

Which physicians and practices are using electronic medical records?

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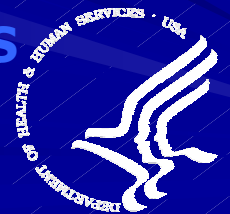
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Topics

- Background
 - Published results
- Survey methods
- Recent results
 - 2005 estimates
 - Practice vs. physician estimates
 - EMR-enabled care among PCPs
- Conclusions

Background

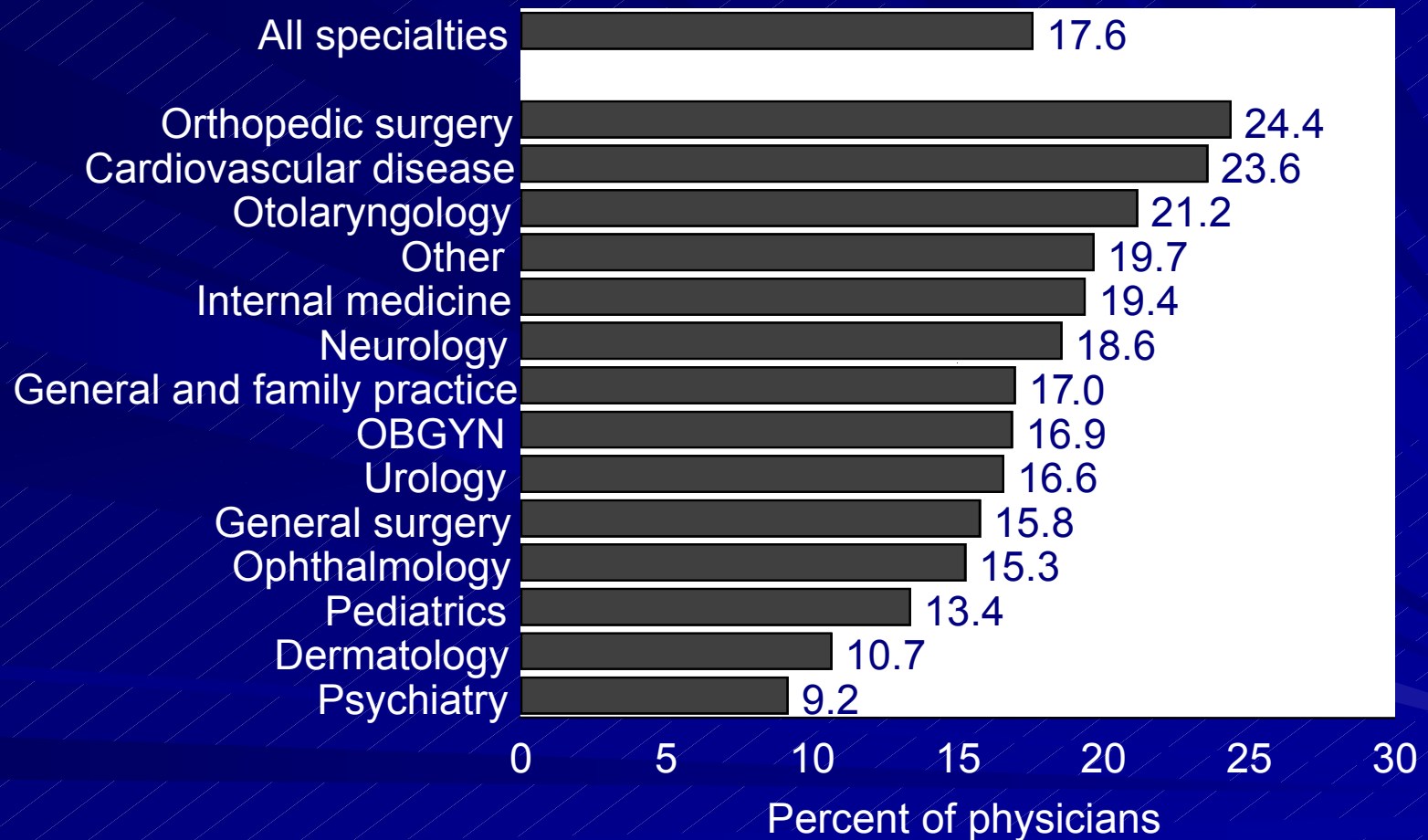
- Starting in 2001, National Ambulatory Medical Care Survey (NAMCS) asked

“ Does your practice use electronic medical records?”

Published results

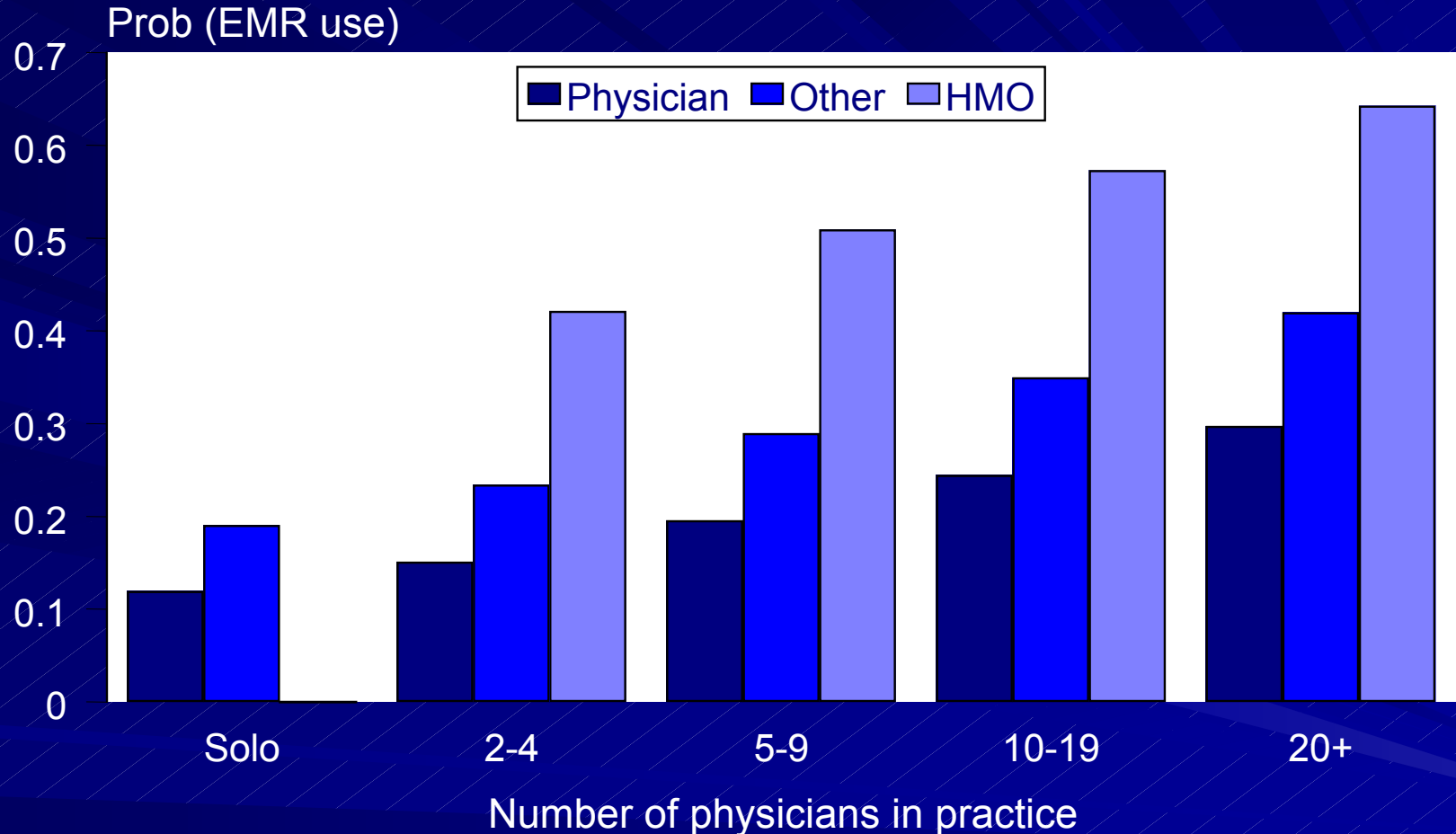
- Annual NAMCS summary reports 2001 and 2002
- Burt, Hing “Use of computerized clinical support systems in medical settings: United States 2001-03” *Advance Data from Vital and Health Statistics*; no 353
- Burt, Sisk “Which Physicians and practices are using electronic medical records?” *Health Affairs*; September/October 2005

Percent of office-based physicians reporting using electronic medical records by specialty: 2001-2003



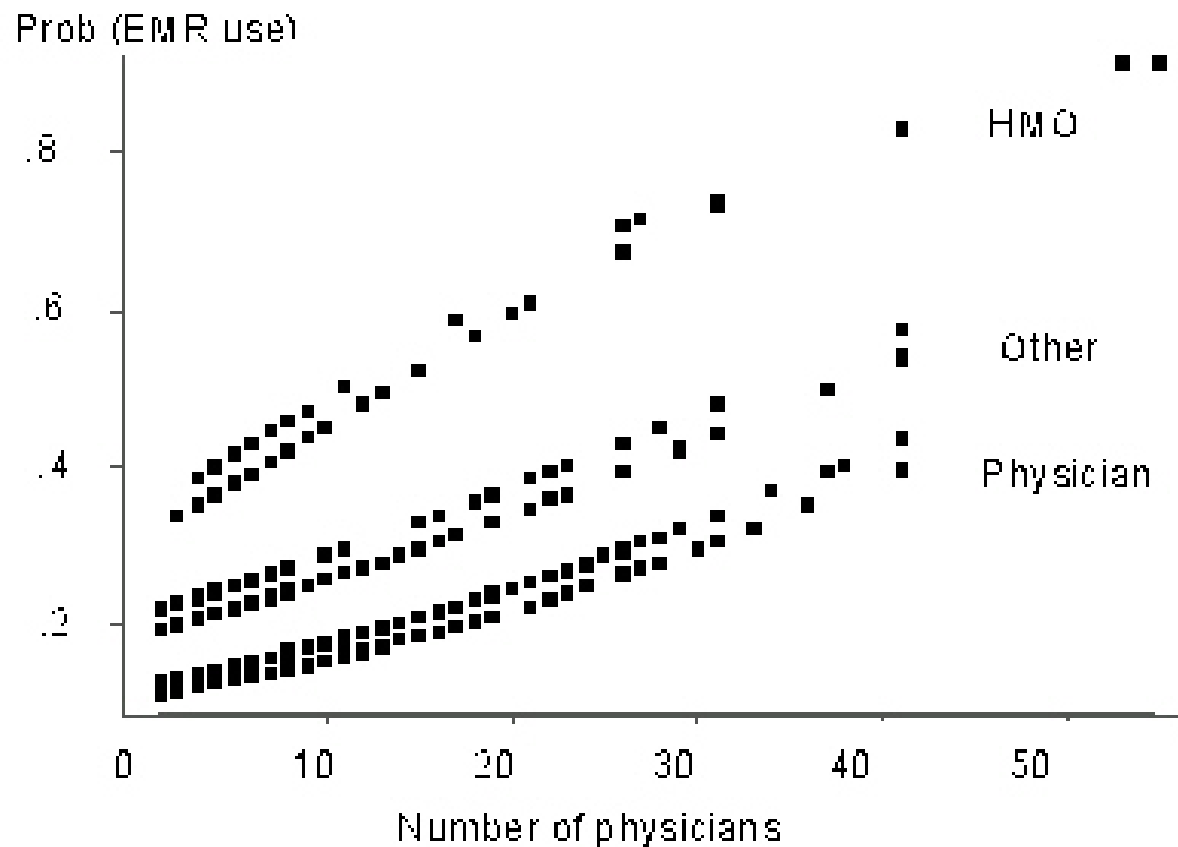
Source: CDC/NCHS: NAMCS found in Burt, Sisk *Health Affairs*, 2005

Fitted Probability of Using Electronic Medical Records (EMR) by Practice Size and Ownership ^a



^a Results from logistic regression to predict EMR use adjusted for practice size, scope of services, ownership, managed care contracts, and physician's age (See Exhibit 5- Burt, Sisk. Health Affairs; 2005).

Probability of Using Electronic Medical Records (EMRs) by Practice Size and Ownership^a



^a Results from logistic regression to predict the use of electronic medical records adjusted for practice size, scope of services, ownership, managed care contracts, and physician's age.

NAMCS

- Annual probability survey of office-based physicians (n~3,000)
- Includes nonfederal, office-based physicians who see patients in an office setting.
- Excludes radiologists, anesthesiologists, and pathologists
- Multi-stage sampling design
 - 112 geographic areas
 - Physicians stratified by specialty
 - Sample of office visits from 1 week
- Sample frame - Masterfiles of the AMA and AOA

Induction interview

- Face-to-face interview by US Census Bureau interviewers ~ 20 minutes
- Content
 - Practice size
 - Scope of practice
 - Ownership
 - Managed care involvement
 - Use and components of EMRs
 - Weekly volume
 - Revenue sources
 - Age, gender, specialty

Office visits

- Abstracts from ~ 30 office encounters
- Content
 - Patient demographics
 - Continuity of care
 - Reasons for visit and diagnoses
 - Diagnostic and therapeutic services
 - Medications
 - Disposition and duration

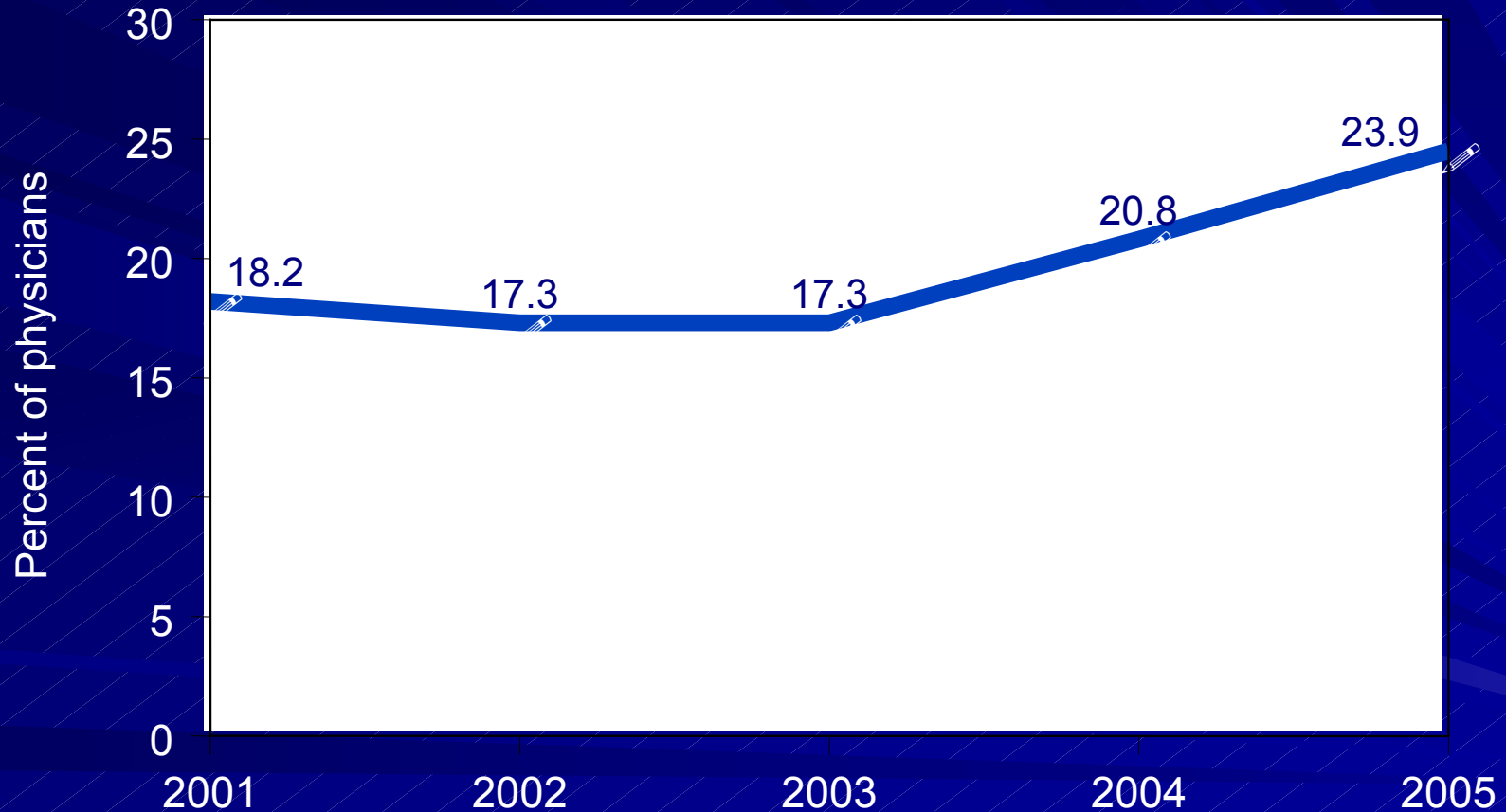
Quality of data

- Data are centrally processed <1% error
- Response rate ~ 62-70%
- Sample weights include adjustment for nonresponse
- Sampling error - 6-20% of published estimates
- Nonsampling error - Studies indicate negligible nonresponse bias

2005 estimates of EMR penetration

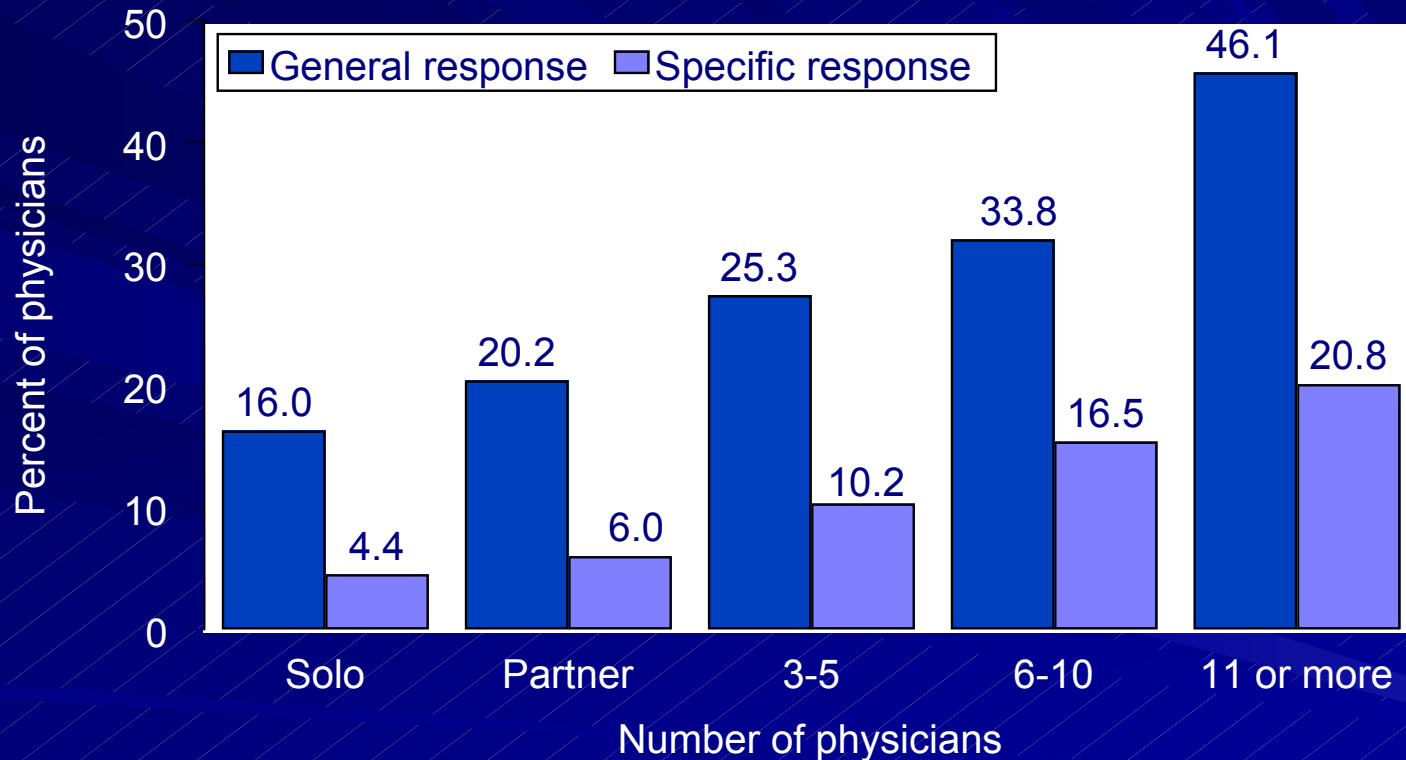
- Starting in 2005 –finer EMR detail
 - General question: Full or partial use of EMR
 - Specific questions:
 - Patient demographics
 - ✓ CPOE
 - ✓ Orders for tests
 - ✓ Lab results
 - ✓ Physician notes
 - Clinical reminders
 - Public health reporting

Diffusion of electronic medical records among office-based physicians: United States 2001-2005



Source: National Ambulatory Medical Care Survey, 2001-2005

Percent of physicians using electronic medical records by practice size, for general and specific responses



Chi-square test of independence = 71.0, df=10, p<.01

Note: General response is answer to single question about EMR use whereas specific response is a positive response to all four minimally required features. SOURCE: 2005 NAMCS.

Percent of office-based physicians with selected features of EMR systems (standard error)

<i>EMR system feature</i>	<i>All Physicians</i>	<i>Fully electronic</i>	<i>Partially electronic</i>
Patient demographics	21.4 (1.6)	91.5 (2.7)	82.3 (3.8)
Physician clinical notes	17.7 (1.6)	82.2 (5.8)	65.4 (4.9)
Lab results	17.2 (1.6)	80.9 (5.5)	63.4 (5.0)
Nurse clinical notes	14.0 (1.5)	72.6 (6.1)	46.0 (5.7)
CPOE	13.4 (1.3)	73.5 (5.1)	40.4 (4.5)
Test orders	12.7 (1.3)	67.6 (5.2)	40.2 (5.6)
Clinical reminders	10.7 (1.1)	57.9 (5.5)	33.3 (4.3)
Public health reporting	5.4 (0.9)	34.2 (5.1)	12.1 (2.8)

Geographic location

<i>Location</i>	<i>Percent distribution of physicians</i>	<i>Percent of physicians using EMRs</i>
Northeast	20.9	14.4
Midwest	21.4	26.9
South	34.9	21.7
West	22.7	33.4
Metro	89.4	24.8
Non-metro	10.6	16.9

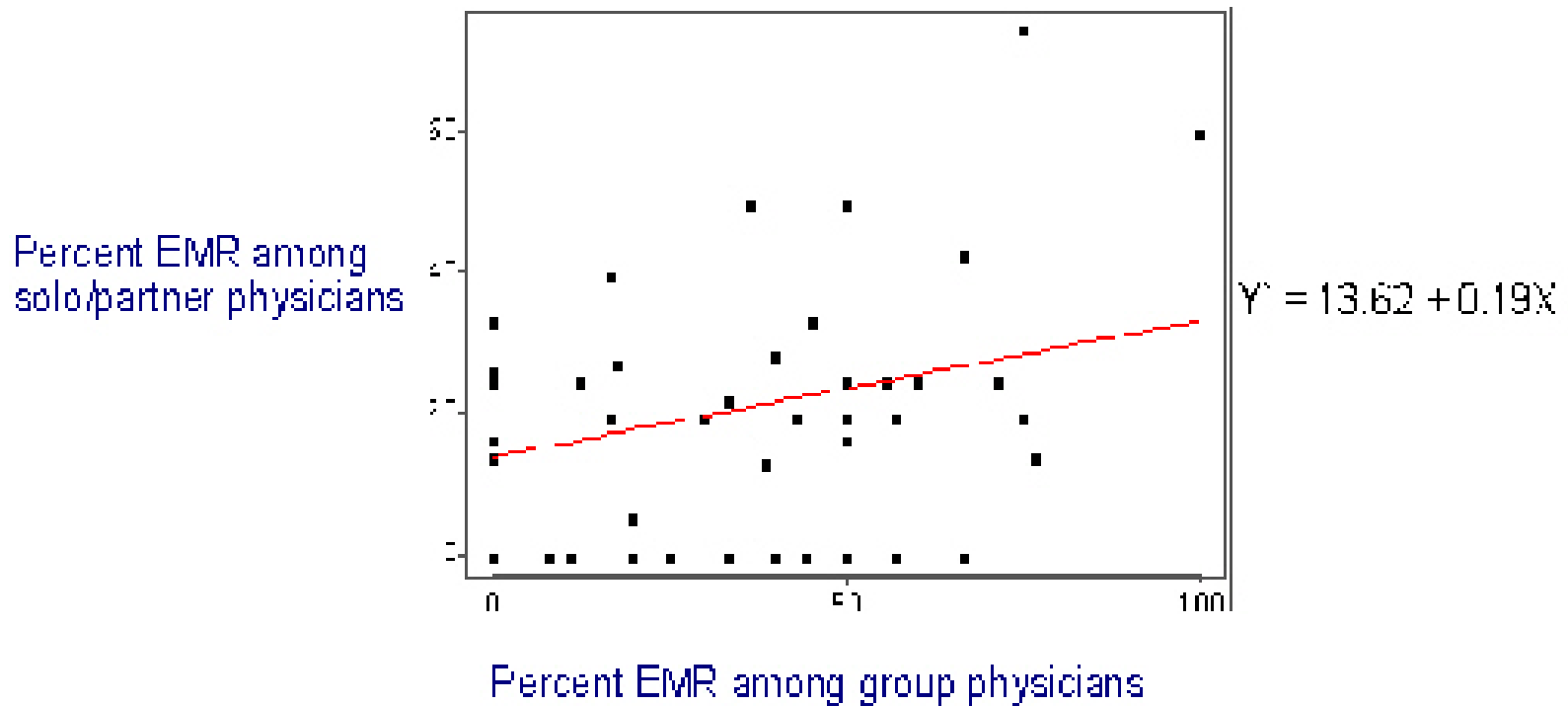
SOURCE: 2005 NAMCS

Geographic location

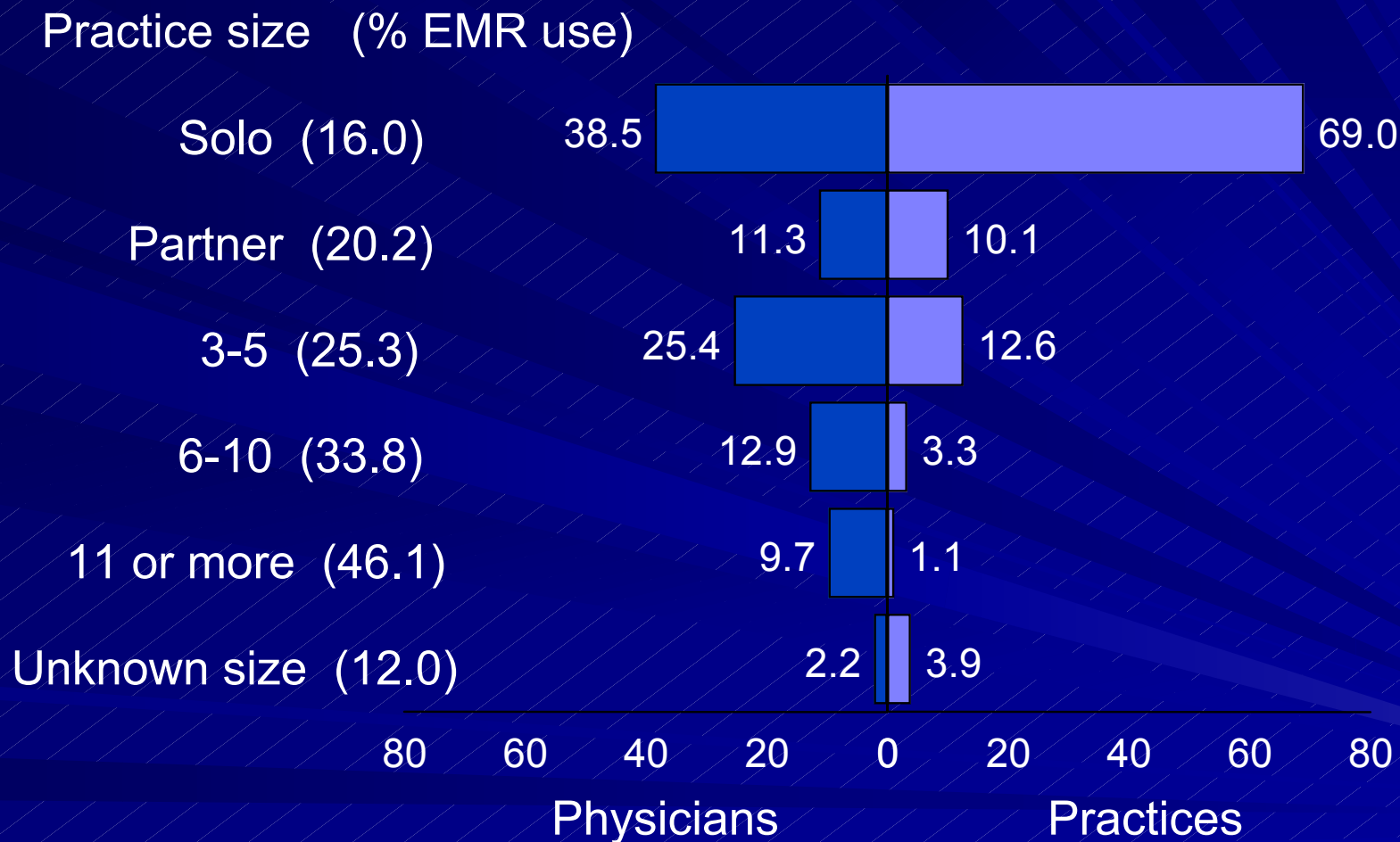
<i>Location (county population information from ARF)</i>	<i>Percent distribution of physicians</i>	<i>Percent of physicians using EMRs</i>
Low income (<\$25k)	11.6	20.3
Medium	77.2	24.0
High income (>\$45k)	11.3	27.2
High % non-Hispanic white (>75%)	40.5	24.8
Medium	34.1	21.6
Low % non-Hispanic white (<50%)	25.4	25.8

<i>EMR practice penetration of geographic area</i>	<i>Percent distribution of physicians</i>	<i>Percent of physicians using EMRs</i>
Under 10%	41.9	9.9
10-19%	14.6	20.5
20-29%	13.8	31.1
30-39%	7.8	41.6
40% or more	12.8	55.0
Unknown HRR	9.2	24.5

Scatterplot of EMR diffusion among group and solo/partner physicians in 47 HRRs



Percent distributions of physicians and practices by practice size



SOURCE: 2005 NAMCS

EMR-enabled care

- Visit data from the 2003-4 NAMCS indicate that estimates of EMR use among physicians who are the PCP for patients does not vary by..
 - Age, sex, race, ethnicity, region, urbanicity, source of payment, income, education, language ability, etc
- About 16.6% of patients who saw their PCP in 2003 or 2004 were covered under EMRs. (95% CI: 12.6-21.5)

Conclusions

- EMR use is gradually increasing.
- Group practices are leading the way.
- Location of practice is related to EMR penetration
- Core EMR capability lags behind physician perception of EMR use.
- Solo physicians are least likely to use EMRs – while they represent 38.5% of physicians, they represent 69.0% of practices.
- Good news is that there appears to be no disparity with regard to EMR-enabled care among patients visiting their PCP.

Information available on the Internet

- More information found on our website is www.cdc.gov/nchs/NAMCS.htm
- Join our LISTSERV
- Contact information
 - Catharine Burt
 - cburt@cdc.gov