

Canadian innovations in HHR data collection and modelling

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Outline

- A time of positive change
- National Physician Survey
- Minimum Data Set project
- Integration of demand and supply side forecast modelling

A time of positive change

- Strong interest Federally and Provincially in collecting better data in a regular fashion
- Common message from several major reports on HHR and the health care system
- Creation of national health council with a sub-committee on HHR
- Many provincial efforts to establish data collection and planning bodies

National Physician Survey 2004

A collaborative
Project

NPS Goals

- To produce a comprehensive database documenting what all physicians in Canada are currently doing in their practice of medicine, as well as their own areas of interest, concerns, and career plans.
- To document the perspectives and expressed practice intentions of the physicians of tomorrow.

NPS Objectives

- To survey Canadian physicians, residents and medical students every 3 years.
- To inform health care system planners about overall physician workforce resource needs and allocation.
- To support and inform health care stakeholder organizations and training programs.

National Physician Survey (NPS) Partners

- Co-lead Partners
 - Canadian Medical Association
 - College of Family Physicians of Canada
 - Royal College of Physicians and Surgeons of Canada
- Funding Partners
 - Canadian Institute for Health Information
 - Health Canada
 - CFPC, CMA, RCPSC
- Other Stakeholders
 - CFMS, CAIR, FAEMQ, FMRO, specialty societies

National Physician Survey (NPS) History

- The NPS builds on past survey efforts
- Physician Resource Questionnaire (PRQ)
 - Canadian Medical Association, 1982-2003
 - Sent to family/general practitioners and specialists
 - Census till early 1990's, then sample
 - Intermittent up to 1996, annual as of 1997
- The JANUS Survey
 - College of Family Physicians of Canada, 1997, 2001
 - Sent to family/general practitioners
 - Sample in 1997, census in 2001

NPS History

- Specialty Physician Resource Survey
 - Royal College of Physicians and Surgeons of Canada, in 1995.
 - Census survey of all RCPSC certified specialists in Canada

NPS History

- NPS questionnaire development started with past survey instruments used by the CMA, CFPC and RCPSC
- Some temporal comparisons will be possible
- First ever data collection through the NPS, Feb 2004 – June 2004

NPS Survey Methodology: Communication Before & During Data Collection

- Flyers for conferences, committee meetings
- Announcements to partner chapters & divisions for their communications
- Assistance by specialty societies in informing members by email
- Editorials, articles & ads in CFP, CMAJ, CIHI Directions, web sites, etc.

NPS Survey Methodology

Data Collection

- Anonymous, self-report, mail/online survey
- CMA Masterfile used for mail list
 - 31,965 FP/GPs
 - 29,786 Specialists
- Modified Dillman approach
 - advance letter/email+3 full mailings+reminder card/email
- Initial full mailing in mid-February; Final mailing end of April
- Data collection ended June 30

NPS Survey Methodology

Data Capture

- Paper surveys partially cleaned before data capture
- All paper questionnaires scanned and archived as image files
- Paper responses entered into SPSS
- Duplicate records examined and fixed
- On-line responses merged with paper responses

NPS Survey Response

- 21,296 completed questionnaires; 36% of all physicians; accurate to within +/- 0.7%, 19 times out of 20.
- Proportionately fewer responses received from male physicians (33%)
- Identical proportions of family/general practitioners and specialist physicians responded (36%)

NPS Current Status and Next Steps

Post Data Capture Clean-up

- Key punch errors corrected where possible
- Edits applied for handling errors by respondents, eg. maximums on hours/week
- Standardizing write-ins
- Minimize record deletion, maximize ability to analyze small cohorts (eg. small province or sub-specialty)

NPS Current Status and Next Steps

Dissemination and Communications

- Anonymous record level research file available to CMA, CFPC, RCPSC & CIHI
- Initial media release planned for Oct-Nov 2004
- Final results will be published in special reports, journals, press releases
- Provincial & regional aggregate level tabular results will be posted on web
- Visit www.nps-snm.ca after Oct-Nov 2004 for more info, incl.data request

Development of a national Minimal Data Set (MDS) for HHR

MDS

- Project led by Canadian Institute for Health Information
- Framing document August 2004
- http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=MDS_18aug2004_1_e

MDS

- Motivation: respond to the repeated calls for more data in order to inform HHR policy
- Goal:
 - A) Identify and validate HHR priority information needs
 - B) Identify the related indicators
 - C) Identify data elements for the indicators

MDS

- Key Elements
 - Focus on several different health care professionals
 - National approach
 - Supply-based
 - Iterative approach, open to change and evolution over time

MDS

- Process:
 - 1) review of literature in Canada and abroad
 - 2) facilitated workshops with leaders in HHR
 - 3) Consultation with stakeholders on the draft MDS
- Work to date:
 - Completion of first two steps

MDS

- Priority information needs for supply-based HHR Management:
 - Demographics
 - Education/Training
 - Geographical Distribution
 - Migration
 - Non-Migration attrition
 - Employment/practice characteristics
 - Productivity

MDS

- **Need:** Geographic Distribution
- **Indicators:** # of health personnel living or employed in urban and rural respectively
- **Data Elements:** National unique identifier, personnel type, current area of residence, current postal code, primary employment postal code

MDS

- **Need:** Demographics
- **Indicator:** Sex, age, language
- **Data Elements:** National unique identifier, personnel type, sex, year of birth, language(s) of work

MDS

- **Need:** Employment/Practice Characteristics
- **Indicator:** % of eligible not working, ratio full to part time, place of work, positions held, areas of responsibility, % with multiple employers, % with certified specialization
- **Data Elements:** Certified area of specialized training, source of certification, current registration status, previous & current registered activity status, duration of service

Combined Supply and Demand Modelling Strategies

HHR Modelling

- Use existing data to identify current and future demand and supply for services.
- Broadly similar methods used in both Ontario for neurosurgical services and in Nova Scotia for all services. (Kisalaya Basu and Anil Gupta).

Planning for Neurosurgery

- The supply side
 - Use MD database compiled at ICES. (age, gender, FTE equivalent, training location, practice location)
 - Mail survey to all Neurosurgeons outlines many specific areas of their practice
 - Delineate the amount of clinical work in hours performed by the provinces NS based on age, setting, sex

Planning for Neurosurgery

- The demand side
 - have expert group define the bread and butter list of NS services.
 - Provide the total amount of time (in hrs) for each of these procedures (office, OR, in-pt)
 - Use billing and hospital d/c databases to find current numbers of services provided.
 - Able to determine the total amount of clinical hours utilized.

Planning for Neurosurgery

- At baseline:
 - **Hours of service demanded matched with the hours that NS said they were supplying in the survey.**
 - **Matched with the fact no waiting time for NS services.**

NS modelling

- Future supply
 - Length of residency training
 - Number of those currently in the training system inc their age/genders
 - Changes to US visa laws, migration within Canada
- Future demand
 - Use expert panel to identify shifts in demand for each B&B item
 - Demographic shift, technology shifts, EBM/trials etc

NS Modelling

- Identify gap between predicted demand and anticipated supply. Able to predict how many NS (of different 'types') needed to meet this gap.
- Able to model different scenarios.

NS Modelling

- Changes in demand
 - Use expert panel to identify shifts in demand for each B&B item
 - Demographic shift, technology shifts, EBM/trials etc

NS Modelling

- That was the theory...
 - NS was not just NS
 - Data was a mess
 - Many of the challenges in service delivery are not HHR
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- However, the model and approach are interesting and make use of some unique Canadian databases.