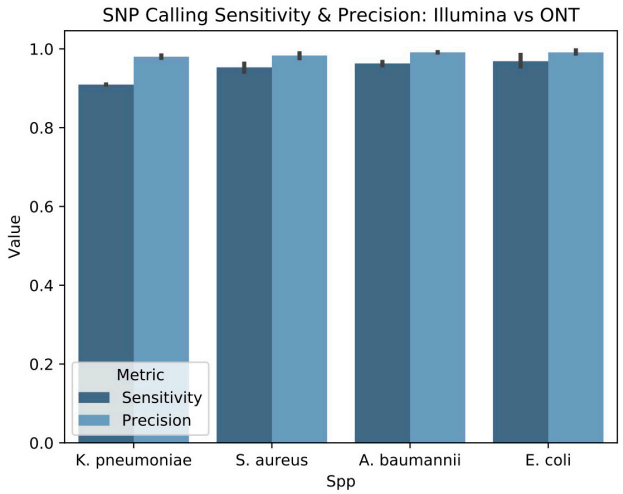
analysis. The pipeline leverages the latest basecalling tools as well as a suite of custom variant calling and filtering algorithms to achieve highest accuracy in clonality calls compared to Illumina-based sequencing. We also capitalize on ONT long reads by assembling outbreak-specific genomes in order to overcome the need for an external reference genome.

Results. We examined 20 bacterial isolates from 5 HAI investigations previously performed at Day Zero Diagnostics as part of epiXact®, our commercialized Illumina-based HAI sequencing and analysis service. Using the ONT data and pipeline, we achieved greater than 90% SNP-calling sensitivity and precision, allowing 100% accuracy of clonality classification compared to Illumina-based results across common HAI species. We demonstrate the validity and increased resolution of our SNP analysis pipeline using assembled genomes from each outbreak. We also demonstrate that this ONT-based workflow can produce isolate to transmission determination (i.e. including WGS and analysis) in less than 24 hours.

SNP calling performance



ONT-based SNP calling sensitivity and precision compared to Illumina-based pipeline

Conclusion. We demonstrate the utility of ONT for HAI investigation, establishing the potential to transform healthcare epidemiology with same-day high-resolution transmission determination.

Disclosures. **Mohamad Sater, PhD**, **Day Zero Diagnostics** (Employee, Shareholder) **Remy Schwab, MSc**, **Day Zero Diagnostics** (Employee, Shareholder) **Ian Herriott, BS**, **Day Zero Diagnostics** (Employee, Shareholder) **Tim Farrell, MS**, **Day Zero Diagnostics, Inc.** (Employee, Shareholder) **Miriam Huntley, PhD**, **Day Zero Diagnostics** (Employee, Shareholder)

808. Appropriate Use of Cephalotin Before and After Implementation of a Cardiac Surgery Antibiotic Prophylaxis Protocol in Guatemala

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Session: P-44. HAI: Surgical Site Infections

Background. The appropriate use of Surgical Antibiotic Prophylaxis (SAP) contributes to reducing the prevalence of Surgical Site Infections (SSI). Inappropriate use increases the risk of SSIs, hospitalization costs and potentially contributes to the emergence of antimicrobial resistance. We aimed to compare the appropriate use before and after implementing a SAP protocol in our institution

Methods. We conducted a retrospective chart review in patients older than 18 undergoing elective cardiac surgery with cardiopulmonary bypass using cephalotin as SSI prophylaxis. We excluded patients who received other antimicrobials for prophylaxis, those undergoing non-elective surgery, and patients with delayed sternal closure. We identified SSIs according to the Centers for Disease Prevention and Control criteria. We evaluated if appropriate dosing (2g-3g) and timing (>60 min.) occurred before the surgical incision, if redosing was administered, and if prophylaxis was administered > 48 hours. We evaluated before and after implementation of the protocol (August 2016-July 2017; October 2017-2018)

Results. The study included 262 and 285 patients before and after protocol implementation, respectively. Patient characteristics were similar between comparator groups (Table 1). We found that 1.1% of patients vs. 63% of patients had appropriate dosing before the surgical incision, before and after protocol implementation, respectively ($p < 0.05$). There was no difference in appropriate redosing when the duration of surgery was greater than 4 hours and no difference in inappropriate prophylaxis administration > 48 hours after protocol implementation. A total of 8 SSIs were identified in each group, with no statistical difference in the incidence, length of stay, or clinical outcome between comparator groups

Table 1. Patient Characteristics and Appropriate use of Cephalotin Before and After Implementation of a Cardiac Surgery Antibiotic Prophylaxis Protocol in Guatemala

Characteristic	Before (n = 262)	After (n = 285)
Age, median [QR], y	61 [48-68]	59 [49-67]
Female, n (%)	123 (47)	120 (42)
Weight, median (IQR), kg	66.8 [59.5, 77]	66 [59, 77]
Diabetes, n (%)	67 (25)	73 (28)
Obesity (BMI > 30), n (%)	59 (22.5)	68 (23.9)
Duration of surgery mean [SD], min	265 [73]	259 [60]
Extracoporeal circulation time mean [SD], min	96 [40]	97 [46]
Appropriate preoperative dosing, n (%)	3 (1.1)	180 (63.1)
Appropriate preoperative timing, n (%)	176 (67)	202 (71)
Appropriate need of redosing if surgery > 4 hours	144/212 (68)	166/246 (67)
Inappropriate prophylaxis administration > 48 hours	162/239 (68)	169/262 (64.5)

Conclusion. Based on our findings, implementing a local guideline-protocol for SAP resulted in significant improvement of pre-surgical antimicrobial dosing. We observed continual unnecessary administration of antibiotic prophylaxis in the post-operative period that needs more proactive interventional pharmacy-guided strategies such as automatic stops or audits width feedback.

Disclosures. **Lourdes A. Sandoval, Master of Science in Pharmacovigilance and Pharmacoepidemiology**, **Abbott** (Employee)

809. Evaluation of Antimicrobial Prophylaxis Prescribing in Post-operative Neurosurgical Procedures

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Session: P-44. HAI: Surgical Site Infections

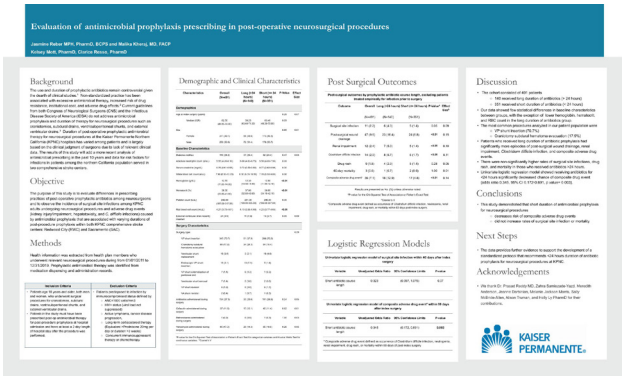
Background. Due to lack of relevant clinical data or guidelines, duration of post-operative prophylactic antimicrobial therapy for neurosurgical procedures at the Kaiser Permanente Northern California (KPNC) hospitals has varied among patients and is largely based on the clinical judgment of surgeons. Non-standardized perioperative microbial prophylaxis practice has been associated with excessive antimicrobial therapy, increased risk of drug resistance, institutional cost, and adverse drug effects. This study aims to evaluate differences in prescribing practices of post-operative prophylactic antibiotics among neurosurgeons and to observe the incidence of surgical site infections and adverse drug events caused by antimicrobial prophylaxis that are associated with varying durations of post-procedure prophylaxis.

Methods. A retrospective, observational study of health plan members of KPNC who underwent neurosurgical procedures from 01/01/2011 to 12/31/2019. Prophylactic antimicrobial therapy and duration was identified from medication dispensing and administration records. The study analyzed rates of surgical site infection, post-surgical wound drainage, 60-day mortality, and adverse drug events within 60 days of surgery.

Results. The cohort consisted of 491 patients. 140 received antibiotics for >24 hours and 351 received antibiotics for ≤24 hours. The most common procedures analyzed in our patient population were VP shunt insertion (70.7%) and craniotomy subdural hematoma evacuation (17.9%). There were more surgical site infections in those who received antibiotics >24 hours (4.3% vs 1.4%, p value= 0.05). Univariate logistic regression model showed receiving antibiotics for ≤ 24 hours significantly decreased chance of composite drug event (odds ratio 0.345, 95% CI 0.172-0.691, p value= 0.003).

Conclusion. This study demonstrated that antimicrobial prophylaxis for neurosurgical procedures ≤24 hours decreases risk of adverse drug events. The study provides further evidence to support the development of a standardized protocol that recommends short duration of antibiotic prophylaxis for neurosurgical procedures at KPNC.

Poster



Disclosures. **All Authors**: No reported disclosures