Using Innovation to Navigate Waves of COVID-19 Resurgence

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Coronavirus disease 2019 (COVID-19) is surging in America again. For health care providers, this troubling trend has renewed concerns about challenges ahead, including those encountered last spring: hospitals at capacity, practices shuttered, staff members furloughed, and elective services halted. Radiology practices were not spared. Many saw more than 50% drops in patient volumes in the early days of the pandemic, changes that may be coming again amid another wave, poised to affect everything from employment to practice structure, staffing, and care delivery scope and processes [1].

Of course, a number of things have changed since then. Within health care, clinicians and practices no longer face the same fog of war. For instance, in radiology, groups have disseminated general information about the operational and clinical aspects of managing the coronavirus [2-5]. More broadly, measures such as social distancing and masking have helped blunt viral transmission, and promising vaccine candidates have emerged. As a result, many practices plan to forge forward this winter while hoping to avoid outright closures.

Still, health care providers are right to worry about how to best navigate coming waves of COVID-19. Its impact is poised to stretch months, if not years. Whatever the immediate impact on radiology practices, the pandemic will also require many to

consider longer term revenue diversification and growth plans going forward [6].

These concerns underscore uncertainty, not just about how to manage the pandemic but how to do so dynamically as COVID-19 waves—and the disruption to workforce, reimbursement, and care models—crest and trough over time. The need for adaptive planning and execution is further underscored by variation in how COVID-19 may affect radiology practices according to practice location and service line, as it did in the earliest phase of the pandemic [7]. Leaders must confront critical questions about how to staff and operate their practices while rapidly accounting for changes amid COVID-19 waves.

Because there are no definitive answers in a dynamic pandemic situation, one way to support adaptive planning would be for leaders to directly incorporate innovation principles into care delivery strategies. The goal would be to use innovation concepts, which are designed to promote organizational agility amid uncertainty, to assess patient needs and steer care delivery as nimbly as possible in response to COVID-19.

Here, *innovation* does not refer to fad, the promise of fixing challenging health care problems with sleek technology or products. Although innovation can certainly involve products and technology, calls for innovation, in health care and particularly in a pandemic, must go beyond that scope

to avoid feeling hollow or too facile. Instead, health care leaders should embrace innovation as discipline: an approach that reflects a systematic process of using rapid experimentation to test and scale solutions [8]. These principles and tactics are well-described outside of health care but remain underused by many health care providers.

One principle is to fail fast, which is to take steps to discover what is not working and cut losses as quickly as possible. A related principle is to fail forward, which is to glean insights from each failure as a stepping stone to success. The two principles share the same intuition: the faster a leader can learn what does not work, the faster they can find what does. As elements of innovation thinking, a fail fast, fail forward approach acknowledges failures in the process of change and welcomes them as learning experiences.

Although they may seem intuitive, these principles actually contrast the status quo in much of health care. In many practices, change is often a slow, high-stakes process because of the significant time and resources leaders invest before even beginning to test changes. For instance, decisions about whether to adopt a new care delivery process or staffing model are often preceded by multiple rounds of planning and approvals. By the time decisions are made, teams have been hired and funds committed, creating the specter of substantial losses in the

event of failure. These approaches may be preferred under normal circumstances, but they can pose limitations amid COVID-19.

Consider telehealth use, which increased rapidly across the health care community in the earliest phase of the pandemic but then fell again sharply in many areas as in-person care recovered. Or internal teleradiology, which increased in response to the pandemic and possesses a number of benefits but may not endure beyond COVID-19 because of workflow disruptions, requisite infrastructure investments, and concerns (eg, isolation from contracted organizations, distance from technologists, quality assurance) [9,10]. To account for the rapidity of changes, which could repeat themselves in the coming months, practices cannot spend months guessing at patient demand or making major investments and then hoping they work. Instead, leaders must have more nimble ways to test patient demand and adapt services to fit circumstances.

One way to do this would be to implement innovation tactics associated with a fail fast, fail forward mentality, such as vapor tests or fake back-ends, methods that assess demand in a rapid, low-cost fashion by using things that do not exist. As non–health care examples, consider retailers facing decisions about whether to manufacture given products. Some companies have used vapor tests or fake back-ends to assess demand and determine next steps, rather than investing substantial time and resource into creating products and then hoping consumers purchase them.

For instance, vapor tests allow retailers to test interest in a hypothetical product before deciding whether to create it (eg, some messages from on-line retailers about "backordered" items are actually computer-generated images of products that do not exist,

meant to assess demand and determine whether they should be manufactured). Similarly, fake back-ends allow retailers to rapidly and cost-efficiently test demand for proposed innovations, such as technology platforms, by faking functionality behind the scenes using human labor, another way to test demand before deciding whether to go all in on technology platforms.

These tactics have begun to be tested in health care settings. For instance, the Penn Medicine Center for Health Care Innovation has used fake back-ends to test demand for services such a same-day orthopedic appointment scheduling (publishing the practice manager's cell phone number online as a fake call center to test patient demand) [11]. As another example, fake back-ends have been used to test new delivery models for postpartum blood pressure management among patients with preeclampsia (having a clinician act as a fake automated system by texting patients daily after discharge) [8].

In the face of pandemic-driven uncertainty, radiology leaders could use similar tactics to guide care delivery decisions. For instance, rather than determining a priori whether radiology teleconsultations are or are not good investment, leaders could vapor-test demand by announcing teleservices that do not yet actually exist, allowing interested referring providers and patients to sign up, and then investing in those services that demonstrate enough demand. As another example, radiologists have taken up roles in developing COVID-19 triage and disease identification guidelines [1]. Before investing in artificial intelligence or other digital platforms to perform these activities, practices could first assess organizational demand by beta-testing systems using fake back-ends that are staffed by human clinicians. Once the pandemic eventually subsides,

radiologists can use innovation tactics to rapidly respond to and drive value in new care delivery environments, such as those that the pandemic could create through health system mergers, closures, or reorganization.

To be fair, there are no silver bullets when it comes to COVID-19. Innovation approaches do not obviate the need for strong public health surveillance or access to rapid testing, personal protective equipment, and contact tracing resources. Even under pandemic circumstances, there operational issues that require more traditional decision-making processes. Innovation tactics should dovetail with existing quality improvement work. And because they can involve levels of deception (eg, platforms with fake-back ends), innovation approaches must be implemented with strong legal, professional, and ethical oversight.

Nonetheless, innovation can afford leaders more agility than traditional methods, helping them move more rapidly toward care delivery approaches based on what patients already signal will work rather than what leaders themselves hypothesize will work. Adopting this type of approach is particularly critical for radiology groups, whose work is highly interdependent on other providers and patients. For radiology leaders, innovation principles and tactics may prove to be critical tools for navigating the pandemic-driven uncertainty ahead.

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