

## Appendix 4: Cross-Border Influenza Mapping Spatial Data Dictionary and Data Comparisons

<b>Health Data Elements</b>	
<b>Name</b>	<b>Definition</b>
<b>• ID</b>	Attribute valued by the initiating application to identify a query. It is used to match response messages to the originating query.
<b>• Fiscal Year</b>	Date of fiscal period in which the patient was discharged from hospital, expressed as YYYY/YY
<b>• Delivery Mode</b>	User-defined code to categorize patients by site.
<b>• Facility of Encounter</b>	Name of hospital facility
<b>• Admission Date</b>	Inpatient: Year, month, and day of admission.
<b>• Discharge Date</b>	Inpatient: Year, month, and day of discharge.
<b>• LOS (Days)</b>	Number of concurrent days patient in hospital.
<b>• Age</b>	Age of patient, expressed in years, on date of discharge from hospital
<b>• Gender</b>	Dichotomous classification of patient's biological sexual identity
<b>• Health Region of Individual</b>	Location of patient's hospital in the regional classification system of the province of New Brunswick.
<b>• Postal Code</b>	A six-character alphanumeric combination assigned to one or more postal addresses in a specific delivery area. It is an integral part of every postal address in Canada used to identify the various processing/delivery facilities and post offices.
<b>• Discharge Disposition</b>	User-defined code representing the disposition of the patient at time of discharge.
<b>• Disease Category</b>	General disease classification of patient's medical condition
<b>• MRDx Code</b>	Numeric classification of patient's medical condition established after study to be chiefly responsible for occasioning the admission of the patient to the hospital or nursing home for care.
<b>• MRDx Description</b>	Textual classification of patient's medical condition established after study to be chiefly responsible for occasioning the admission of the patient to the hospital or nursing home for care.
<b>• Most Responsible Physician Speciality</b>	Textual classification of primary attending medical personnel responsible for the patient's diagnosis and treatment.
<b>• Encounter</b>	Unique numerical identity code assigned to patient by provincial health authority.
<b>• PCode3</b>	The first three characters of the postal code, which represents a geographic area known as the Forward Sortation Area.

<b>Geospatial Data Elements</b>	
<b>Name</b>	<b>Definition</b>
• <b>Health Region</b>	Location of patient's hospital in the regional classification system of the province.
• <b>Postal Code: 6-digit</b>	A six-character alphanumeric combination, excluding punctuation and blanks, assigned to one or more postal addresses in a specific delivery area.
• <b>Postal Code: 3-digit</b>	A 3-digit alphanumeric combination, excluding punctuation and blanks, assigned to one or more postal zones geographically-defining provincial (Canada) or state (USA) postal zones (zip codes).
• <b>Census Block</b>	A block is an area bounded on all sides by roads and/or boundaries of standard geographic areas.
• <b>Census Metropolitan Area (CMA) / Census Agglomeration (CA)</b>	A census metropolitan area (CMA) or a census agglomeration (CA) is formed by one or more adjacent municipalities centred on a large urban area (known as the urban core).
• <b>Census Agricultural Region (CAR)</b>	Census agricultural regions are composed of groups of adjacent census divisions.
• <b>Census Division</b>	Group of neighbouring municipalities joined together for the purposes of regional planning and managing common services.
• <b>Census Subdivision (CSD)</b>	Census subdivision (CSD) is the general term for municipalities (as determined by provincial legislation) or areas treated as municipal equivalents for statistical purposes.
• <b>Census Tract (CT)</b>	Census tracts (CTs) are small, relatively stable geographic areas that usually have a population of 2,500 to 8,000.
• <b>Census Consolidated Subdivision (CCS)</b>	A census consolidated subdivision (CCS) is a grouping of adjacent census subdivisions.
• <b>Designated Place (DPL)</b>	A designated place is normally a small community or settlement that does not meet the criteria established by Statistics Canada to be a census subdivision (an area with municipal status) or an urban area.
• <b>Dissemination Area (DA)</b>	The dissemination area (DA) is a small, relatively stable geographic unit composed of one or more blocks, with a population of 400 to 700 persons.
• <b>Economic Region (ER)</b>	An economic region (ER) is a grouping of complete census divisions created as a standard geographic unit for analysis of regional economic activity.
• <b>Enumeration Area (EA)</b>	An enumeration area is the geographic area canvassed by

	one census representative.
• <b>Federal Electoral District (FED)</b>	A federal electoral district is an area represented by a member of the House of Commons.
• <b>Province/Territory</b>	Province and territory refer to the major political units of Canada.
• <b>Urban Area (UA)</b>	An urban area has a minimum population concentration of 1,000 persons and a population density of at least 400 persons per square kilometre, based on the current census population count.
• <b>Urban Core, Urban Fringe, Rural Fringe</b>	Urban core, urban fringe and rural fringe distinguish between central and peripheral urban and rural areas within a census metropolitan area (CMA) or census agglomeration (CA).

<b>Pandemic Data Elements</b>	
<b>Name</b>	<b>Definition</b>
• <b>Inverse Distance Weight Model</b>	A 122-day sequence at the Province-State Level. Temporal sequence represents an Influenza Pandemic Simulation Model for the Province of New Brunswick and the State of Maine. The Pandemic Model utilizes an Inverse Distance Weight classification function. The temporal sequence is spatially resolved at the Census Block Group / Dissemination Area level.
• <b>Frequency Distribution Model</b>	A 122-day sequence at the Province-State Level. Temporal sequence represents an Influenza Pandemic Simulation Model for the Province of New Brunswick and the State of Maine. The Pandemic Model utilizes a Frequency Distribution classification function. The temporal sequence is spatially resolved at five resolutions: State / Province; Health Service Area / Health Region; County / Census Division; Township / Metropolitan Area; and Census Block Group / Dissemination Area.
• <b>Gaussian Distribution Model</b>	A 122-day sequence at the Province-State Level. Temporal sequence represents an Influenza Pandemic Simulation Model for the Province of New Brunswick and the State of Maine. The Pandemic Model utilizes a Gaussian Distribution classification function. The temporal sequence is spatially resolved at five resolutions: State / Province; Health Service Area / Health Region; County / Census Division; Township / Metropolitan Area; and Census Block Group / Dissemination Area.
• <b>Poisson Distribution Model</b>	A 122-day sequence at the Province-State Level. Temporal sequence represents an Influenza Pandemic Simulation

	Model for the Province of New Brunswick and the State of Maine. The Pandemic Model utilizes a Poisson Distribution classification function. The temporal sequence is spatially resolved at five resolutions: State / Province; Health Service Area / Health Region; County / Census Division; Township / Metropolitan Area; and Census Block Group / Dissemination Area.
• <b>Hospital Bed Model</b>	A 122-day sequence at the Province-State Level. Temporal sequence represents a syndromic surveillance of hospital bed shortages during an Influenza Pandemic Simulation Exercise for the Province of New Brunswick and the State of Maine. The temporal sequence is spatially resolved at the Hospital Point-of-Interest geo-location.
• <b>School Absenteeism Model</b>	The School layer models syndromic surveillance of student absenteeism at Kindergarden, Elementary, Junior, Middle, Senior, Vocational, College and University institutions for the Province of New Brunswick and the State of Maine over a 122-day period. The temporal sequence is spatially resolved at the School Point-of-Interest geo-location.
• <b>Cold Medication Model</b>	The Pharmacy layer models syndromic surveillance of consumer demand for cold medication at pharmacies for the Province of New Brunswick and the State of Maine over a 122-day period. The temporal sequence is spatially resolved at the Pharmacy Point-of-Interest geo-location.
• <b>Food Retail Model</b>	The Food Retail layer models syndromic surveillance of consumer demands and retail supply for food at grocery retail outlets for the Province of New Brunswick and the State of Maine over a 122-day period. The temporal sequence is spatially resolved at the Food Retail Point-of-Interest geo-location.
• <b>Food Supply Model</b>	The Food Supply layer models syndromic surveillance of consumer demands and supply for bulk foods at supply distribution depots for the Province of New Brunswick and the State of Maine over a 122-day period. The temporal sequence is spatially resolved at the Food Supply Point-of-Interest geo-location.
• <b>Fuel Retail Model</b>	The Fuel Retail layer models syndromic surveillance of consumer demands and retail supply for transportation fuel at gasoline retail outlets for the Province of New Brunswick and the State of Maine over a 122-day period. The temporal sequence is spatially resolved at the Fuel Retail Point-of-Interest geo-location.
• <b>Fuel Supply Model</b>	The Fuel Supply layer models syndromic surveillance of consumer demands and supply for home heating and

	transportation fuel at supply depots for the Province of New Brunswick and the State of Maine over a 122-day period. The temporal sequence is spatially resolved at the Fuel Supply Point-of-Interest geo-location.
• <b>Grocery Stores</b>	Point-of-Interest geo-location and labels for retail grocery stores in the Province of New Brunswick and the State of Maine.
• <b>Food Warehouses</b>	Point-of-Interest geo-location and labels for wholesale food warehouses in the Province of New Brunswick and the State of Maine.
• <b>Gas Stations</b>	Point-of-Interest geo-location and labels for retail gas stations in the Province of New Brunswick and the State of Maine.
• <b>Fuel Depots</b>	Point-of-Interest geo-location and labels for wholesale fuel depots in the Province of New Brunswick and the State of Maine.
• <b>Health Facilities</b>	Point-of-Interest geo-location and labels for health facilities in the Province of New Brunswick and the State of Maine, including: hospitals, clinics, doctors' offices, nursing homes and pharmacies.
• <b>Transportation Networks</b>	Point-of-Interest geo-location and labels for transportation networks in the Province of New Brunswick and the State of Maine, including: major highways, secondary highways, major railways, airports..
• <b>Schools</b>	Point-of-Interest geo-location and labels for schools in the Province of New Brunswick and the State of Maine, including: Kindergarden, Elementary. Junior, Middle, Senior, Vocational, College and University institutions.
• <b>Police</b>	Point-of-Interest geo-location and labels for police stations in the Province of New Brunswick and the State of Maine.
• <b>Ambulance</b>	Point-of-Interest geo-location and labels for ambulance stations in the Province of New Brunswick and the State of Maine.
• <b>Fire Stations</b>	Point-of-Interest geo-location and labels for fire stations in the Province of New Brunswick and the State of Maine.
• <b>Place Names</b>	Point-of-Interest geo-location and labels for metropolitan place names in the Province of New Brunswick and the State of Maine.

## Data Dictionary: Maine Layers

Name:	Metwp24
Definition	METWP24 depicts political boundaries, common town names, and geocodes for Maine at 1:24,000 scale.
Attributes	Polygons in the coverage are attributed with the items TOWN, COUNTY, GEOCODE, and CNTYCODE as found in "Standard Geographic Codes for Maine Minor Civil Divisions", 1971. Polygons in the coverage are also attributed with the items LAND, ISLAND, LURC, BAXTER and TAG.
Geospatial Representation (if necessary)	Polygon
Relations	Entire State of Maine
Notes:	The coverage was created from USGS, 7.5 minute map series, town boundaries.

Name:	Cnty24
Definition	CNTY24 contains state and county boundaries for Maine, mapped at 1:24,000 scale. The coverage has polygon topology and was created in Arc/Info from METWP24 by a select on arcs coded TYPE = state, county, and coastline.
Attributes	Polygons in the coverage are labelled with COUNTY, CNTYCODE, TAG, LAND, ISLAND.
Geospatial Representation	Polygon
Relations	Entire State of Maine
Notes:	The coverage provides a ready reference for county boundaries, names and county codes at 1:24,000

Name:	Hospitals
Definition	HOSPITAL shows point locations of non-psychiatric hospitals (acute care facilities) in Maine mapped at 1:24,000 scale. Data for the coverage was provided by the Bureau of Medical Services, Division of Licensing and Certification and was compiled on a USGS 1:24,000 scale base. In the Bureau's "Directory of Health Facilities by County", a hospital is defined as "a facility offering services for inpatient care and services for observation, diagnosis and active treatment of an individual with a medical, surgical, obstetrical, rehabilitation or psychiatric condition requiring direction or supervision of a physician and which may not offer similar services to outpatients."
Attributes	The coverage contains the item NAME, address, and facility information.
Geospatial Representation	Points

Relations	Entire State of Maine
Notes:	The facilities were located using 1:24,000 base data and 1:24,000 Digital Raster Graphic images and the horizontal accuracy should meet the 12 meter the National Map Accuracy Standards for 1:24,000 scale maps.

Name:	redcross
Definition	REDCROSS displays point locations for chapters in Maine that serve as important sources of information to help people in emergencies or provide limited shelter capabilities, mapped on a 1:24,000 base. The chapters are not completely unique to a county and some counties have none. The chapter locations have facilities to help people in emergencies and have limited shelter capabilities. The locations were based on a listing from the Red Cross Chapters of Maine and information downloaded from the American Red Cross website< <a href="http://www.redcross.org">http://www.redcross.org</a> >.
Attributes	CHAPTER, STREET, CITY, STATE, ZIP, PHONE PHONE2, MAILING, EMAIL
Geospatial Representation	point
Relations	All Redcross facilities in the State of Maine
Notes:	Because the facilities were located using 1:24,000 base data and 1:24,000 Digital Raster Graphic images, the horizontal accuracy should meet National Map Accuracy Standards for 1:24,000 scale maps.

Name:	schlib
Definition	SCHLIB shows POINT locations of libraries and educational institutions in Maine at 1:24,000 scale. Colleges, universities, technical colleges, high schools, middle schools, elementary schools, kindergarten/sub-primary and other special schools are included.
Attributes	NAME, ADD1, ADD2, TOWN, STATE, ZIP, COUNTY PHONE, TYPE, GRADE
Geospatial Representation	points
Relations	All libraries & schools (K-12 & colleges) for the State of Maine
Notes:	MEGIS staff created the coverage in 1995, and used the 1997 Maine State Library school and library database to verify and update the data. Attribute coding in the coverage was verified at MEGIS by visual check of point attributes against data from Maine State Library (MSL). Additional refinement of the attribution has been ongoing from 1997 to 2003 based on multiple sources of information.  Locations are approximate only.

Name:	rescue
Definition	RESCUE shows point locations of Maine municipal or private ambulance/rescue units, mapped on a 1:24,000 scale base.
Attributes	The coverage is attributed with the item NAME and with address information.
Geospatial Representation	points
Relations	State of Maine
Notes:	Facilities in RESCUE were located using 1:24,000 base data, 1:24,000 Digital Raster Graphic images, and E911 GPS information. The approximate horizontal accuracy is 12 meters for data derived from 1:24,000 scale sources and approximately 5 meters on those collected through E911 GPS. An item ACCURACY contains information on the level of accuracy attributed to each point location.

Name:	police
Definition	POLICE shows point locations of Maine municipal, county and state police stations and substations compiled on a 1:24,000 scale base.
Attributes	The coverage contains the item NAME and other address information.
Geospatial Representation	points
Relations	State of Maine
Notes:	Facilities in POLICE were located using 1:24,000 base data, 1:24,000 Digital Raster Graphic images, and E911 GPS information. The approximate horizontal accuracy is 12 meters for data derived from 1:24,000 scale sources and approximately 5 meters on those collected through E911 GPS. An item ACCURACY contains information on the level of accuracy attributed to each point location.

Name:	e911rds
Definition	E911RDS contain updated road centerline and road name data for Maine at 1:24,000 scale. E911RDS digital roads were developed, and are maintained, to serve the Enhanced 911 project in Maine.
Attributes	Data is statewide and divided by minor civil divisions. The data set was developed from USGS 1:24,000 digital roads data and is in ArcInfo coverage format. The project used GPS collection and worked with each municipality to verify road and roadname data. Other data sources include MEDOQs (appended, compressed USGS Digital Orthophoto Quarter Quadrangles), 10 meter panchromatic sharpened SPOT imagery from the USA Select Statewide Program and US Department of Commerce, Bureau of Census TIGER/LineFiles. A related table Standard Geocodes for

	Maine Minor Civil Divisions, 1971 is available at <a href="http://megis.maine.gov/catalog/">http://megis.maine.gov/catalog/</a> "Tables". The coverage includes the ARC items E911, RDNAME, RANGE. Ongoing maintenance of the final data includes the addition and/or correction of roads, roadnames and address ranges at the request of each municipalities Addressing Officer.
Geospatial Representation	polyline
Relations	State of Maine
Notes:	E911RDS were initially mapped using 1:24,000 base data, and data from Census 1990 TIGER/Line files. Address development included proofing ground locations, GPS collection of new roads and changed roads, attribution of any new road names on the authority of each municipality, and the determination of a minimum and maximum address range for each road.

Name:	hsa
Definition	HSA (Hospital Service Areas) represent local areas for community inpatient care in Maine. Each HSA consists of a group of cities and towns that include one or more hospitals to which local residents have the plurality of their inpatient admissions. HSAs have provided an accepted method in Maine and throughout the country to analyze variation in health care use.
Attributes	HSA contains the attributes HSA_ID and HSA_NAME that were assigned by the Maine Data Health Organization.
Geospatial Representation	HSA is a polygon feature class
Relations	Produced as a merge of metwp24. Covers the State of Maine
Notes:	In 2004, the Maine Health Data Organization (MHDO) initiated work to update Maine HSAs because delivery systems for hospital care in Maine changed since 1994 when the last version of HSAs was completed. The MHDO collaborated with other health care agencies in preparing data, reviewing methods, and making final assignments of the Maine 5-digit geocodes to HSAs. In addition to reassigning towns to HSAs, the work resulted in a reduction in the number of HSAs from 35 to 32. The separate Fort Fairfield, Bath, and Berwick 1994 HSA areas were eliminated.

Name:	meair
Definition	MEAIR includes point locations of airports in Maine from USGS 1:100,000 scale DLG files.
Attributes	Data for this coverage were compiled from USGS 1:100,000 scale DLG files by MEGIS staff in 1992. Seaplane base locations were generated from lat-long coordinates. The coverage was updated in August 1995 by MEGIS staff using

	the latest NOAA Airport/Facility Directory and NOAA Sectional Aeronautical Charts. Codes were added at this time for a number of attributes including length of longest runway, runway surface, and fuel available. Missing airports were added to initial point coverage. Points from the initial coverage were supplemented with airport points from other reference sources by generating point locations from lat/long coords. Attribute information added to all points.
Geospatial Representation	points
Relations	All airports in the State of Maine
Notes:	Data for this coverage were compiled by MEGIS staff in 1999. Seaplane base locations were generated from lat-long coordinates. The coverage was updated in August 1995 by MEGIS staff using the latest NOAA Airport/Facility Directory and NOAA Sectional Aeronautical Charts, and has been renamed from MEAIR100 to MEAIR. Codes were added at this time for a number of attributes including length of longest runway, runway surface, and fuel available. This coverage is for general reference only and should not to be used for air navigation. No quality control has been attempted and current ground condition is not known.

Name:	blks00
Definition	BLKS00 contains Census Blocks which are the smallest geographic units for which basic demographics are available from the Census Bureau.
Attributes	BLKS00 contains Census 2000 Block boundaries and population by blocks for the state of Maine at 1:100,000 scale. Census Block boundaries are statistical subdivisions of counties for the reporting of decennial census data. The Census 2000 TIGER/Line Files are the primary source for this data set. BLKS00 is built to POLYGON topology and contains the attributes FIPSSTCO, COUNTY, COUSUB00, COUSUB00NA(ME), TRCT00, BLKGRP00, PLC00, PLC00NA(ME), BLK00, BLK00NUM, BLKNAME, STFIDBLK00, POP00, CENTAG, USDSTRCT03, SNDSTRCT03, and HSDSTRCT03.
Geospatial Representation	BLKS00 is built to POLYGON topology
Relations	Theses files cover a single county only but can be merged to create a dataset that covers the entire state of Maine
Notes:	The item CENTAG was added for correct labeling and/or statistics where multiple polygons contain the same block number, as is the case in some coastal communities where islands are depicted. The numeric item POP00 was populated and proofed from the Census 2000 Redistricting Data (P.L. 94-171) Summary File. The item COUSUB00 contains the Federal

	Information Processing Standard (FIPS) code a single 5 character code field used by the Bureau of the Census to identify the Census County Division to which the block belongs. COUSUBNA has been added to improve convenience in labeling. Likewise TRCT00 (Tract), BLKGRP00 (Block Group), and PLC00 (Designated Place if applicable), and PLC00NA for Designated Place name labelling. All Census geographies, cross tabulated in the dataset, can be mapped using the ID included for each level, i.e. For Census County Subdivisions COUSUB00, Census Tracts STFIDTRCT00, Census Block Groups STFIDBLKGRP00, Census Designate Places PLC00 and Census Blocks STFIDBLK00. Unique-ids for each Census geographic unit can be used to relate or join these datasets to extended Census data files, counts, tabulations, and reference tables.
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Name:	blks00sf1
Definition	Census block level data from the 2000 census
Attributes	Contains demographic information of the residents of each census block
Geospatial Representation	None
Relations	Joins to bkls00 by STFIDBLK00
Notes:	

Name:	admits
Definition	Hospital admissions for all diagnoses for the State of Maine for a given year
Attributes	Patient demographics, date of admission & discharge, diagnoses
Geospatial Representation	none
Relations	Includes geocode of residence of patient. Can be joined to metwp24 by geocode
Notes:	Our current plan is to extract admissions for “influenza & influenza-like diseases” and to just use these data to create dummy data set.

## Cross-Border Data Comparison

### Good Matches

- 1) State of Maine (in Cnty24 layer, ME) matches Province/Territory (in Census Areas catalog, NB). These will provide boundaries for the combined map. Similarly, the county information from this layer for ME matches with County information from the Statistics Area catalog (NB).
- 2) Geocodes (in Metwp24 layer, ME) matches with 6-digit postal codes (in Statistics Area catalog, NB). This is important because these are the finest scale at which the place of residence of people admitted to the hospital is spatially referenced.
- 3) Census block in blks00sf1 (table) and blks00 (spatial layers, ME) match well with Block (in the Census Areas catalogue, NB). In both cases, these provide the finest-scale population information.
- 4) Hospitals (ME) contains hospital locations and matches well with Hospital in the Health Facility catalog (NB).
- 5) Schlib (ME) contains school location data and matches well with University and School (in the Education Facility catalog, NB).
- 6) Police (ME) contains police station locations and matches well with Police Departments (in Emergency Facility catalog, NB).
- 7) e911rds (ME) contains a roads map and matches well with Road Network (NB background spatial data).
- 8) hsa (ME) contains boundaries of hospital service areas and matches well with Health Region (in Statistics Area catalog, NB).
- 9) meair contains point locations of airports in Maine and matches well with Airport (NB background spatial data).
- 10) Hospital admissions data tables for Maine & New Brunswick match well. Both contain admission date, discharge date, age, sex, ICD-9 code etc. The Maine data is geo-referenced by geocode while the New Brunswick data is by 6-digit postal code.

### Missing Data / Relationships To Be Determined

- 1) Maine has Red Cross facilities (mapped in a spatial layer) that serve as locations where people can seek help in an emergency. They provide a limited amount of shelter and a potential distribution site for supplies. New Brunswick has Emergency Stockpiles & Evacuation Centers (in Emergency Faculties catalogue). There is an outstanding

need to determine which facilities perform similar functions on the two sides of the border.

2) Maine has a spatial layer (rescue) that maps the locations where ambulances are located. New Brunswick has 911 and Fire Stations (in the Emergency Facilities catalog). There is an outstanding need to determine which facilities perform similar functions on the two sides of the border.

3) Census data is not available for the same years.

4) The number of hospital beds in Maine and New Brunswick are not known in real-time.

5) NB has a number of spatial data layers in its Health Facility catalog that are not available for Maine. These include: Clinics, Doctors Offices, Pharmacy, Nursing Home/Senior Home, and Daycare Center (among others). It might be possible to develop these from lists that include addresses. However, this process would be extremely labor-intensive.

6) NB has a number of Background Spatial Data layers that are not available for Maine. These include: Poultry Farms, Pig Farms, Migratory Bird Routes, & Migratory Bird Habitats (among others). It might be possible to develop these from lists that include addresses. However, this process would be extremely labor-intensive.

7) There are additional pieces of information about the hospitals that would be useful including the number of respirators, the number of intensive care beds, etc. for both Maine and New Brunswick.