

Generalists as Innovators: Lessons from Industry

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Colorado may seem to outsiders as attempting to become the center of innovation in micro-brewing beer and diversifying marijuana strains in order to complement the picturesque Rocky Mountain highs. The scale of the transformation from mass-produced beer to craft beer in particular has been astonishing. In 1979, Colorado had 2 breweries, and added only 2 in the subsequent 10 years (including Denver's first, started by our current governor). By 2016, Colorado had more than 400 microbreweries with nearly a billion dollars of sales annually. This revolution hasn't been limited to Colorado—small and independent craft brewing now represents 22% of the entire market share in beer.

We would argue generalists are the most important and most successful innovators in the healthcare system—from medical education to quality improvement; from research to healthcare policy. Working in Colorado as generalist physicians led us to question: how did the remarkable transformation in the brewery industry occur, and what lessons might this offer to generalist physician innovators? We turned to Steve Kurowski, operations director for the Colorado Brewers Guild—a nonprofit trade association representing brewers in Colorado—to help us identify key ingredients (beyond malt and hops) for this success.

The first lesson he identified is the importance of individual creativity—as he said, “people don't go into this to be boring.” He described individuals who innovate in craft brewing as often self-taught who seek freedom from constrictive structures. Generalist innovators may share this

key inclination with the first microbrewers—those who look at something mundane and common (pick your favorite mass-produced lager) and see a potential opportunity, ripe for innovation. For example, think about the legions of patients seen by primary care clinicians in their offices over the last few decades. In a world of drug discovery, translational research, and genomics, this hardly seems like the right laboratory for innovation. Generalists, however, saw this differently. The VA has been a prominent example, from evaluation to national dissemination of their patient-centered medical home model, to home-based primary care, to rapid expansion of telehealth capabilities, to public reporting of access, quality, and wait times.

Generalists and pioneers of the microbrewing industry share another key characteristic—that of a belief in the democratization of innovation. Individuals and small groups began a process of trial and error with the firm belief that “anyone can do it,” and built a community to be able to share lessons learned. Mr. Kurowski identified this as key for brewmasters, who could learn from each other in an environment of continuous experimentation. This ethos still permeates the microbrewery industry, where for less than \$100 you can buy all the requisite materials to make your own beer at home, and recipe sites abound on the Internet. What else is the Institute of Healthcare Improvement (started by a generalist pediatrician, Dr. Don Berwick) if not a way of empowering individual practitioners who are frustrated and want things to improve? Or, consider the profound impact of the Stanford

Faculty Development Center for Medical Teachers (started by a general internist, Dr. Kelley Skeff) for more than 30 years during which more than 15,000 faculty have been trained and who go on to train others. Innovation to generalists doesn't belong in the “ivory tower”; rather, all are seen as able to meaningfully contribute. This is a transformative idea, and one more needed now than ever.

This isn't to say that diffusing these innovations is easy. The historical record is full of small beverage companies that failed to achieve national dissemination of their product, or failed to do so sustainably. It's difficult to scale up a recipe for a kiwi fruit and kimchi double IPA, or to sell it to consumers who may prefer a more traditional brew. There are two lessons here we can take from unsuccessful microbreweries. First, if the customer doesn't find the innovation appealing, it's very unlikely to go anywhere, so one must involve the “consumer” early and often. The Patient-Centered Outcomes Research Institute is an admirable example of trying to execute this idea in health system innovations (led by Dr. Joe Selby, a generalist family physician). The second lesson is that even if you have a product that others find appealing, translating a “pilot” new recipe to scale is remarkably challenging: making beer in a 5-gallon batch is very different than a 5,000-gallon batch. Many breweries struggle to translate small-scale successes to large-scale production. The parallel for generalist innovators is dissemination and implementation science—the study of how to trans-

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late “pilot” interventions to scale. Dissemination and implementation science (in many cases led by generalists) similarly focuses on fidelity to the original “recipe” to figure out what tweaks need to be made to allow the “pilot” to succeed at scale, and demonstrating a return on investment.

Creating and disseminating innovation also requires a “safe space” for innovation in the regulatory environment. There is inevitably trial and error in developing great interventions, and resources to fund and protect the innovators are crucial. In Colorado, Mr. Kurowski cites the fact that the state allows tasting rooms as a key factor for success. For a microbrewery that is just getting off the ground, these offer a lifeline that determines the difference between profit and loss for operators at the size where innovation thrives. Similarly, this allows brewers interested in exploring small batches of novel seasonal varieties (for example, a hibiscus saison for a hot summer afternoon), an environment where the brewery can interact directly with the end consumer. This is a vital chance to hear feedback and rapidly iterate.

These “safe spaces” may be uncommon but are similarly crucially important when it comes to healthcare system innovation. For example, the Centers for Medicare and Medicaid Services (CMS) lacked a mechanism to fund promising innovations until the creation of CMMI—the CMS Innovation Center. By this point in the article, it may be no surprise that the director chosen for this immense effort was a general pediatrician, Dr. Patrick Conway. The VA is also notable in this regard, creating funding specifically for Centers of Innovation (COINs) across the country, and creating an entire funding mechanism (QUERI) focused on disseminating and implementing evidence-based practices—currently under the leadership of a general internist, Dr. David Atkins.

How, then, can we better support generalists to innovate and lead the changes so desperately needed in our healthcare system? The experience of successful microbreweries suggests the following four key lessons:

1. The best ideas often come from considering something mundane

and common in a new way—seek out practices that are the way “it’s always been done” to identify areas ripe for innovation.

2. Great ideas can come from anyone given the right tools, training, and environment. Leaders at every level must empower and enable staff to innovate.
3. Involve the end user early in the development process. If they don’t find it appealing, success is unlikely.
4. Advocate for, fund, and protect “safe spaces” for innovation.

Consider: what areas of your work are ripe for innovation? Are people in your care team/organization empowered to innovate? What safe spaces could be created for this? How can you involve the “consumer”—both patient and provider who must adopt your innovation—into the process earlier? This recipe—borrowed from industry—has the best chance of leading to the most palatable final product.

Warning: results may be intoxicating.

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