

Guest Editorial

Macro and Micro Level Usage of Outcomes Research in Pharmacy Practices

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Health outcomes research plays a critical role in improving safety and quality of health care, whether applied in research or within the context of clinical practice decision making. In particular, health outcomes research holds the promise of offering data-driven, evidence-based solutions for a key process problem or for clinical decisions by health care professionals, including pharmacists. Techniques of outcomes research contribute greatly to the understanding of therapy efficacy or an intervention by using real-world information and by bringing the patient outcome measures to the forefront.¹⁻³ The recent boom in health information technology has produced the capability of comprehensive electronic medical records, including patients' treatment records, prescription medication use, and clinical information. This wealth of patient information has made the drug utilization review (DUR) and drug utilization evaluation (DUE) process very efficient and data driven for pharmacists.

The demand for accountability and access to patient information has stimulated hospitals, clinics, health plans, other payers, and policy makers to strive for efficient ways to improve the health status of their patients by providing appropriate care at the right place, at the right time, and for the right patient. Proof of results regarding prescribing patterns, therapy outcomes, and assessment of medication effectiveness assist clinicians in making informed decisions for complex cases.^{4,5} Usually, clinicians, policy makers, and payers have common goals to ensure safety and quality care, to reduce unnecessary cost of care, and to control overutilization. High-quality assessment reports help in real-world decision making by calculating the value of new and existing therapies by balancing benefits, harms, and costs, which ultimately ensures safety and quality of care.⁴ This is why we see an increase in health care organizations adopting health technology assessment, comparative

effectiveness, drug utilization evaluation, formulary assessment, and pharmacoepidemiology techniques; these methods enable resource allocation decisions and value-based decisions at the global institutional level.⁴⁻⁹ Such important decisions must be derived from solid evidence and results based on outcome measures. Evidence-based decisions are integral for health system pharmacists to support formulary management and to promote adherence to treatment guidelines.⁴⁻⁹

In general, health analytics and outcomes research results are typically applied at the macro level (eg, national policy, guideline development). However, priorities, emphasis, and accountability on quality and safety are reasons for a recent movement toward incorporating outcomes research analytics at the micro level. Application of outcomes research techniques can be used to help health care professionals improve safety and quality of care at the hospital, clinic, and department level. In the current health care environment, pharmacy directors are expected to utilize outcomes data to perform DUEs and DURs to optimize patient care. In addition, accurate formulary decision making can be enhanced by evidence-based real-time data that are gathered from hospital EMRs. As outcomes research techniques and results can authenticate clinically appropriate medication and care for patients, many hospitals have started to add a defined position of pharmacoeconomist and outcomes research analyst in their teams; this person provides data-driven evidence by accessing valuable patient information.

Validated outcomes research tools can assist pharmacists in making informed decisions in a particular setting. However, such outcome research analyses are not without risks/limitations. There remains a concern about not comparing and contrasting adequate outcomes measures.^{2,10-12} Cautions should be taken to report causal inference from nonrandomized studies

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of treatment effects using secondary data sources.¹⁰⁻¹² As each patient brings intrinsic health risks to the health care encounter, risk adjustment techniques (eg, propensity matching score techniques) aid pharmacists in finding meaningful case comparisons by accounting for patient-associated factors before comparing outcomes by various treatments.¹⁰

Pharmacists will be expected to do more in the area of data analysis as there is increased access to patient data. Greater awareness and knowledge about outcomes research should be part of the PharmD curriculum, residency training, and postdoctoral fellowship programs. Particularly, experience with assessment of database analysis using appropriate outcomes research techniques is necessary for the future trainees. Several pharmacy professional organizations are offering workshops, webinars, and seminars to equip pharmacists to apply outcomes research techniques to the evaluation of care or a particular program or service.¹³⁻¹⁸ Encouraging pharmacists to learn about the language, vocabulary, and process of outcomes research is critical. These techniques will better prepare pharmacists for the future world of health care.

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