Beware of the Pendulum Swing:
How leaders can sustain rapid technology innovation beyond the COVID-19 crisis

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In the wake of the coronavirus (COVID-19) crisis, we caution against a return to old ways of working and, instead, urge healthcare leaders to consolidate and build on the recently achieved rapid gains in technology adoption. Primary care has been at the forefront, leading the dramatic surge in use of telemedicine to deliver care through video consultations (1, 2). This ability for telemedicine to deliver care at a distance, and with minimal contact, has been termed '*digital PPE*' (3). These successful developments with life changing consequences have whet the appetite with possibilities. As the context changes to the new 'normal', there is a growing determination to sustain and embed, rather than return to old ways of working. While the shift to a care environment where virtual models of healthcare service delivery can be expected to increase, even predominate, the need to allow for human contact will remain an important, if not vital, consideration.

We draw on our technology innovation research, and wider scholarship in management, to suggest two key strategies to sustain the momentum towards increasingly virtual models of care. First, the need to foster the *joining up* of care which has recently been catalysed through increased interoperability, data sharing, and meaningful use. Second, *together working* which involves a shared leadership approach to service delivery. Such working towards a shared purpose has been fostered in the recent crisis where leaders sought to restore a sense of collective action, helping everyone realise we are in this together, working towards a common goal.

Joining Up

The need for 'joined up thinking' in healthcare is well established. Healthcare is delivered by a diverse set of stakeholders including primary, secondary, and social care as well as those across local, regional, and national levels. In addition, many chronic disease management pathways involve patients and family being centrally involved in administering their own care. For innovation and technology to be sustaining, the care across these different stakeholders and organisational contexts needs to facilitate integration rather than fragmentation (4, 5). Importantly, governance across different domains (e.g. transparency, accountability, participation, integrity and capacity) spanning the health stakeholder context, needs to support, rather than hinder, this integration (6). Below, we suggest three key premises for how joining up of care may be achieved.

- Interoperability and business process transformation
- Consideration of technical & human factors in nudging behaviour change
- Incentivising data sharing practices to realise benefits

Interoperability, the ability of technology systems to exchange information, is at the core of an efficient and effective healthcare information infrastructure (7). Interoperable systems enable healthcare professionals to deliver timely and quality care to patients. Healthcare IT systems are often patchworked, and this often creates challenges of integration between new technologies and legacy systems (1). In pre- COVID-19 times, the differences in accountability between primary and secondary and social care systems may have hampered the shift to rapid adoption of technology. Application Programming Interfaces (API) and standards along with appropriate governance rules and mechanisms can help improve linkages and communication, and allow for smooth referrals between primary and secondary care systems. Further, interoperability has the potential to extend into the patients' sphere, by connecting to applications on their own devices with which they are familiar. However, while necessary, interoperability is not sufficient for ensuring that joining up is effective in achieving widespread adoption. The embrace of telemedicine and remote working will have longer term sustainability if accompanied by rethinking the processes around service delivery and enabling business process transformation to improve clinical workflows. Virtual

models of care will require new or different steps in the care delivery process. For example, scheduled teleconsultations may now require sending a patient an SMS text alert 5 minutes prior to their scheduled appointment, so they can have their electronic device accessible and open. These new service models of delivering 'contactless' care through teleconsultations can foster a wide range of new opportunities across the health system (8). Further, business process rethinking relies on an integrated digital end to end approach which spans across levels and sectors, for example, GPs consulting social care or specialist doctors on patient care in the community. Such an approach is patient centred with a focus on value-adding activities while process ownership and responsibility are made clear. Implementing this approach wholeheartedly has implications for clinical roles, workforce training, and reconfiguring the delivery of primary health services.

Joining up the care process requires not only attention to technology and systems but also needs due consideration of social and human factors. In particular, we suggest accommodating flexible use, which will enable care providers to improvise effectively in their work. Diverse care providers engage with their patients or service users in different ways, and this has implications for how technology is used. In some contexts, it makes sense to use technology more centrally, while in other contexts it might work better to use technology in a more peripheral manner. Flexible technology use, rather than an expected 'one size fits all' approach, can sustain its wider take up. We suggest, therefore, that joining up care can be facilitated through an integrated digital approach which also allows for diversity of technology use (5). Diversity in use can be supported by establishing integrity regarding the governance of roles and responsibilities which can clarify expected outcomes while enabling flexibility. Further, beyond integration of technologies into different care contexts (including GPs, hospitals, social care, patients), due consideration should be given to human factors around behavioural change. Creative ways of nudging users to direct their attention as to how to use technology in their work can promote its meaningful use. Classic clinical nudge behaviours include sending SMS reminders to patients about upcoming appointments or nudging clinicians to prescribe generic drugs (9, 10). Future nudges to promote telemedicine adoption might utilize AI (artificial intelligence) creatively while being mindful of inclusivity.

Finally, we suggest that joining up requires sustaining effective data sharing practices to create value for all organizations and the wider health system. The COVID-19 crisis saw unprecedented volumes of national data sharing, for example through GP connect and summary care records. In just over a month 1.1 M records have been populated, almost doubling the previous total (3). With more data available, there are opportunities for improved decision-making. For example, knowing which locations are running out of PPE in a timely manner will help with logistics and supply chain management. Alternatively, knowing which frail person's care giver has just been admitted to hospital can inform primary care professionals in maintaining effective care. To incentivise data sharing all stakeholders need to benefit. A key challenge going forward is to cultivate and promote data sharing behaviours across the system. To do so, specific policies on data practices need to be developed along with appropriate governance structures that include transparency and accountability to avoid data hoarding or illicit use. For example, it may be that raw data is not released; rather the focus may be on agreeing that the rules and procedures for consolidating summary care record data enables decision-making or the repurposing of data for healthcare innovation. To facilitate data use and reuse, metadata (i.e. description and contextual information on data) needs to be designed for and developed. Effective implementation of data sharing will enable benefits to be realized by individual organizations as well as across the wider health system.

Together Working

One of the reasons why technology adoption has historically been slow in healthcare is because of its strong institutional forces, the assumptions and norms that govern and guide action, creating stability in the way that doctors work (11). During a crisis there is collective breakdown of institutional assumptions and shared norms (12, 13). Thus, during a crisis like COVID-19, old assumptions become less relevant and even formal governance mechanisms and structures are more easily loosened. A key question remains as to what happens to these structures as we enter the 'new normal'. A key role for leaders, therefore, is to quickly frame and manage meaning to engender collective action and restore social order while leveraging new opportunities. Framing the current COVID-19 pandemic as a battle has helped engender a strong sense of solidarity, enabling the many stakeholders to work together. Building on these developments, leaders and front-line workers should foster shared leadership as they respond to emerging needs. To promote this shared leadership for improved service delivery, we suggest three key premises for what has been coined 'together working'.

- Working with clinicians to deliver service through multiple service options for care
- Walking the user journey in designing for service inclusion
- Developing an agile mindset in planning transitions for catch up care

Services will benefit from using technology to deliver care in flexible ways (14). Providing care through multiple service options so that there are several ways to access care — adds value to the patient and service users. Having multiple service options can enable organizations to build better relationships with their patient or user groups. Rather than working in competition, communication and coordination can enabled between services. Busy commuters, young mothers and the frail elderly can all benefit from targeted service delivery, specific to their circumstances and needs. Thus, some patients may prefer to continue using telemedicine with their GP, while others who enjoy the social contact may prefer face-to-face consultations, while yet others coping with mental health issues may prefer telephone-based services. To effectively promote this future scenario, governance around accountability is needed across the breadth of users to help foster adequate flexibility in service provision. Flexibility of care can also bolster benefits to service providers as it gives flexibility for staff to work remotely. Rather than returning to former way of working, leaders can work with clinicians to maximise the efficiency of multiple modes of service provision, and thereby aim to improve overall care measured through both clinical outcomes and patient experience (15).

Research on technology adoption in service design points to the ongoing occurrence of unintended consequences to technology use (16). One such unintended consequence is that some segments of society may become excluded and less able to access care. As technology changes the way services are delivered, design thinking concepts (17) would suggest that leaders should be encouraged to walk through the user journey in designing for service inclusion (18). With new virtual ways of delivering care, it will be important for leaders to be mindful of excluded groups, and design appropriate care alternatives for them. Further governance mechanisms around participation that enable input from across the spectrum of users affected by these potential decisions is important to ensure justice to marginalised groups. Further, appropriate accountability across care sectors is important to prevent perverse incentives from excluding groups, or simply shifting the care of some groups for less appropriate treatments in other parts of the wider system. It is imperative that a digital divide does not lead to a gap in care provision. Designing for inclusion means that those

organising care processes understand the journey a patient takes to access care and thereby gain insight into the challenges that confront them (19). For example, individuals who are blind, or elderly, or unable to access the internet will have different user journeys. This may likely have important implications as to how they might be able to respond in using technology for care provision, and therefore service inclusion.

Together working requires stakeholders to develop an agile mindset in responding and adapting technology use to the evolving situation. An agile mindset entails openness to improvising with technology in solving problems as they arise. Going forward, agile ways of working will be important to maintain. Given the smaller size of most primary care organisations, compared to secondary or social care, these organisations may be most likely to maintain their agility. One of the challenges that looms before the health service as a 'new normal' sets in, is how to catch up on the backlog of missed appointments, screening, immunisations and routine care that have been set aside to cope with COVID-19. An agile mindset will help in planning this transition, remaining open to using technologies in finding solutions to catch up on 'missed' work, rather than simply reverting to old ways. By maintaining an agile mindset, the health system, which is already stressed, will be better equipped to catch up on neglected areas of work and resolving ongoing challenges. However, the health system will also need to maintain its capacity to skilfully monitor the delivery of 'catch up work' in a way that does not stymie improvisation but reinforces safety. Together, working nimbly in leveraging technologies, leaders will be able to accelerate healthcare innovation and foster the new norms of working.

Conclusion:

We have discussed the importance of strategies that catalyse *joining up* and *together working* in sustaining recent momentum towards increasingly virtual models of care. These are important strategies and capabilities for leaders and decision makers to develop so as to resist the pendulum swing back to old ways of working. Joining up foregrounds going beyond care transactions to integrating technical systems and human factors, while together working highlights the importance of leadership being shared with those in the front line of care as they respond to emerging needs for service development and delivery. It is important to inspire and cultivate an agile mindset to strengthen leadership at all levels of the health system as well as integrate the appropriate governance approaches and incentives mechanisms across health and social care to support innovation. This is crucial as other factors, such as cost savings, will likely become paramount and may outweigh nudge incentives. In such cases, we may see a reversal of the great gains achieved during the pandemic. A less favourable scenario may be that financial pressures after the pandemic may become even greater leading to a widening in health care inequalities as the consequences in different health systems vary depending on their funding model and the unintended impact of the COVID-19 crisis. While the jury is out, what this crisis has reinforced is that virtual models of care are here to stay. Healthcare leaders have the responsibility to understand and develop a wide range of technology enabled models of care, the need for which has never been greater.

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