

# Influenza Surveillance in Alberta Using Physician Claims Data

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# Public Health Surveillance

“Public health surveillance is the **ongoing, systematic** collection, **analysis**, and **interpretation** of health data essential to the planning, implementation, and evaluation of public health practice, closely integrated with the **timely dissemination** of these data to those who need to know...A surveillance system includes the functional capacity for data collection, analysis and dissemination...”

- CDC Surveillance Update, 1988

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# Importance of Influenza Surveillance

- Rapidity with which epidemics evolve
- Widespread morbidity and the seriousness of the complications (notably pneumonia)
- The rate at which influenza viruses show both shifts and drifts in their surface proteins

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# Background

- Physicians submit electronic claims for reimbursement for services provided
- This information contains up to three diagnostic codes in addition to other information
- 82% of all physician services data is available for analysis within two weeks
- 90% of all physician services data is available for analysis within four weeks

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# Method

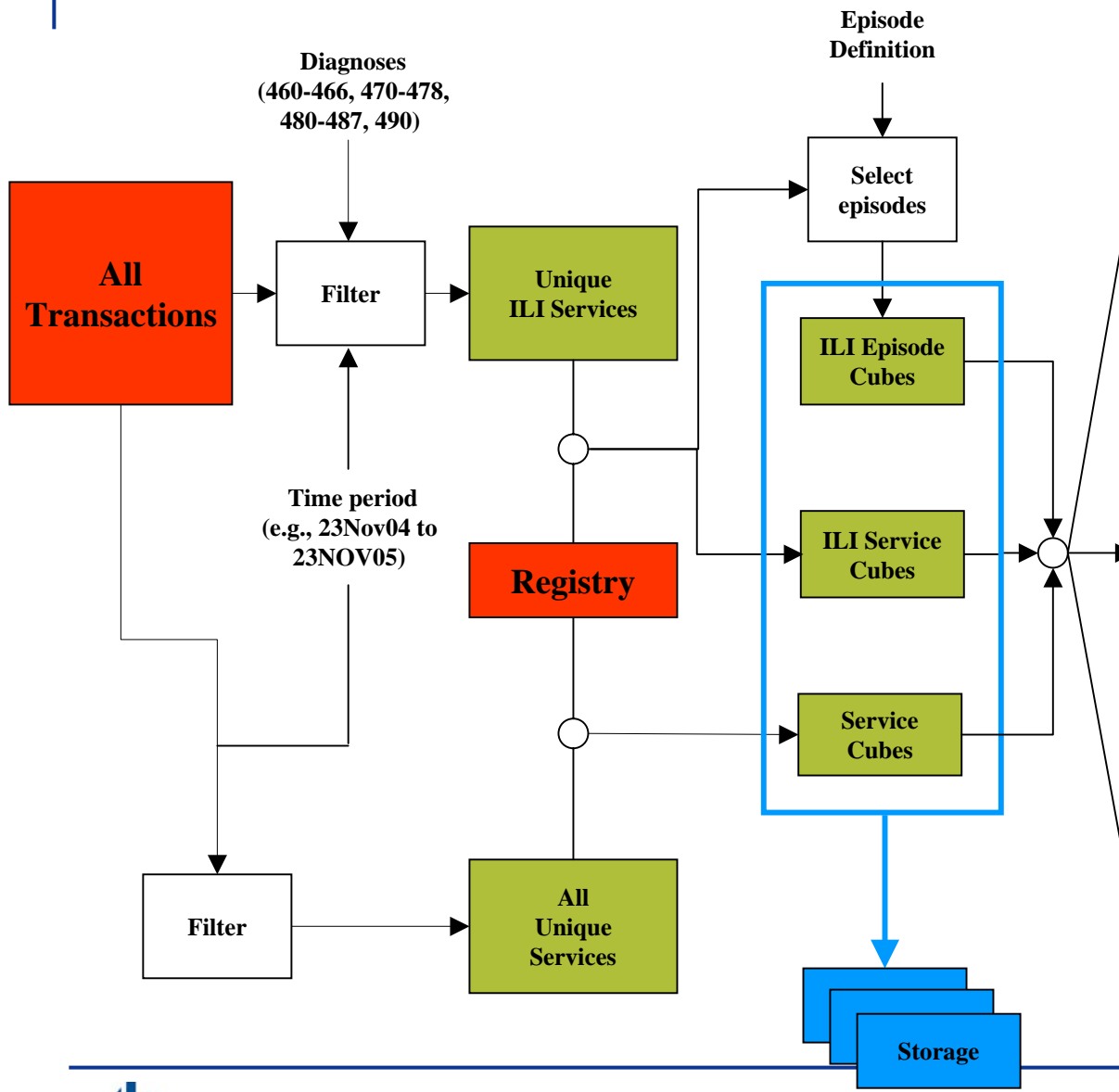
- The Alberta Health and Wellness data warehouse is updated on a weekly basis
- Data is extracted from the fee-for-service database for all general practitioner services regardless of diagnosis
- Data on all emergency department claims are also extracted
- The data are organized by person, place, and time for each diagnosis

# Diagnostic Groups Included

- Acute Respiratory Tract Infections (ICD-9-CM 460-464)
- Other Upper Respiratory Tract Infections (ICD-9-CM 462, 465, 470-478)
- Bronchitis (ICD-9-CM 466, 490)
- Pneumonia (ICD-9-CM 480-486)
- Acute Otitis Media (ICD-9-CM 382.0, 382.4, 382.9)
- Streptococcal Sore Throat (ICD-9-CM 034)
- Influenza (ICD-9-CM 487)

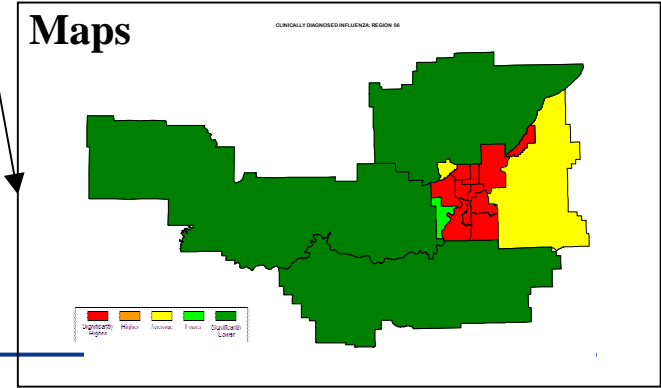
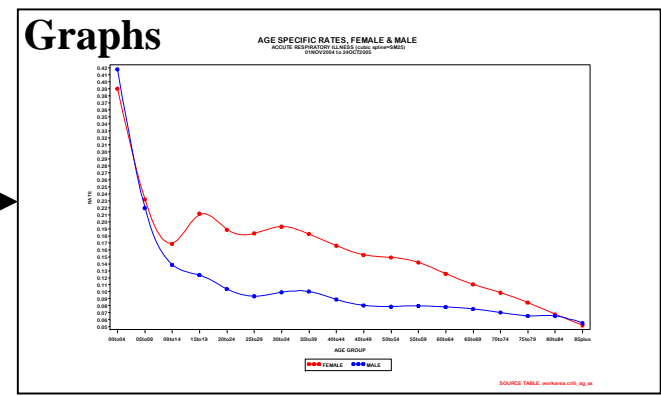
# Measure Computed

- Case counts by week for each diagnosis for:
  - General practitioner offices
  - Emergency departments
  - Long Term Care (where the patient was seen in LTC)
  - Hospital Inpatient
- Number of influenza cases per physician
- Number of influenza cases per 100 patients seen
- Age- and sex-specific rates



### Tables

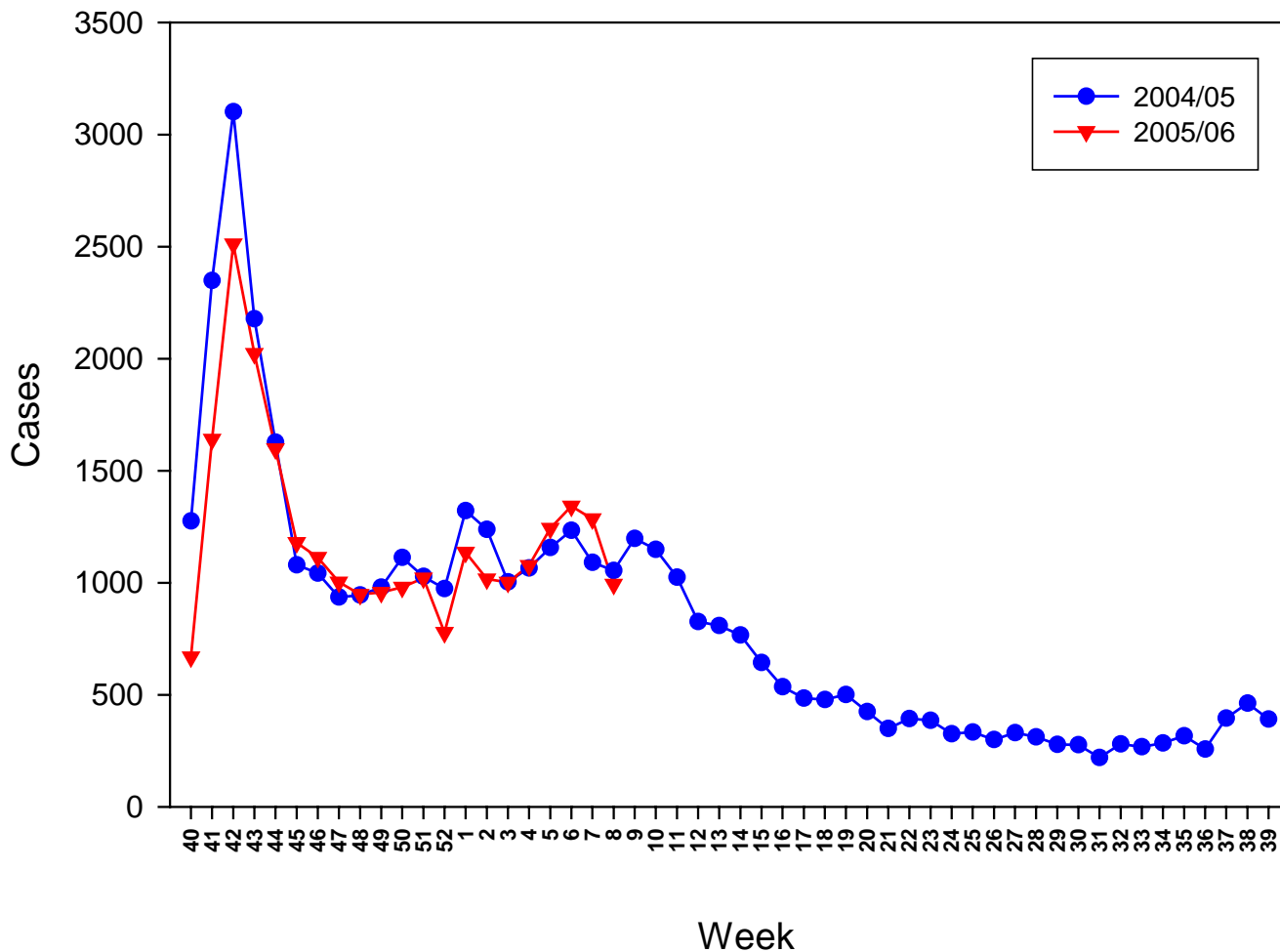
Obs	Community Name	RR	p<	Cluster Group ID	Longitude	Latitude
1	BOYLE	2.57168	0	56	-112.797	54.5920
2	STAND OFF	2.39389	0	414	-113.307	49.4587
3	ANZAC	1.90224	0	14	-111.056	56.4531
4	FORT MCMURRAY	1.90224	0	14	-111.400	56.7223
5	CHARD	1.90224	0	14	-110.738	55.9317
6	CONKLIN	1.90224	0	14	-111.081	55.6316
7	FORT MACKAY	1.90224	0	14	-111.639	57.1822
8	CANYON CREEK	1.64407	0	82	-115.090	55.3713
9	WIDEWATER	1.64407	0	82	-115.027	55.3606
10	KINUSO	1.64407	0	82	-115.394	55.3688
11	SLAVE LAKE	1.64407	0	82	-114.625	55.2893
12	FAUST	1.64407	0	82	-115.618	55.3126
13	DRIFTPILE	1.64407	0	82	-115.789	55.3560
14	FORT SASKATCHEWAN	1.58485	0	185	-113.217	53.6971
16	LETHBRIDGE	1.54715	0	278	-112.826	49.6946
16	OLDS	1.51968	0	335	-114.113	51.7961



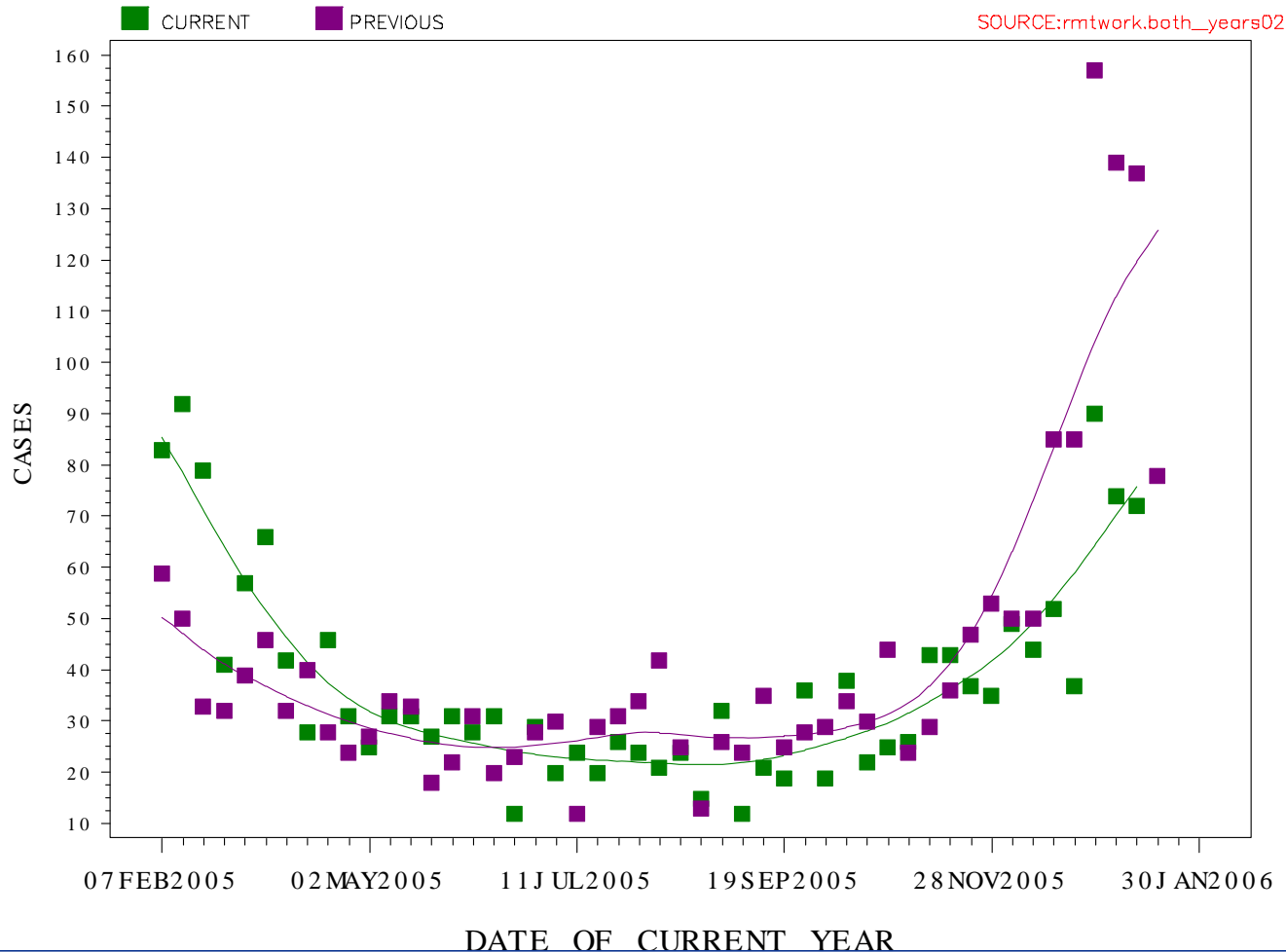
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# Sample Outputs

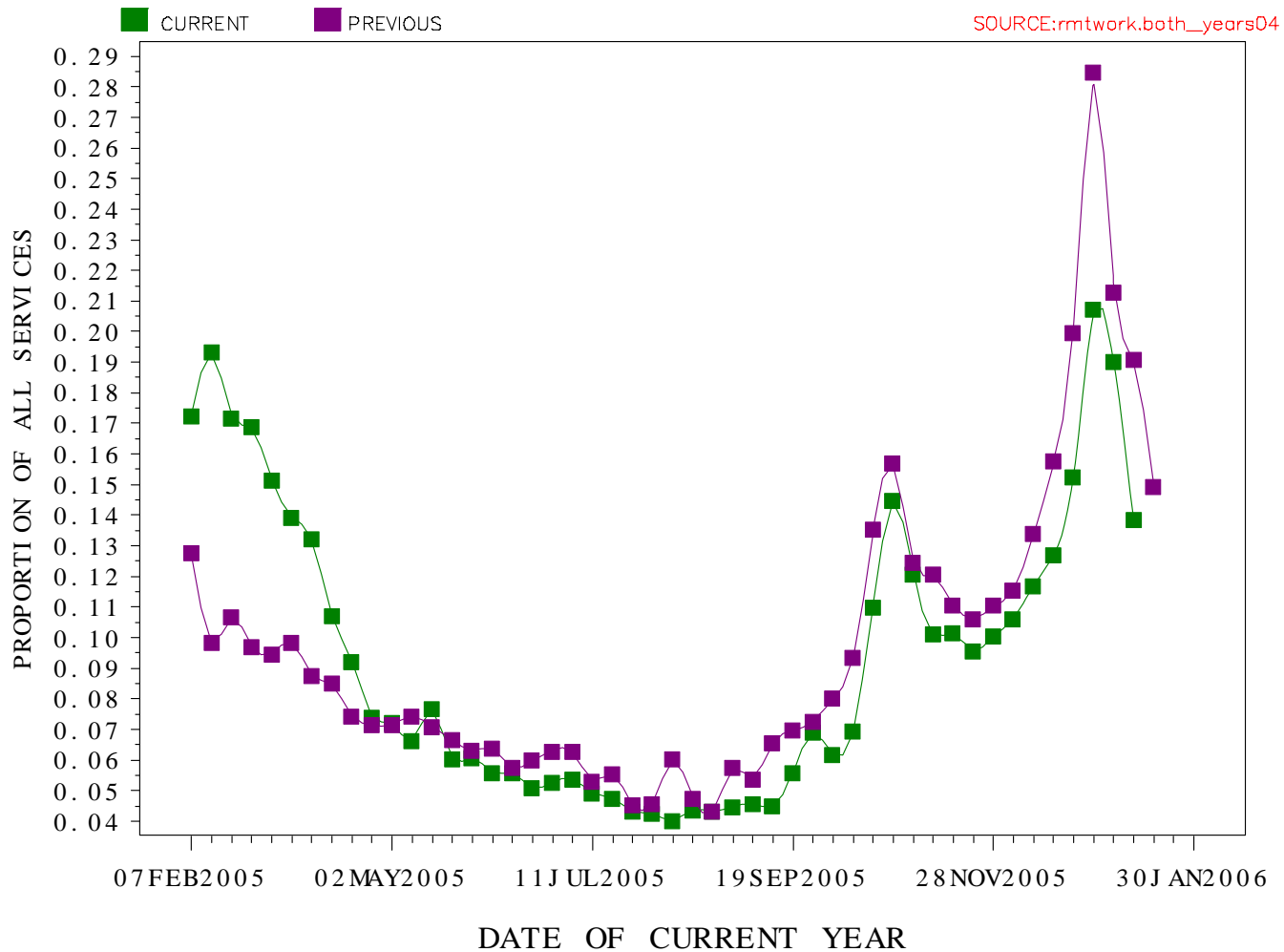
# Number of GP Diagnosed Influenza Cases



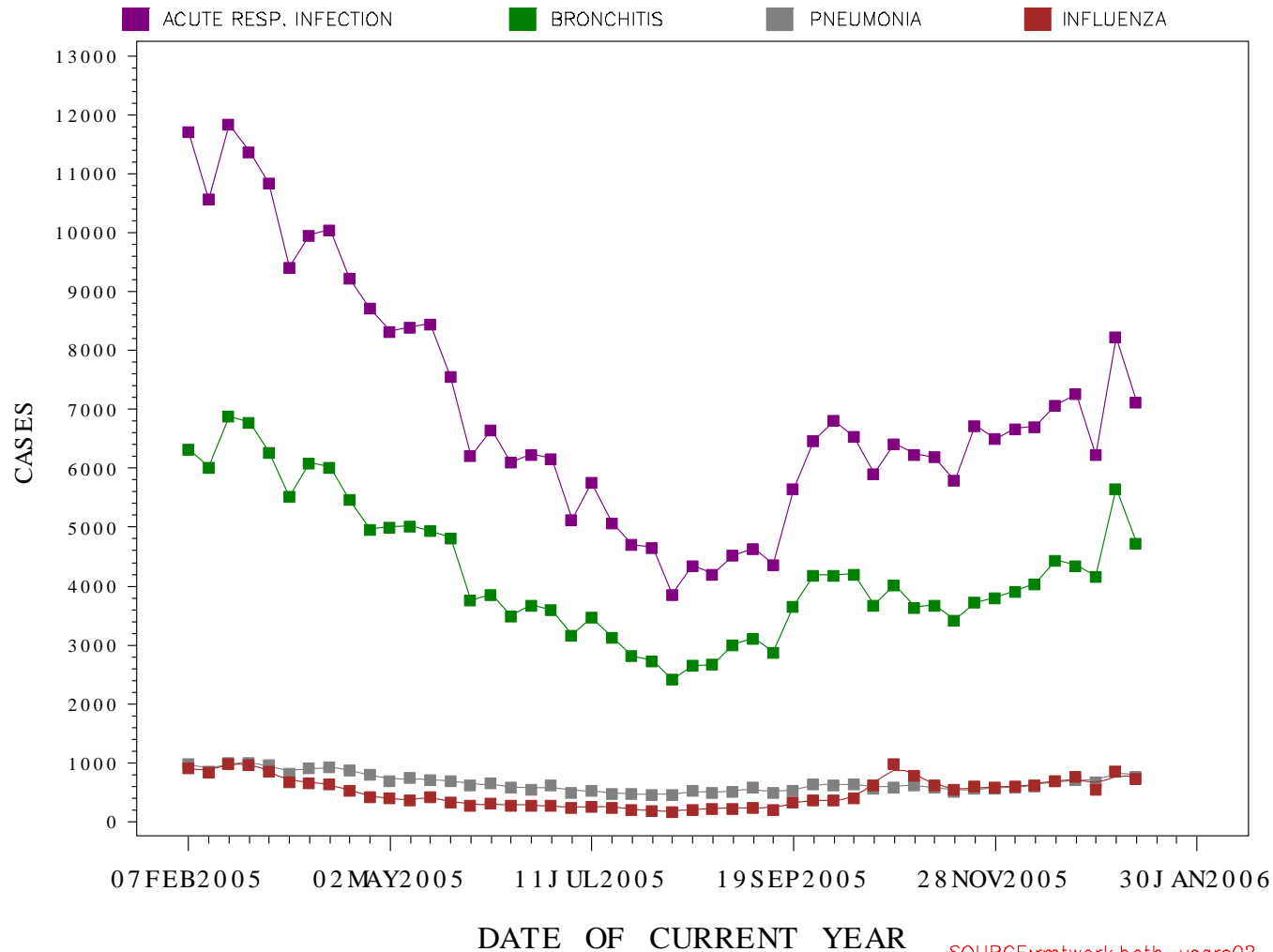
# Influenza Cases Diagnosed in Emergency Departments



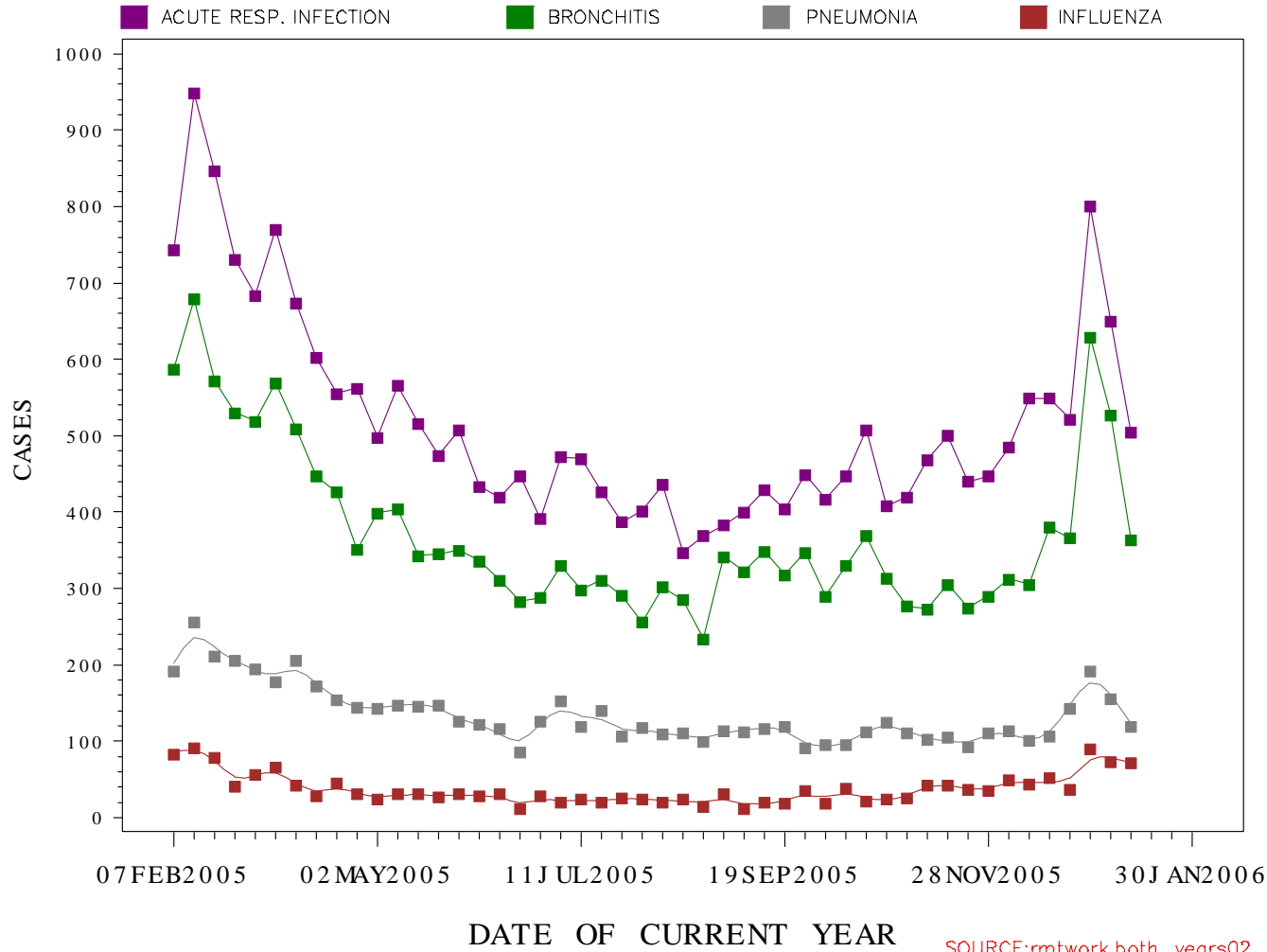
# Percent Influenza Like Illness



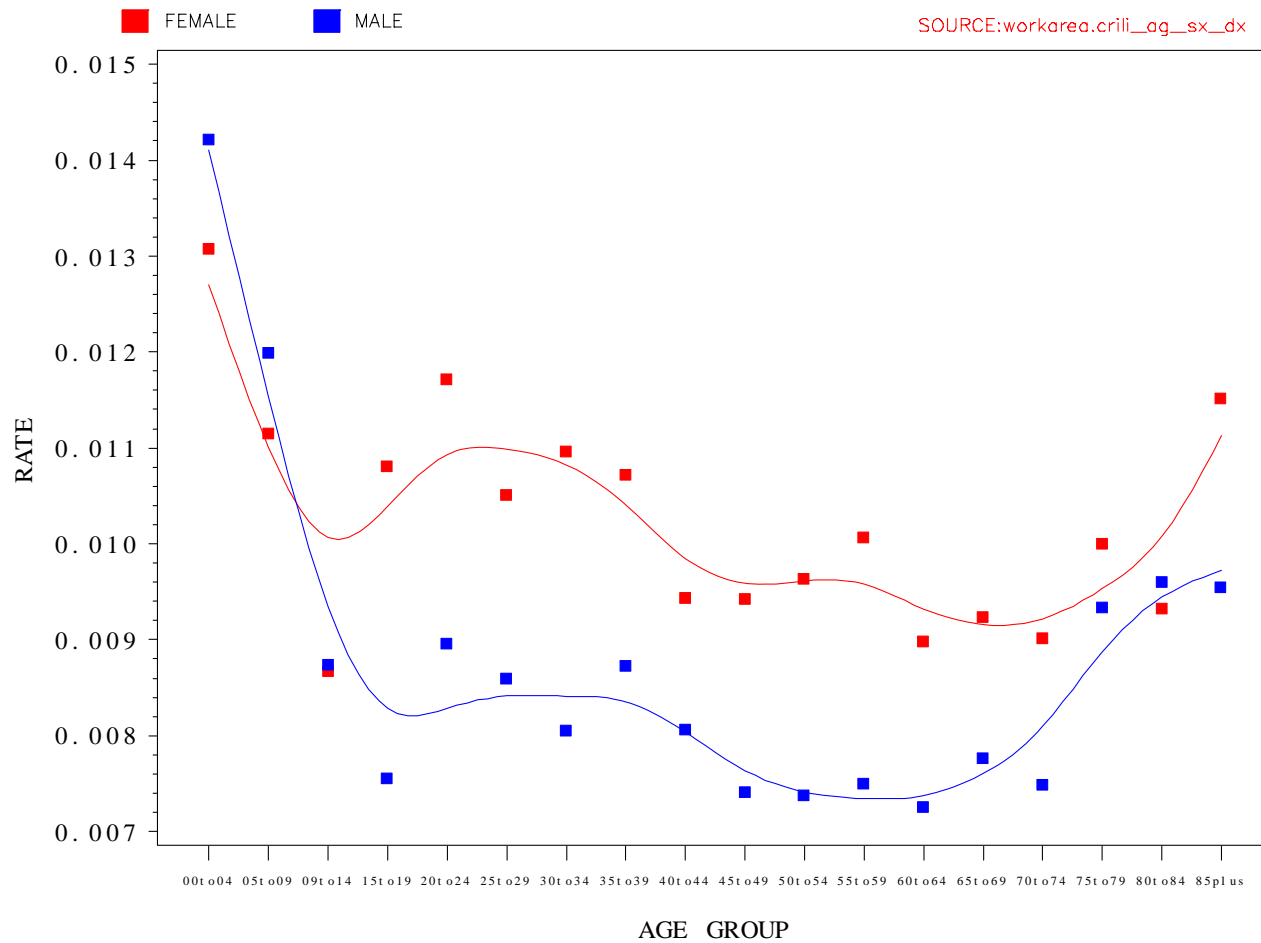
# Respiratory Illness – GP Offices



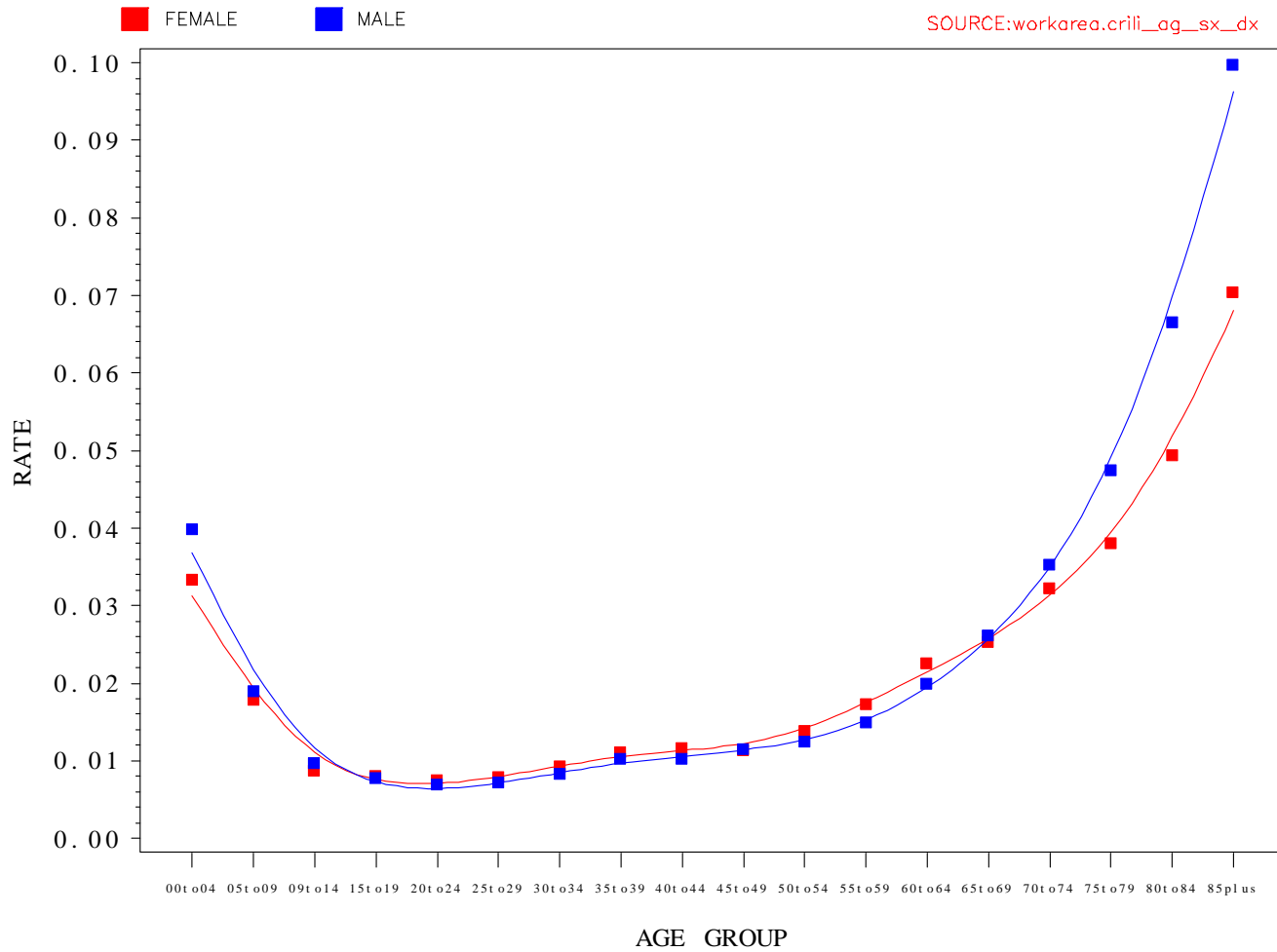
# Respiratory Illness – Emergency



# Age-Specific Rate - Influenza

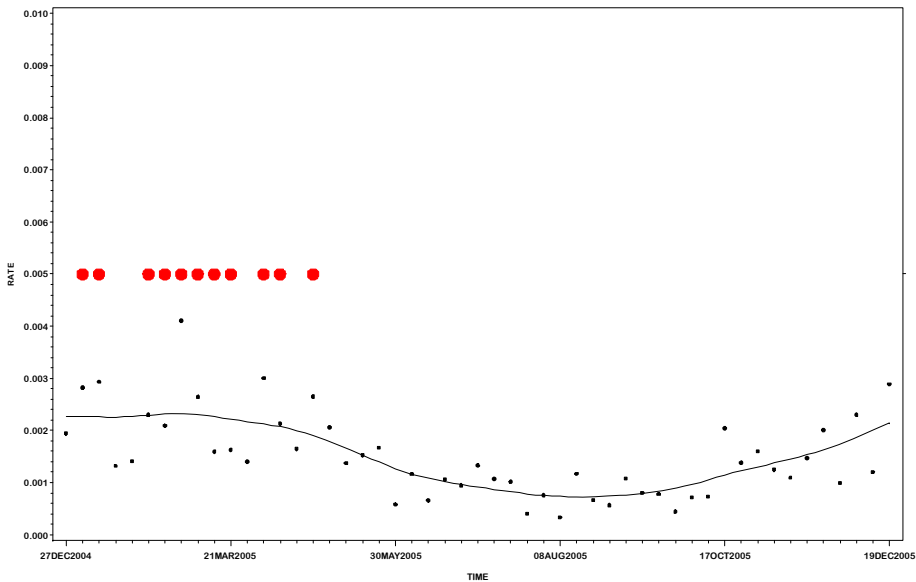


# Age-Specific Rate - Pneumonia

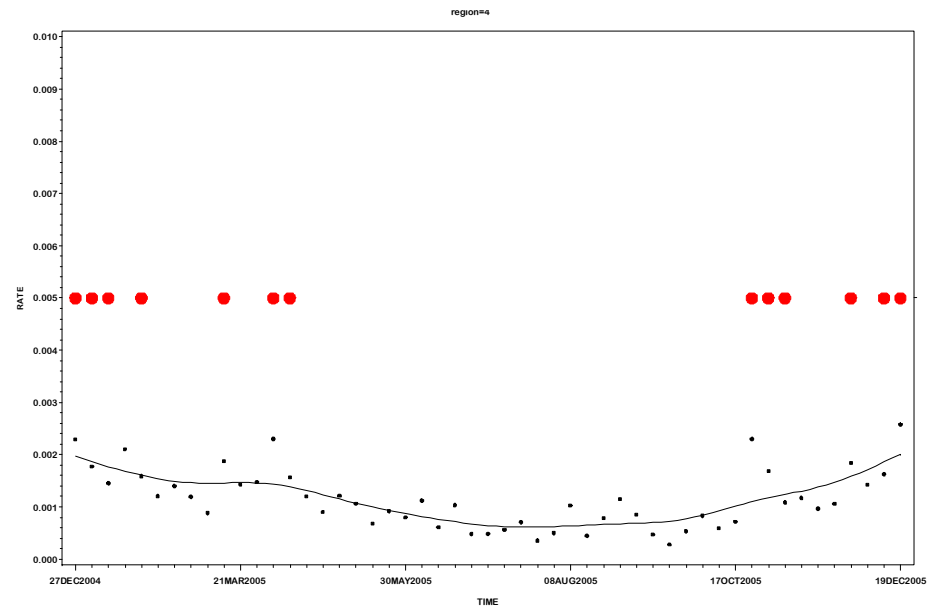


# CUSUMs – Regions One and Four

## Chinook Health Region



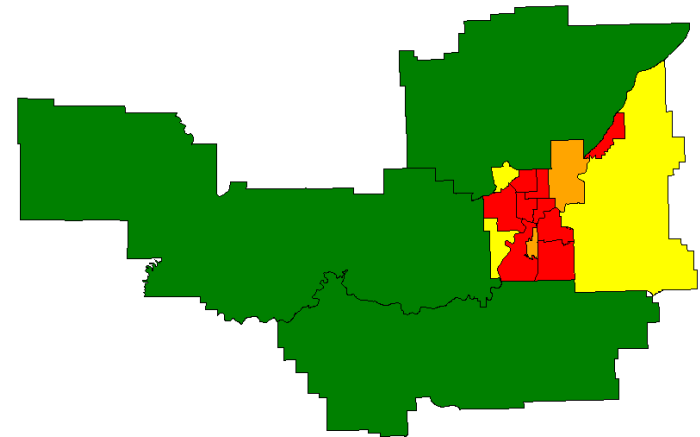
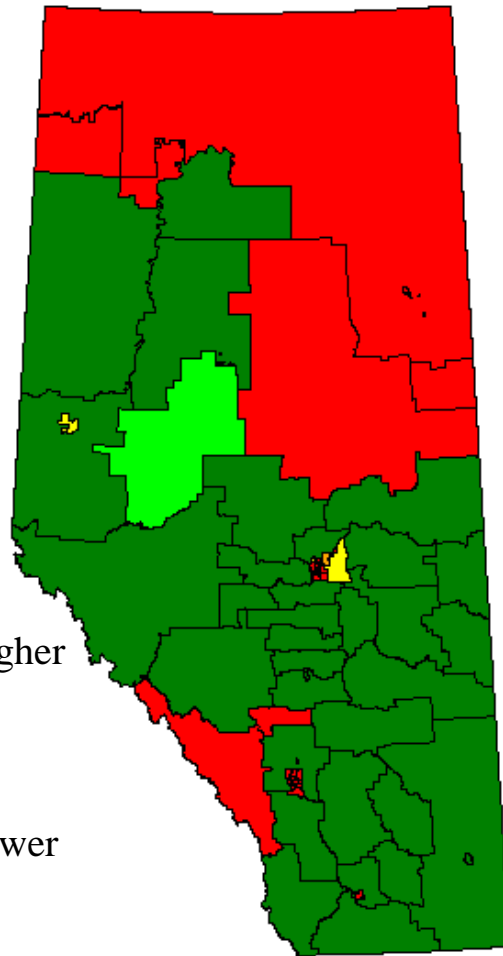
## David Thompson



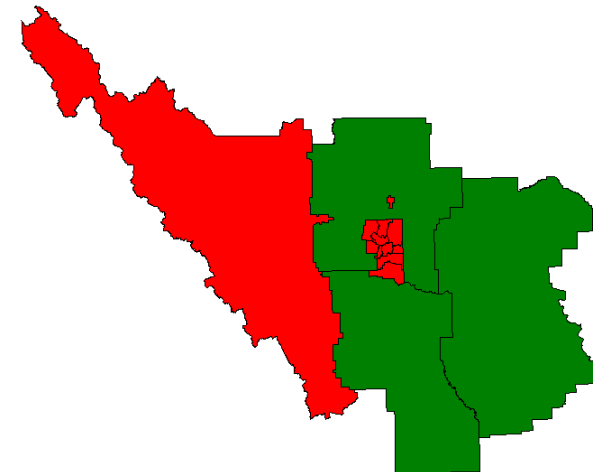
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# Geographic Analysis

# Geographic Distribution of Clinically Diagnosed Influenza

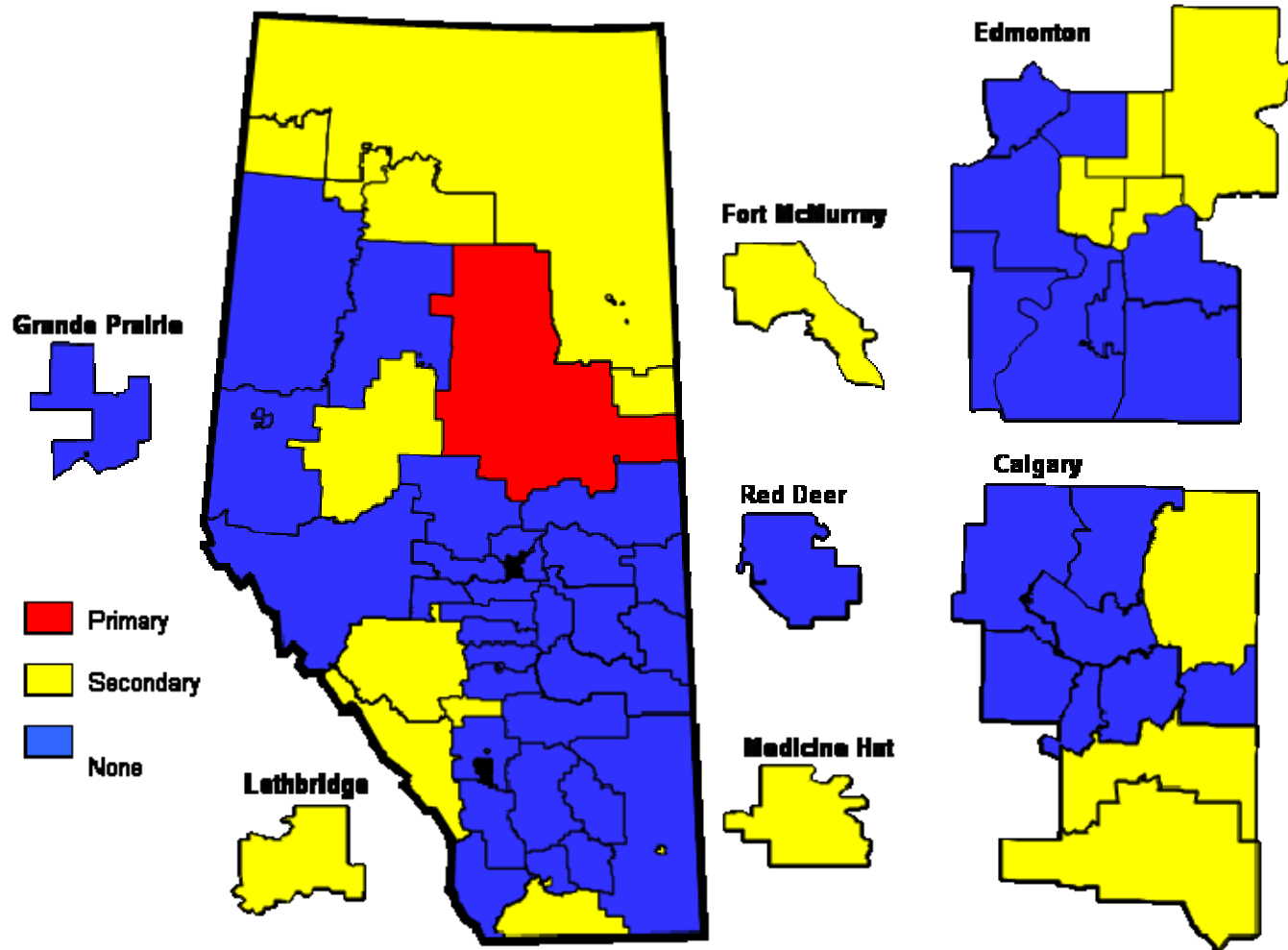


CLINICALLY DIAGNOSED INFLUENZA: REGION 06



- Significantly Higher
- Higher
- Average
- Lower
- Significantly Lower

# Clustering of Clinically Diagnosed Cases of Influenza



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# Dissemination

Each week a report is generated and provided to:

- Medical Officers of Health
- Communicable Disease Nurses in RHAs
- Within Alberta Health and Wellness
  - Public Health Division staff
  - Communications
- Public Health Agency of Canada

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# Next Steps

- Repackage the information to fit within Pandemic Influenza planning and monitoring
- Utilize the internet for dissemination to a wider audience
- Expand to include other disorders as part of syndromic surveillance

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**“Good surveillance does not necessarily ensure the making of right decisions, but it reduces the chances of wrong ones.”**

**- A. D. Langmuir**

***N Engl J Med* 1963; 268: 182-191**