Incentivizing Plasma Donation for Convalescent Therapy

by Alex Tabarrok *May 20, 2020 at 7:25 am*

Kominers, Pathak, Sonmez, and Unver apply market design tools to incentivize convalescent therapy:

> COVID-19 convalescent plasma (CCP) therapy is currently a leading treatment for COVID-19. At present, there is a shortage of CCP relative to demand. We develop and analyze a model of centralized CCP allocation that incorporates both donation and distribution. In order to increase CCP supply, we introduce a mechanism that utilizes two incentive schemes, respectively based on principles of "paying it backward" and "paying it forward." Under the first scheme, CCP donors obtain treatment vouchers that can be transferred to patients of their choosing. Under the latter scheme, patients obtain priority for CCP therapy in exchange for a future pledge to donate CCP if possible. We show that in steady-state, both principles generally increase overall treatment rates for all patients|not just those who are voucher-prioritized or pledged to donate. Our results also hold under certain conditions if a fraction of CCP is reserved for patients who participate in clinical trials. Finally, we examine the implications of pooling blood types on the efficiency and equity of CCP distribution.

The idea is quite similar to the "no give, no take" rule for organ donation that I have promoted for many years. Namely, if you don't sign your organ donor card you go to the back of the queue should you ever need an organ donation. Israel adopted the idea some years ago by giving points to people who signed their organ donor card. As with no-give, no-take, the point of the rules that Kominers et al. promote isn't fairness per se but rather as an incentive to increase donations and thus increase the supply of plasma.

43 Comments print

Comments

Sort by Top

M 2020-05-20 07:37:16 0 0 #

Wow, doesn't seem like "No give, no take" (as in blood) but "Oh. Didn't get it and so can't get? Guess granny doesn't get a voucher from you and dies then... What a shame."

Charles 2020-05-20 07:41:12 0 0 Hide Replies #

However, the real question is would such a treatment voucher be viewed as a badge of honor, or would it just be the latest version of a participation trophy?

> *Tom T.* 2020-05-20 09:13:50 0 0 #
>
> It's more like China's social credit system.

JFA 2020-05-20 07:42:50 0 0 #

"Under the latter scheme, patients obtain priority for CCP therapy in exchange for a future pledge to donate CCP if possible." This seems unenforceable. This is not like the Israeli example. The appropriate analogy would be if a person pledged to donate an organ *after* receiving one. Good luck with that.

Here's one scheme for incentivizing Covid plasma donation: pay for it. I'm sure the organizations involved in providing convalescent treatment are making good margins. Why not the donor?

Charles 2020-05-20 07:46:19 0 0 #

Blood for money sounds catchier than blood money, no question. Leading to the logical question of why America's prison population is not being used for such a scheme - they cannot easily escape such a scheme.

---

vaughn *2020-05-20 07:46:35* 0 0 Hide Replies #

... there's no limit to the number of private contractual/market arrangements that could possible smooth the delivery of medical goods & services.

But we are not operating in a private market structire.
American medical care is the most government-regulated economic sector, with massive market interventions by capricious politicians and bureaucrats.
Governmment actors get the final vote... and their incentives are much different than normal medical care consumers and providers.

> *Nigel* *2020-05-20 10:24:04* 0 0 #
>
> How are you measuring most regulated? Ever heard the term "model governance"? I bet have the corporate employees at every bank are there to comply with regulations. Mind, I wouldn't be surprised if hospitals end up there soon, but it seems like most people at hospitals do have something to do with providing medical care (if not too many overqualified people given the state of the art healthcare solution for COVID seems to be fluids and Tylenol).

Tayfun Sonmez *2020-05-20 07:48:06* 0 0 Hide Replies #

Thanks for the comment. While we did not take a strong position on whether the voucher can be transferable or not, after talking to Blood bankers it became clear that it has to be nontransferable. Otherwise the donation loses its "from voluntary donor" status, which in turn is interpreted by some as lower safety product. This shall address your concern. We also learned recently that, there is considerable demand for directed convalescent plasma donation, which is suggestive that the voucher is of potential value even when nontransferable.

> *JFA* *2020-05-20 08:22:48* 0 0 Hide Replies #
>
> Are there limitations on whom the voucher is "directed" towards? Do donors pre-specify the identities to whom the vouchers apply? If not, then they would probably become de facto transferable, which would probably be a good thing.
>
> > *Tayfun Sonmez* *2020-05-20 08:47:00* 0 0 Hide Replies #
> >
> > Our initial intent was leaving the details of a voucher flexible; but after some interaction with both blood bankers and a lead institution in plasma treatment, it is clear that the voucher shall be designed in a way that has no cash market. Restrictions such as those on living donation is one possibility.
> >
> > You have two other excellent points above. Let me also respond to them.
> > It is true that "pledge" cannot be enforced. But the same is true for non-directed donor kidney chains where a patient first receives a kidney and only then her donor donates to another patient, and the chain continues. There is a recent paper which reports that, only 6 kidney donors reneged after their patient received kidneys in 1700 transplants through these chains. There were also 10 or so transplants that could not be conducted due to other reasons. So reneging seems rare when people pledge. It is also important to note that, each donor can donate up to 3 times and on average produces enough convalescent plasma for 2-4 people. So even with a modest materialization of pledges, the supply can increase.
> >
> > Finally, while one can pay for plasma, that changes the labeling of the product to "paid" rather than "voluntary." So this could be ok for the paid plasma sector but not for blood banking sector. There is a large literature on this.
> >
> > > *JFA* *2020-05-20 10:15:54* 0 0 Hide Replies #
> > >
> > > Thanks for the comments. My concerns about enforceability are probably taken care of by your proposal to use both incentive schemes in tandem.
> > >
> > > Yes, I am aware of the literature, I just think the labeling is mostly geared toward toward political concerns and are presently a less than reliable indicator of quality (which I believe is the usual explanation for the labeling, and might have been a more credible indicator of quality in the past before the testing for hepatitis, AIDS, etc., became more reliable)

> > You've probably read much more in this area than I have, but if you haven't checked out Douglas Starr's "Blood: An Epic History of Medicine and Commerce", I highly recommend it. It's a nice journalistic account of the market for blood and plasma with a focus on post-1950 or so.
>
> > *Tayfun Sonmez* 2020-05-20 10:55:19 ⬆ 0 ⬇ 0 #
>
> > Thank you. Just ordered "Blood: An Epic History of Medicine and Commerce."

Tom T. 2020-05-20 08:29:47 ⬆ 0 ⬇ 0 Hide Replies #

"Give the state your blood or else the state will forbid you treatment" is not in any sense a "market design." It's coercion, and in any other context, it would be considered obscene.

> *Tayfun Sonmez* 2020-05-20 08:51:11 ⬆ 0 ⬇ 0 Hide Replies #
>
> The system is designed to increase the supply for everyone, including those who do not donate. You can see the details on the paper.
>
> > *Tom T.* 2020-05-20 09:16:24 ⬆ 0 ⬇ 0 Hide Replies #
> >
> > With priority based on social utility, not medical need.
> >
> > > *raj* 2020-05-20 09:52:47 ⬆ 0 ⬇ 0 #
> > >
> > > I don't see the problem. Nobody is 'forbidden' treatment, and lives are saved.
>
> *Thaomas* 2020-05-20 08:51:36 ⬆ 0 ⬇ 0 Hide Replies #
>
> So allow the system to work at a decentralized level. Give to the local blood bank/hospital.
> "In any other context" it would be considered normal.
>
> > *Tayfun Sonmez* 2020-05-20 09:01:19 ⬆ 0 ⬇ 0 #
> >
> > In US and elsewhere, there are some who hesitated to donate as an “insurance” for their loved ones in case they need it. There is also a lot of demand for directed donation for a specific person. Our system is, in part, motivated by these observations.

---

dave 2020-05-20 08:46:16 ⬆ 0 ⬇ 0 Hide Replies #

What about just paying people? They already do this for plasma, right?

> *Tayfun Sonmez* 2020-05-20 08:56:09 ⬆ 0 ⬇ 0 #
>
> That can be done through plasma fraction market, and the product receives a “paid” label as enforced by FDA. Our design would work best with the “voluntary donor” market (ie blood bankers), which also means any voucher shall not have cash market value.

ADevero 2020-05-20 08:54:16 ⬆ 0 ⬇ 0 #

This is an over-complicated solution to a simple problem. I have been advocating for what seems like forever now, writing to mayor's, newspapers and so forth with the following recommended process: At the point of testing for covid-19, simply ask people for their permission, should they test positive, to contact them later for convalescent plasma donation. People are highly incentivized when they are afraid that they are ill to do what is helpful. It also is simple administrative problem. It makes no sense to go looking for convalescent plasma after the fact, rather than identifying future convalescent plasma donors at the moment you are identifying them as being infected. This could be easily implemented at all testing locations by counties and health departments. It requires no more than a form providing permission to contact later, a database to track who has given permission along with their blood

information like type and Rh factor, and a preliminary agreement to donate later once they are recovered. The the database needs simple logic to update and purge when people's tests come back positive or negative. This doesn't violate HIPAA regulations or anything else, because it is all done with the patient's permission.

Bill *2020-05-20 09:09:28* ⬆ 0 ⬇ 0 Hide Replies #

There are some folks who want to get covid, believing they will become invincible and not suffer any consequence from the illness. That's a gamble.

Giving them an additional incentive by giving them a way to get payment for their blood after they become sick has consequences on an overloaded healthcare system and on their transmission of the illness to others.

Blood payment may incentivize some bad conduct. Get sick. Get money.

> *Tayfun Sonmez* *2020-05-20 10:58:14* ⬆ 0 ⬇ 0 #
>
> There will not be any cash value for the vouchers; they are targeted to family members (similar to living organ donation). We are planning to replace the term voucher with credit in the revision to avoid confusion.

---

rayward *2020-05-20 09:14:30* ⬆ 0 ⬇ 0 Hide Replies #

There's a web site: https://www.uscovidplasma.org/

> *Tayfun Sonmez* *2020-05-20 09:19:11* ⬆ 0 ⬇ 0 #
>
> We are indeed in communication with them. Exploring whether FDA approval is needed, and in what format the incentive scheme does not change the labeling status of donation from “volunteer” to “paid.”

Andrew *2020-05-20 09:30:20* ⬆ 0 ⬇ 0 #

Why donate? You could probably sell that plasma for 5k+ per liter of blood.

Massimo *2020-05-20 10:09:49* ⬆ 0 ⬇ 0 #

A most interesting idea. I remember a piece of Williamson I read in college about the conundrum of blood harvesting: if you try to incentivize the supply with money, you tended to crowd out the donors. This is fresh thinking proposing an ingenious third way.

By the way, I do not understand why you discard the issue of fairness. Any system that has voluntary participation is fair by definition. If a new idea increases the size of voluntary transactions (if the donor is rewarded with money or other incentives is the same), the “quantity of fairness” is increased.

B.A. *2020-05-20 10:29:11* ⬆ 0 ⬇ 0 #

I view this all as a kind of foolishness, reflecting an intellectual cowardice to advocate what is actually needed: a free-marketization of both plasma and organ markets. (Actually CCP is a sub-species of organ donation, since blood is technically an organ.)

The argument is the same, as always: let people choose from available options how best to (subjectively, ex ante) optimize their own lives. In the process, acknowledge that people "own" their own bodies and lives, and that no scheme can possibly prevent all mistakes and eliminate all ex ante / ex post discrepancies.

As usual (and I say this as an M.D.) doctors, hospitals, medical ethicists, and timid economists are making a good business on all this. The donors are, at best, left with complicated and, for most, unredeemed options, which by their very nature will not serve to adequately motivate. And those in need of donation are left to, well, die, due to inadequate supply.

I really would like to see the doctors, hospitals, ethicists, and economists who favor such schemes start working for (statistically unredeemed) vouchers. I'd also would like to hear what they have to say should they ever find themselves -- or their child, spouse, or parent -- at imminent risk of expiring for lack of donations.

In purely economic terms, these doctors, hospitals, ethicists, and economists are engaging in a form of decisional rent-seeking. They are (and I know this is not the terminologically correct image) "sitting" on the decisional faucet and extracting wealth from all the other parties to the system, who are deprived of their own power to decide. This "decisional rent seeking" -- taking decisions away from others and collecting rent on the monopoly -- is conceptually no different than any other form of rent seeking.

If you think me wrong in my harsh judgements, I am honestly open to hearing your objections, but I would be much surprised if anything telling is presented.

Captain Slime *2020-05-20 11:06:12* ⬆ 0 ⬇ 0 Hide Replies #

There are lots of people who are ineligible to donate blood for various medical reasons or travel history.

Presumably it would be unfair to exclude such people from this Covid plasma scheme through no fault of their own.

But a boomer geezer could lie about ineligibility in ways that are hard to verify: gay sex with another man in the last 12 months, fictitious trips to the UK for a cumulative total of 3 months or more during the mad years 1980 through 1996, and so on.

The simplest claim and impossible to verify: injecting illegal drugs like heroin even once in your life. Man, those Sixties were crazy. And then there was a party that one time that I vaguely recall, I think Brett Kavanaugh must have been there.

> *Tayfun Sonmez* *2020-05-20 11:13:37* ⬆ 0 ⬇ 0 Hide Replies #
>
> There are many kidney patients who do not have willing donors, and therefore cannot benefit from either direct donation or from kidney exchange. And yet, because of direct donation and kidney exchange the shortage of transplant kidneys reduce and patients without donors also benefit. The idea is similar here. Using these incentives in a way so that not only participants benefit, but also the non-participants.
>
> > *Captain Slime* *2020-05-20 15:37:35* ⬆ 0 ⬇ 0 #
> >
> > On the other hand, lying about ineligibility works both ways. You might be incentivized to forget about your real trips to the UK, instead of hoping for trickledown scraps from the participants' table.

---

dearieme *2020-05-20 11:10:14* ⬆ 0 ⬇ 0 #

'similar to the “no give, no take” rule for organ donation that I have promoted for many years': oh dear, wouldn't that lead to accusations of racism?

Though I suppose almost anything you can think of can lead to accusations of racism.

Bob Flood *2020-05-20 11:33:48* ⬆ 0 ⬇ 0 Hide Replies #

Please use "encourage" rather than "incentivize."

> *Tayfun Sonmez* *2020-05-20 11:45:02* ⬆ 0 ⬇ 0 Hide Replies #
>
> This is an interesting suggestion; all my career I worked on non-monetary incentives, but especially in this context it is very loaded. We may well do that, or at least tone down its usage. We will also drop the use of phrase "voucher" and use "credit" instead.
>
> > *Bill* *2020-05-20 12:21:00* ⬆ 0 ⬇ 0 Hide Replies #
> >
> > Tayfun,

That is a good idea to be conscious of terms. There is a healthy literature on how thinking about money discourages charitable giving. When you put an item in one domain (monetary) it diminishes another domain which was probably the one that motivates the most donations. Here is a summary of literature: https://carlsonschool.umn.edu/sites/carlsonschool.umn.edu/files/2019-04/vohs_2015_money_priming_review_replications_jepg.pdf

Bill *2020-05-20 12:23:57* 0 0 Hide Replies #

Also, Tayfun, I would look at seeing if you could frame it as a donation to the hospital which provided the care. They would be in a better position to allocate the resource based on benefit to patient and would also be an entity the person would be grateful to and would want to reciprocate to.

Tayfun Sonmez *2020-05-20 12:38:44* 0 0 #

Two excellent comments. Thank you Bill.

Indeed it is important to be very conscious of the terms. Indeed I have some experience in this. In 2003, shortly after we wrote our papers in kidney exchange (with Roth and Unver), we started communicating with members of transplantation community and agreed to launch a kidney exchange center in New England. But our preferred name of "New England Program for Kidney Exchange" resulted in a delay of several months, because our medical colleagues were worried that the term "Exchange" may be cause issues if it is associated with "Markets."

Your second point ids also very valid, and we are looking into this particular detail right now. The entity that collects he donation and the entity that gives the treatment are two different entities. The "voucher incentive" starts with the donor (and therefore at the donation center) whereas the "pledge incentive" starts with the patient (and therefore at the treatment center). There are many partnerships, and probably arrangements should be made within these partnerships. We are currently t talking about these details with some major players.

Abelard Lindsey *2020-05-20 12:40:07* 0 0 #

I think I speak for many people when I say I do not need compensation for my plasma if I tested positive for the antibodies test and they needed my plasma to help others. I am quite willing to donate for free.

However, what I do need is a way to be tested for the antibodies such that neither my test results nor personal information is collected and saved in any kind of government database. If health authorities are sincere in their desire for plasma donation, they will do it this way. However, I consider any attempt to collect information about myself to be a demonstration of insincerity on their part.

The ball is in their court.

Devin *2020-05-20 15:48:26* 0 0 #

I'm a very regular blood platelet donor. Currently working on my 22nd gallon donated.
If I had the antibodies, I'd be eager to donate plasma as much as health allows. If only there was a readily available antibody test ...

BC *2020-05-20 23:57:05* 0 0 #

Related but different topic: it appears that the number of asymptomatic people with antibodies may far exceed the number of known recovered patients. For example, in the recent Boston study, 10% of asymptomatics tested positive for antibodies, while known cases (including deceased and not yet recovered in addition to recovered) account for only about 1.7% of population. Does that mean the pool of potential plasma donors may be several multiples (5-6x) higher than previously thought? How feasible is widespread antibody testing of asymptomatics to find potential plasma donors?

Nck *2020-05-22 15:06:10* 0 0

I think you could solve the CCP shortage much easier and cheaper by just holding a national campaign of free Antibody test with blood donation. Everyone I know is hoping they've already been exposed to the virus and all kind of want to get the test just to see. This way we will the blood bank + capture the covid positive group fpr CCP all at once.

Dana Barish AKA no soap media *2020-05-26 22:05:04* 0 0 #

Currently only confirmed cases can donate but many more people may have recovered asymptomatically. When we have a reliable immunity/antibody test then people will line up to take it to see if they can safely go back to work without needing PPE etc. A "cost" for this test would be plasma donation if positive for antibodies and negative for infection. A "payment" could be a voucher for use by the donor if immunity is not permanent or for use by others. Typically four patients can be treated with one plasma donation. People can donate plasma more often than normal blood donation.

Tayfun Sonmez *2020-06-15 18:06:25* 0 0 #

June 15 Update: Covid Plasma Initiative, which has so far supplied half of Convalescent Plasma in the US, adopted our incentive scheme under the new "Community Voucher Program." https://www.covidplasmasavealife.com/hig

Comments for this post are closed