Improving Oxygen Prescribing and Administration: an Audit Cycle and Survey

Natalie J Coleman¹, Judith Rowles², Samantha Prigmore², Andrew W Hitchings¹

¹Clinical Pharmacology, St George's Healthcare NHS Trust, London SW17 0QT, United Kingdom,
²Respiratory Medicine, St George's Healthcare NHS Trust, London SW17 0QT, United Kingdom

BACKGROUND: Oxygen is a potentially life-saving drug. However, its risk–benefit balance is finer than is often appreciated, and its practical administration is complex. Despite this, it is often administered without prescription. Recent guidelines and an alert from the National Patient Safety Agency have highlighted the risks associated with this. We sought to evaluate our practice against current British guidelines (Thorax 2008;63(suppl VI):vi1–vi68); to evaluate the effect of an intervention to improve practice; and to survey the opinions of medical, nursing and allied staff in relation to oxygen use.

STANDARDS: (1) oxygen use should be guided by a written prescription, which (2) should specify a target SpO₂ range, and (3) oxygen delivery should be adjusted to maintain this target SpO₂ range.

METHODS: A snapshot audit of oxygen prescribing and administration was undertaken in April 2009 on the six acute medical wards of St George’s Hospital, London. Next, an intervention was piloted on the three wards in which oxygen was used most. This comprised targeted training of ward staff and the introduction of a pre-printed oxygen prescription. A re-audit of these wards was undertaken in March 2010. This was followed by a survey, in which a structured questionnaire was administered to healthcare professionals working on the wards in which the intervention was piloted.

RESULTS: In the baseline audit of six wards, 140 patients were identified, of whom 21 (15%) were receiving supplemental oxygen, and 1 had a written prescription (5% of those on oxygen). Following the intervention, piloted on three wards, a re-audit identified 70 patients, of whom 32 (46%) were receiving supplemental oxygen, and 18 had a written prescription (56% of those on oxygen). A target SpO₂ range was specified in 16 (89%) of these prescriptions. The last recorded SpO₂ was within the target range for 5/16 patients (31%). Among the other 11 patients for whom the last SpO₂ was outside the target range, oxygen delivery had been altered appropriately in only 3 cases (27%). The opinions of 51 healthcare professionals were surveyed. Key findings included that only 67% of prescribers and 58% of nurses agreed that oxygen should be prescribed primarily by target SpO₂ range. Likewise, only 67% of prescribers and 63% of nurses ‘always’ or ‘often’ made use of the pre-printed prescription to support oxygen prescribing and administration, respectively.

CONCLUSION: Baseline practice in relation to oxygen prescribing and administration for acute medical patients in this hospital was poor. An intervention, comprising targeted staff training and a pre-printed oxygen prescription, improved prescribing practice. However, this did not reliably translate into better oxygen administration. It is clear that substantial effort will be required to overcome the traditions and entrenched opinions that currently present barriers to change.