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Improving pre-operative medicines reconciliation

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Abstract

An audit of 143 surgical admissions showed that only 30% of general surgery and urology patients have complete medication charts on the day of surgery prior to going to theatre, compared to 94% of orthopaedic patients. This was despite having been seen previously in the pre-operative assessment clinic (POAC). These patients went to the wards post-operatively, where many then missed doses of their life-sustaining medications. Orthopaedic patients see a prescribing pharmacist in POAC who undertakes medicines reconciliation; this is performed by junior doctors for surgical patients.

We designed three interventions to improve drug chart completion by junior doctors, and gathered prospective data for 22 weeks in the POAC. We also recorded attendance of junior doctors in the POAC and reasons for absence. Daily and weekly percentages of drug chart completion were plotted on a run chart.

The baseline completion rate was 43%. This rose to 45% after the first and second interventions, and 51% after the third intervention. However, the completion rate remained markedly below our target of 94%. Junior doctors attended only 44% of POACs. They reported being "too busy to attend" 41% of the time, and could not be contacted on 11% of occasions.

Junior doctors reported that they were unable to attend to both unwell inpatients and the POAC, the latter seeming less of a priority. This was despite a rota allocating doctors to attend POAC sessions free from clinical or teaching commitments.

We were unable to increase the rate of drug chart completion with the resources available. We therefore recommend the employment of prescribing pharmacists in the POAC for general surgery and urology patients.

Problem

Despite the importance of meticulous medicine reconciliation and prescribing, both remain common sources of medication error in surgical patients. An audit of 143 surgical admissions showed that only 30% of general surgery and urology patients have complete medication charts on the day of surgery, prior to going to theatre. Drug charts were considered complete if they include all of a patient's regular medications, a completed thromboprophylaxis risk assessment, and a correct prescription of low molecular weight heparin if indicated. In comparison, the same audit revealed that 94% of orthopaedic patients had complete drug charts on the day of admission.

Postoperatively, a large number of general surgical patients were being admitted to the ward without a completed drug chart. A five-day pharmacy audit identified 18 cases of patients missing their medications following general surgical procedures. This included doses of life-sustaining medications. For example, one patient missed out on their antiepileptic and antihypertensive medications, another did not receive their regular insulin. One patient never had a drug chart for their entire hospital stay; another patient went home without any regular medication as nothing had been prescribed resulting in a formal complaint.

Of note, drug charts were often completed by on-call junior doctors out of hours. The National Institute of Health and Care Excellence (NICE) and the National Patient Safety Agency (NPSA) issued specific guidance on medicines reconciliation in 2007.[1] It states that hospitals should have robust policies in place to ensure that medicines reconciliation occurs as soon as possible after admission. Out-of-hours prescriptions by junior doctors are acceptable in the emergency setting, but inappropriate for elective general surgical admissions.

Background

In our 1000-bed teaching hospital, all elective patients are seen prior to the day of surgery in the pre-operative assessment clinic (POAC). In POAC, 250 to 300 patients are seen per week by a range of health professionals. Health screening, blood tests or other investigations, and medicines reconciliation are carried out in a single visit. Patients go home at the end of their appointment and return to the admissions unit on the day of surgery, and are transferred to a surgical ward post-operatively.

In the orthopaedic POAC, a prescribing pharmacist takes a medication history from patients and prescribes appropriately. This role is assigned to junior doctors, typically in their first or second year of postgraduate practice, for general surgical and urology patients. These junior doctors are supposed to attend POAC on a rota system, free from teaching or other clinical commitments.

Medication errors and omissions occur frequently in surgical

patients. Prescribing by surgeons is generally a risk factor for medication errors to occur.[2] Numerous studies [3-6] have previously demonstrated the quality of pharmacists' medicines reconciliation and prescribing to be superior to that of junior doctors.

Baseline measurement

The initial audit uncovered a large discrepancy between completion rates of prescription charts for general surgery and urology patients compared to orthopaedic patients (see graph "Admission Unit Drug Chart Completion Rates").

Our multidisciplinary team analysed the admission pathway of surgical patients and identified POAC as the key area for improvement. Baseline data was collected daily for two months in the POAC by screening the drug charts of all patients for completeness. A drug chart was deemed "complete" if all of the following three criteria were met:

1. A patient's regular medications had been prescribed. If a patient had no regular medications pre-operatively, this criteria was deemed fulfilled
2. The thromboprophylaxis risk assessment had been completed and signed
3. Low-molecular-weight heparin had been prescribed as indicated.

The daily and weekly percentages of "complete" drug charts were plotted on a run chart. The baseline data confirmed our initial audit result. On average, 43% of all drug charts were completed in POAC with marked daily and weekly variability over the two-months period.

See supplementary file: ds3539.png - "Admission Unit Drug Chart Completion Rates"

Design

In this cost-conscious era, it is difficult to justify the hiring of extra pharmacists for the departments of general surgery and urology without first trying to improve the current system. Our project aimed to increase the performance of the general surgery and urology POAC to match the performance of the orthopaedic POAC using the resources available.

We assembled a multidisciplinary team including consultant and trainee surgeons and anaesthetists, a prescribing pharmacist and the lead anaesthetist and nurse for POAC. Regular team meetings were held over a six-month period.

The drug chart completion rate for all patients attending general surgery POAC, excluding day cases, was monitored daily over 22 weeks. During this interval, we implemented three successive interventions in an attempt to increase completion rates. Daily and weekly averages of drug chart completion were plotted on a run-chart. In addition, the nursing staff in POAC recorded the daily attendance of junior doctors and the reasons for non-attendance.

Strategy

PDSA cycle 1: All junior doctors received a mandatory medicine reconciliation teaching session. It was explained to them that their role in the POAC was solely medicines reconciliation, so that they would not feel the need to undertake unnecessary tasks. They also received instructions how to perform medicines reconciliation and pre-operative prescribing. Since junior doctors rotate to new departments every four months, the first intervention would need to be repeated regularly to address the new intake.

PDSA cycle 2: To shorten the time burden of POAC further, junior doctors had the option to complete all prescription charts in a single "batch" at the end of clinic. Nursing staff would copy the patients' medication lists onto the clerking sheets so that junior doctors were able to complete the prescription chart at a later time. This change in prescription practice was communicated to junior doctors by email from the anaesthetic lead for POAC.

Even though this solution would improve time management, it would increase the risk of transcription errors. In addition, the prescribing doctor would have no direct patient contact and therefore no opportunity to clarify queries or give advice.

PDSA cycle 3: Patients were not permitted to be transferred to theatre without a completed prescription chart. The surgical consultants or registrars would have to complete their patient's drug charts in the admissions unit to avoid delays to operating lists.

The aim was to highlight the scale of the problem to the surgical consultants, who would then take steps to encourage their junior colleagues to complete the charts at an appropriate time in POAC. This intervention was re-enforced by emails from the clinical director to all surgical staff. Posters were displayed in the admissions unit to remind nursing staff of this new rule.

Results

Daily and weekly drug chart completion rates were calculated and plotted over 22 successive weeks. Daily completion rates were highly variable with drug chart completion rates between 0% and 100%. There was also a considerable weekly variability ranging from 20% to 90% (see run chart). The baseline completion rate was 43%. This rose to 45% after the first and second interventions, and 51% after the third intervention. This was markedly below our target of 94% achieved by the orthopaedic POAC in our initial audit.

Overall, junior doctors attended 44% of pre-operative assessment clinics. They reported being "too busy to attend" 41% of the time, and were not responding to pager calls 11% of the time. In 1% of instances the clinic was so busy that there was not a spare room in which the junior doctors could work. 3% of the time, junior doctors reported that they were unable to attend POAC as they were at mandatory teaching sessions elsewhere.

See supplementary file: ds3538.png - "Run chart of results"

Lessons and limitations

The first intervention - to educate junior doctors and explain their role in the clinic - failed to lead to a significant improvement. Oral and written feedback after the mandatory teaching session revealed that junior doctors felt confident about the tasks they were required to fulfil in POAC. However, their main problem was leaving their other clinical commitments to attend the POAC. In particular, they felt that they were unable to attend to both unwell inpatients and the POAC, the latter seeming less of a priority. This was despite a rota allocating doctors to attend POAC sessions free from clinical or teaching commitments. It became apparent that there were too few junior doctors to maintain adequate ward cover and attend POAC.

The second intervention - to shorten the time burden of POAC and enable junior doctors to return to the wards more rapidly - was also unable to significantly address this problem.

The third intervention - to disrupt the elective surgical operating lists and thereby raise awareness of the major issue - was never intended to be a sustainable solution. The aim was to highlight the problem to the senior members of the surgical departments. We had hitherto had little success in demonstrating the scale of the problem to the key stakeholders. However, despite receiving the support of the clinical director, implementing the intervention in practice proved difficult. It relied on a small number of nursing staff who did not feel empowered to hold up operating lists deliberately. As such, this intervention was not enforceable and had little effect in raising awareness.

Conclusion

Three interventions did not significantly improve the completion rate of prescription charts. Junior doctors felt unable to attend the pre-operative assessment clinic reliably due to staffing levels and other ward commitments. Teaching and training is not a sustainable method of improvement in this setting due to the frequent rotation of junior medical staff between departments.

We were unable to increase the rate of drug chart completion with the resources available. We therefore recommend the employment of prescribing pharmacists in the POAC for general surgery and urology patients. This is to establish a reliable system of medicines reconciliation on admission in accordance with NICE and NPSA guidance.[1]

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Declaration of interests

Nothing to declare.

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