Enhancing patient outcomes globally by providing answers to clinical questions: Developing pharmacy information services and publishing tools and resources

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ABSTRACT

With the rapid growth of medication information and increased demands on healthcare practitioners, efficiently finding answers to clinical questions is of great importance. Working for a medical information services and publishing company is a unique pharmacy practice setting that aims to help improve global healthcare outcomes by efficiently delivering answers to clinical questions during a healthcare practitioner's normal work-flow. This practice setting is well-suited for pharmacists with strong interests in medical writing, research, evidence-based medicine, and informatics.

KEYWORDS

drug information services, pharmacist, evidence-based medicine

DEVELOPING PHARMACY INFORMATION SERVICES AND PUBLISHING TOOLS AND RESOURCES

Studies have identified that during healthcare visits as many as one to five clinical questions may be generated per patient by medical practitioners.[1-3] Most questions encompassed themes of therapy, diagnosis, disease management, and prevention.[3,4] Specifically, questions such as:

- What is the cause of symptom X?
- What is the dose of drug X?
- How should I manage or treat condition X?
- What is the cause of test finding X?
- What is the drug of choice for condition X?
- Is test X indicated in situation Y?
- Can drug X cause (adverse) finding Y?[5,6]

However, 50 to 70 percent of these questions are reportedly not being pursued.[1,3,5] Factors such as the urgency of the patient's problem, the belief that a definitive answer existed, fear of malpractice exposure, and time available are strongly associated with the search.[3,7] Even so, less than two minutes of time may be spent searching, with approximately 20 percent of practitioners not finding their answer.[1,5]

Today, information is growing faster than it ever has in history. Digital information is increasing 10-fold every five years and MEDLINE publication statistics report the number of published citations has increased almost 10 percent in the last two years.[8,9] While growth in medical information provides a rich source of data to guide treatment decisions, it is not without its challenges and risks as the sheer magnitude alone can serve as a barrier to effective use. Observational studies and focus groups have identified a number of obstacles that hinder efforts to practice evidence-based medicine with the first being simply access to medical information resources. Given access to resources other barriers include difficulty navigating the literature and searching resources, not knowing when to stop searching, and uncertainty of the validity, timeliness, or exhaustiveness of the information retrieved. Finally, with the steady stream of patients and short visit times, time to seek answers is a regularly reported barrier.[10,11] As a result, information management experts have suggested useful information tools are needed that are relevant, valid, and require little work. For example:

- Relevance
  - Does the information focus on patient-oriented outcomes such as morbidity, mortality, symptom improvement, cost, and quality of life?
  - Will the information help guide therapy so that patients can live longer, healthier lives?
  - Is the treatment recommended feasible?
  - Would the information change clinical practice?
- Validity
  - Have rigorous evidence-based medicine standards been applied with evaluation and synthesis of the literature to develop the management recommendation?
- Work
  - How much time, effort, and money are required to obtain an answer to a clinical question?

Tools are needed to help clinicians "forage" and "hunt" for information to help keep them up-to-date and answer questions quickly during patient care.[12,13] Point-of-care drug information and clinical decision support systems, built upon a foundation of evidence-based medical content, seek to solve these problems by providing efficient decision making tools to healthcare practitioners during their normal clinical work flow. It is my job at Wolters Kluwer Health, as I work on medical content research and development teams, to help clinicians find their answers.

Looking back I never anticipated working in the information services and publishing industry. Following graduation from pharmacy school I completed a general practice residency and a psychiatry specialty residency because of my interests in behavioral health and research. During my residencies and later while working as a clinical psychiatric pharmacy specialist at a university medical center I developed interests in medical writing. It was these combined professional interests that ultimately lead me to begin working at Wolters Kluwer Health in the Clinical Solutions division developing electronic, point-of-care drug information and clinical decision support tools. Currently, of the over 1200 people employed by Clinical Solutions, there are 85 full time pharmacists as well as 99 physicians and 15 nurses contributing to the content and software development processes. Early on, I worked for ProVation Medical in the Clinical Documentation operating unit. My work consisted of writing and editing diagnosis and treatment guidelines based off the latest medical evidence for an online referential resource. This provided clinicians with an evidence-based resource to answer questions and help improve patient outcomes during their normal work-flow. I also developed order sets for an order set management software solution that provided clinicians an actionable list of orders by medical condition. These order sets were based on best practice, quality, and safety standards, with electronic links to supporting primary, secondary, and tertiary medical literature. In addition, with the increasing focus on quality care and measurement and healthcare incentive programs sponsored by the U.S. Centers for Medicare and Medicaid Services (CMS) and other performance improvement organizations, I developed workflow reminders in the order sets that assisted practitioners with meeting and maintaining quality standards and their associated metrics.

In an effort to expand our efforts focused on improving quality measure metrics, I was also able to stretch my complex-problem solving skills further by developing the medical content and data structure for a rules-and-reminders software product. When integrated within an electronic medical record (EMR) these rules deliver real-time alert notifications to clinicians of hazards related to new or updated EMR data to help prevent errors of omission, improve care processes, and aid in enforcing standards of care while at the same time assisting practitioners in improving their quality metrics.

Currently, I am working as a pharmacotherapy specialist in our Clinical Drug Information operating unit and focus on developing drug information content for the Lexicomp and Facts & Comparisons referential resources and tools that aid healthcare practitioners in their clinical decision making and provision of pharmaceutical care. I work as the psychiatry/neurology expert on the team and through daily surveillance our goal is to provide healthcare practitioners and students with clear, concise, and dependable information that is current. With extensive literature reviews that are cross-referenced and linked to supporting content we create unbiased, objective, evidence-based drug information that provides actionable answers to drug information questions. This provides for better therapeutic decisions in less time. In addition to developing content for medications available in the U.S., my time is focused on creating information resources and tools that are relevant for international healthcare practitioners. These international resources include medications that are only available internationally as well as any associated and important international practice standards which may at times differ from U.S. standards. Not only do these international resources assist international practitioners in finding their answers, but they also locally aid in the care of our global patients.

Careful consideration during the content development process allows us to create drug information that can be seamlessly presented during a practitioner's normal work flow through clinical decision support applications, online, or through mobile devices. As a result, we are able to aid practitioners in meeting the new CMS Meaningful Use and Certification requirements. For example, through integration with the electronic health record the medical content can be used to support e-prescribing and check for drug interactions, allergies, duplicate therapy and errors in dosing. These content development considerations also allow customers to customize displays and data to enhance formulary compliance. A large extent of research and development time for the products does revolve around medical literature research, news surveillance, and software development. However, consulting regularly and connecting with practicing

pharmacists in the U.S. and internationally at local, national, and international medical conferences as well as in patient care settings largely improves our ability to deliver information and solutions that help meet the current needs of practicing pharmacists globally.

Clinicians practicing in patient care settings work tirelessly gathering information from patients in the form of patient histories, medication lists, test results, and assessments. By integrating this information with what is already known, they develop a plan for disease management and pharmaceutical care. Gathering information takes time and with high patient loads and current demands, time is a commodity that we often have little to spare. Therefore, it is even more important for healthcare practitioners with clinical questions to be able to find the right answers at the right time. Through in-depth clinical research, analysis, and development my job focuses on delivering these answers in a way that improves clinical workflow, reduces unnecessary healthcare spending, assists in meeting best practice standards, and ultimately, and most importantly, helps improve patient outcomes.

Working in the information services and publishing industry is a great practice setting for pharmacists with similar interests in medical writing, research, evidence-based medicine, medical informatics, and software development. In comparison to other pharmacy practice settings, this practice setting is particularly unique, because we have the opportunity to improve patient outcomes globally.

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How to cite this article
Carls KA. Enhancing patient outcomes globally by providing answers to clinical questions: Developing pharmacy information services and publishing tools and resources. Ment Health Clin [Internet]. 2014;4(6):276-8. Available from: http://dx.doi.org/10.9740/mhc.n207251