

# ASHP Foundation PHARMACY FORECAST 2020

## Strategic Planning Advice

### for Pharmacy Departments in Hospitals and Health Systems

Editor: **Lee C. Vermeulen**, B.S.Pharm., M.S., FCCP, FFIP  
University of Kentucky, Lexington, Kentucky

Founding Editor: **William A. Zellmer**, B.S.Pharm., M.P.H., FFIP  
Pharmacy Foresight Consulting, Bethesda, Maryland

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University of Virginia Health System, Charlottesville, Virginia

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## Foreword

The ASHP Research and Education Foundation (“the Foundation”) is pleased to present the eighth edition of the annual *Pharmacy Forecast*. We are again pleased to disseminate the *Pharmacy Forecast* through *AJHP*, providing readers with easy access to the report. The editorial staff of *AJHP* has provided substantial support for this publication, and we appreciate their assistance.

The *Pharmacy Forecast* is a vital component of the Foundation's efforts to advance pharmacy practice leadership, and the Foundation appreciates the many pharmacists and others who have contributed to the David A. Zilz Leaders for the Future fund, which provides the resources to develop the report. The Foundation is also grateful to Omnicell for their support of the Zilz fund, which has made the *Pharmacy Forecast* possible. The *Pharmacy Forecast* could not be created without the contributions of the report editor, founding editor, members of the Advisory Committee, Forecast Panelists who responded to the forecast survey, and chapter authors. The Foundation is indebted to those individuals who have helped make the 2020 edition a success.

Over the past 7 years, the *Pharmacy Forecast* has provided insight into emerging trends and phenomena that have impacted the practice of pharmacy and the health of patients in health systems. The value of the report, however, is defined by its use by health-system pharmacists and health-system pharmacy leaders as they use the report to inform their strategic planning efforts. The *Pharmacy Forecast* is not intended to be a quantitatively or even qualitatively (directionally) accurate prediction of future events. Rather, the report is, at its core, a provocative stimulant for the thinking, discussion, and planning that must take place in every hospital and health system in order for those organizations to succeed in their mission of caring for patients and advancing the profession of pharmacy. Some may disagree with the opinions of the Forecast Panelists or the positions taken by individual chapter authors with respect to their vision of future events. That is not only acceptable, it is desirable. If you believe the predictions discussed in the *Pharmacy Forecast* are not correct, it follows that you have a different opinion of what the future holds or how future events will shape the healthcare system and the care we provide. As long as you articulate those differing opinion in the context of your own organization's strategic planning process and chart a course for your organization that is consistent with your beliefs, then the *Pharmacy Forecast* has met its objective of encouraging planning efforts of health systems.

We welcome your comments on this new edition of the *Pharmacy Forecast*. Suggestions for future forecasts can be sent to any of the forecast editors through the Foundation's *Pharmacy Forecast* website at <http://www.ashpfoundation.org/pharmacyforecast> and will be considered for future editions.

Creation of the *Pharmacy Forecast 2020* report was supported by an unrestricted grant from Omnicell, Inc., to the David A. Zilz Leaders for the Future Fund of the ASHP Research and Education Foundation.



An audio interview that supplements the information in this article will be available at [www.ajhpvoices.org](http://www.ajhpvoices.org).

# Pharmacy Forecast 2020: Introduction and Methods

**Lee C. Vermeulen, B.S.Pharm., M.S., FCCP, FFIP**, Chief Efficiency Officer, UK HealthCare, and Professor of Medicine and Pharmacy, University of Kentucky, Lexington, KY.

Address correspondence to Mr. Vermeulen ([lee.vermeulen@uky.edu](mailto:lee.vermeulen@uky.edu)).

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Health-system pharmacy leaders face a wide range of challenges—from serving the needs of an increasing number of patients with fewer and fewer resources, to meeting the needs of staff who are expected to work harder, month after month, in the face of increasing complexity of care, to struggling to point their departments in a direction that will lead to success while navigating the seemingly endless stream of change. All of these challenges are made more acute in the absence of a robust, deliberately developed and maintained strategic plan. Without a strategic plan, leaders are forced to hastily react rather than thoughtfully respond to each new challenge, without the benefit of a guide making the best course clear. Forecasting future events is an important exercise that can help leaders create well-informed strategic plans. The 2020 *Pharmacy Forecast* is intended to assist with strategic planning efforts by health-system leaders.

## FORECAST METHODS

The methods used to develop the 2020 *Pharmacy Forecast* were similar to those used in the previous editions, drawing on concepts described in James Surowiecki's book *The Wisdom of Crowds*.<sup>1</sup> According to Surowiecki, the collective opinions of "wise crowds"—groups of diverse individuals in which each participant's input is provided independently,

drawing from his or her own locally informed points of view—can be more informative than the opinion of any individual participant. This process is particularly valuable when addressing phenomena that are not well suited to quantitative predictive methods. A critical requirement for successfully creating crowd-based knowledge is establishing a systematic method of combining individual beliefs into a collective opinion—the *Pharmacy Forecast* uses a survey of carefully selected pharmacy leaders to derive our environmental scan.

The 2020 *Pharmacy Forecast* Advisory Committee (see membership list in the Foreword) began the development of survey questions by contributing lists of issues and concerns they believed will influence health-system pharmacy in the coming 5 years. That list was then expanded and refined through an iterative process, resulting in a final set of 8 themes, each with 6 focused topics on which the survey was built. Each of 48 survey items was written to explore the selected topics and was pilot-tested to ensure clarity and face validity.

As in the past, survey respondents—Forecast Panelists (FPs)—were selected by ASHP staff after nomination by the leaders of the ASHP sections. Nominations were limited to individuals known to have expertise in health-system pharmacy, knowledge of trends and new developments in the field, and the ability to think analytically about the future. The size of the Forecast Panel in 2019 was deliberately increased in an effort to capture opinions from a wider range of pharmacy leaders than in past Forecasts, and the size of the Forecast Panel remained large this year.

The forecast survey instructed FPs to read each of the 48 scenarios represented in survey items and consider the likelihood of those scenarios occurring in the next 5 years. They were asked

to base their response on their firsthand knowledge of current conditions in their region, not based on their understanding of national circumstances. The panel was carefully balanced across the census regions of the United States to reflect a representative national picture. They were asked to provide a top-of-mind response regarding the likelihood of those conditions being very likely, somewhat likely, somewhat unlikely, or very unlikely to occur.

This year, we chose to explore a facet of strategic planning dealing with our ability to respond to unexpected, unpredictable events known as "black swans."<sup>2</sup> As you will read in the section of the *Pharmacy Forecast* written by Bill Zellmer, Scott Knoer, and James Hoffman, black swan events pose opportunities and threats to health systems. While it is not possible to be "black swan proof," it is possible to be "black swan robust"—with deliberate, consistent, and effective strategic planning, an individual, organization, or community can be better prepared to successfully respond when black swan events inevitably occur, and preparation for those events is an essential leadership challenge. To prepare FPs to answer survey questions in this section, we introduced the concept of the black swan and provided several hypothetical (but potential) black swan events as examples. We then asked FPs to predict, using a linear analog scale from 0 to 100%, how prepared they feel they, their organizations, their patients, and their communities are to successfully respond to black swan events that will occur in the coming 5 years.

## FORECAST SURVEY RESULTS

The strength (and possibly validity) of predictions generated using the "wisdom of the crowd" method is largely dependent on the nature of the panelists responding to the forecast survey. Therefore, it is important to

understand the composition and characteristics of the panel. A total of 325 FPs were recruited to complete the forecast survey. Responses were received from 283 (an 87.1% response rate, up slightly from the 85.4% response rate in 2019). Most of the FPs (81%) had been in practice for greater than 10 years, and 46% had been in practice for greater than 20 years (down from 58% of FPs in 2019). Most FPs (58%) described their practice setting as a teaching hospital or health system, while 15% of FPs were from nonteaching hospitals or health systems and 13% from academia (essentially unchanged from 2019). Also similar to the 2019 survey, FPs reported that their primary organizations offered very diverse services, including home health or infusion care (54% of FPs), specialty pharmacy (61% of FPs), ambulatory care (82% of FPs), pediatric care (61% of FPs), and hospice care (41% of FPs).

Many of the FPs hold the title of chief pharmacy officer or director of pharmacy (13% and 16% of FPs, respectively). A large group of FPs (16%) listed their primary position as “clinical pharmacist – specialist,” and another 13% described their primary role as faculty. The remainder of FPs included leaders and practitioners at varying levels and with varying titles. Again, this distribution was not substantially different from that of the 2019 panel. While 18% of FPs indicated that their primary organization was not a hospital (down from 24% in 2019), 63% of FPs were employed by hospitals with 400 or more beds (up from 61% in 2019), and 19% of respondents were from hospitals of less than 400 beds (similar to 18% in 2019).

In 2019, the size of the Forecast Panel was increased in an effort to obtain a more representative geographic distribution of FPs. This year, we again surveyed a large group of individuals and obtained at least 1 response from every state with the exception of 9 (Alaska, Arkansas, Delaware, Hawaii, Idaho, Nebraska, Oklahoma, Rhode Island, and West Virginia); in comparison, 7 states were not represented in the

## ACKNOWLEDGMENTS

The editor gratefully acknowledges the contributions of many individuals who have made the 2020 *Pharmacy Forecast* a success. The members of the *Pharmacy Forecast* Advisory Committee were instrumental in considering hundreds of factors that may influence the future of health-system pharmacy and distilling those ideas into a coherent survey. The authors of each *Pharmacy Forecast* section took the “crowd wisdom” and created impactful messages and recommendations. Also acknowledged for assistance with various aspects of the process are Eliza Asherian, Julia Beatty, James Blackmer, Kelly Brookbank, Stephanie Brown, David Chen, Lillian Clark, Dan Cobaugh, Rachael Freeman, Camryn Froerer, Brandi Gore, Laura Halsey, Clayton Hamilton, Chanese Hampton, Ryan Hays, Lynn Hoffman, Collin Jakubecz, Erica Krantz, Jennifer Lee, Jordan Long, Alexandria Lux, Scott Mambourg, Maryam Mohassel, Derek Montgomery, Barbara Nussbaum, Shea O'Brien, Antoniette Parris, Jeff Schempp, Leticia Vargas, and Kjersti Vharen. The editor also again recognizes the leadership and vision of William A. Zellmer, the founding editor of the ASHP Foundation *Pharmacy Forecast* series, for creating a resource for the profession that continues to have significant value.

previous survey. As shown in [Table 1](#), response rates per million population in each U.S. region ranged from 0.5 in the Pacific region (Oregon, California, and Washington) to 1.7 in the Western Plains states (Iowa, Kansas, Minnesota, Missouri, North Dakota, and South Dakota). When compared to the distribution of survey respondents in 2019, we achieved improved balance in both the percentage of responses coming from each region and the response rate per million population in this year's survey. In the 2020 survey, every region was represented by a minimum of 19 FP respondents (up from a minimum of 16 in 2019).

## CONTENTS OF THE 2020 PHARMACY FORECAST

Within each section of this report, the results of each survey question are

summarized in detail. The results are discussed and key strategic recommendations are provided to stimulate strategic planning by pharmacy leaders.

In a section on patient-centered care, Meghan Swarthout and Caleb Alexander describe a wide range of trends that extend the discussion on this topic provided in the 2019 *Pharmacy Forecast*. While the cost of healthcare, and specifically the out-of-pocket financial responsibility borne by patients, is a critical issue in this section, several key areas surrounding patient decision-making, including an exploration of where patients choose to seek care in the future and concerns regarding vaccine choices, are addressed as well.

In a continuing discussion of the future of pharmacy education and pharmacy workforce issues, Diane Ginsburg and Katie Pritchett provide a section exploring a number of challenges that will face health-system pharmacy leaders in the coming years. The continued advancement of pharmacy technicians and their role in health systems, as well as operational challenges surrounding the handling of hazardous products, are highlighted in this edition of the *Pharmacy Forecast*. Several emerging issues facing health-system pharmacy leaders are addressed by Sara White, Jen Tryon, and Conrad Emmerich in a specific section devoted to leadership. Concerns regarding workplace violence are discussed, as is the potential for the development of a “center of excellence” model for health-system pharmacy following the example of Magnet certification in nursing. The importance of pursuing diversity in the pharmacy workforce—a critical objective that requires deliberate strategic planning for health systems—is also discussed in that section.

We turn to Todd Nesbit and Bill Greene for a discussion surrounding the role of evidence in a wide range of pharmacy practice areas. A bit of a “dog's breakfast” of topics, this section includes a discussion of emerging advanced computing technologies,

**Table 1. Forecast Survey Responses by Region**

Region	% Responses		Responses/1,000,000 Population	
	2019	2020	2019 <sup>a</sup>	2020 <sup>b</sup>
New England (Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut)	6.6	7.3	1.5	1.5
Mid-Atlantic (Delaware, New York, New Jersey, Pennsylvania)	8.4	9.1	0.6	0.6
South Atlantic (Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida)	15.0	17.1	0.8	0.8
Southeast (Kentucky, Tennessee, Alabama, Mississippi)	9.4	8.0	1.9	1.2
Great Lakes (Ohio, Indiana, Illinois, Michigan, Wisconsin)	25.9	21.3	1.6	1.3
Western Plains (Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas)	12.9	11.9	1.8	1.7
Middle South (Arkansas, Louisiana, Oklahoma, Texas)	5.6	6.6	0.4	0.6
Mountain (Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada)	5.9	9.1	1.2	1.1
Pacific (Washington, Oregon, California, Alaska, Hawaii)	10.1	9.4	0.6	0.5

<sup>a</sup>Based on 2010 U.S. Census population data (estimated).  
<sup>b</sup>Based on 2018 U.S. Census population data (estimated).

genomics, and future concerns regarding medical cannabis and provides important guidance on those issues. Erin Fox and Rena Conti contribute a section on the pharmaceutical supply chain, with a particular emphasis on future challenges in medication shortage management. The stability of the supply chain is of critical importance, and recommendations for focused strategic planning are provided.

Two topics that are often included in the *Pharmacy Forecast*—the healthcare marketplace and healthcare reform—also appear in this year's edition. Bruce Scott and Frank Sheehy explore emerging trends in the marketplace, with attention to issues surrounding generics and biosimilars as well as specialty pharmacy. Michael Melby and Mark Lantzy contribute a discussion of healthcare reform challenges that will face health systems in the coming years. The future of federal and state reforms, the continued emergence of value-based payment models, and disruptive phenomena affecting healthcare are all examined. Finally, as discussed previously, Bill Zellmer, Scott Knoer, and James Hoffman

provide a discussion of the black swan concept, introducing a new component for improving strategic planning around potentially catastrophic future events.

### USER'S GUIDE TO THE PHARMACY FORECAST

The purpose of this report is to encourage and support active, deliberate strategic planning in hospitals and health systems. It is intended to stimulate thinking and discussion, providing a starting point for individuals and teams who wish to proactively position themselves and their teams and departments for potential future events and trends rather than be reactive to those things that occur. This edition of the report differs from the first 7 editions, just as each previous version differed from earlier versions. When using the *Pharmacy Forecast*, it is recommended that planners review at least 1 or 2 past editions in addition to this new report; many of the observations and recommendations that are 1 or 2 years old remain important to consider. All past editions of the *Pharmacy Forecast* can be found on the ASHP Foundation

website at <http://www.ashpfoundation.org/pharmacyforecast>.

As in the past, we have specifically avoided discussions of issues that are prone to dynamic change on a day-by-day basis, such as emerging trends in medication shortages. Our focus is on larger-scale trends, and our goal is to look beyond ethereal whims of politics and practice in an attempt to address deeper patterns that will impact us over months and years. While tactical plans can and should reflect phenomenon that change daily, the focus of strategic planning should be on longer-range forecasts.

The process of strategic planning should involve pharmacy staff at all levels: those in formal leadership positions, front-line staff (both pharmacists and pharmacy technicians), and others connected to departments of pharmacy, such as affiliated faculty members and key physician and nursing leaders involved in pharmacy activities. The *Pharmacy Forecast* has been developed to provide guidance to anyone participating in strategic planning activities and it is recommended that the report be reviewed by all involved.

Importantly, the process of strategic planning should not be limited to an annual process, producing a strategic plan which is then largely ignored until the following year when a revised plan is created. Given the complexity, uncertainty, and pace of change in healthcare today, strategic planning must be a continuous process. Strategic plans should be reviewed frequently, allowing for tactical adjustments in course over time as trends (those discussed in this report and others that were not predicted) emerge. It is only through a continuous process that organizations can be responsive to changes that are sure to affect our profession, organizations, and patients.

During the strategic planning process, the *Pharmacy Forecast* can be used as a provocative springboard for brainstorming and discussion; however, those leading strategic planning discussions should be open to opinions that differ from those expressed by the Forecast Panel members and

the chapter authors. Unique characteristics of each hospital and health system may suggest important differences in the potential impact of emerging trends, or individuals may simply disagree with the predictions made in this report. As a stimulant for thought and discussion, dissenting opinions can be constructive and valuable—provided those who express disagreement can offer alternative views and recommendations for action that go along with their perspectives.

Those organizations involved in education or training should consider the use of the *Pharmacy Forecast* as a teaching tool. Many educators and residency preceptors use the report as part of coursework, seminars, or journal club sessions to help engage pharmacy trainees in thinking about the future of the profession they are preparing to enter.

Finally, as pharmacists are increasingly relied upon to provide

system-wide leadership, the *Pharmacy Forecast* addresses many issues that are relevant well beyond the traditional boundaries of pharmacy and the medication-use process. The content of the report should inform the broadened scope of responsibility that many pharmacists now take. The *Pharmacy Forecast* should be shared with other senior health-system leaders and executives as a resource to help them understand the challenges facing pharmacy and to help them recognize the way emerging healthcare trends will affect many other areas of health systems.

### Disclosures

The author has declared no potential conflicts of interest.

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2. Taleb NN. *The black swan—the impact of the highly improbable*. 2nd ed. New York: Random House; 2010.

# Pharmacy Forecast 2020: Patient-Centered Care

**Meghan D. Swarthout, Pharm.D., M.B.A.**, Division Director, Ambulatory and Transitions of Care Services, Department of Pharmacy, Johns Hopkins Health System, Baltimore, MD.

**G. Caleb Alexander, M.D., M.S.**, Professor of Epidemiology and Medicine, Division of General Internal Medicine, Department of Medicine, Johns Hopkins Medicine, Baltimore, MD.

Address correspondence to Dr. Swarthout ([mdavlin1@jhmi.edu](mailto:mdavlin1@jhmi.edu)).

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## INTRODUCTION

More than 30 years ago, the term *patient-centered care* was coined to shift the focus of healthcare providers and health systems from diseases back to patients, and a movement was born.<sup>1</sup> Concepts regarding patient activation (knowledge, skills, and confidence in managing one's own health) and codesigned care are emerging to emphasize a higher level of integration of patient beliefs, values, and preferences in clinical decision-making at both the bedside and in health policy.<sup>2-4</sup> As the pharmacy enterprise expands across the continuum of care, there is opportunity for pharmacists to lead the way in establishing new patient-centered care models.<sup>5</sup>

## ENGAGEMENT

Forecast Panelists (FPs) differed as to whether any increased patient burden from the demands of engagement may decrease health outcomes (Figure 1, item 1). While the responses indicate a concern regarding the impact that such burden could have, patients may be willing to embrace complex self-care management.<sup>6,7</sup> The responses may also reflect confidence that individual- and health system-level factors can mitigate potential burdens.

As was recommended in the 2019 *Pharmacy Forecast*, pharmacists must have the skills to implement care that fosters shared decision-making to improve patient outcomes.<sup>8</sup> It is also important for training programs to include exposure to such care models and skills.

Most FPs believed it likely that patient-reported outcomes (PROs) will play a role in making care decisions (Figure 1, item 2). In order for data from validated PRO tools to be integrated into daily, frontline practice, pharmacy leaders must allocate resources for infrastructure to collect this information directly from patients. Importantly, changes to the electronic health record (EHR) are needed to score, store, view, assess, and utilize PRO data in a manner analogous to how laboratory results are utilized. Consideration must be given to patients' time investment in answering these questions. These tools should not be implemented until there is a clear plan for how the information will be used, and careful consideration should be given to the overall volume of questionnaires posed so as to avoid patient frustration and disengagement. Involving an institutional patient and family advisory council to guide this process can help mitigate this risk.

## CONTINUITY OF CARE

Of all the items in this section of the *Forecast*, the strongest level of FP agreement was with the question examining pharmacists having comprehensive responsibility for a panel of patients across the continuum of care (Figure 1, item 3). As specialty pharmacy and ambulatory care practice continues to expand in health systems, there is a greater need for enterprise-wide communication among pharmacists providing care across these settings. Acute care pharmacists should document discharge summaries for community and ambulatory care pharmacists,

paralleling physician documentation in EHRs, to make this process efficient.

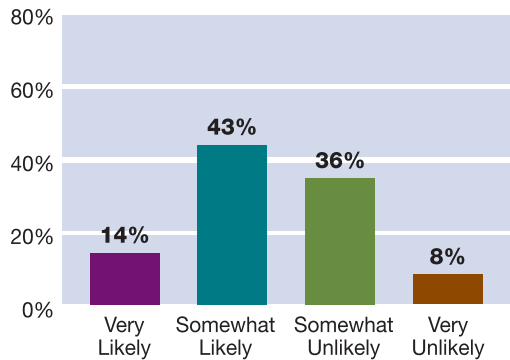
Many pharmacy departments are organized by setting of care. Organizational restructuring can foster collaboration among pharmacists across settings, encouraging alignment that enhances communication and shared ownership of clinical outcomes. For example, infectious diseases and antimicrobial stewardship clinicians might be aligned as one team across acute care and ambulatory practice, sharing responsibility for patient outcomes longitudinally for programs like outpatient parenteral antimicrobial therapy, with pharmacists potentially rotating between acute care and ambulatory care responsibilities. These teams should be incentivized to establish partnership outside of the health system as well, such as collaboration with postacute care facilities. Routine communication and collaboration on quality improvement projects will yield efficiencies, helping to financially justify the added time needed for this work.

## PATIENT COST SHARING

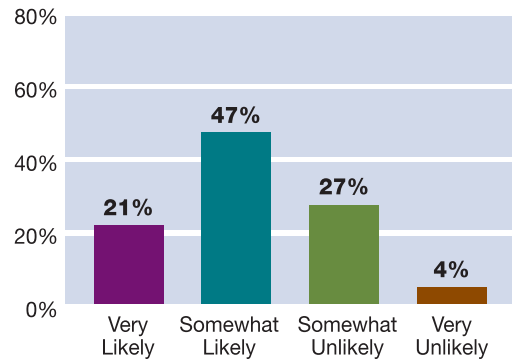
Despite enormous scrutiny, drug prices continue to increase, limiting many patients' access to drugs. FPs clearly acknowledged the role cost will play in patient decision-making, with 70% believing that some patients may decline therapy after considering the costs, benefits, and risks of treatment (Figure 1, item 4), a decline from 82% for a similar question in the 2016 *Pharmacy Forecast*.<sup>9</sup> This change may reflect the increase in patient assistance programs that may now blunt the impact of rising patient out-of-pocket costs despite continued drug price increases.<sup>10</sup> Out-of-pocket medication costs should be a part of shared decision-making discussions with patients, especially when multiple treatment options exist, with close attention paid

**Figure 1 (Patient-Centered Care).** Forecast Panelists' responses to the question, "How likely is it that the following will occur by the year 2024 in the geographic region where you work?"

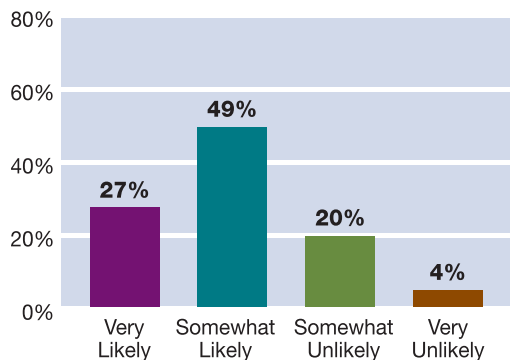
**1** The health status of over 25% of the U.S. population will decline due to patients' inability to cope with the increased burden of engaging in their own care (e.g., collecting and sharing their own health status information, remaining informed of healthcare options, etc.).



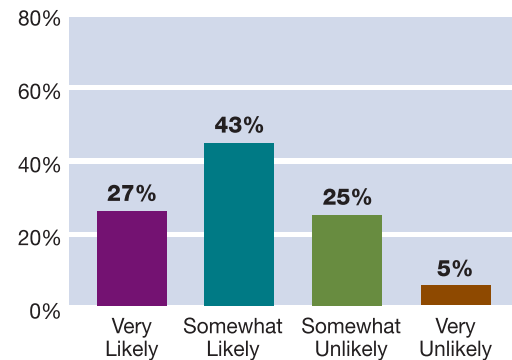
**2** Patient reported outcomes measured using validated questionnaires (e.g., PHQ2/9, SF-36, EQ5D, etc.) will be used in at least 25% of patients to guide care decisions.



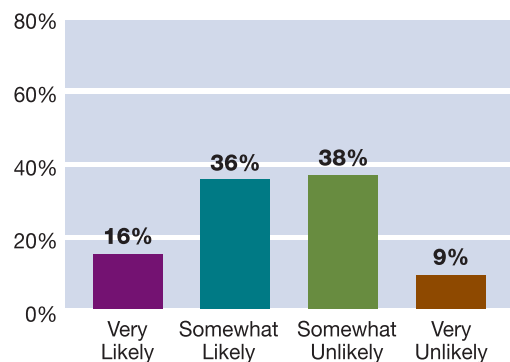
**3** In at least 50% of health systems, certain pharmacists will have comprehensive responsibilities, encompassing inpatient, outpatient and transitions of care, pursuing the best outcomes for a panel of patients from drug therapy across the continuum of care.



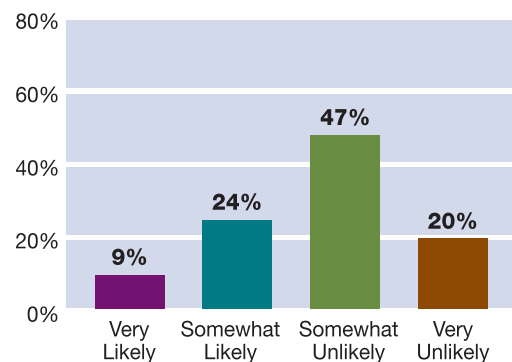
**4** At least 25% of patients who are candidates for treatment with high-cost biologics, cancer chemotherapy, or other novel therapies will decide to forgo that treatment after weighing out-of-pocket cost, clinical benefits and risks.



**5** At least 25% of patients will choose a retail pharmacy-based health clinic rather than a primary care provider for routine primary care needs.



**6** At least 50% of health systems will assign one or more pharmacists to provide education and support to parents who are uncertain about vaccinating their children.



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to the impact of forgoing treatment. As value-based reimbursement evolves, health systems should consider value-based pharmacy designs, which may not only improve clinical outcomes but also reduce total costs of care.

**RETAIL CLINICS AND PATIENT RELATIONSHIPS**

Significant investment has been made in retail pharmacy-based clinics, and respondents expressed uncertainty regarding patient interest in these services (Figure 1, item 5). While these clinics may serve an important role in some communities as a “consumerist” delivery model that frames healthcare as transactional rather than relationship based, they often conflict with principles of patient-centered care.<sup>11</sup>

One of the most common pharmacy services offered through retail clinics is vaccinations. Two out of three FPs indicated they do not believe health systems will assign pharmacists to provide education and support to parents who are uncertain about vaccinating their children (Figure 1, item 6). As public concern and public health risks grow with a resurgence of diseases previously eradicated by vaccines, this represents an opportunity for the profession.

**CONCLUSION**

Despite the constancy of change in the healthcare marketplace, the demand for patient-centered care shows no signs of abating. Pharmacists should realign services to emphasize continuity of care, lead the way in using PROs in meaningful ways, embed shared decision-making into workflows, and offer solutions to tackle large public health challenges by leveraging pharmacist-patient relationships.

**Disclosures**

Dr Alexander is past chair of the Food and Drug Administration’s Peripheral and Central Nervous System Advisory Committee, has

**STRATEGIC RECOMMENDATIONS FOR PRACTICE LEADERS**

1. Invest in the collection of PRO data using validated questionnaires, and make the information readily retrievable in the EHR for frontline staff.
2. Redesign departmental organizational structures to place greater emphasis on continuity of care for service lines and populations, eliminating traditional divisions based on setting of care.
3. Partner with postacute care providers to enhance communication and care coordination between clinical teams.
4. Develop a roadmap to engage patients and care teams in shared decision-making discussions prior to therapy plan development, including consideration of out-of-pocket costs.
5. Deliberately guide decisions about what care should be offered in various settings, including retail-based clinics, to place emphasis on longitudinal pharmacist-patient relationships.
6. Collaborate with public health officials to engage populations increasingly reluctant to accept vaccines, and deploy tactics that promote dialogue and education to optimize vaccination rates.

served as a paid advisor to IQVIA, is a cofounding principal and equity holder in Monument Analytics (a healthcare consultancy whose clients include the life sciences industry as well as plaintiffs in opioid litigation), and is a member of OptumRx’s National P&T Committee. This arrangement has been reviewed and approved by Johns Hopkins University in accordance with its conflict of interest policies. Dr. Swarthout has declared no potential conflicts of interest.

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# Pharmacy Forecast 2020: Pharmacy Education and Workforce

**Diane B. Ginsburg, B.S.Pharm., M.S., Ph.D., FASHP**, Clinical Professor and Associate Dean for Healthcare Partnerships, Pharmacy Practice Division, The University of Texas at Austin College of Pharmacy, Austin, TX.

**Katie O. Pritchett, Ph.D., Lecturer**, McCombs School of Business, The University of Texas at Austin College of Pharmacy, Austin, TX.

Address correspondence to Dr. Ginsburg ([diane.ginsburg@austin.utexas.edu](mailto:diane.ginsburg@austin.utexas.edu)).

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## INTRODUCTION

Forecast Panelists (FPs) responded to questions regarding the symbiotic relationship between pharmacy education and training and workforce issues. These issues include job vacancies, salaries of pharmacists and technicians, and other trends that will affect health-system pharmacy in the future.

## VACANCY RATES FOR STERILE COMPOUNDING PRACTITIONERS

Sixty-five percent of FPs were optimistic about the vacancy rate for pharmacy positions that require specific expertise in sterile compounding and drug distribution (Figure 2, item 1). This is inconsistent with national trends and attention to the preparation of these medications. The increased scrutiny at the national level due to serious errors associated with compounding these medications will necessitate a greater level of training by all personnel.

Certification programs of the Board of Pharmacy Specialties (BPS) and the Pharmacy Technician Certification Board (PTCB) are now available for practitioner certification.<sup>1,2</sup> The Joint Commission (TJC) has developed a Medication Compounding Certification

program to assess compliance with standards for preparing sterile and nonsterile products.<sup>3</sup> Michigan became the first state to require certification by TJC, with over 75 hospitals certified.<sup>3</sup> This certification may become the best practice for compounding sterile i.v. products, necessitating a specially trained and certified pharmacy workforce. Legislative and regulatory efforts may require certification for personnel involved in sterile product compounding.

## FUTURE OF PHARMACY TECHNICIANS

FPs were split on the question of whether pharmacy technicians will have education and training comparable to that of staff in other fields or be compensated similarly (Figure 2, item 2). Although certification for technicians is required for practice in many states, this is not universal. Currently, there are no uniform education and training requirements for technicians. The duties a technician can perform will be nonjudgmental; however, they will continue to take on additional tasks that will necessitate additional education, training, and credentials. As the role of the pharmacist continues to emphasize cognitive services and include fewer distributive tasks, a higher-educated and higher-trained technician force will be necessary to support pharmacists performing clinical functions. Changes in state laws and regulations to require higher levels of pharmacy technician education and training must occur before pay scales for pharmacy technicians will be comparable to those of other ancillary healthcare providers. National pharmacy organizations will expand their membership to include technicians. In 2018, ASHP established the Technician Forum to provide a home for these essential practitioners and serve as the collective voice for pharmacy

technicians by supporting their advancement and professionalization.

## ACCREDITATION OF TECHNICIAN EDUCATION AND TRAINING

FPs were divided as to whether health systems would offer an ASHP/ACPE-accredited technician education program (Figure 2, item 3). The development of an accredited program by individual institutions is not cost-effective, nor is it an efficient means to provide this level of training. For larger health systems, this may be possible, but smaller institutions employing few technicians will be challenged to justify or deliver this type of training program.

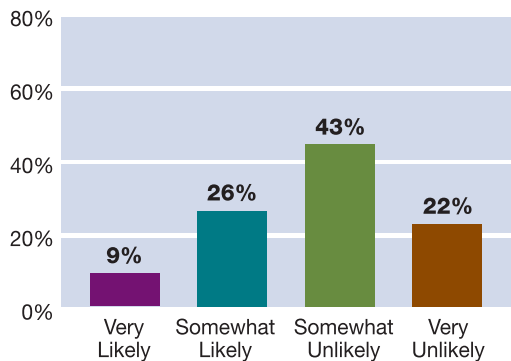
Should state laws and regulations mandate accredited training for technicians, many institutions will collaborate with community colleges to meet their training needs. University-based colleges and schools of pharmacy may offer training through their continuing education departments, but unless training is provided through degree-granting programs, their involvement will be limited.

## NONTRADITIONAL PHARMACY RESIDENCY PROGRAMS

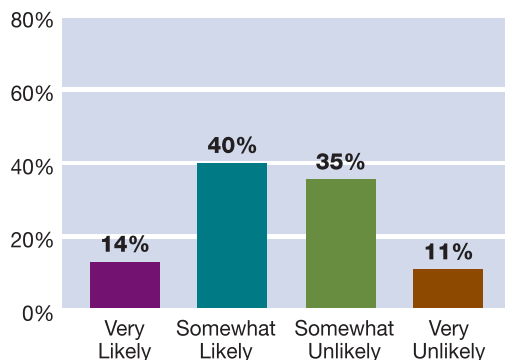
The demand for postgraduate training programs continues to increase each year, with demand outpacing supply; however, 64% of FPs felt it was unlikely that health systems would offer nontraditional residency programs (Figure 2, item 4). This shortage of programs and the increasingly high debt load of new graduates may decrease interest in residency training somewhat, but health systems will continue to require completion of residency training as a requirement for employment. Nontraditional residency programs, as well as certificate programs, would allow pharmacists to gain required training, expand

**Figure 2. (Pharmacy Workforce).** Forecast Panelists' responses to the question, "How likely is it that the following will occur by the year 2024 in the geographic region where you work?"

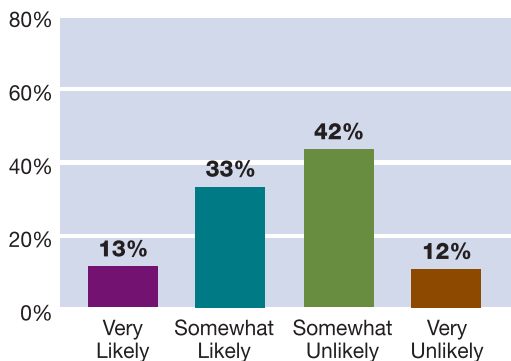
**1** Across all health systems, there will be a 25% vacancy rate in pharmacy positions that require specific expertise in sterile compounding and drug distribution.



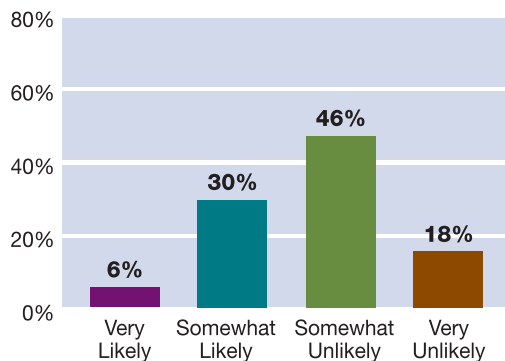
**2** In 50% of health systems, pharmacy technicians will possess education, certification, licensure, etc. equivalent to technical staff in other areas (e.g., radiology, laboratory, etc.) and will be compensated at a similar level.



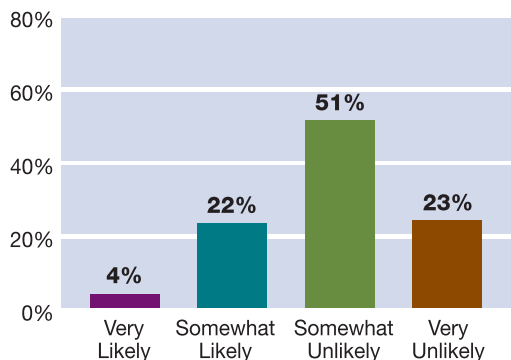
**3** An ASHP/ACPE-accredited technician education program will be offered by at least 50% of health systems (either independently or in partnership with one or more other health systems).



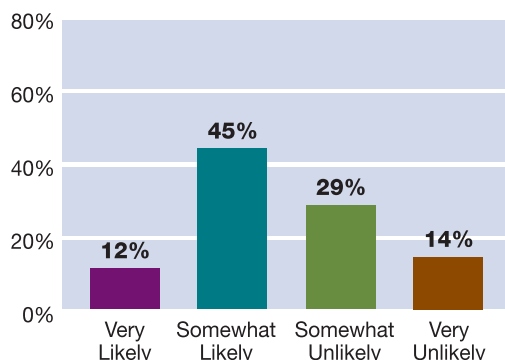
**4** At least 25% of health systems will offer a non-traditional pharmacy residency (i.e., a program that can be completed while a pharmacist remains in active practice).



**5** At least 25% of health systems will offer salary premiums to attract and retain pharmacists and technicians who work with hazardous medications.



**6** At least 10 pharmacy schools will offer a combined Physician Assistant/PharmD program (currently at least 4 pharmacy schools offer such programs).



their skills, and widen their employment options. The combination of nontraditional residency training with graduate studies (e.g., executive M.B.A. degree programs) may also be attractive to pharmacists following a nontraditional career development path.

### SALARY PREMIUMS

Pharmacy is responsible for preparing and distributing some hazardous products. Seventy-three percent of FPs believed health systems will need to offer salary premiums to attract and retain staff who work with hazardous medications (Figure 2, item 5). While staff with certain conditions (e.g., pregnancy) may request adjustments to their job responsibilities to avoid exposure, health systems should have policies and procedures that protect all staff from exposure to hazardous drugs. Pharmacists and technicians who complete additional training and/or certification may qualify for higher salaries, but this would be based on additional credentials, not necessarily the compounding of hazardous medications.

### COMBINED DOCTOR OF PHARMACY AND PHYSICIAN ASSISTANT DEGREE PROGRAMS

Fifty-seven percent of FPs indicated they believe it is likely that colleges and schools of pharmacy will offer a joint doctor of pharmacy (Pharm.D.) and physician assistant (P.A.) degree (Figure 2, item 6). Although some colleges and schools have established various dual degree programs that leverage existing curricular resources and provide substantial benefits to

### STRATEGIC RECOMMENDATIONS FOR PRACTICE LEADERS

1. Health-system leaders must identify and engage with partners in other health systems and educational institutions to provide accredited technician education and training programs that will ensure the availability of an increasingly competent technician workforce.
2. Health systems must appropriately compensate pharmacists and technicians who possess sterile products certifications in order to ensure an adequate workforce dedicated to this fundamental pharmacy responsibility.
3. Develop and implement policies and procedures that protect all staff involved in the handling of hazardous medications, including appropriate education, training, and certification of personnel, regardless of the health status of the individual employee.
4. Health systems should collaborate with colleges and schools of pharmacy to develop a range of training options for pharmacists to ensure an adequate supply of staff capable of meeting the future needs of the healthcare system.

graduates, a joint Pharm.D./P.A. program would be challenging to offer and unlikely to provide substantial payoff for graduates. According to U.S. News & World Report, physician assistants made a median salary of \$104,860 in 2017; the top quartile made \$124,200 that year, while the lowest quartile made \$87,980.<sup>4</sup>

Pharmacists with P.A. credentials would provide value in some settings, such as in rural or other medically underserved areas, and under emerging value-based reimbursement models, it would be easier to justify employing a Pharm.D./P.A. degree holder than a pharmacist without the ability to diagnose and prescribe. However, skills provided in joint Pharm.D./M.B.A. or Pharm.D./M.H.A. programs, such as the ability to develop and implement new clinical programs, may be of more value.

### Disclosures

The authors have declared no potential conflicts of interest.

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# Pharmacy Forecast 2020: Pharmacy Leadership

**Sara J. White, M.S., FASHP**, (Ret.)  
Director of Pharmacy, Stanford Health,  
Palo Alto, CA.

**Jennifer Tryon, Pharm.D., M.S., FASHP**, Associate Vice President and  
Chief Pharmacy Officer, Wake Forest  
Baptist Health, Winston-Salem, NC.

**Conrad Emmerich, M.B.A.**, Senior Vice  
President of Operations, Wake Forest  
Baptist Health, Winston-Salem, NC.

Address correspondence to Ms. White  
([rxsjw@yahoo.com](mailto:rxsjw@yahoo.com)).

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## INTRODUCTION

As the complexity of healthcare delivery continues to increase, the challenges facing pharmacy leaders will escalate—as will the opportunities for growth in innovation and influence.

## THE VALUE OF PHARMACY

A large majority of Forecast Panelists (FPs) indicated that it is likely that pharmacy departments will establish the means to prove the value of the work they do (Figure 3, item 1).

The continuing trend toward value-based reimbursement models—paying for performance rather than for volume of care delivered—places pharmacy departments in a particularly vulnerable position. Rather than being rewarded for high volume of medication use, departments will be judged on their ability to ensure appropriate medication use that reduces total cost of care (by shortening length of stay, reducing hospital readmission, etc.). Demonstrating the value of pharmacy services will require leaders to obtain more data than most have access to today. Increasing the amount of discretely measured and documented data in electronic health records will require extra work by pharmacists (and other pharmacy staff) and workflow

changes that will pose challenges to leaders.

## ENTREPRENEURIAL SKILLS

Pharmacy departments have significant costs but limited ability to create billable revenue under the traditional fee-for-service structure. Health-system pharmacy has turned to a wide range of entrepreneurial ventures to offset high labor costs and rising medication costs. A majority of FPs agreed that pharmacy leaders will continue to be expected to bring innovative strategies to bear in their departments (Figure 3, item 2).

The emergence of health system-based specialty pharmacy programs is an example of ventures that many institutions have implemented to create new revenue streams. Pharmacy leaders will need to be creative and identify ways to leverage the expertise of their staff and their existing departmental resources in new programs that address unmet patient needs. As many of those new ventures will likely arise in the ambulatory care setting, pharmacy leaders should expand their understanding of operational and financial nuances of that setting. Their ability to identify and form partnerships with entities outside pharmacy (even outside healthcare) will also be essential to develop truly innovative ventures such as insourcing pharmacy benefits management for employees to keep revenue within the health system.

## EXPANDING INFLUENCE

Health-system pharmacy leaders possess skills that have often made them candidates for positions outside pharmacy. As senior leadership teams become smaller in order to reduce labor costs, pharmacy leaders may be asked to take on additional responsibilities. A majority of FPs indicated they believe this is a likely occurrence in many departments (Figure 3, item 3).

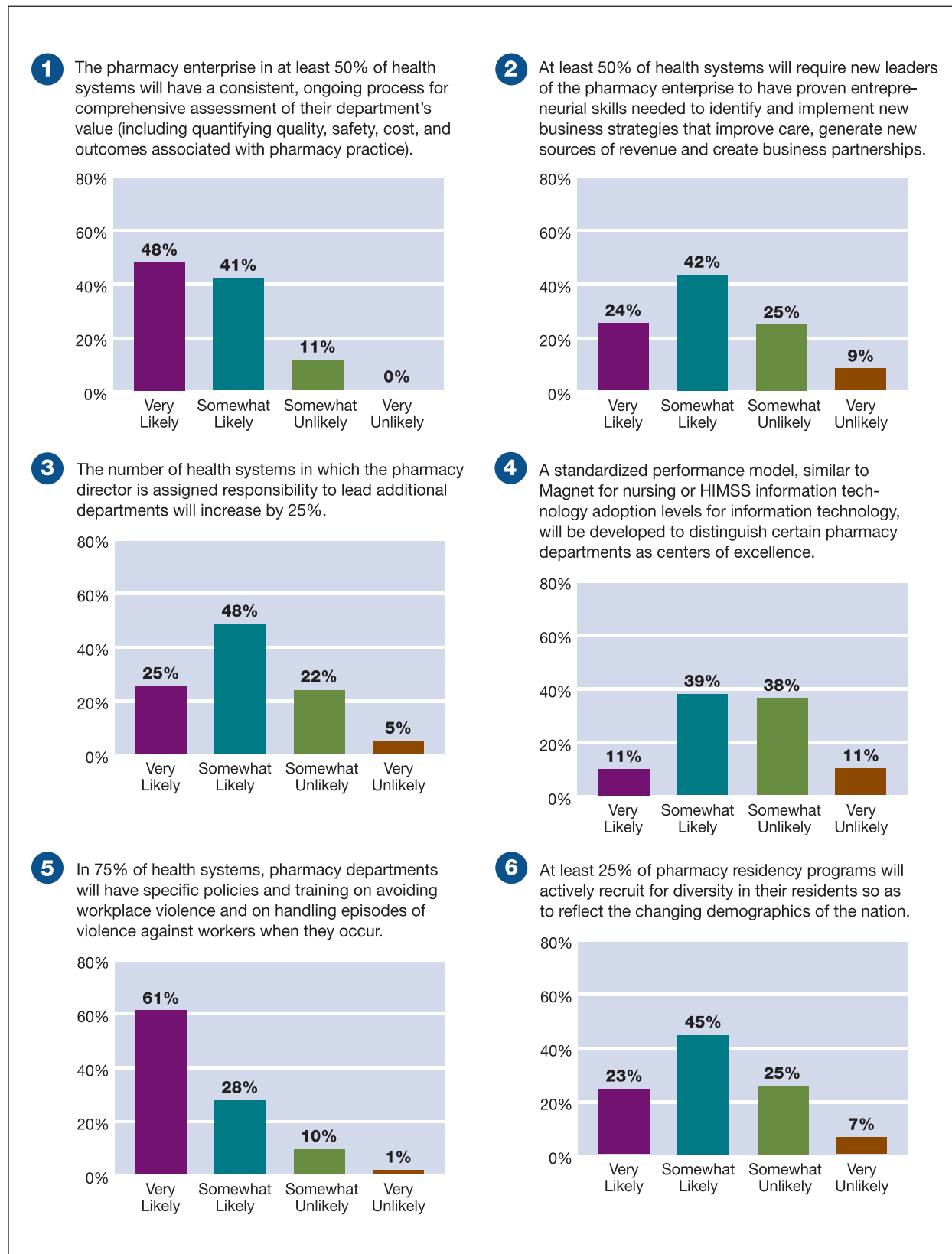
Adding to a pharmacy leader's portfolio of responsibility creates opportunities for sharing experience and resources across multiple departments. For example, expanding the role of pharmacy and therapeutics committees to include the oversight of laboratory testing can take advantage of well-established evidence-based evaluation resources that exist in many pharmacy departments. Placing multiple departments under the leadership of one executive also makes it easier to reduce silo budgeting by identifying and implementing interventions that may increase cost in one department while reducing cost to a greater degree in another (for example, using a high-cost medication to reduce blood utilization, resulting in lower total cost of care). However, pharmacy leaders who accept responsibility for other departments must also see and exploit the strengths of their other departments and drive collaboration across all areas they lead.

## DESIGNATION AS A CENTER OF EXCELLENCE

The American Nurses Association has been successful with its Magnet Recognition Program. Institutions that achieve recognition advertise the designation as a means of improving recruitment of talented staff and raising their organization's brand strength.<sup>1</sup> FPs were split on the possibility of creating a similar recognition program for health-system pharmacy (Figure 3, item 4).

The mixed survey response is likely a reflection of the complexity that would be involved in establishing such a recognition program. There is currently limited consensus on the characteristics of "high performance" in health-system pharmacy, and performance metrics must be defined before departments can be judged. The cost and effort associated with achieving

**Figure 3. (Pharmacy Leadership).** Forecast Panelists' responses to the question, "How likely is it that the following will occur by the year 2024 in the geographic region where you work?"



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designation will be difficult to justify while the benefits of designation are uncertain. Of course, the effort required to achieve recognition will also improve the care provided to patients—achieving that objective is essential.

### WORKPLACE VIOLENCE

While health systems will generally have policies related to managing workplace violence, a large majority of FPs felt that pharmacy departments will have specific policies and training on avoiding and managing workplace violence (Figure 3, item 5).

The rise of violence, particularly gun violence, in the United States, as well as increasing risks associated with the opioid crisis, make pharmacy departments particularly vulnerable. Pharmacy departments should take advantage of institutional resources aimed at managing that risk but should also focus on prevention of events that are unique to their physical space and their staff workflows. It is also important to note that not all violence is physical—verbal and emotional abuse must also be recognized and addressed.

### IMPROVING DIVERSITY

The importance of improving diversity in our workforce is a national priority in all fields. In pharmacy, diversity at every level of staffing must be a leadership focus. In response to a survey item exploring recruitment practices, a majority of FPs indicated that diversity

## STRATEGIC RECOMMENDATIONS FOR PRACTICE LEADERS

1. Develop and implement improved documentation systems that discretely capture pharmacy impact and enable analysis of the value of pharmacy services.
2. Prioritize the development of entrepreneurial skills among pharmacy leaders to ensure that innovative programs meeting the needs of both patients and health systems are identified and implemented.
3. Leverage the unique skill mix of pharmacy leaders by seeking leadership roles outside pharmacy (taking on other departments, institution-wide committees, etc.) to improve health systems' efficiency.
4. Develop pharmacy-specific measures associated with outstanding patient and organizational outcomes, which may be used as the framework for a national recognition program designating pharmacy department excellence.
5. Expand on organizational policies and procedures focused on preventing and managing workplace violence, partnering with security staff to implement training and drills specific to pharmacy space and staff.
6. Identify and implement procedures that ensure that diversity is included as a component of the recruitment process for all pharmacy staff, including students, residents, technicians, pharmacists, and pharmacy leaders.

will be a goal as pharmacy residents are recruited (Figure 3, item 6).

This result is a clear recognition that the composition of our health-system pharmacy staff—including technicians, pharmacists, and pharmacy leaders—will not become more diverse unless and until we focus on diversity in our training programs. This will be true not only of residency program recruitment but also recruitment of students in colleges and schools of

pharmacy, where diversity must also be improved.

### Disclosures

The authors have declared no potential conflicts of interest.

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# Pharmacy Forecast 2020: Evidence-based Pharmacy Practice

**Todd W. Nesbit, Pharm.D., M.B.A., FASHP**, Director – Pharmacy Patient Care Services, The Johns Hopkins Health System, Baltimore, MD.

**William Greene, B.S.Pharm., Pharm.D., BCPS, FASHP, FCCP**, Chief Pharmaceutical Officer and Member, Pharmaceutical Department, St. Jude Children's Research Hospital, Memphis, TN.

Address correspondence to Dr. Nesbit (tnesbit@jhmi.edu).

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## INTRODUCTION

The 2020 *Pharmacy Forecast* includes a number of topics related to the role of evidence in the emergence of new practices and their impact on health systems.

## THE EMERGENCE OF ARTIFICIAL INTELLIGENCE

Artificial intelligence (AI) and other advanced computing technologies are growing in presence and impact throughout healthcare.<sup>1</sup> It is plausible that multiple pharmacy-related tasks now fulfilled by personnel may soon be accomplished by AI, but in order for effective AI systems to be developed and applied, a significant body of high-quality data related to the task to be automated must be available. Due to regulatory barriers and the lack of standardization in data sources within electronic health records<sup>2</sup>, such data are rare in healthcare, and few health systems will have sufficient reliable data to effectively inform advanced computing applications. Collaboration with clinical informatics colleagues is needed to address current data shortfalls.

The near-even split of Forecast Panelists (FPs) in perceptions regarding this topic (Figure 4, item 1) demonstrates that there is a need for

greater understanding of the potential for AI and the conditions required for AI to be effective.

## EVIDENCE-BASED PERFORMANCE METRICS

Key performance metrics are used to track productivity, assure quality, and identify opportunities for improvement. Most health systems identify and track clinical, operational, and financial metrics related to pharmacy performance.<sup>3</sup> Unfortunately, due to a lack of data and other factors, many metrics focus on structural and process efficiencies rather than clinical outcomes. There is a dearth of evidence linking most current metrics with truly impactful patient outcomes, yet huge investments are made in structural and process improvements in the hope that outcomes will also improve.

As an example, meeting new quality standards focused on sterile production and the handling of hazardous drugs by healthcare workers<sup>4</sup> have required extensive investment in infrastructure and added labor expense despite limited evidence that systemic shortcomings in patient or worker outcomes exist. The safe handling of hazardous drugs is obviously important, but while exposure risk was established decades ago, limited data have been generated since the adoption of Occupational Safety and Health Administration (OSHA) guidelines in 1986.<sup>5</sup> Evidence supporting many strategies, such as closed system drug transfer devices and external ventilation, is lacking. OSHA advocates for approaches using the principle of ALARA (as low as reasonably achievable) to minimize exposure risk, and it is this benchmark that is reflected in the 2019 American Society of Clinical Oncology standards.<sup>6</sup>

Two survey items addressed these concerns. In one, a majority (76%) of FPs agreed that new performance

metrics will be based on evidence of improved patient outcomes (Figure 4, item 2), and a similar majority (76%) agreed that mandates related to handling of hazardous products will be based on evidence of lower risk to patients and healthcare workers (Figure 4, item 3). Given the current evidence gaps, these results were unexpected. It is critical that leaders pursue opportunities to advocate for reasonable regulations based upon evidence.

## ETHICAL USE OF GENOMIC TESTING

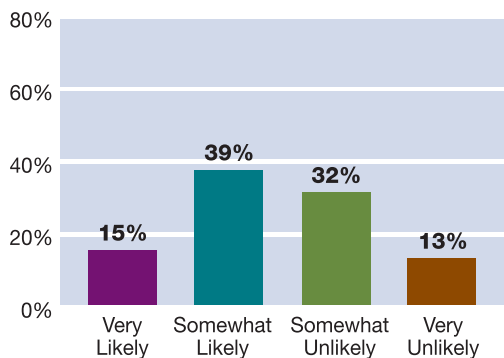
Genomic testing is rapidly advancing into patient care as technology improves, new knowledge is applied, and testing cost decreases. Genomic testing has evolved into the standard of care at many health systems, resulting in the incorporation of molecular tumor boards, pharmacogenomics services and clinics, and medical genetics services. Interpretation of genetic results can be challenging, and an investment in infrastructure must be made so that appropriate interpretations are available in real time and errors are avoided. Health systems must work towards policies for the ethical use of this potentially very large volume of data.<sup>7</sup> A majority of FPs agreed that development of such policies in health systems was likely (Figure 4, item 4).

## GENETIC MODIFICATION TECHNOLOGY

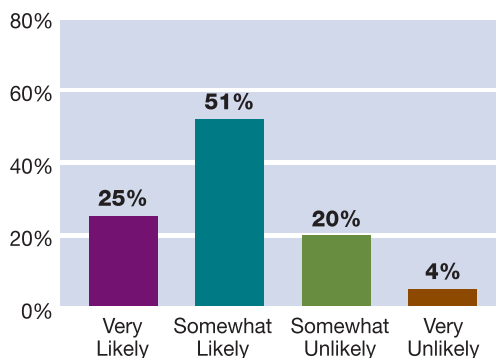
Genetic modification therapies offer individualized approaches for the management of disease and are expected to become more common in the future.<sup>8</sup> Currently, the manufacture of individualized therapies such as tisagenlecleucel and axicabtagene ciloleucel is conducted off-site in centralized locations by the pharmaceutical industry. Such therapies are analogous to blood and stem cell transplantation in many aspects. Most FPs (63%) believed that in many health

**Figure 4. (Evidence-based Pharmacy Practice).** Forecast Panelists' responses to the question, "How likely is it that the following will occur by the year 2024 in the geographic region where you work?"

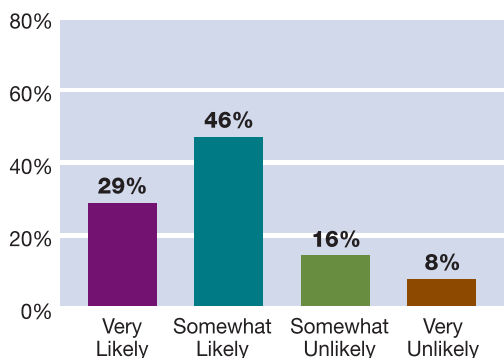
**1** Evidence will demonstrate that artificial intelligence tools are more reliable than pharmacists in one or more patient-care related tasks (e.g., drug selection, order verification, dosing, responding to side effects, etc.).



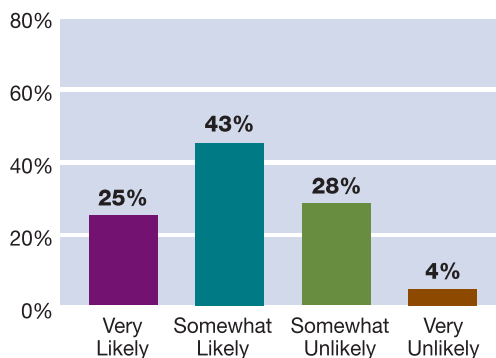
**2** Nearly all new performance metrics in healthcare will be based on evidence that improvement in the metric results in better patient outcomes.



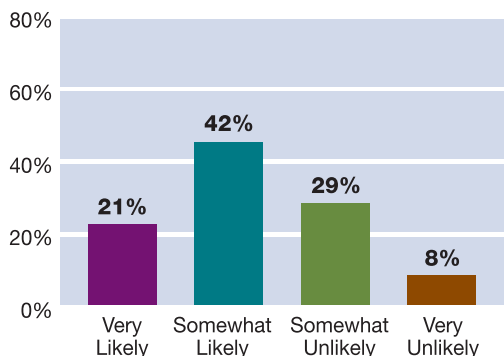
**3** Nearly all mandates that relate to the handling of hazardous drug products (e.g., those from USP, TJC, etc.) will be based on evidence demonstrating that the requirements will reduce risk to patients and healthcare workers.



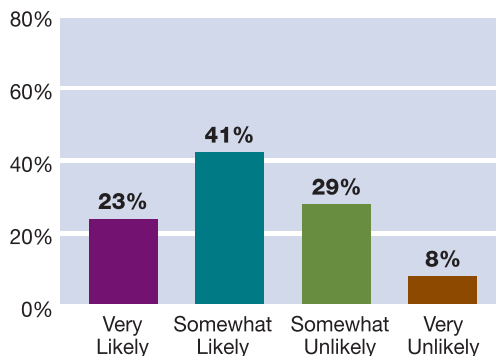
**4** At least 50% of health systems will develop policies about the ethical use of genomic testing.



**5** In at least 50% of health systems, departments other than pharmacy will have primary responsibility for the acquisition, storage, distribution, etc., of technology dealing with genetic modification (e.g., CAR-T, CRISPR-Cas9-based technologies, etc.).



**6** The federal government will remove marijuana and medical cannabis from the list of controlled substances (i.e., will regulate THC-related substances in a manner similar to alcohol).





**STRATEGIC RECOMMENDATIONS FOR PRACTICE LEADERS**

1. Lead your institution to proactively develop data systems that support the development of validated AI applications, providing the opportunity to redeploy human resources to other unmet patient care needs.
2. Engage in organizational dialog around meaningful quality metrics, lead the development and reporting of data most applicable to the patient populations treated and services provided at your institution, and actively pursue research around the relevance of specific metrics.
3. Adopt practices that support occupational risk levels for handling of hazardous drugs in accordance with the ALARA principle while pursuing research that explores the validity of risk assessment and the effectiveness of risk mitigation, particularly as they relate to regulations.
4. Assure the development of pharmacist expertise related to genomic testing, creating infrastructure and developing policies and practices that address the appropriate clinical and ethical use and interpretation of such testing.
5. Lead the management of genetic modification therapies, ensuring that required expertise is made available (in some cases in partnership with other departments) for cell-derived therapy.
6. Develop comprehensive medication-use policies around medical cannabis at the institutional, state, and federal levels, ensuring that policies and practices focus on reducing patient risk while preserving patient's right to access treatment.

systems, departments other than pharmacy will have primary responsibility for the management of these treatments (Figure 4, item 5). Direct pharmacist involvement is critical to ensure that patients benefit from a medication-use system designed to ensure that appropriate efficacy, safety, and cost considerations are addressed. Integration across these service lines should entail the development of new expertise and the development of strong partnerships with existing subject matter experts (e.g., cell therapy laboratories).

**MARIJUANA AND MEDICAL CANNABIS**

A majority of state governments (33 as of June 2019) have legalized marijuana

in some form.<sup>9</sup> Use of medical cannabis has expanded across a range of acute and chronic conditions, with varying levels of associated evidence. Similarly, pharmacologic effects of medical cannabis include the potential for adverse effects and drug interactions and will be more common with increased use. Product formulations and the associated active components of medical cannabis are not uniform, with resultant variability and unpredictability of response. The existing regulatory landscape frequently results in confusion for patients and conflicts for healthcare practitioners. A majority of FPs (64%) agreed that changes in federal policy to regulate marijuana and medical cannabis in a manner similar to alcohol was very or somewhat likely (Figure 4, item 6).

**Disclosures**

The authors have declared no potential conflicts of interest.

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# Pharmacy Forecast 2020: Pharmaceutical Supply Chain

**Erin R. Fox, Pharm.D., BCPS, FASHP**, Senior Director, Drug Information and Support Services, University of Utah Health, and Adjunct Associate Professor, University of Utah College of Pharmacy, Salt Lake City, UT.

**Rena M. Conti, Ph.D.**, Associate Professor, Department of Markets, Public Policy and Law, Questrom School of Business, Boston University, Boston, MA.

Address correspondence to Dr. Fox ([Erin.Fox@hsc.utah.edu](mailto:Erin.Fox@hsc.utah.edu)).

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## INTRODUCTION

Despite increasing policymaker awareness, the outlook for the supply of prescription drugs is unlikely to improve over the next several years. Health-system pharmacists must continue to plan for manufacturing quality deficits resulting in recalls and shortages, as well as higher drug prices.

## SHORTAGES

Drug shortages are not improving. Data from the University of Utah Drug Information Service show a 57% increase in ongoing and active drug shortages, from 176 in 2017 to 276 in 2019. Multiple shortage meetings held in 2018 provided recommendations for ensuring the adequacy of prescription drug supply.<sup>1-3</sup> Notably, after one such meeting, the National Academy of Sciences recommended an evaluation of the adequacy of prescription drug supply as a matter of national security,<sup>2</sup> and a final report on the work of the Food and Drug Administration's Drug Shortages Task Force is due to Congress by the end of 2019. Recent books and media attention regarding the poor quality of active pharmaceutical ingredients (APIs) and finished drugs have prompted discussions regarding the

merits of incentivizing United States-based manufacturing.<sup>4-6</sup>

Forecast Panelists (FPs) were split regarding incentivizing domestic API production, with 49% feeling such incentives were likely (Figure 5, item 1). Another possible solution discussed at various stakeholder meetings is the establishment of an essential drug list (such as the list maintained by the World Health Organization<sup>7</sup>), with targeted incentives to ensure availability of key products. Fifty-four percent of FPs felt that such federal action will occur in the future (Figure 5, item 2). Given the challenge of achieving consensus on which drugs should be included on such a list, this result was surprising. Incentives may also result in unintended consequences such as drug manufacturers focusing efforts on a few products and discontinuing other products that may also be clinically relevant but not deemed "essential." There is little evidence that such incentives would alleviate shortages, at least in the short term.

## INNOVATION IN SUPPLY CHAIN MODELS

Drug shortages have become so problematic that new businesses are emerging with missions to improve supply, including health system-owned or not-for-profit companies. Slightly more than half (53%) of FPs did not feel that new companies will decrease future shortages (Figure 5, item 3). These new ventures seek to address shortages largely by outsourcing additional production to contract manufacturers. Their novelty lies in entering into contracts with health systems that guarantee access to drug supplies over longer periods than are offered in typical group purchasing organization contracts. Most drug shortages are caused by quality and manufacturing problems at the factory, which presumably will continue to occur in

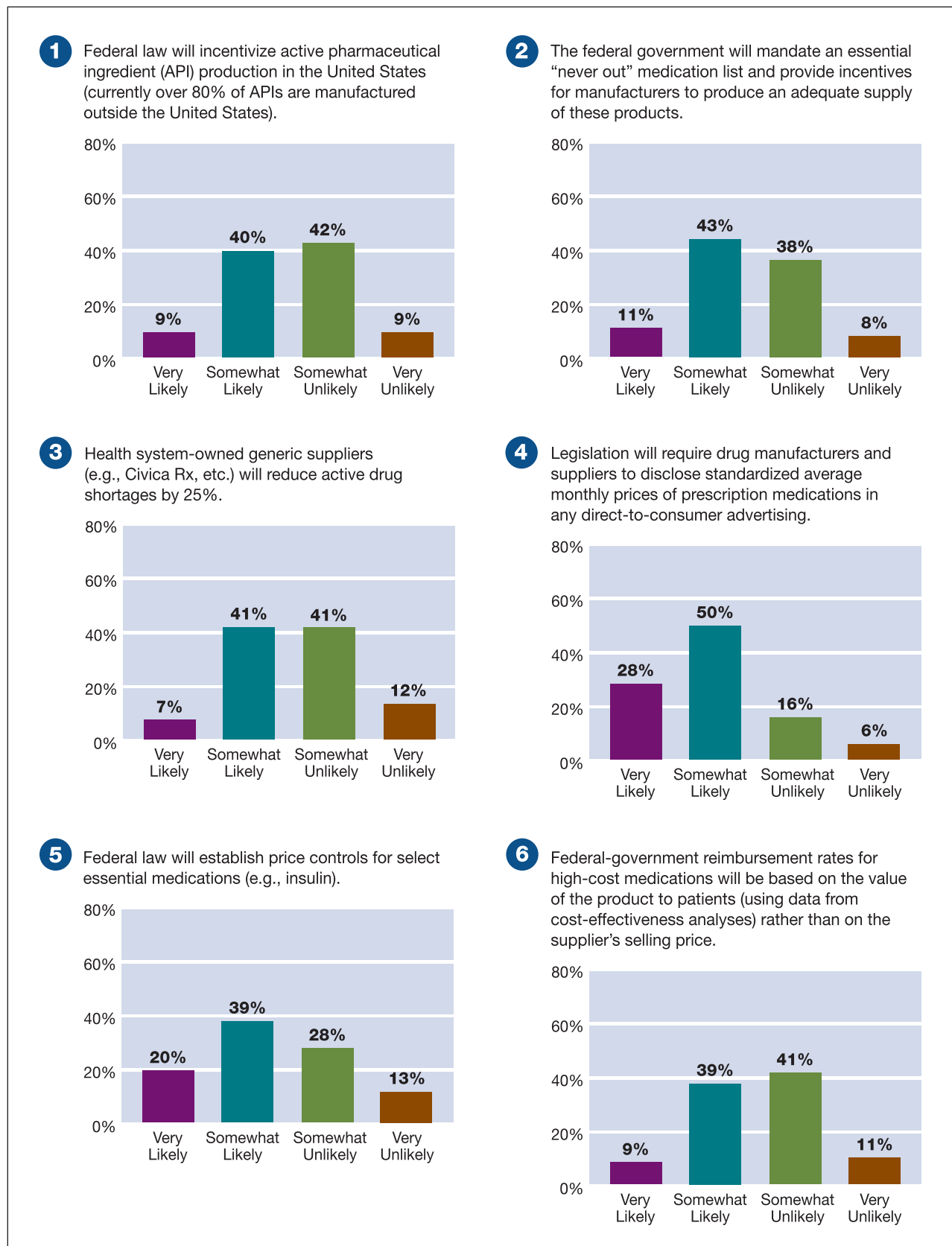
production facilities employed by new supply chain entities. While it is possible that new supply chain entities will assist with some shortages, it is doubtful that they will have the capacity to address the hundreds of shortages that exist today.

## DRUG PRICING

As another election cycle begins, many stakeholders are discussing ways to reduce drug prices. Both the executive and legislative branches of the federal government have issued price-reduction plans, but the influence of special interest groups (particularly those representing manufacturers) makes it unlikely that any of the plans will be implemented. It is likely that some form of direct governmental price negotiation will be a part of any new plan, but significant price decreases for health systems are unlikely in the near future. A majority of FPs (78%) believe price disclosures will be required in future direct-to-consumer advertising (Figure 5, item 4), but just over half of FPs believe that price controls will be enacted for some essential medications, such as insulin (Figure 5, item 5).

These results are interesting, but simply disclosing prices will have little effect on accessibility to medications. Congressional hearings featuring parents of children who have died due to insulin rationing resulted in commitments to support the launch of an authorized generic for insulin, which may lead to more affordable care. However, price controls for a few specific products will not have a meaningful impact on the overall challenge of the extraordinarily high cost of medications. Real action to improve competition, such as eliminating "pay for delay" deals and reforming drug patent laws to prevent "evergreening," are needed to truly impact the problem. Those changes are unlikely in the near future.

**Figure 5. (Pharmaceutical Supply Chain).** Forecast Panelists' responses to the question, "How likely is it that the following will occur by the year 2024 in the geographic region where you work?"



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## STRATEGIC RECOMMENDATIONS FOR PRACTICE LEADERS

1. Identify and participate in programs that may improve the supply of essential medications, such as joining not-for-profit drug manufacturing consortiums, but plan to continue to invest in shortage management resources.
2. When signing local drug acquisition contracts, insist on disclosure of the source and site of manufacture, and ensure that contracts signed by group purchasing organizations on behalf of health systems also include disclosure.
3. Purchase pharmaceutical products produced in the United States or European Union whenever possible.
4. Establish methods for identifying patients at risk for negative outcomes due to lack of access to essential medications or exposure to substandard-quality medications. Ensure that action plans exist to care for those patients (such as protocols to allow pharmacists to switch patients to more affordable products).
5. Actively participate in discussions around legislation that decreases the cost of medications and ties the cost to the value each medication provides.

## VALUE

The term *value* is ubiquitous in discussions around healthcare expenditures but is rarely used to determine prices paid for drugs in the United States. New products, particularly in the specialty categories, are priced not based on value but on what price the market will bear.<sup>8</sup> The FPs were almost evenly split on whether government reimbursement rates for high-cost medications will be based on cost-effectiveness analyses (Figure 5, item 6). Unless Congress acts to reform coverage and reimbursement rules, Medicare will continue to pay for all drugs with FDA-approved indications and selected off-label indications, without regard to cost-effectiveness standards. In the United Kingdom, the National Institute for Health and Care Excellence provides guidance and

utilization decisions based on clinical evidence. In the United States, the non-governmental, not-for-profit Institute for Clinical and Economic Review (ICER) analyzes drug effectiveness, cost-effectiveness, and budget impact. While these analyses are increasingly used by private insurers and Medicaid programs in some states, they are not used by traditional Medicare to determine coverage or reimbursement.

## Disclosures

Dr. Fox is an unpaid volunteer member of the advisory board for Civica Rx. The University of Utah Drug Information Service (UUDIS) has a contract to provide Vizient (a group purchasing organization) with drug shortage information. The total value of the contract represents less than 5% of the total budget for UUDIS. Dr. Fox is also a member of the *AJHP* editorial board. Dr. Conti is an unpaid special consultant to FDA's Office of Generic Drugs.

The authors have declared no other potential conflicts of interest.

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# Pharmacy Forecast 2020: Healthcare Marketplace

**Bruce E. Scott, B.S.Pharm., M.S., FASHP**, (Ret.) Healthcare Executive, Eden Prairie, MN.

**Frank Sheehy, B.A., M.B.A.**, (Ret.) Healthcare Executive, Ridgewood, NJ.

Address correspondence to Mr. Scott ([bruce-scott@comcast.net](mailto:bruce-scott@comcast.net)) or Mr. Sheehy ([frsheehy@gmail.com](mailto:frsheehy@gmail.com)).

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## INTRODUCTION

Among the challenges facing health-system pharmacy over the next 5 years are drivers of the cost of medications, the specialty pharmacy market, and delivering care supported by advances in technology.

## BIOSIMILARS AND GENERICS

The introduction of biosimilars and the speed by which generic drug products are introduced into the market are 2 factors influencing the cost trends of medications.<sup>1</sup> Interestingly, 91% of Forecast Panelists (FPs) indicated they believe that biosimilars will achieve 25% of the market share in the next 5 years (Figure 6, item 1). Although this seems overly optimistic for the general market, it is possible in health systems with strong formulary controls and active clinical programs. Market share growth will be impeded by challenges in converting patients who are stable on originator products to biosimilars and by benefit designs that do not incent patients to use biosimilars.

European markets have realized significant savings through the use of biosimilars, with certain biosimilars capturing 90% market share in some European countries, resulting in 70% cost reductions relative to originator product costs.<sup>2</sup> The European Medicines Agency has 53 products on its approved list of

biosimilars, with each European Union country controlling how these agents are used within its borders.<sup>3</sup> By comparison, within the United States there are 19 products approved by the Food and Drug Administration, and only 7 are marketed. For significant savings to occur, more products are needed, along with greater discounts from the originator prices.

Despite the relative optimism of FPs (Figure 6, item 2), federal legislation prohibiting patent manipulations affecting biosimilar and conventional generic drug approvals are unlikely within 5 years. However, the increasing cost of medications is an ongoing issue affecting patients and payers, and government action is required to capitalize on saving opportunities presented by lower-cost agents. Such government actions may include eliminating patent manipulations that prolong the time it takes for generic drugs to be introduced into the market, prohibiting financial deals among companies that prevent the timely introduction of generic drugs, and resolution of alleged price fixing among generic drug companies.

## SPECIALTY PHARMACY

The specialty pharmacy (SP) market is shifting and consolidating. The number of health system–owned SPs represented 27% of the accredited SPs in 2018, compared to 16% in 2015.<sup>4</sup> Smaller, independent SPs are declining, representing 47% of accredited SPs in 2018, compared to 59% in 2015. However, 4 organizations (CVS Health, Cigna/ESI, Walgreens, and UnitedHealth Group) represent 70% of specialty drug revenues.<sup>5</sup> Market domination by SPs aligned with insurers will likely continue, as will shared contracting with clients, restricted access to limited distribution medications, and closed SP payer networks. Capital investments beyond what most health systems can invest will also continue.

It will be difficult for health-system SPs to compete with market-dominating SPs. While 77% of FPs indicated that health-system pharmacies will provide superior quality relative to national providers (Figure 6, item 3), proving that advantage will be difficult. Most SPs and other stakeholders, such as manufacturers and payers, are invested in providing quality service (today defined by process indicators such as time to fill; adherence; outcomes specific to certain therapies, such as hepatitis C; or patient service indicators, such as abandoned-call rates). Health-system SPs will be challenged to demonstrate that their ability to coordinate patient care results in superior outcomes.

The challenges faced by health-system SPs will continue to include access to payer networks, access to limited-distribution drugs, and (with the exception of health systems with access to 340B pricing) profitability. While large health systems with the capability to achieve high volume, as well as health systems with access to 340B pricing, will have fewer challenges, many SPs will struggle to be profitable.

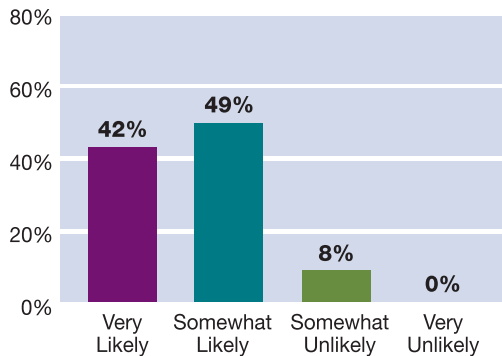
It is interesting that while FPs seemed optimistic that SPs owned by health systems will show benefit over national providers, they overwhelmingly feel that their patients will be forced by their insurers to seek infusion care outside their own health systems (Figure 6, item 4). As value-based reimbursement becomes more common, it is also possible that initiatives emphasizing continuity of care may make health-system SPs attractive to insurers contracting for the total care of select patients.

## HEALTH SYSTEM PRICE TRANSPARENCY

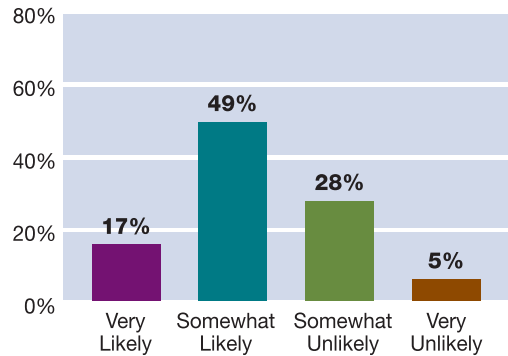
Approximately half of FPs believe that a publicly accessible hospital charge master will provide value to

**Figure 6. (Healthcare Marketplace).** Forecast Panelists' responses to the question, "How likely is it that the following will occur by the year 2024 in the geographic region where you work?"

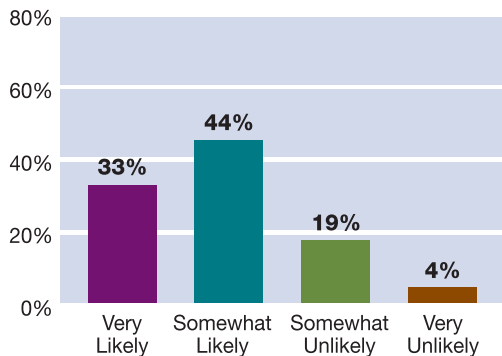
**1** Biosimilar products will secure at least 25% of the market share from innovator products in the United States.



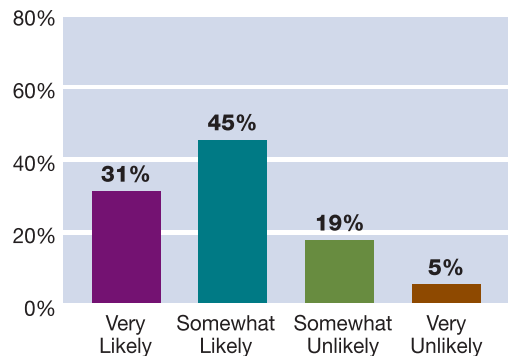
**2** Federal law will prohibit certain patent manipulations (e.g., "pay for delay") by innovator manufacturers designed to delay generic drug entry into the market.



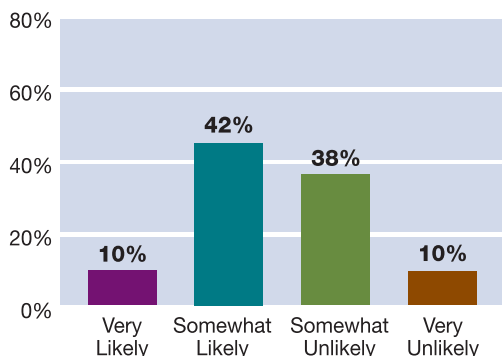
**3** At least 50% of health system-owned specialty pharmacies will demonstrate superior quality of care and patient outcomes over national specialty pharmacy providers.



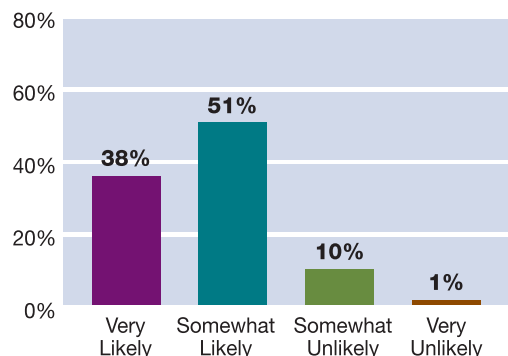
**4** At least 50% of patients who require infusion therapy will be directed by payers to infusion centers outside the health system where they receive the rest of their care.



**5** The structure and content of publicly-accessible hospital charge masters (comprehensive listings of items billable to patients or patients' health insurance and their respective charges) will be standardized by federal regulation to be more helpful to consumers.



**6** In response to widespread closure of rural hospitals, 50% of urban hospitals will expand services providing care to patients who live more than 50 miles away from their facilities.



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## STRATEGIC RECOMMENDATIONS FOR PRACTICE LEADERS

1. Implement strategies for increasing the use of biosimilars, including techniques that have historically been useful in increasing use of conventional generic medications, such as actively correcting misinformation about safety and effectiveness of biosimilars and encouraging payers to offer patients lower out-of-pocket costs for those agents.
2. Through engagement with state and national professional associations, support legislative and regulatory efforts aimed at preventing industry strategies (such as patent manipulation) for delaying the market entry of biosimilars and conventional generics.
3. Those health systems already involved in specialty pharmacy programs should collect, analyze, and disseminate patient outcome data that demonstrate the value of services, thus differentiating their organizations from national providers.
4. Pursue value-based contracts with payers that enable the health system to take advantage of the unique capabilities of health-system pharmacists involved in patient care.
5. Those health systems not already offering specialty pharmacy services should carefully evaluate the cost and risk of creating new programs and consider business and care delivery partnerships instead of developing programs on their own.
6. Actively participate in discussions around increasing the transparency of medication and healthcare costs to the public, and contribute to the development of mechanisms of helping patients make more informed healthcare decisions.
7. Develop and implement new technology in telemedicine to improve access to the care of pharmacists in medically underserved communities.

consumers (Figure 6, item 5). While the intent of pricing transparency is commendable, challenges in establishing a common charge master format and standardizing pricing information make it unlikely that the current proposals will provide meaningful information that could assist patients in making better decisions regarding their care.

## DELIVERY OF CARE IN RURAL AREAS

Sustaining delivery of care in rural areas is an important necessity of our healthcare systems. Today's strategies for providing care in rural areas include alignments with regional systems, creation of referral networks, and mergers or acquisitions. While affiliations with

regional and national systems will likely continue, as reflected in FP responses (Figure 6, item 6), other strategies that integrate new telehealth technologies, such as home monitoring and electronically controlled medication administration, will become the norm in supporting rural healthcare.

## Disclosures

The authors serve as members of boards of directors for various companies in the healthcare industry. The authors have declared no other potential conflicts of interest.

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# Pharmacy Forecast 2020: Healthcare Reform

**Michael J. Melby, B.S.Pharm., M.S.,**  
Director of Innovation and Activation,  
Indiana University Health, Indianapolis,  
IN.

**Mark A. Lantzy,** Senior Vice President  
and Chief Information Officer, Indiana  
University Health, and President, Indiana  
University Health Plans, Indianapolis, IN.

Address correspondence to Mr. Melby  
([mmelby@iuhealth.org](mailto:mmelby@iuhealth.org)).

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## INTRODUCTION

Healthcare has been remarkably resistant to reform. Despite widespread recognition that healthcare is too expensive, impersonal, and inaccessible and produces the worst outcomes in the developed world, no consensus has emerged on how to improve it. In this section of the *Pharmacy Forecast*, drivers of reform are examined.

## STATE INITIATIVES

Forecast Panelists (FPs) indicated great faith in the ability of states to make progress in healthcare reform where the federal government has failed (Figure 7, item 1). In the absence of federal action, states will work to accomplish as much as possible under the constraints they face. State reforms have the potential to expand access, improve competition and patient choice, increase transparency of prices and performance, and reduce burdensome regulations, expanding opportunities for pharmacists.

Nearly all states currently enable collaborative drug therapy management by pharmacists in some form or fashion along a continuum from most restrictive to least restrictive (including independent prescribing authority). It is likely that more states will pursue the less restrictive approaches in the years ahead. For example, Kentucky recently

joined California and a few other states in expanding the pharmacist scope of practice, granting independent prescribing authority (to be exercised in collaboration with physicians) under approved protocols for a wide range of conditions, including acute infections, tobacco cessation, and opioid use disorder.<sup>1</sup>

## DISRUPTION AND INTEGRATION

More than 181 million individuals currently have employer-sponsored health insurance in the United States.<sup>2</sup> At an average cost of nearly \$15,000 per employee per year, employers are highly motivated to reduce their spending on healthcare.<sup>3</sup> Haven, a joint venture between Amazon, Berkshire Hathaway, and JPMorgan Chase, is trying to accomplish this goal by creating efficiencies of scale and leveraging the companies' resources to diminish the role of supply chain and fiscal intermediaries such as pharmacy benefit managers (PBMs), wholesalers, and group purchasing organizations (GPOs). FPs indicated that Haven will reduce healthcare spending for the companies' employees (Figure 7, item 2), but it is unclear if those savings will be realized more widely.

Walmart, in talks to acquire insurer Humana, may combine a PBM, pharmacy, and insurer under a single corporate umbrella.<sup>4</sup> The retail giant will cater to its 140 million weekly customers—many of whom are senior citizens and lower-income Americans who are Medicare or Medicaid beneficiaries—with low-cost health services, including basic primary care and chronic disease management services.

## BYPASSING INSURERS

Employers, in an effort to reduce costs and improve outcomes, will continue contracting directly with providers. Boeing has announced it

will contract directly with southern California's Memorial Care Health System for employee benefits, as it has with other health systems in Seattle, St. Louis, and Charleston.<sup>5</sup> Intel has a direct contract with Presbyterian Healthcare Services in New Mexico, and Walmart and Lowes have negotiated bundled payment contracts to cover certain procedures at major hospitals throughout the United States.<sup>6</sup> Smaller employers who are not self-insured may want to enter into such arrangements but, in tight labor markets, may find it more difficult to direct employees to specific providers. Employers may offer financial incentives to employees who voluntarily choose preferred providers they have under direct contract, but based on experience with high-deductible insurance plans, financial incentives are not terribly effective in driving employees to more efficient care options. While many FPs agreed that some employers will bypass traditional insurers and will contract directly with specific health systems, 36% felt it is unlikely (Figure 7, item 3).

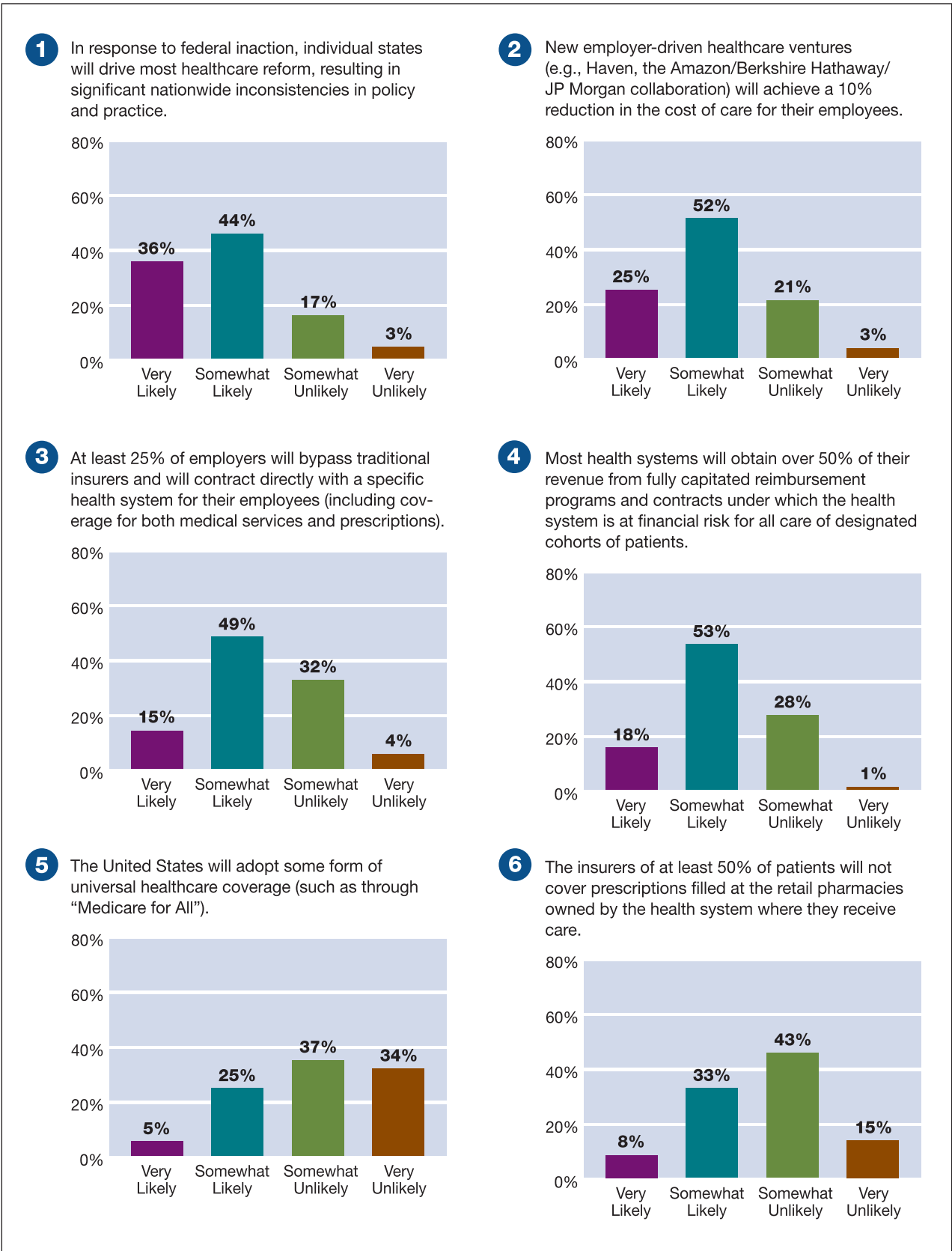
## FUTURE OF CAPITATION

The healthcare system is moving inexorably from fee-for-service to value-based reimbursement in which a health system accepts greater and greater financial risk tied to the quality of care it provides. The pace of this change varies by region—regions with dominant payers are moving more slowly toward full capitation. A majority of FPs felt health systems will have a large portion of their revenue at risk in the future (Figure 7, item 4).

As value-based reimbursement evolves, pharmacists are particularly well positioned to contribute to the success of their health systems. Under fee-for-service, providers seek more reimbursement from payers, while capitated value-based systems seek



**Figure 7. (Drivers of Healthcare Reform).** Forecast Panelists' responses to the question, "How likely is it that the following will occur by the year 2024 in the geographic region where you work?"



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## STRATEGIC RECOMMENDATIONS FOR PRACTICE LEADERS

1. Lead reform discussions at the state level, especially regarding improvements in Medicaid and state-based health plans, focusing on ways they can improve efficiency by being given more authority to manage medication therapy.
2. Identify and implement strategies that minimize the inefficiencies brought to the healthcare system by fiscal and supply chain intermediaries (PBMs, GPOs, and wholesalers) when their services do not add real value to health-system pharmacy performance.
3. Enter into discussions with local and state employers and employer coalitions, identifying ways to partner with them directly to improve the quality and efficiency of care provided by health systems to their employees.
4. Develop and implement programs that do not necessarily increase fee-for-service-based revenue but leverage the recognized skills of pharmacists in reducing inefficiency and improving quality as important contributions in value-based payment models.
5. Recognize the incentives and motivations that are encouraging disruptive developments in healthcare, particularly those driving entities not traditionally directly involved in delivering care. Develop and implement health system-based programs that respond to those same drivers.

opportunities to cut spending without compromising quality. Pharmacists' acknowledged ability to drive efficiency will allow them to contribute substantially to their organizations.

## UNIVERSAL HEALTHCARE COVERAGE

Various legislators and policy analysts have proposed the introduction of a single-payer system as a comprehensive reform plan to reduce administrative costs endemic in multipayer systems, better align investment in healthcare interventions with returns, ensure access, and improve quality. Recent proposals of "Medicare for All" as one universal coverage model (which could lead to a single-payer system) have been embraced by some but panned by others.<sup>7</sup> A surprising 30% of FPs felt that universal coverage is likely, while most felt it is unlikely

and 34% felt it is very unlikely (Figure 7, item 5).

Whether or not a fully realized single-payer system is achieved, broadening access to efficient care—particularly outside the acute care setting—is essential. Fragmented finance structures lead to fragmented care delivery. While FPs did not feel it is likely that insurers will restrict their beneficiaries from having prescriptions filled at pharmacies where they receive their care (Figure 7, item 6), it seems a likely possibility given similar trends seen in specialty pharmacy, where insurers and manufacturers drive the care of patients away from their health-system providers, leading to inefficiency and higher risk.

In the future, to drive efficiency, reforms that focus on population health, incentivizing care delivery in the most efficient location possible, and encouraging investment in nonhealthcare

interventions that directly impact health and healthcare resource consumption (e.g., food insecurity and housing) will be necessary.

## Disclosures

The authors have declared no potential conflicts of interest.

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# Pharmacy Forecast 2020: Black Swans

**James M. Hoffman, Pharm.D., M.S., BCPS, FASHP**, Chief Patient Safety Officer and Associate Member, Pharmaceutical Sciences, St. Jude Children's Research Hospital, Memphis, TN.

**Scott Knoer, M.S., Pharm.D., FASHP**, Chief Pharmacy Officer, Cleveland Clinic, Cleveland, OH.

**William A. Zellmer, B.S.Pharm., M.P.H.**, President, Pharmacy Foresight Consulting, Bethesda, MD.

Address correspondence to Mr. Zellmer ([wzellmer@msn.com](mailto:wzellmer@msn.com)).

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## INTRODUCTION

The concept of a “black swan”<sup>a</sup>—a rare event (widely deemed improbable) that has massive consequences—was popularized by a 2007 book (updated in 2010) by Taleb.<sup>1</sup> After a black swan event, explanations often emerge that make the event seem predictable (although few had seen it coming). Examples of black swans (which can have either negative or positive implications) include the 9/11 terrorist attacks on the United States, the 2008 meltdown of worldwide financial systems, and the rise of the Internet. Taleb's exposition<sup>1</sup> includes rules for mitigating negative black swans and exploiting those that are positive.

## BLACK SWANS IN PHARMACY

An important pharmacy-specific example of a black swan relates to Hurricane Maria in September 2017, which decimated pharmaceutical manufacturing capacity in Puerto Rico, thereby creating a crisis for U.S. hospitals. While drug shortages had long been an issue, most pharmacists likely believed that the pharmaceutical supply chain was fundamentally secure. They did not consider where

drug products were made, perhaps assuming sufficient geographic dispersion so that a single natural disaster could not significantly disrupt supplies. However, they quickly learned that 80 pharmaceutical manufacturing facilities were concentrated in Puerto Rico.

In early 2018, in the midst of the flu season, basic i.v. fluids such as normal saline became unavailable. Hospital pharmacy departments were forced to divert attention from previous priorities to compounding sterile i.v. fluids from raw ingredients, changing medication administration procedures, and pursuing alternative i.v. fluids.

A different type of black swan hit hospitals in 2017 with the arrival and rapid adoption of 2 CAR-T therapies for various leukemias and lymphomas in adults and children.<sup>b</sup> At a cost of up to \$475,000 per patient, and with a lag in insurance coverage and an absence of alternative therapies, many hospitals had to initially absorb this expense.<sup>c</sup> In 2019, a gene therapy for spinal muscular atrophy in children less than 2 years old<sup>d</sup> hit the market at a cost of \$2 million for a single patient—an astonishing figure that few institutions and payers were prepared for. Both examples represent troubling milestones in resetting the definition of “expensive drug.”

## SURVEY RESULTS: PREPARING FOR BLACK SWANS

For the survey items in this domain, Forecast Panelists (FPs) were asked to review a definition of black swans and then estimate on a sliding scale the percentage of individuals or entities in their region that embody a certain characteristic. In these scenarios, if FPs believed that individuals or entities tend to be well equipped for responding to black swans, the charts would be skewed to the right (i.e., toward 100% resilience in

dealing with an unpredicted disruptive event).

In Figure 8, the results for item 1 tilt to the right, suggesting that, in the view of FPs, many health-system pharmacy leaders are at least somewhat skillful in helping successful staff responses to black swans. Pharmacy practitioners, on the other hand, were perceived by FPs as generally having difficulty in taking black swans in stride (Figure 8, item 2).

The results for survey items 3 and 4 (Figure 8) are worrisome because they suggest that both health-system pharmacy departments and health systems as a whole tend not to have a strategic planning process that is well suited to dealing with black swans.

Patients (Figure 8, item 5) and the communities in which they live (Figure 8, item 6) were downgraded by FPs with respect to their capacity to adapt to unpredicted disruptive events.

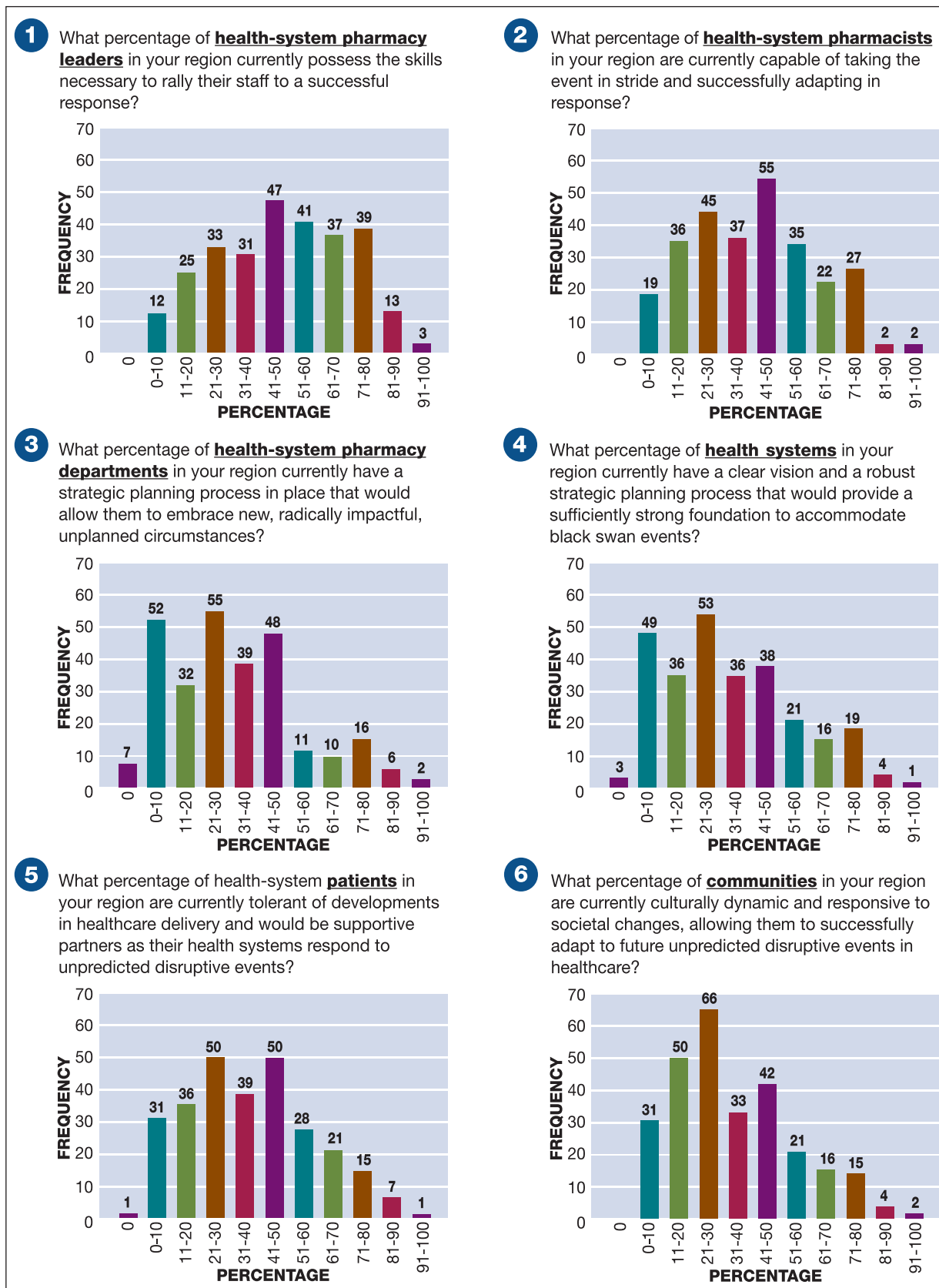
FPs might have had a tendency to be more optimistic about issues “closer to home” than about topics less subject to control or influence by pharmacy practice leaders. Overall, the results stimulate important reflections on the nature of strategic planning in health-system pharmacy.

## BLACK SWANS IN STRATEGIC PLANNING

Although many healthcare institutions have developed excellent operational plans for responding to local natural disasters, accidents, or terrorism,<sup>2</sup> that may not prepare them for an effective response to a black swan event, which depends more on flexibility and team culture than a written plan.

John Kotter, a leading authority on change leadership, has noted that traditional hierarchies and management processes are rarely equipped to identify important opportunities or hazards quickly, formulate effective responses nimbly, and implement them speedily.<sup>3,4</sup> He has

**Figure 8. (The Black Swan).** Forecast Panelists' responses to survey items regarding preparedness to respond to black swan events.



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## STRATEGIC RECOMMENDATIONS FOR PRACTICE LEADERS

1. In the pharmacy department's planning process, increase the relative attention given to long-term strategic issues (versus near-term operational issues); use annual *Pharmacy Forecast* reports to stimulate this shift.
2. Conduct an honest assessment of departmental structure and culture vis-à-vis conduciveness to black swan resiliency (see "Black Swans in Strategic Planning" above); make plans to address any critical deficiencies; consider the prospect of creating a strategy-accelerator network, as advocated by Kotter.<sup>3,4</sup>
3. Encourage pharmacy team members to pay attention to major scientific, economic, political, social, and cultural trends in the world at large that could evolve into black swans that affect the pharmacy enterprise.<sup>f</sup>
4. Periodically lead "what if" discussions that probe how the pharmacy team would respond to a particular black swan event.
5. Invite top institutional leaders to participate in the pharmacy department's exploration of how to enhance responsiveness to seemingly improbable events that have massive consequences.

recommended that organizations create a volunteer strategy-accelerator network—to complement their operating systems—for pursuing big strategic initiatives.<sup>3,4</sup>

Key questions for practice leaders related to black swan resiliency include:

1. Are communications among pharmacy team members free flowing across lines of authority versus being confined to a rigid chain of command?
2. Is the pharmacy team well equipped—through a wide range of experiences, perspectives, and information sources—to identify and assess external developments that could have large consequences (either positive or negative) for the pharmacy enterprise?

3. Does the pharmacy department's planning process take into account long-term strategic issues as well as near-term operational issues?
4. Does the department's planning process engage all team members in strategic thinking?<sup>5</sup>
5. Do pharmacy leaders periodically facilitate "what if" discussions about how the department could respond to a seemingly improbable event?<sup>e</sup>

## CONCLUSION

Pharmacy practice leaders can enhance the effectiveness of their planning process by considering proactively how to optimize their department's resiliency when confronted with unanticipated events that have enormous positive or negative consequences.

<sup>a</sup>The term relates to the centuries-old assumption that all swans were white, which held until a black swan was discovered in 1697, forever changing the assumption about the color of swans.

<sup>b</sup>Tisagenlecleucel (Kymriah, Novartis) and axicabtagene ciloleucel (Yescarta, Kite Pharma).

<sup>c</sup>The complexity of this new therapy also required immense effort to get organized for its use.

<sup>d</sup>Onasemnogene abeparvovec-xioi (Zolgensma, AveXis).

<sup>e</sup>Examples of a "seemingly improbable event": demise of the pharmacy benefit management industry; advances in artificial intelligence supplanting most current clinical roles of pharmacists; disintermediation of the retail pharmacy industry by the likes of Amazon.

<sup>f</sup>Examples of such trends: the rise of nationalism among liberal democracies (à la Brexit), the growing wealth gap between corporate executives and other workers, and environmental degradation.

## Disclosures

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