The Interconnection Between Health IT Safety and EHR Burden

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The Interconnection Between Health IT Safety and EHR Burden

- Does the burden of using technology add to the problem of patient safety?
- How do we make care safer?
- By reducing the burden of technology use!

Illustration: Getty Images

Learning Objectives

1. Identify opportunities for Health IT safety improvement utilizing ONC's SAFER Guides that can assist in burden reduction
2. Highlight local and national efforts underway to reduce EHR burden for clinicians

Medical Errors

- Prior to the COVID-19 pandemic:
  - Medical error was the third leading cause of death in the United States
  - Conservative estimates of more than 250,000 patients dying annually from preventable medical harm and
  - Costs of more than $17 billion to the U.S. healthcare system

https://www.jhf.org/news-blog-menu/entry/house-bill-establishes-federal-agency-dedicated-to-patient-safety

https://psnet.ahrq.gov/issue/171-billion-problem-annual-cost-measurable-medical-errors

https://www.nejm.org/doi/full/10.1056/NEJMp2118285

Photo:Getty/ Ridofranz

Photo: Getty/Charday Penn

The Safety of Inpatient Health Care – NEJM 2023

- In a random sample of 2,809 admissions (11 MA hospitals – 2018):
- Adverse event in 24% (978)
  - Preventable in 23%
  - Harm in 32%
- Adverse events remain common and are preventable nearly one fourth of the time

https://www.nejm.org/doi/full/10.1056/NEJMsa2206117

House Bill Establishes Federal Agency Dedicated to Patient Safety (12/2022)

- U.S. Representative Nanette Barragán (D-CA) has announced the introduction of H.R.9377 – the National Patient Safety Board Act, legislation to establish an independent federal agency dedicated to preventing and reducing healthcare-related harms.
- Coordinate existing efforts within a single independent agency solely focused on addressing safety in health care through data-driven solutions.

https://www.jhf.org/news-blog-menu/entry/house-bill-establishes-federal-agency-dedicated-to-patient-safety

The National Patient Safety Board (NPSB) – Focus

- Medication errors
- Wrong-site surgeries
- Hospital-acquired infections
- Errors in pathology labs
- Issues in transition from acute to long-term care

https://www.jhf.org/news-blog-menu/entry/house-bill-establishes-federal-agency-dedicated-to-patient-safety

Photo: Getty/SolStock

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Think Globally – Act Locally

1. SAFER Guide Review
2. Reviewing Health IT Incident Reports

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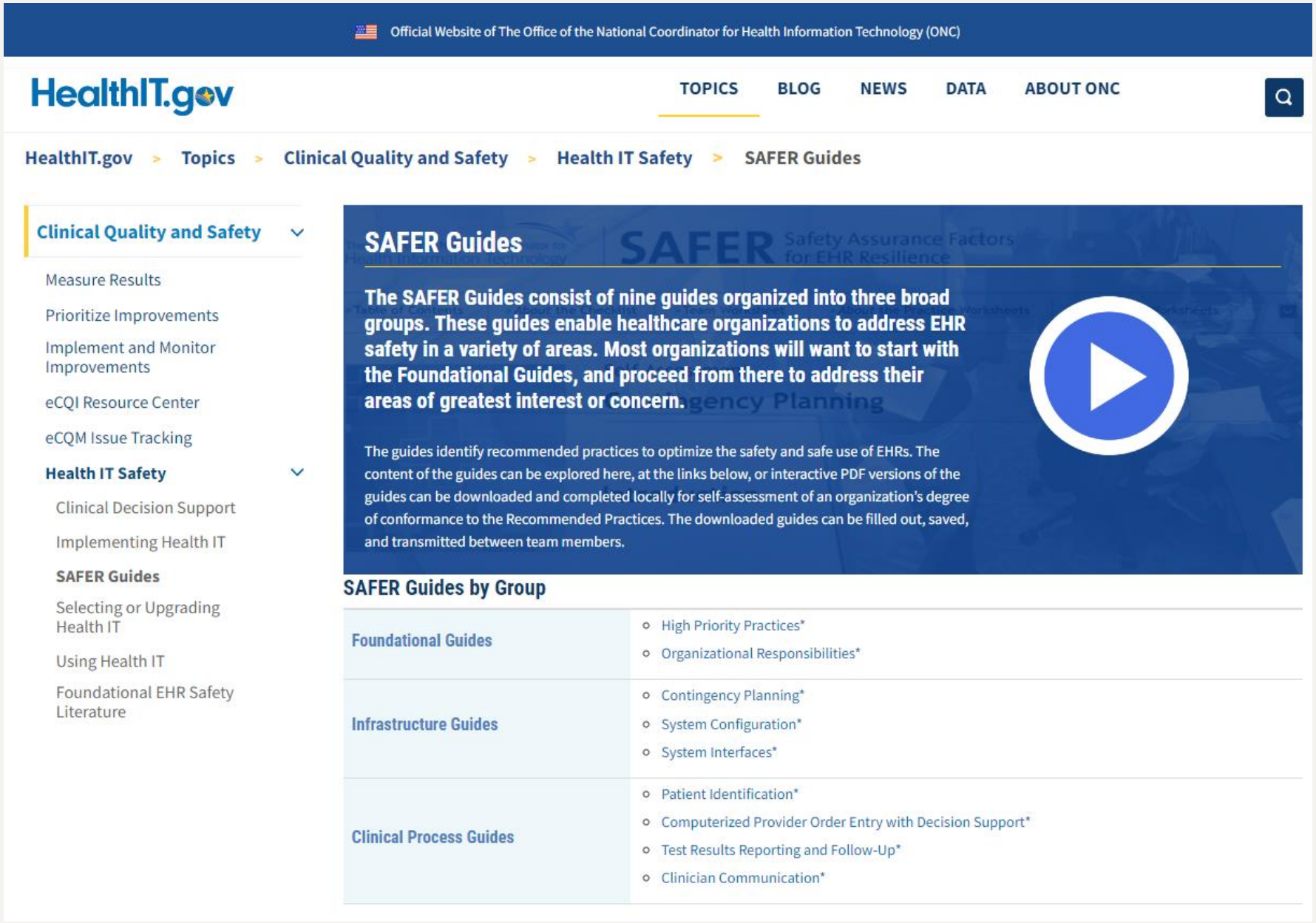
What are the SAFER Guides?
(Safety Assurance Factors for EHR Resilience)



https://www.healthit.gov/topic/safety/safer-guides

SAFER Guides

Foundational Guides

- High Priority Practices
- Organizational Responsibilities

Infrastructure Guides

- Contingency Planning
- System Configuration
- System Interfaces

Clinical Process Guides

- Patient Identification
- CPOE with Decision Support
- Test Results Reporting and Follow up
- Clinician Communication

SAFER Self Assessment High Priority Practices | Checklist

> Table of Contents | > *About* the Checklist | > Team Worksheet | > *About* the Practice Worksheets | > Practice Worksheets

Recommended Practices for ***Phase 1 — Safe Health IT***

			Implementation Status			
			Fully in all areas	Partially in some areas	Not implemented	
1	Data and application configurations are backed up and hardware systems are redundant.	*Worksheet 1*	○	○	○	reset
2	EHR downtime and reactivation policies and procedures are complete, available, and reviewed regularly.	*Worksheet 2*	○	○	○	reset
3	Allergies, problem list entries, and diagnostic test results (including interpretations of those results, such as "normal" and "high"), are entered/stored using standard, coded data elements in the EHR.	*Worksheet 3*	○	○	○	reset
4	Evidence-based order sets and charting templates are available for common clinical conditions, procedures, and services.	*Worksheet 4*	○	○	○	reset

SAFER Self Assessment High Priority Practices

Recommended Practice 3 Worksheet

Phase 1 — Safe Health IT

>Table of Contents | >*About* the Checklist | >Team Worksheet | >*About* the Practice Worksheets | >Practice Worksheets

Recommended Practice

3 Allergies, problem list entries, and diagnostic test results (including interpretations of those results, such as "normal" and "high"), are entered/stored using standard, coded data elements in the EHR.[7,12-21] Meaningful Use *Checklist*

Implementation Status

Rationale for Practice or Risk Assessment

Free text data cannot be used by clinical decision support logic[22] to check for data entry errors or notify clinicians about important new information.

Suggested Sources of Input

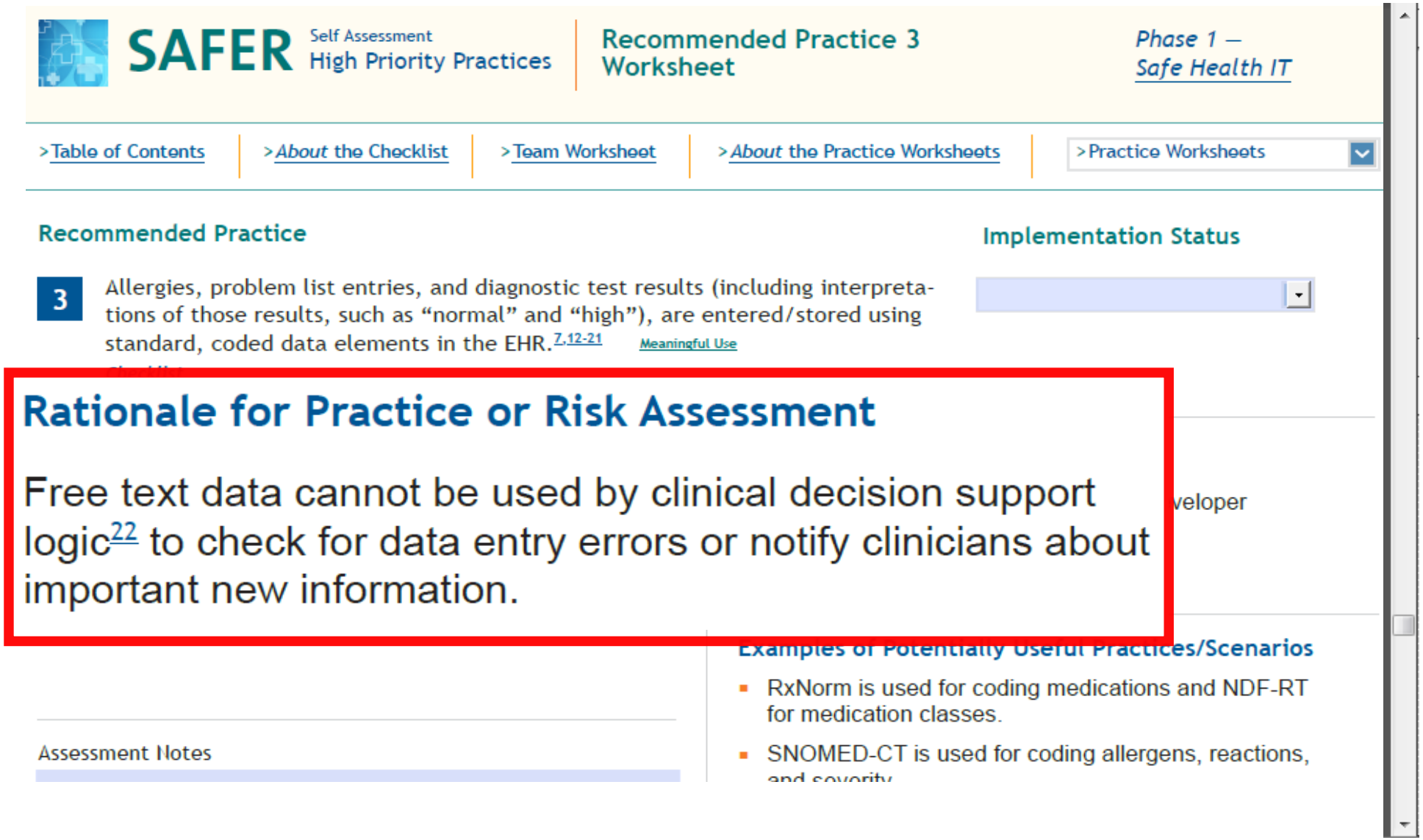
Clinicians, support staff, and/or clinical administration

EHR developer

Examples of Potentially Useful Practices/Scenarios

- RxNorm is used for coding medications and NDF-RT for medication classes.
- SNOMED-CT is used for coding allergens, reactions,

Assessment Notes


SAFER Self Assessment High Priority Practices
Recommended Practice 3 Worksheet
Phase 1 — Safe Health IT
>Table of Contents
>About the Checklist
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>Practice Worksheets
Recommended Practice
Implementation Status
3
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Meaningful Use
Rationale for Practice or Risk Assessment
Free text data cannot be used by clinical decision support logic22 to check for data entry errors or notify clinicians about important new information.
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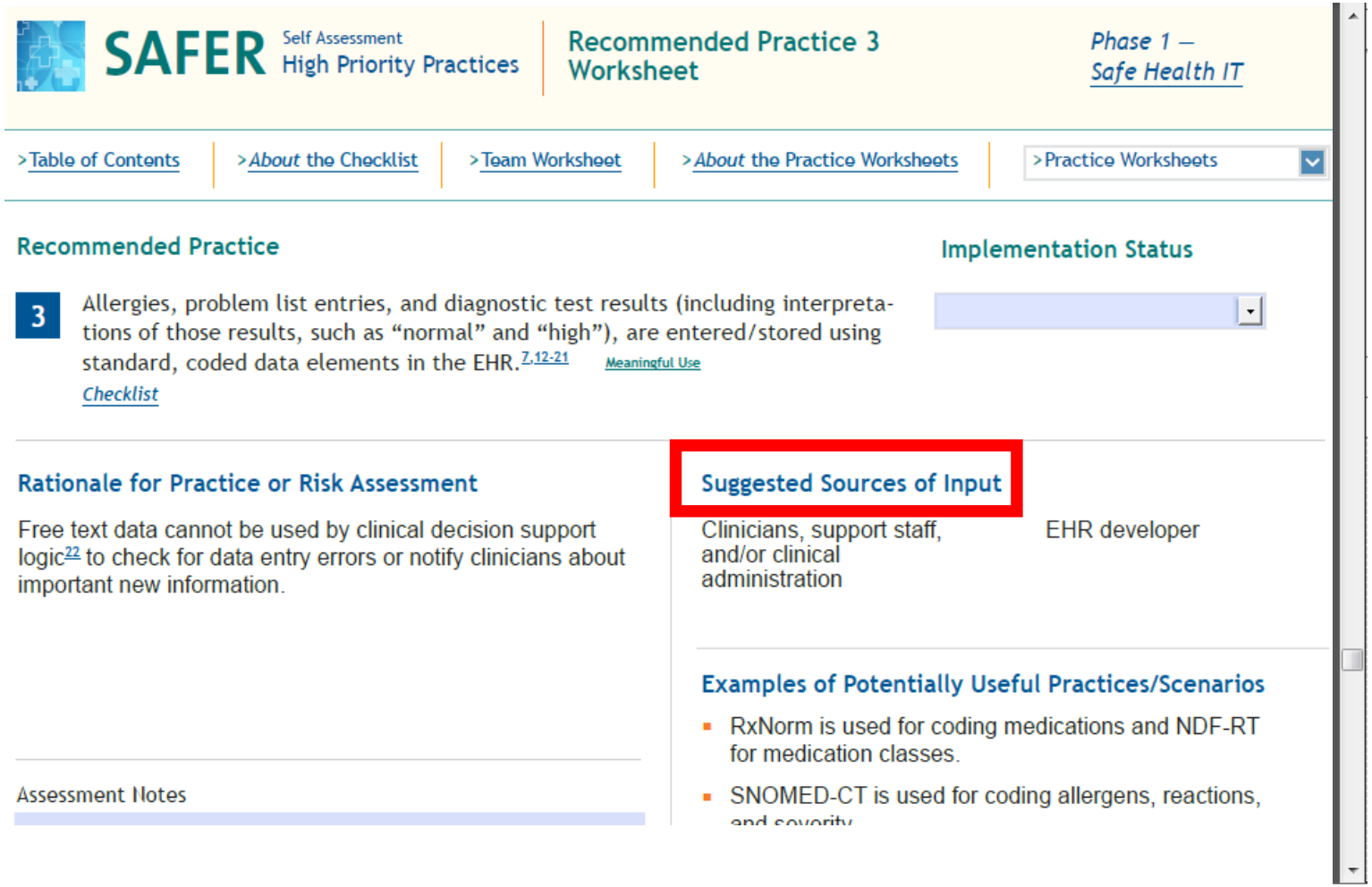
SAFER Worksheet



SAFER Self Assessment High Priority Practices

Recommended Practice 3 Worksheet

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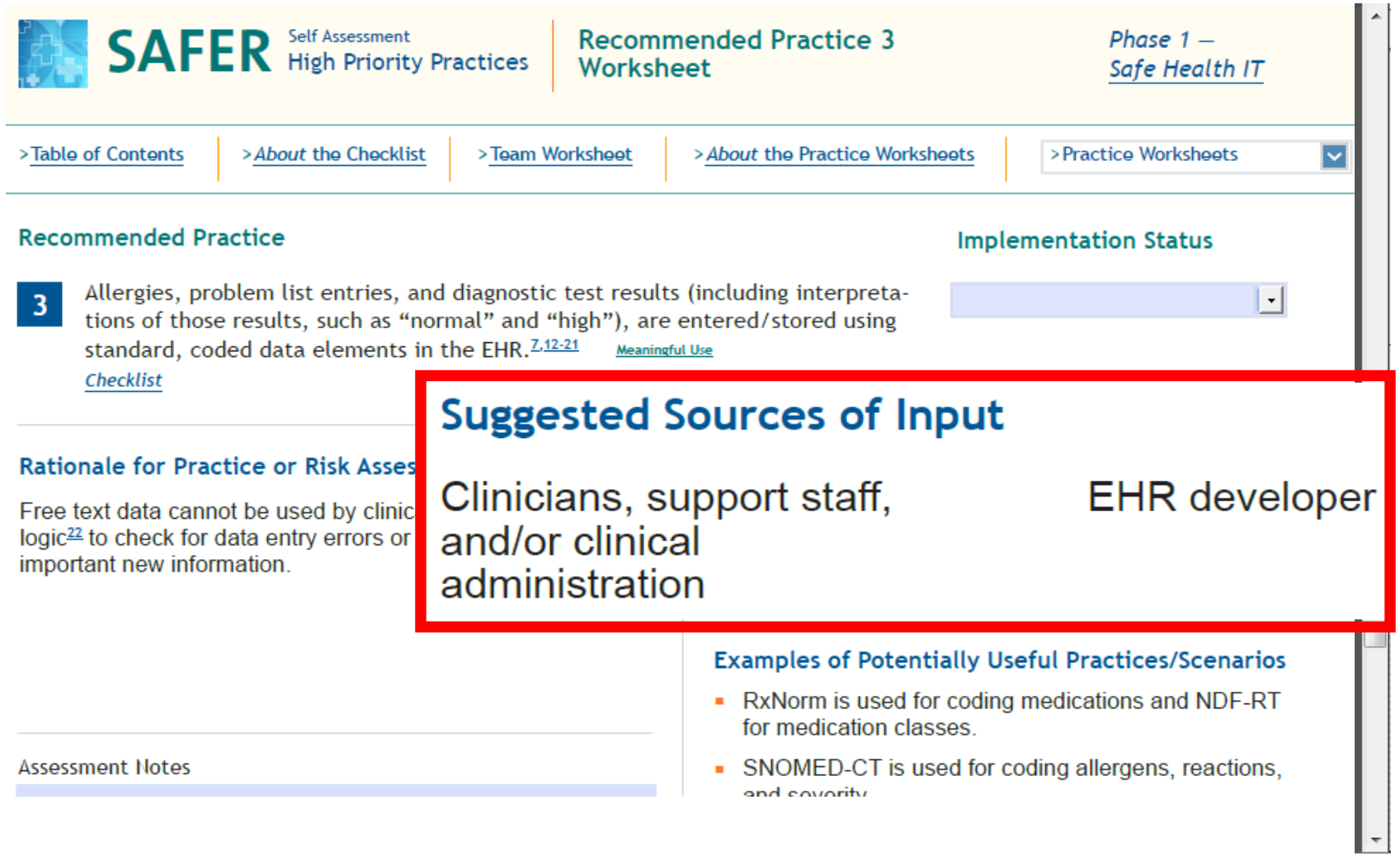
Examples of Potentially Useful Practices/Scenarios

- RxNorm is used for coding medications and NDF-RT for medication classes.
- SNOMED-CT is used for coding allergens, reactions, and severity

Assessment Notes

SAFER Worksheet



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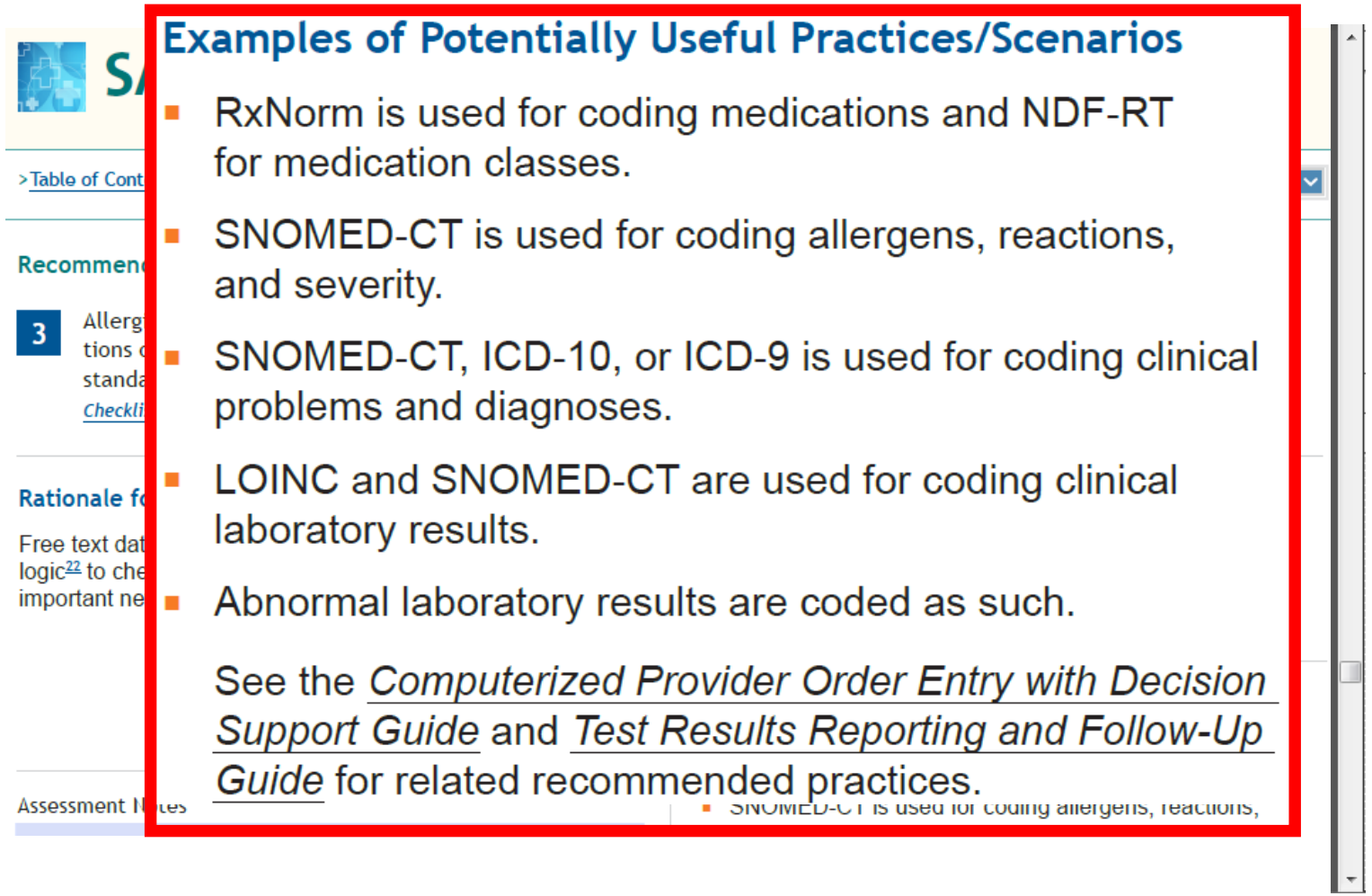

- These are only examples, not recommendations
- There is flexibility for local practice, preference and innovation
- Might be other ways to address the recommendation

SAFER Guide Elements - Reduce Burden

High Priority Practices Guide

- 2.1 - Information required to accurately identify the patient is clearly displayed on screens and printouts.
- 2.2 - The human-computer interface is easy to use and designed to ensure that required information is visible, readable, and understandable.
- 2.3 - The status of orders can be tracked in the system
- 2.4 - Clinicians are able to override computer-generated clinical interventions when they deem it necessary.
- 2.7 - Pre-defined orders have been established for common medications and diagnostic (laboratory/radiology) testing

SAFER Guide Elements - Reduce Burden

Organizational Responsibilitites Guide:

- 2.9 - Workflow analysis is used to map clinical work and to ensure that the EHR is used safely for delivering care
- 2.10 - Clinical staff is assigned responsibility for ensuring that CDS content, such as alerts and protocols, supports effective clinical workflow in all practice settings.

In the News (Sept 2021)

healthcare innovation

CMS Makes Annual SAFER Guides EHR Self-Assessment a Requirement

The Safety Assurance Factors for EHR Resilience (SAFER) Guides are made up of checklist-based self-assessment tools to improve the safety of how EHRs are used

Healthcare IT News

JAMA report calls on EHR vendors to do annual safety self-assessments

BECKER'S HEALTH IT

New CMS rule requires hospitals, not vendors, to do annual safety self-checks: 5 details

CMS Regulations Regarding the SAFER Guides

- **August 13, 2021** – CMS required **eligible hospitals participating in the Medicare Promoting Interoperability Program to attest annually that they performed a safety assessment of their EHR using SAFER** (Safety Assurance Factors for EHR Resilience) **Guides**. Federal Register. 2021;86(154):45479-45483
- **November 19, 2021** - CMS required **clinicians eligible for the Merit – based Incentive Payment System (MIPS) to attest to having conducted an annual self-assessment using the high-priority practices SAFER guide.** Federal Register. 2021;86(221):65475-77

Following SAFER Guidelines with Epic

Following SAFER Guidelines with Epic

Download Link Share

As always, remember your responsibilities for safe use of the software. Last Significant Update: 04/01/22

High Priority Practices

Phase 1 - Safe Health IT

1.1 Data and application configurations are backed up and hardware systems are redundant.

Rationale (from ONC)	Hardware and software failures are inevitable. Without redundant backup hardware, delays in restoring system operation can affect business continuity. Without data backups, key clinical and administrative information can be lost.
Examples (from ONC)	• If using a remotely hosted EHR (e.g., cloud-based solution), insist that your EHR provider back up data with tape, Internet, redundant drives, or any means necessary to allow full recovery from incidents. • Mission-critical hardware systems (e.g., database servers, network routers, connections to the Internet) are duplicated. • Data are encrypted and backed up frequently, and transferred to an off-site storage location at least weekly. • System backups are tested (e.g., restored to the test environment) on a monthly basis.

Epic Recommendations

We recommend the following practices. You can learn more about these and other business continuity practices in the Business Continuity Technical Solutions Guide.

- Database and Windows server redundancy
- Nightly full backups of the production environment to a tape or virtual tape using SAN copy technology are required to avoid end user downtime and impact. The OS, root volume group, and third party software should be backed up in order to facilitate efficient recovery.
- Data encryption, if the backup system supports it. Encryption of the operational database and journal files.
- Clarity database backups a minimum of every 30 days
- Nightly BLOB file storage, nightly archive data, and weekly logo files and alternate image location backups

CMS Regulations Regarding the SAFER Guides – Fact Sheet

- Eligible hospitals will be required to submit one “yes/no” attestation statement for completing an annual self-assessment using all nine SAFER Guides during the calendar year in which their EHR reporting period occurs.
- For CY 2023, this attestation will be required, but the “yes” or “no” attestation response will not affect participants’ total score for the Medicare Promoting Interoperability Program.
- An organization does not have to confirm that it has implemented “fully in all areas” each practice described in a particular SAFER guide,
- nor will an organization be scored on how many of the practices the organization has fully implemented.

https://www.cms.gov/files/document/sra-safer-guides-information-blocking-fact-sheet422022.pdf///Photo: Getty/metmorworks

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Conducting a SAFER Guide Review at Vanderbilt University Medical Center

SAFER Guide Review - Vanderbilt 2022

- **Process**
- Gathered team: Bi-Weekly Health IT Clinical Directors meetings (8 – 10 participants)
- Represented a diverse group of stakeholders and disciplines (core group)
- Each guide introduced and discussed (synchronous)
- Determined if the team had the right stakeholders or if we needed to recruit others

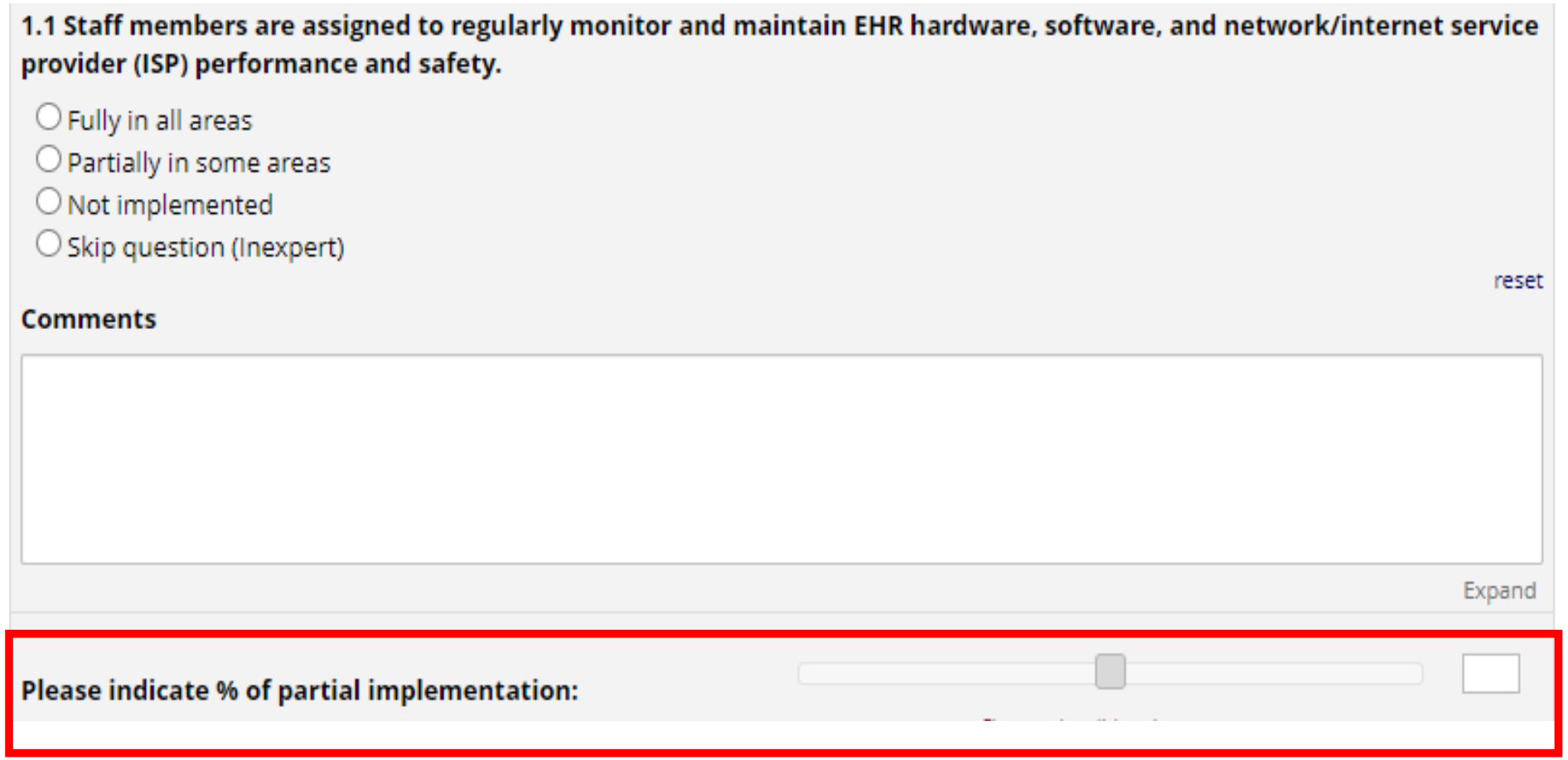
SAFER Guide Review - Vanderbilt

Program manager:

- Created on-line surveys in RedCap®
- Managed logistics around distribution of each guide's on-line survey
- Nudged participants when they hadn't completed the survey
- Summarized data and created a report

Photo: DC_Studio/Envato

On-line Survey Developed for SAFER Recommendations (one for each guide)

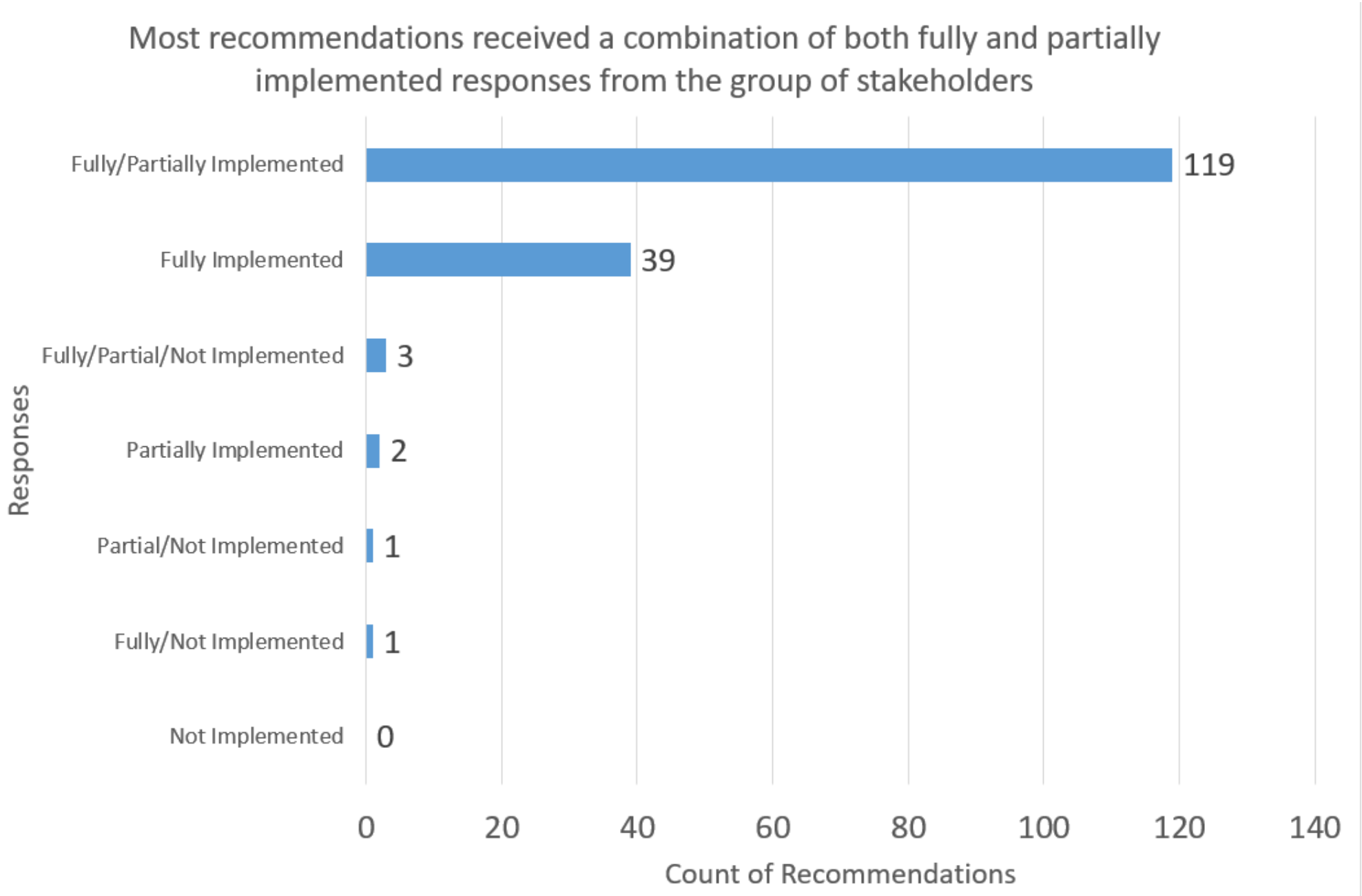


System Configuration Guide - Results

1.2	The EHR is hosted safely in a physically and electronically secure manner. ***Comments:*** • We have time outs, audit processes, and other measures in place to ensure security.	100% - **FULLY IN ALL AREAS** *(Dees, Hughart, Kumah, Nelson, Sengstack, Wanderer, Zafar)*
1.3	The organization's information assets are protected using strong authentication mechanisms.	100% - **FULLY IN ALL AREAS** *(Dees, Hughart, Kumah, Nelson, Sengstack, Wanderer, Zafar)*
1.4	System hardware and software required to run the EHR (e.g., operating system) and their modifications are tested individually and as-installed before go-live and are closely monitored after go-live.	100% - **FULLY IN ALL AREAS** *(Dees, Hughart, Kumah, Nelson, Zafar)*

High Priority Practices Guide - Results

1.3	**Allergies, Problem List entries, and diagnostic test results, including interpretations of those results, such as 'normal' and 'high', are entered/stored using standard, coded data elements in the EHR.** ***Comments:*** • We do not have approval to require that all allergies be coded, some are still in free text format. • Allergic reactions are not always specified • Problem lists and medications still include some non-coded, legacy data. • Some age-based reference labs don't have age-based references	50% - **FULLY IN ALL AREAS** *(Kumah, Mize, Nelson, Wanderer)* 50% - **PARTIALLY IN SOME AREAS** Range: 70-95% Average 83% *(Alrifai, Hughart, Parr, Shave)*

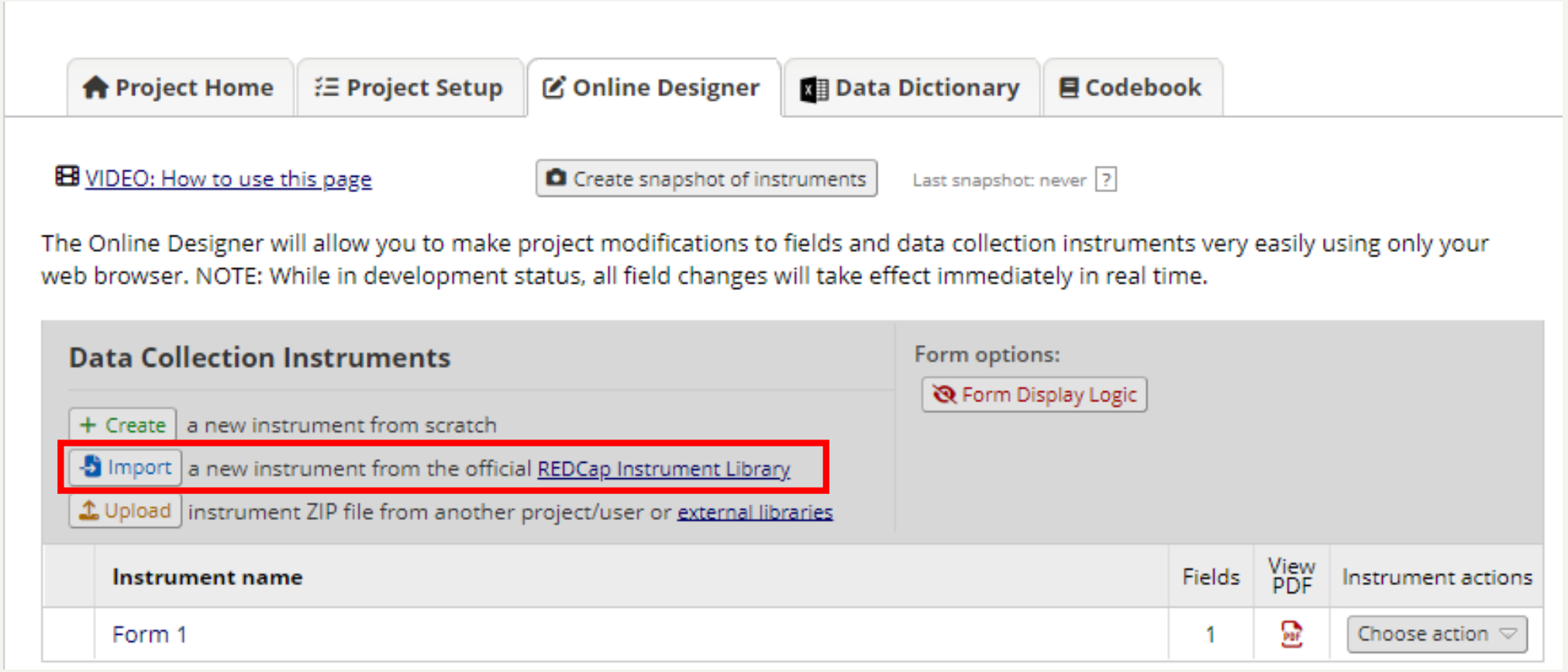

Most recommendations received a combination of both fully and partially implemented responses from the group of stakeholders
Responses
Fully/Partially Implemented
119
Fully Implemented
39
Fully/Partial/Not Implemented
3
Partially Implemented
2
Partial/Not Implemented
1
Fully/Not Implemented
1
Not Implemented
0
0
20
40
60
80
100
120
140
Count of Recommendations

Follow up

- Completed formal report with summary and analysis
- Reviewed results with core team of Health IT Clinical Directors (including all comments)
- Determined if need for task force for follow up
- Presented to VUMC leadership with recommendations for opportunities for improvement
- Partnered with our Quality department for official attestation
- Made SAFER surveys available on-line (in RedCap®)

Photo: Getty/ SFI Productions

For those familiar with RedCap®



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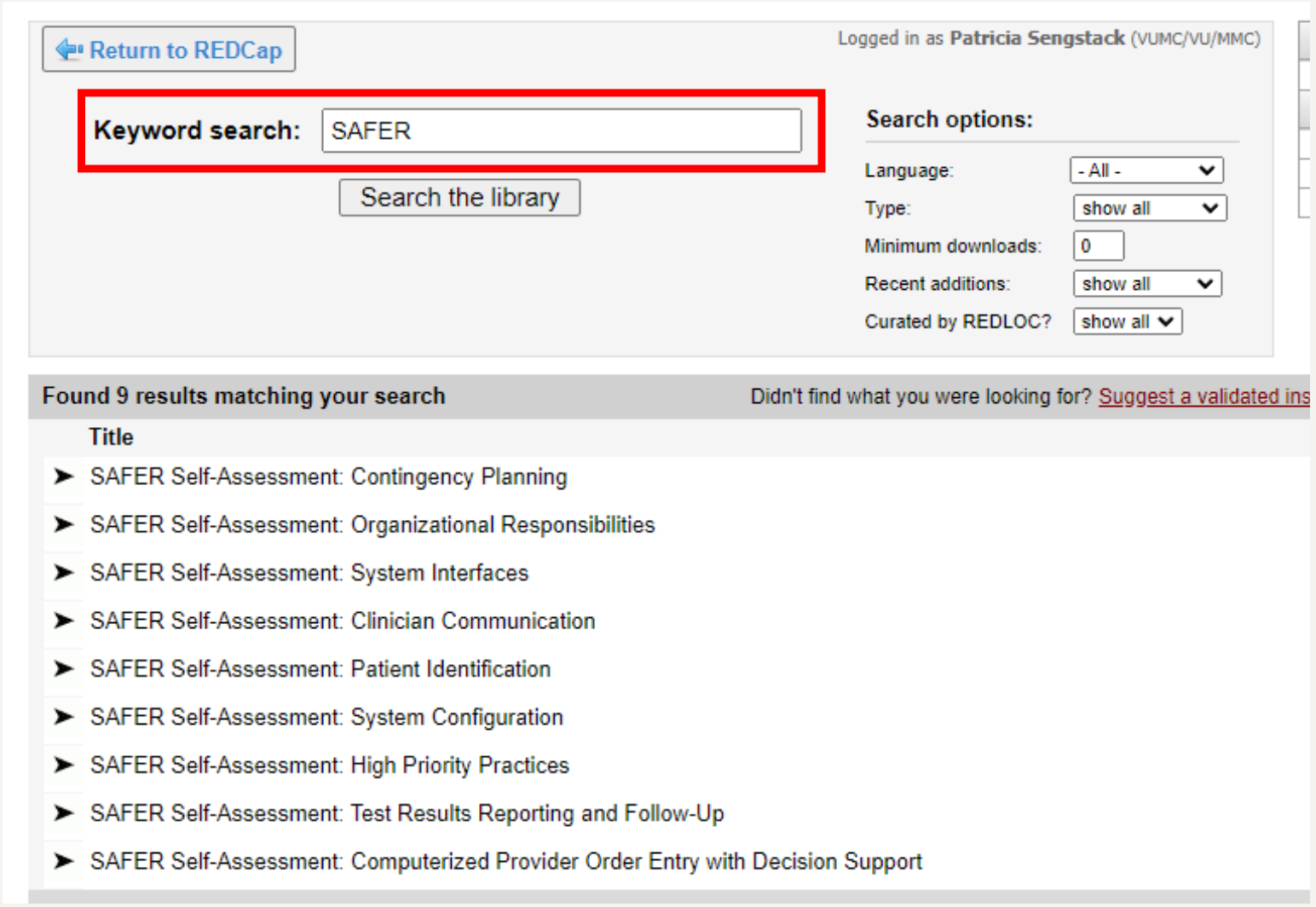

Next Steps – Continue the Journey

- In 2023 - plan to revisit the 2022 responses to see if anything has changed
- Focus on areas where there were gaps identified
  - Contingency planning
  - CPOE configuration

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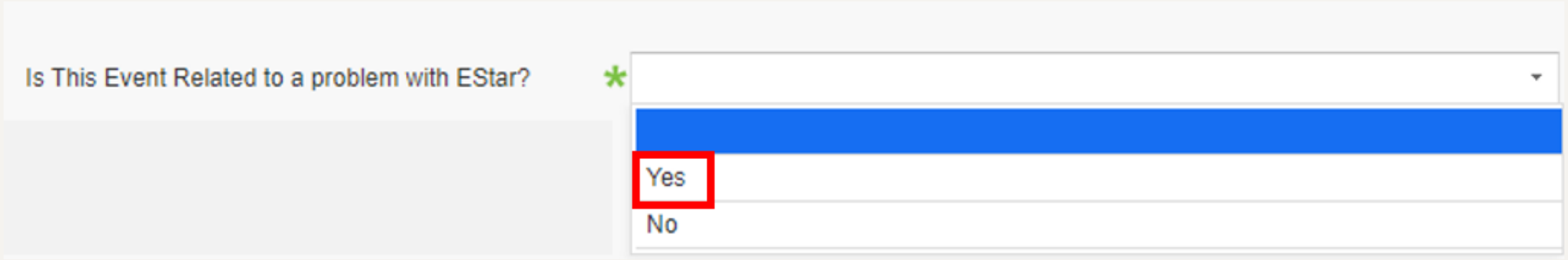
Reviewing Health IT Incident Reports

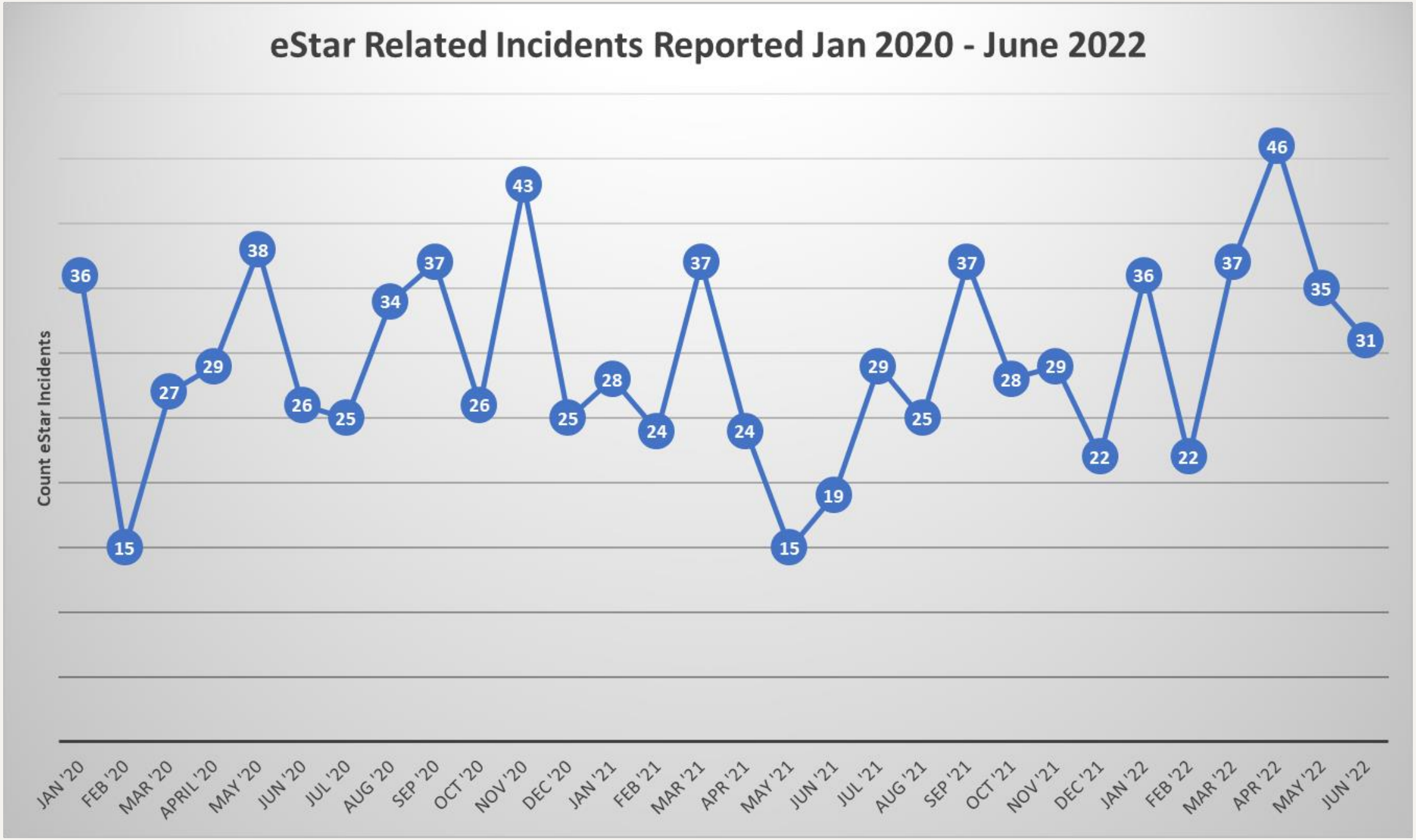

RLDatix
Dashboards
Bookmarks
Help
Logged in as Patricia Seng...
Info Center
Alerts
Tasks
Search
New File
Folders
Reports
File Tracker
Icon Wall
Find a form
Please use the search above to narrow down your event results by using keywords to describe the event that you're looking for.
First Report of Work Injury
Unprofessional Conduct Provider
Airway Management
Ama / Lwbs / Lbe
Blood / Blood Product
Complaint
Consent / Documentation
Diagnosis / Treatment
Environment
Fall
Good Catch
Home Health
Id Band
Infection Control
Injury / Illness (Visitor/Student)
Lab Specimen / Test
Maternal / Childbirth
Medication / Fluid

When Submitting a Veritas Incident Report



Review of Incident Reports Related to Health IT at VUMC

Year	Total Count of eStar Related Incidents
2020	361
2021	317
2022	322


eStar Related Incidents Reported Jan 2020 - June 2022
Count eStar Incidents
36
15
27
29
38
26
25
34
37
26
43
25
28
24
37
24
15
19
29
25
37
28
29
22
36
22
37
46
35
31
JAN '20
FEB '20
MAR '20
APRIL '20
MAY '20
JUN '20
JUL '20
AUG '20
SEP '20
OCT '20
NOV '20
DEC '20
JAN '21
FEB '21
MAR '21
APR '21
MAY '21
JUN '21
JUL '21
AUG '21
SEP '21
OCT '21
NOV '21
DEC '21
JAN '22
FEB '22
MAR '22
APR '22
MAY '22
JUN '22

Veritas Incident Reports - Examples

- Order placed for ECG in 3 hours at 1212. Nurse Acknowledged order, never called RT and test not performed.
- Patient has active NPO order for bowel obstruction and pended discharge diet. Dietary sent tray and orientee tech delivered tray to patient who ate a portion of tray and then vomited.
- Pt's troponin specimen was collected at 0430, received by Lab at 0431am. Result had not crossed into EHR as of 0706am. Sam from the Lab brought a hard copy of the result over to place on the chart due to EHR not having the result.
- Unable to scan blood culture bottle barcode for this patient. No problems with scanner for other labs, patient arm band, or medications. Have had similar problems the last month with scanning blood or fluid cultures.

Health IT Safety Workgroup

- Reviewed each Veritas report submitted each month
- Assigned to appropriate SME for review

Photo: Getty/Greenbutterfly

Health IT Safety Workgroup

- At monthly meeting – reviewed all Level 2 incidents (led to harm to patient)

Photo: VUSN Graphicsx

Health IT Safety Workgroup

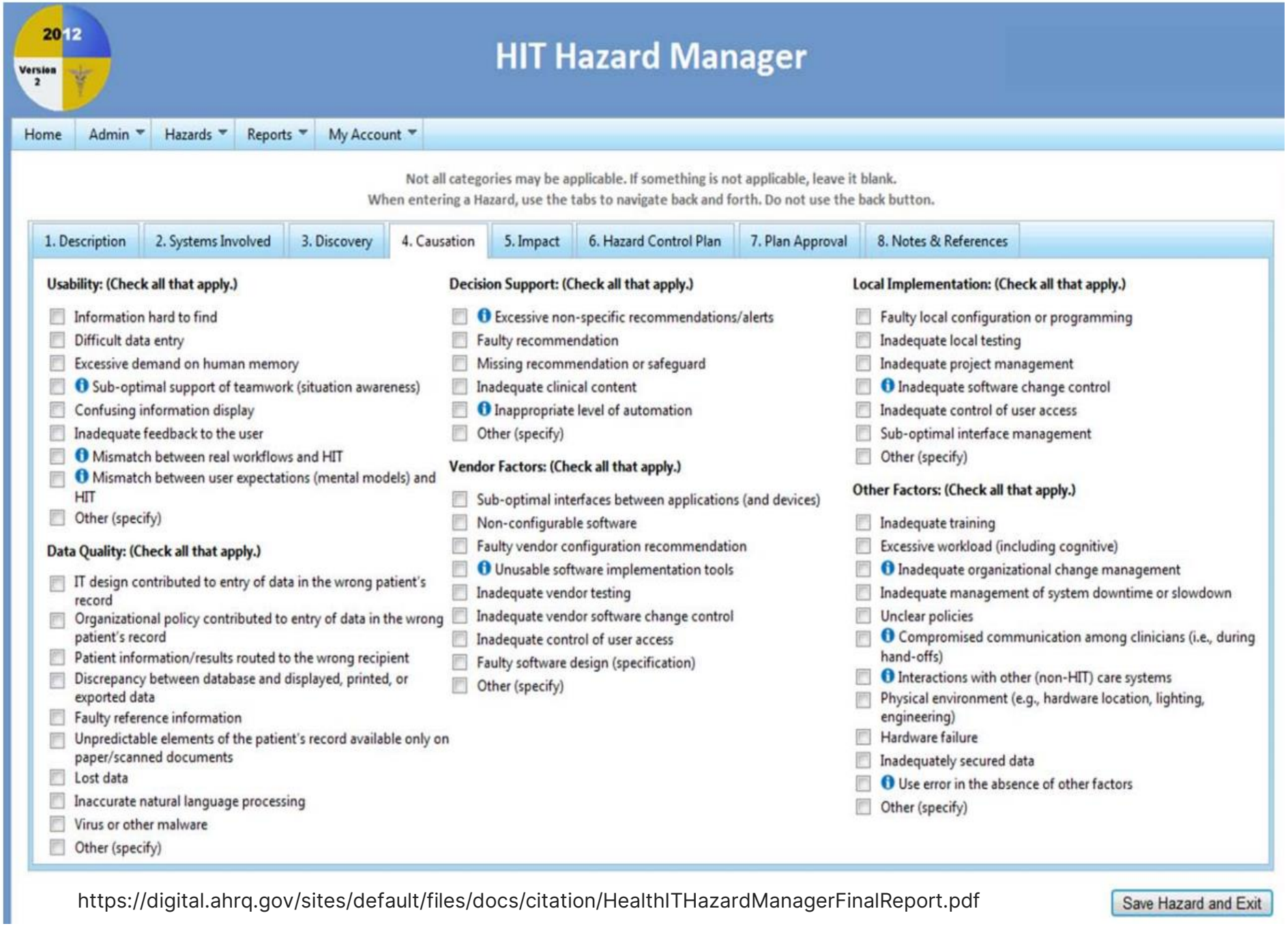
- Also reviewed other incidents deemed significant or trending upward

- Followed up on identified incidents where we believed a system enhancement could result in improvement

Photo: VUSN

Identify Possible Causation Category

- Usability
- Data Quality
- Decision Support
- Vendor Factors
- Local Implementation
- Other Factors



https://digital.ahrq.gov/sites/default/files/docs/citation/HealthITHazardManagerFinalReport.pdf

Using AHRQ's Hazard Manager Causation Categories for All Incidents Submitted in 2021 at VUMC

- Usability - **196**
- Data Quality - **24**
- Decision Support - **8**
- Vendor factors - **10**
- Local Implementation - **20**
- Other factors - **56**

Challenge

- Descriptions are not granular enough in the Veritas reports
- AHRQ Causation Categories are not comprehensive or granular enough – there were incidents reported that could not be mapped to a specific category in the Hazard Manager list
- Work is ongoing on these

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National Efforts at Burden Reduction

National Efforts on EHR Documentation Burden

Multiple Burden Reduction Initiatives

- AMIA's 25 X 5 Symposium initiative
- HL7's EHR Workgroup: Reducing Clinician Burden Project
- Nursing Knowledge Big Data Science (U of MN) – Transforming Documentation Workgroup
- CMS Office of Burden Reduction & Health Informatics
- KLAS and the Arch Collaborative

Photo: Getty Image

AMIA 25 X 5 Symposium – Jan/Feb 2022

Photo: Getty Image

- Call to Action for:
  - Providers and Health Systems
  - Health IT Vendors
  - Policy and Advocacy Groups
- Official formation of the AMIA 25 X 5 Task Force – Kick off April 2022

https://amia.org/about-amia/amia-25x5

AMIA 25x5

Reducing Documentation Burden to 25% of Current State in Five Years

Vision

A U.S. healthcare workforce free of documentation burden and focused on patient care and improved patient outcomes.

Mission

Reduce U.S. health professionals' documentation burden to 25% of current state within five years[1]. We will optimize and spread across the U.S. health system impactful solutions that decrease non-value-added documentation and leverage partnerships and advocacy with health systems, professional societies, and public/private sector organizations.

Health Professional/System Workstream

Call to Action: *Establish guiding principles for adding documentation to the EHR and generating evidence for reduced documentation*

Workstream Goals

- Establish **guiding principles** for adding documentation to the EHR and generating evidence for reduced documentation
- Develop a national roadshow and **educate** clinicians and clinicians in training on balancing brevity and completeness in documentation
- **Support functions** like real-time information retrieval, documentation, and ordering

Implement **interdisciplinary notes**

Year One Goals

Goal #1: Develop and disseminate toolkit to guide organizations on reducing documentation burden

Goal #2: Write call to action for national learning collaborative (NLC) around reducing documentation burden

Health IT Vendor Workstream

Call to Action: *Promote an ecosystem of interoperable systems to allow for complementary technology*

Workstream Goals

- Promote an ecosystem of interoperable systems to allow for complementary technology
- Develop metrics to review and grade a user's documentation
- Package best training practices into toolkits to promote "best practice" EHR use and plan recognition programs to publicize exemplars
- Create simplistic EHR views to see that new clinical data has been reviewed-then bookmark for the user and document as reviewed by that user in the EHR
- Implement personalized clinical decision support (CDS) to drive user-specific workflows

Year One Goals

Goal #1 Develop a roadmap for longer term activities to reduce documentation burden

Goal #2 Educate HIT users about existing functionality that makes it unnecessary to include duplicate information in the note

Goal #3 Educate HIT users in best practices and existing functionality, tools and services to reduce documentation burden

Policy and Advocacy Workstream

Call to Action: *Urge agencies to fund research that captures billing code information without engaging clinician time*

Workstream Goals

- Recommend agencies fund research/reference implementations that captures billing code information without engaging clinician time
- Advocate for best of breed solutions to be implemented throughout the healthcare system
- Develop position papers that connect education with advocacy efforts

Year One Action Plan

1. Conduct an environmental scan of existing efforts to reduce documentation burden
2. Meet with regulatory and accreditation groups to identify areas to support or expand upon, avoid duplicative efforts, and identify gaps
3. Support the initiatives of the 25x5 Provider/Health Systems and Health IT Vendors workstreams

25x5 Task Force Accomplishments

Health Professional/System

- Literature review of documentation burden
- Nation-wide survey to catalog existing documentation burden reduction efforts
- Developing provider and health system toolkit to guide organizations through documentation burden reduction initiatives

Health IT Vendor

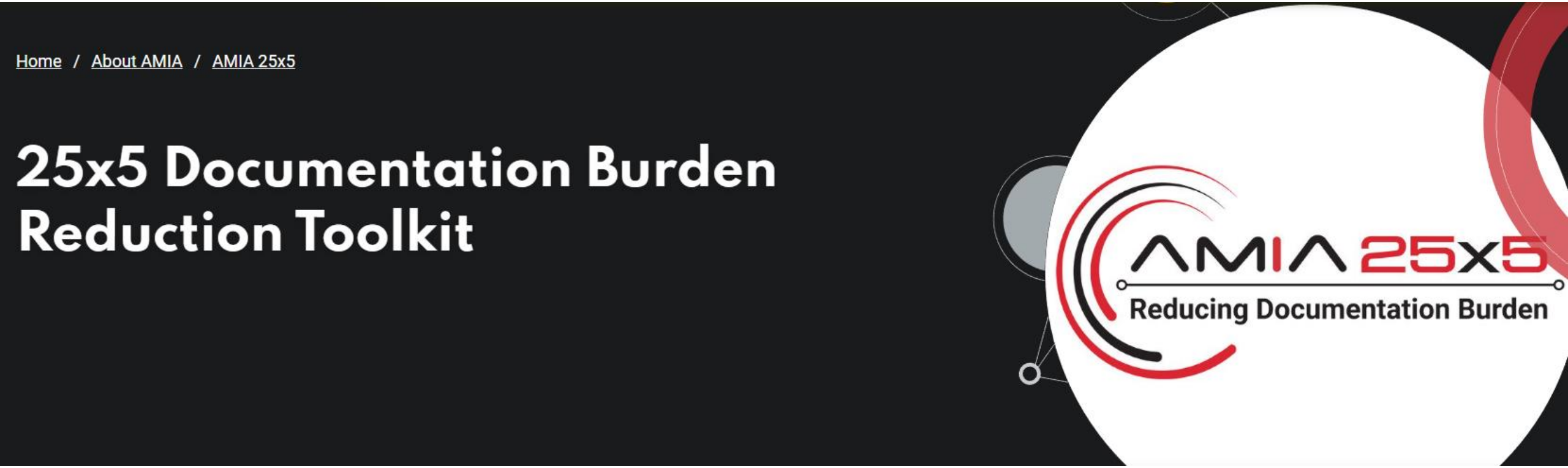
- AMIA 25x5 Pitch Event. 16 pitches submitted, 5 finalists chosen, 3 top pitches selected for inclusion on 25x5 roadmap of HIT initiatives
- Educational Intervention. 4 EHR vendors have aggregated training materials and educational resources and have identified participating clients
- Clarified 25x5 priorities for vendors

Policy/Advocacy

- Nominated an aspect of documentation burden as a topic for new evidence review to AHRQ
- Crafted a response to the OSG Advisory on health worker wellness
- Submitted an editorial to the Applied Clinical Informatics Journal entitled, “Reflections on the Documentation Burden Reduction AMIA Plenary Session through the Lens of 25x5”
- Signed on as a supporting organization to the Regulatory Relief Coalition’s promotion of The Improving Seniors’ Timely Access to Care Act of 2021 (S.3018/H.R.3173)
- Policy/Advocacy Workstream met with: Mary Greene, OBRHI; Christine Sinsky, AMA; Jeane Garcia-Davis and Teeb Al-Samarrai, OSG; and David Classen, Pascalmetrics; Viet Nguyen, HL7, Da Vinci Project

AMIA 25x5
Reducing Documentation Burden

April 2023 – One Year Anniversary



25 X 5 Documentation Burden Reduction Toolkit

[25x5 Documentation Burden Reduction Toolkit | AMIA - American Medical Informatics Association]

25 X 5 Documentation Burden Reduction Toolkit

We want to hear from you. Tell us what you're doing to reduce documentation burden – what has worked and what not so much. Share challenges you have experienced, additional resources you are seeking, and your ideas on reducing documentation burden. As we continue to learn, your experiences can help us develop better resources and tools that we can share across our growing 25x5 community and help influence our national charge on burden reduction for the betterment of all.

Share your thoughts

AMIA 25x5 Feedback | AMIA - American Medical Informatics Association

National Burden Reduction Collaborative

AMIA 25x5
Reducing Documentation Burden

Participating Organizations

American College of Medical Informatics (ACMI)
American Medical Association (AMA)
Association of Medical Directors of Information Systems (AMDIS)
American Medical Informatics Association (AMIA)
Klas, Arch Collaborative
DaVinci Project
Electronic Health Records Associations (EHRA)
Healthcare Information Systems Society (HIMSS) Physician Community
Healthcare Information Systems Society (HIMSS) Nursing Community
HL7 International
National Library of Medicine (NLM)
Office of the National Coordinator (ONC)
Office of the Surgeon General (OSG)
The Alliance for Nursing Informatics
The Joint Commission

Priority Areas

1. Definition and Measurement of Burden
2. Training, Support, Communication – Change Management
3. Streamlined Provider Note (codable/required)
4. Reducing Clinician Documentation Beyond Notes
5. Electronic Prior Authorization Processes

Questions for you

- Do you have a team that reviews Health IT related incident reports?
- Who is conducting your organization's SAFER guide reviews?
- Is someone in informatics partnering with the quality dept so that you get invited to discussions on Significant Safety Events (SSEs) and Event Analysis (EA) Significant Safety Events (SSEs)
- How are your alerts being evaluated?
- Are you involved in AMIA's 25 X 5 initiative?
- Could you please write your representative to tell them you support the creation of the Health IT safety board? H.R.9377 – the National Patient Safety Board Act

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Thank you!

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