VALUE IN HEALTH ▮ (2016) ▮▮▮–▮▮▮

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/jval

Increasing Patient Involvement in Drug Development

Maria M. Lowe, PharmD, BCPS[1,], David A. Blaser, PharmD[1], Lisa Cone, BA[2], Steve Arcona, PhD[2], John Ko, PharmD, MS[2], Rahul Sasane, PhD[2], Paul Wicks, PhD[1]*

[1]*PatientsLikeMe, Cambridge, MA, USA;* [2]*Novartis Pharmaceuticals Corporation, East Hanover, NJ, USA*

ABSTRACT

Background: To ensure the creation of treatments that maximize value at the lowest cost, all aspects of the health care system need to align with patient needs and preferences. Despite growing efforts to engage patients in research and regulatory activities, the pharmaceutical industry has yet to maximize patient involvement in the drug development process. **Objective:** To gain a better understanding of the present state of patient involvement in drug development. **Methods:** Through a semistructured interview methodology, we sought to identify opportunities, barriers, and examples of patient involvement in the drug development process. Telephone interviews were conducted with six senior leaders of evidence generation within the pharmaceutical industry and four patients. These interviews were supplemented with interviews with a research funder, a regulator, a patient advocacy group, and a caregiver. **Results:** Although our interviewees spoke of the potential benefits of aligning research around the needs of patients, there were few examples they could share to suggest this was occurring at scale. A number of barriers were identified including the added burden associated with adverse event reporting, concerns about patient representativeness or their ability to participate in drug development conversations, and the costs in time and resources involved relative to returns on investment. **Conclusions:** As health care systems continue to evolve and establish patients as the primary stakeholder in their health care decision making, the pharmaceutical industry will need to be innovative to demonstrate the value of their products relative to the outcomes experienced by patients. Pharmaceutical companies should recognize the value of involving patients across the entire product life cycle and work to transform present perceptions and practices throughout their organizations.

Keywords: decision making, drug development, methodology, patient-centered.

Introduction

Pharmaceutical companies are tasked with developing life-changing products that meet the needs of patients, physicians, and payers while adhering to regulatory standards, managing health technology and payer scrutiny, and performing to satisfy investors. In addition, in a time when total health care costs are being scrutinized by government and private payers alike, providers must maximize the quality of care by using interventions that provide the most value while minimizing cost. While drug prices seem to be continually rising, many health plans are shifting more of the burden of cost sharing to patients. As a result, the patient is becoming more of a "consumer" in the traditional sense. This shift demands that the pharmaceutical industry begin to use the types of consumer research that are a mainstay of other industries in which the true value of a product is defined by those who will ultimately use it. Notably, in these industries, the input of consumers is sought throughout development, from product conception through market entry and beyond.

Developing a treatment that can truly help to improve the lives of patients should be rooted in a firm understanding of the challenges those patients face in their daily lives, their needs, and the trade-offs they are willing to make to gain relief [1]. To ensure the creation of valuable treatments, all aspects of the health care system, including research prioritization, product development, trial design, regulatory approval, access, reimbursement, and treatment decisions, will need to align with the needs of patients. This realignment has started to take place on the payer side with the use of health technology assessments (HTA), which stipulate that patients' preferences or perspectives be integrated in value demonstration. Such HTAs are presently in use in several European countries, and similar value frameworks are beginning to emerge in the United States, bolstering hopes that these nascent efforts to increase patient involvement in various aspects of health care will continue to develop and expand in scope.

Despite this paradigm shift toward incorporating patient perspectives, pharmaceutical companies have yet to maximally engage with patients to learn what they value before developing a product. Advocacy and market research groups, which have networks and skills in patient "outreach," exist in most pharmaceutical companies; these departments, however, tend to focus more on the commercial aspects of launch and postlaunch

* *Address correspondence to*: Maria M. Lowe, PatientsLikeMe, 160 2nd Street, Cambridge, MA 02141.
E-mail: mlowe@patientslikeme.com.

1098-3015$36.00 – see front matter http://dx.doi.org/10.1016/j.jval.2016.04.009

activities such as disease awareness and education. Thus, individuals working in these areas often have different objectives for engaging with patients than their colleagues in clinical development. Because they may also lack the scientific or technical skill set necessary to collect patient input in a meaningful way that will result in actionable insights for their clinical development programs, many decisions in clinical development are made without patient input.

At present, limited data exist that describe the scope and overall benefit of existing patient-centered drug development activities [2]. Nevertheless, the following story of the inhaled insulin product Exubera® illustrates how a better understanding of patient needs can inform the development of a more valuable product and prevent costly missteps. Exubera® (insulin human [rDNA origin]) inhalation powder was approved by the Food and Drug Administration (FDA) in January 2006 for use as a mealtime insulin, but the makers of the product withdrew it from the market in October 2007 [3,4]. The goal of this product was to offer the convenience of an alternative, less invasive route of administration over injected insulin. Unfortunately, the delivery device was found to be too cumbersome and patients did not find it appealing enough to stop using injectable insulin. As a result of the failure to gain the interest of patients and providers, pharmaceutical company Pfizer made the decision to voluntarily withdraw Exubera®, a decision that cost the company $2.8 billion [4,5].

Outside the pharmaceutical industry, however, engagement with patients is increasing. Patients have been invited by regulators such as the FDA, the European Medicines Agency, and the National Institute for Health and Care Excellence to provide their perspectives and advice during decision making [6]. In the Prescription Drug User Fee Act V spanning fiscal years 2013 to 2017, the FDA launched the Patient-Focused Drug Development initiative designed to gain the patient perspective in certain disease areas and in turn to more effectively inform the FDA's evaluation of the risks and benefits of new therapies [7,8]. The *British Medical Journal* now includes patients in its peer review process and encourages authors to coproduce articles with patients. Researchers submitting grants to the Patient-Centered Outcomes Research Institute are also encouraged to work with patients [9,10]. Participant-led research using patient-powered research networks and social media is challenging our traditional views of what "a participant" is truly capable of doing [11]. Medical conferences take steps to self-accredit as "#PatientsIncluded™" by involving patients in planning, as presenters, and in the audience, whereas medical journals can accredit themselves by inviting patients to join their editorial boards, submit content, and act as peer reviewers [12]. Such patient-centered activities differ from mere tokenism [13] because patients themselves are making decisions with real consequences, instead of merely being asked for opinions that can be arbitrarily used or ignored by decision makers.

These efforts to increase patient involvement in various facets of health care highlight a growing need for the pharmaceutical industry to shift its approach to proactively engage with patients during drug development. If pharmaceutical companies remain unengaged with patients, they risk not only falling behind what FDA learns as a result of the Patient-Focused Drug Development initiative but also misunderstanding the concerns of their customers and thus ultimately breaking their social contract with patients [14]. Given the time and money required to develop a new drug, any misstep is likely to have significant financial ramifications. Because engaging patients in the drug development process is not yet commonplace for most pharmaceutical companies, there is an opportunity to develop recommendations to guide the inclusion of patients in this process going forward. To inform the creation of such recommendations, we first sought to learn how patients are presently involved in drug development and the generation of evidence.

Methods

To gain a better understanding of the present state of patient involvement in drug development, a number of industry, regulatory, research, and patient advocacy thought leaders were interviewed. The interviews aimed to identify previous, present, and potential areas of patient participation as well as the corresponding benefits, barriers, and challenges to such patient involvement. Interviewees were identified via previous contact with PatientsLikeMe either as members of the Website or through personal networks. They were invited to participate with the understanding that their information would not be attributable to them personally, that they were free to withdraw at any time, and that they would receive no compensation except early access to a final report. To guide the conversation, each interview was conducted using a semistructured interview format over approximately 60 minutes using the questions and topics listed in Appendices I and II in Supplemental Materials found at http://dx.doi.org/10.1016/j.jval.2016.04.009. Key themes for health care thought leaders included the interviewee's experience with including patient voice in drug development, their feelings about the role patients could potentially play in different aspects of development, specific examples including what worked well and what did not, and potential challenges and barriers to incorporating patient voice. Key themes for patients included their experience of working with researchers and with other stakeholders such as the FDA, their thoughts on the skills needed to be effective, and their thoughts for the future of patient engagement in drug development. Interviews were conducted between June 2014 and August 2015. The authors compiled transcripts and analyzed major themes and concepts upon completion of all interviews.

Results

A total of 14 interviews were conducted: 8 with health care thought leaders, 5 with patient thought leaders, and 1 with a disease-specific patient advocacy foundation. For the purposes of this analysis, the results of the interview with the patient advocacy foundation will be included with those of the patient interviews because all these interviewees represented patient interests. Of the 8 health care thought leaders interviewed, six worked in the pharmaceutical industry, one for a regulatory agency, and one for a research institute. Interviewees of the pharmaceutical industry were at either the vice president or director level and represented various departments, including health economics and outcomes research, medical evidence, global outcomes, epidemiology, evidence science and innovation, patient-reported outcomes (PROs), and research integration. Of the five patient thought leaders interviewed, all represented the experience of patients with incurable, chronic illnesses with significant impact on daily life.

Health Care Thought Leader Interviews

Our health care interviewees all expressed the belief that incorporating the patient voice into drug development and evidence generation is a positive development. They reasoned that "being more patient-centric is always a good thing," particularly as a way to better understand heterogeneity of disease and identify unmet needs: "Patients often bring a refreshing perspective on what matters … things that doctors might not have talked about." Our interviewees felt that incorporating the patient voice into