Student Pharmacy Forecast Workshop: *Trends that Will Shape Your Future*

Presented by ASHP's Section of Pharmacy Practice Leaders

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Special Acknowledgements

- Forecast 2024 Advisory Committee
- Chapter authors
- Forecast Panelists (FPs) who responded to the survey

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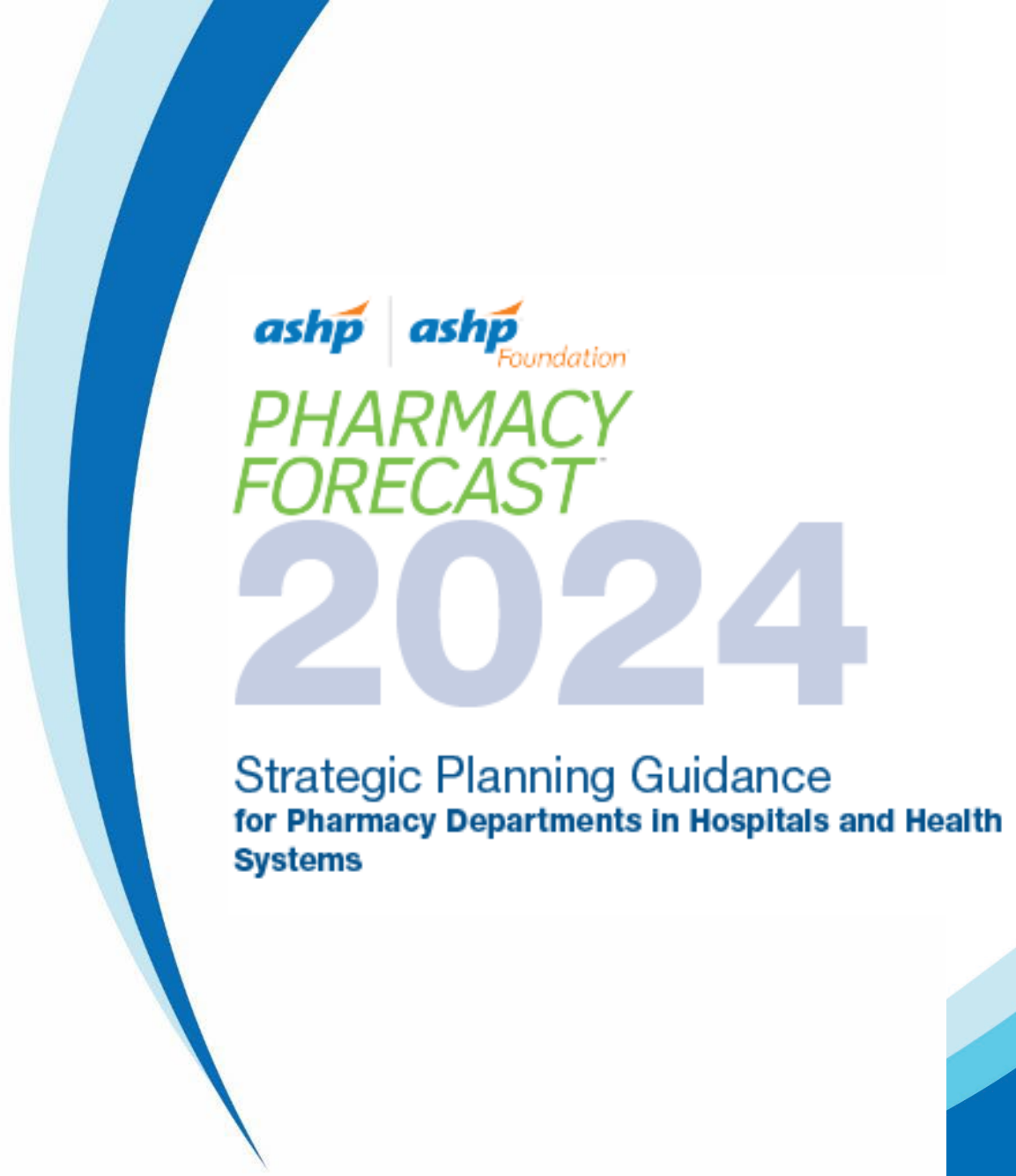
Objectives

1. Introduce and provide background on the Pharmacy Forecast Report
2. Discuss survey questions and results from each domain of the report
3. Apply key trends to case study activities



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Pharmacy Forecast

Purpose

To improve the effectiveness of leaders in hospital and health-system pharmacy practice

ASHP Foundation. http://https://www.ashpfoundation.org/pharmacyforecast (accessed 2024 Feb 14).

Pharmacy Forecast: Overview

- Predicts developments in general themes likely to challenge pharmacy leaders in hospitals and health-systems over the coming 5 years
- Presents authoritative, actionable strategic recommendations to pharmacy practice leaders
- Reports survey results of trend watchers and leaders in health-system pharmacy and analyzes predicted trends
- Trend reports from ASHP Research and Education Foundation's Center for Health-System Pharmacy Leadership

ASHP Foundation. http://https://www.ashpfoundation.org/pharmacyforecast (accessed 2024 Feb 14).

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Pharmacy Forecast Methodology

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Appointed Forecast Panel (FP) completes a questionnaire

Survey asks likelihood of certain trends occurring over next five years

Experts recruited to write a brief chapter for each domain

Each chapter presents the survey results, authors assessment of predictions and strategic recommendations

ASHP Foundation. http://https://www.ashpfoundation.org/pharmacyforecast (accessed 2024 Feb 14).

Pharmacy Forecast: Representation

- 53% of Forecast Panelists (FPs) employed by hospitals with 500 or more beds
- 24% of FPs were from hospitals of less than 500 beds

Region	Response Rate from FPs
Midwestern	32%
Southern	32%
Western	18%
Eastern	19%

ASHP Foundation. http://https://www.ashpfoundation.org/pharmacyforecast (accessed 2024 Feb 14).

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2024 Forecast Themes

1. Urgent Public Health Priorities
2. Responding to the Mental Health Crisis
3. Achieving Care Equity
4. New Disease Paradigms and Treatment Innovations
5. Workforce: Focus on Culture for the Future Artificial
6. Intelligence: Can Ethics and Regulators Catch Up?

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Student Professional Development

How is the forecast relevant for pharmacy students?

- Recognizing emerging trends in pharmacy
- Providing insights into expected challenges in pharmacy
- Promote thought-provoking discussion and research
- Serve as topics for journal clubs, topic discussions, presentations, and interview questions

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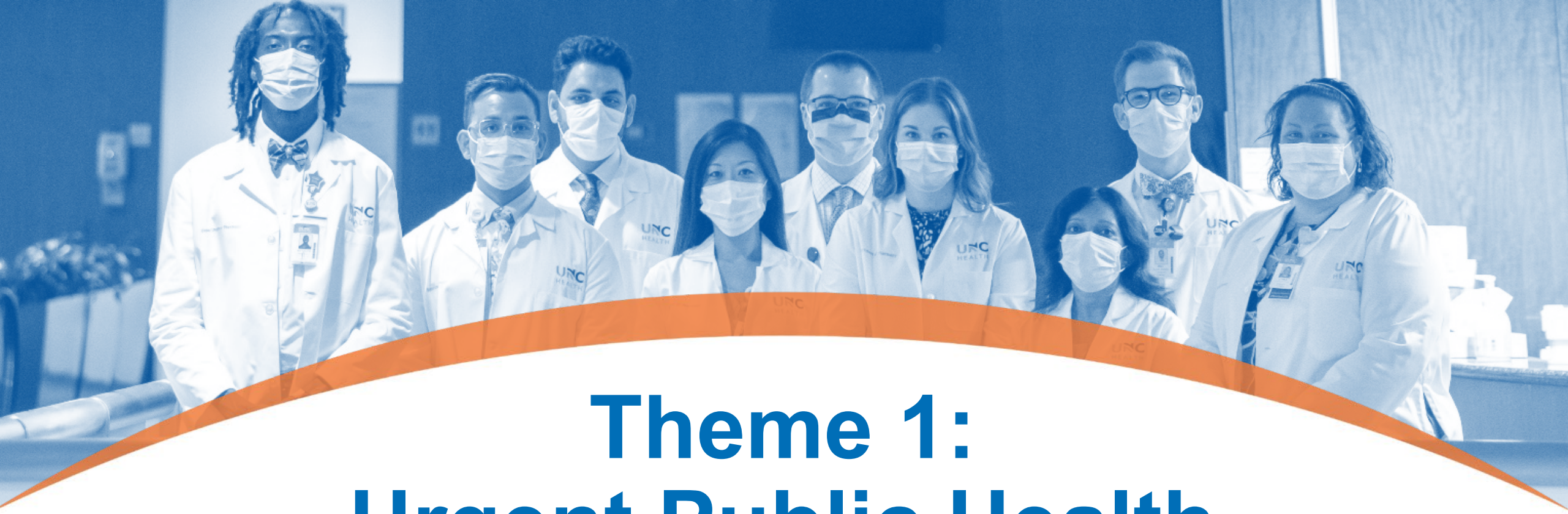

Theme 1: Urgent Public Health Priorities

Public Health Priorities Identified

- Coronavirus disease 2019 (COVID-19) pandemic became a catalyst to implement a reform for health systems to re-center around patients, families, and communities
- Emphasizing health, not just healthcare, to help achieve a broader good for the community
- Health systems helping to address the following public health priorities:
  - Gun violence
  - Climate change
  - Gap between Urban and Rural Populations

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Theme 1: Forecast Question 5

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

Health systems will invest in comprehensive prevention programs to reduce gun violence in their communities (e.g., violence prevention efforts, screening for risk, and support of victims, including mental health support).

1. Very Likely
2. Somewhat Likely
3. Somewhat Unlikely
4. Very Unlikely

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Gun Violence

- Firearms are the leading cause of death among children and teens in the U.S. accounting for 20% of all child and teen deaths
  - Consistently higher among Black individuals and other racial and ethnic groups – indicates disparity in public health
- Hospitals are entry point for public health emergencies
  - Surprising that 65% of panelists reported that it is unlikely that health systems will invest in prevention programs
- Urgency to address structural causes of injuries and deaths from firearms
- Hospitals can address risk factors and prevent violence by partnering with community stakeholders

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Forecast Response

5 Health systems will invest in comprehensive prevention programs to reduce gun violence in their communities (e.g., violence prevention efforts, screening for risk, and support of victims, including mental health support).

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Theme 1: Forecast Question 6

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

Disease and natural disasters will double the frequency of public health emergencies impacting health systems (e.g., preparedness, temporary facilities, workforce deployment).

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Climate Change

- Natural disasters are increasing in frequency and can cause:
  - Disruptions in supply chain
  - Displacement of people
  - Compromise basic needs (food, shelter, clean water)
  - Transmission of vector-born disease and infection
- The majority (75%) of respondents indicated that natural disasters will double the frequency of public health emergencies
  - Urgent need to develop approaches to mitigate impacts
- Comprehensive preparation includes:
  - Addressing supply chain and cold chain disruptions
  - Contingency staffing
  - Coordination with local public health
  - Staff aware of disaster protocols

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Forecast Response

6 Disease and natural disasters will double the frequency of public health emergencies impacting health systems (e.g., preparedness, temporary facilities, workforce deployment).

VERY UNLIKELY SOMEWHAT UNLIKELY SOMEWHAT LIKELY VERY LIKELY

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Theme 1: Forecast Question 2

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

The gap between rural and urban morbidity and mortality will grow significantly wider.

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Theme 1: Forecast Question 7

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

All states will implement plans to ensure that all persons have access to broadband internet.

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Gap Between Rural and Urban Morbidity and Mortality

- Rural residents experience significantly worse health outcomes and have a shorter life expectancy compared to urban residents
  - Higher rates of:
    - Tobacco use
    - Hypertension
    - Obesity
    - Multiple comorbidities
- Primary reason is reduced access
- Telehealth models are associated with promising outcomes
  - Broadband internet is needed for successful implementation
    - Health systems have an opportunity to work with states to help overcome barriers to access

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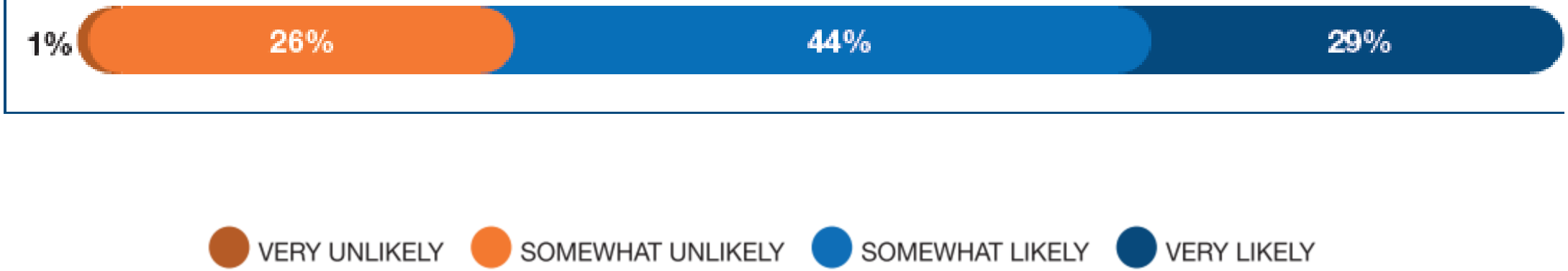
Forecast Response

2 The gap between rural and urban morbidity and mortality will grow significantly wider.



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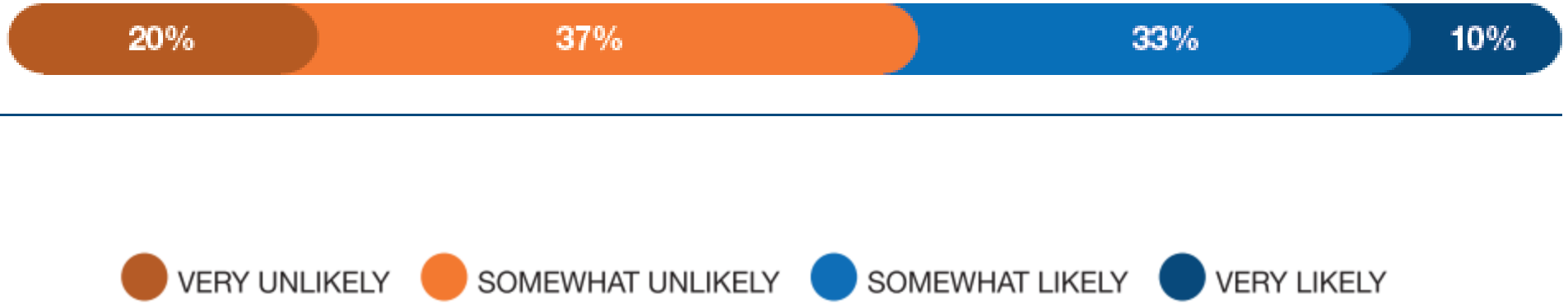
Forecast Response

7 All states will implement plans to ensure that all persons have access to broadband internet.



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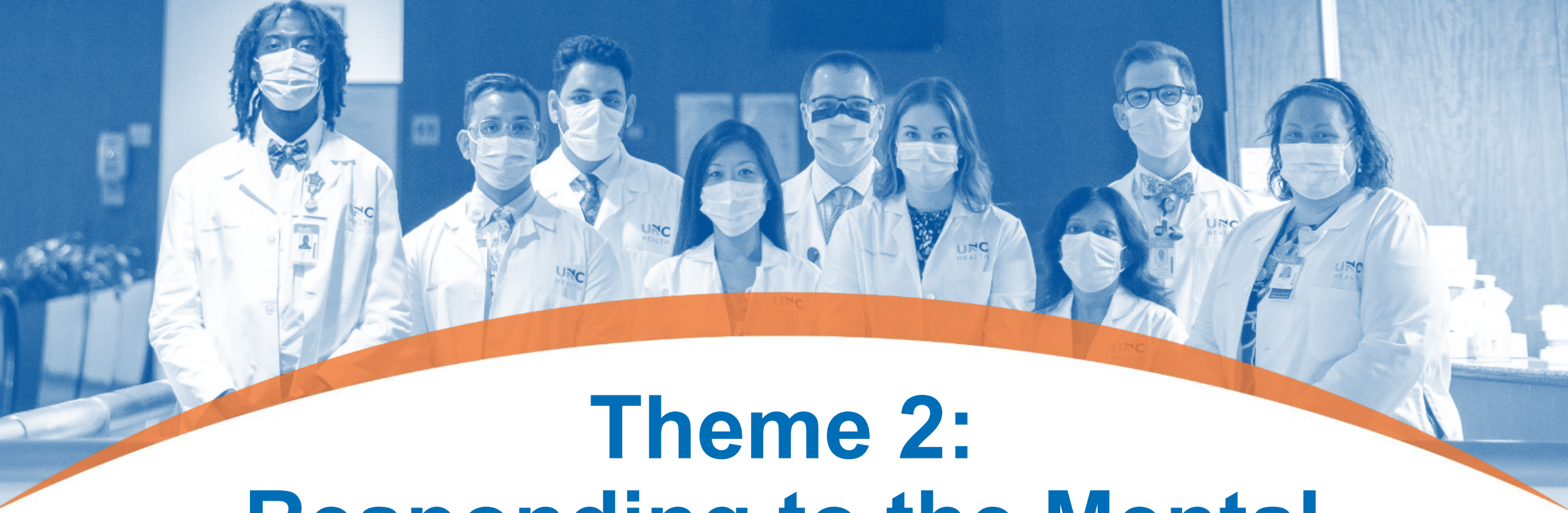
Strategic Recommendations for Practice Leaders

1. Be a part of a community's collective effort to incorporate research, community outreach, and new policies to spark change around gun violence
2. Violence prevention programs in hospitals should be designed to address needs and capabilities of the hospital and community
3. Incorporate climate change impacts into emergency preparedness and response plans
4. Work with pharmacy staff and clinics to identify and mitigate at risk populations, heat susceptible individuals, and those prone to illness during extreme weather events
5. Work to overcome barriers that limit access to telehealth in rural communities
6. Prioritize developing and maintaining a comprehensive emergency preparedness plan that is integrated with larger health-system and community plans



Theme 2: Responding to the Mental Health Crisis

Responding to the Mental Health Crisis

- Mental health crises are evident regardless of age, race, socioeconomic status, and geographic region (rural, urban, suburban)
- The health systems and communities must coordinate and collaborate with aligned stakeholders to implement innovative strategies and mitigate costs
  - The National Safety Council estimates an annual average of $15,000 spent on each employee due to healthcare costs, loss of life, and reduced productivity
- Identified challenges have been associated with:
  - Recognition and response
  - Workforce education and training
  - Pharmacist response

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Theme 2: Forecast Question 1

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

The U.S. federal government will declare the "mental health crisis" a public health emergency (e.g., as with the opioid crisis) and allow for allocation of resources to support a national response.

1. Very Likely
2. Somewhat Likely
3. Somewhat Unlikely
4. Very Unlikely

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Theme 2: Forecast Question 2

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

Health systems will actively engage with community stakeholders (e.g. other health systems, local government, programs, organizations, employers) to coordinate a timely and appropriate first response when a person is experiencing a mental health crisis.

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Recognition and Response

- Recognizing signs and symptoms increases the potential for earlier intervention and improved outcomes
  - Smartphone and wearable technology have augmented the potential to identify these signs and symptoms
- Current systems provide inadequate or nonexistent care, prompting the emergence of new models designed to coordinate timely and appropriate first response in the event of a mental health crisis
- Core services for an effective crisis care model include:
  - Regional crisis call center
  - Crisis mobile team response
  - Crisis receiving and stabilization facilities

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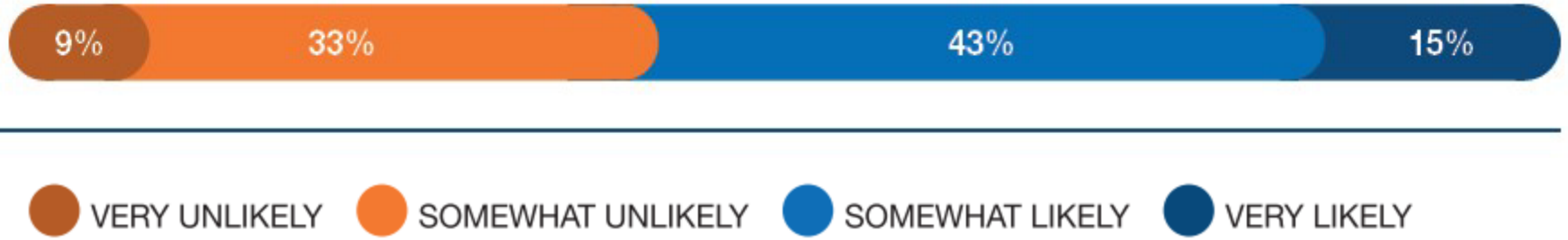
Forecast Response

1 The U.S. federal government will declare the “mental health crisis” a public health emergency (e.g., as with the opioid crisis) and allow for allocation of resources to support a national response.



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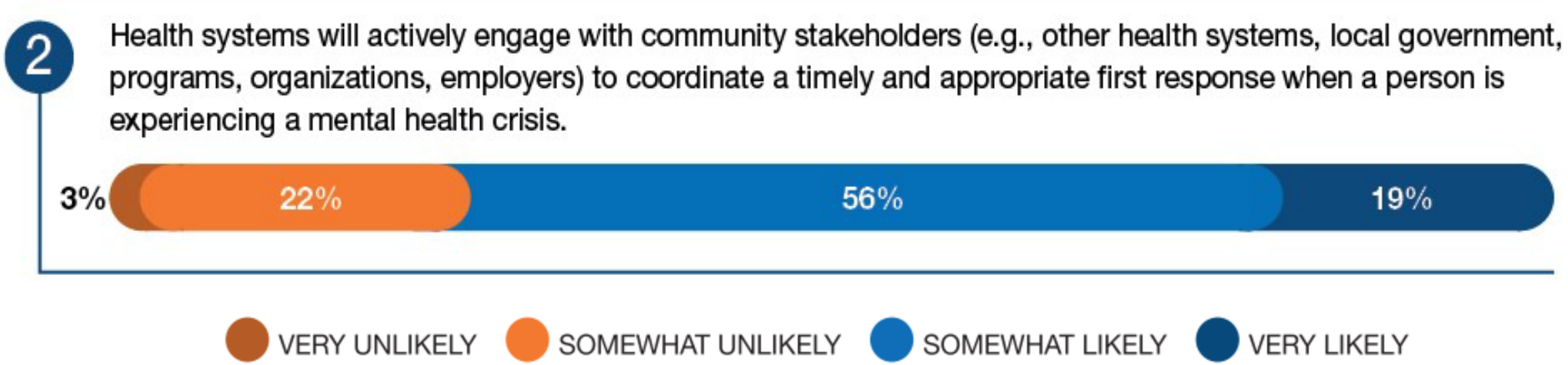
Forecast Response



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Theme 2: Forecast Question 3

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

As with CPR training, accreditors will require patient care staff to complete training that teaches participants to recognize, interpret, and respond to mental health and substance use issues.

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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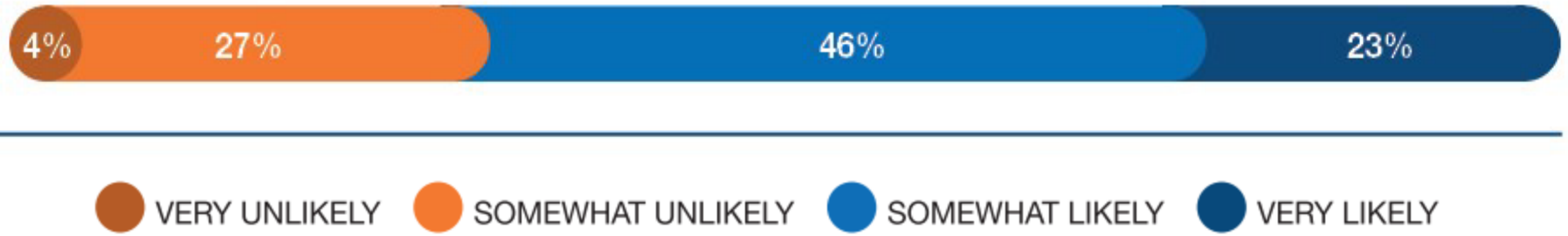
Forecast Response

3 As with CPR training, accreditors will require patient care staff to complete training that teaches participants to recognize, interpret, and respond to mental health and substance use issues.



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Theme 2: Forecast Question 4

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

To increase access to mental health care, the government will subsidize education for healthcare professionals committed to providing mental healthcare.

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Workforce Education and Training

- Education and training need to evolve to reduce stigma around mental health and substance use disorders, and to ensure equitable access to culturally competent patient care
  - Further complicating this need is the growing shortage of behavioral health professionals despite increasing demand for these services
- New strategies are needed to increase educational opportunities and training for healthcare professionals and to improve access to care, such as:
  - Increase or streamline funding for educational programs
  - Create career paths and training programs for emerging mental health roles
  - Integrate behavioral health into primary care settings
  - Optimize access to and utilization of telehealth services

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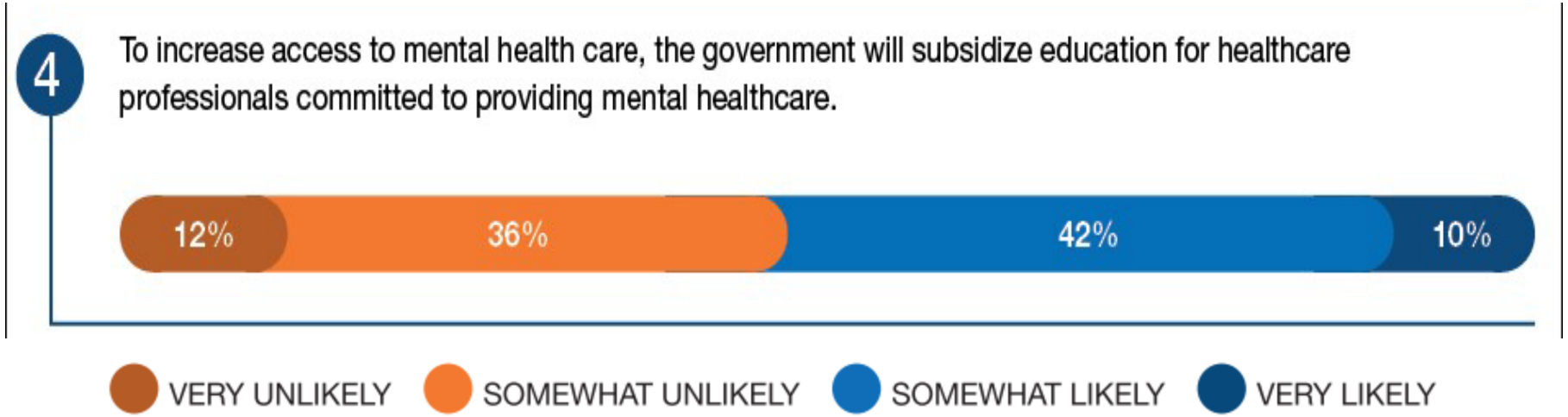
Forecast Response



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Theme 2: Forecast Question 5

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

In all states, pharmacists will routinely initiate and modify medications for opioid use disorder.

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Theme 2: Forecast Question 6

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

Health systems will invest in expanded programs that support behavioral health of their employees.

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Pharmacists' Role in Responding to the Mental Health Crisis

- Pharmacotherapy is a cornerstone of mental health and substance use treatment algorithms
- Due to challenges and barriers associated with medication access and adherence, pharmacists have a unique opportunity to integrate into the interprofessional team in specialty and primary care settings
- Significant obstacles for expansion of pharmacists' role include:
  - Prohibition or limitation of prescribing authority for pharmacists
  - Lack of reimbursement for clinical pharmacy services
  - Lack of preparation to meet demand for pharmacists with specialized mental health training and education

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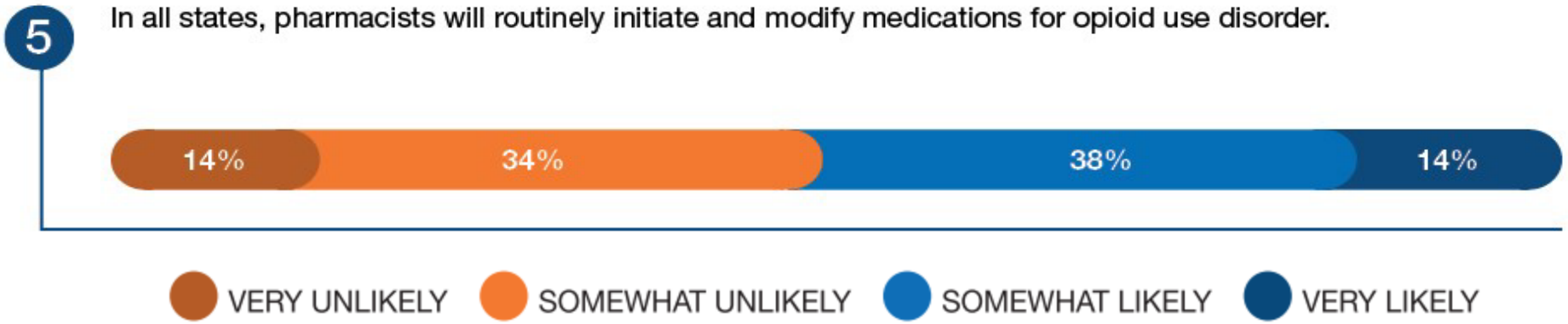
Forecast Response



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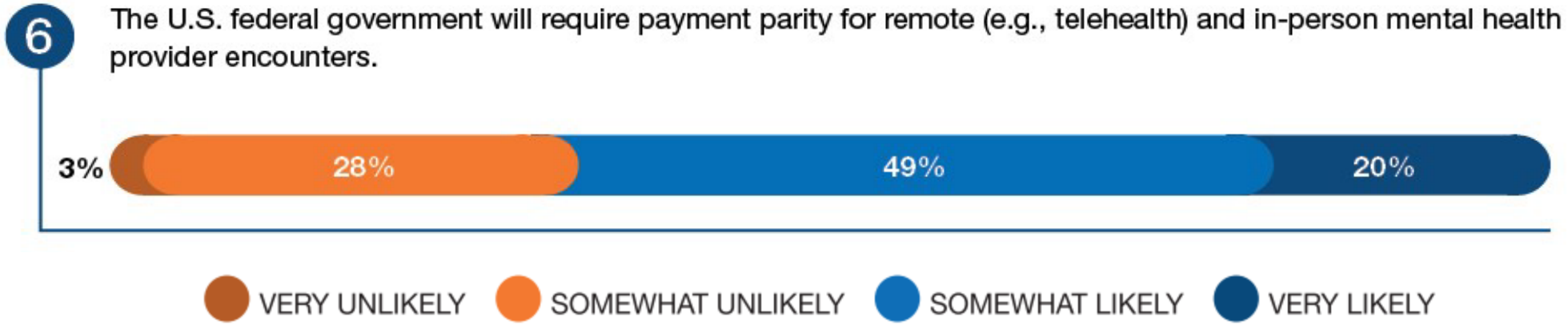

Theme 2: Forecast Question 7

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

Technology (e.g., wearables, smart home devices) will enhance management of mental health conditions.

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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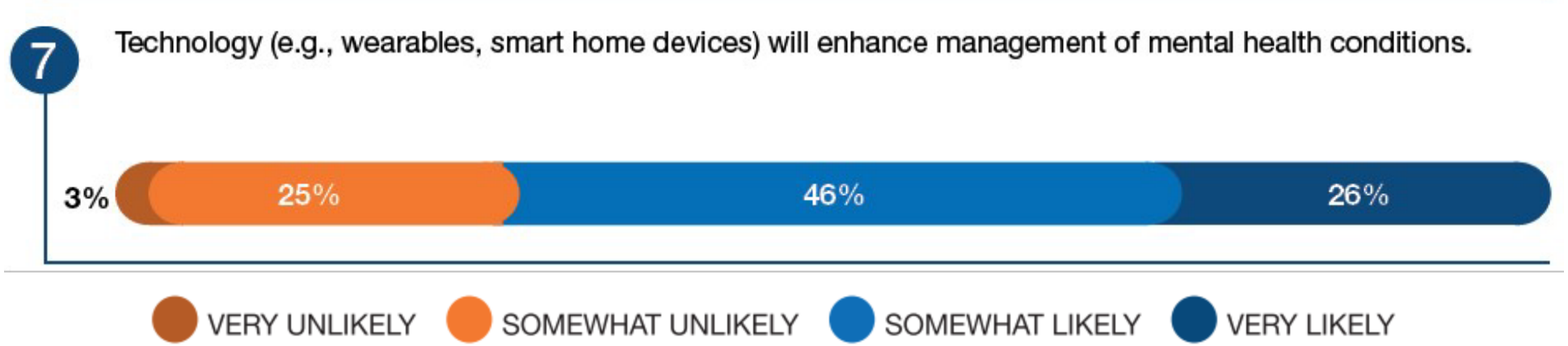
Forecast Response



Strategic Recommendations for Practice Leaders

1. Promote and support novel community and hospital partnerships to create effective mental health crisis services to reduce ED wait times and overcrowding, reduce hospital readmissions, and decrease overuse of law enforcement resources.
2. Support and invest in the core elements needed for effective crisis care systems, such as staffing call centers, mobile response teams, and receiving and stabilization facilities.
3. Prioritize mental health education and skills training for all direct care staff to prepare the workforce to provide equitable, empathetic, and culturally competent care to individuals with mental health and substance use disorders.
4. Partner with academic institutions and community stakeholders to develop robust talent pipelines, including pharmacists, and career development programs to train and retain a competent behavioral health workforce.
5. Integrate behavioral health providers in primary care settings to provide a sustainable framework for collaborative care that includes pharmacists with advanced training and experience in mental health and substance use disorders.
6. Increase opportunities for pharmacy students and residents to gain exposure to psychiatric and substance use disorders and support expansion of PGY-2 psychiatric pharmacy training programs.

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Theme 3:
Achieving Care Equity

Achieving Equity in Healthcare Delivery

- Some segments of our population remain at greater risk for disparities in health or healthcare
  - These include LGBTQ+ and rural health populations
- Health systems must consider equity as an essential pillar of healthcare quality, and use multi-pronged approaches that:
  - Define populations at-risk with available data
  - Improve access to care for at-risk populations
  - Address the individual, provider, and system contributors to disparities
  - Increase workforce diversity to reduce biases as root causes of disparities

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Theme 3: Forecast Question 1

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

Augmented reality technology will be used routinely to enhance patient encounters (e.g., assist with diagnostics, enhance patient virtual visits).

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Digital Technology and Healthcare Equity

- Digital technology presents an opportunity to promote high quality, equitable care and communication as healthcare systems embrace a “digital-first” approach to patient encounters
  - A challenge in this approach is the digital divide that exists among at-risk and socially and economically disadvantaged populations
- The availability and use of technology among at-risk populations must be considered so that healthcare disparities in disadvantaged groups are not exacerbated by reliance on digital tools

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Forecast Response

1 Augmented reality technology will be used routinely to enhance patient encounters (e.g., assist with diagnostics, enhance patient virtual visits).

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Theme 3: Forecast Question 2

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

The 340B program will be reduced to the extent that hospitals no longer participate because the effort invested is not worth the savings provided.

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Theme 3: Forecast Question 3

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

To maintain their non-profit status, health systems will have to demonstrate a specified level of investment in programs and services to reduce health disparities in their communities.

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Theme 3: Forecast Question 4

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

Value-based payer contracts will include incentives when health systems demonstrate care equity (e.g., similar outcomes of care regardless of race, gender, location).

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Theme 3: Forecast Question 5

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

Provider demographics (e.g., provider race, gender identity, sexual orientation) will be designated as a social determinant of health, recognizing the influence provider demographics have on the quality of health.

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Health Equity Is an Essential Pillar of Healthcare Quality

- To effectively promote health equity when designing incentive programs, healthcare systems should:
  - Target quality measures relevant to their patient population
  - Engage in creation of interprofessional health metrics
  - Construct incentives that do not penalize hospitals that care for a high volume of disadvantaged populations
- Ensuring health equity among LGBTQ+ individuals is a key dimension of delivering high-quality care
  - Organizations' advocacy for addressing disparities in this population at-risk can be discordant with state and local laws that challenge gender-affirming care
  - Health systems need adequate health education (on social affirmation and allocation of medication and surgeries) for all medical providers to create a safe and affirming healthcare environment for LGBTQ+ patients

Forecast Response

2 The 340B program will be reduced to the extent that hospitals no longer participate because the effort invested is not worth the savings provided.

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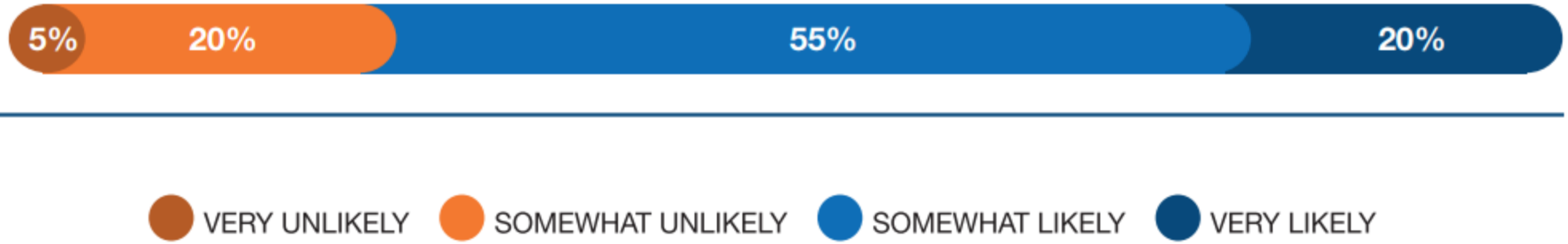
Forecast Response

3 To maintain their non-profit status, health systems will have to demonstrate a specified level of investment in programs and services to reduce health disparities in their communities.



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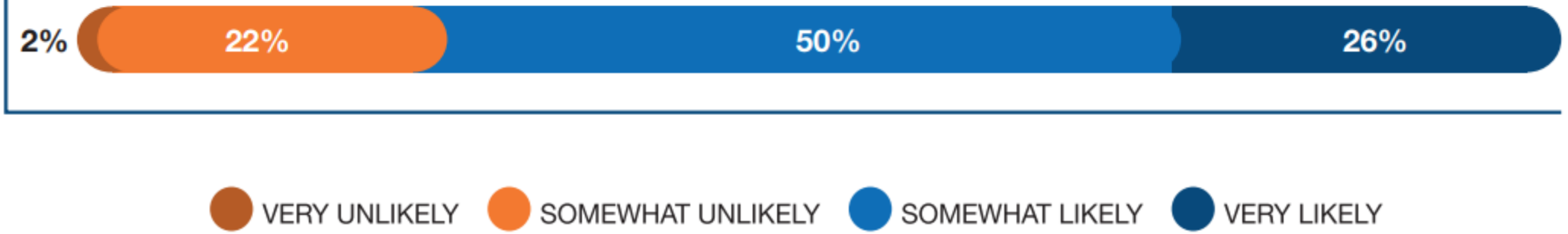
Forecast Response

4 Value-based payer contracts will include incentives when health systems demonstrate care equity (e.g., similar outcomes of care regardless of race, gender, location).



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Forecast Response

5 Provider demographics (e.g., provider race, gender, gender identity, sexual orientation) will be designated as a social determinant of health, recognizing the influence provider demographics have on the quality of health.

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Theme 3: Forecast Question 6

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

50% of critical access hospitals will convert their status to Rural Emergency status.

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Theme 3: Forecast Question 7

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

Tertiary referral centers will partner with Rural Emergency Hospitals to increase market share and reach of referral center services.

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Theme 3: Forecast Question 8

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

Health systems will embrace a "digital-first" approach to patient encounters (e.g., video primary care visits, telehealth, and remote patient monitoring), which will make patient access to virtual care universal.

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Theme 3: Forecast Question 9

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

Federal action will mandate patient access to gender-affirming care, including relevant medications.

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Optimizing Rural Health Access

- Over 20% of US citizens currently live in rural areas, many at risk for disparities in healthcare
  - Reduced access to a range of ambulatory and hospital-based services
  - Closure of rural hospitals and the unintended spillover effects on remaining hospitals in their region
- Several policies and programs have been introduced to promote optimal care and access for rural communities
  - Medicare rural hospital payment designations
  - Veterans Health Administration Office of Rural Health's Rural Promising Practices model
  - Centers for Medicare and Medicaid Services and the Pennsylvania Rural Health Model

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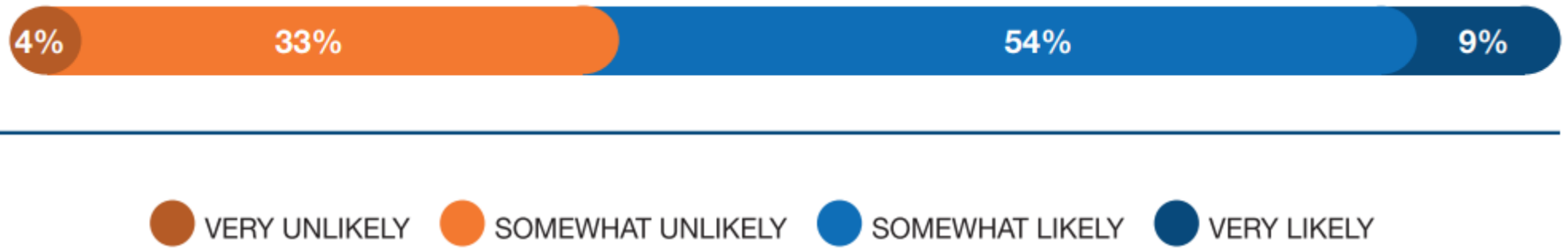
Forecast Response

6 50% of critical access hospitals will convert their status to Rural Emergency Hospital status.



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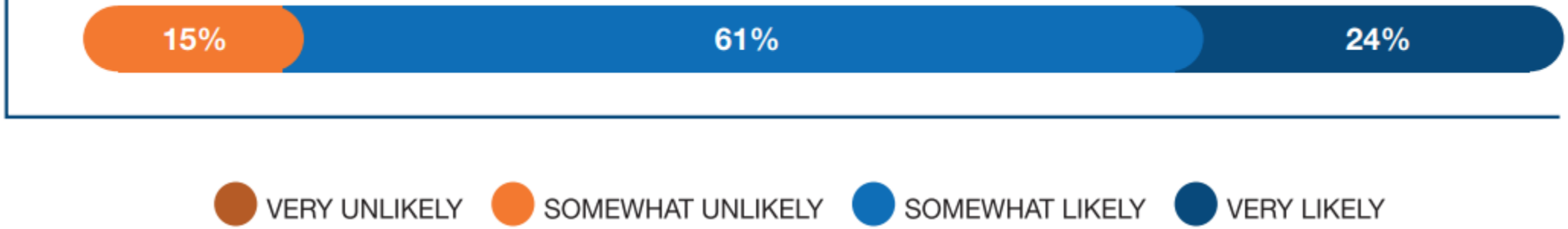
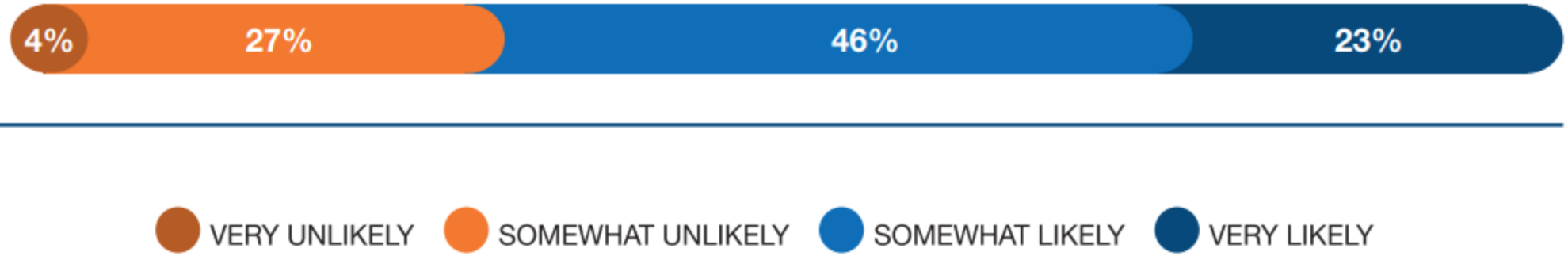
Forecast Response

7 Tertiary referral centers will partner with Rural Emergency Hospitals to increase market share and reach of referral center services.



Forecast Response

8 Health systems will embrace a “digital-first” approach to patient encounters (e.g., video primary care visits, telehealth, and remote patient monitoring), which will make patient access to virtual care universal.



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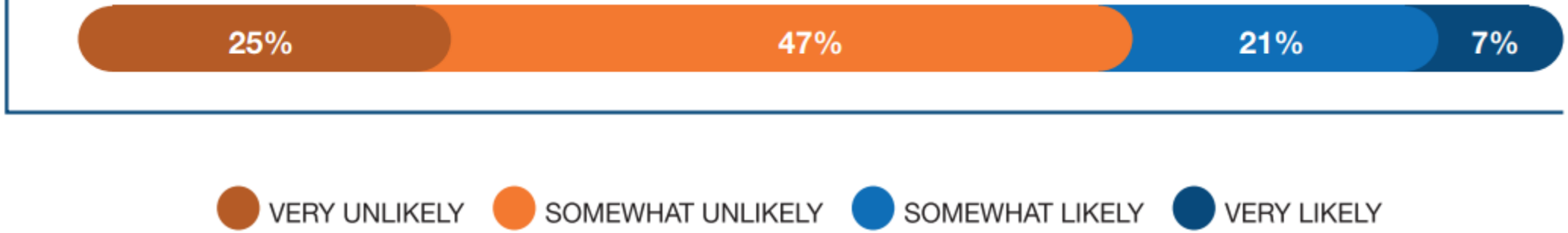
Forecast Response

9 Federal action will mandate patient access to gender-affirming care, including relevant medications.



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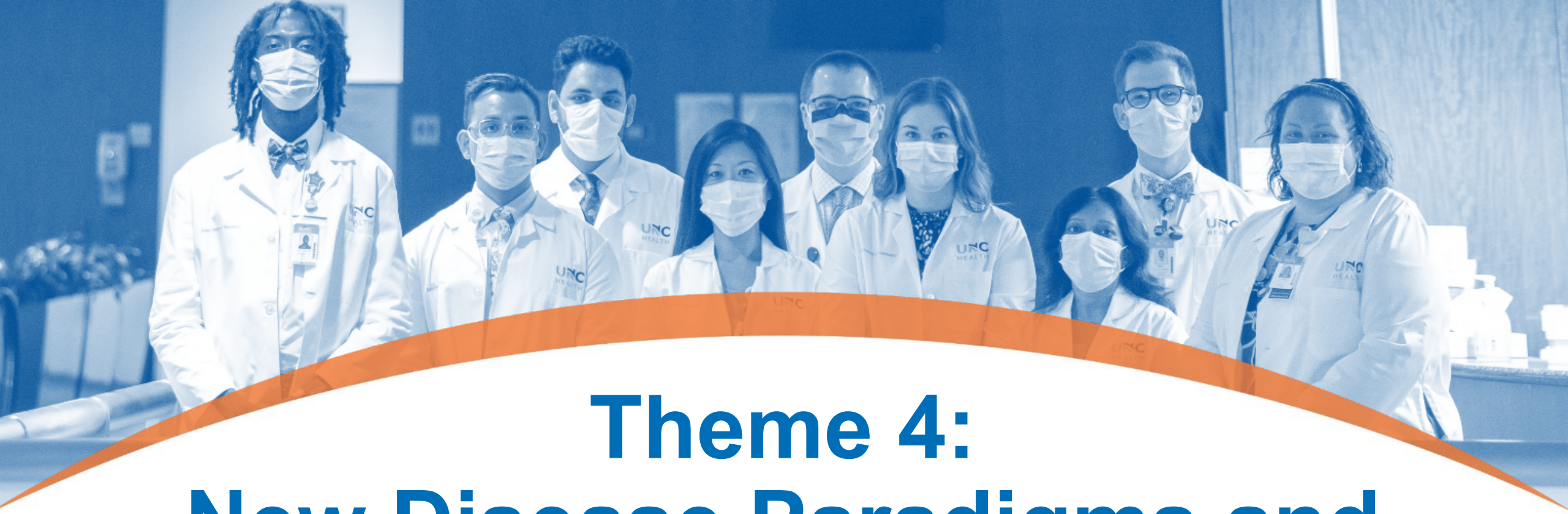
Strategic Recommendations for Practice Leaders

1. Provide in-home technology and digital access in satellite clinics to ensure at-risk patients have access to infrastructure that promotes safe and appropriate medication use and pharmacoequity.
2. Advocate to payers and nonprofit organizations that the availability and infrastructure of digital technology are essential to ensure access and provide high-quality, equitable care.
3. Partner with healthcare professional organizations to enhance knowledge and access to gender-affirming care. Conduct comprehensive data analysis of positive and negative outcomes to identify gaps and develop strategies to enhance provision of gender-affirming care.
4. States with rural healthcare deserts should adopt best practice policies from other states, government agencies, and payers that have improved access to care in rural areas where hospitals and clinics have been closed.
5. Equity assessments of evidence-based metrics must become a standard method to assess quality of care by healthcare systems and payers. Encourage all forms of quality metrics to be stratified for at-risk populations, including those defined by race, ethnicity, age, sex, gender, LGBTQ+ status, and rurality of residence.



Theme 4:
New Disease Paradigms and Treatment Innovations

New Disease Paradigms and Treatment Innovations

- The rising costs of new drug treatments generate unique challenges for health systems.
- Driving Forces:
  - The ultra-high expense incurred with a single treatment.
  - Uncertainty around reimbursement.
  - The deployment of new drug treatments is complicated by the highly specialized care.
  - Complex contracting, product sourcing, logistics, and ongoing care after treatment.

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Theme 4: Forecast Question 1

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

Formulary and policy decisions for ultra-high-cost drugs (e.g., rare and orphan drugs, gene therapy, CAR-T) will be decided by payer or service line stakeholders, and as a result, will weaken the scope of authority of the health-system Pharmacy and Therapeutics Committee.

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Pharmacy and Therapeutics Committee – Scope of Authority

- Formulary and policy decisions for ultra-high-cost drugs will be made by payers or service line stakeholders.
- Ultra-high costs of new agents make it unsustainable for a healthcare organization to administer treatments that may not be reimbursed.
- Ultimately weakening the role of the P&T committee in formulary decision-making.
- Health-system leaders may be particularly involved in decision-making around the administration of these innovative agents.

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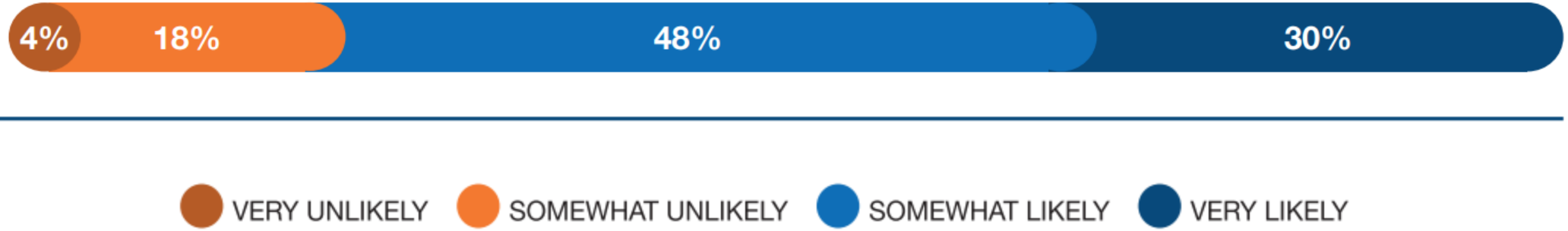
Forecast Response

1

Formulary and policy decisions for ultra-high-cost drugs (e.g., rare and orphan drugs, gene therapy, CAR-T) will be decided by payer or service line stakeholders, and as a result, will weaken the scope of authority of the health-system Pharmacy and Therapeutics Committee.



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Theme 4: Forecast Question 4

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

50% of community hospitals will partner with centers of excellence to expand patient access to precision medicine.

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Center of Excellence Partnership

- Cellular and gene therapies are a form of precision medicine, and their popularization will further accelerate the need for broader partnerships in healthcare delivery.
- Health-system consolidation over the past 2 decades has laid the foundation for this evolution.
- Independent community hospitals will develop affiliation agreements or referral networks to assure patient access.

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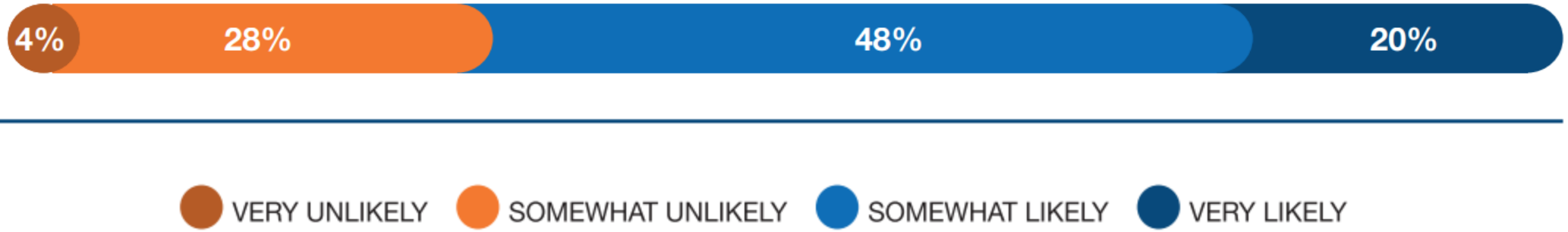
Forecast Response

4 50% of community hospitals will partner with centers of excellence to expand patient access to precision medicine.



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Theme 4: Forecast Question 5

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

Generative artificial intelligence technology will access documentation in the health record to create personalized treatment plans.

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Artificial Intelligence

- Artificial intelligence to rapidly analyze information about genotype, phenotype, proteomics, and lifestyle will likely accelerate patient connection to the most appropriate therapeutic interventions.
- Artificial intelligence may facilitate efficient navigation of the payer requirements, alleviating administrative burden from clinicians.
- If not properly and thoughtfully configured, artificial intelligence has the potential to worsen inequities. Pharmacists will need to develop expertise in the application of artificial intelligence.

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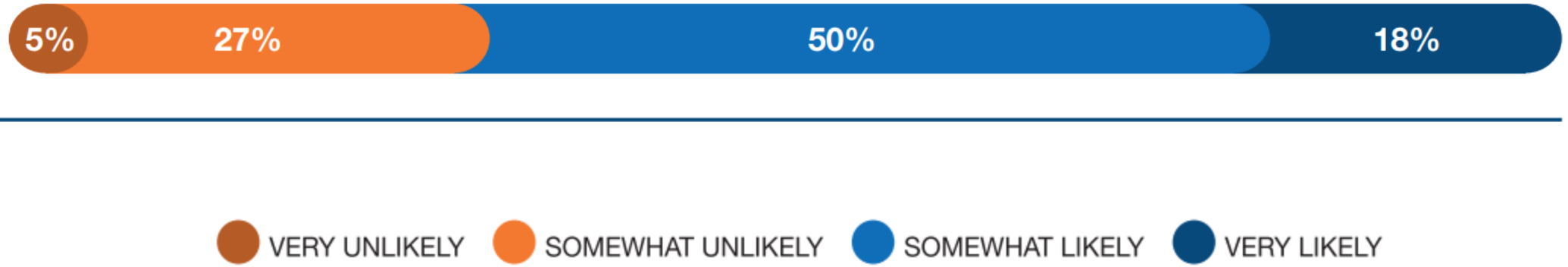
Forecast Response

5 Generative artificial intelligence technology will access documentation in the health record to create personalized treatment plans.



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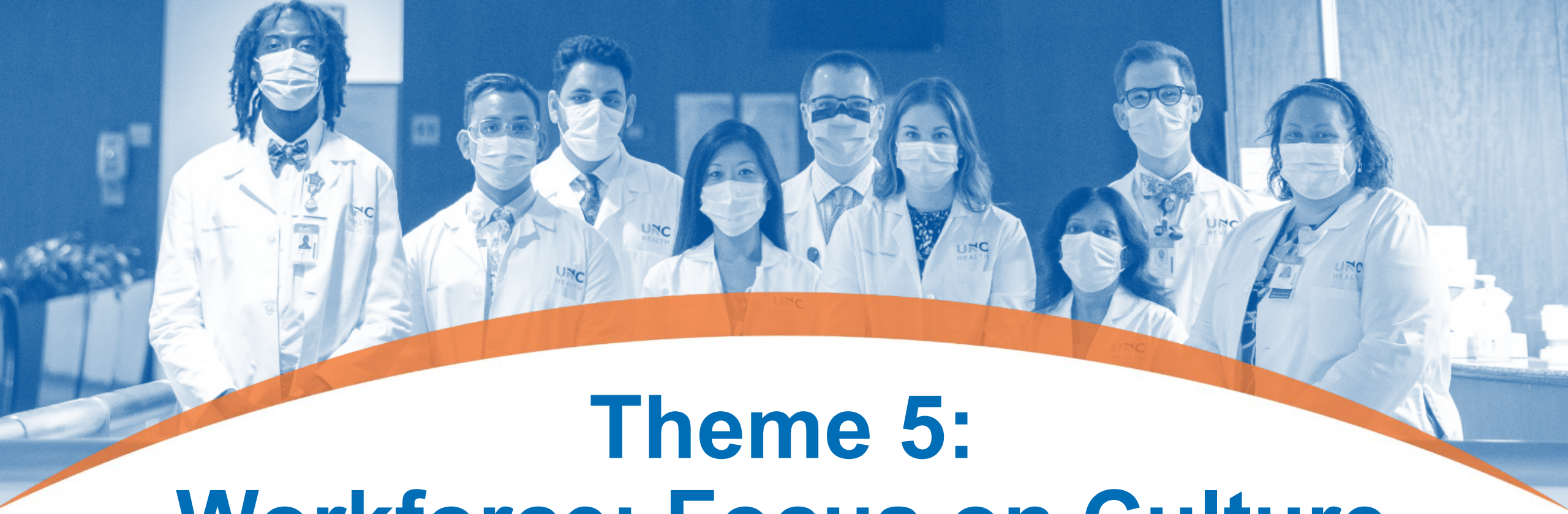
Strategic Recommendations for Practice Leaders

1. Pharmacy leaders should collaborate with health-system finance experts to model the budget impact and measure financial risk associated with the provision of ultra-high-cost drugs through service lines to ensure long-term program feasibility and sustainability.
2. Health-system leaders should interpret the results from any financial analysis related to decision-making around the provision of ultra-high-cost therapies with input from service line stakeholders and the P&T committee.
3. Health-system leaders should expand affiliation agreements and referral networks beyond their immediate self owned delivery network to ensure all patients with need will have access to innovative therapies.
4. Health-system leaders should quantify revenue impact associated with the potential limitation of the 340B program to a unique contract pharmacy per entity and develop plans to capture prescriptions and facilitate patient access to medications through in-house or self-owned specialty pharmacies
5. Health-system leaders should develop, adopt, and implement artificial intelligence applications that accelerate the identification and referral of patients who are most likely to benefit from rare disease treatments while ensuring that these applications do not exacerbate inequities.
6. Health systems should establish artificial intelligence as a strategic priority to inform decisions about high-cost therapies and form a multidisciplinary team including pharmacists to ensure optimal implementation.



Theme 5: Workforce: Focus on Culture for the Future

Focus on Future Workforce Culture

- According to the American Hospital Association (AHA), 47% of healthcare workers may be planning to leave their jobs by 2025
- Workforce challenges due to
  - Aging population
  - Decreased labor force participation
  - Cultural change
- The future pharmacy workforce will value diversity, equity, inclusion, and accessibility

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Theme 5: Forecast Question 7

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

All health systems will mandate employee training concerning unconscious bias in patient care.

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Demographics of the Future Workforce

- Patient satisfaction is higher when the provider has a racial/ethnic concordance with the patient
- For the next 20 years, Generation Z (born 1997 – 2012) will make up most of the workforce
  - Prioritize mission-drive values
  - Highly educated/progressive
  - Most racially and ethnically diverse generation
- Need for training in health equity and unconscious bias

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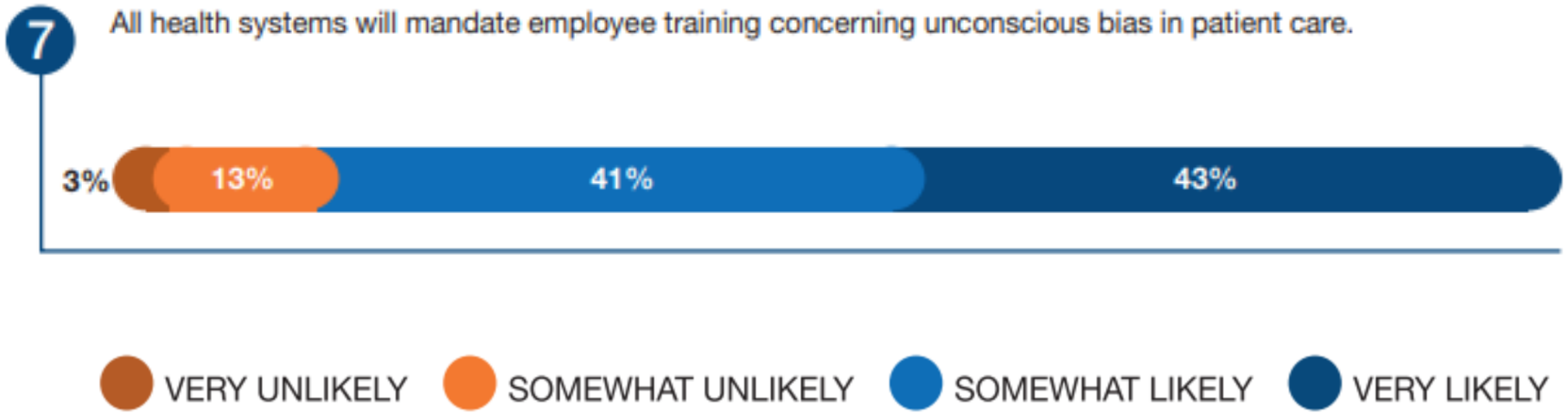
Forecast Response



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Theme 5: Forecast Question 1

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

National efforts to address workforce shortages will consider pharmacists and pharmacy technicians with the same urgency as other health professions.

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Pharmacy Workforce Shortage

- 2022 ASHP National Survey of Pharmacy Practice in Hospital Settings
  - 24% of hospitals reported an entry-level pharmacist shortage
  - 74% reported an entry-level technician shortage
- The pharmacy workforce was not included in the 2023 AHA Health Care Workforce Scan
- Pharmacy leaders need to advocate that pharmacists and pharmacy technicians are critical for the delivery of healthcare and the urgent need to address workforce shortages

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Forecast Response

1 National efforts to address workforce shortages will consider pharmacists and pharmacy technicians with the same urgency as other health professions.

VERY UNLIKELY SOMEWHAT UNLIKELY SOMEWHAT LIKELY VERY LIKELY

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Theme 5: Forecast Question 2

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

To address the pharmacist and pharmacy technician shortage, 25% of states will allow licensure compacts across state lines

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Pharmacy Workforce Shortage

- Pharmacy leaders should advocate for updated regulation that support multistate licensure consistent with ASHP's policy position
  - Expand the mobility of practice sites
  - Enhance opportunity for multistate practice
- Skill development that support the management of remote and hybrid teams should also be prioritized

Forecast Response

2 To address the pharmacist and pharmacy technician shortage, 25% of states will allow licensure compacts across state lines.

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Theme 5: Forecast Question 9

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

Concerns about workplace safety will become a major deterrent for recruitment to health professions

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Culture of Workplace Safety

- The healthcare industry has a high incidence of workplace violence
- Any impact of workplace violence on recruitment will further exacerbate workforce shortages
- Pharmacy leaders should advocate for pharmacy-specific considerations within comprehensive workplace violence prevention programs, including:
  - Employee engagement
  - Risk analysis
  - Policy development
  - Education

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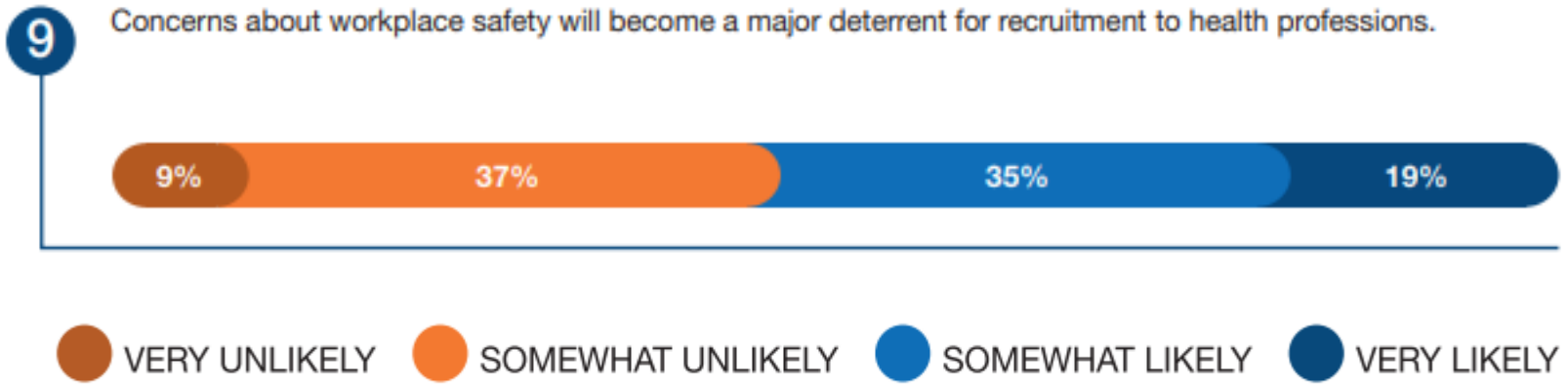
Forecast Response



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Strategic Recommendations for Practice Leaders

1. Pharmacy leaders should partner with professional organizations and policy makers to advocate for solutions to the critical pharmacy technician shortage and place more attention on pharmacy workforce sustainability
2. Pharmacy organizations should advocate for and participate in the development of legislative actions that support multistate pharmacy licensure and/or registration.
3. Pharmacy leaders should develop operational and clinical practice models that support virtual and hybrid work environments.
4. Health systems should foster inclusive environments through meaningful health equity training, community partnerships, and recruitment of individuals from underrepresented populations.
5. Ensure health-system executive leaders have considered the impact of workplace violence on the pharmacy workforce, including pharmacy-specific risk factors, as best practices to deploy throughout the health system.

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Theme 6: Artificial Intelligence: Can Ethics and Regulators Catch Up?

Artificial Intelligence: Can Ethics and Regulators Catch Up?

- Artificial intelligence (AI) and data integration have helped drive healthcare change over the past several years
- Use of AI includes radiological image analysis, electronic health record (EHR) data analysis, and other functions
- Large language models are also expediting AI innovation in healthcare
- It is crucial for healthcare leaders and regulators to consider the risks and benefits of AI usage in healthcare during this period of rapid advancement

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Theme 6: Forecast Question 1

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

Accelerating adoption of advanced technologies (e.g., remote monitoring, artificial intelligence, data integration) will close the gap on healthcare disparities.

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Ethics and the Rapid Pace of Innovation

- AI models could remove unconscious bias from patient care
- However, AI models could perpetuate bias and disparities caused by training the models on historically biased data
- Additionally, some health-system have more resources to devote to AI implementation, which could magnify differences in patient outcomes across healthcare systems. This disparity is known as the “digital divide.”

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Forecast Response

1 Accelerating adoption of advanced technologies (e.g., remote monitoring, artificial intelligence, data integration) will close the gap on healthcare disparities.

VERY UNLIKELY SOMEWHAT UNLIKELY SOMEWHAT LIKELY VERY LIKELY

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Theme 6: Forecast Question 3

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

Health-system ethics committees will have expertise that ensures the equitable application of artificial intelligence technology when used in patient care.

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Theme 6: Forecast Question 8

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

The FDA will take action to ensure that clinical decision support software driven by artificial intelligence technology does not exacerbate health disparities.

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Monitoring the Impact of Innovation

- Strategic emphasis must be placed on monitoring the impact of AI and ensuring that all patient populations benefit
- AI must be trained on diverse and representative data, normalizing data and incorporating metrics to identify disparities in care
- Local, regional, and federal groups/regulators will need to be involved to ensure equitable application of AI for all patients
- Currently, forecast panelists do not believe the Food and Drug Administration (FDA) will regulate AI models, so more responsibility will fall on healthcare systems

Forecast Response

3 Health-system ethics committees will have expertise that ensures the equitable application of artificial intelligence technology when used in patient care.

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Forecast Response

8 The FDA will take action to ensure that clinical decision support software driven by artificial intelligence technology does not exacerbate health disparities.

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Theme 6: Forecast Question 4

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

State boards of pharmacy will develop regulations allowing the use of artificial intelligence or other technology in place of pharmacist order review and verification.

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Theme 6: Forecast Question 5

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

Integration of the electronic health record data with clinical decision support algorithms will automate drug dosing adjustments (e.g., renal, weight-based, age-based dosing).

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Future Pharmacy Practice

- While AI technology is capable of performing dosing adjustments based upon patient-specific factors (i.e., age, weight, renal function), regulatory bodies are not prepared to allow the use of AI for order review and verification
- Allowing AI to perform some order review and verification could reduce verification variance and allow pharmacists to spend more time providing direct patient care
- In the future, pharmacists may have to shift from focusing on verification to more clinical tasks

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Forecast Response

4 State boards of pharmacy will develop regulations allowing the use of artificial intelligence or other technology in place of pharmacist order review and verification.

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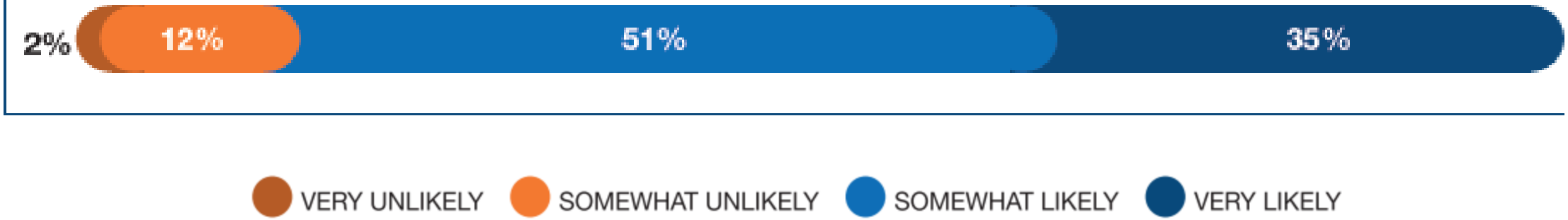
Forecast Response

5 Integration of the electronic health record data with clinical decision support algorithms will automate drug dosing adjustments (e.g., renal, weight-based, age-based dosing).



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Theme 6: Forecast Question 6

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

50% of quantitative health data (e.g., vital signs) will be captured and documented via remote monitoring (e.g., smartwatches, fitness trackers, and ambient monitoring technology).

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Theme 6: Forecast Question 7

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

Health systems will routinely use patient-generated health data that has been integrated into the electronic health record.

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Data Integration

- Health trackers have become more prevalent throughout our society
- These trackers can collect health information that could be useful for clinicians
- In the future, some health data (i.e., vital signs) collected using such technology may be documented in the electronic health record for use by clinicians

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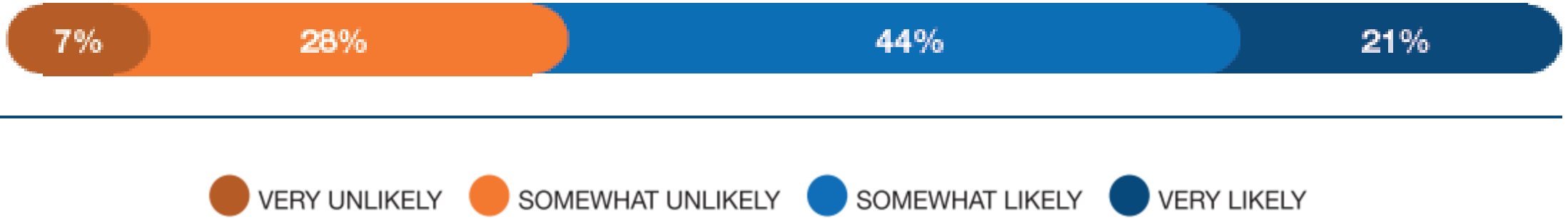
Forecast Response

6

50% of quantitative health data (e.g., vital signs) will be captured and documented via remote monitoring (e.g., smartwatches, fitness trackers, and ambient monitoring technology).



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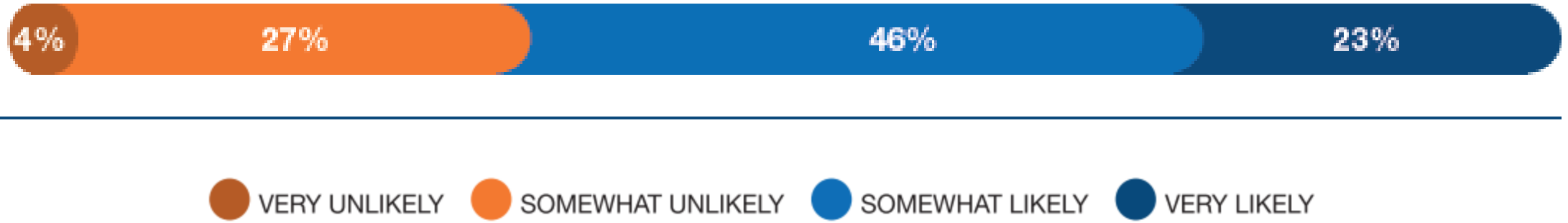
Forecast Response

7 Health systems will routinely use patient-generated health data that has been integrated into the electronic health record.



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Theme 6: Forecast Question 2

How likely is it that the following will occur, by the year 2028, in the geographic region where you work?

A high-profile case(s) involving patient harm related to artificial intelligence used for patient care decisions will accelerate government regulation of this technology.

A. Very Likely
B. Somewhat Likely
C. Somewhat Unlikely
D. Very Unlikely

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Regulations and AI Safety

- There are concerns for AI “hallucinations,” which occur when incorrect outputs are generated
- There may also be errors in algorithms, implementation into workflows, or limited external validity of the models
- These errors can heighten the risk of misinformation and patient harm
- The model of legal liability with AI-facilitated workflows has not been well established, so organizations may be hesitant to implement AI until more regulatory, legal, and insurance frameworks are in place

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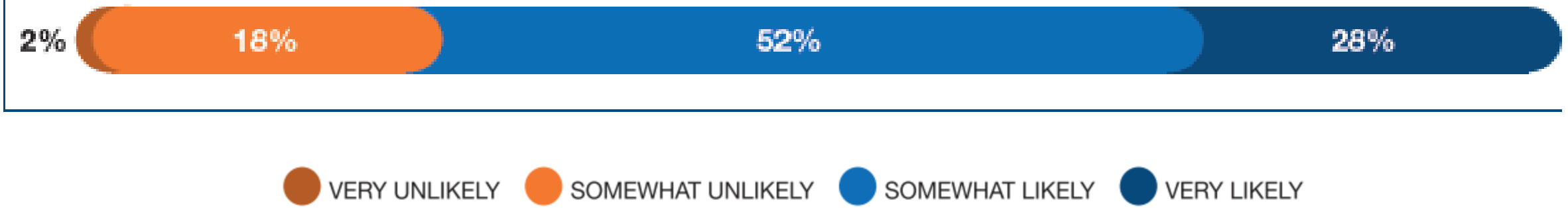
Forecast Response

2 A high-profile case(s) involving patient harm related to artificial intelligence used for patient care decisions will accelerate government regulation of this technology.



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Strategic Recommendations for Practice Leaders

1. Devise tailored strategies for AI and data integration implementation into the medication-use process, considering ethics, regulations, patient safety, and the rapidly evolving AI environment
2. Provide ethics committees with the resources needed to develop guidelines that ensure ethical and accurate AI application and surveillance, developing "AI stewardship"

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Strategic Recommendations for Practice Leaders

3. Dedicate resources to evaluate the safety of AI algorithms for medication order review and verification to enable a data-driven approach to advocate for the use of AI algorithms in medication order review

4. Proactively engage with regulators, establishing comprehensive guidelines for the use of AI in clinical care, and define risk detection and mitigation methodologies to address the risk of misinformation or errors for AI used in patient care

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Strategic Recommendations for Practice Leaders

5. Perform an AI readiness survey assessing technical infrastructure, staff training, emergency planning, and patient communication strategies

6. Include training on AI comprehension and collaboration as a key competency in the training of pharmacists and education of future pharmacists

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Case Study Transition

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- 30 minutes to work on assigned case and answer questions in a small group (4-8 people)
- 5 minutes per group to present the scenario and answer the questions from the case
- Each group should select:
  - A person to lead or facilitate discuss among the group
  - A person to record discussions/decisions made
  - A timekeeper to keep the group on task
  - One or two presenters

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Large Group Wrap-Up

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Conclusion

- The pharmacy forecast improves the effectiveness of leaders in hospital and health-system pharmacy practice
- The forecast allows for students or other pharmacy professionals to better understand the emerging trends and predicted challenges
- Pharmacists are positioned to improve access to care on multiple fronts associated with population health, technology and data, and virtual services

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Group Q&A