

HIMSS EHR Usability Pain Point Survey Results

David Schlossman, MD, PhD
Missouri Cancer Associates
Boone Hospital Center

Robert Schumacher, PhD
Gfk User Centric

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Physician Webinar Series #7

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Moderator & Speakers

Lou Diamond, MD, MBChB, FCP(SA), FACP, FHIMSS

President, Quality Health Care Advisory Group

Chair, HIMSS Physician Committee

David Schlossman, M.D., Ph.D., FACP, MMI, CPHIMS

Oncologist/Informaticist, Missouri Cancer Associates

Robert Schumacher, PhD

Executive Vice President of GfK User Centric

Speaker Bio: David Schlossman, M.D., Ph.D., FACP, MMI, CPHIMS



Dr. Schlossman is a Board Certified Medical Oncologist with 30 years' experience caring for patients with a wide variety of cancers and blood diseases. Recent Master's Degree and Board Certification in Medical Informatics. Special interest in overcoming the usability and interoperability barriers which discourage physicians from adopting HIT and prevent HIT from reaching its full potential.

Currently serving on the HIMSS Physician Committee and HIMSS HIT Usability Task Force. Chair, HIMSS Physician Community Usability Workgroup.

Speaker Bio: Robert Schumacher, PhD



Bob Schumacher, PhD, is the Executive Vice President of GfK User Centric and current chair of the HIMSS HIT Usability Task Force, which is currently evolving into the Usability Community.

Bob has a doctorate in experimental and cognitive psychology and is a recognized expert in User Experience Design and UX Evaluation and Testing.

HIMSS Physician Committee EHR Usability Workgroup

Philip Bernard, M.D.

Vitaly Herasevich, M.D., Ph.D.

Noreen Butte, M.D.

Robert Hitchcock, M.D.

Jojoy Cheriyan, M.D.

Leslie Smart, M.D.

Caitlin Cusack, M.D.

Lynn Witherspoon, M.D.

David Schlossman, M.D., Ph.D., Chair

Acknowledgements

Lou Diamond, M.D., Chair, Physician Committee, HIMSS

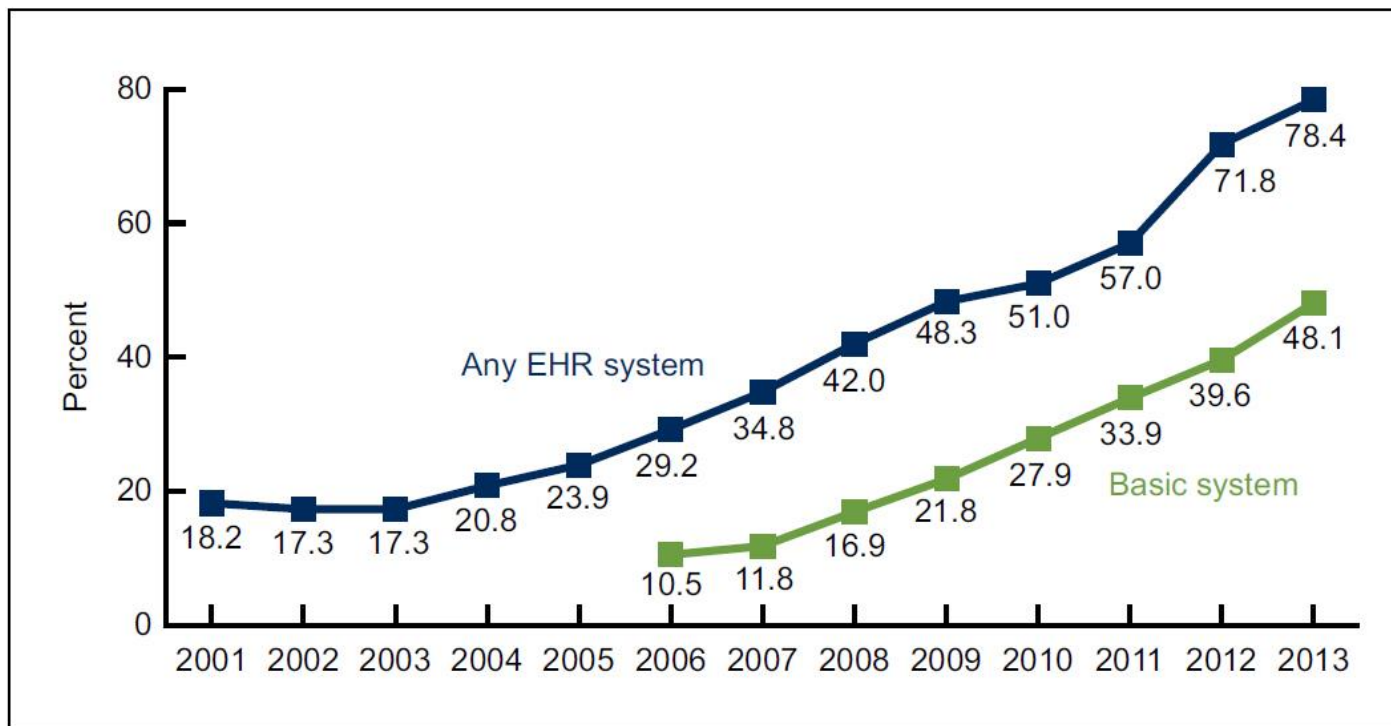
Christel Anderson, M.A., Director, Clinical Informatics, HIMSS

Lauren Kaderabek, Coordinator, Clinical Informatics, HIMSS

HITECH Effect on EHR Adoption

Adoption of basic EHR systems by office-based physicians increased 21% between 2012 and 2013.

Figure 1. Percentage of office-based physicians with EHR systems: United States, 2001–2013



Hsiao C-J, Hing E. Use and characteristics of electronic health record systems among office-based physician practices: United States, 2001–2013. NCHS data brief, no 143. Hyattsville, MD: National Center for Health Statistics. 2014.

Healthcare Providers' User Experience



- Products not developed with provider-patient workflow in mind
- Information not formatted to fit physician cognitive models or support clinical decision making
- Extra steps added in common clinical tasks
- Increased cognitive and physical workload in clinical practice

Unintended Negative Consequences

- Time consuming data entry with decreased physician efficiency and productivity
- Decreased time and attention available to devote to each patient
- Less fulfilling work content, performing tasks far below level of training
- Misuse of template notes with degradation of clinical documentation
- Clinician fatigue and workarounds
 - Increased risk of adverse events

Why EHR Usability Matters: Workforce Issues

- Shortage of doctors by 2020: **90,000+**
- Shortage of primary care physicians: **45,000+**
- Shortage of surgeons and specialists: **46,000+**
- Physicians likely to retire by 2020: **250,000+**
- Americans entering the healthcare system in 2014 and beyond via HEXs under the ACA: **32 million**
- Aging US population with increasing healthcare needs

Data from the Association of American Medical Colleges, CMS/CMMI Innovation Grants, Robert Wood Johnson Foundation and the American Telemedicine Association.

Projected Supply and Demand, Physicians, 2008-2020
(ALL SPECIALTIES)



Why EHR Usability Matters: Meaningful Use

The AMA, finding increasing physician frustration with an overly prescriptive Meaningful Use program that forces physicians to use poorly functioning technology, recently stated

“Unless significant changes are made to both the current program and future stages, we believe that:

- More physicians will drop-out of the MU Program;
- Patients will face disruptions and inefficiency in their care, as existing EHRs are unable to migrate data or facilitate more coordinated care;
- Thousands of physicians will incur financial penalties that hinder future technology purchases and limit resources dedicated to advancing care; and
- Outcomes-based delivery models, which require data driven approaches, will be jeopardized.”

James L. Mandara, M.D., EVP and CEO, American Medical Association
Letter to CMS Administrator Marilyn B. Tavenner and ONC Coordinator
Karen B. DeSalvo, M.D., MPH dated May 8, 2014

Why EHR Usability Matters: Care Quality

- Physicians are more satisfied when they feel they are delivering high quality care and meeting their patients' needs
- Physician satisfaction is not a perfect indicator of care quality, but dissatisfaction arising from factors physicians perceive as compromising the quality of care may serve as indicators of dysfunction in the care delivery system
- Poor EHR usability and regulations which divert physicians' attention away from patients to tasks which do not require physician level training are targets for interventions which can improve both the quality of care and the professional satisfaction of doctors.

Friedberg, M.W., Chen, P. G., Van Busum, K.R. et al. (2013). Factors Affecting Physician Professional Satisfaction and Their Implications for Patient Care, Health Systems, and Health Policy. RAND Corporation and the American Medical Association. Washington, D.C.

A Pain Point Survey: Concepts

- Internet based survey conducted February 1 to March 31, 2014
- Distributed to working physicians who regularly use EHRs, seeking their expertise to identify specific characteristics of EHR function and interfaces which most disrupt workflow, increase the difficulty of clinical decision making, and increase the effort required to accomplish common clinical tasks and maintain care quality
- A total of 342 valid responses were received and will be covered in the following analysis.
- Participants were self selected and may not be representative of the general population of physicians in the US
- Respondents did represent a broad spectrum of specialties, practice sizes, practice settings, and locations
- Common themes emerged allowing us to form exploratory hypotheses regarding what problems with EHR functioning were felt most poignantly across multiple practice situations

Low Response Rate: Competing Priorities

- Decreased efficiency (fewer patients per hour, longer workdays)
- New physician compensation models (bundled payments, pay for performance, ACO's)
- Declining reimbursements and practice financial problems
- Increased regulatory burden (PQRS, Meaningful Use)
- Rapid expansion of the biomedical knowledge base
- Increased continuing education and examination requirements to maintain board certification

Low Response Rate: Complaint Fatigue

“None of the pain points developed in that meeting have been fixed. I came into work on my day off to attend this meeting (unpaid time) just for the hope of improving my work environment and improving my ability to rapidly and effectively service mine and [Hospital’s] patients. I will not be attending any more meetings on improving [EHR Product]”

“End -users (physicians) have been IGNORED when tweaks requested. After implementation of system; the company providing the EHR assumed that if it worked, no matter how clunky, it was good enough”

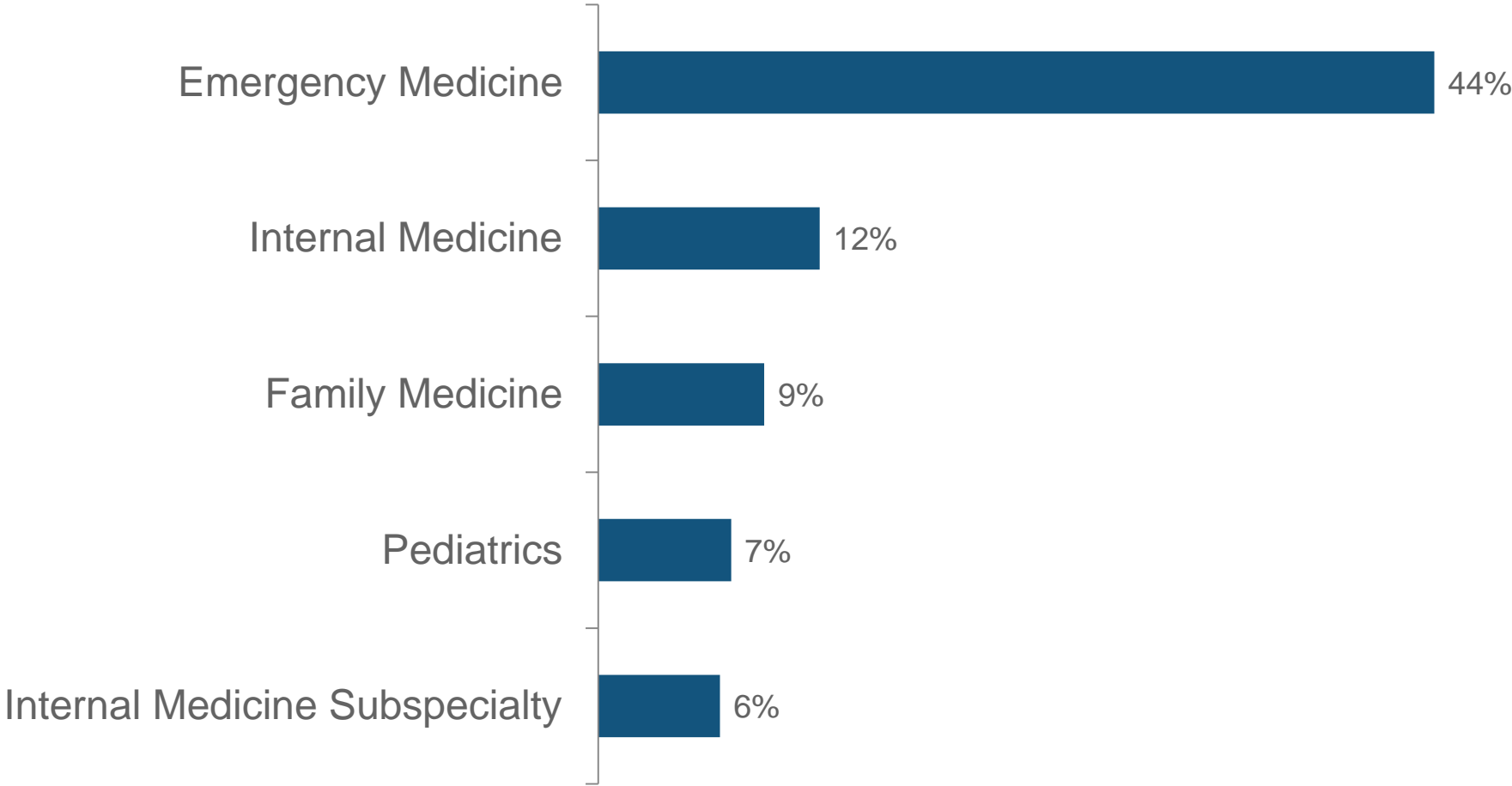
“No one seems to care or listen...A ‘for show only’ interest in an evaluation of the system followed by...well...nothing. This survey will have zero impact, just as all of the physician feedback over the years has had no real impact.”

“The current system has many clear problems, but it seems that the priority is preparing for meaningful use rather than fixing the day to day problems that plague physician work flow.”

“I have always been active in this area but frequently feel like I am hitting my head against a wall trying to get what should be simple changes.”

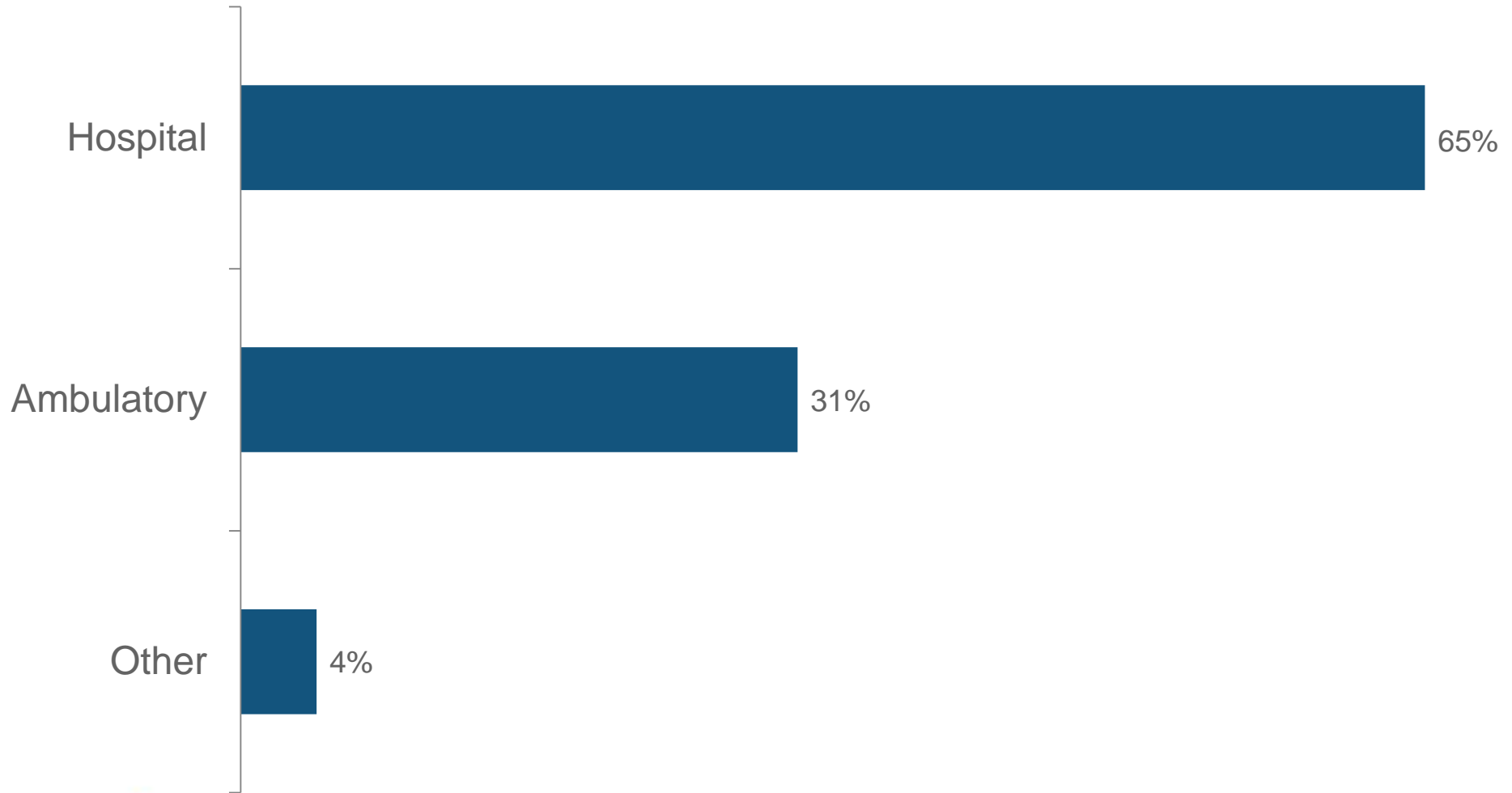
Respondent Profiles

Primary Specialty/Subspecialty

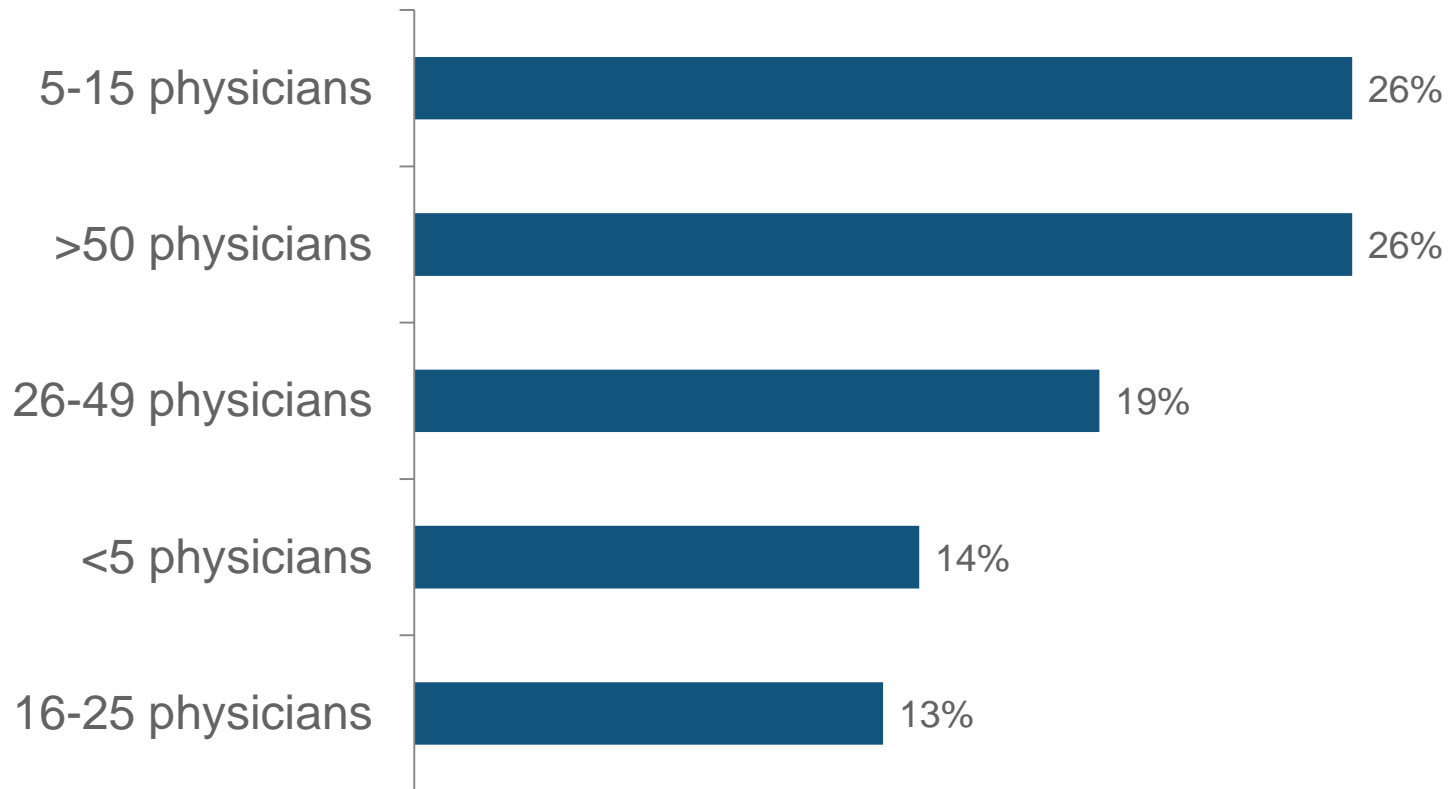


Q: What is your primary specialty or subspecialty?

Practice Setting

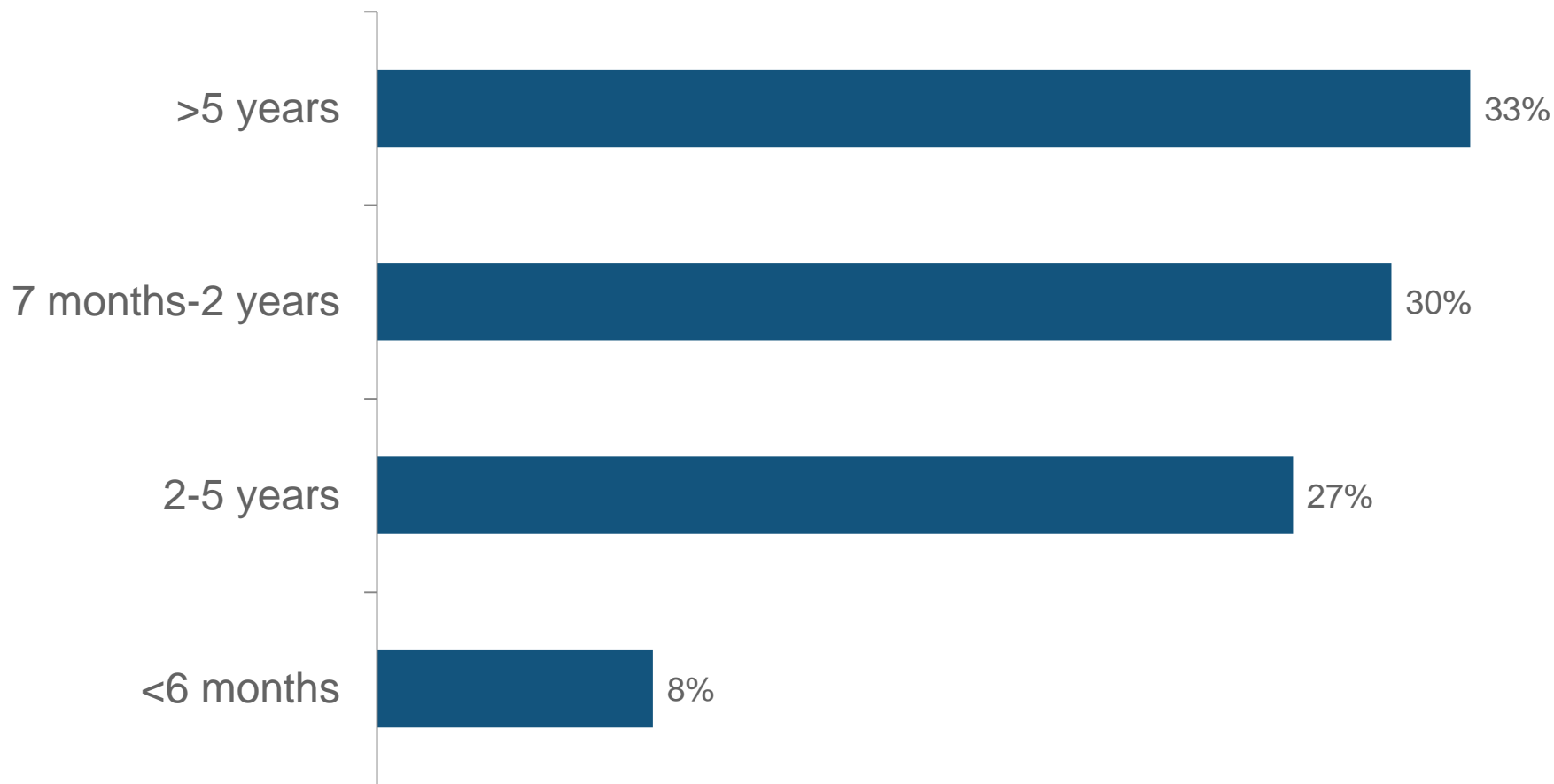


Practice Size



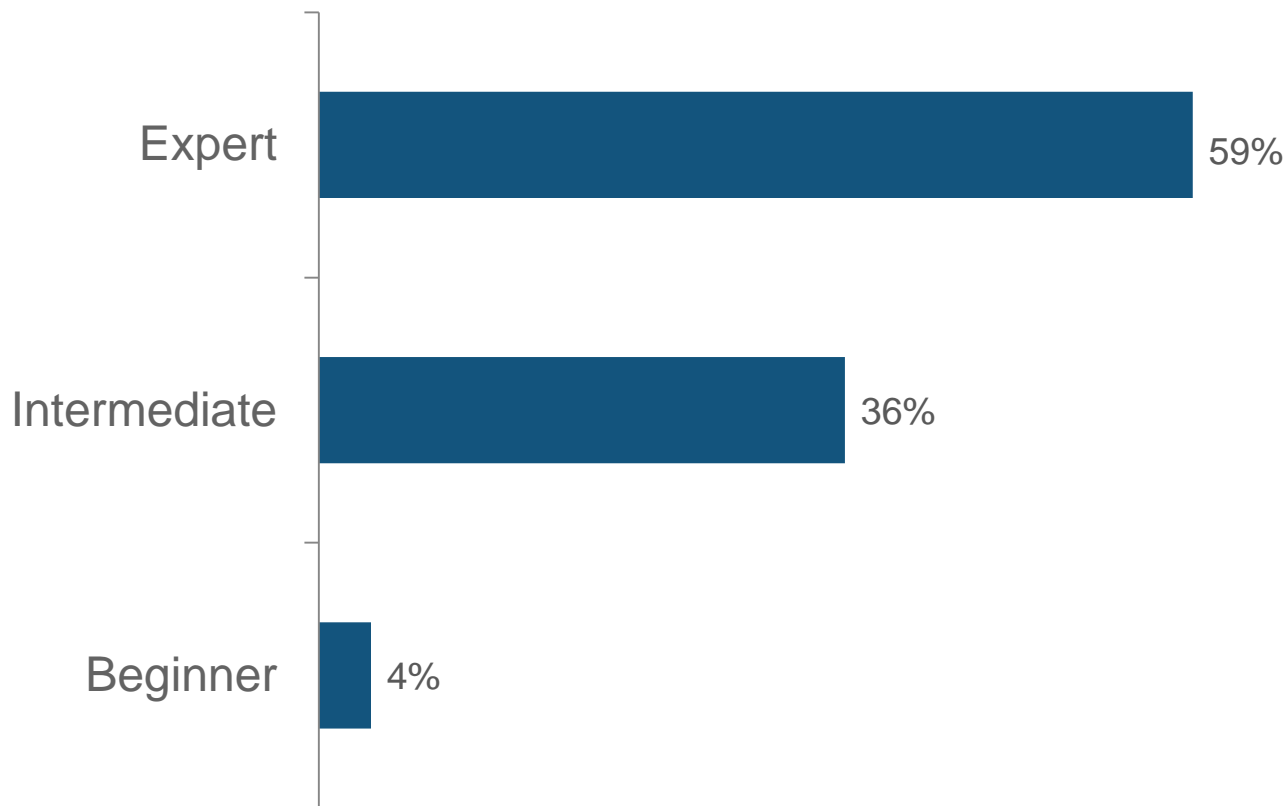
Q: What size is your physician practice/department?

Length of Time using EHR (current system)



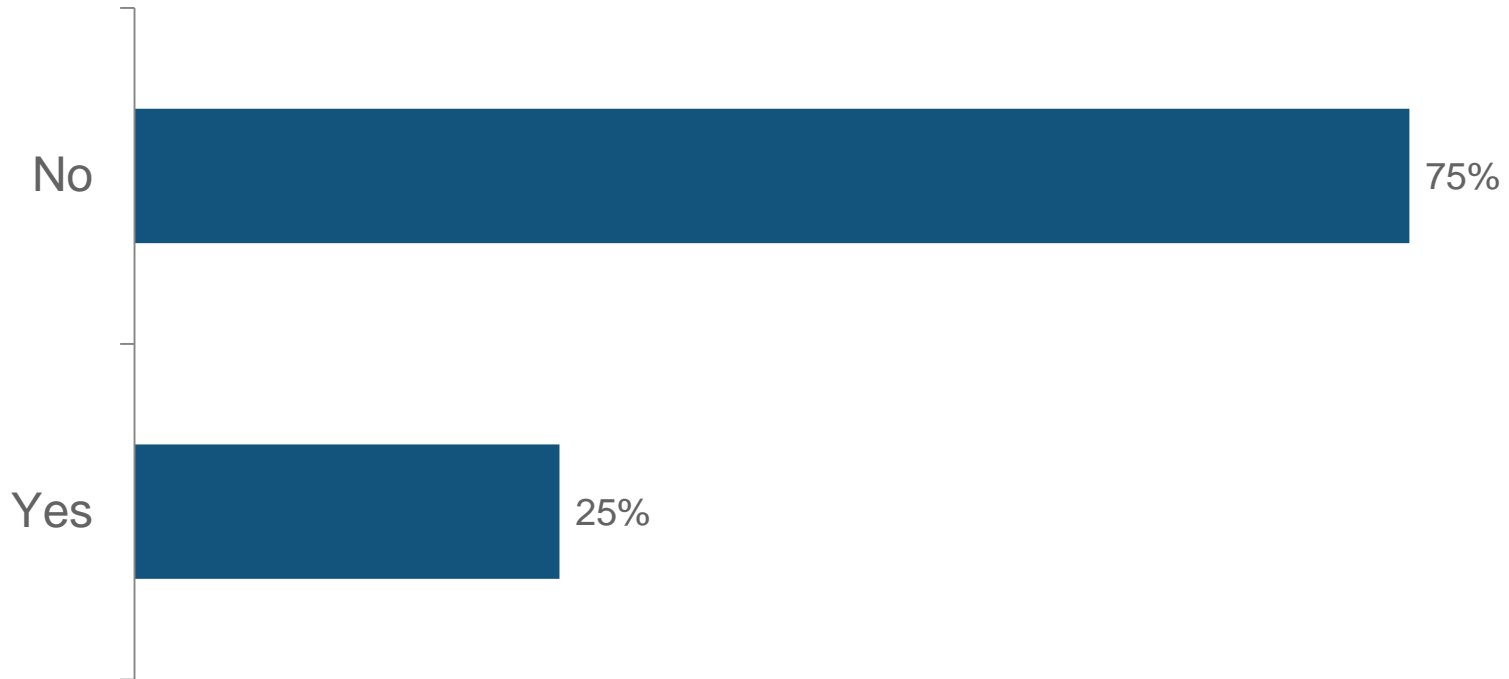
Q: How long have you been using your primary EHR?

EHR Proficiency (within own system)



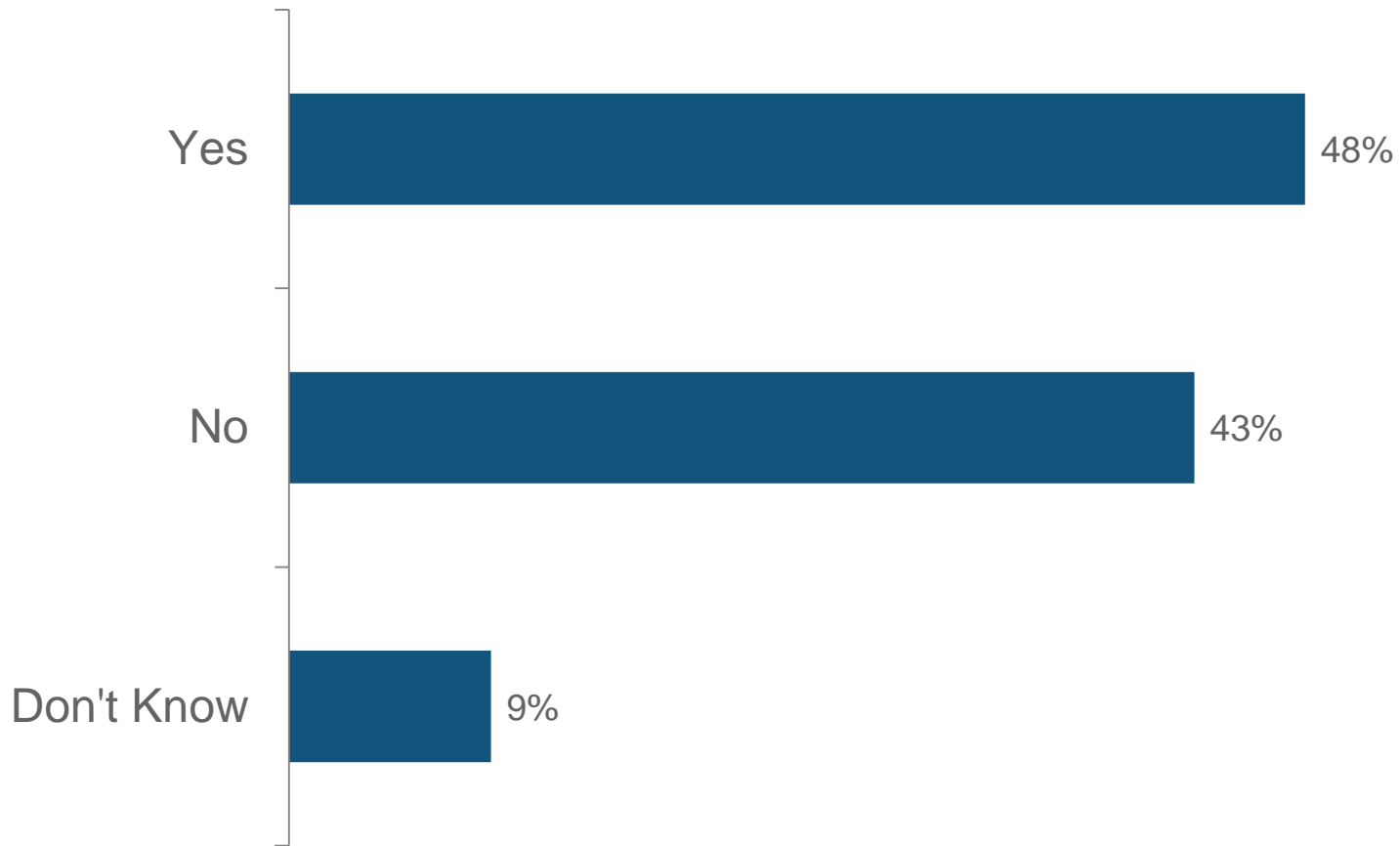
Q: What is your level of proficiency with your EHR system?

EHR Designed for your Specialty?

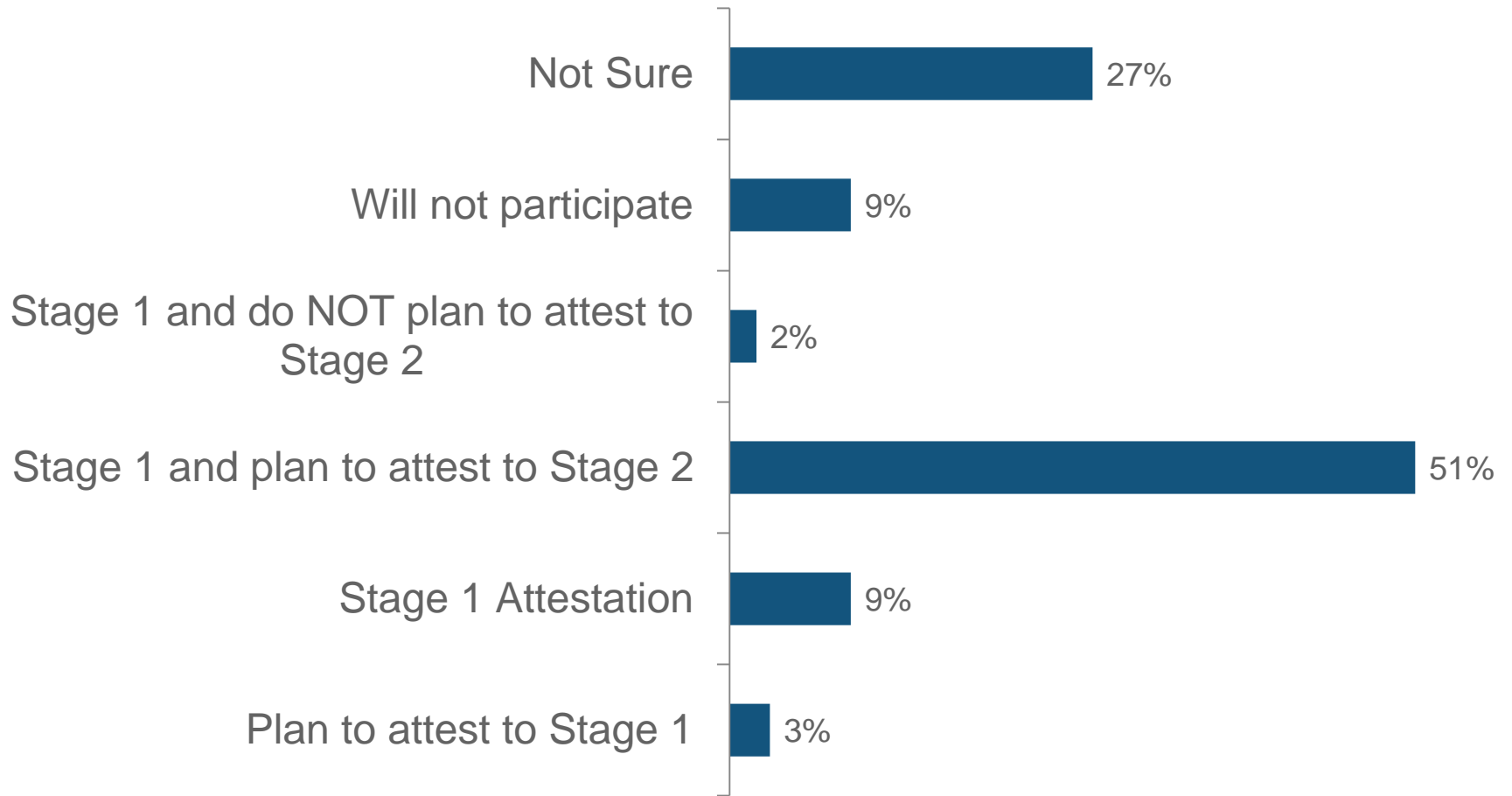


Q: Was your EHR designed specifically for your specialty?

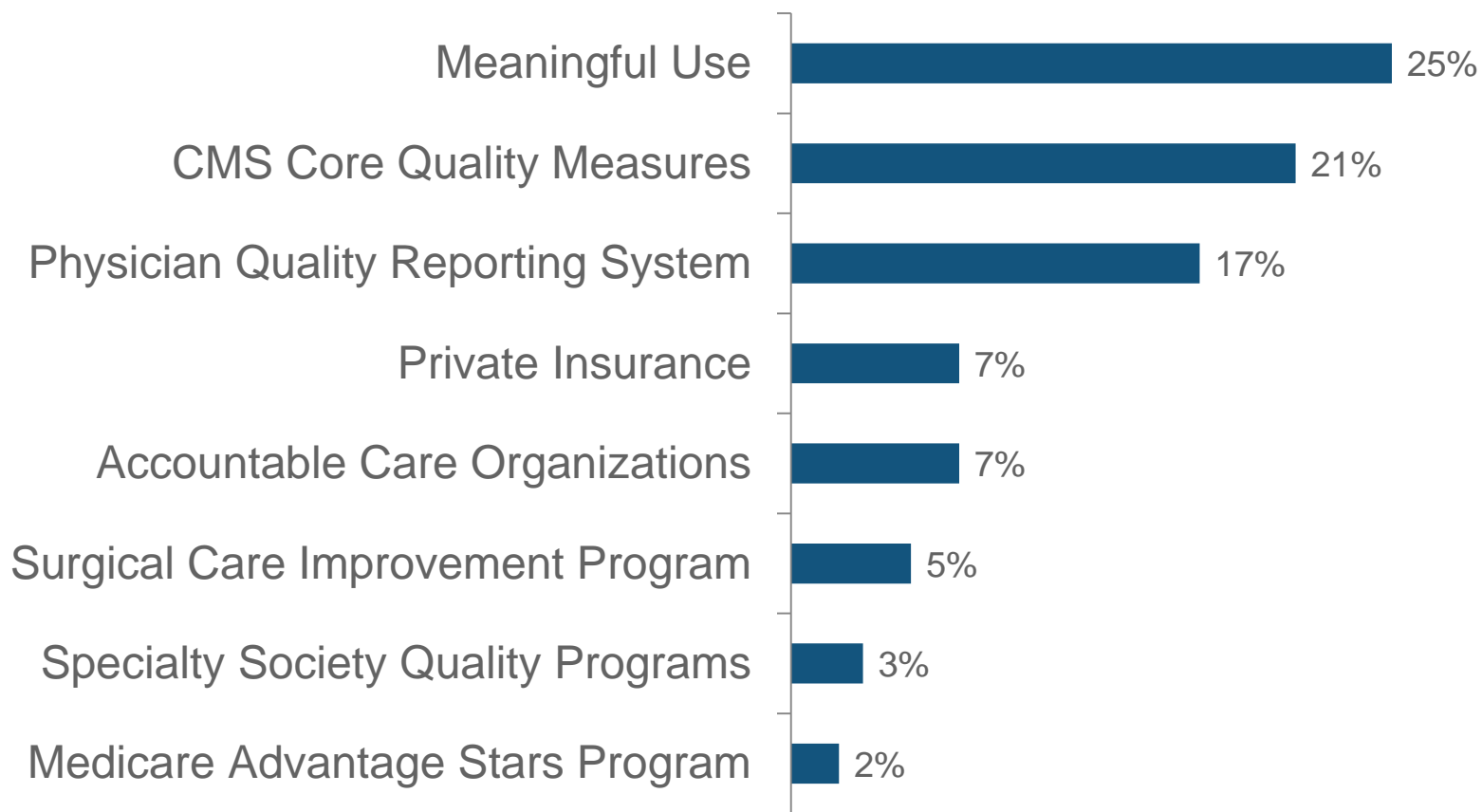
Physician participation in organizations' EHR selection



Meaningful Use Attestation



Quality Metrics Reported from EHR Data



EHR Usability Pain Point Survey

Methods and Results

Definitions

- EHR (Electronic Health Record): all electronic systems designed to document, store, and retrieve medical information.
- CPOE (Computerized Provider Order entry): providers directly entering and managing orders in an electronic system.
- CDS (Clinical Decision Support): all electronic systems to provide clinicians with intelligently filtered scientific knowledge and patient specific information to facilitate decision-making at the point of care.
- Usability: the speed, accuracy, and perceived effort involved in accomplishing clinical tasks.
- Pain Point: a problem or barrier which slows or prevents a physician from accomplishing a patient care task.

Methods

- For each of several common EHR functionalities, respondents were asked to select their three most serious pain points from a list of several options
- Respondents were invited to answer four qualitative free text questions regarding
 - Additional pain points not specified in the selection lists
 - Positive impacts of the EHR on physician workflow, efficiency, and satisfaction
 - Negative impacts of the EHR on physician workflow, efficiency, and satisfaction
 - Ways that healthcare organizations can better incorporate clinician needs and viewpoints into the selection and management of their EHRs

Survey Results



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The Good

Benefits of EHRs

- Better access, especially accessing patient information remotely. No lost charts.
- Better legibility and sometimes better organization
- Multiple users can access the same record simultaneously
- Improved compliance with evidence based guidelines
- Most still believe IT will be indispensable for improving care quality, improving population health, and controlling the unsustainable growth in costs

Respondent Comments

“The EMR is far superior to the paper chart pre-EMR world. Speed -- no waiting for charts.”

“Clarity --- my handwriting alone would likely have caused many deaths.”

“Portability -- I have checked on my patients from 4 continents.”

“Data availability is improved in availability and clinical utility.”

“Better documentation. Documents are legible to all.”

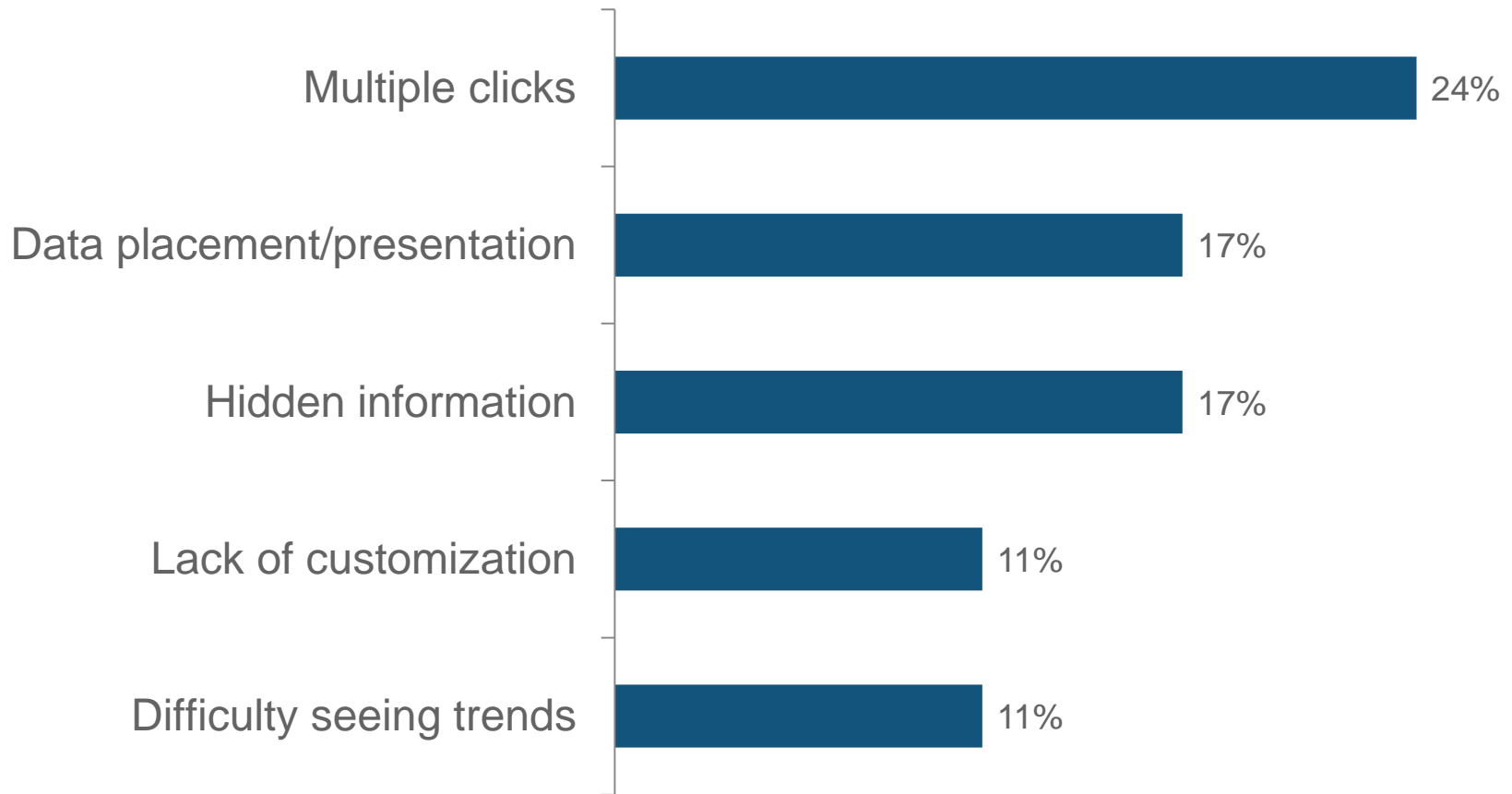
Survey Results



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The Bad

Reviewing Clinical Data (Top 5)



Respondent Comments

“Overall, too many clicks to accomplish what should be simple tasks.”

“I shouldn't have to click five times (with a 0.5-1.5 second delay each time I click) to do accomplish one step in the things I have to do.”

“Extremely difficult navigation, i.e., having to close fields to view others, jumping in / out of modules.”

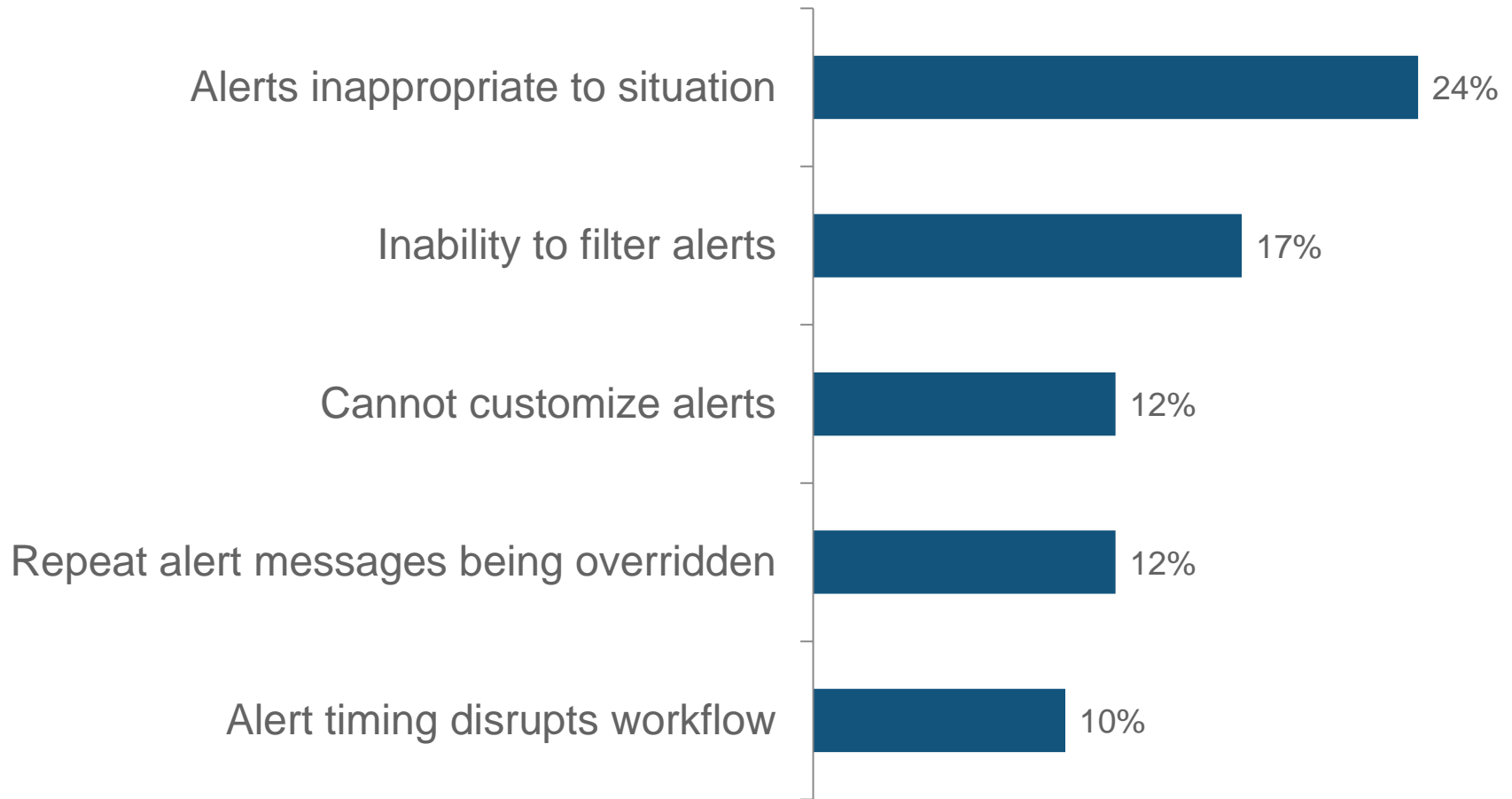
“Screen layouts are cluttered and have much "wasted" space.”

“Arranging data to see trends over time is slow and requires multiple” clicks.

“Related data needed to make a decision is often spread among multiple screens or organized incorrectly if on a single screen.”

“I need a clean uncluttered workspace that has 25 places to click and not 132 places to click on a single screen (that 132 number is accurate...I counted how many different places there were to click on one [Vendor] screen once).”

Clinical Decision Support (Top 5)



Respondent Comments

“Lack of customization of CDS parameters leads to alert fatigue and failure to seek out potentially useful CDS where it is hidden, such that this feature in the EHR is more a burden than a help.”

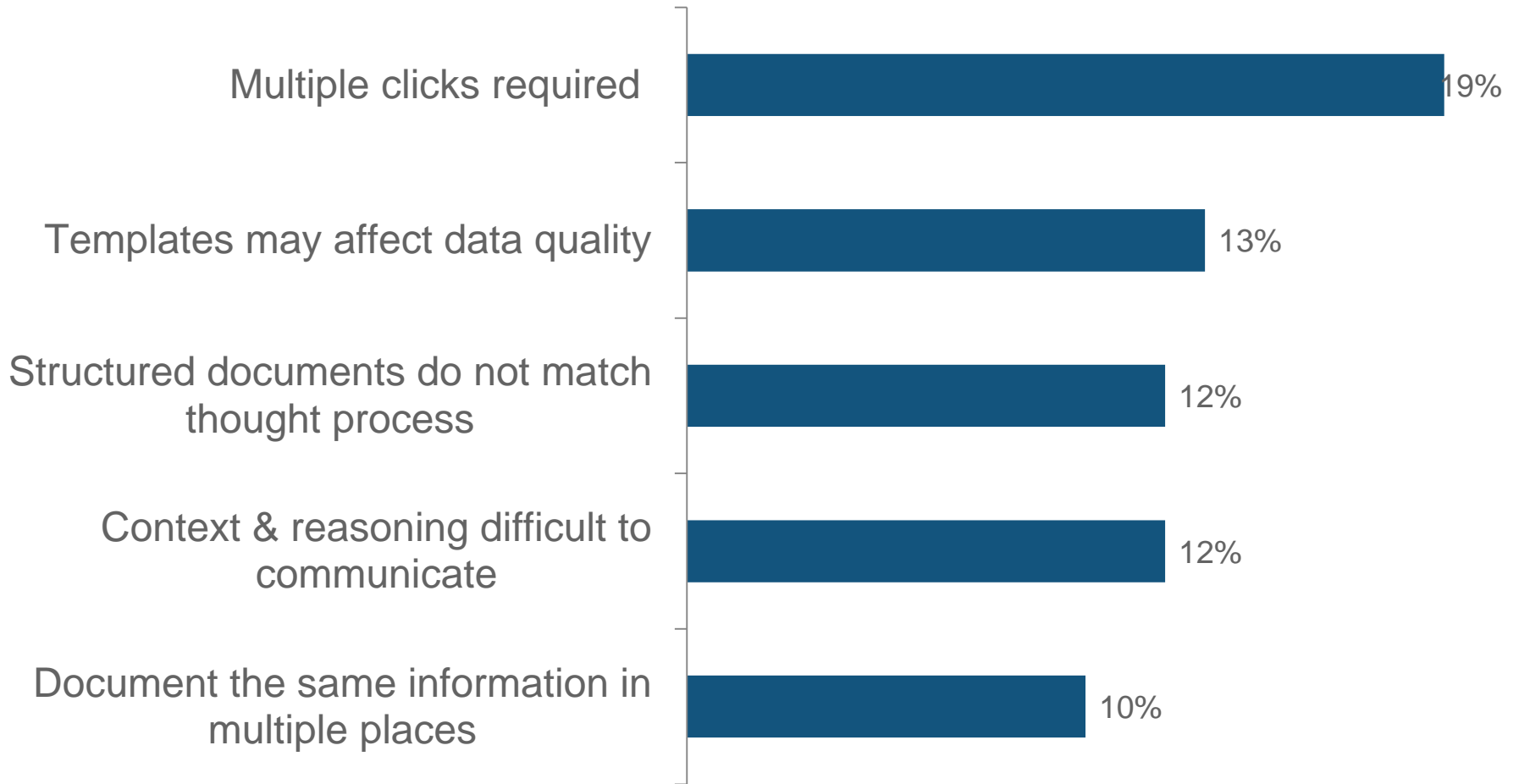
“Alert fatigue, alert fatigue, alert fatigue!!! The formulary service vendors have not created usable databases.”

“CDS alerts are simply wrong too often.”

“Alerts and warnings are not helpful and generally are ignored, resulting in time lost and, potentially, useful or safety information being lost.”

“The system indiscriminately vomits 30 or more (yes!!! 30!!!) screens of data about [expletive] community acquired pneumonia. All I want to do is find the currently recommended antibiotic.”

Physician Documentation (Top 5)



Respondent Comments

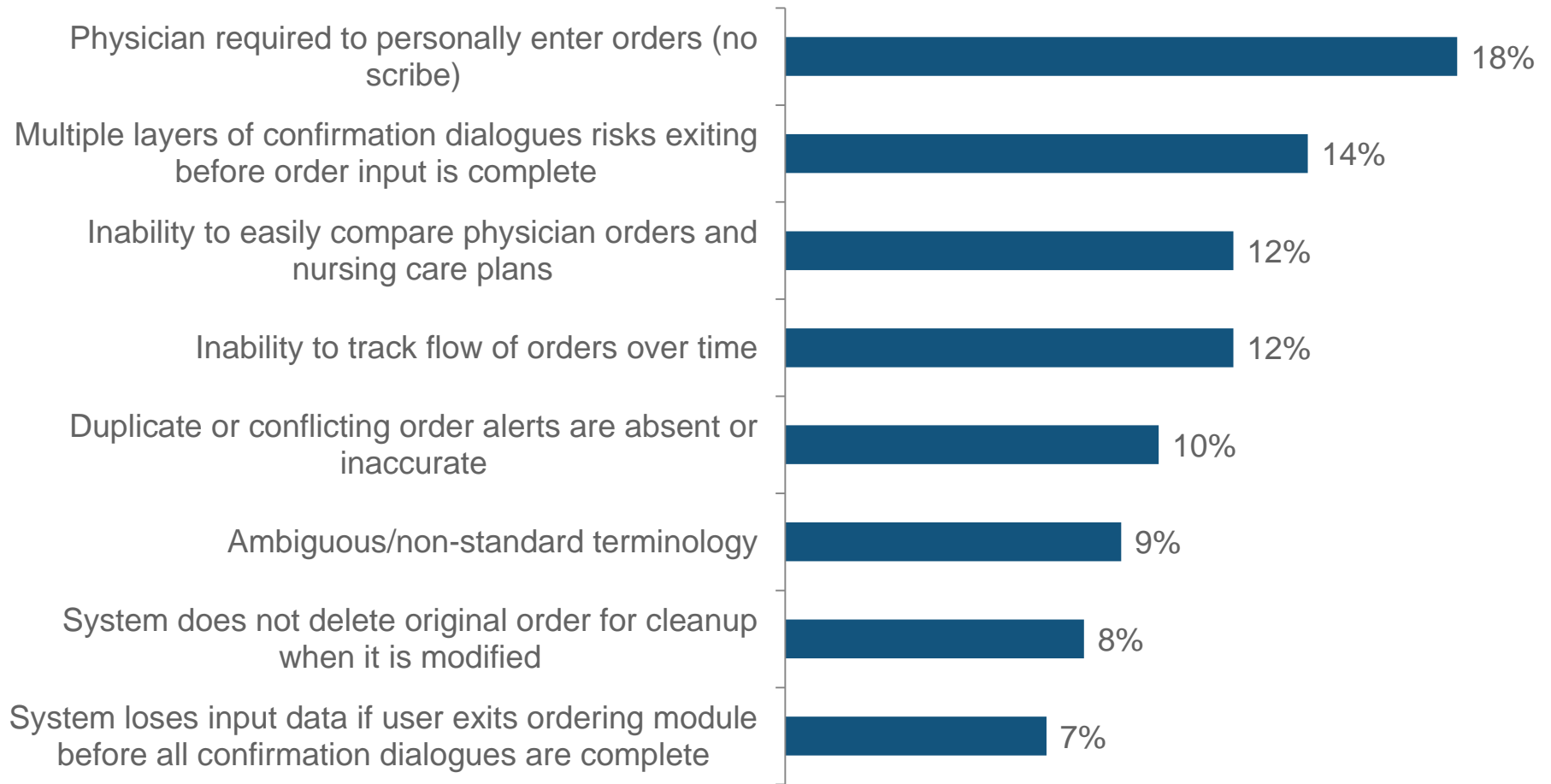
“The templated and populated items in notes are cumbersome and create a lot of irrelevant junk that says nothing about what is actually going on with the patient and what actually occurred at the visit. Contributes to documentation output that is difficult to read, is repetitive, and in which important current information tends to be buried among computer generated junk text.”

“And EHR generated notes are useless--I used to get 10 times the amount of info from a 3 sentence handwritten nurses note than I get from the current 6 pages of gobbledy-goop. The nurses' notes used to be the first thing I read on getting to the floor; now I don't bother to look at them.”

“Each document looks like it was written by a fourth year medical student or a physician who doesn't actually see patients and stopped learning clinical skills at the 4th year level.”

“My final notes are an embarrassment, the relevant data is mixed with garbage. It is like looking for a diamond ring in a cat litter box. You know there is something good there but you really need to want it to sift through the pages of irrelevance.”

Computerized Provider Order Entry



Respondent Comments

“Prescriptions are difficult to write and have no default dosing options”

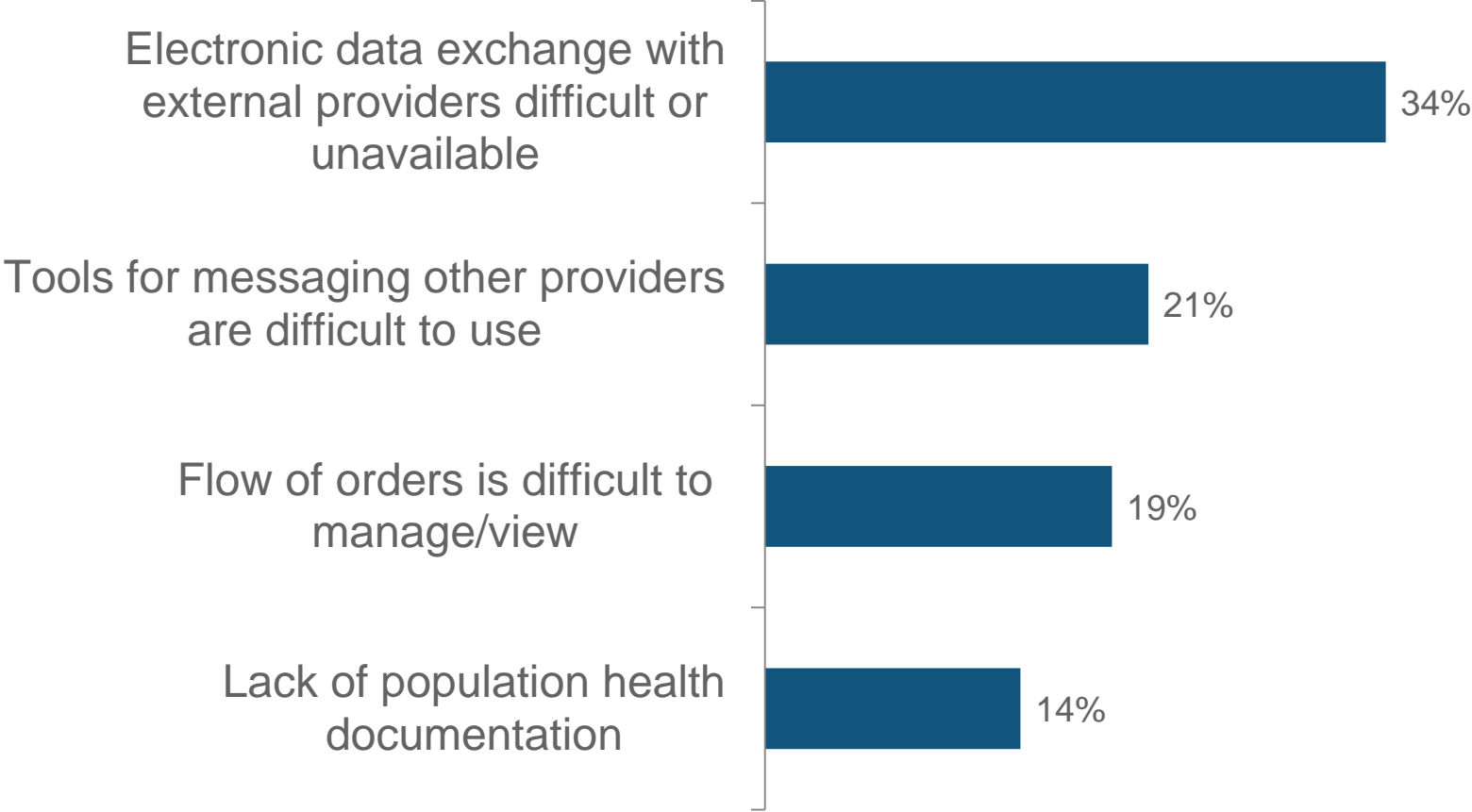
“The time it takes to enter orders is easily 5-10 times longer than "pre EHR".”

“I cannot change an order, like change a CT from without contrast to with contrast, I have to cancel and start a whole NEW order, and maybe forget something.”

“EHR, especially CPOE, have allowed clerks & nurses to delegate upwards to physicians since they claim that physicians have to type in orders personally to prevent errors.”

“Ordering labs and imaging causes confusion because test desired is not listed in system and cannot order it correctly. Requires multiple interventions, i.e. radiology calls clinic, clinic sends me a clarification, I return the clarification and it must be send back to radiology.”

Provider to Provider Communication



Respondent Comments

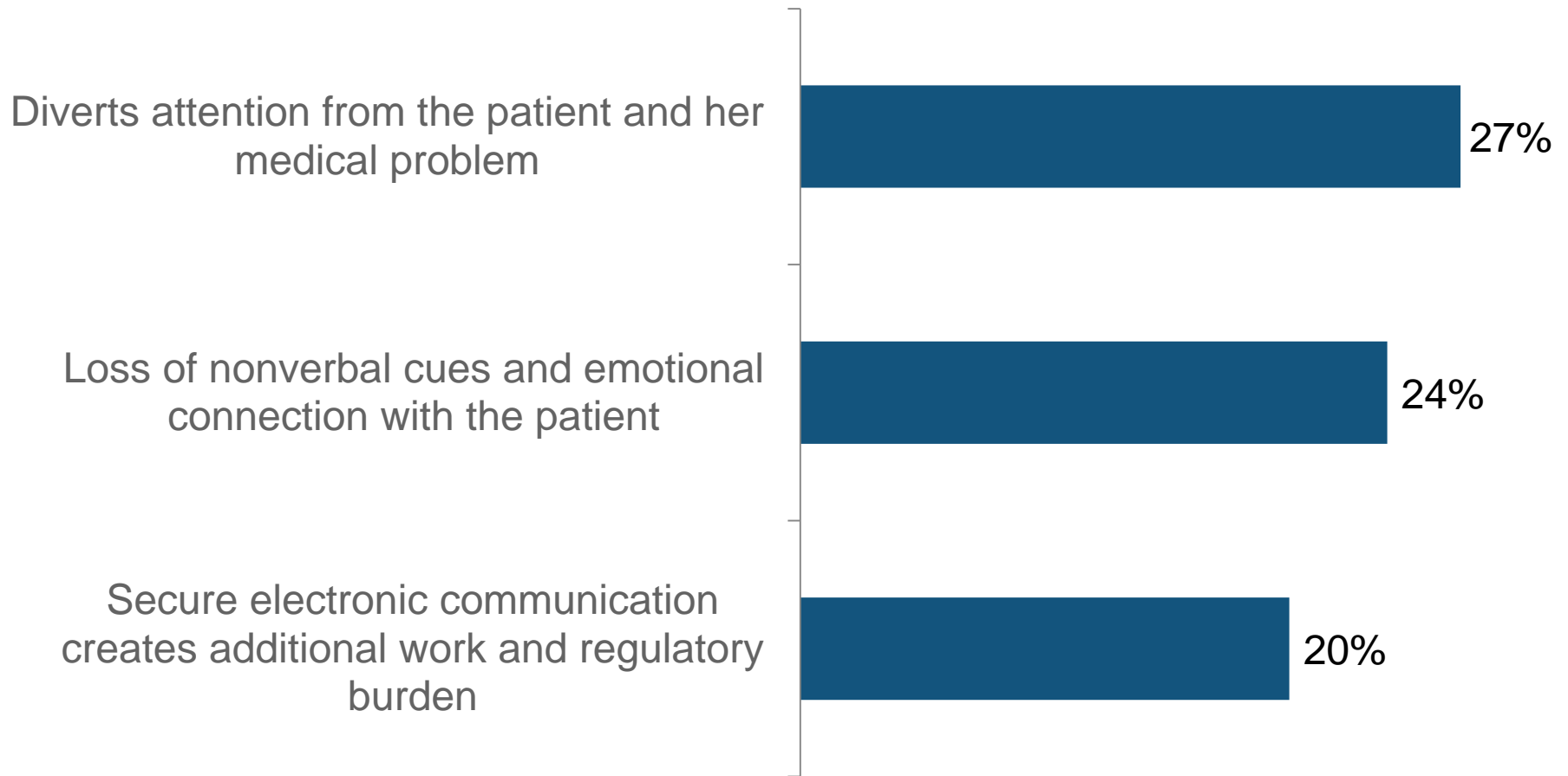
“Provider to provider collaboration - screw the EMR; it just mucks up the message. I'll see the doc in the hallway, or call him”

“Structured notes from other providers provide almost no useful clinical data. I usually get a 5-page note that might have two lines of physician thought.”

“Communication and hand offs are worse due to scattered information buried in disparate parts of the chart cluttered up with documentation purely for regulations.”

“The implementation of the EHR has actually decreased communication between the hospital staff, and ultimately in my opinion decreased patient safety.”

Provider to Patient Communication



Respondent Comments

“We spend 90% of our patient care time sitting in front of a computer (remember that when we take care of your family) It tremendously impacts our ability to see patients.”

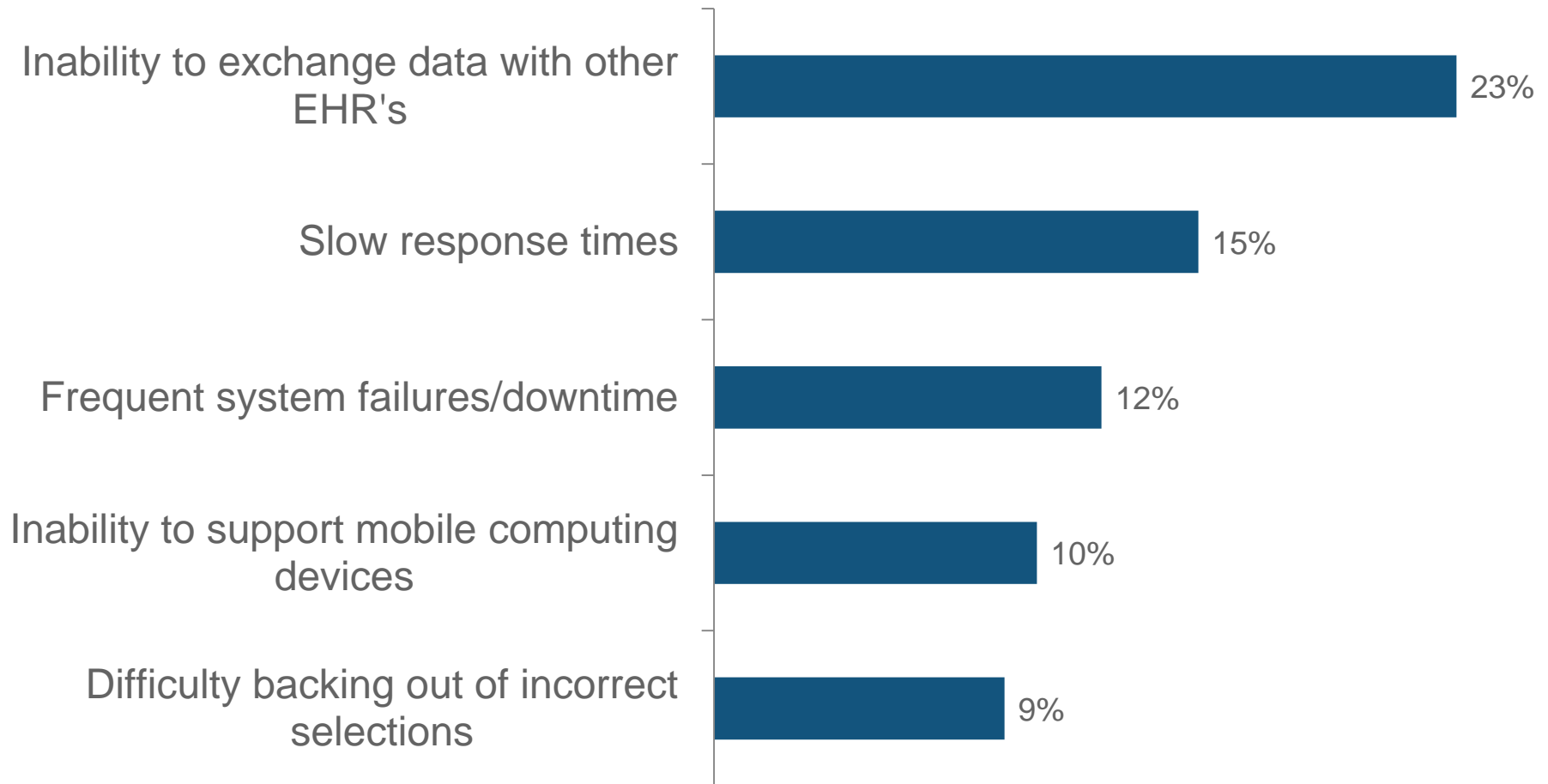
“Face to face encounters with a patient, with a computer in the room, are insulting to the patient and embarrassing to a caring physician.”

“This is the end of the traditional doctor -patient relationship that I have known in the past. I have not run "on time" since implementation of our office EMR. OB/GYN is too personal of a field to have a scribe follow me from room to room.”

“I am always having to apologize for running late. I find it difficult to keep the thread of the patient's problem, testing, diagnosis, labs, etc.”

“I spend more time with a computer than I do with patients. I should not be the most expensive data entry clerk in the hospital.”

Technology-Related Challenges



Overall satisfaction with EHR

41%

Satisfied

(Highly, Very & Moderately)

59%

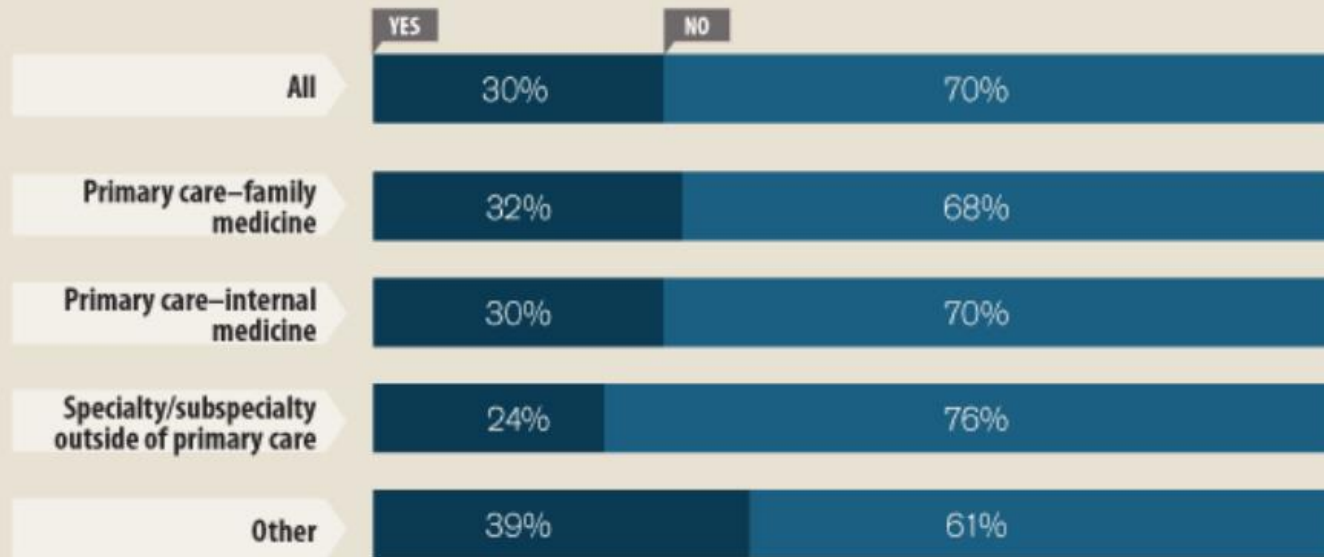
Not Satisfied

(Moderately, Slightly & Very)

Medical Economics/MPI Provider Survey

70% say EHRs *not worth it*

Q: Has your EHR investment been worth the effort, resources, and costs?

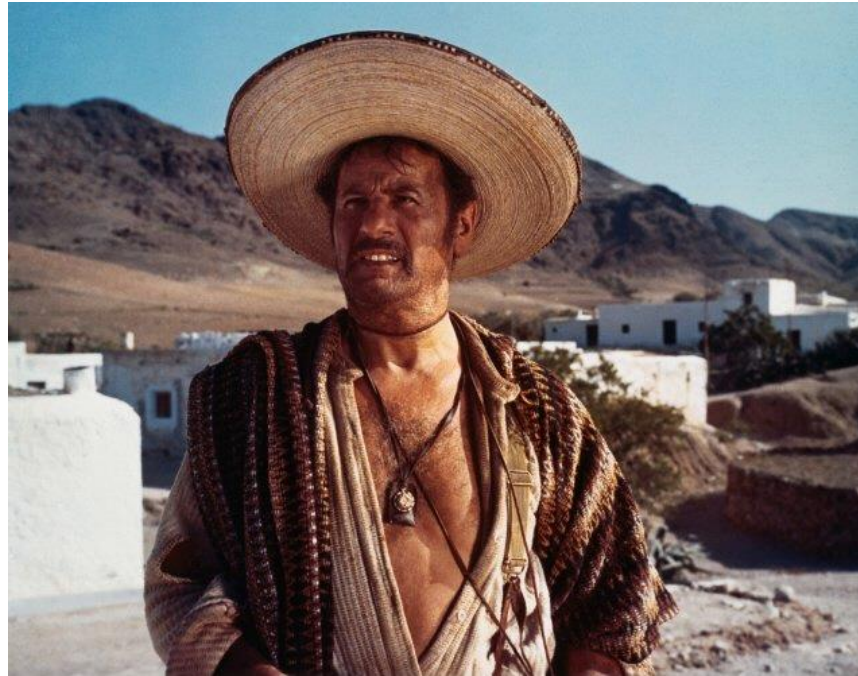


N=952

Source: 2014 EHR Survey; MPI Group/Medical Economics

Verdon, D.R. (2014). Physician outcry on EHR functionality, cost will shake the health information technology sector. *Medical Economics* 91(3): 18-27

Survey Results



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The Ugly

A Sentinel Event in Clinical Informatics?

Number of Hospitals Certified for MU Stage 2: Four
Will the other 4996 need hardship exemptions?

“Stage 2 has basically co-opted the entire agenda of CIOs [and other health IT leaders] for the last 18 months. My prediction: 20 percent will attest to Stage 2 on time; 80% won't, and there will be huge numbers leaving the program.”

John Halamka, M.D., M.S.
CIO, Beth Israel Deaconess Medical Center
Professor of Medicine, Harvard Medical School
Chair, New England Healthcare Exchange Network
Vice Chair, Health IT Standards Committee

A Way Forward

- Huge investment in the installed EHR base dictates that improvements in UX will be evolutionary, not radical
- Good will, rational thinking, and physician complaints are not sufficient to drive EHR UX improvement
- What can get the job done
 - Educate health systems about the total costs (direct and indirect) of neglecting UX issues and the importance of including practicing clinicians in purchasing decisions
 - Tools and buyer's guides to educate and inform practitioners and health systems in consistent, evidence-based methods of assessing UX and driving improvements through their purchasing and implementation decisions
 - A wider perspective, higher profile stand by federal regulators, requiring testing early and often in EHR development, utilizing impartial practicing physicians, and posting reports clear of technical jargon and easily understood by the consumer

A Role for HIMSS

- As a cause-based not-for-profit, HIMSS focuses on providing practical input from membership, which represents viewpoints from across the healthcare community
- Survey results provide opportunities for collaboration among like minded groups on usability issues to educate health systems, providers and regulators
- Guidance for clinician-vendor collaboration on comprehensive transparent reporting of usability and safety issues and on creating better formative mechanisms for early testing and iterative design

Specific Opportunities

- Provide tools and templates to make EHR usability testing accessible to the busy private practitioners and community hospitals who provide 80% of the healthcare in the US
 - Consistent standardized scenarios and task lists
 - Prebuilt test patient documentation
 - Semi-automated systems for usability testing
- Acquire reproducible quantitative data, establish performance benchmarks, and make usability concerns more objective
- Utilize the HIMSS Usability Maturity Model to help healthcare organizations better integrate EHR usability into their evolution to fully electronic records and systems

Ideas for Meaningful Use Reform

- Consider Stage 3 Delay
- Flexible thresholds to earn incentives and avoid penalties
- Eliminate requirements physicians cannot control
- Align multiple quality control programs
- Require evidence based program requirements and linked to tested and high-performing standards
- Do not promulgate requirements without verified implementation guides
- Transition to a merit based incentive program that enables organizations to evolve at their own pace and leaves room to re-establish the normal cycles of iterative development and improvement which we have lost

Ideas from the American Medical Association, RAND Corporation, and Dr. John Halamka

Improving Usability is a Shared Responsibility

Opinion

MEWPOINT

Clinical Informatics Prospects for a New Medical Subspecialty

Don E. Detmer, MD
University of Virginia,
Charlottesville.

Edward H. Shortliffe,
MD, PhD
Arizona State
University, Phoenix.

Only a few years ago, the mention of informatics in clinical circles generated questions regarding the rigor or relevance of the field. With the expanding interest and investment in health information technology by hospitals, health systems, and practitioners, however, interest in and acceptance of clinical informatics has increased substantially. Since 1972, the National Institutes of Health, principally through the National Library of Medicine (NLM), has supported a number of centers of excellence that focus on workforce education in computer applications and the underlying science. Additional efforts to help ensure a supply of competently trained individuals capable of maintaining progress with respect to applied clinical informatics are a recent development.

Among the current challenges for clinical informatics is the relative lack of understanding throughout the medical profession about the distinction between informatics and information technology. Biomedical informatics is a scientific discipline focused on the effective use of knowledge and information in patient care, public

Biomedical informatics is a scientific discipline focused on the effective use of knowledge and information in patient care, public health, and biomedicine.

health, and biomedicine. Its patient care and health foci are termed clinical informatics or health informatics, whereas other applied components include those in molecular biology (bioinformatics) and imaging (imaging informatics). Clinical informatics is not simply "computers in medicine" but rather is a body of knowledge, methods, and theories that focus on the effective use of information and knowledge to improve the quality, safety, and cost-effectiveness of patient care as well as the health of both individuals and populations.

The clinical goals of informatics encompass numerous applications and considerations that generally involve information technology, including the use of modern communications methods. Over the past half century, with increasing capabilities such as integrated decision support, management of human genomics with prospects for personalized medicine, and biosurveillance in support of public health, electronic health records have served as the central focus for the learning health care system that integrates care experiences and preventive services with analytical

tools that allow better learning from the huge amount of information that is generated every day in health care environments.

Clinical Informatics as a Subspecialty

The American Medical Informatics Association (AMIA) serves as the scientific association and professional home for clinical informaticians and for others involved with biomedical informatics. Since 1988, members of AMIA and its college, the American College of Medical Informatics, have developed a code of ethics and sponsored meetings, education, policy, and research programs. The creation of the clinical informatics subspecialty followed a process that began in 2007 when AMIA was elected to full membership in the Council of Medical Specialty Societies (CMSS), the umbrella organization composed of organizations that offer board certification through the American Board of Medical Specialties (ABMS). At the time of its election, AMIA was the sole member not having this distinction of board certification, although CMSS leadership was aware that AMIA was pursuing formal designation of clinical informatics as a subspecialty for physicians.

Following creation of 2 substantial documents, (1) a summary of the core content of clinical informatics¹ and (2) a description of formal fellowship training requirements,² the American Board of Preventive Medicine, with cosponsorship by the American Board of Pathology, agreed to assume responsibility for

board certification in clinical informatics as part of its portfolio.³ In 2010, with assistance from AMIA in the proposal process, the American Board of Preventive Medicine received formal approval from the ABMS to move forward with subspecialty certification, with the first 5 years based largely on examination of physicians who were board certified in any of the ABMS specialties but informally trained in clinical informatics. Thereafter, board eligibility would require completion of an Accreditation Council on Graduate Medical Education (ACGME)-accredited fellowship in clinical informatics, as is the case for board eligibility in other subspecialties.

With the approval of the subspecialty, the American Board of Preventive Medicine undertook to create the board examination and scheduled the first examination in October 2013. AMIA developed board review courses for the examination, guided by the competencies outlined in the previously cited documents.^{1,2} For the inaugural examination in 2013, almost 500 clinical informaticians (many of whom were informally trained in the discipline) sat for the examination, and approx-

The clinical systems of today are great advances from what were available a decade ago but are still imperfect. Progress depends on further research, a vibrant vendor community that collaborates well with academia to enhance features such as interoperability and usability, and highly trained applied informaticians, many of whom are also practicing clinicians.

Detmer, D.E. and Shortliffe, E.H. (2014). Clinical Informatics: Prospects for a New Medical Subspecialty. *Journal of the American Medical Association*. Published online May 13, 2014

Corresponding
Author: Edward H.
Shortliffe, MD, PhD,
College of Health
Solutions, Arizona
State University, 550 N
3rd St, Phoenix, AZ
85004-0698 (ted
@shortliffe.net).

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Sharing Leads to Success



Questions and Comments??



Dr. Schumacher's Presentation

Dr. Schumacher's portion of the presentation followed here

Q & A



David Schlossman

david.schlossman@usoncology.com

Robert Schumacher

robert.schumacher@gfk.com

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SAVE the Date: Physician Community Webinar Series

- July 17, 2014 1:00pm central “Improving the Health of High Risk Populations with Mobile Technology”
- Stay tuned for the summer schedule
- Register today! <http://www.himss.org/physician>

Physician Community Website

- Please visit www.himss.org/physician for more information on:
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 - Educational Sessions
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