

Hope is Not a Strategy: Key Lessons from COVID-19 for Future Health Crises

Søren Valgreen Knudsen^{1,2}, Inge Kristensen³, Nanna Kure-Biegel⁴, Mickael Bech⁵, Hanne Agerbak⁶, Camilla Plambeck Hansen⁷, Christina Mohr-Jensen^{1,8}, Jan Brink Valentin⁹, Michael Bang Petersen⁹, Jan Mainz^{1,2,10,11}

¹Psychiatry, Aalborg University Hospital, Aalborg, Denmark; ²Danish Center for Health Services Research, Department of Clinical Medicine, Aalborg University, Aalborg, Denmark; ³Danish Society for Patient Safety, Frederiksberg, Copenhagen, Denmark; ⁴Health and Care, Aarhus Municipality, Aarhus, Denmark; ⁵Department of Political Science and Public Management, University of Southern Denmark, Odense, Denmark; ⁶Local Government Denmark (KL), Copenhagen, Denmark; ⁷National Clinical Registries (RKKP), the Danish Clinical Quality Program, Aarhus, Denmark; ⁸Institute of Communication and Psychology, Aalborg University, Aalborg, Denmark; ⁹Department of Political Science, Aarhus University, Aarhus, Denmark; ¹⁰Department for Community Mental Health, Haifa University, Haifa, Israel; ¹¹Department of Health Economics, University of Southern Denmark, Odense, Denmark

Correspondence: Søren Valgreen Knudsen, Psychiatry, Aalborg University Hospital, Møllegaede 10, 9000, Aalborg, Denmark, Tel +45 25215522, Email soeren.k@rn.dk

Introduction: The COVID-19 pandemic disrupted global economies, social structures, and public health systems. However, Denmark stood out as an exception, maintaining steady life expectancy during this period. This raises important questions about the factors that strengthened the Danish healthcare system and society against the pandemic's challenges.

Methods: The Danish healthcare system serves 5.8 million citizens with free care, advanced digital infrastructure, and comprehensive health registers. Under the auspices of the Danish Society for Patient Safety, insights from Denmark's response to COVID-19 were collected from the onset of the pandemic. This paper builds on these collected experiences, covering crucial areas such as strategies to reduce transmission, digitalization, management of non-COVID diseases, tracking adverse events, workplace well-being, development and use of predictive models, and maintaining public trust. Patient-level data on contacts, contact types, and clinical procedures were obtained from health administrative systems and clinical quality registries. All results were reported as raw counts, with no statistical analyses applied.

Results: During COVID-19, Denmark's healthcare system demonstrated resilience by adapting swiftly, achieving a high vaccination rate, shifting to virtual care, enhancing response capacity through real-time adverse event tracking, and supporting healthcare workers through crisis teams minimizing prolonged sick leave. Predictive models accurately forecasted healthcare demands, while public health strategies focused on monitoring public behavior and trust in authorities.

Discussion: A key lesson from Denmark's handling of COVID-19 is that much of the observed resilience stemmed from pre-existing structures that could be reused, further developed, and expanded. This resilience was further enhanced by an unprecedented readiness for change, cross-sectoral and interdisciplinary collaboration, and the removal of typical barriers. These experiences aim to further improve the quality and resilience of healthcare in Denmark and inspire other countries' healthcare systems. Moving forward, acknowledging chronic conflicts as the new normal, coupled with the reminder that "hope is not a strategy", could serve as a pivotal approach.

Keywords: health services research, crisis management, quality of care, patient safety, working wellbeing, adverse events

Introduction

The COVID-19 pandemic wrought havoc on global economies, social structures, and public health. A study encompassing 29 countries revealed that 27 of them witnessed a decline in life expectancy in 2020.¹ However, Denmark emerged as an exception, showing no decrease in life expectancy during the same period.¹ Furthermore, Denmark has been shown to be among the countries with the lowest excess mortality both in Europe² and internationally³ during the crisis. According to the Organisation for Economic Co-operation and Development (OECD), Denmark had the 12th

lowest number of COVID-19 cases of 6190 (OECD average was 8392) and the 7th fewest deaths with 436 per one million inhabitants (OECD average was 1285) among OECD countries.⁴ Hence, it appears that Denmark was among the nations that most effectively navigating the COVID-19 pandemic, as assessed by the metrics of infection rates, mortality, and the influence on projected life expectancy. This prompts a critical inquiry into factors that fortified the Danish healthcare system and society against the adverse effects of the pandemic.

Under the auspices of the Danish Society for Patient Safety Denmark, insights from the Danish COVID-19 response efforts were gathered from the beginning of the pandemic.⁵ This paper builds on this compilation of experiences, covering a range of critical areas, including strategies to reduce transmission, digitalization, management of non-COVID diseases, tracking of adverse events, workplace well-being, the development and use of predictive models, and the maintenance of public trust.

Materials and Methods

Background

Setting

The Danish healthcare system is predominantly publicly owned and run, serving a population of 5.8 million citizens and primarily financed through taxation. The system is organized into three levels of administration, with 1) the state managing legislation, financing, and guidelines, 2) the five Danish regions responsible for hospital-based services and general practitioners, and 3) the 98 municipalities in charge of areas such as prevention, rehabilitation, nursing homes, home care, social psychiatry, and treatment for substance abuse. A fundamental principle of the Danish healthcare system is that all citizens should have free and equal access to healthcare services. Compared, for example, to the United States, where privatized healthcare and extensive insurance requirements can lead to high out-of-pocket costs, Denmark's system minimizes financial barriers to ensure broad access to healthcare. Similar to the UK's NHS, Denmark relies on public funding but operates with less centralized management, granting more autonomy to regional authorities.⁶ As per the United Nations E-Government Survey 2022, Denmark leads the world in public digitalization.⁷ Using a unique personal identifier, Denmark links records from over 130 administrative and health registers and 85 clinical quality registers,⁸ facilitating lifelong follow-up and transforming the entire population into a research cohort.⁹

COVID-19 in Denmark

Denmark reported its first confirmed COVID-19 case on February 27, 2020, linked to a citizen returning from Northern Italy.⁵ See timeline in Figure 1. In response, Denmark initiated its first national lockdown on March 11, 2020, including closing schools, universities, and non-essential workplaces (workplaces that do not provide critical services necessary for societal functioning) and imposing social distancing rules.⁵ After a period of easing and reopening, a second COVID-19 wave led to a stricter lockdown in December 2020. By September 2021, COVID-19 was declared a non-community critical disease due to low severe cases and high vaccination rates. However, rising infection rates and new variants by

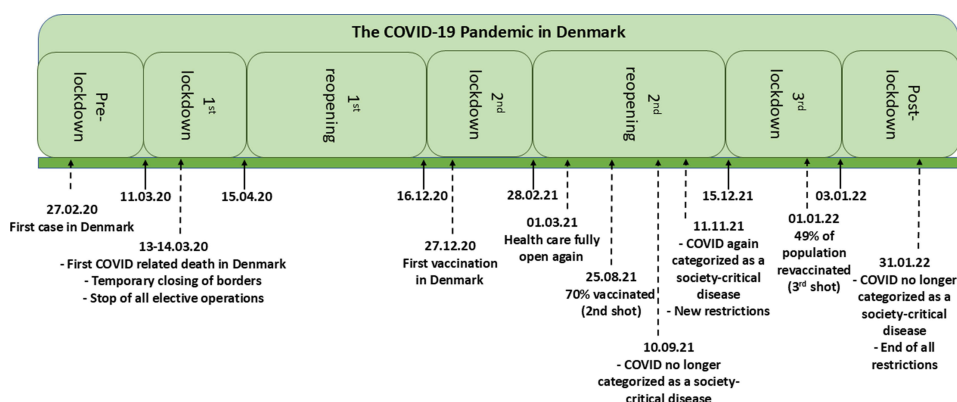


Figure 1 Timeline of the COVID-19 Pandemic in Denmark.

November 2021 resulted in COVID-19 being reclassified as a community-critical disease, leading to a third wave and more restrictions by the end of 2021. From February 1, 2022, it was again declared a non-community critical disease, marking a step towards normalization.⁵

Data

Data on trends in physical and virtual psychiatric contacts, patient admissions, and engagements with psychosocial support services in the North Denmark Region was provided by the regional Patient Administrative System (PAS). The Danish Heart Registry supplied data on the volume of percutaneous coronary intervention (PCI) procedures, while numbers of patient admissions used in the predictive model were sourced from the Danish Health Authority. All results were reported as raw counts, with no statistical analyses applied.

Results

Strategies to Reduce Transmission

A central part of Denmark's response to the COVID-19 epidemic was a comprehensive testing strategy.⁵ This included both Polymerase Chain Reaction (PCR) tests and later antigen rapid tests. Throughout 2020 and 2021, numerous testing centers were established across the country. The testing strategy was also expanded to include regular testing in schools, workplaces, and nursing homes. In December 2020, Denmark began a nationwide vaccination campaign with free COVID-19 vaccinations, prioritizing healthcare workers, the elderly, and vulnerable groups first. The COVID-19 strategies in eldercare included rigorous hygiene protocols, visitation controls, and vaccine prioritization for the elderly, particularly in nursing homes and for those receiving home care. The adaptation of these strategies, along with prompt outbreak responses, contributed to lower transmission rates and fatalities, underscoring the effectiveness of targeted preventive actions in protecting vulnerable populations during the pandemic.¹⁰ Due to an unprecedented efficient collaboration between sectors, 75% of the Danish population was fully vaccinated by September 2021. This was the 4th highest proportion among the OECD countries.⁴ These interventions likely contributed to reducing the infection spread and healthcare system burden.^{11,12}

Digitalization, Virtual Consultations and Telemedicine

Data and digital technologies significantly facilitated Denmark's COVID-19 response. Existing digital infrastructure was expanded and adapted to manage the pandemic, leading to a rapid nationwide deployment of solutions.⁵ This was possible due to the digital-native nature of the data and its collection in national registries following common definitions and regulations. During few weeks, a stable flow of reliable health data was produced from existing systems. Automatic reporting and disclosure of infection, hospitalizations, vaccinations, and mortality rates were possible due to registries containing microbiological data, hospital activities, and causes of death. The Danish CPR-system's integration with geographic, socio-economic, and labor market data enabled research, modelling, and tracking of infection patterns. The COVID-19 testing and vaccination plans were also aided by preexisting digital infrastructure: an integrated digital platform for testing activities was quickly established, based on a pre-existing regional booking system, which was expanded and adapted nationally.⁵ This allowed for effective management of invitations, bookings, testing, contact tracing, and data compilation in national registries. Test results were available to citizens on the shared Danish digital health portal and directly sent to contact tracing units and general practitioners.

The COVID-19 pandemic triggered a marked shift in the provision of health care. Due to the risk of transmission of COVID-19, traditional face-to-face, in-clinic consultations witnessed a substantial decrease. Specifically, in March 2020 at the onset of lockdowns, there was an abrupt 25% decline in clinic consultations in general practice. However, this decline in in-clinic consultations was followed by an increase that brought the number of consultations above pre-pandemic levels, primarily due to the widespread introduction of telehealth solutions, such as video and extended telephone consultations.^{13,14} To expedite the transition to telehealth solutions, immediate actions were undertaken. A day after the lockdown initiation, agreements were negotiated regarding remuneration for video consultations. Prior investments in video communication infrastructure and an app called "My Doctor" facilitated this rapid transformation, resulting in an unforeseen increase in virtual consultations.¹⁴ Three days later, an agreement was in place for scheduled

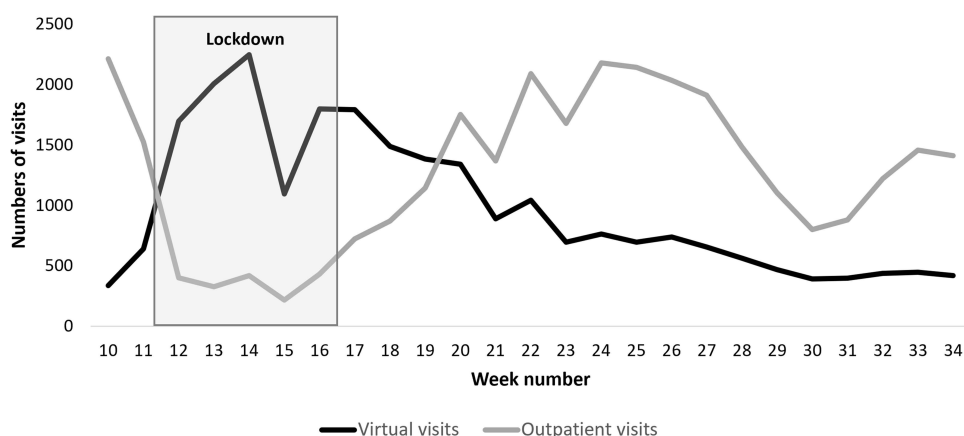


Figure 2 Changes in the number of weekly outpatients and virtual visits in the psychiatric sector in Region North Denmark in weeks 10–34 in 2020.

telephone consultations as a substitute for physical attendance. However, it was not only the primary sector that converted to telecom solutions. The secondary sector was also quick to adapt. Figure 2 displays an example from a Danish region showing how the extensive drop in outpatient visits in psychiatric care during the first national lockdown was compensated by a corresponding boost in virtual visits. Although concerns were raised about missing important physical signals during video and phone consultations, the benefits of such consultations were also evident. They provided an attractive alternative, not just to reduce transmission of COVID-19, but also for patients who were either mobility impaired, lacked transport options, or suffered from anxiety, thus increasing accessibility to personal doctors for vulnerable patient groups.

Handling of Non-COVID Diseases

During the COVID-19 epidemic, healthcare resources were primarily diverted to manage the disease. This sparked a worry that this could lead to a decline in other health services and reduced hospital contacts, even for critical illnesses. The availability of valid and real-time data enabled elucidation of changes in contacts for time-critical illnesses, already from the onset of the pandemic. As displayed in Figure 3, showing results of an investigation conducted early in the pandemic, a decrease in elective percutaneous coronary intervention (PCI) procedures was observed. Since non-life-threatening treatments were paused, this was expected. However, an alarming unintended decrease in patient contacts related to time-sensitive heart disease (acute and semi-acute percutaneous coronary intervention procedures) was also reported.⁵ These insights led authorities, general practitioners, and other specialists to urge citizens to continue contacting the healthcare system in case of illness. Updated reports about activities within invasive cardiology showed an increase in activity in April, indicating that the citizen information campaign had an effect.

An essential question during the pandemic was whether the reconfiguration of the healthcare system and the sustained strain on health capacity had consequences on services provided for other severe diseases. In 2021, Denmark launched a project to assess the impact of the COVID-19 pandemic on non-COVID-19 healthcare services, including screening, diagnostics, and treatment.^{15–17} The project encompassed acute and chronic illnesses, oncology and cancer screening programs, psychiatry, and palliative care. Despite an initial decline in healthcare activities, the system demonstrated resilience as services like emergency response, breast and lung cancer care, and cancer screening eventually rebounded to levels seen before the pandemic. Nevertheless, the study highlighted noticeable disparities in healthcare utilization. Groups such as immigrants, people living alone, those with limited education, and low-income individuals recorded fewer healthcare interactions than before the pandemic. These findings point to pre-existing health inequities in Denmark,^{18,19} which the pandemic further intensified, underscoring the necessity for focused support for these vulnerable populations.

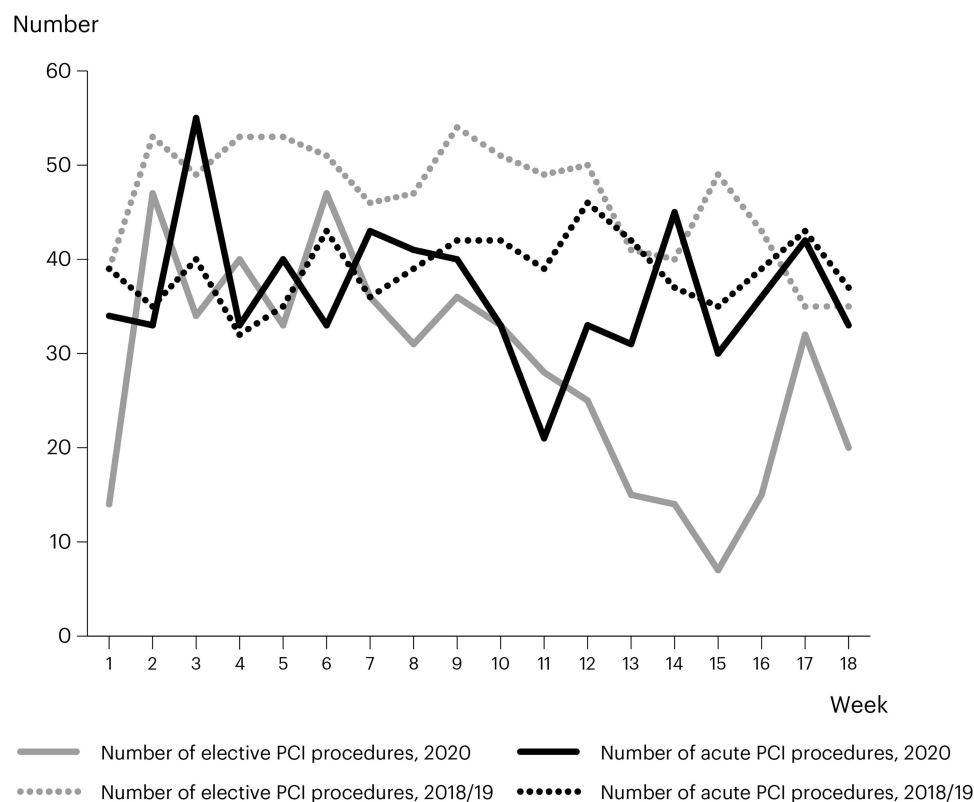


Figure 3 Weekly trends in elective and acute percutaneous coronary interventions (PCI) procedures in weeks 1–18 in Western Denmark.

Adverse Events

The COVID-19 pandemic posed significant challenges to patient safety, underscoring the importance of understanding how patient safety systems responded to the pandemic. In 2004, Denmark pioneered a national law on patient safety, establishing a confidential, non-punitive, locally based system for adverse events reporting. Amidst COVID-19, this system proved crucial in managing unexpected events and facilitating swift crisis response. To track COVID-19 related incidents, a specific field was added to the reporting system.²⁰ This enabled rapid identification and response to a wide range of issues, from communication errors to infection risks and delays in treatment. Although some adverse events were directly linked to COVID-19, others were indirectly related to the pandemic situation. In response to COVID-19, the patient safety organization adjusted its working schedule, ensuring daily adverse events register updates, even on weekends and holidays. This led to frequent information extraction for management systems and weekly compilations of COVID-19 related adverse events. The accelerated pace significantly impacted workflows, necessitating new guidelines, workflow alterations, and staff training.

Working Wellbeing

The COVID-19 posed a risk to the mental health and well-being of employees in the health and care sectors.²¹ Additionally, the crises led to uncertainty about new tasks and a lack of protective equipment,²² leading to a compromised psychological safety essential for innovation and efficiency.²³ Under Danish law, all regions have a mandatory Psychosocial Support Team for crisis support for citizens. During the pandemic, Region North Denmark leveraged this infrastructure to provide accessible, high-quality support to employees managing COVID-19 related challenges. **Figure 4** displays the numbers of newly initiated contacts to the team from 01.04.2020 to 24.07.2020 within the North Denmark Region, indicating a substantial demand for support. The initial referrals were mostly from intensive care and anesthesia nurses, who expressed diverse emotional burdens, including anger, sadness, stress, burnout, depression, and anxiety. These reactions raised concerns about personal competence, especially among generally resourceful

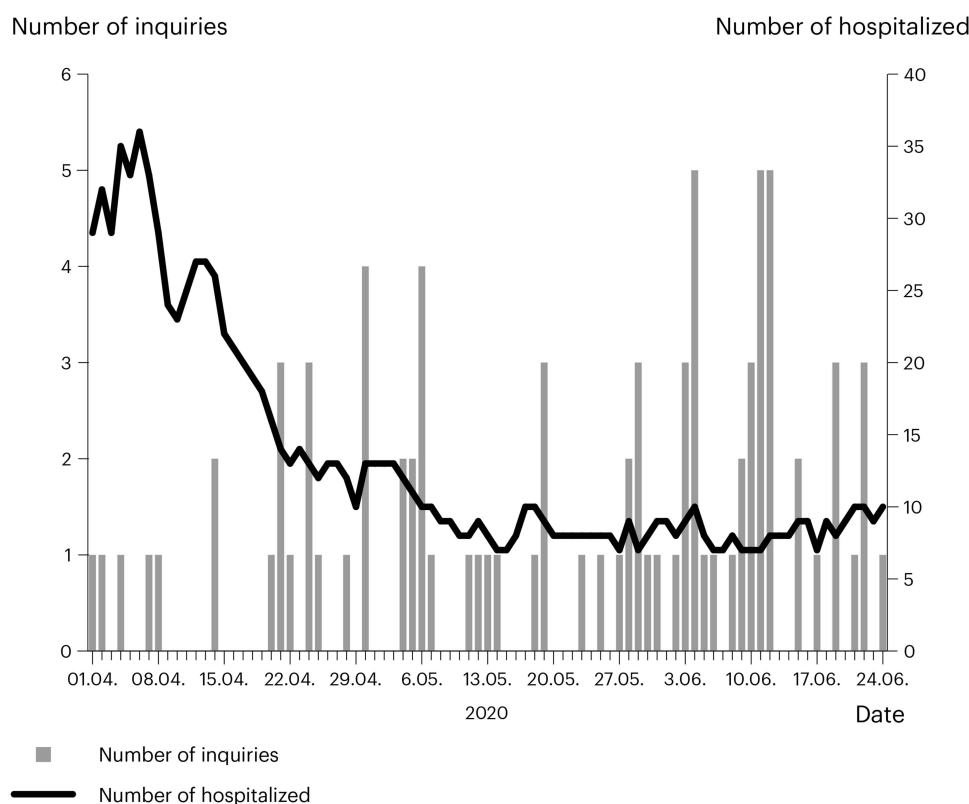


Figure 4 Number of hospitalized COVID-19 patients and the number of inquiries to the Psychosocial Support Team in relation to COVID-19 the North Denmark Region between 01.04.2020 and 24.07.2020.

individuals unfamiliar with such emotional responses. The shift between the numbers of hospitalized patients and referrals may be due to the delayed dissemination of information about the team throughout the organization. Additionally, the cause might be a lag in psychological response, with referrals occurring only when significant symptoms had accumulated over an extended period of high work pressure and stress. Most employees managed to avoid prolonged sick leaves and were better able to handle their reactions following the conversations.

Prediction Models

Due to COVID-19's extended course, many traditional indicators were inadequate for local planning in regions and municipalities, which necessitated the development of predictive models to forecast healthcare system strain. In Region North Denmark, a prediction model was developed to address these challenges.²⁴ By leveraging Denmark's comprehensive digital infrastructure and individual-level data, the model could predict the strain on the local healthcare system. The model was reliable and could estimate the number of hospitalized, intensive care patients and discharges during the pandemic (Figure 5). These models can be adapted for other diseases and future epidemics, aiding planning, resource allocation, and policy evaluation.

Public Trust

The healthcare system was crucial in managing the pandemic. Nonetheless, success also highly depended on public behaviors toward preventative measures. In Denmark, epidemic control strategies focused on monitoring public behavior, perceptions of official communications, and trust in authorities. This was mainly done through the "How Democracies Cope with Covid-19" (HOPE) project,^{25–27} consisting of ongoing Danish and international surveys. The project found that public trust in the management of COVID-19 substantially influenced the public's readiness to engage in preventive actions.²⁶ As of autumn 2020, only 11% of Danes reported feeling overwhelmed by the restrictions, despite the ongoing pandemic for 11 months. Notably, during the societal shutdown from December 2020 to January 2021, an increase in

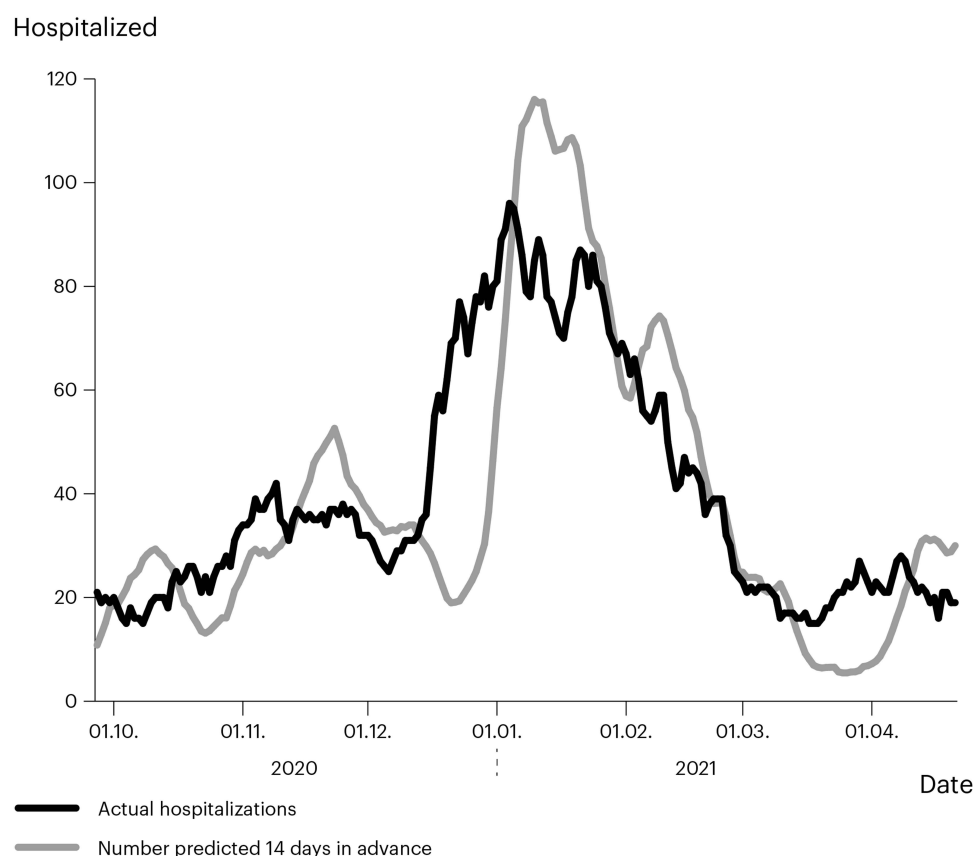


Figure 5 Predicted and actual number of hospitalized COVID-19 patients. Evaluation of the model in the period October 2020 to and including April 2021, which compares the actual number of inpatients in Region North Denmark with the predicted. The predictions were made 14 days before.

trust was observed, indicating that the lockdowns did not provoke negative reactions from the public. The HOPE project furthermore identified that prolonged restrictions could diminish the psychological well-being of citizens, which is vital for effective disease prevention, and consequently weaken their compliance with preventive measures. Additionally, the project determined that normalized behavior during periods of low infection rates should not be misinterpreted as “pandemic fatigue”, and that significant behavioral shifts did not necessarily require the imposition of stricter restrictions. Rather, actionable and trustworthy communication concerning infection rates and required protective behavior was essential. Seemingly, trust in the Danish authorities was more dependent on the rationale behind decisions rather than the decisions themselves, highlighting the complex interplay between public trust, government policies, and pandemic response effectiveness. The international comparisons revealed that Denmark generally exhibited higher levels of trust in authorities than other countries.

Discussion

While the COVID-19 pandemic had devastating impacts, it also yielded critical insights and opportunities for developing effective strategies and service delivery. This article elucidates the significance of possessing a well-structured society wherein distinct sectors can coordinate and collaborate. It underscores the pivotal role of legislation in demarcating clear task distributions. Equally important is the establishment of a data infrastructure and data architecture that not only facilitates standardized measurements from the onset of a crisis but also acutely addresses the specific challenges that emerge in its course. A robust structure and culture emphasizing quality and patient safety are central, ensuring these facets are integrated into problem identification and solution strategies from the outset. In times of health crises, it's paramount to prioritize the well-being of those who care for us. This entails fostering a work environment that bolsters psychological safety and overall well-being, with an emphasis on providing support when decisions become

overwhelming. Lastly, it is essential to consider the general population. Comprehensive, ongoing surveys enable monitoring of the clarity and trustworthiness of messages relayed by politicians and health authorities. Notably, a lack of trust in some nations has manifested in residents' reluctance to undergo testing and vaccination—A challenge that Denmark did not encounter.

It is important to note that many of the elements described in this paper are also present in healthcare systems in other countries. An ecological study involving 21 countries, including Denmark, found that government effectiveness was the most significant factor in reducing excess mortality during the COVID-19 pandemic.²⁸ A primary factor contributing to the success of Denmark's pandemic response may thus be the organization of its healthcare system, where relatively small administrative units within a well-defined governance structure enabled efficient logistics across various services. This organization supported swift, decisive leadership, allowing for effective crisis management with a rapid response and optimized coordination throughout the Danish healthcare system.

Obviously, a number of other initiatives also contributed to the apparent resilience of the Danish healthcare system. For example, non-life-threatening treatments in the healthcare system were rapidly paused, medical and nursing students volunteered to address staff shortages,²⁹ and non-health professionals conducted tests and vaccinations, enabling hospital staff to concentrate on vital tasks.³⁰ Denmark was also one of the only countries in the world where cancer screening programs remained open throughout the pandemic, supporting early detection.¹⁴ Furthermore, the Danish labor market ensured that health workers could call in sick and still get paid – without losing their job – and additional support from the private sector also eased the burden on the public healthcare system.

Efficient management during the crisis relied on a well-defined governance structure promoting swift, decisive leadership. Yet, the pandemic underscored the need for improved cohesion and communication across health sectors. Denmark's robust data infrastructure facilitated agile responses, affirming the necessity of real-time, clinically relevant data. However, it also exposed areas with pre-existing data challenges, particularly the primary sector, illustrating the importance of ongoing digital solution development. Further, it is necessary to measure and address potential health inequalities during crises. The pandemic underscored the importance of healthcare staff's mental well-being, emphasizing the value of implementing the *quadruple aim* model, which includes healthcare professionals' well-being along with population health, patient experience, and cost considerations.³¹ Despite the unprecedented circumstances, Denmark preserved its focus on patient safety, stressing the need for the integration of quality- and patient safety experts into crisis management. Generally, the pandemic showed that managing such events necessitates a holistic approach, incorporating leadership, communication, democracy, and trust.

Building on Denmark's experiences during the COVID-19 pandemic, the following key recommendations are proposed for policymakers and healthcare administrators seeking to implement similar measures: Emergency preparedness plans must be monitored and updated at the national, regional, and municipal levels. Capacity monitoring is crucial, requiring continual oversight of hospital resources, including personnel, bed and intensive care unit availability, ventilators, personal protective equipment, testing materials, and municipal capacity. Population epidemiology monitoring involves the surveillance of testing, infection spread, and mortality rates both in the general population and among hospitalized patients. It's also important to monitor the epidemic's impact on the healthcare system by tracking hospital admissions in stationary and intensive care beds across national, regional, and municipal levels. Prediction models are necessary to forecast the epidemic's impact at these same levels. Managing other diseases during an epidemic is critical, requiring the tracking of selected indicators from national clinical registers to assess the impact on services for other severe diseases, including activity levels, quality of care, and inequalities. Ensuring patient safety involves monitoring epidemic-relevant adverse events and quality of care indicators. The psychosocial well-being of healthcare staff should be surveilled nationally, regionally, and municipally, using validated instruments to ensure their well-being is maintained. Lastly, societal attitudes need continuous monitoring to understand public behavior and trust during an epidemic.

While a return to pre-pandemic routines is necessary in many aspects, the crisis has also offered new realizations that should be preserved and developed. By viewing crises as opportunities for organized insights rather than just external disturbances, we can learn and better prepare for future crises. It is crucial to emphasize the importance of proactive planning and decisive action during times of crisis. This principle is summarized in a statement by the Permanent Secretary of the Danish Prime Minister's Office at the start of the pandemic: "Hope is not a strategy".⁵

Conclusion

This article describes a number of factors within the Danish society and healthcare system that contributed to less severe consequences of the pandemic in Denmark compared to many other comparable countries. This resilience was bolstered by an unprecedented readiness for change, cross-sectoral and interdisciplinary collaboration, and the removal of usual barriers. A key factor in Denmark's pandemic response success may be its healthcare organization, where small administrative units within a clear governance structure enabled swift, coordinated, and effective crisis management. An important lesson from Denmark's handling of COVID-19 is that much of the observed resilience was rooted in pre-existing structures that could be reused, further developed, and expanded. Hopefully, these experiences can further enhance the quality and resilience of healthcare in Denmark and serve as inspiration for other countries' healthcare systems. Moving forward, acknowledging chronic conflicts as the new normal, coupled with the reminder that "hope is not a strategy", could serve as a pivotal approach.

Ethics Approval

According to Danish "Act on Research Ethics Review of Health Science Research Projects and Health Data Science Research Projects", registry-based studies do not require ethical approval or patient consent.

Disclosure

The author(s) report no conflicts of interest in this work.

References

1. Aburto JM, Schöley J, Kashnitsky I, et al. Quantifying impacts of the COVID-19 pandemic through life-expectancy losses: a population-level study of 29 countries. *Int J Epidemiol*. 2022;51(1):63–74. doi:10.1093/ije/dyab207
2. European Union. *Health at a Glance: Europe 2022*. OECD; 2022. doi:10.1787/507433b0-en
3. Karlinsky A, Kobak D. Tracking excess mortality across countries during the covid-19 pandemic with the world mortality dataset. *Elife*. 2021;10. doi:10.7554/eLife.69336
4. OECD. Health at a Glance 2021: OECD Indicators. *OECD*. 2021. doi:10.1787/ae3016b9-en
5. Dansk Selskab for Patientsikkerhed. *Kvalitet Og Patientsikkerhed Under COVID-19 [Quality and Patient Safety During COVID-19]*. Dansk Selskab for Patientsikkerhed; 2021.
6. Tikkanen R, Osborn R, Mossialos E, Djordjevic A, Wharton G. International Profiles of Health Care Systems. *Commonw. Fund*. 2020;12:1.
7. United Nations. *E-Government Survey 2022*; 2022. Available from: <https://publicadministration.un.org/en/>. Accessed December 14, 2024.
8. Mainz J, Hess MH, Johnsen SP. The Danish unique personal identifier and the Danish civil registration system as a tool for research and quality improvement. *Int J Qual Health Care*. 2019;31:1–4. doi:10.1093/intqhc/mzz008
9. Schmidt M, Schmidt SAJ, Adelborg K, et al. The Danish health care system and epidemiological research: from health care contacts to database records. *Clin Epidemiol*. 2019;11:563–591. doi:10.2147/CLEP.S179083
10. Kjellberg PK, Kjellberg J, Hirani JC, et al. Baggrunden for covid-19-udbrud og -dødsfald på plejecentre og i hjemmeplejen i Danmark i perioden januar 2020 - April 2021 [The background of COVID-19 outbreaks and deaths in nursing homes and home care in Denmark from January 2020 to April 2021]. 2022.
11. Olagnier D, Mogensen TH. The Covid-19 pandemic in Denmark: big lessons from a small country. *Cytokine Growth Factor Rev*. 2020;53:10–12. doi:10.1016/j.cytogfr.2020.05.005
12. Petersen MB. COVID lesson: trust the public with hard truths. *Nature*. 2021;598(7880):237. doi:10.1038/d41586-021-02758-2
13. Huibers L, Bech BH, Kirk UB, Kallestrup P, Vestergaard CH, Christensen MB. Contacts in general practice during the COVID-19 pandemic: a register-based study. *Br J Gen Pract*. 2022;72(724):E799–E808. doi:10.3399/BJGP.2021.0703
14. OECD. *Health at a Glance: Europe 2022: State of Health in the EU Cycle*. OECD Publishing; 2022.
15. Ibfelt EH, Jensen H, Vrou Offersen B, et al. Diagnosis and treatment of breast cancer in Denmark during the COVID-19 pandemic: a nationwide population-based study. *Acta Oncol*. 2023;62(12):1749–1756. doi:10.1080/0284186X.2023.2259598
16. Olesen TB, Rasmussen TR, Jakobsen E, et al. Diagnosis and treatment of lung cancer in Denmark during the COVID-19 pandemic. *Cancer Epidemiol*. 2023;85. doi:10.1016/j.canep.2023.102373
17. Olesen TB, Jensen H, Møller H, et al. Nation-wide mammography screening participation in Denmark during the COVID-19 pandemic: an observational study. *Elife*. 2023;12:e83541. doi:10.7554/eLife.83541
18. Knudsen SV, Valentin JB, Videbech P, Mainz J, Johnsen SP. Inequities in mental health care quality and clinical outcomes among inpatients with depression within a tax-financed universal health care system. *Clin Epidemiol*. 2022;14:803–813. doi:10.2147/CLEP.S322392
19. Knudsen SV, Valentin JB, Norredam M, Videbech P, Mainz J, Johnsen SP. Differences in quality of care, mortality, suicidal behavior, and readmissions among migrants and Danish-born inpatients with major depressive disorder. *Eur Psychiatry*. 2022;65(1). doi:10.1192/j.eurpsy.2022.2329
20. Uggerby C, Knudsen SV, Grøntved S, et al. Adverse events reporting during the COVID-19 pandemic in a Danish region: a retrospective analysis. *Int J Qual Health Care*. 2024;36(2). doi:10.1093/intqhc/mzae049
21. Zhu Z, Xu S, Wang H, et al. COVID-19 in Wuhan: sociodemographic characteristics and hospital support measures associated with the immediate psychological impact on healthcare workers. *EClinicalMedicine*. 2020;24. doi:10.1016/j.eclinm.2020.100443

22. Tannenbaum SI, Traylor AM, Thomas EJ, Salas E. Managing teamwork in the face of pandemic: evidence-based tips. *BMJ Qual Saf.* 2021;30(1):59–63. doi:10.1136/bmjqs-2020-011447
23. Edmondson AC, Lei Z. Psychological safety: the history, renaissance, and future of an interpersonal construct. *Annual Review of Organizational Psychology and Organizational Behavior.* 2014;1(1):23–43. doi:10.1146/annurev-orgpsych-031413-091305
24. Valentin JB, Møller H, Johnsen SP. The basic reproduction number can be accurately estimated within 14 days after societal lockdown: the early stage of the COVID-19 epidemic in Denmark. *PLoS One.* 2021;16(2):e0247021. doi:10.1371/journal.pone.0247021
25. Jørgensen F, Bor A, Petersen MB. Compliance without fear: individual-level protective behaviour during the first wave of the COVID-19 pandemic. *Br J Health Psychol.* 2021;26(2):679–696. doi:10.1111/bjhp.12519
26. Petersen MB, Bor A, Jørgensen F, Lindholt MF. Transparent communication about negative features of COVID-19 vaccines decreases acceptance but increases trust. *Proc Natl Acad Sci.* 2021;118:2024597118. doi:10.1073/pnas.2024597118/-/DCSupplemental
27. Jørgensen F, Bor A, Lindholt MF, Petersen MB. Public support for government responses against COVID-19: assessing levels and predictors in eight Western democracies during 2020. *West Eur Polit.* 2021;44(5–6):1129–1158. doi:10.1080/01402382.2021.1925821
28. Haghighi MRR, Pallari CT, Achilleos S, et al. Excess mortality and its determinants during the COVID-19 pandemic in 21 countries: an ecological study from the C-MOR project, 2020 and 2021. *J Epidemiol Glob Health.* 2024. doi:10.1007/s44197-024-00320-7
29. Astorp MS, Gade GV, Emmersen J, Erbs AW, Rasmussen S, Andersen S. Medical students meeting pandemic staff needs: duty, drives and dreads-a cross-sectional questionnaire survey at Aalborg University in Denmark. *Med Res Arch.* 2022;10(3). doi:10.18103/mra.v10i2.2711
30. Pottegård A, Kristensen KB, Reilev M, et al. Existing data sources in clinical epidemiology: the Danish covid-19 cohort. *Clin Epidemiol.* 2020;12:875–881. doi:10.2147/CLEP.S257519
31. Bodenheimer T, Sinsky C. From triple to Quadruple aim: care of the patient requires care of the provider. *Ann Fam Med.* 2014;12(6):573–576. doi:10.1370/afm.1713

Risk Management and Healthcare Policy

Dovepress

Publish your work in this journal

Risk Management and Healthcare Policy is an international, peer-reviewed, open access journal focusing on all aspects of public health, policy, and preventative measures to promote good health and improve morbidity and mortality in the population. The journal welcomes submitted papers covering original research, basic science, clinical & epidemiological studies, reviews and evaluations, guidelines, expert opinion and commentary, case reports and extended reports. The manuscript management system is completely online and includes a very quick and fair peer-review system, which is all easy to use. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <https://www.dovepress.com/risk-management-and-healthcare-policy-journal>