

How kindness can be contagious in healthcare

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Standfirst

Pay-it-forward programs, where someone receives a gift or free service, and then gives a gift to another person in return, have expanded during COVID-19 and provide an opportunity for healthcare providers to reduce costs, increase uptake of interventions such as testing and vaccines, and promote sustainability.

Covid-19 has transformed everyone's lives and disrupted the social fabric that weaves medicine together. Unraveled interpersonal relationships have contributed to healthcare worker burnout, limited access to health services, and exacerbated inequalities. Will the exhausted frontline worker help the local community group to navigate re-opening? Will the elderly person who lives alone with a disability receive additional help to receive a vaccine? Will the person living in poverty receive high-quality healthcare services? The history of infectious disease pandemics suggests that responses to plagues are notable for silver linings in which individuals and groups are generous.¹ We define generosity as the capacity to give more than is necessary or expected.² COVID-19 messages, fundraising projects, and community engagement activities have demonstrated substantial generosity in these uncertain times.³⁻⁵ This generosity not only showcases the endurance of the human spirit but may also provide a way to help control infectious diseases. Here we review how systematically harnessing the psychological impulse for one form of generosity—pay-it-forward—can encourage healthy behaviors and mobilize community resources.

It pays to be kind

Pay-it-forward has an individual receive a gift from someone (a community organization, clinic, or government) and then be provided the opportunity to give a gift to another person (Figure 1).⁶

Pay-it-forward is an example of upstream reciprocity theory suggesting that people who are helped by someone feel a warm glow that makes them more likely to help other unspecified people. After receiving help from someone, there is a perceived social obligation to help another

person who needs it. The pay-it-forward approach can increase community solidarity and decrease some of the financial barriers to health services. Two systematic reviews found that being kind (i.e., prosocial behaviors) was associated with well-being, especially psychological function⁷ and subjective well-being.⁸ In addition, there are potential organizational benefits associated with upstream reciprocity, including improved teamwork, enhanced creativity, and stronger engagement.⁹ Pay-it-forward approaches have been used widely outside of medicine. Human studies demonstrate that cooperative human behavior may be contagious and spread through social networks.¹⁰

Generosity ripples

The concept of pay-it-forward has a long history. Aesop, the ancient Greek storyteller, observed, “No act of kindness, no matter how small, is ever wasted.” Later in ancient Greece, a comedy called *Dyskolos* used pay-it-forward as a central component of the plot. The idea of paying for someone else was popularised by Benjamin Franklin in 1784. Franklin described how he lent money to others without the expectation of their paying it back, but rather the notion that this act of generosity could ripple forward among friends.¹¹ Another example of pay-it-forward comes from mathematician Paul Erdős. Already an established and well-recognized mathematics professor, Erdős discovered that an incoming Harvard mathematics student would be unable to pay his fees. He supported the student to attend university and the student later offered to pay him back. Erdős suggested that the student find another student in need and instead pay it forward.¹² In the past ten years, similar pay-it-forward programs have been implemented in many settings, including providing a free cup of coffee in a café, a free beer in a pub, a free ice cream

from a shop, and a free hamburger from a restaurant. Both locally owned stores and large corporations have used pay-it-forward to spur generosity in local communities.

Within medicine, the principle of pay-it-forward is exemplified in the practice of mentorship. The informal and formal wisdom passed from mentors to mentees is often serendipitous and contagious. Mentors provide the unprompted give of time, energy, and guidance to the next generation. Over time mentees transition to become mentors for others. Mentorship creates virtuous cycles within institutions, spurring contagious kindness. A study from the Roberts Woods Johns Foundation found that scholars who had received mentorship were more likely to serve as effective mentors for others.¹³ Beyond mentorship, pay-it-forward approaches have been used in health research to increase diagnostic test uptake and vaccine uptake.

Increased testing

Pay-it-forward approaches have increased testing for sexually transmitted infection (STI) among sexual minorities in China.⁶ The approach was iteratively developed using crowdsourcing open calls to build community ownership and nurture trust.^{14,15} Men who have sex with men (MSM) received a free gonorrhea and chlamydia test alongside community messages and were then asked if they wish to donate money or create messages to sustain STI testing for subsequent MSM. An observational study enrolled 408 men at MSM-led clinics and compared gonorrhea/chlamydia testing rates during a pay-it-forward period to those observed during a standard of care period in which patients paid for their own tests. Gonorrhea/chlamydia test uptake rates increased nine-fold among men who received the pay-it-forward testing strategy

(54% compared to 6%). Among all men who received gonorrhea/chlamydia testing, this was the first test for 97/121 (80%) of MSM. A subsequent randomized controlled trial confirmed the effectiveness of the approach and showed that donations supported approximately 40% of the total cost of the service.⁶ Details about the total amount donated and people tested were shared back to the MSM community on a weekly basis, increasing transparency and trust in the process. Mixed methods research suggested that the warm glow effect strengthened a sense of engagement among the MSM who participated and organized the project.¹⁶ The project strengthened social bonds between MSM, nurturing a sense of solidarity.

Vaccine uptake

In addition to sexual health, pilot data suggest that a pay-it-forward approach may increase influenza vaccine uptake.¹⁷ Elderly people and caregivers (parents or grandparents of children) were given a free influenza vaccine and community-engaged messages, then asked whether they want to support influenza vaccines for others in the local community. Data from a pilot study showed that 83% (83/100) of participants received an influenza vaccine after receiving the pay-it-forward intervention compared to 35% (32/92) who were offered a fee-based influenza vaccine.¹⁷ After receiving a free vaccine, 98.8% (82/83) of people donated money. The mean donation per person was US\$5.2 which was over half of the market price of a child influenza vaccination. Eighteen percent (15/83) of people created a text, image, or video supporting flu vaccination. The community participatory components of pay-it-forward also helped improve people's vaccine confidence. Further research on how pay-it-forward approaches could increase influenza vaccination is needed.

Spreading kindness during COVID-19

Pay-it-forward principles have been used in the COVID-19 response to enhance messaging, fundraising, and community support. The United Nations and World Health Organization organized a crowdsourcing open call to creative people, including a category focused on spreading kindness.⁴ This category received 689 artworks that are now freely available online through creative commons (Figure 2). Second, the Liverpool School of Tropical Medicine organized a #BumpItForward campaign to support COVID-19 equipment and supplies for frontline health workers in Zimbabwe, Zambia, and Malawi.⁵ The campaign raised £174,183 from 3,565 supporters, providing support for critical COVID-19 efforts. Similar campaigns have been established to build on the post-COVID vaccination warm glow and help direct generous individuals to support COVID-19 vaccination in low and middle-income countries.¹⁸ The City of London's COVID-19 pay-it-forward crowdfunding campaign raised over £1.5M from 20,000 people for small businesses to rebuild in response to COVID-19.¹⁹ The project included a free platform for fundraising and tailored support for small businesses. Finally, pay-it-forward principles have been used to structure community support activities focused on COVID-19. Many mutual aid groups have used pay-it-forward programs to provide material support, advice, and encouragement to other local people.³ A related example is time banking, a mutual support approach where individuals contribute volunteer service hours to helping others in need within their local community, and are then rewarded with time credits or currency that can be used for ordering volunteer services from subsequent volunteers.²⁰ Time banking, like pay-it-forward, relies on individual and collective kindness in order to address health problems. Time banking has been piloted to enhance elderly care.²¹

Looking forward

Pay-it-forward has limitations. First, pay-it-forward approaches can expand access to services associated with a fee, but would not be intended to replace government services. Rather than delaying public provision of services, pay-it-forward could draw attention to new models which could then be supported by the government or other partners. This may be particularly useful in low and middle-income countries where government resources for health are limited. Second, pay-it-forward programs have yet to be scaled up. The broad involvement of community-based stakeholders in pilot pay-it-forward projects suggests that this approach could be integrated into community practices. Implementation research to inform expansion of pay-it-forward services in the era of COVID-19 is essential. Third, the novelty of the pay-it-forward concept and involvement of monetary donations may sometimes cause confusion and doubt among potential participants. Mechanisms to ensure accountability and trustworthiness in a pay-it-forward program are key to program maintenance. Fourth, initial pay-it-forward projects have yet to receive sufficient donations to make them independent. At the same time, pay-it-forward approaches are not stand-alone interventions, but an approach to reduce costs, increase uptake, and promote sustainability.

Pay-it-forward approaches could be useful to introduce new health interventions prior to their formal integration into government health services. Pilots are underway focused on different subpopulations (youth, female sex workers) and diseases (HPV vaccination, hepatitis testing). Given that many evidence-based health interventions take years and sometimes decades to

implement, formal mechanism to support health interventions during this period may be useful. Pragmatic trials, participatory research, and related implementation science could help to scale up this approach. Pay-it-forward is not a panacea, but these experiences of unexpected generosity shine more brightly in our dark Covid-19 days. The contagious generosity of frontline health workers and local citizens may be one of the silver linings of the Covid-19 pandemic.

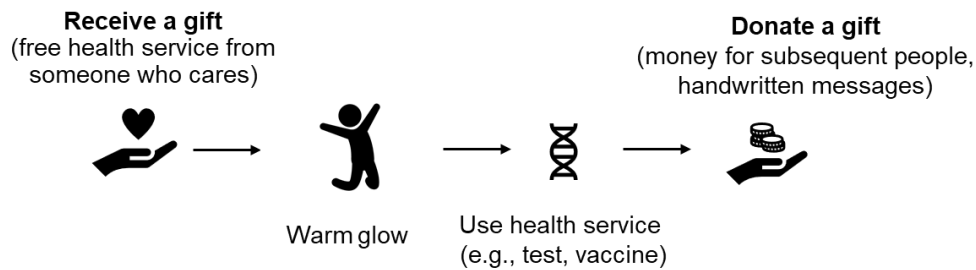
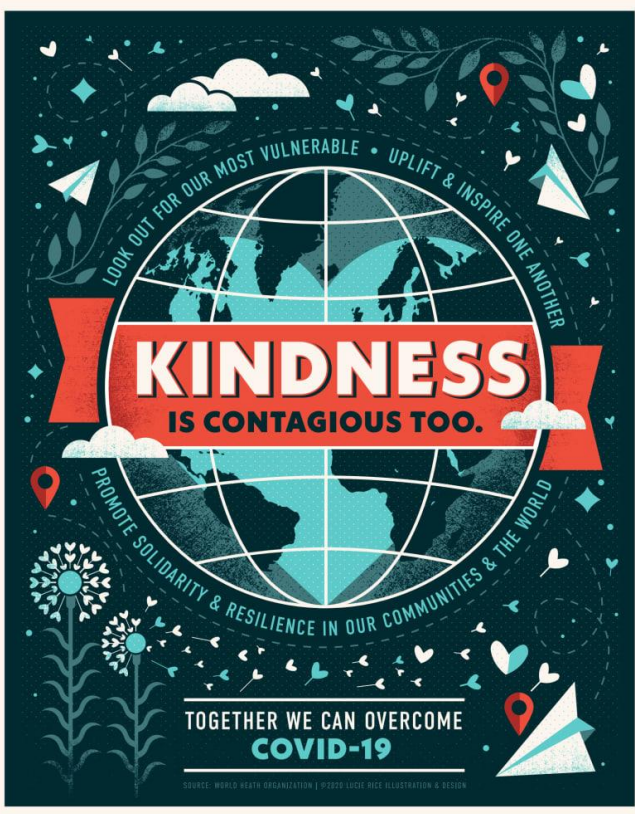


Figure 1. Overview of pay-it-forward.

a.



b.



Figure 2. COVID-19 messages focused on contagious kindness identified through a WHO/UN crowdsourcing open call.

Authors' Contributions

JT wrote the first draft of this manuscript and developed the initial idea. All co-authors contributed to the manuscript, helped with writing, and approved of the final manuscript for submission.

Conflicts of interest

The authors report no potential conflicts of interest.

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Figure legend

Fig 1. Social solidarity likely promotes a sense of obligation to contribute to others.

Fig 2. a, Open access image created by Lucie Rice for the UN/WHO crowdsourcing open call (CC-BY). **b,** Open access image created by Justin Teodoro for the UN/WHO crowdsourcing open call (CC-BY).