwegian and Russian stakeholders view being limited in size and located far from advanced health facilities among the main challenges with

regards to healthcare delivery and emergency preparedness, along with an increasing level of activity in the waters surrounding Svalbard. The current organisation of healthcare delivery and emergency preparedness reflects the shared challenges and is well-functioning. Norway is legally responsible for emergency preparedness and cooperation in this field with any other party is therefore limited. By the same token, cooperation in terms of healthcare delivery takes place regularly, as this is seen as practical and applies to patients as well as equipment and medicine. Despite differences in language and work culture, the contact between Norway and Russia in this sphere is usually described as solid.

Additionally, the results suggest that there are both facilitators and barriers regarding cooperation between Norway and Russia. The main facilitators include mutual trust, shared challenges in healthcare delivery and emergency preparedness, and existing relational structures, equipment, and infrastructure. The main barriers involve differences in language and culture, a frequent rotation of personnel and divergent systems for emergency preparedness on the Norwegian and Russian mainland. The most important obstacles concern differences in the countries' respective systems and authorities. Russia is considered more hierarchical and Norwegian stakeholders describe the system of emergency preparedness in Russia as difficult to grasp. A few respondents stated that the war in Ukraine had direct consequences on the Russo-Norwegian relations, also in a Svalbard context. Most projects involving Russian partners, including rescue drills, have been put to a halt. The war can thus be added to the list of barriers.

The vaccination process during COVID-19 and the emergency response to the Cape Heer accident in 2017 (a Russian helicopter crash) were described as good examples of cooperation by several respondents. There are no outspoken wishes for changes in the current organisation of the system for emergency preparedness. Still, many respondents suggested specific modifications and there have been informal talks about creating a joint emergency preparedness base for the Arctic Sea on Svalbard, both on the Norwegian and the Russian side. A Russian respondent claimed that this was

unlikely as long as the Norwegian legislation regulates the use of helicopters in order to protect the environment in a way that restricts the use of Russian helicopters in certain areas. Additionally, there are informal talks about creating a formal agreement about healthcare cooperation. Overall, mine rescuing, emergency preparedness and joint exercises focusing on health challenges have been indicated as areas where Norway and Russia may cooperate in the future. Mine rescuing, however, is not a feasible cooperation area, as the only remaining active coal mine in Longyearbyen is expected to close in 2025.

4 Discussion

4.1 Main findings

The first article has identified no evidence of an increased risk for or prevalence of certain diseases among the population on Svalbard. The rate of injuries caused by snowmobile accidents were significantly higher, but this was outweighed by a correspondingly lower rate of other injuries. A small unique risk for injuries inflicted by polar bears was confirmed. Knowledge gaps concerning how healthcare delivery and emergency preparedness are organised were discovered. They include the lack of data about occupational hazards and diseases among miners, and about Russian-Norwegian cooperation in health services and emergency preparedness.

The second article demonstrated that issues related to health and illness have been essential in fiction about both Norwegian and Russian settlements on Svalbard. This is interesting because it reflects how risks, and health risks in particular, are social constructs and how these social constructs are reflected in fictional representations of the world. Many of the same diseases and incidents, such as mining injuries, accidental hypothermia, and appendicitis, are depicted in the two analysed novels. The Norwegian author portrays psychiatric issues and the lack of access to psychiatric treatment is among the health problems that are described in detail. The Russian novel contains no references to psychiatric diseases. Living on Svalbard has clear effects on the health and well-being of the main characters. The role that the surroundings play with regard to health and illness can thus be said to be one of the main themes in both books under analysis.

The results from the third article indicate that there exist both facilitators and barriers for the cooperation between Norway and Russia with regard to healthcare delivery and emergency preparedness on Svalbard. Furthermore, it suggests that, along with the increasing level of activity in Svalbard waters, Norwegian and Russian stakeholders view being limited in size and located far from advanced health facilities among the main challenges to healthcare and emergency preparedness on the archipelago. The

main facilitators include mutual trust, shared challenges, and existing relational structures, equipment, and infrastructure. Main barriers involve differences in language and culture, a frequent rotation of personnel and divergent systems for emergency preparedness on the Norwegian and Russian mainland. The war in Ukraine is considered to provide a number of new moral and practical obstacles to cooperation. Mine rescuing, emergency preparedness and joint exercises focusing on health challenges are mentioned as areas where Norway and Russia may cooperate in the future.

4.2 Health challenges on Svalbard

Seen together, these findings suggest that there are certain health challenges that are specific to Svalbard. The data on health risks on Svalbard indicate that they are predominantly associated with accidents, including snowmobile and aircraft crashes, shipwrecks, polar bear attacks and avalanches, and conditions such as accidental hypothermia and appendicitis.

It is interesting to witness the shift in health risks that has taken place on Svalbard, especially in terms of accidents. Traditionally, accidents have been among the main health risks on Svalbard. Earlier descriptions of accidents, for instance in news reports from *Poliarnaia kochegarka* and *Svalbardposten*, indicate that accidents often happened in the mines. Miners, who earlier made up a significant share of the Svalbard workforce, were thus the main victims of accidents. The accidents, such as rockfalls and coaldust explosions, are typical of coal mines. These accidents are not described in the scientific literature about health risks on Svalbard. However, it is reasonable to assume that occupational hazards associated with mining elsewhere are also relevant for Svalbard. Studies about mining health from such different places as Australia, Canada, China, Greenland and the United States show that miners globally suffer from certain accidents and diseases, for instance spinal disorders and lesions (Gottlieb, 1990; Stephens & Ahern, 2001; Mongeau et al., 2020). Although there are no published studies on similar cases from Svalbard, written material – such as hospital reports, non-peer-reviewed monographs (for instance Sandmo, 2005 and

Hanoa, 2017), news reports (see for instance Amundsen, 2013 or Unsigned, 1989) and fiction (see Rafaelsen, 2008-2016 and Sævareid, 2020 for examples) – leave little doubt that these issues also pertain to mine workers on Svalbard.

Nevertheless, in the recent decade fewer people have been engaged in the mining industry on Svalbard. The number of accidents in the mines has thus declined. Instead, leisure-related accidents have increased. Such accidents involve, for instance, avalanches, snow mobiles and other means of transport. As Svalbard is transforming from a coal mining to a tourism-based society, it is expected that more tourists than permanent residents will eventually be involved in accidents (Meld. St. 32 (2015–2016), p. 95).

It is noteworthy that certain health challenges, more specifically mental health related incidents, historically might have been dealt with differently in the Norwegian and Russian population. As will be discussed further below (see 4.4), this difference resonates with Mary Douglas' and Paul Slovic's work on cultural differences in how risk is perceived. Previous studies indicate that there is a slightly increased risk for psychological effects of long periods of isolation and extreme physical environment (Van Oostdam et al., 1999; Palinkas & Suedfeld, 2008). Whereas cases of mental disorders, for example paranoia and winter depressions, are mentioned in both fictional (see for instance Sævareid's *Longyearbyen*, 2020) and non-fictional (such as Sandmo, 2005) sources from Norway, the topic is almost non-existent in the analogous Russian context. Turning to the *Poliarnaia kochegarka*, we see that although numerous medical conditions were mentioned in the newspaper, mental illnesses were almost completely absent. A certain shift can be observed towards the end of the 1980s and early 1990s, when psychosocial treatment was discussed openly (see articles by Burova, 1989; Ermak, 1989; and Sedoy, 1990b). Before this, conditions related to mental health such as the polar syndrome (a condition that may occur in individuals spending long periods in polar environments, including symptoms such as depression and insomnia, see Palinkas & Suedfeld; 2008) were indeed touched upon. Nevertheless, the few comments were mostly oblique remarks such as acclimatisation

playing a decisive role for people's mental condition (Tysyachnyi, 1975) or that a sufficient amount of sunlight keeps the nervous system balanced (Speranskaya, 1953).

There is, however, little doubt that residents in the Russian-speaking settlements struggled with mental challenges. In the 1990s, Nilssen and colleagues (1999) conducted a study where they compared the prevalence of self-reported depression in Longyearbyen and Barentsburg. They found that the prevalence among Russian speakers was 26.8% for men and 44.7% for women, while the corresponding figures for Norwegians were 10.7% and 15.6%, respectively. This study did, nevertheless, contain several methodological flaws. The surveys were not done simultaneously, and concurrent economic and political circumstances (such as the dissolution of the Soviet Union) could have confounded the findings (in comparison, age-adjusted mortality among Russian men in general rose 33% from 1990 to 1994, an increase that partly is explained by increasing suicide rates, see Peck; 2007). Also, the study was based on self-reporting. This method of data collection is considered to have clear limitations, as people are often biased when they report on their own experiences (Smith et al., 2008). Nevertheless, about 5% of people on long expeditions in polar areas meet DSM-IV or ICD criteria for psychiatric disorders (Palinkas & Suedfield, 2008).

How can this caution over discussing mental disease be explained? One factor may be that according to the Soviet psychiatric tradition, mental health was directly related to socio-economic conditions, with capitalist exploitation allegedly being a cause. Gordon and Meux (2003) claim that the Soviet view held that cases of mental illness would decline numerically as a result of advance to communism and that their presence was seen as an indication of incomplete socialist development. The issue of mental illness was therefore not a subject for public discussion. Moreover, in the Svalbard context, psychiatric disorders may have been rare due to screening prior to employment on the archipelago. To judge by the suicide rate, after WWII apparently only one suicide attempt took place among the Soviets on Svalbard, in 1949, attributed to jealousy (Portsel, 2020).

Fictional representations may help to assess how *Longyearbyen* and *The Arctic Novel* portray mental disease. Whilst *Longyearbyen* is making mental health a central plot with Jens' mental disorder and Eivor's gloominess, *The Arctic Novel* is not referring to psychiatric diseases at all, despite depicting a vast range of medical conditions relevant for Svalbard. This may clearly be a result of the fact that mental illness was not a subject for public discussion in the Soviet Union, as described above. Additionally, the effect of the time span of 56 years between when the novels were written should also be taken into consideration. Societal views on mental health have certainly developed since the mid-1960s, when *The Arctic Novel* appeared, to 2020, when *Longyearbyen* was published. Substantial advances in the biology, psychology and sociology of mental illness have been made and people are more aware of mental illnesses now and are becoming more supportive of people with mental issues (Scheff 2017). This development is also reflected in literary portrayals of mental health (Wigand, 2019). However, one should keep in mind that this development is not the same in all countries (Birtel & Mitchell, 2023). Thus, the view on mental health has not necessarily developed in the same manner in Russia as in Norway.

When discussing the prevalence of mental health in a Svalbard context, it is tempting to draw a parallel to Susan Sontag's concept of dual citizenship. Sontag was speaking about metaphors when she claimed that «Everyone who is born holds dual citizenship, in the kingdom of the well and in the kingdom of the sick» (Sontag, 1978), meaning that people inhabit both the realm of illness and the realm of good health. On Svalbard, this dual citizenship can be read almost entirely non-metaphorically when addressing the relatively sharp divide between how Norwegian and Russian citizens address mental illness. Besides, the divide is likely to have direct implications for treatment and access to health services. A Norwegian patient struggling with mental illness is likely to have a better access to health services than a Russian patient, who perhaps will not be regarded as ill and in need of treatment. This is a good example of how certain health risks are perceived differently in different cultures, which will be addressed below. It is also a useful example of how such differing perceptions are reflected in the way a healthcare system is organised, as shown below.

4.3 Organisation of healthcare delivery and emergency preparedness

The current organisation of healthcare delivery and emergency preparedness on Svalbard reflects the health challenges and is overall considered as well-functioning. Norway is legally responsible for emergency preparedness on Svalbard and cooperation in this field is therefore run and coordinated by Norway. Cooperation in terms of healthcare delivery takes place regularly, as this is seen as practical and involves patients, equipment, and medicine. This thesis discusses several examples of emergency preparedness situations after accidents, such as those at the Maxim Gorkiy in 1989, Operafjellet in 1996 and Cape Heer in 2017. When looking closer at these accidents, it is evident that Norway has led the rescue operations and that the involvement from Russian stakeholders has been smaller than the Norwegian contribution. This can be seen as a consequence of Norway being legally responsible for the emergency preparedness on Svalbard. What is noteworthy, however, is that Russian stakeholders have contributed more than what one might have expected. After the Operafjell accident, for instance, a special agreement was made that allowed both Norwegian and Russian personnel to take part in the SAR operation (Aircraft Accident Investigation Board, 1999). Also, a joint commission consisting of Norwegian and Russian stakeholders worked for two years to establish the cause of the accident.

It can prove useful to illuminate Russia's eagerness to participate in these rescue operations from a risk perspective. Did Russia for instance use rescue operations as a political tool to secure its presence on Svalbard? Or is Russia's initiative indicative of the level of trust Russia has to Norwegian authorities? And are these Russian initiatives rooted in cultural differences in how risk is perceived, as presented by amongst others Mary Douglas and Paul Slovic? Or, is Russia's involvement rather a sign of distrust in authorities, as proposed by Anthony Giddens? These aspects will be addressed below. Nonetheless, Norway has traditionally invited a broad spectre of participant organisations to engage in emergency preparedness on Svalbard. Not least have ordinary individuals and lay persons contributed to emergency preparedness situations. This is a natural way of organising rescue work in an area with limited

resources. An example of such lay person involvement can be drawn from the avalanches in Longyearbyen in 2015 and 2017. The time aspect is particularly critical during an avalanche and waiting for professional rescue workers is not an option. Short time after the avalanche in 2015, Longyearbyen Local Council posted a message on Facebook and urged everybody who was available to participate in the rescue work. The help provided by individuals and lay persons was decisive not only for locating and rescuing people who were missing in the avalanche. The assistance also included measures such as providing food for the professional rescue workers and warm clothing for people struck by the avalanche (Tengesdal, 2017). This example shows the significance of individual agency in risk situations on Svalbard. The notion of individual agency is invoked when a person acts on their own behalf, as opposed to collective agency, which describes how people act together. Within vulnerable groups, resourceful individuals often demonstrate their individual agency (Smit and Wandel, 2006). In a Svalbard context, individual agency is typically demonstrated in emergency preparedness situations and can be seen as a result of Svalbard's remote location and distance from advanced infrastructure in terms of emergency preparedness. Norway's invitation for Russian stakeholders to participate in emergency preparedness situations should be seen against this backdrop.

Despite differences in language and culture, the health- and emergency-related contact between Norwegian and Russian stakeholders is described as solid. Norwegian and Russian stakeholders I have interviewed agree that small dimensions and distance from advanced health facilities are among the main challenges concerning healthcare delivery and emergency preparedness on Svalbard. Besides, they agree that mutual trust, shared challenges in healthcare delivery and emergency preparedness, and existing relational structures, equipment and infrastructure are facilitators that might pave the way for more cooperation between the two countries. Likewise, they view differences in language and culture, the frequent rotation of personnel and divergent systems for emergency preparedness on the Norwegian and Russian mainland as obstacles for cooperation. Norwegian and Russian stakeholders also agree that mine

rescuing, emergency preparedness and joint exercises focusing on health challenges are areas where Norway and Russia may cooperate in the future.

The fact that distance to advanced health services and lack of infrastructure is seen as challenging in a healthcare delivery and emergency preparedness perspective resonates with findings from several previous studies concluding that healthcare delivery in remote areas is challenged by factors such as remoteness to advanced health facilities, lack of professional health workers, and inadequate infrastructure (Royle, 1995; Artuso, 2012; Farmer et al., 2012).

Is Svalbard really lacking resources and infrastructure in terms of healthcare delivery and emergency preparedness? With some important exceptions, Svalbard enjoys the health capacities similar to those of a mainland Norwegian municipality. However, there are certain additional factors, such as harsh climatic conditions and increasing amounts of tourist visitors that enforce questioning how many resources should be allocated to combat health risks for what essentially is a rather small population. The question of the right to health services for a small population versus a larger one resonates with Foucault's work on biopolitics. Against this backdrop, it can be argued that in a small and remote community such as Svalbard, the existence of each individual is more significant for the security, wellbeing, and preservation of the community as a whole than in larger communities, for instance on the Norwegian mainland. A possible consequence of this in the Svalbard context is that the Norwegian state executes a more extensive biopolitical control on Svalbard than on the mainland. One could argue that when the Norwegian state does not make provisions for people with special health needs (such provisions do not exist on Svalbard at present), this is a form of extensive biopolitical control and an example of how far politics can go to regulate human life in a country that is not normally characterised as indifferent to the special health needs of its residents.

There is another possible consequence of the existence of each small community individual being perhaps somewhat more valuable than in larger communities that is

rather contradictory. An opposite scenario is also possible, i.e. that the state may be more lenient to deviations from regular health norms in small and remote communities than elsewhere. From this point of view, one could explain why the health of the workers in the pre-WWII and early post-WWII years on Svalbard was worse than what perhaps could be expected. Both the Norwegian and the Soviet/Russian mining companies preferred to recruit strong and healthy workers (Belousova, 2016) because the health facilities on Svalbard were not equipped well enough to treat severe injuries or epidemies, and because they did not profit from using labourers who would not be fit enough for work due to medical reasons. However, recruiting workers in the interbellum and immediate post-WWII period of coal production on Svalbard was not easy, and the existence of workers with various illnesses, such as tuberculosis, epilepsy and venereal diseases, was recorded in the Soviet settlements (Portsel, 2011).

4.4 Different attitudes towards risk?

As discussed amongst others by Douglas (1985) and Slovic (2016) (see part 1.3), risk is viewed differently in different cultures. This thesis discusses how Norwegians and Russians seem to have different perceptions and orientations towards risk from a health and emergency preparedness point of view. Do such differences really exist? The few studies of risk perception in Russia versus the West indicate that Russians (along with other countries in Central and Eastern Europe) had a lower risk perception than people in the West (Mechitov & Rebrik, 1990). Nevertheless, a more recent study suggests that Russia and the West share similar views with regard to risk perception (Rodionova et al., 2009). These results are consistent with other studies showing that risk perception in Eastern Europe has increased after the many changes that occurred in those countries after the 1990s (Sjöberg et al., 1996). In many ways, the differences between the countries in Eastern and Central Europe have diminished after the fall of the Iron Curtain and even more after the EU enlargements that included several Eastern and Central European countries into the alliance (Heinisch, 2017). The core principle of the European Union is the internal single market based on standardised legislation where the member states have agreed to act as one in matters that ensure free movement of people, goods, capital and services, and with regards to legislation

and common policies. Against this backdrop, one can assume that member states in Eastern and Western Europe are nearing each other both because of standardised regulations and frameworks, and as a result of closer contact between people and exchange of ideas and values. Nevertheless, despite this focus on standardising and homogenising among the member states, fundamental differences between the countries in Eastern and Western Europe still exist. This is made evident when assessing to what degree Eastern and Western Europeans still differ on key social issues. According to a 2018 report from Pew Research Center, based on interviews with almost 60 000 people, there are stark differences in public attitudes toward religion, minorities and social issues such as gay marriage and legal abortion within the EU, more than a decade after the Eastern expansion.

This fundamental divide between East and West can be applied in the Svalbard context. As was made evident in the interview study, there has been a significant decrease in accidents and subsequent transfer requests from the hospital in Barentsburg for the last couple of decades. According to one respondent, this tendency is probably due to both the fact that there are fewer people employed in the mines than earlier, and that there is also an increasing concern for security and safety in the Russian mining industry. From this, one may read that the risk perception among Russians on Svalbard has increased for the last decades and that more measures to provide safety are implemented. Nevertheless, the lack of security equipment in several Russian aircraft vessels involved in tragic accidents on Svalbard may testify about the difference in risk perceptions between Norwegian and Russian stakeholders. As late as in 2017, the Cape Heer accident caused eight deaths. The post-accident investigation established that the airline's organisation at the landing site deviated from standard procedures, and that no one on board had used survival suits or worn lifejackets (Aircraft Accident Investigation Board, 2020). In this context, it may be argued that the implications of accidents such as the one at Cape Heer are rooted in cultural mindsets, such as fatalism, which will be discussed further below. This situation illustrates how risk assessment can be seen as a socially constructed phenomenon, as described by for instance Mary Douglas (see part 1.3.4). In this case,

one could argue that the airline's (and its employees') risk perception did not comply with standard international requirements, e.g. survival suits and lifejackets.

From another point of view, the difference in cultural mindsets can be further scrutinised through the grid-group model proposed by Douglas and Wildavsky (see 1.3.3). The model can explain how a hierarchical society such as Russia may be prone to prioritising system maintenance rather than the survival of individuals – in this context not allocating resources to security equipment such as survival suits and lifejackets. These and similar decisions are more likely to be imposed in a military-style top-down power system such as Russia, rather than in Norwegian society, which enjoys more equally balanced horizontal power structures and strong grass-root initiatives.

As shown above, it seems reasonable to assume that Norwegians in general have a higher level of risk perception than Russians. The lack of security equipment in several Russian aircraft vessels involved in lethal accidents on Svalbard may serve as a suitable example. Can this be explained by borrowing elements from Ulrich Beck's concept of risk society? Beck suggested that modern society is a risk society of «manufactured uncertainties» and that modernisation defines the shift in mindsets and social organisation that modern technology has resulted in. Risk must thus be seen as a modern phenomenon and as a product of modern technologies. Drawing on the discussion about differences in risk perception between Eastern and Central Europe, one could ask whether modernisation is further developed in the West than in Russia. Has Russia's development towards the same modernisation been slowed down by seventy years of near isolation from the West during the Soviet period?

Beck proposed that social change happens in three stages, namely pre-modernity (before industrialisation), modernity (consistent with the industrial society), and reflexive modernity (coextensive with the risk society). As seen in part 1.3.3, Beck viewed the distribution of goods to be the basic foundation of the industrial society and the distribution of «bads» (i.e. risks) as the foundation of the risk society.

Reflexiveness in the form of social critique of the consequences for scientific and technological progress (e.g. in the environmental field) is, according to Beck, critical for a society to evolve. Certainly, social critique was not particularly welcomed in the Soviet Union, a point which may, still following Beck, partly explain why the risk perception seem to be less developed in Russia than in the West.

4.5 Can collectivism and fatalism help explain risk perception among Russians?

Collectivism, or *sobornost*, is another central worldview that denotes the mindset and is an essential part of Russian self-awareness (Pestretsov, 2008). It denotes individuals' relationship to a collective and underlines the need for a cooperation between people at the expense of individualism. This perspective is reflected by Slovic (2016), who suggests that people in a hierarchist society, such as Russia, tend to prefer a community with a centralised level of power, whereas people in a more egalitarian society favour a world with a more evenly distributed power. Moreover, *sobornost* has clear connotations with how the concept of biopolitics and the rights of individuals versus the good of society as a whole is treated by Foucault. In a society such as the Russian, for which concepts such as *sobornost* are central, individual risk management will perhaps not be prioritised as much as measures that would benefit a collective, at an individual's expense if necessary. Furthermore, the Russian society is also characterised by fatalism expressed through the word *avos'* (Wierzbicka, 1992). In a society where fatalism and belief in destiny are central and life is perceived as unalterable, a practical consequence may be that potential risks are ignored and safety measures considered unnecessary. This perspective can be exemplified by the Cape Heer accident described above, when certain types of internationally standardised security equipment were given low priority by a Russian airline.

The potential difference in risk perception and biopolitics is also interesting to discuss in the light of childbirths. Childbirths have been a disputable issue amongst the health personnel on Svalbard, as complications easily arise during pregnancy and birth. Many have argued that the Longyearbyen hospital had neither the necessary staff (i.e.

gynaecologists or surgeons with experience in childbirth) nor infrastructure (most importantly a blood bank) to perform maternity care. The Norwegian mining company Store Norske that ran the hospital until 1981, tried to avoid childbirths as much as possible (Hanoa, 2017). Nevertheless, between 1916 and 1977, 342 children were born in Longyearbyen. Most children (310) were born into families of clerks and higher executives. Only 32 children were born into workers' families. This was due to the Store Norske's policy of not allowing married couples with children to live in the barracks, where most workers dwelled. The expecting mothers who lived in barracks and did not have their own apartments were sent to the mainland prior to birth (Evjen, 2006). Since the late 1970s, all expecting mothers have been sent to the mainland at least two weeks prior to their due date, to give birth at hospitals in their home region. Not facilitating for childbirths can thus be considered a risk-limiting safety measure, reflecting the risk perception by the Norwegian health administration.

In the Soviet settlements, the issue of childbirths also included a touch of policy, but in a different way. Not only was it logistically more difficult to send heavily pregnant women back to the USSR to give birth. Could it also have been that the Soviets may have wanted to demonstrate that they were putting down roots on the land that they historically considered theirs, because of the Pomors' alleged presence on Svalbard before the discovery of the archipelago by Willem Barents? In one of the first Soviet documentary films about Svalbard, Vladimir Boikov's *Na 78-i paralleli* [78°N], made in 1934, attention is drawn to a baby girl apparently born in Grumant (Boikov, 1934). And when a Norwegian delegation visited the Pyramiden hospital in 1989, a movie about births was screened, apparently to show the guests the highlights of the activities taking place there (Tsymbalyuk, 1989). According to a 1937 report from a party committee chief from Trust Arktikugol, 25 children were born in Svalbard's Soviet settlements during the 1934-35 overwintering. In 1940, 37 children were born in Barentsburg and 16 in Grumant (Unsigned, 1941a). In 1948, 55 children were born there, and in 1962, 28 in Barentsburg alone, 18 boys and 10 girls (Portsel, 2020). In 1964, 21 births took place in Barentsburg and Pyramiden (Unsigned, 1965a). By comparison, 342 children were born in Longyearbyen between 1916 and 1977 (Evjen,

2006), which gives us an average of 5.5 children per year. The combination of challenging logistics concerning the return of patients to the Soviet mainland and a larger Soviet population than Norwegians on Svalbard at the time, can explain the relatively high number of births at the Soviet hospitals.

Nevertheless, after flights to Svalbard from the USSR became a reality in the 1980s, doctors in the Soviet settlements were increasingly recommending expecting mothers to return to the Soviet mainland and stay there, as they considered the environment to be less healthy on Svalbard (Unsigned, 1982). Further, since 1991 the expecting women from the Russian-speaking settlements have as a rule been sent to the post-Soviet mainland to give birth (Belousova, 2016). This decision could be a result of the increased risk perception among Svalbardian Russians and Ukrainians, previously discussed in this introductory chapter. As described by respondents in the interview study, there has been a significant shift in risk perception among Russian speakers on Svalbard the last couple of decades. Nevertheless, the decision to send expecting women to the mainland roughly coincided with the dissolution of the USSR, followed by economic recession. It is thus likely that the decision to send pregnant patients to the mainland was due to the changed economic situation that accompanied and followed the dissolution. Most probably, the changed policy is best understood as a combination of the aforementioned factors.

4.6 Healthcare delivery and emergency preparedness as political tools

The Soviet/Russian birth policy on Svalbard provides a good example not only when it comes to how health risk approaches are dependent on the way risk is culturally conceptualised and how a country organises its healthcare system based on the current risk perception. It also illustrates how healthcare delivery can be used as a political tool. Looking at the development of the Soviet/Russian birth policy, it seems likely that it has been applied to strengthen the presence and identity of Russians on a territory that Soviet/Russian authorities have historically considered theirs. Consequently, Soviet/Russian birth policy serves as a useful example of how

healthcare delivery can be applied as an instrument of social control, and of how a country's politics directly affects the health of human beings.

Emergency preparedness situations can be used as a political tool, too. Russia has been determined to participate with more resources than expected in rescue operations involving Russian citizens, such as the Operafjell and Cape Heer accidents. Participating in such operations is a way of exercising ownership and signifying presence at the place where the accident occurred. Through being present and playing a substantial role in a rescue operation, Russia is indirectly using the rescue operation as a means of reaffirming its presence on Svalbard.

These perspectives echo the biopolitics concept introduced by Foucault (see part 1.3.5 of this thesis) and illustrates how risk perception impacts health regulations and how healthcare delivery can be applied as an instrument of social control. Continuing this argument, it may be useful to provide an example also from outside the health field. As the sovereign state on Svalbard, Norway regulates all activities on the archipelago. In 2002, the Svalbard Environmental Protection Act entered into force, allowing Norway to impose stricter environmental regulations than before (Jensen, 2020). The purpose of the Svalbard Environmental Protection Act is to preserve the environment on Svalbard and to protect both wilderness and cultural heritage. After Norway's introduction of stricter environmental regulations, criticism from other signatories to the Svalbard treaty, first and foremost Russia, has increased (Holten Jørgensen, 2010). In essence, Russia claims that Norway uses environmental regulations to deliberately limit Russian activities. The criticism concerns particularly restrictions on helicopter use and the ostensibly illegal establishment of the fishery protection zone (Jensen, 2020). Norway argues that environmental risks on Svalbard are of high concern and that regulations in this field must be prioritised. This example illustrates how risk perception impacts regulations and can be applied as an instrument of social control even outside the health field.

4.7 The role of trust

Norway being responsible for emergency preparedness also touches upon the concept of accountability, which is a central concept with regard to risk. The concept refers to the condition of being answerable for performing up to certain standards. In our context, this means that Norway must provide emergency preparedness according to international standards. When people or institutions are accountable, they can be expected to explain and justify their actions and their behaviour can be scrutinised and potentially sanctioned. In a Svalbard setting, Norway's accountability for emergency preparedness includes expectations to be scrutinised and questioned during and after the situations that require emergency preparedness (Weigold & Schlenker, 1991). The accountability concept is thus linked with trust. As seen above, Russia has on several occasions insisted on taking part in what according to international regulations are Norwegian-led rescue operations. This can be explained by Russia using rescue operations when Russians are involved as an excuse to reconfirm the Russian ownership and presence on Svalbard. Moreover, it can be explained by trust – or perhaps more precisely, by lack thereof. Insisting on participation with their own resources and equipment can be seen as a sign that Russia does not trust the Norwegian rescue personnel sufficiently enough and thereby prefers to be present to make sure that the rescue work is carried out according to their standards.

Nevertheless, one of the main findings in this thesis is that both Norwegians and Russians view mutual trust as one of the main facilitators for cooperation between the countries. Also, cooperation in acute situations such as accidents or during a pandemic is less challenging when the involved stakeholders know each other from before. Still, one could assume that in a context of international cooperation, citizens from one state are more likely to trust information coming from their own authorities rather than from a counterpart. Both Ulrich Beck and Anthony Giddens have emphasised knowledge as crucial for providing protection from risk. Applying knowledge, however, is challenging when knowledge comes from many sources (Giddens, 1991). Furthermore, Foucault argued that expert discourses have become so powerful that they are accepted as reality. In a situation such as the Cape Heer accident, one could

assume that Russians affected by the accident would be more prone to trust information from the Russian authorities, rather than the Norwegian ones. The perception of risk is therefore significantly dependent on who receives information from whom in a risk situation.

Besides, as described by Slovic (1981), the differences between cultures when it comes to risk perception apply both to lay persons and experts. Following Slovic, attempts to control risks and to determine the necessary government policies will not succeed unless both experts and lay persons have a good understanding of the risk situation (Slovic, 2000). It should thus be questioned whether there are differences in risk perception between lay people and experts on Svalbard. Nothing in my findings suggest that there are particular differences in risk perception between experts and lay persons on Svalbard.

4.8 Risk and its perceptions

As previously discussed, prevention is a central part of emergency preparedness. The concept is also central for healthcare delivery because prevention is a vital component of healthcare. The risk concept must therefore be explored also from a perspective of prevention and anticipation. Assessing risk from a prevention perspective necessitates including the perception of risk along with risk itself. This is because the perception of risk determines which preventive measures should apply in a risk situation. In this context, it is useful to analyse risk from a constructivist or post-constructivist perspective. According to these traditions, risk is a social construct rather than a tangible element and, when assessing risks, risk perception is as important as the risk itself.

That being in danger of risk has many of the same implications as the actual risk, has been described amongst others by Michel Foucault. According to Foucault, with the development of modern society came new knowledge about illness, and more importantly, about what causes illness. The nature of illness has been changed through the medical concept of risk because the risk element also addresses the future illness

potential and not just the symptoms of illness (Armstrong, 1995). So, the probability of developing illness is as critical as the illness itself. This is demonstrated in a sociological study from two North Norwegian coastal societies looking at how being in risk of disease is experienced and the process of medicalisation managed in their everyday life (Anderssen, 1998). Amongst others, the study aimed to understand how people experience being at high risk of cardiac diseases. One of the findings was that being in risk of the disease had direct consequences. For instance, the women in the societies, who viewed their family's health as their responsibility, tried to prevent diseases by serving their families healthy food. Moreover, people in risk of cardiac diseases started depending more on the health systems in terms of regular health controls. This study shows that not only the risk itself, but also its perception is vital when exploring how risk (and the perception of risk) influence healthcare delivery and emergency preparedness. As this thesis demonstrates, divergent perceptions about risk are critical for understanding how healthcare delivery and emergency preparedness are organised and managed.

4.9 Strengths and weaknesses

Conducting a systematic review as in article 1 is no exhaustive method to explore health risks and emergency preparedness on Svalbard. Moreover, it is a weakness that the confidence of findings in these articles were considered low due to flaws in the study design and failure to control the confounders. Findings from these articles therefore should be applied with caution. The method, however, does provide a comprehensive outline of existing research in the field, and maps certain indications regarding the given topic.

There are limitations to the systematic review conducted in this thesis. The review only encompasses 18 articles, covering a broad range of topics, and was conducted in adherence with the original version of PRISMA (a minimally required set of items for a valid systematic review). The updated PRISMA 2020 allows a broader range of sources, which could have provided more information. Nevertheless, it is unlikely that this would have changed the article's conclusions. Another limiting factor was that

only the main author screened the titles and abstracts. Additional screening could have prevented potential omissions.

Nonetheless, the main author speaks English, Norwegian and Russian fluently, and has conducted the screening process conscientiously. Among other strengths is the fact that the reviewed data have covered a broad range of topics from various disciplines. A synthesis of both qualitative and quantitative data is challenging, but applying the analytical tools GRADE and GRADE-CERQual mitigates this challenge. It is also a strength that the review includes studies published in English, Russian and Scandinavian languages.

Fictional representations rarely produce solid data that can give reliable information about the real world. Nevertheless, fiction does indeed reflect reality and is thus a useful tool to explore cultural understandings of health and illness (Tygstrup & Holm 2007) and can provide valuable perspectives on data retrieved from various other sources. The literary analysis in article 2 consists of a comparative analysis of two novels. Including several more novels in the analysis could have secured a richer and more complex foundation on which to discuss how health and illness are portrayed in fiction from and about Svalbard. However, to the best of my knowledge, only *Longyearbyen* and *The Arctic Novel* make health issues central to their plots. Moreover, both novels share the temporary node of the 1950s, which allows for an in-depth comparative analysis. These novels were also carefully selected. During the research that laid foundation for this thesis, I read close to 50 novels about Svalbard in Norwegian, Russian, Danish, and English, either entirely or in part (see the attached list in the appendices), prior to the selection of *Longyearbyen* and *The Arctic Novel* for scrutiny. Furthermore, several academic publications about Svalbard (non-)fiction were consulted (see for instance Mork, 2008 and Wærp, 2017), without detecting any additional references. The main strength of the comparative novelistic analysis is that it includes data from both Norway and Russia.

The fact that both novels are set in the 1950s poses a potential challenge. Most data collected by me from the review and the interview study are much more recent, and one could argue that the results from the included articles are somewhat unbalanced in terms of their temporary aspect. Yet this is a net result of the data available and a consequence of fragmented monitoring, information gathering and research to do with healthcare delivery and emergency preparedness on Svalbard. The existing chronological gaps in our knowledge of these aspects of life on Svalbard may unfortunately never be filled. Regardless, *Longyearbyen* and *The Arctic Novel* are useful tools to explore how the spatial setting affects the presentation of health and illness, irrespective of the time period.

As for article 3, conducting interviews with both Norwegian and Russian stakeholders from a variety of Svalbard-related institutions secures a broad representation and multi-faceted illumination of the research topic. These factors constitute this study's main strengths. Among the weaknesses of the interview study is the inconsistency in methods caused by the use of a combination of in-person and online interviews. This deviation from the original protocol became necessary in order to conduct data gathering during the COVID-19 pandemic, which induced meeting restrictions. When using online tools to conduct interviews, efforts should be made to ensure that online respondents feel comfortable with the online technology applied in the interviews (Lyon et al., 2015). Such efforts were made during this study. Moreover, the interview questions (enclosed in the appendices) were the same for all respondents. The inconsistency in methods is thus unlikely to have influenced the results.

Furthermore, coding may reduce polyphone meaning and lead to categorisation. This may imply that complex interview statements are reduced to a few simple categories (Brinkmann & Kvale, 2015). When performed cautiously, however, coding is a useful tool to identify relevant themes deriving from research interviews and to create an overview and find connections in the interview material, e.g. in this study.

Still more, conducting interviews with both Norwegian and Russian-speaking stakeholders representing a variety of institutions in healthcare delivery and emergency preparedness secures a broad representation and multi-faceted illumination of the research topic. However, the results would have been even more solid if the interview data from decision makers in mainland Russia could have been obtained. Ideally, more respondents from Barentsburg and mainland Russia should have been included. Unfortunately, the current tensions between Russia and the West combined with travel restrictions due to COVID-19 made such interviews impossible. The three respondents from Barentsburg included in the study nevertheless exemplify a reasonably broad spectrum of institutions and responsibility areas. I thus consider them a representative and sufficient selection of respondents from Barentsburg. The Norwegian respondents, too, represent an acceptably wide selection of institutions and responsibility areas in healthcare delivery and emergency preparedness. Moreover, all interviews provided me with rich and solid data. The overall selection of 10 respondents is thus considered to constitute an ample and satisfactory data selection appropriate for answering this study's research question. There were no significant variations between the answers of administrators and health personnel. Finally, the interview study does not distinguish between Russian and Ukrainian respondents from Barentsburg. The interviews with these actors were all conducted before Russia's full-scale invasion of Ukraine, and such a distinction felt irrelevant at the time. In the current situation, however, the awareness of such a distinction could illuminate potential or hidden differences between Russian and Ukrainian stakeholders on Svalbard. Providing more context on the respondents could have revealed their background to a larger degree in this regard, which might could had provided interesting added value to the findings. The interviews were, however, conducted under conditions of anonymity and data such as gender and age coupled with the knowledge of place of work and area of expertise, would make it easy to identify the respondents, which would have jeopardised the anonymity principle.

The application of different methods and data sources is one of the greatest strengths of this thesis. Simultaneously, interdisciplinarity is also a methodological challenge.

Research across disciplines rooted in natural sciences, on the one side, and human sciences, on the other, often encounter challenges when describing methodological choices. The choice of methods and interpretation of findings that makes sense in a health science context may be questioned from a humanities and social science point of view, and vice versa. Some may argue that a systematic review is an insufficient method to analyse challenges in the healthcare field and would require qualitative sources to gain additional context for the findings. Other may question the use of fiction to address the nature of healthcare delivery, emergency preparedness and international cooperation.

Because the research questions and associated studies are interdisciplinary in nature and borrow elements from health sciences, humanities and social sciences, this thesis benefited from the use of different methods and data sources. In general, all methods contain limitations when applied individually, but these limitations can be mitigated through a mixed-method research, which combines methodologies (Turner et al., 2017). A mixed-method approach implying a combination of methods across different study fields proved extraordinary useful. The combination of different methods and the innovative sources of data is an original contribution to the research field concerning not only healthcare delivery and emergency preparedness on Svalbard, but also the international cooperation in the Arctic in general.

Overall, this thesis is therefore an original contribution when it comes to relations between Russia and NATO countries and other countries which support Ukraine. Moreover, this thesis is also a valuable addition with regard to cooperation during war and conflict, and can provide new perspectives on cooperation in crises also outside of the Arctic. Additionally, this thesis, too, is one of the relatively few contributions to research about Svalbard, and in particular Russia's presence on Svalbard.

4.10 Future research

This thesis has discovered knowledge gaps concerning health challenges on Svalbard and about how healthcare delivery and emergency preparedness are organised on the

archipelago. More research is needed to account further for healthcare delivery and emergency preparedness challenges and organisation. Moreover, future research should aim to include data about how the systems for healthcare delivery and emergency preparedness are organised in similar communities, either in the Arctic or in other isolated island/archipelago communities. This way, the best practice experiences from comparable communities may influence the organisation of healthcare delivery and emergency preparedness on Svalbard. Furthermore, the thesis has detected gaps in the literature about how Norwegians and Russians on Svalbard perceive health and illness. Further studies should include a broader use of fictional and non-fictional sources to get a more complex picture of this perception. This will provide a useful information if and when developing a further cooperation between Norway and Russia (and beyond) for healthcare delivery and emergency preparedness. Future research should aim to reduce the disclosed knowledge gaps about the potential and desire for cooperation between Norway and Russia on healthcare delivery and emergency preparedness. Future research should strive to include interview data from central Russian decision-makers, as these are essential when it comes to implementing measures and regulations in Barentsburg. Currently, however, conducting such interviews have proved impossible due to the ongoing tensions between Russia and the West. As the war in Ukraine continues, a considerable knowledge gap evolves concerning how the war will affect the relations between the East and the West further, also on Svalbard. This too will be an important question to dwell upon in future research involving any Norwegian and Russian stakeholders on Svalbard.

5 Conclusion

This thesis has accounted for Norwegian and Russian approaches to healthcare delivery and emergency preparedness on Svalbard. Overall, findings suggest that the health risks on Svalbard are more or less the same as in mainland Norway and that there are both similarities and differences in how Norway and Russia approach and perceive health risks on Svalbard. Still, this thesis has shown that certain health risks are perceived differently in different cultures, and that divergent perceptions are reflected in the way a healthcare system is organised. For instance, mental health related incidents have been treated differently in the Norwegian and Russian population on Svalbard.

However, both countries have health facilities to meet primary health concerns and cooperate in terms of healthcare delivery and emergency preparedness. Such a cooperation takes place mainly in SAR operations and in accident-related healthcare. The cooperation as of today works reasonably well but may provide added benefits for both countries if increased. However, cooperation must be seen against a wider backdrop of state interests and the current geopolitical situation. This thesis has demonstrated that cooperation in emergency preparedness situations can be used as a political tool. On several occasions , Russia has participated in rescue operations with more resources than expected. This way, Russia uses emergency preparedness situations as a tool to affirm its presence on Svalbard and to reconfirm the sense of ownership it apparently feels towards the archipelago.

The current conflict between Russia and the West illustrates how geopolitical concerns are reflected and how security issues unfold on Svalbard. The war in Ukraine and the subsequent EU sanctions against Russia constitute extensive hurdles for any cooperation between Norway and Russia at present. Yet, solid structures for cooperation on healthcare delivery and emergency preparedness should be available. Not only are the advantages of such structures too important for the safety of people inhabiting and visiting Svalbard to circumvent. Additionally, Russia and the West are

likely to resume cooperation when the war is over. Existing contacts and cooperation structures will then be immensely important.

This thesis is one of the relatively few research contributions about Svalbard, and in particular about Russia's presence on Svalbard. This thesis may also be a valuable contribution to research about healthcare delivery in remote areas in general and in the Arctic in particular. Hopefully, the thesis will be a timely input into research on cooperation between Russia and the outside world against the backdrop of the war in Ukraine. I hope that this thesis will constitute an important contribution to research on cooperation during conflict in a broader sense and is likely to give new perspectives on cooperation in conflict also outside of the Arctic.

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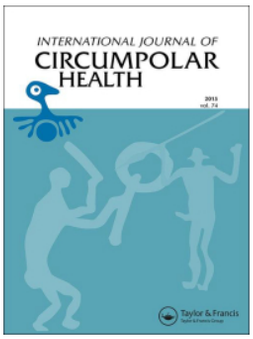
Article 1



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REVIEW ARTICLE (SCOPING AND SYSTEMATIC)

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Health risks, emergency preparedness and Norwegian-Russian cooperation on Svalbard. A systematic review

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ABSTRACT

This is the first systematic review to explore health risks on Svalbard. We have analysed data retrieved from 18 articles that met eligibility criteria and present a mixed-methods quantitative and qualitative narrative synthesis. Norwegian and Russian inhabitants on Svalbard were compared with the respective mainland populations, and we found no evidence of an increased risk for or prevalence of diseases. The rate of injuries caused by snowmobile accidents were significantly higher, but this was outweighed by a correspondingly lower rate of other injuries. A small unique risk for injuries inflicted by polar bears was confirmed. We identified knowledge gaps concerning how health care and emergency preparedness are organised.

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Arctic; emergency preparedness; global health; health systems; international cooperation; svalbard

Introduction

This review addresses health risks and health- and emergency preparedness on Svalbard, the Arctic archipelago at 74° to 81° north latitude, and how Norway and Russia collaborate. Svalbard's unique location and status entail particular challenges related to long distances, climatic conditions and limited access to healthcare and rescue personnel.

Norway and Russia have been engaged in the coal mining industry on Svalbard for more than a century. For the past decades, mining has declined and tourism and research have become the most important industries. Norway is the sovereign state, but the Svalbard Treaty assigns the signatory countries rights to engage in commercial activities. Norwegian and Russian industries have mostly operated separately with infrastructure and frameworks provided by each country. Today approximately 3000 people live on Svalbard, most in the Norwegian settlement Longyearbyen (approximately 2500 inhabitants) and the Russian settlement Barentsburg (approximately 400 inhabitants). Longyearbyen has evolved from a traditional "company town" organised around mining, into a family community with health and welfare services resembling those on the mainland[1]. An exception is care for the elderly, which is not provided, implying people who need such services must move. Barentsburg is still mainly run by the mining company.

Existing knowledge

Several previous studies conclude that healthcare in remote areas is challenged by factors such as remoteness to advanced health facilities, lack of professional health workers, and inadequate infrastructure [2–4]. Some studies looking into health in small Island communities have found that complications related to inbreeding may be applicable due to a reduced gene pool in such communities [4,5]. This is, however, doubtfully the case on Svalbard, which has a fluctuous population pattern with an average period of living of 6 years.

Further, previous studies imply that there is a slightly increased risk for disease in circumpolar areas, such as psychological effects of long periods of isolation and extreme physical environment and potential negative effects of environmental contaminants among certain population groups in the Arctic [6,7]. The latter is linked with a significant consumption of carnivores on top of the food chain such as seal, whale and different fish species, typical traditional food among indigenous groups in the Arctic. This is nevertheless probably not applicable for Svalbard, as there is no indigenous population on the archipelago and where most of the food is imported.

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This article has been corrected with minor changes. These changes do not impact the academic content of the article.

Regarding accidents, a few studies from other Arctic areas, amongst others Canada and Finland, implies that snowmobile accidents are among the health challenges in Northern Canada and Lapland [8,9]. Further, there are studies from Greenland and Canada that show that mining workers struggle with specific health challenges, such as back injuries and lesions [10,11]. These challenges are probably applicable also for Svalbard, where the number of snowmobiles exceeds the number of inhabitants, and where a significant share of the workforce have been employed in the coal mining industry.

In circumpolar areas (Svalbard included), remoteness to advanced health facilities and limited resources in terms of health personnel and infrastructure indirectly constitute the most significant health threats[2].

Some studies have looked into cooperation between circumpolar states concerning health challenges. Such cooperation has, for instance, taken place between Alaska and Russia in fields such as emergency medicine, mental health and dental treatment [12–14]. In general, a rising awareness of similarities among Arctic actors has made pan-Arctic cooperation, also in health and emergency preparedness, possible through the development of international bodies such as the Arctic Council [15,16].

Studies that look into health challenges on Svalbard in particular have also been published, but this evidence has not been reviewed and synthesised. Covering this knowledge gap, as this study aims at contributing to, is thus considered prudent. A systematic review of health risks and health- and emergency preparedness cooperation between Norway and Russia is therefore warranted.

Methods

Research question, aims and objectives

The overall research question is: What are the health risks and how is the healthcare and emergency preparedness system on Svalbard organised to address these risks? The specific aims were: 1) to identify the risks in terms of healthcare delivery and emergency preparedness, 2) to assess how the healthcare and emergency preparedness system is organised to address these risks, and 3) to study cooperation in healthcare and emergency preparedness between Norway and Russia.

Protocol

Our protocol adhered to the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA)[17].

Definitions

The term "Russia" refers to the Russian federation and the Soviet Union, and "Russians" to their populations. The terms healthcare and emergency preparedness are linked because healthcare is an element in emergency preparedness. Healthcare is understood as resources used to cure disease, care for and rehabilitate the ill, and prevent disease. We include trauma in the definition of disease and illness. The term emergency preparedness is used differently, depending on the context, and often interchangeably, along with the terms "emergency response" and "crisis"[18]. We use it to describe actions taken to prevent a crisis, while the term "emergency response" describes concrete actions taken when a crisis is emerging. Search and rescue (SAR) services refer to the immediate actions involving cooperating partners to rescue people from death or injury[16].

Search strategy

A list of relevant search words was developed (Table 1). A test search was undertaken to identify the most suitable databases and search word combinations. The databases PubMed, Scopus, CyberLeninka and Web of Science were selected because they produced most relevant articles. The excluded databases either produced few results (Norwegian Open Research Archives and American Bibliography of Slavic and East European Studies), or results that only partially met the inclusion criteria (eLibrary and OpenGrey).

The test search also showed that the list of search words was too wide and unspecific. For example, combinations such as "health + north" or "crisis + polar" produced a vast number of articles, very few of which were relevant. The relevant articles were covered by more narrow search word combinations, including the words "Svalbard" or "Spitsbergen".

Table 1 shows a complete list of search words grouped into three categories: 1) healthcare, 2) emergency preparedness, and 3) Svalbard. Literature in English, Russian or a Scandinavian language was included. Search words were combined from categories 3 (Svalbard), and 1 (healthcare) or 2 (emergency preparedness).

Eligibility criteria

We included peer-reviewed academic articles that report quantitative or qualitative studies of human health and/or emergency preparedness on Svalbard. Studies of pollutants without direct connection to

Table 1. Search words and search combinations.

	Category 1: Search words related to «healthcare»	Category 2: Search words related to «emergency preparedness»:	Category 3: Search words related to «Svalbard»:
English	health	emergency preparedness	Svalbard
			Spitsbergen
	healthcare	crisis	
	hospital	search and rescue	
		disaster	
		ambulance	
Russian	здоровье	готовность к чрезвычайным ситуациям	Свальбард
			Шпицберген
	здравоохранение	кризис	
	больница	поисково-спасательные работы	
		ЧП (чрезвычайное происшествие)	
		скорая помощь	
		санитарный вертолёт (*in Russian, unlike English and Norwegian, the word for ambulance diverts completely from the term «air ambulance», hence two different terms to describe the different types of ambulances)*	
Norwegian	helse	beredskap	Svalbard
			Spitsbergen
	helsevesen	krise	
	sykehus	søk og redning	
		katastrofe	
		ambulanse	

human health, the surrounding waters and animal health were excluded.

Study selection

Figure 1 shows the selection process. The search retrieved 543 citations. The main author (TAW) screened titles and abstracts for eligibility and excluded 481 citations. 22 duplicates were removed. The remaining 40 citations underwent full-text assessment (TAW), and 23 were removed because they did not fulfil the eligibility criteria. One additional article was included after screening of the reference lists of the assessed articles.

Finally, we included 18 articles published between 1999 and 2017 (median year 2002) for full text review.

Data collection and analysis

Full-text review and data extraction were done independently by the main (TAW) and the co-author (TI). The team included a master-level Russian speaker

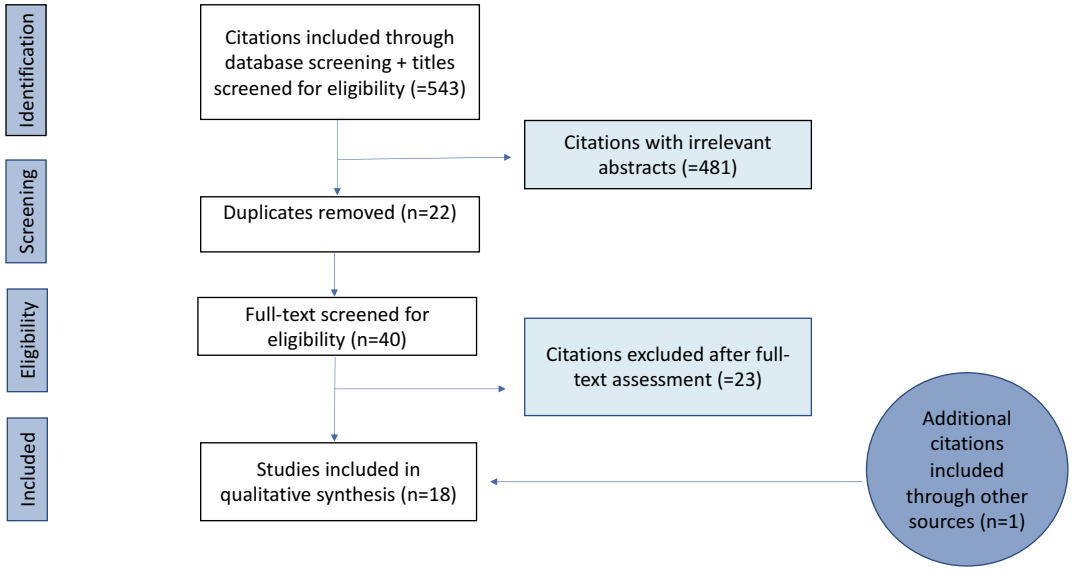

Figure 1. Process figure.

(TAW), and it had access to consult a native Russian speaker with native proficiency in English. When the reviewers disagreed about ratings of confidence in the findings or data extraction (six articles), consensus was established through discussion.

The key findings were extracted and summarised in the Critical Appraisal Skills Programme (CASP) evaluation table (Table 2). We retrieved data into five thematic categories: 1) Diseases, 2) Risk factors for diseases, 3) Traumatic injuries, 4) Search and rescue, and 5) Norwegian-Russian cooperation in healthcare and emergency preparedness. Due to thematic and methodological diversity of the included studies, meta-analysis was not possible, and a narrative synthesis was done.

Confidence in findings

We used CASP checklists, Grading of Recommendations, Assessment, Development and Evaluation (GRADE) and Confidence in the Evidence from Reviews of Qualitative research (GRADE-CERQual) to rate the level of confidence in findings.

The CASP checklists were developed to critically appraise the validity, risk of bias, study design, results and implications for practice of single studies [19] The quantitative studies that were included had an observational design and we therefore applied the checklist for cohort studies for these studies. For the qualitative studies, the checklist for qualitative studies was applied.

We used GRADE to rate the confidence of synthesised evidence from quantitative findings. GRADE provides a systematic approach to assess the quality of study designs, risk of bias, imprecision, inconsistency, indirectness, and magnitudes of effects[20]. Confidence in findings from observational studies is initially rated as low and then potentially up- (to moderate or high) or down-rated (to very low).

We used GRADE-CERQual to rate the confidence of synthesised evidence from qualitative findings [21]. GRADE-CERQual provides a systematic approach when assessing study designs, methodological limitations, coherence, adequacy of data, and relevance of the findings. Confidence in findings from quantitative studies is initially rated as high, and then potentially down-rated to moderate, low or very low[22].

Tables 3 and 4 show the evidence profiles and summary of findings of the quantitative and qualitative review findings, respectively.

Results

Quality of evidence

GRADE rated the confidence in the quantitative findings in the thematic categories as follows: 1) Diseases: low, 2) Risk factors for diseases: low to very low, and 3) Traumatic injuries: moderate and very low. We used dual ratings in categories 2 and 3 because there was methodological variation within studies. There were no quantitative findings in categories 4 (Search and rescue) and 5 (Norwegian-Russian cooperation in healthcare and emergency preparedness).

GRADE-CERQual rated the confidence in the qualitative findings in the thematic categories 2 (Risk factors for diseases) as very low and 4 (Search and rescue) as high. There were no qualitative findings in categories 1 (Diseases), 3 (Traumatic injuries) and 5 (Norwegian-Russian cooperation in healthcare and emergency preparedness).

Health on Svalbard

Category 1 – Diseases

Three articles reported studies of the prevalence and seasonal variation of middle ear infection, migraine and depression, respectively [23–25]. They showed no indication of increased prevalence among Svalbard compared to mainland Norwegian residents. The study of middle ear infection found no association with climate conditions, and the study of migraine showed no indication of more seasonal variation among Svalbard than Norwegian mainland residents [23,25]. We rated the confidence in the findings as very low because the studies could not control confounders adequately and had no control group on the mainland.

Self-reported depression lasting for more than two weeks over a one-year period was more prevalent among Russians (women 44,7%, men 26,8%) than Norwegians (women 15,6%, men 10,7%)[24]. We rated the confidence in this comparison as very low because the surveys were not done simultaneously, and because economic and political circumstances could have confounded the findings.

Summarised, findings rated at low to very low confidence level indicate that the prevalence of the studied diseases (middle ear infection and migraine) is not different between Svalbard and the mainland, but the prevalence of depression could be higher among Russians than Norwegians.

Table 2. Casp evaluation table.

GRADE categories No.	Author	Title	Aim of study	Description	Key findings	Comments	Quality level
Category 1 – Diseases							
1	Andersen et al., 1997	Occurrence of otitis media in an Arctic region	To investigate the occurrence of otitis media (OM – middle ear infection) and explore associations between OM and weather conditions on Svalbard	Patient information was extracted from the patient registry at Longyearbyen hospital and matched with weather data	202 patients with otitis media were registered in the study period (1991–1994) Peak (although minor) in the occurrence of otitis media in spring and autumn	Failure to adequately control the confounding, such as bacteriological causes No control group on the mainland No statistical analysis of the observed associations	Very low
7	Lilleng et al., 2008	Seasonal variation of migraine in an Arctic population	To investigate seasonal variation of migraine headache in a population residing in an extreme Arctic locale	A postal questionnaire was mailed to all Norwegian inhabitants aged 12 years or older living in Svalbard and the migraine diagnosis made by a structured telephone interview	Of the study participants (N = 1029), 184 experienced headache within the recent year prior to the study that could not be explained by alcohol, trauma, or viral infections. 88 individuals had migraine; 19 reported seasonal variation of migraine; 10 experienced more migraine in the light season, while 9 got worse in the dark season No indication of more seasonal variation of headache in a population of otherwise healthy people with migraine living in an extreme Arctic area with long periods of midnight sun and polar nights with complete darkness	Failure to adequately control the confounding, such as the effect of Svalbard residents who spend their summers in a warmer climate (i.e. on mainland Norway) Small sample Low response rate	Very low
9	Nilssen et al., 1999	Self-reported seasonal variation in depression at 78 degree north. The Svalbard Study	To explore and compare the one year prevalence of self-reported depression in two ethnically different populations	A cross-sectional study of Norwegians (N = 506) and Russians (N = 446) living on Svalbard	Among Russians, the one-year prevalence of self-reported depression lasting for at least 2 weeks was 26.8% for men and 44.7% for women Corresponding figures for the Norwegians were 10.7% and 15.6% As both populations were exposed to the same amount of daylight, seasonal depression is not solely a matter of lack of daylight	Failure to adequately control the confounding, such as different cultural conceptions of the term "depression" Challenging comparative element, as the data from the Norwegian population was collected four years before the data for the Russian population No information about the total population in the Russian settlement of Barentsburg (authors estimate that c. 30–40% participated in the study), implying a risk of selection bias Deviating quality on data material: Norwegian data: high adequacy Russian data: low adequacy	Data concerning the Russian population: low Data concerning the Norwegian population: moderate
Category 2 – Risk factors for diseases							
2	Bojko, 1997	Metabolical changes induced by adaptation to circumpolar conditions in Spitsbergen	To search for hormonal and metabolical indices in humans living in extreme environmental conditions	Serum metabolic and hormonal parameters were examined four times per year in 577 healthy men on Svalbard	Serum creatinine and pyruvate reflected the tissue metabolism and were activated in cold time Serum urea and total T3 were associated with the metabolical transformation resulting from rapid changes in light conditions	Failure to adequately control the confounding, such as possible replacement among the study participants No information about the total population, implying a risk of selection bias Flawed study design, analyses of sequential group means instead of repeated measurements in individuals	Very low

(*Continued*)

Table 2. (Continued).

GRADE categories No.	Author	Title	Aim of study	Description	Key findings	Comments	Quality level
3	Bojko and Larsen, 1999	Changes in the serum lipid profile in man during 24 months of Arctic residence	To examine the serum lipid profile in Caucasian miners on Svalbard (78–79 °N) from the south part of Ukraine and Russia (48 °N) in order to reveal possible effects of exposure time under High Arctic conditions	Study subjects (N = 99) were divided into five groups according to their time of residence (1, 3, 6, 12 and 24 months) on Svalbard and blood samples collected	The results indicate a rise of triglyceride levels after about 12 months stay Elevated levels of 18:3 and 16:1 fatty acids imply dietary modifications of the serum fatty acids	Failure to adequately control the confounding, such as changed diet No control group on the mainland Did not describe eligibility criteria No information about the underlying total population, implying a risk of selection bias.	Very low
18	Breus et al., 2015	Magnetic storms and variations in hormone levels among residents of North Polar area – Svalbard	The aim of this study was to find the possible sensitivity of these biochemical parameters to variations of external natural factors at high latitudes in three independent groups of people living in this region.	Hormone levels were analysed from blood samples of three groups of people living in Barentsburg (N = 364 + 274 + 280 (918)) in four different seasons (spring, summer, autumn, winter) in 1991–1992, and analysed against parameters for geomagnetic activity.	The study shows for the first time that at high geographical latitudes with increased level of GMA (geomagnetic activity) a significant change in the level of secretion of several hormones leads to an adaptive stress reaction.	Failure to adequately control confounding, such as connection between geomagnetic activity and weather. The authors do not consider Barentsburg's selected and healthy population, nor natural seasonal variations. Small core sampling group (only 27 people were able to be investigated in all four seasons).	Very low
4	Forberg et al., 2010	Subjective and objective sleep and sleepiness among tunnel workers in an extreme and isolated environment: 10-h shifts, 21-day working period, at 78 degrees north	To examine the effects of extended work hours (10 h on, 14 h off for 21 days) on sleep and sleepiness in an extreme and isolated environment in the far north (Svalbard, 78 degrees north)	The work consisted of tunnel construction in Svea, Svalbard. The participants (25 male workers, aged 24–60 years) worked an alternate fixed day shift (06:00–16:00) or a fixed night shift (18:00–04:00) for a 21-day work period in a counterbalanced, crossover design. Subjective and objective measures of sleep (diary and actigraphy), as well as a subjective daytime sleepiness and function questionnaire, were applied	There were few differences between the day and night shift periods and across the 21-day working period	Failure to adequately control the confounding, such as the healthy worker effect, limits external validity High internal validity Few participants	Low
5	Hanoa et al., 2011	No difference in self-reported health among coalminers in two different shift schedules at Spitsbergen, Norway, a two years follow-up	To investigate possible changes in health after a voluntary implementation of a new shift schedule, with periods of 14 d on and 14 d off	A questionnaire was distributed to all employees before and two times after the new shift schedule, comprising questions on type of work, shift schedule, pain, sleep, stress, and coping	Work neither in the 14/14 shift nor 7/7 shift was related to any change in the health after two years	Failure to adequately control the confounding, such as the motivation among the participants to choose a particular shift regime, limits external validity High internal validity	Low

(*Continued*)

Table 2. (Continued).

GRADE categories No.	Author	Title	Aim of study	Description	Key findings	Comments	Quality level
6	Høyer et al., 1996	The Svalbard Study 1988–89: a unique setting for validation of self-reported alcohol consumption	To investigate to what degree people answer truthfully when self-reporting alcohol consumption. Because of the unique situation applying to Svalbard in terms of alcohol sales and distribution, the estimate made in this study was believed to be more reliable compared to other studies using sales volume to validate self-reports	Sales recorded from all agencies selling alcohol on Svalbard were recorded for a two-month period. During the same period all Norwegian adults living permanently on Svalbard were invited to take part in a health screening, including answering a questionnaire about alcohol consumption	513 respondents reported that 3284 alcohol units were consumed during the registration week, which corresponded to a mean annual consumption of pure alcohol of 6.25 litres per capita. Men and women reported a mean consumption of 8.01 and 3.03 litres respectively The study found that the self-reported volume of alcohol accounted for approximately 40% of the sales volume	Failure to adequately control for the confounding, such as export of alcohol to the mainland Moderate response rate (63%), implying a risk of selection bias Did not address potential comparative element – whether the consumption of alcohol was different from comparable populations on the mainland	Very low
12	Schirmer et al., 1991	The Svalbard Study: risk of coronary heart disease at 78 degrees north	To investigate the risk of coronary heart disease among adults living on Svalbard	All Norwegian persons aged 18 and over with intended stay on Svalbard for over three months were included. Of the 818 persons fulfiling the criteria, 612 (75%) participated. Data concerning risk factors for coronary heart disease was collected from two questionnaires, and a personal consultation in which blood pressure, pulse rate, height and weight and expiratory peak flow were measured, in addition to blood samples	The Svalbard population displays a coronary heart disease risk profile similar to that of the Norwegian population living on the mainland	Descriptive reporting of negative findings, few data documenting the findings provided No statistical analyses of data presented comparing the Svalbard and mainland populations	Low
14	Yenikeev et al., 2007	Investigating the impact of heliogeophysical activity on healthy people working in polar areas	To explore the effect of geomagnetic disturbances on human health	Satellite data and patient data from the hospital archives in the Russian settlement Barentsburg were recorded for the years 1985 through 2001. Temporal patterns of geomagnetic disturbances were compared with frequencies of hospital visits	564 health incidents were reported in between 1985 and 2001. Of these, 297 were traumas, and 267, cardiovascular disease Almost half of all reported health incidents coincided with periods of strong geomagnetic activity	Failure to adequately control the confounding, such as the correlation between geomagnetic activity and number of exposed persons, and the connection between geomagnetic activity and weather. Flawed study design as no statistical analyses of associations between geomagnetic activity and the frequency of diseases and injuries were performed	Very low
Category 3 – Traumatic injuries							

(*Continued*)

Table 2. (Continued).

GRADE categories No.	Author	Title	Aim of study	Description	Key findings	Comments	Quality level
10	Risholt, 1992	Accident toll in a Norwegian Spitsbergen mining community	To investigate the accident toll among the Norwegian population living on Svalbard between 1950 and 1989	Data was gathered from the Longyearbyen hospital archive and cross-checked against the register of the Norwegian mining company	Total loss of 84 persons in fatal accidents from 1950 to 1989 The Svalbard population run a risk of being involved in a fatal leisure-time accident nearly 3 times (males) and 18 (females) higher than that of comparable age groups on the Norwegian mainland Up until the 1970s the great majority of injuries causing deaths were related to mining Non-occupational fatal injuries have been on the rise since then	Failure to adequately control the confounding, e.g. no adjustment for age within wide age groups (20–59 years) Does not provide estimates of confidence, high risk of random variation in point estimates High accuracy in reporting traumas in the relevant time period	Low
11	Risholt et al., 1998	Man and polar bear in Svalbard: a solvable ecological conflict?	The objective of the study was twofold. First, to assess the nature and magnitude of the polar bear-human conflict with respect to injuries to man and bear. Second, a major concern has been to minimise injurious interactions in order to safeguard the people who live and work in the Arctic, and, at the same time, secure the future of the polar bear	Reports on serious interactions between humans and polar bears in the Svalbard area during the 25-year period from 1971 to 1995 were reviewed. Records were collected from the files of Sysselmannen, the Governor of Svalbard, and from the files of Longyearbyen Hospital	Approximately 80 bears were involved in serious interactions with humans. Of those, 77 were killed. 10 persons were injured, four fatally, on seven occasions	High accuracy and high internal validity	Moderate
15	Ytterstad and Norheim (1), 2001	Snowmobile injuries in Svalbard – a three-year study	To survey snowmobile injury events treated in Longyearbyen hospital, Svalbard, and to report the injury distribution and characteristics for Norwegian Svalbard residents and visitors driving snowmobiles	Injured people treated in the hospital emergency room in Longyearbyen were recorded prospectively from 8 March 1997 for three years	The injury rate for Norwegian residents was 17,4 per 1000 registered vehicles per year The injury rate for visitors was four times higher than resident rate Almost all accidents are leisure related	Uncertainty about injury rates for visitors, as the exact number of visitors was unknown Accuracy for Norwegian residents: high	Data concerning Norwegian residents: moderate Data concerning visitors: very low

(*Continued*)

Table 2. (Continued).

GRADE categories							
No.	Author	Title	Aim of study	Description	Key findings	Comments	Quality level
16	Ytterstad and Norheim (2), 2001	The epidemiology of injuries in Svalbard compared with Harstad	To survey all injuries treated in Longyearbyen hospital, Svalbard, and to describe the injury epidemiology for Norwegian Svalbard residents and visitors, comparing it with Harstad	Injured people treated in the hospital emergency rooms in Longyearbyen and Harstad were recorded prospectively from 8 March 1997 for three years	The crude injury rate (per 100 person years) for Svalbard residents were for men 100.9 and for women 76.3 Corresponding rates were not significantly higher in Harstad (115.4 for men and 80.1 for women) Home injuries were more prevalent in Harstad (30.5%), compared to Svalbard residents (13.1%) and visitors (8.9%) Work- and leisure-related injuries were more prevalent for Svalbard visitors (38.8% and 48.7%) and residents (27.2% and 41.9%), compared to Harstad (13.2% and 34.8%) The violence (per 1000 person years) was 0.9 for Svalbard resident, less than a third of the Harstad rate	Failure to adequately control the confounding, such as differences in age distribution on Svalbard versus Harstad Uncertainty about injury rates for visitors, as the exact number of visitors was unknown The evidence for Svalbard residents is robust The comparative element with Harstad is weak, as the authors have not considered the differences in age distribution between Svalbard and Harstad	Data concerning Svalbard: moderate Comparative analysis: very low
17	Ytterstad and Dahlberg, 2005	Snowmobile injuries in Svalbard	To survey snowmobile injury events treated in Longyearbyen hospital, Svalbard, and to report the injury distribution and characteristics for Svalbard residents and visitors driving snowmobiles	Injured people treated in the hospital emergency room in Longyearbyen were recorded prospectively from 8 March 1997 for five years	181 snowmobile accidents were registered in the period The mean injury rate for Norwegian residents was 12,9 per 1000 person years The mean injury rate per 1000 snowmobiles per year was 18 for residents and 70 for visitors Nine of ten snowmobile injuries occurred during leisure time The mean age of injured visitors was ten years older than injured permanent residents	Uncertainty about injury rates for visitors, as the exact number of visitors was unknown Accuracy for Norwegian residents high	Data concerning Norwegian residents: moderate Data concerning visitors: very low
GRADE-CERQual categories							
Number	Author	Title	Aim of study	Description	Key findings	Comments	
Category 2 – Risk factors for diseases							
8	Mehus et al., 2016	Young People and Snowmobiling in Northern Norway: accidents, injury prevention and safety strategies	To reveal how young people experience and interpret accidents, and to outline a prevention strategy	Thirty-one girl and 50 boys aged 16–23 years from secondary schools in Northern Norway and on Svalbard, participated in 17 focus groups divided by gender. A content analysis identified themes addressing the research questions	Adolescents are aware of how accidents occur and how to avoid them The participants described risk as a natural part of snowmobile driving and claimed that accidents happen because of poor risk assessment, careless driving, or mistakes	The scope of the article is to explore how young people in Northern Norway and Svalbard experience accidents and the article is thus not solely devoted to Svalbard. Approximately 10% of the respondents were from Svalbard. This implies concern about the study's relevance for the young people on Svalbard	
Category 4 – Search and rescue (SAR)							

(*Continued*)

Table 2. (Continued).

GRADE categories No.	Author	Title	Aim of study	Description	Key findings	Comments	Quality level
13	Tengesdal et al., 2017	A qualitative study of the role of the local population in Longyearbyen in the management of avalanches and avalanche drills [«*Vi var fullstendig avhengig av hjelpen fra lokalbefolkningen» – En kvalitativ studie av rollen lokalbefolkningen i Longyearbyen har i håndteringen av snøskred og snøskredøvelse*]	To explore the role of the local population in Longyearbyen during urban avalanches	Qualitative interviews with public and private SAR actors in Longyearbyen	The local population is a resource for SAR situations on Svalbard. SAR actors expect local population to contribute to SAR operations. The local population could be included in drills etc. more regularly	A solid study with reliable findings	

Table 3. Evidence profile tables.

GRADE Evidence Profile

Outcome	Studies contributing to the review finding	Study limitations	Inconsistency of results	Indirectness of evidence	Imprecision	Publication bias	Quality of the evidence
Diseases	1, 7, 9	Serious limitations	N/A	N/A	N/A	Undetected	Low
Risk factors for diseases	2–6, 12, 14, 18	Serious limitations	N/A	N/A	Serious imprecision	Undetected	Low to very low
Traumatic injuries	10–11, 15–17	Serious limitations	N/A	N/A	Serious imprecision	Undetected	Quality of evidence concerning Norwegian residents (15,17) on Svalbard (16): moderate Quality of evidence concerning visitors (15,17) and comparisons with the mainland population (16): very low
Search and rescue (SAR)	-	-	-	-	-	-	No evidence
Norwegian-Russian cooperation	-	-	-	-	-	-	No evidence

GRADE-CERQual Evidence Profile

Outcome	Studies contributing to the review finding	Methodological limitations	Coherence	Adequacy	Relevance	CERQual assessment of confidence in the evidence	Explanation of CERQual assessment
Diseases	-	-	-	-	-	-	No evidence
Risk factors for diseases	8	No concerns about methodological limitations	No concerns about coherence	No concerns about adequacy	Serious concerns about relevance	Very low confidence	Serious concerns regarding relevance reduces the confidence in the review findings. Only approximately 10% of the study participants were from the study area
Traumatic injuries	-	-	-	-	-	-	No evidence
Search and rescue (SAR)	13	No concerns about methodological limitations	No concerns about coherence	No concerns about adequacy	No concerns about relevance	High confidence	Solid study with reliable findings
Norwegian – Russian cooperation	-	-	-	-	-	-	No evidence

Category 2 – Risk factors for diseases

Nine articles reported findings from studies of risk factors for diseases or impaired health [26–34].

Two intervention trials studied health outcomes for different shift schedules for Norwegian mine workers and found no differences in outcomes between the regimes [29,30]. We rated confidence in the findings as low because the external validity was limited.

Three observational studies explored temporal patterns in metabolic indices, serum lipid profiles and hospital attendance for health incidents among Russian miners in Barentsburg [26,27,33]. Bojko reported seasonal variation in metabolism, and Bojko and Larsen reported increased serum levels of triglycerides after prolonged (12 months) residence [26,27]. Yenikeev and co-workers observed a temporal association between geomagnetic disturbances and health incidents, mainly traumas and cardiovascular disease [33]. We rated the confidence in these findings as very low because there were substantial flaws in the study designs and failure to control the confounders.

A population-based cross-sectional survey of risk factors for coronary heart disease in the Norwegian population found no difference in risk profiles between Svalbard and mainland residents[32]. We rated the confidence in this finding as low because few data were presented, and no comparative analysis was made accessible.

Another cross-sectional survey of Norwegian residents compared self-reported alcohol consumption with public sales statistics from the only alcohol provider to the Norwegian community[31]. The self-reported consumption accounted for 40% of the sales volume. The study had a moderate response rate (63%), could not control the figures for import or export of alcohol and did not compare the data with a population on the mainland. We rated the confidence in the findings as very low.

One article reported results from a quantitative study of how young people experience and interpret the risk of snowmobile accidents[34]. We rated the confidence in the findings as very low because only a small

Table 4. Summary of findings tables.

GRADE Summary of findings

Outcome	Summary of review finding	Studies contributing to the review finding	Quality of the evidence	Comments
Disease	• No evidence of an increased risk for disease on Svalbard	1, 7, 9	Low	• Limitations: ○ Observational retrospective or cross-sectional study design (1, 7, 9) ○ Unclarities related to exposure (1, 7, 9) ○ Risk of selection bias (1, 9) ○ Low response rate (7) ○ No comparison with non-Arctic population (1, 7, 9)
Risk factors for diseases	• No evidence of an increased presence of risk factors for disease on Svalbard • Low evidence for Norwegian population, very low for Russian population	2–6, 12, 14, 18	Low to very low	• Limitations: ○ Failure to adequately control the confounding (4, 5, 14, 18) ○ Unclear eligibility criteria with a risk of selection bias (2, 3, 6, 12) ○ Unclarity with regards to the completeness of the follow-up research (2, 3) ○ No CI provided for repeated measures with a risk of imprecision (2, 3, 12, 14)
Traumatic injuries	• The population on Svalbard has a significantly higher risk of being involved in snowmobile accidents or experiencing polar bear attacks than the population on the Norwegian mainland • The population on Svalbard runs a significantly lower risk of being involved in other types of traffic accidents and in violent episodes	10–11, 15–17	Quality of evidence concerning Norwegian residents (15,17) on Svalbard (16): moderate Quality of evidence concerning visitors (15,17) and comparisons between Norwegian residents of Svalbard and Harstad (16): very low	• Limitations: ○ Flawed measures of exposures and outcomes (10, 15, 16, 17) ○ Failure to adequately control the confounding (10, 15, 16, 17) • Advantages: ○ High accuracy of parts of the studies
Search and rescue (SAR)	-	-	-	-

GRADE-CERQual Summary of findings

Outcome	Summary of review finding	Studies contributing to the review finding	CERQual assessment of confidence in the evidence	Explanation of CERQual assessment
Disease	-	-	-	-
Risk factors for diseases	-	-	-	-
Traumatic injuries	• Adolescents are aware of how accidents occur and how to avoid them	8	Very low confidence	Serious concerns regarding relevance reduces the confidence in the review findings. Only approximately 10% of the study participants were from the study area
Search and rescue (SAR)	• The local population is a resource in SAR situations on Svalbard • SAR actors expect the local population to contribute to SAR operations	13	High confidence	A solid study with reliable findings

proportion (10%) of the participants resided on Svalbard, and it was unclear which findings came specifically from these participants.

Summarised, findings rated at low to very low confidence level indicate that living and working on Svalbard is not associated with exposure to particular health risks.

Category 3 – Traumatic injuries

Five articles reported results from studies of traumatic injuries [35–39].

Risholt retrospectively reviewed health records at the Norwegian hospital in Longyearbyen from 1950 to 1989 and recorded 84 (mean 0,5 per year) trauma-related deaths[35]. Before 1970, most occurred in the mining industry, while after 1970 the majority was caused by leisure-related activities. Risholt estimated the risk of being involved in a fatal leisure-related accident nearly three (males) and eighteen (females) times higher than in the comparable population on the mainland. One aviation accident caused the very high risk for females. We rated the confidence in these estimates low because the study did not adjust for age and sex differences between the populations, and low accident frequencies entailed a high risk for random variation for residents on Svalbard.

Risholt also reviewed hospital records and the governor's files from 1971 to 1995 and verified six non-fatal and four fatal traumas inflicted by polar bears over 24 years[36]. This confirms a small and unique risk of being injured or killed by polar bears.

Ytterstad and co-workers conducted three prospective observational studies of patients treated for injuries at the hospital in Longyearbyen over a five-year period from 1997 [37–39]. The first was a study of all traumatic injuries and compared injury rates on Svalbard with the Harstad region on the Norwegian mainland. The injury rates of 100,9 for men, and 76,3 for women (Svalbard) and 115,4 for men and 80,1 for women (Harstad) per 1000 person-years were not statistically significantly different. The violence rate of 3,1 in Harstad was significantly higher than the rate of 0,9 per 1000 person-years on Svalbard. Home injuries accounted for a larger proportion in Harstad (30.5%) than on Svalbard (22% including visitors), while work- and leisure-related injuries accounted for larger proportions on Svalbard (27.2% and 41.9%) than in Harstad (13.2% and 34.8%). We rated the confidence in the findings for Svalbard residents as moderate and the confidence in the findings from the comparative analyses as very low because the authors did not adjust for the large age and sex differences in the composition of the two populations.

The two subsequent studies reported the number of and injury rates for snowmobile accidents. [37,39]. The studies overlapped and we therefore report findings extracted from the most recent article, which included patients prospectively registered over five years[37]. 181 injured persons were registered. Nine of ten injuries occurred during leisure time. The authors calculated injury rates as the number of injuries per 1000 registered snowmobiles per year, and compared rates for Norwegian residents and visitors (250 snowmobiles were available for visitors to rent). The injury rate was significantly higher for visitors (70,0) than for residents (17,5) per 1000 snowmobiles per year. We rated the confidence in the findings as moderate for Svalbard residents and very low for the comparisons, as the exact number of visitors and duration of visits (i.e. exposure) was unknown.

Summarised, findings from observational cohort studies rated at low to moderate confidence level showed that a gradual shift from predominantly occupational injuries in the mines to leisure-related snowmobile accidents occurred in the 1970s. The studies confirm a small and unique risk of being injured or killed by polar bears. Comparative findings rated as low confidence level showed no difference in overall injury rates between Svalbard and mainland Norway, but indicated a significantly higher risk of being injured in a snowmobile accident for Svalbard residents, and correspondingly a lower risk of being injured in other traffic accidents.

Category 4 – Search and rescue

One article reported findings from a qualitative study of collaboration between volunteers from the local population and professionals during a Norwegian SAR-operation[40]. The case was the avalanche that crushed houses in Longyearbyen in 2015. The study found that the local population was an important resource, that professionals expected volunteers to contribute, and that the collaboration was successful. We rated the confidence in this evidence as high.

Category 5 – Norwegian-Russian cooperation in healthcare and emergency preparedness on Svalbard

None of the articles addressed Norwegian-Russian cooperation in healthcare and emergency preparedness.

Discussion

Summary

This is the first review of health and emergency preparedness against the backdrop of Norwegian–Russian

relations on Svalbard. We found no evidence of an increased risk of or presence of risk factors for diseases or other health challenges on Svalbard, except from polar bear attacks. There are, however, significant knowledge gaps. They include lack of evidence about occupational hazards and disease among miners, and about Norwegian-Russian cooperation in health and emergency preparedness.

Health risks on Svalbard

Mining injuries are hardly described in the research literature from Svalbard. However, the lack of descriptions of mining-related injuries is not a proof of their non-existence. They have probably been categorised as "occupational injuries" in the literature. Crush and burn injuries have been reported, indicating that mining-related injuries were common [41,42]. Other Arctic locations, such as Greenland, resemble Svalbard in terms of climatic conditions, population structure, industry and health challenges. In a small Greenlandic mining community, 13% of all medical consultations were due to occupational reasons. Hearing impairment, back pain and lesions of the eyes, hands and wrists were most frequent. This is comparable to data from the Swedish mining industry[43].

Respiratory diseases such as chronic bronchitis, pneumoconiosis and silicosis are severe outcomes related to coal dust exposure in mine workers, and studies show that up to 12% of coal miners develop these serious diseases[44]. One study found that between 2% and 12% of miners exposed to 2 mg/m^3 of dust were expected to have pneumoconiosis after 40 years[45]. This review has not detected research literature describing respiratory diseases among mine workers. There are, however, observations of pneumoconiosis and silicosis among miners in other reports, such as a report by a Norwegian mining company clinician from 1984, where 12–15 cases of pneumoconiosis/silicosis were described[42].

The healthy worker effect is a form of bias caused by selection of workers who were initially healthy enough to be hired, whereas the general population include persons unfit for work[46]. Such selection is likely to occur both when employers hire staff for work on Svalbard, and subsequently, as specialised health care, care for the elderly and social services are unavailable. This force residents to return to the mainland when they need such services.

The healthy worker effect could confound observational studies and under-estimate health risks. Accordingly, we cannot preclude that risks not identified by the present review exist.

In accordance, few of the deaths occurring on Svalbard are caused by disease. Instead, most of the few deaths are trauma-related, as shown in the observational study comparing injuries at the hospital in Longyearbyen with injuries registered at the hospital in Harstad in Norway. Home injuries often involve elderly patients, and, accounted for a larger proportion in Harstad (30.5%) than on Svalbard (22% including visitors), while work- and leisure-related injuries accounted for larger proportions on Svalbard (27.2% and 41.9%) than in Harstad (13.2% and 34.8%)[38].

Before 1970, most traumatic injuries occurred in the mines, while after, the majority was caused by leisure-related activities[35]. A Greenlandic study of death causes between 1968 and 1985 found that 16.4% were caused by accidents, most related to fishing, hunting and other traditional lifestyle activities (drowning, boat accidents, and accidental shots)[47]. On Svalbard, 38 people were killed in accidents in the Norwegian communities between 1970 and 1989[35]. 14 deaths were work-related and 24 non-occupational. The risk of being involved in a fatal accident after hours was nearly three times higher among people in the Norwegian communities on Svalbard than on the mainland. Alcohol was reported to be a triggering factor in six of the 24 cases[35]. From Greenland, Bjerregaard reported that 23% of accidental fatalities were alcohol-related. Alcohol thus seems to have been a triggering factor both on Svalbard and in Greenland. It is uncertain whether these findings apply more than 30 years later.

In Greenland, the mortality rate in accidents involving motor vehicles was one third of the Danish rate, as expected considering the limited road networks[47]. On Svalbard, most motor vehicle accidents involved snowmobiles. Between 1997 and 2001, 181 peopled involved in snow mobile accidents were registered at Longyearbyen Hospital. 94 were residents and 87 visitors. Visitors ran a four-time higher risk of being involved in a snow mobile accident, possibly due to lack of experience with snow mobiles and the climatic conditions[37].

Between 1971 and 1995, six non-fatal and four fatal polar bear incidents occurred[36]. Since 1995, Norwegian media have reported two more fatal accidents[48]. This confirms a small and unique risk of being injured or killed by polar bears.

Differences between Norway and Russia in health and emergency preparedness on Svalbard

Most of the 18 included studies collected data from either the Norwegian (n = 13) or the Russian settlements (n = 4), and only one collected from both. The basis for comparative analyses was therefore limited.

For example, all studies of trauma epidemiology collected data from the hospital in Longyearbyen only, while no such data from the Russian settlements have been published [35–39]. A few severely injured Russians have probably been treated in Longyearbyen and included in the Norwegian studies. The numbers were not reported, and they would in any case represent a small subgroup of Russian trauma cases. The hospital in Longyearbyen has been organisationally integrated in the University Hospital of North Norway as a department since 2002. This relation could have inspired more research on the Norwegian side, and contributed to this imbalance in scientific publishing.

However, the only comparative study indicated differences between the Norwegian and Russian settlements[24]. This study of self-reported depression revealed a higher incidence for both men and women from the former Soviet Union, compared with the Norwegian population. The authors suggest that differences in home-town latitude between prior to moving to Svalbard may be an explaining factor. The Russians came from lower latitudes and were exposed to larger contrasts in climatic and daylight conditions. It is also worth noting that the data collection for this study was performed in the late 1980s and early 1990s, when socioeconomic differences between the countries were at their highest.

Norwegian-Russian cooperation in search and rescue

Norwegian-Russian cooperation in search and rescue is exemplified by the *Maxim Gorkiy* accident in 1989. The Soviet cruise liner carried tourists when it hit an ice floe west of Svalbard and started to sink. The Joint Rescue Coordination Centre in Northern Norway informed their Russian counterpart in Murmansk. Soviet military vessels were put on alert and the Soviet consulate in Barentsburg sent helicopters that assisted in the rescue operation. Moreover, the hospitals in Barentsburg and Pyramiden were prepared to receive patients. All 954 people onboard were evacuated by the Norwegian coast guard. The incident is often referred to as a potential Arctic disaster that was avoided due to an excellent cooperation.

Another example is the Operafjell accident in 1996, the worst airplane accident ever in Norway [49,50]. All 141 people aboard (Russians and Ukrainians) were killed. Norwegians and Russians worked closely together on the accident site and with bureaucratic tasks. Although international guidelines assign the country where the accident occurs the main responsibility, it was agreed that both Norwegian and Russian personnel should take part in the search and rescue operation. Also, a joint commission worked for 2 years to establish the cause of the accident. It was concluded that inadequate planning and unsatisfactory crew resource management were among the main causes[51].

Knowledge gaps and recommendations for further research

We identified clear knowledge-gaps concerning occupational hazards among miners, and about Norwegian-Russian cooperation in health and emergency preparedness. In addition, the reviewed studies were generally of low or very low quality, implying considerable uncertainty across all studied outcomes. The most frequent shortcomings were failure to control for confounding, risk for selection bias, a lack of adequate control groups and uncertain risk estimates because the number of visitors was unknown. Future studies should take design guidance from e.g. the Strengthening of the reporting of observational studies in epidemiology (STROBE) guidelines [52], and utilise the potential for comparisons between the Norwegian and Russian populations. Further, publicly available health statistics, e.g. on the mortality and morbidity of infectious diseases is probably an underutilised data source. Also, application of qualitative research methods entails a potential to address the knowledge gaps concerning Norwegian-Russian cooperation.

Strengths and weaknesses of the study

There are limitations to this review. We conducted the study in adherence with the original version of PRISMA. The updated PRISMA 2020 allows a broader range of sources, which could have provided more information. We consider it unlikely that this would have changed our conclusions. Further, only the main author screened the titles and abstracts. Additional screening may have prevented potential omissions.

Among the strengths of this study is the fact that the reviewed data covers a broad range of topics from various disciplines. Synthesis of both qualitative and quantitative data remains challenging. The analytical tools GRADE and GRADE-CERQual compensate for this challenge and are among the main strengths. It is also a strength that we were able to include studies published in both English, Russian and Scandinavian languages.

Conclusion

This is the first systematic review to explore health risks on Svalbard, and how the healthcare and emergency

preparedness system is organised to address these risks. The included studies show that the main risks are associated with accidents, as well as a minor risk for polar bear attacks. There is neither evidence of an increased risk for disease, nor an increased presence of risk factors for diseases. There are significant knowledge gaps what concern health and emergency preparedness and Norwegian-Russian cooperation.

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Article 2

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Health Through the Space Lens: Fictional Representations of Health and Illness in Svalbard's Mining Towns in the 1950s

Turid Austin Wæhler

1. Introduction

1.1 Rationale

In this article, I aim to explore different cultural perceptions and interpretations of health and illness through an analysis of two literary texts about Svalbard, namely *Longyearbyen* (2020) by Heidi Sævareid and *The Arctic Novel* (*Arkticheskii roman* 1964) by Vladlen Anchishkin. The background of this article is my PhD project where I examine Norwegian-Russian relations on Svalbard, a Norwegian archipelago located in the Arctic Sea, against the backdrop of health and emergency preparedness. The analysis will explore the role that Svalbard as a spatial construct plays in the chosen texts. *Longyearbyen* and *The Arctic Novel* are quite diverse in terms of theme, structure and context and were written more than 50 years apart. Nevertheless, both novels use Svalbard of the 1950s as a setting for portraying issues related to health and illness. The novels are thus suitable for discussing cultural perceptions about health and illness in a Svalbard context.

It is evident that health and illness are portrayed differently in the Norwegian *Longyearbyen* and in the Russian[1] *Arctic Novel*. One of the overarching themes arising from these texts is just that health has diverse meanings in different cultures and different time periods.

Addressing health issues through a literary lens, such as an analysis of *Longyearbyen* and *The Arctic Novel,* can be fruitful for many reasons. Although fiction is only a version of reality, literature does reflect the real world and can therefore be used as an instrument to illuminate cultural understandings of health and illness (Tygstrup and Holm 2007). Furthermore, fiction offers a useful tool to explore health from a spatial perspective, elucidating, for example, how health and illness affect our relationship with the environment and how the environment can affect our perception of health and illness

1 *The Arctic Novel*'s author, Vladlen Anchishkin, was born in the Ukrainian region of Donbas, at a time when Ukraine was part of the Soviet Union. In this article, the terms Russia and Russian will for practical reasons sometimes be used when describing the USSR.

(Bondevik and Stene-Johansen 2011). Looking at how health is portrayed in *Longyearbyen* and *The Arctic Novel* (for example, through various patient histories) can thus offer us new insights into the challenges of providing health services in a specific location far in the wild (i.e. on Svalbard). Studying fiction about Svalbard will also shed light on the broader topics related to Svalbard, in addition to health and illness in this analysis. An example of such a topic is the right of an individual to health services in remote areas, which may be fruitful to discuss against the backdrop of biopolitics (i.e. politics related to people's health in society). Moreover, *Longyearbyen* and *The Arctic Novel* may be used as tools to explore different cultural connotations and perceptions about health and illness, in particular from a Norwegian and a Russian perspective.

1.2 Outline

In the first part of this article, a short introduction to the research field of Literature and Medicine will be given and literature set in Svalbard briefly presented, before a general exploration of literary space in a Svalbard setting is carried out. *Longyearbyen* and *The Arctic Novel* will then be introduced and utilized to explore how issues related to health and illness are addressed in different cultural settings.

2. Health in literature

2.1 Literature and Medicine

Assessing health-related topics through fiction is a well-established endeavour. The research field of Literature and Medicine has developed throughout the last decades under the larger research area of Medical Humanities (Bernhardsson 2010). The latter research area is an interdisciplinary field that links together medicine, humanities and social sciences (Charon 2017). In Medical Humanities, humanistic perspectives are applied in health sciences in order to illuminate perceptions of health and illness, often with an emphasis on clinical meeting points and training medical practitioners (Helman 2007).

In Literature and Medicine, both classical and contemporary literature is used in order to gain a deeper understanding of human aspects of medicine (Bernhardsson 2010). Fiction can shape concepts of health and illness more efficiently than medicine. Whilst medicine is a field that mostly applies to a limited circle of professionals, fiction – here termed "literature" – has a much broader scope and appeal. The idea that fiction, more than medicine, plays a vital role in shaping our concepts of illness is central to the Literature and Medicine field. An example can be found in how age-related dementia is portrayed in biomedicine versus literature. Explanations of the disease can be found in both fields, but assessing it through both biomedicine and literature secures a broader understanding than just applying one single perspective (Goldman 2017). This makes the author an important actor in forming the understandings of illness and disease in different periods. The Literature and Medicine research area is much engaged in education, as it is perceived to increase the understanding of specific illnesses by medical students (Cunningham et al. 2018). Also, the field of Literature and Medicine engages in exploring the patient-doctor relationship, something which is especially useful in the education of

health personnel. Moreover, searching for an understanding of illness in fiction may also increase the medical practitioner's empathy (Stammers 2015).

The link between illness, diagnosis and interpretation is evident in humanities-based health research. A particular way of describing illness depends on the context (Bondevik and Stene-Johansen 2011). Fiction may not only portray health and illness, but also contribute to the understanding of what an illness can be. Bondevik and Stene-Johansen (2011) point to Gustave Flaubert's description of hysteria in the novel *Madame Bovary* (1857), which proved crucial in shaping the understanding of hysteria's diagnosis. Another example is how tuberculosis was portrayed in fiction several years before its first description in medical literature (Bondevik and Stene-Johansen 2011). In *Longyearbyen*, both psychiatric diseases and somatic cases are represented through symptoms and can add to the reader's discernment of a specific illness. For instance, paranoia is vividly outlined here (see my analysis later in this article), and clearly adds to the reader's comprehension of this specific condition.

2.2 Illness narratives

Illness narratives are central in the field of Literature and Medicine. Such narratives are usually written by, or on behalf of, a patient and seen as important in order to understand illness, both for the health personnel and for patients themselves (Woods 2011). Reading illness narratives may help patients to gain a better appreciation of their own situation. By the same token, medical practitioners can better understand what their patients are going through. Moreover, writers of illness narratives (which are frequently autobiographical) are often motivated by the need to help others in a similar situation (Mazanderani, Locock, and Powell 2013). However, there are certain limitations to medical narratives. Woods (2011) questions the truth value of illness narratives. Can we trust people's stories about their own illness to present the situation as it really is, without being coloured by storytellers' own perceptions and attitudes? Woods also points out how illness narratives can be harmful if they are used as vehicles of opposition towards a treatment regimen, rather than empowerment in the sense of accepting one's illness.

2.3 Illness narratives in Russian literature

Illness narratives can also be found in Russian literature. Writers such as Anton Chekhov (1860-1904) and Mikhail Bulgakov (1891-1940), both medical doctors, in their "Ward no. 6" and "A Young Doctor's Notebook" used medical space, such as a hospital ward or an operating room, as a means to say something about the society overall. Also authors such as Leo Tolstoy (1828-1910) in his "Death of Ivan Ilyich", Alexandr Solzhenitsyn (1918-2008) in his *Cancer Ward*, Leonid Tsypkin (1926-1982) in his "Coroner's Notes" – and more recently Maksim Osipov's (1963-) "In My Native Land" – have clearly identified the medical woes of their country with the larger problems of Russian society. In some of these works, the medical ward has been used as a microcosm of Russia itself (Miller and Starikov 2021).

2.4 Cultural perceptions of health

It is well established that health, illness and pain are perceived differently in different cultures. Let us have a look at back pain as an example. Between 1979 and 1996, the sickness absence for back pain in the UK increased significantly despite no change in the incidence of the conditions that cause back pain. The trend later reversed and the changes have been explained as a cultural phenomenon (Peacock and Patel 2008). On the contrary, a study from Nepal found back pain to be common, but no one sought help when treatment became available. In this example, it appears that back pain was seen not as a medical issue but as a natural part of the aging process (Peacock and Patel 2008).

It is thus important to keep in mind that narrativity (the way the story is told), is also not universally shared but culturally dependent. In other words, cultures that are dissimilar, both geographically and institutionally, hold non-identical meanings with regards to narrativity. A medical doctor will for instance read a novel such as *Longyearbyen* through a different lens than a person without a medical background. The last point is especially important to keep in mind when discussing (the perception of) health and illness in different cultures, as this article does.

2.5 Fiction set in Svalbard

Svalbard offers a rich collection of fiction, which to varying degrees portrays issues related to health and illness. In the late nineteenth century, stories about polar expeditions were widely popular, and the sales of Nansen's report on crossing Greenland outperformed Hamsun's novel[2] *Hunger* (1890) published the same year (Wærp 2017a). In 1920, Nansen released *En ferd til Spitsbergen (A Journey to Spitsbergen)*, a description of his 1912 journey to Svalbard. More autobiographical records, such as Helge Ingstad's *Landet med de kalde kyster* (The Land with the Icy Shores, 1948)[3] and Liv Balstad's *Nord for det øde hav* (North of the Desolate Sea, 1955), are worth mentioning. With time, documentary accounts of Svalbard sojourns became outnumbered and outperformed by fictional ones. In later years, Jon Michelet's novel *Orion's Belt* (1977) has gained a cult status. Also, Monica Kristensen's book series based on Svalbard is widely popular (Kristensen 2007-2014)[4]. Other stories, such as Heidi Sævareid's *Longyearbyen*, Ellinor Rafaelsen's book series about Tora from Tromsø (2008-2011) , Anne B. Ragde's *Zona Frigida* (1995) and Per Arne Totland's *Everything Will Be Hidden in One Hundred Years* (2015) are examples of literature in which Svalbard plays a significant role. Of these examples, *Longyearbyen* and Rafaelsen's book series focus in particular on issues related to health and illness.

Of Russian-language fiction, *The Arctic Novel* (1964), written by the Soviet author Vladlen Anchishkin, is especially noteworthy because health and illness occupy a central place in it. Other Russian titles include the accounts of a year-long stay on Svalbard in the 1960s, *V semi santimetrakh ot poliusa* [Three Inches from the North Pole, 1964] and *Studenyi arkhipelag* [The Frigid Archipelago, 1971], written respectively by Andrei

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[2] The first edition of Hamsun's *Sult* [Hunger] (1890) had a print run of 2 000 copies (and as late as in 1897, there were still 500 copies left), while more than 6 500 copies of *På ski over Grønland* [On Skis across Greenland] (1890) were all sold during a few months that autumn.

[3] All translations from Norwegian and Russian into English have been made by the author of this article.

[4] Monica Kristensen's book series of crime novels on Svalbard includes *Hollendergraven* (2007), *Kullunge* (2008), *Operasjon Fritham* (2009), *Den døde i Barentsburg* (2011) and *Ekspedisjonen* (2014).

Iakovlev (an artist) and Sergei Kharchenko (a journalist), as well as Nikolai Shpanov's spy thriller *Led i fraki* [Ice and Tailcoats] (Shpanov 1932) and Maria Semenova's historical fantasy *S vikingami na Svalbard* [To Svalbard with the Vikings] (Semenova 2007).

Depictions of the unique nature and culture on Svalbard are recurring themes in literature from the archipelago, such as Kharchenko's and Balstad's publications. Health and illness are frequent topics in Svalbard literature, too. Especially accidents and the so-called polar syndrome – a condition occurring among some polar explorers, with effects such as forgetfulness and mood disturbances – are described in literature from Svalbard. Also scurvy is often depicted, especially in older works. East-West tensions is another theme often found in literature from Svalbard. The archipelago is at the core of the Arctic, both in terms of military strategy and resource exploitation.[5] This is reflected in Svalbard literature, which repeatedly describes potential conflicts between East and West on Svalbard, such as Jon Michelet's novels *Angrepet på Longyearbyen* [*The Attack on Longyearbyen*] (1978) and *Orion's Belt* or *Everything Will Be Hidden in One Hundred Years* by Per Arne Totland. Other motifs often found in literature from Svalbard, are freedom, animals (especially polar bears), mining, heroes and religion (Mork 2008).

3. Health and place on Svalbard

3.1 The spatial dimension

When addressing health issues through the spatial lens of Svalbard, the space concept is of specific significance. Space is a location, but also a place for interaction. A basic definition of space as a place denotes its geographic position, its physical characteristics, and the cultural aura that adheres to it (Cresswell 2007). The space concept is seen as both opposed to and intertwined with the concept of place, although the place concept is regarded as somewhat more concrete than the space concept (Mønster 2009).

In a Russian context, Nick Baron has emphasized the importance of geographical space as a vital factor in social, political and cultural processes that defined Russia's development (Baron 2008). Here space is brought into the foreground and seen as an actor in itself rather than just a backdrop to action. Since the 1990s, space has developed as a new line of inquiry in intellectual debates in and about Russia. In the aftermath of the collapse of the Soviet Union, Russia experienced a fragmentation of political space and a fluctuation of formerly solid boundaries. Against this backdrop, a newfound appreciation of the region as a subjective imaginary has been emerging (Bassin et al. 2010).

3.2 Spatial nodes

Looking into spatial nodes may be useful when addressing a specific topic, such as health, in a spatial context, in this case Svalbard. In a literary setting, spatial nodes have been described as opposed to temporal nodes (DuBois 2017). A spatial node refers to a significant location, a type of location or a use of location that form resonance within

[5] For more than a century, the archipelago has housed coal miners mainly comprising Norwegians and Russian speakers from the (former) USSR.

literary culture. As opposed to the temporal node, which identifies phenomena from a horizontal timeline point of view, the spatial node recognizes the same phenomena from a vertical and fixed location across history, rather than within a single moment. Perceptions of place are defined and identified by writers and embedded within a place and a landscape, where they can influence literary production over time (DuBois 2017). This allows for an understanding and tracking of attitudes and interpretations as they evolve in a place and not only over time.

This framework resonates with the chronotope concept introduced by Mikhail Bakhtin (Bachtin, Holquist, and Emerson 1981). This concept is used to define the presentation of time and space in works of fiction and is a useful tool when analysing such works (Bachtin and Mørch 2003). Before Bakhtin's introduction of the chronotope concept, space and time in narratives were frequently regarded distinct from one another (Borghart, Keunen, and De Temmerman 2010). According to Bakhtin, time and space are inseparable, as actions are always linked both to a temporal and a spatial dimension. Concrete objects are used as thresholds connecting these dimensions. According to Bakhtin, chronotopes such as the staircase, the corridor and the vestibule always represents places of crisis and change in Dostoevsky (Bondesson 2017). Likewise, the staircase between the hospital ward and the home of the doctor and his family in *Longyearbyen* can be said to represent the dichotomy between the home sphere and the work sphere which dynamizes the novel. Similarly, in *The Arctic Novel*, the boat between Svalbard and the mainland becomes a symbol of the struggle between work duties and family obligations, which, as we will soon see, is a key theme in this book.

In this article, the temporary node is the same in both Sævareid and Anchishkin books, i. e. the 1950s. This will allow for a comprehensive analysis of a stereoscopic picture of Svalbard at an identical moment in time from a Russian and a Norwegian point of view.

3.3 Svalbard as a heterotopia

In the Svalbard context, it is interesting to look into Foucault's understanding of the concept of heterotopia. Foucault suggests that space is defined by its surroundings and by what it differs from (see Foucault (2010) and DuBois (2017)). The shaping of a place depends not only on what is in it but also on what can be found outside of it. In both *Longyearbyen* and *The Arctic Novel*, Svalbard is constantly compared to mainland Norway and the USSR, and is thus portrayed through what is outside the archipelago. In *Longyearbyen*, this contrast between Svalbard itself and what is outside of it, is used to highlight the main character's feelings of exclusion and homelessness. In *The Arctic Novel*, on the contrary, even though the distance between Svalbard's Soviet dwellers and their place of birth and permanent abode is recognised and fills their hearts with nostalgia, these dwellers' settlements on the Norwegian archipelago are consistently treated as a territory that belongs – and is inextricably linked – to the Soviet government and Motherland (see Anchishkin, 1970, p. 413).

Heterotopias are described as concrete spaces located on the margins of society, or as a negative entity within the society (Briens 2017). Heterotopias represent the deviant "other" and reflect the places from which this "other" differentiates oneself (Wærp 2017b). Unlike utopias, heterotopias can be actual places that really exist (Moody 2017). Following

the logic of Foucault's concept of heterotopia, Svalbard may thus be regarded as a location partially dissimilar to the world outside, which at the same time reflects certain features of that world. Despite its unique spatial features, Svalbard becomes a mirror of the larger society. Thus Svalbard can tell us more than merely something about Svalbard itself.

Besides, the hospital wards in both *Longyearbyen* and *The Arctic Novel* – important sites of action in both books – can be seen as heterotopias. Again following Foucault, hospital wards are locations divergent from the outside world while at the same time reflecting certain features of that world. In both *Longyearbyen* and *The Arctic Novel* events taking place in the hospital wards help shedding light on what is happening outside the wards.

3.4 Svalbard as a locked room

The locked room topos, chiefly known through the literary genre of a locked room mystery, is another interesting aspect of Svalbard's archipelago status (Wærp 2015). Moreover, as Svalbard has traditionally been a mining society where coal mines constitute the society's pillars, the Svalbard mines acquire a special symbolic value. The coal mines constitute the very cornerstone of existence on Svalbard, and may thus act as a symbol of life and survival. It can therefore be claimed that Svalbard is a double locked room, combining simultaneously the loci of mine and of island/archipelago in fiction. The references to Svalbard as a hard-to-reach place are countless in both *Longyearbyen* and *The Arctic Novel*. So are the mentions of the mines as the centre of activity on Svalbard.

Aspects of the locked room *topos* also embrace the hospital wards in *Longyearbyen* and *The Arctic Novel*. In both books, there is a clear dichotomy between the hospital wards and the outside. People on the outside, such as Eivor in *Longyearbyen* and Aleksandr in *The Arctic Novel*, are not necessarily included in the events taking place in the hospital wards, where their spouses work. In this way, the hospital wards function as locked rooms in both novels.

4. *Presenting* Longyearbyen *and* The Arctic Novel

4.1 Analytical framework

The analysis of *Longyearbyen* and *The Arctic Novel* borrows structural elements from the Textpraxis methodology by Gaasland and Greve (Greve 2007). This methodology provides a list of tasks aimed to elucidate the contribution of all components of a literary text and is thus a useful systematic procedure to establish the communicative value of literary works.

4.2 Novel I: Longyearbyen

Longyearbyen, written by the Norwegian author Heidi Sævareid (b. 1984), portrays a medical doctor's family living on Svalbard in the 1950s. The overarching topics in the novel seem to be dependency and exclusion. The novel was published in Norwegian in 2020 and

is an example of contemporary Norwegian literature where the author's own (family) history plays a significant role in the book. As a matter of fact, Heidi Sævareid is the granddaughter of a man who worked as a medical doctor on Svalbard in the 1950s. Although the book is not a biography, there are several similarities between the novel and incidents that took place for real. *Longyearbyen* received fairly good reviews in the Norwegian press (see for instance Moro (2020), and Aano (2020)).

In the novel, the reader meets Eivor, a housewife, and her husband Finn, a doctor. Together they have two daughters of an early school age. In addition, Jens Heiberg, who works as a logistics manager for a Norwegian coal company, is introduced as one of the main characters. This character becomes increasingly important throughout the story, as he develops a serious mental illness, which is probably exacerbated by a winter depression. Further, the reader meets an assistant doctor and a dentist, along with the Governor's wife Karen, and the Governor of Svalbard himself. The dog Jossa is another important character in the novel.

Svalbard is the novel's main setting and the archipelago is often contrasted to the mainland. Throughout the text, the reader follows Eivor to the mainland through retrospective glimpses into her life before Svalbard. Overall, her life on the mainland is depicted as far happier and less problematic than her current sojourn on Svalbard: «Home in Oslo, the birch leaves have sprung and the fruit trees stand as white torches in the gardens and the marsh-marigolds shine towards the forest floor. In Longyearbyen, nothing grows during spring (…). The city is a brutal, grey scar in the landscape» (Sævareid, 2020, p. 145).

The house where Eivor lives is another setting. The building also includes the doctor's clinic. Eivor is often situated in the stairway between these two units. That stairway is where the struggle is being played out between the home sphere and the work sphere. The latter makes increasing demands on Eivor's husband. As the story proceeds, Eivor, for her part, feels increasingly trapped in the house, which is contrasted to the outdoor space. The only occasions for Eivor to feel free on Svalbard is when she is out skiing: «The best remedy for the heavy feelings is being active» (Sævareid, 2020, p. 280). Accordingly, the outdoor is perceived as a space where the main character finds rest and conciliation, as opposed to her home, where she feels stuck and bored.

The story revolves around Eivor's daily life on Svalbard. Through Eivor's eyes, we follow her family over two winters on the archipelago. It quickly becomes evident that Eivor struggles to feel at ease there (Sævareid, 2020, p. 289). Her husband is often away due to work, and Eivor feels isolated in the dark and cold environment. Along with the story of Eivor's endeavours, the reader follows Jens Heiberg as he develops a serious mental illness and is hospitalised and ultimately evacuated to the mainland for proper treatment. The scene where Jens is picked up by an airplane and sent off the archipelago is the point of no return when Eivor realises that she will never feel at home on Svalbard (Sævareid, 2020, p. 302).

The story is told via Eivor's thoughts and through dialogues between different characters. Moreover, much of the story is expressed by recourse to silence and the body language that these characters use: «[Finn] hasn't talked more about her wanting to travel

back home. Did she mean that? It's hard to remember. She's counting days. Finn hasn't said anything about the suitcase in the corner, and he doesn't try to hide it under the bed» (Sævareid, 2020, p. 150).

The tempo is shifting throughout the novel. While some episodes can be described over several pages and even chapters, large time lapses are made on other occasions (Sævareid, 2020, p. 179). Descriptions of Svalbard's nature are frequent. Although Svalbard is portrayed as cold, dark, and even hostile, at the same time it looks beautiful and majestic:

> [...] but now she suddenly finds the words. Suddenly everything comes to her, now that she is no longer in it. She describes the shimmering glaciers, the blue light in February, and the ice sculptures along the coast. She talks about northern lights, and about all the stars that are visible extraordinarily well (p. 157).

This dichotomy also characterises Eivor's relationship to her husband. Although she is a loving mother devoted to family life and raising their two beloved daughters, Eivor's relationship to Finn deteriorates as she increasingly struggles to adapt to the new environment. When Eivor feels trapped and miserable, the only place she finds herself at ease is when she is outdoors hiking or skiing with the dog Jossa. Throughout the novel, a repetitive pattern is established by Eivor's escape to nature after having a quarrel with her husband. The fact that Eivor finds consolation in the very same nature that makes her feel trapped in the first place, is an interesting contradiction. This dichotomy is also reflected in Eivor's relationship with her husband, which is a source of both frustration and consolation, too. I interpret this dichotomy as part of the overarching themes in the novel, namely dependency and exclusion. Although Eivor is drawn to Svalbard and nourishes warm feelings for her husband, both Svalbard and her husband leave her with a sense of not belonging. How health problems are portrayed is another interesting aspect of *Longyearbyen*. Challenges related to health and illness are notably articulated in the novel, and will be thoroughly discussed later in this article. This emphasis on health and illness can also be found in *The Arctic Novel*, as we shall now see.

4.3 Novel II: The Arctic Novel

The Arctic Novel, originally published in the literary magazine *Neva* in 1964 (nos 4-6), was written by the Soviet author Vladlen Anchishkin (1924-2003) and depicts life among miners and other workers in the Soviet coal-mining settlement of Grumant on Svalbard (which in Russia has traditionally been referred to as Spitsbergen) in the 1950s. The novel has been republished a number of times. For ease of access, I have been using the 1970 version of the novel which consists of two books, divided into four and five parts, respectively.

The main plot of the novel concerns Raisa and Aleksandr, a married couple in their thirties, from Moscow, who travel to Svalbard to work in Grumant. Raisa is employed as the head doctor at the local clinic, while Aleksandr (a mining engineer by training) works for the coal mining company as the deputy mine director for personnel. Raisa quickly becomes a respected co-worker and is depicted as a skilful and trustworthy doctor.

Aleksandr, on the contrary, is struggling to earn respect at his new workplace. Moreover, he becomes jealous because the mine director Baturin starts paying Raisa special attention which she does not reject. About a year into their Svalbard sojourn, Aleksandr and Raisa disagree on whether they should stay in Grumant or move to Barentsburg, a larger Soviet mining settlement on Svalbard. Ultimately, they remain in Grumant. The couple's relationship deteriorates as Raisa continues her flirt with Baturin. At the same time, Aleksandr and Baturin disagree about the technical development of the mines. Baturin, being Aleksandr's superior, uses his position to create difficulties for him. The novel ends with Raisa travelling back to Moscow (where the couple's children were looked after by the grandparents), while Aleksandr stays in Grumant for another (third) year. He then goes directly to Kuzbass for more work in the mines. It looks as if Raisa and Aleksandr end their relationship because they cannot reconcile their career ambitions with family duties.

Health and illness are recurrent topics in the novel, given the nature of Raisa's profession. Several medical conditions, such as hypothermia, appendicitis, and various traumas related to mining accidents, are described, e.g.:

> She demonstrated to Baturin a classic case of appendix removal. She performed the procedure just like she had done when removing the shard [from Baturin's head], having opened the skin and the peritoneum just enough to freely work with a tweezer, and ended up exactly by the appendix (Anchishkin, 1970, p. 339).

Anchishkin worked on Svalbard as a journalist for about two years, in 1956-58, and became well familiar with the conditions on the archipelago. He saw how the then demographic situation, with a large surplus of men compared to the number of women, created a basis for sexual rivalry and jealousy. In the novel, jealousy and love triangles are recurrent topics. For instance, the relationship between Raisa and Aleksandr is challenged by Baturin, who is single and unattached and becomes strongly attracted to Raisa. A jealousy drama involving a young women and three slightly older men is another similar subplot in the story.

Career versus family life is another central topic in the book. Both Raisa and Aleksandr want to prioritize own career ambitions, which ultimately ruins their relationship. As Raisa puts it to Aleksandr, «My work is no less important than yours; they've been keeping my position for me both at the clinic and at the medical institute [in Moscow]. The children will turn away from you when we return back home – I will do everything to achieve this!» (Anchishkin, 1970, p. 551).

The power hierarchy within the mining company is played out, first and foremost, in the dynamics between Aleksandr and his boss Baturin. The latter, an experienced leader, objects against the rapid modernization of the mine (because, in his opinion, it would be too much too soon) and loses respect among his subordinates. His obvious interest in Raisa aggravates his open conflict with Aleksandr.

Raisa is portrayed as ambitious and thorough but also devoted to her family duties. Early on, the novel's reader is introduced to her dream of following into her mother's footsteps and becoming a skilled doctor. Aleksandr is described as hard-working and

persevering. He is a dedicated father and family man, although he in the end leaves his family to pursue his career. Amongst other characters, apart from Baturin, the reader meets Afanasyev, a young mining engineer in love with Olga Kornilova, an even younger telephone exchange operator in Grumant. Just as in *Longyearbyen*, a dog is among the main characters of the book; the stray dog Ceasar – apparently a real-life long-term Barentsburg resident (see Mikhailov, 1983, p. 95) – plays a large role in *The Arctic Novel*.

The main setting of the novel is Grumant, although other places, such as Moscow, Novosibirsk and Donbas, are also named and described among the places of action. Grumant and Svalbard are portrayed as location where nature is in charge: «Frost, wind and water have been beating the rocks for thousands of years, breaking off blocks and small pebbles; from them, at the foot of the mountain, rose gigantic steep screes protecting the mountains from the greedy waves (…). During the rainy season, the snowmelting makes the [usually small] Rusanov creek crushing. Rapidly falling down, it cuts through the rocks forming a deep, murky gorge (…) Grumant…» (Anchishkin, 1970, p. 79).

Svalbard is also described as a trap. Several central characters travel to Svalbard to escape something or someone from the mainland, or because they are chasing a dream. Many of them find that things on Svalbard do not go quite as expected, but leaving it is hard, as the transportation (in the 1950s) is not available for months at a time due to ice and weather conditions: «One cannot flee from Spitsbergen even if one feels the urge to do so: according to the contract, one must stay there for two years; from December until May, navigation to the archipelago is closed, and airplanes do not fly there» (Anchishkin, 1970, p. 71).

The story is told by an unnamed omniscient narrator. Dialogue is often used to depict events throughout the novel. Similarly to *Longyearbyen*, the tempo of the story is leaping. Some episodes are described in detail over many pages, while at other times the story skips several months (or even years, in the background chapters).

The book is a good example of the Soviet production novel (*proizvodstvennyi roman* in Russian), a genre that developed after the 1917 revolution and was popular until the end of the Soviet Union (Clark 2000). Soviet production novels are typically set at production sites and portray challenging working and weather conditions, and sometimes acts of sabotage. The genre played an essential role in the construction of Soviet culture (Nicholas 2010).

5. The understanding of health and illness in different cultural settings

5.1 Health and illness in Longyearbyen *and* The Arctic Novel

Different spaces offer various perspectives for the exploration of health and illness. Following the logic of new spatial history (Bassin et al. 2010), disparate perceptions of space can provide remarkable insights into how people understand themselves and how they organize their values. This is illustrated when exploring how *Longyearbyen* and *The Arctic Novel* address health and illness. Perhaps the most striking theme that surfaces from these books is how health and illness are linked with the surroundings, i.e. Svalbard. In *Longyearbyen*, Eivor is constantly feeling down, and Jens develops paranoia. Also in

The Arctic Novel, the surroundings directly affect the wellbeing of the main characters, with Svalbard functioning as a snare.

Longyearbyen mentions numerous work accidents and illuminates occupational health, in addition to mental illness and epidemics. Many health-related incidents taking place in the novel have root in reality which is described in *Hvit kittel – Sort kull* [White Scrub – Black Coal] (Sandmo 2005) that portrays the experience of all the doctors employed on Svalbard by the Norwegian mining companies between 1905 and 1980, and in the statistics provided by Statistics Norway (2020). Examples of how occupational health is pictured in *Longyearbyen* are frequent. Through Finn's job as a doctor for a Norwegian coal company, the reader is introduced to many cases where coal miners have been injured at work and receive medical treatment, such as in the following section:

> Up here it's all about blood and bones and infections. It's about truncated fingers, crushed bones, wear damages in tendons and muscles. Coughing. Concussions. Frost bites. Silicosis and trichinosis. This is what a company doctor has to deal with (Sævareid, 2020, p. 26).

Health problems are presented somewhat differently in *Longyearbyen* and *The Arctic Novel*. In *Longyearbyen*, psychiatric issues and the lack of access to psychiatric treatment are among the health problems that are described thoroughly, when Jens Heiberg shows signs of mental distress, is having paranoid delusions about the Soviet Union and feels threatened by the Soviet presence on Svalbard: «He is a great guy but he has got pretty tense nerves. That was probably your impression too, at our party where he was yelling about the Russians» (Sævareid, 2020, p. 114). *The Arctic Novel* describes multiple medical conditions, but mental illnesses are not among them (unless one counts the term "psychopathic" used in the context of a dysfunctional family relationship (see Anchishkin, 1970, pp. 434-35, 483)).

Later, Jens experiences more severe delusions and hallucinations. He is finally forcibly admitted to the hospital, where he spends long periods during the winter. Eventually, he is transported to the mainland for more intensive treatment than what could be offered on Svalbard. With the story of Jens, psychiatric disease constitutes one of the main topics of the book. Here, it is interesting to compare the fictional story with what may have happened in reality. *Longyearbyen* was written by the granddaughter of one of the medical doctors on Svalbard in the 1950s, and there are several similarities between the fictional story and the incidents that took place for real. In Sandmo's *White Scrub – Black Coal* (2005), the endeavours of the author's grandfather on Svalbard are depicted. The doctor, who in real life goes under another name[6] than that of the literary character, is clearly interested in psychiatry and applies different treatment methods during his time on Svalbard: «Finn realized early that people came to him with other types of problems too, and before the winter isolation began, he ordered several psychiatric remedies» (Sævareid, 2020, pp. 26-27).

[6] Sævareid's grandfather Gunnar Bjørn Bjørner was employed as a doctor by the Norwegian mining company Store Norske Spitsbergen Kulkompani (The Great Norwegian Coal Company Ltd., usually referred to as Store Norske) from 1956 to 1958. In *Longyearbyen*, he is known as Finn Nydal.

Also, other health-related issues are illuminated in *Longyearbyen*. In 1957 and 1958, an influenza virus known as the Asian flu caused a pandemic not unsimilar to the present COVID-19 pandemic (Akin and Gözel 2020). The Asian flu is depicted in *Longyearbyen* but not even named in *The Arctic Novel*: «He (Finn) strokes her (Eivor) across the front again, dries away sweat with a tissue and says he believes that she has the Asian flu (…). "If I'm right, it will break loose everywhere now. My God!» (Sævareid, 2020, p. 312).

In *The Arctic Novel*, Raisa is often portrayed through her work and how she as a doctor deals with different challenges. She solves various (sometimes very serious) medical problems professionally without hesitation, and quickly earns respect among Grumant dwellers. Here is an example:

> Mishka's leg was crushed. Raisa went down into the mine, to a jam of coal-loaded trolleys, and provided first aid to the patient… Mishka's leg should have been removed and thrown away, according to surgery practice. Raisa sutured blood vessels, muscle ligaments, and nerves, and mended the shattered bone with a piece cut from Mishka's hip, and put the leg in a cast. The leg was saved (Anchishkin, 1970, p. 91).

This way, scenes involving medical treatment in *The Arctic Novel* are often used to underline the doctor's skills and ambitions. This is a clear contrast to similar scenes in *Longyearbyen*. Mostly shown through Eivor's eyes, scenes involving medical treatment tend to add to the picture of the doctor as an extremely busy man with little time for his family, or – as we shall see – as a source of detachment between Eivor and her doctor-husband.

5.2 Differences in health and illness descriptions

Descriptions of various medical conditions are quite similar in both novels. As has already been noted, *The Arctic Novel* mentions hypothermia, appendicitis and various traumas related to mining accidents. The latter category also widely features in *Longyearbyen*, along with other medical conditions, such as hypothermia, appendicitis, the Asian flu and Jens's paranoia. The biggest difference in how medical conditions are portrayed in the two books, is how psychiatric diseases are being dealt with. In *Longyearbyen*, one of the main themes is that a psychiatric patient is sent to the mainland because the health facilities on Svalbard are not sufficiently equipped to offer him proper treatment. In *The Arctic Novel*, psychiatric illnesses are not brought up at all. Were psychiatric issues a topic that was best avoided in Soviet literature at the time when *The Arctic Novel* was written? There is no immediate reason to draw such a conclusion. Anchishkin first published his novel during Khrushchev's Thaw, when censorship was not so severe as under Stalin and Brezhnev (Frankel 1976).[7]

[7] It is probably owing to stricter (self-)censorship that health problems appear rather underrated in Kharchenko's story about Soviet miners on Svalbard, "Tsvety i l'dy" (Flowers and Ice), published under Brezhnev's neo-Stalinism and forming part of Kharchenko 1971. According to "Flowers and Ice", mining accidents apparently never happen in the Soviet mines and the main health issue among the miners is insomnia. The doctors in the Soviet settlements are apparently suffering from lack of medical tasks. At least that is one way to interpret the scene where a stack of pigeons is diagnosed with vitamin deficiency and prescribed treatment by the doctors (see Kharchenko, 1971, p. 21). Kharchenko was employed on Svalbard as a journalist in 1956-60 and 1963-65 and must have known about twenty fatalities that took place among

However, according to the Soviet psychiatric tradition, mental health was directly linked to socio-economic conditions, with capitalist exploitation allegedly providing an especially fertile ground for psychiatric disorders. "The Soviet view […] held that mental illness would decline under communism — hence its ongoing presence was seen as implying a lack of full socialist development of man" (Gordon and Meux 2003). This is why few people were at liberty to bring the issue of mental illness up for public discussion in a non-medical context. Besides, it is possible that psychiatric disorders were rare in the Soviet settlements on Svalbard owing to the medical screening of Arktikugol's (potential) employees. If the suicide rate is anything to judge by, after WWII only one suicide attempt apparently took place among the Soviets on Svalbard, in 1949, attributed to playacting on the grounds of jealousy (Portsel, 2020, p. 455).

A good source to access information about the health situation for the Russian-speaking population on Svalbard in the post-war Soviet era is the newspaper Polyarnaya kochegarka. The newspaper was published several times a week in Barentsburg, and often highlighted issues related to health and illness. A frequent topic was how human health was affected by the harsh conditions in the Arctic and how Svalbard residents could best cope with challenges related to factors such as cold weather and lack of sunlight. Here, the polar syndrome was touched upon, but only by indirect remarks such as that acclimatisation plays a decisive role for people's mental condition (Tysyachnyi 1975) or that sufficient amount of sunlight keeps the nervous system balanced (Speranskaya 1953). Nevertheless, scientific research shows that residents in the Russian-speaking settlements did struggle with mental challenges, too. A study from the 1990s (Nilssen et al. 1999) compared the prevalence of depression in Longyearbyen and Barentsburg, and found that among Russian speakers the prevalence of self-reported depression was 26.8% for men and 44.7% for women, whereas the corresponding figures for the Norwegians were much lower (10.7% for men and 15.6% for women). In general, among people on long expeditions in polar areas about 5% meet DSM-IV or ICD criteria for psychiatric disorders (Palinkas and Suedfield 2008).

5.3 Similarities in health and illness descriptions

Some similarities in how the novels depict health and illness can be found in the descriptions of clinical facilities. In *The Arctic Novel*, the hospital is portrayed as well-furnished in terms of appliances, but less so when it comes to manpower:

> The hospital, contrary to Raisa's expectations, was equipped with everything necessary to heal a person and, in the worst case, to provide a reliable first aid. But in this hospital, located so far away from the rest of the world, where there is no counselor or consultant nearby, the chief surgeon was swamped with work (Anchishkin, 1970, pp. 86-87).

The hospital in *Longyearbyen* is too described as quite new and modern in terms of its equipment, supplied with necessary drugs and new central heating. However, the lack of

Soviet dwellers there at the time. At least three of these fatalities were caused by industrial accidents (see Portsel, 2020, pp. 453). Yet in his book Kharchenko does not mention either them or any work-related injuries.

proper facilities to treat psychiatric patients is mentioned several times throughout the book, and so is the lack of manpower.

Other similarities in both novels can also be found in how certain illnesses and treatments are described. Let us use appendicitis as an example, as this malady features in both novels. Earlier in this article (4.3), we saw how the treatment of appendicitis in *The Arctic Novel* was depicted as a neat operation where the main character impressed her admirer by her professionalism when performing it. In *Longyearbyen*, the scenes describing appendicitis have a somewhat different nature:

> It was a routine operation, he finally said. Busy at the beginning, of course, and the appendix was about to rupture when he arrived. But the operation went just fine. Eivor nodded and turned away, grateful that Finn didn't say anything more. She easily gets nauseas when hearing descriptions from the operating room. (Sævareid 2020: 19).

Here, the description of the surgery illustrates the distance between Finn and Eivor. This distance grows throughout the novel and is instrumental for Eivor's feeling of being excluded from her husband's central spheres of activity.

5.4 Divergent approaches to gender

Yet another factor is evident when comparing the two novels, namely the issue of gender, more precisely gender and medicine as a professional occupation. Raisa from *The Arctic Novel* is a female doctor, torn between her duties at work and obligations to her family. Eivor from *Longyearbyen* is torn between her own needs, on the one hand, and her obligations as a housewife and mother in a marital union with a doctor. The two women's fates are similar in terms of being torn between two ends, yet disparate in terms of being employed and being a housewife. This disparity points at some of the cultural differences between Norway and the Soviet Union at the time. In Norway, being a doctor in the late 1950s – early 1960s often meant a man's job; only 12 percent of the medical students in Norway between 1951 and 1960 were women (Larsen 2014). Among the doctors in the Norwegian settlements on Svalbard, only a handful have been women (Hanoa 2017). In the Soviet Union, on the contrary, medicine was to a large degree considered a female occupation; in 1960, three out of four physicians were women (Field 1966). We know for certain that Soviet female doctors did work on Svalbard. Between 1952 and 1955, the head doctor in Grumant was actually a female surgeon with a clinical experience from WWII – just like Raisa, even though in reality some twenty years older (Speranskaya 1980). Female doctors were also employed in the hospitals in Barentsburg and Pyramiden (the third Soviet mining settlement on Svalbard) (Mikhailov 1983). Yet Raisa's prototype was in fact a man called Sergei Ivanovich Filippov (1927-83), who had practiced medicine as head surgeon in all three Soviet settlements on Svalbard since 1956, for a total of fifteen years, before dying in Barentsburg. Some of his challenging but successful operations, such as removing a shard from one's cranium and saving a severely damaged leg from amputation, have been ascribed to Raisa in *The Arctic Novel* but are listed in Anchishkin's article about Filippov, called "S liubov'iu v serdtse" / "A Loving Heart (Anchishkin 1958).

To summarise, it is striking that both novels link health and illness to the surroundings, i.e. Svalbard, to such a strong degree. Furthermore, the description of various medical conditions are quite similar in both novels. Both *The Arctic Novel* and *Longyearbyen* mention hypothermia, appendicitis and various traumas related to mining accidents. The latter book also deals with other medical conditions, such as the Asian flu and paranoia. The biggest difference in how medical conditions are portrayed in the two books is how psychiatric diseases are being dealt with. This topic is of major importance in *Longyearbyen*, but not mentioned in *The Arctic Novel*. In both stories, the hospitals are portrayed as new and modern with solid equipment but suffering from a lack of manpower.

5.5 Biopolitics in a Svalbard setting

One of the main health challenges on Svalbard concerns access to health care (Helse Nord RHF 2010). This is evident in *Longyearbyen*, where the psychiatric patient must be transferred to the mainland to get proper treatment. The question of the right to health services for a small population group versus a larger population group may be fruitful to discuss against the backdrop of biopolitics. The concept of biopolitics as defined by Michel Foucault is that of politics related to the health of people in a society, or as a "politicization of life" (Foucault et al. 2010). More specifically, biopolitics is seen as a form of power that regulates population and the life of individuals in a society.

There are two perspectives that crystallize when looking at the right to health services for a small population. In a small community where people live in extreme conditions, such as on Svalbard, the existence of each individual becomes more crucial for the upholding of the community as a whole, compared to elsewhere. There are two potential consequences of this approach. One possible scenario is that the biopolitical control executed by the state is more extensive than elsewhere, for instance on the Norwegian and Russian mainland. But also an opposite scenario is likely. In a society where all individuals are considered crucial for civilization's survival, the state may display a more extensive acceptance of deviations from regular health norms than is allowed elsewhere, as long as the situation is not life-threatening. With some important exceptions, Svalbard enjoys the health capacities similar to those of a mainland Norwegian municipality. However, there are certain additional factors, such as harsh climatic conditions and increasing amounts of tourist visitors that make particularly urgent the question of how many resources should be allocated to support what essentially is a rather small population. Svalbard, for instance, still does not enjoy full-scale psychiatric health facilities (Røsvik 2017). This is the situation today, just as it was in the 1950s, the time period described in *Longyearbyen*. In the novel, health provisions on Svalbard are insufficient to cope with a psychiatric patient, who is therefore despatched to the mainland (Sævareid, 2020, p. 301).

Childbirths is another interesting subject in this regard. Childbirths have been a disputable issue amongst the health personnel on Svalbard, as complications easily happen during pregnancy and birth. The Norwegian mining company Store Norske that ran the hospital in Longyearbyen from its beginning in 1916 until the Norwegian state took over in 1981, tried to avoid childbirths as far as possible (Hanoa 2017). Many have argued that the hospital has neither the necessary staff (i.e. gynecologists or surgeons

with experience in childbirth) nor infrastructure (most importantly a blood bank) to perform maternity care. Since the late 1970s, expecting mothers have been sent to the mainland at least two weeks prior to their due date, to give birth at hospitals in their home region (Hanoa 2017). Nevertheless, between 1916 and 1977, 342 children were born in Longyearbyen. Most children (310) were born into families of clerks and higher executives. Only thirty two children were born into workers' families. This was due to Store Norske's policy of not allowing married couples with children to live in the barracks, as most workers did. The expecting mothers that did not have their own apartments were sent to the mainland prior to birth (Evjen 2006). In *Longyearbyen*, a couple of childbirths taking place at the Norwegian hospital are depicted, both described as lengthy affairs that included all available health personnel. In the Norwegian settlements, where childbirths were not encouraged, the procedure was considered almost an act of emergency.

In the Soviet settlements, the issue of childbirths also included a touch of policy, but in a different way. Not only was it logistically more difficult to send heavily pregnant women back to the USSR to give birth. What's more, the Soviets may have wanted to demonstrate that they were putting down roots on the land that they historically considered theirs, because of the Pomors' alleged presence on Svalbard before the discovery of the archipelago by Willem Barents. In one of the first Soviet documentary films about Svalbard, Vladimir Boikov's *Na 78-i paralleli* (78°N), made in 1934, attention is drawn to a baby girl apparently born in Grumant (Boikov 1934). According to a 1937 report from an Arktikugol party committee chief, twenty-five children were born in Svalbard's Soviet settlements during the 1934-35 overwintering. In 1948, fifty-five children were born there, and in 1962, twenty-eight in Barentsburg alone, eighteen boys and ten girls (Portsel, 2020, pp. 300-01).

Giving birth in Longyearbyen in the 1950s was apparently a big event. The number of births being so few, each birth was considered a big happening, and the mothers were almost smothered with gifts and flowers (a rare luxury at 78 degrees north!). Also in *The Arctic Novel*, childbirths taking place in Grumant are described as a big event, too, and successful deliveries add to Raisa's reputation as a talented doctor: «Meeting with Raisa on the street, in the cafeteria, women were the first to bow to her and make way. In the club they invited her to sit near» (Anchishkin, 1970, pp. 90-91). Nevertheless, after 1991, the expecting women from the Russian-speaking settlements have also been sent to the mainland to give birth (Belousova 2016).

6. Conclusion

This article has addressed cultural perceptions and interpretations of health and illness in a Svalbard context through the analysis of *Longyearbyen* and *The Arctic Novel*. The analysis provides a good example of how fiction can shed light on relevant and contemporary challenges, also concerning health.

Both novels describe various challenges related to health and illness, and many of the same diseases and incidents, such as mining injuries, hypothermia and appendicitis, which are prevalent in both stories. An interesting difference in this respect is that *The Arctic Novel* does not contain references to psychiatric diseases, even though they were

presumably relevant, to some degree, for the inhabitants on Svalbard (as elsewhere), irrespectively of their geographical provenance and social background.

One of the overarching themes that arises from these texts, is how the spatial setting directly affects health and illness. Svalbard's environment makes Eivor feel constantly gloomy, and Jens develops a mental disorder, perhaps as a result of a winter depression. Raisa clearly identifies herself through her occupation as a medical doctor. The clinical tasks she performs are typical of Svalbard, such as injuries linked to hypothermia, work accidents in the mines, and so on. The influence that the surroundings play with regard to health and illness can thus be said to be one of the main themes in both books under analysis.

In both novels, the main characters struggle to find a balance between family obligations and their own personal needs. The way in which individuals fit into a larger context is yet another fundamental theme in both *Longyearbyen* and *The Arctic Novel*. The difference is that while Raisa is torn between home and work, Eivor is torn between her duties as a housewife, on the one hand, and her longing for personal fulfilment, on the other.

Exploring health and illness in a Svalbard context through different fictional narratives is important for illuminating factors that are also relevant beyond a literary setting. One of the main health challenges on Svalbard (today, as well as in the 1950s) concerns access to health care. This topic is touched upon in the novels, and can and should be discussed further, both within and beyond a literary context.[8]

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Article 3

POLAR GEOGRAPHY
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Arctic cooperation between Norway and Russia in healthcare delivery and emergency preparedness on Svalbard: barriers and facilitators

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ABSTRACT

This interdisciplinary study explores whether increased cooperation in healthcare delivery and emergency preparedness between Norway and Russia on the Arctic archipelago Svalbard may increase the quality of these services and whether cooperation is desired.

Ten semi-structured interviews were conducted and the respondents were asked to describe the current cooperation. Further, they were questioned about what they considered the main facilitators and the main barriers to cooperation. By analyzing the results, the study explores these facilitators and barriers and identifies how healthcare delivery and emergency preparedness are organized on Svalbard. Moreover, the study detects potential areas of cooperation within the given field, and the desire for such cooperation.

The findings show that there are both facilitators and barriers regarding cooperation in healthcare delivery and emergency preparedness. Main facilitators include mutual trust, shared challenges, and existing administrative structures, equipment, and infrastructure. The main barriers involve differences in language and culture, high personnel turnover, and divergent systems for emergency preparedness on the Norwegian and Russian mainland. Mine rescue, emergency preparedness, and joint exercises focusing on health challenges are areas where Norway and Russia may cooperate in the future.

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Introduction

Securing robust structures for healthcare delivery (including emergency preparedness) is a vital task in all populated areas. In the Arctic, a region characterized by harsh climatic conditions, sparse infrastructure, and vast distances to advanced health services, this task is particularly important (Rowe, 1995; Artuso, 2012; Farmer et al., 2012; Sydnes et al., 2017). Svalbard, the Norwegian archipelago located between the mainland and the North Pole, may in this context provide a suitable example of challenges to healthcare delivery and

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emergency preparedness in the Arctic and in other remote areas characterized by the features named above.

Previous research has demonstrated that, as elsewhere in the Arctic, health risks on Svalbard are associated with accidents, including snowmobile and aircraft crashes, shipwrecks, polar bear attacks, and avalanches (for an overview of health challenges on Svalbard, see Sandmo, 2005; Hanoa, 2017; Wæhler & Ingebrigtsen, 2022). Also diseases, exemplified by the COVID-19 pandemic, pose a significant health risk (Jonassen, 2021). International cooperation on Svalbard has earlier been described as promising (Kelman et al., 2020). With reference to emergency preparedness, Svalbard is presented as a suitable example of a place where people often rely on collaborative and multinational disaster-related activities (Duda et al., 2022). Also within healthcare delivery, multinational cooperation may be beneficial (Hutchinson, 2005). There are, however, no studies that examine whether increased cooperation in healthcare delivery and emergency preparedness between Norway and Russia may increase the quality of these services or whether cooperation is desired.

To contribute to filling this gap, this interdisciplinary study borrows elements from both social sciences and health sciences and looks into current and past cooperation between Norway and Russia, in order to assess whether increased cooperation in healthcare delivery and emergency preparedness may be positive. The respondents ($N = 10$) were first asked to describe the current cooperation. Second, they were questioned about what they considered the main facilitators, and third, the main barriers to further cooperation. By analyzing the results, this study identifies how healthcare delivery and emergency preparedness are organized on Svalbard. Furthermore, the study explores facilitators and barriers to cooperation. Finally, the study detects actual and potential areas of cooperation within the given field and the desire for such cooperation.

Therefore, the aim of this study was to examine whether an increased cooperation in healthcare delivery and emergency preparedness between Norway and Russia on Svalbard may increase the quality of these services. This is the first study to explore such a topic systematically. It therefore makes an important contribution to both Svalbard Studies (described by Chekin & Rogatchevski, 2020) and to research on international health cooperation.

Structure of the paper

In the introduction section, the purpose and the aim of this study are presented and a section with background information is added. Further, materials and methods are presented followed by results. The findings are discussed against the backdrop of security and the discussion section opens with a conceptual discussion about security issues on Svalbard and ends with recommendations for further research and the strengths and weaknesses of this study. The last section presents concluding remarks.

Background information

Svalbard is governed in accordance with the Svalbard Treaty (1920), which assigns citizens of all 46 signatory countries rights to engage in commercial activities, such as resource extraction, tourism, and scientific research. Today, Russia is the only other country except for Norway to exercise these rights almost continuously, for about a century. Both

Norway and Russia have the infrastructure for providing healthcare delivery and emergency preparedness on the archipelago, with centers in Longyearbyen and Barentsburg respectively. The term 'emergency preparedness' is understood as efforts to conduct risk-based calculations that will ensure that the consequences of crises are as limited as possible (Larssen, 2021). Nevertheless, this infrastructure is scaled for the permanent population of some 3000 people (approximately 2600 in Longyearbyen and 400 in Barentsburg, according to the last census by Statistics Norway in 2022) and is tested by a large influx of tourists and other visitors (approximately 150,000 in 2019; see Nord et al., 2020, and approximately 130,000 the first nine months of 2022, according to Visit Svalbard in personal correspondence 24 October 2022).

The Mining Code for Svalbard (as stipulated in the Royal Decree of 7 August 1925) states that all mining settlements shall provide basic health services (Hanoa, 2017). Traditionally, there have been hospitals in all the mining settlements, including Longyearbyen, Barentsburg, Ny-Ålesund, Grumant, and Pyramiden. The two latter settlements were abandoned in 1967 and 1998 respectively (with limited activity in Pyramiden revived since 2007), and hospitals today are located in Longyearbyen and Barentsburg. Health services for the inhabitants in Ny-Ålesund are covered by the hospital in Longyearbyen.

Long distances, harsh climate, limited local emergency preparedness resources coupled with a high staff turnover and an increasing number of visitors are some of the challenges with emergency preparedness on Svalbard. The emergency preparedness system on the archipelago is not scaled for major or simultaneous incidents (Meld. St. 32 (2015–2016), p. 95). It is therefore critical to take preventive measures, including rescue drills, and to make sure that all the stakeholders involved cooperate in the best possible manner. Norway is responsible for emergency preparedness on Svalbard and in the waters surrounding the archipelago. Emergency preparedness, including medical services, is provided to everyone traveling on the archipelago and in the surrounding waters.

The carrying principle in Norwegian emergency preparedness is that cooperation between public, private, civilian, and military actors is mobilized in the emergency preparedness system (Lovdata, 2019). Norway is committed to a number of international agreements that establish the existing legal frameworks for search and rescue (SAR). The most significant is the International Aeronautical and Maritime Search and Rescue (IAMSAR) manual, which is jointly developed by the International Maritime Organization (IMO) and the International Civil Aviation Organization (ICAO). Within the framework of these international agreements, an agreement specifically regulating SAR in the Arctic was signed by the eight Arctic states in 2011, known as the Agreement on Cooperation in Aeronautical and Maritime Search and Rescue in the Arctic (Arctic SAR Agreement) (Meld. St. 32 (2015–2016, p. 105). In addition, Norway and Russia collaborate on SAR at sea. This cooperation is regulated by a bilateral SAR agreement (Elgsaas & Offerdal, 2018).

Norway and (Soviet) Russia have been engaged in the coal mining industry on Svalbard for more than a century. For the last decades, both countries have been increasing their efforts in developing tourism and research on Svalbard, too. Both Norway and Russia have long-term ambitions of maintaining their presence on Svalbard (Kaltenborn et al., 2020) and strengthening and diversifying economic activities on the archipelago (Olsen et al., 2022). Although the contact between Norwegian and Russian settlements on Svalbard has been limited due to distance and challenging infrastructure, official meetings and sporting competitions have been taking place on an annual basis.

Discussing the relationship between Norway and Russia is not possible without addressing the ongoing war in Ukraine. The good relations between Norway and Russia took a hit already after the Russian annexation of Crimea in 2014, when Norway joined the EU sanctions against Russia (see Rottem, 2018). After Russia's full-scale invasion of Ukraine in February 2022, this dynamic has deteriorated further. Russian settlements on Svalbard have been enjoying only a partial exception from the sanctions regime (Volkov, 2022). Norwegian stakeholders in Longyearbyen have argued for a boycott of the Russian companies on Svalbard, and some 45 people (or over 10% of its population) have left Barentsburg since the escalation of the invasion ('Ukraine war casts,' 2022). This is a clear sign that conflicts are simmering under the surface (see also Skjæraasen, 2022). It adds to the tensions that of the roughly 400 citizens in Barentsburg, some 70% are Ukrainian citizens, primarily from Eastern Ukraine, which has been affected by the war most heavily ('This is the home,', 2022).

Materials and methods

Semi-structured interviews ($N = 10$) with stakeholders engaged at various levels in healthcare delivery and emergency preparedness in Norway and Russia were performed. In addition, document analysis has been applied in order to retrieve background information prior to and during this study. Archive material from the Governor of Svalbard (in the National Archives of Norway), in addition to articles from various newspapers and other sources (i.e. *Svalbardposten, Russkiy vestnik Shpitsbergena, Poliarnaia kochegarka/Shakhter Arktiki, High North News, The Independent Barents Observer, nrk.no*); reports about healthcare delivery and emergency preparedness (see Irtun (1997) or Norwegian Ministry of Health and Care Services (2013) for examples); government reports (i.e. white papers about Svalbard) and reports from Statistics Norway constitute a solid information base that illuminates the research questions of this study. These were used when designing the interview guide. Moreover, the literature analysis highlighted issues that were important to include in the discussion, such as shared health challenges and concrete examples of cooperation between Norway and Russia.

Interviews

Semi-structured interviews ($N = 10$) with stakeholders engaged at various levels in healthcare delivery and emergency preparedness in Norway and Russia were performed (see attached table of respondents). Interviews were conducted until relative saturation was reached (Bryman, 2012) and no new themes materialized from the data.

All interviews except three, were audiotaped with the participants' consent. Technical errors beyond the author's control were the reason as to why three of the interviews could not be audiotaped. Nevertheless, thoroughly written notes were made during each interview. An interview guide consisting of thematic questions provided the framework for each interview and was adjusted for each interview.

Online interviews versus in-person interviews

Online interviews were conducted when in-person interviews could not be performed. As many of the interviews took place during COVID-19-related lockdowns in 2021, online

interviews proved a good second solution when in-person interviews could not be conducted due to COVID-19-induced meeting restrictions. When using online tools to conduct interviews, efforts should be made to ensure that the online respondents feel comfortable with the online technology applied in the interviews (Lyon et al., 2015). Such efforts were made in this study. Also, the interview questions were the same for all respondents to ensure that the online and in-person interviews were consistent.

Choosing respondents

Purposive sampling, i.e. choosing available respondents who possess qualifications and positions relevant to the research topic (Patton, 2002) was used in order to recruit respondents. Also snowballing, i.e. asking the respondents to point out other potential respondents who may contribute to the study, was applied. The respondents have all been de-identified and will be referred to by the numbers R1[1], R2, etc.

All respondents were stakeholders engaged at various levels in healthcare delivery and emergency preparedness in Norway and Russia, or in the Svalbard administration. Three of the respondents were Russian and were interviewed in Russian. The remaining seven respondents were Norwegian and thus interviewed in Norwegian. Three men and seven women were interviewed and they were all of working age between 20 and 70 years old. The interviews lasted between 30 and 90 min. The initial plan included respondents representing decision-makers from mainland Russia. Nevertheless, the current tensions between Russia and the West made such interviews challenging and inappropriate for the time being. Anyhow, the three Russian respondents included in the study represent a broad specter of institutions and responsibility areas. They are thus constituting a representative and sufficient selection of Russian respondents. Also, the Norwegian respondents represent a wide selection of institutions and responsibility areas in healthcare delivery and emergency preparedness. Moreover, all interviews provided solid and rich data. The overall selection of 10 respondents is thus considered to constitute a rich and sufficient data selection appropriate to answer this study's research question. There were no significant variations between the answers of administrators and health personnel.

Analysis

Based on the transcript of the interviews, analyses have been made through coding and categorization of the themes identified in the interviews. Each interview was transcribed and analyzed, in parallel with continued data collection. The interview data have been analyzed through coding, where keywords deriving from the interviews and the literature analyses were identified and connected into different text segments. Data with similar characteristics were categorized, and examined for cohesiveness and variation. Depending on the content, the same data could be coded into more than one group. The data collection was completed when new data did not make any significant changes to the result patterns.

Ethics

As the study processes personal data in the form of contact information, it was reported to the Norwegian Centre for Research Data (NSD). All respondents were asked to hand in informed

consent and their data was treated with confidentiality. The participants were deidentified in accordance with principles regarding privacy regulated by the Personal Data Act (Lovdata, 2018) and the Health Research Act (2008), meaning that characteristics have been blurred in the published material in order to make the respondents unrecognizable. All interview data have been stored in a password-protected area and only the main author has access to the data. All personal data will be deleted at the end of the project.

Some claim that coding reduces polyphone meaning to what can be captured by a single category (Maggie, 2013). Moreover, critics may argue that coding leads to categorization, which implies that the meaning of long interview statements is reduced to a few simple categories (Brinkmann & Kvale, 2015). However, when performed cautiously, coding is useful to identify relevant themes deriving from research interviews, create an overview, and find connections in the interview material. In this study, coding is valued as a useful tool to extract data from different interviews about the potential for increased cooperation.

Four of the interviews were conducted before Russia's invasion of Ukraine on 24 February 2022. The remaining interviews ($N = 6$), however, were conducted after the war in Ukraine had escalated. As this development for obvious reasons was believed to affect the relationship between Norway and Russia, the war became a topic in the last interviews.

Results

Current cooperation between Norway and Russia regarding healthcare delivery and emergency preparedness

Aspects such as being limited in size and located far from advanced health facilities were considered the main challenges by several respondents (R1, R2, R7, and R8). Also, an increasing level of activity in the waters surrounding Svalbard, because of more fishery and tourism, is considered a challenge: 'We are small, and that means that we are vulnerable'. (R2). Several respondents (R1, R2, R6, R7, R8, R9) stressed the fact that Norway is legally responsible for emergency preparedness on Svalbard and that cooperation in this field with any other party is therefore limited. Conversely, cooperation in terms of healthcare delivery takes place regularly, as this is seen as practical and applies to patients as well as equipment and medicine. Patients at Barentsburg Hospital who need more complex treatment than what is offered there, are frequently sent to the hospital in Longyearbyen (and further on to UNN in Tromsø if necessary). This can be exemplified by the 'Aurora Explorer' accident in Barentsburg in 2018 when a catamaran crashing into the dock resulted in 18 injured passengers (Kjøllesdal, 2018). Now such a transfer only goes one way, from Barentsburg to Longyearbyen. Nevertheless, there are many earlier examples of Norwegians being treated by doctors from one of the Soviet settlements, such as an employee at the Norwegian radio- and weather station Isfjord Radio who suffered from serious toothache and was treated by a dentist in Barentsburg in 1978, and the Norwegian tourists on snowmobiles who were rescued by a team from Barentsburg and received treatment at the hospital in Barentsburg in 2015 (Shepelev, 2015). None of the respondents report about patients who have been sent from the hospital in Longyearbyen to Barentsburg. There has been a significant decrease in accidents and subsequent transfer requests from the hospital in Barentsburg for the last couple of decades. According to one respondent, this tendency is probably due to the fact that there are fewer people

employed in the mines than earlier and that there is an increasing concern for security and safety in the Russian mining industry (R1). Increased allocations from Russian state actors to Trust Arktikugol are also believed to have contributed to this development (conversation with A. Moe, 16 February 2022).

Example of cooperation in healthcare delivery: COVID-19 vaccination

Several respondents illuminated the vaccination process during COVID-19 as a good example of cooperation. Norway was responsible for providing vaccines for all inhabitants. Employees from the hospital in Longyearbyen went to Barentsburg to vaccinate and were surprised to find that almost everybody agreed to accept the vaccines. By the time of the relevant interviews (June-September 2021), almost 90% of the inhabitants in Barentsburg had accepted the first shot. This was a clear contrast to the vaccination rate on the Russian mainland, which at that time was low (in July 2021, only 43% of the Russian population was vaccinated, see Stepanov & Komendantova, 2022). A respondent (R1) underlined two reasons why the residents in Barentsburg accepted the vaccines. On the one hand, the residents had a good understanding of the use and effect of the vaccines as a preventing measure against the COVID-19 virus. On the other hand, they seemed to value the fact that being vaccinated implied that traveling between Svalbard and Russia/Ukraine, where most of the Barentsburg residents have their origin, would be easier.

Example of cooperation in emergency preparedness: Cape Heer accident in 2017

Several respondents (R5, R7, and R9) described the Mi8 accident on Cape Heer in 2017 as a good example of cooperation in terms of emergency preparedness. A Russian Mi8 helicopter operated by Convers Avia Airlines JSC crashed in poor weather on approach to the Cape Heer helicopter base and all eight people on board died. The Norwegian state was in charge of the rescue operation as the accident happened on the Norwegian territory. The rescue operation was led by the Joint Rescue Coordination Centre of Northern Norway and involved stakeholders from the Governor's office and Svalbard's Emergency Preparedness Council, the Norwegian Coast Guard, as well as the Norwegian and Danish Air Force, and the Russian emergency ministry EMERCOM (Aircraft Accident Investigation Board, 2020). The latter sent a team to participate in the search for passengers and wreckage ('Rossiyskiy Mi-8 upal,', 2017). Representatives from the Russian helicopter design agency were present when the helicopter wreckage was lifted and gave advice on how the lifting gear should be attached. In addition, a mine rescue team from Trust Arktikugol participated (R5).

After the accident, the Norwegian Safety Investigation Authority identified certain safety recommendations (see the report by the Aircraft Accident Investigation Board from, 2020). They found that the Convers Avia Airlines JSC's organization at the landing site at Heerodden deviated from the airline's usual procedures, despite the fact that the base is subject to quarterly internal audits. Further, no one on board used survival suits nor were they wearing life vests. The helicopter was equipped with neither a life raft nor emergency floats. Also, Convers Avia Airlines JSC allowed only VFR flights[2] on Svalbard. In the challenging conditions during the flight, the pilots' visual references became confused, which led to the subsequent loss of control.

Cooperation facilitators

The respondents highlighted mutual trust, shared challenges, and existing administrative structures, equipment, and infrastructure as facilitators for cooperation. Most of the respondents (R1-R9) stressed that in terms of emergency preparedness, the current organization reflects the shared challenges and is well-functioning: 'The system for emergency preparedness is good, almost oversized', according to a respondent from a Norwegian institution directly involved in rescue missions (R1). Also, existing administrative structures, equipment, and infrastructure (including the existing cooperation between the Governor in Longyearbyen and the general consul in Barentsburg, plus the Governor's rescue helicopter and service vessel *Polarsyssel*) have been named facilitators for increased cooperation. Despite differences in language and work culture, the contact between Norway and Russia is described as solid: 'We talk to each other when needed and we have a good dialogue.' (R8). 'We are in the same boat here. Of course we help each other!' (R4).

Several respondents naturally highlighted the pandemic as a health challenge of great impact on Svalbard. At the same time, the situation made it evident that Norway and Russia enjoy solid administrative structures for cooperation when needed, with command chains going between the Governor and Trust Arktikugol and the general consul.

> The way the corona situation was handled on Svalbard, with the vaccination of different settlements and all, leaves no doubt that we can handle a real crisis. And that Norwegians and Russians respect each other's systems and help each other out. (R1)

Cooperation barriers

The main barriers that have been mentioned, include differences in language and culture, high personnel turnover, and divergent systems for emergency preparedness on the Norwegian and Russian mainland.

The biggest obstacles concern differences in the countries' respective systems and authorities. Russia is considered more hierarchical and Norwegian stakeholders describe the system of emergency preparedness in Russia as difficult to grasp. The language issue is also considered a significant challenge. Many Barentsburg inhabitants are quite isolated from Longyearbyen's international atmosphere (where some 40 different nationalities are represented) and have no immediate external motivation to use other languages than Russian. These challenges were summarized by one of the respondents: 'Language has always been a problem that will be difficult to bypass. And the system for emergency preparedness in Russia is almost impossible to comprehend'. (R7).

Frequent major replacements of personnel, many of whom are on short- to medium-term contracts that may or may not be extended, form yet another barrier. 'Such replacements make initiating new cooperation projects more challenging, both in general and when you talk about healthcare delivery and emergency preparedness' (R8).

All the respondents who were questioned about the effects of the ongoing war in Ukraine (R7, R8, R9, R10) stated that the war indeed had direct consequences. The war can thus be added to the list of barriers. Most projects involving Russian partners, including rescue drills, have been put to a halt.

However, other activities and treatments that are directly relevant to Svalbardians' life and health continue. 'Cooperation about life and health will always persist', said one respondent (R8). This echoes statements by the Norwegian government that activities to

do with the emergency preparedness in the Arctic Sea, fisheries and administration of Svalbard will be exempt from the sanctions (The Norwegian Government, 2022).

Potential areas of increased cooperation

The respondents were asked whether they could think of any potential cooperation areas. Mine rescuing, emergency preparedness, and joint exercises focusing on health challenges were mentioned as examples of areas where Norway and Russia can cooperate in the future.

As one of the respondents put it, there are no outspoken wishes regarding changes in the current organization of the system for emergency preparedness (R6). Still, many respondents suggested specific changes. Cooperation between the mine rescue teams was mentioned by several respondents (R4, R5, R10): 'The mine rescue teams in Barentsburg and Longyearbyen meet many of the same challenges. They could meet and exchange experiences, learn from each other.' (R4). This suggestion will, however, not result in substantial efforts, as the only remaining coal mine in Longyearbyen will close in 2025 (Ylvisåker, 2022).

Also, closer cooperation in emergency preparedness was mentioned by several respondents. Both during the Operafjell accident in 1996 and the Cape Heer accident in 2017, several Russian stakeholders based in Barentsburg and on the Russian mainland expressed their wish to participate in the rescue work (R7). There have also been informal talks about creating a joint emergency preparedness base for the Arctic Sea on Svalbard (R7), both on the Norwegian and the Russian side: Russia's Foreign Minister '(…) Lavrov has mentioned it on several occasions' (R8). A Russian respondent (R4) claimed that this is unfeasible as long as Norwegian legislation regulates the use of helicopters in order to protect the environment in a way that restricts the use of Russian helicopters in certain areas. The activity level in the Arctic is increasing and more specialized personnel and equipment would be beneficial for all stakeholders in the area. For the last couple of decades, the ship traffic over the North Pole has been expected to increase drastically, but this expectation is yet to materialize: 'So this type of traffic is not something we should scale emergency preparedness efforts for at the moment' (R7).

There are also informal talks about creating a formal agreement about healthcare cooperation (R8). The cooperation today is based on personal connections and concerns practical matters:

> If an agreement should be formalized, the initiative must come from stakeholders in Barentsburg through the Russian authorities. The process must happen on a bilateral level (…) The best way to cooperate is perhaps to have joint exercises with different health challenges' scenarios. (R8)

Emergency preparedness structures, including equipment and infrastructure, have been expanding in the last few years – amongst others, by means of more operational time for the Governor's vessel *Polarsyssel*, which travels around the archipelago, and more positions in the police department at the Governor's office. Several respondents illuminated the need for further expansions. A Russian respondent addressed the need for a round-the-clock helicopter service in Barentsburg (R3). In cases of acute situations, for instance, if a patient suffers from a stroke, such a service would be very useful. This statement was elaborated upon by another respondent from Barentsburg, who considered it a significant challenge that the Norwegian state introduces restrictions on the use of helicopters:

> If it hadn't been for these restrictions, Russia could have established a rescue base in Barentsburg. There are many fishing vessels in the Barents Sea. From time to time, fishermen from these vessels need medical care. In such cases, it would be helpful for the fishermen to use the infrastructure in Barentsburg and talk to a Russian-speaking doctor. (R4)

Discussion

This is the first systematic study to use interview data from both Norwegian and Russian respondents in order to detect facilitators and barriers with regard to healthcare delivery and emergency preparedness on Svalbard and to explore whether cooperation is desired. The respondents highlighted mutual trust, shared challenges, and existing administrative structures, equipment, and infrastructure, as facilitators for cooperation. The main barriers include differences in language and culture, high personnel turnover, and divergent systems for emergency preparedness on the Norwegian and Russian mainland. Mine rescuing, emergency preparedness, and joint exercises focusing on health challenges were mentioned as examples of areas where Norway and Russia can cooperate in the future.

The current situation, where Norway (as a NATO member and Ukraine and sanctions supporter) and Russia currently stand against each other in a mode of conflict, shows how geopolitical state of affairs is reflected on Svalbard. The situation also showcases how security issues unfold on Svalbard, with Norwegian actors arguing for a boycott of Russian companies, as seen above, being only one example. Another example was when Trust Arktikugol, the Russian state-owned mining company on Svalbard, together with the Russian Consulate General, staged a military-style propaganda parade in Barentsburg (Nilsen, 2023).

Traditional approaches to security are rather state-centric and describe the security concept as a state's territorial integrity and the physical safety of a state's inhabitants. Since the 1990s, the idea that the state is not the only referent object of security and includes other spheres such as environmental, economic, societal, and political in the security concept has been prevailing (Buzan et al., 1998). This article adopts the latter approach and includes actors such as institutions, human individuals, and groups, in addition to the state, in the security concept (Peoples & Vaughan-Williams, 2015), because this allows me to methodically link security aspects by healthcare delivery and emergency preparedness. For Svalbard, which is located in the strategically significant Arctic region, the security aspect has always been of vital relevance to Norway, also in a broader sense of security. With Russia engaged in warfare with one of its neighboring countries, the security question is currently of particular urgency. The increased focus on security on both sides permeates multiple areas of international cooperation and thereby affects healthcare delivery and emergency preparedness. On the one hand, there is a narrow line between the assets stemming from international cooperation and the need for the protection of territorial borders. On the other hand, security can be a key motivator for cooperation. This follows the ideas of collective security and that states who engage in cooperation and rely on the same structures and organizations.

A key dilemma in this context is whether or how to cooperate with an enemy country. Addressing this dilemma in the context of Svalbard requires addressing Svalbard's geopolitical location. Many have argued that the Arctic region, including Svalbard, is a unique place in a geopolitical context. The region is often referred to as a region disconnected from global political dynamics and as a place for peaceful and scientific cooperation

despite other disagreements and political tensions existing globally and among Arctic countries (Kornhuber et al., 2023). Arguments following the idea of a kind of Arctic exceptionalism have been increasingly challenged since Russia's annexation of Crimea and others have argued that the Arctic on the contrary is a global region where global political dynamics are played out (Finger & Heininen, 2019; Hoogensen Gjørv & Hodgson, 2019).

When two countries, in this context Norway and Russia, regard each other as existential threats in the military domain, this view may spread to other dimensions of the relationship, such as healthcare delivery or emergency preparedness on Svalbard. Through such multifaceted securitization, each state reads the other as a threat. When this interpretation spreads beyond the military sphere to dimensions such as healthcare delivery and emergency preparedness, or trade, culture or diplomacy, mutual recognition declines and cooperation is harder to achieve (Wilhelmsen, 2021).

Examples of Norwegian-Russian cooperation during the soviet period

There are numerous cases where Norway and Russia have cooperated on healthcare delivery and emergency preparedness. Examples from the Soviet period include for instance the famous rescue of the Umberto Nobile expedition in 1928 by both Norwegian and Russian stakeholders (other countries contributed to the rescue mission, too). The Italian explorer Umberto Nobile and his crew capsized with the airship *Italia* in the Arctic Sea and an ambitious rescue operation involving more than 1500 people from seven different countries was initiated (Kristensen, 2018). The rescue operation was poorly coordinated and characterized by competition rather than cooperation between the different rescue teams (Ingebrigtsen et al., 2003). Nobile was rescued by the Swedish pilot Einar Lundberg and some of the remaining survivors were saved by the Russian icebreaker *Krassin*, but several perished in the attempt to save them, including the famous Norwegian explorer Roald Amundsen.

The rescue of the icebreaker *Malygin* in 1932–33 (it ran aground in Isfjord) involved much less cooperation between Norway and Russia, as the Norwegians did not have the necessary equipment for conducting a rescue mission during the polar winter (Sadovskii, 1934). A rescue mission that, on the contrary, did involve a high level of cooperation, took place during the accident with the cruise ship *Maxim Gorkiy* in 1989. The Soviet cruise liner started to sink after hitting an ice floe west of Svalbard. The Joint Rescue Coordination Centre in Northern Norway informed their Russian counterpart in Murmansk, and the Soviet consulate in Barentsburg sent helicopters that assisted in the rescue operation. All 954 people onboard were evacuated by the Norwegian coast guard, and the episode is often referred to as a potential Arctic disaster that was avoided due to excellent cooperation (Wæhler & Ingebrigtsen, 2022).

The newspaper *Poliarnaia kochegarka* (issued in Barentsburg from the early 1930s until the early 1990s) describes several cases of cooperation. Some cases were unplanned, such as when two Norwegians en route to Longyearbyen from Kapp Linné were seriously injured after a skiing accident and received medical treatment in Barentsburg (Romaniuk, 1978). Another unplanned event described by the same newspaper happened when a Russian fisherman was picked up by a Soviet helicopter and transported to the hospital in Longyearbyen, where he was operated on. Communication posed a potential challenge in all encounters between Norwegians and Russians, simply because the countries did not have a language in common. In this particular example, the newspaper

underlined that the Governor's interpreter was of crucial importance for communication between the involved actors (Sandmo, 1990). Cases of bilateral cooperation could also be utilized to illuminate ideological virtues, such as in the example from Isfjord radio described earlier. Other cases were well-planned, like visits from medical workers from Longyearbyen to Barentsburg (see for instance Shirikov, 1979) and Pyramiden (for one example, see Tsymbalyuk, 1989). Another example is found in the Governor's archive, about a Soviet boat carrying several Soviet citizens stranded in Advent Bay in 1940. It was rescued in a joint mission involving both Norwegians and Soviets (Governor of Svalbard, 1940).

Examples of Norwegian-Russian cooperation after the Soviet period

With the post-Soviet period, fundamental social and economic changes became manifest on Svalbard. The Soviets made up the majority of citizens (in 1991, almost 2500 inhabitants in the Soviet settlements against approximately 1100 inhabitants in the Norwegian settlements (Statistics Norway, 2022). The collapse of the Soviet Union led to harsh economic conditions for Russians and Ukrainians on Svalbard, and many workers from the Soviet/Russian settlements returned home due to diminished production in the mines. Simultaneously, the Norwegian government started to initiate steps that would transform Longyearbyen from a more or less pure worker population to a family-oriented society (Meld. St. 32 (2015–2016), p. 6), a step that led to major social changes. Between 1993 and 2008, the number of people employed in Longyearbyen increased from approximately 780 to around 1600. Since the 1990s, tourism has bypassed coal mining as the main industry. Facilities for healthcare and emergency preparedness have changed accordingly. For instance, the SAR system is now adapting to the increasing numbers of tourists visiting the archipelago.

There are many examples of cooperation also after the collapse of the Soviet Union. One such example is the Operafjell accident in 1996, which is still the worst airplane accident ever in Norway with 141 passengers (Russians and Ukrainians) killed (Ivert & Due, 1997). According to international guidelines, the country where the accident occurs is assigned the main responsibility for the rescue operation. In this case, however, it was agreed that both Norwegian and Russian personnel should take part in the rescue operation. In addition, a joint commission was created to establish the cause of the accident.

These examples illustrate that cooperation has been taking place when needed and understood as beneficial, and the same tendency is evident also today. Further, the examples show how cooperation is and has been rather imbalanced, as Russia benefits more from Norwegian resources when needed than vice versa.

International cooperation in healthcare delivery and emergency preparedness – examples from other places in the Arctic

Examples of bilateral and international cooperation with concern to healthcare delivery and emergency preparedness can be found also in other places in the Arctic, such as efforts to enhance national policies for health among indigenous groups between Canada and USA (Inuit Circumpolar Council Canada, 2015), or between Denmark (Greenland) and Canada (Rønn et al., 2017). Other international or bilateral SAR cooperation projects in the Arctic include the SAREX exercise in the Greenland Sea in 2012, which involved Canada,

Denmark, Iceland, Norway, Russia, and USA (Island Commander Greenland, 2012); the Arctic Chinook held in Kotzebue, Alaska in 2016 between USA and Canada (Sydnes et al., 2017), or the annual Barents Rescue exercise in the Barents Sea between Norway and Russia, now put on hold due to the sanctions against Russia (Rottem, 2014). A peculiar case of international SAR cooperation in polar areas happened in Queen Maud Land in Antarctica in 2001, where a crew member from a Norwegian research expedition fell on the ice and suffered a serious head injury. The patient was in acute need of advanced medical treatment, and a rescue operation involving personnel from six nations secured transport of the patient 4348 kilometers over the Antarctic continent and then 4000 kilometers further to Christchurch in New Zealand (Ingebrigtsen et al., 2003).

International cooperation in healthcare delivery and emergency preparedness – examples from outside the Arctic

Svalbard is not the only remote island community where different nations with disparities in language and culture and with deviating health and emergency preparedness systems cooperate in healthcare delivery and emergency preparedness. A suitable example can be found on the island of Saint Martin in the Caribbean, which is divided between the Dutch Sint Maarten and the French overseas collectivity of Saint Martin. Residents from Sint Maarten have access to healthcare services in Saint Martin and vice versa. The two countries collaborate to address shared health challenges, exemplified by the joint efforts to combat the vector-borne disease chikungunya (Henry et al., 2017). The two countries share epidemiological information on the disease on a routine basis, have strengthened their diagnostic capacity, and collaborate on joint vector control activities and public awareness strategies. Just like on Svalbard, there is no physical or ecological barrier separating the nations on the island, enabling the free movement of people and vectors.

Similar comparisons can also be found in the border areas between Norway and Russia on the mainland, where the two countries share an almost 200 kilometer-long border. Cooperation with concern for healthcare delivery and emergency preparedness has been taking place here, too. The health administrations in Helse Nord (the northernmost part of Norway) and Arkhangelsk oblast in Northwest Russia since 1996 have been engaged in formal cooperation (Helse Nord RHF, 2017). Examples include disease prevention, competence development and exchange of experience, and development of joint infrastructure. Moreover, biannual joint exercises in emergency preparedness in the Barents Sea have involved stakeholders from both Norway and Russia. Before most of this cooperation was put on ice as part of the EU sanctions against Russia, which Norway supports, it had been characterized as particularly solid (Holm-Hansen et al., 2022).

Solid cooperation in volatile surroundings

The war between Russia and Ukraine has created tensions on the geopolitical stage that are also observable on Svalbard. However, manifestations of tensions between Russia and NATO countries and countries allied with NATO are no new phenomena on Svalbard. During the Cold War, Svalbard was the only place where the Soviet Union coexisted with a NATO country on the NATO member's territory, as the USSR's successor Russia does today. Even when the tensions between USSR and NATO countries and countries

allied with NATO were at their strongest, cooperation on Svalbard continued to take place in various areas, including healthcare delivery and emergency preparedness, as earlier mentioned examples illustrate. Although the tension between Russia and other countries may be evident on a geopolitical level, the relations between Norwegians and Russians on Svalbard can be described as fairly relaxed from a historical perspective.

In this study, none of the respondents mentioned tensions between Russia and NATO as a direct barrier to increased cooperation. Nevertheless, the Russian war on Ukraine was termed an obstacle to cooperation, both in a moral context and also because the EU sanctions toward Russia that Norway supports make cooperation challenging from a practical perspective. The war in Ukraine undoubtedly constitutes a backdrop of moral and practical obstacles to cooperation.

Trust decisive for cooperation

The Norwegian-Russian cooperation demonstrates that cooperation in acute cases such as large accidents or during a pandemic is easier when the involved stakeholders know each other from before. Organizing joint meetings between the hospitals where treatment, routines, and resources are discussed will make these hospitals better prepared for efficient cooperation in acute cases (Hutchinson, 2005). Cooperation and expertise exchange requires a fair amount of trust between the participating actors. A significant level of trust between Norwegians and Russians/Ukrainians living on Svalbard seems to be evident. Inhabitants in Barentsburg express faith in the existing disaster-related mechanisms, which are made up of both local Russian entities, such as the Mine Rescue Squad, Barentsburg Hospital and the operations manager for the Arctic Tourism Centre, and the Norwegian rescue services, especially Svalbard's Governor (Duda et al., 2022). Several respondents in this study (R1, R4, R8, and R10) illuminated that the cooperation is relational and that it is well-functioning because the involved stakeholders know each other.

Cooperation facilitators

Mutual trust and shared challenges, combined with existing administrative structures, equipment, and infrastructure were considered facilitators for increased cooperation. The historically good relationship between Norwegians and Russians on Svalbard, despite tensions on the global scale, should be regarded as an additional facilitator. Drawing experience from the Norwegian-Russian cooperation on the mainland and from other areas where different countries cooperate with regard to healthcare delivery and emergency preparedness may prove beneficial in a Svalbard context.

Cooperation barriers

The results indicate that differences in language and culture, high personnel turnover, and divergent systems for emergency preparedness on the Norwegian and Russian mainland are considered the main barriers to increased cooperation. The ongoing war in Ukraine constitutes a moral and practical obstacle for cooperation between Russia and other countries, so far unprecedented on Svalbard. It is hard to say at this stage which role will the war continue to play on Svalbard (and elsewhere) even when the military activities stop.

According to one respondent (R7), the fact that the Governor acts both in the capacities of chief of police and county governor, whereas the latter role entails responsibility for emergency preparedness, may be challenging. This duality may be problematic in situations where people in need of rescue hesitate to contact rescue personnel because they for some reason are apprehensive about the police authorities. This may constitute a barrier to cooperation both between Norwegian and Russian stakeholders and between the authorities and the public, irrespective of nationality.

Potential areas of increased cooperation

Mine rescue, emergency preparedness, and joint exercises focusing on health challenges were mentioned as examples of areas where Norway and Russia can cooperate in the future. Mine rescuing is not, however, a feasible area for cooperation, as the only remaining Norwegian coal mine will close in 2025. The current cooperation is rather imbalanced, with Russia benefitting more from Norwegian resources than the other way around. Potential future cooperation efforts should strive to be more balanced. Nevertheless, at the moment Russia's intolerable warfare in Ukraine makes further cooperation initiatives both morally undesirable and challenging from a practical perspective. The war must come to an end before potential arrangements for increased cooperation can be made.

Knowledge gaps and recommendations for further research

Including interview data from central Russian decision-makers might have strengthened the knowledge of Russia's future plans for Svalbard. Nevertheless, conducting such interviews proved impossible due to the current tensions between Russia and other countries. In the current situation, however, this knowledge is irrelevant due to the uncertainty that results from the tensions between Russia and the rest of the world. Clarifying whether the respondents from Barentsburg were of Russian or Ukrainian background, could in today's situation have illuminated interesting nuances in how these nations consider their presence on Svalbard and whether the relations between Russians and Ukrainians have changed on Svalbard as a result of the development in Ukraine.

Strengths and weaknesses of the study

Conducting interviews with both Norwegian and Russian stakeholders representing a variety of institutions secures a broad representation and multi-faceted illumination of the research topic. Including data from archives that has not yet been explored in the context of healthcare delivery and emergency preparedness, such as the *Poliarnaia kochegarka* and the Governor's archive, has provided solid evidence regarding former cooperation on Svalbard. Together, these factors constitute this study's main strengths.

Among the weaknesses of this study is that inconsistency in methods caused by the use of in-person and online interviews. This deviation from the original protocol was a necessary act to conduct data gathering during COVID-19-induced meeting restrictions. Efforts were made to ensure that inconsistency in methods would not influence the results. These efforts included training the respondents in the use of the online tools applied in the online interviews and providing the same interview questions for all respondents.

Moreover, the results would have been even more solid if interview data from decision-makers in mainland Russia could have been obtained. Unfortunately, the current tensions between Russia and the West have made such interviews impossible.

Finally, this study does not distinguish between Russian and Ukrainian respondents from Barentsburg. The interviews with these stakeholders were all conducted before the full-scale invasion of Ukraine, and such a distinguishing was irrelevant at the time. In the current situation, however, this knowledge could illuminate potential differences between Russian and Ukrainian stakeholders on Svalbard.

Conclusion

There are both facilitators and barriers regarding cooperation between Norway and Russia in healthcare delivery and emergency preparedness on Svalbard. Main facilitators include mutual trust, shared challenges, and existing administrative structures, equipment, and infrastructure. Main barriers involve differences in language and culture, high personnel turnover, and divergent systems for emergency preparedness on the Norwegian and Russian mainland. Mine rescuing, emergency preparedness, and joint exercises focusing on health challenges are areas where Norway and Russia may cooperate in the future. Mine rescuing is not, however, a feasible area for cooperation, as the only remaining Norwegian coal mine will close in 2025. The results make it evident that the cooperation is rather imbalanced, as Russia benefits more from Norwegian resources when needed than vice versa. Potential future cooperation should strive to be more balanced.

The war in Ukraine does, however, constitute a backdrop of moral and practical obstacles to cooperation. Svalbard is often referred to as a region disconnected from global political dynamics and as a place for peaceful and scientific cooperation despite other disagreements and political tensions existing globally and among Arctic countries. However, Russia's aggression in Ukraine since 2014 has seriously challenged this idea. Norway and Russia increasingly regard each other as existential threats in the military domain and this view may spread to other dimensions of the relationship, including healthcare delivery or emergency preparedness, thus making cooperation much harder to achieve.

As the war in Ukraine continues, a considerable knowledge gap evolves concerning how the war will affect the relations between Russia and other countries, also on Svalbard.

Notes

1. *R* = respondent
2. Visual Flight Rules, which means that the aircraft is intended to operate in visual meteorological conditions (i.e. nice and clear weather).

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List of respondents

Respondent	Nationality	Field
R1	Norwegian	Administration
R2	Norwegian	Healthcare
R3	Russian	Healthcare
R4	Russian	Administration
R5	Russian	Administration
R6	Norwegian	Administration
R7	Norwegian	Administration
R8	Norwegian	Healthcare
R9	Norwegian	Administration
R10	Norwegian	Administration

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APPENDIX

Health challenges on Svalbard as described by the *Poliarnaia kochegarka* newspaper

An indication of health challenges that Soviet residents on Svalbard encountered during the Soviet era can be given by articles from the newspaper *Poliarnaia kochegarka* [Polar furnace], published by Trust Arktikugol in the Soviet settlements. The newspaper reported about events taking place in Barentsburg, Grumant and Pyramiden, and was issued regularly (with some exceptions, mostly to do with WWII) up to three times per week from 1934 until 1991. The newspaper changed its title to *Shakhter Arktiki* [The Arctic Miner] in 1989. *Poliarnaia kochegarka/Shakhter Arktiki* provides a useful window onto the Soviet everyday life and information about official Soviet policies on Svalbard, including issues related to health and emergency preparedness (Portsel, 2020). In the following, the main health aspects discussed in *Poliarnaia kochegarka* are addressed. This part supplements similar descriptions conducted in the introductory chapter of this thesis, where especially the childbirths and flu as depicted in the newspaper are accounted for.

Designated health columns

In the rubric *Doctor's advice* established in 1949, a doctor provided information about health issues. During the first years, the topics were typically relevant for mine workers, with titles such as *Eye injuries and first aid for the eyes* (Nasekin, 1949), *Protect yourself from pustular skin diseases* (Unsigned, 1949) and *How to provide first aid in accidents* (Marmorshtein, 1949). Later the column addressed topics relevant for a broader audience, such as flu (Rogozhkina, 1965), frostbites (Mekhedov, 1951), and appendicitis (Shevchuk, 1980). The rubric was subsequently supplemented *Doctor's Talk* and *Doctors Recommend*. How to prevent tooth problems (Guseva, 1952), warnings against abortion as it might pose a threat to communist family values (Mekhedov, 1952), and cautions against the dangers of electroshock (Filippov, 1967) were some of the topics treated.

Rescue operations and treatment of non-Soviet nationals

Several search and rescue operations are described in *Poliarnaia kochegarka*. Often, such operations are examples of Russo-Norwegian cooperation, like during the *Maxim Gorkiy* incident in 1989 (Vorob'ev, 1989). This incident, where a cruise ship with almost 1,000 people onboard struck an iceberg off the coast of Svalbard and could go under, is often referred to as a potential catastrophe that ended up as a successful international rescue operation.

Another episode underlines the ideological perspective when an injured Norwegian approached Coles Bay during a blizzard and was transported to the hospital in Barentsburg where he received treatment. The newspaper highlights that this treatment would have been expensive if it had been performed at a Norwegian hospital (Koba, 1968).

Given that the human presence on Svalbard has been international, Soviet medical help extended beyond Norwegians. In 1961, a British expedition member received surgical treatment for purulent appendicitis in Pyramiden (Portsel, 2022). In 1970, a worker onboard a Polish fishing vessel was treated for appendicitis too, at the hospital in Barentsburg (Unsigned, 1970). Two years later a member of a Polish expedition working on Svalbard's southern shores needed medical treatment and was also transported to Barentsburg (Unsigned, 1968b). In 1980, there was another accident involving Polish scientists and Soviet health personnel came to rescue (Leonov, 1980).

Exchanging experiences

The ideological perspective is also evident when knowledge exchange between the hospitals is described. On one occasion, the medical team from Barentsburg visited the hospital in Longyearbyen and was surprised to see no patients there. The Norwegian doctor allegedly explained that treatment was too expensive (Chernikov, 1968), an unlikely reason that most probably was a product of Soviet propaganda. On another occasion, a delegation from the hospital in Longyearbyen visited Barentsburg, and were seemingly impressed by the high quality of healthcare and the cultural and

educational facilities in Barentsburg (Shirikov, 1979). Medical workers from Pyramiden also visited Longyearbyen, and vice versa (Gnilorybov, 1987), and potential cooperation areas were frequently discussed (Tsymbalyuk, 1989).

Occupational health

Occupational health was a recurrent topic which also often was discussed against the backdrop of productivity. An example can be found in an article about flu in 1950, when Dr Shojkhet argued that the flu epidemic should be combatted because sick leave had a negatively impacted production (Shojkhet, 1950).

An interesting aspect is how occupational health was more frequently discussed in the second half of the 1980s and onwards, a tendency that probably was a result of the glasnost policy, allowing for a higher degree of openness about challenges in Soviet society. Safety issues and accident prevention had been discussed earlier (see Portsel, 2011), but not to such a wide extent as seen after the mid-1980s. In 1987, for instance, a high mortality rate in the mines was reported (Bryushchenko, 1987). This was a topic that had not been addressed in the *Poliarnaia kochegarka* earlier.

Polar health

Another topic was how the environment influenced human health. Several doctors debated how the human organism was affected by harsh weather, lack of sunlight, inadequate nutrition, and other factors (see for instance Speranskaya, 1953 or Chichev, 1983)[1]. Nutrition was a frequent topic, as people residing in polar areas were assumed to need 10–15 % more energy than others, according to an article in *Poliarnaia kochegarka* (Aleksandrov, 1986). Children were prioritised, and received fresh milk, fish oil and food rich in vitamin C, and mothers were strongly encouraged to breast feed their babies milk (Bairachnaya, 1985). Children were weighed every tenth day (Unsigned, 1966). All inhabitants, were recommended UV light therapy, as this was

[1] Some of these doctors were apparently engaged in scientific research, too. In the iconic book of Liv Balstad, *North of the Desolated Sea* from 1957, «a female doctor from Grumant», fitting Speranskaya's descriptions, is engaged in scientific research about insomnia in the Arctic (p. 340).

associated with positive health effects, such as improved sleep and appetite and strengthening of the nervous system (see Mikhailov, 1953 or Zyuzina, 1958).

Appendicitis

Appendicitis is frequently described in polar literature. The condition is frequent and usually affects people between 10 and 30 years of age. Surgical treatment of appendicitis is urgent because rupture causes peritonitis, a life-threatening inflammation in the abdomen. *Poliarnaia kochegarka* reported a number of times about appendix removals taking place in or near the Soviet settlements (see for instance Unsigned 1968a, Rat'kov 1981 and Filippov 1983) .

Blood transfusion

Blood transfusion was a much described topic. As an example, there were seven cases reported only in the decade between 1955 and 1966. These reports had a notable ideological tinge, as the procedure must have been seen as a token of communist altruism, described as «the Soviet people's ability to sacrifice themselves for the sake of the life of another, for friendship» (Moskvin, 1979). Making such a sacrifice is the motif in articles for instance in Unsigned, 1958b and Gotskaya, 1971. Moreover, health workers sacrificing their own blood are also repeatedly mentioned, such as the doctor who used his own blood to save a newborn (Kosareva, 1964) and a nurse who donated blood to save the life of a miner (Kirillov, 1966).

Visits

The readers of *Poliarnaia kochegarka* apparently had a great appetite for knowledge about life in the Norwegian settlements on Svalbard, as they represented a modern lifestyle unrivalled by the Soviet Union (Portsel, 2011). An article by G Ivanov (1981) described in detail a history of the Norwegian mines and how Norwegians and Russians had coexisted through time. Moreover, visits from Norwegian officials to the Soviet settlements, as well as cultural exchanges between the settlements, were frequently described (see for example *A Way to Friendship and Mutual Understanding* in no. 21, 1958a and *All Kinds of Guests Are Coming to See Us* in no. 58, 1967).

An interesting concluding remark is that criticisms of health workers appear to be rare, at least not in writing in *Poliarnaia kochegarka*. Was this an evidence of satisfied patients, or were criticisms simply not allowed? In the Soviet Union, public criticism towards the authorities (including medical health services, provided by the state for free at the point of delivery) was unusual. Nevertheless, critical remarks addressed to the company bosses and employees in sectors other than health were published in the newspaper from time to time. For example, mismanagement in the Trust Arktikugol mines was widely discussed in a newspaper issue in 1948 and officials from Trust Arktikugol regularly responded to matters raised by their critics directly in *Poliarnaia kochegarka* (Portsel, 2020). Complaints concerning food and sanitary conditions in the barracks and cafeteria were frequent (see for instance Babkin, 1950). Norwegian sources show that dissatisfaction concerning food was frequent also among Norwegian miners (Sandmo, 2005). Furthermore, issues related to health were also criticised in *Poliarnaia kochegarka*, such as when a patient was dissatisfied with the coal company's follow-up of the doctor's treatment plan (Unsigned, 1950) or lack of delivery of equipment to the hospital after complaints from the medical staff (Vorob'ev, 1979).

Altogether, these descriptions provide invaluable insight into the Soviet approach to healthcare delivery and emergency preparedness on Svalbard.

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Svalbard fiction: A selection*

**Documentaries and travel accounts are excluded. In terms of fiction, the list is far from exhaustive.*

Author	Title	Language	Year
Anchishkin, Vladlen	Arkticheskii roman	Russian	1964
Anker, Nini Roll (pseudonym Kåre P.)	To ungdomsår	Norwegian	1930
Berset, Inger	Brevet fra Svalbard	Norwegian	1956
Bogen, Øystein	Provokoasjonen	Norwegian	2022
Cox, Richard	The Ice Raid	English	1984
Frich, Øvre Richter	I polarnattens favn	Norwegian	1912
Fønhus, Mikkjel	Under polarlyset	Norwegian	1923
Hansen, Lars	I Spitsbergens vold	Norwegian	1965
Hansen, Lars	En havets sønn	Norwegian	1928
Hanssen, Arvid	Gullunger, kullunger	Norwegian	1995
Hauge, Odd Harald	Storebjørn	Norwegian	2019
Iakovlev, Andrei	V semi santimetrakh ot poliusa	Russian	1964
Ingstad, Helge	Siste båt	Norwegian	1946
Isdahl, Bård	Havari	Norwegian	2013
Karlsson, Ørjan	Rød stjerne	Norwegian	2021
Karlsson, Ørjan N.	Gruve 13	Norwegian	2004
Kharchenko, Sergei	Studenyi arkhipelag	Russian	1971
Kirkwood, Thomas	The Svalbard Passage	English	1984
Kristensen, Monica	A book series	Norwegian	2007-
Kroneberg, Benedicte M.	Svalbardnotatene	Norwegian	2021
Larsen, Thor	Espen i isen	Norwegian	1981
Lunde, Maja	Drømmen om et tre	Norwegian	2022
Martinsson, Erik	Polarnattens fångar	Swedish	1969
Michelet, Jon	Angrepet på Longyearbyen	Norwegian	1978
Michelet, Jon	Orions belte	Norwegian	1977
Moen,Magnus	Sverre på Svalbard	Norwegian	1951
Nore, Aslak	Ingen skal drukne	Norwegian	2023
Ott, Estrid	Siri fra Svalbard	Norwegian	1965
Rafaelsen, Ellinor	Series: Polarnetter	Norwegian	2008-
Rafaelsen, Ellinor	Katja på Svalbard	Norwegian	2000
Ragde, Anne B.	Zona frigida	Norwegian	1995
Ragde, Anne B.	Noen kommer, noen går	Norwegian	1992
Ragde, Anne B.	En kald dag i helvete	Norwegian	2005
Saue, Agnar	Polarnatt	Norwegian	1936
Semenova, Maria	S vikingami na Svalbard	Russian	2007
Shpanov, Nicolai	Led i fraki	Russian	1932
Sverdrup, Jakob Rosted	Spitzbergens Robinson	Danish	1945
Sævareid, Heidi	Longyearbyen	Norwegian	2020
Totland, Per Arne	Om hundre år er allting gjemt	Norwegian	2015
Wekre, Eirik	Alias	Norwegian	2019
Wekre, Eirik	Operasjon Høye Nord	Norwegian	2010
Wiik, Øystein	Dødsrytteren	Norwegian	2017
Økern, Bjørn	Svalbard 1969	Norwegian	2007

Interview question guide

Themes	Questions
Briefing and presentation	• Introduction of myself, the project, and the purpose of the interview • Information about data security and privacy • Information about the interview procedure and research project
Preliminary questions	• Who are you? • What do you do? • What is your role in healthcare delivery and emergency preparedness on Svalbard?
Main questions/discussion topics	• How has healthcare delivery and emergency preparedness on Svalbard been organised? • How has the cooperation and interaction between institutions X and Y been organised? • In which ways are Norway and Russia cooperating on healthcare delivery and emergency preparedness? • Could emergency preparedness have been organised in a more efficient manner? • What are the main challenges related to healthcare delivery and emergency preparedness on Svalbard?
Debriefing	• Anything you would like to add? • Anything that I missed? • Anything specific you want to elaborate on? • Are there other people or institutions I should get in touch with?
Concluding remarks	• Reminder about the research project's procedure • Invitation to get in touch if there are any more questions

Information letter for respondents

Interview inquiry
This is an inquiry about participation in a research project where the main purpose is to explore the potential for an increased cooperation between Norway and Russia concerning healthcare delivery and emergency preparedness on Svalbard. In this letter we will give you the information about the purpose of the project and what your participation will involve.

Purpose of the project
The study is part of the PhD project "Healthcare Delivery and Emergency Preparedness on Svalbard: A Study of Norwegian and Russian Practices and Cooperation".

The aims of this study can be subdivided into the following components:

- To identify how healthcare delivery and emergency preparedness are organised on Svalbard
- To identify cooperation between Norway and Russia with regard to healthcare delivery and emergency preparedness on Svalbard
- To identify the main challenges in terms of healthcare delivery and emergency preparedness on Svalbard

The overall research question of the project is as follows: «How do Norway and Russia approach healthcare delivery and emergency preparedness on Svalbard and what are the potential effects from a closer cooperation?»

Who is responsible for the research project?
UiT The Arctic University of Norway is the institution responsible for the project. The Research Council of Norway is the external partner.

Why are you being asked to participate?
Participants have been chosen because of their knowledge of the topic.

What does the participation involve for you?
If you choose to take part in the project, this will involve an interview. It will take approx. 30 minutes.

Participation is voluntary
Participation in the project is voluntary. If you choose to participate, you can withdraw your consent at any time without giving a reason. All information about you will be made anonymous, anyway. There will be no negative consequences for you if you choose not to participate or later decide to withdraw.

Your personal privacy – how we will store and use your personal data
We will only use your personal data for the purpose(s) specified in this information letter. We will process your personal data confidentially and in accordance with data protection legislation (the General Data Protection Regulation and Personal Data Act).
Only the project leader will have access to the data
The data will be stored in a password protected area
The participant will not be recognisable in the published material

What will happen to your personal data at the end of the research project?
The personal data, including any digital recordings, will be deleted at the end of the project (by 1 March 2023).

Your rights
So long as you can be identified in the collected data, you have the right to:
access the personal data that is being processed about you

- request that your personal data is deleted
- request that incorrect personal data about you is corrected/rectified
- receive a copy of your personal data (data portability), and
- send a complaint to the Data Protection Officer or The Norwegian Data Protection Authority regarding the processing of your personal data

What gives us the right to process your personal data?
We will process your personal data based on your consent.

Based on an agreement with UiT The Arctic University of Norway, NSD – The Norwegian Centre for Research Data AS – has assessed that the processing of personal data in this project is conducted in accordance with the data protection legislation.

Where can I find out more?
If you have questions about the project, or want to exercise your rights, contact:
UiT The Arctic University of Norway via Turid Austin Wæhler (turid.a.wahler@uit.no)

Our Data Protection Officer: Joakim Bakkevold (personvernombud@uit.no)
NSD – The Norwegian Centre for Research Data AS, by email: (personverntjenester@nsd.no) or by telephone: +47 55 58 21 17.

Yours sincerely,

Turid Austin Wæhler
(Researcher)

Consent form

I have received and understood information about the project “Healthcare Delivery and Emergency Preparedness on Svalbard: A Study of Norwegian and Russian Practices and Cooperation”. and have been given the opportunity to ask questions. I give consent:

- to participate in an interview

I give consent for my personal data to be processed until the end date of the project, approx. 1 March 2023.

(Signed by participant, date)

Approval from NSD – The Norwegian Centre for Research Data

NSD is a national archive for research data. All research projects at UiT (and other Norwegian higher education institutions) that process personal data must be notified to NSD.

NSD has assessed that the processing of personal data in this project is in accordance with the data protection legislation. See the documents below for further particulars.

The PhD project was prolonged due to a parental leave and a corona-related project postponement. The first enclosed document is the original approval from NSD. The second document is an additional approval of the prolonged project period.

Sikt

Vurdering av behandling av personopplysninger

Referansenummer
109800

Vurderingstype
Standard

Dato
16.09.2021

Prosjekttittel
Intervjustudie om helse og beredskap på Svalbard

Behandlingsansvarlig institusjon
UiT Norges Arktiske Universitet / Fakultet for humaniora, samfunnsvitenskap og lærerutdanning / Institutt for språk og kultur

Prosjektansvarlig
Turid Austin Wæhler

Prosjektperiode
28.09.2021 - 28.06.2022

Kategorier personopplysninger
Alminnelige

Lovlig grunnlag
Samtykke (Personvernforordningen art. 6 nr. 1 bokstav a)

Behandlingen av personopplysningene er lovlig så fremt den gjennomføres som oppgitt i meldeskjemaet. Det lovlige grunnlaget gjelder til 28.06.2022.

Meldeskjema

Kommentar
Det er vår vurdering at behandlingen av personopplysninger i prosjektet vil være i samsvar med personvernlovgivningen såfremt den gjennomføres i tråd med det som er dokumentert i meldeskjemaet med vedlegg den 16.09.2021, samt i meldingsdialogen mellom innmelder og NSD. Behandlingen kan starte.

TYPE OPPLYSNINGER OG VARIGHET
Prosjektet vil behandle alminnelige kategorier av personopplysninger frem til 28.06.2022.

LOVLIG GRUNNLAG
Prosjektet vil innhente samtykke fra de registrerte til behandlingen av personopplysninger. Vår vurdering er at prosjektet legger opp til et samtykke i samsvar med kravene i art. 4 og 7, ved at det er en frivillig, spesifikk, informert og utvetydig bekreftelse som kan dokumenteres, og som den registrerte kan trekke tilbake.
Lovlig grunnlag for behandlingen vil dermed være den registrertes samtykke, jf. personvernforordningen art. 6 nr. 1 bokstav a.

PERSONVERNPRINSIPPER
NSD vurderer at den planlagte behandlingen av personopplysninger vil følge prinsippene i personvernforordningen om:

• lovlighet, rettferdighet og åpenhet (art. 5.1 a), ved at de registrerte får tilfredsstillende informasjon om og samtykker til behandlingen
• formålsbegrensning (art. 5.1 b), ved at personopplysninger samles inn for spesifikke, uttrykkelig angitte og berettigede formål, og ikke behandles til nye, uforenlige formål
• dataminimering (art. 5.1 c), ved at det kun behandles opplysninger som er adekvate, relevante og nødvendige for formålet med

prosjektet
• lagringsbegrensning (art. 5.1 e), ved at personopplysningene ikke lagres lengre enn nødvendig for å oppfylle formålet

DE REGISTRERTES RETTIGHETER
Så lenge de registrerte kan identifiseres i datamaterialet vil de ha følgende rettigheter: innsyn (art. 15), retting (art. 16), sletting (art. 17), begrensning (art. 18), og dataportabilitet (art. 20).
NSD vurderer at informasjonen om behandlingen som de registrerte vil motta oppfyller lovens krav til form og innhold, jf. art. 12.1 og art. 13.
Vi minner om at hvis en registrert tar kontakt om sine rettigheter, har behandlingsansvarlig institusjon plikt til å svare innen en måned.

FØLG DIN INSTITUSJONS RETNINGSLINJER
NSD legger til grunn at behandlingen oppfyller kravene i personvernforordningen om riktighet (art. 5.1 d), integritet og konfidensialitet (art. 5.1. f) og sikkerhet (art. 32).
For å forsikre dere om at kravene oppfylles, må dere følge interne retningslinjer og/eller rådføre dere med behandlingsansvarlig institusjon.

MELD VESENTLIGE ENDRINGER
Dersom det skjer vesentlige endringer i behandlingen av personopplysninger, kan det være nødvendig å melde dette til NSD ved å oppdatere meldeskjemaet. Før du melder inn en endring, oppfordrer vi deg til å lese om hvilke type endringer det er nødvendig å melde: https://www.nsd.no/personverntjenester/fylle-ut-meldeskjema-for-personopplysninger/melde-endringer-i-meldeskjema
Du må vente på svar fra NSD før endringen gjennomføres.

OPPFØLGING AV PROSJEKTET
NSD vil følge opp ved planlagt avslutning for å avklare om behandlingen av personopplysningene er avsluttet.
Lykke til med prosjektet!

Hilsen Anne Marie Try Laundal

Sikt

Vurdering av behandling av personopplysninger

Referansenummer
109800

Vurderingstype
Standard

Dato
06.07.2022

Prosjekttittel
Intervjustudie om helse og beredskap på Svalbard

Behandlingsansvarlig institusjon
UiT Norges Arktiske Universitet / Fakultet for humaniora, samfunnsvitenskap og lærerutdanning / Institutt for språk og kultur

Prosjektansvarlig
Turid Austin Wæhler

Prosjektperiode
28.09.2021 - 01.07.2023

Kategorier personopplysninger
Alminnelige

Lovlig grunnlag
Samtykke (Personvernforordningen art. 6 nr. 1 bokstav a)

Behandlingen av personopplysningene er lovlig så fremt den gjennomføres som oppgitt i meldeskjemaet. Det lovlige grunnlaget gjelder til 01.07.2023.

Meldeskjema

Kommentar
Personverntjenester har vurdert endringen i prosjektsluttdato.

Vi har nå registrert 01.07.2023 som ny sluttdato for behandling av personopplysninger (opprinnelig 28.06.2022).

Hvis det blir nødvendig å behandle personopplysninger enda lengre, så kan det være nødvendig å informere prosjektdeltakerne.

Vi vil følge opp ved ny planlagt avslutning for å avklare om behandlingen av personopplysningene er avsluttet.

Lykke til videre med prosjektet!