Requirements for Successful Statistical Data Collection from EMRs

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Considerations

- What data elements are in EMRs?
- Who owns the data and how can we get it?
- What are the quality and consistency of data?
- What benefits may arise from using EMR data statistically?
- What privacy and confidentiality issues must be considered?
EMR adoption in ambulatory care

Percent of physicians

2001 2002 2003 2004 2005

EDs
OPDs
Physicians’ offices

NOTES: Office-based physician and hospital emergency department trends are significant (p<.05). Office-based physicians include nonfederal, office-based physicians who see patients in an office setting. Excludes radiologists, anesthesiologists, and pathologists.

Sources: National Ambulatory Medical Care Survey and National Hospital Ambulatory Care Survey, 2001-2005
NHCS background

- Family of provider-based surveys of health care delivery
- Physician offices, hospital inpatient and outpatient settings, long-term care facilities
- Manual record abstraction or administrative record files
- Patient demographics, encounter characteristics, disposition
Example Challenge for ED collection

- National Hospital Ambulatory Medical Care Survey (NHAMCS) – ED component
- Manually abstracts set of ~ 150 patient and visit characteristics
  - Patient demographics
  - Encounter dates and times
  - Diagnoses, procedures, medications
  - Disposition
- Can the data be transmitted electronically from EMRs directly to NCHS?
Transmission study

- To compare the NHAMCS-ED data elements with the messaging standards to determine:
  - Which elements are covered?
  - Which are not covered?
  - What other elements may be standard that could be added to the survey because they are easily obtainable?

- To suggest coordination activities that may close the gap for the elements not covered by standards.
Selecting a standard

HIPAA Transaction and Code Set Regulations
Health care organizations that submit
electronic transactions must use the ANSI
ASC X12 837 implementation guides.

ASC X12 837 Health Care Service Data
Reporting Guide (HCSDRG)
Gap analysis

Transmission standards

NHAMCS - ED data elements

Potential enhancements
55

16
Similar

16
Identical

49

Gaps
80
Gap analysis

Transmission standards

Potential enhancements

NHAMCS - ED data elements

Gaps

Similar

Identical

ESOP

Charges
UPIN
Accident time

Patient demog
Dx
Ecodes

Diagnostic services
Therapeutic procedures
ED times
Reason for visit
Mode of arrival
Previous care
Quality and consistency of EMR data

- Accuracy
- Completeness
- Comprehensiveness
- Timeliness
- Consistency within and across providers
- Cost of collection
Potential enhancements for statistical data

- Clinical data
- Financial data
- Provider data
- IDs for linkage
Privacy and confidentiality

- HIPAA
- Safeguards
- Data use agreements
- Linkage constraints
- Disclosure risks
Other “statistical properties”

- Unbiased estimates
  - What is the representativeness of EMRs among providers?
  - What is consistency between responses from providers with and without EMRs?
  - Are there response errors due to the way EMRs function (e.g., default entries)?