ASTP Assistant Secretary for Technology Policy

A Decade of Data Examined: The Evolution of Health IT in the United States

Moderator:
Yael Harris

Panelists:
Jordan Everson
Wei Chang
Wes Barker
Catherine Strawley

December 4, 2024

AGENDA

1. Opening Remarks
2. Introduction
3. Panel Presentations
   - Interoperability and EHR Adoption
   - Electronic prescribing
   - Electronic public health reporting
   - Patient access to electronic health information
4. Q&A
5. Closing Remarks

Moderator

- Yael Harris, PhD, MHS is the founder and CEO of Laurel Health Advisors.
- Dr. Harris has over 3 decades of experience designing and leading programs to improve quality and access to care, facilitate interoperability, and reduce healthcare disparities.

Panelists

Interoperability and EHR Adoption

- Jordan Everson, PhD
- Public health analyst in the Data Analysis Branch at ASTP.

Electronic Prescribing

- Wei Chang, MPH
- Public health analyst in the Data Analysis Branch at ASTP.

Electronic Public Health Reporting

- Wes Barker, MS
- Chief of the Data Analysis Branch at ASTP.

Patient Access to Health Information

- Catherine Strawley, MPH
- Public health analyst in the Data Analysis Branch at ASTP.

The Evolution of Health IT in the United States

Yael Harris, PhD

Decades of Progress

- Since the beginning, ASTP envisioned a modern healthcare system that placed patients at the center of their care. Through forward-looking policies and key investments, ASTP has fundamentally shifted how Americans experience health care.

- Today, we have:

Unprecedented ease in patients' access to their electronic health records and health information

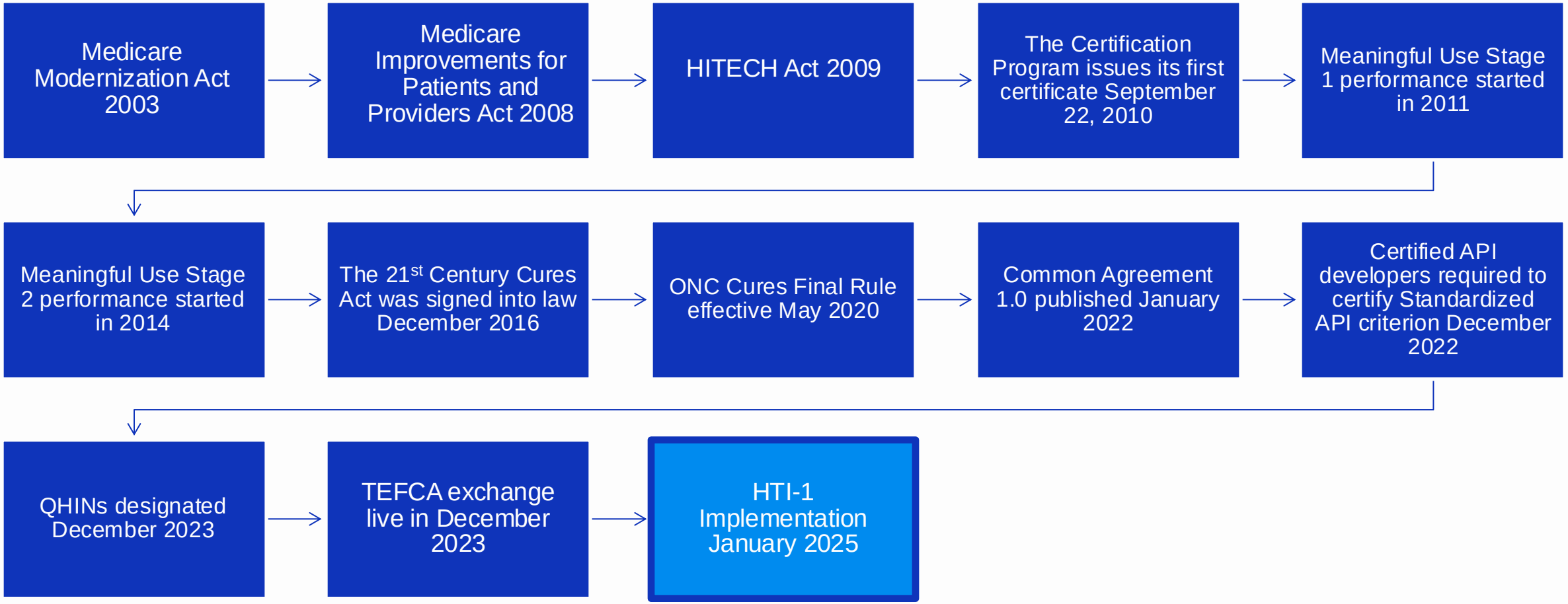
Improved care coordination between providers for better patient outcomes

Increased patient safety and medication adherence

Lowered the cost of health care through fewer duplications in procedures and imaging

Expanded consumers' choice of healthcare apps through broad adoption of standards

Federal Incentives Accelerated Health IT Advancements



The Evolution of Health IT in the United States

- This panel will present top-line data regarding key advancements in health IT, examining the successes and challenges faced in implementation and contextualizing these within the broader landscape of U.S. regulation, legislation, and initiatives.

- Data collected describe end-user adoption and use of health IT.
  - American Hospital Association IT Supplement (AHA IT Supplement): 2008-2024
  - CDC National Center for Health Statistics' National Electronic Health Record Survey (NEHRS): 2009-2021
  - Surescripts transactional data: 2008-2023
  - NCI's Health Information National Trends Survey (HINTS): 2014-2022
  - American Board of Family Medicine Continuous Certification Questionnaire: 2024
  - CMS Promoting Interoperability Program Data: 2011

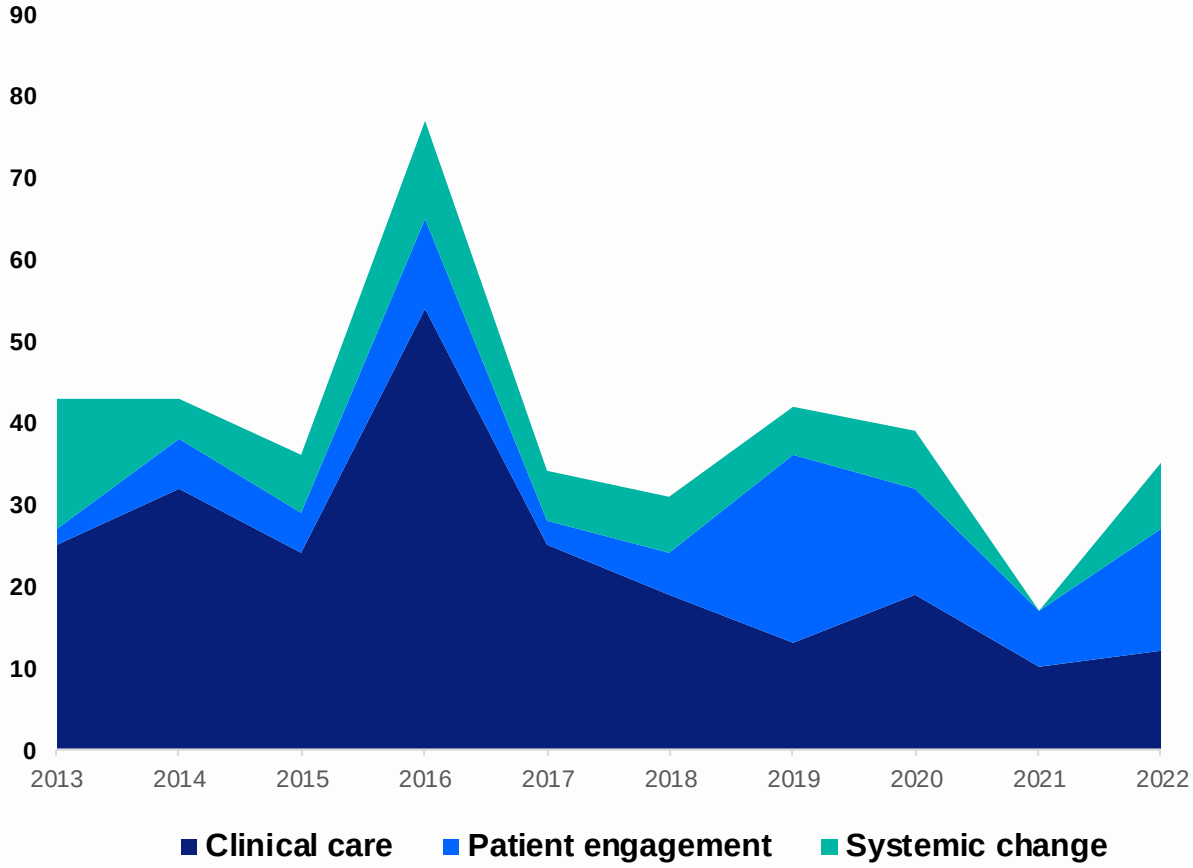
Literature Insights: Health IT's Impact Has Evolved

1. **Changes in clinical care**
   - Increasing adoption and use
   - Addressing challenges to improve measurable outcomes
   - Redesigning workflow to improve provider experience

2. **Increased patient engagement**
   - Greater patient access to their information
   - Growing use of patient-facing tools
   - Enhanced patient engagement and activation

3. **Systemic changes empowered by electronic data**
   - Maturation of electronic information exchange
   - Cultivating electronic data to support population and public health

Articles on Impact



Interoperability and EHR Adoption

Jordan Everson, PhD

ASTP

Interoperability and EHR Adoption

- Interoperability is defined as the ability of systems to exchange and use electronic health information **without special effort** from the user.

- Interoperability has four domains: the ability to find, send, receive, and integrate patient health information electronically

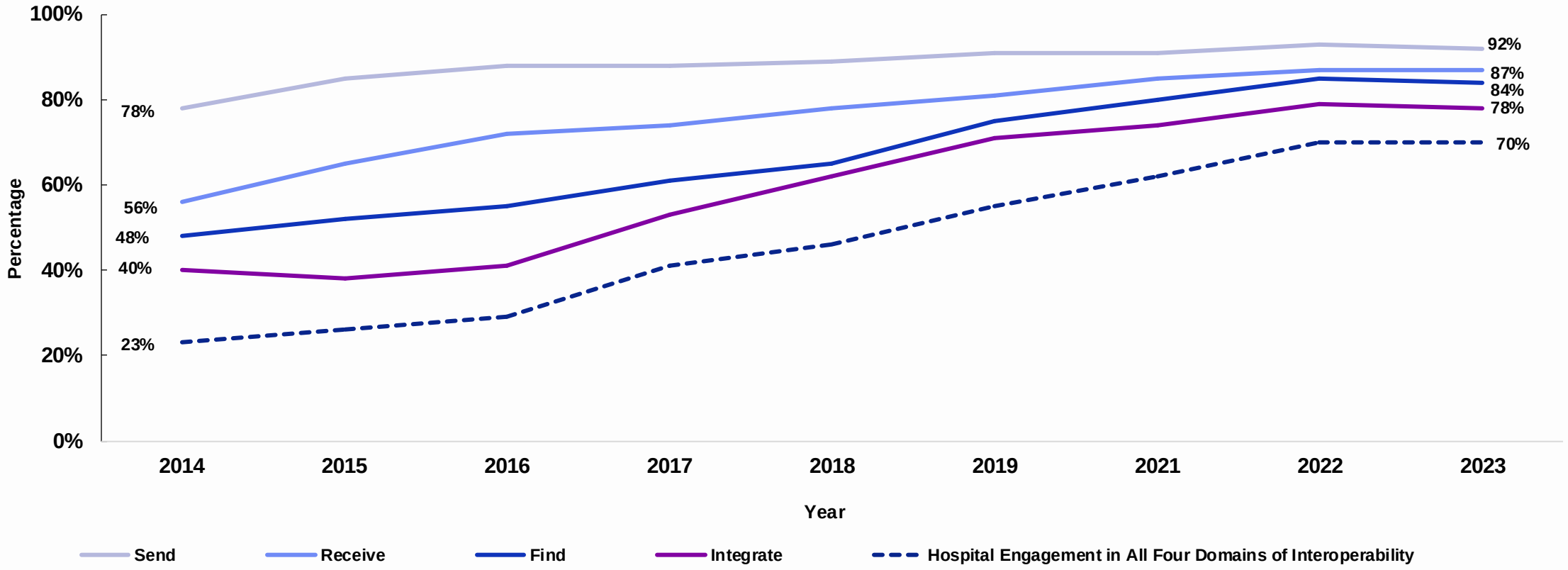
- EHR adoption and use underpin interoperable clinical care data exchange

- Allowing access to patient data in real-time helps support
  - Timely decision-making
  - Error reduction
  - Enhanced care quality

- Due to the marked growth in interoperability, we have just seen a transformative era in healthcare communication and data sharing
  - Both hospitals and office-based physicians have advanced in adopting and using interoperable health IT, although office-based physicians lag behind hospitals.

Interoperability Growth Among Hospitals

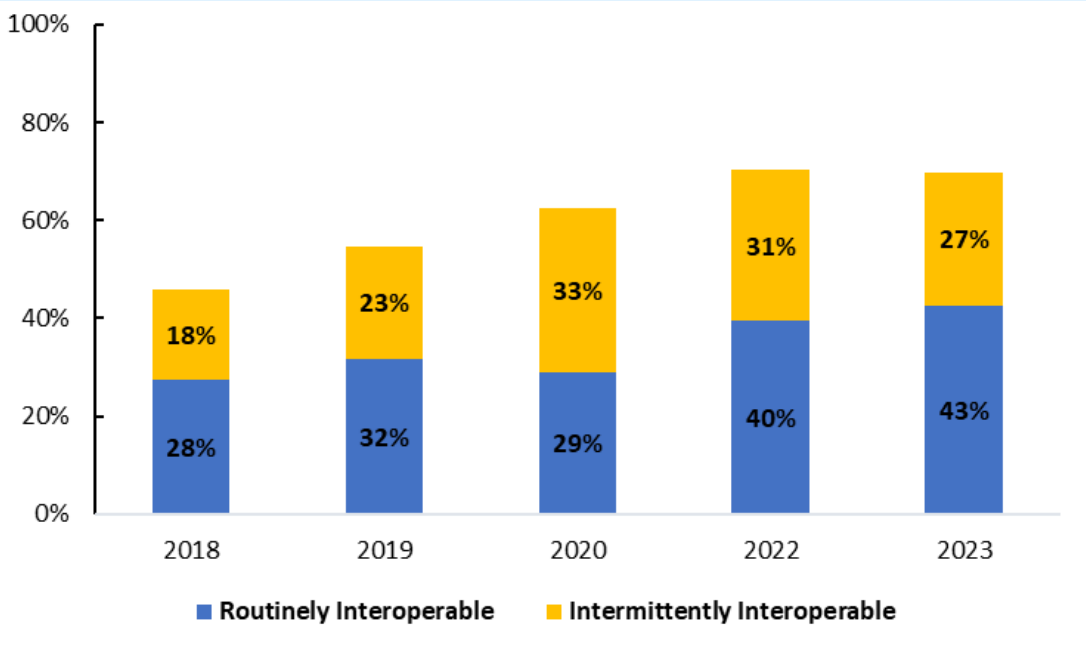
- From 2014 to 2023, the engagement in all 4 interoperable exchange domains (find, send, receive, and integrate patient health information electronically) increased.



Source: AHA IT Supplement

Raising the Bar on Hospital Interoperability

Engagement with and Frequency of Interoperable Exchange Among Non-Federal Acute Care Hospitals: 2018-2023



- Between 2018 and 2023, hospital engagement in all 4 domains of interoperability **increased from 46% to 70%.**
- Routine interoperability among hospitals **increased 38% between 2020 and 2022** alone and **54% between 2018 and 2023** (from 28% in 2018 to 43% in 2023).

Routinely Interoperable

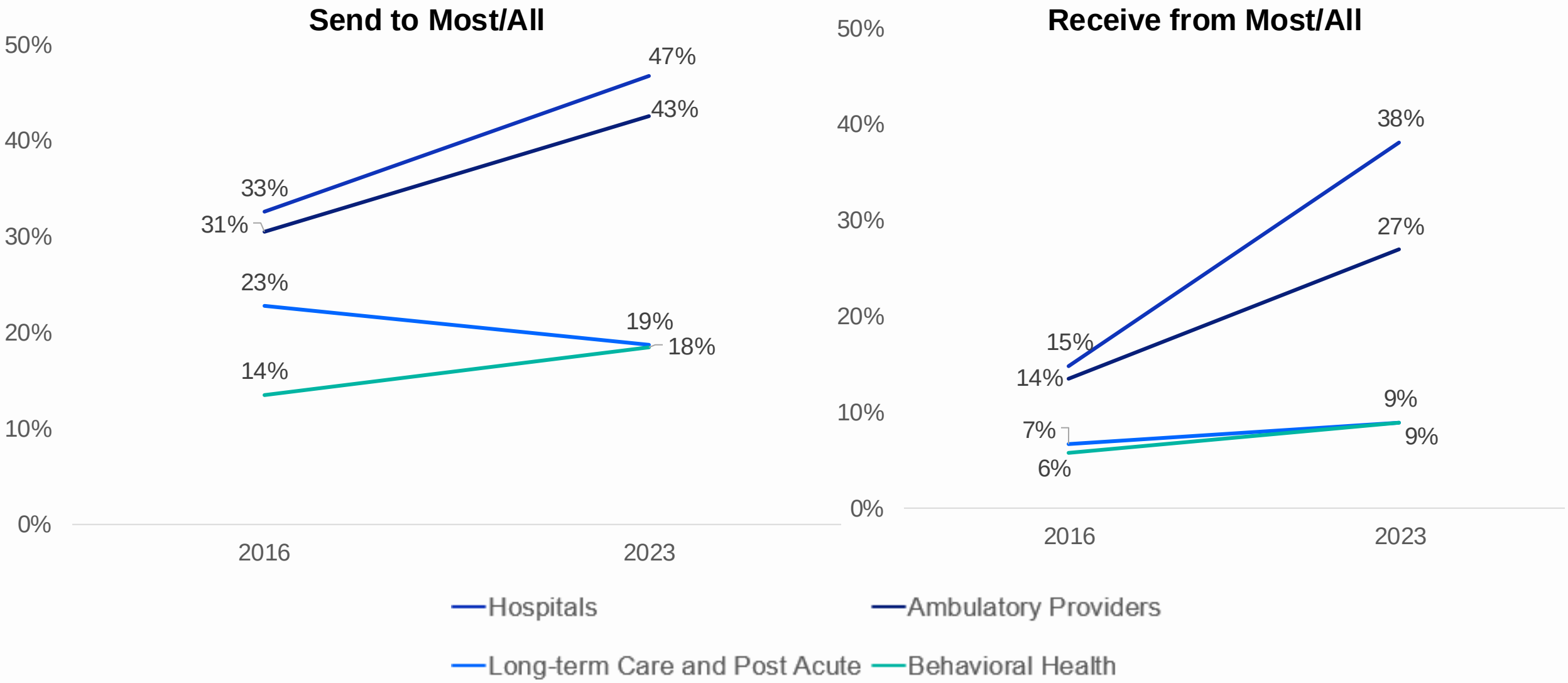
Hospitals that reported **often** finding, **often** sending, **often** receiving, and **routinely** integrating electronic patient health information from external providers.

Intermittently Interoperable

Hospitals that reported finding, sending, receiving electronic patient information **often or sometimes**, and integrating electronic patient health information from external providers (i.e., routinely or not routinely).

Source: AHA IT Supplement

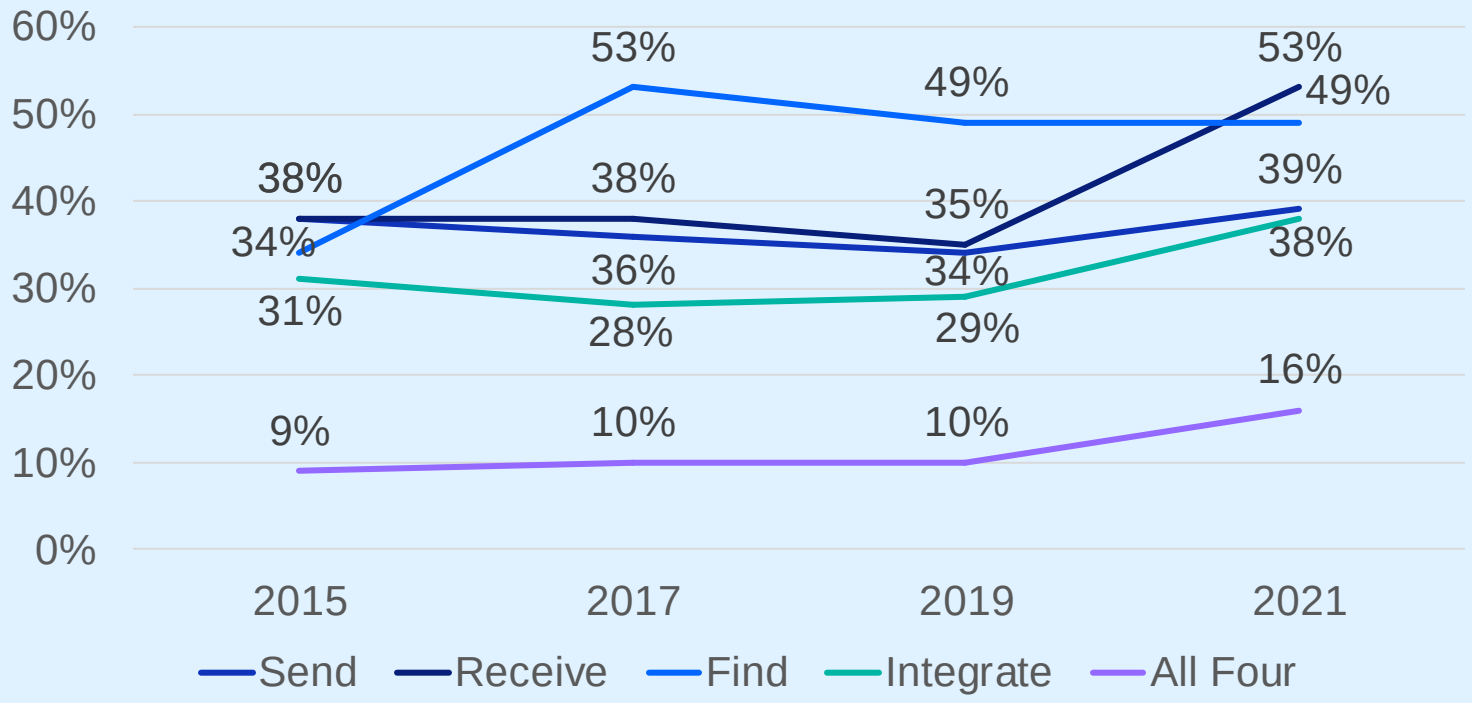
Sending and Receiving Structured Documents With Across the Care Continuum



Source: AHA IT Supplement

Tracking Physician Interoperability

Percent of physicians electronically sending, receiving, searching/querying, and integrating any health information 2015 - 2021.



In 2024, just **13%** of family medicine physicians reported **ideal interoperability** in that they often automatically obtained information in their EHR, that it was easy to find, and that it was easy to use or reconcile with their internal data.

Source: AHA IT Supplement

Challenges and Future State: Interoperability and EHR Adoption

Accomplishments

- Increased interoperable exchange has led to many positive benefits in healthcare
  - Quality
  - Care coordination
  - Efficiency

Challenges Remaining

- There are still challenges with interoperability issues among hospitals and office-based clinicians
  - Smaller, rural, and independent hospitals and practices struggle with using APIs to facilitate efficient information exchange
  - There are difficulties in accessing patient information from external providers at the point of care.

On the Horizon

- To achieve the goal of seamless data exchange across health systems
  - TEFCA aims to create a standardized, national approach to enable providers, patients, and other stakeholders to access data more easily across networks through QHINS.
  - HL7's FHIR standard aims to help support compatibility challenges
  - Support for lower-resourced providers through the PI program
  - 21st Century Cures Act helps to advance guidelines for health IT integration, promotes transparency, and prohibits information blocking

Electronic Prescribing

Wei Chang, MPH

ASTP

Electronic Prescribing (E-Prescribing)

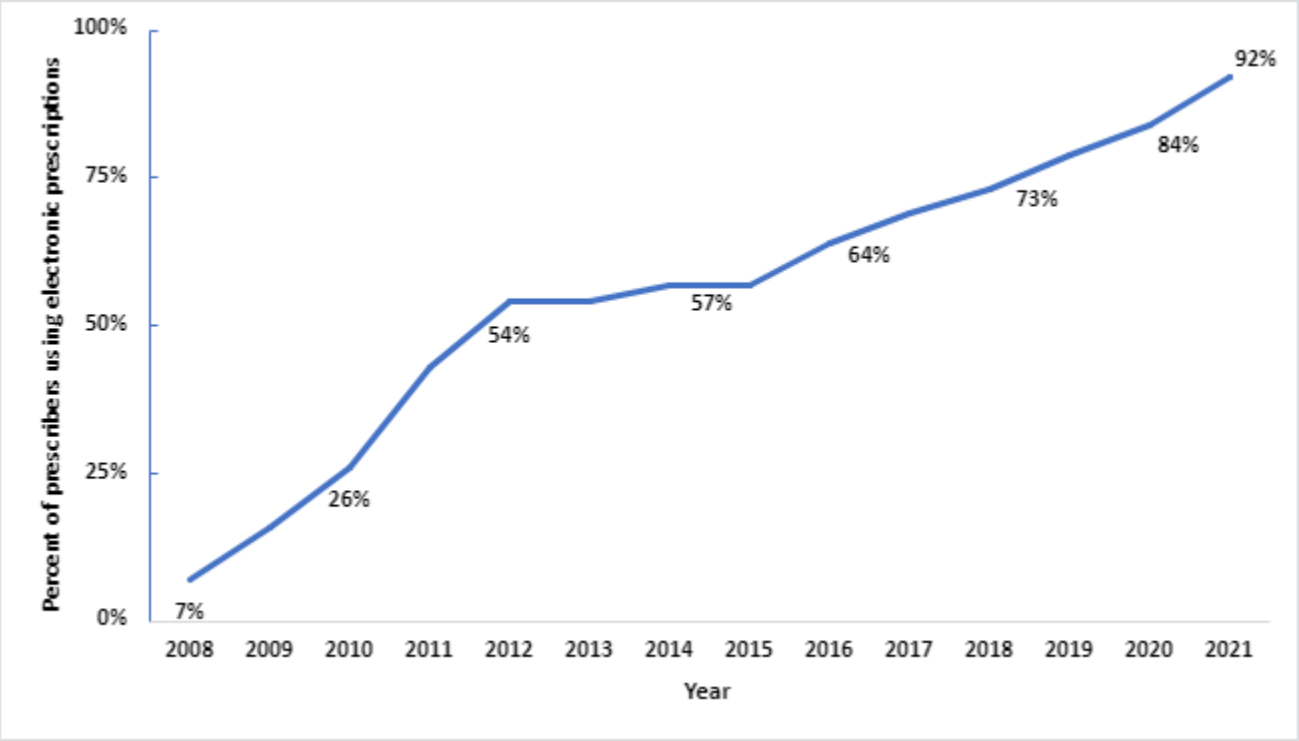
- **E-prescribing involves prescribers electronically entering and transmitting prescription information to pharmacies through standards-based software.**
  - Enhances convenience
  - Reduces adverse drug events
  - Promotes patient adherence to medications

- **Over the past 20 years, e-prescribing has grown from only a few prescribers using stand alone systems to now nearly universal use.**
  - Shift toward digital processes in health care to enhance accuracy, efficiency, and patient safety.
  - Shows widespread commitment to improving medication management.

- **E-prescribing of Controlled Substances (EPCS) is rapidly increasing**
  - Supported by state and federal initiatives.
  - Critical in combating prescription misuse and enhancing safe controlled substance prescribing.

E-Prescribing Over the Years

E-Prescribing Use Among Prescribers



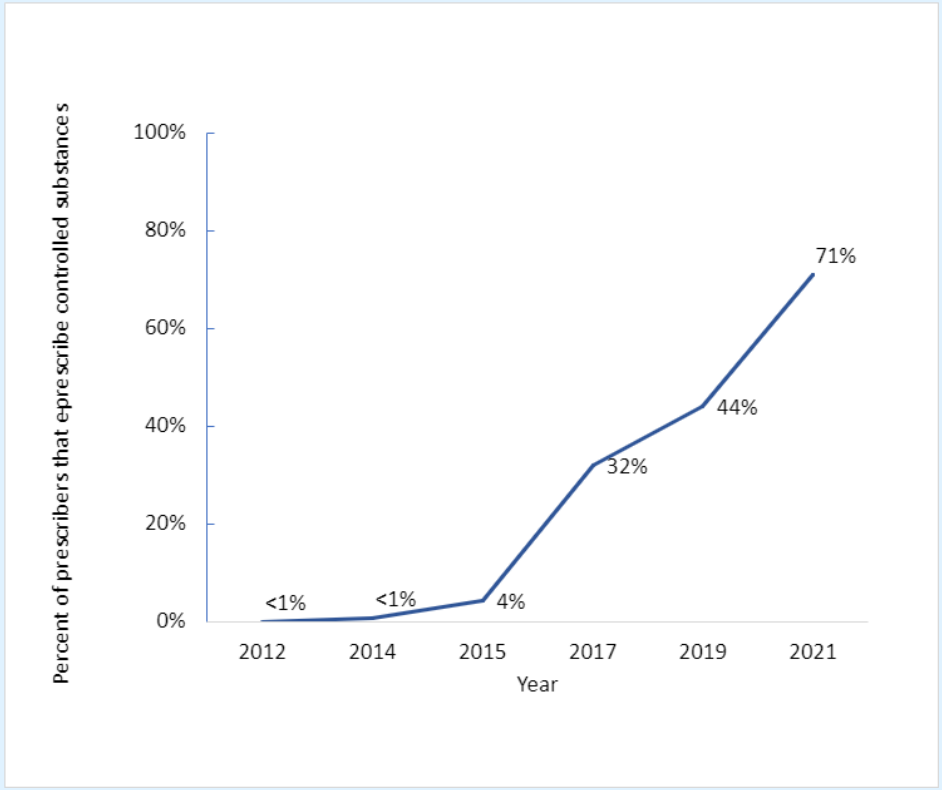
- In 2006, all states enacted laws to allow e-prescribing of most legend drugs.

- Now:
  - **Nearly all pharmacies can accept e-prescriptions**
  - Most prescribers have e-prescribing capability integrated in EHRs
  - **92%** of prescribers are enabled for e-prescribing

Source: Analysis of Electronic Prescribing Transaction Data from Surescripts

Electronic Prescribing for Controlled Substances (EPCS) Over The Years

EPCS Adoption among Prescribers that E-Prescribe Controlled Substances

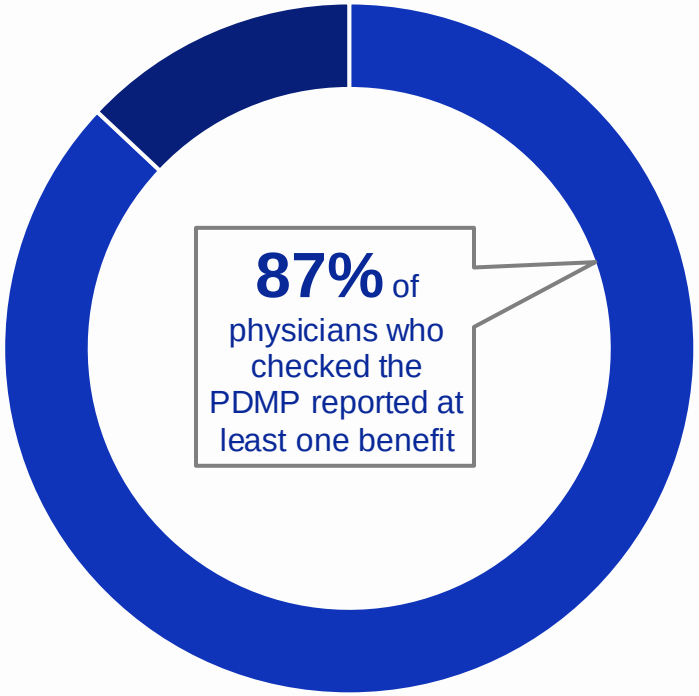


- **EPCS adoption is part of broader efforts towards interoperability and integration with EHRs, to help support comprehensive patient care.**
- EPCS is an essential tool to fight the Opioid Crisis
  - Drug Enforcement Administration rulemaking in 2010
  - The SUPPORT Act of 2018
- There has been rapid increase in EPCS over the last decade. **Now, most prescribers and nearly all pharmacies are EPCS-enabled.**

Source: Transactional Data (2012-2015, prescribers enabled for ECPS) and NCHS NEHRS (2017-2021, percent of office-based physicians using EPCS).

Prescription Drug Monitoring Programs (PDMPs)

- An electronic database that tracks controlled substance prescriptions
- Can help clinicians identify patients who may be at risk for abuse or diversion and provide potentially lifesaving information and interventions
- Top reported benefits:
  - Reduced or eliminated controlled substance prescriptions for a patient (59%)
  - Confirmed appropriateness of treatment (54%)
  - Confirming patients' misuse of prescriptions (43%)



Source: NEHRS 2021

Challenges and Future State: E-Prescribing

Accomplishments:

• There has been significant progress in establishing safe and secure e-prescribing methods, this has led to enhanced patient care and health outcomes

• ASTP continues to support e-prescribing through the Health IT Certification Program by establishing standards for secure and interoperable systems

On the Horizon:

• ASTP's proposed HTI-2 rule aims to further support the promise of e-prescribing by supporting new functionalities to further improve patient safety and reduce cost

- Adding the indication or reason for medication on e-prescriptions will help pharmacists provide more personalized care to patients
- Expanding on real-time benefit tools (RTBT) that provide patient-specific cost and coverage information for prescription drugs

Electronic Public Health Reporting

Wes Barker, MS

ASTP

Public Health Surveillance and Reporting

- To control and prevent the spread of infectious disease, health care providers have long been required to report cases of certain diseases and conditions to their state or local public health authorities (PHAs)

- Public health surveillance data collected from clinicians, hospitals, and laboratories are used to:
  - monitor short- and long-term disease trends and alert health professionals to changes in trends
  - identify and respond to outbreaks
  - help determine public health and policy priorities for prevention and control programs

- While there has been significant growth in surveillance systems specific to certain diseases and settings (e.g., syndromic surveillance data from hospital EDs), the COVID-19 pandemic exposed gaps in the U.S. public health infrastructure, which left health care providers and PHAs ill-equipped to collect and exchange timely and accurate information needed to respond to public health emergencies

Modernizing Public Health Reporting

Aligning incentives to increase electronic public health reporting

- Early efforts to modernize public health reporting began with the **HITECH Act of 2009**, which authorized incentive payments to eligible clinicians and hospitals for the adoption and "meaningful use" of certified EHRs through the CMS **Promoting Interoperability (PI) Programs** (formerly EHR Incentive Programs or "Meaningful Use")

- To promote the electronic exchange of information between health care providers and PHAs, the PI Programs included public health reporting requirements for core data types which have expanded over time

- The goal of incentivizing **electronic** public health reporting (rather than manual submission) was to **improve the timeliness and completeness of data** needed to identify potential outbreaks and inform response during public health emergencies

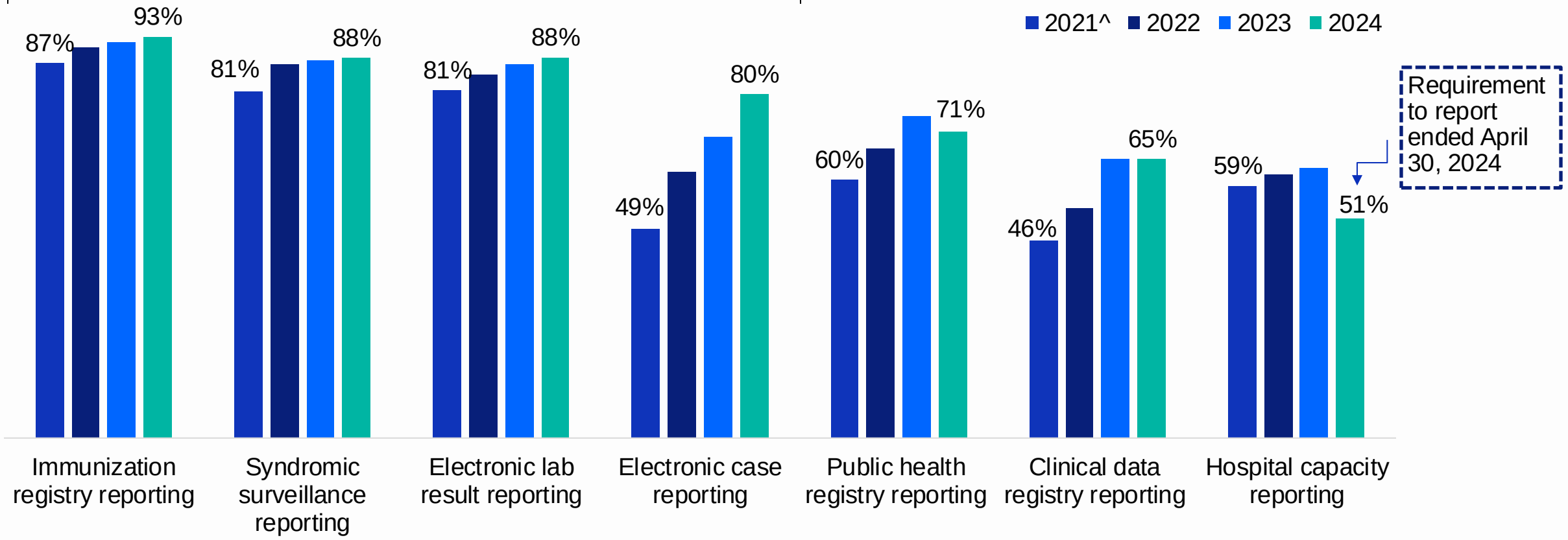
Public Health Reporting Among Non-Federal Acute Care Hospitals
2012: Meaningful Use Stage 1
63% enabled to electronically report immunization data to PHAs
57% enabled to electronically report laboratory results to PHAs
55% enabled to electronically report syndromic surveillance data to PHAs
2014: Meaningful Use Stage 2 and 3
88% enabled to electronically report immunization data to PHAs
85% enabled to electronically report laboratory results to PHAs
75% enabled to electronically report syndromic surveillance data to PHAs
2022: Medicare Promoting Interoperability Programs
91% enabled to electronically report immunization data to PHAs
84% enabled to electronically report laboratory results to PHAs
87% enabled to electronically report syndromic surveillance data to PHAs
62% enable to electronically report cases of reportable conditions to PHAs

Source: CMS PI Programmatic Data 2012 & 2014, AHA IT Supplement 2022

Hospital engagement in electronic* public health reporting, 2021-2024

Required reporting types for eligible hospitals and CAHs participating in CMS PI Program (eCR beginning in 2022)

*** Electronic** = Directly from the EHR (e.g., HL7 interface or API), via health information exchange, portal submission, or flat files



Note: Reference category includes non-electronic submissions (e.g., fax), missing, and don't know responses. ^Question responses were mutually exclusive in 2021 and select all that apply in 2022-2024.

Ongoing efforts to advance public health data interoperability

- ***More investment and funding*** available through the CDC's Data Modernization Initiative (DMI) as outlined in the CDC's Public Health Data Strategy, which highlights areas of focus for DMI investment and prioritizes core data streams for electronic exchange.

- ***Standards development work*** to facilitate public health data exchange: USCDI+ Public Health and Helios, an HL7 FHIR accelerator.

- ***Leverage the services of health information exchange organizations*** to support PHAs' ability to respond to public health emergencies, as demonstrated through the STAR HIE Program.

- ***Support public health data exchange among the network of networks***: Trusted Exchange Framework and Common Agreement (TEFCA) the public health "exchange purpose" will support secure information exchange between health care and public health.

- ***Invest in the public health workforce***: Building the Public Health Informatics & Technology Workforce through the PHIT Program.

ASTP's Health Data, Technology, and Interoperability: Certification Program Updates, Algorithm Transparency, and Information Sharing (HTI-2)

To meet the urgent need for greater public health data exchange, ASTP's HTI-2 proposes a **multi-pronged approach** that builds on existing public health certification criteria by:

1. Implementing new functional requirements and requiring adoption of newer versions of standards within existing criteria that **support transmission of information to PHAs and bi-directional exchange** with immunization registries.

2. Adding certification criteria for new use cases including transmission of birth reporting data to PHAs, expanded laboratory data exchange, and **bi-directional exchange** with prescription drug monitoring programs.

3. Align requirements for systems that send and receive public health data: new certification criteria for "**health IT for public health**" that adopt most of the same standards and functional requirements as existing criteria to further enable interoperable exchange between PHAs and health care providers.

Challenges and Future State: Public Health Reporting

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Patient Access to Health Information

Catherine Strawley, MPH

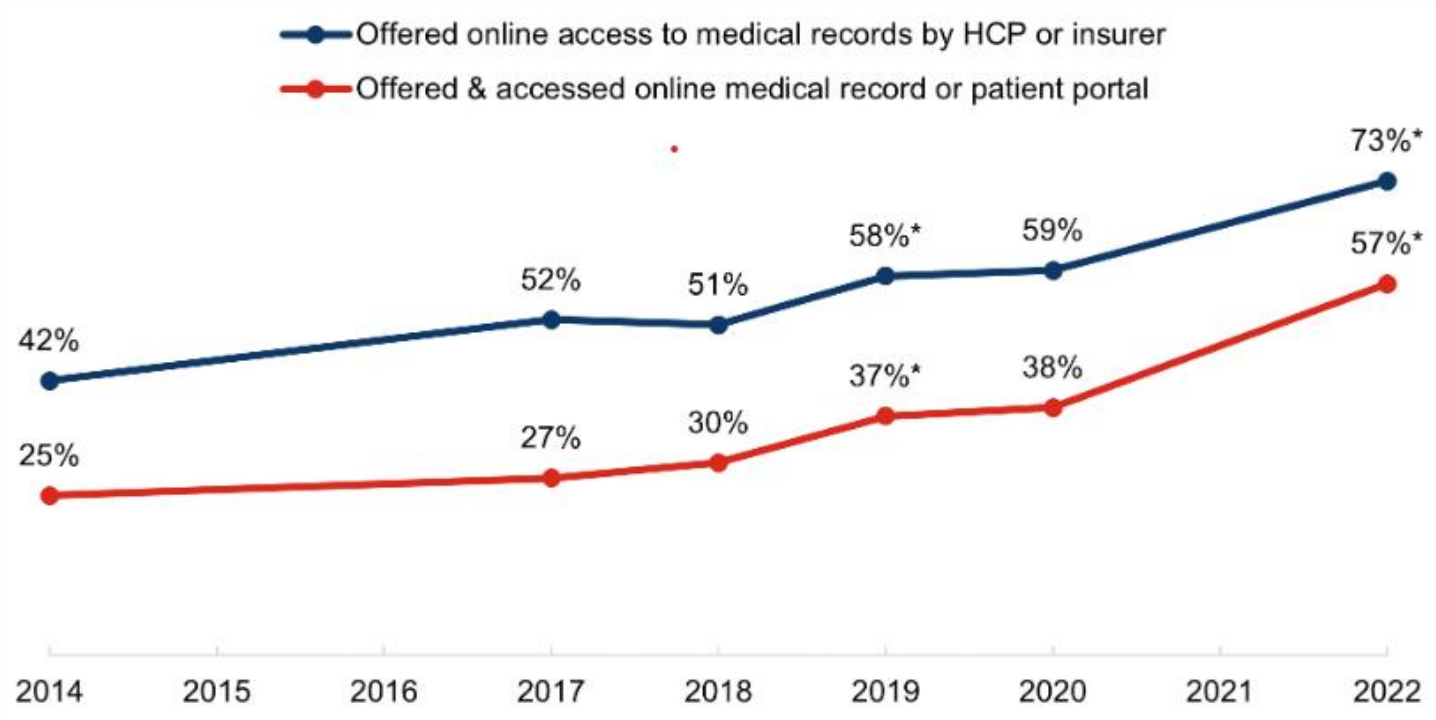
ASTP

Patient Access to Health Information

- Patient access to health information through online tools (e.g., patient portals and smartphone apps) enables patient use of their health information for informed health decision making and tracking progress on health-related goals, which may result in improved patient outcomes.
  - This may also benefit health systems by decreasing healthcare costs and strengthening patient-provider relationships.
- In addition to being able to view and interact with their data, patients' ability to transmit data across care settings can facilitate continuity of care and informed provider decision-making.
- Policies promoting patient access:
  - Meaningful Use Stage 2 (2012) promoted patient access to data by requiring providers to offer patient portals and secure messaging.
  - Cures Act Final Rule (2020) promoted patient access to their data through apps by requiring health IT developer adoption of secure standardized APIs.

Nationwide Offer and Access of Online Medical Record or Patient Portal

- About 3 in 4 individuals nationwide reported being offered online access to their medical records by their health care provider or insurer in 2022.
- A smaller portion (about 3 in 5) reported they were offered and accessed their online medical record in 2022.
- Between 2014 and 2022, rates of offer and rates of offer and accessed increased substantially.

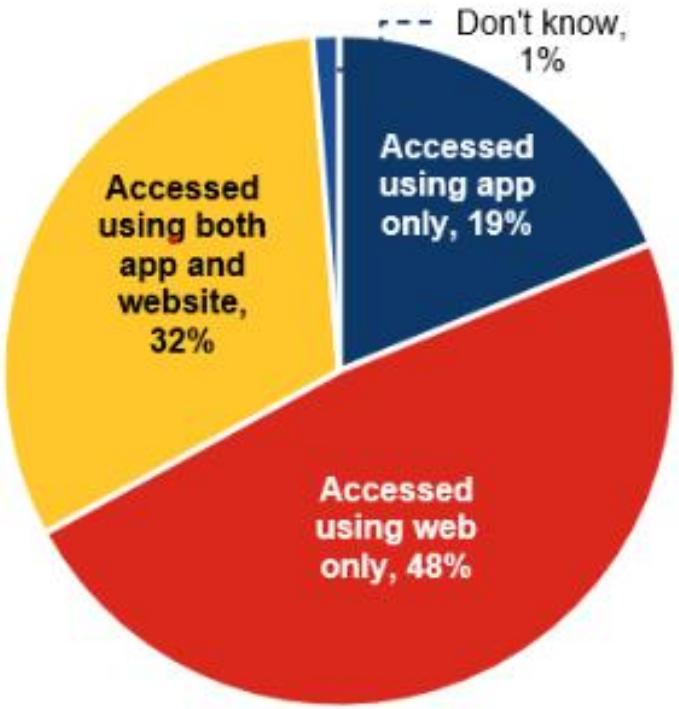


Source: HINTS 4 Cycle 4 (2014); HINTS 5, Cycles 1-4 (2017-2020), HINTS 6 (2022).

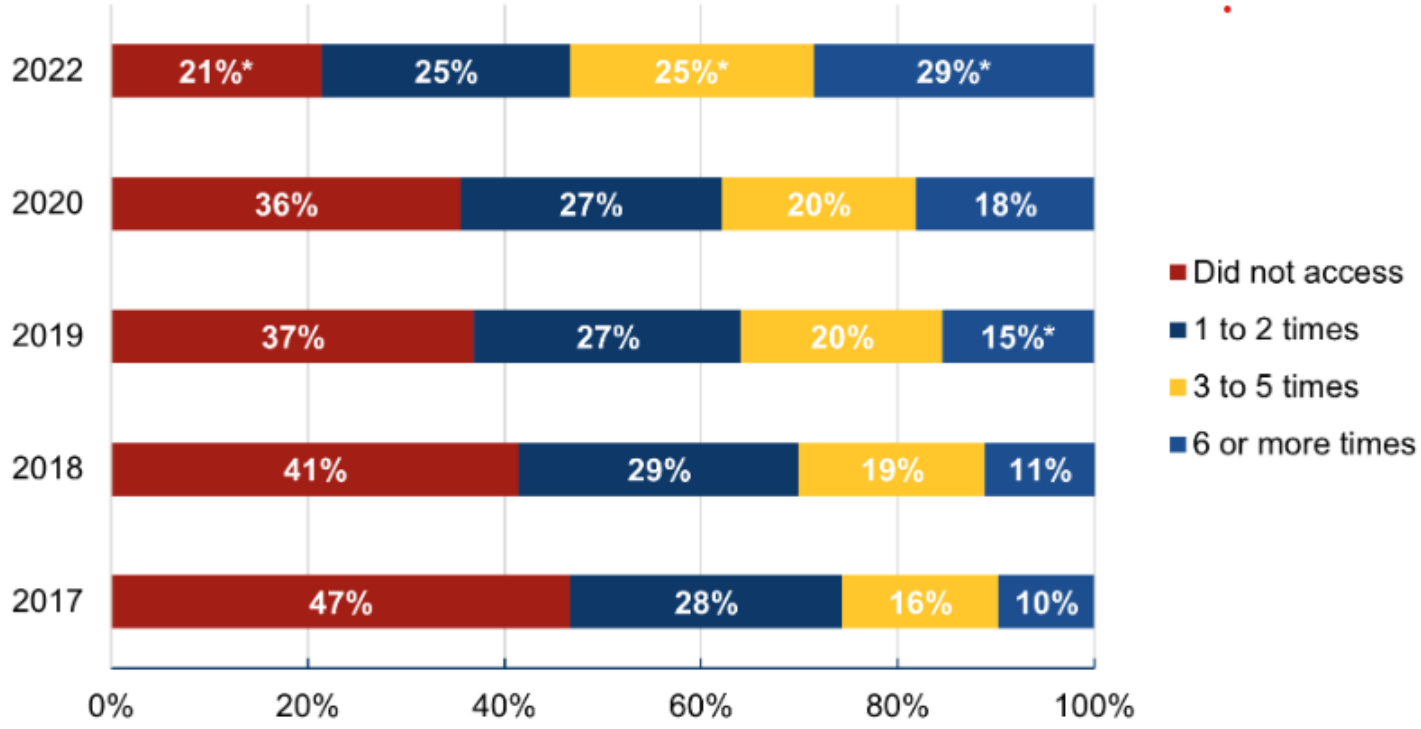
Notes: *Significantly different from previous year ($p<0.05$). Denominator represents all individuals. Percentage reflects weighted national estimate for individuals offered online access to their medical records by a health care provider or insurer and the share of individuals who were offered *and accessed* their online medical record or patient portal at least once in the past 12 months.

Methods and Frequency of Access to Records

Methods individuals used to access their online medical records, 2022



Frequency of Individuals Accessing Online Medical Records Within the Past Year, 2017-2022

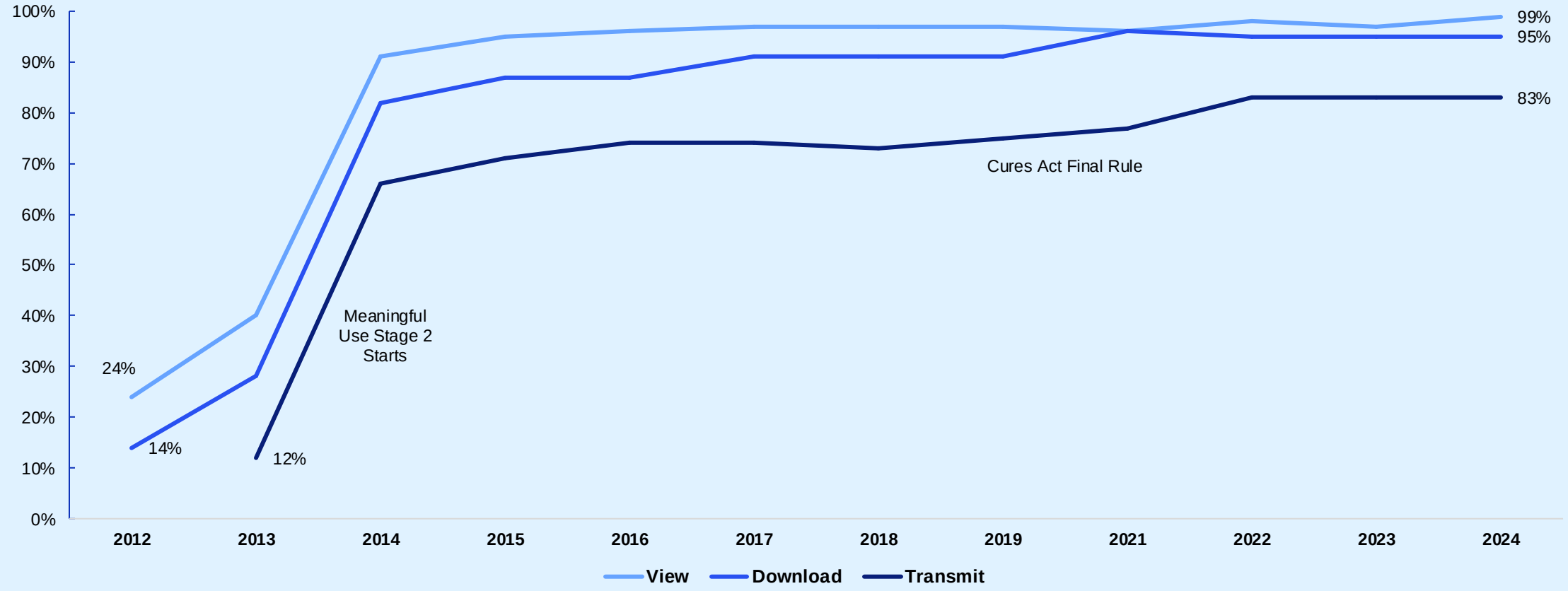


Source: HINTS 5, Cycles 1-4 (2017-2020).

Notes: *Significantly different from previous year ($p<0.05$). Numbers may not sum to 100 due to rounding. Denominator represents individuals who were offered online access to their medical records by a health care provider or insurer for each year.

Electronic Capabilities for Patient Access Among Hospitals

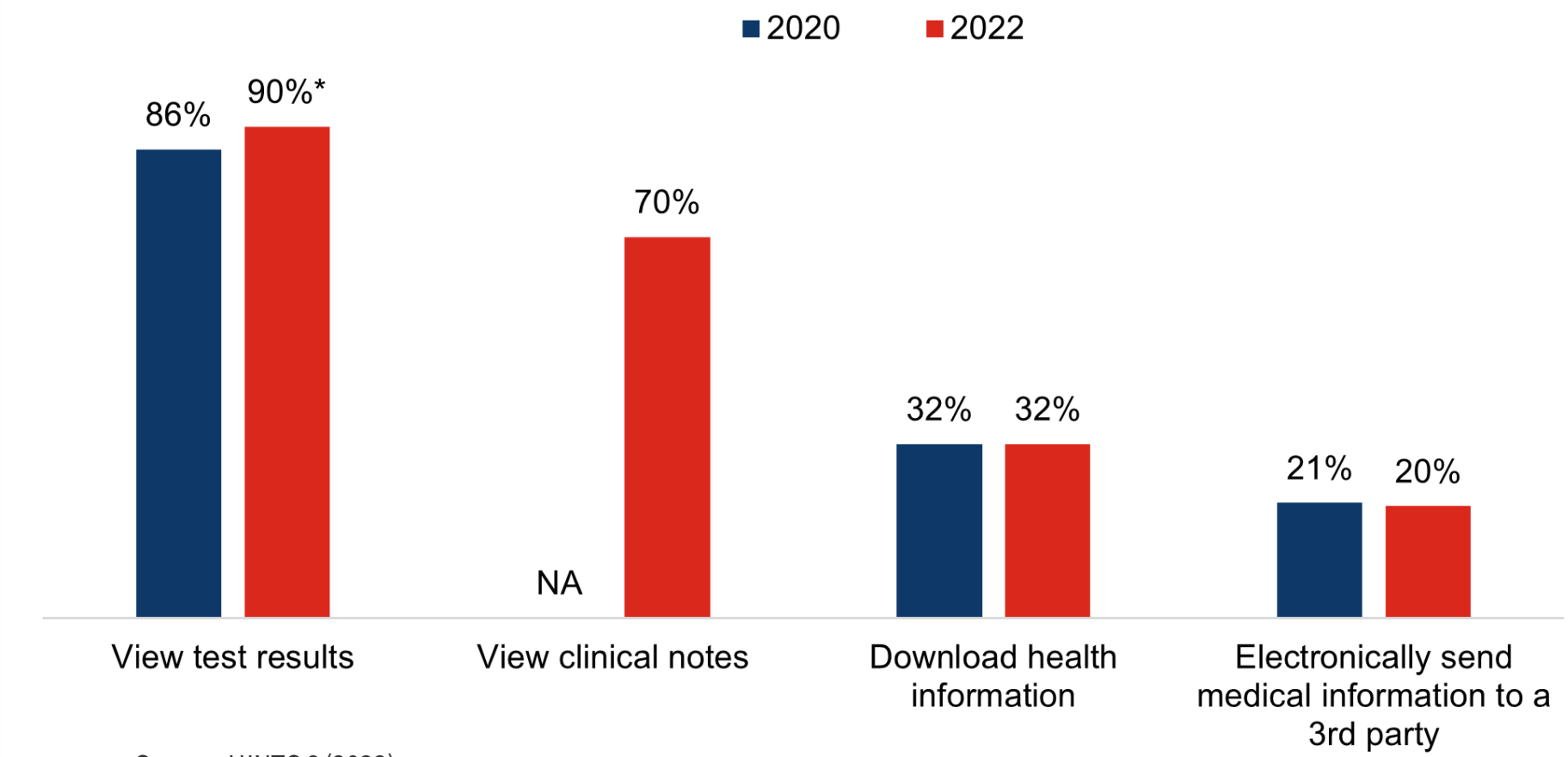
Percent of Hospitals that report the capability for patients to electronically view their medical record



Source: AHA IT Supplement

Patient Use of View, Download, and Transmit Capabilities

Percent of individuals who used their online medical records or patient portal to view, download, or transmit information, 2022.



Source: HINTS 6 (2022).
Notes: Denominator represents individuals who accessed their online medical records or patient portal at least once within the past year. *Significantly different from previous year ($p<0.05$). The response options were not mutually exclusive.

Challenges and Future State: Patient Access to Electronic Health Information

Accomplishments:

•The portion of individuals who are offered and who access their online medical information has increased steadily over the past decade.

•Patients have more options for accessing their online information and are accessing this data more frequently.

•Nearly all hospitals report that their patients can view and download data from their medical record, and 4 in 5 report patients can transmit their data.

Challenges Remaining:

•Disparities persist in patient portal offer and use by race and ethnicity.

•Individuals who access their online medical record or patient portal download and transmit data at low rates.

- Low rates of transmit may reflect low patient demand for this functionality or challenges on the recipient end, as recipients must have the technical capability to receive data and incorporate it into their systems.

On the Horizon:

•HTI-2 proposed rule certification standards for patient access APIs may address potential technical concerns limiting patient use of data transmission functionalities.

Questions & Answers

Reach out via phone or web

ASTP Data Team: astp_data@hhs.gov

Feedback Form: https://www.healthit.gov/form/healthit-feedback-form

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