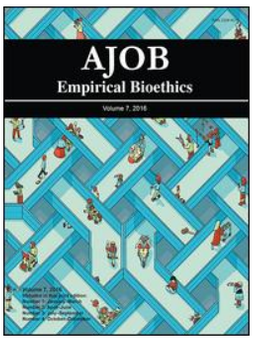

AJOB Empirical Bioethics

ISSN: 2329-4515 (Print) 2329-4523 (Online) Journal homepage: http://www.tandfonline.com/loi/uabr21

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To cite this article: Nancy Kass, Ruth Faden, Rachel E. Fabi, Stephanie Morain, Kristina Hallez, Danielle Whicher, Sean Tunis, Rachael Moloney, Donna Messner & James Pitcavage (2016) Alternative consent models for comparative effectiveness studies: Views of patients from two institutions, AJOB Empirical Bioethics, 7:2, 92-105, DOI: 10.1080/23294515.2016.1156188

To link to this article: https://doi.org/10.1080/23294515.2016.1156188

Accepted author version posted online: 16 Mar 2016.
Published online: 11 Apr 2016.

AJOB EMPIRICAL BIOETHICS
2016, VOL. 7, NO. 2, 92–105
http://dx.doi.org/10.1080/23294515.2016.1156188

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Alternative consent models for comparative effectiveness studies: Views of patients from two institutions

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ABSTRACT

Background: Informed consent requirements generally require a lengthy process and signed documentation for patients to participate in clinical research. With growing interest in comparative effectiveness research (CER), whereby patients receive approved (nonexperimental) medicines for their medical condition, questions have been raised whether the same consent requirements should apply. Little input from patients has been part of these debates. **Methods**: We conducted two "deliberative engagement sessions" with patients from Johns Hopkins Community Physicians (JHCP) and Geisinger Health System (GHS). Full-day sessions introduced participants to two different CER designs (observational vs. randomized) comparing two antihypertensive medications and three disclosure or consent approaches: Opt-In, Opt-Out, and "General Approval." Sessions consisted of presentations and extensive discussion at small group tables. Pre- and posttest surveys were completed by participants before and after all-day discussions measuring attitudes about research and about each of the three disclosure/consent options. **Results**: One hundred thirty-seven adults over age 40 years participated. Attitudes were similar between JHCP and GHS. Participants strongly preferred Opt-In or Opt-Out consent options to General Approval for both observational and randomized designs. For the randomized CER study, 70% liked Opt-In, 65% liked Opt-Out, and 40% liked General Approval. In discussing disclosure/consent options, patients cared most about choice, information, privacy and confidentiality, quality of the research, trust, respect, and impact of the study on patient care. **Conclusions**: The majority of participants from two different types of health systems liked both Opt-In and Opt-Out approaches for observational and randomized designs for low-risk CER. There were no posttest differences in the proportion liking Opt-In versus Opt-Out. Patients in this study wanted to be told about research and have a choice, but were very open to such disclosures being streamlined. Policymakers may find patients' views about what matters to them in the context of consent and CER relevant.

KEYWORDS
informed consent; comparative effectiveness research; disclosure; streamlined consent; choice; respect

Regulations requiring informed consent for most clinical research have been in place since the 1970s. These regulations reflect a moral commitment that patients never be subjected to research involving potentially harmful, unproven, or novel interventions without their knowledge and permission. This commitment remains unequivocal, yet increasing numbers of clinical research studies are being conducted that do not fit the traditional research paradigm. Comparative effectiveness research (CER), one example of what is often called "patient centered outcomes research" (PCOR), instead generally studies Food and Drug Administration (FDA)-approved drugs, devices, or other interventions that are already in wide clinical use and that already have been shown to have an acceptable benefit–risk profile. In many cases, using what patients would experience in clinical care as the baseline, any additional risks and burdens of participation in PCOR studies are minimal. Unclear, however, is whether norms for informed consent should be any different in such a context (Kass et al. 2013). For example, when the added risks of taking an approved and widely used drug in the context of a research project are minimal or low compared to the risks of taking the drug as part of ongoing clinical care, should our long-established norms for informed consent in clinical research have more flexibility?

The answer to this question has practical as well as moral implications. Because traditional informed consent can be time-consuming and often requires several interactions with separate research staff, it is increasingly viewed as a barrier to the integration of CER into clinical practice (Sugarman and Califf 2014; Truog et al. 1999). Of particular concern is the conduct of CER across nonacademic clinical sites. The additional time and training required of local practice staff to conduct lengthy consent interactions, in addition to their usual duties, could be a barrier to practices' willingness to partner on such studies (Sugarman and Califf 2014).

There are cogent moral arguments in favor of streamlined consent approaches for some CER studies (Morris and Nelson

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2007), but streamlined consent is not without controversy (Anderson and Schonfeld 2014; Faden, Beauchamp, and Kass 2014; Wendler 2015). To advance the debate, more information about the views of informed and engaged patients is needed. There is insufficient data about which approaches to consent patients find acceptable and unacceptable, why they find them so, and how these views differ for different types of CER studies (Milner and Magnus 2013; Sabin et al. 2008; Whicher, Kass, Saghai, Faden, Tunis, and Pronovost 2015).

We used a process of day-long, in-person, deliberative engagement sessions (DES) to characterize whether patients from two different health systems found alternative models of consent, disclosure, and authorization acceptable in the context of (a) observational and (b) randomized studies comparing FDA-approved and widely used antihypertensive medications.

Methods

Participants and recruitment

We selected two health systems that differ in system structure, patient demographics, and geographic setting. Johns Hopkins Community Physicians (JHCP) is part of a large academic health system in Baltimore, MD. Geisinger Health System (GHS) is a private, integrated delivery system in rural Pennsylvania (Psek et al. 2015). Five hundred patients from JHCP and 1191 patients from GHS received letters from their institution describing our study and providing information about how they could opt out of being called by our study team to be invited to participate. Institutions sent letters to individuals who were age 40 years and over and received care at one specific site (JHCP) or lived within 35 miles of the health system (GHS). Letter recipients were selected to be approximately evenly split by sex (men vs. women) and by whether or not they had ever been diagnosed with hypertension. At JHCP, letter recipients were also selected such that approximately 50% were African-American, reflecting local demographics. Our goal was to have 60–70 participants in each DES. Participants were given $200 as compensation for their time. The study protocol was approved by the institutional review boards (IRBs) at the Johns Hopkins Bloomberg School of Public Health and the Geisinger Health System.

Surveys and introduction to models and comparative effectiveness research

Participants completed a pretest survey upon arrival at the DES. In the pretest, we collected information on participants' demographic characteristics, previous experience in clinical research, attitudes and beliefs about the importance of research, perceptions about their doctor and their respective health care systems, and attitudes about different consent/disclosure options (described further in the following paragraph). Participants later completed a posttest survey that again included the consent/disclosure questions to assess the impact of day-long discussion on participants' attitudes (the posttest did not ask again about background or more general attitudinal items).

To measure attitudes about consent/disclosure options on the pre- and posttest surveys, we described that many medical conditions, including hypertension, have several available treatments, but that these treatments, while all effective, have not been adequately compared to each other. We introduced an observational study designed to compare two antihypertensive medications. The case studies were contextualized as taking place in a Learning Health Care System (LHCS) (Green, Reid, and Larson 2012; Institute of Medicine [IOM] 2007) where participants were informed that their hospital or clinic was always trying to learn from patients in order to improve health care as quickly as possible and that a multistakeholder ethics board would review all studies. In our view, one of the justifications for streamlined consent is that research findings must be generated more quickly in order to more quickly improve care. Given this, a system that is accountable and transparent will, respectively, improve care based on study findings and notify patients/stakeholders about what studies are ongoing. These efforts increase the ethical acceptability of a study in ways potentially relevant to whether streamlined consent would be justifiable. We were interested to see whether patients share this perspective. Moreover, much work on pragmatic trials has been furthered by commitments and frameworks outlined in early reports of the Institute of Medicine in its work on learning health care. We wanted to build on this model in our own work. We then presented three models of disclosure and consent: a "General Approval" model, an "Opt-Out" approach, and traditional informed consent ("Opt-In"). The language we used to explain these consent alternatives is paraphrased in Table 1. Participants independently rated the degree to which they liked or disliked each of the disclosure/consent models using a 5-point Likert scale: "I really don't like this way," "I somewhat don't like this way," "Neutral," "I somewhat like this way," and "I like this way very much." Then we described a randomized study design, again comparing two hypertension medications, and again occurring within the context of an LHCS, asking participants to rate how much they liked each disclosure/consent model for the randomized study. After presenting the three consent options and both study designs, we also stated, "No matter what kind of approval [the study] gets, patients will also be told that research studies like this are done all the time. Patients will also be told what policies are in place to protect them." We included both observational and randomized designs to learn whether patients' attitudes about acceptable consent or disclosure strategies differed if a study randomized the type of care they received.

Surveys and consent materials were piloted with five patients from JHCP to ensure comprehension by the target audience. The instrument contained eight questions adapted from the five-question trust in the medical profession subscale from the Wake Forest Patient Trust in the Medical Profession Scale (Dugan et al. 2005) and the three-question trust in health care institutions subscale from the Multidimensional Trust in Health Care Systems Scale (Egede and Ellis 2008). Both are previously validated survey tools, measuring patient trust and attitudes toward their primary care providers and health systems. Surveys were administered using iPads loaded with Qualtrics software.

Deliberative engagement sessions

Deliberative engagement sessions (DES) were held in hotel ballrooms in Baltimore, MD (JHCP), and Danville, PA

Table 1. Overview of three consent models.

Consent model	Description
1 General Approval	• Patients are provided information through published institutional policies, newsletters, posters, and information sheets that their clinicians and care settings routinely conduct certain types of lower risk research that the institution thinks will not adversely impact patients' care, in order to ultimately learn which care is most effective. • Doctors will not routinely explain the study to patients during patients' appointments. • There is no study-specific opportunity to opt-out of participation.
2 Opt-Out	• Doctors will give patients a brief description of the study right before they are given their first blood pressure medicine. • Patients are told that they will be part of the research study unless they say that they do not want to be part of it.
3 Opt-In	• Doctors will give patients written and oral information about the objectives, risks, burdens, benefits, and alternatives of the study before they are given their first blood pressure medicine. • Patients are then asked if they are willing to participate and a patient is not enrolled in research without the patient's express, voluntary, and written agreement. Patients can only be part of the research study if they give their written permission.

(GHS). Participants sat at round tables of seven to nine participants; each table also included a facilitator and a note-taker from our project. Through interactive presentations and small-group discussions, the DES approach provides a way to engage individuals and garner their informed opinions about complex and potentially unfamiliar topics (Fishkin 2003; Fishkin 2011; Damschroder 2007). The day alternated between plenary and small-group sessions. Plenary sessions lasted 15–20 minutes and sequentially provided participants with information about (1) comparative effectiveness research (CER); (2) learning health care systems (LHCS); (3) the difference between observational and randomized study designs; and (4) the three disclosure/consent models. After each plenary, at each table, facilitators moderated small-group discussions to engage participants in conversation about what they heard and understood. Facilitators were trained to encourage all participants to share their opinions and also to encourage participants to provide reasons for their opinions. Facilitators were also asked not to answer substantive questions themselves, nor to correct any misinformation, instead asking periodically if all others at the table agreed with certain statements and referring technical questions to the expert panel. As the day went on, participants were asked to pretend that the studies were taking place within an LHCS and that they were members of an "ethics board" tasked with reviewing CER studies; through this lens, they were asked to offer their views regarding the acceptability or unacceptability of each of the three disclosure/consent models for the observational or randomized studies described. The first part of the day was dedicated to helping participants understand CER and how it differs from experimental research, randomized and observational research designs, and the three consent/disclosure options. The second part of the day was devoted to exploring participants' opinions about which consent/disclosure options were acceptable for each of the two study designs. All conversations at tables were audio-recorded and later transcribed, and sessions lasted 6.5 hours, including lunch and coffee breaks. Notes were taken at each table to support later interpretation. One volunteer from each table was asked to participate in an exit interview to allow us insight into what participants understood concerning material presented during the DES. These interviews were also recorded and transcribed.

Data analysis

Survey data

Due to the policy relevance of these issues, we collapsed responses regarding attitudes toward the disclosure/consent model into dichotomous categories, grouping those who in some way expressed that they liked a model ("somewhat" or "very much") and those who did not express liking a model ("neutral", "somewhat" or "really" disliked a model), except where otherwise noted. Chi-squared or Fisher's exact tests were used to analyze survey data and test for differences between patients from the two sites with respect to demographics, health status, attitudes regarding research and their health systems, and attitudes toward the disclosure/consent models. McNemar's test was used to compare paired pre- and posttest survey responses. All statistical analyses were conducted using SAS version 9.3 and STATA version 12.

Qualitative analysis

We identified emergent themes from small-group discussions through systematic coding of qualitative transcripts. The method for coding and analysis was designed by one of the principal investigators (PIs), who worked closely with the project director, who had experience in qualitative methods, and three student research assistants. These assistants independently reviewed the nine transcripts from the JHCP small-group discussions to identify themes. They compared coding schemes, discussed any discrepancies, and reconciled them to produce a standard codebook. Once the codebook was finalized, all transcripts were independently coded by two study team members, using the software package NVivo 10. These study team members conferred after independently coding all three sets of transcripts, then discussed and reconciled any discrepancies with each other and the study investigators to ensure that the codebook was employed consistently.

Our goal in analyzing the coded data was to determine the reasons given by participants for the attitudes they voiced, especially with regard to the consent models. Research assistants implementing coding identified, in collaboration with study investigators, the key themes from the qualitative data. Quotations illustrating the most common themes were identified, and study staff compiled summary documents for each combination of study design and consent model outlining reasons participants gave when supporting or opposing a particular consent model.

While the same topics were addressed in both surveys and discussion and all data were from the same group of respondents, we were unable to link individual qualitative comments to

individual survey responses. Thus, we present qualitative and quantitative results separately and use qualitative findings to help interpret quantitative results.

Results

In this section, we first describe the quantitative results from the survey, documenting the extent to which participants liked or disliked the various consent/disclosure models. We next present qualitative data to illustrate the reasons participants gave when discussing their consent/disclosure model preferences. Qualitative themes are presented in order of frequency with which they were mentioned, as determined by the number of references coded in NVivo.

Study participants

One hundred thirty-seven patients participated in the deliberative engagement sessions, 75 at JHCP and 62 at GHS; participants were divided into nine small discussion groups (such that nine transcripts were generated) at each location. Of the 137 total participants, 136 completed presession surveys and 134 completed postsession surveys. Of these, 115 completed linked pre- and postsurveys to enable comparisons between attitudes before and after deliberation (66 at JHCP and 49 at GHS). Unfortunately, some participants entered their unique study ID number incorrectly into either the pretest or posttest survey, making it impossible for us to link certain pre- and postsession surveys together. The two populations from the two different health systems were similar with respect to many demographic (Table 2) and attitudinal items (Table 3). Approximately half of each group was male, more than one-third of each had graduated from college, and about one-fifth of participants in each group reported prior participation in health research. However, the JHCP session was more racially diverse than the GHS session, reflecting local demographic patterns and our participant sampling approach (Table 2). JHCP patients were significantly more likely to believe that it is important to do comparative effectiveness research on blood pressure medications (presession $p = .020$, postsession $p = .033$), and more likely to believe it is important for individuals to participate in medical research both before ($p = .012$) and after the session ($p = .016$).

Table 2. Patient descriptive statistics.

	JHCP		GHS		All	
	$n =$ Freq.	74 %	$n =$ Freq.	62 %	$n =$ Freq.	136 %
Gender						
Male	37	50%	31	50%	68	50%
Female	37	50%	30	48%	67	49%
Missing	0	0%	1	2%	1	1%
Age						
40–49 years	18	24%	9	15%	27	20%
50–59 years	22	30%	21	34%	43	32%
60–69 years	26	35%	18	29%	44	32%
70–79 years	7	9%	11	18%	18	13%
80+ years	0	0%	2	3%	2	1%
Missing	1	1%	1	2%	2	1%
Race						
White	36	49%	58	94%	94	69%
Black	36	49%	1	2%	37	27%
Other	0	0%	1	2%	1	1%
Missing	2	3%	2	3%	4	3%
Education						
Did not graduate from high school	2	3%	5	8%	7	5%
High school diploma or GED	17	23%	17	27%	34	25%
Some college	23	31%	15	24%	38	28%
College degree	7	9%	9	15%	16	12%
Some graduate school	5	7%	1	2%	6	4%
Graduate-level degree	16	22%	11	18%	27	20%
Other	3	4%	3	5%	6	4%
Missing	1	1%	1	2%	2	1%
Health status						
Excellent	7	9%	6	10%	13	10%
Very good	22	30%	23	37%	45	33%
Good	26	35%	19	31%	45	33%
Fair	17	23%	8	13%	25	18%
Poor	1	1%	4	6%	5	4%
Missing	1	1%	2	3%	3	2%

Survey attitudes toward consent models after deliberation

On posttest surveys (after deliberation), there were no statistically significant differences in attitudes toward disclosure/consent models between the JHCP and GHS populations; hence we report on them hereafter as a single sample.

Overall, more participants liked the Opt-Out and Opt-In models than liked the General Approval model, and the proportions liking Opt-Out and Opt-In were very similar (Table 4). Specifically, for the observational study, participants were more likely to support Opt-In (69%) and Opt-Out (67%) models than the General Approval model (51%). For the randomized study, 70% liked Opt-In, and 65% liked Opt-Out, with only 40% liking General Approval. When we compared collapsed responses of those who "liked" a model (including "somewhat like" and "like very much") rather than "did not like" a model (including "neutral", "somewhat dislike" and "really don't like") within chi-squared tests, we found that there were no statistically significant differences between the proportions of respondents who liked Opt-Out versus Opt-In models for either observational or randomized studies. These findings held true when we compared all five Likert-category responses using Kruskal–Wallis tests.

Although there were no statistically significant differences in the percentages of respondents who "liked" the Opt-In and Opt-Out models, there were differences in *how* much participants liked each model. More respondents reported liking the Opt-In model "very much" (48% for observational; 52% for randomized) than reported liking it "somewhat" (21% for observational; 17% for randomized). By contrast, respondents were more evenly split in the degree to which they liked the Opt-Out model (observational: 30% "very much," 37% "somewhat"; randomized: 35% "very much" and 30% "somewhat").

As stated earlier, participants liked General Approval less than they liked the other two models (Figure 1): 51% liked it for observational studies and 40% liked it for randomized ($p = .007$). Moreover, participants were also more likely to "really" or "somewhat" dislike General Approval than to dislike the Opt-In or Opt-Out models (Table 4). Specifically, for the observational study, 41% disliked the General Approval model, but only 11% disliked either the Opt-In or Opt-Out models. For the randomized study, 50% disliked General Approval, 11% disliked Opt-In, and 10% disliked Opt-Out.

Table 3. Patient attitudes toward research, their doctors, and health system.

	JHCP		GHS		All	
	n = 74 Freq.	%	*n* = 62 Freq.	%	*n* = 136 Freq.	%
Asked to be part of a research study						
Yes	25	34%	11	18%	36	26%
No	49	66%	50	81%	99	73%
Missing	0	0%	1	2%	1	1%
Even taken part in a research study						
Yes	17	23%	10	16%	27	20%
No	57	77%	51	82%	108	79%
Missing	0	0%	1	2%	1	1%
How important or unimportant is it to do medical research to see how well different blood pressure medicines work?						
Not at all important	1	1%	0	0%	1	1%
Not very important	0	0%	3	5%	3	2%
Neutral	1	1%	3	5%	4	3%
Somewhat important	5	7%	9	15%	14	10%
Very important	67	91%	47	76%	114	84%
Missing	0	0%	0	0%	0	0%
How important or unimportant do you think it is for people to take part in medical research studies?						
Not at all important	0	0%	0	0%	0	0%
Not very important	0	0%	1	2%	1	1%
Neutral	2	3%	2	3%	4	3%
Somewhat important	9	12%	17	27%	26	19%
Very important	63	85%	40	65%	103	76%
Missing	0	0%	2	3%	2	1%
Which statement best describes how you like decisions to be made about your medical care?						
I like to make the decision myself about which treatment I will have	2	3%	2	3%	4	3%
I like to make the decision myself about my treatment after I have heard my doctor's opinion	21	28%	20	32%	41	30%
I like for my doctor and me to decide together about which treatment I will have	39	53%	35	56%	74	54%
I like for my doctor to make the decision about my treatment after hearing my opinion	6	8%	4	6%	10	7%
I like to leave the decision about my treatment to my doctor	3	4%	0	0%	3	2%
Missing	3	4%	1	2%	4	3%
Sometimes doctors care more about what is convenient for them than their patients' medical needs						
Strongly disagree	11	15%	7	11%	18	13%
Somewhat disagree	12	16%	17	27%	29	21%
Neutral	18	24%	15	24%	33	24%
Somewhat agree	26	35%	19	31%	45	33%
Strongly agree	7	9%	3	5%	10	7%
Missing	0	0%	1	2%	1	1%
Doctors are extremely thorough and careful.						
Strongly disagree	2	3%	1	2%	3	2%
Somewhat disagree	8	11%	12	19%	20	15%
Neutral	8	11%	9	15%	17	13%
Somewhat agree	39	53%	32	52%	71	52%
Strongly agree	16	22%	7	11%	23	17%
Missing	1	1%	1	2%	2	1%
People can trust doctors' decisions about which treatments are best.						
Strongly disagree	2	3%	2	3%	4	3%
Somewhat disagree	12	16%	12	19%	24	18%
Neutral	7	9%	10	16%	17	13%
Somewhat agree	39	53%	35	56%	74	54%
Strongly agree	14	19%	3	5%	17	13%
Missing	0	0%	0	0%	0	0%
A doctor would never mislead you about anything.						
Strongly disagree	5	7%	2	3%	7	5%
Somewhat disagree	18	24%	16	26%	34	25%
Neutral	18	24%	13	21%	31	23%
Somewhat agree	17	23%	25	40%	42	31%
Strongly agree	16	22%	5	8%	21	15%
Missing	0	0%	1	2%	1	1%

(*continued on next page*)

Table 3. (*Continued*)

	JHCP		GHS		All	
	n = Freq.	74 %	*n* = Freq.	62 %	*n* = Freq.	136 %
Doctors are completely trustworthy.						
Strongly disagree	4	5%	4	6%	8	6%
Somewhat disagree	13	18%	11	18%	24	18%
Neutral	19	26%	14	23%	33	24%
Somewhat agree	23	31%	29	47%	52	38%
Strongly agree	15	20%	3	5%	18	13%
Missing	0	0%	1	2%	1	1%
Johns Hopkins/Geisinger only cares about keeping medical costs down, and not what is needed for people's health.						
Strongly disagree	18	24%	14	23%	32	24%
Somewhat disagree	24	32%	19	31%	43	32%
Neutral	17	23%	16	26%	33	24%
Somewhat agree	10	14%	12	19%	22	16%
Strongly agree	5	7%	1	2%	6	4%
Missing	0	0%	0	0%	0	0%
Johns Hopkins/Geisinger provides the highest quality of medical care.						
Strongly disagree	2	3%	2	3%	4	3%
Somewhat disagree	2	3%	2	3%	4	3%
Neutral	5	7%	7	11%	12	9%
Somewhat agree	23	31%	28	45%	51	38%
Strongly agree	42	57%	23	37%	65	48%
Missing	0	0%	0	0%	0	0%
When treating my medical problems, Johns Hopkins/Geisinger puts my medical needs above all other things, including cost.						
Strongly disagree	4	5%	2	3%	6	4%
Somewhat disagree	4	5%	10	16%	14	10%
Neutral	15	20%	7	11%	22	16%
Somewhat agree	31	42%	29	47%	60	44%
Strongly agree	20	27%	14	23%	34	25%
Missing	0	0%	0	0%	0	0%

Age was the only background characteristic associated with disclosure/consent model preference; other demographics, including race and education, did not predict preferences. Participants age 60 years and older tended to like Opt-In more than those younger than 60 for both observational (56% vs. 45%; $p < .016$) and randomized studies (54% vs. 47%; odds ratio [OR] = 2.14, $p < .064$). Similarly, older participants liked General Approval for randomized studies less than younger participants did (35% vs. 65%; OR = 0.38, $p < .012$).

To assess the relationship between trust and attitudes toward the models of consent/disclosure, we calculated summary scores and Cronbach's alpha for the two subscales related to trust (0.76 for the trust in the medical profession subscale and 0.46 for the trust in the health care system subscale). We found no patterns of association between respondents' summary scores on the either of the trust subscales and their liking the consent/disclosure models for either the randomized or observational case study. The same was true when we analyzed the relationship between each individual trust item and attitudes toward the consent/disclosure models.

Comparing attitudes before and after deliberation

Participants' attitudes toward the disclosure/consent models shifted significantly after the engagement sessions. As seen in Figure 1, by the end of the day, more participants liked General

Table 4. Pre–post responses to consent models.

		I really don't like this way		I somewhat dislike this way		Neutral		I somewhat like this way		I like this way very much		
n =	115	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Wilcoxon *p* values
Observational case study												
General	Pre	16	(14%)	26	(23%)	31	(27%)	32	(28%)	10	(9%)	.3079
	Post	25	(22%)	22	(19%)	9	(8%)	30	(26%)	29	(25%)	
Opt-out	Pre	2	(2%)	11	(10%)	18	(16%)	53	(46%)	31	(27%)	.5822
	Post	13	(11%)	11	(10%)	14	(12%)	43	(37%)	34	(30%)	
Opt-in	Pre	2	(2%)	2	(2%)	6	(5%)	28	(24%)	77	(67%)	.0000
	Post	7	(6%)	13	(11%)	16	(14%)	24	(21%)	55	(48%)	
Randomized case study												
General	Pre	24	(21%)	34	(30%)	26	(23%)	24	(21%)	7	(6%)	.2868
	Post	36	(31%)	22	(19%)	11	(10%)	20	(17%)	26	(23%)	
Opt-out	Pre	1	(1%)	15	(13%)	20	(17%)	52	(45%)	27	(23%)	.9954
	Post	13	(11%)	13	(11%)	14	(12%)	35	(30%)	40	(35%)	
Opt-in	Pre	2	(2%)	4	(3%)	5	(4%)	30	(26%)	74	(64%)	.0024
	Post	8	(7%)	10	(9%)	17	(15%)	20	(17%)	60	(52%)	

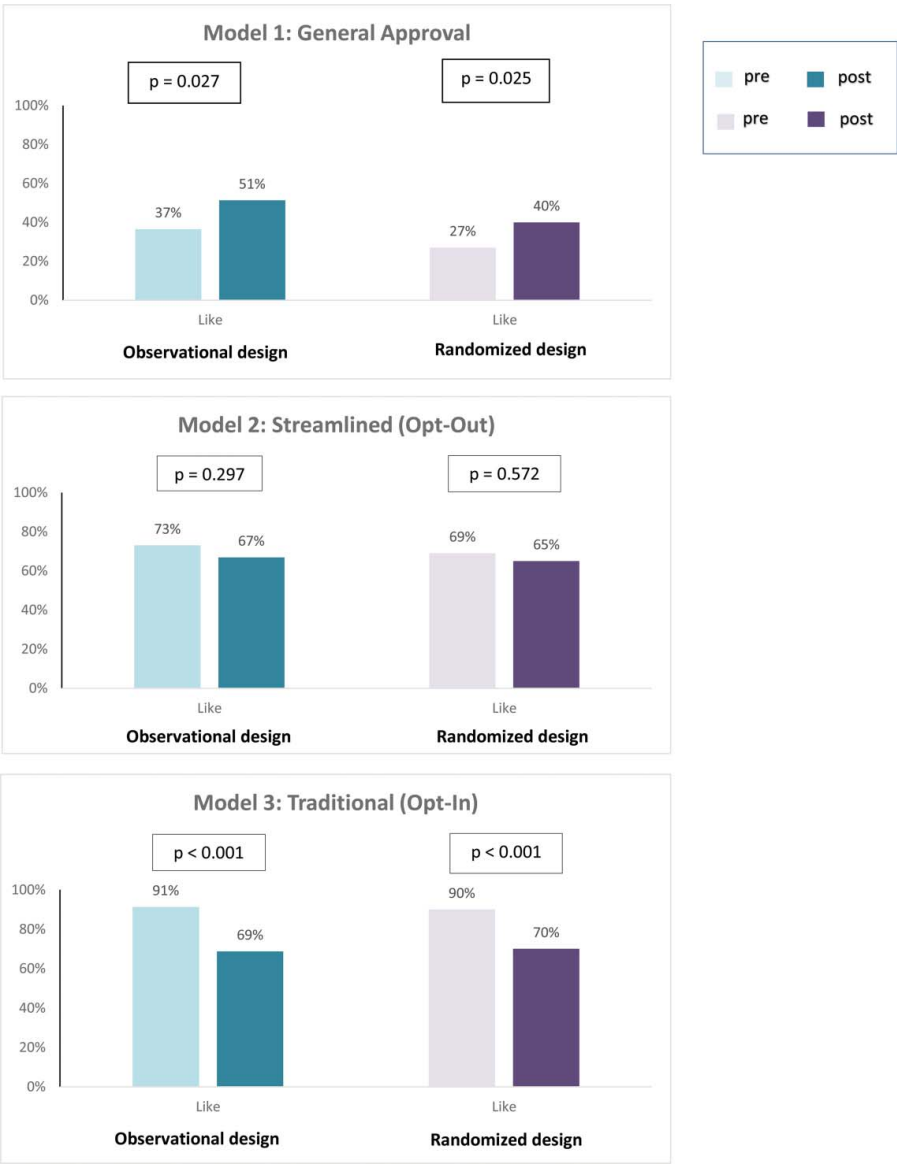

Figure 1. Pre-Post Comparison of Respondents Liking Consent/Disclosure Models with McNemar's P-values.

Approval, and fewer liked Opt-In, compared to attitudes at the beginning of the day. A pre–post comparison across all five responses to the General Approval model showed no statistical differences. However, when we compared the collapsed categories of those who "liked" versus "didn't like" General Approval using a McNemar's test, there were significant differences pre- to posttest. More specifically, 37% liked General Approval for observational studies before deliberation, and 52% liked it afterward ($p = .027$). Of note, not every participant who liked it before deliberation still liked it after, but in total the proportion who liked it at the end of the day increased significantly compared to on the pretest. Further, 27% liked General Approval for randomized studies on the pretest while 40% liked it after deliberation ($p = .025$). There were significant shifts also in attitudes toward Opt-In consent approaches from pre- to posttest. When using the collapsed categories, 92% liked Opt-In on the pretest for the observational study while 69% liked it after deliberation for the observational study ($\leq .001$) (Figure 1). For the randomized study, 91% of participants liked Opt-In on the pretest while 69.6% liked it after deliberation ($p < .001$). In this case, the change in fewer people liking opt-in at the posttest was sustained when comparing across all five categories using the Kruskal–Wallis test.

Qualitative results

The previous section provided evidence about the degree to which participants liked and disliked the various models; this section presents qualitative findings where our goal was explaining why respondents had the views they did about the different disclosure/consent models. Seven main themes emerged when participants discussed what they did and didn't like about the three disclosure/consent models under the conditions and with studies described to them: (1) choice; (2) information; (3) privacy and confidentiality; (4) quality and efficiency of the research; (5) impact of the study on patient care; (6) trust; and (7) respect. Although there is certainly overlap between some of these themes, such as trust and respect, we felt that most split into cohesive and largely independent themes. These are presented in order of how frequently they

Table 5. Overview of reasons for liking or disliking the three consent models.

	General	Opt-Out	Opt-In
Reasons liked	• Maximizes data collection • Improves assessment of medication's effectiveness* • Consent process does not cut into appointment time	• Promotes choice • Some information provided • Improves assessment of medication's efficacy** • Control over how data is used • Faster than full informed consent (opt-in)	• Promotes choice • Most information provided • Control over how data is used • Improves assessment of medication's efficacy** • Full informed consent is most respectful of patients
Reasons disliked	• Eliminates patient choice • Study information provided to patient is inadequate • Could invade patient privacy or confidentiality • Potentially disrespectful of patients' rights	• Could reduce the amount of data that can be collected due to more refusals to be in the study • Less information provided to patients than Opt-In	• Could reduce the amount of data or information that can be collected due to more refusals to be in the study • Lengthy/time-consuming consent process can affect patient care

*Participants believed that this model would not affect patient adherence to treatment.
**Participants believed that this model would positively affect patient adherence to treatment.

were mentioned by participants in discussions. Table 5 provides an overview of the reasons participants cited for liking or disliking the three consent/disclosure models.

Choice

The most common theme mentioned in describing why participants liked or disliked different consent models concerned patients' right to make their own medical decisions, both for treatment and for participation in medical research. This theme emerged frequently when participants were discussing the General Approval model. One participant explained, "I have a right not to be forced to participate [in the study] … I would like to retain the right to participate, not be forced to participate" (JH9F2).[1] Other participants described choice being important to them for its own sake. One said, "Give me a choice. I'm the person that's going to be saying yes or no to it. No matter what, anything that involves my life, whether it's trivial or something that doesn't even matter to me" (G6M4). Another more succinctly stated, "I always like choices. That's my choice" (JH4M1). A few participants said that depriving a patient of his choice was undemocratic. One stated:

> This is America. This is not Russia … How dare you put me in something without my consent? … To automatically be put into a general approval or an automatic "in" that you must opt out of does not seem American to me, for one thing. It seems more like a dictatorship. (G3M2)

Many participants also felt that patient choice matters because it is important for patients to have control over medical decisions that could affect their health. One argued,

> You should have control over the medicines that go in your body, over the things that have to be done to you. I think that is very important that we should have our own voice heard as well as the doctor's voice. (G7F1)

Another participant similarly noted,

> I think in any medical decision made, it should be the person's decision, no matter what it is. It should be my decision. It's my money; it's my health; it's my body … it's my personal body. (G3M3)

Bodily integrity—the idea that "it's my body so it should be my choice"—was presented as another argument for the preservation of patient autonomy and choice in medical research, usually when participants were arguing against the General Approval model. One participant observed, "No, I don't think the general approval would be acceptable because you want to have a choice in what is gonna be put in your body—or what's gonna be taken out" (G1M7).

Information

The next most common theme, and closely related to patient choice, was patients' desire for information. Many participants expressed concern that the General Approval model provided patients with insufficient access to study information. Participant opinions of the disclosure/consent models were influenced by the accessibility of study information and the quantity of information provided to patients, and by how each affected patients' ability to make an informed decision about participation. Specifically, those who discussed the importance of information generally argued in favor of the Opt-In model and against the General Approval model. Further, those disliking the General Approval model often focused on the impersonal nature of providing information through a website or newsletter or simply the access challenges of finding information this way. One participant observed,

> Some people don't have Internet. I don't have Internet [in] my house, just on my phone. Some people don't have access to the website at all. Some people don't have cars to go to the library. It should be taken care of in your doctor's office. The doctor should sit down, explain to you this is what's going to happen … A lot of people are old and don't even know how to operate that kind of stuff. (JH8F1)

For many, the importance of information was linked to the importance of choice. One observed:

> All in all, the more information you have, the better consent you can give … The more information you have and can use will benefit everybody, but as long as you're told about it. 'Cause people don't like stuff held behind their back. They want to be up front and open about it, and as long as that occurs, most people will gladly [participate]. (G8M1)

By contrast, several participants thought the amount of information provided to patients under the Opt-In model was

[1] Here, and following, participants are identified by site (JH or G), table number, and gender. Thus, JH9F2 indicates JHCP DES, Table 9, female 2.

excessive and might deter patients and doctors from participating in research. One participant stated,

> I think [Opt-Out] gives the person a right of approval with [the right amount of] information. It doesn't give them sixty pages of a thousand pages of something that they'll never read. It gives them something and hopefully enough that they can [… make a choice]. (JH2M1F2)

Another stated:

> I mean I still want the knowledge, the option [to opt-out]. But to keep a balance where we still move forward and don't have all this red tape and stuff so that we don't make progress, then I still want to know. I still want to know. (G2F3)

Privacy and confidentiality

Patients' rights to privacy and confidentiality, especially regarding their medical records, was the third most common theme, particularly when participants discussed the acceptability of the General Approval model. Several participants suggested that medical information differs in some meaningful way from other personal information. Many felt that medical information is deeply personal and should not be shared with researchers without patients' explicit permission. One concisely observed, "[It]'s my personal body. It's my medical record. I have a right to keep that to myself" (G3M3).

Participants also raised concerns about the security of their data. Some wanted more information about protective measures that would be in place to ensure that data breaches do not occur; one asked, "What system has been set in place by the researcher's IT [information technology] department to ensure the protection as much as they can?" (JH3F1).

Although some participants proposed potential technological solutions to protect medical data, participants who discussed data security expressed some amount of skepticism that researchers would be able to keep patient data protected. Again, this concern was raised mostly by participants discussing the General Approval model, with a few suggesting that sharing medical records without explicit consent puts patient data at risk, and offering that researchers should avoid General Approval altogether to protect themselves from liability in the event of a breach:

> Look just what happened with the credit card situation with the Target company. You know now all your personal information is hijacked by a hacker. What could happen with your medical information …? If they don't at least tell you that your information is being part of the [study], I think that's a little bit of CYA where they're covering their backs. At least [with Opt-Out and Opt-In consent models] they told John, Jane Public that they're doing it. (G2M1)

The degree to which participants believed data could be kept secure and unidentifiable often influenced their disclosure/consent model preferences. Those who felt confident in the protection of their data also described feeling generally favorable toward the General Approval and Opt-Out approaches; one participant suggested that under General Approval,

> The client's identity is protected. There's no information, no address, no date of birth. All that's blacked out. So, what's the use of even informing the patient? He's going to be taking the medication anyway. (JH4M2)

A less trusting participant, however, said,

> You do not know how the authorities, whoever they are, are going to use private data down the road. And once you give identifying data into this pool that gets de-identified, nonetheless, it could be re-identified … [The General Approval] option gives us the least control of how the data is subsequently used let's say five years from now or ten years from now. Who knows?" (JH9M2)

Quality and efficiency of research

Next most common was participant interest in the quality of the research and study findings, and the efficiency with which they could be generated. Those participants who expressed that they value the quality of the research and study findings identified three primary areas as posing potential threats to research quality: the study design (randomized vs. observational), the effect of the disclosure/consent model on the quantity and speed of data collection, and the effect of disclosure/consent model on patient compliance with their assigned drug regimen.

Many participants thought that different disclosure/consent models might make sense for different study designs. Most participants recognized that a randomized trial could generate more valid results for the study, but not all were comfortable with the idea of being randomized without their consent. One participant explained,

> With a randomized trial … I might have an informed opinion which drug is better for me. And my doctor might have his or her opinion what's better for me. So, I'm being altruistic here and giving up a little bit of what's best for me medically because I want to help my fellow persons … So, in summary, for the randomized trial, I would say opting in is my recommendation. (JH4M2)

Another topic concerned how many study subjects would participate under the different disclosure/consent models, with related implications for study quality and speed. One participant summed up the "quantity" issue, saying,

> My observation is that it depends on how big of a database we want. If we want the maximum amount of database you're going to choose [General]. If we want a little less choose [Opt-Out]. And if we don't really care about the size of our database we would choose [Opt-In]. (G5M3)

Disclosure/consent models were sometimes discussed in terms of whether they would affect the efficiency of data collection. One participant stated:

> If you take [General] you're shortening the period of time for your [study]. Let's say you had [Opt-Out]. You got a medium period of time for a [study]. You take [Opt-In], you're stretching everything out … And if you're going to restrict the study period of time and its length that you're taking it's going to be detrimental to the studying of your case from the start … I would prefer that the [researcher] take the shortest period of time that they need to study that case. (JH5M4)

Finally, some participants thought that different authorization/consent models could affect patient adherence to study medications, which would in turn affect research quality. Some believed that patients who had affirmatively opted in to a study were much more likely to take their medication as instructed. One participant stated,

> I think Opt-In [is the best model] because once you sign that paper you've committed yourself to this. I mean you're really interested

> and I think you'd want to follow through on it. It might take longer to do it, but I think you'd get better subjects or whatever in your study. Cause they'd be committed. (G1F1)

Of note, however, several participants questioned whether increased compliance with the assigned drug regimen was actually a benefit from the standpoint of study quality. A conversation between two participants captured this:

> Female 1: [If] you opt in, then you're going to be more responsible. You're going to be more aware of taking it every day, taking care of— (JH4F1)

> Female 2: But wouldn't the results be a little bit different, too? … How can they be a true study, or research whatever because like you said … if you're going to take the time to go to your doctor and talk about the opt in, this and that, if you're going to get a better result, yeah. But you're not going to get the whole picture, though. You're only going to get the people that are more focused on themselves and their health. (JH4F2)

Participants like JH4F2 who questioned the benefit of increased compliance preferred the General or Opt-Out consent models for this reason.

Individual patient care

The next most common theme was the effect of research and the disclosure/consent model on individual patient care. Many participants felt strongly that a physician's first priority should be to provide high-quality care. One such participant noted that he would not be opposed to research being the second priority:

> My prime concern is to get treated for my ailment. My second—if I want, if that treatment's gonna help someone, the next person by being part of the [study] that's good. I'm all for that. I'm okay with that. But I'm going there to get treated. (G2M1)

Other participants were concerned that involvement in research could be detrimental to patient care generally, most typically because of the amount of time research might require of their physicians. This concern was mentioned specifically as a reason to oppose the Opt-In approach, which would require physicians to spend what some viewed as too much of their limited time with patients on disclosure of study information:

> My concern is … the doctor would take 15 minutes to explain it. Most office visits, the doctor is limited to 15 minutes. How is he gonna take this 15 minutes extra with each patient? (G3F1)

Still other participants argued that the randomized design affected patient care by fundamentally altering the doctor's role and the doctor–patient relationship. One participant said,

> Because the doctor is not acting as he normally would act, and you're being given a drug selected by a computer or some other system, and even though they are equally effective, I think you should have the option to not take part in that study. (JH1M10)

Some participants also noted that the randomization of drugs made them feel like "a guinea pig" (JH7M2), which generally led to them favoring more explicit Opt-In consent. Another participant stated,

> [While] I think the [randomized] study model is stronger, I think the care model is weaker … For me, full consent with an Opt-In would be what I would prefer. But minimally, there has to be an ability to say wait a second. It just seems to change my relationship with my doctor. I'm now not going and getting advice and care. Now, the point of their treating me is more towards the system … [We] analyze data so much that it actually negatively impacts the care. To me, this would fundamentally change my relationship with my doctor. (JH8M2)

This concern was absent from small-group discussions of the observational study design. Many participants liked that the observational study design did not affect the way that the doctor would normally act; one participant argued,

> As long as the doctors continue to prescribe the way the doctors do, see that's what—you're not losing anything because you're going to go there. And the doctors are going to give you that care … they're not changing anything about their care. (JH9M1)

This neutral impact of research on care led many participants to argue for less demanding disclosure/consent approaches, or, as one participant put it, fewer "controls" for observational studies:

> For the observational, I could—I would recommend the general approval. It's a post hoc record review. It doesn't affect treatment … I just think because this is a record review after the fact that those controls don't have to be there. (JH8M2)

As this participant's argument highlights, the General Approval model appeared more appealing to some participants when discussing the observational study design, in large part because this design had no effect on patient care.

Trust

The next most common theme was that of trust. Participants frequently raised the issue of trust, and how trust in their physicians influenced their preferences regarding different disclosure/consent models. Participants who said they trusted their own doctors argued in small-group sessions in favor of the General Approval model. One participant declared, "I trust my doctor. I trust him a lot. I trust that if something—if it was a medication that he feel would help me … I would be comfortable with [General Approval]" (JH8M1). Another supporter of General Approval stated, "I like general. I think general's best … because I put my faith and trust in [my doctor], for one. He went to school to be a doctor" (G4M2).

Not all participants shared this faith in the medical profession, however. Many suggested that trust in physicians may be influenced by other interests, particularly financial, that can undermine physicians' commitment to patients' best interests and also have implications for study design. Some participants also mentioned distrust of physicians as a reason why they preferred the Opt-In and Opt-Out disclosure/consent models. One stated:

> I would say for myself with everything as it is right now, not 30 years, not this perfect system, I'd probably more likely go for [Opt-In] because I don't trust anybody. I think everybody has an agenda of their own to make money, to push their research. (JH2F3)

Some participants also expressed mistrust of research. One participant linked fear of being treated like a guinea pig with mistrust of the medical system, saying,

> Some people also don't like to be part of a General [Approval] study because they feel like they're guinea pigs or they don't trust, older

> people especially in my generation are [less] trustful. I've heard lots [from] my dad and my neighbor "I don't wanna be a guinea pig." They don't trust it. They're afraid of the health care system. (G9F2)

Although this GHS DES participant was speaking about mistrust of the health care system in general, several participants from the JHCP DES also discussed their mistrust of JHCP, which they said made them leery of the General disclosure/consent model. One JHCP participant noted that

> Being raised in East Baltimore, being raised around Johns Hopkins, listening to the community, the community has this perception that Johns Hopkins does research without their knowledge. This is a perception that's in the community. And they need to get beyond that. So, the best way to handle that is to put everything out there in the open, give all the information, so that everyone has the facts. (JH4M3).

Respect

The final theme in what considerations influenced participants' views about the disclosure/consent models related to respect and, specifically, respecting the dignity and humanity of patients. Several participants expressed concern that, by not directly informing patients of research, the General Approval model failed to respect patients; many argued that Opt-Out and Opt-In consent models were preferable for this reason. One participant said of the General Approval model:

> I'm not gonna say "I'm just gonna treat you like a guinea pig and you're not gonna know anything about it," because I wouldn't like that. So personally on an ethics board I wouldn't choose that for you either. (G2F3)

This belief that failing to directly inform patients about research is a failure to respect their human dignity was raised many times and was often expressed using the language of dehumanization and treating patients like "guinea pigs." Indeed, the term "guinea pig" was invoked 36 times and at nearly every table. Concerns about the need to choose disclosure/consent models that were respectful were particularly acute when discussing randomized studies. One participant observed,

> I want that conversation to be more than we've got A and we've got B and the computer says you get B. Again, from a research standpoint, I understand. It's better. For me, from a patient standpoint, that leaves me feeling a little guinea piggish. (JH8M2)

Some participants argued either for Opt-In or for Opt-Out based on the notion of respect being important to them and their wanting to be expressly told about the research. One participant explained his preference for Opt-In saying, "On [Opt-In], you're not treated … anonymously like a number. The doctor has to sit down and treat you like a human being and tell you what he's going to do with the data" (JH9M2). Another noted that

> I'm an [Opt-Out] guy. I just happen to believe it's important that people know when there's a study going on and they are involved … I think there are too many things on our planet nowadays going on that show total disregard for people involved and I think at some point especially in your healthcare that people have a right to know that they are part of a study. (JH7M1)

Discussion

Patients from GHS and JHCP participated in a day-long discussion about comparative effectiveness research, learning health care, and the advantages and disadvantages of different disclosure and consent models for two different low-risk CER designs (observational and randomized). Although JHCP and GHS health systems are organized differently and serve different populations, there were no differences between GHS and JHCP participants' views about consent options. After deliberation, the majority of these 137 participants liked both the Opt-Out and Opt-In options for both the observational and randomized designs. That most patients find Opt-Out acceptable, even for a CER randomized trial, is particularly striking given that Opt-Out approaches are not currently used for randomized, comparative effectiveness studies.

Unsurprisingly, participants' attitudes toward what we called a "General Approval" model—in which authorization for a study would be given by a Patient Ethics Committee without any direct conversation with patients or any patient choice—were less favorable than attitudes toward Opt-Out or Opt-In alternatives. What is perhaps more surprising is that the General Approval was as well received as it was; slightly more than half of our respondents had a favorable attitude toward General Approval for observational studies, and 40% liked it for randomized studies. This finding is probably a consequence, at least in part, of our having asked patients to imagine these studies occurring in the context of a fully functioning "Learning Health Care System." Such a system, we described, would be committed to patient engagement around determining what types of oversight different studies should receive, transparency about what studies were ongoing, and accountability to ensure that findings were used to improve patient care. Participants were asked to respond to the different authorization/consent models as if they were serving on an ethics board for a system structured in this manner. In discussion, those who liked the General Approval model often said they had trust in their doctor, and also that General Approval was most acceptable for observational studies, in which their care and their doctor's behavior are unaffected by the research. It is unknown whether we would have obtained similar patient responses for a system that more closely resembles typical health systems today. Curiously, on surveys, those who had more trust in their doctors liked General Approval approaches less; why this result emerged, and one that is different from what was articulated through discussion, is not clear.

It is also important to emphasize, however, that sizable numbers of participants disliked the General Approval model, especially for the randomized design. Numerous participants voiced concerns that General Approval eliminates a patient's ability to choose whether or not to participate in research and that it makes it difficult to access information about a study. Some felt that General Approval is disrespectful of patients and that it dehumanizes patients by treating them as "guinea pigs" or "numbers" with this concern most acute for randomized studies.

Our findings provide support for those who advocate continuing traditional consent requirements for low-risk CER, as well as for advocates of replacing traditional requirements with

a more streamlined, Opt-Out approach. Participants in favor of Opt-In argued that it provides the most information to patients and gives patients the most control over how their data would be used. They also argued that Opt-In is more respectful of patients, as it requires the doctor to have a longer conversation about the research with the patient and protects a patient's right to choose to participate. Participants favoring Opt-Out felt that the Opt-In model is too restrictive and would reduce the pace at which research could be conducted. They also expressed concern that requiring a doctor to discuss the full details of every research study with patients would take away from more valuable uses of limited appointment time, potentially reducing the quality of their medical care.

Some participants viewed the Opt-Out model as a nice balancing of the arguments for and against the other models and in relation to both observational and randomized designs: as one participant put it, a "good middle of the road approach" (JH7M3). For these participants, Opt-Out was hailed as better than General Approval in terms of protecting patient choice and better than Opt-In for both the quantity of research results it would generate and ability of doctors to focus on other clinical priorities during appointments. It is also worth noting that only 10 to 11% of participants disliked the Opt-Out approach, even for the randomized design, exactly the same percentage disliking the Opt-In model for both designs.

Perhaps most importantly, our findings provide insights about the kinds of patient concerns that policymakers need to consider in crafting appropriate strategies for disclosure and authorization for low-risk CER. For example, our findings suggest that preserving "choice" is very important to patients; some patients said they want all choices that affect their care left to them. It is unclear how patients' stated desire to be involved in "all choices" would be affected by additional discussion about the vast number of care decisions made in which they currently are not involved—and then how this awareness potentially would affect their views about choice and low-risk CER. Future research should situate discussions with patients about low-risk CER within a realistic understanding of the range of decisions made routinely in health care environments in which patients are typically not engaged. This is not to suggest that patients would or should not value being able to discuss or decide about research participation, but rather that determining which activities and decisions should be discussed requires thoughtfulness and we cannot assume that patients can or should be involved in literally all decisions, including those that can have fairly significant impacts on the quality and outcomes of their care.

Our findings also suggest that advocates of streamlined approaches for randomized low-risk CER studies need to pay particular attention to giving patients meaningful opportunities to decline participation and to being able to make honest assurances about data security. Also important will be ensuring that the quality of patient care and of the doctor-patient relationship are unaffected. Data suggesting that medical outcomes of participants in clinical trials are better than or equivalent to, on average, those of patients in "usual care" may be relevant here (Braunholtz, Edwards, and Lilford 2001; Fernandes et al. 2014; Vist et al. 2005). Unfortunately, most such data currently come from trials testing unapproved treatments. Although few studies compare outcomes of patients enrolled in CER studies to those of patients not enrolled, findings from one highly visible CER study (SUPPORT 2010) and other retrospective analyses (Foglia et al. 2015) seem to suggest that participating in a CER randomized study may be associated with better, if not equivalent, outcomes (Khera et al. 2015; Lantos and Feudtner 2015).

By contrast, to address concerns raised by our participants, advocates of traditional consent requirements need to focus on finding ways to keep these requirements from making it difficult for CER studies to be conducted. They also need to ensure that lengthier consent obligations do not take away from the physician–patient encounter. Even opt-in approaches that are a bit shorter in length than much of current practice could improve this particular challenge while also, our data suggest, likely being acceptable to patients.

It is also noteworthy that participants debated the pros and cons of different disclosure/consent options in terms of their likely impact on study validity, marshaling arguments that parallel those in professional circles (Nallamoth, Hayward, and Bates 2008; Tunis, Stryer, and Clancy 2003). Some participants suggested that patients' adherence to the medication under study would be better with the Opt-In approach in which more detailed information is provided; others said that even if this were true, mixed adherence might better approximate how patients take their medicines in the real world and might provide more relevant findings.

Our findings underscore the importance of directly engaging patients to discern their concerns and priorities regarding appropriate consent practices and policies, but also for doing so with patients who have some understanding of what CER is, the specifics of research design, and how consent models operate. Researchers and institutional review board members generally recommend a particular approach for consent or disclosure after weighing a range of factors, including the study design, the setting of the study, the effect of different approaches on recruitment rates, and the need for evidence to improve patient care; we were interested in whether introducing similar factors with patients would have an impact on which disclosure/consent options they found acceptable. Indeed, the proportions of patients liking different models did change after engaging in lengthy discussion with their peers about trade-offs among these factors: On prediscussion surveys, 90% of participants liked opt-in consent for both the observational study and the randomized study. After discussion, this figure dropped to less than 70%. Similarly, while about one-third of participants liked General Approval at the start of the day, the percentage increased to 40–50% by the day's end. Methodologically and in terms of public policy, these findings suggest that context matters, and that giving participants more information about what is not yet known about the clinical management of a particular condition and about trade-offs in design and consent options will likely affect their views.

This study had several limitations. It was designed to be a pilot study with a limited number of patients who participated in a single deliberative engagement session. Multiple sessions would have allowed us to see whether changes in attitudes were sustained over time. It is encouraging that there were no differences in patient attitudes between JHCP and GHS, which were

selected because of marked differences in demographic make-up and health care institutional structure. Still, inclusion of patients from other health systems would have allowed us to better understand the robustness of our findings.

We should also emphasize that participants were introduced to the concept of a learning health care system, which we characterized as including patient involvement in CER oversight, transparency about the nature and extent of CER activities, and accountability for translating CER findings into improved patient care. Future research should establish the extent to which patients' attitudes toward authorization/consent are influenced by these respect-expressing practices, and the learning health care system context, more broadly. We presented the studies in the context of a LHCS with the thought that patients might find streamlined consent options more acceptable when research is conducted within systems that engage patients in decision making and where study results are used more directly to improve care within the same system. It is very possible that patients' views might have been different in an environment where such features were absent.

Increasing attention is being paid to what types of disclosure and consent are appropriate for comparative effectiveness studies, and debates have ensued not only in the scholarly literature but in high-level policy circles as well. Our findings, consistent with those of other emerging studies (Whicher, Kass and Faden 2015; Cho et al. 2015), provide some preliminary data that patients find opt-out approaches acceptable for low-risk comparative effectiveness studies, including studies that are randomized. A key finding from our participants is that they want to be told about studies, and want to be given a choice about whether or not to enroll; moreover, after discussion, they seem influenced by the idea that if doctors need to spend significant time discussing research studies with them during clinical visits, not only might recruitment for important studies be limited, but important clinical discussions that patients value might be shortchanged as well.

Our findings suggest there may be much more flexibility in patients' minds about how the values of being informed and being given a choice can be operationalized in CER than we are seeing on the policy front. More work in this area may have an impact on both clarifying whether patients in other settings share these views and whether policymakers will respond.

Acknowledgments

The authors thank Drs. Jon Darer and Rebecca Stametz from Geisinger Health System, Dr. John "Bill" McEvoy from Johns Hopkins University School of Medicine, and the team members at the Center for Medical Technology Policy for DES facilitation and other help with this project. We also thank all of our DES participants for sharing their time and valuable insights.

Author contributions

NK, RF, DW, and ST were responsible for conceptualizing the project. NK, RF, and ST gave DES presentations. REF, SM, KH, DW, RM, DM, and JP collected data; REF, SM, and KH were responsible for coding and data analysis. NK, RF, REF, SM, KH, and DW drafted initial versions of the article. All authors contributed to article editing and revision.

Funding

This research was supported by contract number IP2PI000487-01 from PCORI.

Conflicts of interest

None. Danielle Whicher is currently a Program Officer at the Patient Centered Outcomes Research Institute (PCORI). However, all of the work she contributed to this project was completed while Dr. Whicher was a PhD candidate at the Johns Hopkins Bloomberg School of Public Health and a research coordinator at the Johns Hopkins Berman Institute of Bioethics before her work at PCORI. Dr. Whicher's views and those of the authors do not necessarily represent the views of PCORI or of its Board of Governors or Methodology Committee.

Disclaimer

All statements in this report, including its findings and conclusions, are solely those of the authors and do not necessarily represent the views of the Patient-Centered Outcomes Research Institute (PCORI) or of its Board of Governors or Methodology Committee.

Ethical approval

This study was approved by the institutional review board(s) at the Johns Hopkins Bloomberg School of Public Health and the Geisinger Health System.

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