Improving patient outcomes

More than 3300 participants from 83 countries attended the European Association of Hospital Pharmacists congress in Paris in March 2013. Key themes were collaborative practice, multidisciplinary teamwork and patient safety

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Medical errors affect both patients

and professionals – for every twenty beds, there is one serious adverse event each week, according to Valérie Salomon (Director of quality and safety of healthcare, Ministry of Health, Paris, France). A particular area of concern is improving the safety of patients with respect to drug therapy, she continued. A diagnostic review had established that there is insufficient institutional support for safety initiatives, despite efforts by pharmacists and the concept of a 'safety culture' is not well-developed. There is a need to develop a pro-active approach by prioritising risks and to learn from analyses of previous events. Patients need to be better informed and to be 'actors in their own care'.

As a result of this review, a new approach based on five key features has been developed. The first feature is a new regulation – the decree of 6 April 2011 on the management of quality drug care for patients. This will require the support and involvement of hospital managers and collaboration with doctors, she explained. The second feature is the requirement for each institution to determine its own priorities for action, taking into account local reports of adverse events, medication errors or malfunctions related to drug management and their analysis. The third feature is 'feedback as an engine for action'. It is essential that errors and adverse events be analysed systematically to understand the causes and to implement measures to prevent their recurrence, said Dr Salomon. The fourth feature is the provision of suitable

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training, funding, assistance for computerisation and tools to support the implementation of safer practices. The Regional Health Agencies (ARS) together with the observatories of medical devices and therapeutic innovation (OMEDIT), the regional pharmacovigilance centres (CRPV) and other support bodies for quality and risk management have key roles in the support of institutions to implement this approach, she added. The fifth feature is the evaluation of the policy and the transparency of the results. For example, annual progress reports on the proper use of drugs and indicators of quality and safety of care will reflect the condition of the organisation and the extent to which objectives have been achieved, she said.

In addition to these measures, the French Minister of Health launched a national patient safety programme on 14th February 2013. Amongst other things this should improve the culture of safety among professionals. This will be achieved partly by the introduction of care safety training into the curricula of all healthcare professionals. Another aspect of this programme is the development of research on the safety of care involving disciplines such as social sciences and economics and improved safety for people participating in clinical research.

The hospital pharmacist's impact

Inter-professional collaboration and practice work synergistically to improve the quality of patient care, argued Marianne Ivey (Associate Professor of Pharmacy Practice, University of Cincinatti, Ohio, USA). Collaboration involves partnership between a team of health providers and a patient, and inter-professional practice is a process of communication and decision-making that enables synergy between group knowledge and skills, she continued. The 'three Cs of leadership' – communication, co-operation and co-ordination are critical but must be balanced with autonomy and assertiveness on the one hand and mutual trust and respect on the other. In an effective inter-professional team, all members see their individual roles as important and do not need to ask permission to do things. Collaborative practice skills can be learned by observing a successful team at work, listening to case studies, participating in simulation exercises and by practising as a team member, said Dr Ivey.

Collaborative care agreements have now been established in at least 30 States in the US. Under such agreements a pharmacist is allowed to manage an individual's drug therapy in accordance

Fiona Reynolds

with a specified protocol. A separate agreement is required for each patient, and the agreement is specific to the diagnosis and its therapy.

In general, the pharmacist's responsibilities are to

- Know the patient's illness or condition
- Know the patient's medication use
- Provide medication reconciliation at transitions of care
- Provide medication information to the health care team at the point of care
- Provide medication information and recommendations to the patient
- Provide discharge/adherence counselling
- Manage chronic diseases, including prescribing

Moreover, the pharmacist is accountable for timely responses to patients' care needs and the safe and accurate provision of medicines within the available resources, explained Dr Ivey.

Much of what pharmacists do is measurable and this is important in the data-driven world of healthcare. One study analysed publicly available data for 584 hospitals treating 1.96 million patients. The results showed that 12 clinical pharmacy services led to decreased numbers of adverse drug events (ADEs) and the most significant services were where pharmacists provided drug histories on admission, drug protocol management and adverse event management. Another study showed that increased clinical pharmacy staffing reduced the numbers of adverse events. As staffing increased from 0.2-1.7 pharmacists per 100 occupied beds to 1-9 pharmacists per 100 occupied beds, the rate of adverse events fell by 48%. In contrast, in hospitals without ADE management, there were 4266 more ADEs and 433 more deaths. A further study showed that for every dollar spent on medication therapy management services provided by pharmacists, there was a 12-dollar saving on health care expenses.

Multidisciplinary teams

Being part of a team is more important than any individual professional role, Fiona Reynolds (Paediatric Intensivist and Deputy Chief Medical Officer, Birmingham Children's Hospital, United Kingdom) told the audience. The intensive care unit at Birmingham Children's Hospital receives 1500 patients per year and their weights range from 700g to 70kg. Given the hundred-fold differences in weights and dosing requirements, constant vigilance is needed to ensure that mistakes do not occur – and this calls for the input of a multidisciplinary team (MDT), said Dr Reynolds.

For a multidisciplinary team to work effectively all members of the team need to agree on the goal and that they will work together to achieve it. Each team member has a specific role related to their professional expertise. Most critically, there is a level hierarchy in the team. In Dr Reynolds' team, members address each other by first names.

Healthcare teams must be ready to deal with considerable variety. Doctors are concerned with diagnostics, disease processes and physiology and tend to be risk-takers whereas pharmacists have a better understanding of pharmacology, are precise about details and tend to be risk-averse. Nurses are skilled at patient management, good at observing patients over time and are predominantly process-driven.

According to textbooks, effective team building takes time and relies on "frequent and prolonged contact", but this a luxury that is rarely available to heath care teams that often have to come together around a specific project (or patient). Thus, important attributes are open communication, mutual respect, understanding of each other's roles and acknowledging and utilising the expertise of other team members. "I cannot imagine working any other way now", said Dr Reynolds.

One way to build or improve multidisciplinary team working is to enlist and empower the staff of the organisation and find a way to capture their ideas. In Birmingham, this was done by holding a large meeting involving 30% of all the staff. People worked in multidisciplinary groups to answer three questions;

- What does the world's best children's hospital look like?
- Why are we not the best children's hospital?
- What do we need to do to make us the best?

Doctors said that the world's best children's hospital produced good quality research and the hospital porters said that it got the patients to the X-ray department on time, commented Dr Reynolds. This approach turned out to be good for breaking down barriers and improving teamwork. Overall the process was so successful that it is now repeated annually.

At Birmingham Children's Hospital, pharmacists work on the wards. They are involved in the preparation of all clinical guidelines, medicines' administration training for nurses and induction testing and training for doctors. They also investigate all drug errors and near-misses and provide education to professionals after each adverse event. The hospital aims to have a high-reporting, low harm culture. Thus, in recent years the number of adverse event reports has risen but the number of events associated with serious harm has fallen.

Learning safe prescribing

Pharmacists have also been involved in the training of junior doctors in safe prescribing. There was no test of prescribing ability during their training at the medical school and no specific training in paediatric prescribing. The pharmacy department had therefore introduced a prescribing test for junior doctors on their first day of work at the hospital. Doctors whose performance in the test is less than satisfactory are not granted prescribing rights and are given remedial training led by pharmacists. This is supported by a web-based e-learning package hosted by the Deanery (the body responsible for the training of junior doctors). This package must be completed by all junior doctors during their first year of practice.

Medicines reconciliation

Medicines reconciliation, when patients move between providers of care, is particularly important in the field of paediatrics, said Dr Reynolds. As an example, a paediatric liver transplant

patient could be discharged from hospital on an average of 20 drugs. Weekly drug level monitoring would be needed; there could be a reducing dose of immunosuppressive treatment and discontinuation of prophylactic antibiotics. In addition, the infant could be breast-fed and the mother could be taking antihypertensive treatment. All of this information needs to be clearly communicated to the next set of care-providers. A further complication arises in that more than 200 drugs that are used in the hospital are not currently readily available from community pharmacies. On occasions this has resulted in treatment delays of up to four weeks and unacceptable high costs. The problem had been addressed at Birmingham Children's Hospital by opening an outpatient pharmacy in the hospital.

In conclusion, Dr Reynolds said that working in a multi-disciplinary team could feel very threatening at the beginning but it was now widely recognised that MDTs were a common feature of the best hospitals in the world. She acknowledged that she could not do her job without the MDT.

Prevention of critical incidents

The prevention of critical adverse incidents is a matter for all healthcare disciplines, according to Norbert Pateisky (Visiting lecturer, Medical University of Vienna and CEO Assekurisk). Some 98,000 people die each year in the USA because of medical errors, but no scientific breakthrough is required to deal with this – healthcare workers can tackle it themselves if they are sufficiently aware of the possibility of errors, he continued. One high-profile example of a medication error was the case of actor Dennis Quaid's baby twins who were each given 1000-fold overdoses of heparin at the Cedars Sinai Hospital, and survived. Another example was that of Boston Globe health correspondent Betsy Lehman who was treated for breast cancer at the Dana-Farber Cancer Institute. She was prescribed "cyclophosphamide 4g/m² over four days" but received the dose every day for four days and died as a result.

Quality and safety are different things, said Professor Pateisky. Quality in healthcare can be measured but safety is not easily measured. High-risk sports, such as downhill skiing, and high-risk industries, such as aviation, have improved safety greatly by the implementation of simple rules that are rigorously followed. In spite of major technical improvements some accidents continued to occur, such as the Tenerife air disaster in which 583 people were killed. The investigation concluded that problems with hierarchy, teamwork and communications were the major contributory factors and this led to improved understanding of the role of human factors.

"We should make it easy to do the right thing and difficult to do the wrong thing, but there are few cases where this happens with medicines", said Professor Pateisky. Errors must be accepted as system flaws and not character flaws. Taking account of human factors means dealing with human performance limitations, he said. Health care workers in hospitals can be hurried, tired, hungry and coping with problems including dim lighting, poor communications systems and short staffing. A key finding from high-risk industries is that 80% of errors are due to non-technical issues and the primary reason for fatalities is problems with communications and training. For this reason, standard phrasing has been introduced for airline pilots to avoid misunderstandings. Such an approach has not been adopted in medicine, he noted. In hospitals, "everyone has his own way of doing things and there is little standardisation", he said. This leads to problems for new starters or people moving between care areas. In contrast, compliance with standardised procedures is critical in flying, he added.

Structured communication is one of the most important ways to improve communications, explained Professor Pateisky. One aspect of this is exchanging information in a standard order using standard expressions, as airline pilots do. Another aspect is the 'closed loop' – or writing down a message and reading it back to confirm understanding. Simply asking, "Did you understand?" and receiving the answer "Yes", is meaningless, he said.

Checklists are important but can be a weak intervention when used alone. Part of the problem here is cultural – airline pilots would never work without a checklist but doctors do. Teamwork is critical for safety and effectiveness but in order to work well teams must train together. A good example of this is the wheel change procedure in Formula 1 racing. Hospitals do not do team training, he emphasised. Finally, hierarchy continues to be a problem because it is deeply ingrained in medicine. The notion that "the decision of the boss should not be challenged" could take another 20 years to solve, he estimated.

Norbert Pateisky

Healthcare staff now need to change and embrace new methods – otherwise things will not change, he concluded.

Poster awards

The number of poster presented at the EAHP congress has grown rapidly over the past few years – from just over 300 at the 2010 congress in Nice to 950 at the 2013 congress in Paris.

The first prize for the best poster was awarded to Trine Rune Høgh Nielsen (Zealand Region Hospital, Denmark) for her poster entitled, *Pharmacist's optimisation of the medication process during admission to hospital: a multicentre, randomised controlled trial*. The results showed that the intervention group experienced fewer adverse events, had shorter hospital stays and lower hospital costs than the control group, although the results did not reach significance.

The second prize was awarded to Danielle Wigg (North Bristol NHS Trust, UK) for her poster entitled, *Insulin: improving the safety of prescribing*. The poster described how the implementation of an insulin chart that incorporated five key prescribing elements had improved the quality of insulin prescribing and reduced the risk of patient harm. ●

Improving patient outcomes – a shared responsibility. 18th Congress of the European Association of Hospital Pharmacists was held in Paris, 13–15th March 2013.