

QUALITY OF HOSPITAL MORBIDITY DATA : DISCUSSION

Craig Seko¹

ABSTRACT

The three papers presented in this session offer an excellent insight into the issues concerning the quality of Hospital Morbidity Data. Richards, Brown, and Homan sampled hospital records to evaluate administrative data in Canada; Hargreaves sampled persons in hospital to evaluate administrative data in Australia; and McLemore, Pokras describe the quality assurance practices of an ongoing sample survey of hospital records in the United States. Each paper is discussed, along with issues and challenges for the future.

KEY WORDS: Hospital Medical Records, Morbidity data quality.

1. INTRODUCTION

I'd like to start off by thanking the speakers for three enjoyable papers. When I first agreed to be discussant, I hoped that being able to consider

- three papers from
- three different countries with
- three different methodologies would allow for interesting cross-country comparisons. I was not disappointed.

2. RICHARDS, BROWN, and HOMAN

In Richards, Brown, and Homan, the quality of the administrative discharge database was assessed using a sample survey, going back to selected charts, and reviewing differences and determining reasons for differences.

If one refers to table 1 of their paper, it is re-assuring to see the important procedures of coronary artery bypass graft, which is important for CVD, and total hip replacement, which is important for services to the elderly, are well-reported.

Table 2 also gives a good example of the differences in quality between administrative and statistical data. Cesarean section is important administratively, and is well-reported. However, Vaginal births after a previous Cesarean section is not important administratively, and is biased.

I don't know what the effect of that error on the actual health indicator is. It would be nice to see the study's data used in a sensitivity analysis of the derived health indicators.

In looking at the remainder of the results, I noted that the top reason for error was "Information on chart missed." Information on the chart is often missed because the chart was incomplete at the time of reporting. CIHI published results from a DAD Timeliness survey in 2000. In that survey, 30% of the charts in large facilities were incomplete when first coded. The overwhelming reason for incomplete charts was

¹ Craig Seko, Statistics Canada, Ottawa, Canada K1A 0T6

information was pending from physicians. Although the timeliness survey results stated most facilities have procedures to update abstracts, this study’s results show these procedures may need improvement – or facilities be given more time to submit information.

One other interesting result shown in Table 3 of the paper was over 20% of the discrepancies for non-medical and demographic variables were due to data being downloaded incorrectly. Computing errors can have a large effect on data quality.

3. HARGREAVES

Like the Richards, Brown, and Homan paper, the Hargreaves paper compares hospital morbidity to source data. However, this time the source is the patient, not hospital records. The paper describes the pilot study and subsequent implementation.

Demographic data were collected. Unfortunately, for no doubt good reasons, other morbidity data, particularly admitting diagnoses, were not studied.

The methodology of the pilot study was successfully applied in Western Australia in a large random sample of hospitals, and also applied in Queensland to two hospitals.

The results focus on percent of indigenous and non-indigenous persons correctly recorded, i.e., sensitivity and specificity where:

- Sensitivity = true+ / (true+ and false-); and
- Specificity = true- / (true- and false+).

	Indigenous	non-Indigenous
reported Indigenous (+)	true +	false +
reported non-Indigenous (-)	false -	true -

Additional statistics such as:

- positive predictive value = true+ / (true+ and false+);
- negative predictive value = true- / (true- and false-); and
- Cohen’s kappa

can also be considered. (This is also true for the Richards, Brown, and Homan paper.)

A couple of observations on the results:

1. The results show that sensitivity is higher in hospitals serving populations with proportionately greater indigenous populations. In populations with proportionately smaller indigenous populations, hospitals varied greatly in how well they identified indigenous people, suggesting quality can be improved by sharing best practices.
2. The Hargreaves pilot showed 8.6% of residence information was miscoded (in a non-representative sample). Also presented in the paper was the result from Western Australia Hospitals – 9.1% miscoded. Note the Richards, Brown, and Homan paper showed a 9.0% error rate for postal code (residence information). Is around 9% the level of error for un-verified data in hospital administrative systems?

4. McLEMORE, POKRAS

The last paper presented is quite a bit different from the previous two papers. Quality is treated differently in the US because the morbidity data are collected via a probability sample. The National Hospital Discharge Survey is conducted annually. About 75,000 records are manually sampled from 300 hospitals,

and 225,000 records are sampled from discharge data supplied electronically by 170 hospitals (35 data sources, 2,000,000 abstract records). There are two other differences:

1. Information is collected at both the facility-level and record-level.
2. The NHDS collects a minimum number of variables – much less information than Canadian and Australian morbidity files.

The National Hospital Discharge Survey, being a sample survey, uses a number of practices common to sample surveys to assure quality:

- The survey is controlled from a central office, with field operations in regional offices;
- Coding is centralized and acceptance sampled;
- Central office converts and verifies electronic submissions;
- There are extensive editing procedures;
- Facility sampling rates are verified;
- Imputation is performed, and non-response is adjusted for; and
- Analysts engage in ‘Data Checking’ to identify anomalies in year-to-year comparisons.

This last practice is illustrated with an excellent example in the paper.

The paper closes with related activities and challenges that apply to all morbidity data, not just NHDS. These are:

1. Pharmaceutical data;
2. ICD-10 conversion; and
3. HIPAA (privacy).

5. DISCUSSION

I’ll confine the discussion to the above activities and challenges identified by McLemore and Pokras:

The issue of pharmaceutical data is really an issue of morbidity data losing relevance in today’s health care system. Conceptually, morbidity data is fairly simple: some basic information about the patient, what is wrong with the patient, or diagnoses, and what was done to fix the patient up, or procedures. Now, however, what was done to fix you up often involves drugs, e.g., clot-busters, and these need to be shown in morbidity data.

More importantly, morbidity data don’t cover what they used to. People used to go to hospital for almost everything. Now day surgery, ambulatory care, specialized clinics, and doctor’s offices do things that used to be only done in a hospital. Morbidity data has to be integrated within a data collection strategy that encompasses many types of care and service facilities. Ideally, one would want to follow individuals throughout their lifetime interactions with the various parts of the health care system. This is the greatest quality challenge in the next few years.

ICD-10 conversion is process that has been completed in Australia, is underway in Canada, and isn’t expected until 2005 in the US. All countries will benefit from sharing their knowledge, and I know this has, and will continue to be done.

The next issue refers to privacy of health information, a hot topic everywhere. Privacy is a topic that deserves its own symposium! I have no answers, except to say that the appropriate laws should explicitly cover statistical purposes.

Finally, while administrative data are the preferred mode of collection in most countries, but this may never be completely true in the United States. The US does not have the same pressure for comparable data as countries with large public insurers. For example, there are three sources of hospital administrative data in Canada: provincial ministries in Québec and Manitoba, and CIHI. Administrative data in Australia is

available from each state/territory. In contrast, the NHDS currently has 35 data sources. This naturally leads to greater variability in terms of format, coverage, and quality.

This leads to the true methodological question: What is the best way to collect morbidity data? Is using as much administrative data as possible the best way, or is it better to use sampling in some form? If there is increasing use of administrative data in the United States, is there room for ongoing sample surveys in Canada and Australia?

One hopes that by looking at other countries experiences, innovation and best practices to improve quality will be encouraged everywhere.

REFERENCES

- Arday, S. L., Arday, D. R., Monroe, S., Zhang, J (2000) "HCFA's Racial and Ethnic Data: Current Accuracy and Recent Improvements," *Health Care Financing Review*, 21:4, pp107-116
- Australian Institute of Health and Welfare (2001) "Interactive National Hospital Morbidity Data," <http://www.aihw.gov.au/hospitaldata/datacubes/index.html>, accessed September 26, 2001.
- Australian Institute of Health and Welfare (2001) "The National Hospital Morbidity Database," <http://www.aihw.gov.au/hospitaldata/morbidity.html>, accessed September 26, 2001.
- Canadian Institute for Health Information (2001) "Discharge Abstract Database (DAD) and Hospital Morbidity Database," <http://www.cihi.ca/wedo/hsdad.shtml>, accessed September 28, 2001.
- Canadian Institute for Health Information (2001) "Health Indicators 2000 – selected Health Indicators – Definitions and Data Sources and Technical Notes," <http://www.cihi.ca/wedo/hsdad.shtml>, accessed September 28, 2001.
- Canadian Institute for Health Information (2001) "Hospital Morbidity Database," http://www.cihi.ca/Roadmap/Health_Ind/deftech.shtml, accessed September 28, 2001.
- Canadian Institute for Health Information (2000) "Improving Timeliness of Discharge Abstract Database Data," <http://www.cihi.ca/wedo/impro.shtml>, accessed September 28, 2001.
- Dennison, C., Pokras, R. (2000) "Design and Operation of the National Hospital Discharge survey: 1988 Redesign," *Vital Health Statistics*, 1(39). U.S. Department of Health and Human Services.
- Downey, G. (2001) "Need for privacy in health sector a matter of life and death," *Technology in Government*, July 2001, pp 7.
- Holt, D. (2000) "Statistics in a Democratic Society: the Role of Methodology," *Statistics and Democracy: Proceedings of the 4th International Conference on Methodological Issues in Official Statistics, Stockholm October 12-13 2000*, <http://www.scb.se/omscb/proceedings.asp>, accessed September 26, 2001.
- Johansson, L.A., Westerling, R. (2000) "Comparing hospital discharge records with death certificates – towards a pragmatic alternative to peer review of medical records?" paper presented at the Meeting of heads of WHO collaborating centres for the classification of diseases, Rio de Janeiro, Brazil
- Öhman, B. (2000) "Statistics as an Investment – Free for Users", *Statistics and Democracy: Proceedings of the 4th International Conference on Methodological Issues in Official Statistics, Stockholm October 12-13 2000*, <http://www.scb.se/omscb/proceedings.asp>, accessed September 26, 2001.

- Radford, M.J., Foody, J.M. (2001) "How do Observations Studies Expand the Evidence Base for Therapy?" *Journal of the American Medical Association*, 286(10), pp 1228-1230.
- Smith, A.F.M. (1996) "Mad Cows and Ecstasy: Chance and Choice in an Evidence-based Society," *Journal of the Royal Statistical Society A*, 159, Part 3, pp 367-383.
- Sumi, M., Satoh, H., Yamashita, Y.T., Ohtsuka, M. (2001) "Improving the Quality of Discharge Summaries," *Canadian Medical Association Journal*, 165.
- Walraven, C. van, Weinberg, A. L. (1995) "Quality assessment of a discharge summary system," *Canadian Medical Association Journal*, 152, pp 1437-1442.