



Antimicrobial Stewardship Program

2025 Annual Report



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February 23, 2026

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Executive Summary

The Saskatchewan Health Authority (SHA) Antimicrobial Stewardship Program (ASP) continued to expand and refine its provincial stewardship efforts in 2025, with notable growth in education and awareness activities, interventional work in acute and long-term care (LTC), and contributions to provincial and national policy and planning on antimicrobial resistance (AMR). Across these domains, the SHA ASP focused on optimizing antimicrobial use, strengthening data-informed decision making, and aligning Saskatchewan's activities with the Pan-Canadian Action Plan on AMR (PCAP).

Key Achievements in 2025

- Maintained and expanded a broad education and awareness portfolio, averaging approximately one presentation or hosted education session every five working days, spanning high schools, LTC, general clinical education, and provincial/national webinars.
- Continued to grow digital and asynchronous learning, including 499 unique enrolments in the AMS General Education MyLearning module (a 5% increase over 2024) with nearly 86% of enrolled users completing the module in full, and further development of a new urinary tract infection (UTI) management module.
- Sustained and enhanced the SHA ASP website and Firstline app presence, with 3,368 total website views across four antimicrobial stewardship (AMS)-focused pages and an average of 1,721 Firstline users per month, including a 12% increase in guideline views (46,032 in 2025 vs. 41,115 in 2024) and a 46% increase in Case of the Month views (1,679 in 2025 vs. 1,152 in 2024).
- Delivered high-impact clinical interventions through ASP pharmacist consults and intensive care unit (ICU) rounds, including 270 documented antimicrobial reviews (1.1 per working day) with 85.3% overall acceptance of recommended interventions and the continuation of weekly AMS ICU Rounds in Regina and expansion of ICU stewardship support to Yorkton.
- Documented 310 “curbside” AMS consults in just over six months (approximately two per working day), with nearly three-quarters resulting in a change to patient management and most requests originating from pharmacists in Regina-area hospitals.
- Advanced targeted quality improvement and research projects, including procalcitonin (PCT)-guided interventions in ICU with demonstrated reductions in ICU antimicrobial use (AMU), UTI stewardship work in LTC that contributed to reductions in inappropriate urine cultures, an audit and feedback intervention with emergency department (ED) physicians to reduce unnecessary AMU for community-acquired pneumonia (CAP), and residency projects on surgical prophylaxis in patients with penicillin allergies and optimization of anti-methicillin resistant *Staphylococcus aureus* (MRSA) therapy in ICUs.
- Contributed to national and provincial AMR/AMS planning through input to the PCAP Year 1 Progress Report and completion of a Saskatchewan-specific PCAP gap analysis and summary report that is informing a draft provincial action plan.

Program Impact and Reach

Educational and awareness activities remained a central pillar of SHA ASP work, reaching diverse audiences from secondary school students to senior clinicians and health system leaders. Presentations addressed core AMS concepts, UTI and asymptomatic bacteriuria (ASB) management, ICU stewardship topics (including PCT and MRSA therapy de-escalation), penicillin allergy de-labelling, dental AMS tools, and CAP, among others.

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The Firstline app solidified its role as a key point-of-care resource, with 44 guidelines accessed 46,032 times, pharmacists and physicians accounting for roughly two-thirds of aggregate monthly users, and Saskatoon/Regina comprising about two-thirds of user locations. The ASP website provided complementary access to public-facing AMS content, educational and research materials, contact information for AMS experts, and clinician-focused tools and resources.

MyLearning modules continued to build foundational AMS capacity across the SHA, with high completion rates for the General Education module and development of a new UTI management module that will further support appropriate testing and treatment decisions. Additional outreach via the monthly Stewardship and Clinical Appropriateness “5 Minute Update,” provincial AMS network meetings, conference presentations, podcasts, and World AMR Awareness Week (WAAW) activities broadened awareness beyond traditional hospital-based audiences.

Clinical Interventions and Quality Improvement

The ASP pharmacists provided intensive, high-value clinical support through both formal and informal consultations. In 2025, they documented 270 antimicrobial reviews, most involving patients at Regina General and Pasqua Hospitals, with AMS ICU Rounds and new infectious diseases (ID) consults accounting for almost two-thirds of reviews. Vancomycin, piperacillin-tazobactam, ceftriaxone, and ceftazidime were among the most frequently reviewed agents, and bacteremia was the most common indication reviewed.

Acceptance of pharmacist-recommended interventions remained high, with 85.3% of all suggested changes adopted and higher acceptance for recommendations that increased AMU when clinically appropriate. The formal tracking of curbside consults starting in May 2025 highlighted a substantial volume of day-to-day AMS support (310 consults in six months), predominantly focusing on regimen optimization and frequently resulting in changes to patient management.

Student-led random inpatient antimicrobial audits provided additional surveillance data and identified ongoing opportunities to improve documentation and prescribing quality. In 2025, 44% of reviewed antimicrobial orders lacked an indication with the original order and at least 26% of antibiotics were deemed not indicated, 9% had incorrect dosing, and 22% had incorrect durations, reinforcing the importance of documentation and decision-support initiatives.

ICU-focused interventions, including a PCT protocol and AMS ICU Rounds, were associated with reductions in overall ICU antimicrobial use and targeted decreases for key broad-spectrum agents such as piperacillin-tazobactam and vancomycin. Additional QI projects, such as the Infection Prevention and Control (IPAC)-led UTI stewardship initiative at Wascana Rehabilitation Centre, demonstrated measurable improvements in clinical practice, including a 25.3% improvement in UTI-related knowledge, a 42% reduction in urine cultures collected without minimum criteria, and an 88% reduction in cultures collected for non-specific symptoms. Ongoing work with Regina-area ED physicians also improved patient care by reducing unnecessary AMU for outpatients with CAP in alignment with clinical practice guidelines.

Policy, Advisory, and System-Level Work

The SHA ASP continued to play an active role in advisory committees and policy development at local, provincial, and national levels. Within the SHA, the ASP contributed to the work of the Antimicrobial Advisory Subcommittee (AmAS) and Drugs and Therapeutics Committee (DTC), supporting the finalization of a provincial restricted antimicrobial list, development of new order sets and surgical prophylaxis guidance, and a provincial penicillin desensitization clinical procedure.

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The ASP also advanced a recommendation for a SHA-wide mandate requiring indications with antimicrobial prescriptions, recognizing this as a key lever for improving patient safety, data quality, and stewardship measurement, although this initiative remained unresolved at year-end. At the provincial and national level, ASP staff co-led or participated in initiatives such as the Saskatchewan PCAP gap analysis and action-plan development, the CANBuild-AMR audit-and-feedback project for community prescribers, the Western Canadian AMS Rounds, and AMR Aware Canada's national awareness and WAAW activities.

These activities strengthened Saskatchewan's alignment with PCAP pillars across research and innovation, surveillance, stewardship, IPAC, and leadership, and helped identify system-level enablers and gaps, particularly related to data access, information technology (IT) infrastructure, and governance, that must be addressed to sustain and scale AMS efforts.

Challenges and Future Directions

Despite substantial progress, several persistent challenges constrained the scale and speed of AMS work in 2025. Key issues included the absence of a formal SHA mandate for documenting antimicrobial indications, limited and delayed access to laboratory and administrative data for clinical decision making and evaluation, and continued difficulty re-establishing regular engagement with primary healthcare (PHC) clinics following the COVID-19 pandemic.

Organizational restructuring within the SHA led to changes in the reporting structure for the ASP, slowing some initiatives, including the spread of local AMS committees and finalization of the ASP Charter. Broader system-level barriers identified through the PCAP gap analysis, such as fragmented and outdated IT infrastructure, limited resources, and unclear ownership and accountability for AMR/AMS priorities, also affected the ASP's ability to spread and scale successful interventions.

Looking ahead, the SHA ASP will focus on consolidating gains made in ICU stewardship and LTC UTI management, advancing a provincial action plan on AMR, lobbying for strengthening provincial data systems and access, and re-engaging PHC and other under-served sectors. Addressing structural barriers, implementing an indication-documentation mandate, and securing sustainable resources will be critical to achieving further reductions in inappropriate AMU and ensuring Saskatchewan continues to contribute meaningfully to national and global efforts to combat AMR.

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Introduction

The growing threat of AMR poses dire consequences for human, animal, and environmental health. The Council of Canadian Academies has predicted that increasing AMR rates in Canada could lead to 140,000 preventable deaths and more than \$120 billion in lost gross domestic product by the year 2050¹. Active and effective ASPs are a critical component of the efforts required to combat AMR. In fact, the Public Health Agency of Canada (PHAC) has included “stewardship” as one of the five pillars in the PCAP². In Saskatchewan, the SHA ASP strives to meet the goals outlined in the PCAP to ensure we are doing our part to tackle this global problem.

Program activities are broadly separated into three categories: educational and awareness activities, interventional activities, and advisory committees and policy development. While they are thematically separated, there is often overlap between these categories for individual activities, depending on the intended outcomes. That is to say, an educational activity may be part of an interventional activity aimed at producing a behavior change among prescribers, and in fact, this is often the case.

If you have questions, comments, or concerns about any of the content of this report, please email antimicrobial.stewardship@saskhealthauthority.ca for more information.

Time Frame

This report covers AMS activities and interventions occurring between January 1, 2025 and December 31, 2025 for the SHA ASP.

SHA ASP Staff Complement

In 2025, the SHA ASP staff consisted of two 1.0 full-time equivalent (FTE) AMS pharmacists and one 0.6 FTE research scientist. The ASP was directly supported by a team of clinicians, analysts, and administrative staff within the Stewardship and Clinical Appropriateness Department. Further project-specific support was provided by individuals and groups both internal and external to the SHA.

The SHA ASP would like to thank all contributors, collaborators, partners, colleagues, students, residents, and other interest holders, both locally and nationally, who participated in and supported the work described herein. The achievements of this program to date would not have been possible without the assistance of this large group of individuals and allied organizations.

Educational and Awareness Activities

The general goals of these activities were to promote awareness of the threat of AMR and provide education on how AMS addresses this threat. Additionally, education for healthcare providers often focused on improving AMU for specific indications in line with best practice. Education and awareness activities were provided to healthcare providers, trainees/students, administrators, health system collaborators, and the general public. These activities contribute to creating the culture change required to address AMR as a global population.

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PRESENTATIONS

Educational Presentations: 54

In general, presentations were approximately one hour long and focused on a specific topic, tailored to the audience. More specific information on the presentations is expanded upon in the following six sub-categories described below.

High School Presentations: 13

These included in-person presentations at three different schools in Regina: Martin Collegiate, Campbell Collegiate, and Miller High School. The presentations were incorporated into Health Science 20 and Biology 30 courses and included a general introduction to the concepts of AMR and AMS along with a review of case studies highlighting decision making around antibiotic prescribing. One presentation was for a Science 10 class and focused on careers in AMS. The number of attendees varied by class, but most often were in the range of 20-30 students.

Long-Term Care Presentations: 7

These included virtual and in-person presentations to LTC leadership, staff, residents, and resident families at sites across the province. Topics focused on general AMS principles and appropriate testing and management of UTIs and ASB. In-person presentations occurred at five sites: Wascana Rehabilitation Centre in Regina, St. Mary's Villa in Humboldt, and Saskatoon Convalescent Home, St. Anne's Senior Citizen's Village, and Parkridge Centre in Saskatoon. Group size varied based on the audience from a handful of attendees to several dozen.

General Clinical Education Presentations: 27

These included local, provincial, and national presentations, either virtual or in-person, on a variety of topics to a variety of audiences. Topics included general AMS principles and awareness, appropriate testing and management of UTIs and ASB, penicillin allergy de-labelling, PCT use in ICUs, using the Firstline app, CAP management, dental tools for AMS, surgical prophylaxis, and basic microbiology. Audiences included the general public, primary care providers (physicians, pharmacists, nurse practitioners), internationally trained family physicians, medical residents, ICU clinicians, orthopedic surgeons, hospital pharmacists, ED physicians, IPAC staff, the Saskatchewan Ministry of Health, dentists and other oral health professionals, pharmacy students, and graduate students within the University of Saskatchewan Community Health and Epidemiology Program. Audience sizes ranged widely, depending on the presentation and forum, from a handful of attendees to hundreds. Ten presentations (10/25, 40%) were provincial in scope, eight (8/25, 32%) were delivered in Regina, another six (6/25, 24%) were delivered to other sites in Saskatchewan (Swift Current, Saskatoon, Humboldt, and Yorkton), and the remaining three (3/25, 12%) were national in scope.

In collaboration with [AMR Aware Canada](#), the AMS research scientist moderated a national webinar as part of the [CANAMS!](#) webinar series. The webinar featured a presentation by Katherine Neil, a pharmacist located in Lloydminster, who spoke about her experiences developing and running AMS initiatives in a rural setting and discussed the barriers and facilitators to that work.

Approximately 1 education session was presented or hosted every 5 working days.

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Education Rounds Webinars: 6

In general, these 45-minute, virtual webinars alternated each month between AMS-related and other topics. All webinars were recorded and posted to a [playlist](#) on the Stewardship and Clinical Appropriateness YouTube [channel](#). More than 212 attendees viewed the presentations live, an average of 35 attendees per webinar. In total, there were 139 asynchronous views of these videos on the YouTube channel by the end of 2025.

Speakers/topics included:

- SHA / Antimicrobial Stewardship in Lloydminster and Meadow Lake **(26 views; published January 2025)**
- BC Center for Disease Control / AMU in Infancy and Allergy Incidence **(6 views; published March 2025)**
- University Health Network ASP / Assessing Appropriateness of AMU **(21 views; published May 2025)**
- SHA / Impact of Small Stewardship Committees **(32 views; published July 2025)**
- University of Saskatchewan / Insights on AMR from Long-Read Metagenomic Analysis of Respiratory Samples **(23 views; published September 2025)**
- SHA / AMS Updates in Acute Care Regina **(31 views; published November 2025)**

Western Canada AMS Rounds: 1

AMS pharmacists in Alberta lead monthly, virtual meetings to provide other AMS pharmacists across Western Canada an opportunity to discuss clinical conundrums, interesting cases, newly published research papers, changes to guidelines, *etc.* Pharmacists volunteer to present a topic to the group and presentations are followed by open discussions. Meetings generally include approximately ten attendees from British Columbia, Alberta, Saskatchewan, and Manitoba.

In 2025, the SHA ASP pharmacists presented and discussed the work our program has undertaken regarding AMS in the ICU setting.

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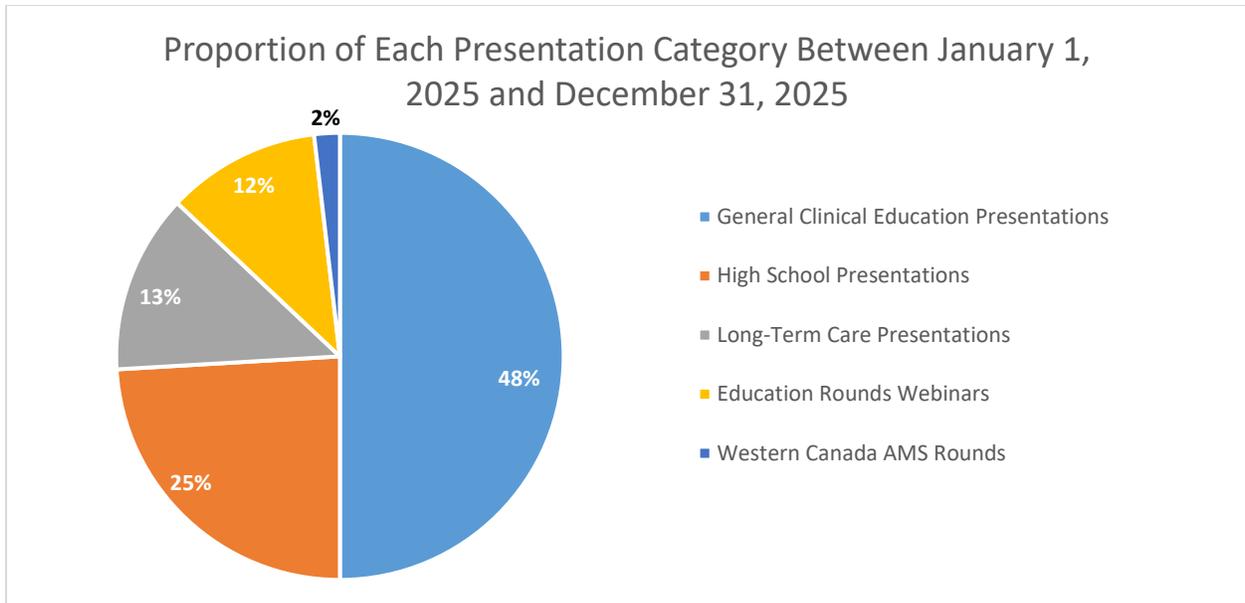


Figure 1 – Proportion of Each Presentation Category Between January 1, 2025 and December 31, 2025. The top three categories of presentations (47/54, 87% combined) were general clinical education, high schools, and LTC.

ADDITIONAL EDUCATIONAL ACTIVITIES AND CONTENT

New Clinician Orientation: 31 physicians

The ASP has a standing (pre-recorded) presentation that is provided for each cohort of the general clinical orientation for nursing staff and a standing virtual meeting to introduce newly hired, Regina-area physicians to the ASP as part of their orientation. In December 2024, the virtual meeting with newly hired physicians transitioned to an online survey format using the Research Electronic Database Capture (REDCap) tool. The “orientation survey” includes information and links to the Firstline app and the ASP website, as well as contact information for the ASP. In 2025, 31 new physicians were introduced to the ASP through this survey, representing family medicine, emergency medicine, critical care, pediatrics, urology, neurology, surgery, anaesthesiology, pathology, psychiatry, and obstetrics/gynecology.

Student and Resident Mentorship: 3 pharmacy students, 4 pharmacy residents

Throughout the year, the ASP hosted pharmacy students and residents as part of their training. Students and residents were engaged in clinical AMS work, data collection to inform AMS efforts, research projects, and creating educational content for the ASP, such as the Case of the Month for Firstline and various other educational posters and handouts. Students were with the ASP for four weeks and residents were on rotation for three to four weeks. Pharmacy resident research projects (outlined below) take place over one year. Student and resident contributions to the ASP are vital to achieving our goals.

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ASP Website: 3368 total views

The ASP [website](#) was continuously monitored and updated to ensure that content was current and accurate. The website consists of four linked webpages:

- a patient/public-facing page with general AMS information (**1108 views**)
- an education and research page that outlines and links to our educational and awareness efforts as well as a list of our journal publications (**311 views**)
- an about us page with contact information for Regina and Saskatoon-based AMS experts as well as all available annual reports (**711 views**)
- a provider-facing page with information on AMS-related tools and resources available to clinicians (**1238 views**)

Publications

There are a total of 13 AMS-related, peer-reviewed journal publications that included SHA ASP members as co-authors with 106 total citations as of January 6, 2026 (a 22% increase over the 87 citations from the 2024 Annual Report):

13 AMS-related, peer-reviewed journal publications have been cited a total of 106 times as of January 2026.

- Saravanabavan S, McKernan P, Cameron S, Kwan N, Kang KT, Roberts A, Carr R, Mak R, Elwood C, Paquette V, Stimpson R, Abrahams B, Chan ES, Slayter K, Rahier A, Sainchuk I, Olsen S, Kucey M, Shamseddine J, Babiker ZOE, Wong T. Developing and disseminating an electronic penicillin allergy de-labelling tool using the model for improvement framework. *Allergy Asthma and Clinical Immunology*. (2024) 20(1):73. Published 2024 Dec 23. doi: 10.1186/s13223-024-00942-3. **(citations as of January 6, 2026: 1)**
- Zhanell G, Silverman M, Malhotra J, Baxter M, Rahimi R, Irfan N, Girouard G, Dhama R, Kucey M, Stankus V, Schmidt K, Poulin S, Connors W, Tascini C, Walkty A, Karlowsky J. Real-life experience with IV dalbavancin in Canada; results from the CLEAR (Canadian LEadership on Antimicrobial Real-life usage) registry. *Journal of Global Antimicrobial Resistance*. (2024) 38:154-157. Published 2024 Jun 20. doi: 10.1016/j.jgar.2024.06.002. **(citations as of January 6, 2026: 7)**
- Yasinian M, Carr T, Vanstone J, Azizian A, Falastein P, and Groot G. Improving COVID-19 Vaccine Uptake in Saskatchewan, Canada: A Developmental Evaluation Approach. *The Open Public Health Journal* (2024) 17: E18749445288367. Published 2024 Mar 21. doi: 10.2174/0118749445288367240311101720 **(citations as of January 6, 2026: 0)**
- Lanigan A, Mailman JF, Kassir S, Schmidt K, Lee SB, and Sy E. Treatments and Outcomes of Critically Ill Patients with *Candida* spp. Colonization of the Lower Respiratory Tract in Regina, Saskatchewan. *Canadian Journal of Hospital Pharmacy* (2023) 76(4): 309-313. Published 2023 Sep 1. Doi: 10.4212/cjhp.3408 **(citations as of January 6, 2026: 0)**
- Vanstone JR, Azizian AR, Berry W, Carr T, Falastein P, Mise T-R, Patel S, Sarker KK, Yasinian M, and Groot G. Identifying Barriers and Enablers to Vaccine uptake from Immunizers and Individuals Receiving a COVID-19 Vaccine in Saskatchewan. *The Open Public Health Journal* (2022) 15: e187494452208012. Published 2022 Oct 31. doi: 10.2174/18749445-v15-e2208012 **(citations as of January 6, 2026: 2)**

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- Khaketla M, Carr T, Ndubuka N, Quinn BG, Reeder B, Sarker KK, Addae A, Ali A, Groot G, Sari N, Vanstone J, Hartness CJ, and Zayed R. Community and Public Health Responses to a COVID-19 Outbreak in North-west Saskatchewan: Challenges, Successes and Lessons Learned. *International Journal of Indigenous Health* (2022) 17(1): 73-86. Published 2022 Jul 5. <https://doi.org/10.32799/ijih.v17i1.36703> (citations as of January 6, 2026: 7)
- Vanstone JR, Patel S, Berry W, Degelman ML, Hanson C, Phillips C, and Parker R. Using audit and feedback to encourage primary healthcare prescribers to record indications for antimicrobial prescriptions: a quality improvement initiative. *BMJ Open Quality* (2022) (11):e001760. Published 2022 Mar 10. <http://dx.doi.org/10.1136/bmjoc-2021-001760> (citations as of January 6, 2026: 4)
- Azizian AR, Carr T, Muhajarine N, Verall T, Hartness C, Vanstone JR, Yasinian M, Skrapek C, Andreas B, Farthing G, and Groot G. Developing a patient-oriented realist evaluation for COVID-19 vaccine implementation in Saskatchewan: a methodologic framework. *Canadian Medical Association Journal* (2021) 9(4): E1034-E1039. Published 2021 Nov 23. <https://doi.org/10.9778/cmajo.2021004> (citations as of January 6, 2026: 3)
- Groot G, Baer S, Badea A, Dalidowicz M, Yasinian M, Ali A, Carr T, Reeder B, COVID-19 Evidence Support Team (CEST). Developing a rapid evidence response to COVID-19: The collaborative approach of Saskatchewan, Canada. *Learning Health Systems* (2021): e10280. Published 2021 Jun 22. <https://doi.org/10.1002/lrh2.10280> (citations as of January 6, 2026: 11)
- Wade-Cummings M, Mailman JF, Degelman, ML, Phillips C, Vanstone JR. Identification of Staphylococci by Polymerase Chain Reaction Directly from a Positive Blood Culture and Effect on Patient Care. *Canadian Journal of Hospital Pharmacy* (2021) 74(1):43-9. Published 2021 Jan 15. doi:10.4212/cjhp.v74i1.3039 (citations as of January 6, 2026: 3)
- Lee C, Jafari M, Brownbridge R, Phillips C, Vanstone JR. The viral prescription pad - a mixed methods study to determine the need for and utility of an educational tool for antimicrobial stewardship in primary health care. *BMC Family Practice* (2020) 21(1):42. Published 2020 Feb 22. doi:10.1186/s12875-020-01114-z (citations as of January 6, 2026: 29)
- Pflanzner S, Phillips C, Mailman J, Vanstone JR. AMS in the ICU: empiric therapy and adherence to guidelines for pneumonia. *BMJ Open Quality* (2019) 8(2):e000554. Published 2019 Apr 24. doi:10.1136/bmjoc-2018-000554 (citations as of January 6, 2026: 5)
- Lee C, Phillips C, Vanstone JR. Educational intervention to reduce treatment of asymptomatic bacteriuria in long-term care. *BMJ Open Quality* (2018) 7(4):e000483. Published 2018 Dec 1. doi:10.1136/bmjoc-2018-000483 (citations as of January 6, 2026: 34)

AMS Committee Development Toolkit

Building from work that was initiated in 2023 to support the development of local AMS committees at two LTC facilities in Saskatchewan, the SHA ASP began development of a toolkit intended to assist other facilities and sites across Saskatchewan to be ready to meet the Accreditation Canada Required Organizational Practices for AMS. The toolkit included:

- a document which guides interest holders to relevant literature and resources providing evidence-based information and approaches to developing a local AMS committee
- a template to develop a committee terms of reference document
- a template to compile and submit an annual report on local AMS committee activities

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- a program charter for the SHA ASP, intended to inform other sites of the support they may receive from the provincial Program

Except for the program charter, the toolkit was published on the ASP [website](#) in May 2025 and shared with interest holders across the province via that month's 5 Minute Update.

Firstline App

The Firstline app provides antibiograms, clinical guidelines, antimicrobial information, and educational opportunities for healthcare providers across Saskatchewan. Our SHA ASP team, in collaboration with the AMS physician and ID pharmacist in Saskatoon, maintain the content within the SHA instance to ensure the information is accurate and up to date. In 2025, four guidelines were revised and three new guidelines were created, all of which are outlined in the 'Change Log' in the app, at the bottom of the Guidelines section.

In 2025, there was an average of 1721 users each month, a 1.5% decrease from the average monthly users in 2024 (*i.e.*, 1747; monthly users are defined as unique individuals who have accessed the app in a given month). Figure 2 shows the 2025 data broken down by month and by the platform used to access the app. Aggregate monthly users are also broken down by clinical role and location in Figures 3 and 4.

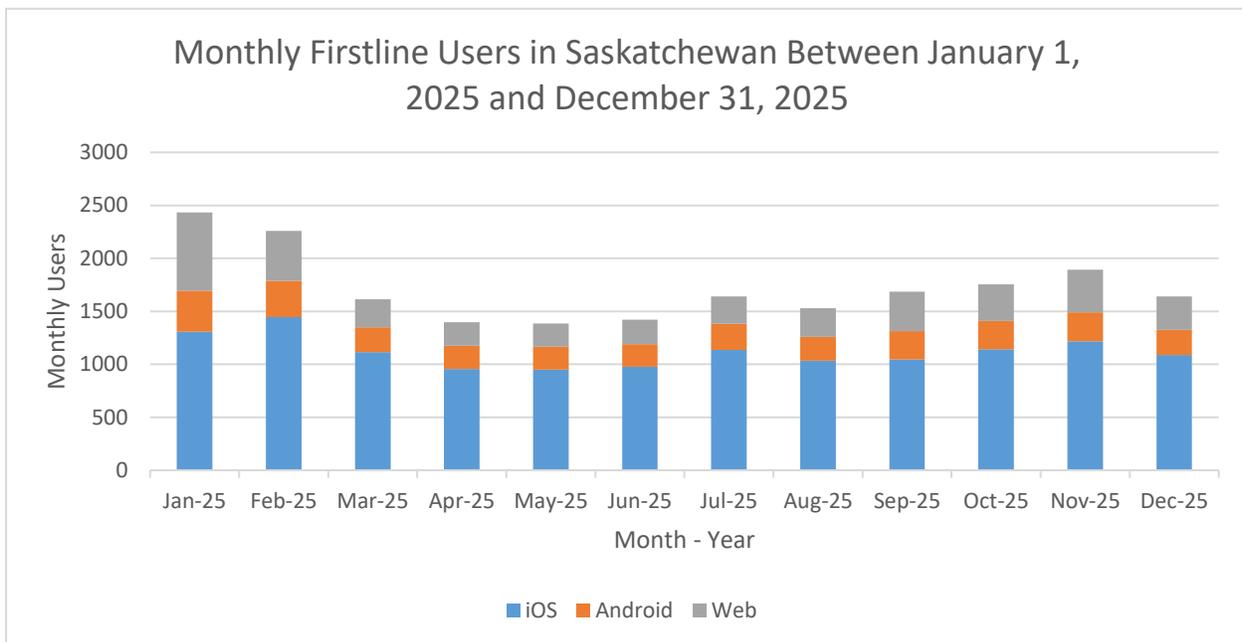


Figure 2 – Monthly Firstline Users in Saskatchewan Between January 1, 2025 and December 31, 2025. There was an average of 1721 Firstline users each month in 2025. The majority of users accessed Firstline through iOS devices.

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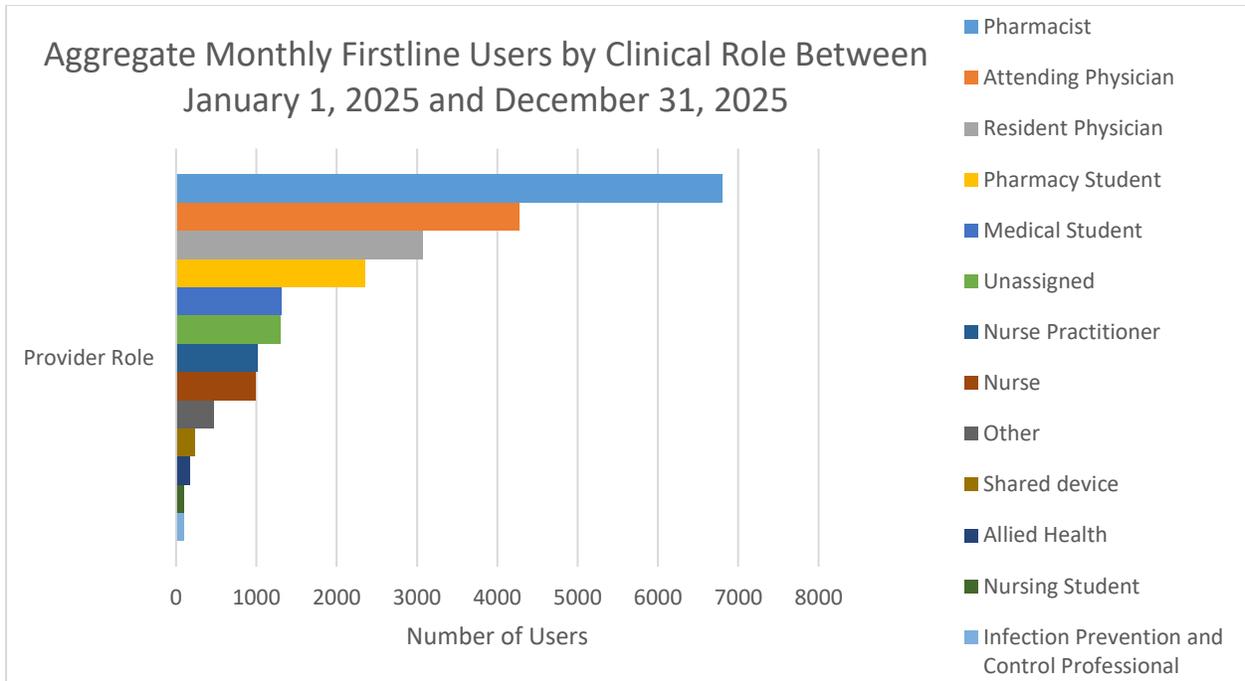


Figure 3 – Aggregate Monthly Firstline Users by Clinical Role between January 1, 2025 and December 31, 2025. Pharmacists, attending physicians, and resident physicians accounted for approximately 64% (14,132/22,146) of the aggregate monthly users.

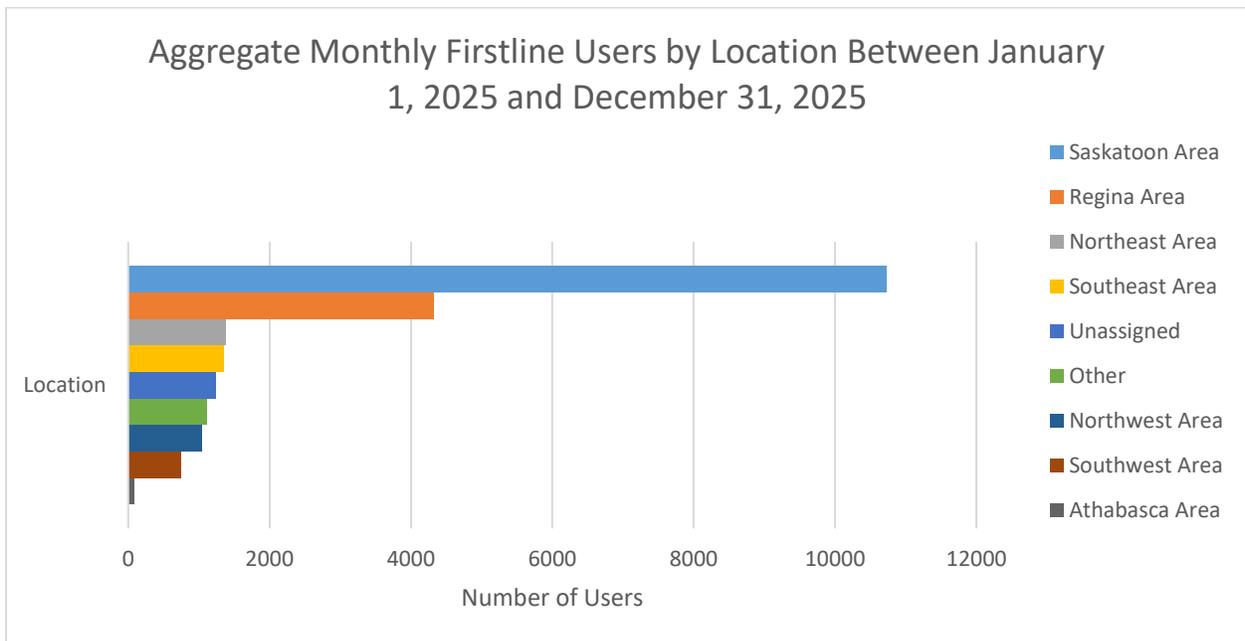


Figure 4 – Aggregate Monthly Firstline Users by Location Between January 1, 2025 and December 31, 2025. Saskatoon and Regina areas accounted for approximately 68% (15,053/22,005) of the aggregate monthly users.

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In total, 44 different guidelines were accessed a total of 46,032 times in 2025. This represents a 12% increase in the total number of times guidelines were accessed compared to 2024 (*i.e.*, 41,115 times accessed). The top ten most frequently viewed guidelines are shown in Figure 5.

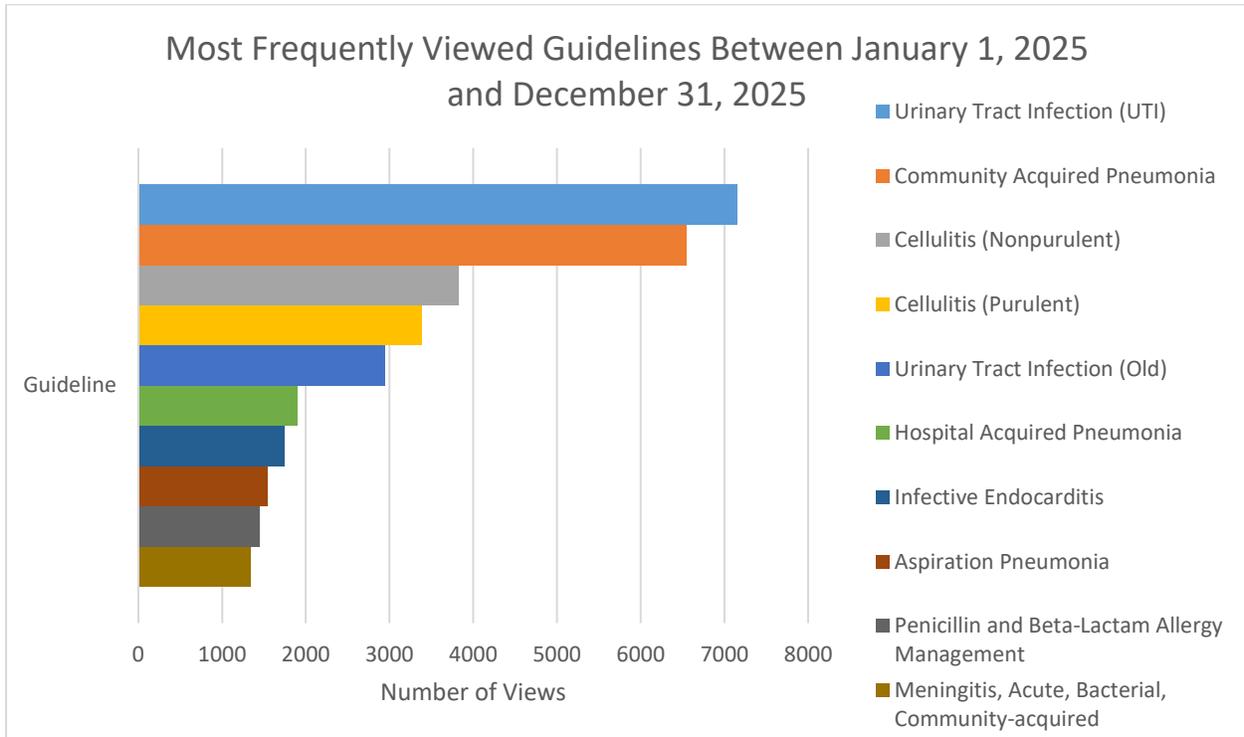


Figure 5 – Most Frequently Viewed Guidelines Between January 1, 2025 and December 31, 2025. The top ten most frequently viewed guidelines are shown in descending order of the number of views. These ten guidelines accounted for approximately 69% (31,794/46,032) of the total number of guideline views.

We published five “case of the month” case studies in collaboration with the ID pharmacist in Saskatoon. The purpose of these activities is to provide clinical practice pearls to providers on specific, antimicrobial-related topics. There were a combined 1679 views of the five cases of the month, a 46% increase from the 1152 views in 2024.

Provincial AMS Network Meetings: 5

These one hour, bi-monthly meetings provide an opportunity for interest holders and collaborators across organizations and the province to connect, share and discuss AMS-related activities going on in their local areas or organizations, and receive updates on activities from the SHA ASP. The invitee list includes the members of the SHA ASP and people involved in AMS-related work from across the province, representatives of the Saskatchewan Ministries of Health and Agriculture, patient partners, universities, and SHA IPAC, pharmacy, ID, laboratory, and administration.

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Conferences Attended: 5

Members of the SHA ASP attended and/or presented at five conferences in 2025. In September, we co-hosted a booth at the Saskatchewan Family Medicine Conference, presented on tools for AMS in dentistry at the Saskatchewan Dental Conference, and presented on UTI management in LTC at the IPAC Canada SASKPIC Chapter Fall Education Conference. In November, the ASP was part of an exhibitor booth at the Saskatchewan Nurse Practitioner's Conference, attending with the goal of promoting AMS awareness and



Photo: Dr. Jason Vanstone, Research Scientist with the SHA ASP, presents at the AMR Symposium with Harpa Isfeld-Keily of the National Collaborating Centre for Infectious Diseases in November 2025. Photo credit: AMR Symposium

providing AMS-related tools to conference attendees. The ASP also attended the AMR Symposium in Toronto in November to present in collaboration with [AMR Aware Canada](#) and promote engagement with this national awareness campaign during WAAW.

Podcasts

A podcast recorded in 2024 as part of an ongoing collaboration with the [Better LTC Consortium](#) was published in early 2025. The content included a conversation with the ASP research scientist and one of the ASP pharmacists about general AMS concepts and specific topics related to managing UTIs and ASB in LTC populations. The two-part podcast can be accessed on the Better LTC Consortium [website](#).

In addition to raising awareness about the national campaign at the AMR Symposium, there was an opportunity to participate in *The Canadian Breakpoint* podcast, hosted by Saskatoon-based pediatric infectious diseases physician, Dr. Rupeena Purewal. Dr. Jason Vanstone engaged in a conversation about AMS in Saskatchewan; the podcast is available on multiple platforms.

MedSask Guideline Review

As the role of community pharmacists continues to expand to allow for increased prescribing privileges, it is imperative that antimicrobial stewardship principles are incorporated into prescribing guidelines and treatment algorithms for ID. In 2025, the ASP pharmacists reviewed pharmacist prescribing guidelines created by medSask for Group A Strep Chemoprophylaxis.

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World AMR Awareness Week: November 18-24

The World Health Organization (WHO) promotes an annual, global awareness week focused on AMR. Members of the ASP are engaged with a national network ([AMR Aware Canada](#)) that meets in the months leading up to WAAW to share information about awareness initiatives being planned at sites across the country and to focus efforts on national WAAW activities. One of the major WAAW activities is the #GoBlue campaign that encourages local landmarks across Canada to light up in blue during WAAW. There are also social media campaigns, virtual backgrounds for video conferences, and people are encouraged to wear light blue during the week.



In Saskatchewan, both Regina and Saskatoon's City Halls and the Prairie Wind Monument in Saskatoon lit up in blue on November 24, 2025. We also had a number of groups providing informational booths at local hospitals and other activities to engage the public in learning about AMR. We would like to extend our gratitude to all AMS champions across the province who made efforts to engage in WAAW. See Appendix 1 for more information on the WAAW activities that occurred in 2025.

Stewardship and Clinical Appropriateness 5 Min Update: 11

The Stewardship and Clinical Appropriateness Department distributes a monthly newsletter via email and in the SHA Rounds to update readers on ASP (and Opioid Stewardship Program) activities, as well as to advertise the upcoming Education Rounds webinars. The email distribution list includes members of our ASP and people involved in AMS-related work from across the province, representatives of the Saskatchewan Ministries of Health and Agriculture, patient partners, universities, and SHA IPAC, pharmacy, ID, laboratory, and administration.

The ASP updates included the following topics:

- guiding antimicrobial stewardship in the frail elderly³
- a discussion of the potential impact of US policy changes on global AMS efforts
- the effect of microplastics on AMR⁴
- a novel antibiotic for gonorrhea treatment⁵
- promotion of the information bundle for how to develop local AMS committees
- promotion of antibiogram updates

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- a review of the Hydration Fair hosted at Wascana Rehabilitation Centre
- promotion of recent educational videos added to our [YouTube playlist](#)
- information about the closing of the National Antimicrobial Prescribing Survey in Canada
- a review of a WHO report about trends in global AMR prevalence⁶
- a review of WAAW activities

MyLearning Modules

In addition to the existing AMS General Education learning module, in 2025 we began developing a UTI Management learning module, as well. Work on this continues into 2026. The modules are available on the SHA’s MyLearning platform and can be accessed by searching for “antimicrobial stewardship”.

In 2025, there were 499 unique enrolments in the AMS General Education learning module (a 5% increase over the 473 unique enrolments in 2024).

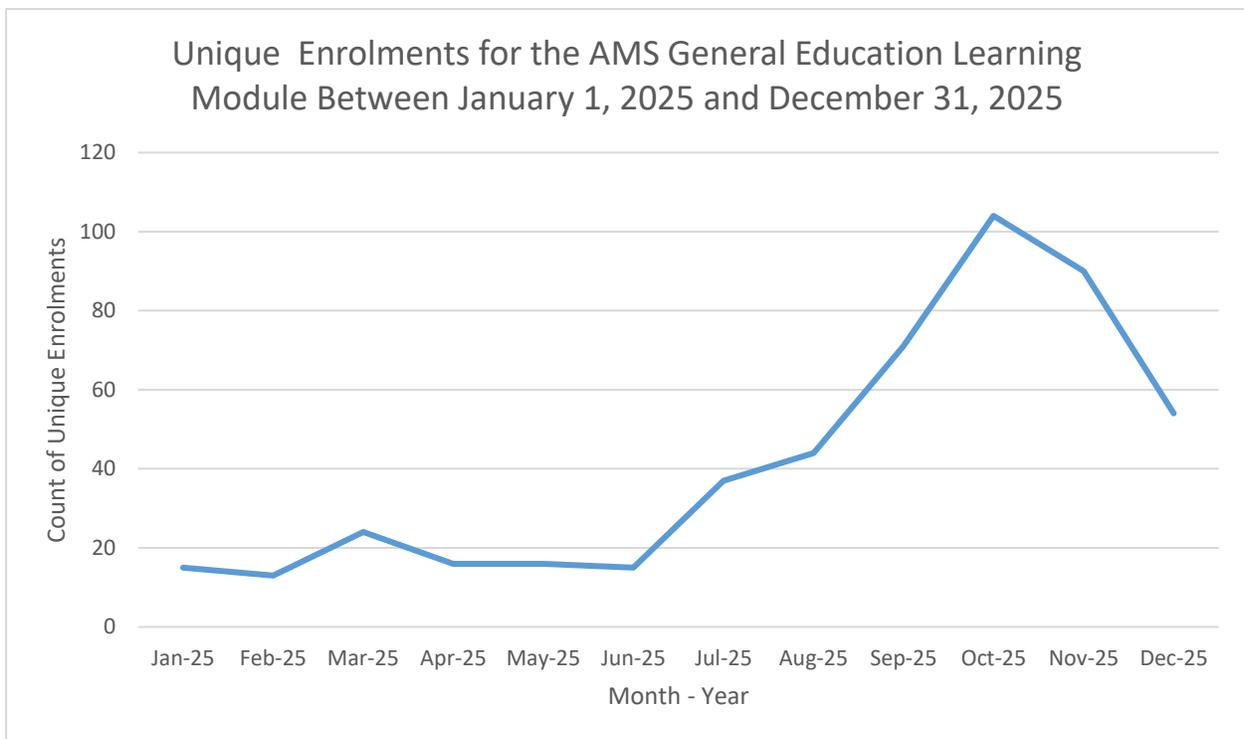


Figure 6 – Unique Enrolments for the AMS General Education Learning Module Between January 1, 2025 and December 31, 2025.

Almost 86% (431/499) of those enrolled in the AMS General Education learning module have completed 100% of the module and the average progress among all those enrolled is 89%. Table 1 provides a breakdown of progress for those enrolled in the module.

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Table 1. Distribution of Those Enrolled in the AMS General Education Learning Module Based on the Percentage of the Module Completed (January 1, 2025 to December 31, 2025).

% of Module Completed	Count (N = 499)	%
0%	31	6%
1% - 19%	10	2%
20% - 39%	15	3%
40% - 59%	9	2%
60% - 79%	0	0%
80% - 99%	3	1%
100%	431	86%

Interventional Activities

The general goals of these activities were to create the policy and/or behavioural changes required to address AMR as well as provide direct patient care. These activities may engage healthcare workers, administrators, AMS interest holders, and/or the general public to drive actions and/or policies which create more rational and appropriate AMU.

ASP pharmacists provided more than 2 consults (including both formal and informal) for each working day in 2025.

ASP Pharmacist Consults

The ASP pharmacists provide an adjunct ID and AMS consult service for Regina-area hospitals and acute care facilities across the province. The two pharmacists alternate clinical service weeks to maintain ongoing coverage. Consults and patient audits include reviewing antimicrobial treatment for patients on wards at Regina General and Pasqua Hospitals which do not have dedicated pharmacy services, interdisciplinary review of ID consults, reviewing patients with positive blood cultures, and consult services for clinicians throughout Saskatchewan. The ASP pharmacists conduct weekly AMS rounds with the ICU clinicians in Regina, reviewing current ICU patients and providing a specific stewardship focus for a service area with high AMU. In addition, in 2025, the ASP pharmacists began weekly AMS rounds with pharmacists supporting the ICU in Yorkton.

Antimicrobial review data described below were self-recorded by the ASP pharmacists in a REDCap tool and are likely an underestimation of the total number of interventions as they are not always reliably recorded due to competing priorities in daily work. Additionally, antimicrobial reviews that do not require intervention are not always recorded. Note that in May 2025, there was a change in the way certain consults were recorded (termed “curbside” consults for their informal nature) which affects the presentation of this year’s data and comparisons to previous year’s data.

The ASP pharmacists performed 270 documented antimicrobial reviews over the 251 working days in 2025. This accounts for 1.1 reviews per working day and includes more than 164 unique patients (plus 59 blank patient identifiers in the data set). The majority of patients that were reviewed were located at the Regina General and Pasqua Hospitals (92.6% combined). Patients outside of Regina represented 6.7% of

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the reviews, over half of which were in Yorkton. Table 2 shows the distribution of patient reviews by location.

Table 2. Distribution of Patient Location for Antimicrobial Reviews by ASP Pharmacists (January 1, 2025 to December 31, 2025).

Patient Location	Count (N=270)	%
RGH	192	71.1%
PH	58	21.5%
Patient Outside of Regina	18	6.7%
Outpatient	2	0.7%
Patient Location Outside Regina	Count (N=18)	%
Yorkton	10	55.6%
Other	8	44.4%

Antimicrobial reviews are broken down into seven categories, with almost two-thirds being accounted for between ICU rounds and new ID consult reviews. The distribution of the types of antimicrobial reviews is shown in Table 3.

Table 3. Distribution of ASP Pharmacist Antimicrobial Review Types (January 1, 2025 to December 31, 2025).

Type of Review	Count (N=270)	%
ICU Rounds	110	40.7%
New ID Consult Reviews	64	23.7%
Positive Blood Culture Audit (Non-SAB)	29	10.7%
Stewardship Consult	28	10.4%
Follow-up Review (ID Consult)	17	6.3%
SAB Audit	15	5.6%
Stewardship Audit	7	2.6%
Total	270	

The most common antibiotic reviewed was vancomycin, switching again from piperacillin/tazobactam in 2024. The most common indication for an antibiotic that was reviewed was for bacteremia, accounting for over one-third of all indications. The top ten antibiotics and indications reviewed are shown in Table 4.

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Table 4. Distribution of the Top Ten Antimicrobials and Indications Reviewed by ASP Pharmacists (January 1, 2025 to December 31, 2025).

Antibiotics Reviewed	Count (N=270)	%
Vancomycin	50	18.5%
Piperacillin/Tazobactam	46	17.0%
Ceftriaxone	42	15.6%
Cefazolin	24	8.9%
Ertapenem	11	4.1%
Meropenem	10	3.7%
No Antimicrobial	9	3.3%
Ciprofloxacin	7	2.6%
Linezolid	7	2.6%
Ampicillin	6	2.2%
Indication Reviewed	Count (N=270)	%
Bacteremia	91	33.7%
Other	14	5.2%
Pneumonia - Community Acquired (CAP)	12	4.4%
Infective Endocarditis	12	4.4%
Sepsis	10	3.7%
Pneumonia - Ventilator Associated (VAP)	10	3.7%
Pneumonia - Hospital Acquired (HAP)	8	3.0%
Abscess - Intra-abdominal	8	3.0%
Acute Exacerbation Chronic Obstructive Pulmonary Disease (AECOPD)	7	2.6%
Meningitis - NYD	6	2.2%

In total, 85.3% of all interventions suggested by the ASP pharmacists were accepted by consulting or attending clinicians. As expected, interventions that increased AMU (*e.g.*, increasing dose and/or duration, broadening spectrum of coverage, or adding antimicrobials) had a higher acceptance rate than interventions intended to reduce AMU (*e.g.*, decreasing dose and/or duration, IV/PO stepdown, narrowing spectrum of coverage, or stopping antimicrobials); 90.3% versus 85.0% respectively. Table 5 provides the distribution of acceptance rates for ASP pharmacist-suggested interventions for antimicrobial reviews.

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Table 5. Distribution of Acceptance Rates for ASP Pharmacist-Suggested Interventions for Antimicrobial Reviews (January 1, 2024 to December 31, 2024).

Intervention	Count	Accepted	% Accepted
Change in Antimicrobial - Other Optimization	15	15	100.0%
Dose Increase	7	7	100.0%
Change in Antimicrobial Due to Adverse Effect	5	5	100.0%
ID Consult Recommended	4	4	100.0%
Adding Antimicrobial	16	15	93.8%
Dose Decrease	11	10	90.9%
IV/PO Stepdown	20	18	90.0%
Antibiotic Unnecessary/Stopped	83	72	86.7%
Narrowing Antibiotic Spectrum	45	38	84.4%
Duration Increase	6	5	83.3%
Drug-Bug Mismatch*	5	4	80.0%
Monitoring Ordered	45	34	75.6%
Duration Decrease	28	21	75.0%
Total	312	269	86.2%

*It is unlikely that drug-bug mismatch interventions are not accepted; the data collection tool was not capturing follow-up for those patients in 2023 and 2024, however this was addressed in March 2025.

In addition to formal consults, the ASP pharmacists answer many questions received via WebEx messaging, phone calls, or text messages each week which were not previously captured in the REDCap tool. As of May 2025, the ASP pharmacists began documenting these curbside consults. In the last six months of 2025, 310 curbside consults were received, amounting to 2 consults per working day [154 working days from the start of data collection (May 22, 2025) to December 31, 2025]. The majority of consults were received from pharmacists and almost two-thirds of consults originated in hospitals in Regina. The full breakdown of requesting practitioners and locations are available in Table 6.

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Table 6. Distribution of Requesting Practitioner Types and Location of Request for Curbside Consults (May 22, 2025 to December 31, 2025).

Requesting Practitioner	Count (N=310)	%
Pharmacist	247	79.7%
ID Physician	49	15.8%
Other Physician	6	1.9%
Resident Physician	5	1.6%
Blank	3	1.0%
Location	Count (N=310)	%
Regina - Hospital	196	63.2%
Yorkton	46	14.8%
Other	24	7.7%
Regina - Community	22	7.1%
Lloydminster	6	1.9%
Regina - LTC	5	1.6%
Swift Current	5	1.6%
Moose Jaw	2	0.6%
Saskatoon - RUH	2	0.6%
Prince Albert	1	0.3%
Blank	1	0.3%

Almost two-thirds of curbside consults were related to regimen optimization and nearly three-quarters of consults ended with a change to patient management. Table 7 provides a full breakdown of the consult questions and changes to patient management.

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Table 7. Distribution of Consult Question Type and Patient Management Change for Curbside Consults (May 22, 2025 to December 31, 2025).

Consult Question	Count (N=310)	%
Regimen Optimization	194	62.6%
Dosing	39	12.6%
Other	31	10.0%
Safety/Monitoring	21	6.8%
Resistance	12	3.9%
Logistics/Coordination	9	2.9%
Blank	4	1.3%
Patient Management Change?	Count (N=310)	%
Yes	226	72.9%
Unsure	52	16.8%
No	18	5.8%
Not Applicable	12	3.9%
Blank	2	0.6%

Random Antimicrobial Audits by Pharmacy Students

One of the learning activities for pharmacy students who complete their rotations with the ASP is to conduct random audits of inpatients with active antimicrobial orders. Antimicrobial orders are retrieved from the inpatient pharmacy database at the beginning of the day and students review a random selection of active inpatient charts to assess a number of aspects of AMU. This activity serves as both a learning opportunity for students (who learn more about appropriate antimicrobial treatment) as well as a surveillance activity for the ASP (providing information about opportunities for AMU improvement within inpatient facilities).

Additionally in 2025, a specific audit was initiated to review positive urine cultures on one unit of a hospital in Regina. The purpose of this was to better understand prescribing habits related to UTIs and ASB in the acute care setting. However, as only six audits were completed, data will not be shown until the 2026 report is compiled.

Of the three students who worked with the ASP between January 1, 2025 and December 31, 2025, only one was able to conduct audits (n=23) on antimicrobial orders at Regina General Hospital (in September and October, 2025).

The most common antimicrobial reviewed was cefazolin and UTIs were the most common indication. Table 8 shows the distribution of the top ten antimicrobials and indications for pharmacy student random antimicrobial audits.

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Table 8. Distribution of the Top Ten Antimicrobials and Indications Randomly Reviewed by Pharmacy Students (January 1, 2025 to December 31, 2025).

Antimicrobial Reviewed	Count (N=23)	%
Cefazolin	5	21.7%
Ciprofloxacin	3	13.0%
Sulfamethoxazole/Trimethoprim (Septra)	3	13.0%
Ceftriaxone	2	8.7%
Cefuroxime	2	8.7%
Vancomycin	2	8.7%
Amoxicillin/Clavulanic Acid	1	4.3%
Linezolid	1	4.3%
Metronidazole	1	4.3%
Nystatin	1	4.3%
Indication Reviewed	Count (N=23)	%
Urinary Tract Infection (UTI) - Other	7	30.4%
Surgical Prophylaxis	4	17.4%
Pneumonia - Community Acquired (CAP)	3	13.0%
Blank	3	13.0%
Bacteremia	1	4.3%
Candidiasis - Oral/Esophageal	1	4.3%
Diabetic Foot Infection	1	4.3%
Line/Hardware Infection	1	4.3%
Pneumonia - Not Specified	1	4.3%
Urinary Tract Infection (UTI) - Cystitis (Lower)	1	4.3%

One intervention the ASP continually promotes is regarding the benefits of including an indication with antimicrobial orders to ensure all clinicians have a clear understanding of why the antimicrobial was ordered. Random student audits in 2025 determined that nearly 44% (10/23) of the antimicrobial orders they reviewed did not have an indication documented with the original order. They did find that approximately 35% (8/23) of antimicrobial orders had an indication documented somewhere in the patient’s chart (albeit not with the original order), or they were able to deduce the indication from information elsewhere in the patient’s chart. However, at least 8% (2/23) of antimicrobial orders (a further 13 of the 23 reviews had blanks in the data set for this metric) had no indication documented, nor was the student able to deduce the reason for the antimicrobial order. This indicates that improving documentation of indications with antimicrobial orders is still a work in progress within inpatient facilities in Regina.

In addition to reviewing the indications for antimicrobial orders, the pharmacy student random antimicrobial audits also assessed the appropriateness of AMU based on the indication, dose, duration, and whether the patient was eligible for IV to PO stepdown. From the 2025 data, 26% of antibiotic orders were not indicated for the patient, 9% of orders had an incorrect dose, 22% of orders had an incorrect duration of treatment, and 4% of orders were eligible for IV to PO stepdown. Each of these represents an

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opportunity for continued improvement in AMU within acute care facilities. Table 9 provides more details for each of these categories of appropriateness of AMU.

Table 9. Measures of Appropriateness of Antimicrobial Use of Antimicrobials Randomly Reviewed by Pharmacy Students (January 1, 2025 to December 31, 2025).

Was the Antibiotic Indicated?	Count (N=23)	%
Yes	12	52.2%
No	6	26.1%
Unknown	4	17.4%
Blank	1	4.3%
Was the Dose Correct?	Count (N=23)	%
Yes	18	78.3%
Blank	3	13.0%
No	2	8.7%
Was the Duration Correct?	Count (N=23)	%
Yes	14	60.9%
No	5	21.7%
Blank	3	13.0%
Not Indicated	1	4.3%
Eligible for IV/PO Stepdown?	Count (N=23)	%
Blank	14	60.9%
No	8	34.8%
Yes	1	4.3%

CANBuild-AMR

In February 2023, the SHA ASP was invited to participate in a Canadian Institutes of Health Research-funded study, entitled CANBuild-AMR, on which Dr. Jason Vanstone was a co-principal applicant. The project is led by a team based in Ontario and expands on a previous research study that used audit and feedback to reduce unnecessary antibiotic prescriptions among high prescribers of antibiotics in PHC in that province⁷. The goal of the current research project is to expand this work nationally.

In Saskatchewan, a partnership was established between the ASP and collaborators in the Saskatchewan Ministry of Health to provide audit and feedback on antibiotic prescribing practice for all family physicians in Saskatchewan. This will be done through a letter mailed to physicians indicating their antibiotic prescribing rates and how they compare to colleagues across the province. A final letter will be mailed 12 months later and changes in prescribing habits due to the audit and feedback will be analyzed.

In 2025, the ASP continued to work toward the finalization of the data sharing agreement between the SHA and the Saskatchewan Ministry of Health as well as onboarding partners to help promote the project when it begins.

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ICU Collaborative Work

Continued collaboration and meetings with the Critical Care Pharmacy Specialist contributed to the successful initiation of a third pharmacy resident research project (discussed below) which began in July 2025.

In October 2023, the ASP team, in collaboration with the critical care pharmacy specialist, chemistry and microbiology laboratory colleagues, and intensivists, launched a PCT protocol within the Regina ICUs to guide antibiotic discontinuation and help reduce AMU. We continued to monitor metrics in 2025 and hosted two education sessions (provided by ThermoFisher Scientific) to provide specific information on PCT use and clinical interpretation.

The AMS ICU Rounds, which began in July 2024, continued weekly throughout 2025. There were 110 antimicrobial reviews for ICU rounds (Table 3 above) which included 44 unique patients.

In August 2025, we reviewed AMU data for Regina ICUs to determine the effect of PCT use and AMS ICU Rounds on AMU since the introduction of these two interventions. The following two figures highlight the impact that focused AMS interventions have had on improving AMU. When considering each ICU separately and comparing AMU before and after the initiation of AMS ICU Rounds, Figure 7 shows that each unit experienced a decrease in the median AMU (days of therapy/1000 patient days) and/or a reduction in variability among total monthly AMU.

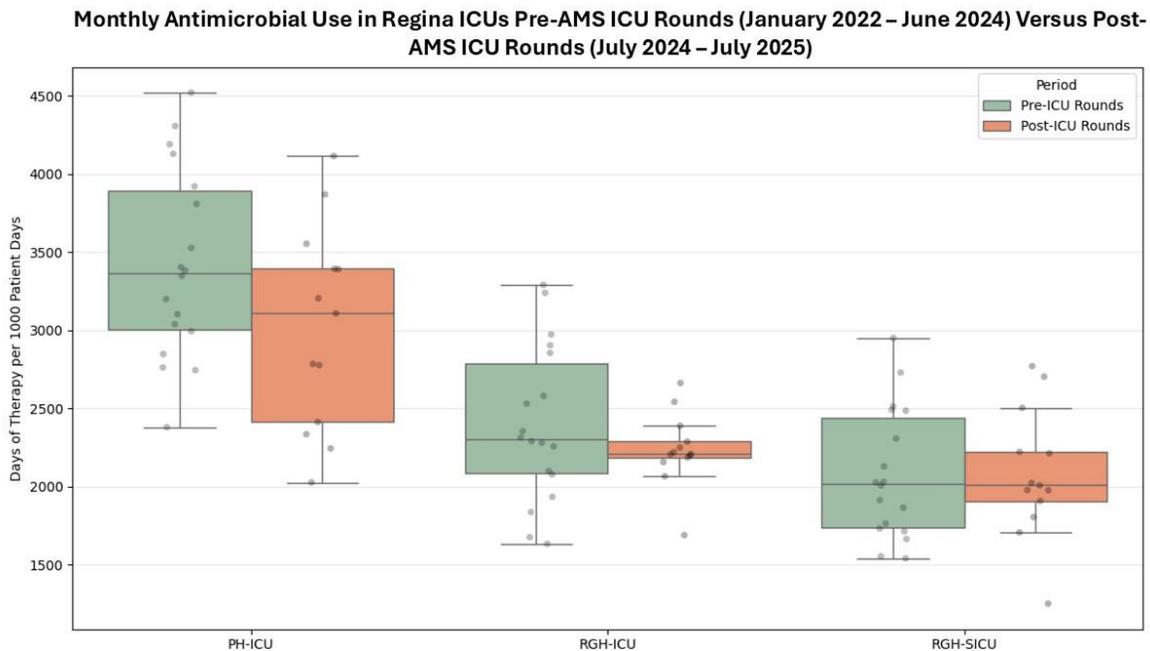


Figure 7 – Monthly AMU in Each Regina ICU Pre- Versus Post-AMS ICU Rounds Initiation. The box plots highlight the reduction in median AMU (days of therapy/1000 patient days) and/or reduced variation in AMU for each ICU in Regina hospitals when comparing between pre-AMS ICU Rounds (green) and post-AMS ICU Rounds (orange). PH – Pasqua Hospital; RGH – Regina General Hospital; SICU – Surgical ICU

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When considering specific antibiotics targeted during AMS ICU Rounds, Figure 8 shows the reduction in AMU (days of therapy/1000 patient days) as ASP interventions were introduced, particularly for piperacillin-tazobactam and vancomycin.

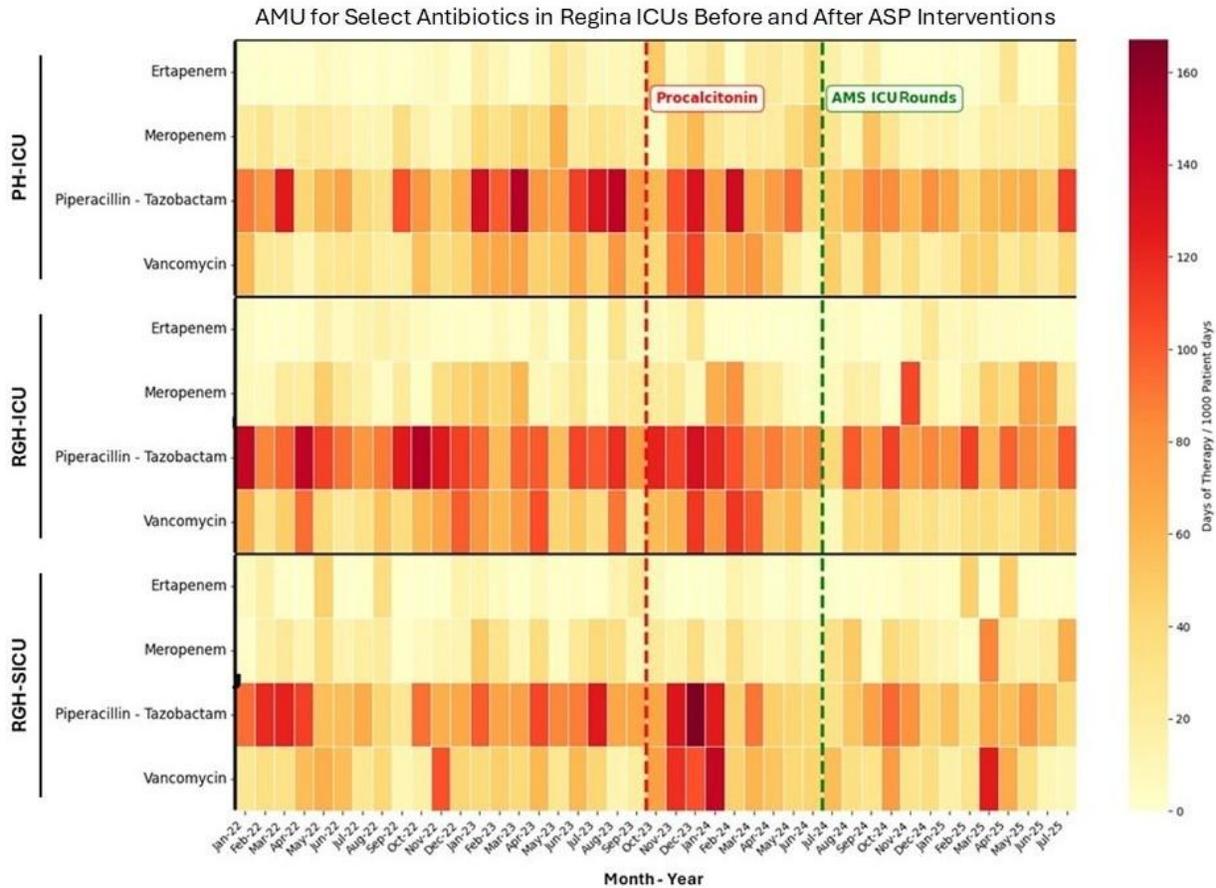


Figure 8 – Heatmap of AMU for Select Antibiotics in Regina ICUs Before and After ASP Interventions. The heatmap identifies reductions in monthly AMU (days of therapy/1000 patient days) for specifically targeted antibiotics (e.g., piperacillin-tazobactam and vancomycin) following the introduction of ASP interventions, including the use of PCT testing beginning in October 2023 (red dashed line) and AMS ICU Rounds beginning in July 2024 (green dashed line). PH – Pasqua Hospital; RGH – Regina General Hospital; SICU – Surgical ICU

In February 2025, the ASP/ICU collaborative team initiated a quality improvement project to determine if there were opportunities to further improve the AMS ICU Rounds structure and/or function. Throughout the spring of 2025, ICU physicians and pharmacists participated in semi-structured interviews to gather information about their experience during AMS ICU Rounds. Interviews were conducted by analysts from the Stewardship and Clinical Appropriateness Department and results were compiled in August 2025. Results are not shared herein as the team has not yet been able to review the data with ICU clinicians (as of December 2025). More information will be provided in the 2026 Annual Report.

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Pharmacy Resident Research Project – Improving Antibiotic Prophylaxis Prescribing Among Orthopedic Surgeons for Patients with a β -Lactam Allergy (Ashley Hermanus, PharmD)

In May 2023, the ASP submitted a research project proposal for the Regina-area pharmacy residents for their 2023-24 residency year. The research project was based on the finding that approximately 20% of patients labelled with a penicillin allergy, who were receiving an elective hip or knee arthroplasty in Regina, were receiving sub-optimal prophylactic antibiotic therapy. The goal of the research project was to raise awareness among orthopedic surgeons regarding the preferred antibiotic therapy for these patients (*i.e.*, cefazolin) and, using audit and feedback, to provide ongoing information and motivation to promote a change in prescribing practice.

An education session was held in November 2023 to provide the background information for the project and outline the expected change in prescribing practices, as well as to gather further information on other perceived barriers to the practice change. From this information, an informational poster was created and distributed to nursing and pharmacy staff and anesthesiologists to ensure the same practice change information was shared with all members of surgical teams. Three audit and feedback sessions with orthopedic surgeons were held over the remainder of the 15-month intervention period: one in February 2024, one in November 2024, and a final session in April 2025. The research project resulted in a statistically significant 11% relative reduction in non-preferred antibiotics being ordered by surgeons for patients labelled with a penicillin allergy. This represents a drop from an average of 20% of patients receiving non-preferred antibiotics to only 9% by the end of the project. A manuscript was submitted for publication in early 2026.

Pharmacy Resident Research Project – Optimizing the De-escalation of Empiric Anti-MRSA Antibiotics in ICU Patients with Pneumonia (Keren-Happauch Emekeme, PharmD)

In May 2024, the ASP, in collaboration with the Critical Care Pharmacy Specialist, submitted a research project proposal for the Regina-area pharmacy residents for their 2024-25 residency year. The research project was based on the high negative predictive value of MRSA nasal swabs for ruling out MRSA pneumonia. As an example of anti-MRSA therapy, previously submitted Canadian Nosocomial Infection Surveillance Program (CNISP) data highlighted that Regina ICUs had nearly double the amount of vancomycin use compared to other sites across the country. Implementing the use of MRSA swabs for patients with pneumonia in Regina ICUs would allow clinicians to reduce the length of anti-MRSA therapy when patients are identified as MRSA-negative.

The fall of 2024 included project development and Research Ethics Board approval. The resident presented an educational session at the ICU grand rounds in December 2024 to introduce the background and reasoning for the proposed practice change and distributed a questionnaire to clinicians to assess facilitators and barriers to practice change. Due to issues with finalization of SHA operational approval, adjustments had to be made to the project that limited the audit and feedback portion of the intervention. Initial data included a three-month post-intervention period (December 2024 to February 2025), which showed increases in the number of MRSA swabs ordered (from 0.42 per patient pre-intervention [June 2023 to November 2024] to 0.58 per patient post-intervention). However, this initial data set only included ten patients in the post-intervention period. The post-intervention data set was expanded and analysed by a student researcher, Kriya Patel, in the fall of 2025. This extended the post-intervention period to July 31, 2025, included 16 additional patients, and increased the number of MRSA swab orders

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per patient to 0.66. However, the average duration of anti-MRSA antibiotic therapy, which decreased from 71.8 hours in the pre-intervention period to 52.9 hours in the original post-intervention period, increased to 61.0 hours with the additional patients included. Further data collection will be required for meaningful comparison of post-intervention results.

Pharmacy Resident Research Project – Closing the Gap in VAP: Understanding AMU for VAP in ICUs (Taylor Scherer, PharmD)

In May 2025, the ASP, in collaboration with the Critical Care Pharmacy Specialist, submitted a research project proposal for the Regina-area pharmacy residents for their 2025-26 residency year. The research project was based on the perceived high number of ICU patients being inappropriately diagnosed and treated for ventilator-associated pneumonia (VAP), as assessed by the ASP pharmacists during AMS ICU Rounds. The goal of the project was to complete a chart review of ICU patients with VAP to better understand diagnostic and clinical management practice. We also aimed to include semi-structured interviews with clinicians to allow for their interpretation of the chart review results and further discuss facilitators and barriers to practice change.

Work during the fall of 2025 included project development and Research Ethics Board approval. The resident initiated the chart review in January 2026. Further information on project outcomes will be provided in the 2026 Annual Report.

Penicillin Allergy De-labelling

In 2022, the ASP launched a penicillin allergy de-labelling tool on the Firstline app. This tool was adopted from a group in British Columbia who created it as a way to help alleviate pressure on allergists to perform penicillin allergy testing on low-risk patients. The tool is safe to use in all healthcare settings and has even been used by our pharmacy students to de-label patients while in hospital.

Data are collected in REDCap for penicillin allergy assessments performed on inpatients by the ASP pharmacists, pharmacy students, or ID physicians in Regina. There were 12 assessments completed in 2025, with all but two occurring at the Regina General Hospital. The REDCap tool does not account for penicillin allergy assessments that may have occurred outside of Regina, Saskatoon, and Lloydminster (added in 2025) or in other healthcare settings (e.g., PHC, LTC). Pharmacy students completed the majority of the assessments (58.3%, 7/12), with the same number of patients being deemed to be at very low risk for a true penicillin allergy. Five patients (71.4%, 5/7) had their penicillin allergy de-labelled based on their history alone and two (28.6%, 2/7) were de-labelled following an amoxicillin test dose challenge. The data are outlined in Table 10 below.

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Table 10. Penicillin Allergy Assessments and De-labelling Outcomes (January 1, 2025 to December 31, 2025).

Assessor	Count (N=12)	%
Pharmacy Student	7	58.3%
ASP Pharmacist	4	33.3%
ID/ASP Physician	1	8.3%
Assessment	Count (N=12)	%
Very low risk for penicillin allergy	7	58.3%
Possible allergy*	4	33.3%
Other (patient was receiving penicillin during current hospital stay)	1	8.3%
Outcomes for Patients with “Very Low Risk for Penicillin Allergy”	Count (N=7)	%
Patient De-labelled Based on History Alone	5	71.4%
Patient Tolerated Amoxicillin Test Dose Challenge and was De-labelled	2	28.6%

*All patients identified as having a possible allergy were not de-labelled in hospital, as per the algorithm.

Viral Prescriptions

In 2025, six adult and six pediatric viral prescription pads were printed and provided for PHC clinics in La Ronge. In addition to those specifically requested, viral prescription pads were also distributed to attendees at the provincial family medicine and nurse practitioner conferences in 2025.

Canadian Nosocomial Infection Surveillance Program Data Submission

The ASP submits annual AMU data (since 2018) for both Regina General and Pasqua Hospitals to CNISP as part of their national surveillance system. The data are analyzed by CNISP year-over-year and are available to submitting sites for comparison against other hospitals. These data are helpful for informing, developing, and driving stewardship interventions on relevant units in Regina hospitals. Preliminary surveillance data are unable to be shared outside of the submitting institutions, as per PHAC’s request.

Reducing Duration of Therapy for Community-Acquired Pneumonia in the Emergency Department

Beginning in December 2023, members of the ASP, in collaboration with our colleagues in the Stewardship and Clinical Appropriateness Department and Dr. Jessica Fisher, a University of Saskatchewan medical student (at the time), met with Regina-area ED physicians to review self-reported AMU data collected via the electronic medical record (EMR). These data included the indication, duration, and specific antimicrobial prescribed for both inpatients and outpatients in the ED. The data showed that for ED outpatients with CAP, physicians were more commonly prescribing seven-day (or longer) courses of antibiotic therapy instead of the guideline-recommended five-day course. A brief education session was provided at the initial meeting in December 2023, including a review of the evidence and rationale for providing shorter courses of therapy. Follow-up audit and feedback sessions were held in October 2024 and 2025. The data presented at the October 2025 meeting indicated that practice had changed and ED physicians were now more frequently providing five-day antibiotic courses for CAP to ED outpatients than seven-day courses (Figure 9). This reduction in AMU promotes better, guideline-concordant care for individual patients and reduces pressure on developing AMR in the community. Work will continue in

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2026 to validate the results of this audit and feedback initiative and to continue to provide support to the ED physicians to sustain their improvement efforts.

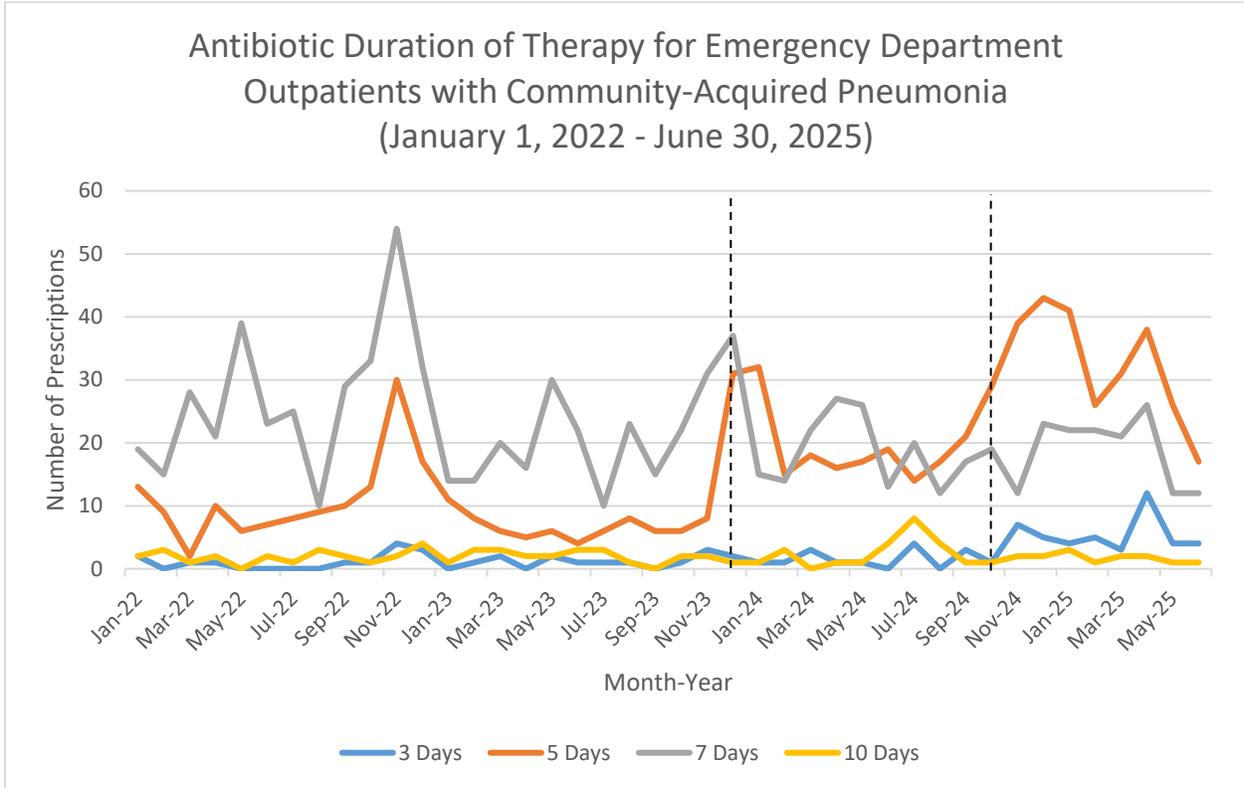


Figure 9. Antibiotic Duration of Therapy for Regina-Area ED Outpatients with CAP. Physician-reported data collected from the EMR from January 2022 through June 2025 show that the number of seven-day antibiotic prescriptions (grey line) for outpatients with CAP has decreased, following education and audit and feedback sessions in December 2023 and October 2024 (vertical, black, dashed lines). The guideline-recommended five-day duration of therapy (orange line) has increased, also in association with the audit and feedback sessions.

Reducing Unnecessary Urine Cultures in LTC

In December 2024, the Regina IPAC team brought together the SHA ASP, the local AMS Committee, and other interest holders at Wascana Rehabilitation Centre to initiate a focused improvement effort around appropriate urine culture ordering practice and downstream management of ASB. Over a series of meetings in early 2025, we worked with this group to develop an implementation science-based approach to behaviour change, beginning with one unit at the facility. The project included one month of focused education sessions on the unit (three times a week), two of which were provided by SHA ASP staff in May 2025. IPAC staff continued with monthly education sessions for another six months to reinforce the education. This project led to a 25.3% improvement in knowledge about UTI management among staff and a 42% decrease in the number of urine cultures collected without meeting the minimum criteria for a UTI. There was also an 88% decrease in urine cultures collected for non-specific symptoms (e.g., cloudy or foul-smelling urine) during the study period.

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In addition to the focused education on a single unit, another series of meetings in the summer culminated in a “hydration fair” in July. This event promoted the importance of hydration and its connection to reducing UTIs and unnecessary antibiotic treatment and was open to all staff, residents, and their families from across the entire facility. More information about the event can be found in this [SHA News story](#).

Spring 2025 also included the final data collection for the PHAC-led study⁸ that began in 2024 in collaboration with the Wascana Rehabilitation Centre Antimicrobial Stewardship Committee. While study results are not yet published at the time of this report, PHAC has provided webinars and conference presentations to share preliminary results. See, for example, the recording from the [Big Difference BC 2025 Conference](#) (*Using Behavioural Science to Improve Antibiotic Stewardship in Canadian Long-Term Care Homes*). Highlights include that, while there is enthusiasm for change among LTC staff and other care providers, culture/practice change takes time and participation from whole teams is necessary. These are tenants the SHA ASP adheres to in our approach to this work with LTC facilities across the province.

The SHA ASP has provided presentations to many LTC facilities across the province in recent years focusing on appropriate UTI management and avoiding unnecessary antibiotic treatment for ASB. A return visit for an educational presentation to St. Ann’s Home, an 80-bed facility in Saskatoon, in March 2025 provided anecdotal evidence of a facility-wide practice change regarding urine culture orders. Clinicians and facility leadership indicated that, since the previous presentation by the ASP in November 2023, they had made efforts to improve the appropriateness of their use of urine cultures throughout 2024. To verify this, laboratory data were requested in 2025 (Figure 10). Though we have been unable to acquire resident day denominator data for the whole time period to account for potential changes in resident population, the raw laboratory data do appear to show a drop in the number of urine cultures ordered at the facility throughout 2024, when compared to 2023. This indicates the effect that education can have and the impact that local facilities can make when they are empowered to engage in quality improvement projects to provide better patient care and promote health system sustainability.

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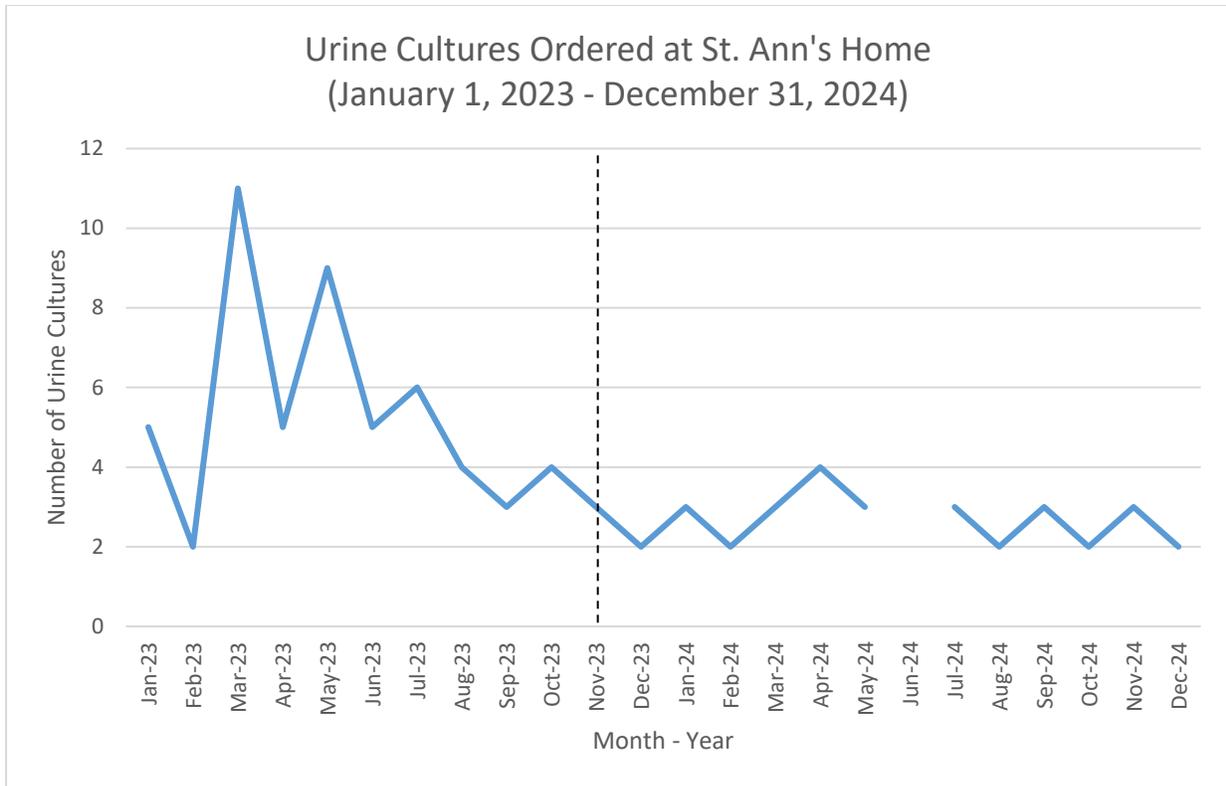


Figure 10. Urine Cultures Ordered at St. Ann’s Home Between January 1, 2023 and December 31, 2024. The raw number of urine culture orders show a sustained decrease following an educational session from the ASP in November 2023 (vertical, black, dashed line). June 2024 data are missing.

IV to PO Antibiotic Transitions in Acute Care

The Pharmacy Department’s Living Well Committee initiated a quality improvement project to review IV to PO transition practice in Regina-area hospitals and invited the SHA ASP to collaborate on this work. The Committee determined there was an opportunity to increase the number of IV antibiotics being transitioned to PO formulations, specifically on surgical units, and performed a survey of pharmacists to identify barriers and facilitators to the practice. The group created a pharmacist to prescriber communication form to promote the practice change and to focus, initially, on connecting with surgeons. In the fall of 2025, ASP pharmacists and members of the Pharmacy Department provided education for Regina-area surgeons on the rationale for this practice change and presented the communication form to receive feedback on the utility of this tool for driving practice change. As of the end of 2025, the form is awaiting final approval for use in practice. More information will be provided in the 2026 Annual Report. This project will not only improve care for individual patients by switching them to less invasive PO formulations, but it also promotes better planetary health, as PO antibiotics have a reduced environmental impact compared to IV formulations and their associated supplies.

Antibiograms

The Regina-area antibiogram is updated annually and added to Firstline as well as being posted on the SHA Library [website](#). The ASP collaborates with the Regina General Hospital Microbiology Department to produce and finalize the antibiogram each year. Laboratory data are collected for the previous calendar

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year and collated to produce the updated antibiogram. When available, and if staff time permits, the antibiogram may be disaggregated into specific patient populations to provide further clinical relevance.

Except for the Saskatoon and Prince Albert areas, antibiogram production for other areas of the province is supported by the SHA ASP pharmacists and Regina General Hospital Microbiology staff when possible. The ASP team also provides communication to let clinicians know when antibiograms are updated.

In 2025, the SHA ASP worked with laboratory staff across the province to standardize the electronic data pulls to expedite and coordinate antibiogram production provincially. The new process for antibiogram production will be tested in 2026.

Advisory Committees and Policy Development

These activities include engagement with various committees, representing local, provincial, and national interests, to help promote AMS efforts, advocate for appropriate AMS resources, and advise on policy development and implementation.

AMR Aware Canada

This group and its associated working groups generally meet monthly to discuss the status of the national AMR [awareness campaign](#) (meetings beginning each summer) and specific initiatives, like the “CAN AMS!” [webinar series](#) (meetings ongoing). Outputs include national coordination of events and information for WAAW each year and the planning and hosting of approximately 4-5 nationally advertised webinars each year. Members represent diverse organizations with an interest in AMR awareness, including healthcare organizations, biotechnology companies, academic researchers, government agencies, and other special interest groups.

Regina ASP Advisory Council

The council meets quarterly to discuss activities and issues related to the ASP, including research and quality improvement projects, antibiograms and resistance trends, antimicrobial susceptibility testing, and educational opportunities.

Pan-Canadian Action Plan on AMR

To ensure that the health system in Saskatchewan is actively working toward addressing the goals outlined in the PCAP, the ASP, in partnership with colleagues at the Ministry of Health, distributed a survey to interest holders across the province to update a previous environmental scan and gap analysis of ongoing AMS efforts. The survey was sent out via email in July 2025 and the information from respondents was consolidated into a Summary Report in October 2025 (see Appendix 2). From this Summary Report, a draft, Saskatchewan-specific action plan has been created and was under review at the end of 2025. Updates will be provided in the 2026 Annual Report.

Antimicrobial Advisory Subcommittee

Meetings of the SHA Drugs and Therapeutics Committee, Antimicrobial Advisory Subcommittee (AmAS) occur bi-monthly.

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In 2025, the topic of including indications with antibiotic prescriptions within the SHA acute care system was brought forward to the AmAS, but this initiative was not resolved before the end of the year. The provincial antimicrobial restriction guidance document, initiated in 2024, was finalized in 2025. The ASP pharmacists collaborated with the Regina Pharmacy Department to deliver a session to Regina-area pharmacists on how to implement the new restriction guidance. Other formulary alignment work was continually undertaken by the committee throughout the year, including development of several new order sets. Work also began on a provincial surgical prophylaxis guidance document which will be finalized and distributed to interest holders for feedback in 2026. Finally, a provincial penicillin desensitization clinical procedure was created and the documents were submitted to the relevant SHA departments and committees for final approval.

Opportunities for Growth

Gaps and barriers that arose or remain in 2025, in addition to those identified by colleagues across the province and outlined in the gap analysis summary report (Appendix 2), are described below.

An ongoing opportunity for enhancing AMS work across the SHA would be to address the lack of an official SHA mandate on including indications with antimicrobial prescriptions. This would provide a directive for all prescribers to ensure that they are including this vital information with their antimicrobial orders, which promotes patient safety and better information for data users. Similar mandates have already been adopted by health systems around the world. This initiative was brought forward through the AmAS in 2025, but hadn't yet been resolved by the end of the year.

Limited resourcing for our colleagues in the SHA's Digital Health and Laboratory portfolios has created ongoing challenges to timely access to laboratory data that are used to drive policy, research, and quality improvement projects in AMS. This has meant that policy decisions have been made, for example with respect to antimicrobial restrictions, without basing these decisions on a full and complete data set. Data access barriers have also created stress for researchers and students involved in AMS-related research and quality improvement projects and has led to workarounds being created within the system to access data or modify projects to work within the limitations of accessible data.

Another ongoing challenge has been the lack of engagement among PHC clinics. This began with the onset of the COVID-19 pandemic, which limited our ability to visit clinicians in person. However, as the pandemic has waned, we have not been able to re-establish regular in-person visits with PHC clinics in Regina and the surrounding area. This has limited the effectiveness of our PHC interventions.

Finally, 2025 included a reorganization within the SHA, which meant a change in the reporting structure for the SHA ASP. As with any organizational restructuring, initiatives can become slowed as time is required to bring new leadership up to speed. Changes within the organization have affected our ability to develop new AMS committees at sites across the province and to finalize the ASP Charter.

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Abbreviations

ASB – asymptomatic bacteriuria
ASP – antimicrobial stewardship program
AmAS – Antimicrobial Advisory Subcommittee
AMS – antimicrobial stewardship
AMR – antimicrobial resistance
AMU – antimicrobial use
CAP – community-acquired pneumonia
CNISP – Canadian Nosocomial Infection Surveillance Program
ED – emergency department
EMR – electronic medical record
FTE – full-time equivalent
ICU – intensive care unit
ID – infectious diseases
IPAC – infection prevention and control
IV – intravenous
LTC – long-term care
MRSA – Methicillin-resistant *Staphylococcus aureus*
PCAP – Pan-Canadian Action Plan on AMR
PCT – procalcitonin
PHAC – Public Health Agency of Canada
PHC – primary healthcare
PO – *per os* (by mouth)
REDCap – Research Electronic Database Capture
SHA – Saskatchewan Health Authority
SICU – surgical intensive care unit
UTI – urinary tract infection
VAP – ventilator-associated pneumonia
WAAW – World AMR Awareness Week
WHO – World Health Organization

Appendices

Appendix 1 – WAAW Review from the Stewardship and Clinical Appropriateness 5 Minute Update – Issue 73 (November 2025); 2 pages

November 2025

ISSUE #73

Stewardship and Clinical Appropriateness
5 Minute Update



Antimicrobial Stewardship Program

Phone: 306-766-3520 | E-mail: antimicrobial.stewardship@saskhealthauthority.ca [WAAW 2025](#)

WAAW 2025

The 2025 World Antimicrobial Resistance Awareness Week (WAAW) has come to an end and it is time once again to celebrate the activities that took place over the last week at sites across Saskatchewan.

For those who are not already familiar with it, WAAW is a global awareness campaign, led by the [WHO](#), with the goal of raising awareness of the threat posed by antimicrobial resistance (AMR). This year's theme was Act Now: Protect Our Present, Secure Our Future.

We had tremendous support from antimicrobial stewards across Saskatchewan who set up booths, shared information, and showed up in blue to help spread the word here at home.



First, a big thank you to the SHA Library staff who shared a presentation about the [Firstline app](#), a great tool available

for free to clinicians, ensuring they have their local antibiogram at hand and access to treatment guidelines for common infections.

Staff at Dr. F. H. Wigmore Regional Hospital in Moose Jaw embarked on a social media blitz, with clinical nurse educators sharing Facebook posts prompting readers to wear blue and share the posters created by the WHO and [AMR Aware Canada](#) on their own social media. The local pharmacy team set up an information booth and Nutrition and Food Ser-

vices even joined the effort, creating a weeklong special menu featuring blue-themed foods like blueberry desserts and chicken cordon bleu.



-Tara, in blue, with blue Jello, by the cafeteria's special blue menu poster.

In Lloydminster, staff sold shirts to raise awareness and also ran an information booth with blue Jello available to staff and the public. The cafeteria served blueberry crumble to patrons, inpatients, and Meals on Wheels clients along with an information sheet. The education efforts even went mobile with visits to high schools in both Lloydminster and Maidstone.

"T'was a good time." - Kat

In Regina, the IPAC staff at Wascana Rehabilitation Centre hung posters in the main concourse and around the cafeteria, both somewhat stymied by Christmas decorations and non-stick walls, and settled on advertising in their office and a staff breakroom.

At the Regina General Hospital, the Antimicrobial Stewardship Program hosted our annual booth with AMR-themed cookies available to passers-by. A huge thank you to Falguni and Kriya who managed the booth and

ensured that nobody got a cookie without first answering a skill-testing question about AMR.



-Falguni and Kriya's booth at RGH.

A collaborative of USask and SHA stewards in Saskatoon hosted their own booth with cookies to entice visitors to stop by for information.



-Andrea, Iris, and Danielle at their booth in Saskatoon.

This was also complimented by a hugely successful student trivia night hosted by the [Choosing Wisely STARS](#) and [CAPSI](#) students. Great work getting the learners engaged!

Stewardship and Clinical Appropriateness 5 Minute Update



Antimicrobial Stewardship Program

Phone: 306-766-3520 | E-mail: antimicrobial.stewardship@saskhealthauthority.ca

[WEBSITE](#)



-Veronica and Kavya at the trivia event.

Personally, I was excited for the opportunity to co-present with Harpa Isfeld-Kiely (NCCID) at the [AMR Symposium](#) in Toronto. We spoke to attendees about the AMR Aware Canada campaign and encouraged stewards across the country to sign up and help spread the word.

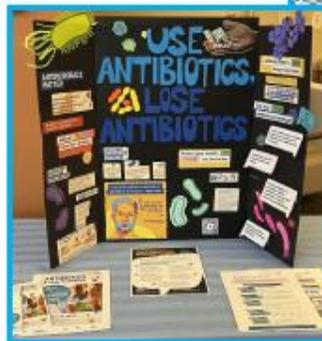


-Harpa and Jason at the AMR Symposium in Toronto.

Lastly, we can't forget the #GoBlue campaign. There were more than [30 landmarks across Canada](#) that lit up in blue this year, including both Regina and Saskatoon's City Halls and the Prairie Wind Monument in Saskatoon.

I am so grateful to everyone across the province who participated in WAAW activities this year. Thank you for sharing your pictures and stories and keep spreading the word all year!

-Jason Vanstone, PhD



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Appendix 2 – PCAP Summary Report for Saskatchewan’s Current Initiatives and Gap Analysis; 10 pages

Pan-Canadian Action Plan on Antimicrobial Resistance: Summary Report for Saskatchewan’s Current Initiatives and Gap Analysis

Prepared by:

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October 1st, 2025

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Introduction

The growing threat that antimicrobial resistance (AMR) poses globally to human, animal, and environmental health necessitated the development of national action plans to address this issue. In Canada, the [Pan-Canadian Action Plan on AMR](#) (PCAP) was published in 2023 to guide efforts under five pillars: research and innovation, surveillance, antimicrobial stewardship (AMS), infection prevention and control (IPAC), and leadership. Within each pillar, two priority actions are provided to help steer national efforts toward common desired outcomes.

Pillar 1: Research and Innovation

Desired Outcome 1: Improved, sustainable access to antimicrobial diagnostics, and alternatives to antimicrobials to better mitigate AMR.

Action: Develop and implement economic and/or regulatory incentives to support innovation and facilitate sustainable access to new and existing antimicrobials, diagnostics, and alternatives to antimicrobials.

Desired Outcome 2: Expand scientific knowledge base and tools to inform effective AMR/AMU interventions.

Action: Develop a One Health, national research strategy for combating AMR across all action plan pillars.

Pillar 2: Surveillance

Desired Outcome 1: Canada has a robust, integrated One Health AMR/antimicrobial use (AMU) surveillance infrastructure with data that are accessible, reliable, timely, nationally representative and capable of detecting emerging threats.

Action: Expand sources, coverage and integration of AMR and AMU surveillance data, including the use of modern laboratory technologies and standardized reporting, to help monitor AMR/AMU across One Health Sectors, with specific focus on improving data from the environment, transmission pathways between sectors, and population groups disproportionately impacted by AMR and inappropriate AMU.

Desired Outcome 2: Canada has a comprehensive understanding of AMR and AMU trends at national, regional and local levels to support evidence-based decision-making and to monitor the impacts of interventions.

Action: Work with partners to establish baselines and targets for national, provincial, and territorial levels of AMR and appropriate AMU in human health. Work with partners to establish baselines, goals, and measures of progress for increasing appropriate AMU and reducing AMR in the agriculture and agri-food sectors.

Pillar 3: Stewardship

Desired Outcome 1: Prescribers and other professionals in Canada have the resources, training, and tools to facilitate appropriate AMU in humans and animals.

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Action: Develop, implement and promote guidelines/standards for appropriate AMU in humans and animals through policy and regulatory initiatives, monitoring and educational interventions/accreditation requirements for health professionals and prescribers.

Desired Outcome 2: Canadians understand the importance of the appropriate use of antimicrobials.

Action: Foster understanding of the risks of AMR and the importance of appropriate use of antimicrobials in humans and animals amongst the public, patients and producers through awareness/education campaigns, feedback mechanisms and policy and regulatory initiatives.

Pillar 4: IPAC

Desired Outcome 1: Canada has infection prevention programs in place across community and institutional health sectors, including for populations disproportionately impacted by AMR.

Action: Increase effective implementation of infection prevention measures, particularly for populations disproportionately impacted by AMR such as remote, northern and isolated communities, First Nations, Inuit and Metis populations, long-term care residents, and hospitalized patients by developing, updating and promoting uptake of guidelines/best practices for human health.

Desired Outcome 2: Improved animal health and food safety along the farm-to-fork continuum to prevent and limit the spread of infection and foodborne pathogens.

Action: Support the increased implementation of enhanced IPC, biosecurity, and food safety protocols across the agriculture and agri-food sectors, prioritizing sound animal husbandry, access to veterinary care, and access to additional health and nutritional aids to promote animal health.

Pillar 5: Leadership

Desired Outcome 1: The Pan-Canadian Action Plan is implemented through coordinated, multi-sectoral domestic action.

Action: Build on existing One Health AMR governance structures to create a 'network of networks' with inclusive representation to support action plan implementation and share progress and lessons learned within and across the 5 pillars of action, prioritizing strengthened FPT, First Nations, Inuit, and Metis collaboration to co-develop AMR actions.

Desired Outcome 2: Canada's contributions and partnerships strengthen joint global action to mitigate the threat of AMR.

Action: Increase Canada's contributions to global efforts to advance key bilateral and multilateral commitments by prioritizing: 1) generating improved data/evidence on AMR/AMU and strengthening surveillance systems and data standards, and 2) expanding efforts to support low- and middle-income countries by advancing equitable access, stewardship and IPC initiatives.

The Saskatchewan Health Authority (SHA) Provincial Antimicrobial Stewardship Program (ASP) and the Saskatchewan Ministry of Health are working together to ensure that Saskatchewan is contributing to achieving the outcomes of the PCAP. In July 2025, a gap analysis was completed to better understand

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PCAP-related initiatives already underway and areas where we could improve our efforts to achieve the PCAP outcomes. Respondents included AMR-experts and interest holders throughout the province and across the One Health spectrum. This includes clinicians (pharmacists, physicians, nurses), representing both acute and long-term care (LTC), microbiologists, IPAC practitioners, researchers, and representatives from the Saskatchewan Ministries of Health and Agriculture. This report summarizes the current work and gaps that were identified in the analysis and will help to produce the Saskatchewan Action Plan on AMR.

Summary Report

There are many ongoing initiatives in Saskatchewan that address aspects of each PCAP pillar and their associated outcomes. In general, there are a mixture of province-wide activities and those that are focused more locally. For example, surveillance activities include AMU data submission to national programs for individual hospitals in Regina and Saskatoon, but also province-wide data collection for UTI surveillance in LTC facilities. More detailed information can be found in Appendix 1 – Current Activities Summary.

While each pillar of the PCAP is represented in the current initiatives identified by respondents, there are also key gaps shared across the initiatives. Addressing these gaps may help to improve, spread, and/or scale up current initiatives. More detailed information about the barriers identified for each individual PCAP pillar can be found in Appendix 2 – Gap Summary.

Key Gaps

Limited Resources

Limitations due to lack of resources (e.g., time, funding, accessible data, human resources, etc.) create barriers to being able to improve, spread, and scale up current initiatives across the province.

Siloed and Outdated Information Technology Infrastructure

Disparate and outdated data systems, a significant proportion of hard copy data (e.g., paper charts), and outdated privacy legislation all create barriers to efficient data access. This limits the effective use of data for improving initiatives and/or spreading and scaling them beyond local interventions.

Lack of Ownership and Accountability

There is a lack of prioritization and coordination of PCAP-related initiatives within and among the relevant organizations in Saskatchewan. This limits the ability to set and achieve target outcomes and creates barriers to improving initiatives and spreading and scaling them to create a larger impact.

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Appendices

Appendix 1 – Current Activities Summary

Pillar 1: Research and Innovation

- Currently developing a One Health-focused action plan and oversight group for Saskatchewan to address PCAP-related needs locally.
- Availability of Group A Streptococcus point of care test at select pharmacies across Saskatchewan.
- Current availability of vaccinations, like pneumovax, are a great way to prevent bacterial infections and reduce unnecessary antibiotic use.
- Changing blood culture to be continuous (used to batch) for more rapid turnaround and MALDI for blood cultures in Saskatoon.
- Rapid blood culture molecular testing (Biofire BCID2 panel) in Melfort, Swift Current.
- Regular review of new antimicrobials approved for use in Canada by the provincial Drugs and Therapeutics Antimicrobial Advisory Subcommittee; the Subcommittee assesses new antimicrobials for addition to SHA Drug Formulary (e.g., meropenem/vaborbactam).
- Special Access Program provides access to antimicrobials not approved in Canada.
- There are a few affiliate LTC Homes in Saskatoon Urban that are using Point-of-Care testing for Influenza A and B / COVID-19 surveillance.
- Two new SHA provincial microbiology requisitions (Microbiology Requisition and Serology and Viral Loads Requisition) released provincially in May 2025 were intended to streamline and improve the efficiency of microbiology testing and reporting services. These updated forms were designed to enhance data accuracy and ensure compliance with the latest provincial guidelines for microbiology testing.

Pillar 2: Surveillance

- Annual submission of Regina data (RGH and PH) to Canadian Nosocomial Infection Surveillance Program (CNISP), highlighting AMU in Regina acute care centres.
- Annual submission of Saskatoon AMU data for adults and antibiogram data (adults and pediatrics) to CNISP.
- Antifungal resistance surveillance (CPHLN- *Aspergillus/Candida*).
- Small amount of NAPS surveillance in integrated rural health.
- At a local level, at the beginning of each month, LTC Homes are encouraged to submit their completed UTI surveillance forms to IPAC. In turn, Healthcare-Associated Infection (HAI) Surveillance Reports are generated monthly on the IPAC - Intranet website.
- Saskatchewan Ministry of Agriculture does not currently lead or co-lead work in this area, but recognizes that progress is being made through industry-led programs (CVMA's SAVI program, Chicken

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Farmers of Canada's Responsible AMU Strategy, Dairy Farmers of Canada proAction initiative) and federal initiatives such as Health Canada's VASR (Veterinary Antimicrobial Sales Reporting) also contribute important surveillance data.

- In Saskatoon, antibiograms are created for a variety of patient populations, resulting in 14 antibiograms in total (inpatient, outpatient, critical care, adult, pediatric, long-term care, urine, non-urine, blood, resp). Data are available provincially via Firstline. Provincial ASP is working with laboratory colleagues to produce more timely and relevant antibiograms across the province, but this is still developing currently and requires manual data analysis.
- SHA laboratory data are submitted to CNPHI's AMRNet program.
- Updated antimicrobial reporting cascades.
- Wastewater AMR gene detection.
- Contribute to national *M. genitalium* resistance surveillance (NML).
- Contribute to national *N. gonorrhoea* resistance surveillance (NML).

Pillar 3: Stewardship

- Antimicrobial Stewardship Programs/Committees/champions active in Saskatoon (RUH, Parkridge), Regina (RGH/PH, WRC), Yorkton, Lloydminster, Moose Jaw.
- 100% coverage policy for Hep. C drugs and HIV facilitates appropriate-use possibly decreasing barriers to use and promoting adherence.
- A provincial restricted antimicrobial list has been approved by the SHA Drugs and Therapeutics Committee. A surgical prophylaxis guideline has been developed by the Antimicrobial Advisory Subcommittee of the Drugs and Therapeutics Committee.
- A recommendation was put forward for the SHA to adopt mandatory indication documentation with antimicrobial orders in all SHA facilities/systems.
- AMR Awareness Week (Annually).
- AMS educational opportunities, conferences, webinars, etc. (e.g., Choosing Wisely Canada's National Meeting, CNISP Pilot Opportunity – 12 month symptomatic UTI surveillance pilot, SASKPIC – Annual Infection Prevention and Control Education Day, Western Canadian One Health AMS Conference, SHA ASP Education Rounds, learning modules, academic half days, presentations for public, healthcare workers, and trainees, etc.).
- Antibiograms are updated annually but not for all areas of the province. This is usually a collaborative effort among local lab staff and various other AMS champions (e.g., pharmacy, IPAC, etc.). We are trying to streamline and standardize the process to allow for updates earlier in the year and across all sites. The AMRNet surveillance database is supposed to be able to automatically update antibiogram information, but this has yet to be realized.
- Development of local and provincial pre-printed order sets (e.g. antimicrobial lock therapy, desensitization protocols).

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- IPCs within Saskatoon reevaluated Saskatoon's process for residents that have acquired Multi-Drug Resistant Organisms (MDRO). As a result, IPAC made changes to align with provincial practices, alerts on Sunrise Clinical Manager (SCM) and the Laboratory Information System (LIS) removed for residents who are deemed to have MDRO. How did this change affect the LTC Homes? Residents no longer need to be placed on contact precautions when / if transferred to hospital. If a resident is deemed as someone with an Extensively Drug Resistant Organism (XDRO), an email will be sent from IPAC indicating contact precautions required. This change in process was communicated to the LTC Homes in our Continuing Care Resource Team (CCRT) Email #156 (January 19, 2024).
- Implementation of joint ICU Antimicrobial Stewardship Rounds in ICU at RUH.
- In Lloydminster, staff are completing penicillin allergy de-labelling, and engaging in a formalized 48 - hour antibiotic reassessment when capacity allows.
- Occasional inclusion of stewardship messaging in livestock extension activities or producer-focused communication.
- Practitioners across the province engage in AMS interventions as part of their daily clinical work. These interventions and their outcomes are captured sporadically in various formats, limiting the ability to gauge efficacy and drive improvement efforts provincially. However, the real value lies in local interventions, but there are no sites resourced to effectively do this work at the scale required.
- Public Trust team at Saskatchewan Agriculture has developed key messages (KM) materials and maintains awareness tools but has not yet actively deployed a full-scale public campaign on AMU.
- Regina and Saskatoon AMS pharmacists/ID physician maintain Firstline app for antibiogram and guideline information for adult AMS. Pediatric instance maintained separately. App is freely available to everyone.
- RxFiles, funded by the Drug Plan, has developed and updated guidelines for appropriate antibiotic use throughout its tenure and actively participates in prescriber education and targeted campaigns related to antimicrobial use. RxFiles provides intermittent education on antimicrobial-related topics to providers across the province, and also has several patient-facing resources available, such as waiting room posters promoting rational antibiotic use and Viral Prescription Pads.
- SHA provincial ASP maintains a bi-monthly provincial AMS network meeting to share information among AMS champions across the province and across One Health sectors.
- Specific topics have been the focus of clinical quality improvement initiatives in various parts of the province, including reducing anti-MRSA antibiotic use in ICUs, reducing unnecessary treatment of asymptomatic bacteriuria in long-term and acute care, reducing prolonged treatment of community acquired pneumonia, increasing documentation of indications with antimicrobial prescriptions in primary and acute care, etc.

Pillar 4: IPAC

- Active participation in programs supporting access to veterinary care, including promotion of mobile or remote veterinary service models.

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- Collaboration with industry-led biosecurity programs aligned with the National Farm-Level Biosecurity Standards.
- Ongoing promotion of Canadian Quality Assurance programs across livestock sectors (e.g., CQA for swine, proAction for dairy).
- SCAP funding for Animal Health and Biosecurity Producer Programs which support and promote animal health and biosecurity.
- Support for extension services that include messaging on animal husbandry and health management practices.
- SHA IPAC maintains guidelines and best practices, disease surveillance, and reporting efforts.

Pillar 5: Leadership

- Informal collaboration with industry groups on stewardship messaging and alignment with national regulatory directions.
- National groups including the Canadian Animal Health Surveillance System (CAHSS) are actively working in this area.
- Saskatchewan Agriculture participates in federal-provincial-territorial (FPT) meetings where AMR is occasionally discussed, particularly in the context of veterinary oversight and drug regulation.
- Some funded research through ADF may result in publications or innovations that influence AMR practices globally (indirect contributions).
- SHA ASP, in collaboration with the MoH, MoA, and other partners, launched the Western Canadian One Health AMS Conference in 2019.

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Appendix 2 – Gap Summary

Pillar 1 – Research & Innovation

- Limited availability and access to point-of-care diagnostics due to funding/resource constraints and lack of incentives.
- Inconsistent vaccine promotion and uptake; public trust issues regarding vaccine science.
- Centralization of microbiology services in rural areas increasing turnaround times for culture results.
- No coordinated provincial One Health research plan; absence of leadership or a dedicated champion.
- Agriculture research funding driven by industry priorities without a One Health lens.

Pillar 2 – Surveillance

- Fragmented AMR/AMU surveillance systems; lack of integrated One Health infrastructure.
- Inconsistent, low-quality, or incomplete data collection; limited rural and LTC surveillance.
- Minimal feedback from national systems (e.g., AMRNet) to local users; dashboards not locally relevant.
- Insufficient staffing and IT resources for province-wide surveillance; reliance on manual data analysis.
- No integration of provincial veterinary AMU data with national surveillance; absence of Saskatchewan-specific animal health targets; no companion animal surveillance.

Pillar 3 – Stewardship

- Limited engagement with primary care, LTC, rural/remote sites, and other prescribers (e.g., dentists).
- Lack of mandatory AMS training for healthcare providers; inconsistent education uptake.
- No timely, accessible health data for baseline measurement and intervention evaluation.
- Minimal AMS leadership in rural/northern regions; sporadic, unsustained interventions.
- Approved SHA antimicrobial policies/guidelines lack effective rollout and accountability.
- Outdated IT systems limiting decision support and integration.

Pillar 4 – IPAC

- Inconsistent IPAC practice implementation across LTC, acute care, and community sectors.
- Staffing shortages affecting sustainability of IPAC programs and education.
- In agricultural settings, lack of veterinary care in remote communities may allow untreated AMR infections in animals, posing cross-species risks.

Pillar 5 – Leadership

- Few coordinated, province-wide AMR/AMU campaigns; inconsistent messaging between sectors.
- No dedicated outreach for rural, Indigenous, or agricultural audiences.

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- Limited evaluation of public or producer understanding of AMR/AMU best practices.
- Misinformation and distrust of government messaging; stigma about AMU in humans and animals.