Investing in systems in order to advance performance

Andy Gray

Division of Pharmacology, Discipline of Pharmaceutical Sciences, University of KwaZulu-Natal

Background

One of the longest-running series in the American Journal of Health-System Pharmacy is that reporting on the annual ASHP surveys of hospital pharmacies conducted in the United States. Each report deals with a specific area of practice, as the entire gamut of questions is now too extensive to allow reporting in a single publication. The most recent version, published in September 2016, deals with the issues of patient monitoring and education. The survey report is based on returns provided by 325 American hospitals (out of 1423 sampled). The results are striking, and can serve as a useful contrast to what is known (or suspected) about hospital pharmacy practice in South Africa. In brief, the ASHP survey showed that, since 2000, the proportion of hospitals reporting that pharmacists monitor at least 75% of patients has increased from 20.3% to 57.8%. Most importantly, it showed that, in 86.2% of hospitals, the prescription (referred to in the US as a medication order) was reviewed by a pharmacist before the first dose was made available and administered to a patient.

Other elements which had improved since the survey on this aspect was last conducted in 2012 were:

- use of therapeutic drug monitoring increased from 63.0% to 70.6%;
- the proportion of hospitals in which pharmacists have primary responsibility for discharge counselling increased from 1.2% to 7.3% (with 33.8% of hospitals reporting that pharmacists counsel at-risk patients).

Apart from the obvious need for adequate human resources to conduct these clinically-oriented hospital pharmacy services, the ASHP survey also documented impressive investments in infrastructure, and in particular information and communication technology (ICT) systems:

- 97.5% of hospitals were reported to have partially or completely implemented electronic health records;
- 84.1% had computerised prescriber-order-entry (CPOE) systems; and
- 93.7% had implemented barcode-assisted medication administration (BCMA) systems.

In the 2015 survey, the average number of full-time equivalent (FTE) pharmacists per 100 occupied beds was 15.6, with an additional 14.8 FTE pharmacy technicians per 100 occupied beds. In terms of skills levels, 24.0% of inpatient hospital pharmacists had completed a postgraduate year 1 (PGY1) pharmacy residency, 5.9% had completed a postgraduate year 2 (PGY2) pharmacy residency, and 16.6% were certified by the Board of Pharmacy Specialties (BPS).

The authors pointed out that the ability to review a medication order before any medicine reached the patient had previously required the physical presence of a pharmacist in the hospital, which usually implied a 24-hour pharmacy service. However, “[p]rescriptions and clinical information about the patient are now available electronically so that medication order review can take place remotely. With the use of automated dispensing cabinets, access to a medication can be restricted until after a pharmacist has reviewed the prescription. As a result, the percentage of medication orders that are not reviewed by a pharmacist has declined dramatically, from almost 60% to less than 14%, in the past 10 years”. They also noted the potential for greater reliance on mobile devices, with pharmacists reporting using tablet computers and smartphones to provide patient care in 40% of hospitals.

In response, the editor-in-chief of the AJHP, Daniel Cobaugh, remarked that while the survey showed “encouraging signals”, the “work remains unfinished”, and that pharmacy still faced a challenge “to see that all hospitals fully integrate pharmacists into patient care teams”.

Reflection on local practice

South Africa has been well-represented at both the initial Global Conference on the Future of Hospital Pharmacy held in Basle in 2008, and at the update of the Basel Statements in Bangkok in 2014. The updated Basel Statements were seen as providing “a strengthened foundation for additional national and regional efforts to develop and update medication-use best practices”.

An accompanying editorial highlighted that “[a]lthough hospital pharmacy practice differs from country to country, there is inherent value in the establishment and dissemination of internationally accepted best practices that promote the safe, effective, efficient, and timely use of medications”.

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The hope was expressed that, while “rates of adoption will vary—for a variety of reasons—between and within countries, global progress in achieving the Basel vision will meaningfully contribute to the care of individual patients and, ultimately, the UN Sustainable Development Goal of ensuring healthy lives and promoting well-being for all people of all ages”.

Is there evidence of such movement in South African hospital pharmacies?

In a recent review of health care and pharmacy practice, the following description of hospital pharmacy practices in South Africa was offered: “The typical daily activities of both public and private hospital pharmacists are usually dominated by medication dispensing and stock control (at both a ward and an institutional level). Other daily tasks will vary by institution and may include activities such as extemporaneous compounding, cytotoxic and other sterile admixture services, ward rounds, patient education, training of health care professionals, and medication safety monitoring (medication error and pharmacovigilance systems). Pharmacokinetic advisory services are poorly developed, but increasing attention is being paid to antimicrobial stewardship programs, particularly in private hospitals. Dedicated ward pharmacists have been deployed in some private hospitals. Public sector hospital pharmacies also carry a large ambulatory care load, which occupies much staff time.”

In this review, we identified the key contribution that ICT (or the lack thereof) makes to the nature of hospital pharmacy practice in the private and public sectors:

- “Electronic patient medication histories are commonly maintained, but integration with other hospital systems is not yet common. Computerized physician order entry and decision support software are very rarely encountered.”
- “In contrast to private hospitals, public sector hospitals are more likely to rely on paper-based systems, rather than computerized patient records. There is one public sector hospital with a computerized physician order entry system, but it has no decision support elements. All public sector hospitals rely to a greater extent than private hospitals on extensive ward stock, and therefore a greater proportion of medicines on wards that are not individually labelled for specific patients.”

The key drivers

While the key driver of lack of access to appropriate pharmacy ICT systems in the public sector is clearly the generally parlous level of investment in patient-directed ICT in general, the situation in the private sector appears to be more complex. As noted, electronic patient medication histories are routinely maintained by private hospital pharmacies in South Africa, but are geared primarily to billing, not to the provision of a safe medication use experience. A similar situation has previously been described in family practice.6

There are the earliest signs of a change—one private hospital group has invested in the Bluebird software suite (http://www.intelms.com/ams.html), for instance, which enables clinical pharmacists to provide prospective antimicrobial audit, access laboratory data, and document interactions with prescribers on the wards. That investment reflects the high priority being given to antimicrobial stewardship in the private hospital sector. However, will a similar effort be possible in other private hospital groups or in the public sector?

When the antiretroviral treatment programme in the public sector was first launched, the possibility of using new resources in that area to develop electronic health records, with the view to expanding their use to all patient groups, was mooted. The reality has been more disappointing. Far too many stand-alone systems still exist, some implemented by donor-funded non-governmental organisations in a few facilities, but rarely integrated with any provincial systems. Will the same apply to the planned rollout of Rx Solution in public sector hospital pharmacies? Will this forever remain a logistics support tool, with no patient-level application?

A 2011 UNISA Master of Business Leadership thesis by Kleynhans (http://uir.unisa.ac.za/bitstream/handle/10500/6128/2011%20MBL%20Research%20Report%20A-M%20Kleynhans.pdf?sequence=1) concluded that “The current South African (SA) environment does not allow the country to be ready for a national electronic health record. The lack of eHealth capability does not justify a national initiative of such a magnitude. There is a presence of information systems in the provinces but the scale tips more to hospitals and facilities not having any electronic equipment or information systems. The potential however is overwhelming and the benefits will surely justify the cost of the implementation, but the provinces need to improve the coverage of the information systems and improve computer literacy at provincial level before a national effort can be made to have a single national electronic health record. An EHR aims to be as comprehensive and complete as possible and will not be complete if all the health institutions in the public sector are not included.”

What will tip the scales the other way? What will provoke the investment in systems that will allow hospital pharmacists to meet the expectation that all prescriptions should be reviewed, interpreted, and validated prior to the medicine being dispensed and administered? The implementation of the occupation-specific dispensation (OSD) package saw the number of pharmacists employed in the public sector more than double between 2007 and 2014. However, without the tools to operate, without the investment in systems, their contribution is limited. The same can be said for those employed in private hospitals.

It’s time to demand the necessary investment, so that the required advancement in performance can be enabled. Remaining in the current state is unacceptable.

References