Methods An interventional study was done between October 2018 and February 2019. The intervention included training of 130 housekeeping staff; redefining cleaning and disinfection responsibilities between housekeeping and nursing; adding a checklist for surfaces to be cleaned or disinfected; and emphasizing the inspector's auditing role. The intervention engaged relevant staff partners from infection control, housekeeping, nursing, and environmental services. The study outcome was the frequency of effective cleaning done by housekeepers. It was assessed by comparing the photos taken from specified room sites (pre-prepared by fluorescent gel) using black light before and after cleaning. Six highly touched areas in patient rooms were chosen. The study was divided into three phases: pre-intervention assessment (October 2018), intervention (November 2018 through January 2019), and post-intervention reassessment (February 2019).

Results A total of 27 rooms with 162 opportunities were assessed during the pre-intervention phase. The findings showed that only 39 (24.1%) of the 162 opportunities were effectively cleaned. The frequencies of effective cleaning in different sites were: light switches 11.1%, door knobs 25.9%, water faucets 37%, telephones 25.9%, bed rails 14.8%, and patient tables 29.6%. A total of 33 rooms with 198 opportunities were assessed during the post-intervention phase. The findings showed that 116 (58.6%) of the 198 opportunities were effectively cleaned. The frequencies of effective cleaning in different areas were: light switches 42.4%, door knobs 84.8%, water faucets 75.7%, telephones 60.6%, bed rails 54.5%, and patient tables 63.6%. The overall improvement in effective cleaning in different sites was 34.5% ($p < 0.001$), being highest for door knobs (58.9%, $p < 0.001$) and lowest for light switches (31.3%, $p = 0.014$).

Conclusion A multidisciplinary intervention including training and auditing of housekeepers was successful in significantly improving cleaning and disinfection at different sites in the patients' rooms. Frequent assessment and feedback may need to be continued until reaching an optimal level. Further studies are needed to evaluate the impact of improved cleaning on infection rates.

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MONITORING THE QUALITY INDICATORS OF BLOOD TRANSFUSION SERVICES AS A METHOD TO IMPROVE PATIENT SAFETY AT KING ABDULAZIZ UNIVERSITY HOSPITAL

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Background A quality indicator is measurable information gathered at the critical control points in a process or procedure for monitoring, assessment, and improvement. Quality monitoring is an important tool used to review blood transfusion practice and provide feedback on transfusion trends in blood transfusion services. Quality indicators can improve quality standards and support patient safety through setting priorities and process improvement. The aim of this study was to report 5 years' experience of monitoring the quality indicators at KAUH and to measure its impact on the blood transfusion practice as a tool in hemovigilance system implementation for patient safety.

Methods This was a retrospective study of data collected over the past 5 years (2013–2017) at KAUH, Jeddah, in which the quality indicators for certain parameters were analyzed and benchmarks were set for blood donor adverse reactions, transfusion reactions, fresh frozen plasma (FFP) in-date wastage, and cross match to transfusion (CT) ratio. Data were forwarded to the Hospital Transfusion Committee (HTC) for review. Deviations were identified and corrective actions were taken. The outcomes were used to plan for improvement.

Results Among a total of 60,631 blood donors, 282 donor reactions were reported, resulting in a rate of 0.46%, mostly in the form of mild dizziness. 285 adverse transfusion reactions were reported among 99,564 total blood transfusions, resulting in a rate of 0.28%; most were allergic and febrile reactions. Monitoring of the adverse donor reactions showed a decreased incidence; however, the adverse transfusion reactions were under-reported. The FFP in-date wastage was 2205 among 22,590 requested FFP units, resulting in a high rate of 9.76%. The CT ratio was 1.24. Safety improvements were implemented by a multidisciplinary quality improvement team to determine the critical control points and to address the factors contributing to high FFP wastage.

Conclusion The use of quality indicators as a tool for implementing a hemovigilance system can provide a better understanding of areas for improvement in the quality of the work and safety of patients. Establishing guidelines for appropriate clinical use of blood and proper communication between clinical transfusion staff and practitioners is expected to enhance these features along the blood transfusion chain. The use of a similar model in other institutions will facilitate the local benchmarking between hospitals, which is a feasible method to lower transfusion risk and cost and to improve quality outcomes.

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LAB QUALITY IMPROVEMENT PROJECT (MONITORING SEROLOGY REJECTION)

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Background This project was initiated because of the observation that serology rejection rates were increasing incrementally. The quality indicator displayed this; therefore, an intervention was necessary to reduce the amount of wastage of samples, patient recalls, supplies, and manpower. The aim of this project was to reduce the number of rejected samples, reduce recalls of patients and redraw of the samples, and to provide the best service to our customers.

Methods

- Using the quality indicators for the statistical measuring of the amount of serology samples rejected.
- PDCA (plan–do–check–act) cycle.
- Quality indicator:
 - Numerator is serology rejected tests (lithium heparin and SST);
 - Denominator is serology total tests done (lithium heparin and SST);
 - International benchmark value 0.56%;
 - Baseline quality indicator was measured and then monitoring was done after implementation of interventions.

- Interventions:
 - Contact nursing education about the training of collection procedures, especially with the wards that have high rejection specimen rates;
 - The educational session conducted in receiving and outpatient department staff expanded to all other hospital departments;
 - Collection procedure changed from four tubes to one lithium heparin tube according to insert sheet, which was a simplified procedure.

Results The quality indicator in the first 6 months showed that 0.8% of the serology samples were rejected. After the intervention using the various strategies, nurse education sessions, change of procedure, and specimen test menu information, 0.36% of the total samples were rejected, therefore showing a significant improvement in the rejection rates in serology. The continual improvement was recommended to be sustained by implementing the long-term use of the strategies used in the study.

Conclusion The project was done to improve workflow and minimize wastage in terms of time and cost, and to improve patient outcomes. This intervention was successful in the overall aims and objective of the project. The lesson learnt was that the educational session conducted as part of the intervention plan improved the skills and techniques used by nurses when performing the procedures. The altered procedure helped to significantly reduce the number of rejected specimens. The overall aim of the project was to implement a process that could be applied across all sections in the Department of Pathology and Laboratory Medicine. This was to improve patient safety, care, and outcomes.

53 THE IMPACT OF A COMPUTERIZED PHYSICIAN ORDER ENTRY (CPOE) SYSTEM ON THE INCIDENCE AND NATURE OF DRUG-RELATED PROBLEMS (DRP) IN PEDIATRIC WARDS IN KING ABDULAZIZ MEDICAL CITY – JEDDAH

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Background Prescribing a drug for a child is not a simple task because children pose distinct challenges for healthcare professionals in prescribing, dispensing, and administering any drug. Published studies investigating pediatric adverse drug events (ADEs) showed that drug ordering is the main stage of the medication process where ADEs originate and accounts for 79% of ADEs, of which 34% are related to incorrect dosing. It has been recognized that computerized physician order entry (CPOE) can reduce medication errors in adult and pediatric populations.

Methods An observational prospective cohort study was conducted on all pediatric patients aged 0–14 years admitted during the study periods to pediatric wards over a 3-month period. All reported drug-related problems (DRPs) were validated using the same method used in our previous published studies. DRPs were peer-reviewed by an expert panel consisting of a pediatrician, clinical pharmacist, and researcher. A final decision regarding validation of a DRP case was made by consensus after discussion within the group. Once a DRP

was validated, the panel also assessed it for severity and preventability.

Results 657 pediatric patients were included. Of these, 235 patients suffered from 328 DRPs. Overall DRP incidence was 35.8% (95% CI 32.1–39.6). Almost all identified DRPs were deemed preventable (99.7%) and 95.1% (n=312) were moderate in severity. The most frequently reported diagnoses were bronchiolitis/pneumonia (n=32). Nearly half (328 [49.9%] of 657) of patients experienced at least one DRP. The percentage of male patients with DRPs (190 [58%] of 328) was higher than the percentage of female patients with DRPs (138 [42%] of 328). However, there was no significant difference in DRP incidence between male and female patients (p=0.239). The highest DRP incidence reported on the medical ward was 32.3% (95% CI 27.3–37.3). The most frequently involved drug classes in DRPs were antimicrobial medications (n=62), followed by respiratory medications (n=41), gastrointestinal drugs (n=21), vitamins (n=14), steroids (n=9), and nonsteroidal anti-inflammatory drugs (NSAIDs; n=8). Using the significance level of 0.05, no significant difference was found in DRP percentages before and after CPOE use (p=0.472).

Conclusion DRPs in hospitalized pediatric patients are common. The vast majority were assessed as moderate in severity and deemed preventable. In this study, the majority of DRPs reported were related to dosing and drug choice problems. Further study is needed to investigate the DRPs associated with off-label use of medication in children.

54 EPIDEMIOLOGY OF PREVENTABLE DRUG-RELATED PROBLEMS (DRPs) IN HOSPITALIZED CHILDREN: SINGLE INSTITUTION OBSERVATIONAL STUDY

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Background Drug-related problems (DRPs) ‘are the unwanted effects of a drug that potentially lead to harmful outcome’, which receive substantial attention. Prescribing a drug for children is considered a challenging process for all healthcare providers and possesses an economic burden to the healthcare system. Hospitalized pediatric patients, in particular, represent a population at risk for DRPs. The epidemiology of preventable DRPs in children in Saudi Arabia remains scarce, which poses distinct challenges to all healthcare professionals. We aimed to characterize preventable DRPs in hospitalized children at KAMC-Jeddah.

Methods This prospective observational study included children (aged 15 years or younger) admitted to pediatric units (excluding cancer units) at King Abdulaziz Medical City (KAMC)-Jeddah, which is located in Jeddah, the largest city in Makkah Province in the Kingdom of Saudi Arabia. The hospital is a 751-bed referral center. Five diverse pediatric wards were included (general, surgical, emergency department [ED], neonatal intensive care unit [NICU], and pediatric intensive care unit [PICU]). We excluded patients admitted to pediatric cancer units, patients with no medications, if admission was less than 24 hours, and patients aged more than 15 years. The study was done over a 3-month period to determine the incidence of preventable DRPs and investigate the possible associated factors (sex, age, admission location, type of admission, and number of medications).