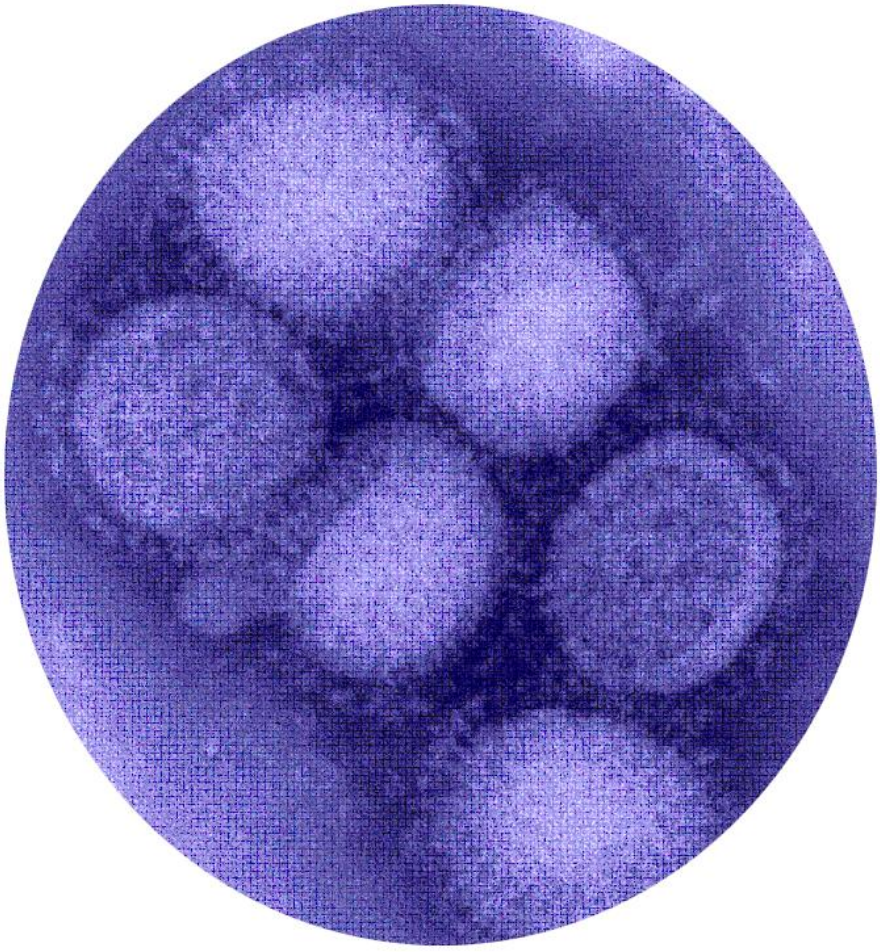
2009 H1N1 Influenza Response



Cattaraugus County

Kevin D. Watkins, MD, MPH - Public Health Director

Foreword

January 29, 2010

The H1N1 pandemic that took the United States by storm in the spring of 2009 measured Public Health's Officials ability to answer the call to what could have been a monumental disaster for this nation. When the Health and Human Services Secretary, Kathleen Sebelius, convened Public Health Officials together to prepare the directives and education for the public regarding the novel strain of the 2009 H1N1 virus, local public health officials geared up for the unexpected. This is when Public Health is at its best. By June 2009 when the World Health Organization declared H1N1 a pandemic and moved the alert level to phase six (6) Public Health Officials on the local levels were ready to answer the call and waited for instruction form the Center of Disease Control and Prevention. By August 2009 trials of a new vaccine against the H1N1 virus was already underway and this was definitely a huge bonus for local health officials as this usually takes years to produce.

The vast level of awareness to the public was made available through the local and national media causing concern throughout the world and causing and outcry for any form of protection. In October 2009, when the President of the United States, Barack Obama, and the Governor of the State of New York, David Paterson declared the H1N1 virus a national/state emergency Cattaraugus County health officials convened to develop a strategic plan in order to prepare ourselves for the mitigation of H1N1 virus within our communities.

By November, the strategic plan was produced, the command center was organized and we worked through a vast number of obstacles that made the overall plan a smooth operation. Cattaraugus County Health Department H1N1 team did a superb job in its efforts to service the residents of Cattaraugus County and we put this manual together to show how the operation of Cattaraugus County Health Department works in the time of a national emergency. The time that goes into the planning and implementing of a full scale emergency is unbelievable and the dedication displayed by each individual that was involved is immeasurable. The outcome of the 2009 H1N1 pandemic was mild compared to others, the preparation to overt the large number of fatalities was enormous compared to the past.

I would like to personally take this opportunity to thank all the volunteers, staff and residents of Cattaraugus County for making this emergency operation plan a success.

Sincerely,

Kevin D. Watkins, M.D.

Kevin D. Watkins, M.D., M.P.H.

Cattaraugus County
2009 H1N1 Response

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Introduction

H1N1 influenza is a respiratory disease caused by type A influenza viruses. It usually causes regular outbreaks in pigs and not in people. However, sometimes H1N1 viruses occur in humans and, like seasonal flu, can spread from person to person. The virus was first reported in two US children in March 2009, but health officials have reported that it apparently infected people as early as January 2009 in Mexico.[i] In the U.S., cases of human infection with H1N1 influenza A viruses were first reported in late March and early April in Texas and California, and have since spread to every state. Shortly after these initial U.S. outbreaks, the federal Center for Disease Control branded this virus the 2009 Novel H1N1 Influenza Virus. The term novel simply means it is a new virus, never before seen in humans.

This virus was originally referred to as "swine flu" because laboratory testing showed that many of the genes in this new virus were very similar to influenza viruses that normally occur in pigs (swine) in North America. But further study has shown that this new virus is very different from what normally circulates in North American pigs. It has two genes from flu viruses that normally circulate in pigs in Europe and Asia and bird (avian) genes and human genes. Scientists call this a "quadruple reassortant" virus.

Type A viruses are divided into types based on differences in two viral surface proteins, namely hemagglutinin (H) and the neuraminidase (N). ***Hemagglutinin*** is the "H" in the ***H***1N1 influenza viruses. It is an important surface structure protein of the influenza virus that is [coded for by] an essential gene for the spread of the virus throughout the respiratory tract. This enables the virus to attach itself to a cell in the respiratory system and penetrate it. ***Neuraminidase*** **is** the "N" in the H1***N***1 influenza viruses. It is an important surface structure protein of the influenza virus and is an essential enzyme for the spread of the virus throughout the respiratory tract. It enables the virus to escape the host cell and infect new cells.

These surface proteins can occur in many combinations. When spread by droplets or direct contact, the virus, if not killed by the host's immune system, replicates in the respiratory tract and damages host cells. In people who are immune compromised (for example, pregnant individuals, infants, cancer patients, asthma patients, people with pulmonary disease and many others), the virus can cause viral pneumonia or stress the individual's system to make them more susceptible to bacterial infections, especially bacterial pneumonia. Both pneumonia types, viral and bacterial, can cause severe disease and sometimes death.

The Cattaraugus County Health Department's (CCHD) response to H1N1 influenza began in April 2009 in conjunction with activation of the NYS Department of Health's (NYSDOH) Incident Management System (IMS) on April 24th, 2009. Initially, CCHD's Public Health Emergency Preparedness (PHEP) and Nursing Units participated in frequent calls with NYS Department of Health (NYSDOH) officials to ascertain the extent of the H1N1 epidemic in the state and nation as well as determine what actions were being taken at the state and federal levels to provide the resources necessary for an effective response. With no vaccine available, CCHD staff also began preliminary public education efforts in accordance with NYSDOH guidance.

In late June 2009 State and Federal surveillance activities indicated that H1N1 flu activity had 'peaked'. The NYSDOH de-activated the IMS and began planning for an anticipated '2nd wave' of increased H1N1 cases in the fall of 2009 and during the traditional flu season. During this time, the CCHD was performing basic surveillance activities in an effort to characterize the morbidity and mortality associated with H1N1 over the summer an into the fall of 2009.

Working with NYSDOH officials throughout the summer, the CCHD's programmatic response to the H1N1 influenza epidemic began to take shape. In September 2009, the CCHD activated the Incident Command System (ICS) to better coordinate the response and insure effective implementation of response programs.

The H1N1 influenza epidemic is ongoing. This report documents steps taken by the CCHD to plan for the epidemic, implement those plans and insure ongoing strategic planning and management to respond to changes in the epidemiology of the virus. Section 1 of the report briefly discusses the institutional structure for H1N1 response to ensure effective implementation. Section 2 briefly outlines the strategic plan that was developed including overarching goals, programmatic objectives and support functions and objectives. Section 3 details the activities conducted to achieve objectives of the vaccination program and Section 4 details activities associated with meeting public education program objectives. Section 5 describes activities associated with meeting support function objectives. Section 6 describes current efforts in place to adapt to changing H1N1 epidemiology in the future.

Section 1: Institutional Structure for H1N1 Response

It was apparent to federal, state and local health agencies early on in the response to the H1N1 virus that the potentially severe and widespread nature of the H1N1 virus would require not only additional resources to be handled effectively, but also changes in institutional structures and responsibilities. Unfortunately, the spread of viruses in today's modern global economy made it difficult if not impossible for coordinated response to occur in time to prevent the "first wave" of H1N1 virus in March and April of 2009. However with subsidence of the first wave, federal, state and local agencies were able to prepare for the anticipated increase in H1N1 cases in the fall of 2009.

As part of this preparation, the NYSDOH developed of the 2009 H1N1 Influenza Mass Vaccination Plan. This plan was disseminated to local health departments throughout the state and CCHD staff participated in numerous conference calls reviewing the logistics associated with implementing the plan. The plan assigned specific roles to both PHEP and Nursing personnel across the state. Beginning in late April and continuing throughout the summer months, the Cattaraugus County Public Health Director, PHEP and Nursing units served as an internal CCHD H1N1 task force to plan and prepare for the H1N1 response in Cattaraugus County and liaise with state and federal health agency officials. This internal task force began implementing public education efforts and briefed county leadership (i.e. legislative chair, county administrator, Board of Health and Department Heads) on state and federal response plans and ongoing county efforts to implement these plans. In addition to these efforts the CCHD H1N1 taskforce, healthcare providers and medical professionals throughout county continued to monitor the state of the epidemic throughout the county to gauge its spread and severity.

As part of its efforts, the CCHD H1N1 taskforce began development of the strategic response plan outlined in Section 2 of this report. To further refine and implement this plan the Public Health Director, in conjunction with county leadership, activated the County's Incident Command System (ICS) in September, 2009. An Incident Command System or ICS is a "a set of personnel, policies, procedures, facilities, and equipment, integrated into a common organizational structure designed to improve emergency response operations of all types and complexities." [1] A key feature of the ICS is its ability to easily adapt to changing emergency situations. The ICS has gone through a number of iterations as the county's H1N1 response has evolved. Figure 1 shows the most current iteration of the county's ICS structure. It is this 'command and control' structure that is currently being used to manage the county government's H1N1 response.

Through the programmatic efforts outlined in Section 2, county government's ICS is partnered with outside agencies in public, non-profit and private sectors to utilize their capabilities and collect additional information with regard to the severity and spread of the H1N1 virus. Sections 3-5 examine these partnering activities in greater detail.

[1] Disaster Response, ed. Erik Auf der Heide, *Chapter 7: The Incident Command System,* written by Robert L. Irwin.

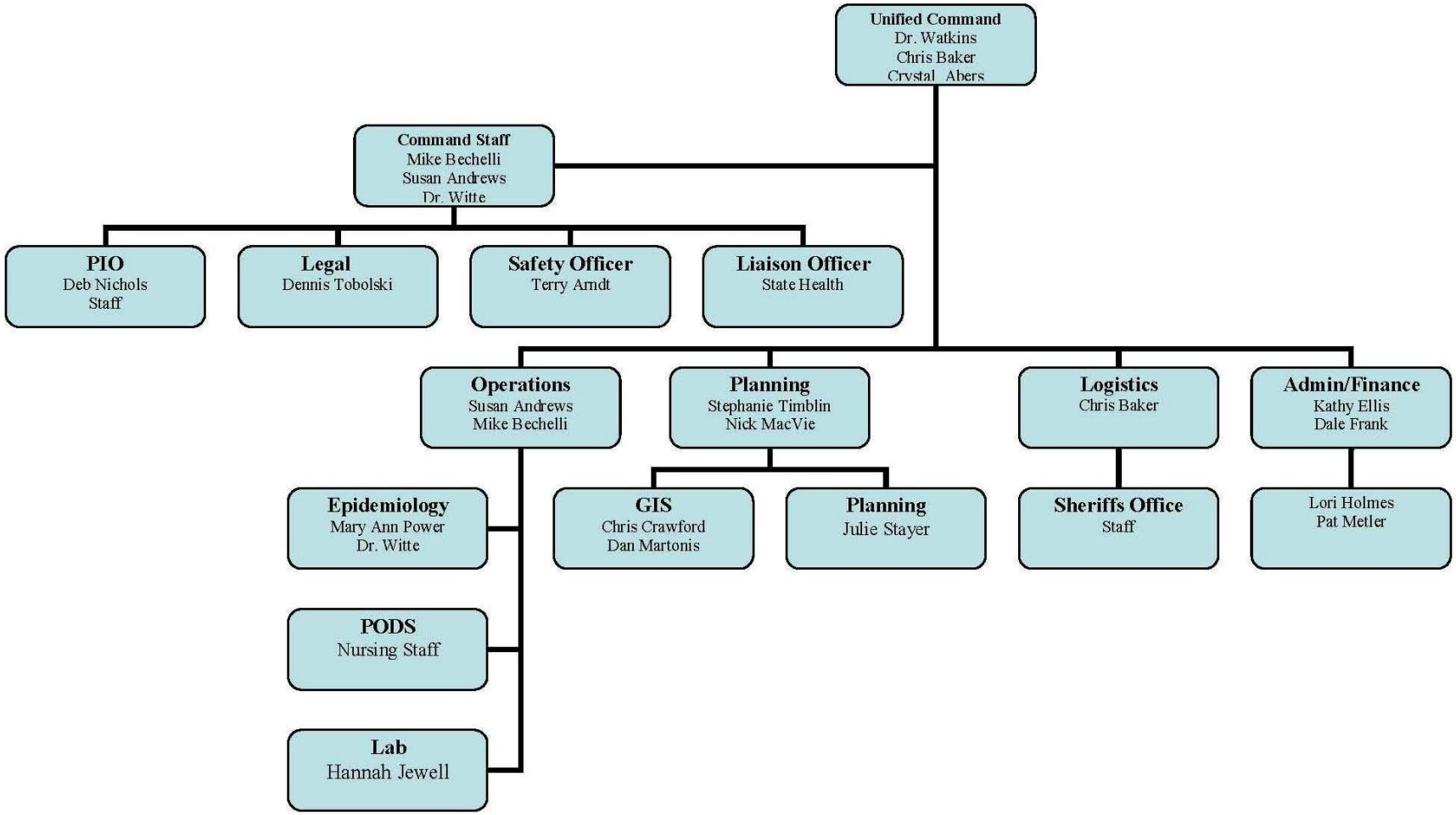


Figure 1- Cattaraugus County H1N1 Incident Command System (ICS) Organizational Chart

Section 2: H1N1 Strategic Response Plan

Development of the H1N1 Strategic Response Plan occurred throughout the summer and early fall of 2009. Like any emergency response plan it is subject to changes in the operational environment and is adapted by the ICS, through periodic Incident Action Plans (IAPs). Such adaptation is ongoing and continues to the present-day. As such the plan below reflects both past and current contributions.

Background

The 2009 Novel H1N1 Influenza Virus is expected to cause an increased number of illnesses during the upcoming fall influenza season. The Cattaraugus County Health Department (CCHD) is/will be partnering with stakeholders in both the public and private sector to reduce the impact of influenza during the upcoming influenza season by establishing and promoting mass vaccination and public education programs. In addition, the CCHD will continue to lead the county in performing support activities associated with monitoring the impact of the 2009 Novel H1N1 Virus, target intervention strategies, and identifying populations at unique risk of severe infection.

Goals

H1N1 Strategic Response Plan goals are:

- *Mitigate* the spread of influenza in the Cattaraugus County communities.
- *Minimize* disruption to critical infrastructure, including healthcare facilities.
- *Develop* evidence–based recommendations for institutions and businesses to reduce the impact and spread of influenza.

Key Assumptions

- Cases of influenza are expected to increase in September, triggering the start of the influenza season.
- H1N1 vaccine is anticipated in mid-October and will be available in limited shipments until later in the influenza season. (We anticipate that by early November, most providers who want to order vaccine will be able to do so. Additional vaccine will roll out through November, December and into January. One of the critical messages we need to convey is that as this vaccine is just now being produced, people and providers need to be patient as we will do our best to ensure that the vaccine is first delivered to those in the priority groups.)
- Only one dose of H1N1 vaccine will be recommended for immunity for healthy adults. Sub populations (i.e. children) may require two doses for immunity.
- H1N1 vaccinations will need to be prioritized early in the vaccination campaign until adequate supplies are available.
- Seasonal influenza will continue to circulate and cause disease as in non-pandemic years.
- Seasonal vaccine supplies will meet previous demand and shipments are anticipated beginning in early September.

H1N1 Response Programs

In accordance with NYSDOH guidance and direction, the CCHD will implement both vaccination and public education programs in support of the H1N1 Strategic Response Plan goals. The following is a summary of the programmatic objectives for each of these programs.

Vaccination Program

The CCHD's vaccination program will focus on two strategies. The first will be to establish Points of Distribution (POD) Clinics, where residents of Cattaraugus County, in accordance the priority levels listed in Table 1, will receive vaccination through the CCHD. The second strategy will be to encourage private providers to vaccinate their own patients.

Table 1 - Vaccine Prioritization groups for H1N1 vaccination

Priority Level	Priority Groups
1	Pregnant Women
1	Household contacts and caregivers of children < 6 months
1	Healthcare and emergency medical service personnel
1	People 6 months through 24 years of age
1	Persons 25 to 64 years of age with high risk conditions
2	Healthy persons 25 through 64
2	Persons 65 years and older

Participants include:

- Medical personnel
- Schools
- Fire Department
- Sheriff's Department

Objectives:

- *Disseminate* NYSDOH protocols for distributing H1N1 vaccine to private providers throughout the county;

- *Prioritize* vaccine distribution clinics based upon public health needs and the populations served by each facility;

- *Offer assistance* to Seneca Nation of Indians in identifying and registering community healthcare providers to participate in vaccination campaigns;

- *Create* mass vaccination plan engaging key stakeholders in an effort to increase the number of H1N1 vaccination sites.

Section 3 provides additional detail on activities associated with each objective.

Public Education Program

The CCHD's H1N1 public education program will establish strategies for not only mass public education throughout the county, but also for educating subpopulations that may be difficult to reach. The focus of both public education strategies is to inform the public of steps they can take to prevent influenza and what can be done to prepare for absences from school or work due to influenza-like illness (ILI).

Participants include:

- Community healthcare providers
- County agencies (i.e. Department of Social Services, Department of Aging, WIC)

- Tribal agencies
- Business organizations (e.g. Chambers of Commerce, Churches)
- Schools
- State agencies (i.e. Department of Correctional Services, Department of Environmental Conservation)

Objectives:

- *Establish* a Joint Information System (JIS) to integrate public information among CCHD, NYSDOH and the outlying community health providers. The JIS will coordinate public information and messaging strategies for H1N1 responses across the county. The JIS will include partners from county agencies, as well as community healthcare providers. Public information officers from both state and tribal agencies will be invited to participate;

- Through the JIS *develop and disseminate* mass public education tools such as speaking points for interviews/news conferences, news releases, public service announcements (radio, television), posters, flyers, billboards, and newspaper ads;

- *Organize* workshops and community forums meetings to inform the public of recent H1N1 community outbreaks. These workshops/forums shall provide clear, concise, science-based recommendations regarding non-pharmaceutical H1N1 response strategies. Such workshops/forums will be a primary method of educating specific subpopulations that may be difficult to reach or particularly susceptible. They will utilize existing social and economic institutions such as professional organizations, business organizations, church and religious groups and other civic groups;

- *Create* an influenza webpage and a 1-800 number to share the most recent information about H1N1 influenza epidemiology, vaccinations, educational materials, technical guidance and other preparedness tools;

- *Disseminate* the following NYSDOH guidelines for preventing the spread of the H1N1 virus in Cattaraugus County based on information provided by the CDC;
  - Guidelines for K-12 schools
  - Guidelines for higher education institutions
  - Guidelines for long-term care facilities
  - Guidelines for outpatient medical facilities
  - Guidelines for child care facilities

- *Review* and *disseminate* guidelines for business community response to increased worker absenteeism and illness at work.

Support Activities

To support the vaccination and public education programs significant effort will be expended in understanding H1N1 epidemiology, building partnerships, garnering and managing resources including address any legal issues that may hinder response effectiveness. These activities are summarized here.

Surveillance & Epidemiology Activities

CCHD will monitor the morbidity and mortality of the H1N1 to identify the communities being most impacted, guide the implementation of CCHD's vaccination and public education programs

The countywide influenza disease surveillance system is coordinated and maintained by the Community Health - Communicable Disease Unit and the Emergency Medical Services Department of the Cattaraugus County Health Unit. While some parts of the surveillance system are designed to discern information on confirmed cases of H1N1, the majority of influenza cases are not diagnosed or tested. Therefore, surveillance for all influenza-like illness (ILI) is critical to understanding H1N1 epidemiology in the county.

Participants include:

- Olean General Hospital
- NYSDOH
- CCHD - Community Health / Emergency Medical Services Units
- Community healthcare providers
- Private healthcare providers

Objectives:

- *Establish* a network of sentinel providers throughout the county to monitor ILI. Each provider will provide weekly reports on the number and percentage of patients visiting their facility with ILI. *Analyze* such data to identify geographic or other correlations;

- *Investigate* hospitalized H1N1 cases and deaths in an effort to identify correlations with underlying conditions and /or changes in the patterns of mortality. Such investigation may identify subpopulations at greater risk;

- *Identify* and *confirm* pediatric influenza-associated deaths in an effort to minimize unsubstantiated public alarm;

- *Continue weekly monitoring* of ILI weekly to determine the relative magnitude of the current influenza season with previous seasons;

- *Monitor daily absenteeism* from schools to determine if closing a particular institution would help mitigate transmission of ILI.

Partnership Activities

Meeting the objectives outlined in this document often require the coordinated cooperation of various public and private, medical and non-medical institutions, organizations and agencies. A brief examination of the participants in the vaccination and public education programs reveals the breadth of those organizations that are, can or will be involved in mitigating impacts of the H1N1 epidemic. Both of these programs conduct specific partnering activities in pursuit of the objectives outlined . Above and beyond these specific activities, the CCHD is partnering with a larger array of partners in an effort to taylor specific program strategies and collect additional information on the state of H1N1 in Cattaraugus County.

Objectives:

- *Establish* multi-agency/multi-disciplinary forums such as the Incident Command System (ICS) and the Joint Information System (JIS) to facilitate partner discussion and decision making in pursuit of program-specific objectives.

- *Establish* direct communication between Cattaraugus County Health Department and the NYS Department of Health to respond to ongoing issues regarding H1N1influenza and schools.

- *Facilitate* biweekly discussions with healthcare providers and associations across the county to share the latest information on H1N1 in Cattaraugus County

In efforts to date, the CCHD has established a number of working partnerships in pursuit of program objectives (see list below). It is expected that the number and intensity of such partnerships will increase with increasing severity of the H1N1 epidemic. Current and future partnership activities will generally be addressed through individual communication between and among members of participating partners. The objectives listed above are meant to establish a more over-arching forum for information collecting and strategy development.

Partners:

- Olean Medical Group
- Olean General Hospital
- Omega Family Medicine
- Conewango Valley Medical Center
- Southern Tier Community Health Center Network, Inc. (STCHCN) or University Primary Care
- Gilbert Witte, MD
- Erika Connor, MD
- Arun Patel, MD
- Salwat Malik, MD
- Munir Salimi, MD
- Megan Kathryn Crosson, ARNP
- Rehabilitation Center
- Home Care and Hospice
- Absolut Center for Nursing and Rehab. at Salamanca, LLC
- The Seneca Nation of Indians Health Department
- Park Pharmacy
- TLC Health Network – Pharmacy Department

Resource Management Activities

Resources for H1N1 response are not infinite, particularly in the current fiscal climate. Nor can H1N1 response diminish disproportionately resources spent on other more routine programs. Additionally, legal issues may cloud the CCHD's ability to garner the resources necessary for an effective response.

Participants include:

- CCHD
- NYSDOH
- Cattaraugus County - Administration
- Cattaraugus County - Attorney's Office

Objectives:

- *Develop* plans for continuity of operations for the CCHD

- *Secure* federal/state funding to implement H1N1 vaccination and public education programs;

- *Resolve* legal issues associated with partner and volunteer vaccination and public education program. An example of such resolution is tort liability protection for the administration of the H1N1 provided through the Public Readiness and Emergency Preparedness Act.

Section 3: Vaccination Program Implementation

Background

With growing uncertainty about the spread and severity of H1N1 in the United States, the Federal government decided, as a precautionary measure, to push 25% of the Strategic National Stockpile (SNS) to the states an April 26th, 2009. The SNS is a national repository of life-saving pharmaceuticals and medical supplies meant to reduce disease and death in the case of a chemical, bioterror, pandemic or natural disaster. State officials received these supplies and an allocation plan was developed . The CCHD received its allocation of the SNS in early May.

With the passing of the 'first wave' of the H1N1 virus in late June 2009, Federal, State and Local officials began coordinating to plan and prepare for anticipated H1N1 'waves' in the fall of 2009 and during the traditional flu season. Federal officials in conjunction with flu vaccine manufacturers began developing an H1N1 vaccine for eventual manufacture and distribution in the fall of 2009. Once manufactured, the vaccine will be provided, by the Federal government with no cost to state and local vaccine providers. As part of the effort to insure the orderly distribution of vaccine, the NYSDOH developed the 2009 H1N1 Influenza Mass Vaccination Plan. This plan, as well as continuing guidance from NYSDOH, outlined procedures and provided guidance for agency registration, ordering and receiving of H1N1 vaccine , as well as procedures and guidance for performing surveillance and administering the vaccine *(see Appendix A - NYSDOH Vaccination Program Guidance Documents)*. In response to surveillance activities and in anticipation of vaccine shortages, certain groups were given vaccination priority *(see Table 1)*.

In accordance with NYSDOH guidance, the CCHD developed a program *(see Sec. 2 - Vaccination Program)*, to administer vaccinations throughout the county. This program consisted of four key objectives. Each of these objectives are discussed below along with those activities conducted in support of completing each objective.

Vaccination Program Objectives & Activities:

Objective #1 - *Disseminate NYSDOH protocols for distributing H1N1 vaccine to private providers throughout the county;*

As mentioned above the NYSDOH established protocols for prospective H1N1 vaccine providers to register, order and receive the vaccine. CCHD determined that such providers may not be aware of these protocols. In order to vaccinate as many individuals as possible, utilizing private providers in performing vaccination was/is imperative. Such providers cannot be used unless they are aware of and follow NYSDOH protocols. To insure that all providers in the county were/are aware of such protocols the CCHD performed the following activities;

- *Created a list of all potential providers in the county* - Using data from a number of existing sources at both the state and local level, as well as local knowledge, CCHD staff created a list of all potential vaccine providers throughout the county.

- *Contacted all potential providers with regard to NYSDOH protocols* - Using the list created above, the CCHD sent a letter *(see Appendix B)* to potential vaccine providers informing them of the necessary procedures and protocols for registering, ordering and receiving the H1N1 vaccine.

- *Provided technical assistance to potential providers with regard to registration & ordering process* - The registration and ordering process was facilitated through the NYSDOH's Internet based Health Commerce System (HCS). CCHD staff answered questions and provided technical assistance to private providers unfamiliar with the HCS and its role in registration and ordering.

Objective #2 - *Prioritize* vaccine distribution clinics based upon public health needs and the populations served by each facility;

Initially, public demand for the H1N1 vaccination greatly outpaced the limited supplies that were available in late October and early November at the onset of the '2nd wave' of H1N1 cases. In accordance with NYSDOH policy concerning priority groups (s*ee Table 1)*, CCHD had established Points of Distribution (POD clinics) before this peak. To prioritize and finalize POD clinics, CCHD staff performed the following activities;

- Reviewed the *Strategic National Stockpile Annex* and *Antiviral Vaccine Plan* - Both plans provide plans, protocols and procedures for the Strategic National Stockpile and Antiviral Vaccine. Appendix U of the *Strategic National Stockpile Annex* provides an assessment template for potential POD clinics. This assessment template was used for evaluating potential POD clinics throughout the county. POD assessment included security, accessibility, medical, parking and other considerations. Given that individuals between 6 months and 24 years were a priority and the limited amount of vaccine initially expected, the majority of the early POD clinics were held within schools.

- Contacted appropriate administrative / medical personnel at each potential school POD clinic to confirm availability and facility cooperation.

Objective #3 - *Offer assistance* to Seneca Nation of Indians (SNI) in identifying and registering community healthcare providers to participate in vaccination campaigns;

The neighboring Seneca Nation of Indians has / is responding to the H1N1 virus through efforts spearheaded by the SNI Health Department. CCHD has offered technical assistance to the SNI through the following activities;

- Sent a letter to SNI Health department, similar to the one sent to private providers throughout the county, outlining procedures for registering, ordering and receiving vaccine;

- Contacted by phone the supervising Head Nurse at Salamanca clinic to discuss H1N1 response efforts being undertaken by both the SNI and Cattaraugus County Health Departments;

- Participated in NYSDOH/SNI sponsored workshop, examining response strategies to H1N1 at Seneca Allegany Casino. Conference participation included opportunities to discuss joint strategies for response.

Objective #4 - *Administer & implement* the mass vaccination program engaging key stakeholders in an effort to increase the number of H1N1 vaccination sites.

The Cattaraugus County *Strategic National Stockpile Annex* and *Antiviral Vaccine Plan*, created by the CCHD's Public Health and Emergency Preparedness staff served as the basis for administering and implementing the H1N1 vaccination program. As the H1N1 pandemic progressed, CCHD and NYSDOH officials modified program implementation efforts in consideration of limited vaccine supply and the need to first vaccinate priority group. Activities to support the administration and implementation of the vaccination program are the most visible and most involved of any objective listed in this report. Each activity performed involved logistical, financial, medical and reporting considerations. Activities undertaken included;

- *Develop system for tracking vaccine received and dispensed and supply management* - With two forms (intramuscular and intranasal), four vaccine manufacturers, many POD clinics and numerous vaccine guidelines, keeping track of the vaccine stockpile to quantify efficacy of the vaccination program was necessary. Clerical and administrative staff developed a system for tracking receipt and dispensation of vaccine. Uncertainty associated with the potential size of existing in-county stock necessitate the purchase of a refrigerator for storage.

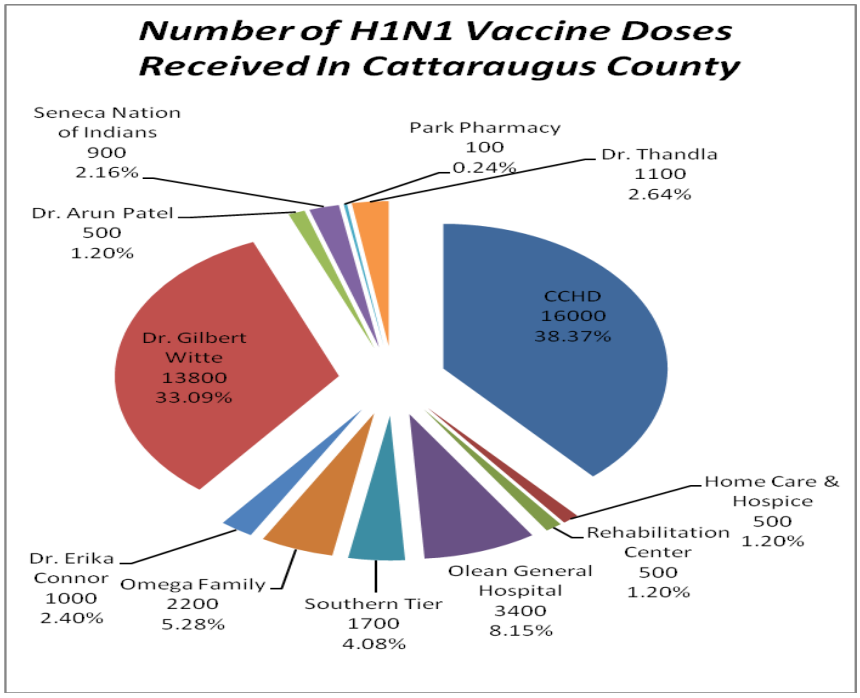
- *Schedule POD clinics* - In conjunction POD partners, such as school district officials and community facility operators, to determine available and appropriate dates and times, a POD schedule was developed. This schedule was designed to insure that priority groups would be most likely to be vaccinated first. With limited amounts of vaccine initially available, this schedule was periodically updated with cancellations, and eventually additions as more vaccine became available. (*see Appendix C - POD clinic schedule)* As additional vaccine became available, open POD clinics were scheduled to provide access throughout the county *(see map below)*

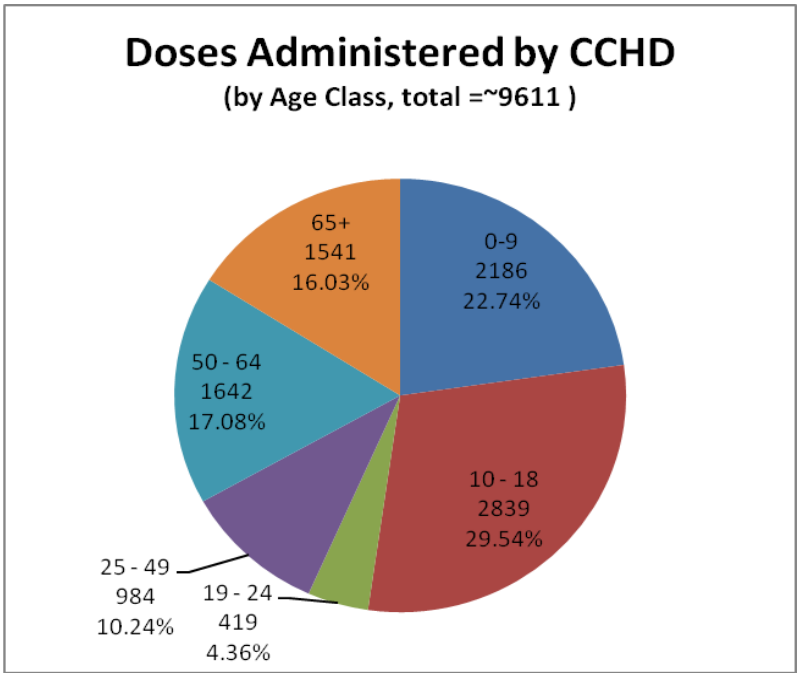
- *Conduct POD clinics* - Perhaps the most visible and important component of CCHD H1N1 response efforts to date, conducting POD clinics required coordination of not only internal CCHD staff but also administration and operation personnel at partner facilities. An initial first step in conducting any POD was estimating the number of doses needed. At the school POD clinics this involved getting a count of all permission slips *before* the POD was conducted. These permission slips were developed by CCHD staff to limit any legal exposure and insure consistency across the schools. Graphs on the following pages show the number of vaccine doses received in the county, the overall number of people vaccinated by age group and the percentage of students in each school district vaccinated at school POD clinics Additionally, there is a map showing the locations where open POD clinics were conducted .

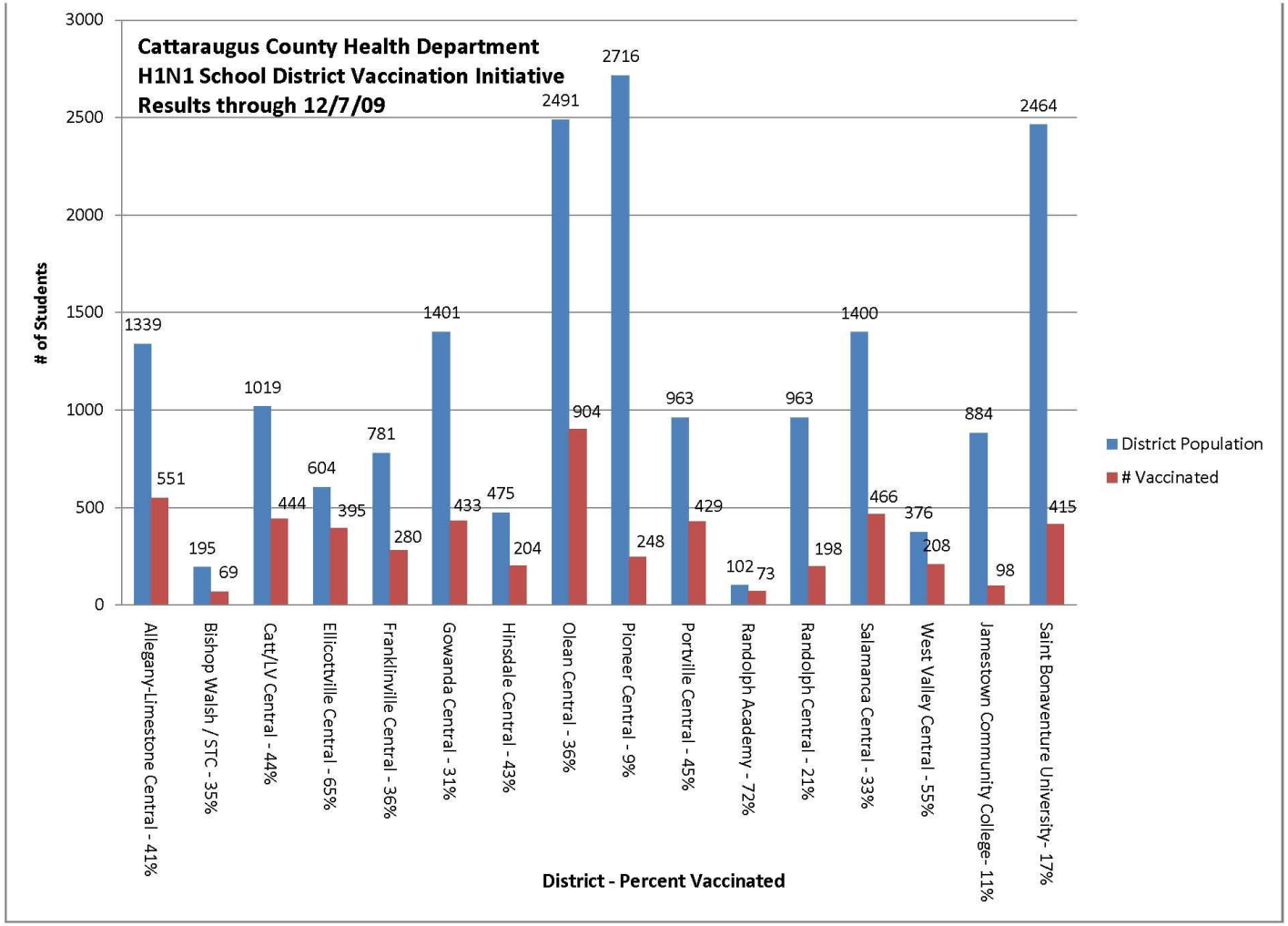
  Conducting any single POD involved a site visit to determine the best physical arrangement of POD stations and identify any potential issues associated with the facility. Each POD consisted of three stations; registration, medical screening and consultation and vaccination. At registered POD clinics, H1N1 educational materials were made available. Registration involved collecting vital information about each individual to be vaccinated. Medical screening & consultation verified allergy sensitivity, previous vaccinations (insure no vaccination in previous 28 days) and form of vaccine to be administered (intramuscular v. intranasal). Finally, vaccination was simply administering the chosen vaccine.

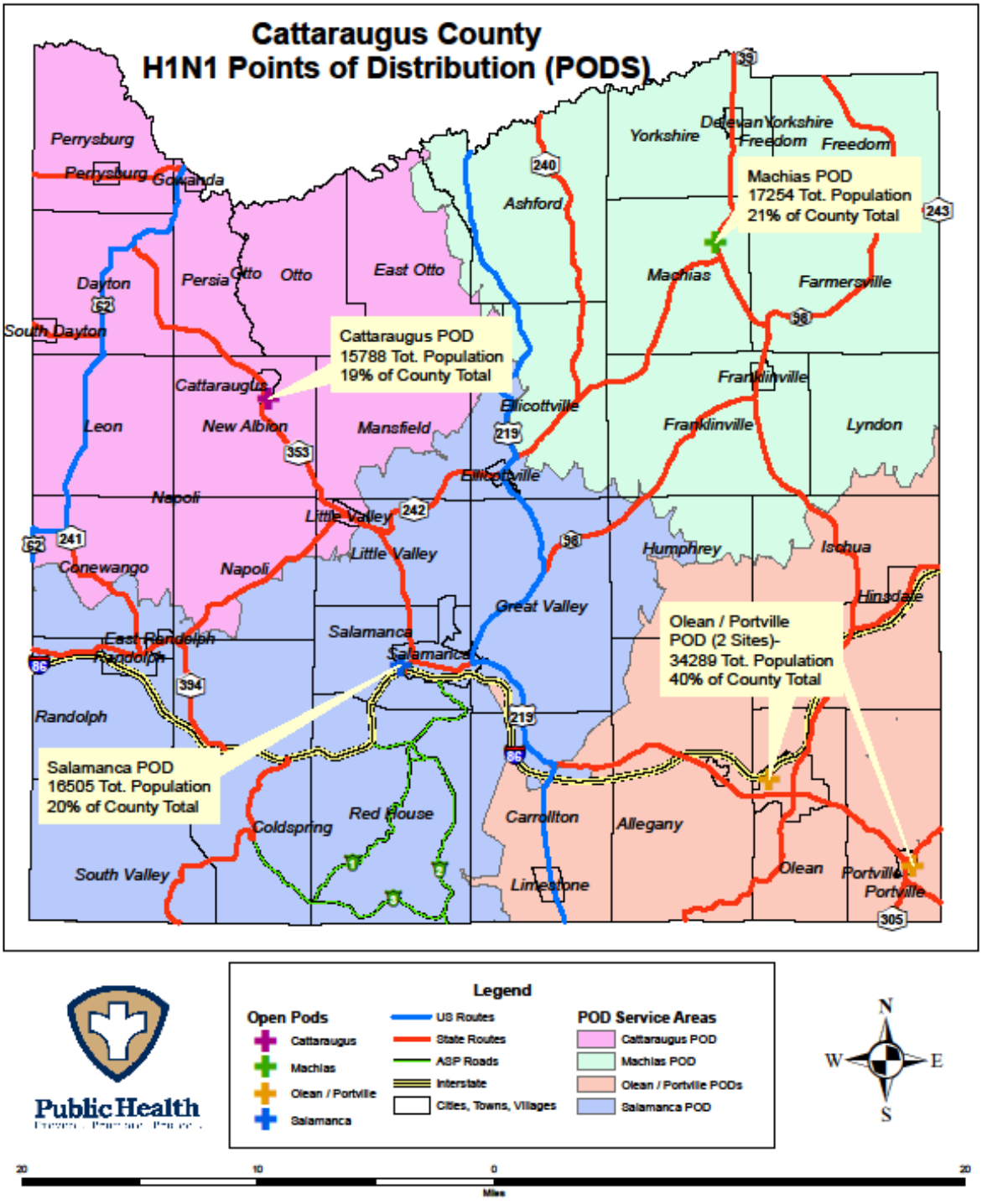
Ongoing / Future Efforts:

Ongoing vaccination program activities in support of the above objectives include daily H1N1 vaccination clinics CCHD offices in Machias, Salamanca and Olean, coordinating with school officials to insure that children under 10 years old receive the recommended second dose of vaccine and working with church/religious or other large organizations to conduct POD clinics at their request. In general, vaccination program activities are scaling down, however necessary institutional capacity is being retained should the need arise to ramp up vaccination in response to an anticipated 'third wave' in late February / early March or public demand.






Cattaraugus County Health Department
H1N1 School District Vaccination Initiative
Results through 12/7/09
# of Students
3000
2500
2000
1500
1000
500
0
1339
551
195
69
1019
444
604
395
781
280
1401
433
475
204
2491
904
2716
248
963
429
102
73
963
198
1400
466
376
208
884
98
2464
415
Allegany-Limestone Central - 41%
Bishop Walsh / STC - 35%
Catt/LV Central - 44%
Ellicottville Central - 65%
Franklinville Central - 36%
Gowanda Central - 31%
Hinsdale Central - 43%
Olean Central - 36%
Pioneer Central - 9%
Portville Central - 45%
Randolph Academy - 72%
Randolph Central - 21%
Salamanca Central - 33%
West Valley Central - 55%
Jamestown Community College- 11%
Saint Bonaventure University- 17%
District - Percent Vaccinated
District Population
Vaccinated


Cattaraugus County
H1N1 Points of Distribution (PODS)
Machias POD
17254 Tot. Population
21% of County Total
Cattaraugus POD
15788 Tot. Population
19% of County Total
Olean / Portville
POD (2 Sites)-
34289 Tot. Population
40% of County Total
Salamanca POD
16505 Tot. Population
20% of County Total
Perrysburg
Yorkshire
Freedom
Ashford
Machias
Farmersville
Dayton
Persia
Otto
East Otto
South Dayton
Cattaraugus
Leon
New Albion
Mansfield
Ellicottville
Franklinville
Lyndon
Napoli
Little Valley
Conewango
Humphrey
Ischua
Hinsdale
Great Valley
Salamanca
East Randolph
Randolph
Coldspring
Red House
Carrollton
Allegany
South Valley
Limestone
Olean
Portville
Legend
Open Pods
Cattaraugus
Machias
Olean / Portville
Salamanca
US Routes
State Routes
ASP Roads
Interstate
Cities, Towns, Villages
POD Service Areas
Cattaraugus POD
Machias POD
Olean / Portville PODs
Salamanca POD
Public Health
N
W
E
S
20
10
0
20
Miles

Point of Distribution (POD) Images

Nurse Training

Medical Screening

Registration

Vaccination

Section 4: Public Education Program Implementation

Background

While the vaccination program is the most visible and easily measured program, equally as important and perhaps requiring more effort is the public education program. In May of 2009, the Center for Disease Control and Prevention issued guidance relating to efforts that individuals, institutions and communities could take to mitigate the impacts of H1N1. Such guidance was designed to;

- delay the disease peak to 'buy' time for production and distribution
- reduce the disease's morbidity and mortality
- reduce the anticipated peak service demand on existing healthcare systems
- minimize disruption of day-to-day social, education and economic activities.

Much of this guidance, and much of the Public Education Program generally, focused on the school-age population as a 'high-risk' group that congregates and whose individuals are more likely to come in close physical contact with each other. The NYSDOH issued guidelines on September 1st, 2009 to school officials, parents and local health departments regarding appropriate absenteeism policies, cleaning protocols and social-distancing measures (i.e. hand washing, respiratory etiquette and physical contact) *(see Appendix A - State Public Education Guidance)*. In addition to guidelines for schools, the NYSDOH developed guidelines for daycare facilities, long-term care facilities, higher education institutions and outpatient health care facilities.

The CCHD began public education efforts with a press release in late April in response to early H1N1 cases being recognized in the United States and New York State. Public education activities continued throughout the spring, summer and fall and currently ongoing. These efforts focus on disseminating NYSDOH developed guidelines and CDC guidance, information on the severity and spread of H1N1 throughout the county, vaccination program locations and schedules and answering questions. Many of the materials used in the CCHD Public Education Program have been developed by state and federal agencies.

Initial planning for the Public Education Program identified six objectives to be accomplished. These objectives and their supporting activities are listed below.

Objective #1 - *Establish* a Joint Information System (JIS) to integrate public information among CCHD, NYSDOH and the outlying community health providers. The JIS will coordinate public information and messaging strategies for H1N1 responses across the county. The JIS will include partners from county agencies, as well as community healthcare providers. Public information officers from both state and tribal agencies will be invited to participate;

A Joint Information System (JIS) was *not created*. Although initial plans called for formal establishment of a JIS, as the H1N1 response effort proceeded, ICS staff determined that the scale of the public health emergency did not justify the establishment of a formal JIS. Instead the CCHD's Public Information Officer (PIO) and officials at partnering agencies maintained close contact through emails, phone calls and necessary meetings to insure that public information was consistent across agencies. Most of the public education efforts were undertaken internally within the county's H1N1 ICS structure.

Objective #2 - Through the JIS *develop and disseminate* mass public education tools such as speaking points for interviews/news conferences, news releases, public service announcements (radio, television), posters, flyers, billboards, and newspaper ads;

Although a JIS was not established, the development and dissemination of mass public education tools to further H1N1 mitigation efforts did occur. As the lead public health agency in the county, the CCHD implemented many of the activities supporting this objective. Not all the tools above were utilized and like any public education campaign much of the message is transmitted by 'word of mouth' from individual to individual. Because of this, much effort was spent to insure that healthcare community had accurate, scientifically based information available accurate information transfer. In support of this objective the following activities took place;

- NYSDOH and CDC posters were distributed to area businesses, mass gathering sites, schools and public buildings by CCHD's PIO, CERT (Citizen Corps' Community Emergency Response Team) volunteers and CCHD staff;

- Made presentations to Cattaraugus County legislature, Board of Health, pharmacists and school nurses with regard to H1N1 mitigation strategies, as well as the spread and severity of the pandemic;

- Issued press releases to local media outlets regarding the CCHD vaccination program, the spread and severity of H1N1 throughout the county and mitigation efforts; *(see Appendix D - Press Release Examples)*

- In conjunction with local newspapers and organizational newsletters throughout the county, produced over a dozen news articles *(see Appendix E - News Articles)*;

- Presented H1N1 materials at Cattaraugus County Fair;

Objective #3 - *Organize* workshops and community forums meetings to inform the public of recent H1N1 community outbreaks. These workshops/forums shall provide clear, concise, science-based recommendations regarding non-pharmaceutical H1N1 response strategies. Such workshops/forums will be a primary method of educating specific subpopulations that may be difficult to reach or particularly susceptible. They will utilize existing social and economic institutions such as professional organizations, business organizations, church and religious groups and other civic groups;

In rural communities where access to mass advertising outlets may be prohibitively expensive and information dissemination often occurs from one individual to another, direct communication with at-risk or difficult to reach populations is often the best way to educate the public. A key component of the public education of these populations was to conduct community forums and workshops. Given that young adults and school-children are considered particularly at risk for infection, much of the following activities were focused on these particular sub-populations.

- Conducted 55 workshops (12 daycare facilities, 15 community facilities/programs, 28 k-12 schools) outlining the importance of vaccination and practicing mitigation measures (i.e. hand-washing, coughing into sleeve, staying home from school or work) *(see Appendix F - Community Workshops)*

Objective #4 - *Create* an influenza webpage and a 1-800 number to share the most recent information about H1N1 influenza epidemiology, vaccinations, educational materials, technical guidance and other preparedness tools;

Besides proactive campaigns for mass and targeted public education, resources were made available for those actively seeking H1N1 information. Individuals actively seeking H1N1 information come from all age groups and socio-economic classes and are accustomed to receiving information in different ways. Information was made available and H1N1 questions were answered through the following mechanisms.

- A toll free number was put in service (1-800-808-1987) and two dedicated phone lines, manned by CERT volunteers, were established to answer individuals' questions with regard to the H1N1 pandemic;

- A call back service was established where individuals could leave a voicemail explaining any H1N1 questions or concerns they may have. These messages were then responded to by the appropriate professional staff;

- H1N1 information was posted and continually updated on both the front page of the county website (www.cattco.org) and the health department home page (www.cattco.org/health/index.asp);

Objective #5 - *Disseminate* the following NYSDOH guidelines for preventing the spread of the H1N1 virus in Cattaraugus County based on information provided by the CDC;

- Guidelines for K-12 schools
- Guidelines for higher education institutions
- Guidelines for long-term care facilities
- Guidelines for outpatient medical facilities
- Guidelines for child care facilities

Guidelines for mitigating disease transmission were developed by the NYSDOH, in conjunction with representatives from the different facility types (see *Appendix A*). These guidelines are based on sound scientific information disseminated by the CDC . The NYSDOH disseminated these guidelines in a memo sent to institutional heads of at-risk facilities. CCHD staff used these guidelines to design much of content of the 55 workshops performed in meeting objective #3. The following additional activities were conducted to further disseminate the guidelines to at-risk facilities;

- Emails, containing the above guidelines, were sent to nurses in each county school district (see *Appendix G - List of School Nurses*);

- Links to the guidelines were placed on the CCHD's website ;

Objective #6 - *Review* and *disseminate* guidelines for business community response to increased worker absenteeism and illness at work;

The social and economic impacts of any disease pandemic can be great. Economic productivity may decline due to worker sickness and resultant disruption of production. While productivity may decline, preventing further spread of illness is the priority. Fortunately, the spread of H1N1 has not reached a level to substantially disrupt economic productivity. Accordingly, the CCHD has only conducted one presentation to the Workforce Investment Board discussing this issue.

Ongoing / Future Efforts:

With increased vaccine availability and the possibility of a 'third wave' occurring in late February / early March, current public education efforts are focused on getting as many people as possible vaccinated. Vaccination is the best way to control H1N1 spread. Dissemination of vaccination clinic dates, times and locations is occurring through traditional media and community outlets. Current public perception of the H1N1 pandemic is that the worst is over and there is little risk of contracting the H1N1 virus and/or little risk of significant illness if the H1N1 virus is contracted. Much of the current public education effort associated with the 2009 H1N1 virus is aimed at changing this perception and promoting vaccination.

Future public education efforts will be dependent on both public perception of the H1N1 pandemic and resource availability (i.e. vaccine, trained personnel, other supplies), as well as the spread and severity of the H1N1 virus through the county, state and nation. Based on these factors the focus of educational efforts will fluctuate between urging vaccination and promoting mitigation strategies.

Section 5: Support Function Activities

Background

In performing vaccination and public education program activities, three questions are important;

- *What is the historic, current and anticipated spread and severity of H1N1 throughout the world, nation, state and county?*
- *Who are the stakeholders at the national, state, county and local levels that the CCHD should work with to manage program response activities and how does the CCHD partner with them?*
- *Given an understanding of the historic, current and anticipated spread and severity, what are the resources necessary to adequately address the pandemic and how do access them?*

Support function activities were conducted to answer these questions. Surveillance and epidemiology activities aimed to answer the first question. Partnering activities addressed the second question and resource management activities answered the third question. Initial planned activities for meeting support function objectives were scaled back in accordance with the scale of the spread and severity of the pandemic in Cattaraugus County.

Surveillance and Epidemiological Activities

Objective #1 - *Establish* a network of sentinel providers throughout the county to monitor Influenza like Illness (ILI). Each provider will provide weekly reports on the number and percentage of patients visiting their facility with ILI. *Analyze* such data to identify geographic or other correlations;

Surveillance of ILI is done by both the CDC and NYSDOH at federal and state levels through existing reporting mechanisms in hospital emergency rooms and other similar health care facilities. The only site in Cattaraugus County where such data is routinely collected is Olean General Hospital. Obviously, there are many other public and private healthcare providers throughout the county that provided treatment for ILI. It is the intent of this objective to make systematic contact with a subset of these providers in the county to monitor the severity and spread of ILI throughout the county, identify particularly vulnerable subpopulations through geographic or other correlations and use this information to target vaccination or public education strategies . The scale of the H1N1 pandemic did not warrant the establishment of a formal network of sentinel providers with procedures and protocols in place for monitoring and analysis. However, the informal activities performed below did serve to confirm conclusions drawn from surveillance activities performed at the state and federal levels ;

- During the period immediately before and after the 'second wave' of H1N1 periodic contact with healthcare providers was initiated to collect qualitative information regarding the frequency of ILI in the county and the ability of existing providers to address ILI;
- The CCHD medical director provided a qualitative assessment of ILI cases at the Olean Medical Group at weekly ICS meetings;

Objective #2 - *Investigate* hospitalized H1N1 cases and deaths in an effort to identify correlations with underlying conditions and /or changes in the patterns of mortality. Such investigation may identify subpopulations at greater risk;

In performing objective #1 of this section, CCHD staff looked at the occurrence of ILI in large numbers of individuals to determine spread and severity of H1N1 throughout the county. For this objective, specific cases were identified to gain a better understanding of what medical factors directly contribute to the severity of the disease in any one individual. Again much of this work was performed at the state and federal levels. However, CCHD medical personnel did investigate the small number of these cases in the county to insure that no additional knowledge regarding the H1N1 epidemiology could be gained from them. Activities for this objective include;

- Conversations with attending medical staff and records review of those hospitalized cases and deaths.

Objective #3 - - *Identify* and *confirm* influenza-associated deaths in an effort to minimize unsubstantiated public alarm;

Public perception of any pandemic can be shaped by individual deaths, particularly those of children and young adults. This perception may or may not be commensurate with the actual additional risk that the pandemic represents. In an effort to control the public perception and minimize the potential for widespread panic, the exact circumstances surrounding each death need to be understood by public health professionals, conveyed accurately to the public and used as an opportunity to promote appropriate public response to the pandemic. In support of this objective CCHD staff performed the following activities;

- Investigated each H1N1 related death to determine exact circumstances surrounding the case;

- Prepared press release or worked with local newspaper staff to provide accurate information to the public with regard to the death , in accordance with the rules of medical confidentiality, and use the opportunity to promote individual actions that can be taken to mitigate the spread of H1N1.

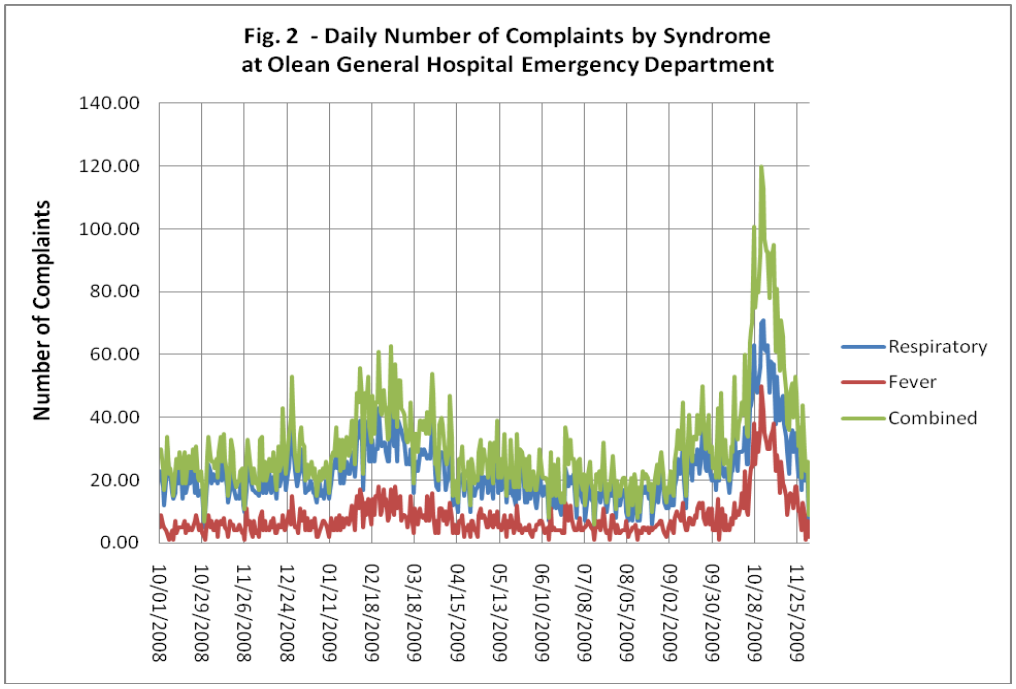
Objective #4 - *Continue weekly monitoring* of ILI weekly to determine the relative magnitude of the current influenza season with previous seasons;

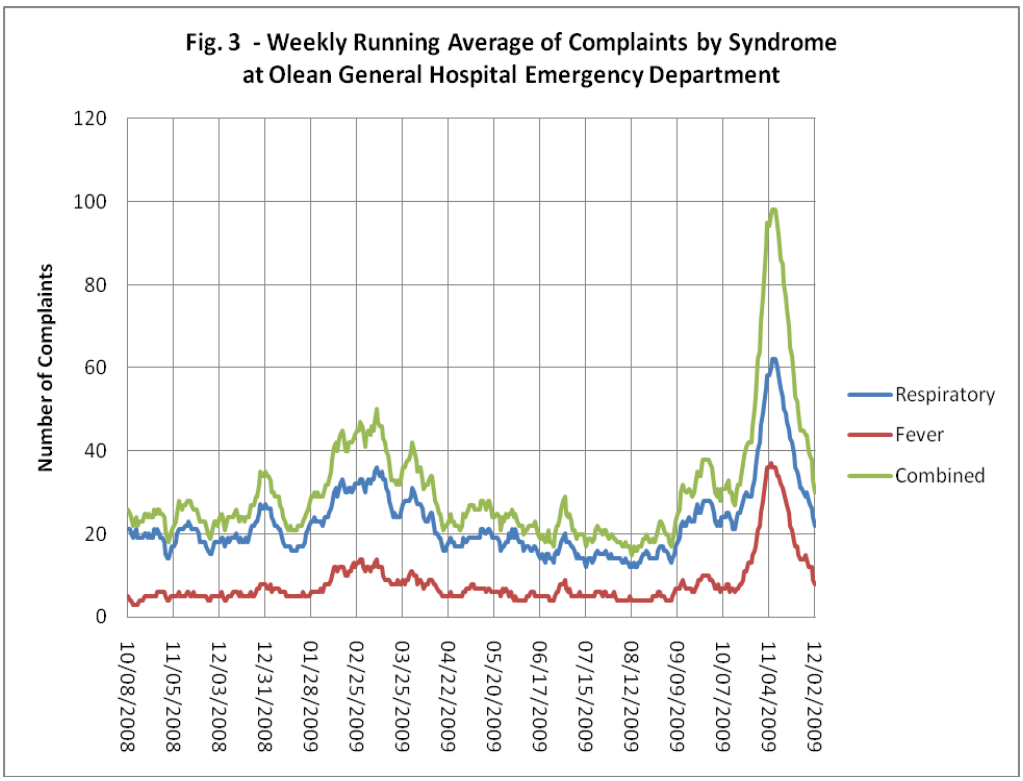
As previously mentioned the NYSDOH works with emergency rooms and other similar facilities to provide data regarding a wide range of potential illnesses that are reported at these facilities. Although, no data of a quantitative nature was gathered by CCHD staff, NYSDOH data from Olean General Hospital was downloaded from NYSDOHs Health Information Network (HIN) and analyzed to confirm that local epidemiology was similar to that being reported at state and federal levels. Once this was confirmed, the magnitude of the pandemic did not warrant more than periodic updates in these analyses to determine any local changes. Activities included;

- Development of procedure to access HIN data and import into Excel spreadsheets;

- Determine appropriate variables for analysis given existing data (i.e. zip code, age, sex, of ILI cases)

- Create charts and graphs to illustrate relationship between ILI and other variables. Figures 2-5 represent some of the analyses performed on this data.





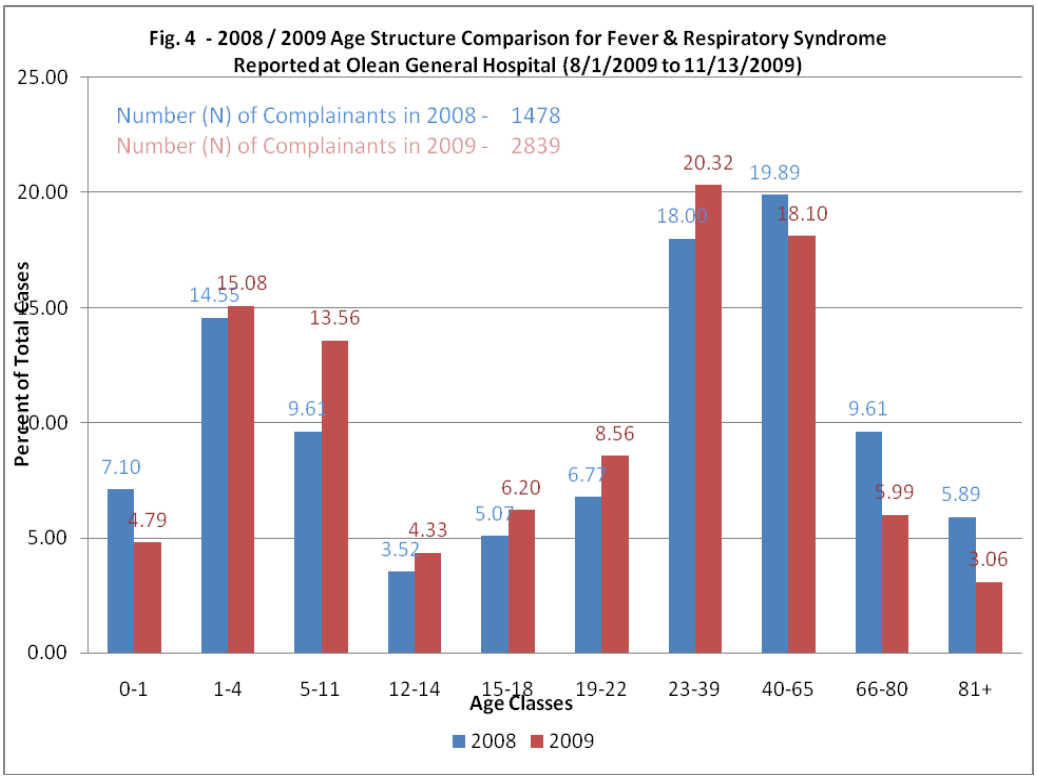
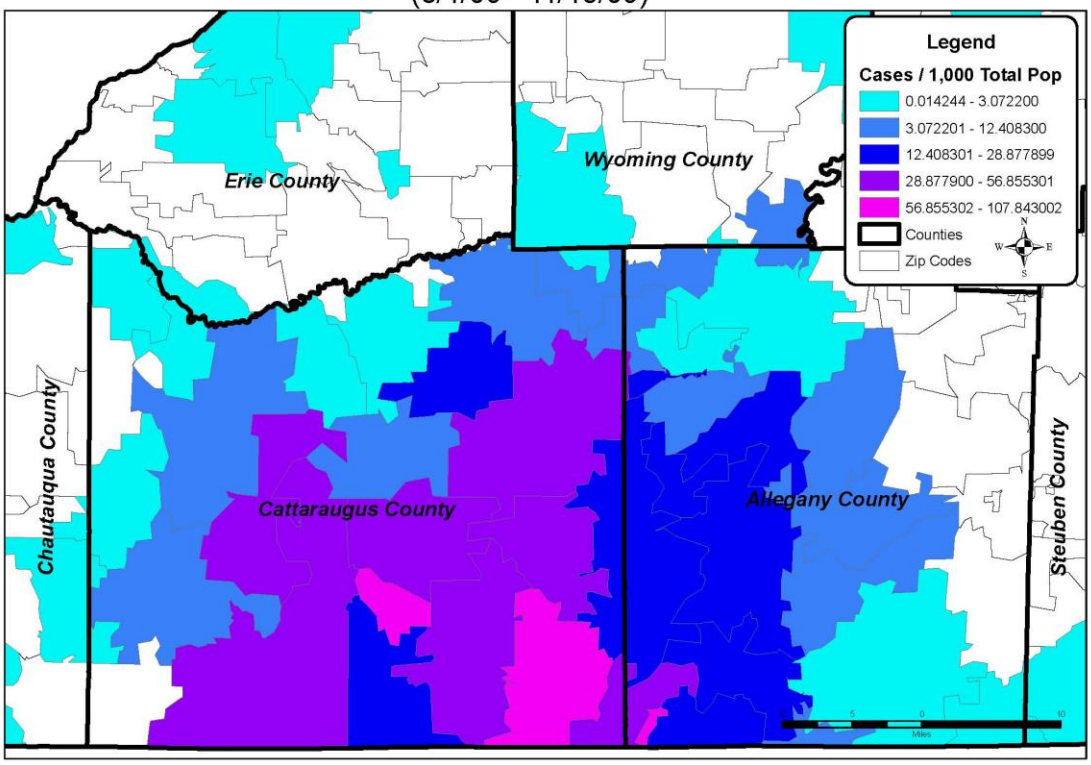


Fig. 5

Olean General Hospital Emergency Department Cases
Classified as Respiratory / Fever Syndromes per Zip Code
(8/1/09 - 11/13/09)



Objective #4 - *Monitor daily absenteeism* from schools to determine if closing a particular institution would help mitigate transmission of ILI.

As previously mentioned, the school-age population was at particular risk for contracting the H1N1virus due to limited previous exposure to influenza viruses and its congregation in schools and other facilities that facilitate close contact. For these reasons, it was / is important to monitor absenteeism due to ILI in an effort to determine if a particular school should be closed. In Cattaraugus County, only Pioneer Central chose to participate in a NYSDOH / NYS Education Department effort to monitor absenteeism using an internet based application. The CCHD worked with other school districts in the county to collect such information by phone. Whether through CCHD or the NYSDOH /NYSED, data collected was used to inform school-closure policy. Activities performed in support of this objective included;

- Downloading data for Pioneer Central school;
- Develop procedure for contacting other county school districts, storing data obtained and visualizing such data through tables, graphs or charts.

Ongoing / Future Efforts:

Current surveillance includes periodic reviews of HIN data. If the H1N1 pandemic becomes more severe, it is anticipated that surveillance efforts would increase in accordance with the above objectives.

Partnership Activities

Objective #1 - *Establish* multi-agency/multi-disciplinary forums such as the Incident Command System (ICS) and the Joint Information System (JIS) to facilitate partner discussion and decision making in pursuit of program-specific objectives.

Multi-agency involvement in the ICS, JIS or other forum is often dependent on the magnitude of the emergency. While initial plans called establishing such forums, only a limited ICS consisting primarily of county agencies and departments was deemed established for H1N1 response. Collaboration with outside agencies occurred at the operational level as specific program activities were implemented. It is anticipated that future responses to public health emergencies, including a more severe H1N1 outbreak, will incorporate such forums. Current plans call for the activation of an advisory committee to work within the ICS structure to pursue program objectives.

Objective #2 - *Establish* direct communication between Cattaraugus County Health Department and the NYS Department of Health to respond to ongoing issues regarding H1N1influenza and schools.

As mentioned, the NYSDOH provided primary guidance to and support for county health department activities across the state. CCHD officials were in contact with their state counterparts in April, with regard to H1N1 and school response. Communications with the NYSDOH took place through statewide conference calls and individual staff members.

Objective #3- *Facilitate* biweekly discussions with healthcare providers and associations across the county to share the latest information on H1N1 in Cattaraugus County.

To date, the magnitude of the H1N1 epidemic in Cattaraugus County has not necessitated biweekly discussions with healthcare providers and associations across the county. Instead the CCHD has participated in bilateral conversations with partners as needed to insure that programmatic objectives are met and required surveillance is performed. These partners are listed below. If deemed necessary due to increased H1N1 cases in the county, the CCHD will facilitate periodic discussions among partners in the future.

Partners:

- Olean Medical Group
- Olean General Hospital
- Omega Family Medicine
- Conewango Valley Medical Center
- Southern Tier Community Health Center Network, Inc. (STCHCN) or University Primary Care
- Gilbert Witte, MD
- Erika Connor, MD
- Arun Patel, MD
- Salwat Malik, MD
- Munir Salimi, MD
- Megan Kathryn Crosson, ARNP
- Rehabilitation Center
- Home Care and Hospice
- Absolut Center for Nursing and Rehab. at Salamanca, LLC
- The Seneca Nation of Indians Health Department
- Park Pharmacy
- TLC Health Network – Pharmacy Department

Resource Management Activities

Objective #1 - *Develop* plans for continuity of operations for the CCHD.

In those situations where emergency situations are given high priority, routine operations may have to be suspended for a time in order to handle the emergency situation. Continuity of operations insures that resources (i.e. personnel, supplies and financing) are available to support both emergency and routine agency operations at the desired level. In developing continuity of operations plans, an important consideration is the level of resources needed to support emergency operations. Resources dedicated to emergency operations may have to be reallocated from existing routine operations. The reallocation of resources to emergency operations activities under a continuity of operations plan is a decision made by Unified Command. In response to H1N1, few resources were reallocated to emergency operations activities. The following activities took place in support of the development of a continuity of operation plan for the CCHD;

- Prior to the H1N1 pandemic CCHD PHEP staff inventoried existing CCHD resources, including available personnel, equipment and supplies;

- Identified roles and responsibilities for potential emergency response staff based on this inventory and likely Public Health Emergency scenarios;

- Developed a plan to allocate resources based on availability and operational activities associated with risk mitigation, response and recovery efforts;

Objective #2 - *Secure* federal/state funding to implement H1N1 vaccination and public education programs;

Originating with the federal Centers for Disease Control and Prevention (CDC) and Department of Homeland Security (DHS), H1N1 response funding has come primarily through the NYSDOH and the NYS Department of Homeland Security. H1N1 funding was added to the NYSDOH's Public Health Emergency Preparedness (PHEP) budget. This funding was above and beyond the routine scope of work associated with PHEP staff. This additional scope of work was divided into H1N1 Phases 1 & 2 (planning) and H1N1 Phase 3 (implementation). Federal Department of Homeland Security funding was made available through the NYS Office of Homeland Security (NYSOHS). Securing funding from these resources require the following actions;

- Budget preparation;
- Fulfilling reporting requirements;
- Institution of accounting methods for funds received.

Implementing NYSDOH, NYSOHS, CDC and DHS accounting and reporting methods required some additional training specific to these funds.

Objective #3 - *Resolve* legal issues associated with partner and volunteer vaccination and public education program. An example of such resolution is tort liability protection for the administration of the H1N1 provided through the Public Readiness and Emergency Preparedness (PREP) Act.

In Cattaraugus County, the H1N1 epidemic has not yet required the use of volunteer medical staff to administer vaccine. However, should such staff be required in future H1N1 (or other disease) outbreaks and the county chooses to employ such staff, a clear understanding of the county's possible legal exposure will be needed. The federal Public Readiness and Emergency Preparedness (PREP) Act allows the Secretary of Health and Human Services (HHS) to provide tort liability protection to *covered persons.* Such persons may include, at the Secretary's discretion:

- *Manufacturers* of countermeasures;
- *Distributors* of countermeasures;
- *Program planners* of countermeasures (i.e., individuals and entities involved in planning and administering programs for distribution of a countermeasure);
- *Qualified persons* who prescribe, administer, or dispense countermeasures (i.e., healthcare and other providers); and
- The *United States.*

On June 15th, 2009, HHS Secretary Kathleen Sebelius extended tort liability protection to program planners and qualified persons. (*see - http://www.hhs.gov/disasters/discussion /planners/prepact/prepact-h1n1.html*).

While the PREP Act provides some limits to tort liability, it does not relax state certification requirements necessary for individuals to administer the vaccine. On October, 28th, 2009, Governor Paterson signed an executive order declaring a disaster emergency in the State of New York with regard to the spread of H1N1 (see *Appendix H - Governor's Executive Order*). This declaration suspended certain sections of the state's Public Health and Education Laws for thirty days to allow medical personnel such as podiatrists, EMTs, midwives and dentists that have been adequately trained to administer the H1N1 vaccine to the public. In addition to such professionals, if necessary Cattaraugus County may enlist the services of SERVE NY volunteers. SERVE NY is a NYSDOH created network of medically certified professionals willing to assist in a public health emergencies. NYSDOH verifies the credentials of all potential volunteers and provides access to such individuals through a web-based application that allows local health departments to request specific types of volunteers. From a legal standpoint it is important to determine the status of SERVE NY volunteers and those groups of individuals cited under Governor Paterson's disaster emergency declaration with respect to their coverage under the PREP Act declaration made by Secretary Sebelius. To facilitate access to SERVE NY and other volunteers, the following activities were conducted;

- CCHD staff and the county attorney contacted NYSDOH and NYS Emergency Management Office officials for an interpretation of PREP Act coverage with regards to volunteers and contract employees;

- County attorney reviewed relevant legal documents to determine if additional county action would be required, if volunteers or contract employees were utilized in administering vaccine.

Section 6: Adaptive Management and Future H1N1 Response

Background

Prior to the H1N1 pandemic, the CCHD's PHEP unit produced a number of plans and documents designed to respond to public health emergencies such as H1N1. These documents were required by the NYSDOH's work plan for local PHEP units throughout the state. Initial response to H1N1 in the county used these documents as a framework for performing emergency operations. As more information about the spread of severity of H1N1 throughout the state became available, CCHD staff worked with NYSDOH staff to further refine existing plans and documents to better address the H1N1 pandemic in Cattaraugus county. Eventually, the Incident Command System (ICS) was activated and H1N1 plan implementation decisions were made through the ICS structure in response to emerging NYSDOH guidance and information gathered through operational and surveillance activities at the local, state and federal levels.

This process of planning, information gathering, plan refinement and operational decision-making is known as *adaptive management*. Adaptive management serves to integrate current information about the known operational environment, including financial, personnel, epidemiological and communications into a periodic Incident Action Plan (IAP) in support of emergency response objectives. As the H1N1 response progressed through the summer and fall months, activities associated with initial planned objectives changed in accordance additional guidance from state and federal agencies and information generated on local, state and federal levels. These changes resulted in some objectives not being met as initially planned. Fortunately, the primary reason for this was that the scale of H1N1 epidemic in Cattaraugus County was not as large as initially anticipated.

Future Response

Unfortunately, the spread of H1N1 throughout the community is ongoing and there is a fear that a 'third wave' of the virus will make its way through the community in late February / early March. As previously mentioned, current efforts focus on educating the public that the risks associated with H1N1 virus still exist and that the best way to minimize those risks is through vaccination. In light of this message, vaccination clinics are being administered at all three CCHD locations in Olean, Salamanca and Machias.

Past plans, experience and lessons learned will provide a strong framework for response if H1N1 activity increases. In accordance with the principles of adaptive management the CCHD and the NYSDOH will continue to monitor the spread of the virus and provide the information needed for an effective response. The ICS has not been deactivated and CCHD staff and partners are actively engaged in surveillance to determine to programmatic activities should be ramped up.

Acknowledgements

Responding to the 2009 Novel H1N1 Influenza Virus took required contributions from many individuals and agencies. While this document tries to summarize the activities that took place during the response to date, not all activities were detailed or mentioned. Because of the wide range of activities and agencies involved in H1N1 response it is impossible to acknowledge all individuals contributing to the H1N1 response effort. In recognition of this difficulty and not wanting to exclude anyone, the CCHD would simply like to thank all involved in the effort. The CCHD thanks you for dedication, effort and commitment during this public health emergency.