Prevention of Endophthalmitis

An Ophthalmic Focus Study on Surgical Site Infections

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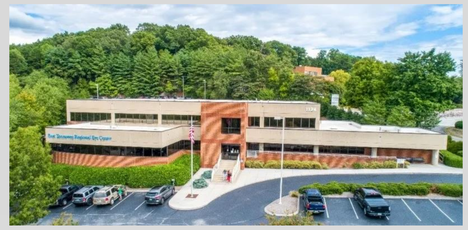
EYE SURGERY CENTER OF EAST TENNESSEE



Element 1: Purpose

➢ **Background:**

During late summer and fall of 2019, The Eye Surgery Center of East Tennessee Administrator and quality director noticed a drastic spike in endophthalmitis cases. Endophthalmitis is severe inflammation of the tissues inside the eye. The inflammation is typically due to infection and requires emergency treatment. From April 2019 to October 2019, a reported 7 cases occurred which resulted in immediate interventions from the medical and administrative teams.

➢ **Purpose:**

The purpose of this study is to prevent postoperative surgical site infections and complications. It is of utmost importance to follow all infection prevention measures and to ensure safe care for all patients having a procedure at our center.

Element 2: Benchmark & Goals

➢ **Performance goal:**

Our goal is to be equal to or below the Quality Benchmarking Report average infection rate of 0.223 for Ambulatory Surgery Centers Quality Collaboration (ASC QC). (see handout)

Rates are calculated per 1,000 Admissions

Element 3: Data Collection Plan

➢ Data collection team: A collaborative meeting was conducted with the supervisory staff and surgeons regarding any possible causes of infection. A multidisciplinary approach was to be taken with focus being on every area of care received in the center.

➢ **Data was to consist of infection prevention audits in all 3 areas – pre-op, intra-op, and post-operative. Each area was to be subdivided as necessary to confirm all potential exposures were identified, and a review of quality benchmarking reports was to be completed quarterly.**

Data Focus Areas:

➢ Preoperative – Identify possible contamination regarding preoperative medication administration, drop handling and storage.

➢ Intraoperative – Full visual inspection of all staff prepping methods, sterile technique, and medication handling. In-depth review of sterile processing, instrument handling, and container integrity. Validation of accuracy of sterilizers/disinfectors.

➢ Postoperative – Review of any areas that could lead to infection including postoperative drop regimen, patient discharge instructions, and immediate wound contaminations including lack of or presence of wound dressings.

Element 4: Evidence of Data Collection

Data collection in preoperative, intraoperative, and postoperative areas revealed the following issues:

- Older instrument trays found to have rusty instruments and rust particles down in tray mats.
- Staff were found leaving trays closed with moisture overnight increasing risk of rust and bacteria growth.
- Review showed potential for surgery center drops to be contamination due to 2 cases in one week.
- Older instrument trays found to have large quantities of instruments. Instruments on bottom were being reprocessed but rarely used.
- Instrument trays could have residual debris. Some are having hinge issues but overall look intact and rust free.
- Quick Rinse bottle not being cleaned correctly at end of day.
- Quick Rinse bottle was leaking. Staff felt there could be a pressure issue when using on lumen instruments.
- Staff were concerned about residual BSS being left in bottles that were reprocessed. The small, silicone bottles are hard to clean the interior or confirm any previous BSS was cleared. The current bottles were getting older, and the cannula lumens were not consistently being flushed postoperatively.
- Culture and Sensitivity reports show Staph Epidermidis strain is resistant to Ciprofloxacin and levofloxacin. Ciprofloxacin is our main antibiotic drop in the ESC preop and postop. Many drops being administered to the patients are in the same class of fluoroquinolones.
- Proparacaine not stored correctly overnight in the refrigerators
- Statim autoclave inspection identified over usage of sterilizers.
- Increase in Iris prolapse incidents was also noted.

Element 5: Data Analysis

All findings were discussed with the governing board and quality committees. Immediate action was recommended for areas of concern. The data collected did reveal there was opportunity for improvement in several areas. The potential for contamination did exist and must be corrected immediately.

Per the Quality Benchmarking Report for 2019, Infection rates had drastically increased.
1st Qtr 2019 – 0.000 2nd Qtr 2019 – 0.928 3rd Qtr 2019 – 0.974 4th Qtr 2019 – 4.669. The 2019 annual average was 1.684. (for reference 2018 was 0.261)

Element 6: Comparison of Current Performance to Performance Goal

Our goal for infection rates was not met and was missed by 1.461.

Baseline performance: 1.684 (2019 average) vs ASC QC quality benchmark performance goal: 0.223

Element 7: Corrective Action

Identified Issue:	Corrective Action:
Older surgical trays found to have rusty instruments and rust particles down in tray mats.	1. Ordered replacement trays for all autoclaves. 2. Education of staff on identification, prevention, and rust awareness completed. 3. Removed and replaced all instruments with visible rust.
Staff were found leaving trays closed with moisture overnight increasing risk of rust and bacteria growth.	Ensured staff are leaving the instruments open to dry in the evenings. We identified that one technologist was leaving them sealed up all weekend and the moisture was being contained.
Review showed potential for surgery center drops to be contaminated due to 2 cases in one week.	Replaced all multidose drops in the whole center
Older surgical trays found to have large quantities of instruments. Instruments on bottom were being reprocessed but rarely used.	To improve airflow and decrease instrument reprocessing, the trays were lightened. Any instrument not being used regularly was removed and wrapped separately.
Instrument trays could have residual debris. Some are having hinge issues but overall look intact and rust free.	Scheduled deep cleaning/inspection of all remaining instruments by Kinney Surgical
Quick Rinse bottle (lumen flushing device) not being cleaned correctly at end of day.	IFUs show that alcohol should be used at end of day to rinse bottle. Alcohol ordered and put into use.
Quick Rinse bottle was leaking. Staff felt there could be a pressure issue when used on lumen instruments	Replaced quick rinse bottle that is used to flush all lumen instruments. It was mildly leaking, and we feared it was losing pressure to force air through.
The reusable BBS bottles were hard to clean and/or confirm any previous BSS was cleared. The current bottles were getting older, and the cannula lumens were not consistently being flushed postoperatively.	Discontinued use of reusable BSS bottles. Switched over to disposable syringes that techs can use to irrigate cornea with disposable bishop harmon tips.
Administrator wanted to confirm that sterilizers where processing correctly.	Swabbed a sterilized tray for culture to confirm the autoclaves were processing correctly. (All measurements read accurate. Spore tests passed daily.) Negative findings on culture.
Increase in Iris prolapse incidents	Discussion with physicians regarding possible correlation between iris prolapse increase and endophthalmitis increase. Physicians changed to a smaller incision size (2.4mm).
Patient culture and sensitivity reports showed staph epidermidis strain was resistant to ciprofloxacin and levofloxacin. Most ESC preop and postop ordered drops are in the same class of fluoroquinolones.	Review of ordered antibiotics compared to C&S reports. Doctors felt adding Poly Trim to our preop/postop regimen would help add antimicrobial coverage.
Proparacaine storage inadequate.	Staff were keeping multidose proparacaine unrefrigerated after opening. Staff switched to keeping it refrigerated moving forward.
Sterilization process review	Completed OOSS Sterilization survey
Statim autoclave inspection	Biomed completed 6 month inspection with cartridge, seal, and filter replacements. PMs to be done every 6 mo/500 uses. Statims were used avg 725 times/6 mo. Implemented change to rotate low volume statim 3 into high volume statims 1 & 2s rotation.

Element 8: Re-measurement

➢ **Per the Quality Benchmarking Report for 1st Qtr 2020, the goal was met. Zero infections were reported bringing the score to 0.000.**

➢ **Consistent and sustained reduction in surgical site infections proved our goal was met.**

➢ The supervisory staff and QAPI committee continued reviewing reports for the remainder of 2020 to confirm no outbreaks occurred. Regular monitoring of new processes is essential to sustain improvement measures.

Element 9: Additional Corrective Action

Final review – One infection for 2020 (2nd Qtr). Zero Infections for 2021. No additional correction actions were identified.

➢ **The QAPI committee agreed that a continuous monitoring of infection prevention standards must remain in place including monthly and quarterly auditing.**

Element 10: Communication of Findings

Reported to:

➢ QAPI Committee	11-3-2020
➢ Governing Body	12-7-2020
➢ Staff In-Services	12-28-2020
➢ Other education	Monthly staff infection control trainings

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