Editorials

The third global patient safety challenge: tackling medication-related harm

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The World Health Organization (WHO) has announced its third global patient safety challenge,[1] which aims to reduce the global burden of iatrogenic medication-related harm by 50% within five years. The intention is to match the global reach and impact of the two earlier global patient safety challenges: *Clean care is safer care* and *Safe surgery saves lives*.[2,3] The third challenge, *Medication without harm*, invites health ministers to initiate national plans addressing four domains of medication safety: engaging patients and the public; medication as products; education, training and monitoring of health-care professionals; and systems and practices of medication management. This challenge also commits WHO to using its convening and coordinating powers to drive forward a range of global actions on medication safety.[4]

Here, we focus on three priority areas of medication safety that most affect patients, just as hand hygiene and the surgical checklist were chosen as the flagships of the first two challenges. These three areas are high-risk situations, polypharmacy and transitions of care. Each area is associated with a substantial burden of harm and therefore, if appropriately managed, could reduce the risk of harm to many patients.

Certain classes of medications are particularly liable to produce adverse reactions. They tend to have a narrow therapeutic index, meaning that small dosing errors can cause catastrophic outcomes. For example, the use of warfarin for anticoagulation is a high-risk clinical situation involving a medication because its use carries associated risks of bleeding if the international normalized ratio is too high and risks of further thrombosis if it is too low. The Clinical Excellence Commission has summarized high-risk medications in the acronym A PINCH (**a**nti-infective agents; **p**otassium and other electrolytes; **i**nsulin; **n**arcotics and other sedatives; **c**hemotherapeutic and immunosuppressive agents and **h**eparin and anticoagulants).[5] However, this classification is not exhaustive; for example, other medications carry risks for those with underlying diseases, such as chronic kidney disease. Focusing on certain key classes of medications has enabled investigators to develop interventions that reduce inadvertent harm caused by these medications. Such interventions can involve low-technology solutions, such as patient medication diaries, or harness the potential of digital technology, as with clinical decision support systems linked with electronic health records.[6]

As people tend to live longer, receive treatment for more than one condition at a time and have access to an increasing number of therapeutic options, they tend to take multiple medications. This intake increases the likelihood of drug interactions. Elderly patients may also find it difficult to adhere to complex regimens, increasing the likelihood of patient-induced errors. Progress has been made in identifying medication history and drug-drug combinations that are particularly problematic, enabling risk-stratification and risk-reduction approaches through, for example, de-prescribing initiatives in Canada[7] and the United States of America.[8] However, these initiatives are only addressing a part of the problem of polypharmacy.

Reducing medication-related harm in the field of transitions of care[9] is the third priority area. Failure to effectively communicate information on medicines and/or underlying risk factors may cause medication errors when patients move between care settings (e.g. from primary to hospital care) and/or between care providers within the same setting (e.g. from out-patient respiratory to out-patient cardiovascular clinics). Initiatives designed to improve communication across such boundaries include standard operating procedures to support medication reconciliation such as WHO's High 5s Project,[10] pharmacist review of patients following admission and discharge from hospitals, summary of care records detailing principal diagnoses, allergies and medication(s), and shared cloud-based applications and electronic health records.

The three early priorities of the third global patient safety challenge are not mutually exclusive; many patients may be exposed to risks from a combination of adverse reactions, polypharmacy and miscommunication. Health-care professionals should focus particularly on those patients who are at higher risk of death or serious illness because of medication-related harm.

Making progress across these areas will require politicians and health-care leaders to prioritize medication safety – as was achieved in the first two challenges. The context in which medication-related harm occurs across a range of care settings needs to be clearly understood. Implementing measures to reduce this harm will need to include educating and empowering patients and carers; developing tools to assist frontline health-care professionals; and engineering new systems of care to create resilience against the factors that predispose to the risk of medication errors. ∎

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Available at: http://www.who.int/bulletin/volumes/95/8/17-198002

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