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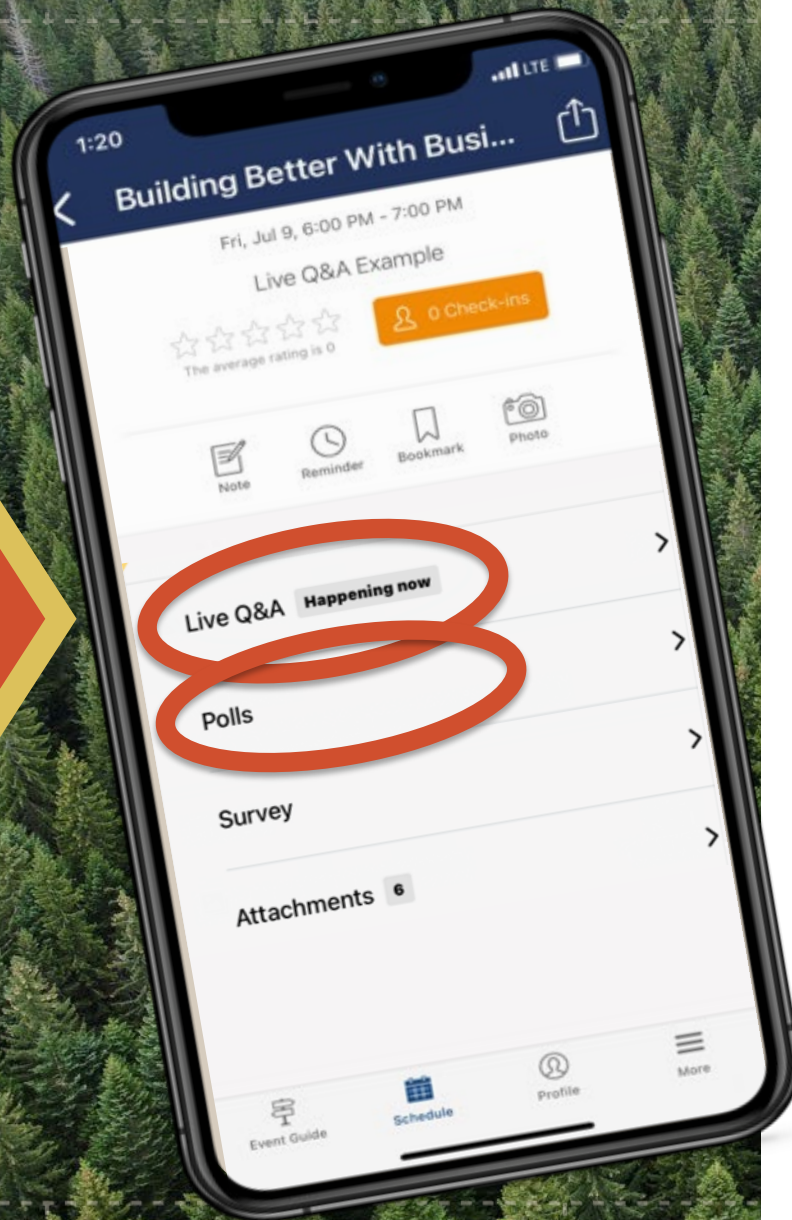
Executive Pharmacy Exchange Focus Session: Technology & Innovation

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CE Deadline: 08/31/26





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Executive Pharmacy Exchange Focus Session: Technology & Innovation

Kathy Pawlicki, BS Pharm, MS, FASHP

Chris Saboura, RPh, MBA

Joshua Davis, PharmD, BCPS

CE Deadline: 08/31/26



Disclosures

- None of the presenters or planners for this educational activity have relevant financial relationships with ineligible companies to disclose

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Learning Objectives

At the end of this session, participants should be able to:

- Identify current & emerging technologies (e.g., *AI, data analytics, workflow*) & their impact on today's pharmacy practice.
- Recognize the benefits of applying current & emerging technology (e.g., *AI, data analytics, workflow*) to areas of pharmacy practice, such as drug inventory & supply chain management.
- Recall how to apply technology innovation into pharmacy strategy & planning.



Discussion Outline

Panelist Introductions

The Exchange

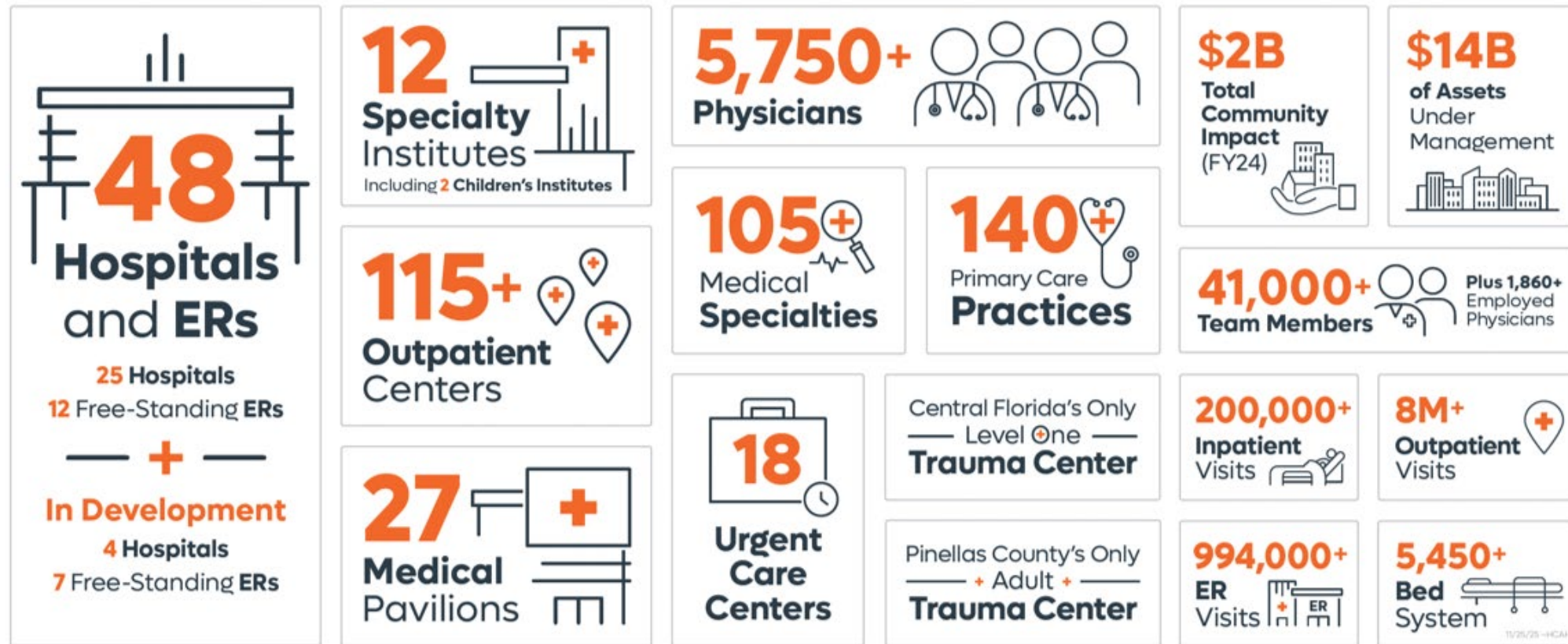
- Building the Foundation
- Drug Inventory & Supply Chain Management
- Clinical Decision Support

PANELIST INTRODUCTIONS



Panelist Chris Saboura | Orlando Health

AVP, Supply Chain Pharmacy & Lab

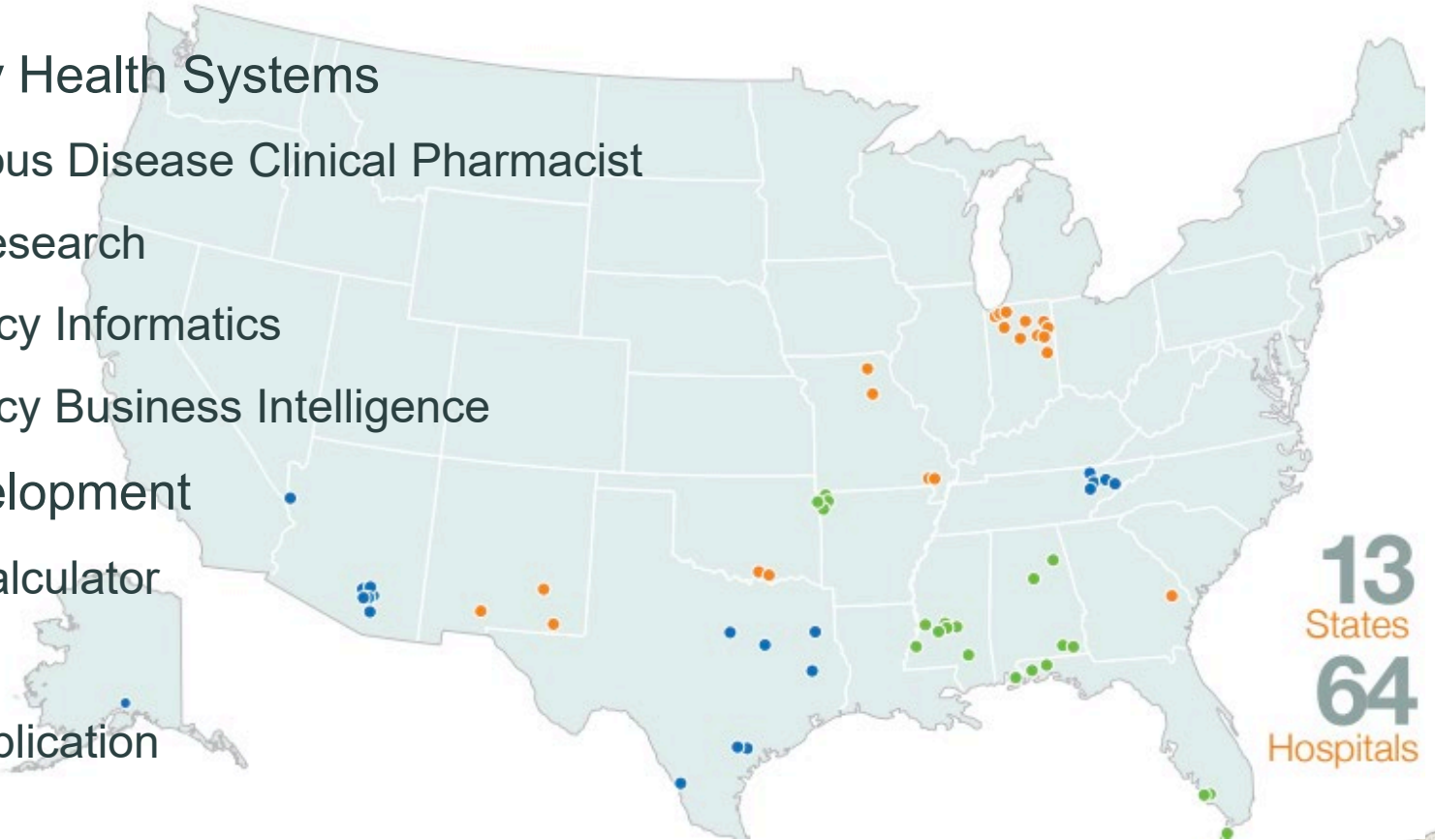


Source: Orlando Health data, as of December 15, 2025. Used with permission of Orlando Health.

Panelist Joshua Davis | Community Health Systems

Senior Director, Pharmacy Business Intelligence

- 24+ years at Community Health Systems
 - Intensive Care & Infectious Disease Clinical Pharmacist
 - Director of Pharmacy Research
 - Senior Director, Pharmacy Informatics
 - Senior Director, Pharmacy Business Intelligence
- 30+ years software development
 - Bayesian vancomycin calculator
 - Purchase algorithm
 - Pharmacy standards application



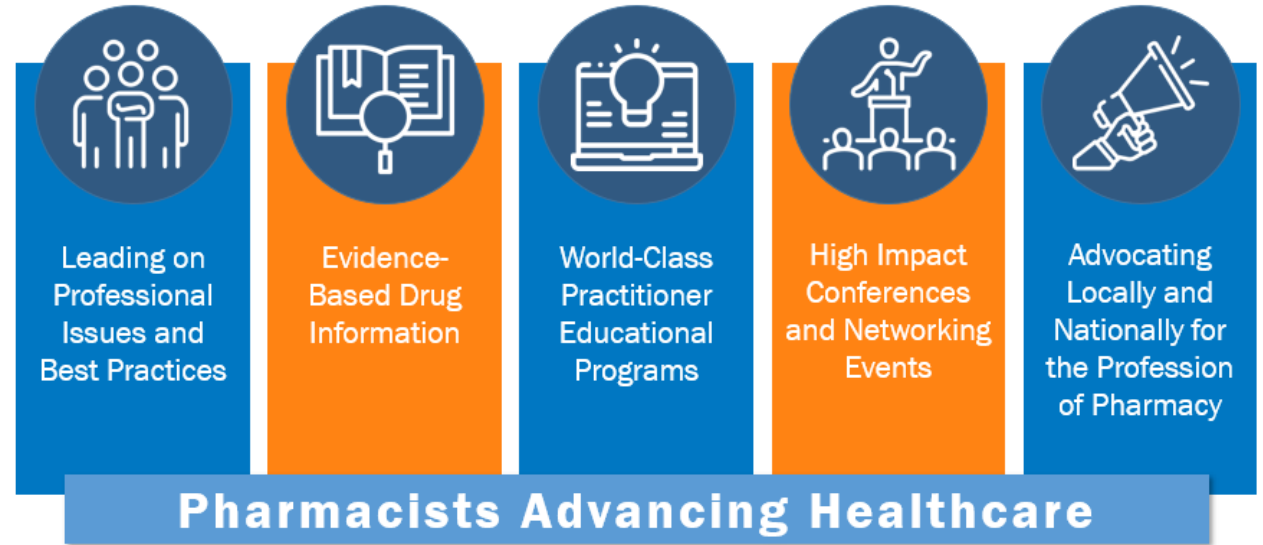
Source: Community Health System data. Used with permission of Community Health Systems.



Moderator Kathy Pawlicki | ASHP

Vice President Business Development & Strategy

- 65,000+ members
- Membership home for pharmacists, students & pharmacy technicians working across the continuum of care
- Founded in 1942
- TPTS (*The Pharmacy Technician Society*)
 - Over 16,000 members
- ASHP Education & Research Foundation
 - Serves as our philanthropic partner to support the ASHP mission



Source: American Society of Health-System Pharmacists (ASHP) data. Used with permission of ASHP.

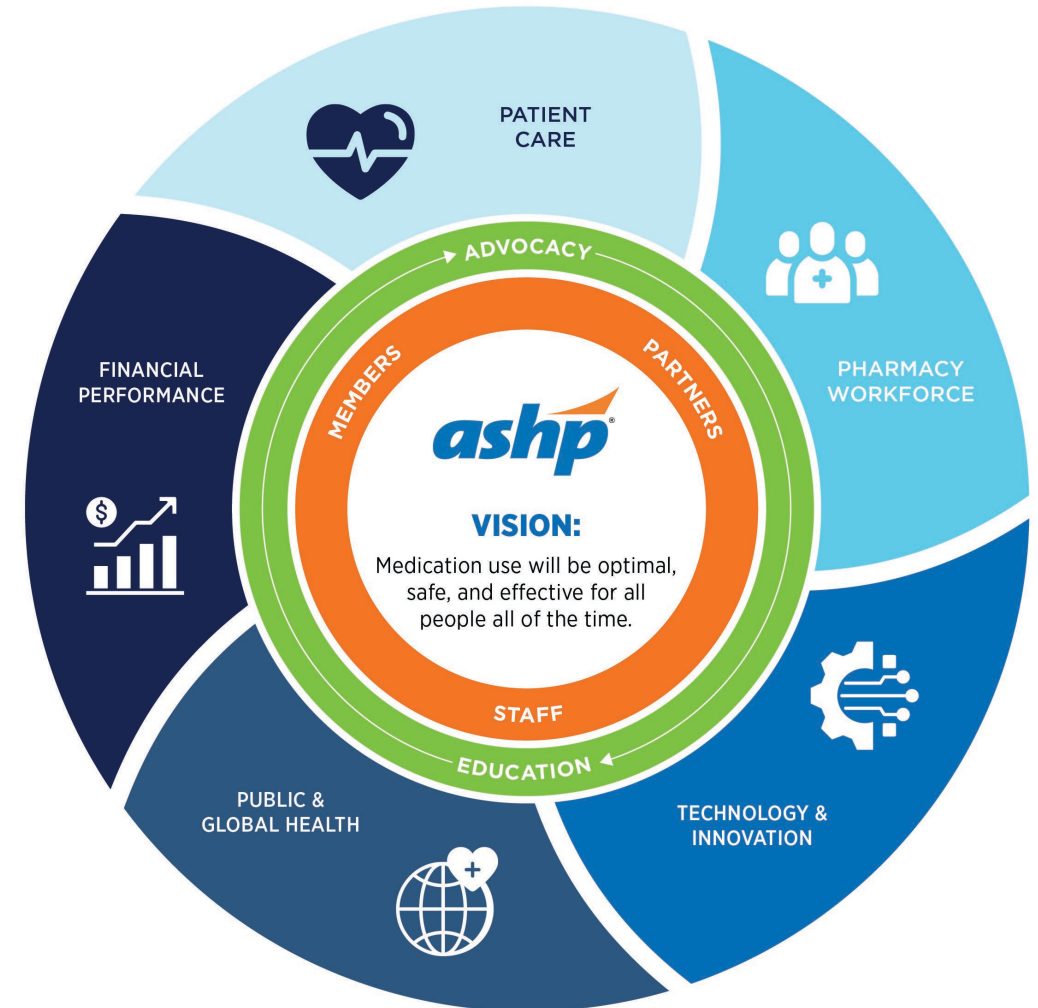
FOCUS SESSION

Technology & Innovation

Strategic Context

Strategic Pillar 3: Technology & Innovation

- Goal 1: Lead pharmacy practice innovation
- Goal 2: Lead integration of artificial intelligence (AI), automation & digital health in the medication-use process
- Goal 3: Promote integrity, security & appropriate use of pharmacy data & technologies



Source: American Society of Health-System Pharmacists (ASHP). Used with permission of ASHP.

EXCHANGE 1

BUILDING THE FOUNDATION

Identifying the Crucial Elements for Success With Technology & Innovation

A Long History of Technology & Innovation



- 1984 survey of hospital pharmacy directors across the U.S.
- Asked to indicate for which of 17 tasks a computer (C) or memory typewriter (MT) was used in the Pharmacy department.
 - 308 of 417 (73.9%) respondents: MT or C
 - 51 of 417 (12.2%) respondents: only MT
- **Conclusion:** Computer technology is becoming more universally accepted in hospital pharmacy & research on the diffusion of innovations suggests that acceptance will continue to increase.

Source: Browning WC, Hurd PD, Bootman JL, et al. Diffusion of innovation: Computer technology in hospital pharmacy. Am J Health-Syst Pharm. 1984;41:2343-2347. Used with permission of ASHP.

Polling Question #1:

What is the biggest barrier to adopting technology & innovation in your pharmacy enterprise? (select one)

- A. Knowledge
- B. Skill
- C. Time
- D. Cost
- E. All of the above

Technology & Innovation: Panelist Questions

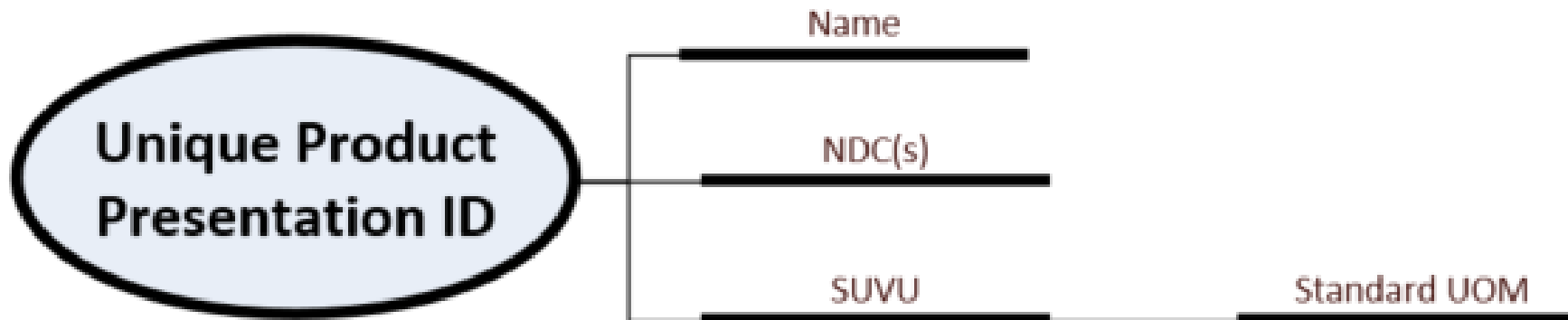
Today's environment + The necessary foundation

1. Where do you suggest others start & what lessons have you learned on your journey?
2. How did you decide if you would buy versus build an innovative software solution?

Lay the Groundwork

- Identify core data elements with a **unique code**
 - Medication name, National Drug Code (NDC), strength/strength unit/volume/volume unit (SUVU)
 - A unique, database auto-assigned number (unique product presentation id or MedID) identifies a unique presentation of a product for the enterprise
- **Standardize naming** convention
 - Generic name (Salt vs. No Salt)
- **Standardize units of measure**
 - Categorize & crosswalk rather than adding regrets
 - Milligram vs. milligram(s) vs. mg
- Store in a **database** to allow querying or application to a use case

Basic Relationships



Used with permission of Community Health Systems.

Leverage Available Data

NDCs are used to get other attributes of the unique product

- Data sources:
 - Rxnorm¹
 - OpenFDA²
 - Other third-party data sources
- Consider saving pertinent attributes in the standard database
 - Example: Dose form
- Other attributes may be accessed depending on the use case

- Many data sources are available via public application product interface (API)
- OpenFDA is particularly useful due the numerous data elements available:
 - *Recalls*
 - *Citations*
 - *Adverse Events*
 - *Prescribing Information*
 - *TE codes*
 - *Much more*

Sources:

1. <https://www.nlm.nih.gov/research/umls/rxnorm/index.html> accessed 4/22/26
2. <https://open.fda.gov/> accessed 4/22/26

Next Steps

Develop relationships with vendors

- Electronic health records (EHRs)
 - *Add or use identifier in product build*
 - *Interfaces*
- Ancillary systems
- Automated dispensing cabinets

Ask vendors to use identifier & product standards

- Include in contract conversations

EXCHANGE 2

DRUG INVENTORY & SUPPLY CHAIN MANAGEMENT

Establishing Innovative Ways to Leverage Data for Supply Chain & Drug Inventory Management

The Power of Data

918 AJHP articles on technology & inventory management

1984

Purchasing and inventory control systems management [Get access >](#)

James C. McAllister

American Journal of Hospital Pharmacy, Volume 41, Issue 2, 1 February 1984, Pages 320–322,
<https://doi.org/10.1093/ajhp/41.2.320>

Published: 01 February 1984

1990

Use of bar-code technology to improve inventory management

[Get access >](#)

Elizabeth N. Schultz and others

American Journal of Hospital Pharmacy, Volume 47, Issue 7, 1 July 1990, Pages 1592–1594,
<https://doi.org/10.1093/ajhp/47.7.1592>

Published: 01 July 1990

Collection of AJHP articles. Used with permission of ASHP.

The Power of Data

918 AJHP articles on technology & inventory management

2011 Inventory management of compounded sterile preparation areas

[Get access >](#)

Prasad Turaga and others

American Journal of Health-System Pharmacy, Volume 68, Issue 17, 1 September 2011, Pages 1581–1588, <https://doi.org/10.2146/ajhp110019>

Published: 01 September 2011

2023–2026

Understanding the problem of digital medication inventory visibility in health systems [Get access >](#)

Arlin W Ashemore and others

American Journal of Health-System Pharmacy, Volume 80, Issue 18, 15 September 2023, Pages 1255–1263, <https://doi.org/10.1093/ajhp/zxad130>

Published: 08 June 2023

Multisystem interface optimization and pharmacy inventory accuracy

[Get access >](#)

Yang C Fan and others

American Journal of Health-System Pharmacy, zxag040, <https://doi.org/10.1093/ajhp/zxag040>

Published: 13 February 2026

Collection of AJHP articles. Used with permission of ASHP.

The Power of Data: Panelist Questions

Data Analytics & AI for drug inventory & supply chain management

1. Is there a favorable ROI on the use of data analytics at your institution?
2. Is AI used in drug inventory management or on the horizon?

Application of Foundation

Basic inventory with unique product presentation id or MedID

- All automated dispensing cabinets (ADCs) reflect the same NDC groups & SUVU
- All configurable EHR medication processes contain the same standard

Simplification of common needs

- Determination of min., max., & par using enterprise standards & actual location use
- Determine how many “unique product presentation IDs or MedIDs” to buy based on ADCs & EHR dispense
 - MedID quantity dispensed, administered &/or charged

Standards may not get implemented easily on existing systems, so seize conversion/new project opportunities & vendor functionalities for change

Leverage Vendor Relationships

- ***Files from wholesaler are integrated with the standards database***
 - Data from the wholesaler & various drug information sources assist in translating the catalogs into MedID quantities with the UOM crosswalk
 - ***Factors are added to the data model to facilitate desired item***
 - Contract
 - Price
 - Packaging
 - National Institute for Occupational Safety and Health (NIOSH) Status...
 - ***Frequent files transmission from your wholesaler is key as product availability changes***
- This process creates an ordinal list of preference for vendor items.
 - This file could be used to support an existing SCM system or be used to block items that are not preferential due to factors listed.

Leveraging the Foundation

- ***Run the preferred purchase process frequently to remain up to date***
 - Reduce risk of attempting to order a vendor item that is not in stock
 - Our process assess the entire enterprise in about 10 minutes
 - Data identifies potential shortage & confirm with APIs mentioned previously
 - ***Foundation development impacts many pharmacy responsibilities***
 - Controlled substance reconciliation
 - Chargemaster configuration/pricing
 - EHR configuration
 - Support tickets include the Unique product presentation ids or MedIDs to identify the exact item that has an issue
 - “It’s all related”
- Unique product presentation ids or MedIDs have synergy throughout operations

EXCHANGE 3

CLINICAL DECISION SUPPORT

Exploring the Intersection of AI & Clinical Decision Support Tools

The Pharmacy Forecast: *Purpose & Use*

- Support & improve strategic planning effectiveness
- Bring valuable perspective of a nationwide environmental scan
- Assist pharmacy leaders in looking beyond immediate operational challenges
- Highlight trends outside of pharmacy's direct purview
- Stimulate thinking & discussion with staff & colleagues

Source: DiPiro JT, Hoffman JM. Foundation Pharmacy Forecast 2025: Strategic Planning Guidance for Pharmacy Departments in Hospitals and Health Systems. Am J Health-Syst Pharm. 2025;82:17-47.

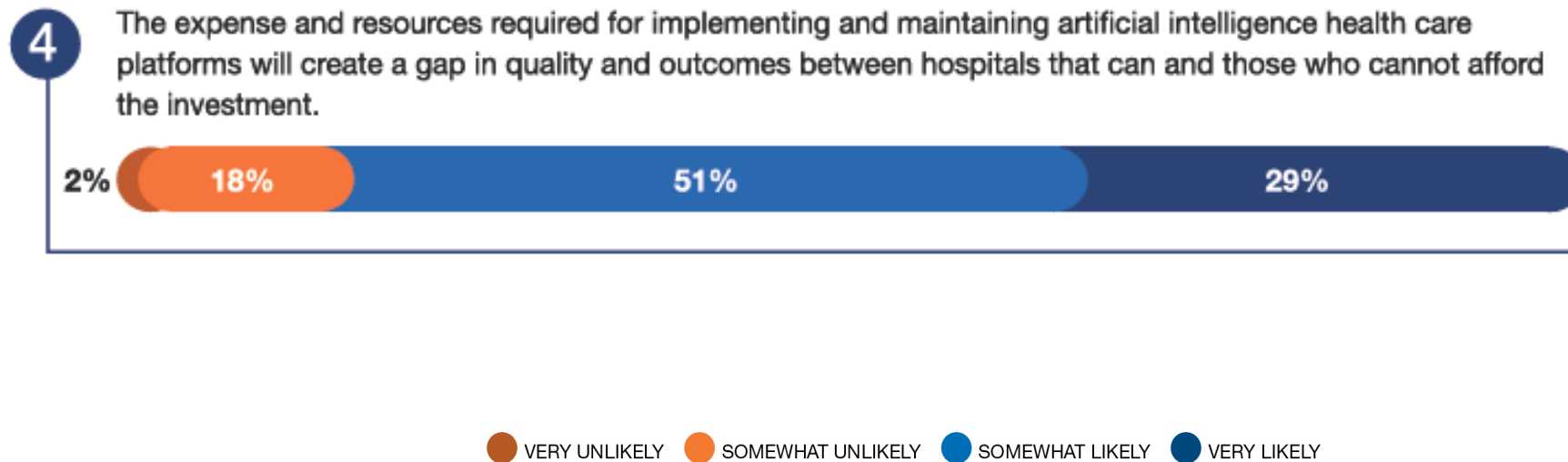
Polling Question #2:

The expense & resources required for implementing & maintaining artificial intelligence health care platforms will create a gap in quality & outcomes between hospitals that can & those who cannot afford the investment.

- A. Very likely
- B. Somewhat likely
- C. Somewhat unlikely
- D. Very unlikely

2025 Pharmacy Forecast Results

The Business of Healthcare: Strategic Challenges in Health System Pharmacy



Source: Cunningham F, Gosser R, Hernandez I, et al. Pharmacy Forecast 2025. Am J Health-Syst Pharm. 2025;82:17-47. With permission of ASHP

Polling Question #3:

50% of prior authorization administrative requirements will be completed by generative artificial intelligence technology.

- A. Very likely
- B. Somewhat likely
- C. Somewhat unlikely
- D. Very unlikely

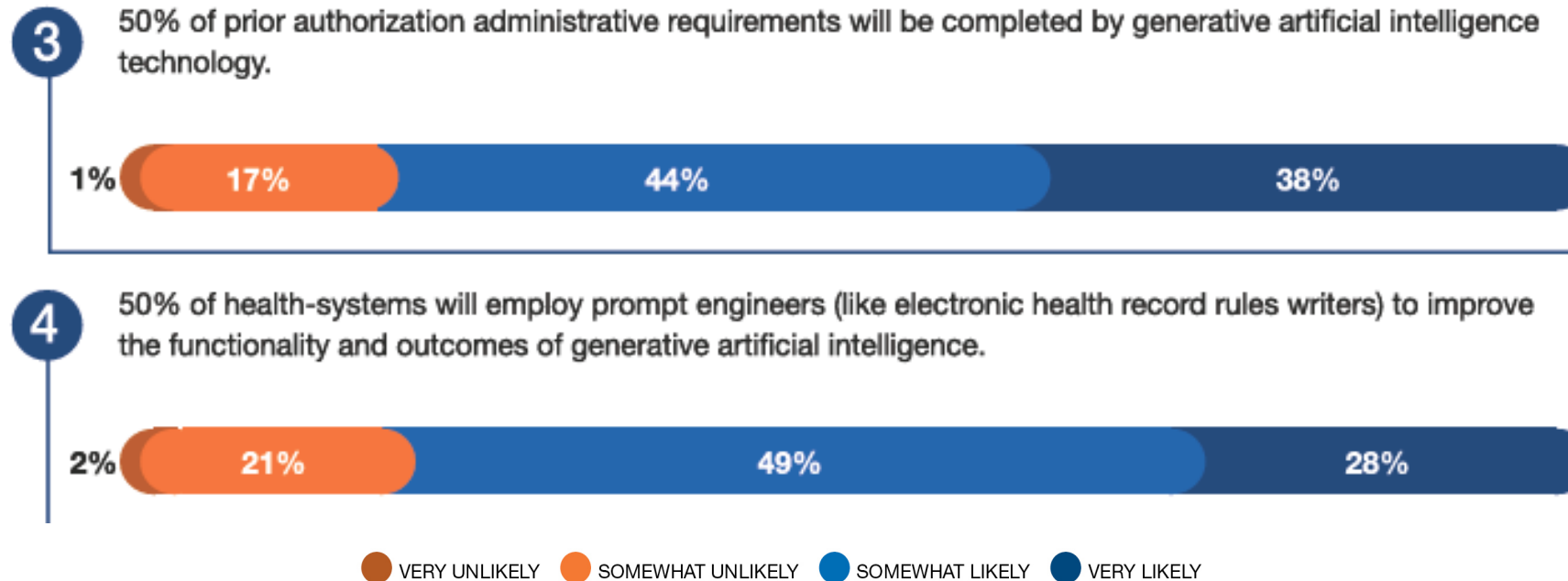
Polling Question #4:

50% of health systems will employ prompt engineers (*like electronic health record rules writers*) to improve the functionality & outcomes of generative artificial intelligence.

- A. Very likely
- B. Somewhat likely
- C. Somewhat unlikely
- D. Very unlikely

2025 Pharmacy Forecast Results

Navigating Generative AI: Opportunity & Risk



Source: Cunningham F, Gosser R, Hernandez I, et al. Pharmacy Forecast 2025. Am J Health-Syst Pharm. 2025;82:17-47. Used with permission of ASHP.

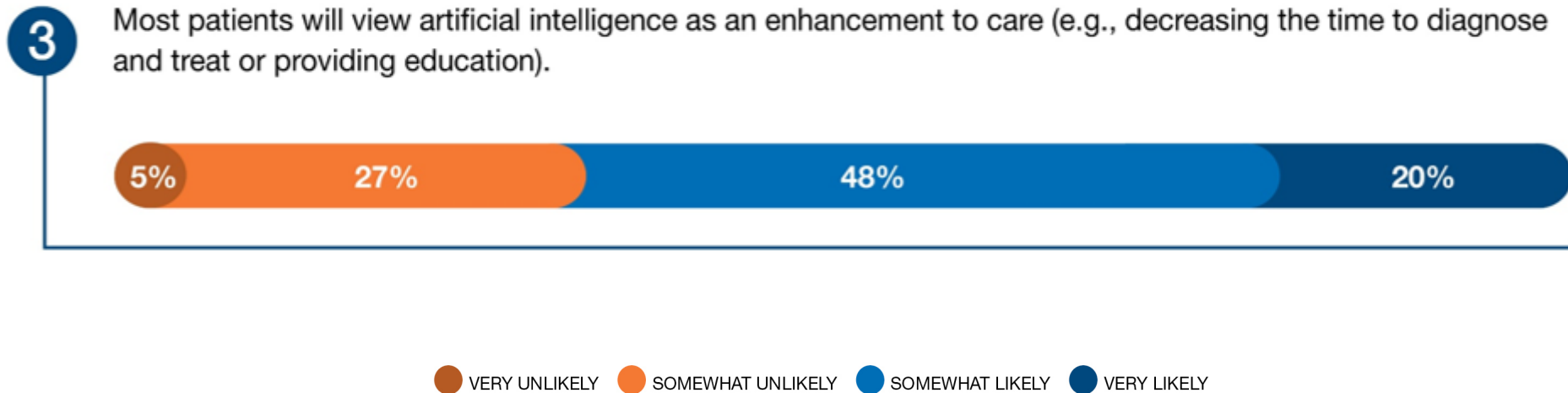
Polling Question #5:

Most patients will view artificial intelligence as an enhancement to care (*e.g., decreasing the time to diagnose & treat or providing education*).

- A. Very likely
- B. Somewhat likely
- C. Somewhat unlikely
- D. Very unlikely

2026 Pharmacy Forecast Results

Patients as Consumers of Healthcare



Source: Couldry R, Cunningham F, Fabian T, et al. Pharmacy Forecast 2026. Am J Health-Syst Pharm. 2026;83:71-101. With permission of ASHP.

AI & Advanced Tech in CDS: Panelist Questions

Clinical decision support & AI, use cases

1. How does your institution (*now or in the future*) leverage AI in medication therapy management, especially CDS systems?
2. Lessons learned?
3. What can we expect in the next 5 years?

General Considerations

- **Alert stewardship** is imperative, *but* perfection for all use cases is not achievable
 - Initial clinical decision support (CDS) fail
 - Override rate, alert time on screen, workflow disruption, user satisfaction
 - Monitor provider responses to alerts
 - Determine which ones provide relevant information
 - Alert acceptance
 - Actual change
 - Update or eliminate alerts that fall below relevancy threshold
 - Governance
 - Individual vs. enterprise responses

Artificial Intelligence(AI) in CDS

Examples of Potential Benefits

- ✓ Drug-drug interaction prioritization^{1,2}
- ✓ Dose optimization & monitoring ^{1,2}
- ✓ Antimicrobial stewardship
- ✓ Pharmacogenomics support³
- ✓ Verification²
- ✓ Adverse drug event prediction

Sources:

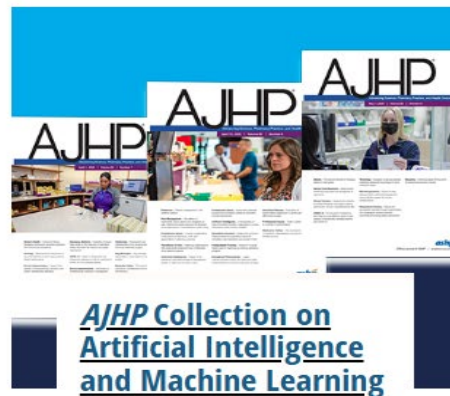
1. Arain S, Thorakkattil SA, Alzaylaee M, et al. Enhancing pharmacy practice: role of clinical decision support system in mitigating drug-related problems. *SAGE Open Med.* 2026. doi:10.1177/22313354261427939
2. Luchen GG, Fera T, Anderson SV, et al. Pharmacy Futures: Summit on artificial intelligence in pharmacy practice. *Am J Health Syst Pharm.* 2024;81(24):1327-1343. doi:10.1093/ajhp/zxae279
3. Massmann A, Petry N, Mills S, et al. Impact of using dosing criteria to refine pharmacogenomic clinical decision support for tricyclic antidepressants. *Am J Health Syst Pharm.* 2025;82(9):e457-e464. doi:10.1093/ajhp/zxae337

- Numerous articles are published every month on the use of AI in medication process.
- How does one stay up to date?

Recommended Reads

- Bastow S, Greszler C, Hartell E, et al. ASHP statement on artificial intelligence in pharmacy. *Am J Health Syst Pharm*. 2025;82(19):e853-e858. doi:10.1093/ajhp/zxaf107
- Smoke S. Artificial intelligence in pharmacy: a guide for clinicians. *Am J Health Syst Pharm*. 2024;81(14):641-646. doi:10.1093/ajhp/zxae051
- Luchen GG, Fera T, Anderson SV, et al. Pharmacy Futures: Summit on artificial intelligence in pharmacy practice. *Am J Health Syst Pharm*. 2024;81(24):1327-1343. doi:10.1093/ajhp/zxae279
- Nelson SD. Artificial intelligence and the future of pharmacy. *Am J Health Syst Pharm*. 2024;81(4):83-84. doi:10.1093/ajhp/zxad316

ASHP Resources



ASHP Professional Certificates

- Artificial Intelligence (AI) in Pharmacy Certificate
- Basics of Data Analytics Certificate
- Pharmacy Informatics Certificate

<https://www.ashp.org/pharmacy-practice/resource-centers/digital-health-and-artificial-intelligence> With permission of ASHP.

Assessment Questions



Assessment Question 1

Artificial intelligence and data analytics have negligible return on investment – pharmacy leaders should expand focus on distribution technology instead.

- A. True
- B. False

Assessment Question 1

Artificial intelligence and data analytics have negligible return on investment – pharmacy leaders should expand focus on distribution technology instead.

- A. True
- B. False**

Assessment Question 2

Why does applying workflow technology to supply chain processes provide value beyond cost savings alone?

- A. It eliminates regulatory requirements
- B. It enhances visibility, accountability & operational consistency
- C. It guarantees vendor compliance
- D. It reduces the need for interdisciplinary collaboration

Response: Assessment Question 2

Why does applying workflow technology to supply chain processes provide value beyond cost savings alone?

- A. It eliminates regulatory requirements
- B. It enhances visibility, accountability & operational consistency**
- C. It guarantees vendor compliance
- D. It reduces the need for interdisciplinary collaboration

Assessment Question 3

Which of the following is an example of effectively applying technology and innovation to pharmacy strategy and planning?

- A. Piloting a tool at a single site without defined metrics
- B. Embedding analytics into enterprise performance dashboards tied to leadership review
- C. Allowing each department to implement technology independently
- D. Purchasing technology without defining desired outcomes

Response: Assessment Question 3

Which of the following is an example of effectively applying technology and innovation to pharmacy strategy and planning?

- A. Piloting a tool at a single site without defined metrics
- B. Embedding analytics into enterprise performance dashboards tied to leadership review**
- C. Allowing each department to implement technology independently
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References

1. American Society of Health-System Pharmacists (ASHP). ASHP Strategic Plan. <https://www.ashp.org/-/media/assets/about-ashp/docs/Strategic-Plan/ASHP-Strategic-Plan-2025.pdf>
2. Smoke S. Artificial Intelligence in Pharmacy: A Guide for Clinicians. *Am J Health-Syst Pharm*. 2024;81:641-646.
3. Luchen GG, Fera T, Anderson SV, Chen D. Pharmacy Futures: Summit on Artificial Intelligence in Pharmacy Practice. *Am J Health-Syst Pharm*. 2024;81:1327-1343.
4. American Society of Health-System Pharmacists (ASHP). PAI 2030 Recommendations. <https://www.ashp.org/pharmacy-practice/pai/pai-recommendations>, accessed, 6/16/25.
5. Browning WC, Hurd PD, Bootman JL, et al. Diffusion of innovation: Computer technology in hospital pharmacy. *Am J Health-Syst Pharm*. 1984;41:2343-2347.
6. DiPiro JT, Hoffman JM. Foundation Pharmacy Forecast 2025: Strategic Planning Guidance for Pharmacy Departments in Hospitals and Health Systems. *Am J Health-Syst Pharm*. 2025;82:17-47.
7. Cunningham F, Gosser R, Hernandez I, et al. Pharmacy Forecast 2025. *Am J Health-Syst Pharm*. 2025;82:17-47.
8. Couldry R, Cunningham F, Fabian T, et al. Pharmacy Forecast 2026. *Am J Health-Syst Pharm*. 2026;83:71-101.
9. Arain S, Thorakkattil SA, Alzaylaee M, et al. Enhancing pharmacy practice: role of clinical decision support system in mitigating drug-related problems. *SAGE Open Med*. 2026. doi:10.1177/22313354261427939
10. Massmann A, Petry N, Mills S, et al. Impact of using dosing criteria to refine pharmacogenomic clinical decision support for tricyclic antidepressants. *Am J Health Syst Pharm*. 2025;82(9):e457-e464. doi:10.1093/ajhp/zxae337
11. Dullabh P, Zott C, Gauthreaux N, et al. Integrating generative AI into patient-centered clinical decision support: viewpoint on research and practice considerations. *J Med Internet Res*. 2026;28:e81628.
12. Yao X, Rao A, Padman R. Analytical approaches for medication management for patient safety: a scoping review. *npj Health Syst*. 2025;2:46.
13. National Library of Medicine – National Institutes of Health. <https://www.nlm.nih.gov/research/umls/rxnorm/index.html> accessed 4/22/26
14. Food and Drug Administration. <https://open.fda.gov/> accessed 4/22/26



Thank You!

