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### Health care snapshot

# Flipping primary health care: A personal story

Kedar S. Mate a,\*, Gilbert Salinas b

- <sup>a</sup> Department of Medicine, Weill Cornell Medical College, 525 E. 68th Street, NY, New York 10065, USA
- <sup>b</sup> Rancho Los Amigos National Rehabilitation Center, Los Angeles County



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#### ABSTRACT

There is considerable interest in ideas borrowed from education about "flipping the classroom" and how they might be applied to "flipping" aspects of health care to reach the Triple Aim of improved health outcomes, improved experience of care, and reduced costs. There are few real-life case studies of "flipping health care" in practice at the individual patient level. This article describes the experience of one of the authors as he experienced having to "flip" his primary health care. We describe seven inverted practices in his care, report outcomes of this experiment, describe the enabling factors, and derive lessons for patient-centered primary care redesign.

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#### 1. Article text

In education these days, a promising innovation is "flipping the classroom": instead of using classroom time for didactic instruction and doing homework at home, homework is done in the classroom and didactics are done at home. 1.2 While the logistics and planning take some investment of time and energy by lesson planners and teachers, there are now many such experiments in education that are showing promising early results. This has provoked health care providers and innovators to consider how we might "flip" health care. 3.4

There are many apparent advantages to a "flipped" educational system: students move through the didactics in their home environment, mastering content at their own pace, and then work on problems with the expert [teacher] in the classroom to help facilitate when they hit roadblocks. The literature describes the changing role of the educator from a "sage on the stage" to a "guide on the side." In traditional classrooms, all students must learn the didactics at the same pace; in the flipped classroom, students can progress from one set of problems to the next at their own pace, mastering the content as they advance. Problem solving becomes the focus of classroom activity, not didactic lesson plans. The other advantage is that the world's best teachers can be brought to the students. Lesson planners can use the video and online lessons from Khan Academy, Coursera, edX, or other expert knowledge providers and master teachers to deliver the very best

\* Corresponding author.

E-mail address: kmate@ihi.org (K.S. Mate).

lessons taught in an engaging and provocative way.<sup>7,8</sup> Definitive evaluations of these methods are not yet available, but preliminary studies indicate that students and teachers are more satisfied using these approaches and that students perform better in flipped learning environments.<sup>9–11</sup>

Several health care practitioners are applying principles of flipping care to the design of clinical spaces, service delivery and operations, and communication between patients and providers.<sup>3</sup> Yet, despite the interest and active experimentation with flipping care, patient testimonials of flipping health care are rare in the literature. Here we describe the experience of one of the authors, Gilbert Salinas, who during a recent fellowship year was forced to flip his health care. That experience presented lessons, which we describe below, for innovators interested in pursuing flipping strategies in the future.

#### 2. Gilbert's story

When I was 17, an accidental gunshot injury left me with partial paralysis from the waist down. I survived the injury, but was left with multiple chronic health care needs. I see my providers in California, where I live, on average eight times a year for medications, routine management of cholesterol, triglycerides, urinary tract infections, insomnia, and, at times, overwhelming chronic pain. I interact with others in the health care system to acquire medical devices: wheelchair parts, spare tires, urinary catheters, and other supplies.

For more than ten years, I have trusted my caregivers with my complex health care needs. We have evolved together, learning from each other and building a trusting relationship. Last year, I was offered the opportunity to participate in a prestigious fellowship program in Cambridge, Massachusetts. Accepting the fellowship meant a move that would be disruptive for anyone, but for me it came with other considerations. Cambridge is an old city rich in history and educational opportunity, but full of cobblestone streets, harsh weather conditions, limited wheelchair accessibility, and very far from the health care providers I have come to trust and love. As I considered my move, my options were to forego my current health plan for the year, find an alternative plan, or keep my existing insurance and work with my existing providers to "flip" my care.

What might "flipping health care" mean for patients like Gilbert? To understand it requires first looking at the current state: a typical clinic visit and what is expected of (see Fig. 1). In a typical clinic visit, patients are seen by a provider; vital signs are checked; labs are reviewed; medications are adjusted and refilled; a physical exam is done; the provider listens, coaches, and provides knowledge about how to live with specific conditions and illnesses. What happens at home? The patient's conditions, ailments, and illnesses meet "real life," which contextualizes the knowledge gained in the clinical encounter. The patient makes adjustments to lifestyle, behavior, routine, medications, etc. – to the extent that they "make sense" for the patient. Sense-making of the lived experience of illness is what happens at home.

So what would "flipped" health care look like? Most of the elements of the clinic visit can now be performed at home through technology-enabled environments. Vital signs can be monitored, continuously or intermittently; 13 medication review can be done virtually 14 or in person, at home, using community health workers; 15 phlebotomists can travel to the patient, or patients can go to convenient local laboratories for blood draws; 16,17 although still developing, several components of the physical exam can now be done via technology over the internet or telephone (aspects of the cardiac, pulmonary, and skin exams, for example). At the conclusion of this information gathering, clinicians and patients can converse about concerns, hopes, goals, and worries over secure video or teleconferencing systems. 18 Medications can be adjusted and e-prescribed. Reminders can be placed. Home environments can be surveyed, pill bottles checked. Coaching by providers,

which is currently limited to one 15-minute session once in a while, can now be delivered asynchronously by clinicians via email, chat, instant messaging, and "just-in-time" educational reminders via email and SMS technology. <sup>19</sup> Coaching patients towards better living and better health can now be a continuous process, rather than a staccato relationship with peaks in communication around clinic visits and major valleys in between.

So if all of these formerly clinic-based activities can be performed at home, what is left to be done in the clinic? First, there are times when patients, all patients, will require a face-to-face encounter; technology will not render periodic face-to-face check-ups irrelevant. So some traditional clinic visits will continue, but these will be fewer and time may be freed up in the regular clinic day for providers to address what are likely higher-acuity patients who require face-to-face encounters.

In addition, what used to happen at home, patients' conditions meeting real life, can now be brought into the clinic environment, either in simulated interactions (such as those around taking medicines with medication counselors or making nutrition choices with the nutritionist), or in real-life meetings where groups of patients living with the same or similar illnesses gather to discuss how they negotiate living with their chronic conditions. Such "clinic visits" may not take place in the clinic at all; in fact, they are more likely to take place in churches, community centers, grocery stores, and department stores. In these circumstances, clinicians are not the experts; patients are the experts, teaching one other how to cope with their conditions. Clinicians are the "guides on the side" technical facilitators, available as a resource when clinical questions arise, but in no way the authority on what it takes to live with conditions like congestive heart failure and diabetes. These group visits may take place in real environments or virtual ones (e.g., PatientsLikeMe, the Big White Wall).<sup>20,21</sup> The advantage of virtual settings is that they preserve anonymity, which may be desirable for many individuals. Clinicians are available to provide onsite clinical support as required of patients. Routine conditions can be easily managed in this way; pregnancy has been managed this way for years (for example, Centering Pregnancy)<sup>22</sup> and outcomes have been favorable.<sup>23,24</sup> But more complex conditions can also be managed this way and under significant resource limitations; for example, in rural Rwanda, Partners in Health has been managing complex HIV patients using visits like this for years.<sup>25</sup>

Gilbert's Experience (Before)	Gilbert's Experience (Flipped)
Done in clinic:	Done in clinic:
8-10 visits; vitals checked	<ul> <li>Access to urgent and emergency services</li> </ul>
Cursory physical exam	<ul> <li>Pain management services</li> </ul>
<ul> <li>Doctor coaches and provides knowledge/instruction</li> </ul>	Labs drawn once during the year
Labs drawn before visit every six weeks	
Medicine adjustments made	
Education provided	
Refill visits for medication and Durable	
Medical Equipment	
Done at home:	Done at home:
<ul> <li>Conditions/ailments meet "real life"</li> </ul>	Medicine delivered
<ul> <li>Limited involvement of providers in home</li> </ul>	<ul> <li>Supplies delivered</li> </ul>
environment	<ul> <li>Medicine adjustments made online</li> </ul>
	<ul> <li>MD communication all via email and phone calls</li> </ul>
	<ul> <li>Contact with nursing triage to address health issues</li> </ul>
	<ul> <li>Pharmacy consults online</li> </ul>
	<ul> <li>Virtual contact with care providers</li> </ul>
	<ul> <li>Utilization of online health management tools/ apps</li> </ul>

Fig. 1. Flipping Primary Care: Gilbert's experiences at home and in the clinic before and after flipping his primary care.

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