

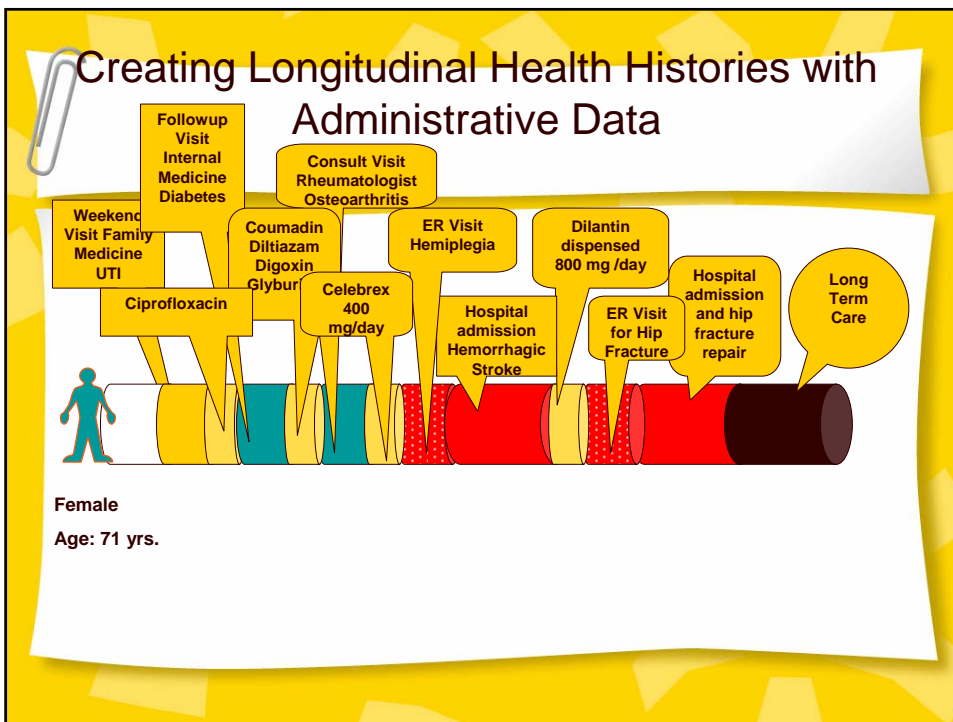
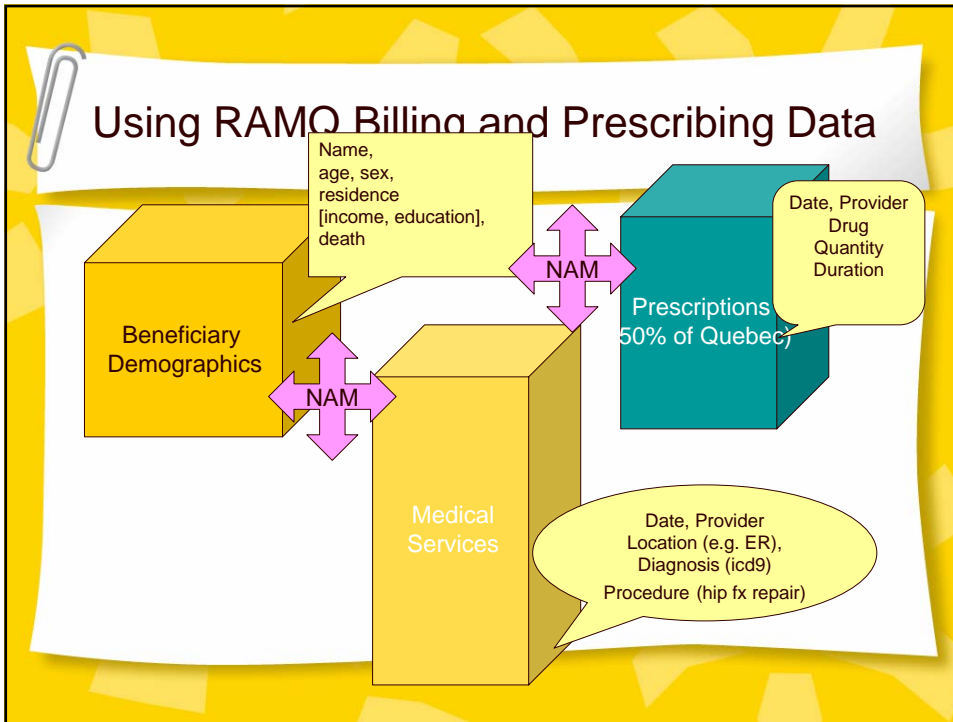
Cette présentation a été effectuée le 23 novembre 2007, au cours de la journée « Vigie en santé publique : s'outiller pour aller au-delà des maladies à déclaration obligatoire » dans le cadre des Journées annuelles de santé publique (JASP) 2007. L'ensemble des présentations est disponible sur le site Web des JASP, à l'adresse <http://www.inspq.qc.ca/archives/>.

Validity of Administrative Claims Data for Real-Time Surveillance

L'Exemple des Données de la RAMQ

Comparing Data Sources

Data	Source	Timeliness
Survey	Primary telephone/ field team; single or repeated cross-sections	Polls (days); health surveys (years)
Hospital Discharge DB	Hospital medical chart; abstracted/coded by professional archivist	1-2 years; aim to reduce to months
Monitoring Systems	e.g., Air, water, weather (Environment Canada, Environment Quebec)	Days/ weeks
Service claims	Medical service and pharmacy (drug) claims for payment for services rendered	Pharmacy=real-time; Medical services=2 week payment cycles
Point-of-Care	Electronic medical records, radiology, laboratory information systems, E-ix, triage	Real-time



Validity of Administrative Claims Diagnostic Data

How Accurate is Diagnostic Data in Medical Services Claims Files for chronic Conditions?

Sensitivity and Specificity of Dx codes in Administrative Claims for Chart-Identified Problems (14,000 elderly)
Wilchesky & Tamblin, JCE, 2001

Disease	Sensitivity	Specificity
Hypertension	69%	82%
Peptic Ulcer	28%	95%
Diabetes	64%	97%
COPD	46%	88%
Prostat. Hypertrophy	44%	95%
Asthma	43%	97%
CHF	42%	96%
Renal Failure	19%	99%
Glaucoma	76%	94%

Validity of Visit-Specific Diagnoses of Respiratory Infection in 3,526 Primary Care Claims

Cadieux et al.

	Prevalence per 1,000	Sensitivity	Specificity	Positive Predictive Value
<i>Likely viral infections</i>	16.4	0.30	1.00	0.84
Laryngitis / tracheitis	1.2	0.20	1.00	1.00
Common cold	1.4	0.11	1.00	0.89
Influenza	3.6	0.45	1.00	0.66
Unspecified acute upper respiratory infection	10.2	0.35	1.00	0.82
<i>Likely bacterial infections</i>	50.9	0.51	0.99	0.89
Pharyngitis / tonsillitis	5.3	0.42	1.00	0.87
Otitis Media	8.6	0.44	1.00	0.88
Sinusitis	12.5	0.46	1.00	0.90
Acute bronchitis	19.5	0.52	0.99	0.72
Pneumonia	5.0	0.38	1.00	0.91
All respiratory infections	67.3	0.49	0.99	0.93

Validity of Diagnostic Algorithms Using Medical Claims to Detect Breast Cancer Deaths

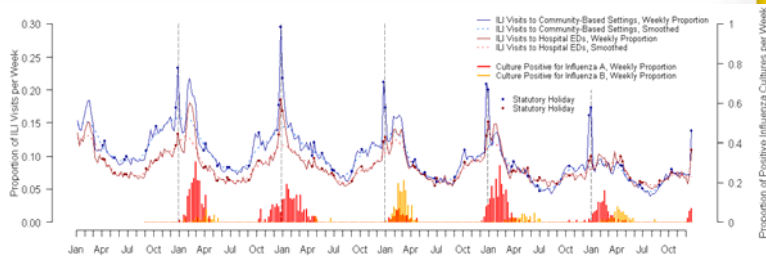
Gagnon et al. Journal of Clinical Oncology, February, 2006

Administrative Data	Chart Data		Positive Predictive Value
	Local Disease	Metastases	
Local Disease	13	3	81.3%
Metastases	2	101	98.1%
Total	15	104	95.7%

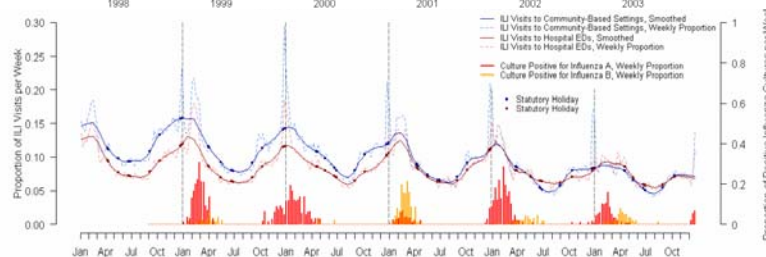
The Frequency of Visits for Influenza-Like Illness using RAMQ Claims from Ambulatory Care Settings in Québec vs. Weekly Proportion of Positive Influenza Cultures in Québec

Emily Chan et al. MSc thesis

Unsmoothed



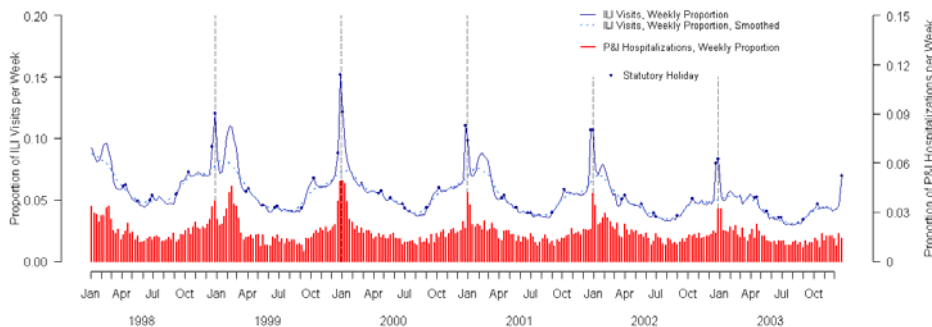
Smoothed



Notes: -Laboratory data prior to week 35 of 1998 was not available
 -Maximum of 1 visit per patient to each physician at each setting per day
 -Statutory Holidays: New Year's Day, Good Friday, Easter Monday, Victoria Day, St-Jean-Baptiste Day, Canada Day, Labour Day, Thanksgiving Day, Christmas Day, Boxing Day

Weekly Proportion of RAMQ Dx Claims for Influenza Visits in Québec vs. Weekly Proportion of Hospitalizations for Influenza-Like Illness in Montréal Hospitals

Emily Chan et al. MSc thesis



Notes: -P&I ICD-9 codes: 490-497
 -Maximum of 1 visit per patient to each physician at each establishment per day
 -Statutory Holidays: New Year's Day, Good Friday, Easter Monday, Victoria Day, St-Jean-Baptiste Day, Canada Day, Labour Day, Thanksgiving Day, Christmas Day, Boxing Day

Validity of Administrative Procedure Codes

Sensitivity of Procedure vs. Diagnostic Codes for Identifying Injuries

Tamblyn et.al., JCE, vol 53, 2000

Treatment Specific Injuries	N	Procedure Code Alone	Diagnostic Code Alone	Procedure or Diag. Code
Fractures	177	94.4	82.6	97.2
<i>Hip</i>				
<i>Skull & Face</i>	15	0.0	26.7	26.7
<i>Thorax</i>	47	0.0	25.5	25.5
<i>Pelvis</i>	26	15.4	53.8	61.5
<i>Upper Ext .</i>	253	62.5	56.9	75.1
<i>Lower Ext .</i>	120	70.3	71.9	85.1
Any Fracture	638	74.0	72.9	85.0
Soft Tissue Injuries	15	53.3	40.0	60.0
<i>Subluxation</i>				
<i>Laceration</i>	225	72.9	32.0	72.9
<i>Foreign Body</i>	6	33.3	16.7	33.3
<i>Burns</i>	23	60.9	78.3	82.6
Any Injury	1,168	54.2 %	67.6 %	81.3 %



Comparison of Dx+ Procedure Codes with Childhood Injury Surveillance

Kostylova et.al., Injury Prevention, vol 11, 2005

Orthopedic Injury

- Sensitivity: 0.97 (95% CI: 0.96, 0.98)
- Specificity: 0.58 (95% CI: 0.56, 0.63)

Head Injury

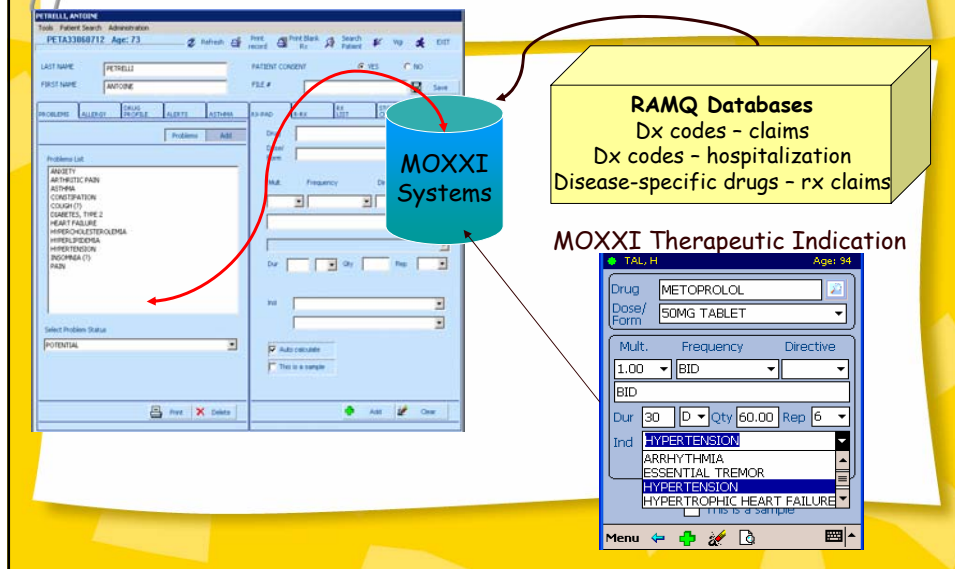
- Sensitivity: 0.61 (95% CI: 0.57, 0.64)
- Specificity: 0.97 (95% CI: 0.96, 0.98)



Integrating Data from E-Rx Systems

The MOXXI E-Rx and Drug
Management System

Electronic Retrieval of Health Problems from Multiple Sources in the MOXXI System



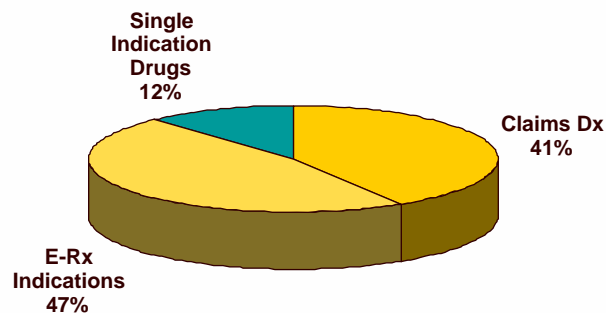
“Real-Time” Validation of Medical Services Claims Dx Codes by Primary Care Physicians

Originating Source	Physician's Response			
	Considered valid (n)	Considered invalid (n)	Positive Predictive Value	95% Confidence Interval
Medical Services Claims (n=5830)				
Hypertension	1163	26	97.8	97.0 – 98.6
Asthma	303	34	90.0	86.7 – 93.1
Diabetes Type 2	227	2	99.1	97.9 – 100
Angina Pectoris	225	16	93.4	90.2 – 96.5
Osteoporosis	163	3	98.2	96.2 – 100
Depression	149	9	94.3	90.7 – 97.9
Benign Prostatic Hyperplasia	134	10	93.1	88.9 – 97.2
Hypothyroidism	126	9	93.3	89.1 – 97.5
Anxiety	118	2	98.3	96.0 – 100
Dermatitis	112	44	71.8	64.7 § 78.9
Inflammation/Pruritus	106	113	48.4	41.8 § 55.0
Anemia	96	21	82.1	75.2 – 89.1
Arrhythmia	89	20	81.7	74.4 § 88.9

Validity of Problems Added by Mandatory Documentation of E-Rx Treatment Indication

Originating Source	Considered valid (n)	Physician's Response		
		Considered invalid (n)	Positive Predictive Value	95% Confidence Interval
Electronic Prescribing (n=6003)				
Pain	382	3	99.2	98.3 -- 100
Prevention	301	2	99.3	98.4 -- 100
Insomnia	290	0	100	--
Depression	286	0	100	--
Hypercholesterolemia	271	3	98.9	97.7 -- 100
Hypertension	221	1	99.5	98.7 -- 100
Contraception	180	0	100	--
Hypothyroidism	170	0	100	--
Hyperlipidemia	164	1	99.4	98.2 -- 100
Asthma	160	2	98.8	97.1 -- 100
Allergic rhinitis	158	2	98.8	97.0 -- 100
Gastritis	146	0	100	--

Benefits of Point of Care Data in Augmenting Information about Health Problems





Summary

- Administrative data can provide more timely information than standard approaches
- Combining different fields and types of administrative data improves sensitivity
- Electronic health records will increasingly amplify the quality and timeliness of information