

HELP For Community Pandemic Influenza Response

1) Category

This project addresses the following areas for pandemic influenza preparedness:

- Medical surge capacity
- Community mitigation strategies
- Community education and communication

2) Community Description

- a) The Denver metropolitan area is located in the 10 county North Central Region (NCR) of Colorado with a population of 2.7 million. The NCR comprises 6932 square miles that includes rural plains, an urban metro area, suburban foothills and mountain resorts with seasonally fluctuating population. The NCR is one of nine state emergency management regions that plan for coordinated response to all-hazard incidents including pandemic influenza. The NCR contains Denver International Airport which is a hub for two major airlines and the sixth busiest airport in the nation with over 47.3 million passengers and 609,517 flight operations in 2006. Denver is identified by the Department of Homeland Security as one of the 35 cities in the nation to receive Urban Areas Security Initiative (UASI) funds for enhancing preparedness and response capabilities for terrorism and disasters.
- b) Colorado's public health system consists of the Colorado Department of Public Health and Environment (CDPHE); 14 local or district health departments, which include environmental health services; 39 public health nursing service agencies and numerous environmental health departments that typically serve smaller counties in the state. The NCR is home to the main offices of the CDPHE and eight of its counties are served by six local health departments with the other two having county public health nursing services. These agencies are developing plans for responding to pandemic influenza on a statewide, regional and county basis.
- c) The NCR has 23 EMS receiving hospitals that fall into two Regional Emergency Medical and Trauma Advisory Councils (RETACs). This includes four Level 1 trauma centers and one pediatric trauma center. These hospitals have a total bed capacity of 7000 or 260 beds per 100,000 population. Denver Health is an integrated healthcare delivery system that provides care to 1 in 4 Denver City and County residents and consists of a level 1 trauma center, paramedic response, public health department, correctional care, 12 school-based clinics, 9 community health clinics, and the Rocky Mountain Poison & Drug Center (a medical call center that provides nurse triage, poisoning management and drug information). As a major healthcare provider Denver Health is actively involved in community preparedness and planning for a variety of incidents including pandemic influenza. Denver Health's RMPDC has coordinated the Denver Metropolitan Medical Response System (DMMRS) contract and grants since 1997. This program has helped to establish resources for responding to the health and medical needs of victims of incidents that include equipment, pharmaceuticals, responder training and regional planning documents.

3) Planning Process

- a) The DMMRS has facilitated a monthly Medical and Public Health Committee for over 10 years that helps to identify gaps in resources for responses to incidents and suggests ways to address them with resources and planning. This committee is comprised of representatives from all NCR hospitals and public health agencies, and ancillary organizations such as the Red Cross and Bonfils Blood Center. DMMRS staff relate the needs and priorities of this committee to other NCR and UASI committees related to preparedness and planning. These committees then make recommendations for specific projects to improve the coordinated response capabilities of the region across all disciplines and how best to utilize funding for all available sources. CDPHE staff responsible for CDC and HRSA grants also are part of this process so that they can coordinate their activities as well.
- b) Though public health is primarily responsible for pandemic influenza planning and response, public safety and medical agencies are involved in these efforts (and vice versa for homeland security and disaster preparedness planning and response). The goal is to coordinate activities and capabilities so that they are applicable and of utility to the greatest array of incident responses.
- c) The greatest barrier to coordinated planning is satisfying the specific grant/program requirements from the various federal agencies that are providing funding (CDC, HRSA, DHS, etc). However, the coordinated approach of the NCR and their committees has helped state and local agencies to work together to produce the best plans and resources for our specific circumstances and challenges.
- d) When we consider pandemic influenza preparedness, the major problems will consist of large percentage of the population with illness and the limited surge capacity of the healthcare delivery system to meet those needs (lack of hospital beds, ventilators, clinical staff, etc) on top of the overall impact to communities from a reduced workforce, limited supplies, and increased public concern. The two ways to address these problems are:
 - 1) to prevent, limit or possibly delay the community wide outbreak of pandemic influenza which will spare the healthcare delivery system a sudden onslaught of patients at a time when the medical workforce and community support systems are also effected.
 - 2) to develop systems to reduce public concern and increase public self-sufficiency to prevent panic, unreasonable expectations on healthcare delivery, and possible the spread of disease (encourages those ill or likely to become ill to remain at home and care for themselves and their families).

4) Narrative

When we considered the challenges that pandemic influenza poses for our community and its limited resources, we looked to our everyday experiences to find solutions. Denver Health's Rocky Mountain Poison & Drug Center provides services every day to the public which helps to inform them about their health concern and thereby generally reduces their need to access other healthcare resources such as hospitals, clinics and health departments. As an example 75% of people contacting RMPDC about potential poisonings are managed successfully in their home and 40% of people calling about general health concerns choose homecare for those concerns. It is important to identify those that need to access to healthcare facilities and those that do not, to appropriately utilize limited resources. When confronted with the challenges of pandemic influenza and the potential numbers of fatalities, hospitalizations and ill (NCR estimates based upon national projections at two gross attack rates in table below) – it becomes clear that we will have to use a similar “triage” approach so that limited resources are used effectively.

<u>Health Outcomes</u>	<u>15% GRA*</u>	<u>NCR</u>	<u>35% GRA*</u>	<u>NCR</u>
Fatalities	87,000	783	207,000	1,863
Hospitalizations	314,400	2,830	733,800	6,604
Outpatients Visit	18.1 million	162,900	42.2 million	379,800
Self-care Ill	21.3 million	191,700	49.7 million	447,300

The reason that medical call centers are able to prove so useful to both the public and the healthcare system involves their accessibility (generally a call away), their expertise (staffed with trained healthcare professionals) and their ability to inform the public to make the best healthcare decisions (in the end the public chooses what to do). These capabilities will be needed during a pandemic but the overall demand may also outstrip the ability to deliver service. That is why we have developed tools to assist medical call centers that we have tested and are currently in place at RMPDC for responses in the NCR.

It seems wise to build upon the expertise, credibility and infrastructure of medical call centers when planning for emergency responses. By expanding their capabilities to inform, educate and assist the public with their health concerns, it can free up the healthcare delivery system to most effectively utilize the limited resources to provide care to those most in need. This approach can especially aid in handling those at low risk for injury or illness (“worried well”) – who may have valid fears and concerns that without a mechanism to get information could lead them to overtax hospitals and health agencies.

The Health Emergency Line for the Public (HELP) pilot program in Colorado was established in 2003 by our medical call center to provide information during bioterrorism and other public health emergencies. Since then it has been continually developed and has responded to three major health events in Colorado: the deadliest West Nile Virus (WNV) outbreak in the United States (2003), an influenza outbreak with early increased pediatric deaths (2003-2004) and an influenza outbreak during a vaccine shortage (2004-2005). The HELP program provides a model for disseminating and collecting information in health emergencies in partnership with CDPHE and local health agencies that to date has involved the handling of over 75,000 calls related to several health events.

Since July 22, 2003 a toll-free line has been available statewide 24 hours per day, featuring current recorded messages and website referrals for more detailed information. Trained information providers are available from 0700 to 2300 daily to answer questions, collect demographic data and provide referrals. Recordings are available in English and Spanish with additional translation services available for other languages. Information providers use Frequently Asked Question (FAQ) scripts prepared by state health epidemiologists to explain symptoms, treatments, and prevention measures to callers. Evolving public concerns are identified and applicable responses are developed within 48 to 72 hours. Over 12 topics are covered and others added as needs are identified.

The HELP program provides the needed functional platform for which we can pilot and test other call center strategies, technology and applications to efficiently provide information to the public in a health emergency such as pandemic influenza. The overall objective of the HELP program is helping the public make informed decisions and to care for themselves during health events, thereby alleviating their potential demands on healthcare delivery systems. Specifically in

pandemic influenza we see HELP providing health information, collecting disease surveillance data, providing triage/decision support and supporting quarantine and isolation monitoring.

We have utilized many strategies (initial announcements including most requested info, queue messages for common other info requests) for providing information to the greatest number of callers with limited resources related to incidents of public concern such as the 2003/2004 influenza season. From November 17 2003 to January 31 2004, HELP received almost 24,000 calls with peak call volumes of 7,145 weekly, 2,565 daily and 345 hourly. During influenza seasons, many callers were trying to locate vaccination sites. We successfully referred callers with Internet access to a website that they can easily use to find these locations in Colorado. We provided the direct URL address in our initial announcement to off-load many callers to this resource. We also had a reporter show viewers how to locate vaccination sites using a computer on air which reduced the overall HELP call volume almost immediately and showed how media agencies can greatly assist in such efforts to disseminate information.

However, the challenges we have encountered with surges in demand to HELP lead us to produce tools to better assist in supporting outpatient healthcare and monitoring during health emergencies. Using technology such as Interactive Response (IR), whereby callers access information by voice or touch tone responses, can further improve capacity for handling high call volumes. We have developed and tested IR tools that we believe other community health call centers can use as well. Those with utility for a pandemic are Quarantine/Isolation (QI) Monitoring, Zip Code Specific Messaging, Frequently Asked Question (FAQ) Library. These can be adapted to other uses (zip code messaging could provide vaccination locations, evacuations instructions, snowstorm cancellations, sheltering in place instructions). The tools have been tested in community exercises, refined from that input and are ready for use within the NCR to support response efforts. The IR system currently supports 1200 contacts per hour in any combination of the three tools and can be expanded to far greater capacity well ahead of a developing pandemic.

As an example, the QI Monitoring tool requires the person in home quarantine to answer periodic calls to indicate their quarantine compliance (they are answering the phone) and their health status (current temperature reading as an objective measure). Public health departments believe providing a thermometer to everyone in quarantine would be realistic and help to identify those potentially developing signs of illness. Those selecting the option for a temperature reading less than 100°F would be considered well but also be given an option to speak to someone if they needed to. Those selecting the option for a temperature reading equal or greater than 100°F or who indicated difficulty taking their temperature were transferred to the HELP service for assistance. Notifications are sent to public health contacts for those who fail to answer calls within a certain number of attempts. The application successfully contacted 84% of volunteers within 2 attempts during the exercise and sent 19 notifications for those that did not answer within requirements.

Use of home quarantine strategies would require qualifications for individuals such as requiring a land line (not a cell phone) for contact and agreeing to have call forwarding features disabled to reduce circumvention. Therefore it will be important to develop effective risk communication messages to the public and adequate support for those in quarantine to assure good overall compliance. Public health agencies will find it difficult monitoring individuals in home quarantine without strategies to reduce the need for staff. This application monitored up to 70% of quarantined persons demonstrating compliance with few personnel resources. The QI Monitoring tool will permit limited staff resources to concentrate on obviously non-compliant individuals, those with additional needs or to manage the myriad of other response actions

required in a health emergency. Considering that 99% of those quarantined for SARS in Toronto and Taiwan didn't develop disease or violate quarantine, this tool should free our local health agencies to focus on the few in need or that are non-compliant.

Volunteers (n=88) assessed the QI Monitoring tool on the following criteria:

- Directions given by the IR application were easy to follow – 99% favorable
Recorded voice was easy to understand – 99% favorable
Recorded voice went at a proper speed – 98% favorable
Recorded voice was at a proper volume – 97% favorable
Satisfied with experience using the IR application – 93% favorable
Had a positive opinion of the IR application – 93% favorable
Would trust receiving supportive contact via an automated system like the IR application during a public health quarantine – 88% favorable
Would prefer receiving health department contact from an automated system versus speaking to a live person – 43% favorable [though comments indicated that the tool would be acceptable during an emergency, since there's an option to speak to a person]

This model and the developed IR tools were applied regionally and statewide, but could potentially be adapted for interstate and federal use. An issue of concern is the coordination of messages across various levels of government to ensure consistency and public trust. It may be difficult for public health and safety agencies across all levels of government to agree on specific strategies and develop unified messages. It may be easier to develop response resources such as the HELP model and IR Tools on a statewide or smaller scale to avoid the difficulties with national coordination. Planners at various levels of government should consider this challenge in their planned application of such resources.

The model and tools we have developed are largely informational in nature and can be delivered with support of trained non-clinicians such as we have with the HELP platform so users can always get the proper assistance they need. In our experience it has been valuable to have systems and processes that can be adjusted to the changing needs of emerging public health events.

Partnerships between medical call centers and public health agencies prove that together they can meet the expected needs of communities during health emergencies including: improving information support, improving surge capacity, expanding surveillance signals and data collection for situational awareness. These partnerships help realize the new demands on public health agencies – increasing their response capabilities and access outside of the 9a to 5p work day, handling rapidly evolving information while maintaining control and enabling the public to care for themselves and their families by supplying the information for them to make decisions.

The need for such partnerships will remain constant and potentially increase since public health events will continue to occur. These events will require effective, structured and coordinated systems for providing public information and support as part of the response. The HELP model has been proven to be a cost-effective, efficient, reliable and adaptable component of the NCR and Colorado's readiness response model for any public health emergency. The HELP model offers the promise for similar response capabilities for other community health call centers working in partnership with their public health agencies. These community resources will likely have robust infrastructure to serve as strong platforms that are able to incorporate the proposed tools and adapt them as needed.

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