CAS 2023 Annual Meeting

Quality Improvement Abstracts

Contents

An Audit and Analysis of the Implementation of COVID-19 Policy within a Tertiary Referral Hospital, from the Perspective of a Junior Medical Officer.

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INTRODUCTION

The COVID-19 pandemic has significantly impacted the healthcare of patients globally[1 2]. Due to multilayered risks to staff and other patients from exposure to SARS-CoV-2, extensive infection control protocols and precautions have been implemented for all patients deemed suspected COVID[1] (sCOVID) or COVID-positive. Accurate patient classification is important as delays in emergency surgery may lead to increased morbidity and mortality, and it also provides protection to healthcare workers and health services[3].

The primary aim of this quality assessment project was to examine the operational implementation of health service and state health department COVID-19 policies. Specifically for patients undergoing emergency surgery within a tertiary referral hospital servicing a catchment of approximately 2 million people.

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[1] Coronavirus disease 2019 (COVID-19) is a contagious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). World Health Organisation (WHO) 2019

METHODS

The COVID-19 pandemic has been characterised by periods of intense activity separated by periods of relative quiet. April 2021 represents a period of relatively low activity, with a state-wide moving average of less than 2.1 SARS-CoV-2 positive cases per 14-day period. We identified 498 eligible records in April 2021. We screened a sequential sample of 150 patient records to review for eligibility. Inclusion criteria were adult patients presenting to the emergency department and requiring an emergency operative procedure under general anaesthetic (GA) within the operating theatre or radiology suite within 36 hours of presentation. Patients were excluded if they underwent procedures in other areas or more than 36 hours following the patient's presentation.
A review of the Electronic Medical Record (EMR) of patients who met inclusion criteria was undertaken. Evidence of the COVID-19 screening process of each patient was reviewed, and the application of this screening process as applied to the patient was critiqued and compared to our institutional COVID-19 protocols. The screening process, including critical decision-making points, was assessed, and a 'patient flow' assessment was conducted. This audit was approved as a Quality Assessment project by the Research Support Services within the institution.

RESULTS

A sequential review of 150 patients' EMR identified 39 patients meeting the inclusion criteria.

Overall, we identified a failure to follow operational guidelines in 38.5% of patients.

We identified that 33.3% of eligible patients met defined high-risk criteria but failed to be swabbed.

66.7% of swabbed and 60.6% of non-swabbed patients managed according to guidelines. Limited information regarding a decision-making process was documented overall, with only 7 patients having clear entries in EMR.

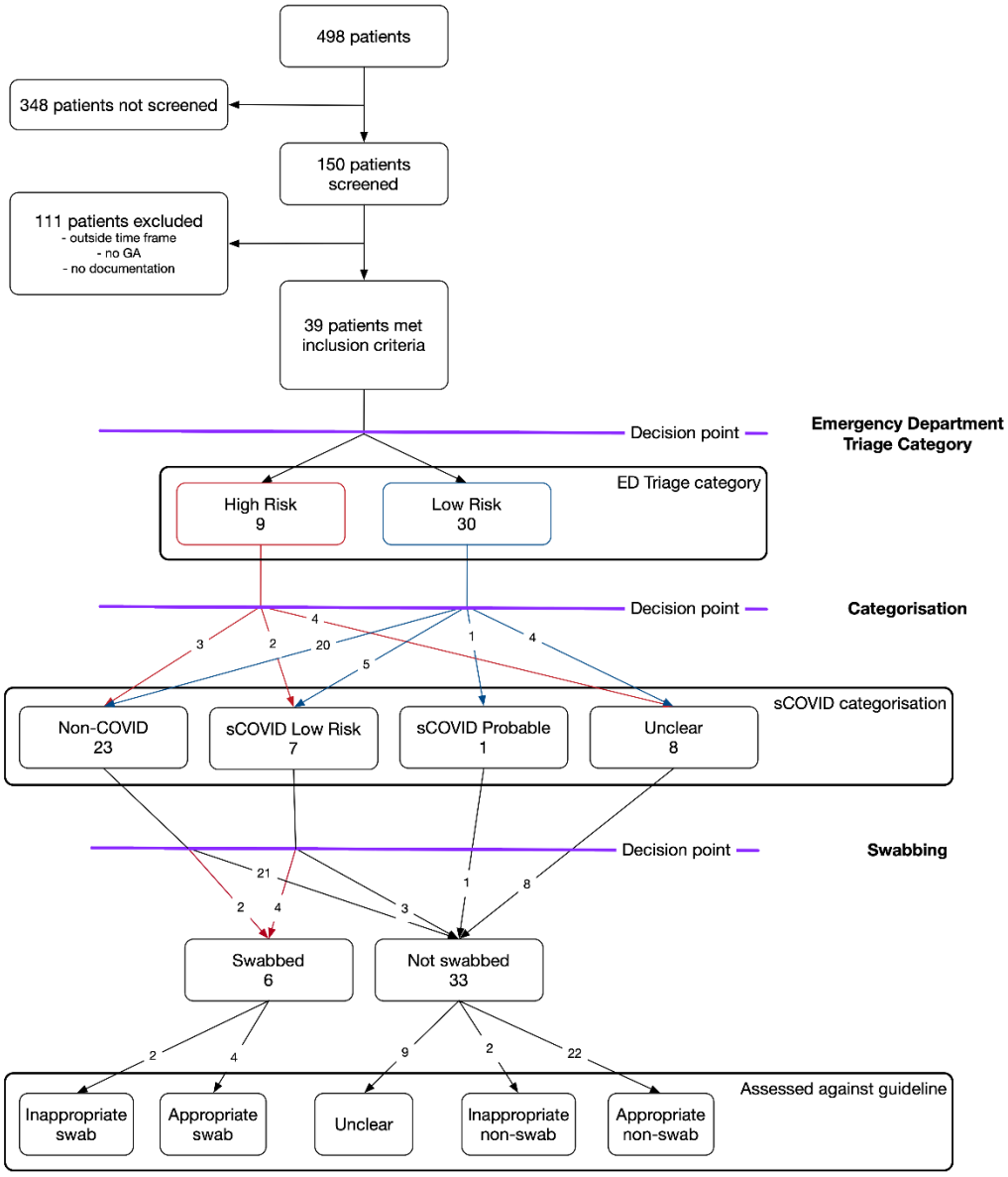
Of swabbed patients, one-third did not meet the criteria for swabbing, and none returned a positive result. Eleven patients who were not swabbed did not have sufficient documentation to justify this decision. Three of these patients were categorised as sCOVID probable or low risk. Eight of 39 patients did not have any screening criteria documented.

DISCUSSION

We documented a high failure rate in implementing COVID-19 infection control processes. Documentation deficiencies led to inappropriate decision-making resulting in an unacceptably high risk to the health of other patients and the operational capacity of health services. Highlighting the difficulties of implementing complex infection control practices. Significant investments in education, training and audit support are required in a relatively simple infection control process to improve compliance[4]. Simplification and standardisation of COVID-19 infection control protocols with accompanying education, training and audit are required to improve their operationalisation and improve safety for patients, staff and maintain the operational tempo of health services.

REFERENCES

1. Heimes D, Müller LK, Schellin A, et al. Consequences of the COVID-19 Pandemic and Governmental Containment Policies on the Detection and Therapy of Oral Malignant Lesions—A Retrospective, Multicenter Cohort Study from Germany. *Cancers* 2021; 13: 2892
2. Burgard M, Cherbanyk F, Nassiopoulos K, Malekzadeh S, Pugin F, Egger B. An effect of the COVID-19 pandemic: Significantly more complicated appendicitis due to delayed presentation of patients! *Plos One* 2021; 16: e0249171
3. McIsaac DI, Abdulla K, Yang H, et al. Association of delay of urgent or emergency surgery with mortality and use of health care resources: a propensity score–matched observational cohort study. *Can Med Assoc J* 2017; 189: E905–12
4. Victoria D of H. Assessment and testing criteria for coronavirus (COVID-19) [Internet]. 2021 [cited 2021 Aug 27]. Available from: https://www.dhhs.vic.gov.au/assessment-and-testing-criteria-coronavirus-covid-19
5. Grayson ML, Stewardson AJ, Russo PL, et al. Effects of the Australian National Hand Hygiene Initiative after 8 years on infection control practices, health-care worker education, and clinical outcomes: a longitudinal study. *Lancet Infect Dis* 2018; 18: 1269–77


498 patients
348 patients not screened
150 patients screened
111 patients excluded
- outside time frame
- no GA
- no documentation
39 patients met inclusion criteria
Decision point
Emergency Department Triage Category
ED Triage category
High Risk 9
Low Risk 30
Decision point
Categorisation
3
2
20
4
5
1
4
sCOVID categorisation
Non-COVID 23
sCOVID Low Risk 7
sCOVID Probable 1
Unclear 8
Decision point
Swabbing
21
2
4
3
1
8
Swabbed 6
Not swabbed 33
2
4
9
2
22
Assessed against guideline
Inappropriate swab
Appropriate swab
Unclear
Inappropriate non-swab
Appropriate non-swab

Stop the Routine Screen! Routine Group and Screens are not Recommended Prior to Elective Total Hip and Total Knee Arthroplasty.

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INTRODUCTION

Preoperative group and screen (G&S) testing is frequently unnecessary and can be eliminated safely in certain low-risk surgical procedures with transfusion rates less than 5%[1-3]. Recent improvements in surgical and anesthesia methods have decreased the need for blood transfusions during total hip arthroplasty (THA) and total knee arthroplasty (TKA) procedures. However, preoperative G&S testing for blood transfusions is still commonly performed due to past practices. Inappropriate preoperative testing is associated with potential patient harm, such as increased blood drawn, lab error, and surgical delay. Despite this, preoperative testing is often inconsistent with published guidelines and does not significantly impact patient management. Optimization of blood management practices can lead to decreased resource use for the hospital, cost savings and improved patient outcomes[2-3]. This project used quality improvement (QI) methodology to safely reduce preoperative group and screen testing for THA and TKA at a community hospital.

METHODS

QI methodology was used to decrease inappropriate G&S testing preoperatively. REB exemption was granted by local health authority due to the quality improvement context of the project. The criteria for testing were guided by surgical and patient factors. The initial population for the study included all patients who underwent primary, elective THA and TKA at a high-volume orthopedic service in a community hospital. Transfusion rates for this population were retrospectively reviewed between 2017 and 2021 to ensure rates were consistently low enough to safely discontinue routine G&S. On September 6, 2022, a screening tool was implemented in the pre-admission clinic to identify patients who were at higher risk and should continue to receive pre-operative G&S (hemoglobin < 110, specific surgeon or anesthetist concern). Stakeholder consensus was used to select the hemoglobin cut-off of 110g/L, taking into consideration an average drop in hemoglobin of 18g/L post-operatively[4-5]. Primary outcome measures were proportion of patients receiving pre-operative G&S. Balancing measures were the proportion of patients who received transfusions, and who received uncrossmatched blood transfusions. Outcomes were measured between December 1, 2021, and December 31, 2022, and data collection is ongoing. Data were collected from the institution's electronic medical record and analyzed using SQCpack.

RESULTS

A total of 4051 patients underwent THA and TKA at our hospital between 2017 and 2021, and the transfusion rate was found to be 1.38%. Rates of pre-operative G&S testing began to fall two months after the implementation of our screening tool. 100% of patients underwent pre-operative group and screen testing between November 2021 and September 2022. In October 2022, 99% of patients received pre-operative group and screen. In November 2022, 89% of patients received pre-operative G&S (Figure 1a). In the first half of December (data collection ongoing), rates rose again to 100%. There were no incidences of uncrossmatched blood transfusion either before or after the implementation of our screening tool (Figure 1b). Blood transfusion rates remained at baseline averaging 1.41% between November 2021 and December 2022.

DISCUSSION

This project demonstrates initial implementation of a QI initiative at a community hospital to reduce inappropriate G&S testing pre-operatively. One of the challenges was education of the interdisciplinary stakeholders to prevent historical routines from influencing testing decisions. Despite our initial drop, stakeholders including booking clerks and laboratory medicine were initiating orders on the day of surgery which led to an increase back to baseline in December. These stakeholders have now been educated and we expect ongoing decreases in testing. The balancing measures demonstrated no safety concerns. These findings are consistent with existing literature suggesting preoperative testing should be selective.

REFERENCES

1. Woodrum, C. L., Wisniewski, M., Triulzi, D. J., Waters, J. H., Alarcon, L. H., & Yazer, M. H. (2017). The effects of a data-driven maximum surgical blood ordering schedule on preoperative blood ordering practices. Hematology, 2017, 1-8. doi: 10.1080/10245332.2017.1323169
2. Bryson, G. L., Wyand, A., & Bragg, P. R. (2006). Preoperative testing is inconsistent with published guidelines and rarely changes management. Canadian Journal of Anesthesia, 53(3), 236-241.
3. Kirkham, K. R., Biondo, P. D., Bhatia, N. S., Feicht, C., & Bragg, P. R. (2016). Preoperative Laboratory Investigations: Rates and Variability Prior to Low-risk Surgical Procedures. Anesthesiology, 124(4), 804-814.
4. Cipolla, J., Lall, R., & Waddell, J. P. (2016). The Relationship between Blood Loss, Transfusion, and Hemoglobin Decline in Total Joint Arthroplasty: A Prospective Study. Canadian Journal of Anesthesia, 63(8), 879–887. https://doi.org/10.1007/s12630-016-0638-3
5. Carson JL, Guyatt G, Heddle NM, Grossman BJ, Cohn CS, Fung MK, Gernsheimer T, Holcomb JB, Kaplan LJ, Katz LM, Peterson N, Ramsey G, Rao SV, Roback JD, Shander A, Tobian AA: Clinical practice guidelines from the AABB: Red blood cell transfusion thresholds and storage. JAMA 2016; 316:2025–35

Figure 1a. Percentage of patients with group and screen prior to total hip and total knee arthroplasty at Burnaby Hospital from November 2021-2022.

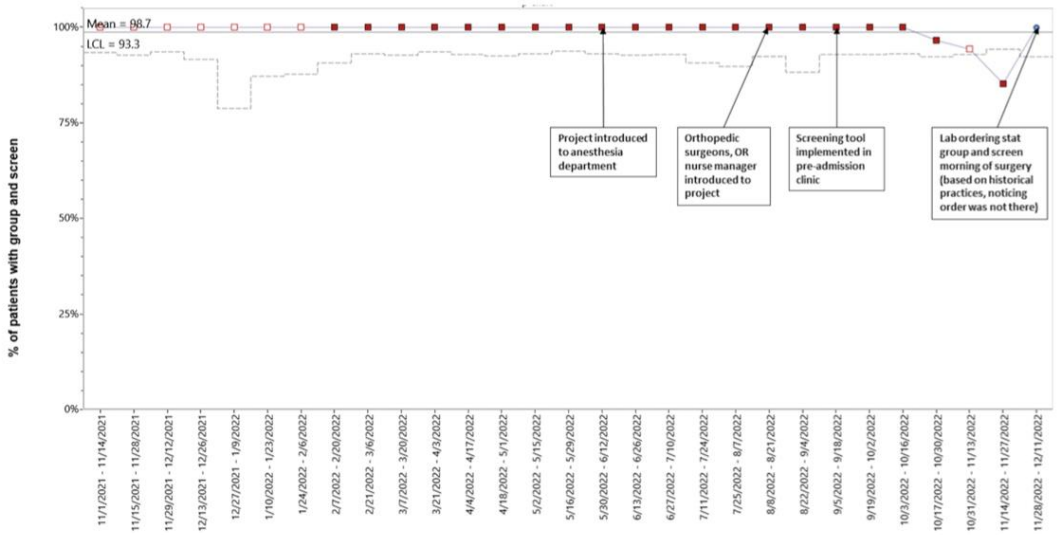

Figure 1b. Percentage of blood transfusion and uncrossmatched blood for total hip and total knee arthroplasty at Burnaby Hospital from November 2021-2022.