

# Balancing COVID-19 preparedness and 'business as usual' in hospitals: lessons from executives in China, Norway and the UK

Umar Ikram <sup>1</sup>, Hui Ren,<sup>2</sup> Laura Shields-Zeeman,<sup>3</sup> Jan Frich <sup>4,5</sup>, Daniel Northam Jones,<sup>6</sup> Jiong Wu,<sup>7</sup> Ming Kuang,<sup>8</sup> Yuanli Liu,<sup>9</sup> Jing Ma<sup>2,10</sup>

<sup>1</sup>Department of Health Policy and Management, Harvard University T H Chan School of Public Health, Boston, Massachusetts, USA

<sup>2</sup>US-China Health Summit, Boston, Massachusetts, USA

<sup>3</sup>Department of Mental Health and Prevention, Netherlands Institute for Mental Health and Addiction, Utrecht, The Netherlands

<sup>4</sup>South-Eastern Norway Regional Health Authority, Hamar, Norway

<sup>5</sup>Department of Health Management and Health Economics, University of Oslo, Oslo, Norway

<sup>6</sup>Cambridge University Hospitals NHS Foundation Trust, Cambridge, UK

<sup>7</sup>Cancer Hospital, Fudan University, Shanghai, China

<sup>8</sup>The First Affiliated Hospital, Sun Yat-sen University, Guangzhou, China

<sup>9</sup>School of Public Health, Peking Union Medical College, Beijing, China

<sup>10</sup>Harvard Medical School, Boston, Massachusetts, USA

## Correspondence to

Dr Umar Ikram, Department of Health Policy and Management, Harvard University T H Chan School of Public Health, Boston, MA 02115, USA; [uikram@hsph.harvard.edu](mailto:uikram@hsph.harvard.edu)

Received 12 June 2020

Revised 23 September 2020

Accepted 28 September 2020

Published Online First

23 October 2020



© Author(s) (or their employer(s)) 2021. No commercial re-use. See rights and permissions. Published by BMJ.

**To cite:** Ikram U, Ren H, Shields-Zeeman L, et al. *BMJ Leader* 2021;5:130–133.

## ABSTRACT

**Background** During the first wave of COVID-19 pandemic, hospitals were forced to cancel or postpone non-COVID-19 care. With new outbreaks emerging, hospitals are now figuring out how to balance preparedness for future COVID-19 waves with their elective and regular services. This report discusses how four hospital systems deal with these dual responsibilities in China, Norway and the UK.

**Reflections** Based on the experiences and combined reflections of hospital executives, we have formulated five strategic and leadership lessons for hospitals as they manage these dual responsibilities. (1) Redesign organisation to separate COVID-19 and non-COVID-19 services both within and across hospitals. (2) Expand virtual care strategies to improve access. (3) Use data-driven models to allocate resources across COVID-19 and non-COVID-19 units. (4) Invest in programmes to promote frontline staff well-being. (5) Secure financial support to continue to deliver on the dual responsibilities.

**Conclusion** The COVID-19 pandemic gives rise to leadership challenges that have fuelled organisational change and new approaches to healthcare delivery. Leading hospitals during the pandemic is a balancing act—providing care for both patients with COVID-19 and non-COVID-19, while at the same time preparing for the next waves of the pandemic.

## LEADING HOSPITALS DURING THE PANDEMIC

As countries have moved beyond the first wave of the COVID-19 and reopened their societies, hospital executives are faced with a new reality.<sup>1</sup> On one hand, hospitals have resumed their elective and regular services that were cancelled or postponed during the first wave, and try to operate business as usual.<sup>1</sup> On the other hand, hospitals should remain vigilant, prepared and flexible in order to increase bed and intensive care capacity, as new outbreaks may occur. Hospitals will have to balance these dual responsibilities until we have a vaccine or treatment for COVID-19, which, according to experts, may take some time.<sup>2</sup> How can this balancing act be done?

To answer this question, we convened a virtual roundtable meeting with executives from large hospital systems from China, Norway and the UK to recount experiences and approaches and reflect on the lessons learnt while managing the pandemic (see more information on the executives in [table 1](#)). The meeting was hosted by Harkness Fellows at

the Commonwealth Fund in collaboration with the U.S.-China Health Summit. At the time of the meeting (May), China, Norway and the UK were at different stages in managing the pandemic,<sup>3</sup> but five common themes emerged during the discussion: (1) organisational redesign; (2) virtual care delivery; (3) data-driven resource allocation; (4) staff well-being; and (5) financial security.

In this report, we describe how the hospitals in China, Norway and the UK responded during the first wave, as this initial response shaped the choices they made regarding the current strategies. Experiences from China are more extensively discussed, as these are scarcely discussed in the literature. We conclude by elaborating on the strategic and leadership lessons for hospital executives.

## READINESS OF CHINESE HOSPITALS PRE-PANDEMIC

Earlier experiences with epidemics enabled Chinese hospitals to quickly adapt to the COVID-19 pandemic. As Guangzhou and, to a lesser extent, Shanghai were affected by severe acute respiratory syndrome in 2003,<sup>4</sup> another coronavirus, these regions had redesigned their hospitals well before the COVID-19 pandemic. For example, they had a designated infectious diseases hospital in place, with state-of-the-art tools and highly skilled healthcare workers. All confirmed COVID-19 cases were admitted to these hospitals, including patients with less severe symptoms, to prevent further spread. These designated hospitals allowed to separate COVID-19 care from regular care as much as possible, thereby reducing spread and organising and managing patient flow. These hospitals further ensured best possible specialised care for patients with COVID-19 in a timely fashion. For the future, Shanghai, Guangzhou and other major cities are expanding or strengthening the designated infectious disease hospitals. Less severe patients with COVID-19 with coexisting health problems are now also referred to these hospitals to ensure continuation of treatment while reducing the risk for contamination. For example, Shanghai Cancer Center sends its surgeons to the designated hospitals to perform surgery for patients with cancer who are diagnosed with COVID-19.

## REDESIGN AND INFECTION SURVEILLANCE

Most of the general hospitals have special 'fever clinics' with CT scan and infectious disease or respiratory disease specialty doctors.<sup>5</sup> All hospitals

**Table 1** Hospital executives from China, Norway and the UK

Prof. Yuanli Liu	Dean, School of Public Health, Peking Union Medical College, China
Dr. Ming Kuang	Vice-president, the First Affiliated Hospital, Sun Yat-sen University, China
Dr. Jiong Wu	Vice-president, Fudan University Shanghai Cancer Center, China
Prof. Jan Frich	Deputy CEO, South-Eastern Regional Health Authority; Professor at University of Oslo, Norway; 2013–2014 Norwegian Harkness Fellow
Daniel Northam Jones	Director of Strategy at Cambridge University Hospitals NHS Foundation Trust, UK; 2015–2016 UK Harkness Fellow

in the Guangzhou region had detailed infection control protocols for epidemics in place and extensively trained their health-care workers on how to treat patients with respiratory infectious diseases and how to use self-protection measures. Both Dr. MK and Dr. JW argue that this helped them to prepare their hospitals in early January 2020. The First Affiliated Hospital of Sun Yat-sen University in Guangzhou, for example, had a response team in place very early with clear roles among leaders. They used the fever clinics as sentinel surveillance before patients were seen in the outpatient clinic. Suspected cases were isolated and kept in observation wards before the confirmation. Those who tested positive were referred to the regional designated hospital (if patients were too ill to travel, they were treated at a designated building or newly created special intensive care units within the general hospital). Beyond securing personal protective equipment ahead of time, the First Affiliated Hospital spent tremendous efforts on continuously training its 6000+staff, providing them with the skills and knowledge to protect themselves and the patients.

Hospitals continue to update protocols to improve infection surveillance. In addition to the fever clinics, the First Affiliated Hospital erected four ‘temperature checkpoints’ at high-density locations for patients, visitors and hospital staff alike. Building on the tracking app with traffic light coding as introduced in China during the pandemic, hospitals are using this app to allow patients with a green code to attend their appointments in the outpatient clinic. Patients with a red or orange code (ie, those with high and moderate risk for infection, respectively) will be asked to quarantine for 14 days in either Fangcang Shelter hospitals or at designated quarantine places and receive a virtual consultation.<sup>6</sup> In Norway, the test capacity for COVID-19 in hospitals has been scaled up significantly to identify cases early. Hospitals in Norway and China also started routinely testing patients who were admitted for elective surgery.

Hospital executives are also redesigning their own hospitals to deal with a potential new surge of patients. To expand capacity, the First Affiliated Hospital is keeping two to three rooms in each ward empty as well as two operation rooms for urgent surgery for suspected COVID-19 cases. In Norwegian hospitals, patient flows are organised into ‘clean’ and ‘unclean’ tracks, specific areas are designated for diagnostic workup of patients with suspected COVID-19, and cohort isolation wards are set up for hospitalised COVID-19. Cambridge University Hospitals has very limited single room capacity, so clinicians have developed, implemented and continually refined a ward cohorting plan for future outbreaks, ensuring sufficient inpatient capacity for confirmed positive, query positive and confirmed negative patients. Patients are designated using a traffic light system, along with proper training for staff, in case ‘amber’ and ‘red’ wards open.

### BROAD ADOPTION OF VIRTUAL CARE

The hospital executives indicated that they quickly pivoted their hospitals to virtual care for patients with non-COVID-19, overcoming earlier challenges. As Professor JF, Deputy-CEO of the

regional authority that runs hospitals in the South-Eastern region of Norway, explained: “Over the last years we have encouraged clinicians to take on online consultation tools with modest success. But now, many clinicians quickly took up the new technology and were able to continue with their clinical work, which is one sort of positive outcome of this experience”. In the South-Eastern region of Norway, there was a huge increase in the use of telephone and video consultations in outpatient clinics. In April 2020, clinicians provided virtual care and follow-up in 30% of all consultations in the region. Cambridge University Hospitals in the UK and The First Affiliated Hospital and Shanghai Cancer Center in China had similar experiences. Shanghai Cancer Center, for example, provided 10 000 online consultations from February through April to ensure continuity of cancer care. It also introduced ‘online duty’ for its doctors in each department to answer patients’ questions as quickly as possible, through virtual means.

Hospitals will continue to focus on virtual care models to make care as accessible as possible during the pandemic. The UK government set a target for hospitals to reduce face-to-face consultations by a third in 4 years.<sup>7</sup> At Cambridge University Hospitals, this target was met within weeks after announcement, with 60% of outpatient care delivered remotely. Its clinicians have embraced technology to deliver more accessible care to patients and are now examining how to extend virtual working to diagnostic services and remote monitoring, and move more face-to-face outpatient activity into primary and community care settings. Interviews did indicate that the quality of these new virtual care models need to be closely evaluated and patients’ satisfaction need to be monitored.

### RESOURCE ALLOCATION BASED ON DATA-DRIVEN MODELS

To estimate required surge capacity during potential future waves and its implications for non-COVID-19 care, hospitals are scaling up their ability in using data-driven approaches for resource allocation. For example, infectious diseases specialists in Cambridge University Hospitals worked with the hospital’s operations, finance and strategy teams—supported by engineers from the University of Cambridge—to create a statistical model for predicting and tracking actual bed activity and capacity, and to identify and optimally allocate staff, beds and theatres to increase capacity in non-COVID-19 services as COVID-19 hospitalisations begin to fall. This is particularly important as the hospital has lost more than 10% of its inpatient capacity from reducing occupancy on some wards and creating spaces for staff to don and doff personal protective equipment. The statistical model collects real-time data and is constantly fed with new epidemiological data from other countries. A similar model to inform planning and bed capacity within each hospital has been developed in Norway, with central and regional coordination to manage patient flow and equally spread the burden across hospitals, particularly for patients with COVID-19 with intensive care needs.

### CONTINUED FOCUS ON FRONTLINE STAFF WELL-BEING

Burnout among nurses and physicians was already a concern in most countries, but now with COVID-19 executives stress

the need to address the well-being of staff is more than ever critical. In Norway, a national committee was established to secure sufficient amounts of personal protective equipment in advance for frontline staff, so they did not have to worry about infection risk. Frontline staff should not only be protected against the infection, but also against the stress and uncertainty. Hospitals are now actively expanding their psychological services to support their staff. Executives understood early on that this crisis is going to be different than a critical incident (eg, major car accident, natural disaster), and will have long lasting effects. The leadership at Cambridge University Hospitals reached out to people in humanitarian relief to learn from them how they sustain working in similar stressful conditions and used their input to strengthen the current support structures and processes for its staff.

### PROFOUND IMPACT ON HOSPITAL FINANCES

The impact of the pandemic on hospital finances was immense, which in turn may undermine hospital's capabilities to effectively deal with the dual responsibilities.<sup>8 9</sup> It seems that the long-term financial consequences may be less deleterious in single-payer systems with universal health coverage like Norway and the UK. However, the Chinese government covers less than 10% of public hospital revenues, the remainder is paid through national health insurance and out-of-pocket payment based on the services patients use. This proved a major challenge for Chinese hospitals during the pandemic, as the use of hospital services plummeted. For example, Shanghai Cancer Center cancelled ~70% of its outpatient appointments and reduced admissions by 50%, which resulted in 30%–50% revenues loss compared with the same period of last year. Professor YL stated that “hospitals working with fee-for-service model have to work hard now to generate revenue for their existence and development”. To compensate hospitals, the Chinese government decided to cover 60% of the revenue loss, with some additional advanced payments by local governments.<sup>10</sup> Norwegian and UK hospitals have also seen their revenues decline while their costs increased substantially as they rapidly reorient their operations to a new and uncertain environment. However, their governments were committed to cover losses associated with the pandemic—for example, during the first months of the pandemic the UK government paid hospitals based on last year's spending, while covering any additional costs and forgone income due to COVID-19 care.<sup>11 12</sup> The Norwegian government also decided that losses in 2020 until May will be covered, along with the additional costs related to COVID-19. This financial security is allowing hospitals not to worry about their future and to keep focusing on what needs to be done to address their patients' needs during the pandemic.

### STRATEGIC AND LEADERSHIP LESSONS FOR HOSPITAL EXECUTIVES

With reopening of societies, new outbreaks have emerged in many countries.<sup>13</sup> Hospitals will have to balance preparing for potential COVID-19 outbreaks and resuming care to patients with non-COVID-19.

We acknowledge that this report is based on virtual roundtable meeting with a limited number of participants, but we think the insights conveyed in this report may be relevant for other health systems during potential future waves. Based

on the experiences and combined reflections of Chinese, Norwegian, and UK hospital executives, we have formulated five lessons on how hospitals can manage the dual responsibilities (important to note: these lessons in themselves are not new, but substantiate and build on earlier published work from other countries, eg,<sup>14–18</sup>):

1. *Redesign organisation to separate COVID-19 and non-COVID-19 services both within and across hospitals:* hospitals should continue to create designated spaces or separate facilities for COVID-19 and non-COVID-19 care, equipped with highly trained staff. They should also expand infection surveillance within their facilities to detect any potential cases among patients and hospital staff. As patients will continue to avoid hospitals until they are confident that hospitals are safe, hospitals have a strong impetus to make these changes.
2. *Expand virtual care strategies to improve access:* hospitals are in a unique position now to adopt virtual care models to improve access for patients. Hospitals should aim to go expand teleconsultation to reduce face-to-face visits and work on offering remote monitoring for their patients with chronic conditions.
3. *Use data-driven models to adequately allocate resources across COVID-19 and non-COVID-19 units:* restructuring hospital organisation has implications for how resources are allocated across COVID-19 and non-COVID-19 units. This is a daunting challenge for executives, particularly because of the highly volatile situation. Data-driven models that track and predict required hospital capacity help to strategically allocate resources and be better prepared for future waves.
4. *Invest in programmes to promote frontline staff well-being:* hospitals should actively invest in programmes and support structures to protect the mental well-being of their staff. These investments should be made to address the current and long-term mental health effects.
5. *Secure financial support to continue to deliver on the dual responsibilities:* hospitals will seek to innovate care models and management strategies to continue to address the needs of both patients with COVID-19 and non-COVID-19. Yet hospitals can only make those necessary investments, if they have financial support from the payers. Executives can play a proactive role in this, by strengthening their case to payers how the financial support will drive delivery and management innovations in their hospitals.

**Twitter** Jan Frich @J\_Frich

**Acknowledgements** The authors acknowledge Reginald D Williams II and Molly FitzGerald from the Commonwealth Fund for introducing them to the hospital executives from Norway and the UK.

**Contributors** UI, HR, LS-Z and JM planned to write an article based on the insights from hospitals executives and organised the virtual seminar to gain these insights. JF, DNJ, JW, MK and YL provided qualitative data for the manuscript. UI analysed the qualitative data and reported the findings to all coauthors to formulate key learnings. UI and HR drafted the manuscript. All coauthors reviewed and commented on the subsequent versions of the manuscripts. UI and JM are responsible for the overall content as guarantor.

**Funding** UI was awarded the Harkness Fellowship which was funded by the Commonwealth Fund.

**Disclaimer** The views presented here are those of the authors and should not be attributed to The Commonwealth Fund or its directors, officers, or staff.

**Competing interests** None declared.

**Patient consent for publication** Not required.

**Provenance and peer review** Not commissioned; externally peer reviewed.

This article is made freely available for use in accordance with BMJ's website terms and conditions for the duration of the covid-19 pandemic or until otherwise

determined by BMJ. You may use, download and print the article for any lawful, non-commercial purpose (including text and data mining) provided that all copyright notices and trade marks are retained.

#### ORCID iDs

Umar Ikram <http://orcid.org/0000-0002-2240-153X>

Jan Frich <http://orcid.org/0000-0001-9079-7508>

#### REFERENCES

- 1 New York Times. Abelson, Reed. Hospitals struggle to restart lucrative elective care after coronavirus shutdowns - the New York Times, 2020. Available: <https://www.nytimes.com/2020/05/09/health/hospitals-coronavirus-reopening.html?searchResultPosition=1> [Accessed 1 Jun 2020].
- 2 Kissler SM, Tedijanto C, Goldstein E, *et al.* Projecting the transmission dynamics of SARS-CoV-2 through the postpandemic period. *Science* 2020;368:860–8.
- 3 The Lancet. Sustaining containment of COVID-19 in China. *Lancet* 2020;395:1230.
- 4 Zhong NS, Zheng BJ, Li YM, *et al.* Epidemiology and cause of severe acute respiratory syndrome (SARS) in Guangdong, people's Republic of China, in February, 2003. *Lancet* 2003;362:1353–8.
- 5 Wang J, Zong L, Zhang J, *et al.* Separate fever clinics prevent the spread of COVID-19 and offload emergency resources: analysis from a large tertiary hospital in China. *medRxiv*.
- 6 Chen S, Zhang Z, Yang J, *et al.* Fangcang shelter hospitals: a novel concept for responding to public health emergencies. *Lancet* 2020;395:1305–14.
- 7 National Health Service. The NHS long term plan, 2019. Available: [www.longtermplan.nhs.uk](http://www.longtermplan.nhs.uk) [Accessed 26 May 2020].
- 8 Barnett M, Mehrotra A, Landon B. Covid-19 and the upcoming financial crisis in health care | catalyst non-issue content. Available: <https://catalyst.nejm.org/doi/full/10.1056/CAT.20.0153> [Accessed 25 May 2020].
- 9 Terwiesch C, Mahoney K, Volpp K. Payment for staying empty? Reimbursing hospitals for Covid-19 readiness | catalyst non-issue content. Available: <https://catalyst.nejm.org/doi/full/10.1056/CAT.20.0232> [Accessed 30 Jun 2020].
- 10 Wu X. The Ministry of finance, the National healthcare security administration, and the National health Commission of the PRC have further clarified the guarantee policy for the treatment of patients with new coronavirus-infected pneumonia and medical treatment costs 财政部, 医保局, 卫生健康委进一步明确新型冠状病毒肺炎疑似及异地就医患者救治费用保障政策, 2020. Available: [http://www.gov.cn/xinwen/2020-01/28/content\\_5472659.htm](http://www.gov.cn/xinwen/2020-01/28/content_5472659.htm) [Accessed 2 Jun 2020].
- 11 NHS. Important and urgent – next steps on NHS response to COVID-19, 2020. Available: <https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/03/20200317-NHS-COVID-letter-FINAL.pdf> [Accessed 25 May 2020].
- 12 GOV.UK. NHS to benefit from £13.4 billion debt write-off, 2020. Available: <https://www.gov.uk/government/news/nhs-to-benefit-from-13-4-billion-debt-write-off> [Accessed 25 May 2020].
- 13 Policy Lab. New projections reveal risk of COVID-19 resurgence in areas that Reopen too quickly, 2020. Available: <https://policylab.chop.edu/press-releases/new-projections-reveal-risk-covid-19-resurgence-areas-reopen-too-quickly> [Accessed 28 May 2020].
- 14 Hollander JE, Carr BG. Virtually perfect? telemedicine for Covid-19. *N Engl J Med* 2020;382:1679–81.
- 15 Matsuo T, Kobayashi D, Taki F, *et al.* Prevalence of health care worker burnout during the coronavirus disease 2019 (COVID-19) pandemic in Japan. *JAMA Netw Open* 2020;3:e2017271.
- 16 Navathe AS, Liao JM. After COVID-19, a payment policy Reboot: three lessons from the pandemic on how to improve value-based payment. Available: <https://www.healthaffairs.org/doi/10.1377/hblog20200805.905205/full/> [Accessed 22 Sep 2020].
- 17 Butler SM. After COVID-19: thinking differently about running the health care system. *JAMA* 2020;323:2450–1.
- 18 Webster P. Virtual health care in the era of COVID-19. *Lancet* 2020;395:1180–1.