Review

Measuring treatment impact: a review of patient-reported outcomes and other efficacy endpoints in approved product labels

Richard J. Willke\textsuperscript{a,*}, Laurie B. Burke\textsuperscript{b}, Penniffer Erickson\textsuperscript{c}

\textsuperscript{a}Pfizer Inc., Bridgewater, NJ, United States
\textsuperscript{b}U.S. Food and Drug Administration, Rockville, MD, United States
\textsuperscript{c}Hershey Medical School, Pennsylvania State University, Hershey, PA, United States

Received 29 April 2004; accepted 28 September 2004

Abstract

\textit{Context}: The term “patient-reported outcomes” (PROs) has evolved to include any endpoint derived from patient reports, whether collected in the clinic, in a diary, or by other means, including single-item outcome measures, event logs, symptom reports, formal instruments to measure health-related quality of life (HRQL), health status, adherence, and satisfaction with treatment. This term coincides with the explicit interest from drug development researchers and regulatory authorities in the appropriate utilization and reporting of treatment impact measures.

\textit{Objective}: To determine the level and nature of use of PROs compared to other types of effectiveness endpoints in approved product labeling for new drugs recently approved in the United States.

\textit{Design and sources}: Review and analysis of effectiveness endpoints as reported in clinical study descriptions in approved product labeling of new molecular entities (NMEs) approved in the United States from 1997 through 2002.

\textit{Main outcome measures}: Effectiveness study endpoints reported in approved product labeling that fall into the following categories of measurement: PROs, clinician-reported outcomes (CROs), and laboratory test/device measurement endpoints.

\textit{Results}: PROs were reported in 64 (30%) of the 215 product labels reviewed. Clinician-reported outcomes were reported most frequently (62%) followed by laboratory/device endpoints (50%). PROs were the only type of endpoint used in the FDA-approved label for 23 products. Formal multitem PRO scales were cited 22 times. Use of PROs is most common in antiinflammatory, CNS, gastrointestinal, respiratory, allergic conjunctivitis, and urologic therapy areas. The frequency of reported PRO use over this period did not change.

\* Corresponding author. Worldwide Outcomes Research, Pfizer Inc., 95 Corporate Drive, MS 270, Bridgewater, NJ 08807, United States. Tel.: +1 908 901 8615; fax: +1 908 901 1882.
\textit{E-mail address}: richard.j.willke@pfizer.com (R.J. Willke).

0197-2456/$ - see front matter © 2004 Elsevier Inc. All rights reserved.
doi:10.1016/j.cct.2004.09.003
Conclusion: PROs, although quite variable as a class of study endpoints, were found to have a significant role in the development and evaluation of new medicines. More formal guidance from the FDA about use of such measures along with continued collaboration by PRO researchers to develop and disseminate standards will enhance the appropriate use of PROs in future drug development and labeling.

Keywords: Drug development; Patient-reported outcomes; Health-related quality of life; Drug labeling

1. Introduction

1.1. Background

Use of patient-reported information in clinical medicine is and has always been standard practice. Clinical medicine’s expanding focus on the use of patient-reported measures, however, is directly related to the confluence of events that stemmed from concerns in the 1970s about the ability of the health care system to provide affordable high-quality care. A major activity of that era was the DHHS-supported Health Insurance Experiment (HIE) that examined the impact of alternative forms of health insurance plans on health outcomes through the extensive collection of patient self-reports of health status [1,2]. Findings suggested that linking patient-reported health with clinical endpoints provided unique information for managing patient care. Following the HIE, the Medical Outcomes Study [3] expanded the science of health outcomes measurement particularly as it relates to improving care through the use of both patient and clinical outcomes reporting. At the same time, other health services researchers and medical decision-makers were focusing on innovative ways to assess health outcomes. In outlining the significant contribution of these activities to meeting the challenges facing health care providers, Ellwood [4] suggested that physicians could use outcomes management “to bring a better quality of life to their patients,” implying that quality of life itself is an outcome that must be measured to better gauge the success of outcomes management.

As a result, the pharmaceutical research community recognized the value of measuring “quality of life” outcomes during drug development. FDA asked sponsors of new oncology products to measure “quality of life” in the form of symptoms or performance status inasmuch as traditional objective