POLICY

Nurturing, nudging and navigating the increasingly precarious nature of cooperation in public health: the cases of vaccination and organ donation

Heidi J. Larson, Heidi.Larson@lshtm.ac.uk
London School of Hygiene & Tropical Medicine, UK, and
University of Washington, USA

Alexander H. Toledo, alexander_toledo@med.unc.edu
University of North Carolina at Chapel Hill, USA

Many public health initiatives encouraging positive health behaviours require patient cooperation in the face of perceived costs and health risks. Ongoing public health crises, including the COVID-19 pandemic and the organ shortage, underscore the necessity of incorporating an understanding of human cooperation and the motivators for cooperation into social and public health policy. We explore the costs, benefits and motivators regarding cooperation in the cases of vaccination and organ donation. We likewise explore policy incentives that have successfully encouraged cooperation with these positive health behaviours. We find that appeals to morality, reciprocity and reputation are important behavioural predictors of cooperation. However, we find that cooperation is a fragile state, vulnerable to the individual's perceptions of the risks, as well as external social, cultural and political forces, such as social media-disseminated misinformation, which can sway attitudes to health behaviours, including cooperation. Drawing from the literature, we conclude by calling for a nuanced understanding of cooperation in a number of policy recommendations. Notably, we underscore: the volatile emotional levers affecting cooperation; the risks of overusing restrictive mandates; the consideration of short- and long-term consequences of social policies; and the need for locally and culturally tailored, as well as nationally relevant, policies.

Key words cooperation • transplantation • vaccination • organ donation • trust

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Introduction

Evolutionary frameworks do provide some guiding principles behind human decision-making, which is absent from most of the models used to inform public health policy. (Arnot et al, 2020: 265)

There are multiple definitions of cooperation. In his introductory article for this issue, Lazarus (2020: 3) summarises cooperation as being ‘an action that benefits another individual or social group with either a benefit or cost to the actor’. Many have investigated the different drivers of self-interested versus cooperative behaviours and the social dilemma of the tension between the two. However, history has shown that despite some individuals acting in ways that counter the public good, overall, individuals do cooperate in ways that benefit their group (Arnot et al, 2020). The COVID-19 pandemic has shown us that cooperation has its limits and vulnerabilities, and is highly precarious. It is not a stable state and can be influenced by external events. A growing environment of mis- and disinformation, along with volatile individual and group emotions, beliefs and ideologies, all threaten our cooperative nature.

In some areas of public health, benefits for some come at a cost for others. COVID-19 pandemic response measures enacted in response to a rapidly spreading and evolving virus compromised people’s livelihoods, children’s schooling and access to healthcare for non-COVID-19 conditions. There were costs to some for the benefit of the public good. Given the unique and sometimes shared challenges of vaccination and organ donation, this article calls for new social policies that take into account the precarious and dynamic nature of cooperation while building on the positive motivating levers.

The evolution of cooperative or altruistic behaviour between related individuals can be explained by inclusive fitness, a concept introduced by Hamilton (1964). Hamilton showed that acts benefiting a relative, at a cost to the self, could be favoured by selection given that the cost–benefit ratio did not exceed a threshold determined by their degree of relatedness. To explain altruism between unrelated individuals, commonly observed in human communities, Trivers (1971) introduced the idea of reciprocal altruism: it can be in an individual’s self-interest to cooperate with another who may return the favour at a later date (Shim et al, 2012). However, human beings frequently behave altruistically or cooperatively towards non-relatives even when there is no possibility of reciprocity (Zahn-Waxler et al, 1992; Warneken and Tomasello, 2009), and this was explained by Alexander (1987) in terms of indirect reciprocity, that is, when an individual’s altruistic or cooperative behaviour is observed by others who are subsequently more willing to cooperate with and hence benefit that individual. To explain cooperation or altruism between unrelated individuals when there is no possibility of direct or even indirect reciprocity, Fehr and Gächter (2002) introduced the idea of altruistic punishment, or what came to be called ‘strong reciprocity’.

In the context of COVID-19, there were multiple examples of altruistic punishment. Bor and colleagues (2023: 705) conclude that ‘polarized and moralized sentiments surrounding COVID-19 vaccination activate the latter, punitive, motivations’, and conducted a 21-country study which found that:

Exclusionary attitudes are higher in countries with a tighter culture, oriented towards strong norms and the sanctioning of norm violations. These latter associations suggest that cultures that place stronger moral expectations on
individuals not only more effectively produce the public good of epidemic control but also constitute a fertile ground for exclusionary attitudes against unvaccinated individuals, as they may be perceived to free-ride on the collective effort. (Bor et al, 2023: 707)

Sometimes, cooperation is conditional, only occurring when others are also seen to cooperate (Fischbacher et al, 2001). In the context of the COVID-19 pandemic, for instance, many people were willing to wear a mask only if enough others around them were seen to be wearing them (Van der Linden and Savoie, 2020). A similar sentiment was expressed around COVID-19 vaccine acceptance – the ‘I’ll wait and see’ approach – needing the nudging effect of others to build confidence, especially in light of the newness of the vaccine and the ‘warp speed’ in which the vaccines were produced and deployed (Heyerdahl et al, 2022). The phenomenon of conditional cooperation has been found to be more common than uncommon in public goods experiments, with some research finding between 50 and 65 per cent of the population taking their cues to act from the behaviours of others around them (Nielsen et al, 2014).

While seeing others being vaccinated has largely been shown to be a positive nudge towards cooperation (Ferguson, 2022), there is also the risk of a negative impact (Christakis and Fowler, 2007; Ibuka et al, 2014). For some, when they see that enough other people are vaccinated, they decide to avoid taking the risk of any vaccine side effects for themselves or their children while benefiting from the protection of wider herd immunity contributed by others. This is free riding and presents a public goods dilemma (Hershey et al, 1994; Hendrix et al, 2016; Capraro et al, 2020).

In the early months of the COVID-19 pandemic, other debates revolved around such issues as letting natural infection create herd immunity and only recommending or requiring lockdowns for those most vulnerable to the most serious risks of COVID-19. However, given the newness and uncertainty of the virus and its serious risks of illness and death, many felt that the notion of letting the COVID-19 virus run wild as a form of ‘natural’ immunity was untenable:

If we are optimistic, adopting the natural herd immunity strategy would mean asking the public to sacrifice substantially more fellow humans than the number of British civilians killed during World War II. In the most pessimistic scenario, we would be asking them to surrender 458,200, slightly more than the combined number of British military and civilian casualties during World War II. (Dowd et al, 2020)

Such public debates that emerge between scientists are fertile ground for public questioning and dissent, which can undermine cooperation.

The fragile nature of cooperation is underlined by Sontag and colleagues (2022) in a modelling study, where they demonstrate the ‘delicate balance’ between information awareness, the influence of new infections and how a virus spreads in a population. They illustrate that even small increases in the portion of distrusting people in a population can change the outcome of whether disease spread is stopped or merely slowed.

Johnson and Nettle’s (2020) work on cooperation and conditionality over disability benefits in the UK welfare system also brings attention to the notion of ‘vigilant cooperators’, who are ‘sensitive to cues of need in others, but also highly susceptible to
the idea that others are cheating’. Cheating the system elicits a strong, almost visceral, response, making the perception of fairness a key lever of willingness to cooperate. In some cases, the backlash to cheating can lower the inclination to cooperate for the public good.

In this article, we investigate the dynamics of cooperation through the lens of two health interventions that depend on cooperation: vaccination and organ transplantation. What these two domains have in common is that both can be viewed as social dilemmas because individuals have incentives not to cooperate but everyone in the population ends up better off if everyone cooperates (accepts vaccinations or offers organ donation) than if everyone defects.

As we outline in the following, living organ donors face individual costs and a lengthy journey that could discourage cooperation. External nudges and support are needed to sustain cooperation through the multiple processes involved in achieving the public good of an organ supply for those needing transplantation to save or prolong their lives. However, taken from a wider lens, the majority of us do not need to contribute to have a viable transplant system. Vaccination programmes, on the other hand, require a higher bar of societal cooperation, with individuals needing to be motivated not only to protect themselves and their family against disease but also for the crucial public health goal of herd immunity to generate a fitness benefit for the wider public. As Lazarus (2020: 3, emphasis in original) writes: ‘The all-important difference between the actor benefitting, or not, from their action hangs crucially on trust – a belief that others will contribute – and that trust being justified. As in the Tragedy of the Commons, a cooperative overture only bears fruit, and mutual benefit only follows, if others cooperate too.’

The social dilemma

Herd immunity, sometimes called ‘community immunity’, means that enough people in a population have been vaccinated to protect the wider group against the spread of the specific disease. When they become ‘immunised’ they interrupt the spread of the virus, such as measles, and protect others in the population from becoming infected. This is particularly important for people with certain health conditions who cannot be vaccinated or are too young to be vaccinated.

However, when some refuse vaccination because of fears of side effects, religious or other personal beliefs that prohibit or discourage vaccination, or a libertarian stance that motivates them to reject the public good in the name of personal choice, they compromise the greater good and undermine herd immunity. One well-known example is the parental anxiety provoked by Andrew Wakefield and his suggestion of a link between vaccines and autism in his 1998 Lancet publication, which has since been retracted (Dyer, 2010), and Wakefield’s medical credentials have since been withdrawn due to ‘dishonesty and failing to act in the best interest of vulnerable child patients’ (Bosely, 2010: 1). Despite the measures taken by the Lancet and the UK General Medical Council, albeit 12 years later, in the meantime, public panic went viral and the uptake of the measles, mumps and rubella (MMR) vaccine went into decline. Despite losing his credentials, Wakefield continues to promote his theory, increasingly framing it as an issue of personal freedom – freedom of speech and the freedom of parents to choose whether or not to vaccinate.
Those who value personal liberty over vaccination can polarise public opinion in a way that undermines efforts to motivate cooperation around vaccination. These tensions illustrate what Isaiah Berlin famously characterised as negative and positive liberties, with negative liberty in this case being a personal liberty that goes against the public good (Collignon, 2018). These responses to the social dilemma are the Achilles heel of a successful vaccination effort. As Lazarus (2020: 2) aptly states: ‘cooperation is a fragile commodity, vulnerable to exploitation from those who take without contributing…. Many societal dilemmas arise when citizens act alone to make personal decisions immediately affecting only their own welfare but in the longer term playing a small part in the welfare of a wider community.’

When citizens act alone or, more concerningly, when they act in groups against the policies and guidance aimed to protect the public, the public good is compromised. The negative impacts of non-cooperation can be even more immediate in the context of such crises as the COVID-19 pandemic, or any hyper-infectious viral agent. The example of Hong Kong elderly refusing the COVID-19 vaccine demonstrates the consequences. Hong Kong had the highest rates of COVID-19 deaths per capita in the world (Cheung et al, 2022; Hutton, 2022; Schnirring, 2022).

In the context of organ donation, contributing to the supply of organs for transplantation is a public good. However, when individuals see the opportunity to benefit from the organ supply yet are unwilling to contribute, this presents a social dilemma and compromises the public good. Hessing (1992: 76) characterises this as a ‘conflict between individual benefit, on the one hand, and cooperative dependency, on the other’. Later, we will examine strategies to promote cooperation as it relates to these issues of fairness.

Vaccination: the benefits and the costs

The benefits

The direct benefits of vaccination are protection against disease, possible disease-related disability or death. In their ‘Immunization Agenda 2030’, the World Health Organization (WHO, 2020) reported that measles vaccination alone prevented 23 million deaths globally between 2010 and 2018. They also brought attention to the scientific advances in vaccines, which can now protect against 20 life-threatening diseases.

The additional benefit of vaccination is the disease protection extended to others in the population, creating herd immunity, discussed earlier. In some cases, as in the case of COVID-19, vaccination does not necessarily stop the spread of the virus, but the benefits of vaccination are a significant reduction in the risk of serious illness, hospitalisation and death.

Some of these benefits are more immediate than others. Measles is one of the most highly infectious vaccine-preventable diseases, and outbreaks can emerge relatively soon after vaccination coverage drops below the high levels of vaccination needed for population protection. Other vaccines, such as the human papillomavirus (HPV) vaccination to protect against cervical cancer, provide a delayed benefit. Despite the significant health benefits conferred by the multiple vaccines currently available, the past decade has seen a growing amount of questioning and hesitancy around vaccination, with the perceived risks of vaccination often exaggerated by social media.
The costs

The actor suffers a net cost from their cooperative action when others fail to contribute sufficiently to the joint venture. (Lazarus, 2020: 3)

While there is an individual as well as a collective benefit to vaccination, there are also perceived and real costs. These include economic costs, potential side effects and emotional costs. Although many countries provide basic childhood vaccinations and vaccination campaigns to achieve eradication or to respond to disease outbreaks like COVID-19 for free, individuals need to pay for a number of vaccines in most countries. Other related costs can include transportation to the vaccination site and time away from work or caregiving tasks to get oneself or one’s children vaccinated. Adverse events can also occur. While there are many measures to monitor and ensure the safety of vaccines, from the trial stage through to regulatory approvals and delivery, side effects like the common temporary soreness and irritation at the site of vaccination can occur, as well as rare, more serious, side effects. Anxiety and fear around vaccination, such as fear of needles and potential near- or long-term adverse events, is not uncommon. Although the risk of side effects is real, the scale and seriousness of these events is often amplified, especially through social media, creating distorted risk perceptions and anxiety that can affect vaccine acceptance. This same prism of risk distortion can be seen in organ donation and many other health decisions.

Organ donation: the benefits and the costs

The benefits

Overall, the benefit of organ donation is the positive sense of helping others, especially if it involves a relative. Kinship, reciprocity and reputation are commonly cited motivators of cooperation and particularly relevant in the case of organ transplantation (Arnot et al, 2020; Bowles and Gintis, 2020).

An indirect benefit to a living donor can be an improvement in a shared quality of life with family and friends when an organ is given, allowing the recipient to participate in ways that were compromised while on dialysis and possibly relieving the donor of caregiving duties. To promote fairness and cooperation, living kidney donors in many countries get significant advantage and priority in the wait for a deceased donor kidney offer if they themselves later develop renal failure. This built-in systematic reciprocity serves as a safety net to allow greater cooperation.

For the families of deceased donors, knowing that their loved one will be contributing to others’ well-being can help the grieving process. One organ donor can save up to eight lives, and the additional donation of tissues and eyes can mean up to 50 people can benefit.

The costs

Relative to vaccination, organ donation is a much greater ask of an individual. In some information materials, it is even referred to as ‘The Big Ask’. For a living donor, there
are several costs: long health intake questionnaires; several days of medical testing; the need to undergo general anaesthesia; time lost as an inpatient in the hospital; surgical incisions with need for pain medications; several weeks off work; a need to assemble social and financial support during this time; and the disruption of routine in life. Most transplant centres have a policy that a prospective donor must reach out and initiate the dialogue and evaluation given the various personal costs and the potential, albeit rare, chance of long-term health concerns (hernias and kidney disease, among other risks).

For the deceased donor's family, there are emotional costs, especially given the timing of having to make decisions around death. Obtaining consent at this time can be a challenge and not a priority for a grieving family.

Despite some misperceptions that the costs of the deceased donation process would fall on the family, the costs do not negatively impact the donor family financially. They will not be asked to pay for any related costs, their insurance company will not be billed, and it will not affect future insurance rates. All costs are covered by the transplant recipient and the organ recovery teams.

**Motivators**

In the face of these various perceived and real benefits and costs, what motivates cooperation?

**Kinship**

Kinship plays a particular role in cooperation around living donor transplantation, though sometimes fraught with ambivalence given tension between a felt sense of moral responsibility when the donor is a family member versus genuine voluntariness and autonomy. As Halverson et al. (2018: 250) note: ‘The fact that donors and recipients are frequently intimate family members means that analyzing donor autonomy, motivation, voluntariness, and decision-making must be understood within the social and relational context of their lives.’ Altruism, duty, reputation and interest in a shared quality of life, among other factors, may all coexist to varying degrees as motives within a donor–recipient relationship.

**Reciprocity and the cycle of gift giving**

The nature of motivation to be an organ donor is about not merely the reputational value of being a gift giver but also the anticipated possibility of future need for a transplantation – in another words, anticipated reciprocity. Living kidney donors, for instance, get significant advantage and priority in the wait for a deceased donor kidney offer if they themselves later develop renal failure. This built-in systematic reciprocity serves as a safety net to allow greater cooperation.

As Robertson (2007: 7, emphasis in original) notes:

> individuals’ willingness to give organs is affected by the mere task of considering whether they would take organs if needed. When respondents were first asked whether they would give organs, only 56% responded that they definitely would. But when they were first asked whether they would
want to *take* organs, their subsequent willingness to *give* rose to 67%, a statistically significant increase of eleven percentage points.

Related research around COVID-19 vaccination found that if someone is asked, ‘Would you take a COVID-19 vaccine to protect yourself?’, and then asked, ‘Would you take a COVID-19 vaccine to protect others?’ (that is, in your family and community), the percentage of people willing to cooperate and accept vaccination to protect others was consistently higher than willingness to accept a vaccine to protect oneself (Böhm and Betsch, 2022).

Cooperation is, then, more about a dynamic of reciprocity than merely gift ‘giving’. As Mary Douglas writes in the introduction to anthropologist Marcel Mauss’s classic book *The Gift*, for Mauss:

> There are no free gifts; gift cycles engage persons in permanent commitments … each gift is part of a system of reciprocity in which the honour of giver and recipient are engaged. It is a total system in that every item of status or of spiritual or material possession is implicated for everyone in the whole community … the rule that every gift has to be returned in some specified way sets up a perpetual cycle of exchanges. (Mauss, 2002 [1954]: xi)

This ‘perpetual cycle of exchanges’ and the trust implied is the foundation of cooperation (Nowak and Sigmund, 2005; Acedo and Gomila, 2013). It is not merely the multidirectionality of the exchanges that is important but the continuous exchange over time that builds trust. As Fehr and colleagues (2002: 2) write in their important work on ‘strong reciprocity’:

> One possibility to account for the manifest cooperation among non-kin is to recognize that many social interactions take place repeatedly. Evolutionary theorists, for example, have shown that natural selection can favor reciprocally cooperative behavior in bilateral interactions when the chances to interact repeatedly with the same individual in the future are sufficiently high.

**Reputation**

Behavioural economics research suggests that reputation effects can help solve social dilemmas. (Arnot et al, 2020: 266)

Another key motivational lever for cooperation in both transplantation and vaccination is reputation. As Lazarus (2020: 10) notes: ‘where people share no obvious common identity with the strangers around them the evidence shows that individuals are more likely to act for the common good if it seems that they are being observed (the audience effect on reputational concern)’.

There is considerable research on the importance of reputation as a lever of cooperation and prosocial behaviour. As Raihani and Bshary (2015: 6) point out, ‘even exposing people to subtle cues of being watched (in the form of eye images) increases prosocial behavior under some circumstances’; she further adds that even
indirectly, ‘via gossip, one’s positive or negative actions could be broadcast to several “observers” who need not even have been present at the time of the event’.

In their research positioning photographs of eyes to see if they influence cooperation, Bateson and colleagues (2006) found evidence to conclude that:

We believe that images of eyes motivate cooperative behaviour because they induce a perception in participants of being watched. Although participants were not actually observed in either of our experimental conditions, the human perceptual system contains neurons that respond selectively to stimuli involving faces and eyes and it is therefore possible that the images exerted an automatic and unconscious effect on the participants’ perception that they were being watched. Our results therefore support the hypothesis that reputational concerns may be extremely powerful in motivating cooperative behaviour. (Bateson et al, 2006: 413)

In the context of childhood vaccination, peer influence can weigh in on parental willingness to cooperate with vaccination programmes for the greater good (Sommerfeld et al, 2008). Recent reports similarly point to an emerging group of children influenced by their classmates who are challenging and persuading their vaccine-resistant parents to change their minds:

Dr. Kumar said some Marin parents who were hesitant about the vaccines have been persuaded by their children’s enthusiasm, which he has witnessed among his teenage son and his friends. ‘I could hear him talking about, “Can you believe there’s this kid in my class and he’s not vaccinated?” he said. You almost become a little bit of an outcast if you’re not vaccinated.’ (Karlamagna, 2022: 1)

Others have described the power of reputation as a motivator for prosocial, cooperative behaviour in a religious context (Cummins and Nicoli, 2018). As psychologists Norenzayan and Shariff (2008: 58) write: ‘supernatural monitoring, to the degree that it is genuinely believed and cognitively salient, offers the powerful advantage that cooperative interactions can be observed even in the absence of social monitoring’. Norenzayan and colleagues (2016: 6) develop this further in a later paper: ‘By outsourcing some monitoring and punishing duties to these supernatural agents, prosocial religions reduce monitoring costs and facilitate collective action, which allows groups to sustain in-group cooperation.’ Reputation, then, is about not merely what human peers are noticing about your behaviour but also the belief that you are being watched from above and that your reputation as a devout person is being judged.

A more recent study by Willard et al (2020: 385) investigated variation across religions and found that ‘different religious beliefs can foster and maintain different prosocial and cooperative norms’. In particular, they found:

Karmic believers perceived stronger consequences of both good and bad actions in this life and the next. Though previous research has suggested that it is fear of supernatural punishment rather than the chance of supernatural reward that motivates people’s moral actions, we see some indication here that all groups care about supernatural reward, and that karma believers might care more. (Willard et al, 2020: 394)
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Ong and colleagues (2022: 363) describe a popular secular notion of karma, writing:

Many people who are not followers of any organized religion may nonetheless believe in a more widespread conceptualization of karma which is not rooted in any specific religious doctrine. This conceptualization of karma is encapsulated in popular sayings such as ‘what goes around comes around’ and is widespread around the world.

Such karmic motivations are less tangible, yet powerful, catalysts for social interactions and cooperation (White and Norenzayan, 2019).

**Morality as cooperation**

Related to the karmic ‘expectation that a person’s moral actions affect their future experiences’, another dimension of reputation is the theory of morality as cooperation, particularly as explored by Curry (2016: 39):

Morality as cooperation predicts that people will regard specific types of cooperative behaviour – behaviour that solves some problem of cooperation – as morally good. Thus, people will regard helping your family, being loyal to your group, reciprocating favours, being brave, deferring to authority, dividing disputed resources, and respecting property, as morally good. And they will regard failing to cooperate – by neglecting your family, betraying your group, cheating, being cowardly, rebelling against authority, being unfair, and stealing – as morally bad.

Curry (2016: 39) reflects on the multiple strands of reciprocity and trust, along with the emotional levers of gratitude, guilt, trust, forgiveness and apology, all of which he characterises as being ‘important facets of morality’. The link between morality and cooperation has been underscored by a number of scholars. Tomasello and Vaish (2013: 231) explicitly link the two when they write: ‘human morality arose evolutionarily as a set of skills and motives for cooperating with others’.

In this world view, many characteristics are identified as morally good. However, when these virtues are in opposition to one another, a hierarchy of values must exist to guide behaviour or cooperation. In these instances, culture within a society or group can be a major influence aligning the priority of these values (Gachter et al, 2010; Ikels, 2013).

In the context of vaccination, research investigating the relationship of moral values to vaccine acceptance – with moral values including authority, fairness, harm, loyalty, purity and liberty – found a stronger emphasis on purity and liberty among those who reported being highly vaccine hesitant than those not hesitant (Amin et al, 2017). Other researchers have found that those who are vaccine acceptors value fairness more strongly (Enria et al, 2016).

Perception of fairness is another powerful lever of cooperation and often a stated conditionality when it comes to vaccination. In research around Ebola vaccination during the West Africa Ebola outbreak, for instance, three dominant levers of cooperation that emerged in research with communities were power, fairness and trust:
The commonly used notion of ‘community’ used for example in public health campaigns and mobilization strategies can in fact hide complexities engendered by struggles over status, authority and economic resources…. Notions of fairness are inevitably shaped by local understandings of morality, historical legacies and individual experiences … and anxieties surrounding the government’s and international partners’ plans reveal fractures in citizens’ trust in the healthcare sector, which is seen as corrupt and inefficient. (Enria et al, 2016: 6)

These same dimensions of power, fairness and trust were key factors in facilitating or challenging cooperation around the COVID-19 response. These different value priorities can support or undermine wider cooperation. For example, vaccine acceptors lean towards more cooperative behaviour centred around fairness, but those who are vaccine hesitant and refusing may be more driven by individual freedoms, including the freedom to choose whether to vaccinate, and their personal notions of health over public health recommendations.

While particularly resonant during the COVID-19 pandemic, the public goods dilemma framing is equally relevant to vaccination outside of pandemic times, particularly vis-a-vis herd immunity. Measles, for example, is one of the fastest-spreading vaccine-preventable diseases, needing 95 per cent vaccine coverage to allow herd immunity and protect those who are unable to be vaccinated (Fine and Heymann, 2011; Peeples, 2019). One such boy, named Rhett, made the news following the Disneyland measles outbreak, when the seven-year-old spoke to the California State Assembly about his leukaemia and the chemotherapy, drugs and lumbar punctures he went through to fight the cancer and that left him unable to be vaccinated. He appealed for school vaccination requirements and the end of personal belief exemptions, both for him and others who could not be vaccinated (Mohney, 2015). This was an appeal for fairness and cooperation, not liberty.

**Incentives**

Alongside the various individual incentives that have been used to prompt cooperation, a variety of external incentives and structural interventions play key roles in achieving and sustaining cooperation. The prominent role of incentives for cooperation spans the spectrum from personal gestures to sweeping mandates.

Numerous incentives have been used to motivate people to get their COVID-19 vaccination. Positive reinforcement with ‘I vaccinated’ stickers and badges, and even more tangible gifts – from cash and lotteries (Brewer et al, 2022) to ‘Joints for a Jab’ (Winsor, 2021) – have helped motivate some people to vaccinate. Sometimes, other health services or food are offered at vaccination. In the Philippines, for example, communities raffled sacks of rice to motivate people to get their COVID-19 vaccination (Reuters, 2021). Incentives or rewards like a ‘wall of fame’ plaque for organ donors, public acknowledgement or social events for donor recognition, and community support can incentivise and validate organ donation for the donor or family.

Another motivational factor for cooperation in the case of transplantation is the tangible or visible benefit for living donors. Even families of deceased donors who are veiled from the recipients have a high degree of confidence that they have saved
as many as eight lives via multiple organ transplants, plus impacting many more with tissue donation. Down the road, families are often allowed to contact the recipient if both sides are amenable, further rewarding their cooperation and the act of organ donation. This would contrast the more dispersed community benefit of vaccination, where the exact contribution, beyond individual protection, is largely calculated at a population level, with donor families who have the experience of helping a specific someone, even if they do not know who.

Other measures to motivate organ donation that have yet to gain widespread adoption include selective financial incentives. One such policy is a stipend or offer to pay funeral expenses in cases of deceased donors. Other proposed means of supporting organ donation include financial or other incentives to the donor hospitals and intensive care units for identifying potential deceased donor cases to the donation agencies. In some cases, though, these more individually targeted incentives are not enough to shift population behaviour and more significant interventions involving legislation are needed (Lewis et al, 2021).

Opt in or opt out

The introduction of an opting-out system is the obvious way for solving the social dilemma insofar as it concerns the population … in the opting-in system, cooperative behavior is hindered because the citizen must conquer one or more inhibitions, whereas in the opting-out system, cooperative behavior is taken as the starting point. (Hessing, 1992: 79)

In an ‘opt-in’ system, the individual needs to make the active choice to donate an organ or, for that matter, accept a vaccination, whereas in an ‘opt-out’ system, there is an assumption that people are willing to donate organs in the case of death or that vaccination will be accepted unless otherwise indicated. The opt-out system assumes the public good choice, while giving some level of choice for those who have religious, philosophical or medical reasons not to cooperate. In the context of vaccination, this is sometimes referred to as the ‘conscientious objection’ clause (Giubilini, 2019), also referred to as ‘exemptions’.

When assessing cooperation with transplantation on a national level, Spain has consistently led the world in deceased donation per capita, in part, due to successful legislative policies (Matesanz et al, 2011; Matesanz et al, 2017). One policy in Spain, which has also been adopted throughout much of Europe and several other nations, is presumed consent, or an ‘opt-out’ policy (Vanholder et al, 2021). In this model, a deceased person is automatically considered as agreeing to donation unless there is a specifically documented choice to opt out for organ donation. This differs from the opt-in policy in the US and many other countries, where a clear consent – either first-person consent prior to death or family consent – must be obtained to allow donation. Some data show a 25 to 30 per cent higher donation rate in countries utilising a presumed-consent policy (Rithalia et al, 2009; Shepherd et al, 2014).

Beyond this presumed-consent measure, Spain has also distinguished itself by committing more donor resources and trained personnel to hospitals. This translates to earlier identification of potential donors, transitioning management to dedicated donor staff and ultimately higher donation rates.
Other countries have combined presumed consent with a priority system for potential recipients who are listed as participating in the donor pool, a form of reciprocity to encourage cooperation in transplantation. Priority systems vary by country to some degree, but preferred placement on the waiting list can be obtained through signed donor cards, a previous living donation or, in some cases, having a first-degree relative who was a deceased donor. While these dual measures have shown some success in such places as Israel and Singapore, the Chilean experience shows that the rollout of these measures must be paired with public education and building systemic trust to avoid a large opt-out response (Zúñiga-Fajuri, 2015). A similar phenomenon was seen when concerted education efforts and priority designations were initiated in Israel:

During the 10 weeks of the public awareness campaign preceding the new law's implementation, 70,000 Israelis signed up for organ donor cards. In addition to the substantial rise in newly registered potential donors, consent rates for deceased organ donation increased, and the number of organs available for transplantation rose in parallel. The preliminary and short-term data on the effectiveness of the new Israeli allocation priority system as a regulatory tool for improving donation rates thus seemed positive. A recent study evaluating in more detail the first five years after the adoption of the new incentive comes to the same conclusion. (Levy, 2018: 419)

While these legislative measures have been valuable levers to increase organ donation, more severe population-level measures like vaccination mandates have been necessary to increase immunisation.

A number of mandates were imposed during the COVID-19 pandemic, with some countries requiring vaccination for travel, going to restaurants or other public gatherings. Some countries likewise have mandates for routine vaccination, including school vaccination requirements or vaccination requirements in certain workplace settings (for example, day-care centres and hospitals).

While evidence shows that mandates do increase vaccination uptake, they can also create resentment at an individual level, weaken wide cooperation or prompt public dissent, politicisation and polarisation, as was evidenced during the public protests around vaccination requirements during the COVID-19 pandemic. Historically, compulsory vaccination legislation has been the prime trigger of organised resistance and the disruption of cooperation around vaccination. The very first compulsory legislation around smallpox vaccination in the UK in the mid-1800s fuelled riots in the streets and was the catalyst for the founding of the first organised Anti-Vaccination League (Wolfe and Sharp, 2002).

Ward and colleagues (2022) investigated the impact of France’s COVID-19 ‘health pass’, which documented vaccination. The pass was introduced in July 2021 and prompted an increase in the number of people completing two doses of vaccination from 49 per cent of the population in July to 89 per cent by December 2021. The research found that even though the vaccine uptake increased, the number of people reporting doubts about the vaccine also increased from 44 to 61 per cent during that same period. In short, the mandate achieved a short-term goal of getting more people vaccinated but potentially had a longer-term negative impact on public trust and willingness to cooperate. Additionally concerning was another finding in their study:
A feeling of coercion while being vaccinated can cause a nocebo effect, in which negative outcomes occur because of a belief that the vaccine will harm them. The nocebo effect might explain why, in our survey, the share of vaccinated people who said they suffered side effects from the vaccine increased from 34% among those who had their first dose in June to 57% of those who had their first dose in August, after the health pass was implemented. (Ward, 2022: 233)

This phenomenon is not unique to COVID-19 vaccination, and in 2019, the WHO (2019) released a manual for healthcare professionals for the condition they have characterized as ‘immunization stress-related response’.

When thinking about cooperation, it is crucial to consider the tension between voluntary and involuntary behaviours. These two types of behaviour mark a key difference between transplantation and vaccination. Whereas transplantation is always voluntary and involves a supportive process with coordinators who help individuals and their families navigate the various stages of the process in the preparation for transplantation, vaccination is sometimes mandated, raising different challenges. While some levels of coercion can incentivize confidence and cooperation, they also risk undermining individual trust and wider cooperative efforts.

Global health lawyer Larry Gostin (2015: 1099) writes about how the nuances of exemptions, or an ‘opt-out’ policy, can affect vaccine uptake and the disease consequences:

State exemptions significantly influence vaccination rates and incidence of vaccine-preventable illness. In 2006, researchers found that states with easy nonmedical exemption processes had 50% higher pertussis [whooping cough] rates. In 2012, researchers reported nonmedical exemption rates 2.3 times higher in states with easy administrative policies than those with difficult policies. In practice, exemptions for all reasons constitute a small percentage of total school entrants, but families that opt out of vaccination tend to cluster within localized communities, with individuals sharing religious or philosophical beliefs. Clustering erodes herd immunity, facilitating disease outbreaks that can spread.

Transplantation has largely had the good fortune of operating without the added challenges of politicisation and community backlash and protests. General efforts to increase organ donation through voluntary mechanisms have typically been supported across the political spectrum without vocal or dissenting factions. Unlike immunisation, transplantation can have a degree of success and not have to reach the strict level of involvement or enforcement required for ‘community immunity’ in the vaccination world.

In his classic work on risk communication, ‘Responding to community outrage’, Peter Sandman (1993) characterizes the key triggers of outrage versus cooperation, including whether a decision is perceived as ‘voluntary or coerced’, ‘fair or unfair’, ‘natural or industrial’ and ‘controllable by me or others’. Each of these domains is important to consider in the context of understanding the dynamics of cooperation.
\textit{Perceptions of risk and implications for cooperation}

One of the shared challenges for cooperation around both vaccination and organ donation is what risk expert Kasperson calls ‘social amplification of risk’. As Kasperson and colleagues (1988: 177) write: ‘One of the most perplexing problems in risk analysis is why some relatively minor risks or risk events, as assessed by technical experts, often elicit strong public concerns and result in substantial impacts upon society’.

In the case of vaccination, it is not only the individual that is faced with a risk–benefit consideration; rather, governments also take on an element of risk by endorsing policies, such as during the pandemic or in the context of school or workplace vaccination requirements. Transplantation poses some rare risks too. These real and potentially catastrophic risks, such as a blood-type-incompatible transplant or the transmission of lethal infections from donor to recipient, are exceedingly rare. However, the striking nature of these situations can lead to an exaggerated perception of the frequency of such rare risks. While the proximal and most detrimental impact of such events clearly rests with the organ recipient, the public magnification of risk can lead to a decrease in public trust and overall cooperation with organ donation. Serious adverse events following vaccination are likewise very rare, but in the public eye, the scale of risk can be amplified – what Kasperson and colleagues term ‘the social amplification of risk’.

Signals about risk are processed by individual and social amplification stations, including the scientist who communicates the risk assessment, the news media, cultural groups, interpersonal networks and others. Key steps of amplifications can be identified at each stage. The amplified risk leads to behavioural responses, which, in turn, result in secondary impacts (Kasperson et al, 1988).

The social amplification of risk has been particularly acute in the context of new social media platforms, which not only allow the unchecked, rapid spread of misinformation globally but have also become a powerful organising tool for like-minded groups to coordinate remotely (Vijaykumar et al, 2015). While this can, in principle, be an asset for cooperation, it has shown a darker side in fostering the development of anti-vaccine groups (Salvador Casara et al, 2019). In an analysis of the impact of social platforms on vaccination, DiResta (2018: 4) writes:

\begin{quote}
Social platforms and their gameable algorithms have provided a space for the anti-vaccine movement to thrive. Search functions and recommendation engines proactively surface anti-vaccine communities and content. Social networks have profoundly transformed communication, and the anti-vaccine movement is capitalizing on the new infrastructure of speech to amplify its growth and reach new audiences.
\end{quote}

\textit{Misinformation, misconceptions and mistrust}

One of the many damaging falsehoods inhibiting deceased donation is a perception that when someone chooses to be a registered organ donor, healthcare providers will work less urgently to save their life and will instead concede to a pathway favouring organ donation. Other perceptions include financial costs for living donors and the families of deceased donors. Living donors may face individual costs, such as lost
wages for sick leave or travel costs, but do not incur costs specific to transplantation. Agencies handle all costs related to deceased organ donation. There is also a perception that celebrities and the wealthy receive priority for receiving organs. While the system does not favour celebrities and wealthy individuals, they may have more access to options. Finally, some people are inhibited due to a lack of support from their religious community.

In the realm of living donation, potential donors often arrive with misconceptions regarding their long-term ability to work, exercise, eat their customary diet, get pregnant or engage in sexual activity post-donation. Proactively listening to and addressing such concerns can help increase cooperation, but the persistent nature of these myths can often lead to continued hesitancy, especially in certain communities. As with vaccination, the prompt detection of rumours and concerns to be able to address them early in the process – and throughout – is critical to nurturing ongoing cooperation.

Like rumours or false narratives, fears incited by rare adverse events – in the context of either vaccination or transplantation – are powerful emotions and can be deliberately sensationalised by factions opposed to cooperation. Personal stories and emotionally relatable details can be more convincing than the evidence (Berridge, 2018; Hornsey, 2020). These narratives and risks can be amplified and manipulated, serving as a pretext to avoid cooperation by an organised opposition (Lieu et al, 2015; Quinn and Andrasik, 2021). As DasGupta (2009: 3306) discusses in an article on trust and cooperation: ‘False rumours and propaganda create pathways by which people’s beliefs can so alter that they tip a society where people trust one another to one where they do not. The reverse can happen too, but it takes a lot longer.’

Historic mistrust is fertile ground for the social amplification of risk and rumours, and as DasGupta describes, the trust cannot be rebuilt easily. Within the African American population, for instance, there are multiple examples of vaccine hesitancy and anxieties around other health interventions due to historic experiences, such as the widely remembered, unethically conducted, Tuskegee syphilis study. On the other hand, locally tailored, in-community efforts have been successful in leveraging trust. Trust networks, such as local churches and even local barbershops, have been focal points for encouraging cooperation around COVID-19 vaccination (Sun, 2021). Similar efforts have been used in local communities in Africa (Dougherty et al, 2020). In the Latino community, the Catholic Church has been a positive influencer supporting cooperation in organ donation (Doran, 2019). In a personal statement, Pope Francis stressed that ‘society needs these concrete gestures of solidarity’ and further emphasised the importance of donation to be motivated by caring for others, not by any monetary benefit. In his words, donation must be ‘an unpaid, free act’ (LifeCenter, 2019).

Cooperation is not a static state

In the larger picture of the struggle of the human species’ eternal battle against infectious diseases, we are only at the dawning of a new era where immunizations will be needed indefinitely. It remains to be seen whether Homo sapiens will make the necessary adaptations socially and scientifically to sustain and extend the remarkable success of immunizations during this past century. (Chen, 2004: 2052)
The precarious nature of cooperation and the importance of continually nurturing trust over time across those involved is a key lesson from both transplantation and vaccination (Nguyen and Noussair, 2022). This fundamental link between trust and cooperation (Möllering, 2001; Acero and Gomila, 2013; Balliet and Van Lange, 2013; Kattumana, 2022; Kuipers, 2022) has policy implications for both health interventions.

Modern technology has allowed for unprecedented speed in the development and distribution of vaccines, as well as the rapid evolution of the underlying science – particularly in the context of the COVID-19 pandemic (Else, 2020). The ever-changing science has led to changing recommendations from authorities as they adjust in real time to new information. In some cases, the perceived inconsistency of the messaging has confused the general public and contributed to anxiety and an erosion of confidence in their recommendations and policies.

On the other hand, organ donation, as a more mature field, has a much more static and established medical literature, with more consistent recommendations that are not challenged by new findings on a monthly or even yearly basis. Although the evolving science has not moved as quickly for transplantation as for vaccination, there are examples – such as recent questions around brain death criteria (Truog, 2023) – that potentially could influence donor recruitment.

In the context of cooperation around transplantation, there is a moment of emotional liability and vulnerability when a deceased family member had indicated their wishes to donate their organs but the family is wavering between cooperation and refusal. Stress and grief can overwhelm decision making in the emotional context of losing a family member.

The role of the donor coordinator is an important feature in supporting cooperation along the transplantation process. As a family copes with the loss of a loved one, the donor coordinator carefully navigates this emotional terrain to introduce the option of donation, to educate the family and to serve as a shepherd through the process. As the trust and relationship builds, the coordinator becomes a key part of garnering and sustaining the requisite cooperation, which is often needed given the unpredictable nature of the deceased donor process. During this challenging time, the donor’s condition, potential recipient factors or emergencies at the donor hospital may all change quickly and necessitate new plans and timetables that can frustrate the donor families and jeopardise their potential gift. Here, the donor coordinator works to keep the family engaged and maintain their trust and confidence in the process (Gill and Lowes, 2008).

Cooperation in the context of living donation is often a balance between preserving a donor’s autonomy to undergo donation and the inclination to protect a healthy person from unnecessary or elevated risk. Unlike deceased donation, where the process is measured in hours, it often takes many weeks or sometimes months to complete a living donor evaluation. The priority is safety and to do no harm (primum non nocere) for a healthy individual, and the pace of the process naturally allows for reflection on this considerable commitment. An education session ensures adequate health literacy for informed consent, and medical, surgical and psychosocial assessments soon follow. Beyond the medical clearance, the patient must be deemed free from coercion and have adequate post-donation caregiving and support in place.

Considering the risks, cooperation in this setting is not solicited by the recipient’s healthcare team but must be initiated by the donors themselves. The evaluation is advanced by a neutral coordinator, and resources are in place to aid in this strictly voluntary commitment.
An independent donor advocate team (IDAT) exclusively considers the donor perspective and ensures that there are no undue risks imposed on the donor by pressures (subtle or overt) from a transplant team with the recipient’s interest in mind. As part of this team, a social worker typically considers the general life challenges and ramifications posed by donation, while a physician assesses the long- and short-term health implications. This team is positioned to stop the donation process if the risk of harm is deemed excessive.

For both living and deceased donors, cooperation around the transplantation process is time sensitive, and the cooperation may be fickle or emotionally vulnerable to change or delays. Setting expectations is very important in this regard and another lever of trust.

For vaccination, timing is also important, particularly in the context of a disease outbreak or pandemic. Unlike transplantation, however, where cooperation is sometimes crucial on an hour-to-hour basis, cooperation in the context of individual vaccination is flexible in terms of specific time and day. Timing is sometimes restricted by the availability of vaccination services and of vaccine supply.

Sustaining population-level vaccination over time, even as successful vaccination campaigns diminish the perceived threat of diseases, is a significant challenge for immunisation. This was acutely challenging in the context of recurring waves of the COVID-19 pandemic and efforts to get multiple vaccine boosters as willingness wore thin (Robbins and Nolen, 2022; Salam, 2022). Physician and author Danielle Ofri (2009) wrote about a similar phenomenon, albeit over a shorter period of time, during the H1N1 pandemic, characterising it as ‘emotional epidemiology’.

The importance and challenges of sustaining trust in government and consequent compliance with COVID-19 control measures was investigated in a 177–country study by COVID-19 National Preparedness Collaborators. They found that ‘Measures of trust in the government and interpersonal trust, as well as less government corruption, had larger, statistically significant associations with lower standardised infection rates’, and specifically correlated trust with vaccine uptake (Bollyky and COVID-19 National Preparedness Collaborators, 2022: 1489).

The overall COVID-19 pandemic response faced multiple phases through the decision, preparation, implementation and recovery processes. Johnson et al (2020) have mapped the nature of different mechanisms needed to support cooperation at different stages of the response, which they characterise as immediate guidance, initial implementation, sustaining non-mandatory measures and enforcing mandatory measures.

**Conclusion**

Whether we consider it as instinct, intuition or a learned capability, cooperation is an incredibly powerful, and often underestimated or underappreciated, part of human interaction. It is also equal parts fleeting and fickle. It is vulnerable to rumours and risk amplification (Larson et al, 2022). It depends on trust. Culture and politics can sway us towards or away from a cooperative stance that leads to evidence-based health behaviours. Peer pressure, political polarisation and historic memories of injustice or unfairness can harden sentiments of distrust and inhibit cooperative endeavour (Holmberg et al, 2017).
Yet, despite these external challenges, cooperative behaviour is mutable and can be encouraged through policy that accounts for the nuances of human behaviour. As Arnott et al (2020: 271) reflects, the same forces that drive us apart can help bring us together and encourage evidence-based health behaviours:

The same processes that produce misinformation can motivate compliance with effective measures. As people are more likely to trust information and conform to behaviours they observe in their in-group, appeals by peers are more successful... If people are told that many peers vaccinate, they are more likely to follow suit.

Evidence from transplantation and vaccination demonstrates that, at our best, we cooperate based on morality, reciprocity and reputation (Nguyen and Noussair, 2022). Cultural factors can encourage cooperation when it is valued and celebrated by society, and when these intangible levers are insufficient and the evidence base is compelling, external rewards can nudge us towards cooperation that benefits health.

However, it is also clear that the greater the ask and sacrifice, the more perilous the sustainability of cooperation. Likewise, as we move from request to mandate, the equation changes, as seen in the differing public sentiments around transplantation and vaccination, with one enjoying more public support and the other being hotly contested on multiple levels.

In our era of misinformation, widely distributed to a highly polarised public on large social media platforms, new efforts to tip the scales towards our cooperative nature are needed. Emphasising similarities can further appeal to our prosocial nature and counter the social and political trends of polarisation. We propose the following key recommendations:

- Reputation, anticipated reciprocity, morality, emotion, altruism and trust are intangible levers of cooperation and are not based on reason. They can be volatile and fragile. Social policies must take these forces into account to support positive cooperation.
- Cooperation is fragile and needs to be monitored and nurtured over time to be sustained. As DasGupta (2009: 3306) notes: ‘A society could tip over from cooperation to non-cooperation simply because of a change in beliefs. The tipping may have nothing to do with any discernible change in circumstances; the entire shift in behaviour could be triggered in people’s minds. The switch could occur quickly and unexpectedly.’ Being alert to changes and nimble in policy responses is crucial.
- Repeated mandates or restrictive policies across multiple issues will exhaust the goodwill and cooperative spirit of a population. Leaders must prioritise and use compulsory measures selectively.
- As global health lawyer Gostin (2015) argues, opt-out vaccination policies should be made difficult to encourage compliance and cooperation with positive health behaviours that support a public good.
- It is critical to consider both short- and long-term consequences of social policies. Short-term wins, such as some of the pandemic restrictions, may result in long-term losses, particularly in public trust and cooperation.
• As Lazarus (2020: 12) writes in his introductory article: ‘a national problem may best be tackled at the level of communities, where local knowledge can be exploited, and group identification and trust are likely to be stronger’. Social policies need to be locally relevant/relatable to those affected.

• Community-level forces – including trust, familiarity, fairness and a sense of belonging – are all important levers for cooperation, and policies should account for community nuances whenever possible.

• DasGupta (2009) emphasises the central role of emotions in cooperative decision making. Positive emotions, such as hope and empathy, need to be nurtured and supported for sustained cooperation.

• Acting for the public good should be celebrated. Compliments and praise are free. Similarly, appropriate peer pressure from within the group locally can be a positive lever.

We are living in a dramatically changing world on multiple fronts, including rising political polarisation and anti-globalisation movements, the increasing frequency of disease outbreaks and extreme weather events, and a rapidly changing technology landscape. We must learn how to navigate these changes to support cooperation but recognise and address significant challenges around human behaviour. Nudging and nurturing cooperation while navigating the turbulent political and social storms and societal polarisation requires a concerted effort.

The stakes are too high to assume that we will always cooperate in the interest of the public good. Yet, despite all the challenges to cooperation, we cannot forget Curry et al’s (2019: 2) appeal to ‘our better angels’:

Humans possess cooperative dispositions that lead us to (1) care for our families, (2) maintain coalitions, (3) reciprocate favors (and punish cheats), and resolve conflicts through contests involving displays of (4) heroism and (5) deference, (6) fairness, and (7) respect for prior possession. These cooperative dispositions appear to be evolutionarily ancient, psychologically distinct, and cross-culturally universal. When triggered by the right conditions, these ‘better angels’ of our nature can change the world.

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Nurturing, nudging and navigating the increasingly precarious nature of cooperation


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Nurturing, nudging and navigating the increasingly precarious nature of cooperation


