Case-Mix Data for Case Ascertainment

Mary Jane King, MPH, CTR
Registry Operations
Massachusetts Cancer Registry
Tel: (617) 624-5622
Fax: (617) 624-5695
mary.jane.king@state.ma.us
Outline

- History, Needs Assessment
- Definitions, Data Sets
- Methods
- Preliminary Findings and Challenges
History (1)

- MCR conducts routine, in depth case-finding audits on each acute-care hospital once every two years. (Total approx. 70)

- A three month period is audited, as close to present as feasible.
History (2)

- All path reports
- Discharge disease index
- Appropriate clinic logs and records
- Appropriate diagnostic logs

Matched against all cases submitted by that facility to MCR since 1982. Non-matches are returned for justification.
Needs Assessment (1)

- Discovery phase – 1 day to several weeks
  - yearly submissions = <50 to >5000
  - avg 700, median 400
- Estimated average time for discovery = 2 weeks x 40 hospitals per year (3000 hrs)
- = Audits not accomplished as per MCR policy.
Needs Assessment (2)

- Main culprit – Disease Index
  - Always paper
  - May not be strict alpha – date, type, place
  - May be several reports – admission type, campus
  - May lack identifiers – DOB, SS#, MR#

Need a constant, reliable source of discharge information that can be routinely reviewed and justified. Remove that piece from formal audit process.
Needs Assessment (3)

- Source equivalent to Disease Index, constantly monitored would identify both potential missed cases AND late cases, provided its data was reasonably current.
- MCR was placed in close association with Division of Health Care Finance and Policy (DHCFP), presenting opportunity to investigate case-mix data as that source.
Definitions (1)

- Division of Health Care Finance and Policy
  - Independent agency within Mass. DPH
  - Collects, analyzes information about health care delivery system
  - Sets rates for facilities and providers
  - Administers Uncompensated Care Pool
Definitions (2)

- Case-mix data
  - Case specific, diagnostic discharge data containing clinical information relating to admission and services, and socio-economic information, e.g., age, sex, race, payer, zip.
  - The “mix” of diagnostic and treatment codes generates DRGs.
  - Case-mix data submitted by hospitals to DHCFP quarterly. De-identified, verified file for public use each year.
Data Sets (1)

- **DHCFP**
  - Inpatient Hospital Discharge Database
  - FY 2003 file for testing (7/1/02-6/30/03)*
    - Count = 104,892
    - Routinely want unverified data quarterly, approx 9 months old

- **MCR**
  - Admission level reports for diagnosis years 2002 and 2003
    - Count = 105,673
    - Abandoned search for non-analytics – no match with old data
    - Focused on capturing diagnoses surrounding FY2003

*www.mass.gov/dhcfp - FY2003 Documentation Manual*
Methods (1)

- Remove non-reportable diagnoses from case-mix file.
  - FY 2003 file total count = 800,000+
  - Simple Access table and query system created for Death Clearance, ICD-9 to ICD-O-2
    - Lacked many equivalencies for C80.9
    - Did not contain CNS endocrine codes
    - Did not contain codes for new blood disorders
  - Did give an ICD-O site code for matching
Methods (2)

- Select data items for matching.
  - Case-mix file
    - DPH Facility Identification Code
    - Hospital Medical Record Number
    - Date of Birth
    - ICD-O translated Discharge Diagnosis (15, only 1st 3 selected)
      - SS# exists, but is encrypted for administrative DHCFP use
      - No patient names
      - Admission zip exists but not used
Methods (3)

- Select data items for matching.
  - MCR admission-level 02-03 file
    - DPH Facility Identification Code
    - Hospital Medical Record Number
    - Date of Birth
    - ICD-O-3 Site Code
Methods (4)

- Preliminary “match” in Access using “Find Unmatched Query Wizard.”
  - Because it runs exact matches and presents the unmatched as a table
    - Discovered that the DHCFP DPH Facility Codes were not equivalent for five hospitals and this was corrected
  - Identified 79,715 non-matching discharges
Methods (5)

- Second match run in Link Plus
  - Blocking: DPH Facility ID Code, MR#, DOB
  - Matching: DPH Facility ID Code (exact), DOB (date), MR# (generic string)
  - Score: 10
    - 14,011 discharges accounted for, 65,704 unmatched
    - Visual comparison of matches – 14K were true matches. Most variations in MR# - additional characters to a core number
Methods (6)

- The “Non_MatchReport.txt” was then opened in a text editor, the banners were removed and it was imported back into Access.
- Hospital-specific reports were generated for return and justification.
  - Non-deduped strict “alpha lists” to allow each patient’s admissions to cluster together by MR# and DOB, with additional info – ICD-O site code(s) and discharge date(s)
Findings (1)

- Untried, since the project timeline converged on Death Clearance data requests to hospitals.

- Do intend to require justification of all residuals from DHCFP FY2003 file to create a baseline.
Findings (2)

- Private conversations with other registries suggest new case identification by this method may only add about 1% to incident cases.
  - Diagnoses are allowed to be coded upon discharge if the condition has not yet been ruled out. The same problem as “Disease Index.”
Findings (3)

- Literatures searches for scientific journal articles are barren for this use of case-mix data in the US.
- Either it is not done, or done and not published, or obscurely published.
- Requiring special attention, the facilities with variant DPH Facility ID Codes account for over half of the residual non-matches.
Findings (4)

- Is the Inpatient Discharge Database where the missed cases are?

- Is correcting trend of late submissions a more important use of case-mix data?
Findings (5)

- MCR 00-02 Dx-Expt*
  - Total records=160,524
    (Avg per year=54,421)
  - Avg # days to export=362
  - # 180 days or less=24,435 (15%)
    - Avg 137 days
  - # >180 days=136,089
    - Avg 402 days

- MCR 00-02 Ct-Expt*
  - Total records=160,964
  - Avg # days to export=323
  - # 180 days or less=31,347 (19%)
    - Avg 135 days
  - # >180 days=129,617
    - Avg 368 days

*Total based on good dates
Findings (6)

- If case-mix data are reliably available on a quarterly basis, and recent case-mix (9 months old) are matched regularly to MCR admission level data, the main benefit may be increased timeliness.
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