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Tackling transitions in patient care: the process of medication reconciliation

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The (dis)continuum

Errors in the prescribing and administration of medication are frequent, costly and harmful. The seminal Institute of Medicine report *To Err is Human: Building a Safer Health System* highlighted medication error as being widely prevalent, costly and contributing to preventable causes of patient harm. In particular, transitions of care, as patients move between different levels and locations of care, lead to medication error and what has been described as the 'health care (dis)continuum'.[1] As much as 50% of medication errors and 20% of adverse drug events (ADEs) take place as a result of poor communication during these transitions—admission, transfer and discharge of patients.[2]

The errors in transition cascade

A core component of managing care transitions is ensuring that an accurate medication use history is collected and transmitted between caregivers. Errors in recording medication history give rise to discrepancies such as medication omission, commission and errors in dose, route or frequency. These discrepancies, particularly if initiated at admission to hospital, may perpetuate through to discharge and return to the community. They have been linked to potential ADEs as well as higher re-hospitalization rates.[3] The avoidable cost associated with poorly coordinated care transitions, leading to complications and re-hospitalization has been estimated at €45 billion in the USA in 2011 alone.[4] This has been recognized by the internationally supported effort of the World Health Organization[5] in launching the *High 5's* project in 2006, with an emphasis on patient safety with the standard operating procedure—'assuring medication accuracy at transitions in care' focussed on reducing medication discrepancies. Furthermore, reforms introduced by the Patient Protection and Affordable Care Act in the USA will allow financial penalties to be imposed upon hospitals to avoid re-hospitalizations.

The reconciliation process

One way to address the continuity of medicines information when moving from one care sector to another is medication reconciliation—the process of creating the most accurate list of medications at transition points. This takes place in three stages: a list of medications the patient was using before transfer is developed, the medication and dosage is checked against the new list—with a view to identifying any discrepancies or differences. Discrepancies are determined to be intentional or not, with unintentional discrepancies changed as appropriate and intentional discrepancies documented. Finally, this comprehensive new list and information regarding changes is communicated to the next health care provider.[2] Medication reconciliation has been advocated by a number of different professional and accrediting bodies internationally—the Joint Commission, the Institute for Healthcare Improvement, the National Institute for Health & Clinical Excellence (UK), the Canadian Patient Safety Institute and the Institute for Safe Medication Practices (Canada). A consensus statement by key stakeholders described medication reconciliation as a patient safety issue with a need to clearly define the process, address practical and flexible local implementation, identify at-risk patients and actively promote and disseminate effective methods of reconciliation.[6]

How to measure success?

A number of different interventions have been assessed in randomized trials in relation to medication reconciliation including information technology solutions, pharmacist input and reconciliation as part of a more complex multifaceted care plan.[7,8] Interventions relying

heavily on an increased role for pharmacists, and targeting the patients most at risk of ADEs have reported the greatest improvement.[9] However, systematic reviews of medication reconciliation have commented not only on the poor quality of studies in the area, notably design flaws and the lack of appropriate comparison groups, but also on the difficulty of comparing outcomes across heterogeneous settings and the absence of head-to-head comparisons of different intervention types.[7,8] Reconciliation interventions are often assessed by comparing medication regimens across transitions and reporting discrepancy reduction as the primary outcome. However, this is a process measure, and what may be of more use is identifying those discrepancies that are considered clinically significant and which may give rise to harm.[9] This failing in undertaking appropriate comparisons and selection of relevant outcomes is seen by the fact that while reported interventions have a positive effect on reducing the prevalence of medication discrepancies, the evidence for the presumed subsequent reduction in health care utilization is equivocal.[7]

The electronic records panacea?

Future challenges for research entail identifying which patients are most likely to benefit from the reconciliation process and how discharge coordination plans should incorporate reconciliation.[6] The growing adoption of electronic health records, patient portals and shared medication records all may support the implementation and evaluation of the reconciliation process. Whilst Information and Communications Technology has the potential to deliver a medical record that is universally accessible across care settings to support reconciliation, consideration should be given to organizational, ethical and social issues developing such systems in order to achieve successful and sustainable uptake.[10]

Being pragmatic and deciding what is important

Interestingly, the difficulty in designing and powering randomized trials to examine ADEs related to re-hospitalization has led to a shift to the more pragmatic approach of choosing medication discrepancy as a primary outcome.[11] However, this should not neglect the need to explore both the clinical significance and the causal relationship between discrepancies, ADEs, re-hospitalization, quality-of-life measures and cost effectiveness, in light of reconciliation being a recommendation of professional organizations and a necessity for accreditation in some countries.[9] More broadly, research efforts to date have been primarily concerned with inpatient reconciliation neglecting the wider patient journey upon discharge, with transitions between the hospital and long-term care facilities and within the community. Investigating strategies to reduce the potential for error and the practice of reconciliation between these sectors is also necessary.

The broader agenda

In summary, medication reconciliation is a conscientious, patient-centred, inter-professional process that supports optimal medicines management.[6] Reconciliation contributes to the larger area of medication safety, appropriateness and timeliness. By definition, it crosses professional boundaries and requires interdisciplinary planning and cooperation. More research is required to define its ideal design, implementation and assessment.

Declaration

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