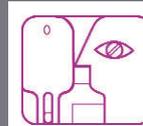


CONFERENCE ABSTRACTS

UKCPA/GHP joint conference 2012



United
Kingdom
Clinical
Pharmacy
Association



This supplement contains the award-winning abstracts from the 2012 joint national conference of the United Kingdom Clinical Pharmacy Association and the Guild of Healthcare Pharmacists. All abstracts from the conference are made available in PDF format at *PJ Online* (www.pjonline.com/ukcpa)

PFIZER PATIENT SAFETY AWARD 2012

Improving oxygen management: a patient safety initiative

Gibson D*, Foden A†

*Senior Clinical Pharmacist and †Respiratory Consultant, County Durham and Darlington Foundation Trust

Oxygen should only be used to treat patients who are hypoxic. Breathlessness is not an indication for oxygen therapy. In many acute hospitals throughout the UK oxygen is often neither prescribed nor adjusted to achieve specific target saturations.¹ The National Patient Safety Agency rapid response report 2009 states that underuse or overuse of oxygen can be extremely harmful and have potentially fatal outcomes.² This report recommends adjusting oxygen therapy to achieve appropriate oxygen saturations, prescribing oxygen on a drug chart and regularly monitoring patients' oxygen therapy to achieve targets. These recommendations are supported by the British Thoracic Society guideline on emergency oxygen.³

At the study hospital, trust guidelines were developed for using emergency oxygen in adult patients. Guidance included information about which patients should receive oxygen, which delivery devices to use and how oxygen should be prescribed on drug charts. Before the guidelines were implemented a baseline audit was conducted to determine how oxygen was being used in all adult patients in the acute medicine department. In particular, this audit aimed to determine whether oxygen was used safely and prescribed on drug charts. Particular emphasis was placed upon respiratory patients, especially those with asthma and chronic obstructive pulmonary disease (COPD).

OBJECTIVES

- To determine how emergency oxygen was used at the study hospital, focusing on safe prescribing and administration compared with NPSA standards
- Using NPSA and BTS guidelines to implement an emergency oxygen strategy to ensure patients receive oxygen therapy adjusted to targets (saturations of 94–98% for most patients and 88–92% for those at risk of hypercapnic respiratory failure)

METHOD

Data was collected for two weeks pre- and two weeks post-implementation of the emergency oxygen guidelines. All patients admitted to the Medical Assessment Unit (MAU) at the study hospital were included in the audit. Each patient was audited following the initial consultant review. This was to allow time for an appropriate plan of care to be implemented. Data was collected on presenting complaint, co-morbidities, oxygen saturations, flow rate and device used to administer oxygen. Information was also collected as to whether oxygen

Table 1: Pre- and post-implementation results

	Pre-implementation	Post-implementation
Patients admitted to MAU	357	328
Patients on oxygen	68 (19.0% of 357)	24 (7.3% of 328)
Patients who had oxygen sats monitored	50 (73.5% of 68)	24 (100% of 24)
Patients with oxygen target defined	4 (5.8% of 68)	22 (91.6% of 24)
Patients who achieved target	3 (4.4% of 68)	20 (83.3% of 24)
Patients with oxygen prescribed	0	19 (79.2% of 24)

had been prescribed, if target oxygen saturations had been set, whether the oxygen was adjusted to achieve these targets and what the baseline saturations were before starting oxygen.

BTS guidance on the use of oxygen in acute settings was used to develop an oxygen management strategy for the study hospital. Included in this were:

- Guidelines for the management of hypoxia and acute oxygen delivery
- A comprehensive education programme involving doctors of all grades, nurses and pharmacists
- Amendment of the temperature, pulse and respiratory rate (TPR) chart to allow easier setting of oxygen saturation targets
- Development of patient group directions to empower nurses to take more responsibility for the use of oxygen

Pharmacist prescribers were trained on the use of oxygen to allow them to become more proactive in adjusting oxygen doses. Following the implementation of this strategy, the use of oxygen was reaudited using the same criteria.

RESULTS

During the pre-implementation audit period 68 patients received oxygen out of 357 patients (19%) admitted to the ward. Fifty of these 68 (73.5%) had their oxygen saturations measured off oxygen and 67/68 patients (98.5%) had oxygen saturations measured while on oxygen. No patients had oxygen prescribed on their drug chart and only four patients had targets set for oxygen saturations. As 18 patients did not have their oxygen saturations measured off oxygen it is not possible to assess their need for oxygen. Of the remaining 50 only 25 (50%) actually required oxygen treatment.

For the post-implementation audit period only 24 patients received oxygen out of 328 admitted (7.3%). Twenty-two patients had appropriate oxygen targets defined and 20 of these patients achieved their targets. Only two patients did not require oxygen therapy. All patients had their oxygen saturations measured and 19 patients had their oxygen prescribed on an appropriate karex.

DISCUSSION

Trust audit and ethical approvals were received for the project. Oxygen is often perceived as a simple treatment that does no harm if given inappropriately. The

NPSA alert highlights that 281 serious incidents, 44 with fatal outcomes, were directly due to poor oxygen management. It is essential that all healthcare environments delivering emergency oxygen have a clear strategy to ensure safe delivery to hypoxic patients. To improve the management of oxygen at the study hospital a change of culture was required. Doctors, nurses and pharmacists needed to be educated and empowered to ensure that oxygen was used appropriately.

The project is limited because only two weeks were audited and the oxygen strategy has only been implemented on the MAU currently. The next stage of the project is to ensure that standards are kept high and that 100% of patients have oxygen prescribed appropriately. The aim is then to roll out to other acute areas such as the emergency department and surgical admissions.

By implementing a comprehensive oxygen stewardship programme, including guidelines, education and audit, the appropriate use of oxygen is improving at the study hospital. Benefits include improved patient safety, reduced cost and a multidisciplinary approach to the management of hypoxic patients.

REFERENCES

- 1 Leach RM, Davidson AC. Use of emergency oxygen in adults. *BMJ* 2009;338:2790.
- 2 NPSA rapid response 006: Oxygen safety in hospitals. September 2009.
- 3 British Thoracic Society. Guideline for emergency oxygen use in adult patients. October 2008. www.brit-thoracic.org.uk/guidelines (accessed 29 July 2012).

POSTER AWARD

Reducing unacceptable omitted doses: pharmacy assistant-supported medicine administration

Barrett S*, Baqir W*, Horsley W†, Jones K*, O'Dolan R*, O'Sullivan*, Copeland R*, Fisher D*, Campbell D*, Stephenson R*
*Northumbria Healthcare NHS Foundation Trust, North Tyneside;
†Durham University, Stockton on Tees, UK

In response to a national problem with omitted doses, the National Patient Safety Agency (NPSA) published a rapid response report in February 2010 on the potential for harm from omitted and delayed medicines to hospital inpatients.¹ Warne *et al* undertook a point prevalence study of 132 inpatients across four sites in the south-west of England; 104 patients (79%) were found to have at least one missed dose.² Green *et al* identified omissions on medical wards at a UK hospital.³ This study reported that 17% of 271 patients had an omitted dose, with 19% of these doses not having any reason. An American study investigated missed bronchodilator doses for non-therapeutic reasons at a 1,000-bed tertiary care institution in Cleveland.⁴ Over 12 months, 3.5% (4012) of 113,554 doses of bronchodilator medication were missed.

Despite the evidence that doses are omitted, few interventional studies have been undertaken to prevent this. An Australian study showed a significant reduction in missed doses when pharmacy technician facilitated the medication delivery process.⁵ To date there are no published studies on medicines administration being supported by pharmacy assistants and the impact of this on missed doses.

OBJECTIVES

To evaluate an innovative pharmacy assistant-supported medicines administration system on the rate of omitted doses for hospital inpatients.

METHODS

Pharmacy assistants were trained to support nurses on the 8am and 12pm medicines administration rounds, on two acute wards. Three study groups were: (A) pharmacy assistant-supported medicines administration on intervention ward (the assistant is part of the medicines administration round); (B) intra-ward control: single nurse administering medicines on the intervention ward, where the pharmacy assistant is based but does not actively support medicines administration and (C) inter-ward control: control ward that has no pharmacy assistant. The intervention involved a pharmacy assistant supporting nurses on a medication administration round by double checking

Table 1: Number of patients with an omitted dose

Group	Total patients	Patients with any omitted dose(s)	Patients with unacceptable omitted dose(s)	Patients with unacceptable critical omitted dose(s)
(A) Pharmacy assistant supporting nurse	181	47 (26.0%)	2 (1.1%)	2 (1.1%)
(B) Single nurse on PA ward	230	85 (37.0%)	26 (11.3%)	11 (4.8%)
(C) Single nurse on control ward	367	137 (37.3%)	68 (18.5%)	27 (7.4%)
Total	778	269 (34.6%)	96 (12.3%)	40 (5.1%)

medicines, identifying packs, striving to source medicines, reminding nurses to sign, and counter-signing the inpatient treatment chart.

The primary outcome measure was the number of patients with unacceptable omitted doses (UOD) in Group A (intervention) *vs* Group C (control). Secondary outcome measures were the number of patients with critical UODs in Group A, B and C; patients with UODs in Group A *vs* B and Group B *vs* C. UODs were defined as unintentional (dose administration not signed for) and intentional but unacceptable (medicine not available on ward and the "other reason" code used but no other reason given). Critical missed doses were as defined by the National Patient Safety Agency.¹

Data were collected over two census weeks in December 2011 and February 2012 and entered into MS Access for analysis using SPSS statistical software (student *t* tests). Advice on NHS research ethics was sought from the Research and Development team at the trust and the project was registered with the Caldicott Guardian for the trust.

RESULTS

Over two weeks the charts of 778 patients were assessed; 308 were male (39.6%), and average age was 75 years (SD \pm 17.8). There were no significant differences between the groups in terms of gender ($P=0.057$) or age ($P=0.084$). Ninety-six patients (12.4%) had at least one UOD. The absolute risk reduction in UOD between group A and C was 17.4% (NNT=6). The UOD rate in the intervention group (A) was 1.1% (two patients) compared with 18.5% (68 patients) in the control group (C) ($P<0.0001$; 95% CI -0.396 to -0.225). Group A had significantly fewer patients with critical UODs (1.1%; two patients) compared with group C (7.4%; 27 patients) ($P=0.03$; 95% CI -0.241 to -0.514). There were significant differences between groups A and B ($P<0.006$; 95% CI -0.181 to -0.023) as well as groups B and C ($P=0.029$; 95% CI -0.139 to -0.006) for number of patients with an OUD. However, no significant differences were found between groups A and B ($P=0.097$) and B and C ($P=0.481$) for patients with critical UODs (Table 1).

DISCUSSION

Medication safety is a priority for the NHS and omission of doses is a quality criterion against which NHS trusts are assessed. This study has demonstrated a significant reduction in omitted doses through the use of a novel intervention. Pharmacy assistants successfully prevented missed doses in over 98% of patients compared with nurses, where almost one in five doses were omitted. Pharmacy assistants have been able to source medicines and ensure that administrations have been signed for (or a code written), reducing risk of harm to the patient.

The study also showed a significant reduction in missed doses on the intervention ward even when the pharmacy assistant was not supporting the medicines administration process. This can be explained by the Hawthorn effect, with intervention on part of the ward having a positive outcome on the rest of the ward. This is the first study to show pharmacy assistants being used to enhance patient safety by reducing missed doses on general acute wards.

REFERENCES

- 1 National Patient Safety Agency. Rapid Response Report NPSA/2010/RRR009: Reducing harm from omitted and delayed medicines in hospital. February 2010. Available at: <http://www.nrls.npsa.nhs.uk/alerts/?entryid45=66720> (accessed 8 April 2011).
- 2 Warne S, Endacott R, Ryan H *et al*. Non-therapeutic omission of medications in acutely ill patients. *Nursing in Critical Care* 2010;15(3):112-7.
- 3 Green DJ, Du-Pre P, Elahi N, *et al*. Omission after admission: failure in prescribed medications being given to inpatients. *Clinical Medicine* 2009;9:515-8.
- 4 Stoller JK, Orens DK, Kester L. Missed bronchodilator medication treatments in respiratory therapy: frequency and underlying causes. *Respiratory Care* 2003;48(2):110-4.
- 5 Seaton SM, Adams RC. Impact of a hospital pharmacy technician facilitated medication delivery system. *Journal of Pharmacy Research* 2010;40:199-202.