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## Public Health Perspectives on the 2009 Novel H1N1 Influenza Pandemic and Population Health

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**STATE OF AFFAIRS**

**Public Health Perspectives on the 2009 Novel H1N1  
Influenza Pandemic and Population Health**

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**INTRODUCTION:**

“There are so many challenges in public health – and issues such as the H1N1 pandemic are the purview of public health. The investigation, the surveillance, the development of policy – these are the things that make us different than the healthcare industry. We address the three core public health functions: assessment, policy development, assurance – making sure the things are in place so that people are able to receive vaccine, antivirals and information about how to protect themselves – this is real public health –” (Dixon, 2009).

The *Michigan Journal of Public Health* “State of Affairs” series seeks to provide understanding and dialog around public health practice, research and challenges in population health. The issue area for this article is Infectious Disease, specifically the 2009 Novel H1N1 virus, a subtype of influenza virus A, and the most common cause of influenza (flu) in humans. Some strains of H1N1 are endemic in humans and cause a small fraction of all influenza-like illness and a large fraction of all seasonal influenza (CDC, 2009). In June 2009, the World Health Organization (WHO) declared flu due to a new strain of swine-origin H1N1 was responsible for a worldwide phase 6 pandemic. WHO noted the pandemic was early in its evolution and its severity can change over time. Furthermore, pandemics can differ by location or population, and future severity assessments could thus reflect any number of factors, including the changes in the virus, underlying vulnerabilities, or limitations in health system capabilities. (WHO, 2009).

**UNDERSTANDING THE PANDEMIC IN EARLY FALL OF 2009:**

In order to gain perspectives from local and state public health in Michigan, as well as cross-border health, interviews were conducted with officials from the City of Detroit Department of Health & Wellness Promotion (DHWP) and Windsor-Essex County Health Department, Ontario, Canada. Windsor, Ontario shares an international Canadian-American border with Detroit, Michigan. The interviews explored, as relevant to the jurisdiction, target populations for receiving vaccinations, community immunization strategies, utilization of immunization registries, and general public health challenges. Interviews were conducted in September and October of 2009, thus reflecting a snapshot of 2009 early fall activity.



From the Canadian cross-border perspective, Allen Heimann, MD, Medical Officer of Health for the Windsor-Essex County Health Unit, Ontario, noted similarities and differences in public health approaches between Canada and the United States. From the local health department level, perspectives from the Detroit Department of Health & Wellness Promotion were provided by Melinda Dixon, MD, Medical Director for Disease Control, and Walter Davis, MD, MPH, Pandemic Flu Coordinator for the Office of Public Health & Emergency Preparedness.

As noted by each of those individuals in the interviews that follow, trends for the H1N1 pandemic evolve continuously. Updated information is available on public health local, state, provincial, national, and international websites, including: 1) City of Detroit Department of Health & Wellness Prevention (DHWP), Michigan [www.detroitmi.gov](http://www.detroitmi.gov); 2) Michigan Department of Community Health (MDCH) [www.michigan.gov/flu](http://www.michigan.gov/flu) and Michigan Care Improvement Registry (MCIR) [www.mcir.org](http://www.mcir.org); 3) United States Centers for Disease Control and Prevention (CDC): <http://www.cdc.gov/h1n1flu> or [www.flu.gov](http://www.flu.gov); 4) Windsor-Essex Health Unit, Ontario, Canada <http://www.wehealthunit.org/diseases-conditions/h1n1-virus>; 5) Canada Public Health Agency [http://www.phac-aspc.gc.ca/alert-alerte/h1n1/families\\_familles-eng.php](http://www.phac-aspc.gc.ca/alert-alerte/h1n1/families_familles-eng.php); and 6) World Health Organization (WHO): [www.who.org](http://www.who.org) and WHO Global Alert and Response (GAR) <http://www.who.int/csr/disease/swineflu>.

### **Target Populations in the United States and Canada**

In the United States, the Center for Disease Control's (CDC) Advisory Committee on Immunization Practices (ACIP) recommended certain groups of the population receive the 2009 H1N1 vaccine first. The target groups included pregnant women, people who live with or care for children younger than 6 months of age, healthcare and emergency medical services personnel, persons between the ages of 6 months and 24 years old, and people ages 25 through 64 years of age who were at higher risk for 2009 H1N1 because of chronic health disorders or compromised immune systems. Children through nine years of age were to receive two doses of vaccine, about a month apart. As vaccine became available, healthy 25 through 64 year olds and adults 65 years and older would be prioritized and offered vaccination. H1N1 vaccinations could be given at the same time as other vaccines, including seasonal influenza vaccine (CDC H1N1, 2009).

The Public Health Agency of Canada recommended vaccine sequencing in two categories, with groups in each category not listed in priority sequence. The first category was people under 65 with chronic health conditions, pregnant women, children 6 months to less than 5 years of age, people living in remote and isolated settings or communities, health care workers involved in pandemic response or the delivery of essential health care services, household contacts and care providers of persons at high risk who cannot be immunized or may not respond to vaccines, and populations otherwise identified as high risk. The second category included children 5 to 18 years of age, first responders, poultry and swine workers, adults 19 to 64 years of age and adults 65 and older (Canada Public Health Agency, 2009).



**Public Health Perspective: Ontario, Canada and Cross-Border Public Health**  
*Allen Heimann, MD, Medical Officer of Health, Windsor-Essex, Ontario, Canada*

Ontario has computerized information for immunizations. It is a system which is in the process of being rolled into our broader infectious information system and one of the challenges we have is institutionalizing immunization record-keeping. There is a different setting with the electric registration system for H1N1 immunizations because of concerns of the new type of vaccine being different than the previous year. Sharing information across the border is difficult, and depends on the individual healthcare worker. If the worker works in Detroit/Southeastern Michigan and is a Canadian resident, the transfer of information depends on the information the individual receives – whether on a card or as personal information. We don't have the ability to share records with Detroit or southeastern Michigan.

Unlike the United States, Canada has adjuvanted vaccine available. An un-adjuvanted vaccine is available for pregnant women. Both vaccines come in multi-dose vials with a thimersol preservative. Many recipients have expressed concern above this preservative. In the United States, two versions of the vaccine are available through public health: inactivated vaccine which is injected into the muscle and live, attenuated intranasal vaccine. Canadian public health does not use the nasal spray vaccine although it is well advertised in the US. If you look at various media representations of the flu, it can create confusion in Ontario as a border community with Detroit. Given the scope of immunizations, Detroit and Southeastern Michigan were originally several weeks ahead. Our first flu clinic for health providers were held in late October and doses of the vaccine were also sent to local hospitals to vaccinate their staff. In Ontario, the H1N1 flu vaccine was available free at the health unit community H1N1 flu clinics.

Potential challenges depend on how far we can project into the future. The next six weeks are critical, through the end of November, if we can get a significant amount of the population immunized. The United States was initially ahead with immunizations, but Canada is catching up quickly. A lot depends on the amount of disease.

**Public Health Perspective: Local Public Health Pandemic Planning and Challenges**  
*Melinda Dixon, Medical Director for Disease Control, Detroit Department of Health & Wellness Promotion*

There is a great deal of planning related to H1N1 pandemic – which was declared as of June 2009. Dr. Walter Davis, Pandemic Flu Coordinator, is DHWP leader for Detroit's public health strategy. The pandemic has brought lot of activity to surveillance – where rubber meets the road – identifying where the disease is, how much disease is there, who is getting the disease, what does it look like, etc., including interaction with hospital partners and making sure all recommendations, guidelines and mechanisms for submitting specifics to the State of Michigan are known to the appropriate people. DHWP is in constant communication with the State along with monitoring the CDC website site for recommendations. CDC recommendations flow through the State for local public health guidance.



Planning continues with school partners. DHWP had interaction with schools in the early part of the year when H1N1 hit, trying to make certain what's happening in Detroit Public Schools (DPS) and that the situation is monitored. We did not have to recommend any school dismissals, even before the CDC definition came out with suggestions around school closures. DHWP is also working with businesses and Federally Qualified Health Centers to provide public health information and recommendations. The surveillance piece is key and we maintain ongoing connections with providers, making sure reporting is being done properly.

Vaccines, which are for disease prevention, are recorded in the Michigan Care Improvement Registry (MCIR), which is also used for inventory of vaccines. MCIR transitioned from a statewide immunization registry for children to a care registry. Adults and healthcare workers can now be recorded for future reference for evaluation of penetration of the vaccine. MCIR can also show the percentage of population vaccinated, especially if hospitals want to know how many of the healthcare workers have been vaccinated and which healthcare workers can work in a particular area if they have been vaccinated. Vaccination is critical if they work with high-risks groups (e.g., pulmonary) or persons who are immuno-suppressed, such as those on nephrology/dialysis, transplant or oncology floors.

Private schools can be a challenge area because there is not one central entity for administrative guidance. We interact based on communication from them; however it helps that private schools tend to follow what DPS does. The DHWP team of planning is led by the flu planning coordination with the immunization program director. The team is working hand in hand with schools (public, private and parochial) and daycares – all schools must report immunizations. Daycares are regulated by the State and there are some connections available through the immunization requirements.

Detroit has an international border and is also a regional center. There is a Great Lakes Border Health Initiative (GLBHI) which started out as the Border Health Initiative and began in 2004. There are five partners: the States of Michigan, Wisconsin, Minnesota, New York and Pennsylvania, and Canada. From an international perspective, Canada is brought in through GLBI under Early Warning Infectious Disease Surveillance (EWIDS). The purpose is to establish a partnership by which persons in the United States, border states and Canada can have communication regarding any infection disease situation. The connections are there for the partnership and GLBHI has point persons within each State and Ontario who are known to each other.

In public health, there are always emerging and re-emerging issues. It could be around smallpox, SARS, H1N1, or H5N1 (avian), which is still out there. H1N1 swine took us by surprise. The world is now a global society. There is also concern about the new hemorrhagic fever virus which is starting to spread beyond Africa in our global society. Travel and transmission is as easy as snapping your finger. Around the world – “vector borne” is the new norm. It is a reality. Another major part of the challenge is the constantly evolving scenario around new infectious diseases. We deal every year with flu and know the mutability of influenza. It is always an issue and we have to address all possible scenarios in our planning. We can use a little bit of what has



gone before, but we cannot even really talk probability: as evidence, this is the first year we are dealing with this strain of the swine flu.

**Public Health Perspective: Local Public Health Coordination and Collaboration**  
*Walter Davis, MD, MPH, Pandemic Flu Coordinator, Detroit Department of Health & Wellness Promotion*

Getting the Message to the Community: First of importance for the Detroit community is education of the public – letting them know what H1N1 is and what they can do to avoid getting and spreading the virus. The basic message is to cover your cough, wash hands frequently, stay home if you are sick before returning to work and get the vaccine when it’s available. We developed an H1N1 public health acronym

**Table 1:**  
*Public Health Acronym*

<p>H1N1</p> <ul style="list-style-type: none"><li>▪ H = hand wash frequently</li><li>▪ 1 = 1 day fever free before returning to work/school</li><li>▪ N = never cough or sneeze into your hand, always use sleeve/tissue</li><li>▪ 1 = one shot vaccine (need 2 under 10 years)</li></ul> <p>FLU</p> <ul style="list-style-type: none"><li>▪ F = frequently wash your hands</li><li>▪ L = leave if you’re sick</li><li>▪ U = use your sleeve, not your hand</li></ul>
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We are putting the basic prevention message out through flyers with a goal of distributing 500,000 pieces of literature through literature drops, using the core of DHWP staff, volunteers corps, faith-based organizations, big businesses such as Detroit DTE, and the City of Detroit departments, with janitors leaving pamphlets on desks as they clean.

The DHWP website has the H1N1 Flu Clinic Schedule as well as links to the Office of Public Health Emergency Preparedness (OPHEP). OPHEP is coordinating Detroit planning and community strategy for the H1N1 pandemic. An important piece is getting to CDC target populations. For example, large percentages of Detroit’s small children and pregnant women are on the Women, Infants and Children (WIC) Special Supplemental Nutrition Program. We have mailing labels for 30,000 participants and will send out mailers on where to get vaccine along with a prevention message. We are also working with large healthcare systems and private practitioners, especially pediatrics and obstetrics and gynecology. Children under six months cannot be immunized, so we try to immunize everyone who will be in direct contact with them. When more vaccine is available, we will expand target populations as designated by CDC. An important element of coordination with MDCH is through the MCIR registration. As part of



surveillance with MDCH and CDC, everyone that gets the H1N1 vaccination is registered through the MCIR.

*Public Health Outreach:* For both primary care and schools, the DHWP immunizations department has actively gone out and shown providers how to register for the MCIR. They have also provided multiple onsite trainings at the Health Department. Providers thought MCIR was great but some felt the paperwork was overwhelming. We've taken them by the hand – once they are registered with the state, they can receive vaccine for the target groups. We are working with DPS, charter and private schools individually with the goal of having vaccination clinics in every school.

DHWP started general population clinics in late October. We are also doing Health Dept Community Clinics and outreach through City Recreation Centers. We had immunizations available at all public health clinics, including Grace Ross, Northeast and Herman Kiefer Centers and were doing close to 1000 a day. When we started out we mimicked hours normally open for public health clinics. A lot of counties had decided to do mass immunization clinics – that did not really fit for Detroit. One of the big issues for our residents is transportation. We thought if clinics were open every day it would be easier if someone needed to get a ride – they would have multiple opportunities for transportation as well.

DHWP community recreation center immunization clinics will begin in November. The sites include Northwest Activities Center, Butzel Family Center, Coleman A. Young Community Center, Heilmann Recreation Center, Patton Community Center and the LaSED Community Center. We will go to those recreation centers during the week and on Saturdays and have DHWP clinics open as well. Faith-based organizations are also included in our public health outreach: I do public speaking in churches. The idea is to get enough exposure for all residents of Detroit. We explain to the citizens of Detroit that unless you have immunization from being previously exposed, you need to either get vaccinated or you could catch H1N1.

We have some resistance from people. Maybe they do not trust the government – or when they get the seasonal flu they always get sick, or they are concerned the vaccine has not been tested adequately. In September we had flu season which typically does not start until December – we are months ahead in the flu season. We try to explain the CDC is using the same process as with seasonal flu and the development process is exactly the same. For 30 years, we have had a lot of history on the safety of vaccine.

Collaboration and Partnerships: DHWP decided to organize and get vaccine out through a Pan-Influenza Coordinator. As noted earlier, OPHEP helped put the pieces together to organize the vaccine distribution. There is also a major part from the DHWP immunization department and DHWP nurses. We work in partnership with them to get H1N1 immunizations out to our target population. The DHWP, OPHEP and Local Emergency Preparedness Committee (LEPC) coordinate with the City of Detroit Homeland Security (HLS) and Wayne State University School of Medicine continuing medical education in updating community physicians, health professionals and DHWP staff on the most recent CDC information on H1N1 influenza,



recommendations for H1N1 vaccine and contraindications, and increasing understanding of the indications for Tami-flu messages.

Schools are an important piece. The only time we consider school dismissal is if you don't have enough children or teachers to effectively run the school. In most cases, those kids that get sick stay home and we continue educating the rest of the kids. We continue to monitor CDC recommendations about school closure. We are working with a company doing in-school immunizations and we are going to see how it works with Detroit schools. The company is willing to bill insurance for an administration fee; they are the largest company doing in-school immunizations provider in the nation. They are willing to come in with nurses and set up in school clinics. DHWP first gets consent from parents for the students. They will bill Medicaid/Medicare if insurance information is provided; they will immunize everyone even if they do not have insurance. This approach is a saving and we are able to open up more clinics. We will share with public health departments in other counties any success we have with this company if they want to do in-school immunizations as well.

Another innovative communication approach has been with the United Way 211 program. We began partnering with the United Way 211 in August. We needed to have a means of communication to give citizens information when the vaccine is available. If we get into December and we receive a thousand calls a day, 211 can upgrade their recorded message and even have a live person answering. It's "scale-able" – we can increase the volume of calls handled through this partnership with the United Way and State of Michigan. We are also in communication with the Wayne County Health Department and how we can work together. These are examples of partnerships that are vital to residents of the City of Detroit.

## **SUMMARY:**

Selected elements of public health practice and potential challenges for local, state and cross border/international public health around the H1N1 pandemic were explored in this article. As previously noted, there are also key resources such as the Michigan Care Improvement Registry (MCIR), a lifespan immunization registry through the Michigan Department of Community Health (MDCH). The Registry's public health benefits include providing local health departments with the ability to do population-based immunization level assessments targeting outreach efforts.

MCIR's versatility includes the all-hazard tracking system for emergency preparedness and the Influenza Vaccine Exchange Network (MCIR, 2009). It is important to track multiple vaccinations for children in the H1N1 pandemic. The MCIR is automatically populated with electronic birth certificates of children born in Michigan since 1994, is linked with WIC and Medicaid, and integrated with a variety of other child health data sets such as lead. For children less than ten years who should receive two doses of H1N1, MCIR can generate a reminder notice. The Influenza A (H1N1) 2009 Monovalent Vaccination Program encourages appropriate medical providers to enroll in MCIR to document their patients' immunizations. As an example, there is particular relevance in the H1N1 vaccination for obstetrics and gynecology patients. For



purposes of safety and efficacy, MCIR gives MDCH the ability to track vaccine distribution and administration and notify individuals if there are adverse events (Hoy, 2004; MDCH, 2009).

Public health community planning is a lengthy and ongoing process. Strategies for pandemic influenza mitigation are available from sources such as the CDC *Interim Pre-pandemic Planning Guidance: Community Strategy for Pandemic Influenza Mitigation in the United States* (CDC, 2007), MDCH *Pandemic Influenza Planning* (MDCH, 2008) and the Windsor-Essex County Pandemic Influenza Planning Committee (Windsor-Essex County, 2005). The progress of pandemics is documented through multiple levels of public health practice, surveillance and research. For additional public health perspectives on the 2009 H1N1 pandemic, websites and links such as the United States National Institutes of Health (NIH) National Library of Medicine (NLM) provide timely information about local, state, national and international trends and analysis (NIH, NLM, 2009). Other multi-level sources include CDC weekly *MMWR* (Morbidity and Mortality Weekly Report) which provides state of the epidemic articles such as the “Update: Novel Influenza A (H1N1) Virus Infections – Worldwide, May 6, 2009” that incorporated investigation and the spread of the virus reports from WHO, the Public Health Agency of Canada and CDC (CDC, *MMWR*, 2009). In the dynamic field of public health and pandemics such as the 2009 H1N1 Influenza, recognition of historical as well as current “state of affairs” will hopefully prove valuable to practitioners as well as researchers.

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