Improvisation during a crisis: hidden innovation in healthcare systems

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ABSTRACT

Background Crises, such as the COVID-19 pandemic, risk overwhelming health and social care systems. As part of their responses to a critical situation, healthcare professionals necessarily improvise. Some of these local improvisations have the potential to contribute to important innovations for health and social care systems with relevance beyond the particular service area and crisis in which they were developed.

Findings This paper explores some key drivers of improvised innovation that may arise in response to a crisis. We highlight how services that are not considered immediate priorities may also emerge as especially fertile areas in this respect.

Conclusion Health managers and policymakers should monitor crisis-induced improvisations to counteract the potential deterioration of non-prioritised services and to identify and share useful innovations. This will be crucial as health and social care systems around the world recover from the COVID-19 pandemic and head into another potential crisis: a global economic recession.

INTRODUCTION

The COVID-19 pandemic has had a monumental impact on health and social care systems around the world, with healthcare leaders having to respond to an urgent situation with scarce resources. Material resources, workforce capabilities and senior leaders' attentions have been redirected to support front-line services dealing with the patients who are most critically ill. This has had a ripple effect across the wider health and social care system, triggering resource shortages in other services. As a result, most parts of health and social care systems have been affected.

Resource scarcity risks undermining services but may also stimulate improvisation as healthcare professionals try to maintain services in circumstances where providing normal standards of care is impossible. In these circumstances, improvisation relates to dealing with unforeseen events without the benefit of preparation through concurrent thought, planning and action, drawing on available resources and creating the potential for incremental innovation.[1] In this paper, we refer to this phenomenon as 'improvised innovation'. On the front line of COVID-19 care, improvised innovation has been evident, such as responses to the shortage of personal protective equipment by 3D printing masks,[2] or the shortage of ventilators by adapting oxygen tubing to allow treatment of more than one patient at a time.[3] These improvisations were born of necessity, as healthcare professionals searched for ways to literally save lives, and are unique to the specific resource demands of dealing with the coronavirus.

Yet, in other parts of the health and social care system away from the COVID-19 front line, responses to the knock-on resource shortages resulting from the coronavirus may also require improvisation. Such improvisations may attract less attention but hold similar potential to contribute to improvements that continue after the coronavirus crisis has passed. For example, video consultations in primary care or secondary elective care, which have hitherto been restricted by professional resistance and governance processes, have recently been widely and successfully used and accepted by both patients and clinicians[4] since the COVID-19 outbreak.

In this paper, we combine theoretical insights from the management studies literature with practical examples of improvisations to explore drivers of improvised innovation that may emerge in response to a crisis, such as the COVID-19 pandemic. We consider drivers which apply across the whole health and social care system and those that are specific to services that are not immediate priorities during a crisis. The lessons we draw from these improvisations may be crucial in driving innovation as the world recovers from the coronavirus crisis, and its economic impact, and to strengthen the resilience of health and social care systems to respond to future, unforeseen events.

DRIVERS OF IMPROVISED INNOVATION DURING A CRISIS

A crisis is not an objective, exogenous force but a subjective interpretation of a situation, shaped by influential stakeholders, such as policymakers and senior managers.[5] As we note previously, crises often compel organisations to develop improvisation capabilities, which may entail incremental innovation.[1 6] Hence, simply by successfully defining a situation as a crisis, leaders can set in motion developments that create favourable conditions for improvised innovation.

The literature on organisational innovation processes highlights several conditions supporting improvisation. These include: an organisational culture supportive of experimentation; structures that protect new initiatives from interference; exposure of organisational routines to individuals who are unfamiliar with and willing to challenge them; establishing connections between members of different communities; and availability of slack resources (including time, skills and material).[7] In contrast to the last point, studies of organisational creativity, improvisation and change management suggest that, rather than resource availability,

resource constraints and disruptions may motivate organisation members to improvise.[8 9]

Building on these insights, we identify themes that can facilitate the emergence of improvisation during crises. Moreover, drawing on recent studies of emergent organisational change, we highlight the ways a crisis may generate unequal opportunities for improvisation across different parts of an organisation—including in non-priority areas. In doing so, we propose six drivers of improvisation which can be useful to leaders seeking to shape, monitor and leverage improvisation efforts in crisis situations, such as COVID-19.

General drivers
Urgency
While some innovations occur slowly over time, urgency can stimulate innovation, with some scholars even advocating the manufacturing of crises.[10] A sense of urgency encourages stakeholders to develop and implement new ideas quickly, while limiting resistance due to widespread acceptance that 'normal' rules no longer apply.[11] Indeed, COVID-19 did not trigger radical changes to normal procedures until it was declared an emergency and interpreted by health and social care workers as an event demanding urgent action. In the face of such urgency, normal practices cannot continue and formal regulatory procedures become limiting, and in some cases obsolete. As a result, regulation is temporarily relaxed,[12] giving way to professional judgement, as actors on the front line improvise to respond to evolving challenges.

Resource scarcity
In addition to a shortage of time, a crisis may result in a shortage of material resources, as evident during the global COVID-19 crisis from the scarcity of medical equipment (such as ventilators and oxygen), personal protective equipment and an appropriately trained workforce. While material resource scarcity is problematic, literature on 'reverse innovation'[13] and 'frugal innovation'[14] shows how improvisation and consequent incremental innovation may emerge in resource-poor environments, with the potential for innovations to be latterly adopted in contexts where resources are less restricted.[3] However, improvised innovations, which could be widely beneficial in health and social care systems, are often not adopted in different contexts because they remain local and 'below the radar'.[15]

Some improvised innovations driven by resource scarcity may not be appropriate in different settings, but others may have far better cost-benefit ratios than traditional practices in high-income healthcare contexts. For example, a clinically effective, low-cost model of healthcare for people with HIV in Lima (Peru), oriented around community health workers promoting 'wellness', was adopted in Boston (USA), where costlier and less effective HIV care, oriented around physicians treating 'sickness', had previously been provided.[13] While these innovations are described in the context of mobilising improvisations from resource-poor to richer national contexts, the same process could also occur with innovations arising from improvisations in response to an acute crisis within the same health system.

Collective identity
The coexistence of urgency and resource scarcity influences a secondary driver of improvised innovation: the development of a collective identity. While healthcare professionals commonly attach significant importance to their own occupational identity, for example, as a nurse or a medical doctor, they typically attach less importance to a collective identity at an organisational level.[16] As a result, innovation within health and social care systems can be limited by professional silos or the dominance of some professional groups over others.[17 18]

However, studies exploring settings characterised by high levels of stress and uncertainty suggest crises can increase cooperation and social bonding as feelings of control give way to a sense of vulnerability.[19] Hence, a crisis can, at least temporarily, contribute to the emergence of a collective identity, which in turn engenders an organisational culture that, as discussed elsewhere,[7] can be supportive of organisation members' efforts to devise and trial new approaches.

Indeed, the COVID-19 crisis has seen the emergence of a collective identity among healthcare workers across the globe. Clinical and non-clinical staff may have developed an increased collective sense of belonging within their health systems, as they work to support each other in improvisation attempts, reducing resistance to potential changes. For example, in the UK, the development of a strong organisational identity that spans multiple occupations has been apparent, with the National Health Service (NHS) becoming a uniting symbol in the fight against the pandemic, facilitating collective action and supporting improvisation efforts.

Drivers in non-priority areas
The drivers of improvised innovation outlined above are relevant to all areas of a health and social care system. However, there are also certain enablers of improvisation that are likely to emerge in some parts of a health and social care system but not in others. Paradoxically, these enablers may be most prevalent in services that policymakers and other senior leaders do not prioritise during a crisis. These non-prioritised services are likely to have material and human resources withdrawn and redistributed to front-line services to directly address urgent care provision. For healthcare workers, patients and carers in these non-prioritised areas, such redistribution naturally raises concerns. Without sufficient resources, healthcare services risk deteriorating. Services such as learning disabilities, mental health and social care struggled to leverage sufficient resource prior to the COVID-19 pandemic in many countries, and may now find themselves even further under-resourced. Yet, there are three characteristics of such contexts that, in addition to the drivers mentioned above, have the potential to encourage improvised innovations.

Altered workforce characteristics
Shifting human resources to prioritised areas has the potential to alter the workforce composition within services that are not prioritised. For instance, senior and experienced staff are often moved to support front-line services directly dealing with a crisis. Indeed, as part of the response to the COVID-19 pandemic, the NHS England chief executive announced that 'all appropriate registered nurses, midwives and AHPs [Allied Health Professionals] currently in non-patient facing roles will be asked to support direct clinical practice in the NHS in the next few weeks', including care quality inspectors and other managers across the NHS with clinical experience.[20]

By reducing head count in non-prioritised areas, junior staff, who have not been fully socialised into practices that are typically taken for granted by more experienced members, may assume greater responsibilities within their services. While lack of experience risks decreasing the quality of healthcare, it may also enable the introduction of innovative ideas that challenge

existing ways of doing things because juniors are less constrained by existing norms, routines and habits.[21] In Kenya, for example, mid-level clinicians improved clinical outcomes by adapting and developing evidence-based clinical guidelines to reflect resource constraints of the hospitals they worked in, challenging established 'practical norms' of more senior doctors that perpetuated suboptimal care.[22 23]

Lower coordination costs

Trialling new initiatives may require behavioural adjustments and synchronisation across members of a team or organisational unit. Yet, drawing on insights from previous research, larger groups tend to suffer from loss of communication and distorted focus, undermining the potential for improvisation.[24] To use an analogy widely used within the improvisation literature,[25] it is easier for a small jazz band to quickly come up with and perform a new song than it is for a large orchestra. Moreover, contexts such as healthcare, characterised by large numbers of employees, professional pluralism and autonomy, may create particularly challenging conditions for persuading members to alter and align their behaviour.[17]

Reducing head count through workforce redistribution in response to a front-line crisis may unintentionally lower the coordination costs involved in designing and implementing new projects, thereby increasing their speed and chances of success. Previous research into decision-making in healthcare systems has noted that reducing the number of people involved in such processes enables quicker decision-making, as proposed changes require fewer meetings prior to change implementation,[26] subsequently enhancing potential for improvisation.

Less scrutiny

Finally, given the shift of senior leaders and other stakeholders' (eg, media) attention towards front-line services dealing directly with what is deemed to be the biggest crisis, the risk that improvisations in non-prioritised services will be monitored and critiqued by anyone outside these services is relatively low. While an increased sense of urgency may contribute to a laxer approach to regulation in general, activities of healthcare professionals who are on the front line are more likely to be scrutinised, making it difficult to circumvent or break existing rules without requesting exemptions. While these exemptions are likely to be granted during a crisis, they can nevertheless involve some amount of debate and negotiation, requiring time. By contrast, healthcare practitioners in non-prioritised areas may be able to easily experiment with novel improvisations,[26] meaning incremental innovation can develop below the radar.

The usefulness of shielding new approaches from some parts of an organisation to prevent potential interference that could stifle creativity and experimentation is well recognised in the management literature. Research into healthcare systems notes how secrecy may facilitate innovation, such as junior doctors negotiating changes in places in which they are unlikely to encounter defenders of the status quo.[27] Relatedly, academics who study ambidextrous organisations recommend that healthcare organisations seeking to support innovation deliberately establish discrete, innovative units—small teams with decentralised structures, experimental cultures, entrepreneurial work processes and a relatively young workforce.[28] Importantly, such units may emerge by design and unintentionally during a crisis when human and material resources, as well as leaders' attentions, are redistributed.[26]

IMPLICATIONS FOR HEALTHCARE LEADERS DEALING WITH A CRISIS

The drivers of improvised innovation presented above highlight that positive developments can arise from responses to undesirable situations. It is vital that leaders become aware of, and learn from, such developments, to avoid potentially innovative new approaches that could be transferable to other parts of the system, being lost. For example, how might 'bedside learning' and the deployment of 'learning coordinators',[29] as practised at the NHS Nightingale London, be institutionalised and supported within the NHS on the front line and further away from crises? Moreover, some of these developments may emerge in unexpected places, namely in areas that leaders may not regard as priorities when trying to tackle a large-scale crisis.

We are not making causal claims about a crisis inevitably leading to innovation. The potential upsides of urgency, resource scarcity, collective identity and a lack of attention in terms of supporting improvised innovation may be interpreted as justifying a laissez-faire approach to leadership in times of crisis. However, we caution against such a reading due to leaders' responsibilities for monitoring and supporting services that face pressures both during and outside moments of crisis. In particular, and with the COVID-19 pandemic in mind, we would like to draw attention to the following key points.

First, we ardently reject any notion that resource scarcity is somehow beneficial to health services. For almost two decades, health and social care systems have found themselves under growing pressure to increase service provision and quality, in the face of more complex patient demands, and decreases in funding in real terms.[30] As a result, health services are run with limited resource and little to no service capacity to respond to large-scale crises, such as the COVID-19 pandemic.

Forcing healthcare professionals to make do with less may stimulate improvisation in some cases but in others may simply undermine the quality of care. A lack of resources and attention increases the risk of service deterioration, as those who are trying to cope become overwhelmed or feel that their efforts are not valued. Furthermore, lack of scrutiny can be dangerous. While regulatory processes have been lessened to accommodate for improvisation, the need for governance remains. This is important as health services move beyond the COVID-19 crisis and into a likely global economic recession, which will further compound resource scarcity. Therefore, while improvisation is necessary for practitioners to cope in this current crisis, there is no reason to expect health services will return to 'normal' when the immediate threat of the coronavirus has lessened. Improvisation will continue to be required, but should be done in a way that mitigates risks.

Second, while we have identified six drivers, which have a potentially positive influence on improvised innovation, there is no guarantee that these emerge during every crisis in a positive way. This is particularly the case with regard to the emergence of a positive collective identity, and the positive elements of workforce characteristics in non-priority areas. Collective identities that emerge under pressure, or when people have been forced into a collective experience, rather than having chosen to engage in that experience, have the potential to generate a negative organisational culture, as well as positive.[31] While the development of a collective identity is commonly associated as having a positive impact on the acceptance of improvisation, a limited body of work warns of the potential for a dysfunctional collective identity, which can potentially disrupt services, prevent people working together and result in significant emotional distress.[32 33]

Similarly, workforce changes in response to a crisis do not inevitably put highly skilled, proactive and creative individuals in charge of services or remove roadblocks in the form of individuals or groups who oppose change. Compounding workforce composition issues, the need to constantly improvise to cope with inadequate resources may lead to burnout among health professionals, who may absolve themselves of responsibility for poor care or resign if they cannot meet acceptable standards of professional practice. Leaders therefore need to maintain productive improvisation by providing healthcare professionals with support, encouragement and opportunities to discuss the challenges they face.[22]

Finally, innovation resulting from local improvisations rarely constitutes radical organisational change and is therefore not necessarily comparable with a well-resourced and planned strategic initiative. Rather, it will likely be incremental.[1] Therefore, attempts should be made at identifying promising small-scale innovations and sharing them across a global platform, to encourage diffusion. A limited number of systems exist around the world, for example, the UCLA Health Institute for Innovation's Global Lab for Innovation, that share 'frugal' healthcare innovations globally.[14] However, new systems may also need to be established to maximise our ability to learn from the improvised innovations necessitated by the global pandemic.

CONCLUSION

Urgency and resource scarcity during crises may contribute to the generation of new innovations, whose implementation, over time, may lead to substantial improvements in health and social care systems. Such changes may originate in relatively hidden improvisation efforts rather than strategic decisions from senior managers. In addition to improvised innovation in front-line services, developments in deprioritised health services have the potential to benefit other parts of a health and social care system. Managers and policymakers should therefore monitor such improvisations to counteract the potential deterioration of non-prioritised services and to identify and share useful innovations. This will be crucial as health and social care systems around the world recover from the COVID-19 pandemic and head into another potential crisis, namely a global economic recession, which will force healthcare leaders and practitioners to withstand further resource scarcity.

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