

How Crowdsourcing & Crowdfunding Are Fueling Health Care Innovation

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Informational and financial exchanges, which take place among groups of like-minded people with a specific directive or purpose, are referred to as crowdsourcing and crowdfunding, respectively. Crowdsourcing is an open call for intellectual contributions; it is a means by which individuals can brainstorm, assess, evaluate and consult on projects and research. Crowdfunding facilitates direct, financial contributions to projects, charities, individuals, etc. For-profit and non-profit organizations use crowdsourcing and crowdfunding to obtain expert-level help, solve complex problems, broaden their support networks, advertise products or services, solicit feedback, and reach entirely new groups of prospective investors or consumers.

The health care community is also benefiting from crowdsourcing and crowdfunding: Medical researchers are accessing broad, qualified sample groups; physicians are consulting providers from all backgrounds whose experiences lend unique perspectives; and, consumers with mounting medical expenses are requesting and receiving financial help from friends, family and strangers. Crowdsourcing and crowdfunding prove that the power of many is greater than the power of one.

Smartphones, computer tablets and other devices provide for the near-instantaneous exchange of information and ideas at virtually any time of day and from virtually any location. A study by the communications technology firm Ericsson found that 35 percent of U.S. Android and iPhone users regularly check a variety of mobile apps even before getting out of bed.¹ As a result of this growing compulsion to stay connected, organizations have begun creating online communities and using electronic messaging media to notify individuals of meetings, events, news items and more.

The Texas Medical Association (TMA) reports that its members use iPhone, Android and BlackBerry devices to access its private 24/7 mobile app – which allows them to: browse through a real-time, 45,000 member directory; locate, contact, and connect with peers; make appointments; refer patients; and, receive related alerts.² Similarly, public social media venues (i.e., LinkedIn, Facebook) encourage open and ongoing commentary between groups of friends and associates, their friends and their associates, and so on. When those types of informational exchanges take place among like-minded people with a specific directive or purpose, they are collectively referred to as crowdsourcing.

What's more, the Internet is also a vehicle for commerce. Total e-commerce sales for 2013 were recently estimated at \$263.3 Billion.³ But not all online transactions are limited to the traditional purchase of goods. From large corporations to small non-profits, organizations have begun soliciting funds via the Internet in order to gain financial backing for special projects and/or to secure a greater number of charitable donations. When those types of financial exchanges take place among like-minded people with a specific directive or purpose, the phenomenon is referred to as crowdfunding.

CROWDSOURCING: AN OPEN INTELLECTUAL EXCHANGE

What crowdsourcing amounts to is an open call for intellectual contributions that is pitched to a largely undefined group within the greater community. It is a means by which experts in their respective fields or areas of specialization can receive an invitation to brainstorm, assess, evaluate and consult on specific projects, and/or participate in research endeavors. It is by using this technique that the individuals who are best suited to perform a task, solve a complex problem or generate innovative ideas can be accessed and their intellectual acumen applied—regardless of where they are located geographically and in relation to the origin of the request.

Crowdsourcing has become an effective tool, or method, for mass collaboration via the Internet with the intention of achieving business, personal, and/or creative goals. It is a means through which businesses are able to: enlist the talents

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of individuals who are employed or otherwise work outside of their own companies; learn more about what interests consumers (en masse) so that products and/or services can be tailored accordingly; and establish a sense of kinship and brand loyalty with sympathetic supporters prior to the launch of new ideas, campaigns, etc. In short, establishing a crowdsourcing presence online allows companies to quickly and inexpensively mine for valuable talent, data and ideas.

Crowdsourcing and crowdfunding are now taking hold in the health care sector, helping fuel health care innovation in ways that produce notable outcomes.

Proctor & Gamble uses what it calls “open innovation, also known as crowdsourcing or co-creation, (to) harness the ideas and strength of people outside their organization to make improvements to internal processes or products.” Through its P&G Connect + Develop program, individuals and companies external to the organization submit ideas for new or improved products, technologies, business models, methods, trademarks, packaging, and/or design. The way contributors do that is by logging on to a dedicated P&G crowdsourcing website, browsing a list of the company’s identified needs and submitting their proposals for consideration. In return, P&G-approved innovation partners are said to gain access to its “innovation, distribution and marketing assets.”^{5,6}

P&G’s CEO A. G. Lafley spearheaded the Connect + Develop strategy as a way to “broaden the horizon by looking at external sources for innovation (and to use) technology and networks to seek out new ideas for future products” after company estimates identified a pool of nearly 1.5 million creative-thinking inventors and individuals who might serve as potential innovation sources. Lafley estimates that “through Connect + Develop—along with improvements in other aspects of innovation related to product cost, design, and marketing—the company’s R&D productivity has increased by nearly 60 percent. In addition, its innovation success rate has more than doubled, while the cost of innovation has fallen and, within a two-year period, P&G launched more than 100 new products for which some aspect of execution came from outside the company.”⁷

CROWDFUNDING: DIRECT FINANCIAL SUPPORT

While crowdsourcing enables the exchange of intellectual assets (i.e., ideas, information, and talent), crowdfunding facilitates direct financial investment in the form of contributions to projects, charities, etc.—enabling individuals to support related initiatives. More specifically, crowdfunding occurs when groups of people pool their money and/or other resources in support of a wide range of endeavors. Crowdfunding helps bankroll disaster relief efforts, non-profit

organizations, and creative/other endeavors (i.e., musical careers, film production, enterprise startups). Indiegogo is an international crowdfunding platform which operates under the premise that anyone anywhere can raise money, noting that “people contribute to campaigns for many reasons, but usually it is because they want to be involved in what the campaign is doing or because they want (access to perks which) are part of the campaign.”⁸

However, crowdfunding is not necessarily a 21st century phenomenon. In 1885, Joseph Pulitzer led one of the earliest-recorded crowdfunding efforts, urging readers of his newspapers to help finance the construction of the pedestal on which the Statue of Liberty rests.⁹ Political campaigns may have always employed some version of the technique, whether in the form of passing a hat in town meetings or using direct mail and phone solicitations to request donations. Yet, technology makes those transactions easier, more immediate and more potentially viral.

A crowdfunding call for contributions is often spread through email, online community notices and social network postings. These forms of communication encourage a ripple effect—with recipients forwarding alerts about the project or cause of interest to other people in their online social networks, who then forward them throughout their own networks. Online crowdfunding news travels faster and farther than traditional calls for fundraising ever could. In addition, individual contributors find the ability to make secure online donations convenient.

DISEASE SURVEILLANCE: CROWD HELP FOR HEALTH CARE

The success of crowdsourcing and crowdfunding in the business world has spurred other industries such as the health care sector to adopt similar practices aimed at addressing their own unique needs. What if instead of encouraging competition between physicians, research labs, and other health care-related entities we invested our energy and intellectual property in the pursuit of collective intelligence? After all, crowdsourcing makes it possible to tap into a wealth of intelligence from around the world in as little as a few keystrokes.

One highly practical health care application involves the collection of data about diseases that are known to affect various populations but is difficult to track and/or collect large amounts of sample-group data on. Crowdsourcing, in this instance, is a timelier and less expensive means for collecting relevant data than traditional research methodology. HealthMap and Health Tracking Network are two related programs worth taking a closer look at.

HealthMap.org

HealthMap was created, in 2006, by a team of researchers, epidemiologists, and software developers at Boston Children's Hospital to utilize informal online sources for disease-outbreak monitoring and real-time surveillance of emerging public health threats. The HealthMap website, along with its companion mobile app Outbreaks Near Me, delivers real-time intelligence on a broad range of emerging infectious diseases. Its typical audience includes local libraries, health departments, government agencies and even international travelers. HealthMap taps into a variety of data sources (i.e., eyewitness reports, expert-curated discussions and validated official reports) to present comprehensive assessments of the state of a given infectious disease and the potential effects it may have on human and animal health.¹⁰

HealthTracking.net

Health Tracking Network's (HTN) creators are said to have devised this crowdsourcing site with four primary goals in mind: 1) To uncover factors related to common conditions; 2) To promote participant wellness by tracking health, fitness and other variables; 3) To help fundraise for related charities; and, 4) To provide physicians and researchers with access to quality samples for surveying potential. HTN engages both patients and health care providers over long periods of time, eliciting health information from individuals whose responses then help physicians' track trends, developments, and responses to treatment or medication. Participating patients provide "Symptom Updates" on a regular basis and respond to researcher-issued prompts that are related to specific conditions. This data collection method carries a low operational cost and promotes quality samples thanks to its prolonged timeframe and active patient participation.¹¹

CROWDSOURCING INVITES INNOVATION

Crowdsourcing is particularly well suited to enabling medical providers, organizations, and other influential figures in health care to pool their intellectual resources, expand their collective knowledge base, and—thereby—deliver higher quality care. Crowdsourcing platforms which facilitate a meeting of medical minds include: CrowdMed, MEDTING, Webicina, and B-a-MedFounder and angelMD.

CrowdMed.com

Physicians are trained to assess and identify common causes behind symptoms and then develop treatment plans. However, there are cases that defy common causes. At that point, specialists are called in to lend their expertise. Still, there are some cases so rare that both health care providers and patients wind up spending extraordinary amounts of time and money trying to secure a correct diagnosis and develop an

effective treatment strategy—with 7,000 currently known rare and/or difficult-to-diagnose diseases. Such was the case for Jared Heyman's sister, whose family invested three years and more than \$100,000 before receiving an appropriate diagnosis, prognosis and course of action.¹²

Frustration inspired Heyman to create CrowdMed, which he launched in April 2013. Utilizing prediction market technology, CrowdMed helps health care providers narrow down diagnostic possibilities for difficult-to-diagnose cases. A broad pool of providers (including physicians) is invited to review patients' symptoms, medical histories, and other pertinent data—with 100 to 200 "Medical Detectives" reviewing and researching case specifics before recommending their diagnoses and expert opinions. CrowdMed aggregates that feedback and sends patients the top diagnostic recommendations, noting the estimated probability of accuracy for each one. Patients can then discuss those findings with their personal physicians and health/or care teams. To date, CrowdMed reports an accuracy rate of more than 90 percent.¹²

Medting.com

MedicalExchange's MEDTING is a crowdsourcing site which corrals information from a wide array of physicians. It is a closed-community forum through which health care providers can engage in collaboration, solicit advice, and/or share their experiences with one another. Integrated with PubMed, MEDTING invites physicians to post medical images and videos that other medical experts can review and evaluate in order to help them build stronger clinical cases. Individual physicians can register with MEDTING as independent users, as members of clinical collaborative groups with their own virtual meeting space, or as members of an enterprise that is able to customize its own information-exchange environment.¹³

Webicina.com

An Internet search can result in thousands of recommended links that are smattered with select keywords, but not always ones that are highly relevant. Sifting through page upon page of search results to find the most relevant sources can be quite time consuming. Webicina.com is a free online service that helps focus individual medical literature and information searches to produce highly pertinent results. It does this by curating information from the most relevant, quality, and reliable medical social media resources through crowdsourcing with medical professionals and e-patients to cover more than 140 topics in 20 languages.¹⁴

B-a-MedFounder.com

Due to their extensive experience with a wide range of medical tools and equipment, physicians possess a valuable perspective for product design—and sometimes hatch their own ideas for new devices or modifications to existing tools. Physicians may not be prepared, however, to travel the road from concept to prototype and then on to testing and production. B-a-MedFounder is a crowdsourcing site that specifically caters to the physician-turned-inventor. Its network of inventors, technical experts, and medical-device-manufacturer representatives review physicians' medical device ideas for viability. Approved projects are then promoted online where others can learn about their uses/potential impact and where interested parties can invest in their production.¹⁵

AngelMD.com

The medical investment crowdfunding platform, angelMD, is a crowdfunding platform that connects physicians and leading medical startups. The parameters for the startups approved to list on the site are those that have a medical product or product enabled service, are an legal entity and prepared to share their story. Darci Moreau VP of Startup Relations for angelMD said, "Getting startups on the site is just the first step in allowing us to help them share their story and progress milestones. This often leads to making valuable connections such as landing key advisors, early product adopters and capital investments. In March 2014, the 100th medical startup company went live on angelMD, Constellation from Cambridge, Massachusetts. Constellation is a MIT incubated startup aiming to prevent skin cancer. The service processes images of the entire body and alerts if any moles change."¹⁶

CROWDFUNDING CLOSES THE FINANCIAL GAP

Medical expenses continue to climb. In 2011, Americans spent an average of \$8,508 per person on expenses related to medical care, including insurance premiums and out-of-pocket costs.¹⁷ In addition, medical debt is now identified as the number one cause of personal bankruptcy in the United States, with NerdWallet Health estimating that more than 20 percent of Americans aged 19 to 64 struggled to pay their health care-related bills in 2013.¹⁸ Yet, this is an area in which crowdfunding has proven to be highly effective. In 2012, more than \$2.8 Billion was raised through medically-oriented crowdfunding efforts.¹⁹ Three organizations which are paving the way in medical crowdfunding are Give Forward, Human Tribe Project and You Caring.

GiveForward.com

Give Forward reports show that, since 2008, it has helped generate more than \$95.5 Million through individual fundraisers set up to assist people in need of help paying their

medical bills. In some cases, a few thousand dollars helps fill the void between insurance coverage and actual treatment costs incurred. In other cases, hundreds-of-thousands of dollars have helped cover recipients' long-term care needs. In excess of \$880,000 was donated, at GiveForward.com, on behalf of two 2013 Boston Marathon bombing victims who will have lifelong implications from their injuries. Other donations are circumstance-specific (i.e., cost of organ transplant, disaster relief, funeral expenses).²⁰

HumanTribeProject.com

The cost of cancer treatment frequently exceeds insurance coverage levels, leaving patients liable for the difference. The Human Tribe Project (HTP) was designed to aid cancer patients in covering their out-of-pocket costs. In recent years, HTP has expanded its services to provide crowdfunding opportunities for anyone who is struggling with overwhelming costs related to necessary medical care. Beneficiaries—the term HTP attributes to individuals receiving funds—create Tribe Pages where they or their family members can post blog updates about their condition(s). Guests can also sign in and post messages of support.²¹

YouCaring.com

You Caring identifies itself as "the first truly free website of its kind," explaining that—despite the amount of money raised—fundraisers are not charged a fee to use the encrypted crowdfunding site. This crowdfunding source allows people to raise money to defray a wide range of costs that they or their family members may have incurred, including medical, memorial, and funeral expenses. Additional donation categories include: Education and tuition assistance, adoption expenses, funding for mission trips, pet/animal rescue expenses, and quite simply "helping another in need." Funds are paid directly to recipients via their own private PayPal or WePay accounts.²²

CONCLUSION

Technological advances have made information more accessible and staying connected more affordable. That, in turn, has allowed for-profit businesses, non-profit organizations and individuals to benefit from myriad talents and treasures made available by peers, other professionals and the general public in open-ended networks which provide access to greater depths of knowledge, broader ranges of experience and diverse perspectives—otherwise known as collective intelligence. And collective intelligence knows no limitations.

Health care professionals, organizations, and consumers can all benefit from crowdsourcing and crowdfunding—whether the intent is to share information, generate funds to support

special projects/research, or provide support for individuals who are struggling to maintain costly health care regimens or cover the most basic health care expenses. Crowdsourcing and crowdfunding have the power to elevate the level of care provided by physicians, other medical professionals, and entire health care organizations—or anyone who desires to increase the probability of positive outcomes. After all, the power of many truly is greater than the power of one.

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