antidote

Partner, not participant

The clinical trial decision-making process by condition area and demographics

In collaboration with:

For additional resources, including further analyses of the data collected from this survey, please visit: **https://www.antidote.me/antidote-whitepapers.**

Introduction

We know that participation in clinical research is not as high as it should be, and that this affects the delivery of new diagnostics and treatment options.

By some estimations, 80% of clinical trials are delayed or closed because researchers can't find enough patients to take part.[1] Less than 10% of the American population participates in trials.[2] Without enough patients taking part in clinical trials, there is not enough information for the Food and Drug Administration to evaluate and approve new treatments. This, of course, means that countless patients continue to wait for new and potentially better treatment options, and trial sponsors are losing time as well as money. For example, some research indicates a delayed trial can cost as much as $8M a day when taking opportunity cost into consideration. Without patients, research simply cannot move forward.

But how can we ensure that trials are designed in ways that will encourage participation, and that trial opportunities are reaching the patients who need them most? The first step is to understand the challenges to participation.

In 2018, Antidote worked with SCORR Marketing and eight partner organizations across therapeutic areas to survey 3,942 patients and caregivers about their attitudes towards clinical research. The partner organizations were the American Kidney Fund, Allergy & Asthma Network, Healthline, JDRF, Lung Cancer Alliance (now GO_2 Foundation for Lung Cancer), Lupus Research Alliance, Melanoma Research Alliance, and Multiple Sclerosis Association of America. The goal of this survey was to understand how best we can engage patients around research and encourage participation among those who are interested.

Our research suggests that context is key when considering whether the logistics of a trial will appeal to a patient, and what will motivate that patient to take part in a trial. A few truths held across all populations surveyed:

- Patients don't want to feel like they are in the dark about research – its intent, what they should expect, risks and benefits, etc. The more information shared, the better
- All groups across therapeutic areas and socioeconomic statuses are most interested in speaking with doctors and research coordinators when considering their trial options – which points to the need to communicate more effectively about trials with doctors
- All groups are most interested in taking part in trials focused on extending life and ensuring that the trial won't interfere with a condition or make it worse. With this understanding, recruitment messaging should highlight these factors as appropriate given the regulations around making claims in trial recruitment

But, there were also key differences across conditions, races, sexes, income levels, and education levels. For example, we examined several logistical factors, and found that people of color, women, and/or those of lower socioeconomic status all rated logistical factors such as travel time and not missing work as more important than those who are white, male, and/or wealthier. And, when looking at what motivates patients to take part, these same groups are more motivated by financial aspects of taking part in a trial – reimbursement, payment, and the receipt of free or reduced-cost healthcare.

On the face of it, findings about the importance of contextualizing trials for different populations make sense – but what do they mean for the actual practice of engaging around clinical trials? This whitepaper will examine our findings in detail, outlining ideas for improving trial logistics and highlighting various motivating factors to make patients feel like true partners in research and ensure that typically underrepresented populations are given the opportunity to take part.

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Methods and respondent profile

The methods and respondent profile are outlined in a previous whitepaper regarding how race and condition impact trial type preferences.[3] Of note, the sample was collected through an online survey distributed via the advocacy organizations mentioned earlier between June 18 and August 21, 2018 and included individuals living with various conditions in the US. The sample we collected was predominantly female and non-Hispanic white, though additional races as well as males were represented. In order to better assess the relationship between condition and demographic characteristics, we collapsed the categories of conditions into three categories: 1. Oncology, 2. Chronic with acute onset of symptoms, 3. Chronic. In terms of sex, we collected sex assigned at birth rather than the gender respondents identify as, because this is frequently-used eligibility criteria in clinical trials. About a quarter of respondents had participated in a clinical trial.

Table 1: Count and percentage of sample self-reported demographic characteristics

	Count	% of total sample
Race		
American Indian/Alaskan Native	27	0.7%
Asian	48	1.2%
Black/African American	295	7.5%
Native Hawaiian/Pacific Islander	10	0.3%
White	3,347	84.9%
Other, including multiple races selections	215	5.5%
Recategorized race category		
White	3,347	84.9%
Non-white	595	15.1%
Ethnicity		
Hispanic	186	4.7%
Non-Hispanic	3,673	93.2%
Prefer not to answer	83	2.1%
Sex assigned at birth		
Female	3,133	79.5%
Male	791	20.1%
Prefer not to answer	18	0.1%

Table 2: Recategorization of conditions

Oncology	Chronic with Acute Onset	Chronic
Lung cancer Melanoma	Asthma/allergy Gastro	Lupus Kidney disease Multiple sclerosis Type 1 diabetes

Turning patients into research partners: What helps most?

One common concern from patients around clinical trials is the fear of being seen as a "guinea pig" – a depersonalized research subject kept in the dark about the realities of the study. In a survey of cancer survivors, African Americans and Hispanics were more likely than white respondents to cite fear of being seen as a guinea pig as a reason not to participate in research.[4]

To combat this belief, in our survey, we asked patients what would make them feel like a partner in a clinical trial. Interestingly, all condition areas had the same top three choices: talking with doctors involved in research, talking with nurses involved, and talking with other patients who have taken part in research. Across condition areas, talking with the doctors, clinical trial coordinators, and nurses involved in the trial was most important to patients. Oncology patients in particular may benefit from talking with other patients with a similar diagnosis who have participated in clinical trials. Though hearing from peers still ranked third in importance for oncology patients, a higher percentage of patients selected it compared with chronic/acute and chronic disease patients.

"In some areas of oncology, such as lung cancer, we are seeing organized patient groups who all have a specific molecular alteration in their cancer. These subsets of patients have more in common and undergo similar treatment paths," notes Jennifer C. King, PhD, Senior Director, Science & Research at GO_2 Foundation for Lung Cancer. "It may be the influence of these peers with more personal, highly-relevant experiences to share that causes oncology patients to rank peer involvement higher than other types of patients."

Table 3: Count and frequency by condition type of respondents who answered "likely" or "very likely" to the question: What would make you feel like a partner in a clinical trial? (Note: Oncology served as referent group for statistical analysis.)

	Oncology (n=695)		Chronic/Acute (n=813)		Chronic (n=2,434)	
	Count	**Freq.**	**Count**	**Freq.**	**Count**	**Freq.**
Talking with the doctors involved in the research	644	92.7%	712	87.6%**	2,218	91.1%
Talking with the clinical trial coordinators and nurses	635	91.4%	715	88.0%*	2,201	90.4%
Talking with other patients like me who have taken part in a clinical trial	603	86.8%	600	73.8%**	1,946	80.0%**
Talking with the hospital or the company responsible for the research project	523	75.3%	564	69.4%*	1,829	75.1%

*p< .05 ** p<.01

African American and Hispanic communities in particular have traditionally reported higher levels of mistrust toward clinical research, in part because of highly unethical studies conducted in the past – though trust ratings have improved recently.[5] We were interested to see which factors in building a research partnership were most important to non-white patients.

In our survey, both Hispanic individuals (p<.01) and non-white individuals (p<.05) said talking with the hospital or company responsible for the research was more important than did their white, non-Hispanic peers (82.8% v. 73.8%, and 77.3% v. 73.4%, respectively). In other words, non-white patients may be more interested than their white peers in communicating not just with the doctors conducting the research, but with the trial sponsor, as well. Hispanic and non-white patients were also more interested than white respondents in hearing from peers who have participated in research. While our sample size of Hispanic respondents was small, our results were statistically significant.

Outreach campaigns that include information on the rationale behind the research from the study sponsor, for example, may help inspire trust and provide information that helps patients understand why and how the trial is being conducted. Patient focus groups held by study sponsors can also help, as well as connecting patients with others who have participated in research.

Why don't eligible patients join clinical trials?

Some trials struggle to enroll patients in part because of difficult eligibility criteria. For other trials, finding eligible patients isn't a problem – it's taking the next step and enrolling patients that is the challenge.

The National Institutes of Health (NIH) conducted a study exploring why eligible patients chose not to participate in a study.[6] They divided their reasons into five different categories: specific protocol issues, inconvenience, other reasons not mentioned, financial reasons, and deciding to participate in a different clinical trial.

The most patients in the NIH study (36%, N=345) chose not to participate because of protocol issues. Participants in the survey cited a range of reasons they chose not to participate related to protocol, including the length of the studies, concerns around procedures such as MRI scanners and blood draws, and lack of interest in placebo-controlled studies.

The second-most highly ranked category (33%, N=323), inconvenience/lifestyle issues, included inability to take time off of work, inability to travel to the research site, and lack of flexibility in the participant's schedule.

In our survey, we wanted to explore how important certain logistical and protocol-related barriers and solutions are to patients. Respondents in all condition categories ranked the following factors high: willingness to undergo the medical procedures required by the study, ability to complete the trial, availability of someone to answer questions, and ease of travel to the study site. These results track with the protocol and convenience-related motivators explored in the NIH study. A patient may feel that they wouldn't be able to complete the entire study if the study visit schedule, site location, or procedures seem too onerous – all common responses in the NIH study as well.

Having someone available to answer questions was also significant to respondents and may be important to highlight in outreach materials or in informed consent conversations. Patients don't want to feel like they're being kept in the dark about research procedures and having someone on hand to answer questions can help. This was particularly important to oncology patients.

Patients don't want to feel like they're being kept in the dark about research procedures and having someone on hand to answer questions can help.

Table 4: Count and frequency by condition type of respondents who answered "likely" or "very likely" to the question: If you were considering taking part in a clinical trial, how important would the following be to you? (Note: Oncology served as referent group for statistical analysis.)

	Oncology (n=695)		Chronic/Acute (n=813)		Chronic (n=2,434)	
	Count	Freq.	Count	Freq.	Count	Freq.
A doctor or nurse comes to my house for some or all of the check-ins that I am required to have in order to participate in the trial.	248	35.7%	294	36.2%	1,090	44.8%**
I believe I can attend all the appointments at the trial site for the study.	617	88.5%	668	88.3%	2,142	88.0%
I can get to the location of the trial easily.	603	88.8%	757	93.1%**	2,227	91.5%*
I am willing to undergo the medical procedures or tests involved in the study.	651	94.1%	761	93.6%	2,255	92.7%
I feel I can complete the entire trial.	639	91.9%	782	96.2%**	2,310	94.9%**
I won't have to take time away from my job, my school or my other obligations in order to participate.	424	61.0%	613	75.4%**	1,676	68.9%**
Someone is available to help me with my questions throughout.	656	94.4%	751	92.4%	2,206	90.6%**
I am given equipment to track my participation or symptoms (such as a fitness watch) or I can go to a website to enter information.	499	71.8%	690	84.9%**	2,020	83.0%**

*p< .05 ** p<.01

Table 5. Odds ratios of saying the following factors were "important"or "very important" when considering taking part in clinical trials. Adjusted odds ratios account for race, ethnicity, sex, education, and income.

	Chronic/Acute		Chronic	
	Crude	Adjusted	Crude	Adjusted
A doctor or nurse comes to my house for some or all of the check-ins that I am required to have in order to participate in the trial.	1.02 (0.83, 1.26)	0.88 (0.71, 1.10)	1.46 (1.23, 1.74)**	1.22 (1.02, 1.46)*
I believe I can attend all the appointments at the trial site for the study.	0.98 (0.72, 1.35)	0.97 (0.70, 1.33)	0.95 (0.73, 1.24)	0.92 (0.70, 1.20)
I can get to the location of the trial easily.	1.71 (1.19, 2.45)**	1.49 (1.04, 2.16)*	1.36 (1.03, 1.79)*	1.18 (0.89, 1.57)
I am willing to undergo the medical procedures or tests involved in the study.	0.92 (0.60, 1.40)	0.96 (0.62, 1.47)	0.79 (0.56, 1.12)	0.85 (0.60, 1.22)
I feel I can complete the entire trial.	2.21 (1.41, 3.47)**	2.24 (1.42, 3.55)**	1.63 (1.18, 2.27)**	1.64 (1.17, 2.30)**
I won't have to take time away from my job, my school or my other obligations in order to participate.	1.96 (1.57, 2.44)**	1.85 (1.48, 2.31)**	1.41 (1.19, 1.68)**	1.35 (1.13, 1.62)**
Someone is available to help me with my questions throughout.	0.72 (0.48, 1.09)	0.71 (0.46, 1.08)	0.58 (0.41, 0.82)**	0.57 (0.40, 0.81)**
I am given equipment to track my participation or symptoms (such as a fitness watch) or I can go to a website to enter information.	2.20 (1.71, 2.84)**	1.97 (1.52, 2.55)**	1.92 (1.58, 2.33)**	1.67 (1.37, 2.05)**

*p< .05 ** p<.01

Some barriers and concerns are relatively easy to account for in the screening or informed consent process. For example, patients may be asked during pre-screening whether they would feel comfortable completing multiple MRI scans, or having their blood drawn on a regular basis. During the informed consent process, research teams can make it clear to patients that they're free to ask questions throughout the study, reaffirming that they're partners in the process.

In order to reduce logistical burdens of study participation, the research community has started to explore a few different approaches. Both home visits and smart devices that track symptoms can reduce the number of required in-person site visits and make it easier for patients to take part. Each approach comes with additional up-front costs and logistical challenges for research teams, but our study suggests that they may be particularly helpful in boosting enrollment among difficult-to-reach patient populations with certain conditions.

For example, in our research, for all groups, having home visits for some or all of the trial check-ins ranked last in importance overall. However, individuals living with chronic disease were significantly ($p<.01$) more likely to say this was "important" or "very important." Those with chronic/acute and chronic diseases also thought it was more important to have equipment to track or monitor their symptoms than their peers living with cancer did ($p<.01$). These findings suggest that individuals living with cancer may find it more important to see doctors at a medical facility, or may simply be used to regular doctor's visits. Those with chronic or chronic/acute conditions may prefer the opportunity to track their symptoms themselves. The nature of the condition may also play a role. Certain chronic and chronic/acute conditions, such as MS and lupus, can reduce mobility or cause significant fatigue, making home visits and electronic symptom trackers more helpful.

When analyzing results by race, home visits appealed more to Hispanic and non-white individuals, compared with non-Hispanic and white survey participants (62.4% v. 40.2%, $p<.01$ and 58.5% v. 38.4%, $p<.01$ respectively). Providing some visits at home may be one engaging way to help Hispanic and non-white patients participate in research.

We saw similar patterns when analyzing the data based on income level. In particular, we noticed a near dose response difference in the importance of having someone visit the home for some of the visits ($p<.01$) and being given equipment to track symptoms ($p<.01$). Each decreased in importance with each increase in income level. Having someone available to attend some or all visits at a person's home also experienced a dose response answer when evaluated by education level, with a decrease in the importance of this factor with each increase in education level ($p<.01$). Interestingly, the significance of the condition-specific findings regarding logistical factors like having access to home visits either is diminished or disappears entirely when adjusted for race, sex, ethnicity, income, and education level. Other differences, like access to individuals who can answer questions, not having to take time away from commitments, and using a digital health tracker remained highly significant when controlling for the other variables.

Research suggests that those from lower socioeconomic backgrounds are less likely to participate in research.[7] While home visits and electronic device tracking aren't a top priority for all patients, according to our findings, they are more important to those of lower SES. These programs, which can reduce site visits and logistical concerns, may help trial participation seem more feasible to more patients.

Finally, men and women answered questions regarding logistical barriers in a significantly different way, as well. Women reported not having to take time away from work, school, or other obligations as much more important than men did (70.9% and 60.6% $p<.01$). Designing trials with flexible schedules, whether or not through home visits, may be particularly meaningful for women interested in taking part. We did not see differences at the sex level on solutions to time commitment concerns, such as tracking devices or home visits.

Designing trials with flexible schedules, whether or not through home visits, may be particularly meaningful for women interested in taking part.

Table 6: Count and frequency by race and ethnicity of respondents who answered "likely" or "very likely" to the question: If you were considering taking part in a clinical trial, how important would the following be to you? (Please note: Non-white and non-Hispanic individuals served as the referent group for statistical analysis.)

	Non-White (n=595)		White (n=3,347)		Non-Hispanic (n=3,673)		Hispanic (n=186)	
	Count	Freq.	Count	Freq.	Count	Freq.	Count	Freq.
A doctor or nurse comes to my house for some or all of the check-ins that I am required to have in order to participate in the trial.	348	58.5%	1,284	38.4%**	1,476	40.2%	116	62.4%**
I believe I can attend all the appointments at the trial site for the study.	529	88.9%	2,945	88.0%	3,228	87.9%	174	93.6%*
I can get to the location of the trial easily.	553	92.9%	3,048	91.1%	3,358	91.4%	172	92.5%
I am willing to undergo the medical procedures or tests involved in the study.	535	89.9%	3,135	93.7%**	3,341	93.4%	165	88.7%*
I feel I can complete the entire trial.	560	94.1%	3,171	94.7%	3,477	94.7%	179	96.2%
I won't have to take time away from my job, my school or my other obligations in order to participate.	434	72.9%	2,279	68.1%**	2,519	68.6%	135	72.6%
Someone is available to help me with my questions throughout.	544	91.4%	3,069	91.7%	3,366	91.6%	174	93.6%
I am given equipment to track my participation or symptoms (such as a fitness watch) or I can go to a website to enter information.	519	87.2%	2,690	80.4%**	2,983	86.0%	160	81.1%

*p< .05 ** p<.01

Table 7: Count and frequency by sex of respondents who answered "likely" or "very likely" to the question: If you were considering taking part in a clinical trial, how important would the following be to you? (Please note: Females served as the referent group for statistical analysis.)

	Female (n=3,133)		Male (n=791)	
	Count	**Freq.**	**Count**	**Freq.**
A doctor or nurse comes to my house for some or all of the check-ins that I am required to have in order to participate in the trial.	1,274	40.7%	347	43.9%
I believe I can attend all the appointments at the trial site for the study.	2,757	88.0%	702	88.8%
I can get to the location of the trial easily.	2,893	92.3%	692	87.5%**
I am willing to undergo the medical procedures or tests involved in the study.	2,919	93.2%	734	92.8%
I feel I can complete the entire trial.	2,969	94.8%	747	94.4%
I won't have to take time away from my job, my school or my other obligations in order to participate.	2,220	70.9%	479	60.6%**
Someone is available to help me with my questions throughout.	2,884	92.1%	712	90.0%
I am given equipment to track my participation or symptoms (such as a fitness watch) or I can go to a website to enter information.	2,572	82.1%	621	78.5%*

*p< .05 ** p<.01

Table 8: Count and frequency by income level of respondents who answered "likely" or "very likely" to the question: If you were considering taking part in a clinical trial, how important would the following be to you? (Please note: Individuals earning less than $50,000/year served as the referent group for statistical analysis.)

	Less than $50,000 (n=1,462)		$50,000-$99,999 (n=1,086)		$100,000+ (n=744)	
	Count	Freq.	Count	Freq.	Count	Freq.
A doctor or nurse comes to my house for some or all of the check-ins that I am required to have in order to participate in the trial.	704	48.2%	423	39.0%**	240	32.3%**
I believe I can attend all the appointments at the trial site for the study.	1,299	88.9%	947	87.2%	653	87.8%
I can get to the location of the trial easily.	1,361	93.1%	994	91.5%	664	89.3%**
I am willing to undergo the medical procedures or tests involved in the study.	1,369	93.6%	1,007	92.7%	700	94.1%
I feel I can complete the entire trial.	1,389	95.0%	1,035	95.3%	704	94.6%
I won't have to take time away from my job, my school or my other obligations in order to participate.	997	68.2%	786	72.4%*	490	65.9%
Someone is available to help me with my questions throughout.	1,325	90.6%	999	92.0%	682	91.7%
I am given equipment to track my participation or symptoms (such as a fitness watch) or I can go to a website to enter information.	1,252	85.6%	874	80.5%**	568	76.3%**

*p< .05 ** p<.01

Table 9: Count and frequency by education level of respondents who answered "likely" or "very likely" to the question: If you were considering taking part in a clinical trial, how important would the following be to you? (Please note: Individuals with a high school diploma or less served as the referent group for statistical analysis.)

	High school diploma or less (n=479)		Some college (n=1,120)		College (n=1,247)		Some grad/ postgrad (n=1,035)	
	Count	Freq.	Count	Freq.	Count	Freq.	Count	Freq.
A doctor or nurse comes to my house for some or all of the check-ins that I am required to have in order to participate in the trial.	268	56.0%	512	45.7%**	487	39.1%**	339	32.8%**
I believe I can attend all the appointments at the trial site for the study.	433	90.4%	984	87.9%	1,099	88.1%	907	87.6%
I can get to the location of the trial easily.	437	91.2%	1,038	92.7%	1,137	91.2%	930	89.9%
I am willing to undergo the medical procedures or tests involved in the study.	444	92.7%	1,040	92.9%	1,151	92.3%	981	94.8%
I feel I can complete the entire trial.	450	94.0%	1,072	95.7%	1,182	94.8%	969	93.6%
I won't have to take time away from my job, my school or my other obligations in order to participate.	337	70.4%	769	68.7%	881	70.7%	679	65.6%
Someone is available to help me with my questions throughout.	436	91.0%	1,022	91.3%	1,138	91.3%	959	92.7%
I am given equipment to track my participation or symptoms (such as a fitness watch) or I can go to a website to enter information.	404	84.3%	941	84.0%	1,028	82.4%	785	75.9%**

*p< .05 ** p<.01

Accommodating women's concerns about the time commitment to participate in a trial is particularly important given that women have been historically under-represented in clinical trials. This means that in the past, there has not been good data about how even approved drugs will work in women's bodies – one article notes that "As a result, in many cases, women taking a drug have had to learn about its efficacy or safety the hard way."[8] This is evidenced by the fact that from 1997 to 2001, 80% of drugs pulled from the market due to "unacceptable health risks" were found to be more harmful to women than to men. A 2017 report by the FDA shows progress: today, women represent 43% of clinical trial participants, and the FDA continues to work for equal representation in studies.[9]

What motivates patients to join trials?

We've discussed the logistical concerns – why some patients may choose not to participate. Now, we'll consider the flipside, diving into some of the reasons people may consider taking part. Despite overall low participation numbers, people do seem interested in trials; a recent survey of 1,000 people by Research!America found that 90% of those surveyed believe clinical trials are somewhat or very important to advancing science, and that 87% viewed trials as important to the nation's health.[10]

Our own survey also revealed that patients are willing to take part if approached in the right way. By examining motivations based on the benefits of taking part, we can more comprehensively understand the issue of lack of patient participation in clinical trials – and devise ways to tap into existing interest to drive participation. In many cases, this can be done by tailoring messaging based on the condition, race, income levels, education levels, or sex of the target patient population.

In our survey, we looked at the following potential motivators for participation, then broke down responses to understand how things like condition, race, income, and education impacted response:

- Reimbursement for time and travel
- Payment for participation
- Receipt of health care at a free or reduced cost
- Doctor support in decision to take part
- Belief that the drug, therapy, treatment, or device being studied has been shown safe and effective in previous trials
- Access to a drug, therapy, treatment, or device not otherwise available
- Access to a drug, therapy, treatment, or device that could extend life or improve quality of life
- Lack of interference with current treatments or making condition worse

Of note, there were no significant differences in how caregivers responded to these questions versus patients.

There was a consensus among respondents that having access to treatments or devices that extend or improve life and ensuring that the trial wouldn't interfere with a condition or make it worse were the most important factors in their decision to take part in a clinical trial. People aren't interested in a trial making things worse for them, which of course makes perfect sense but adds an element of complication given that the outcome of clinical trials cannot be guaranteed. For oncology patients, extending life or improving available treatments were most important (97.4%).

We saw this at play when we asked about trial types, as well, as outlined in a previous whitepaper. People living with all condition types rated a trial for a new drug, therapy, treatment, or device to find a cure as most interesting to them in terms of participation. Chronic and chronic/acute patients rated observational trials high as well, while oncology patients were less interested in trials that did not involve new drugs, therapies, treatments, or devices.

When compared to patients with cancer, individuals living with chronic or chronic/acute conditions rated factors such as reimbursement for transportation (69.5% for chronic/acute and 59.3% for chronic versus 42.3% for oncology), payment to participate (51.5% for chronic/acute and 37.4% for chronic versus 19% for oncology), and receipt of health care at a free or reduced cost (70.6% for chronic/acute and 65% for chronic versus 59.6% for oncology) as more important.

From this data, one could infer that because the prognosis of cancer is typically worse than a chronic illness, financial incentives become less important as a patient's prognosis worsens. However, when controlling for all other factors – condition, sex, race, ethnicity, income, and education – the differences in ratings of the importance of receiving healthcare at a free or reduced cost is not significant. The implication here is that it may be less important to highlight free or reduced cost healthcare as a message versus other motivators in recruitment material or other clinical trial messaging.

Table 10: Count and frequency by condition type of respondents who answered "likely" or "very likely" to the question: If you were considering taking part in a clinical trial, how important would the following be to you?

	Oncology (n=695)		Chronic/Acute (n=813)		Chronic (n=2,434)	
	Count	**Freq.**	**Count**	**Freq.**	**Count**	**Freq.**
I am reimbursed for my time and travel.	294	42.3%	565	69.5%**	1,444	59.3%**
I am paid to participate.	132	19.0%	419	51.5%**	911	37.4%**
I can receive health care for free or at a reduced cost.	414	59.6%	574	70.6%**	1,582	65.0%**
My doctor supports my decision to participate.	616	88.6%	594	73.1%**	2,018	82.9%**
I believe the drug, therapy, treatment or medical device being studied has been shown to be safe and effective in previous trials.	621	89.4%	710	87.3%	2,165	89.0%
I can get access to a drug, therapy, treatment or medical device not otherwise available to me.	635	91.4%	645	79.3%**	1,981	81.4%**
The trial provides me with a drug, therapy, treatment or medical device that potentially could extend or improve the quality of my life.	677	97.4%	729	89.7%**	2,268	89.7%**
The clinical trial won't interfere with my current treatment or make my condition worse.	650	93.5%	760	93.5%	2,322	95.4%*

*p< .05 ** p<.01

When analyzing this same data set by income level, an inverse relationship between income level and the importance of financial factors (such as reimbursement, payment, or free healthcare) becomes apparent; the more money someone makes, the less important these financial factors are. This was true across all conditions, races, and education levels. A more comfortable financial situation allows one to deprioritize financial motivators to take part in clinical trials. While it is important not to emphasize these factors too much in recruitment outreach materials because of FDA guidelines around promoting financial benefits to trial participation, the socioeconomic status of potential patients should be considered. Financial factors should be clearly explained for those populations for whom it is more of a motivator.

Table 11: Count and frequency by income level of respondents who answered "likely" or "very likely" to the question: If you were considering taking part in a clinical trial, how important would the following be to you? (Please note: Individuals earning less than $50,000/year served as the referent group for statistical analysis.)

	Less than $50,000 (n=1,462)		**$50,000-$99,999 (n=1,086)**		**$100,000+ (n=744)**	
	Count	**Freq.**	**Count**	**Freq.**	**Count**	**Freq.**
I am reimbursed for my time and travel.	981	67.1%	623	57.4%**	336	45.2%**
I am paid to participate.	682	46.7%	367	33.8%**	171	23.0%**
I can receive health care for free or at a reduced cost.	1,068	73.1%	693	63.8%**	391	52.6%**
My doctor supports my decision to participate.	1,213	83.0%	865	79.7%*	598	80.4.%
I believe the drug, therapy, treatment or medical device being studied has been shown to be safe and effective in previous trials.	1,295	88.6%	957	88.1%	654	87.9%
I can get access to a drug, therapy, treatment or medical device not otherwise available to me.	1,213	83.0%	888	81.8%	610	82.0%
The trial provides me with a drug, therapy, treatment or medical device that potentially could extend or improve the quality of my life.	1,350	92.3%	1,011	93.1%	697	93.7%
The clinical trial won't interfere with my current treatment or make my condition worse.	1,387	94.9%	1,029	94.8%	697	93.7%

*p< .05 ** p<.01

This inverse relationship holds true with education as well: The more education someone has received, the less important they view the financial incentives to clinical trial participation. Though the relationships are less strong and in some cases not significant or appreciable, those with more education also appear to care less about a doctor's support of a decision to participate, about access to a treatment not available otherwise, or about life extension or improvement. Education level has been shown to have a direct relationship to health literacy, so these factors should impact the writing level at which recruitment materials discussing motivators are written.[11]

Table 12: Count and frequency by education level of respondents who answered "likely" or "very likely" to the question: If you were considering taking part in a clinical trial, how important would the following be to you? (Please note: Individuals with a high school diploma or less served as the referent group for statistical analysis.)

	High School Diploma or Less (n=479)		Some college (n=1,120)		College (n=1,247)		Some grad/ postgrad (n=1,035)	
	Count	Freq.	Count	Freq.	Count	Freq.	Count	Freq.
I am reimbursed for my time and travel.	301	62.8%	694	62.1%	748	60.0%	522	50.4%**
I am paid to participate.	221	44.1%	483	43.1%	458	36.7%**	284	27.4%**
I can receive health care for free or at a reduced cost.	345	72.0%	769	68.7%	836	67.0%*	579	55.9%**
My doctor supports my decision to participate.	406	84.8%	927	82.8%	1,022	82.0%	817	79.0%**
I believe the drug, therapy, treatment or medical device being studied has been shown to be safe and effective in previous trials.	440	91.9%	985	88.0%*	1,093	87.7%*	917	88.6%
I can get access to a drug, therapy, treatment or medical device not otherwise available to me.	404	84.3%	941	84.0%	1,023	82.0%	842	81.4%
The trial provides me with a drug, therapy, treatment or medical device that potentially could extend or improve the quality of my life.	448	93.5%	1,046	93.4%	1,171	93.9%	949	91.7%
The clinical trial won't interfere with my current treatment or make my condition worse.	459	95.8%	1,051	93.8%	1,190	85.4%	972	93.9%

*p< .05 ** p<.01

In terms of race, we saw an interesting trend emerge: Hispanic and non-white respondents rated these financial factors as more important than did non-Hispanics and whites. Specifically, Hispanics rated reimbursement 12.1% higher than non-Hispanics (69.9% versus 57.8%, p<.01), payment 17.7% higher (53.8% versus 36.1%, p<.01), and receipt of free or reduced cost healthcare 10.1% higher (74.7% versus 64.6%, p<.01). Non-whites rated reimbursement 16.1% higher than whites(72.1% versus 56%, p<.01), payment 22.4% higher (56.1% versus 33.7%, p<.01), and receipt of free or reduced cost healthcare 12.1% higher (75.5% versus 63.4%, p<.01). Race remained significant in the model when we controlled for other factors.

Because minorities have been and continue to be underrepresented in clinical research, these findings are critical. On June 6, 2019, the FDA issued draft guidance on increasing the diversity of clinical trial populations noting that industry can do this by adjusting trial design, eligibility criteria, and enrollment practices.[12]

The potential impact of this guidance remains to be seen, but what is clear is that change needs to happen. In a June 5 panel discussion at BIO, some recent statistics were shared: racial and ethnic minorities make up 39% of the population in the U.S., but estimated rates of clinical trial participation for this group ranges from 2% to 16%. Nearly 14% of Americans are black, but they make up less than 5% of trial participants, and while Latinos make up 18% of the U.S. population, they represent just 1% of clinical trial participants.[13,14]

It is very important that the numbers of minorities who take part in clinical trials increase to reflect their representation among the general population – especially in conditions, like lupus, liver disease, asthma, and Alzheimer's, that disproportionately affect minorities. Our findings have implications in terms of messaging for these conditions in particular; they also mean that it may be wise to develop materials emphasizing financial factors in both English and Spanish, depending on the population being targeted for a trial.

Table 13: Count and frequency by race and ethnicity of respondents who answered "likely" or "very likely" to the question: If you were considering taking part in a clinical trial, how important would the following be to you? (Please note: Non-white and non-Hispanic individuals served as the referent group for statistical analysis.)

	Non-White (n=595)		White (n=3,347)		Non-Hispanic (n=3,673)		Hispanic (n=186)	
	Count	Freq.	Count	Freq.	Count	Freq.	Count	Freq.
I am reimbursed for my time and travel.	429	72.1%	1,874	56.0%**	2,123	57.8%	130	69.9%**
I am paid to participate.	334	56.1%	1,128	33.7%**	1,325	36.1%	100	53.8%**
I can receive health care for free or at a reduced cost.	449	75.5%	2,121	63.4%**	2,373	64.6%	139	74.4%**
My doctor supports my decision to participate.	484	81.3%	2,744	82.0%	3,006	81.8%	155	83.3%
I believe the drug, therapy, treatment or medical device being studied has been shown to be safe and effective in previous trials.	545	91.6%	2,951	88.2%*	3,249	88.5%	175	94.1%*
I can get access to a drug, therapy, treatment or medical device not otherwise available to me.	508	85.4%	2,753	82.3%	3,032	82.6%	161	86.6%
The trial provides me with a drug, therapy, treatment or medical device that potentially could extend or improve the quality of my life.	558	93.8%	3,116	93.1%	3,418	93.1%	180	96.8%
The clinical trial won't interfere with my current treatment or make my condition worse.	576	96.8%	3,156	94.3%	3,475	93.1%	179	96.2%

*p< .05 ** p<.01

Lastly, we looked at what role sex assigned at birth plays in the importance of various motivators. Women significantly and appreciably rated financial factors as more important than did males (for reimbursement, 60.3% female versus 50.4% male, for payment, 38.4% female versus 31.6% male, and for receipt of free or reduced cost healthcare, 67.3% female versus 56.8% male). This model did not control for income and education.

While not significant across the board, the male respondents ranked all other motivators less important than women did as well, which may speak to an overall difference in attitudes towards clinical trials. Further research would be required to dive more deeply into this potential finding, but it is interesting in light of the historical underrepresentation of women in clinical trials touched on earlier in this paper.

Table 14: Count and frequency by sex of respondents who answered "likely" or "very likely" to the question: If you were considering taking part in a clinical trial, how important would the following be to you? (Please note: Females served as the referent group for statistical analysis.)

	Female (n=3,133)		Male (n=791)	
	Count	Freq.	Count	Freq.
I am reimbursed for my time and travel.	1,890	60.3%	399	50.4%**
I am paid to participate.	1,202	38.4%	250	31.6%**
I can receive health care for free or at a reduced cost.	2,107	67.3%	449	56.8%**
My doctor supports my decision to participate.	2,577	82.3%	633	80.0%**
I believe the drug, therapy, treatment or medical device being studied has been shown to be safe and effective in previous trials.	2,797	89.3%	682	86.2%*
I can get access to a drug, therapy, treatment or medical device not otherwise available to me.	2,609	83.3%	635	80.3%
The trial provides me with a drug, therapy, treatment or medical device that potentially could extend or improve the quality of my life.	2,930	93.5%	726	91.8%
The clinical trial won't interfere with my current treatment or make my condition worse.	2,982	95.2%	733	92.7%**

*p< .05 ** p<.01

Table 15 . Odds ratios of saying the following factors were "important" or "very important" when considering taking part in clinical trials. Adjusted odds ratios account for race, ethnicity, sex, education, and income. Oncology served as the referent group for the analysis.

	Chronic/Acute		Chronic	
	Crude	Adjusted	Crude	Adjusted
I am reimbursed for my time and travel.	3.11 (2.51, 3.84)**	2.63 (2.12, 3.27)**	1.99 (1.68, 2.36)**	1.62 (1.35, 1.93)**
I am paid to participate.	4.54 (3.59, 5.73)**	3.87 (3.04, 4.92)**	2.55 (2.08, 3.14)**	1.99 (1.61, 2.46)**
I can receive health care for free or at a reduced cost.	1.63 (1.32, 2.02)**	1.34 (1.07, 1.67)*	1.26 (1.06, 1.50)**	1.01 (0.84, 1.21)
My doctor supports my decision to participate.	0.35 (0.26, 0.46)**	0.59 (0.45, 0.76)**	0.62 (0.48, 0.80)**	0.32 (0.24, 0.43)**
I believe the drug, therapy, treatment or medical device being studied has been shown to be safe and effective in previous trials.	0.82 (0.60, 1.13)	0.76 (0.55, 1.05)	0.96 (0.73, 1.26)	0.88 (0.67, 1.17)
I can get access to a drug, therapy, treatment or medical device not otherwise available to me.	0.36 (0.27, 0.50)**	0.34 (0.24, 0.46)**	0.36 (0.27, 0.50)**	0.38 (0.28, 0.50)**
The trial provides me with a drug, therapy, treatment or medical device that potentially could extend or improve the quality of my life.	0.23 (0.14, 0.39)**	0.35 (0.21, 0.57)**	0.23 (0.14, 0.39)**	0.22 (0.13, 0.37)**
The clinical trial won't interfere with my current treatment or make my condition worse.	0.99 (0.66, 1.50)	0.88 (0.58, 1.34)	1.44 (1.01, 2.05)*	1.28 (0.89, 1.85)

*p< .05 ** p<.01

Conclusion

It's no secret that patient recruitment is a challenge in clinical trials. The research community has suggested a range of solutions to help reduce the burden on patients, from transportation support and home visits, to compensation for participation. But patient recruitment and retention is not a one-size-fits-all solution.

In patient advocacy circles, the phrase "nothing about us, without us " is often invoked to capture the importance of the patient voice at all levels of decision-making in medical research. Our survey findings show that this inclusive expression applies to clinical trial patient recruitment, as well. Patients want to join trials that they believe will benefit them – and they want to receive support and be included in the process by the research team along the way. At the same time, a varied approach is needed to include all patient voices and populations in research. Beyond being provided with the information they crave, some patients also want the physical and financial support that can make it easier to complete a trial. In our survey, patients of color, women, and those of lower socioeconomic status all rated logistical and financial factors as more important than their white, male, and wealthier peers. Accessibility may not be a priority for all patients, but it's important to many of the patients who have been least represented in clinical research historically.

Research progress benefits everyone. For that to be true, patients in all condition areas from a range of backgrounds must be included in each step. When we cater our study design, outreach approach, and logistical support to each condition area and demographic, we create research that invites patients in as partners – not just participants.

To learn more about Antidote and our work, please get in touch

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