Has EHR Adoption Increased Care Coordination?

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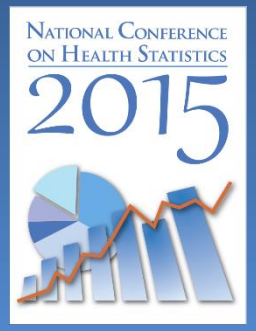


Research objectives

To examine whether health information sharing by office-based physicians increased as use of electronic health record (EHR) systems increased from 2012 to 2014.

Background

HITECH Act of 2009

- Address barriers that prevent widespread use of health information technology (HIT).
- Support increased health information exchange capability and activity.

HIT may facilitate the availability of health information needed for care coordination.

- Care Coordination has been shown to be associated with providing better quality of care at lower cost (McDonald KM et al. 2007).
- Physicians who used EHR systems and had any electronic exchange of clinical data activity were more likely to receive some types of patient information necessary for care coordination than physicians with no EHRs (Hsiao C. et al. 2015).

Study design

National Electronic Health Records Survey (NEHRS) (2012-2014)

- NEHRS is affiliated with the National Ambulatory Medical Care Survey (NAMCS).
- NEHRS is an annual probability survey of nonfederal, office-based physicians providing direct patient care who practice in the 50 states or the District of Columbia.
- Radiologist, anesthesiologists, and pathologists were excluded in the survey.
- NEHRS is a mail survey which includes telephone follow-up to non-respondents.
- The unweighted response rate was: 67% for 2012; 70% for 2013; 64% for 2014.

Study population

Physicians reporting on use of EHRs and on exchange of health information for 2012 through 2014.

- Use of any type of EHR systems
  - Does the reporting location use an electronic health record (EHR) or electronic medical record (EMR) system? Do not include billing record systems.
- Any electronic exchange of clinical data activity
  - Do you share any patient health information electronically (not fax) with other providers, including hospitals, ambulatory providers, or labs?

Care coordination questions

Three types of shared health information were examined

- Results of consultations when patient referred to providers outside of physician's office or group
- Notification of patient's history and reason for consultation when patient referred from providers outside of physician's office or group
- Information on hospitalization episode after discharge from hospital

Changes in care coordination questions

2012 & 2013 NEHRS	2014 NEHRS
When you refer your patient to a provider outside of your office or group, do you receive a report back from the other provider with results of the consultation?	When you refer your patient to a provider outside of your office or group, do you send the patient's clinical information to the other provider?
When you see a patient referred to you by a provider outside of your office or group, do you receive notification of both the patient's history and reason for consultation?	When you see a patient referred to you by a provider outside of your office or group, do you send a consultation report with clinical information to the other provider?
When your patient is discharged from an inpatient setting, do you receive all of the information you need to continue managing the patient?	When your patient is discharged from an inpatient setting, do you receive a discharge summary with clinical information from the hospital?

Care coordination

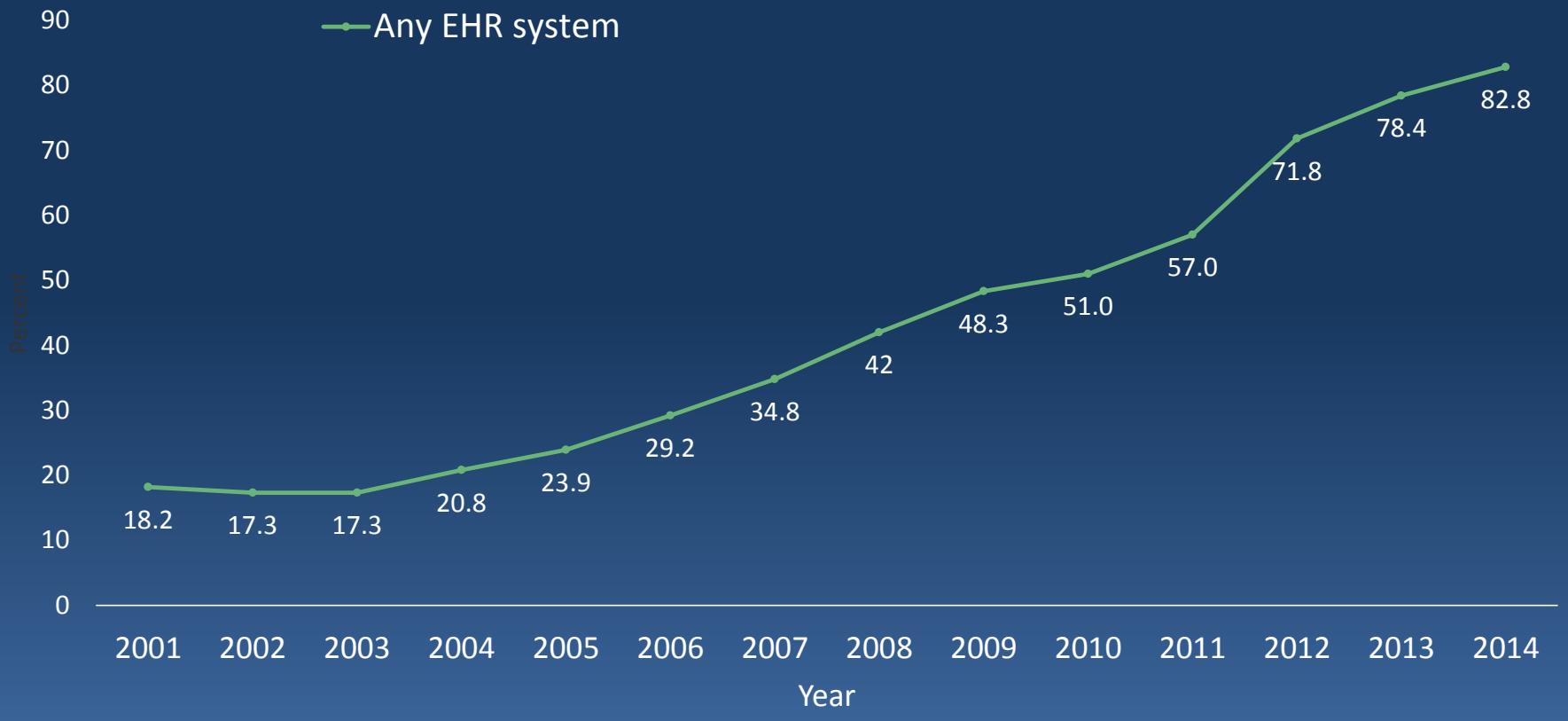
For respondents who received or sent information needed to coordinate care, they were further asked if they received or sent the information electronically (not fax).

- Responses included:
  - "Yes, routinely"
  - "Yes, but not routinely"
  - "No"

Statistical analysis

- Sample size for data presented varies by item, since missing data were excluded for each type of health information exchange.
- Differences were examined by year and by types of information exchanged.
- Differences were evaluated by Student t-tests.
- Standard errors were computed using SAS-Callable SUDAAN, which takes into account the complex sample design.

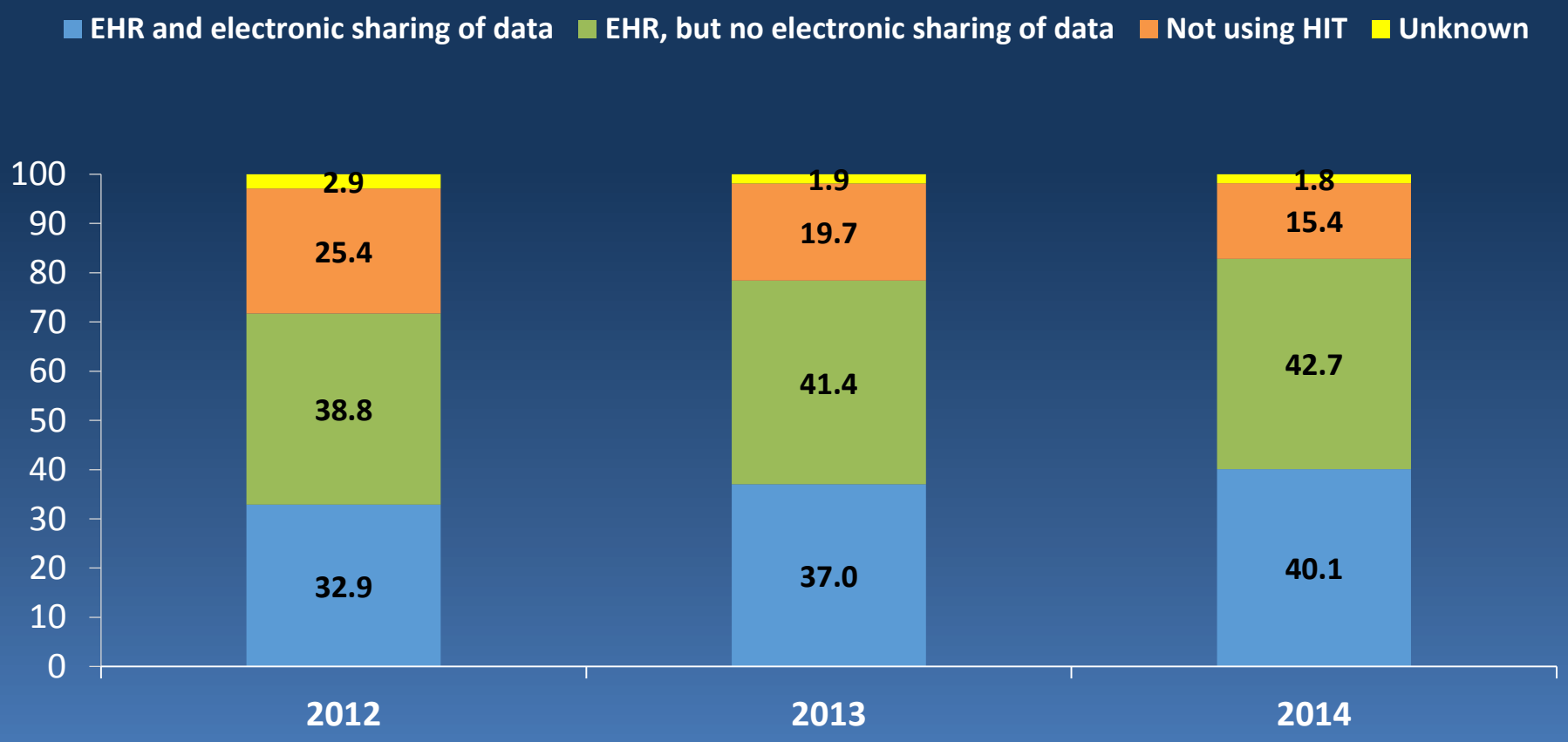
Percentage of office-based physicians with EHR systems: United States, 2001-2014



Note: "Any EHR system" is a medical or health record system that is either all or partially electronic (excluding systems solely for billing). Data are from the National Ambulatory Medical Care Survey (NAMCS) interviews and include nonfederal office-based physicians and exclude radiologists, anesthesiologists, and pathologists.

SOURCE: CDC/NCHS, NAMCS and NEHRS.

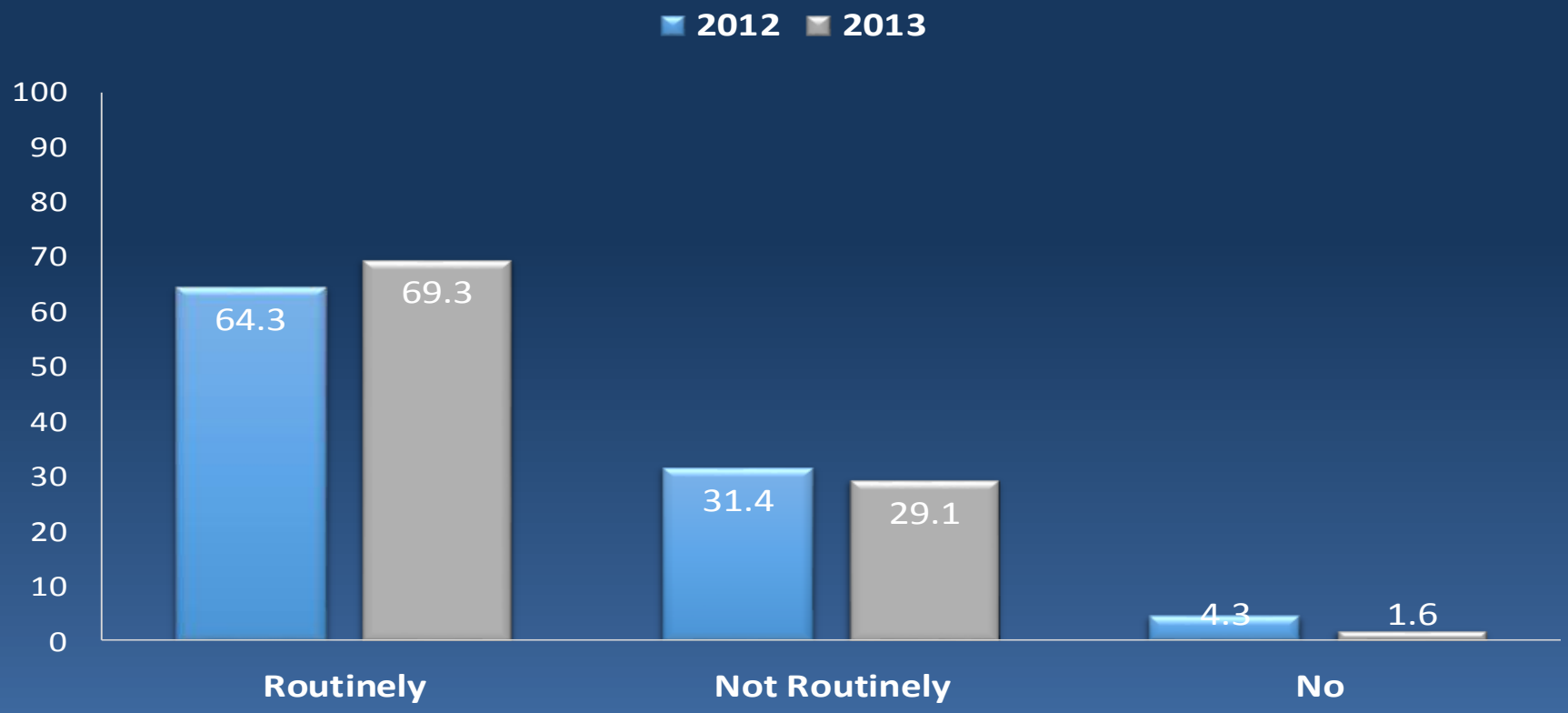
Use of health information technology (HIT)



Note: Difference between 2012 and 2014 for all categories is statistically significant ($p<0.05$).

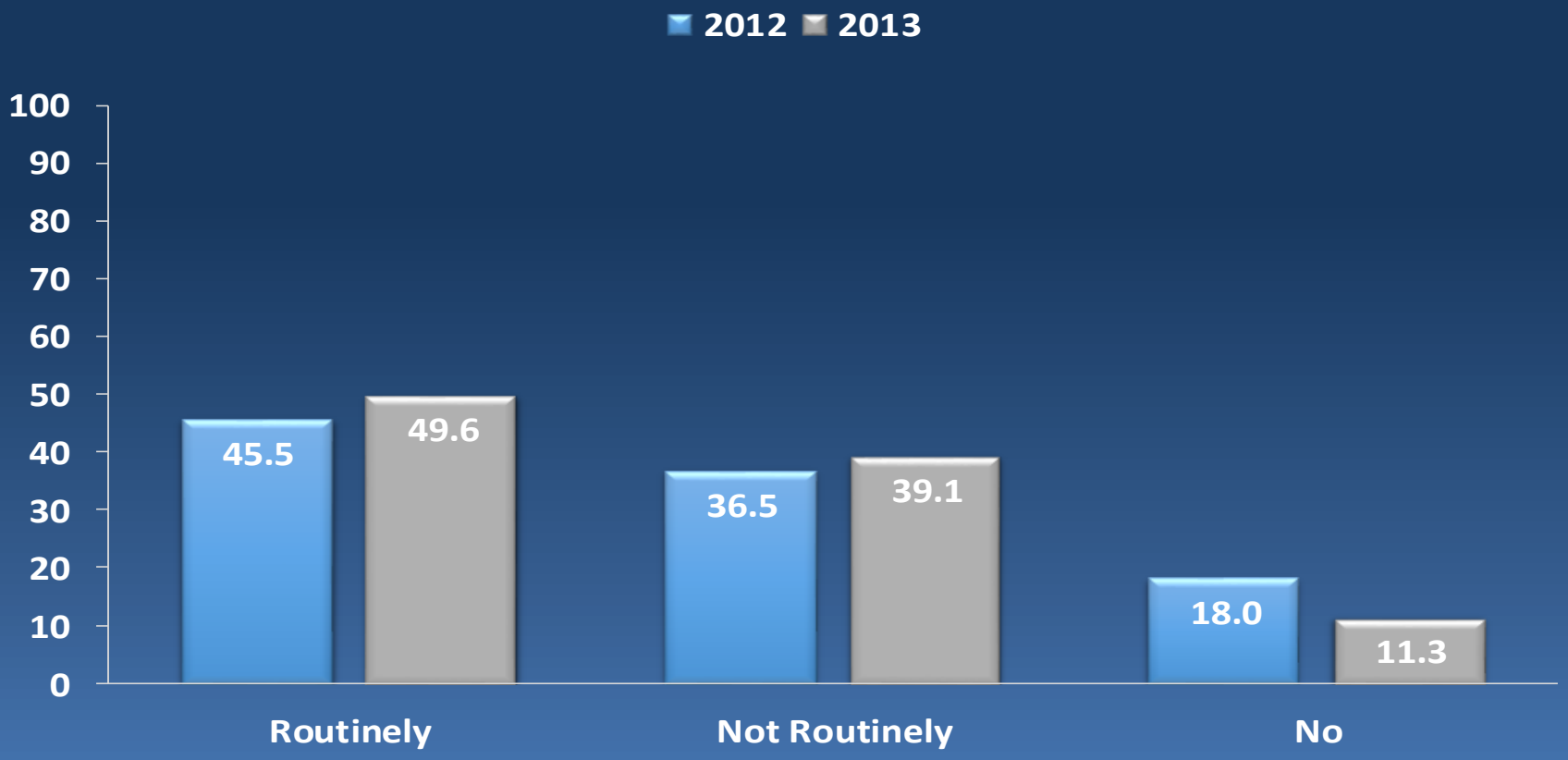
SOURCE: National Electronic Health Records Survey, 2012, 2013 and 2014.

Percentage of physicians receiving results of a consultation for patient referred to providers outside of their practice



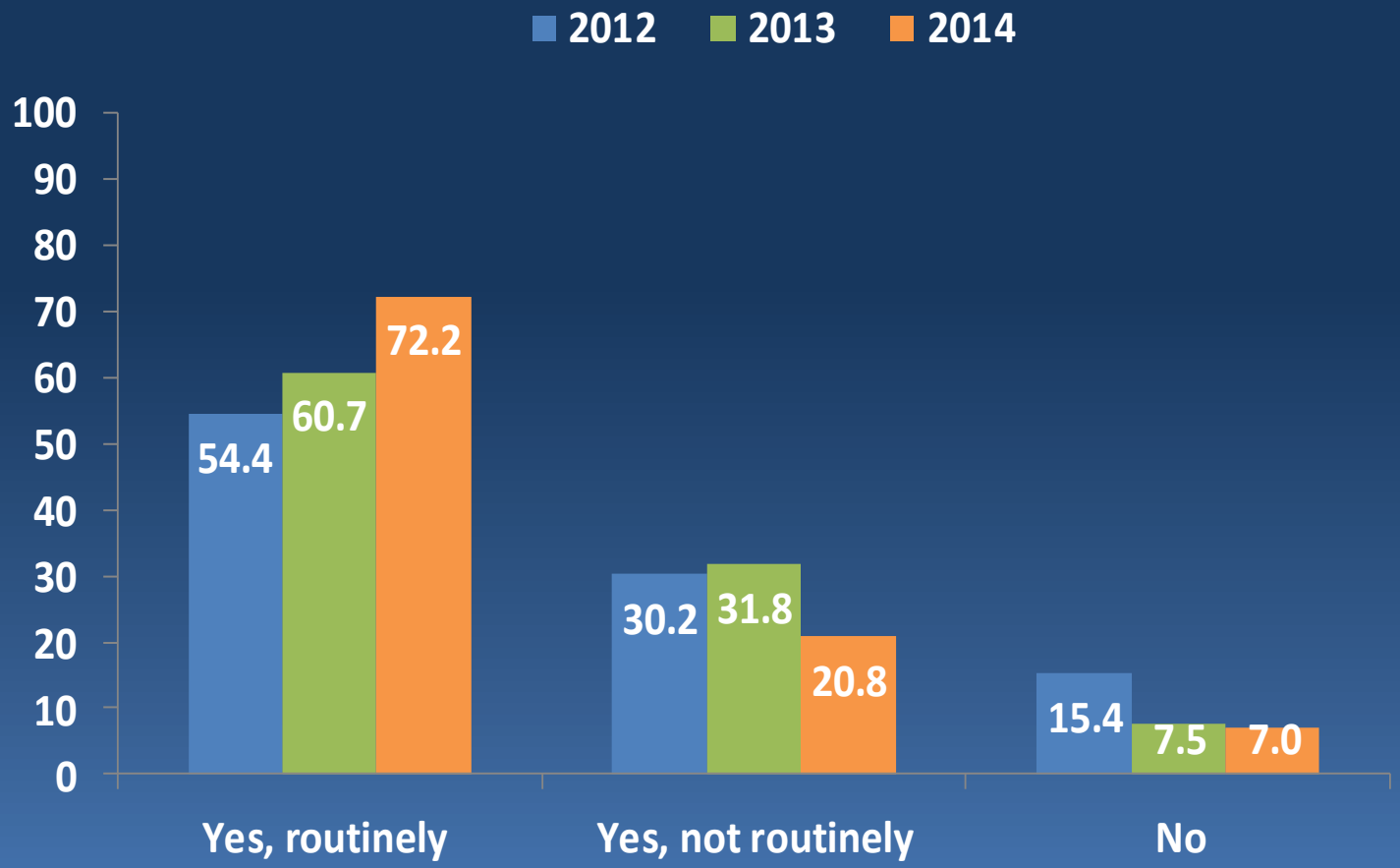
Note: Difference by year for "Routinely" and "No" is statistically significant ($p<0.05$).
Sample size for 2012 NEHRS n = 4,221; 2013 NEHRS n = 4,187.
SOURCE: National Electronic Health Records Survey, 2012 and 2013.

Percentage of physicians receiving a patient's history and reason for consultation for patients referred from providers outside of their practice



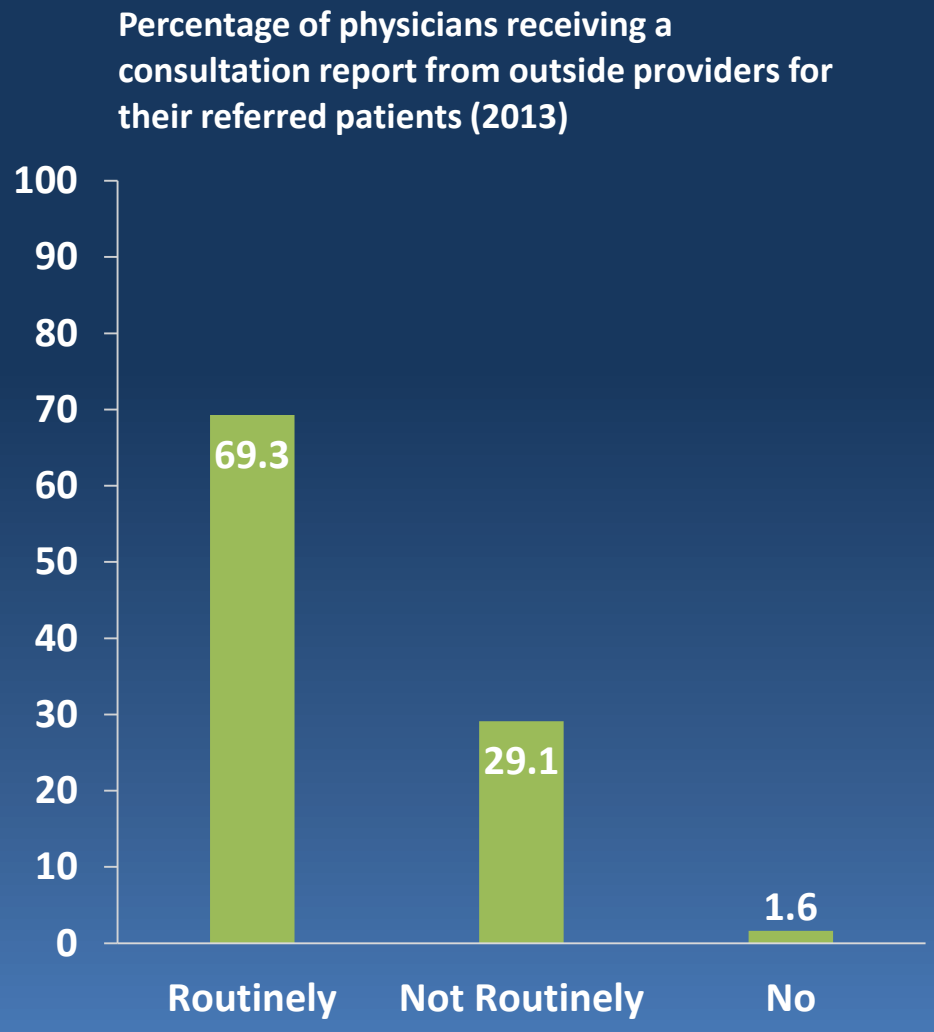
Note: Difference by year for "Routinely" and "No" is statistically significant ($p<0.05$).
Sample size for 2012 NEHRS n = 3,715; 2013 NEHRS n = 3,339.
SOURCE: National Electronic Health Records Survey, 2012 and 2013.

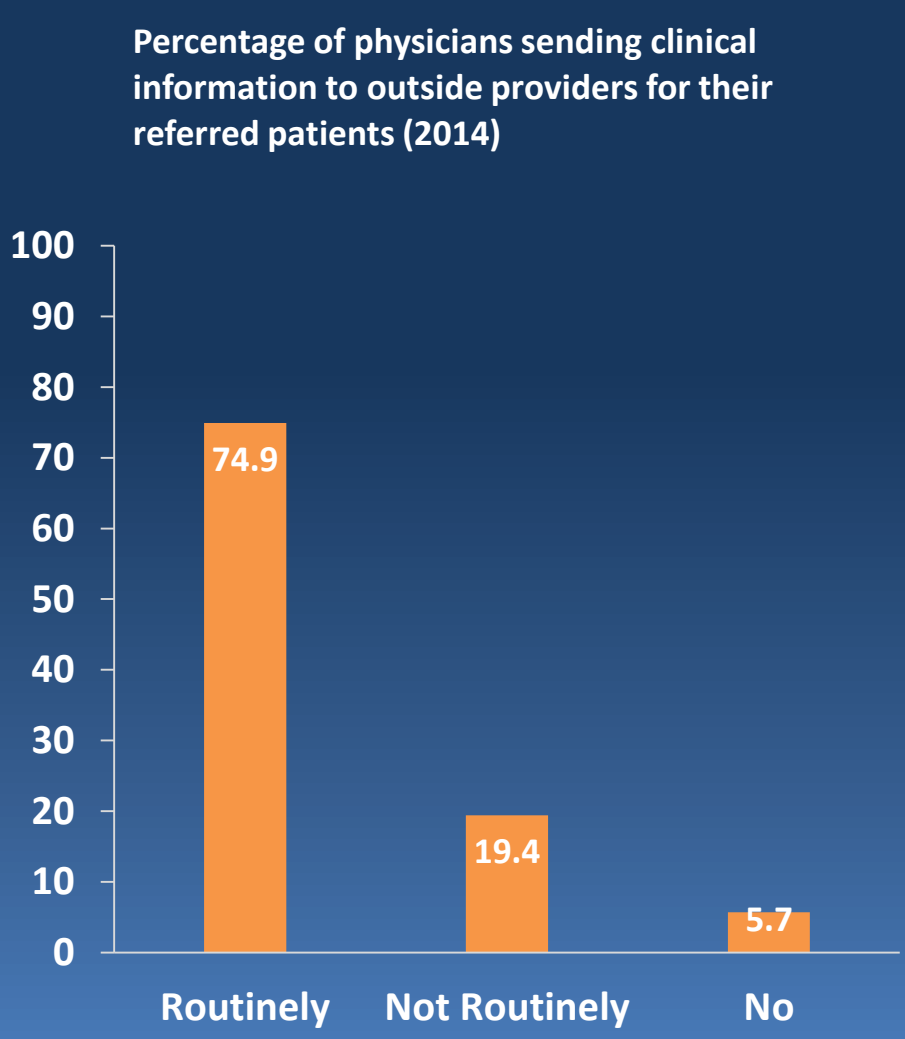
Percentage of physicians receiving discharge information for hospitalized patients: United States, 2012-2014



Note: Difference between 2012 and 2014 for all 3 categories is statistically significant ($p<0.05$).
Sample size for 2012-2014 NEHRS, respectively: 4,032; 3,978; 3,285
SOURCE: National Electronic Health Records Survey, 2012-2014.

Percentage of physicians receiving/sending patient health information

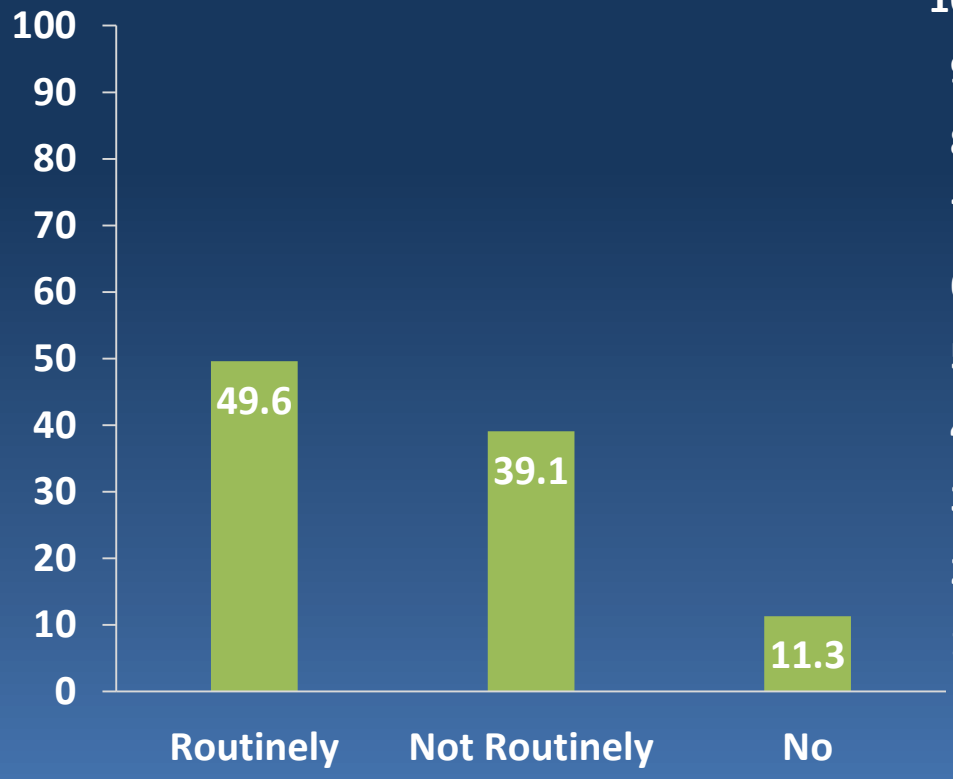




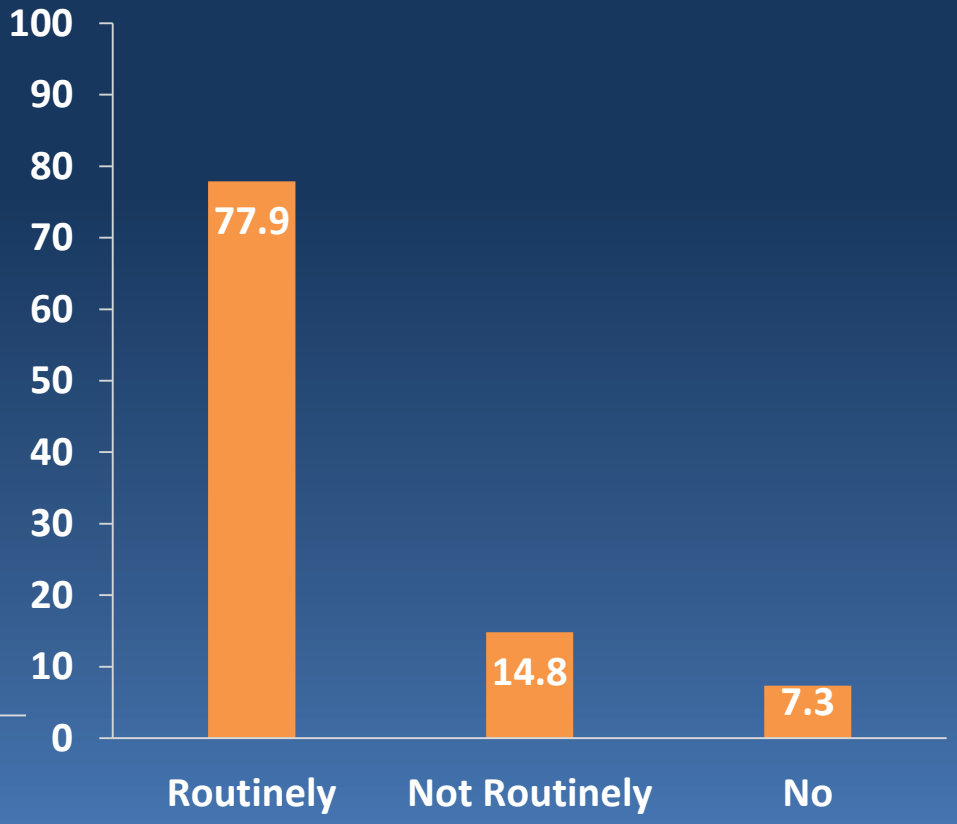
Note: Sample size for 2013 NEHRS n = 4,187; 2014 NEHRS n = 3,494 .
SOURCE: National Electronic Health Records Survey, 2013 and 2014.

Percentage of physicians receiving/sending patient health information

Percentage of physicians receiving patient history and reason for consultation for patients referred by providers outside of their practice (2013)



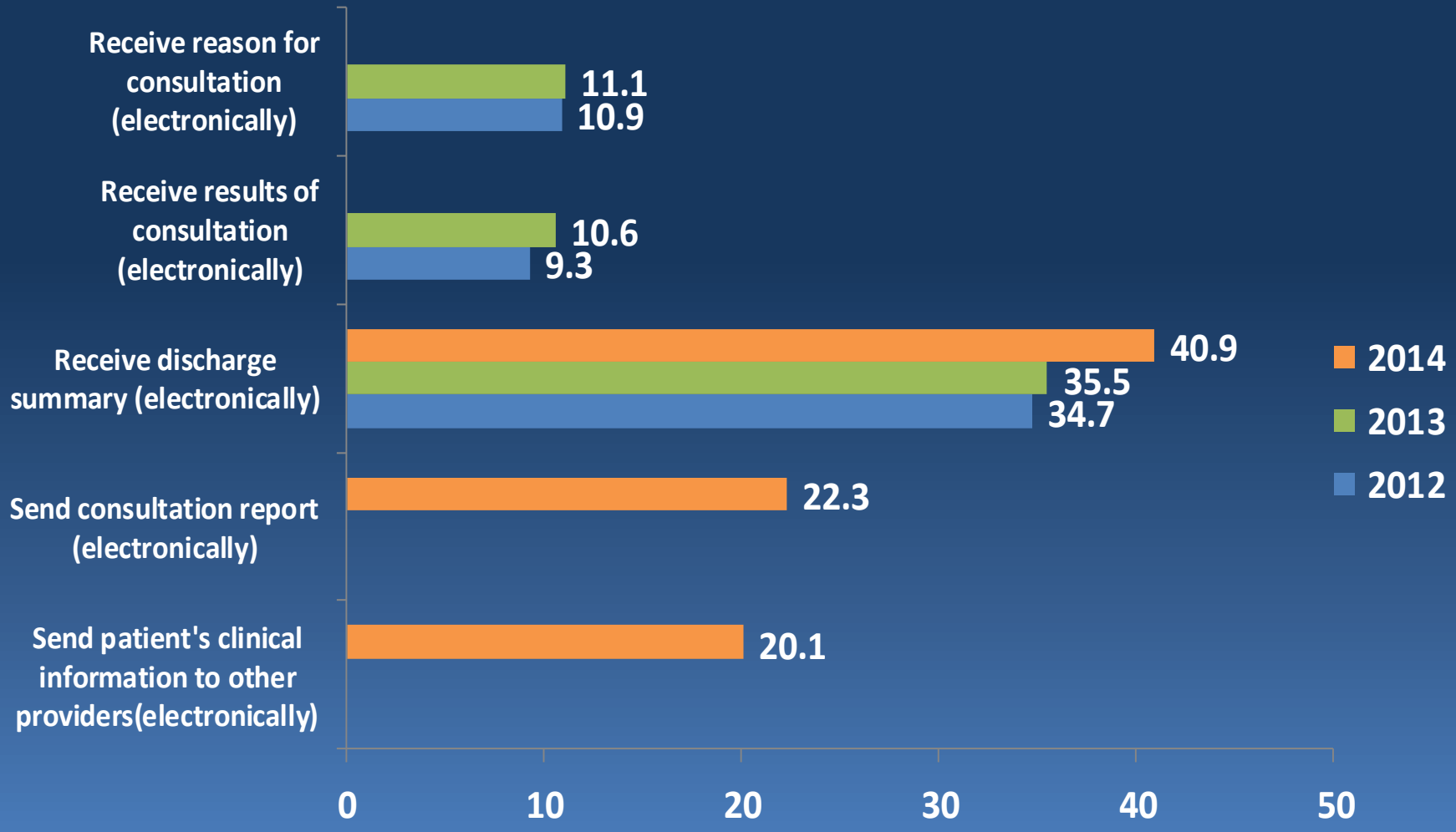
Percentage of physicians sending a consultation report with clinical information for patients referred by providers outside of their practice (2014)



Note: Sample size for 2013 NEHRS n = 3,339; 2014 NEHRS n = 2,880.

SOURCE: National Electronic Health Records Survey, 2013 and 2014.

Percentage of physicians that routinely electronically received or sent information routinely: United States, 2012-2014



SOURCE: National Electronic Health Records Survey, 2012-2014.

Results

- Physicians using EHRs and sharing data electronically increased from 32.9% in 2012 to 40.1% in 2014.
- Physicians "routinely" receiving 3 types of shared patient information increased from 2012 to 2013.
- From 2012 to 2014, physicians "routinely" receiving discharge summaries (from patients that were hospitalized) increased.
- Among physicians routinely receiving hospital discharge information, the percent of physicians that routinely received this info. electronically increased from 34.7% in 2012 to 40.9% in 2014.

Discussion

- Physicians using EHRs and sharing data electronically are increasing.
- Having an EHR system does not guarantee being able to exchange data electronically because of interoperable challenges to either sending or receiving patient health information.
- Gaps existed in the availability of patient health information necessary for care coordination.

Acknowledgements

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For any questions about this study please contact:

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