

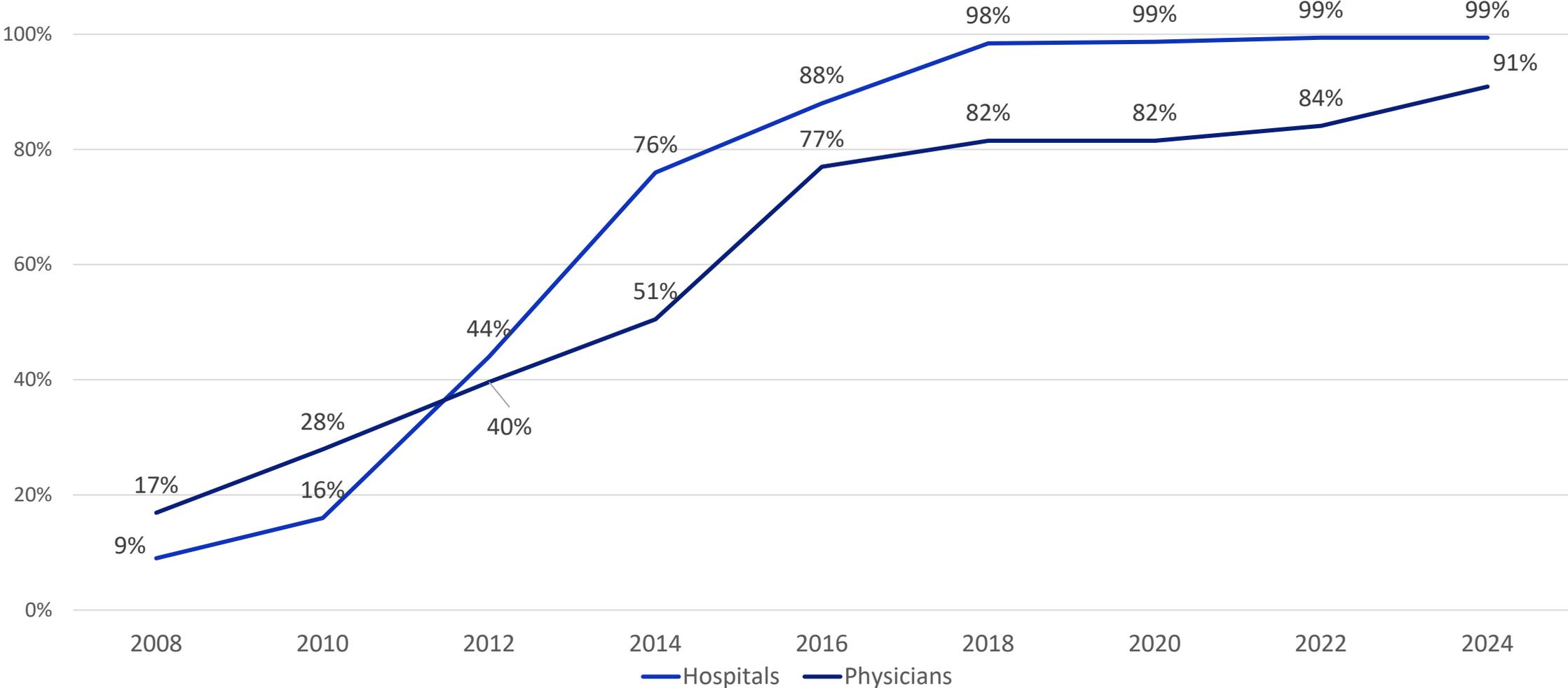
Progress on Interoperability and Ongoing Improvements

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Technical Strategy & Analysis Division and Data Analysis Branch

February 11, 2026

The rapid digitization of health care via EHRs serves as a foundation for opportunities and advancements in patient access, health information exchange, research, AI and other areas.

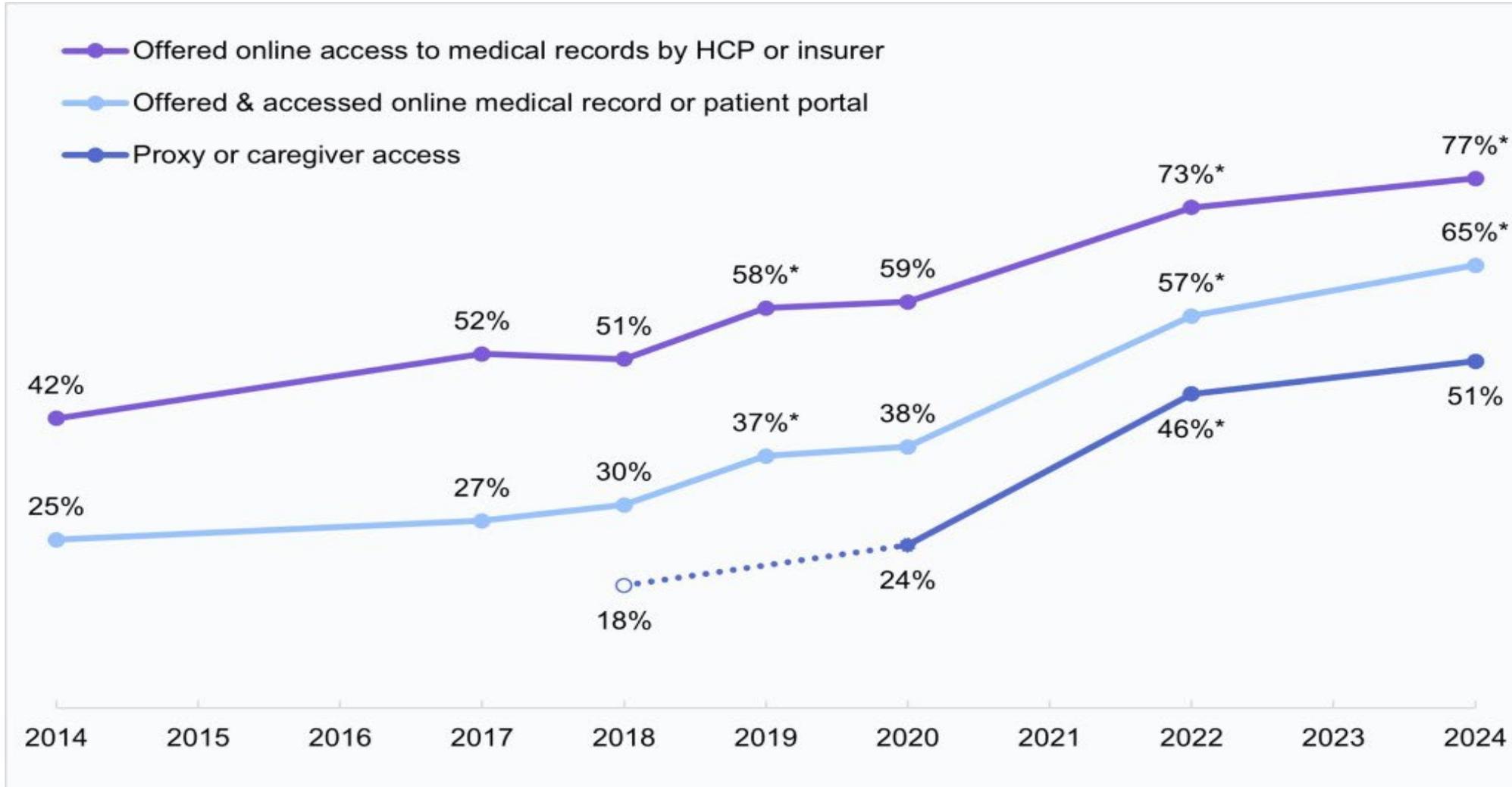
Percent of hospitals and physicians that adopt a certified EHR



Source: American Hospital Association Information Technology Survey; National Electronic Health Record Survey (NEHRS).

Rapid change in patient access of their electronic health information over the last decade.

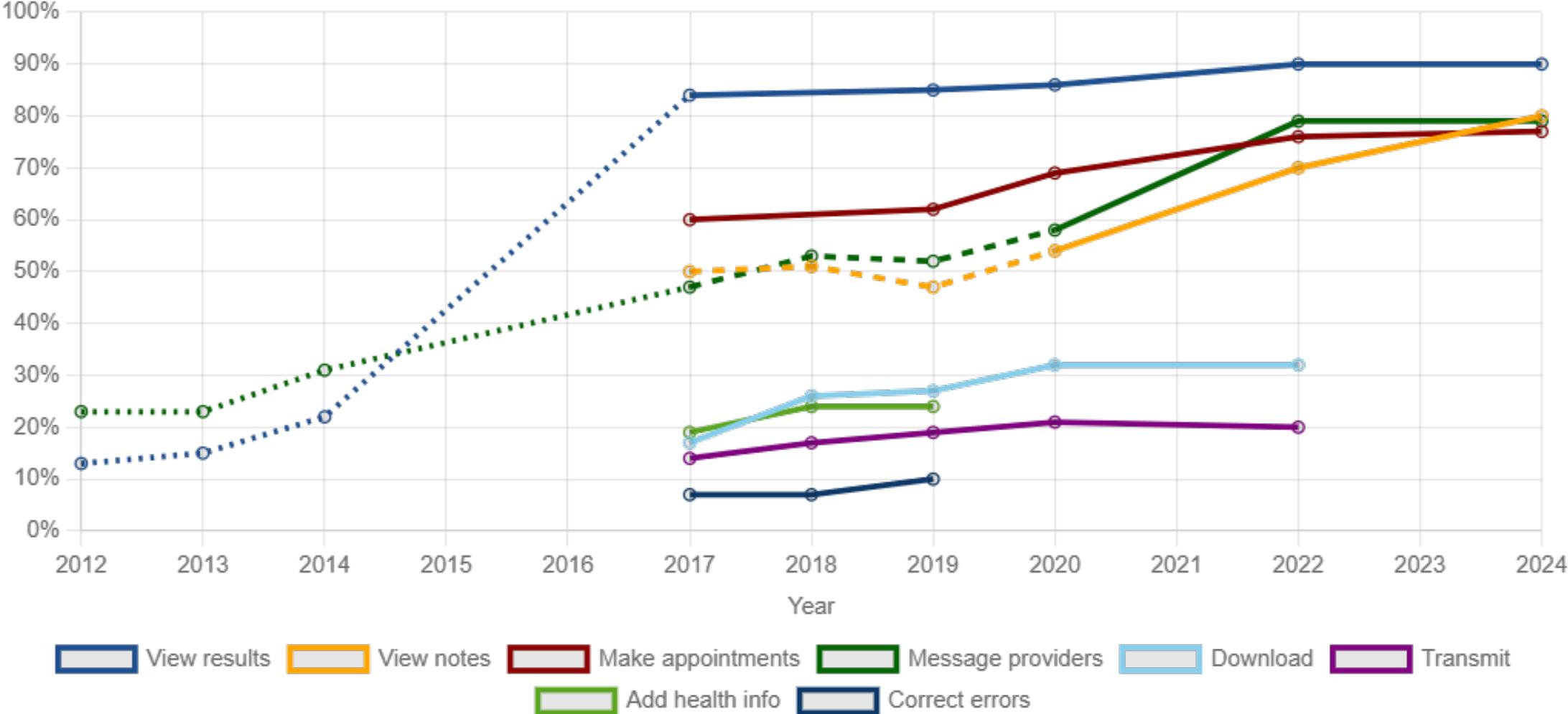
Percent of individuals nationwide who were offered and accessed a patient portal, 2014-2024.



Source: <https://healthit.gov/data/data-briefs/individuals-access-and-use-patient-portals-and-smartphone-health-apps-2024/>.

Patient access has unleashed patients' use of their health information

Trends in Individuals' Use of Health IT (Among Portal Users), 2012-2024



Source: <https://healthit.gov/data/quickstats/trends-individuals-use-health-it-2012-2024/>

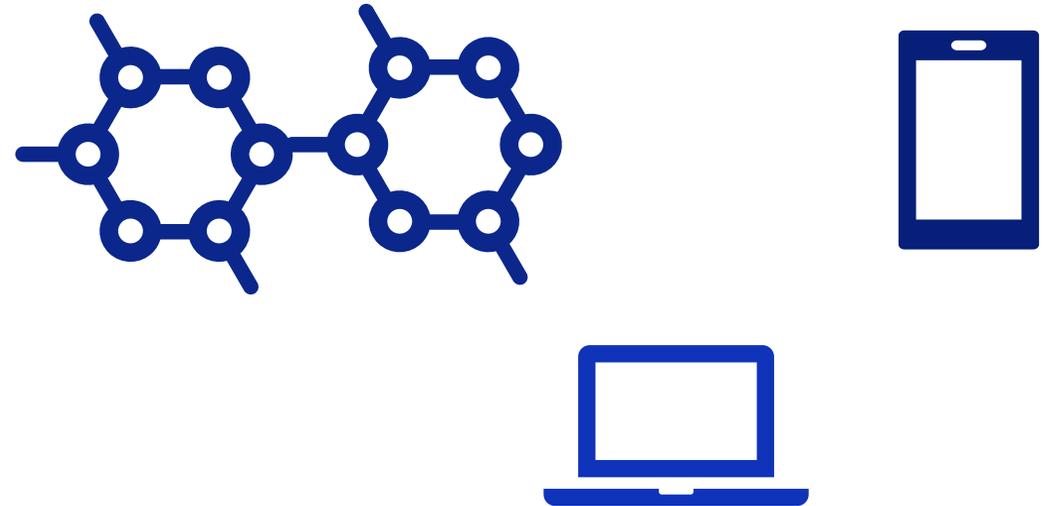
Measuring Health IT Use and Interoperability from Multiple Perspectives

End Users of certified health IT



- Health care providers
- Patients/Caregivers
- Clinicians

Entities enabling exchange



- Health information exchange networks
- Third-party app developers
- Certified health IT developers

Survey-Based Data Sources

						
Survey	IT Survey	Continuous Certification Questionnaire (CCQ)	National Substance Use and Mental Health Services Survey (N-SUMHSS)	Digital Health Company Survey	Health Information National Trends Survey	Health Information Exchange Organization Survey
Organization(s)	American Hospital Association (AHA)	American Board of Family Medicine (ABFM)	Substance Abuse and Mental Health Services Administration (SAMSHA)	California Health Care Foundation, UCSF, Scale Health	National Cancer Institute	Civitas, UCSF
Year	2023, 2025	2024	2024	2022	2024	2024/2025
Number of Respondents	2500+ non-federal, acute care hospitals	8,000+ family medicine physicians	21,000+ unique treatment facilities (substance use and/or mental health treatment)	141 digital health companies	7,278 individuals	76 HIOs (out of 87)
Response Rate	50-60%	100%*	90%	20%	27%	87%

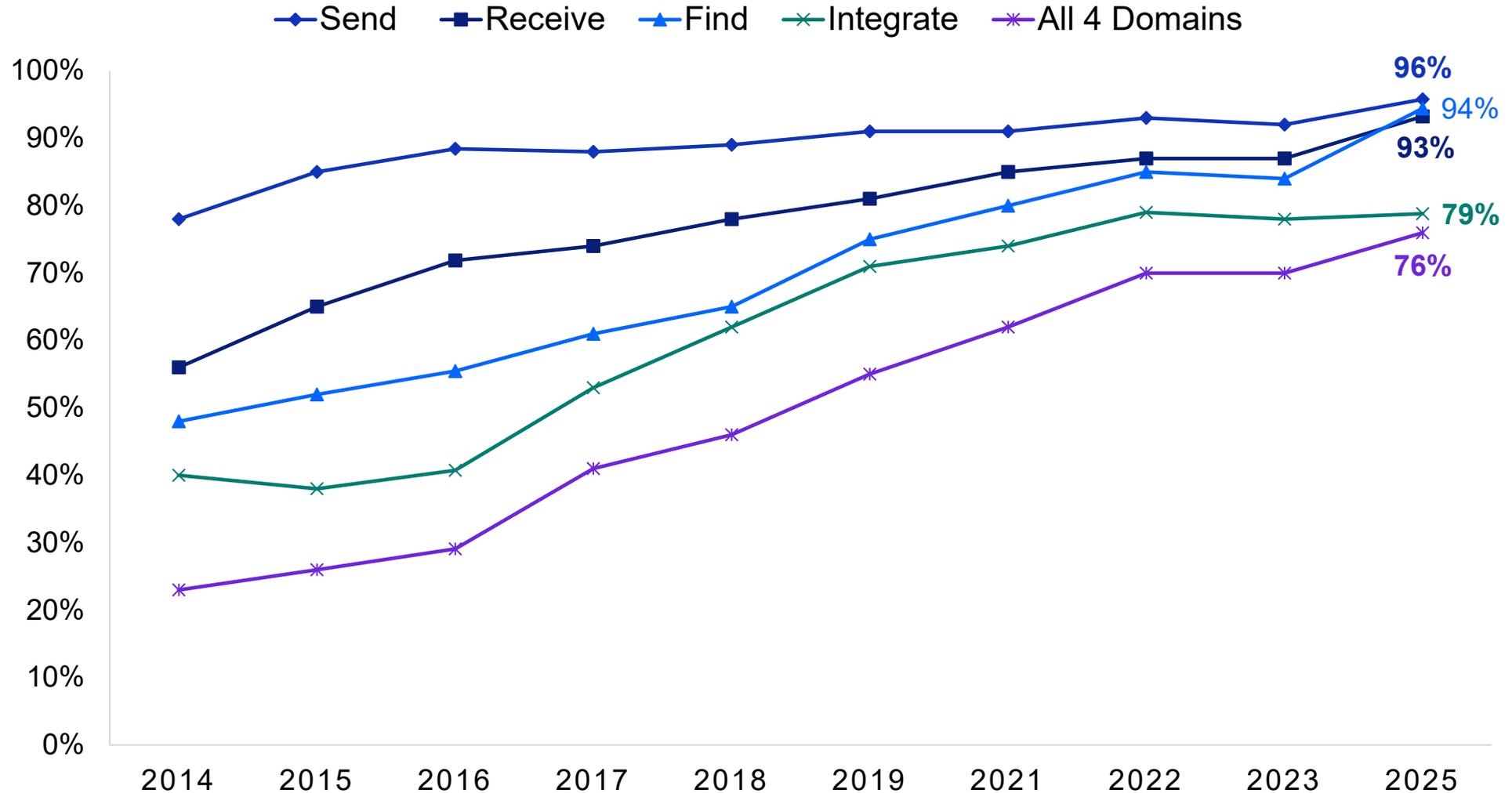
Note: * Due to the required nature of the questionnaire. Find more information at <https://healthit.gov/data/about/#understanding-survey-data-collection>.

1. Hospital interoperability and Barriers to Exchange
2. Physician Experiences with Administrative Burdens and Interoperability
3. Behavioral Health Interoperability
4. Interoperability between EHRs and Third-Party Technology

Hospital Interoperability and Barriers to Interoperable Exchange

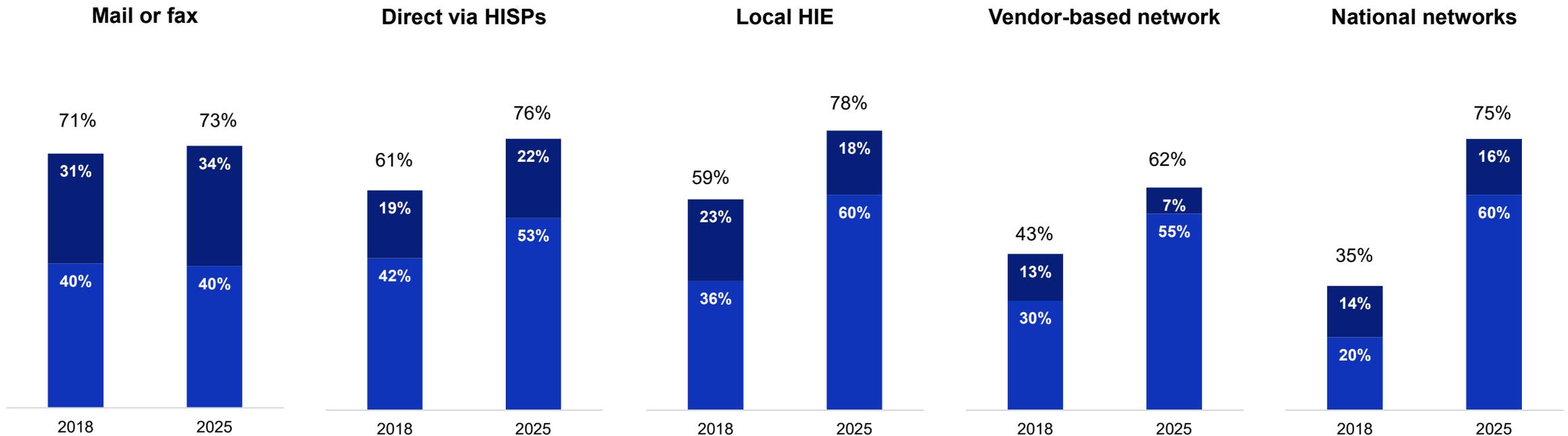
Findings from the 2025 American Hospital Information Technology Supplement

U.S. non-federal acute care hospital engagement in interoperability has more than tripled in the last decade



Methods used by hospitals to send patient health information

■ Sometimes
■ Often



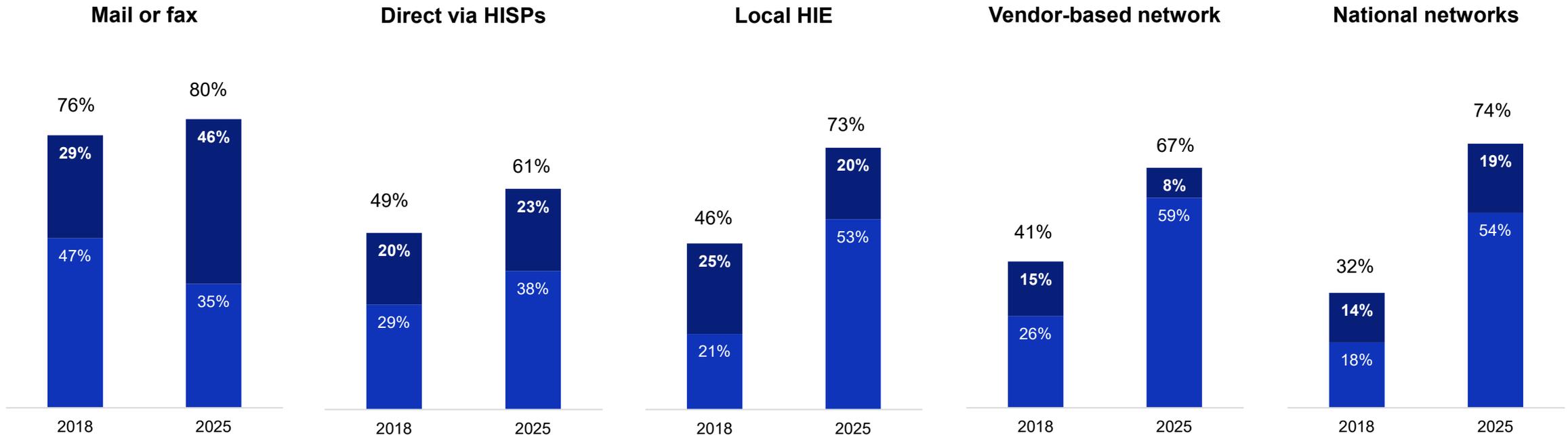
Source: American Hospital Association Information Technology Survey

HIE = Health Information Exchange Organizations (state, local, regional)

HISP = Health Information Service Providers that enable messaging via DIRECT protocol

Methods used by hospitals to receive patient health information

■ Sometimes
■ Often

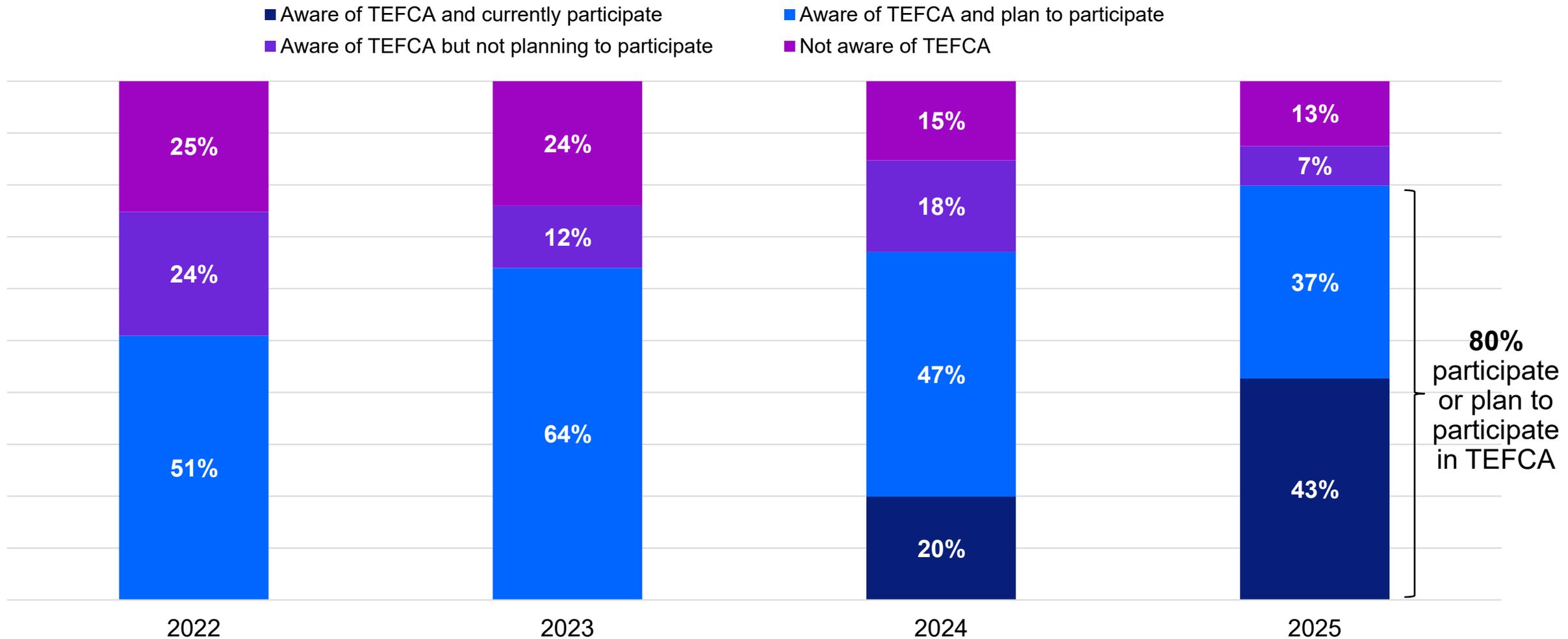


Source: American Hospital Association Information Technology Survey

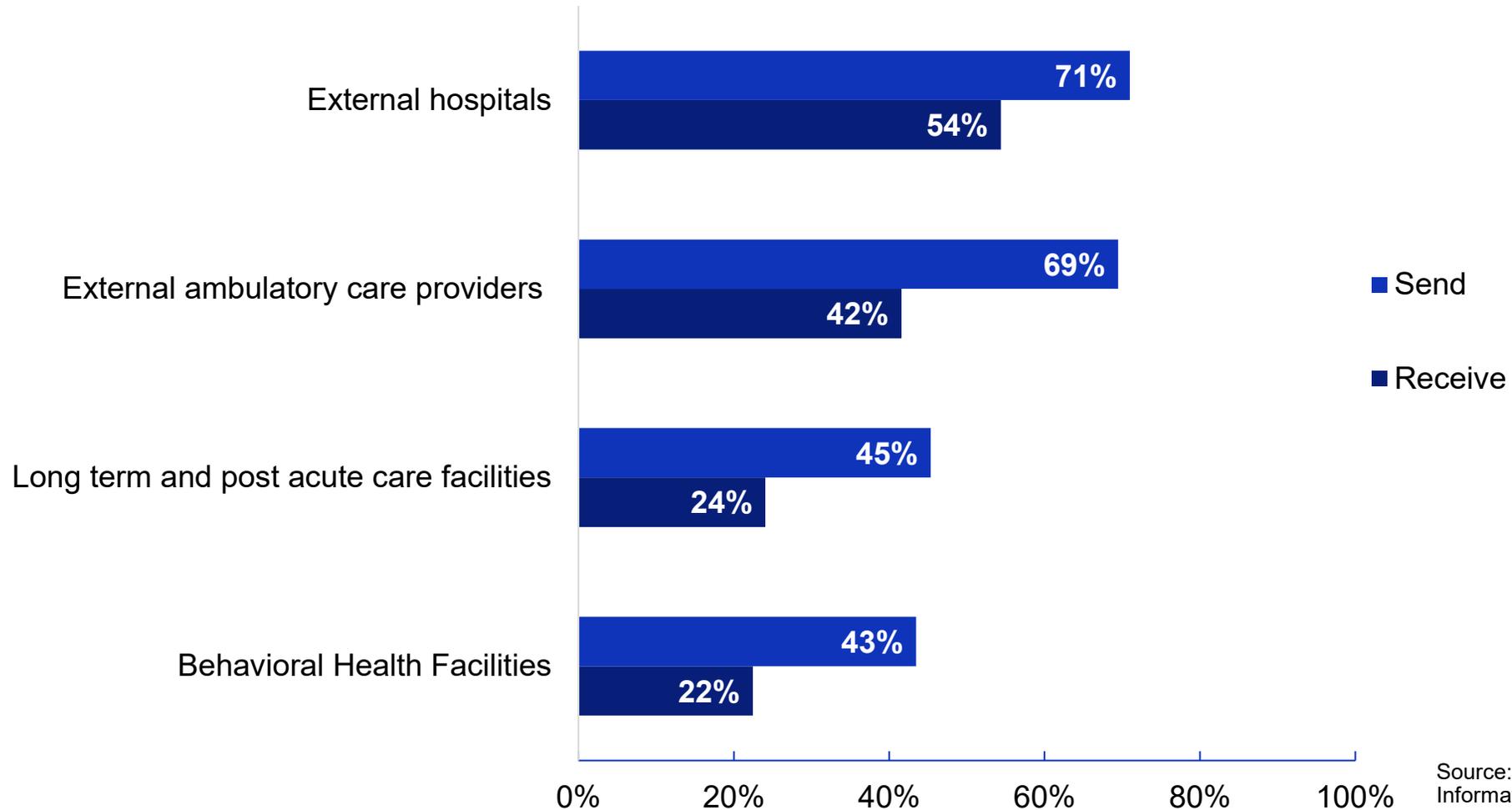
HIE = Health Information Exchange Organizations (state, local, regional)

HISP = Health Information Service Providers that enable messaging via DIRECT protocol

80% of hospitals reported participating or planning to participate in TEFCA in 2025.



In 2025, most hospitals report being able to send and receive information from most or all external hospitals and ambulatory care providers with whom they want to exchange



Source: American Hospital Association Information Technology Survey

Survey questions: “When a patient transitions to another care setting or organization, to what extent does your hospital electronically **send or make available (receive or query)** patient health information **to (from)** the following partners in a structured format (e.g., CCD) that **they (you)** are able to use?”

Frictions to interoperable exchange persist...

Customized interfaces needed to exchange with outside orgs

Data formatting – exchange partners do not provide data in requested format

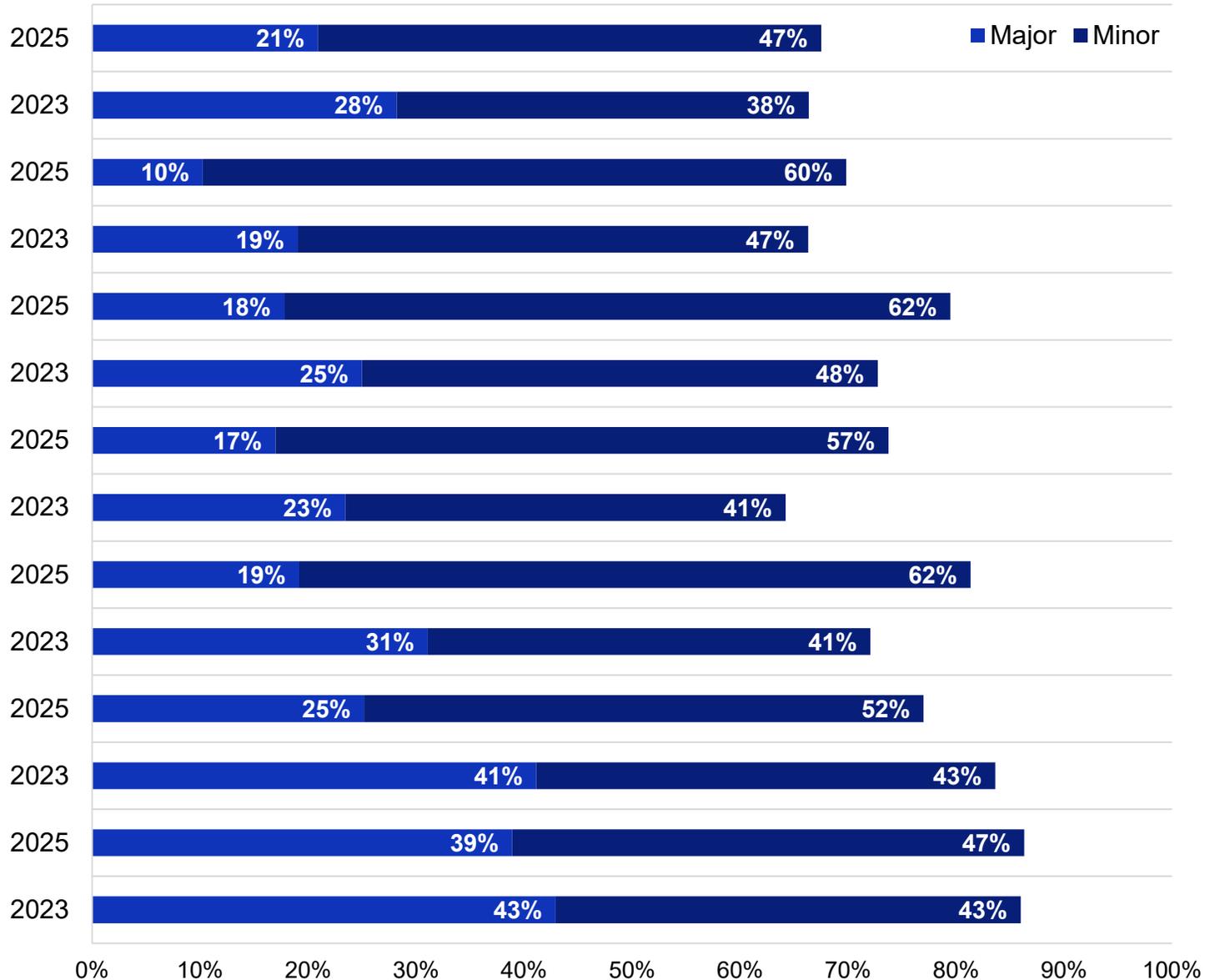
Patient matching – difficult to match or identify the correct patient between systems

Providers lack EHR or other electronic system **capable of receiving data** (send barrier)

Providers with shared patients don't send data (receive barrier)

Difficult to local provider address (e.g., lack of provider directory)

Different vendor – difficult to exchange across vendor platforms



But major barriers that prevent exchange are diminishing

Customized interfaces needed to exchange with outside orgs

Data formatting – exchange partners do not provide data in requested format

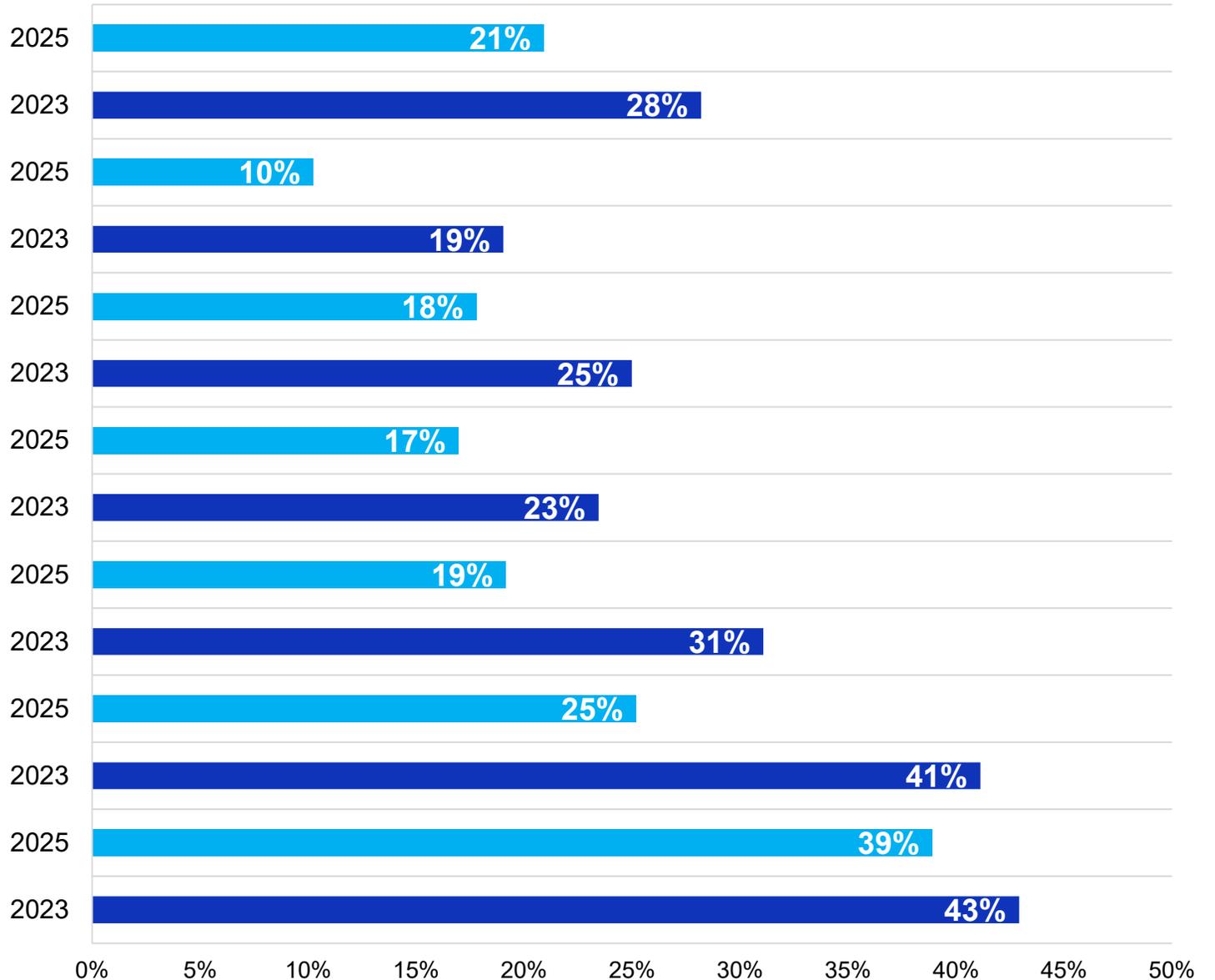
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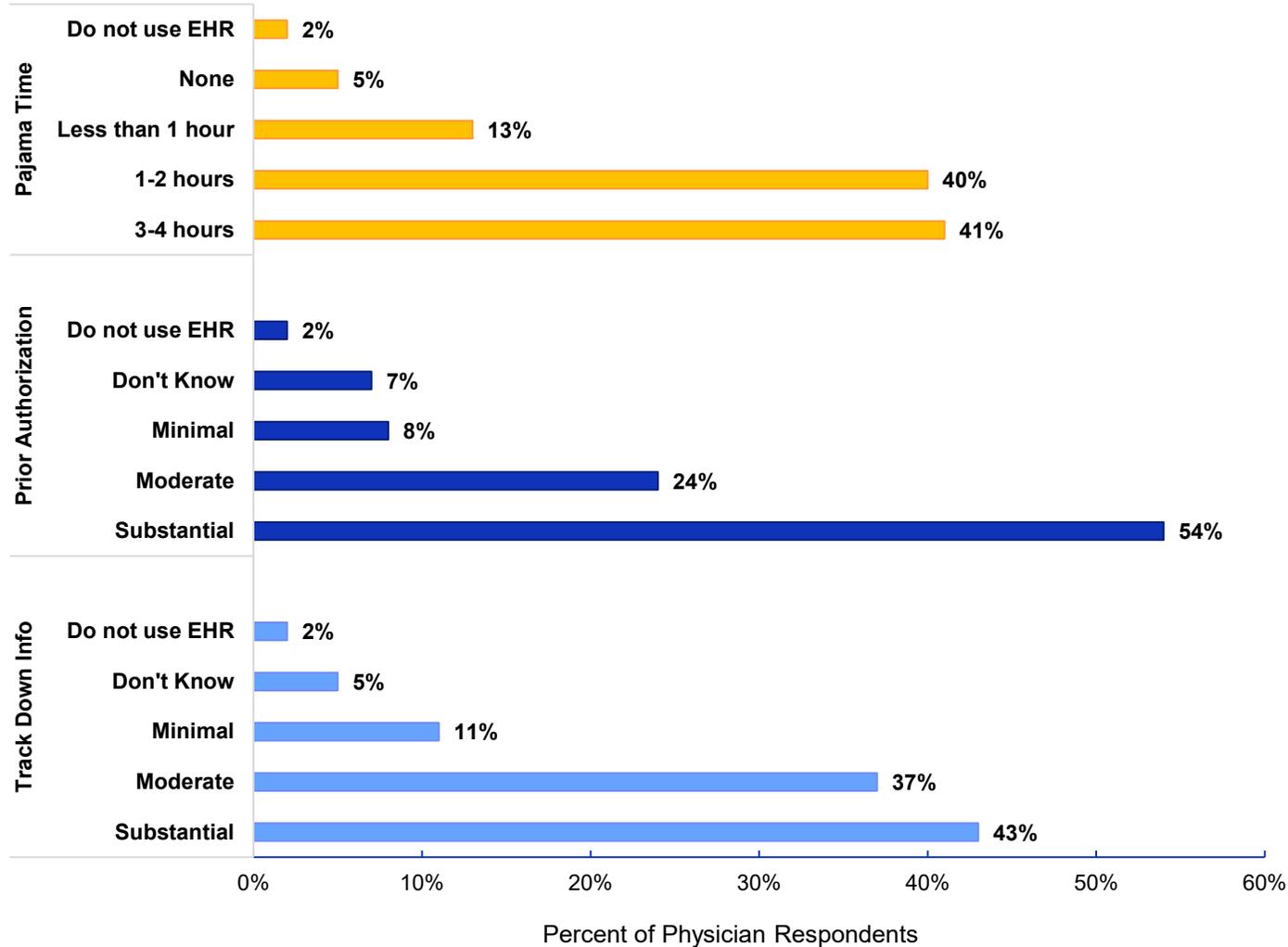
Different vendor – difficult to exchange across vendor platforms



Physician Experiences with Administrative Burdens and Interoperability

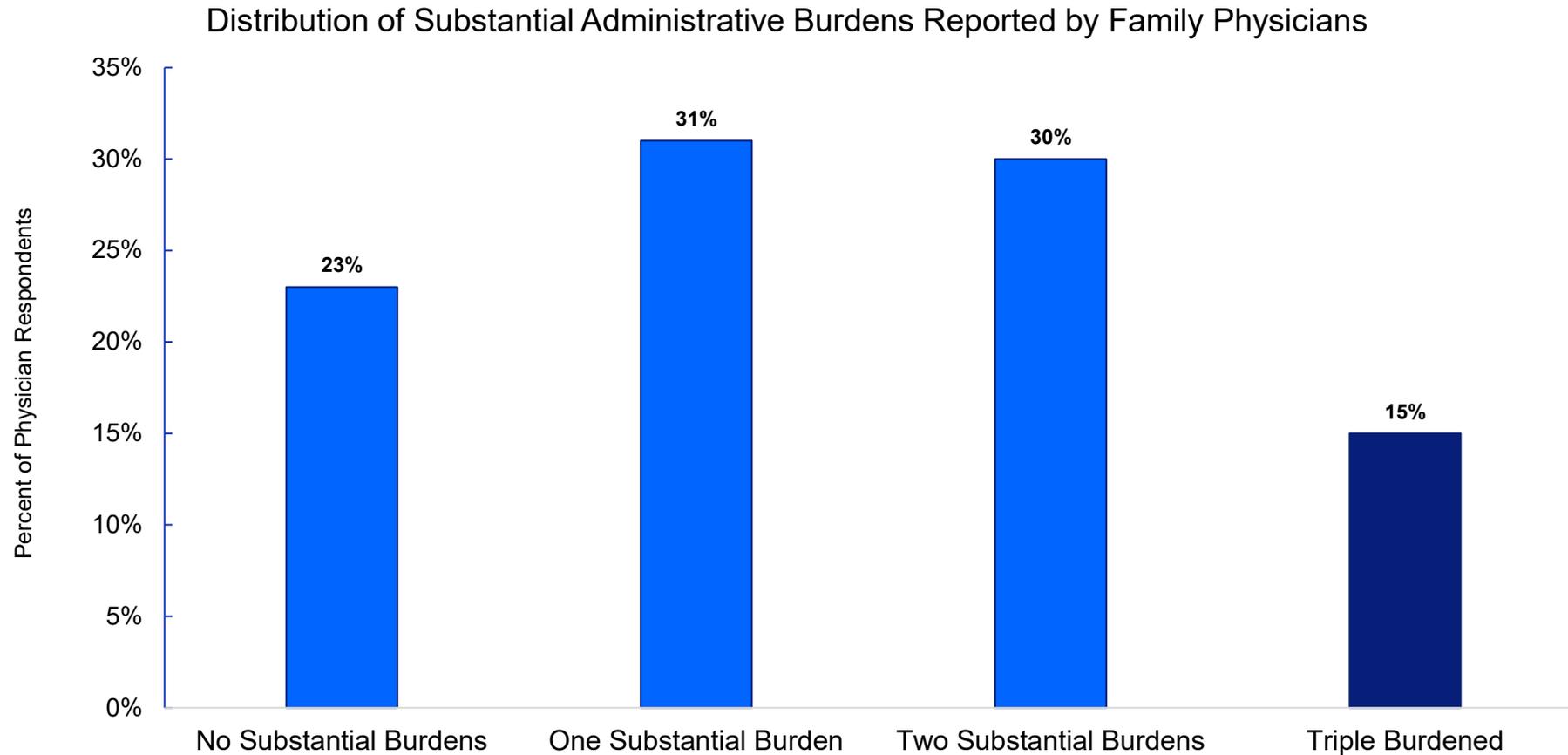
Findings from the 2024 American Board of Family Medicine Continuous Certification Questionnaire

Administrative burdens are pervasive in family medicine, with substantial effort devoted to after-hours documentation, prior authorization, and obtaining external information.



Burden	Survey Question
Pajama Time	On average, how many hours per day do you spend outside of regular office hours documenting clinical care in your main outpatient EHR system?
Prior Authorization	How much time and effort do you or your staff spend completing prior authorizations for insurance or coverage purposes?
Tracking External Information	How much time and effort do you or your staff spend obtaining health information from outside organizations (e.g., scanning or uploading records)?

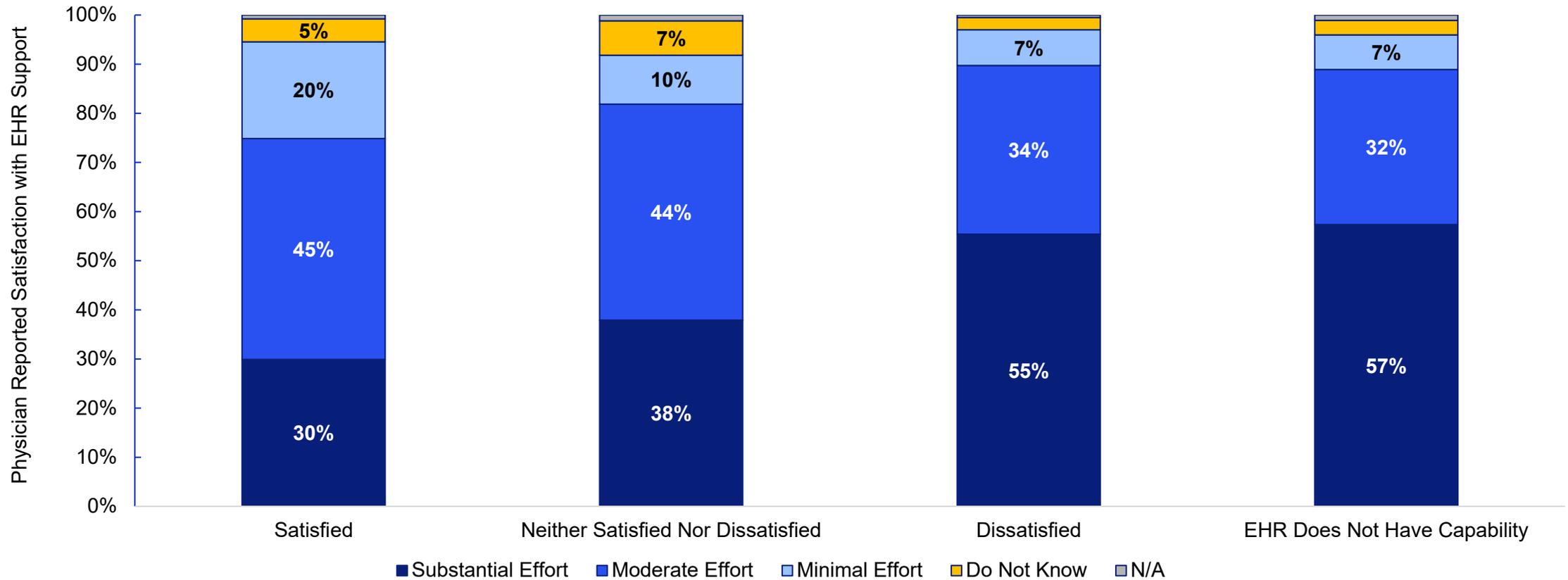
Administrative burdens are commonplace and cumulative



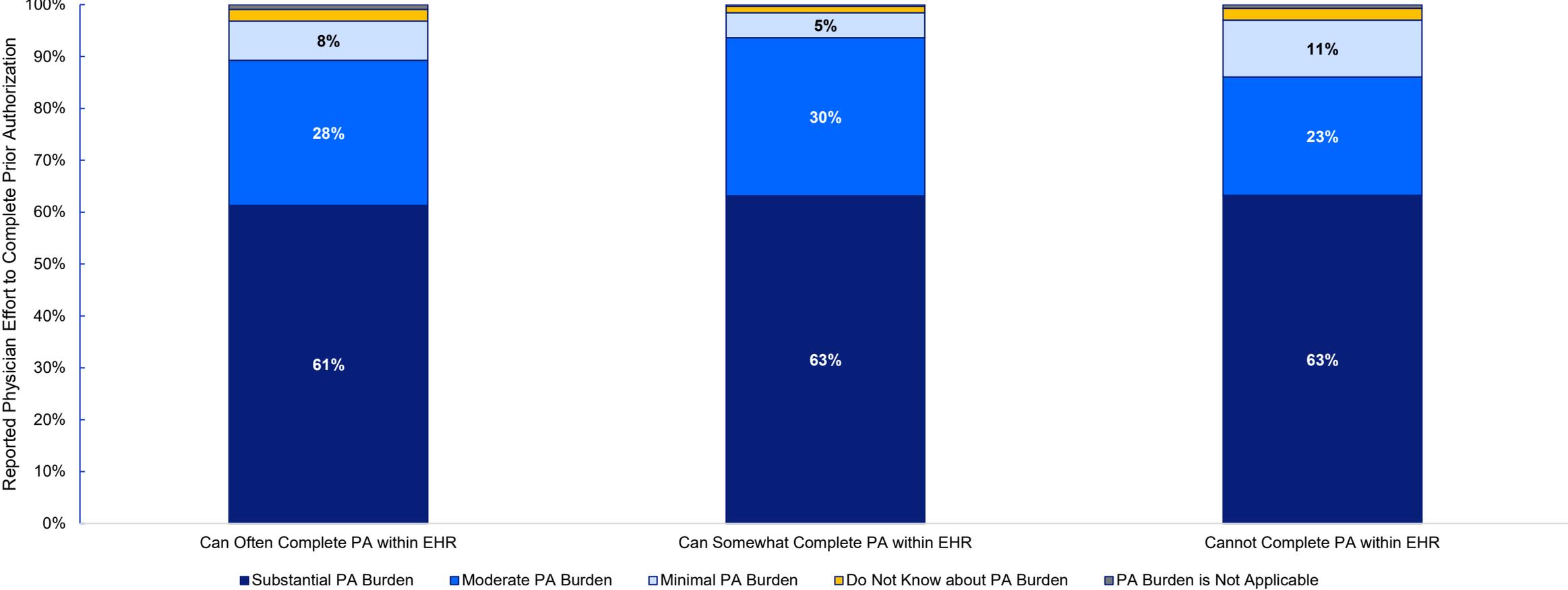
Notes: Burdens defined as substantial effort spent on tracking down external information, prior authorization, and after-hours documentation (“pajama time”).

Tracking down external information is a driver of documentation burden

Physicians who are dissatisfied with EHR support for obtaining health information from outside organizations or that have systems that do not support this task, report higher effort.

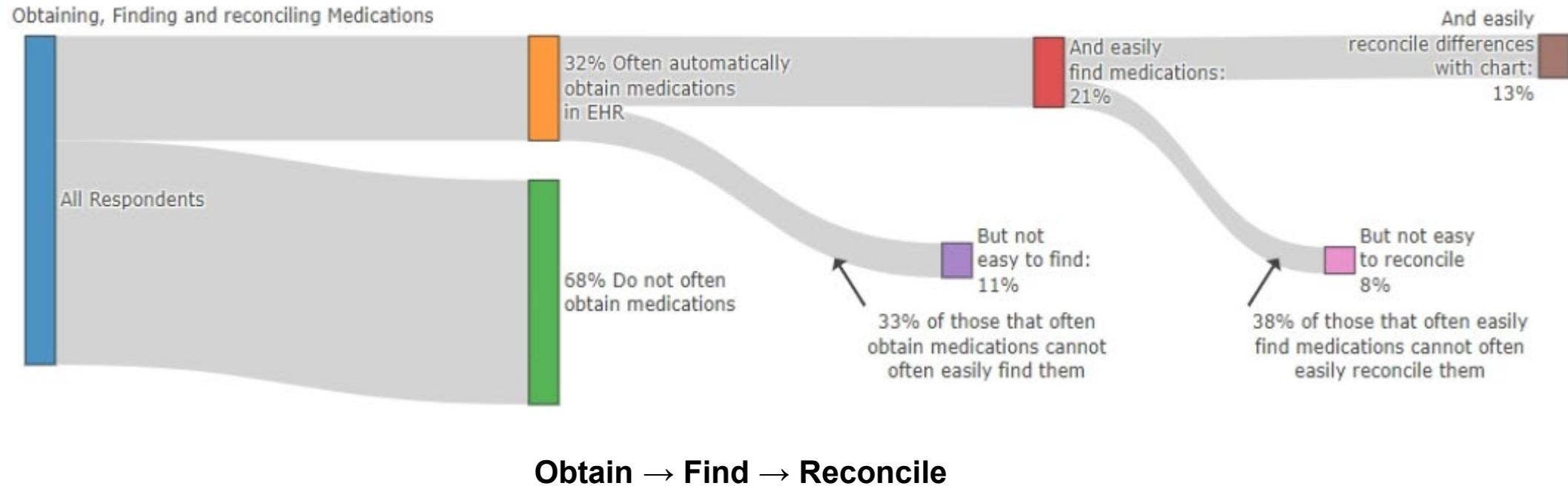


Reported prior authorization burden remains high regardless of whether physicians can complete prior authorization within the EHR.



Ideal medication interoperability remains rare among physicians

13% of physicians that met this high-bar definition, reported that medications are automatically obtained, easy to find, and easy to reconcile within the EHR

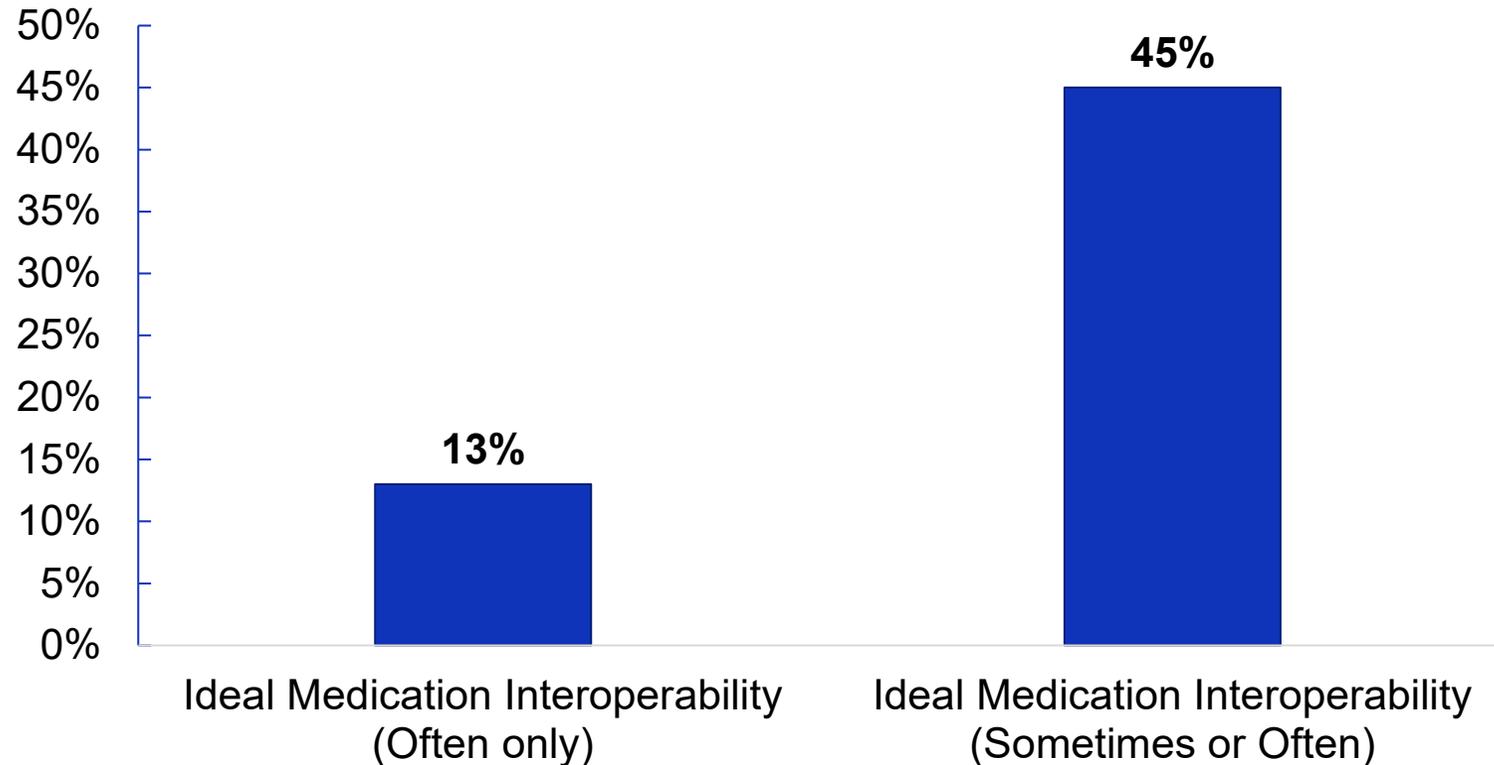


Notes: Ideal interoperability defined as information being automatically obtained, easy to find, and easy to reconcile.

Figure from: [Everson, J., Adler-Milstein, J., Phillips, R. L., Bazemore, A. W., & Patel, V. \(2025\). EHR Interoperability Experiences Reported by Family Physicians. JAMA Network Open, 8\(11\), e2542460-e2542460.](#)

Nearly half of physicians experience ideal medication interoperability at least sometimes. The foundation is in place.

Progress from 13% to 45% signals meaningful momentum toward making ideal medication interoperability routine for physicians.



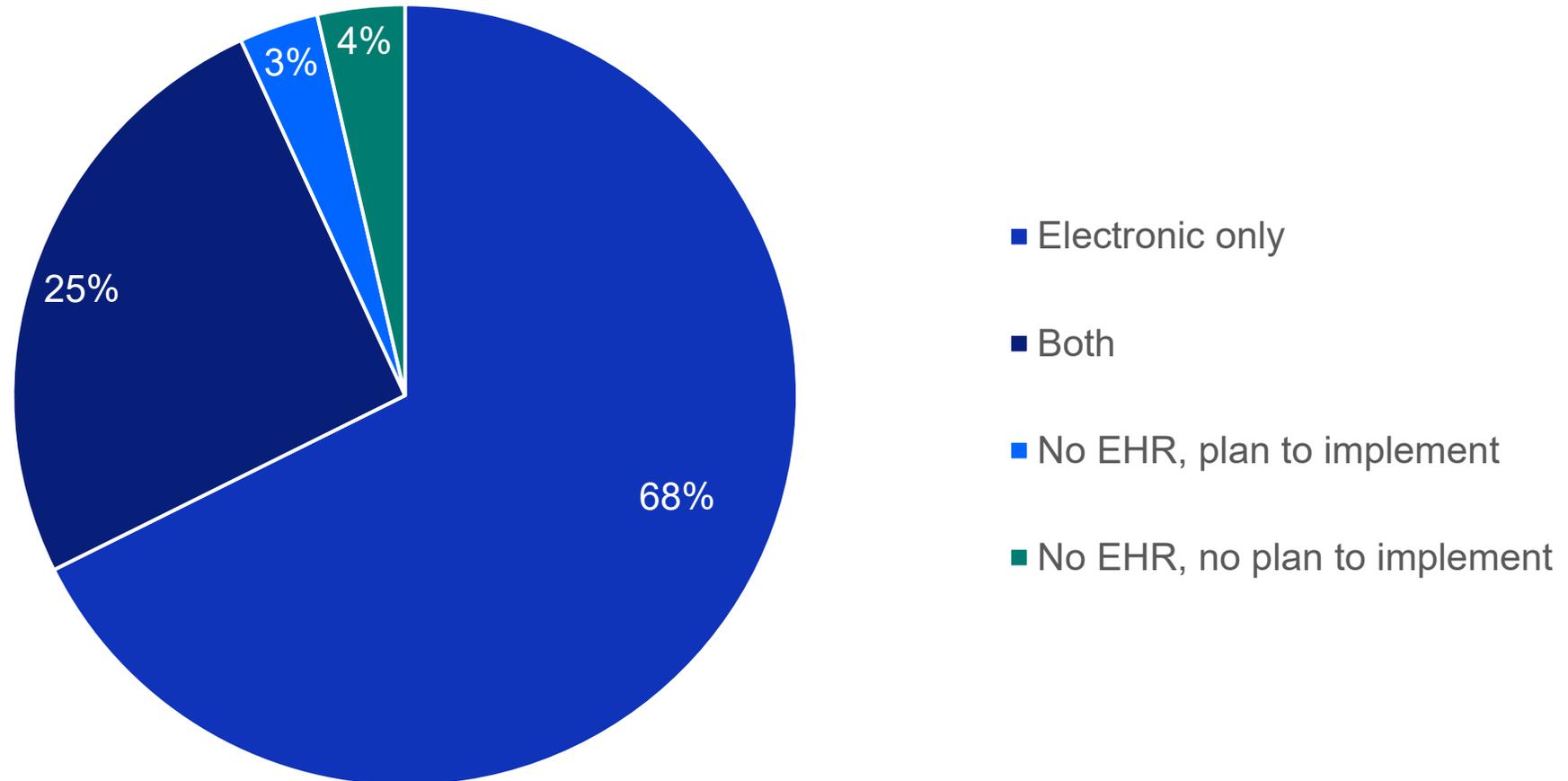
Notes: Ideal interoperability defined as information being automatically obtained, easy to find, and easy to reconcile. Estimates reflect simulated interrelated improvements in medication information interoperability.

Figure adapted from [Everson, J., Adler-Milstein, J., Phillips, R. L., Bazemore, A. W., & Patel, V. \(2025\). EHR Interoperability Experiences Reported by Family Physicians. *JAMA Network Open*, 8\(11\), e2542460-e2542460.](#)

Behavioral Health Interoperability

Findings from the 2024 National Substance Use and Mental Health Services Survey (N-SUMHSS)

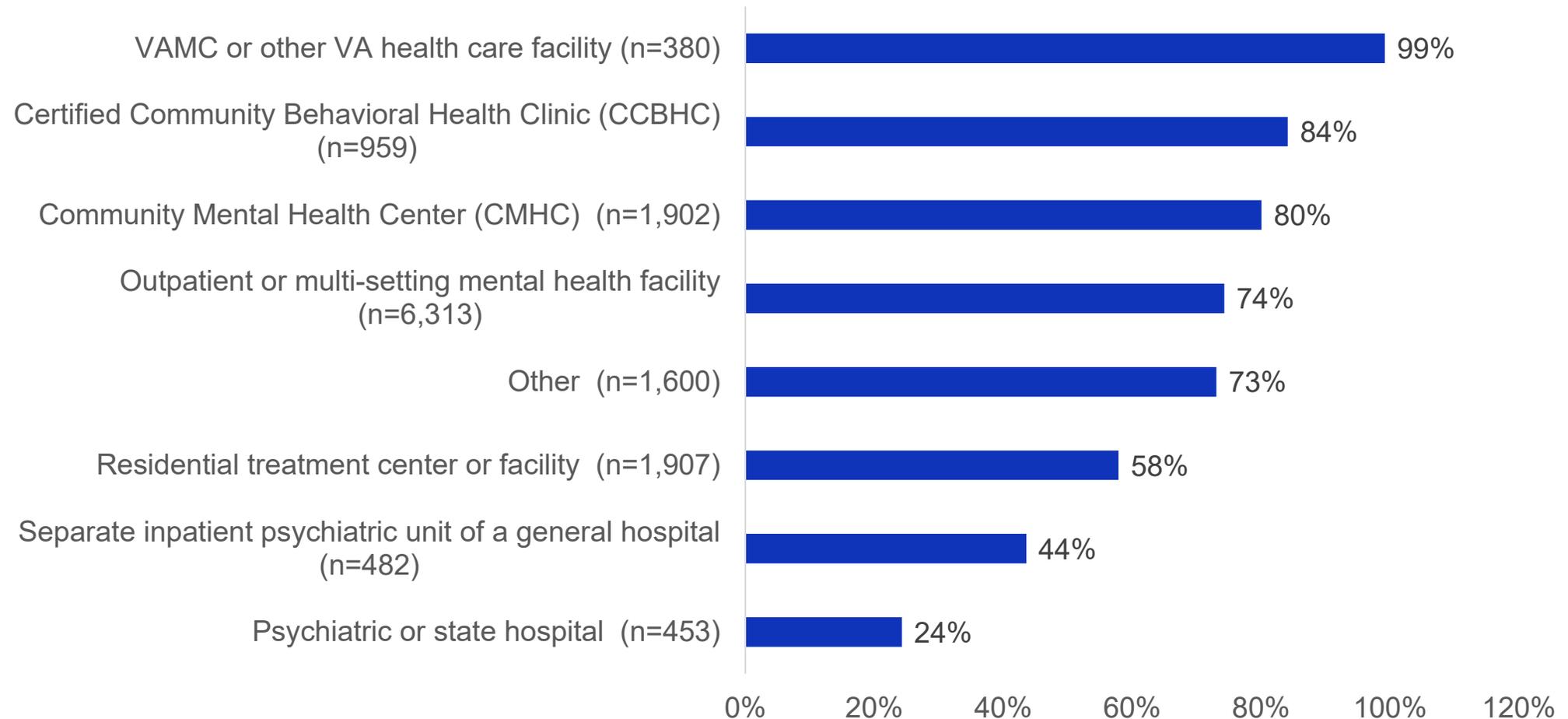
The majority of behavioral health facilities reported exclusively using an EHR system.



Note: Data brief on U.S. Substance Abuse Treatment Centers (2017) is available [here](#).

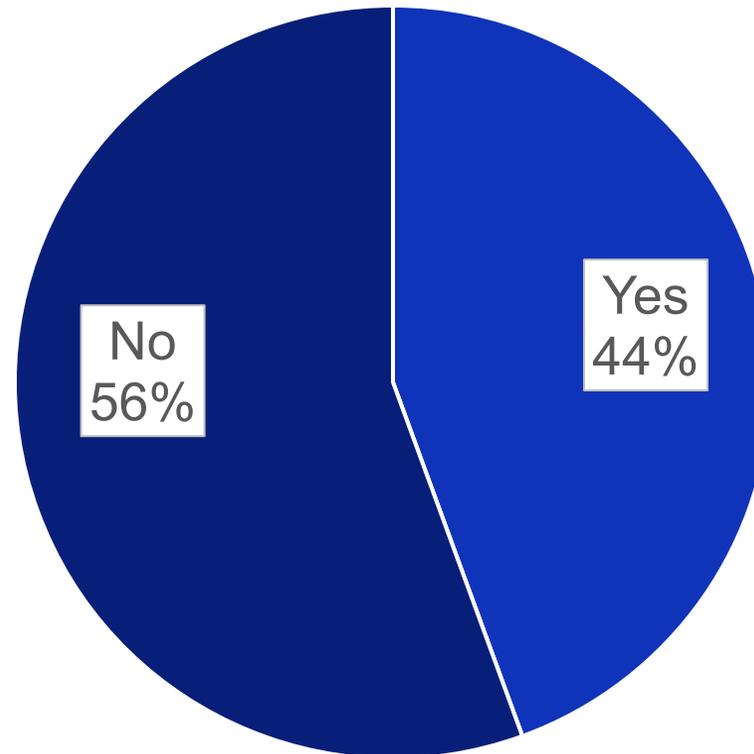
VA health care facilities and certified community behavioral health clinics lead in exclusive EHR adoption.

Exclusive use of an EHR system by facility type



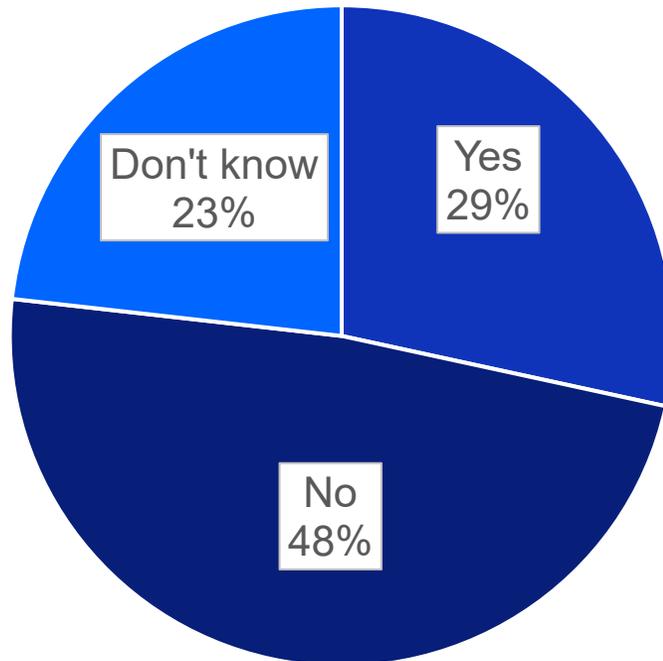
More than half of facilities had to manually enter clinical information received electronically from outside providers.

Does this facility's EHR integrate clinical information received electronically from outside providers, without manual entry?

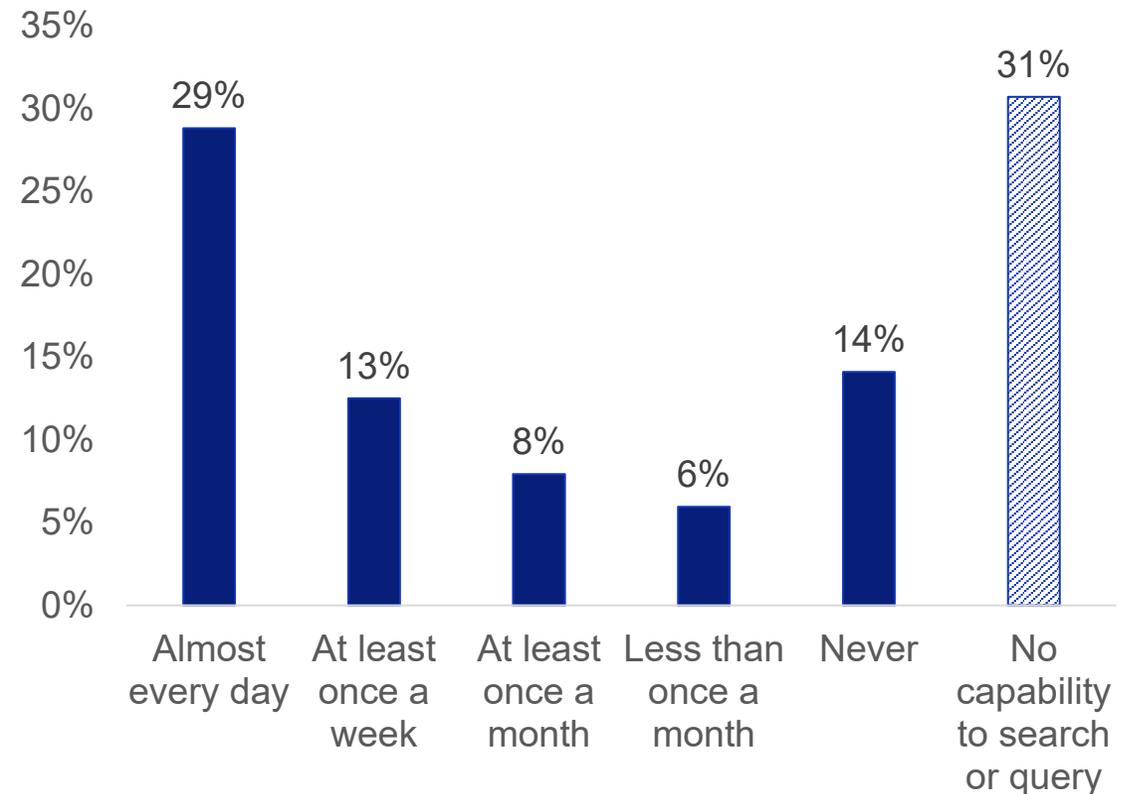


Most facilities lacked “read only” access to clinical information from external organizations and almost one-third had no capability to **search or query**.

Do external organizations provide this facility with 'read only' access to EHR clinical information?

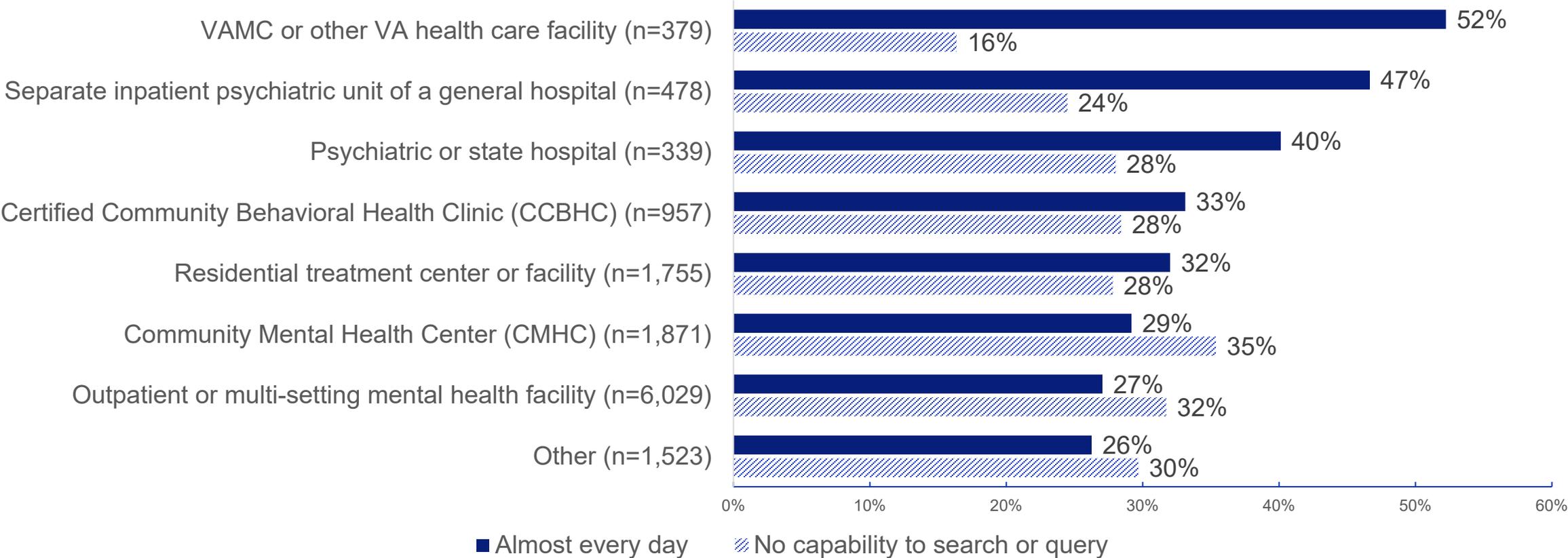


How often do you electronically search clients' health information from external providers/sources?



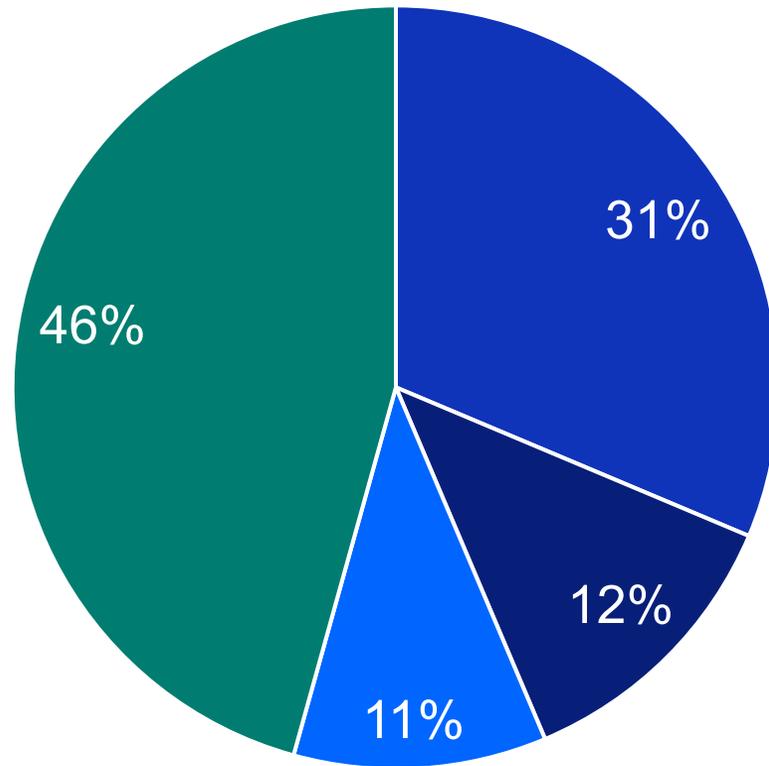
Across facility types, around one-third of facilities are unable to electronically search for clients' external health information.

Electronically search clients' health information from external providers/sources by facility type



As of 2024, less than 1 in 3 facilities reported being connected to an HIO.

Participation in state, regional, and/or local Health Information Exchange Organization (HIO)



- HIO is available in my area and we are actively exchanging data in at least one HIO
- HIO is available in my area but we are not participating
- HIO is not available in my area
- Not familiar with an HIO

Interoperability between EHRs and Third-Party Technology

Findings from various sources

From HITECH to 21st Century Cures

- The 21st Century Cures Act recognized the mass changes created by rapid digitization and instructed federal agencies to implement new policies to ensure 21st century technology was implemented to follow through on the promises of the HITECH Act.
- The “without special effort” provisions of the Cures Act in particular focused policy on curbing information blocking behaviors and enabling more seamless methods of exchange.
- This has resulted in policies and program requirements focused on standards, trust, and openness.

FHIR, USCDI, and the opening up of the “app economy”.

- ONC through its 2020 Cures Act Final Rule, began to implement these Cures Act provisions.
- A primary focus was the finalization of a new standards-based application programming interface (API) supporting the HL7 Fast Healthcare Interoperability Resources (FHIR) standard, which enabled API access at a minimum to data elements adopted as part of the US Core Data for Interoperability (USCDI) standard.
- Other policies included requirements on developers of certified APIs to publish their customer endpoints so third-party technology (in use by patients and providers) can securely access patient information via these APIs.
- This was the start of building new infrastructure to enable more connectivity and interoperability between EHR systems and third-party technology to deliver more innovation and competition in the digital health marketplace.

What have been the results of these policies?

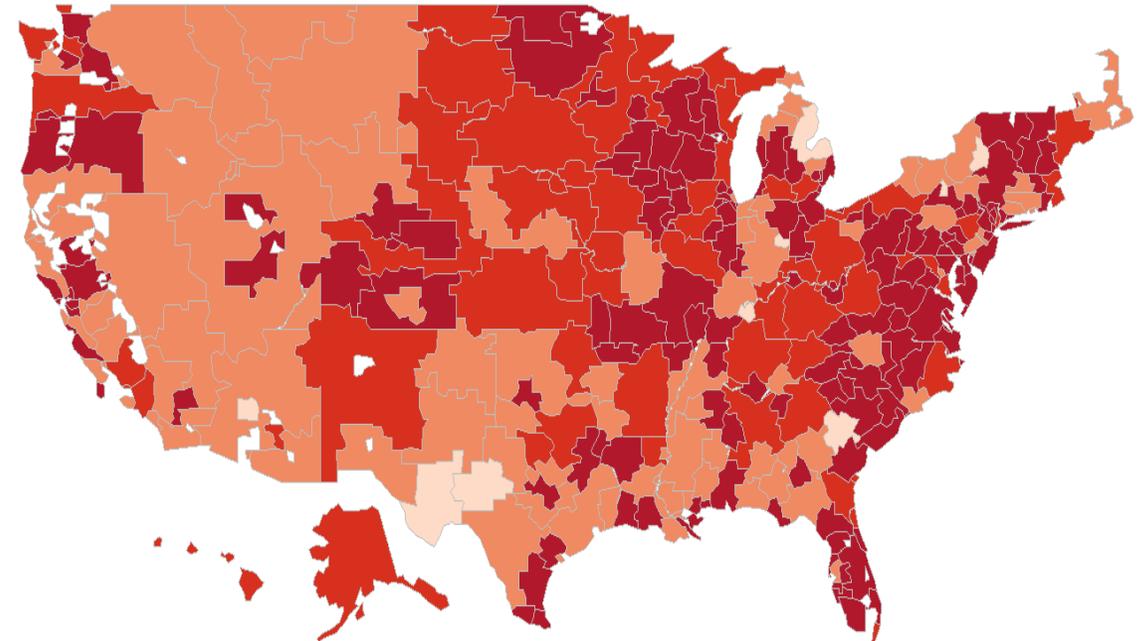
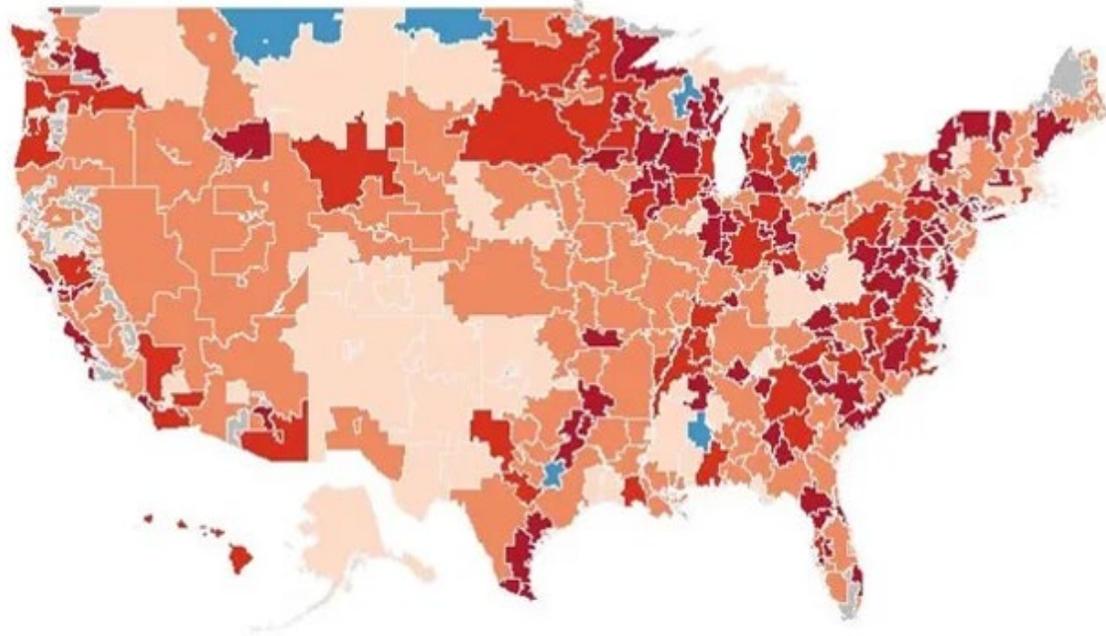
FHIR APIs have been broadly certified by developers of certified health IT and deployed by their customers.

Percent of hospitals (by hospital referral region) who have implemented FHIR-based APIs



2019 (84%)

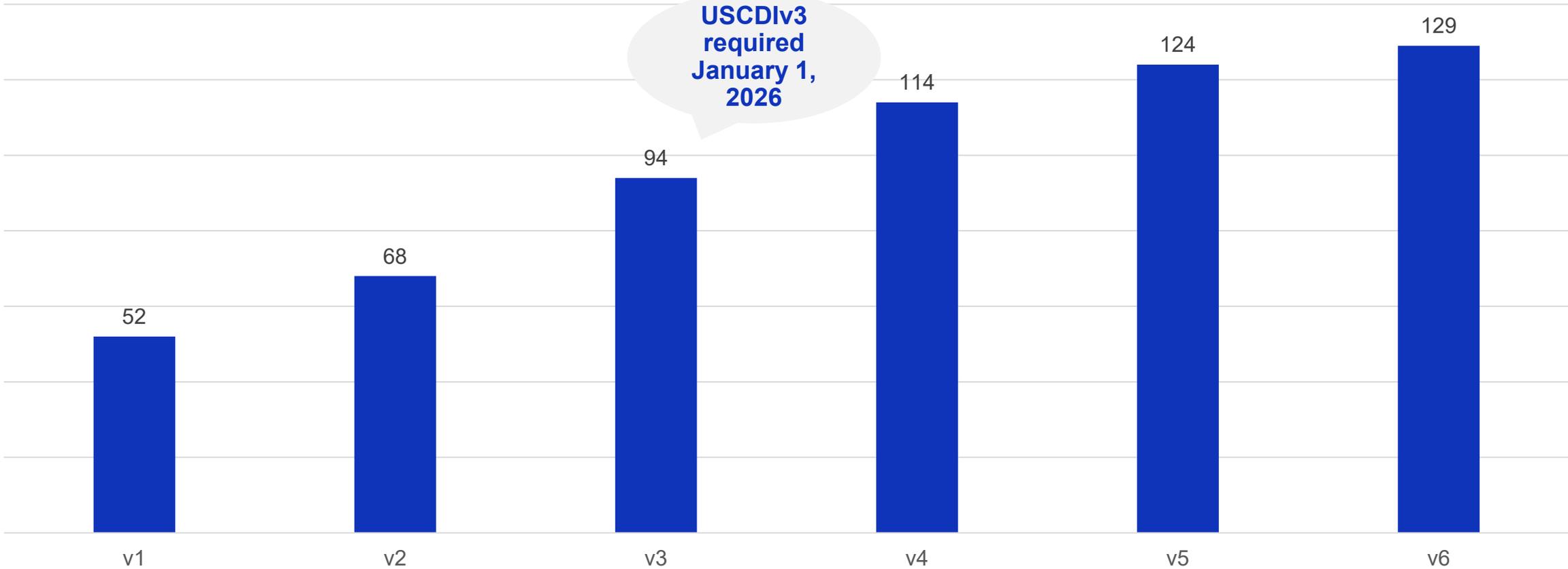
2024 (93%)



Source: Certified Health Information Technology Reported by Hospitals for Promoting Interoperability Performance. <https://healthit.gov/data/datasets/certified-health-information-technology-reported-by-hospitals-for-promoting-interoperability-performance/>. Certified Health IT Product List (CHPL). <https://chpl.healthit.gov/>.

More data is accessible via these APIs as USCDI has advanced.

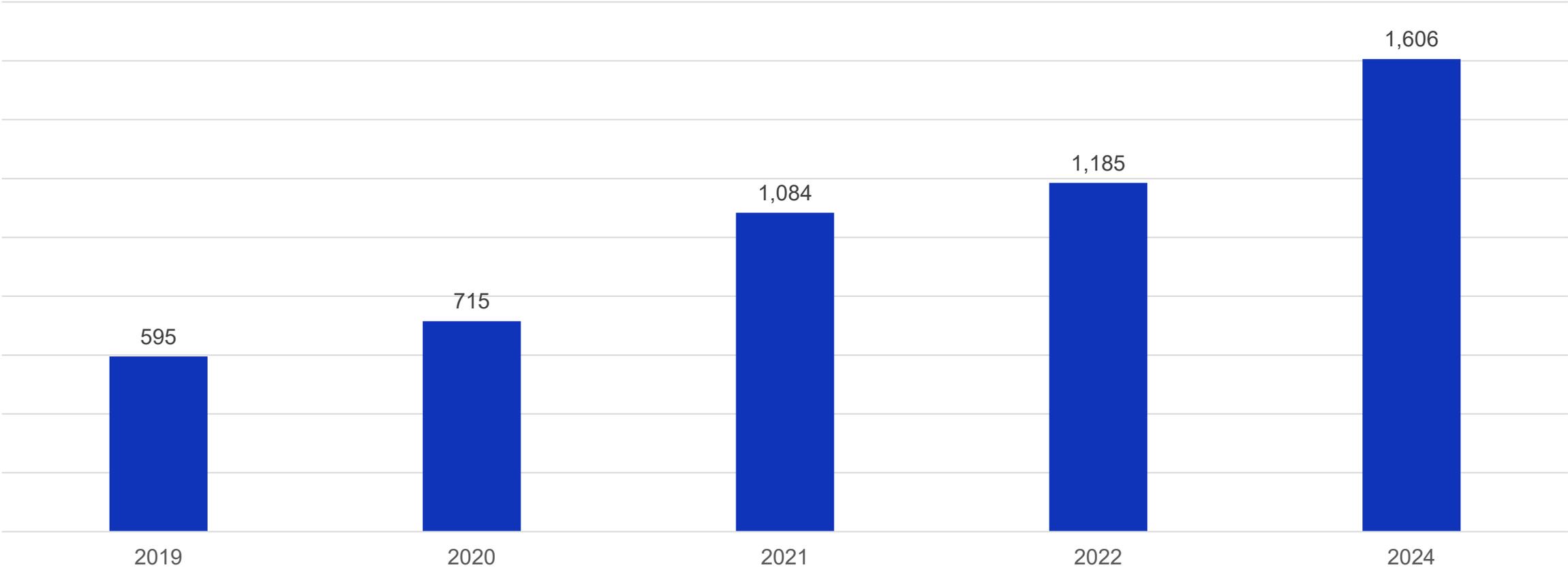
Number of adopted data elements, by USCDI version



Source: Analysis of United State Core Data for Interoperability (USCDI) data element list, versions 1 through 6. <https://isp.healthit.gov/united-states-core-data-interoperability-uscdi>

More technology available to health care provider and patient EHR users (beyond what the EHR developer provides alone.)

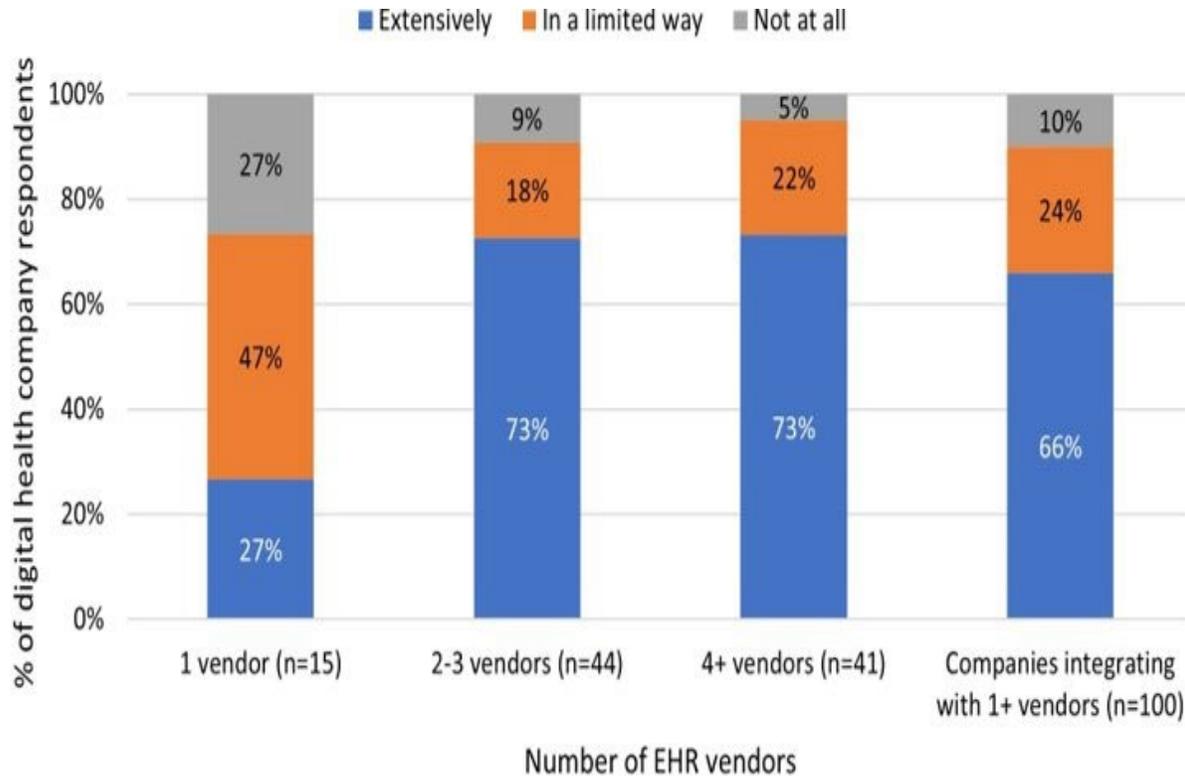
Number of unique apps discovered in public-facing marketplaces/galleries



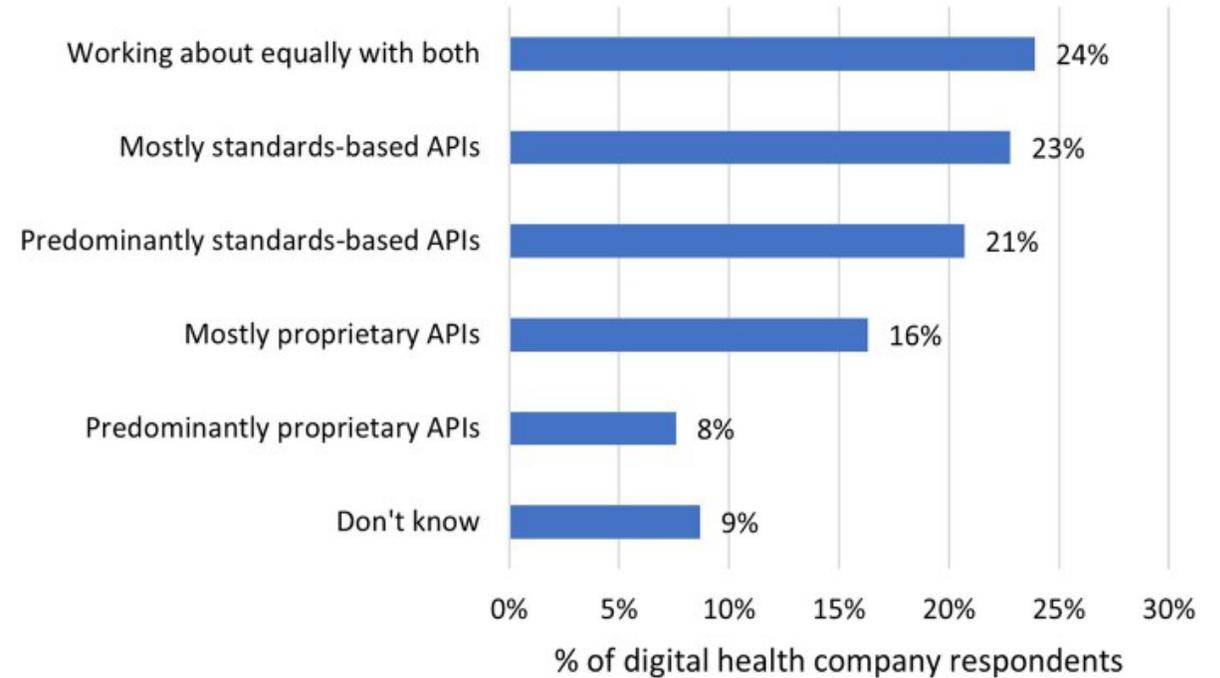
Source: The Ecosystem of Apps and Software Integrated with Certified Health Information Technology. <https://healthit.gov/data/datasets/app-marketplace-tech-ecosystem/>

The third-party developer community has broadly embraced FHIR, but not all APIs are built on FHIR.

85% of companies reported use of FHIR, but it varies, 2022



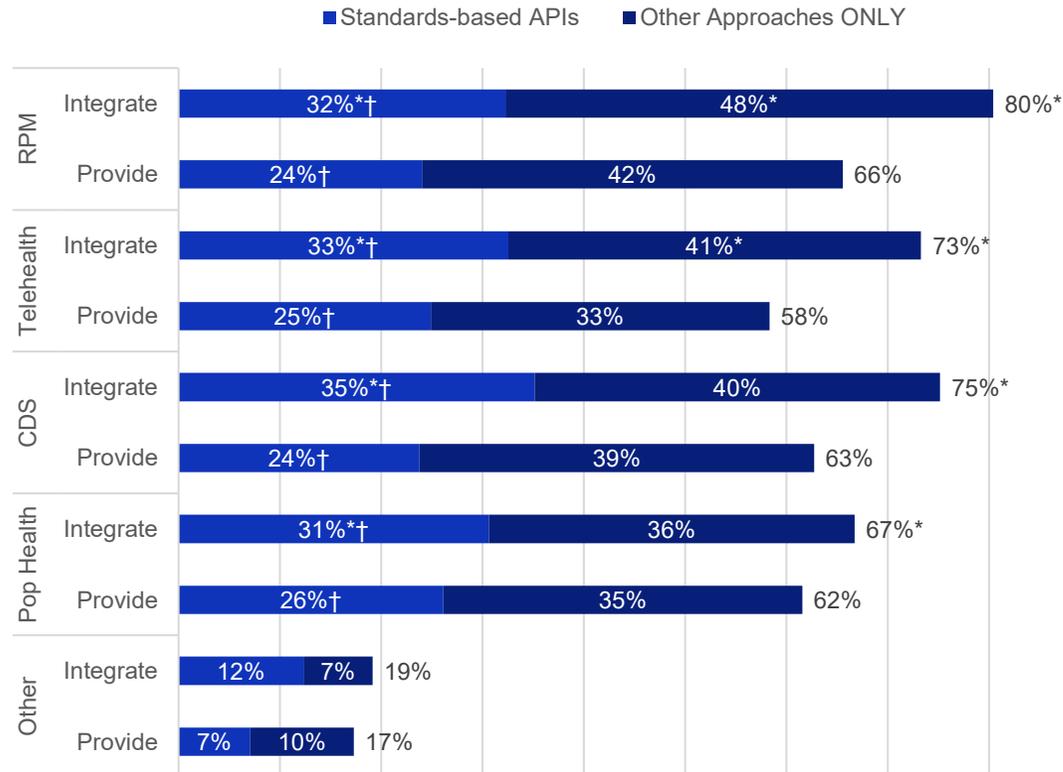
Use of EHR APIs by third-party digital health companies, 2022



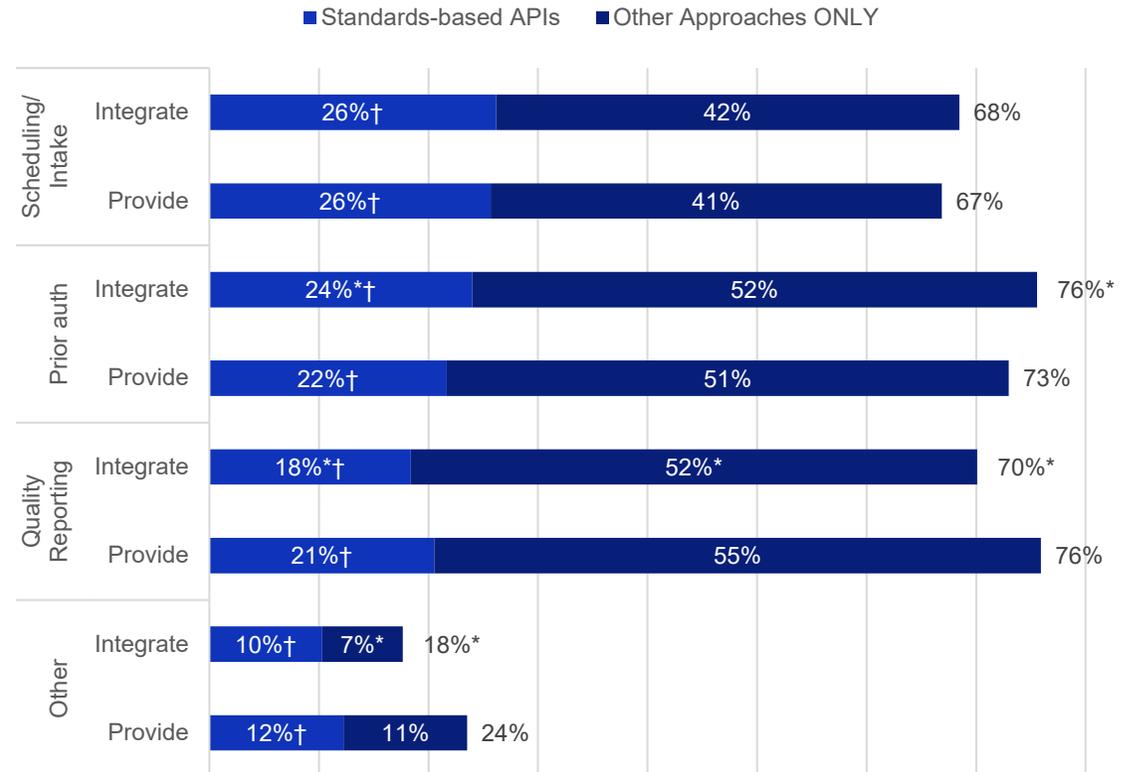
Source: A national survey of digital health company experiences with electronic health record application programming interfaces. <https://doi.org/10.1093/jamia/ocae006>.

The vast majority of hospitals share data with third-party technology for various clinical and administrative use cases.

% of hospitals sharing data with 3rd party tech for clinical uses



% of hospitals sharing data with 3rd party tech for admin uses



Source: Strawley C, Barker W. Hospital Use of APIs to Enable Data Sharing between EHRs and Third-Party Technology. Office of the Assistant Secretary for Technology Policy. Data Brief: 81. February 2026. <https://healthit.gov/data/data-briefs/>

Note: *Indicates significantly different from the corresponding method of exchange for "Provide." †Significantly different from "Other Approaches ONLY."

Third-party AI technology use cases increasingly implemented.

Percent of hospitals that adopted predictive AI models/tools by developer source, 2023-2024

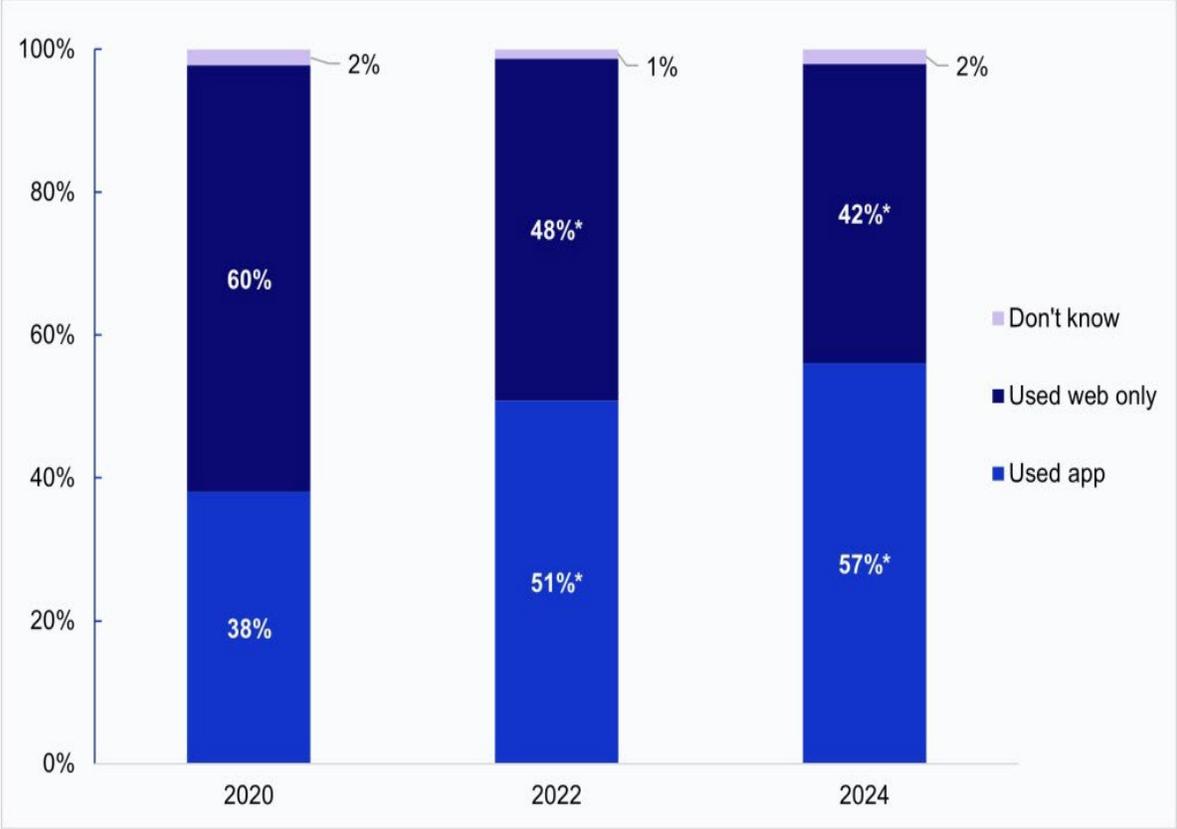
	EHR developed AI (80%)†		Other sources only (20%)†	
	2024	Change from 2023	2024	Change from 2023
Predicting health trajectories or risks for inpatients	93%*	-3%	87%*	+12%
Identify high risk outpatients to inform care	88%*	-3%	82%*	+51%
Monitor health	37%	-2%	17%	+3%
Recommend treatments	53%	+2%	16%	-1%
Simplify billing	58%*	+15%	73%*	+60%
Facilitate scheduling	67%*	+19%	65%	+6%

Source: Chang W, Owusu-Mensah P, Everson J, Richwine C. Hospital Trends in the Use, Evaluation, and Governance of Predictive AI, 2023-2024. Office of the Assistant Secretary for Technology Policy. Data Brief: 80. September 2025. <https://healthit.gov/data/data-briefs/hospital-trends-use-evaluation-and-governance-predictive-ai-2023-2024/>

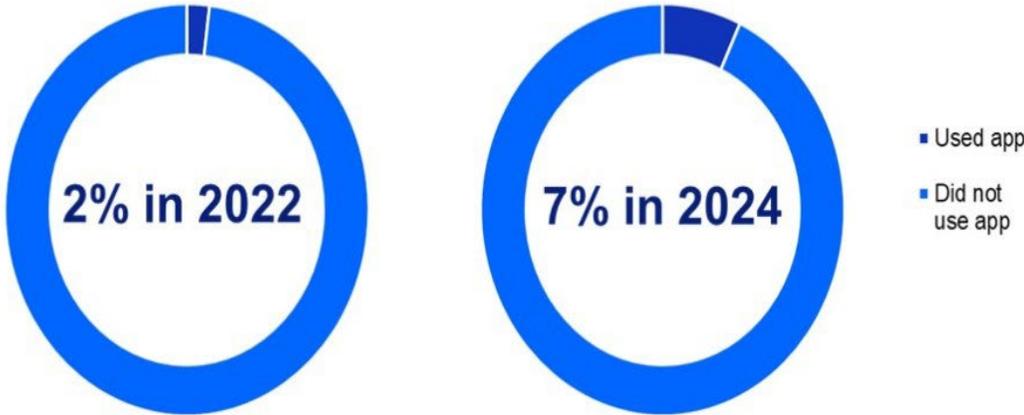
Note: *Indicates statistically significant difference relative to 2023 within a corresponding category (p<0.05). †AI source (denotes 2024 percentages).

Patients increasingly use apps to access their records, but PHRs are not commonly used.

Individuals' use of apps to access their online medical records, 2024.



Individuals' use of portal organizing apps to combine medical information from different patient portals or online medical records into one place, 2022-2024

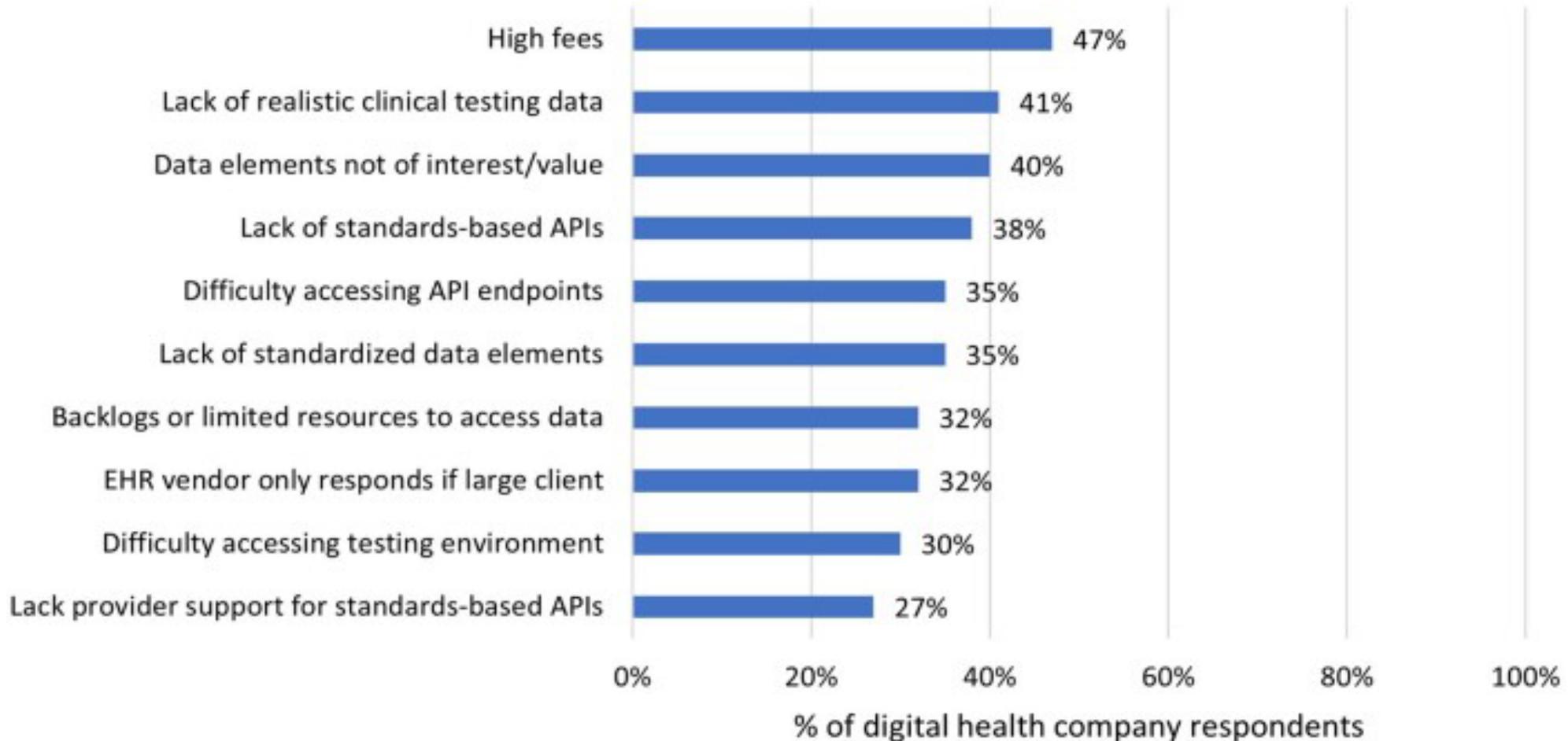


Source: HINTS 5, Cycle 4 (2020); HINTS 6 (2022); HINTS 7 (2024).
<http://healthit.gov/data/data-briefs/individuals-access-and-use-patient-portals-and-smartphone-health-apps-2024/>

Note: *Significantly different from prior year.

Connectivity is increasingly standards-based, but not free and easy.

Top 10 “substantial” barriers to integrate with EHRs via APIs, 2022 (as reported by digital health companies)



Source: A national survey of digital health company experiences with electronic health record application programming interfaces. <https://doi.org/10.1093/jamia/ocae006>.

Market leading EHRs and higher-resourced health care providers are leading implementation and taking most advantage of technological advancements.

AI implementation, 2023-2024

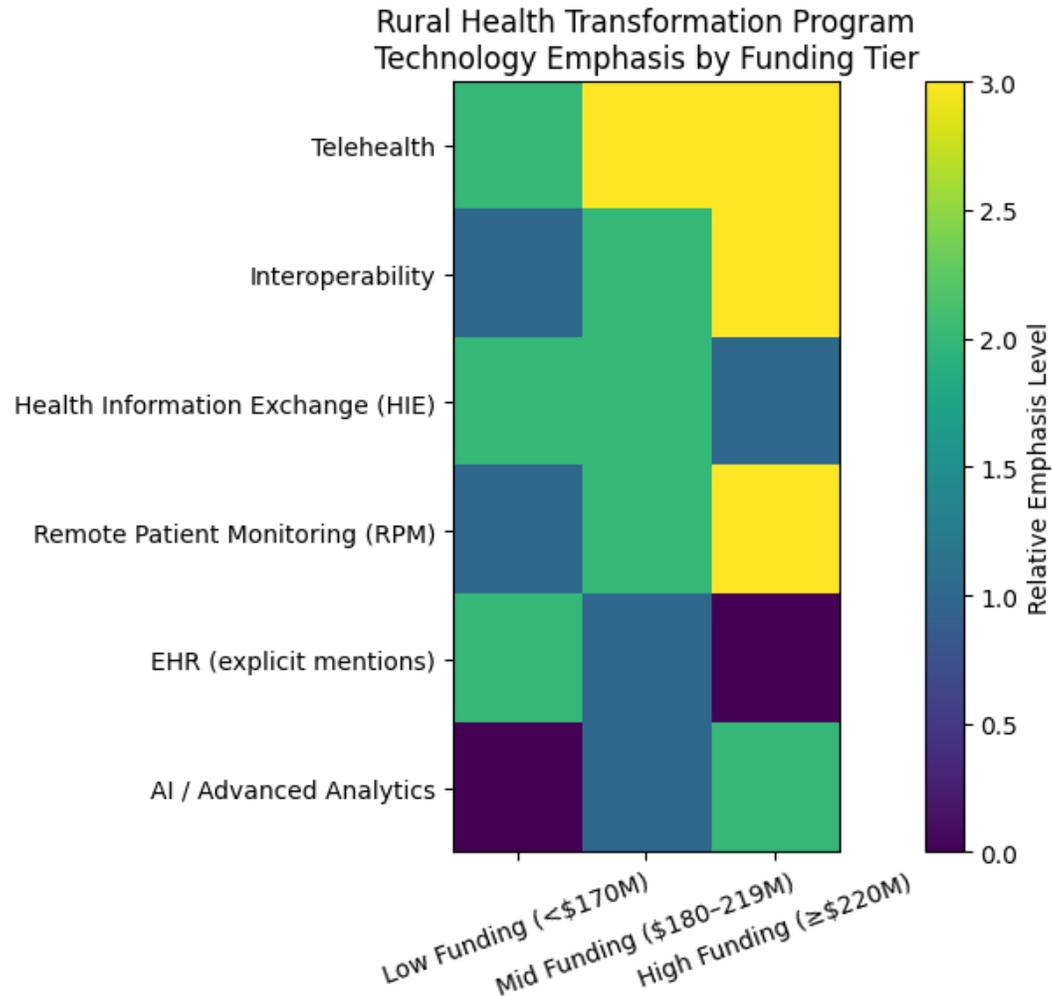
Hospital Characteristics	2023	2024
Hospital Size		
Small < 100 (ref) (n=951)†	53%	59%
Medium 100 – 399 (n=845)	75%*	80%*
Large > 400 (n=284)	90%*	96%*
EHR (market leading (top 3))		
Market leading vendor (n=1,197)	87%	90%
All other vendors (n=883)	48%*	50%*

Third-party technology integrations, 2024

Clinical Purposes				Administrative Purposes			
Integrate		Provide		Integrate		Provide	
Any method	Standard-based API	Any method	Standard-based API	Any method	Standard-based API	Any method	Standard-based API
91%	52%	83%	39%	87%	35%	86%	32%
EHR (market leading (top 3) and all others)							
94%*	56%*	87%*	43%*	90%*	37%*	90%*	34%*
67%	20%	55%	15%	60%	20%	62%	14%
Hospital Bed Size (>100 beds and <100 beds)							
96%*	56%*	90%*	44%*	94%*	38%*	93%*	35%*
85%	47%	76%	34%	80%	33%	79%	29%

Source: American Hospital Association Information Technology Survey
 Note: *Significantly different from reference group.

The Rural Health Transformation Program creates tremendous opportunities to states to invest in technology advancement in rural settings.



- Analysis of the 50 state plans for the Rural Health Transformation Program show how states plan to use funding to make technology investments in rural health care providers.
- States who receive more funding are more likely to invest more in telehealth, remote patient monitoring, and information exchange, but all states plan to use some funding to make these technology investments over the next 5 years.

Note: Analysis by ChatGPT of RHTP 50 State Spotlight:
<https://www.cms.gov/files/document/rural-health-transformation-50-state-spotlights.pdf>.

Regulated APIs and certification requirements are limited in scope and special effort still needed.

Future directions for policy efforts in promoting or enforcing access to data via commercial EHR vendor or payer IT system APIs or other means

Enforcement on and incentivization of EHR vendors to follow API standards

Cost controls on integration, enabling more API access for third party app developers

Conformance testing and other validation tools for APIs

Expanded data element availability and standards for bulk data transfer/exchange

Encourage EHR vendors to support write access in APIs

Source: A national survey of digital health company experiences with electronic health record application programming interfaces. <https://doi.org/10.1093/jamia/ocae006>.

Shape the Future of Health IT

Are you a digital health company integrating with EHRs?

UCSF and federal policymakers want to hear from you. Your experience with API-based electronic health record integration can directly inform national health IT policy.

>>>Take the survey now!



What

Participate in a national survey of digital health companies focused on API-based EHR integration. Your insights will inform future health IT policy.

Why Participate

- Your input will help federal policymakers understand API use and real-world integration challenges.
- Selected survey participants will have opportunities to participate in onstage panels with UCSF at national conferences.

Now Accepting Responses!

In partnership with:



Scan the QR code to take the survey:



Questions?

Julia.adler-milstein@ucsf.edu

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