

# Using the H1N1 Flu Outbreak as a Learning Tool

## Curriculum and Instructional Implications and Opportunities

by Dr. Gary Meers

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### Introduction

Each day newscasts and newspapers report on the spread of the H1N1 flu virus internationally, or about an outbreak that has occurred at the local high school, day care center or other site where groups of people gather. These reports give the numbers of people infected, their age groups and their symptoms. The reports then close with ways one can reduce the chances of getting the flu. People view and read these reports, think for a few seconds about the possibility of them getting the flu, and then move on with their lives. For all purposes, it is not a big deal unless they or someone in their family

has caught the virus. But, it is a big deal due to the impact—economically, mentally and physically—the virus is having and is going to have throughout the world. By educating individuals about the impact that the virus will have on the different parts of their lives, people can be more diligent in their efforts to prevent the spread of the virus.

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To help educate the general public and to raise a level of awareness about the virus and the impact it is having



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on the world's population, schools and colleges can integrate into their curricula information about the history, spread, mutation and impact of the virus. Not only will this effort be of help in trying to reduce the spread of the virus, it will help students to see how one thing, in this case a virus, can impact all aspects of a country's operation. In addition, the students will see how a current event such as a flu epidemic can become a teaching tool in a multitude of different subject areas. This is what relevancy of course content is all about.

### **Brief History of the H1N1 Flu**

The H1N1 flu has been sourced back to the great swine flu epidemic of 1918. World War I killed twenty-one million people in four years while the swine flu did the same thing in its first four months. Almost 80 percent of American casualties in the First World War came not from enemy fire, but from the flu. It started in the U.S. among sailors in Boston and quickly spread to all parts of the country. Worldwide, the number of casualties was between 20 and 50 million, or maybe more. A puzzling fact about the flu was that it erupted almost simultaneously at distant locations; therefore it is likely that the virus was incubated in people with only mild symptoms or no symptoms at all. The flu attacked people in their twenties and thirties, who were thought to have strong immune systems, and most of the infections were lethal.

Another swine flu outbreak started in 1976 with an army recruit at Fort Dix. He said he felt tired and weak. He died the next day and four of his fellow soldiers were later hospitalized. Two weeks after his death, health officials announced that swine flu was the cause of death and that this strain of flu appeared to be closely related to the strain involved in the 1918 flu pandemic. Alarmed public-health officials decided that action must be taken to head off another major pandemic, and they urged that every person in the U.S. be vaccinated for the flu. President Gerald Ford was confronted with a potential swine flu pandemic. To counter the perceived threat, a national public relations campaign was launched. This campaign was plagued by a

number of problems and the vaccination program was delayed. The immunization program began on October 1, 1976. The same day, three senior citizens died soon after receiving their flu shots and there was a media outcry linking the deaths to the immunizations, despite the lack of positive proof. According to science writer Patrick Di Justo, however, by the time the truth was known—that the deaths were not proven to be related to the vaccine—it was too late. “The government had long feared mass panic about swine flu—now they feared mass panic about the swine flu vaccinations.” This presented a number of major problems in trying to implement the vaccination program.

Another problem cropped up when reports about people who had been vaccinated for the flu contracted Guillain-Barré syndrome, a paralyzing neuromuscular disorder, affecting some people who had received swine flu immunizations. This syndrome is a rare side effect of modern influenza vaccines, with an incidence of about one case per million vaccinations. With the spreading of this information there was much misinformation about the effects that the vaccine was having on people. Distrust of the government and medical officials created a major barrier in people receiving the vaccine.

In 1988 a zoonosis outbreak was detected among swine, which resulted in the death of a 32-year-old pregnant woman. Influenza-like illness was detected among exposed pigs, but no serious illnesses were detected. There was not a community outbreak, and fear of the flu died down.

Another swine flu outbreak was detected in 1998. It spread throughout the swine population of the U.S. Scientists found that this virus had originated in pigs as a recombinant form of flu strains from birds and humans. Again, there was a brief period of concern, but with no major outbreak among humans, the fear subsided.

After being generally quiet for approximately ten years the H1N1 viral strain popped up again, resulting in the 2009 flu epidemic. It is called the “swine flu” because initial testing showed many of the genes in the virus were similar to influenza viruses normally occurring in North American swine. Further research has shown that the

outbreak is due to a new strain of H1N1 not previously reported in pigs. In April of 2009, Margaret Chan, the World Health Organization's director-general, declared a "public health emergency of international concern." Thus began the worldwide effort to combat the spread of the H1N1 flu.

### Deciding to Use the H1N1 Flu as a Teaching Tool

The first step is deciding if you want to use information about H1N1 flu as the focal point of instruction. With it in the news and affecting large groups of individuals in almost every community, it is a part of most conversations. In addition, students are getting all types of messages about how to take precautions to prevent the spread of the flu and how their school or college is dealing with the upcoming flu season. Since information about the flu is a constant in the media, using the information about the flu in some of your lessons becomes a logical choice to make. The question is, how are you going to present the information and how will you involve the students in the learning process?

In making this decision think about all of the people, countries, cultures and economies that are affected by this virus. Then review the following facts about H1N1. This will help you to see where and how you can integrate information about H1N1 flu into your course content and use this epidemic as a teaching tool.

#### H1N1 Flu Virus Facts:

- Is worldwide
- Affects people of all ages, gender, cultures and race
- Hardest on people in their 20s and 30s
- Spreads quickly
- Virus lives approximately two hours outside of host body
- Much misunderstanding about the virus
- Has been seen before in other forms
- Is found in both humans and animals
- Mutates quickly
- Remains dormant for long periods of time

Has great economic impact

Older people have some immunity to current strain of virus

Requires constant research to create effective vaccines

Antibiotics do not impact the virus

First noticed in the 1918 flu pandemic

### A Curriculum Model for Selecting Content

In curriculum development there is a body of knowledge that creates the core from which instructional planning is developed. From this body of knowledge, or content, a series of lessons are developed. The method for course and lesson development is as follows:

- 1. Goals**—the stated outcomes of the lesson or unit. It gives learners the direction the lessons are going to go and what the overall purposes are of the course.
- 2. Objectives**—a list of specific study areas that will be covered in a sequential manner to give learners opportunities to acquire the needed course content or skills.
- 3. Learning Activities**—what the students will be doing to acquire the knowledge and/or skills. These activities will involve many different instructional formats and delivery methods.
- 4. Resources**—what the students need to be able to acquire the knowledge and/or skills. These may be labs, tools, consumable materials, textbooks, media and technology.
- 5. Evaluation**—methods may have many different assessment formats designed to enable students to show their mastery of content and skills.

By following the above curriculum development steps, an instructor can create lessons that use existing course content and connect it to the newly developed information about H1N1 flu. This integrated content development helps

students to expand their knowledge base and to see connections between subject matter areas in different ways. It is easy to think that since the H1N1 flu is a health issue that those in the medical field are the only ones that should be learning about the impact of the flu. This is not accurate, as can be evidenced by the impact that this epidemic is going to have in all sectors of our population and culture. Students can, for example, learn how their field of culinary arts is impacted by H1N1 flu outbreaks, whereas before they were only thinking about planning their upcoming

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dinner menu. In no way does integrating information about H1N1 distract from the current curriculum. What it does is add value and relevancy to it. A part of knowledge acquisition is the expanding of boundaries to include other fields and disciplines as they relate to problem solving and decision-making. This type of holistic thinking helps students with their career planning, and gives them a big picture vision of how their field fits into the community in which they live and the career in which they will work.

## Getting Started

### ***Business/Human Resources Example***

The President's Council of Advisors on Science and Technology says:

*“As many as 1.8 million people in the United States could be hospitalized with the swine flu and 90,000 could die. That’s more than twice the normal U.S. flu mortality rate.”*

This statement is a good starting point for lesson planning using the H1N1 flu as a teaching tool. This statement projects that 1.8 million people will be hospitalized during the flu season along with the doubling of the mortality rate. It does not give the number of people that will

become sick with the flu but do *not* require hospitalization. What is known is that the majority of these people will miss two or more days of work. So lost productivity is going to be a major problem during the flu season.

A study released by Harvard School of Public Health (September 9, 2009) shows that 75 percent of the surveyed businesses do not have a plan for covering widespread employee absenteeism. Companies designated by the Department of Homeland Security as “critical” to the security and economic vitality of the nation, including those in the food supply chain, energy and finance, were no more likely to have a plan than non-essential businesses.

Over 50 percent of the surveyed companies require a doctor's note before granting sick leave and 70 percent require a note before someone can return to work, yet few of them have a contingency plan for covering the absences of employees. The companies are more focused on making sure that sick leave is not abused rather than planning on how they can keep providing their services or products when employees are home ill.

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If you are teaching courses in business, human resources, management or any other related subject area, you have a perfect opportunity to bring a current situation into the classroom for discussion and problem solving. You could look at the impact of increased absenteeism in the work place due to the flu. Since many businesses, as a result of the recession, have already reduced their workforces and increased the workload of those remaining, many are on the edge in terms of being able to complete work as it is. You could give the students an overview of the H1N1 flu and then have them develop proposed solutions outlining how businesses could continue to operate with a revolving reduction in personnel. The key word in

doing a scenario-based project in class will be “revolving.” There will be no choice on who gets sick. This means a number of different staffing patterns will need to be developed.

The overall question that could be posed to the students would be:

***What can businesses do to stay competitive during times of excessive absenteeism?***

Here are sample questions that can serve as starting points for the assignment:

- When 20 percent or more of the workforce is out on any given day with the flu, how can a company or business continue to operate?
- What are some alternate staffing plans that can be developed to keep the operation going?
- What will be the cost of lost productivity during the flu season if 20 percent of the workers are out sick?
- How can mission-critical vacancies be covered?
- What are some methods of cross-training workers to keep the business viable?
- What would a contingency staffing plan look like for businesses of different sizes?

The outcomes of doing a lesson of this kind are many. Two key outcomes are application and relevancy. The application outcome would have the students using their knowledge and life experiences to design ways that businesses could remain competitive during challenging times. The relevancy outcome would be that the students are working on possible solutions to a current problem that they are being exposed to everyday. That is as current as it gets.

Not only will this be a powerful learning experience for the students, but their efforts could be shared with the business community as well. Their ideas might be just what a company could use to help keep them viable during the flu

season—especially in light of the earlier mentioned research that shows most businesses don’t have any alternative staffing plans.

**Dealing with Myths and Folklore**

When any event occurs on the world stage there are always a lot of myths and misperceptions that spring up around the situation, and the H1N1 flu epidemic is no exception. Remember the Y2K stories and the misperceptions that surrounded that situation? Stories were spread about how computers would cease to function, gas stations would not pump gas, and food shortages would be nationwide. Cities would be put under martial law as a result of widespread rioting resulting from the collapse of civic order throughout the nation. At midnight when the year 2000 became official, confetti was thrown, the ball dropped in Times Square and life went on as usual. It was time to go on to other life issues for a while. And no one knows for sure what happened to all of the water and food that was stored in bunkers and basements in preparation for that fateful day.

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As an assignment, you could have your students compare and contrast the similarities and differences between these two perceived major events. One was manufactured (Y2K) based upon many unknowns and the lack of clarity surrounding what was known, while the current situation is an epidemic based upon what is known but not completely understood by a majority of people. This presents opportunities for exploration and research of both historical and current aspects.

Currently there are a number of stories swirling around about how and where the flu started, why it is so severe with certain age groups, and how it can be prevented. Hidden within these perceptions and misperceptions are nuggets of truth, which lend a certain sense of credibility to the stories. As with any urban legend, finding the truth and validating the

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accuracy of the information is difficult. There are many inaccuracies about the H1N1 flu that can be used as starting points for student projects. For many students, following the trail of myths or folklore about the flu can be fun as well as informative. With the many different CSI (Crime Scene Investigator) shows on television, many people are looking for crimes to solve and mysteries to unravel. The various misperceptions about the flu are a good starting point for engaging these armchair investigators.

**Here are some of the more common myths that are floating around the Internet and in conversations:**

- Wearing surgical masks will prevent you from catching the flu.
- Magic pills will keep you safe.
- Taking vitamins will build super power against the flu.
- High temperature and humidity helps the virus to spread.
- The CDC says H1N1 is currently wiping out entire villages in Asia.
- It will hit the U.S. in Jan/Feb of 2010 where it will kill 6 out of 10 people.
- They will attempt a program of mandatory vaccinations, but probably will not have enough time to enforce it.
- The last time they did mandatory vaccinations many people developed Guillain-Barré syndrome, which is a devastating illness.
- They have not let the public know because they don't want people to panic. They expect that martial law will be put into effect.
- This is straight from the mouths of the CDC and Johns Hopkins.
- The bird flu of two years ago was made stronger by passing through swine.
- It HAS mutated!

These are twelve myths that students can research for substance and verify why they are

not true. Some involve medical areas, others business and some communication. As an instructor you can look the list over and see how you can develop a lesson around any of the myths listed. You should be able to find any number of ways of either informing your students about how to find the truth related to these myths, or share with them methods they can use to identify how some of these myths started and have taken on a life of their own within the American culture.

**Connecting the Dots**

As an instructor you can be creative in your development of lessons using H1N1 flu information as the focus of your content. Your students can look at sectors of the economy that will be affected by the epidemic. This might include such areas as transportation, energy, and stocks. Projections can be made about how fewer people will be flying and the effect this will have on airlines. What will be the impact on the lodging sector with fewer flyers and land travelers? The energy sector can be affected in many ways due to people traveling less by not only air, but also car. This will result in a weaker demand for crude oil. Restaurants may well see a major reduction in diners, while fast food facilities could see an increase in drive through purchases because of the limited human contact they offer. With the economy in a current downturn, plus the fear of the flu, many business sectors will be looking for ways to maintain their current status or minimize any loss. The students could explore how creative businesses are working to develop plans to survive the flu season and beyond.

In developing content around the H1N1 flu you can have your students look at sectors that may prosper during the pandemic. These might include the pharmaceutical and healthcare areas. Pharmaceutical use will most definitely increase as the population seeks relief from the effects of the flu. The manufacturers of pain relievers and decongestants will see the largest increase in sales. It is given that the drug companies that come up with an effective and proven flu vaccine will increase their sales.

The healthcare industry is still trying to determine just how the epidemic will increase the demand for their services. Students could develop projections of need for short-term residential care and then longer-term home care services. What are going to be the personnel needs for staffing such facilities beyond what currently exists?

Since the flu is affecting in larger numbers those individuals in their 20s and 30s, the demand for such care may be quite different than that for younger or older populations.

As can be seen by these examples, there are almost unlimited opportunities for discussions and research projects by students around the central theme of flu effects. The challenge for you is to make sure that you help the students look for different ways that their field will be affected positively or negatively by the flu epidemic. By doing such, you will be helping the students to connect the dots to create a personal picture of how the flu will be impacting them beyond the physical aspect of trying to stay well.

### **The H1N1 Flu as a Service Learning Tool**

Service learning has the goal of providing a set of outcomes at the conclusion of the learning experience. Service learning provides different opportunities to develop a sense of civic responsibility and citizenship. Change can occur only if people put forth the effort to bring about change, and that change is based upon sound reflective input and collective thought. Through service learning, career college students can develop civic knowledge and experience as they work through the problems and situations they encounter while working within a community. They start to develop an understanding about how changes can be made on the local level leading to even larger community improvements. Moely in 2002 found that service learning had a positive effect on students' sense of social responsibility and citizenship. In addition, service learning during college years has the impact of developing within the students a commitment to service for years to come. They see as a result of their service learning experiences how they can

be involved in their local communities and desire to be involved once they have established themselves in their communities after college. (Vogelgesang & Astin, 2000)

Service learning also helps students to understand career outcomes. Service learning helps to bridge the gap between exposure and application, enabling students to make more informed, meaningful and realistic career choices as a result of actual real-world experiences.

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Another outcome of service learning is personal growth. As many career college students have been out of school for a number of years, returning to school can be a frightening prospect. They often have to deal with issues such as self-doubt, ability to succeed and self-esteem. They are not sure they can "cut it" in the college setting. By blending their college work with service learning, they start to see a direct connection between what they are learning and how it can be used in their lives. By doing something as simple as taking blood pressure readings at a senior citizen center, or distributing food to families in need, these students can start developing the self-confidence needed to be successful in college because they start to see a blending between real life experiences and course content.

Service learning students start to see how the skills they are developing and the knowledge they are acquiring is giving them a sense of empowerment and self-efficacy. They go into a community setting and perform a service that is tied directly back to their college and the courses they are taking. They start to see the relevancy and transference that is occurring within their career development. They see that they will have value as an employee and as a skilled professional. This feeling of empowerment and self-efficacy transfers to their personal lives as well, so they start to develop an understanding that they can make good decisions about their future. (Furco, 2003)

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A number of studies have shown that service learning increases students' likelihood to engage in prosocial behaviors and decreases students' likelihood to engage in at-risk behavior. Career college students, through service learning, start to see how what they are doing in the community helps others. They get to observe positive role models both within the community and their career areas. Seeing the consequences of poor life decisions up close and personal gives students experiences upon which they can call when they have to make their own life-directing choices. Story after story has been told of stu-

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dents doing service learning and how they have had their lives changed as a result of these contacts with communities. They see both the positive and negative consequences of choices and how they can set positive career and life goals for themselves. (Eyler & Giles, 1999, Melchior, 1999)

Below are listed some of the outcomes of service learning for the students, program and community:

***Contributions of Service Learning***

- Helps to transfer knowledge and skills from the classroom to the community.
- Engages the participant in a real and positive way.
- Is a cooperative experience that promotes teamwork and citizenship.
- Engages individuals in problem solving in the specific context of the service activity and the community.
- Addresses complex problems in complex settings rather than in isolation.
- Individuals use critical thinking skills to identify issues.
- Promotes application learning.

- Generates emotional consequences as individuals are invested in the outcomes.
- Supports the social, emotional and cognitive growth and development of participants.

***Student Benefits of Service Learning***

- Enriches student learning of course material.
- Engages students in active learning that demonstrates the relevance and importance of academic work for their life experience and career choices.
- Increases awareness of current societal issues.
- Broadens perspectives of diversity issues.
- Enhances critical thinking skills.
- Improves interpersonal skills.
- Develops civic responsibility through active community involvement.
- Increases relevance of academic skills through hands-on use of those skills and knowledge.
- Accommodates different learning preferences and applications.
- Increases sense of self-efficacy, analytical skills, and social development.
- Facilitates opportunities for meaningful involvement with the local community.
- Provides experiences in working with different generations of community members.
- Promotes exploration of career pathways.
- Increases retention in career training programs.
- Helps students to improve academically.

***Community Benefits***

- Provides substantial human resources to meet education, human, safety and environmental needs of local communities.
  - Allows the energy and enthusiasm of college students to contribute to meeting needs.
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- Fosters an ethic of service and civic participation in students who will be tomorrow's community volunteers and civic leaders.
- Creates potential for additional partnerships and collaboration with the campus.

After reviewing the above list of benefits of making service learning a part of your students' learning, you then can start to think about just what activities you will select for the service learning content. The anticipated H1N1 flu epidemic is a great way to implement service learning around a central theme—in this case, prevention.

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***The possibilities of using service learning as an effective tool in the battle against H1N1 flu are limited only by the time of those involved.***

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A starting point for planning how you can use H1N1 flu as a teaching tool for service learning would be a community survey. By talking with community groups and leaders you can start to see where there are needs that can be met by your students. Since the focus of preventing the H1N1 flu is good health, activities that focus on information and prevention could be a starting point. An example would be for career college students to develop an awareness program for a local preschool or daycare center. The awareness program could include designing a puppet that could be used to inform children about flu prevention steps. Posters showing the "flu bug" and how to beat it could be developed. Songs could be written and used with the children. In addition, the children could act out how to take precautions to prevent the spread of the flu. The college students would go to the preschool and tell age appropriate stories about flu prevention, help the children act out prevention steps, teach them songs about beating the flu bug. The service learning program would involve on-campus development and on-site implementation. The students would get to see the value and merit of what they had developed for the children as well as have the opportunity to interact with them.

By making service learning a part of classes, the students will not only be contributing to the community, they will be receiving credit for their work as well as making contributions to their career portfolios. They can do this by setting up information booths in shopping centers, community centers, churches, or any other areas where people gather. Again, the selection of content and designing of the information items would be a part of the service learning efforts of the students.

Students working in the production of media could create a series of public service announcements (PSAs) to be shown on the local media outlets. These would be original creative works that not only would spread a message, but also give students valuable experience in taking a media project from conception to completion.

The possibilities of using service learning as an effective tool in the battle against H1N1 flu are limited only by the time of those involved. By talking with community leaders, college personnel and students, ideas about different projects will be generated. You will be surprised at how quickly a long list of projects and activities will be created and can be assigned out to the different career areas.

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