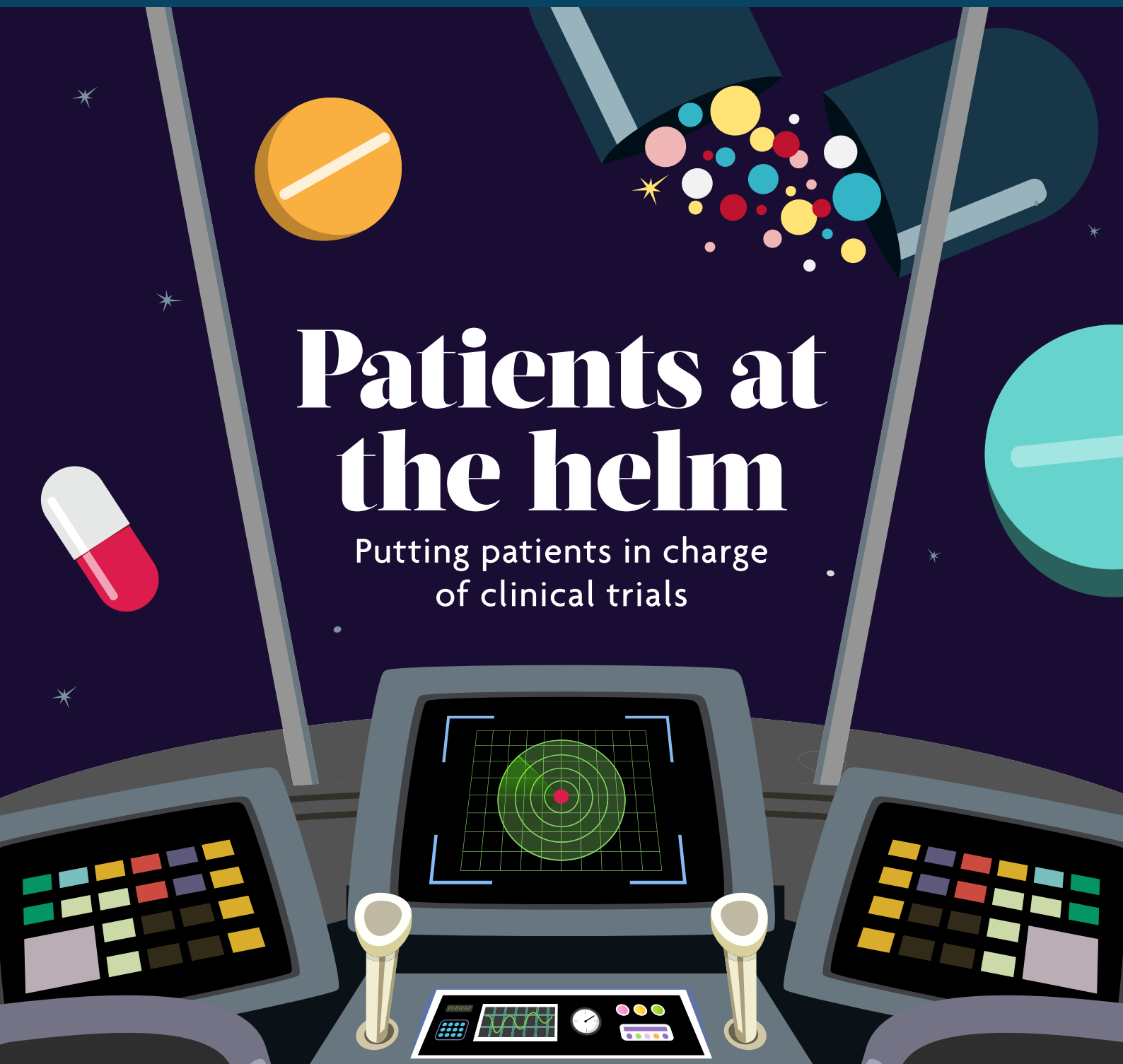


Trends

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in Patient-Led Clinical Trials



Patients at the helm

Putting patients in charge of clinical trials

-  **You've got to mean it**
How pharma can create meaningful patient involvement in research
- Diversity dilemma**
Working to boost diversity in clinical trial populations
- My device, your data**
A guide to bring your own device clinical research



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The future of clinical trials?

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You've got to mean it

Pharma needs to get serious to create meaningful relationships with patients, says advocate Derek Stewart



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My device, your data

Bring Your Own Device is a growing trend in clinical trials but the road to full adoption may be a little bumpy



Welcome

Tests.

The mere mention of the word strikes fear into a billion schoolchildren across the globe. Even as adults we can't escape them; they are as certain as death and taxes.

Clinical trials are pharma's version, and for many years they have been viewed with similar trepidation. Improvements have been about efficiency and lowering costs, about sorting winners from losers. Meanwhile, the processes used to determine protocols, manage CROs, recruit patients and locate positive datasets have been, well, gruelling.

Until now.

With a renewed focus on the patient, pharma's core asset has moved beyond the medicine. Winning companies strive for a deeper understanding of the patient as a whole person, including but not limited to how they might interact with a particular drug. What's more, they need that insight at a pre-approval stage, in order to ensure access.

Clinical trials have jumped out of the 'threat' column and into the 'opportunity' in the SWOT analysis. With new technology at our patients' fingertips, with our updated mission statement and with our more open attitude, we can use clinical trials as an advantage. The trial is an asset in itself.

But, how do we do it? That's the hardest part of all. Clinical trials have always been rigorously controlled yet suddenly we have patients co-designing with us. We have to let go. Clinical trials have become precious – but to make them truly so, we have to give up ownership.

I hope you enjoy *Trends in Patient-Led Clinical Trials*.



Paul Simms
Chairman
eyeforpharma





The future of clinical trials?

Transforming a trial from a clinical 'experiment' to a standard care option

A potentially radical solution to the conundrum of patient recruitment is a deceptively simple idea – healthcare professionals offering a clinical trial to patients as one care option among many.

The idea delivers the triple aim of improved patient experience of care, better population health and reduced per-capita healthcare costs, say some proponents. But what does 'care option' mean when talking about drugs that are still in development? "I use the term 'care' very deliberately; when I say care option, I do not mean 'treatment,'" says Jeanne Hecht, COO of Median Technologies. "In clinical trials, the drugs are not proven completely safe and efficacious, so we cannot say that a drug is going to treat a patient, as we are still trying to prove it."

“Even if you reach a patient through a direct channel, the decision to participate will be significantly impacted by the opinion of the treating physician”

CRAIG LIPSET, PFIZER

With four-out-of-five clinical trials failing to meet original recruitment targets, new approaches are needed, says Hecht. “Patients, especially patients with chronic conditions or life-threatening diseases, are often looking for a solution, a treatment that may help improve their quality of life or extend their life. Delays in clinical trials can cause significant problems for patients.”

We need to better understand the barriers and myths that deter both physicians from discussing clinical trials and patients from participating in them, she says. Over recent years, she has organized numerous focus group meetings with physicians, patient advocacy groups and individual patients centered on the concept of clinical trials as a care option. The feedback has been illuminating.

Physicians might not want to offer a clinical trial to a patient because they simply do not have time and it doesn't fit with the “standard patient flow”, she says. “Many physicians have a short timeframe in which to speak to their patients and it's much easier for them to discuss standard of care rather than trying to discuss the intricacies of clinical trials.”

Another barrier can be the “overwhelming” amount of information provided by trial sponsors to physicians when one of their patients does take part in a trial. This can include lengthy trial protocols, data capture forms and brochures running to several thousand words. “If you are seeing 20-30 patients a day and you haven't figured out how to carry it into a conversation with your patient, then you probably tend to focus on standard care and not necessarily consider whether a patient is suitable for a trial,” says Hecht.

With patients, uncertainty is the overriding sentiment – concerns around the number of patient visits, supplying personal information, threat of placebo or even the efficacy of standard of care versus the new experimental therapy can create skepticism and reluctance, she says.

“Patients want to believe, and they want their physician to believe, that a clinical trial is the right option for them. If the physician doesn't bring it up, the patient may not mention it, as they may think it is not right for them.”

Education would help, she says, given that feedback from trial participants has consistently shown how happy patients are with the “white glove” treatment they receive during a trial. “They are typically getting more access to their physician and team than under normal treatment paradigms, and this drives up patient satisfaction significantly,” says Hecht.

She mentions several organizations working in this area, including the Society for Clinical Research Sites. “They are working with industry leaders and site groups around the concept of education and banding together clinical research sites to put patient care at the center and overcoming the barriers to recruitment.”

Positive education about clinical trials is essential, if only to counter more negative perceptions. “Sensationalized mainstream information has focused on the negativity surrounding clinical trials. They talk about when a patient dies or when there is a negative side effect, often saying that trials are using humans as guinea pigs. Rarely do they talk about the number of people's lives that have been positively impacted by participation in a clinical trial.”

With efforts fragmented and disparate, a public service announcement or federal program for the promotion of clinical trials is needed, she says. “Outside of training at the product level, focus groups and advisory boards, I have not seen anyone funding this sort of education.”

IN THE VANGUARD

Some companies, such as Pfizer and Lilly, have been very active in engaging with treating physicians. Pfizer's Head of Clinical Innovation, Craig Lipset cites the 2015 CISCPR Perceptions & Insights Study that found more than seven-in-ten patients would



Meet our contributors



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Jennifer Byrne
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PMG Research



→ talk to their treating physician before deciding whether to participate in a trial.

“Even if you reach a patient through a direct channel like media or web, the decision to participate will be significantly impacted by the opinion of the treating physician. Yet, very few recruitment approaches have included an outreach to treating physicians, to help inform them of research options for patients, or given them a reason to support a decision to participate,” he says.

Sponsors and CROs are getting smarter about communicating with investigators and patients, he says. “The treating physician is the last stakeholder in the triad that needs to be engaged to drive study participation.”

However, some efforts have done more harm than good. “Many have tried to focus exclusively on technology as a solution, such as triggers and alerts in electronic health records, but the average physician is receiving over 75 alerts each day and spends over one hour daily responding. This creates a new phenomenon of ‘alert fatigue’ – I don’t want to create the 76th alert for that day.”

For this to work, technology, process and incentives must all be addressed. “The information must be easy and accessible, and we need to show providers how research participation is good for the patient and the provider – for outcomes, cost of care, and patient satisfaction. Early data is promising and exciting, suggesting that research participation is good for patients as well as the health system.”

Pfizer has explored novel ways to better engage treating physicians through a number of studies across its portfolio, always ensuring that ethics and compliance are fully supported. “Early signals have been promising and I expect the industry will continue to develop this space as an important enabler of meaningful study participation,” says Lipset.

MATCH.COM: TARGETING NEEDS

A couple of months ago, Lipset took part in a round table that brought together a diverse group of stakeholders from across healthcare, pharma, technology and policy to discuss the integration of research and care to optimize patient care delivery within a value-based healthcare system.

Jennifer Byrne, CEO of PMG Research, was at the round table. “These are leading pharma company innovation teams, as well as companies such as IBM and several CROs, all working to build a solid framework around collaboration and collecting

additional data, around educational programs to really advance the movement. We are engaging payers, healthcare providers, and technology brokers.”

As a site research organization, Byrne sits at the intersection of various stakeholders. “When we talk about terms like patient engagement, value and the clinical experience for patients, these focal points are always at the forefront of the decisions we make. We are in the clinic working at the ground level with physicians, providers and patients, and we have so many anecdotal stories that really show the benefits of the clinical trial experience, not just for the long-term drug development process but for the immediate impact at the individual patient level.”

Clinical trials as a care option has transformative potential, she says. “This is the biggest innovative opportunity that we have to advance the entire drug development process. Considering the economic impact of delayed trial completion, it always comes back to patient accrual. What does it look like if we move that needle from one percent participation of the general population in clinical trials to two percent? It may sound really small but when you look at the numeric impact, it stands to be a massive change in overall participation and rate of participation.”

She also believes that reframing clinical research as a care option can work as a conduit to precision medicine. “This is a Match.com type of concept, targeting a very specific need for an individual patient and bringing clinical research participation as a choice within the entire continuum of care for that particular patient with that particular provider or institution at that particular moment in time. One key part of this is building trust and the value proposition of clinical research, from pharma direct to the healthcare ecosystem. That is where I see the best opportunity; building trust as we move towards shared goals for the patient.”

Clinical trials need a fundamental rebrand, says Byrne. “When we think about research and the volunteers who participate, they might well be outside of mainstream medical care. A trial is more of a disconnected scientific experiment and apart from the patient’s usual care pathway. If we reframe clinical research as a care option, we believe it is a potential solution for some of the healthcare challenges every progressive healthcare system and dedicated physician face, offering improved outcomes for patients, reductions in cost of care and an enhanced patient experience.” 

“This is the biggest innovative opportunity that we have to advance the entire drug development process.”

JENNIFER BYRNE, PMG RESEARCH



The Big
Interview

You've got to mean it

*Patient involvement in research is increasing all the time but pharma needs to get serious to create genuinely meaningful relationships, says patient advocate **Derek Stewart***





After a life-changing diagnosis of throat cancer in 1995, former teacher Derek Stewart became involved in patient advocacy, focusing on ensuring the patient voice is heard in research.

“Some people get on a bike or climb mountains, others donate clothes to charity shops. Many patients voluntarily consent to take part in research in the hope that others don’t have to go through what we have gone through. Having been a participant in research myself, I know how important a patient’s perspective can be in improving the quality of the research, especially in the design stage. This is why I’m so actively involved in working collaboratively with the research community,” he says.

One day a week, Stewart works with clinical research networks as part of his role as Associate Director of Patient and Public Involvement & Engagement at UK’s National Institute for Health Research (NIHR), a government body funded by the Department of Health.

“The UK leads the world in terms of patient involvement in research but that doesn’t mean we always get it right,” he says. “We have a rich history. For more than 20 years, INVOLVE has brought together expertise, insight and experience, and offered advice on how to effectively involve the public. Policy in the UK is moving towards being citizen-driven; we have increasing numbers of patients working alongside researchers through the entire research cycle, even as co-applicants, and we have patients sitting on funding bodies and helping to drive policy. Their voices are being increasingly heard.”

Many stakeholders are involved in shaping this involvement, he says. “Although INVOLVE is an important

body, researchers need more focused and contextually based advice, so several patient organizations have been looking to offer more specific advice to researchers.” Earlier this year, Parkinson’s UK published Patient and Public Involvement: A Resource for Researchers, offering advice on how to involve people affected by the disease at all stages of research, while Cancer Research UK is increasing patient involvement in research and organizational development.

A motivating factor behind these publications and Stewart’s own efforts is the need to make patient involvement in research as meaningful as possible. He says: “Consultation and collaboration are often good starting points, but consultation can masquerade as involvement. ‘Meaningful’ starts with a cup of tea and a biscuit, people coming together for a meeting. Meaningful is when someone is prepared to reimburse a patient’s travel expenses to attend that meeting. Meaningful means holding that meeting in a non-clinical setting so patients feel more relaxed. Meaningful means involving patients early on, ideally at the start when the research team is just thinking about developing a new drug or device. Meaningful is the acknowledgment of the value of the involvement and the reciprocal nature of how we learn from each other. Feedback from patients is one thing, but a genuine relationship is another. It takes time to build up a strong, two-way relationship.”

A key element of a meaningful engagement is to make sure it is context-specific, he says. “When I was a teacher, I would attend training courses and I would sit there thinking, ‘this doesn’t apply my job with challenging pupils’. However, when someone came into the special unit with the same ideas I was able to see how I could apply it. Knowing how to make the most of patient involvement is the same – INVOLVE gives sound general advice and charities are now beginning to offer more specific advice on how to work with their patient populations.”

He sees a role for pharma companies too. “Pharma could play a part here; companies could produce advice on how researchers or patient organizations can work ethically with pharma or how researchers can work with patients in the clinical setting. Those working in a lab or on a medical device may need a very different kind of patient involvement than those trialling a drug in a clinical setting.”



“I am hearing words from senior execs that I have never heard before about the need to engage and involve patients”



Pharma could also get involved strategically. “If pharma companies were able to provide some pump-priming money, a few thousand pounds, or maybe coordinate their efforts so that Company A develops guidelines and Company B develops support materials for researchers, then you could really change the landscape.”

Stewart is encouraged by the efforts made by many companies to involve patients in a meaningful way but there is still work to do, he says. “I am hearing words from senior execs in pharma companies that I have never heard before about the need to engage and involve patients. I am also hearing from a few people who work with industry at a more local level that they haven’t quite caught up with the organizational and cultural shift. There is a danger that they’re just going to a small number of patients with a few questions rather than engaging in an authentic manner.”

With patient involvement in research deepening and evolving, there are several challenges that Stewart is keen to highlight. The first is diversity. “Too often, it seems that researchers have gone for the low-hanging fruit when it comes to recruiting people into trials. It’s relatively easy to engage and actively involve mainly white and educated segments of the population. This is neither representative of our rich cultural diversity nor does it provide us with the quality of evidence required. My passion is how to reach out to those communities and to listen to those seldom-heard voices.”

He mentions East London Genes for Health, an organization aimed to improve the health of South Asian people in London. “I hear researchers saying they cannot reach certain populations but this group aims to recruit 100,000 Bangladeshi and Pakistani women. They have already recruited 20,000, in what can be perceived as a difficult-to-

reach group; they are demonstrating that it can be done. They want to work with industry and there are many other patient groups and organizations that want to do the same.”

Another issue Stewart is concerned about is the rise of the expert patient advocate. “Our mistake – and it could be pharma’s too – is that you engage with informed patients, people who are not researchers nor in pharma but they are not really average patients either. They become neither fish nor fowl, and are easy to engage because we understand the basics of patient involvement. The danger is that we culturally assimilate with the research community and with industry. We have to make sure that we involve today’s patient who is going through a range of real experiences right now.”

He points to AstraZeneca’s approach as best practice. “AZ does this well – it goes out to one group of patients when they have an idea for a drug, and they ask what they think, but when they develop a study, they bring in different patients, an entirely different group. After that, when they want to test recruitment ideas, they might go to a hospital or to potential participants and they ask them. Models that segment patients in terms of their roles and experience demonstrate the best practice of gathering a range of opinion.”

Stewart ends by calling for greater coordination of effort. “It was great to see the ABPI and AMRC holding a Patients First meeting recently. I have since been asked to speak at a working group looking at how we work better with industry. I think this is essential because what we are seeing is a lot of separate conversations - industry is talking about it, charities too as well as the research community. I want to make sure there is a thread running through it so everyone knows what’s going on. We’re all too busy to duplicate and worry about who is doing what.” 



Diversity Dilemma

Industry efforts to increase diversity in clinical trial populations are starting to pay dividends

It is commonsensical that a patient population in a clinical trial should reflect the general patient population, yet matching levels of diversity – especially gender and ethnicity – in trials has been a thorny issue.

“Most physicians and scientists are informed by research extrapolated from a largely homogeneous population, usually white and male.” This is the conclusion of a paper published in *PLOS Medicine* late last year.¹ The authors warn that ignoring the racial/ethnic diversity of a population is “a missed scientific opportunity to fully understand the factors that lead to disease or health.”



“The people we most need to study may be the very ones that have been historically underrepresented in clinical trials”

THE ‘TM IN’ CAMPAIGN



The numbers on ethnicity speak for themselves. In the US, for example, black Americans comprise 13.2% of the population and Hispanics 16%; they make up just 5% and 1% of clinical trial participants respectively. In Europe, a 2006 review of 72 cardiovascular cohort studies found that just 15 studies were able to compare different ethnic groups, all of which were carried out in the US (none of the 41 studies in Europe were able to compare data by ethnic group).

The picture is just as murky with gender. A 2014 study from Brigham and Women's Hospital and George Washington University found that medical research in many disease areas, including cardiovascular disease, which kills more women than men, often included few women subjects or didn't report results by gender. Key findings were that only one-third of subjects in cardiovascular clinical trials were female and in depression, which is more prevalent in women than men, brain studies in male animals outnumbered those in female animals five to one.

It is no wonder that the authors of the 2015 paper argue for a more comprehensive view on diversity-sensitive clinical evidence – one that “takes heterogeneity as a starting point”.

WHY IS DIVERSITY IMPORTANT?

The fact that minorities, women, the poor and the elderly are underrepresented in clinical studies hasn't gone unnoticed; indeed, the FDA heralded 2016 as the “year of diversity in clinical trials”. According to FDA Commissioner of Food and Drugs, Robert Califf: “Moving from the result of a clinical trial to applying it in practice is complex. But it's generally agreed that the composition of the population enrolled in a trial should help FDA reviewers, clinicians, or policy makers to have confidence that the trial results will apply to future practice.”

In response, the FDA has engaged in a number of activities to push for more diverse populations in clinical trials, such as providing information to underrepresented groups as well as launching Diverse Women in Clinical Trials, a multipronged effort to raise awareness and share best practices about clinical research design, recruitment, and subpopulation analyses.

TransCelerate, the non-profit organization that works across the biopharmaceutical research and development community, has sponsored an initiative on Clinical Trial Diversification. It aims to assess the problems and develop guidance for sponsors and clinical trial sites on better practices and processes for minority recruitment.



Meet our contributors



Ann Van Dessel
*SVP and Global Head
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“By increasing minority physicians’ participation, we will be able to increase the diversity of clinical trial participants”

JANICE CHAVERS, ELI LILLY



Industry has also played its part with US pharma trade body PhRMA, launching the ‘I’m In’ campaign in 2014 in a bid to increase diversity and encourage minorities to become involved in clinical research. “The people we most need to study may be the very ones that have been historically underrepresented in clinical trials, such as African Americans, Asian Americans, and Hispanics,” notes the campaign, which is now run by the National Minority Quality Forum.

“We know that, historically, people from minority populations have been reluctant to participate in clinical trials,” says Andrew Powaleny, Senior Manager, Science and Regulatory Advocacy Communications at the Association. “Motivations differ from person to person and we recognize that. Our position is to raise awareness and to seek greater participation, and for people to have a full appreciation of why clinical trials are important.”

LACK OF TRUST?

The obstacles to true diversity mirror those of trial recruitment at large, although access to trials, lack of awareness and lack of trust are more pronounced in some populations. According to Ann Van Dessel, SVP and Global Head of Clinical Operations at Janssen, awareness a crucial barrier. “Awareness of clinical trials as a potential treatment option is low, especially with minority populations. When there is awareness of a clinical trial option, there may be misconceptions about what is involved with clinical trials.”

Lack of access to medical treatment can also be a significant barrier to learning about clinical trial options, an issue that disproportionately affects patients from lower socio-economic strata, she says.

Van Dessel points out that studies are conducted, for the most part, in the developed world. “These trials represent certain regions and ethnicities and, in particular, men. Women are usually under-represented for multiple reasons

like pregnancy and breast feeding, which are important, but the real world setting is not reflected.

“Often clinical trial sites are the conduit to find patients and then provide this education. If sites don’t have diverse populations, then finding the ‘right’ patients and participants can be a difficult task,” she says.

There may be other considerations, such as family input, transportation challenges, or time burdens, which act as deterrents for individuals. “The ability to connect with potential trial participants, in a way that is meaningful to them and from a source that is considered to be trustworthy in the eyes of that person, is imperative to participation success,” says Van Dessel.

Janice Chavers, Director of Diversity and HR Communications at Eli Lilly and Company, says that a general lack of trust around medical research is also a major issue. In addition, Lilly has identified another less obvious barrier – the lack of minority investigators. To help address the issue in oncology, they have partnered with the Center for Drug Development and Clinical Trials at Roswell Park Cancer Institute and are conducting workshops to train minority physicians to become clinical trial investigators.

The training programs, which are the first of their kind in the pharmaceutical industry, “aspire to develop a broader base of diverse investigators who understand the principles of good clinical trial design and have the tools to conduct trials that are relevant to underrepresented populations,” says Chavers. “Our hope is that by increasing minority physicians’ participation, we will be able to increase the diversity of clinical trial participants and improve clinical research.”

Janssen is making similar efforts, says Van Dessel. “Research has shown that minority patients often look to be treated by physicians of their own race, so identifying diverse investigators and site staff is critical to reach diverse populations. Our processes for site identification and site



staff training at Janssen include considerations to increase engagement with sites treating diverse subject populations.” Janssen’s clinical trial recruitment data is analyzed to evaluate progress and identify opportunities for achieving representative population, based on the indication and disease researched.

Lilly is currently engaged in a major research project with by the National Center for Bioethics in Research and Health Care at the historically black Tuskegee University. The collaboration, which includes research, education, and community engagement, forms part of Lilly’s wider clinical trial diversity strategy.

For Chavers, it’s a means to justify an end. “The ultimate goal of our clinical trial diversity strategy is to improve health outcomes for individual patients. The issue at hand is that responses to medicines can vary depending on a number of factors, including someone’s genetic background, ethnicity, sex, and lifestyle. This is why it’s critical for Lilly to have diverse representation in clinical trials—to gain the insights necessary to make medicines that will be the most effective for all people who use them,” she says.

Janssen is raising awareness of the issue internally and taking steps to increase diversity in clinical trials, while, externally, it is partnering with the Society for Clinical Research Sites (SCRS) to develop an awareness and best practice program for clinical trial sites. This program will include tools, webinars, and live seminars to assist clinical research site leaders in best practices for diverse patient engagement in clinical research

“Global Public Health – a department of Janssen that focuses on developing drugs and increasing access to our

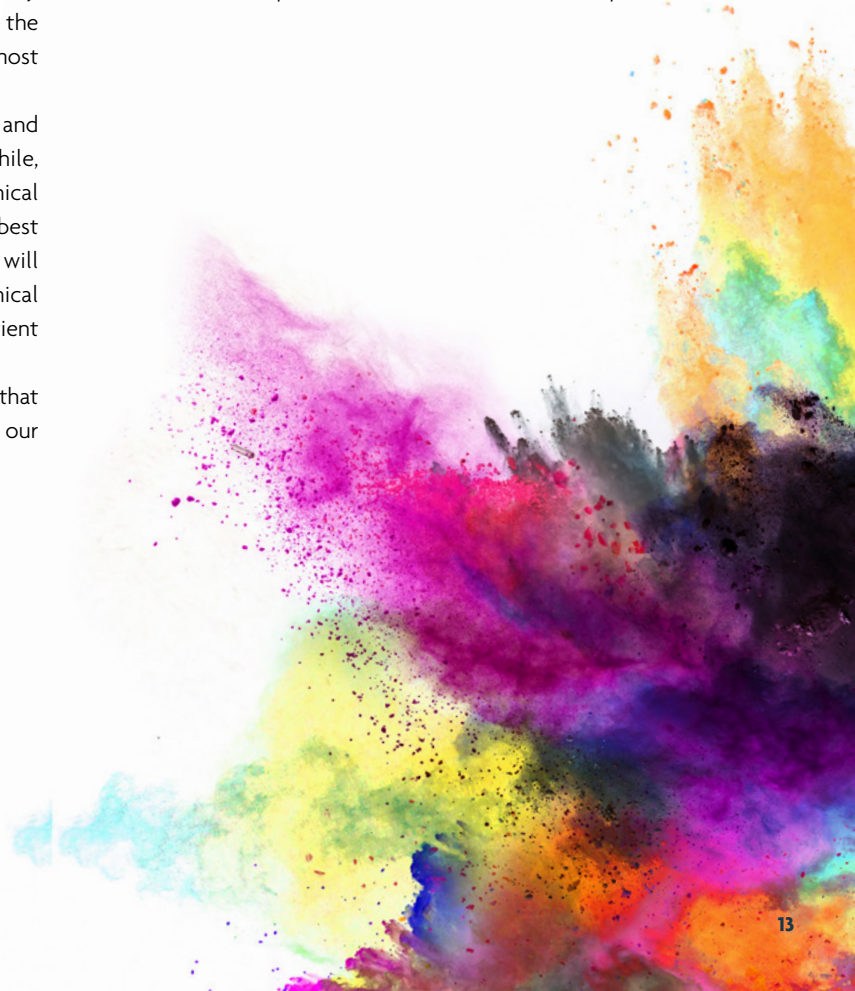
drugs to non-Western countries – is conducting trials in parts of the world where trials haven’t been routinely conducted, like sub-Saharan Africa and other developing countries,” says Van Dessel. “We are also working to recruit more women into trials and generating real-world evidence to help fill the data gaps from the phase 3 studies.”

THE PATIENTS WE SERVE

The ‘year of diversity’ in clinical trials is almost over so has industry finally begun to make concerted efforts towards greater inclusiveness?

“I can’t speak for others, but we certainly have made progress,” says Chavers. “While we’ve made progress, we still have more to do.”

Van Dessel agrees. “It is critical for pharma to address this; we need to better understand the patients we serve, be that genetic diversity or gender, or even the social issues people face will have an impact on the treatments we develop.” 





Harnessing patients' own smartphones as part of a clinical trial is a growing trend but the road to full adoption may be a little bumpy

The concept of BYOD (bring your own device) in clinical trials isn't new. Encompassing both patient- and clinician-reported outcomes, BYOD also offers the tantalizing potential of gaining that information in real time.

However, it is the use of patients' devices to collect self-reported outcomes data that has seen the fastest growth in recent years, says Barbara Tardiff, Executive Consultant (Visionary Strategy Design and Execution) at Drug Development Informatics LLC and previously

VP, Development Operations at Pfizer. “The discussion and impetus have really accelerated recently,” she says. “It isn’t mainstream yet, but it is definitely a reality.”

BYOD expert Kara Dennis, Managing Director of Mobile Health (mHealth) at Medidata, agrees that the concept has reached “an inflection point,” noting that one-third of the company’s mobile health trials include a BYOD or hybrid BYOD component. In these trials, subjects can use their own smartphone or tablet to complete study-related tasks or if they do not have a qualifying device, they can be provided with one.

Pharma companies are gaining confidence to explore the use of electronic Clinical Outcomes Assessments (eCOA) right across clinical research, says Tim Davis, CEO of digital engagement and data capture specialists, Exco InTouch. “Initially, we saw use of BYOD focused on large multinational trials with simple data points, however, more recently, we have begun to see use increasing across all phases and in other therapeutic areas with appropriate trial designs,” he explains.

THE CONVENIENCE FACTOR

With benefits ranging from cost savings to more streamlined enrollment processes, fewer training and support queries and a heavy reduction in set-up activities, BYOD’s growth is hardly surprising.

“Patients are not burdened with an additional, conspicuous device, and they benefit from the convenience and familiarity of using their own technology to interface with the trial,” says Davis. “This ready accessibility has been claimed to improve study participation, compliance and data accuracy.” BYOD offers scalability with the potential to service studies that would not be cost-effective for a fully provisioned approach, he adds.

According to Dennis, research showing how closely patients keep their phones to them and how often they check them supports the concept. “There is an ease-of-use benefit as well as a more seamless integration into a patient’s daily life.”

Collecting data via a patient’s own device can boost quality, says Tardiff. “We are more likely to get data contemporaneously, it will be more complete and the patient will feel ownership of the data and its quality. It is important to take these things into consideration. Indicators suggest that data captured on an electronic platform is comparable to that captured on paper, and also from one electronic platform to another.”

The economic impact cannot be ignored; BYOD can represent significant cost savings for trial sponsors when

compared to device-provisioned trials. “There is the potential to reduce purchase or rental costs, handling, shipping logistics, inventory logistics and inventory management. The logistical challenges – ensuring there are enough phones at each site, for example – and the cost and effort associated with provisioning oversight are reduced when patients can bring their own devices,” she says.

BIG BROTHER?

Balancing the benefits are some concerns, which Tardiff places in two distinct categories; concerns around reliability (that data collected via patient-owned devices are valid and equivalent to those collected via traditional platforms) and technical concerns (especially around security and the applications or platforms used).

While the technical problems have largely been solved and do not represent a major roadblock, establishing the reliability of the data is a larger concern. “Data is the lifeblood of clinical trials and there is little point executing a study if the data isn’t going to be accepted and believed,” says Tardiff.

Trepidation is highest around endpoint data, particularly primary endpoints, although “there are some studies out right now that show people are beginning to grow more comfortable with the idea that you can accurately capture data with wearables.”

Privacy remains a concern, says Tardiff, who outlines a



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“[Regulators] all have smartphones, they have Fitbits, so they are interested and they want to be supportive.”

BARBARA TARDIFF, DRUG DEVELOPMENT INFORMATICS

scenario where a trial sponsor could potentially view a patient's location via his or her smartphone. If they saw that the person was in a hospital, for example, the sponsor could potentially send a message to ask if the patient is ok. “Some patients are more concerned about that than others – do you want somebody to know where you are? It can be a definite advantage but a subset of patients may be uncomfortable. That is something that needs to be worked through.”

However, knowing a person's location could be of huge value in some studies, for example, where there is a mobility endpoint. “People carry their phones with them pretty much everywhere they go, so it's a way of understanding how mobile somebody is, how much they move around or how often they leave the home,” she says.

PASSWORDS, CREDIT CARDS AND THE PHONE-LESS

Seemingly minor problems encountered during a trial can become major stumbling blocks, for example, if a subject changes their device mid-study or upgrades their operating system. “There are lots of pitfalls; with a BYOD trial, patients have to download and log into a mobile app. This sounds simple, but for some trials and some research populations it is not. Patients may not remember their iTunes or Google Play password, which can bring the subject enrollment process to a screeching halt. Research coordinators have told me that they are not an Apple Genius bar.”

Phone capacity is another issue, as BYOD trials can require subjects to download a new app or upgrade their device to the latest operating system, says Medidata's Dennis. Trial sponsors certainly don't want to tell people to delete photographs of their grandkids if they don't have space for the latest upgrade. That said, there has been a “significant reduction” in the number of research coordinators reporting such problems since 2014. “Every six months, you can see a marked improvement.”

A key challenge to the use of BYOD in a trial is a concern that using different devices and operating systems will affect the measurement properties of a validated assessment, says Davis. “Traditionally, the measurement properties of an assessment have been tested via usability and equivalence studies on a specific device type with a uniform screen size. With BYOD, a different approach needs to be adopted, whereby





a minimum screen size requirement is specified and equivalence is proven using a variety of different device models and screen sizes.” This type of research is relatively new and will inevitably take time to gain acceptance in the eCOA community, he adds.

Finally, Dennis points out that not everyone owns a smartphone or device. “There are challenges associated with trials in therapeutic areas such as schizophrenia or Alzheimer’s disease, where subjects may not have their own smartphones or may not be familiar with the process of downloading and updating an app.”

A LOW REGULATORY HURDLE

Last year, the FDA sought public input on the use of technology in clinical trials to see if its role as a regulator was limiting the application of tech in trials. According to Tardiff, the regulators “see the writing on the wall”. She says: “They all have smartphones, they have Fitbits, so they are interested and they want to be supportive but only if they feel they can fulfill their responsibility of ensuring the data is compelling.”

Such interest from the FDA is a clear indication of greater acceptance of and support for BYOD as an appropriate and beneficial means of eCOA data collection, says Davis. “However, while recognizing that there are potential benefits in the use of technology in clinical trials, the FDA wishes to learn more about the effects it has on patients, in particular their acceptance of the methods and issues related to privacy and data protection.”

There is currently no guarantee that any data will be accepted as part of a submission, regardless of how it is collected, he adds. However, if the data collection is implemented correctly and in line with guidance there should be no reason why using a patient’s own device won’t be acceptable.

THE PROOF OF THE PUDDING

All stakeholders will come on board “with time”, says Tardiff. “You have to do studies and prove the approach is robust. Ultimately, what’s going to convince people is seeing the

data and seeing drugs studied using a BYOD approach getting approved.”

“Ultimately, [pharma companies] are afraid of doing a study and then finding that the data is not acceptable – that it is not deemed trustworthy or there is no confidence in it because of concerns about how it was collected. The ultimate proof is that the data are accepted for a marketing registration,” she says, adding that the data does exist but is still quite limited.

Another, more insidious problem is company culture – while some may be early adopters, others may hesitate to make changes in their processes and approaches, including the use of wearable devices. “Some companies will only adopt something when literally everyone else has already done so,” says Tardiff.

NEAR FUTURE

While recognizing the enormous potential of BYOD, some level of device provisioning is likely to be required for the foreseeable future, says Davis. “This may be for the inevitable portion of trial candidates who do not own a suitable device or where device integration is required with next-generation monitoring devices, such as activity meters and adherence monitors. The move towards eCOA and the addition of Bluetooth wireless technology across smartphone devices now enables integration of physiological readings into a diary and other outcomes reporting from patients. This can be done using BYOD in some circumstances, but leading-edge monitoring devices often use the very latest Bluetooth protocols, which means they only tend to be compatible with up-to-the-minute high-end smartphones. Sponsors need to recognize when to apply a BYOD approach and when provisioning would be a more efficient model.”

Hybrid BYOD could be where the near future lies, says Dennis. “This area saw the biggest growth in 2016 because sponsors don’t want to exclude patients based on what smartphone they have. It is a very interesting indicator that sponsors are willing to explore BYOD, as long as they have a back-up in place.” 

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BARBARA TARDIFF, DRUG DEVELOPMENT INFORMATICS LLC