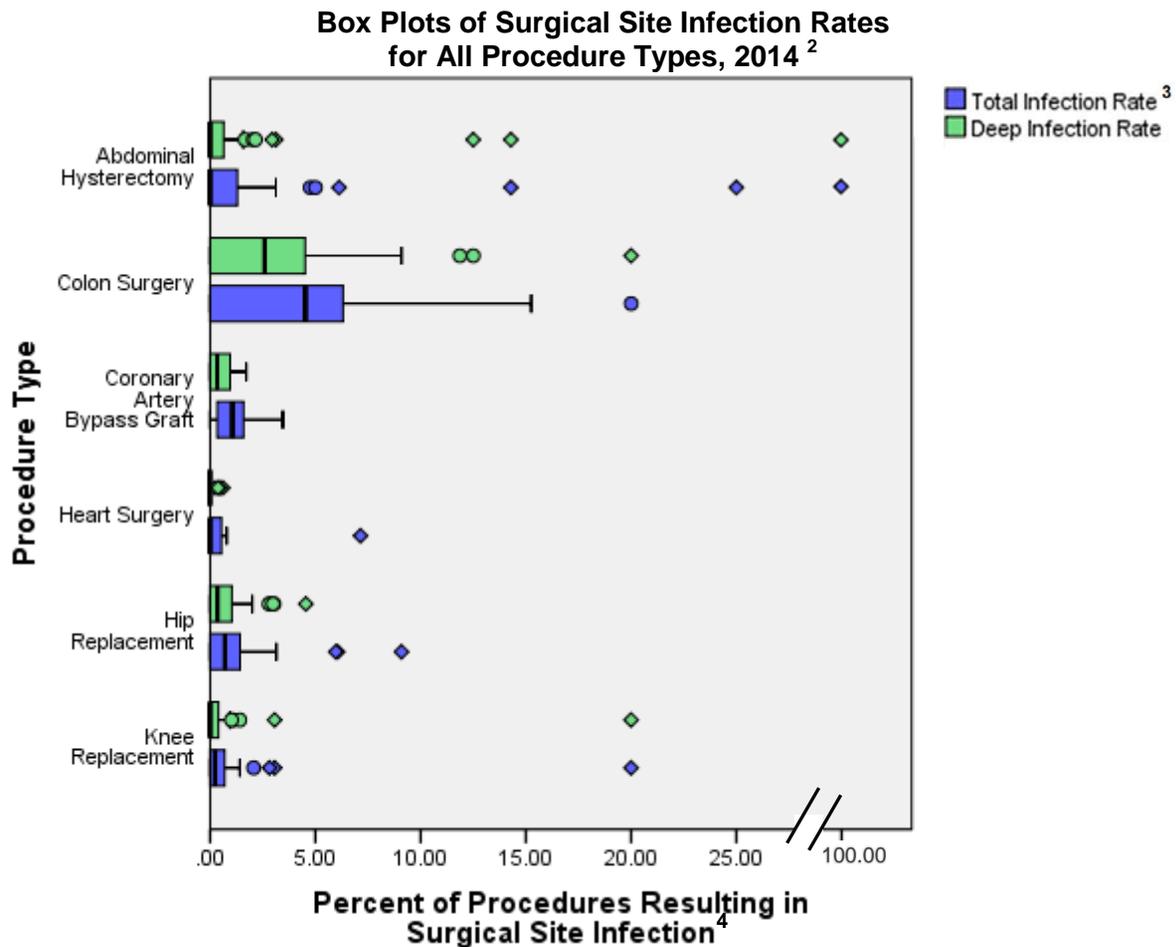


Box Plot of Surgical Site Infection Rates, by Procedure Type and Infection Depth, 2014¹

March 23, 2016 download of January 2014 – December 2014 NHSN data



Notes:

1. All rates are a percent calculated as the number of surgical site infections (SSI) among all similar surgical procedures (infections per 100 procedures). Hospitals identified in the plots below, have statistically significantly higher surgical infection rates, for that infection depth, than other Washington hospitals. Hospitals with statistically significantly high standardized infection ratios (SIR) only, compared to national baselines, are also identified in the notes below. Visit our website for more information about our [statistical methods](#).

The annual number of procedures performed by a hospital (in the table and map format of the [annual SSI reports](#)) provides more context to explain certain infection rates and inform patients and providers in planning for elective surgery. In general, surgical teams which perform more of the same procedures have better outcomes.
2. The distribution of hospital infection rates for all six Washington State reportable surgery types is included in this box plot. Below are more detailed box plots grouping these procedures into three broad categories ([abdominal surgeries](#), [heart surgeries](#), and [joint replacements](#)). Visit our website for descriptions of these [types of surgeries](#).
3. Depth of [surgical site infection](#) classification:
 - a. Deep infection rates include surgical wound infections occurring well below the skin and subcutaneous tissue, affecting muscles, organs, or bones (“deep incisional” and “organ/space” SSI per NHSN). Deep infections may be severe and difficult to treat, often requiring antibiotics and additional hospital care.
 - b. Total infection rates include deep infections as well as shallow surgical wound infections occurring within the skin and subcutaneous tissue (“superficial incisional” SSI per NHSN). Shallow infections can be more easily treated, often without hospitalization and may not require antibiotics.
 - c. Rates for deep and total infections from the same procedure type use the same denominator (number of procedures performed) during the reporting period.

Box Plot of Surgical Site Infection Rates, by Procedure Type and Infection Depth, 2014 ¹

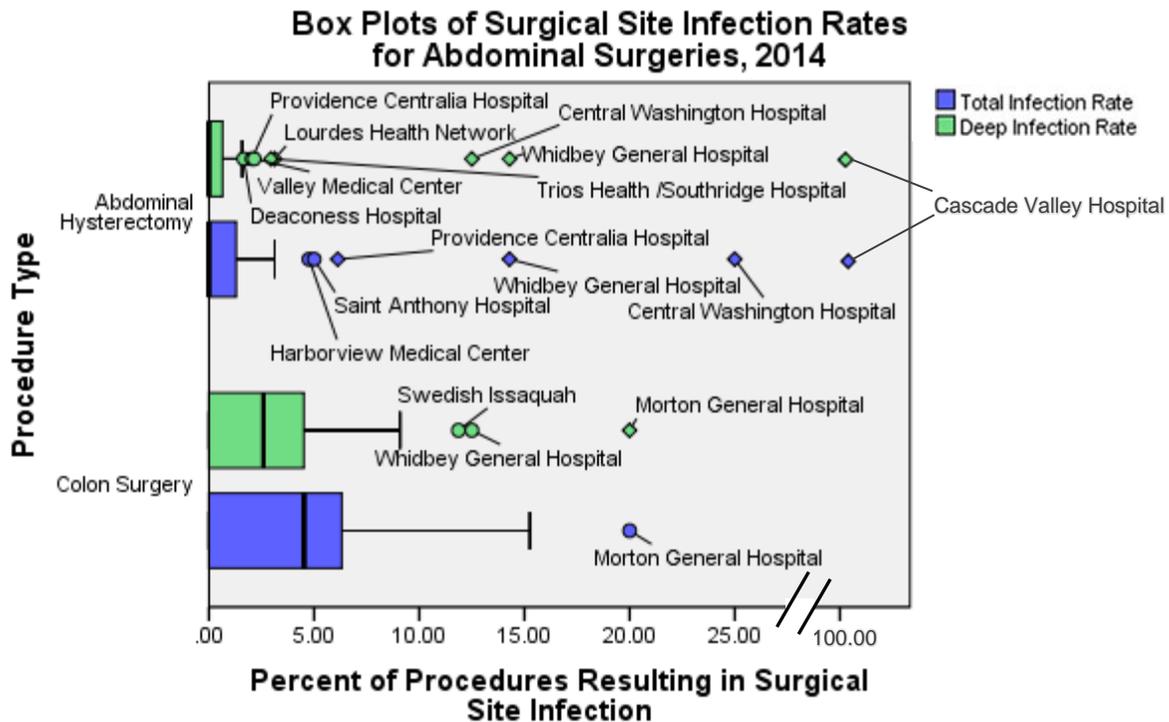
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4. Rates shown here are for the surgical procedure overall. Details of certain surgical procedure types are included in the [SSI table](#) (coronary artery bypass graft procedures and joint replacement procedures). Hospitals are compared by their “overall” infection rates in these categories to compare hospitals more accurately. However, the more specific infection rate and procedure volume information in the table may be useful for patients and providers in planning for elective surgery.

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Abdominal Surgeries



Abdominal Hysterectomies

Infection rates and number of procedures performed for this type of surgery include only inpatient hysterectomies with abdominal incisions, per NHSN surveillance definitions. Hysterectomies where organs are detached via vaginal approach, and outpatient (procedure and hospital discharge in the same day) abdominal hysterectomies are considered different types of surgical procedures with differing risk for infection, and are not included in state surveillance for this abdominal hysterectomy category. Therefore, the volume of procedures reported here may not represent a hospital's overall experience performing "hysterectomies" in general.

5. Cascade Valley Hospital – Infection rate is due to one deep surgical wound infection in the only inpatient abdominal hysterectomy performed during the year. Approximately 40 hysterectomies (both abdominal and vaginal) are performed annually and most are outpatient surgeries. The hospital investigated the case and identified a gap in the preoperative skin preparation for this patient. Subsequently, the hospital reports staff reeducation on surgical care measures.
6. Central Washington Hospital – Infection rate is due to two surgical wound infections, one shallow and one deep, with a very low number of inpatient abdominal hysterectomies performed during the year. The hospital investigated both cases and reports surgical care measures were followed.
7. Deaconess Hospital – Infection rate is due to three surgical wound infections, one shallow and two deep, with no indication of cross-infection. The hospital investigated the cases and reports surgical care measures were followed. Subsequently, the hospital reports increasing surveillance among obstetrics-gynecology and oncology surgery patients to find additional cases; no trends were identified.
8. Harborview Medical Center – Infection rate is due to two shallow surgical wound infections, with no indication of cross infection. The hospital investigated both cases and reports that surgical care and infection prevention measures were followed. The hospital continues to report enhanced infection surveillance due to a large outpatient clinic network.

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9. Lourdes Health Network - Infection rate is due to only one deep surgical wound infection. The hospital reviewed the case and reports that surgical care and infection prevention measures were followed.
10. Providence Centralia Hospital – Infection rate is due to three surgical wound infections, two shallow and one deep. The hospital investigated each case and identified variable practices with preoperative skin preparation and environmental cleaning. Subsequently, the hospital has added training and competency assessments for preoperative skin preparation; enhanced patient focused preoperative infection prevention measures; and re-evaluated environmental cleaning products and processes.
11. Saint Anthony Hospital – Infection rate is due to only one superficial surgical wound infection and a low number of inpatient abdominal hysterectomies performed during the year. The hospital investigated the case and reports surgical care measures were followed. Subsequent to this infection and other 2014 surgical infections across this hospital network (CHI Franciscan Health), the hospital reports various practices have changed in this facility (see footnote #32 for Saint Clare Hospital and knee replacement infections, regarding hospital system-wide interventions).
12. Trios Health / Southridge Hospitals – Infection rate is due to one deep surgical wound infection during the second half of the year (at Trios Southridge Hospital). The hospital investigated the case and reports surgical care measures were followed. Most inpatient surgical hospital services (including non-emergent surgeries) at Trios Health were largely discontinued mid-year in 2014 and transferred to the new Trios Southridge facility, which opened June 2014. This reported rate is the combination of both facilities' abdominal hysterectomy rates over the year.
13. Valley Medical Center – Infection rate is due to two deep surgical wound infections, with no indication of cross infection. The hospital investigated both cases and reports that surgical care measures were followed.
14. Whidbey General Hospital – Infection rate is due to one deep surgical wound infection with a very low number of inpatient abdominal hysterectomies performed during the year. Approximately 30 inpatient and outpatient hysterectomies (both abdominal and vaginal) are performed annually. The hospital's standardized infection ratio (SIR) for surgical site infection across each reported category combined is also significantly higher than the national baseline. The hospital investigated each case and reports that surgical care measures were followed. Subsequently, the hospital reports changes in environmental infection controls in the operating room.

Colon Surgeries

15. Central Washington Hospital (*not pictured*) – The hospital's standardized infection ratio (SIR) for colon surgeries, as calculated by CDC/NHSN, is significantly higher than the national baseline - with two times the predicted number of infections occurring throughout the year. Of the fifteen surgical wound infections, the SIR includes fourteen, seven shallow and seven deep – and excludes one infection per NHSN exclusion criteria. The hospital reviewed each case and reports surgical care measures were met, excluding emergent cases, where not all routine preoperative measures could be performed. The hospital also continues to report enhanced infection surveillance from access to an outpatient clinic network.
16. Harborview Medical Center (*not pictured*) – The hospital's standardized infection ratio (SIR) for colon surgeries, as calculated by CDC/NHSN is significantly higher than the national baseline. Of the twenty-one reported surgical wound infections, the SIR includes eighteen, seven shallow and eleven deep – and excludes three infections per NHSN exclusion criteria. The hospital investigated each case and reports surgical care measures were followed except for multiple emergent cases, where all routine preoperative measures could not be performed. Patients receiving colon surgeries in emergent settings or for traumatic injuries may be at greater risk for developing infections – however these elements are not accounted for in risk adjusting the SIR for colon surgery. The hospital reports enhanced patient focused infection prevention measures were implemented in 2015.
17. Morton General Hospital - Infection rate is due to one deep surgical wound infection among very few colon procedures performed during the year. The hospital reviewed the case and reports that surgical care and infection prevention measures were followed. Subsequently, enhanced patient focused infection prevention measures were implemented.
18. Swedish First Hill (*not pictured*) – The hospital's standardized infection ratio (SIR) for colon surgeries, as calculated by CDC/NHSN is significantly higher than the national baseline – with one-and-a-half times the predicted number of infections occurring throughout the year. Of the forty-two reported surgical wound infection, the SIR includes thirty-nine, fifteen shallow and twenty-four deep – and excludes three deep infections per NHSN exclusion criteria. The hospital investigated each case with a multidisciplinary team and reports surgical care measures were

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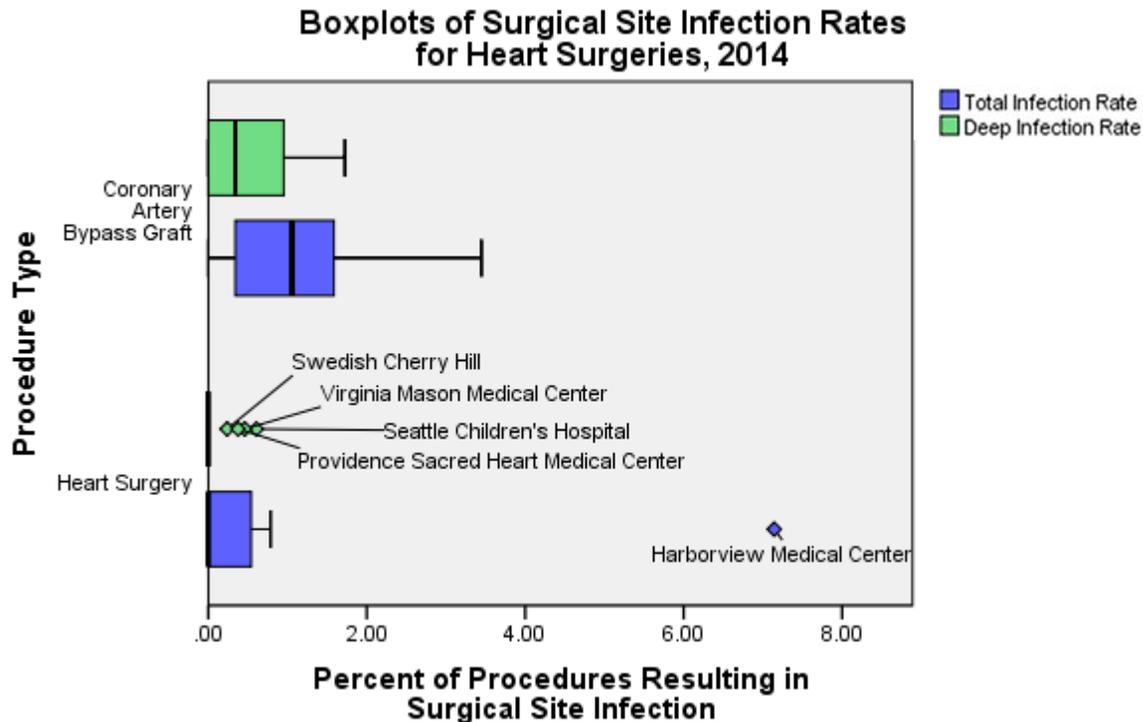
followed. Subsequently the hospital initiated multiple colon infection prevention activities including reinforcing surgical care measures and prophylactic antibiotic timing, and implementing enhanced environmental and patient-focused perioperative measures.

19. Swedish Issaquah – Infection rate is due to nine surgical wound infections, two shallow and seven deep, throughout the year. The hospital's standardized infection ratio (SIR) for colon surgery infection is also significantly higher than the national baseline. The hospital reports surgical care measures were followed. Subsequently the hospital initiated multiple colon infection prevention activities including reinforcing surgical care measures and prophylactic antibiotic timing, and continues to reinforce enhanced patient-focused prevention measures.
20. Whidbey General Hospital – Infection rate is due to two deep surgical wound infections, with no indication of cross-infection among the few colon procedures performed during the year. The hospital's standardized infection ratio (SIR) for surgical site infection across each reported category combined is also significantly higher than the national baseline. The hospital investigated each case and identified some gaps in surgical care measures. Subsequently, the hospital reports changes in environmental infection controls in the operating room.

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Heart Surgeries



Coronary Artery Bypass Graft Surgeries

Rates shown here are for coronary artery bypass graft surgeries overall. Details of coronary artery bypass graft surgeries with secondary incision sites (CBGB) or chest incision only (CBGC) are included in the [2014 SSI table](#). Hospitals are compared by their “overall” infection rates in these categories to compare hospitals more accurately.

No Washington State hospital had statistically higher rates of coronary artery bypass graft associated infection by statewide rate comparisons or SIR for 2014.

Heart (Cardiac) Surgery

Some surgical procedure type categories show rate distributions primarily at zero (deep infections following cardiac surgery). This indicates the majority of hospitals performing these surgeries reported no deep infections for procedures performed during the reporting period; therefore, a single reported deep infection would result in a significantly high deep infection rate.

21. Harborview Medical Center – Infection rate is due to only one superficial surgical wound infection among very few cardiac surgeries performed during the year. The hospital investigated the case and reports that surgical care and infection prevention measures were followed. The hospital does not perform scheduled heart surgery; the patients that receive these procedures are admitted for emergent and traumatic injuries.
22. Providence Sacred Heart Medical Center – Infection rate is due to two deep surgical wound infections during the year, with no indication of cross-infection. However, the hospital’s cardiac surgery standardized infection ratio (SIR) is significantly lower than the national baseline – indicating fewer reported annual infections than predicted by CDC/NHSN. The hospital investigated both cases and reports that surgical care measures were followed. Subsequently, the hospital reports implementing enhanced patient-focused and surgical care infection prevention measures.
23. Seattle Children’s Hospital – Infection rate is due to two deep surgical wound infections throughout the year, with no indication of cross-infection. The hospital’s cardiac surgery standardized infection ratio (SIR), which excludes one

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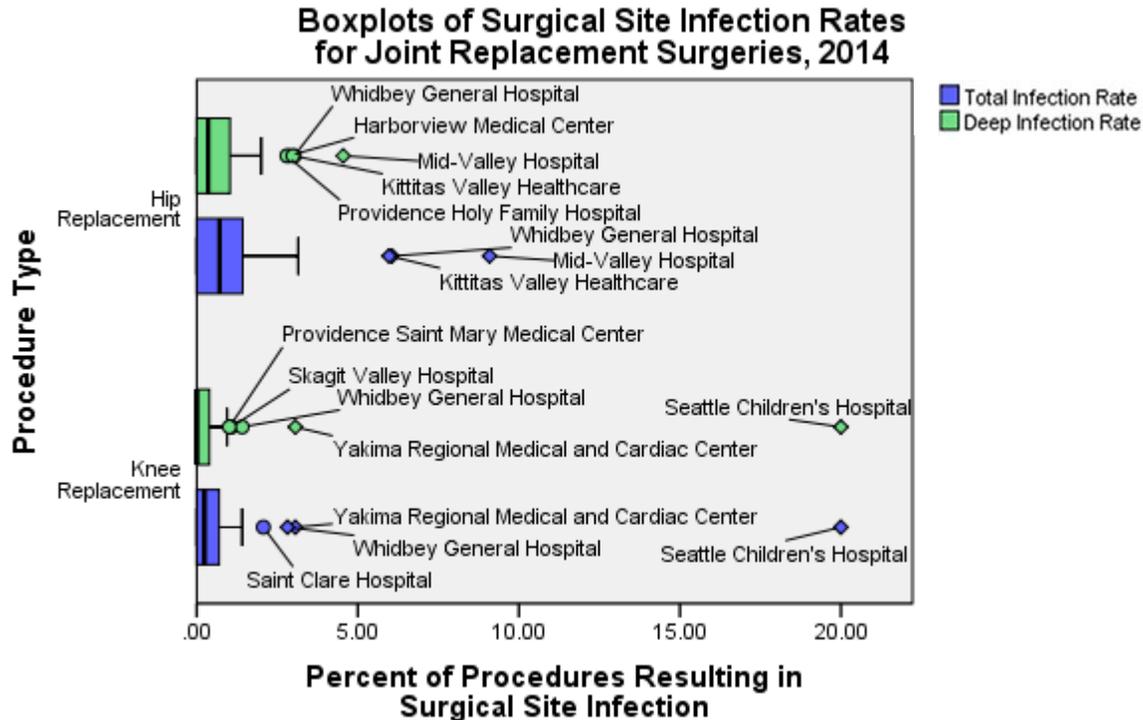
infection per NHSN exclusion criteria, is significantly lower than the national baseline – indicating fewer reported annual infections than predicted by CDC/NHSN. The hospital operates on infants and children with multiple complex anatomical anomalies undergoing reparative heart surgeries. The hospital investigated both cases and reports that surgical care and infection control measures were followed.

24. Swedish Cherry Hill – Infection rate is due to two surgical wound infections, one shallow and one deep, with no indication of cross-infection. The hospital's infection control and quality programs investigated the cases and reports complete surgical care measures were followed for one case; the one superficial case was emergent where all routine preoperative measures could not be performed. The hospital reports enhanced patient-focused and surgical-care infection prevention measures continue to be maintained.
25. Virginia Mason Medical Center – Infection rate is due to only one deep surgical wound infection. The hospital investigated the case and subsequently reports assessing operating room environmental factors and implementing enhanced patient-focused infection prevention measures.

Box Plot of Surgical Site Infection Rates, by Procedure Type and Infection Depth, 2014¹

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Joint Replacements



Hip Replacement

Rates shown here are for all hip replacement surgeries overall. Details of initial (primary) and repeat, revision and resurfacing procedures are included in the [2014 SSI table](#). Hospitals are compared by their “overall” infection rates in these categories to compare hospitals more accurately.

26. Harborview Medical Center – Infection rate is due to only one deep surgical wound infection among a low number of hip replacements performed during the year. The hospital reviewed the case and reports that surgical care and infection prevention measures were followed. The hospital does not perform elective joint replacement surgery; the patients that receive these procedures are admitted for emergent and traumatic injuries.
27. Kittitas Valley Community Hospital – Infection rate is due to four surgical wound infections, two shallow and two deep. The hospital investigated each case and reports surgical care infection prevention measures were followed. Subsequently, the hospital reports enhanced patient focused infection prevention measures were implemented for patients transferred from the emergency department to the operating room, and for post-operative wound dressing.
28. Mid-Valley Hospital – Infection rate is due to two surgical wound infections, one shallow and one deep, with no indication of cross-infection and a low number of hip replacements performed during the year. The hospital investigated each case and reports that surgical care measures were followed.
29. Providence Holy Family Hospital – Infection rate is due to nine surgical wound infections throughout the year, one shallow and eight deep. The hospital’s standardized infection ratio (SIR) for hip replacement infections is also significantly higher than the national baseline. The hospital investigated each case and reports that surgical care measures were followed. Seven of these cases were revisions to the original hip surgery, some necessitated by patient-falls after discharge. Subsequent to these cases, the hospital reports implementing enhanced patient-focused preoperative measures, reinforcing best practices for operating room environmental infection prevention, and providing surgical staff reeducation.

Box Plot of Surgical Site Infection Rates, by Procedure Type and Infection Depth, 2014¹

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30. Whidbey General Hospital – Infection rate is due to two surgical wound infections, one shallow and one deep, with no indication of cross-infection and a low number of hip replacements performed during the year. The hospital's standardized infection ratio (SIR) for surgical site infection across each reported category combined is also significantly higher than the national baseline. The hospital investigated each case and reports that surgical care measures were followed. Subsequently, the hospital reports changes in environmental infection controls in the operating room and enhanced patient-focused preoperative infection prevention measures for joint replacement procedures.

Knee Replacement

Rates shown here are for all knee replacement surgeries overall. Details of initial (primary) and repeat, revision and resurfacing procedures are included in the [2014 SSI table](#). Hospitals are compared by their "overall" infection rates in these categories to compare hospitals more accurately.

31. Providence Saint Mary Medical Center – Infection rate is due to two deep surgical wound infections, with no indication of cross-infection. The hospital reviewed each case and reports surgical care measures were followed. Subsequently, the hospital reports enhanced patient-focused infection prevention measures were implemented for preoperative care.
32. Saint Clare Hospital – Infection rate is due to six surgical wound infections during the year, four shallow and two deep, with no indication of cross-infection. The hospital investigated each case and reports surgical care measures were followed. Subsequent to these infections and other 2014 surgical infections across this hospital network (CHI Franciscan Health), the hospital reports various practices have changed in this facility: operative staff reeducation on surgical care measures with increased adherence monitoring; enhanced patient-focused preoperative infection prevention measures; standardizing environmental infection controls in operating rooms; and development of a multi-disciplinary group to review and investigate surgical practices and infections.
33. Seattle Children's Hospital – Infection rate is due to only one deep surgical wound infection, among very few knee replacements performed during the year. The hospital does not perform elective joint replacement surgery. The patients that receive these procedures have malignancies or complex anatomical anomalies; this patient was severely immunocompromised. The hospital investigated the case and reports surgical care and infection prevention measures were followed.
34. Skagit Valley Hospital – Infection rate is due to two deep surgical wound infections, with no indication of cross-infection. The hospital investigated each case and reports surgical care measures were followed. Subsequently, the hospital reports enhanced patient-focused infection measures were implemented for preoperative care.
35. Whidbey General Hospital – Infection rate is due to two surgical wound infections, one shallow and one deep, with no indication of cross-infection. The hospital's standardized infection ratio (SIR) for surgical site infection is also significantly higher than the national baseline. The hospital investigated each case and reports that surgical care measures were followed. Subsequently, the hospital reports changes in environmental infection controls in the operating room and enhanced patient-focused preoperative infection prevention measures for joint replacement procedures.
36. Yakima Regional Medical and Cardiac Center – Infection rate is due to three deep surgical wound infections, with no indication of cross-infection. The hospital reviewed each case and reports surgical care measures were followed. Subsequently, the hospital reports implementing enhanced patient-focused infection prevention measures.