Adrian Hernande...: 00:04 Hey, this is Adrian Hernandez and welcome to the NIH Collaboratory Grand Rounds podcast. We're here to give you some extra time with our speaker and ask them the tough and interesting questions you want to hear most. If you haven't already, we hope you'll watch the full Grand Rounds webinar recording to learn more. All of our Grand Rounds content can be found at rethinkingclinicaltrials.org. Thanks for joining.

Adrian Hernande...: 00:28 Hi there, this is Adrian Hernandez from the NIH Collaboratory, and we're here today with [Mitesh Patel 00:00:00:32] who will be reflecting on using nudges to improve the delivery of healthcare at Grand Rounds he recently gave. Mitesh, thanks for joining us.

Mitesh Patel: 00:44 Thank you for having me on.

Adrian Hernande...: 00:46 So, it's a really fascinating area in terms of behavioral economics and healthcare. For those who may not exactly know, what's a nudge, what are you doing?

Mitesh Patel: 00:58 So a nudge is a subtle change to the design of the environment that can have a really big impact on your behavior. It could be something as simple as changing the default setting, and that's what happens if you don't make a decision at all. It could be prompting you to make a decision instead of waiting for you to realize that you should make that decision. Or it could be as simple as just changing the context of the information within a system. What the words say are, where the choices are set up.

Adrian Hernande...: 01:27 And are there recent examples that you've used at Penn and they were highly effective that would help describe this?

Mitesh Patel: 01:39 Yeah, so we have a lot of great examples from our nudge unit at Penn medicine. So several of them have been around changing the default setting, which is oftentimes the most effective if it's the right fit. So in one example, we were able to increase generic prescribing from 75% to nearly 99% essentially overnight, which saved the health system about $32 million over the course of two and a half years just by changing the default. So instead of clinicians having to opt in for generic medications, the default was set to generic medications and clinicians had to opt out if they wanted the brand name prescription.

Mitesh Patel: 02:14 Another example would be trying to decrease unnecessary opioids. We work with emergency medicine physicians at our health system who changed the default number of pills for a

prescription. So when patients came in with an acute injury, the default was set to 10 pills instead of 30 so that clinicians would prescribe a lower amount of opioids if they needed them. They could always override that. But we've set the default at a lower stage.

Mitesh Patel: 02:42 An example outside of defaults from active choice might be some work we've done on flu vaccination. And so we've been testing different ways to increase our flu vaccination rates in our primary care clinics and initially with nudging clinicians by having an alert in the electronic health record to remind them to talk to patients about flu vaccination if they were due for it. And more recently by shifting the burden off of clinicians and actually alerting the medical assistants. So when they triaged or took vitals on patients, they would be prompted to enter an order and then would prime the patient and tell them, "Hey, an order has been placed for the flu shot, make sure you discuss this with your doctor."

Mitesh Patel: 03:17 And that essentially set up the workflow so that most of the work was shifted off of the burden of clinicians and they could have discussions with patients as opposed to dealing with alerts in the electronic health record.

Adrian Hernande...: 03:29 A lot of these seem like they're oriented towards the clinicians. Do they like that? Do they like being nudged or do you ever get resistance about doing this?

Mitesh Patel: 03:43 Yeah, that's a great question. I think initially when clinicians hear the idea of being nudged that somebody else is going to be behind the scenes, influencing their decisions. They don't take too nice. They don't like it as much as one would think because they've spent a decade in training, they're very specialized in what they're doing and they hate the idea of someone else influencing their decisions.

Mitesh Patel: 04:07 And so what we often have to do is first reveal to them that the current design of the electronic health record or other information in the health system is already nudging them and oftentimes they're jumping through hoops to do the right thing, prescribe the evidence based test or treatment. And so many of the interventions that we're trying to implement are really about reducing friction for things that are evidence based and not around annoying or pestering the clinician, but more making the right thing, the easy thing to do.

Adrian Hernande...: 04:36 How do you actually prove that a nudge works? Do you do a randomized trial or how are you actually building the evidence that something actually works?

Mitesh Patel: 04:46 So it's really important to us to take a systematic approach to test these nudges and to do them rigorously so that we know whether or not some change in behavior was due to the nudge or if there was an unintended change in behavior that we didn't anticipate. Typically in the health system, these types of changes are rolling out all the time and they're not evaluated. What we do is we look for ways that we can design these testable interventions. If possible, we'll do a randomized trial, either randomizing clinics or patients or sites, depending on the specific intervention. If not, we'll compare and using a natural experiment where one setting will implement something and the other won't and we'll try to adjust for different differences. But our main goal is to try to do these pragmatic randomized trials so that we can really understand what was the effect of the nudge and that helps us to scale it to other settings by demonstrating whether or not it worked.

Adrian Hernande...: 05:38 How would you operationalize this? What's the nudge unit like? It sounds very interesting, but how does it actually work and how do you decide what you take on?

Mitesh Patel: 05:49 Yeah, so our night unit was formed within our health system in 2016. It's a collaboration between two existing centers, CHIBE, the center for health incentives and behavioral economics and the Penn medicine center for healthcare innovation. And it was meant to bridge rigorous research within pragmatic settings. Initially we started off with just myself and a research coordinator when we launched the first couple of projects. Now we've got a team of more than 20 people, that's comprised of several project managers who each manage a couple of research coordinators. We've also got a data science team with analyst on it. We've got a couple of postdoctoral fellows and more recently several junior faculty in different areas, cardiology, oncology, emergency medicine and so on who are helping us to implement nudges in those settings.

Mitesh Patel: 06:33 We also have a multidisciplinary steering committee with leadership from clinical care, IT and behavioral economics, and they help us to vet all of the ideas that come in and prioritize them and really open up doors so that once we have something that we want to implement, we can implement it pretty quickly.

Adrian Hernande...: 06:51 And how long does it take to go from a request to implementation and how many requests do you get?

Mitesh Patel: 07:01 Yeah, so our goal is to get from when we decide we want to pursue a specific project for a nudge. We try to get to some type of pilot intervention within six months. It obviously varies by case, but that's our goal and the way that we vet these projects, we get our projects, the best ones come from frontline clinicians. We also get projects from top down from executive leadership and then we also come up with ideas on our own. Every six to 12 months we'll do a call for proposals where we'll ask anyone from the health system. You can be a clinician, a student, a staff member to submit ideas around challenges they think that a nudge could address. The first one we launched, we got 225 ideas in two weeks and now since we're doing them pretty regularly, we get about 60 to 70 every six months.

Mitesh Patel: 07:48 We also get rolling submissions throughout the year where people will email us or go on our website and fill out an idea and we'll really look for a couple of things. We'll look to see whether it's the right fit for a nudge. Is it something that we can nudge? Many, many interventions require more than a nudge. And so we want to be clear about what we think we can address and where we can. We want to make sure that we can scale it if it works. And typically through a technology platform like electronic health records or mobile devices. And then we're looking for things where we think we can have a big impact. So we're not just small changes but really moving the needle.

Adrian Hernande...: 08:23 This is I guess, incredible in terms of the potential's impact here. Do you guys ever fail? Are there ever experiments where it actually is a big flop?

Mitesh Patel: 08:37 Oh yeah. There are oftentimes experiments where we anticipate that we can make a change and we actually have no change. So one example is from a trial where we randomized whether or not we would show prices in the electronic health record for laboratory testing. And we found that that had no impact on whether or not clinicians ordered lab tests for their patients. Much of that ends up being, because we didn't do enough work upfront to figure out how to fit it within workflow and really make sure that it made sense.

Mitesh Patel: 09:05 So in this setting, most patients have repeating lab test ordered for them when they come into the hospital. The problem is less around knowing labs are expensive and more around this behavior where people just order repeating lab tests and never

think about it. And so the prices don't show up on day three, four or five when the labs are no longer needed.

Mitesh Patel: 09:24 And so, that's something that we could have uncovered had we done a little bit more work and thought it through more. And so now we take a more systematic approach. In the beginning when we were launching these interventions, we show the design to clinicians, get their feedback, we do some more pilot testing before we launch it in on a broad scale. And that's really helped us to kind of focus in and make these nudges more effective.

Adrian Hernande...: 09:47 So you guys have been quite busy doing this. What are the plans in the next three to five years? How does this look like in five years from now?

Mitesh Patel: 10:01 Yeah. So we probably have three main goals. I mean, one is to continue doing what we're doing and helping to develop the science and understanding around when nudges work and when they don't and what's the best way to motivate both the clinician and patient decisions.

Mitesh Patel: 10:15 The second is to be able to take some of the work we've done and collaborate with other health systems across the world to test these types of experiments and see if some of the things that we found at our institution will translate to other institutions or how we might adapt them.

Mitesh Patel: 10:30 And then the third is to really catalyze this whole effort by focusing on dissemination. So we hold an annual nudges and healthcare symposium. We had 30 health systems attend over the last two years from all over the world. And we've launched what's called the nudge collaborative.

Mitesh Patel: 10:46 It's an IT platform that has a couple of different features. It's got a library of the nudges that worked and didn't with more details and hopefully in the future we'll have some of the actual code from our electronic health records so people can start to implement that in their own health systems more easily. It has a forum where people can ask questions because not every place has experts in behavioral economics or has experts in conducting pragmatic trials and so we can work together towards that. And then it has a kind of a management tool that we use to manage all of the different projects that are coming in and you can actually see how we vetted some of our own projects to give you a sense of how you might want to do that at your own institution.

Adrian Hernande...:	11:26	Well this has been great, so hopefully everyone can have their own nudge unit or work with you as you are having this really national collaboration around this area.
Mitesh Patel:	11:39	Yeah, thank you. So I want to thank you for joining us for this podcast. Please join us for our next podcast as we continue highlighting changes in the research world, especially where it can have an impact on a healthcare. Mitesh, thanks for joining us.
Adrian Hernande...:	11:57	Thank you for having me on.
Mitesh Patel:	12:00	Thanks for joining today's nudge collaboratory grand rounds podcast. Let us know what you think by rating this interview on our website and we hope to see you again on our next grand rounds, Fridays at 1:00 PM Eastern time.