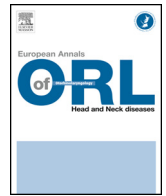




Available online at
ScienceDirect
www.sciencedirect.com

Elsevier Masson France
EM|consulte
www.em-consulte.com/en



The use of standardized order sets to improve adherence to evidence-based postoperative management in major head and neck surgery[☆]

S. Ansari^a, K. Fung^b, S.D. MacNeil^b, A.C. Nichols^b, J. Yoo^b, L.J. Sowerby^{b,*}

^a Department of Surgery, Division of Otolaryngology–Head and Neck Surgery, University of British Columbia, Vancouver, BC, Canada

^b Department of Otolaryngology–Head & Neck Surgery, Western University, London, Ontario, Canada

ARTICLE INFO

Keywords:

Standardized order sets
Head and neck surgery
Laryngectomy
Patient safety
Postoperative orders

ABSTRACT

Background: Standardized order sets (SOSs) are clinical tools derived from clinical care pathways that have shown improved patient-recovery and economic benefits. The primary objective was to examine the effect of SOSs on adherence to evidence-based postoperative guidelines for laryngectomy patients. **Methods:** A retrospective chart review comparing handwritten and SOS-based postoperative physician orders was conducted for consecutive laryngectomies performed ($n=70$) within a 3-year time period. Orders were analyzed for errors and deviations from evidence-based guidelines. Secondary outcome included complications such as thromboembolic disease, return to operating room, fistula formation, salivary bypass tube, length of hospital stay and death.

Results: Approximately 81% of cases utilizing handwritten orders had at least one error ($n=36$) compared to 38% in the group that used an SOS ($n=34$) ($P<0.0001$). Subgroup analyses demonstrated that errors in mechanical deep vein thrombosis prophylaxis ($P<0.0001$) and antibiotic prophylaxis ($P=0.0173$) orders were significantly reduced in the SOS group compared to the handwritten group. No significant differences were observed between the two groups for measured postoperative complications ($P>0.05$) and length of hospital stay (18.6 days in both SOS and handwritten orders groups).

Conclusions: SOSs are associated with reduced errors in postoperative orders. They are important tools to improve adherence to standardized guidelines for surgeries requiring complex postoperative management. Clinical care pathways and Enhanced Recovery After Surgery protocols can use SOSs to ensure appropriate orders are being made.

© 2018 Elsevier Masson SAS. All rights reserved.

1. Introduction

The goal of standardized order sets (SOSs) is to improve adherence to evidence-based patient management and augment patient safety. The literature provides many examples of SOS implementation for various conditions such as gastrointestinal bleeding with suspected cirrhosis, community-acquired pneumonia, pediatric inpatient asthma, venous thromboembolism prophylaxis,

bacteremic severe sepsis, and postoperative antibiotic prophylaxis [1–6]. These studies suggest that SOSs are associated with adherence to evidence-based management, reduced hospital stays, decreased adverse patient effects, lower risk of mortality and increased cost-effectiveness.

In the field of otolaryngology-head and neck surgery, divergence from current guidelines, medical errors and heterogeneity in treatment prior to, during and after clinical interventions are present and lead to significant morbidity and mortality [7–11]. As a result, clinical pathways have been developed. Postoperative management of laryngeal cancers are suitable targets for these clinical pathways as they can improve outcomes. Initially, there were some conflicting data regarding the benefits of clinical care pathways in major head and neck surgery. Yueh et al. observed that implementing a clinical pathway did not have an effect on length of hospital stay for laryngectomy patients thereby contradicting the results from a study by Hanna et al. demonstrating significant decreases in length of hospital stay along

Abbreviations: SOS:, Standardized order sets; TED:, Thromboembolism-deterrent hose; SCD:, Sequential compression device; DVT:, Deep vein thrombosis; ERAS:, Enhanced recovery after surgery.

[☆] Podium presentation at the Canadian Society of Otolaryngology–Head and Neck Surgery. Annual General Meeting in Ottawa, Ontario, Canada in May 2014.

* Corresponding author. Department of Otolaryngology–Head & Neck Surgery, St. Joseph's Hospital, Room B2-501, 268 Grosvenor Street, London, Ontario N6A 4V2, Canada.

E-mail address: leigh.sowerby@sjhc.london.on.ca (L.J. Sowerby).

<https://doi.org/10.1016/j.anorl.2018.08.009>

1879-7296/© 2018 Elsevier Masson SAS. All rights reserved.

Please cite this article in press as: Ansari S, et al. The use of standardized order sets to improve adherence to evidence-based postoperative management in major head and neck surgery. European Annals of Otorhinolaryngology, Head and Neck diseases (2018), <https://doi.org/10.1016/j.anorl.2018.08.009>

with lowered costs and reduced readmission [12,13]. However, recent studies of clinical pathways have provided evidence to support the latter. For example, Dautremont et al. performed a combined retrospective chart review (control) and prospective trial analyzing the benefits of using a clinical care pathway following oncologic head and neck surgery with microvascular reconstruction [14]. They were able to demonstrate significant reductions in hospital length of stay, time to tracheostomy decannulation and economic cost. Furthermore, the group described trends towards lower complication and surgical revision rates.

A clinical care pathway is currently used at our center. However, at the time of study commencement, the immediate postoperative orders required to adhere to this pathway could either be handwritten or from an SOS (Fig. 1), with the choice of format at the discretion of the healthcare provider. A study by Duval and Desrosiers suggested that informing or reminding oolaryngologists on the practices determined to be evidence-based for acute bacterial rhinosinusitis improved physician antibiotic prescribing habits [15]. Similarly, SOSs contain an evidence-based checklist that can remind the writer to include all pertinent orders for specific clinical situations. This study's primary objective was to determine if implementation of SOSs could prevent missed postoperative orders after laryngectomy and laryngopharyngectomy cases. A secondary analysis of postoperative outcomes was also conducted.

2. Material and methods

A retrospective chart review of consecutive laryngectomy and laryngopharyngectomy cases performed at London Health Sciences Centre-Victoria Hospital between January 1, 2010 and Dec 31, 2012 was conducted. This time period was chosen because the use of pre-printed standardized order sets for laryngectomies and laryngopharyngectomies was at the sole discretion of the surgeon and/or surgical resident at the time of the surgery. Laryngopharyngoesophagectomy cases were not included due to overlapping SOSs from general surgery. The primary outcome was the percentage of cases with at least one error or deviation from the established evidenced-based practice for laryngectomies as outlined in the immediate postoperative SOS (derived from the clinical care pathway by Sherman et al.) [16]. This included errors of commission and omission for the following orders: Thromboembolism-Deterrent Hoses (TEDs)/Sequential Compression Devices (SCDs) and heparin/dalteparin (deep vein thrombosis prophylaxis), calcium/albumin/ionized calcium (hypocalcemia prophylaxis), L-thyroxine (hypothyroidism prophylaxis), dose and duration of postoperative antibiotics (antibiotic prophylaxis), and allied health professionals consults (social worker, speech language pathologist, physiotherapist, and dietician). A secondary analysis was conducted to characterize postoperative complications including thromboembolic disease, return to the operating room, fistula formation, salivary bypass tube, length of hospital stay and death within 30 days of the operation.

Baseline data collected for this study included: patients' age and sex as well as the complexity of case (laryngectomy vs. laryngopharyngectomy, thyroidectomy or no thyroidectomy and free-flap or no free-flap). The cases were organized into one of two groups: 1) standardized order sets used and 2) handwritten orders used. Ethical approval was obtained through Western University's Research Ethics Board (File #104006). A two-tailed Fisher's Exact test was performed to determine differences between the two groups. A *P*-value of less than 0.05 was considered to be statistically significant.

3. Results

3.1. Baseline characteristics

In the study, a total of 71 laryngectomy cases were identified for the three-year period. One case was excluded from the study because it was a laryngopharyngoesophagectomy requiring the use of multiple overlapping standardized order sets—it was felt this would have been a potential confounding variable. Therefore, 70 cases were considered for further analysis. 34 cases utilized the standardized order set while 36 were written by hand. The baseline characteristics of age and sex of patient did not yield a statistical difference between the two groups. Markers of severity/complexity of surgery such as free-flap reconstruction, hemithyroidectomy and/or laryngopharyngectomy did not have a statistically significant difference between groups but a trend towards significance was noted. (Table 1).

3.2. Primary outcomes

In the standardized order set group, 38.2% of cases had at least one error in the post-operative physician's orders compared to 80.6% of cases in the handwritten physician order group ($P=0.0005$). (Fig. 2). Subgroup analyses were performed for each component of the initial order set. Significant differences were observed regarding errors present in the antibiotic and deep vein thrombosis prophylaxis orders. Inappropriate antibiotic prophylaxis was given in 41.7% of cases in the handwritten group compared to 14.7% of cases in the SOS group ($P=0.0173$). In terms of mechanical deep vein thrombosis (DVT) prophylaxis, no errors were made in the SOS group while 36.1% of handwritten orders were incorrectly prescribed ($P<0.0001$). There were no significant differences between the two groups in terms of hypothyroidism prophylaxis ($P=0.201$) and referrals to allied health professionals ($P=0.112$).

3.3. Secondary outcomes

No significant differences ($P>0.05$) were observed between the standardized order set and the handwritten order set for any of the postoperative complications measured which included thromboembolic disease, fistula, surgical revision, insertion of salivary bypass tube and death. The average length of hospital stay was 18.6 days for both groups (Table 2).

4. Discussion

The goal of this study was to determine if standardized order sets reduce immediate postlaryngectomy order omissions or errors. 80.6% of handwritten orders had at least one deviation from the standard of care guidelines compared to 38.2% in the standardized order set group. This statistically significant result provides evidence that there is an association between the use of standardized order sets and increased adherence to standard of care guidelines compared to handwritten orders. Specifically, it was able to show that errors were being committed with increased frequency when standardized postoperative orders were not used. Subgroup analysis also determined that adherence to antibiotic prophylaxis and DVT prophylaxis protocols were statistically significant when a standardized order set was used.

However, in the secondary analysis of postoperative development of fistulas, thromboembolic disease, infection, surgical revision, presence of a salivary bypass tube, and length of hospital stay were measured but were not statistically significant. This was an expected result as the complications being assessed are, in

Download English Version:

<https://daneshyari.com/en/article/10221817>

Download Persian Version:

<https://daneshyari.com/article/10221817>

[Daneshyari.com](https://daneshyari.com)