

Surveillance of Post-Surgery Infections and Complications - How did we do our study?

- We identified our cohort using the Canadian Classification of Health Interventions Codes (CCI) for **Caesarean-section, Coronary Artery Bypass Graft (CABG), cardiac valve, hip, hysterectomy, knee** and **spine** procedures that were performed in Saskatchewan.
- Our cohort was finalized by excluding: Invalid gender and health services number, admission category that was NOT elective (L) type, surgeries that were not performed within 5 days of the admission date, transfer cases, death occurred at the original stay
- The rates of complications that occur after an index procedure, for each of the seven particular procedures were measured.
- The surveillance of complications was done in-hospital and within 180 days post discharge.
- For each procedure, we followed our cohort in hospital, and in the community after their discharge using de-identified administrative health data to determine a) the rate of infections/complications occurring in hospital when the procedure was performed, b) the rate of infections/complications occurring within 30, 60 and 90 days after discharge, for the patients who were free from complications during their in-hospital stay, in order to identify complication rates in the community.
- If, at any time in the follow-up period, a patient had another of the procedures in our cohort, then we have scanned for complications for the first procedure only until the time of the second procedure, after which we began new 30, 60, and 90 day follow-up periods.
- In order to identify in community complication rates, the ICD-10-CA and ICD-9 diagnoses codes were scanned within hospital abstract and physician billing claims records for date subsequent to the discharge date from the index hospital stay.
- We compared total in-hospital infections/complications with after-discharge community infection/complication rates for each procedure.
- The rate of complication after particular procedures that occurred in Saskatchewan facilities was identified as, the number of cases in which an infection or complication occurred, within a specified time period, per 100 discharges for the particular surgeries of interest. Any index hospitalization record that had one of the identified complications coded as “most responsible diagnosis” or as a pre admit comorbidity was excluded from the analysis.

- We compared total in-hospital complication rates with after discharge complication rates for each procedure.
- This study used the following de- identified Saskatchewan Health data: Discharge Abstract Database (CIHI – DAD), Physician services claims file, Medical Services Branch (MSB), The Person Registry System (PRS), Verified Death File which has been developed by HQC, using multiple data sources (Vital Statistics, PRS, Institutional Care Home File (ISCH), Prescription Drug Plan Historical Claims (PDP), DAD, and MSB), to validate date of death.
- The list of procedure codes for the surgeries included in this study are generally more inclusive than the codes used by CIHI in their studies pertaining to these procedures. We used a more inclusive list in order to capture a more general identification of procedures for the purpose of surveillance of complications.

$$SSI = \frac{\text{Number of cases where a compl. observed with } y \text{ days}}{\text{Number of selected procedures}} \times 100$$

where y is; in-hospital, 30 day, 60 day and 90 day follow-up periods.

If you have any questions or comments please contact me at:

Beliz Acan, MA
Researcher
Health Quality Council
Phone: 306.668.8810 ext. 203
Fax: 306.668.8820
E-mail: bacan@hqc.sk.ca
Web: www.hqc.sk.ca

Table A1- Summary procedure codes that are used in our analysis

| | | |
|---------------------|--|---|
| CABG | 1IJ76BQ (less specific definition was used by CIHI - 1IJ76) 1IJ76DA 1IJ76LA | |
| C-section | 5MD60 | |
| Hip | 1VA53 (1VA53LA-PN, 1VA53PN-PN) | |
| Hysterectomy | 1RM57 | 1RM91DA |
| | 1RM59BA | 5CA89CK |
| | 1RM59DA | 5CA89DA |
| | 1RM59LA | 5CA89GB |
| | 1RM89 | 5CA89WJ |
| | 1RM91CA | 5CA89WK |
| | 1RM91LA | 1RM87 (1RM87CA-GX** , 1RM87DA-GX** , 1RM87LA-GX**) |
| Knee | 1VG53 | |
| Spine | 1AW59LA | 1SC74 |
| | 1AW59WK | 1SC75 |
| | 1AW72 | 1SC80L |
| | 1AW87 | 1SC80P |
| | 1AX52LA | 1SC89 |
| | 1AX52M | 1SE53DA |
| | 1AX53 | 1SE53LLS |
| | 1AX55 | 1SE53PF |
| | 1AX56DA | 1SE55 |
| | 1AX56LA | 1SE59LA |
| | 1AX73 | 1SE87PF |
| | 1AX80 | 1SE89 |
| | 1AX86 | 2AX70 |
| | 1AX87 | 2SC71LL |
| | 1JX57LA | 2SC71PF |
| | 1JX76 | 1SC87 |
| | 1SC55 | |
| Valve | 1HS80GBP | 1HT90 |
| | 1HS80LA | 1HU80 |
| | 1HS80ST | 1HU90 |
| | 1HS90 | 1HV80LA |
| | 1HT80GBP | 1HV80ST |
| | 1HT80LA | 1HV90 |
| | 1HT80ST | Cardiac revascularization (1IJ50 , 1IJ57GQ . 1IJ54GQ-AZ) |
| | 1HT89 | |

Note: Codes that are bolded are definitions used by the CIHI in their various studies pertaining to these same surgeries.

Table A2- List of Complications

| Classification | Code | Description |
|------------------|--------|---|
| ICD9 | 670 | Major Puerperal Infection |
| | 674 | Other and unspecified complications of puerperium, not elsewhere classified |
| | 996 | Complications peculiar to certain specified procedures |
| | 998 | Other complications of procedures |
| ICD-10-CA | M4636 | Infection of intervertebral disc (pyogenic), lumbar region |
| | O86002 | Infection of obstetric surgical wound, delivered, with mention of postpartum complication |
| | O86004 | Infection of obstetric surgical wound, postpartum condition or complication |
| | O86009 | Infection of obstetric surgical wound, unspecified as to episode of care, or not applicable |
| | O86802 | Other specified puerperal infections, delivered, with mention of postpartum complication |
| | O86804 | Other specified puerperal infections, postpartum condition or complication |
| | O90002 | Disruption of caesarean section wound, delivered, with mention of postpartum complication |
| | O90004 | Disruption of caesarean section wound, postpartum condition or complication |
| | O90009 | Disruption of caesarean section wound, unspecified as to episode of care, or not applicable |
| | T813 | Disruption of operation wound, not elsewhere classified |
| | T814 | Infection following a procedure, not elsewhere classified |
| | T826 | Infection and inflammatory reaction due to cardiac valve prosthesis |
| | T827 | Infection and inflammatory reaction due to other cardiac and vascular devices, implants and grafts |
| | T836 | Infection and inflammatory reaction due to prosthetic device, implant and graft in genital tract |
| | T8453 | Infection and inflammatory reaction due to hip prosthesis |
| | T8454 | Infection and inflammatory reaction due to knee prosthesis |
| | T8458 | Infection and inflammatory reaction due to other joint prosthesis |
| | T8459 | Infection and inflammatory reaction due to unspecified joint prosthesis |
| | T8463 | Infection and inflammatory reaction due to internal fixation device of femur |
| | T8464 | Infection and inflammatory reaction due to internal fixation device of tibia and fibula |
| | T8468 | Infection and inflammatory reaction due to internal fixation device of bones at other site |
| | T8469 | Infection and inflammatory reaction due to internal fixation device of bones of limb nos |
| | T847 | Infection and inflammatory reaction due to other internal orthopaedic prosthetic devices, implants and grafts |
| | T857 | Infection and inflammatory reaction due to other internal prosthetic devices, implants and grafts |
| | T86842 | Infection of soft tissue (skin, muscle, fascia, tendon, mucosa) graft/flap |