Use of Québec Administrative data

The chronic disease surveillance model

Valérie Émond

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Presentation plan

- Overview of Chronic Disease Surveillance in Quebec
- Data model – Linked administrative data
- Potential, challenges and limitations
- Examples
- Conclusion
Overview

Chronic disease surveillance using linked administrative data

- Started in 1999 with diabetes
- No tradition for chronic diseases surveillance before except for cancer based on single database analysis and measures
- Survey data could not cover all the surveillance objectives for diabetes
Overview

- Development across Canada through the National Diabetes Surveillance System (NDSS), now National Diabetes and Chronic Diseases Surveillance System (NDCSS)
- Started as a research project but now part of the « Plan ministériel de surveillance multithématique », MSSS
Chronic disease surveillance - objectives

- Disease approach:
  - Importance of disease (incidence and prevalence)
  - Mortality and survival analysis
  - Use of health services (hospital and visits)
  - Use of medication (65+)
  - Subgroups at risk

- Integrated approach
  - Comorbidities
  - Multimorbidity
  - Polymedication

To better evaluate and give direction to promotion, prevention and health care programs
Data model (1) – Linked data

Unique Identifier

Demo and geo data
Insurance coverage
RAMQ
(deprivation index)

Hospital data
(Med-Echo, MSSS)

Fee-for-service data
RAMQ

Drug data (65+)
RAMQ

Mortality data (registry)
MSSS
Data model (2) – Data files

Linked data

- Diabetes
  - Osteoporosis
- Cardiovascular diseases
  - Osteo-articular diseases
- COPD and Asthma
- Mental Health Disorders and Dementia

Statisticians only

Analysts
Unique ID per box
Data model (3) – Analysis and outcomes

1. Outcome indicators: Public Health Infocentre

Aggregated data:

- Geography (health region, CSSS, municipality)
- Age
- Gender
- Deprivation

2. Analysis and publications: Short analysis series, reports, articles, etc.
Potential (1)

- Innovative approach for chronic disease surveillance – reflective of chronic disease reality
- Integrated approach (Concepts, Methodology and Technology)
- New and improved indicators and analysis (usefull, adequate and appropriate measures)
- Population cohorts and trend analysis (time and space) → Reflective of changes and disease evolution
- Groups at risk (sociodemographic, geographic and economic) → Inequalities, deprivation index
Potential (2)

- Population aging
  - Heterogeneity of older population
  - Opportunity to improve surveillance indicators

- Comorbidities, multimorbidity and polymedication

- Links between diseases and use of health care services
Challenges and Issues

- Data access
  - Legal and administrative (INSPQ, MSSS, RAMQ)
  - Security, confidentiality and ethic
    - Public Health Ethical Committee (CESP)
    - Information access commission (CAIQ)
  - For surveillance only
  - Access on site by team members - including students
- Scientific (Concepts, development of new surveillance measures)
- Methodological (Development and validation of algorithms)
- Technological (Linkage, High volume of data)
Data Limitations

- Validity and precision of diagnostic or disease identification (validation studies for ppv, sensitivity and specificity → importance of gold standards)
- Limits of each database (eg: coverage of fee-for-service or drug data, no information on long-term care)
- No data on individual risks such as obesity
- For now, no linkage with survey data
Examples
Diabetes case definition using multiple data sources

- One hospitalisation with a diagnostic of diabetes
- Two fee-for-service visits with a diagnostic of diabetes

Within 2 years
Hospital rate and ratio for AMI among men with and without diabetes, Canada, 2004-2005

Hospital rate and ratio for AMI among women with and without diabetes, Canada, 2004-2005

Conclusion

- Linked administrative data for chronic disease surveillance represent a very important potential for chronic disease surveillance.

- The many challenges are worth the effort for a better and more useful surveillance.