

A SAAR-Centric Framework for Stewardship Analytics

From performance signal to stewardship decision

Geisinger

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Disclosures and Objectives

Disclosures

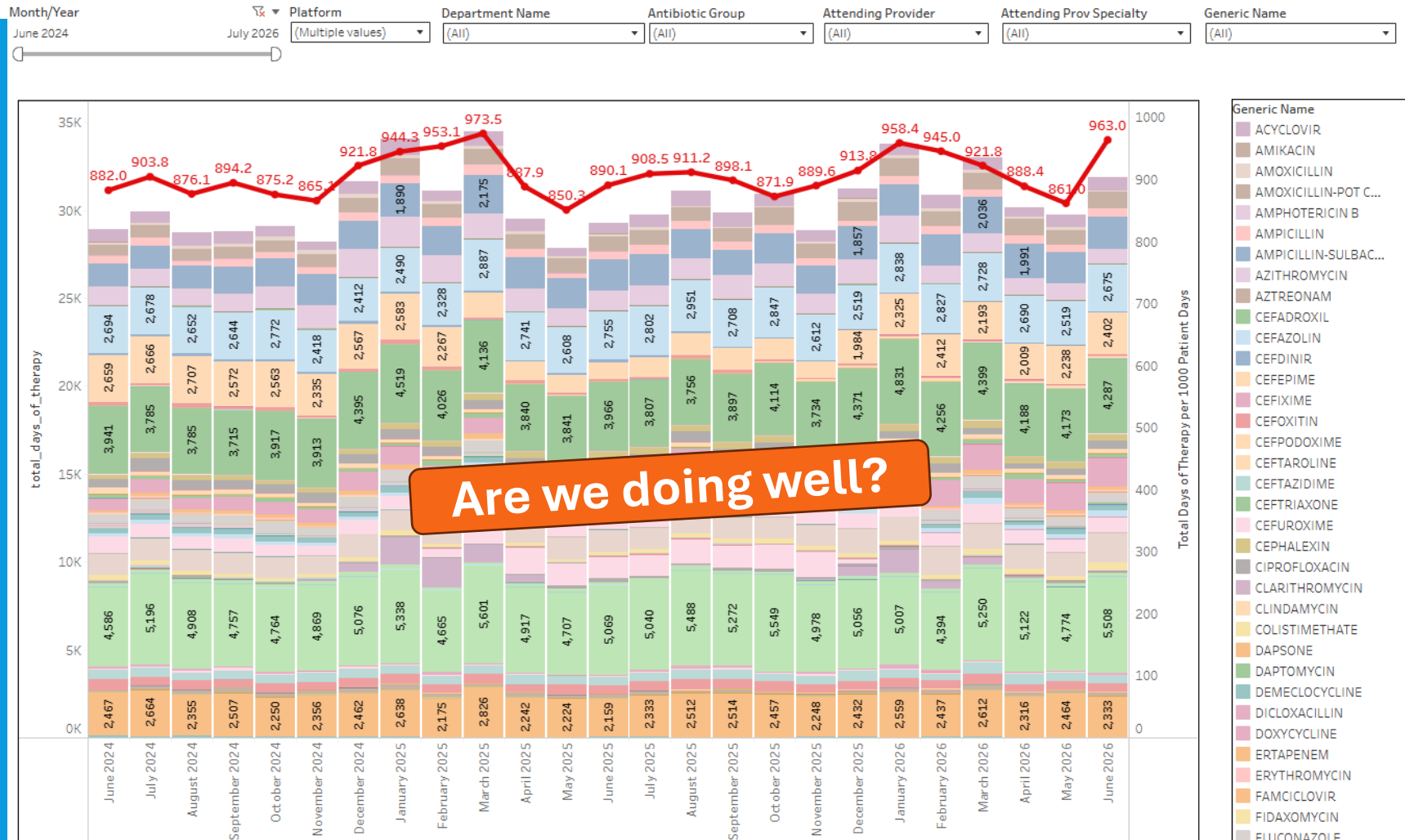
- I have no disclosures to report

Objectives

- Differentiate what SAAR and traditional AU measures can and cannot answer
- Apply magnitude, trajectory, and concentration to prioritize antimicrobial-use signals
- Structure antimicrobial-use reporting to connect a performance signal to a focused stewardship investigation

Utilization Tells Us What Happened

Antimicrobial Use: DOT per 1,000 Days Present



SAAR Provides a Performance Signal

Observed Use

Antimicrobial days reported

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Predicted Use

Derived from the NHSN risk-adjustment model

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SAAR

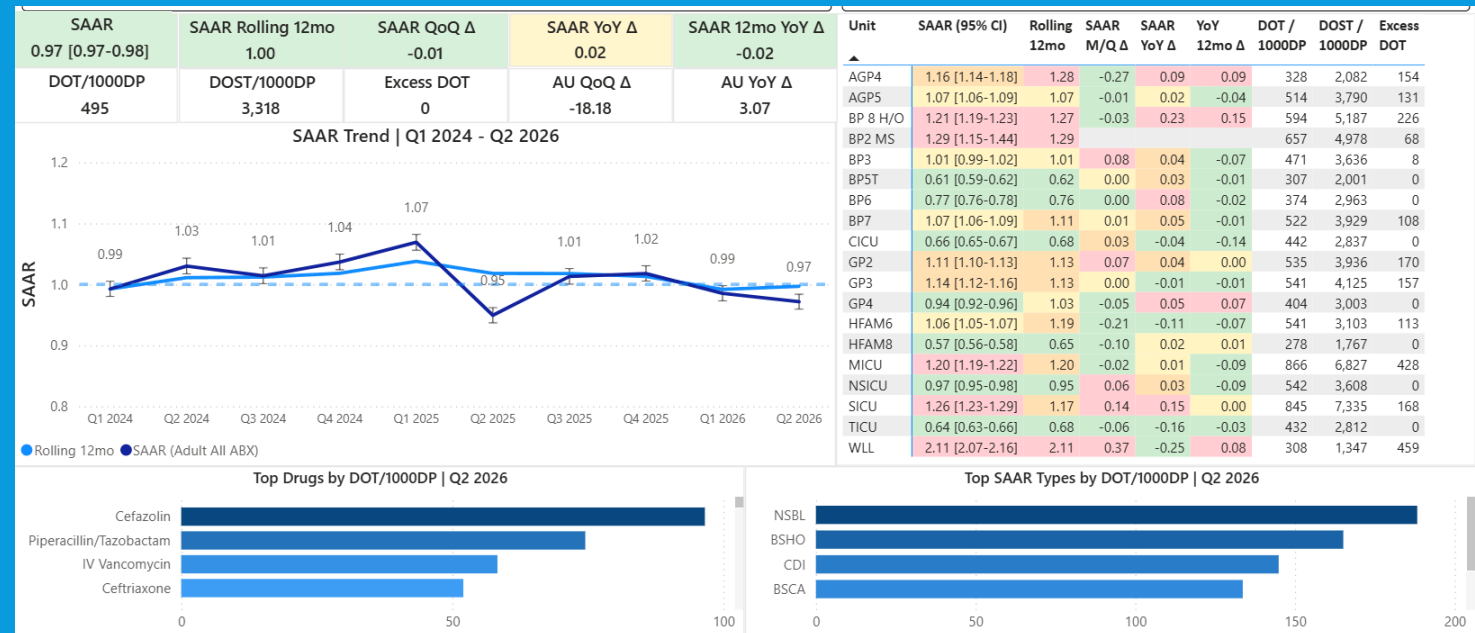
Performance signal

> 1.0 More than predicted
= 1.0 Equivalent to predicted
< 1.0 Less than predicted

SAAR shows where use differs from prediction; it does not determine prescribing appropriateness

The Aggregate Can Hide the Opportunity

- Hospital level
 - Q2 SAAR: 0.97
 - Excess DOT: 0
- Unit level
 - Several unit-level SAARs above 1.0
 - Excess DOT concentrated in select locations
- The aggregate is accurate, but it can conceal concentrated signals



Which Signal Deserves Attention First?

Signal:

- Current and rolling 12-month SAAR
- Where does use exceed prediction?

Trajectory:

- 12-month YoY change
- Compares the current rolling 12 months with the preceding 12 months
- Reduces short-term and seasonal noise

Magnitude:

- Excess DOT = Observed – Predicted
- Quantifies days above prediction, not proven inappropriate days

Unit	SAAR (95% CI)	Rolling 12mo	SAAR M/Q Δ	SAAR YoY Δ	YoY 12mo Δ	DOT / 1000DP	DOST / 1000DP	Excess DOT
AGP4	1.16 [1.14-1.18]	1.28	-0.27	0.09	0.09	328	2,082	154
AGP5	1.07 [1.06-1.09]	1.07	-0.01	0.02	-0.04	514	3,790	131
BP 8 H/O	1.21 [1.19-1.23]	1.27	-0.03	0.23	0.15	594	5,187	226
BP2 MS	1.29 [1.15-1.44]	1.29				657	4,978	68
BP3	1.01 [0.99-1.02]	1.01	0.08	0.04	-0.07	471	3,636	8
BP5T	0.61 [0.59-0.62]	0.62	0.00	0.03	-0.01	307	2,001	0
BP6	0.77 [0.76-0.78]	0.76	0.00	0.08	-0.02	374	2,963	0
BP7	1.07 [1.06-1.09]	1.11	0.01	0.05	-0.01	522	3,929	108
CICU	0.66 [0.65-0.67]	0.68	0.03	-0.04	-0.14	442	2,837	0
GP2	1.11 [1.10-1.13]	1.13	0.07	0.04	0.00	535	3,936	170
GP3	1.14 [1.12-1.16]	1.13	0.00	-0.01	-0.01	541	4,125	157
GP4	0.94 [0.92-0.96]	1.03	-0.05	0.05	0.07	404	3,003	0
HFAM6	1.06 [1.05-1.07]	1.19	-0.21	-0.11	-0.07	541	3,103	113
HFAM8	0.57 [0.56-0.58]	0.65	-0.10	0.02	0.01	278	1,767	0
MICU	1.20 [1.19-1.22]	1.20	-0.02	0.01	-0.09	866	6,827	428
NSICU	0.97 [0.95-0.98]	0.95	0.06	0.03	-0.09	542	3,608	0
SICU	1.26 [1.23-1.29]	1.17	0.14	0.15	0.00	845	7,335	168
TICU	0.64 [0.63-0.66]	0.68	-0.06	-0.16	-0.03	432	2,812	0
WLL	2.11 [2.07-2.16]	2.11	0.37	-0.25	0.08	308	1,347	459

Prioritization considers the signal, trajectory, and magnitude

Signal, Trajectory, Magnitude

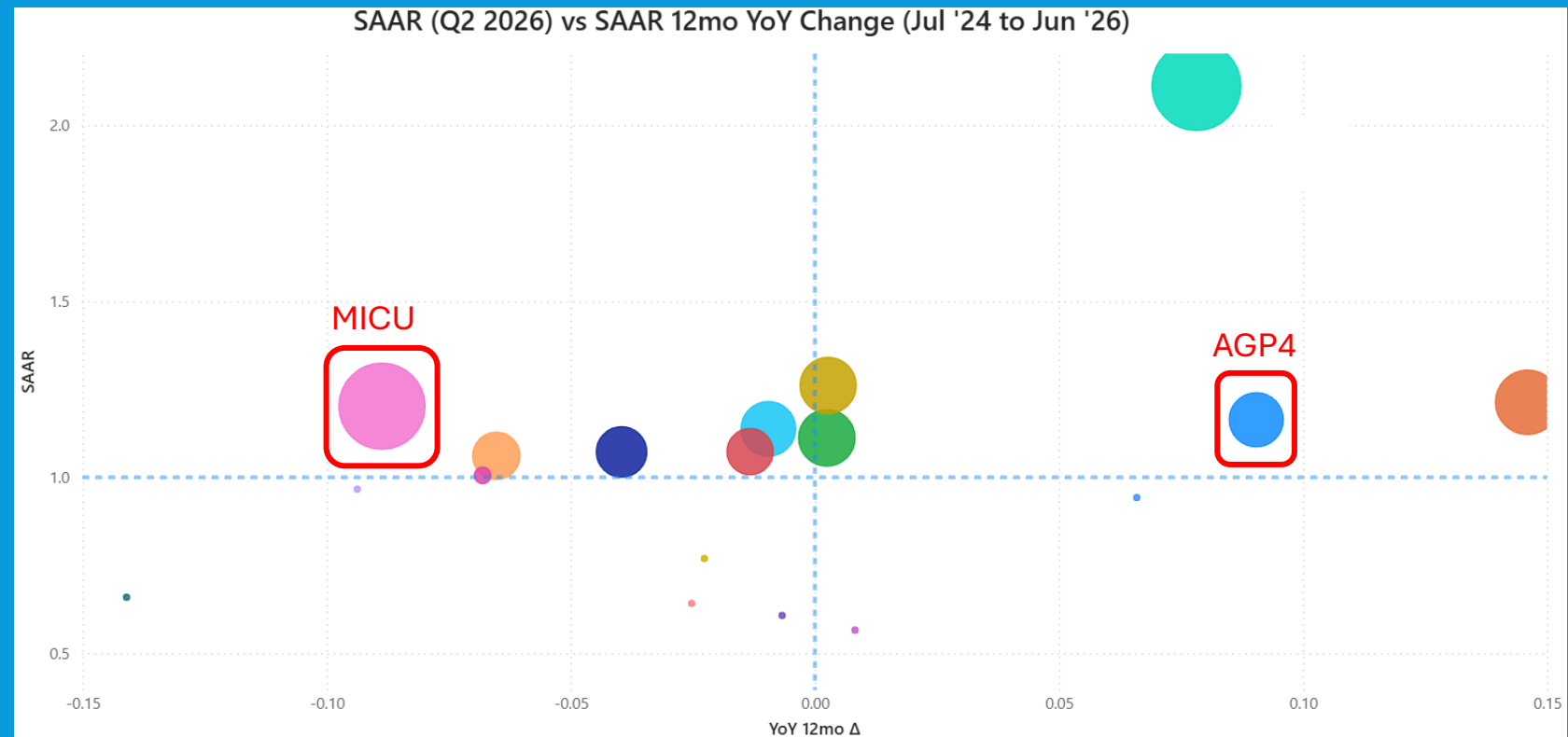
MICU

- Similar current signal
- Large magnitude
- Improving trajectory

AGP4

- Similar current signal
- Slightly smaller magnitude
- **Worsening trajectory**

No single dimension determines priority



Where Is the Signal Concentrated?

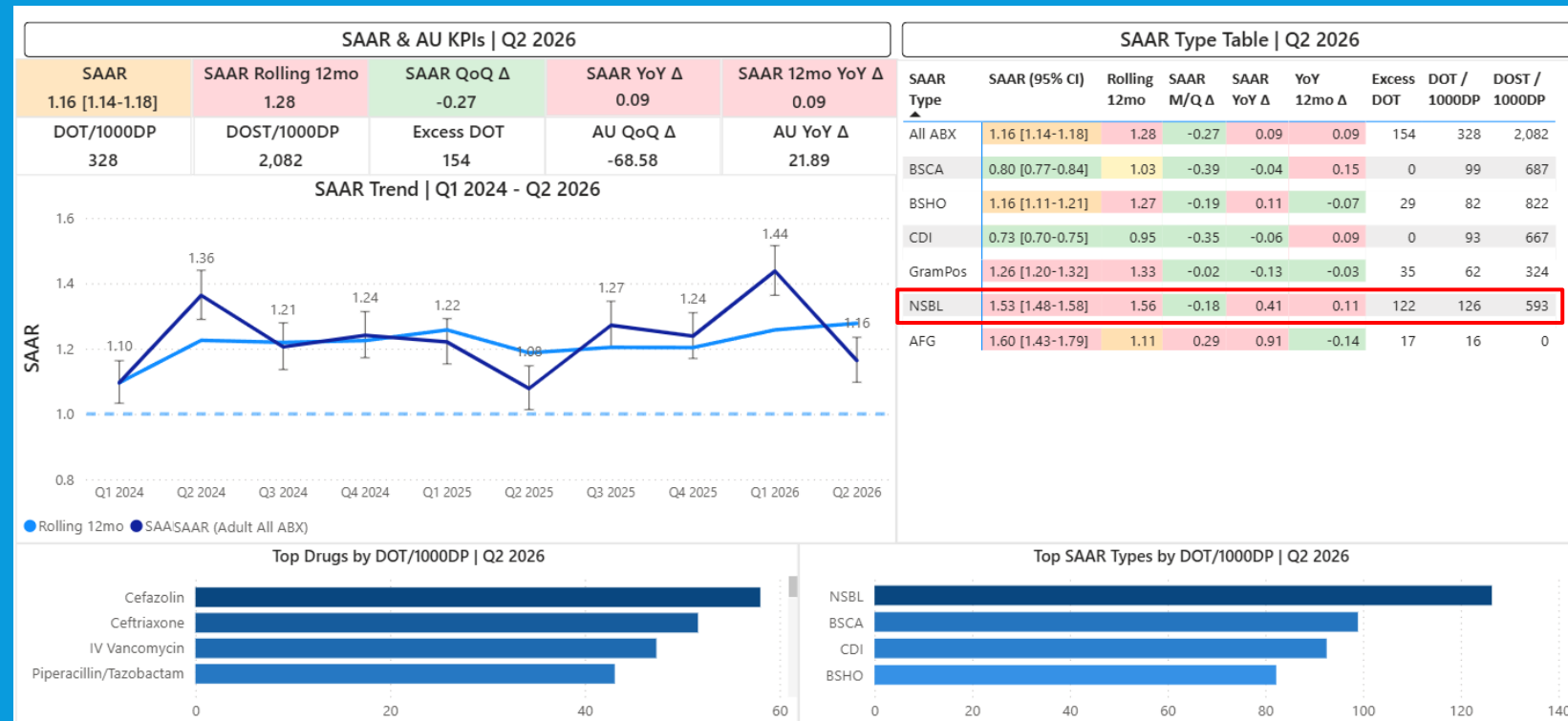
AGP4 Overall

- SAAR: **1.16**
- 12mo YoY: **+0.09**
- Excess DOT: **154**

Category Focus

- NSBL SAAR: **1.53**
- 12mo YoY: **+0.11**
- Excess DOT: **122**

NSBL is elevated, increasing, and accounts for most of AGP4's excess DOT



Connect Signal to Prescribing Behavior

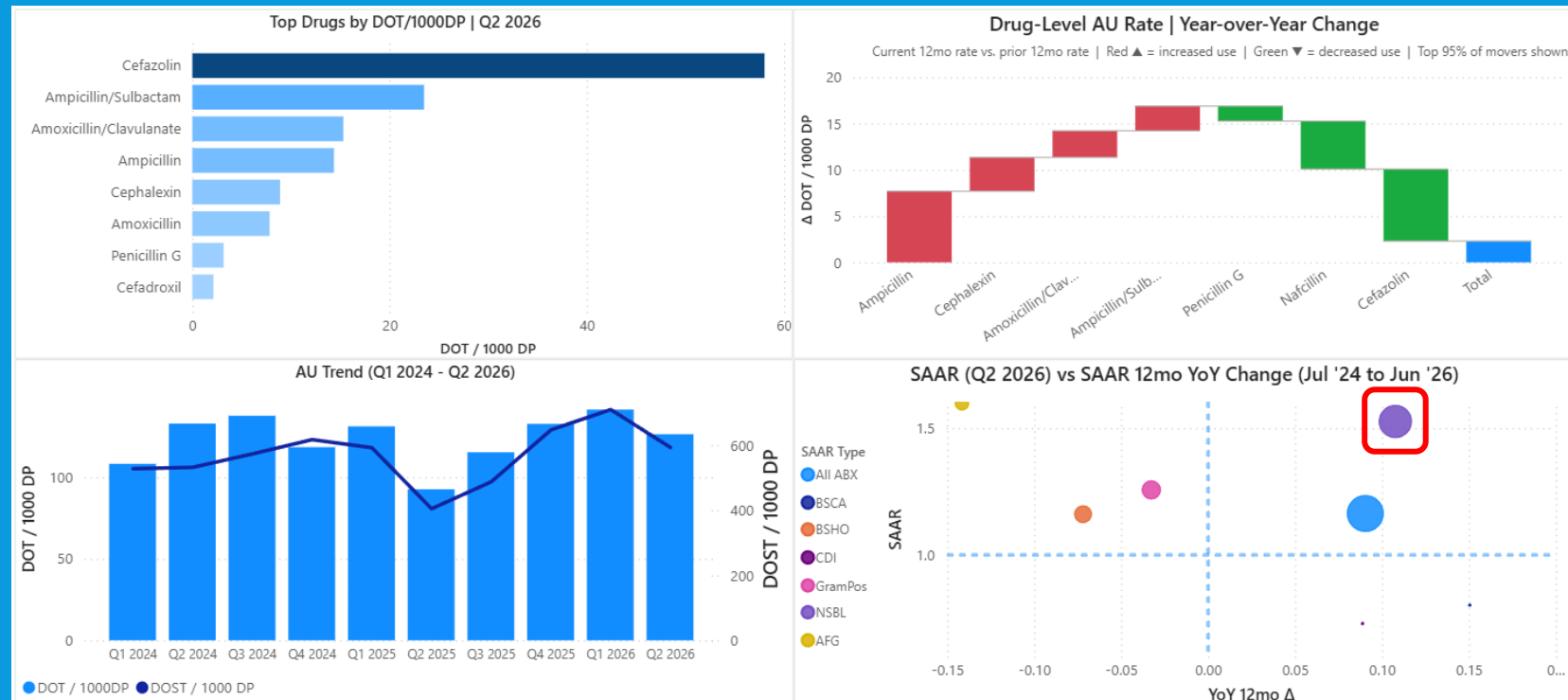
AGP4 NSBL

- NSBL SAAR: **1.53**
- 12mo YoY: **+0.11**

Largest increases

- Ampicillin
- Cephalexin
- Amoxicillin/clavulanate
- Ampicillin/sulbactam

What changed in narrow spectrum β -lactam prescribing on AGP4?



What Would You Investigate Next?

AGP4 → NSBL → Increasing β -lactam utilization

Data Validity

- Accurate mapping?
- Complete data?

Clinical Context

- Changes in case mix, patient population, or infection patterns?

Prescribing Process

- Practice changes affecting agent selection and duration?

Operational Context

- Guideline or order-set changes?
- Workflow changes?

A Dashboard Can Focus the Question

Dashboard Establishes

- Performance signal
- Magnitude and trajectory
- Location and category
- Contributing agents

Investigation Determines

- Is the finding valid?
- Why did prescribing change?
- Was use appropriate?
- How to modify?

The dashboard focuses the question.
Stewardship judgment determines what action, if any, should follow.

Local Programs Connect the Story

NHSN provides the foundation

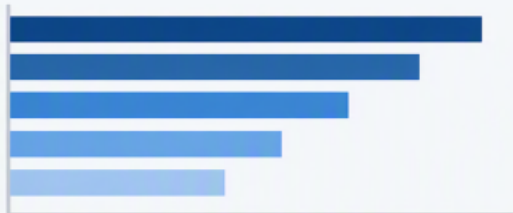
Standardized SAAR and AU outputs

SAAR Trend



By-location table

Agent-level AU



Export / Calculation

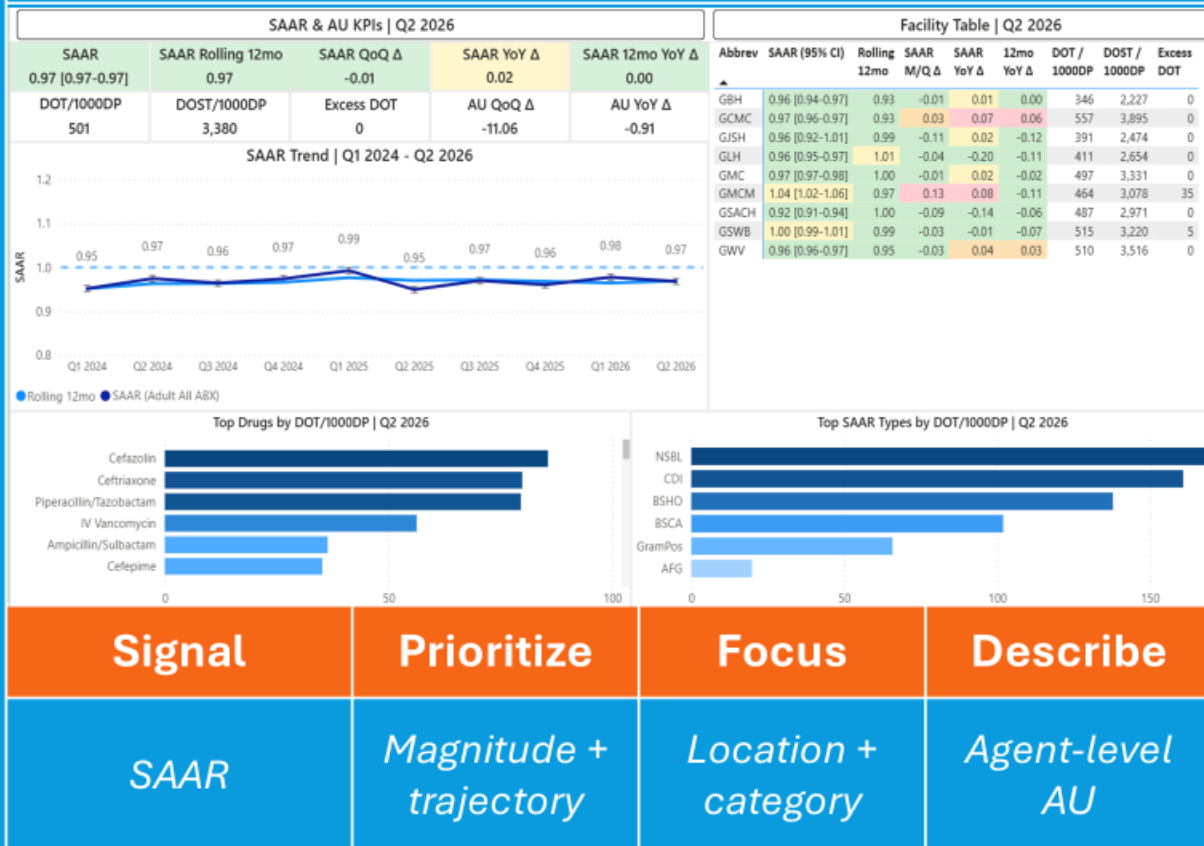


Retrieve • Filter • Export • Calculate • Assemble

Multiple valid outputs but potentially substantial local assembly

Connected local analysis

Preorganized around the next useful question



Organizing recurring analysis in advance shifts time away from reconstructing reports toward interpreting findings.

You Do Not Need to Build This Dashboard

Start with one recurring decision

What does the report need to help someone decide?

Define

- Clarify the decision the report must support
- Identify the information needed to make that decision reliably



Connect

- Give each metric a clear role
- Link the signal to contributing utilization

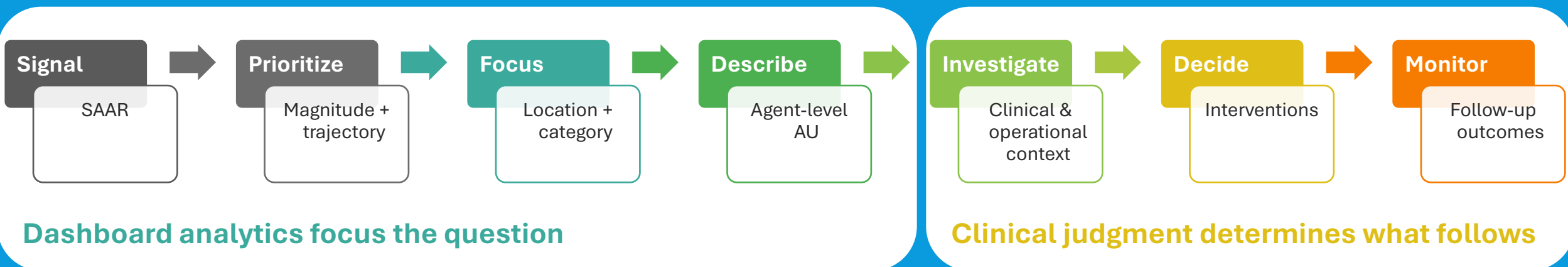


Refine

- Validate the data and calculations
- Gather feedback
- Add only what improves the decision

From Performance Signal to Stewardship Decision

A useful dashboard creates a deliberate path



The value of a stewardship dashboard is in the path it creates from performance signal to stewardship decision. Organize the data so each answer creates the next most useful question.

Assessment Question

Which statement most accurately describes the complementary roles of SAAR and traditional antimicrobial-use measures?

- A. SAAR determines whether antimicrobial prescribing was appropriate, while AU measures determine whether use was excessive
- B. SAAR compares observed antimicrobial use with predicted use, while agent-level AU helps identify the antimicrobials contributing to that signal
- C. SAAR identifies the individual antimicrobial agents responsible for increased use, while AU establishes whether prescribing was appropriate
- D. SAAR and AU independently determine whether a stewardship intervention is warranted.

Assessment Question

Two units have antimicrobial use above prediction. Which finding would most reasonably warrant earlier stewardship evaluation?

- A. A unit with a SAAR of 1.45, 18 Excess DOT, and a decreasing 12-month trajectory
- B. A unit with a SAAR of 1.12, 180 Excess DOT, an increasing 12-month trajectory, and most of the difference concentrated in one antimicrobial category
- C. The unit with the highest SAAR, regardless of magnitude, trajectory, or concentration
- D. Neither unit, because a SAAR above 1.0 does not prove inappropriate prescribing.

Assessment Question

Which reporting sequence best supports movement from an antimicrobial-use performance signal to a focused stewardship investigation?

- A. Identify the antimicrobial with the highest AU rate, implement a restriction, and then review the SAAR
- B. Review the hospital-level SAAR, determine whether it is above or below 1.0, and report the result to leadership
- C. Identify a SAAR signal, prioritize it using magnitude and trajectory, focus by location and antimicrobial category, review contributing agent-level AU, and then investigate the clinical and operational context
- D. Display all available SAAR and AU measures together so that the user can determine which information is most relevant

References

- Centers for Disease Control and Prevention. Antimicrobial Use and Resistance Module. Updated July 2026. Accessed August 2026.
- Centers for Disease Control and Prevention. Keys to Success With the Standardized Antimicrobial Administration Ratio. Accessed August 2026.
- Centers for Disease Control and Prevention. 2023 AU SAAR Rebaseline. Accessed August 2026.
- Centers for Disease Control and Prevention. Standardized Antimicrobial Administration Ratio Reports: All SAARs by Location. Accessed August 2026.

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