Impact of Antimicrobial Prophylaxis Compliance and Chlorhexidine Gluconate Utilization for Skin Preparation in Reducing Surgical Site Infection amongst Appendectomy Surgeries, Al Wakra Hospital - 2013

PROBLEM:
Selected operations are being monitored for Surgical Site Infection (SSI), including all appendectomy cases. In 2013, among 305 Appendectomy surgeries, 7 developed SSI. In the first quarter alone, there was 9.09% [5/55 cases] SSI rate among Risk Index 0,1 Appendectomies. The overall compliance to antimicrobial prophylaxis in 1st quarter is only 31.03%, which is the lowest antimicrobial prophylaxis compliance in all monitored general surgeries.

AIM:
- To decrease SSI and meet the target of 50th percentile of the National Healthcare Safety Network [NHSN, USA] by achieving the following goals:
  1. To increase general compliance to antimicrobial prophylaxis from 31.03% in first quarter to the target compliance of 100%.
  2. To utilize Chlorhexidine gluconate for skin preparation in majority of appendectomy surgeries.

METHODOLOGY:
The Surgical Site Infection (SSI) review is done to all Appendectomy surgeries in Al Wakra Hospital regardless if laparoscopic or open surgeries. Each case are being reviewed for bundle compliance to SSI prevention which includes antimicrobial prophylaxis. Bundle compliance to antimicrobial prophylaxis is being reviewed per patient. The circulating nurse fills up the bundle forms and the operating theatre sends the forms to Infection Prevention and Control (IPC) monthly for encoding, analysis and review. Feedback of compliance are being forwarded and presented to the Surgical Division of Al Wakra Hospital for further review and actions.

SSI surveillance are being carried out by the IPC Practitioner for Surgical Division by reviewing the patients’ charts and by the use of the Post Discharge SSI Surveillance Notification Form being filled up by the nurses in the Surgical Outpatient (OPD) during follow up visits. Furthermore, results are being reviewed in the Electronic Medical Records if the patients develops positive cultures taken aseptically from the surgical site.

If the patient fulfills the criteria for SSI, the attending physician is being informed by the IPC Practitioners. The SSI rates are also presented to the surgical division quarterly. A case study of the confirmed SSI cases are being presented as well.

INTERVENTIONS:
- Trainings were conducted with the Surgical Division staff including nurses and physicians regarding SSI and Antimicrobial Prophylaxis. Advance Infection Control in Surgical Setting, a 5-Continuing Nursing Education (CNE) point class was developed and ran for 8 sessions in 2013.
- Manufacturer’s class regarding Chlorhexidine gluconate (CHG) skin preparation was attended by division and section heads and senior staff nurses.
- Feedback sessions to Department of Surgery regarding SSI and Compliance to Antimicrobial Prophylaxis quarterly during division meetings.
- Real time reporting of possible or confirmed SSI cases by electronic email to attending physician and/or division head.
- Nurses to monitor and remind the physician regarding antimicrobial prophylaxis.
- Anesthesia Team to administer antimicrobials after induction of anesthesia prior to cutting time.

RESULTS:
- There were 7 SSIs among Appendectomy cases within 2013.
- There is a total annual SSI rate of 2.05% amongst Risk Index 0,1 [6/293]. A dramatic decrease in Appendectomy SSI was observed with 9.09% [5/55] SSI rate in the 1st Quarter 2013 to 1.49% (1/67) in 2nd Quarter 2013 and on the second half of the year, there were Zero Tolerance for SSI after measures on antibiotic prophylaxis and skin preparation were highlighted.
- There is a total annual SSI rate of 8.33% [not accurate computation since computation cannot be done if denominator is less than 50] amongst Risk Index 0,1 surgeries.
- There was a massive shift in the use Chlorhexidine gluconate skin prep from Povidone Iodine skin prep from Week 26 (June) to Week 5 of January 2014.
- There is a total annual SSI rate of 8.33% amongst Risk Index 0,1 surgeries.
- There was a massive shift in the use Chlorhexidine gluconate skin prep from Povidone Iodine skin prep from Week 26 (June) to Week 5 of January 2014.
- There is a total annual SSI rate of 8.33% amongst Risk Index 0,1 surgeries.

CONCLUSIONS:
- The primary reason for noncompliance is non-adherence to the SSI Bundle.
- The percentage of compliance to the SSI bundle with 37.40% noncompliance to correct antimicrobial use as per prescribed regimen [policy], 36.18% non-compliance to discontinuation of antimicrobials within 24 hours after closing time and 26.42% noncompliance to administration of antimicrobials within one hour prior to cutting time.
- There is compliance to discontinuation of antimicrobials within 24 hours after cutting time amongst appendectomy surgeries; it has still been fluctuating with better compliance towards the end of the year 2013 and January 2014.
- The primary reason for noncompliance is non-adherence to the SSI bundle.
- The percentage of compliance to the SSI bundle with 37.40% noncompliance to correct antimicrobial use as per prescribed regimen [policy], 36.18% non-compliance to discontinuation of antimicrobials within 24 hours after closing time and 26.42% noncompliance to administration of antimicrobials within one hour prior to cutting time.
- There is a total annual SSI rate of 8.33% amongst Risk Index 0,1 surgeries.

RECOMMENDATIONS:
- Maintain zero tolerance to SSI among Appendectomy surgeries across all risk indexes.
- To achieve 100% compliance to general antimicrobial prophylaxis on all three elements.
- Since the primary reason for noncompliance is non-adherence to the SSI bundle.
- The percentage of compliance to the SSI bundle with 37.40% noncompliance to correct antimicrobial use as per prescribed regimen [policy], 36.18% non-compliance to discontinuation of antimicrobials within 24 hours after closing time, which only reached to 65.46%.
- There was a massive shift in the use Chlorhexidine gluconate skin prep from Povidone Iodine skin prep from Week 26 (June) to January 2014.

REFERENCES:

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