

# ***GIVING IT OUR BEST SHOT:***

## ***AN EVALUATION OF THE OREGON DEPARTMENT OF HUMAN SERVICES' RESPONSE TO THE 2004-2005 FLU VACCINE SHORTAGE***

March 2006

Department of Human Services  
Oregon State Public Health

Also available online at  
[www.oregon.gov/DHS/ph/imm/flueval.shtml](http://www.oregon.gov/DHS/ph/imm/flueval.shtml)

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## ❧ INTRODUCTION ❧

The 2004-2005 influenza vaccine shortage tested the Oregon public health system in an unprecedented manner. In effect, the crisis presented an opportunity for the Department of Human Services (DHS) to exercise its response plans for a public health emergency, such as pandemic influenza. Pandemic influenza, which is regarded as inevitable by many, will be larger in scope and more deadly than the vaccine shortage, and federal officials have called upon state and local public health authorities (LPHA) to plan accordingly. A critical evaluation of the actions of DHS in response to the shortage will aid these planning efforts.

The evaluation sought to answer the principal question, “How well did the Oregon public health system function during the vaccine shortage?” with specific questions regarding:

- *Vaccine Coverage* - Did the public health system get vaccine to high-risk individuals?
- *Leadership and Policy Development* - Did DHS provide effective leadership during the crisis, particularly with regard to policy development?
- *Vaccine Resources Management* - Were vaccine resources managed effectively given the inherent limitations of the season?
- *Communications* - Were the best communication strategies and mechanisms utilized during the season?

These questions were examined within a cost-benefit framework that sought to determine whether the expenditure of DHS resources was balanced by beneficial outcomes of the season. This report presents background on the flu vaccine shortage, the methodology and findings of the evaluation and lessons learned in light of the cost-benefit framework.

## ❧ BACKGROUND ❧

### *The Shortage Begins*

During the last week of September 2004, Oregon public health leaders and former Governor, Dr. John Kitzhaber, held a press conference to promote influenza vaccine. On Tuesday, October 5<sup>th</sup>, Chiron Corporation, one of two companies that supply injectable flu vaccine to the American market, announced that the British government suspended the manufacturing license at its major factory in Liverpool, England for three months, citing contamination problems. All doses of Chiron product pre-booked for customers in the United States, approximately 52 million doses or half of the US supply, were cancelled. By the end of the day, the federal Centers for Disease Control and Prevention (CDC) and the Oregon Department of Human Services (DHS) issued press releases encouraging voluntary prioritization of flu vaccine. In one week’s time, State health officials had gone from encouraging the general public to get vaccinated against the flu to announcing a vaccine shortage where only high-risk individuals could receive a flu shot that season.

Leadership from the DHS Immunization, Acute and Communicable Disease Prevention, Community Liaison, and Public Health Preparedness programs, in addition to the State Public Health Officer, convened the DHS Flu Team to determine what the shortage would

mean for Oregon. Given that, in previous years, only half of the highest risk population actually received vaccine, it was estimated that Oregon would need a minimum of 500,000 doses of vaccine to maintain its coverage rates for the high-risk populations.

Recognizing that the crisis represented an opportunity to test its preparedness skills, DHS activated a limited Incident Management System (IMS) structure. The State Health Officer served as the incident commander and managed the DHS Flu Team. Two immediate steps were taken by the Team: 1) a rapid assessment of public-sector vaccine supplies controlled by the local public health authorities (LPHAs) and estimated need in the counties was conducted; and 2) an Oregon Vaccine Education and Prioritization Plan (VEPP) was drafted.

The rapid vaccine supply and demand assessment was completed with the LPHAs to give DHS and partners a snapshot of the situation in the public health system. The VEPP, a vaccine prioritization plan, once invoked by the State Public Health officer becomes enforceable through Oregon Revised Statute 433-040. The draft VEPP reflected CDC vaccine prioritization guidelines, reserving flu vaccine for the highest risk groups: all children aged 6 to 23 months of age; adults aged 65 years or older; persons aged 2-64 years with underlying chronic medical conditions; all women pregnant during the influenza season; residents of nursing homes and long-term care facilities; children aged 6 months to 18 years on chronic aspirin therapy; health care workers involved in direct patient care; and out-of-home caregivers for high risk individuals and household contacts of children under 6 months of age.

The draft VEPP was sent to all LPHAs and other partners including the Immunization Policy Advisory Team (IPAT), the Oregon Adult Immunization Coalition (OAIC), and the Oregon Partnership to Immunize Children (OPIC). Through statewide teleconference consultations with LPHAs on Wednesday October 6th and a partners meeting on Thursday October 7th, DHS officials shared the public health system vaccine assessment information and gained overwhelming support for the VEPP.

On Friday, October 8th, DHS held its first of many press conferences informing the public about the vaccine shortage, who was eligible to receive vaccine, and a toll-free number for the Oregon Flu Hotline. Anticipating great public concern about the availability of vaccines, DHS instituted the toll free hotline using lines and hardware that were previously installed in the Portland State Office Building as part of public health preparedness efforts. During routine flu seasons, a referral service, SafeNet, provides callers with information on flu vaccine clinic locations. However, during the vaccine shortage, ten times as many callers were asking questions about the prioritization groups in addition to questions about flu clinic locations. Recognizing that this volume of calls would rapidly overwhelm SafeNet, DHS established the Oregon Flu Hotline to respond to providers and the public.

The public health system had responded quickly during that first week. The VEPP was invoked to ration a scarce vaccine supply, temporary Oregon Administrative Rules (OARs) for the VEPP were filed, over 13,000 clinicians were given detailed information about the VEPP and OARs through multiple communication strategies, and the hotline was activated.

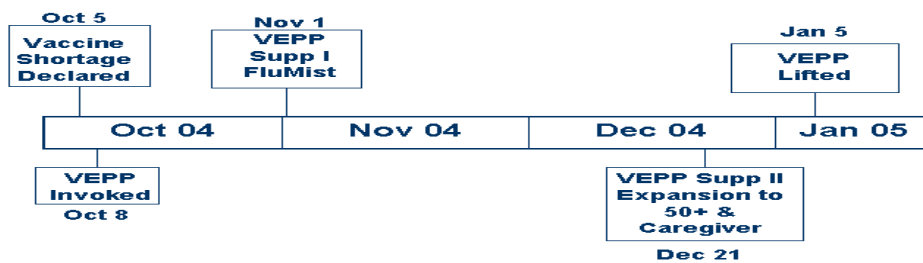
The response that first week set the tone for the remainder of the season. As DHS developed strategies to effectively manage the season, partners were called upon for guidance in setting policy and assistance in publicizing decisions. The public was kept informed through press releases and hotline messages. Health care providers were supported to follow CDC recommendations to vaccinate the highest risk populations first.

*Early Season Challenges – Prioritization, Allocation, and Communication*

At the time the shortage was announced, approximately 30 million doses from Aventis Pasteur had already been shipped nationwide with no plan for redistribution of any of those doses. DHS had received 10,000 doses, the majority of it for VFC/317-eligible populations seen in the public and private sectors. Only 4,000 doses, purchased by DHS to support an OAIC effort to vaccinate targeted populations with limited access to health care, could be reallocated at the discretion of DHS. LPHAs had completed their assessment of the supply and found that approximately 14,000 additional doses existed in the public health system. A handful of counties, however, had no vaccine at all within their borders because hospitals, nursing homes and LPHAs had ordered Chiron product exclusively.

Given the severity of the shortage and the uncertainty surrounding vaccine supplies, DHS faced policy decisions on vaccine prioritization and allocation that would affect the state population. In each instance, DHS assessed the situation, identified one or more response options, and then consulted with public and private partners to solicit their feedback on solutions. This process was successfully used during the first week to reach consensus on invoking the VEPP. Subsequent supplements to the VEPP were also presented to partners prior to final decisions.

**Fig. 1 Vaccine Education and Prioritization Plan (VEPP) Timeline**



Supplement I, issued November 1<sup>st</sup>, expanded the VEPP to allow use of live attenuated influenza vaccine (LAIV) for any non-high risk, healthy 5-49 year old. This decision followed CDC’s clarification that their guidelines never intended to restrict the use of LAIV. While DHS originally supported restricted use of LAIV, the agency’s position became difficult to justify and more confusing for the public once CDC issued a statement.

Supplement II, issued December 21<sup>st</sup>, again expanded the VEPP to allow use of trivalent influenza vaccine (TIV) for adults ages 50-64, and out-of-home caregivers and household contacts of high-risk populations. This expansion came after a decision by the Advisory Committee on Immunization Practices (ACIP) to recommend to the CDC the same expansion of the guidelines in early January. Vaccine providers in Oregon, however, recommended the immediate supplement to the VEPP due to a recognized waning vaccine demand.

Vaccine allocation decisions also benefited from partners' input. In October, DHS wanted to reallocate the 4,000 doses originally earmarked for OAIC. The information from the public health system was inadequate to measure supply statewide, so the decision was made to survey providers statewide to better target limited supply. On October 12<sup>th</sup>, the Vaccine Supply Assessment survey was sent to providers through multiple communication channels including the CD Summary mail and email lists, HAN website posting, professional associations' email, fax lists and websites (e.g., Oregon Medical Association, Oregon Pediatric Society, Oregon Association of Family Practitioners, and Oregon State Pharmacy Association), and LPHAs' local channels. DHS recognized that there was virtually no single way to communicate with every vaccine provider in Oregon on an urgent basis so this patchwork of methods was used in hopes that all providers of influenza vaccine would be reached.

Approximately 800 survey responses were received, an estimated two-thirds of the major flu vaccine providers. A true response rate was incalculable, however, because the number of active vaccine providers in Oregon remains unknown. All the major health systems and LPHAs responded, but pharmacists, nursing homes, and at least one large mass immunizer were not well represented. The resulting data were imperfect, but it was the only data DHS had to make a determination on how to distribute the small quantity of vaccine within its control. The guiding principles for this first allocation decision were: 1) each county should receive some vaccine; and 2) more vaccine should be sent to counties that have an estimated higher unmet need, that is, a higher percent of their priority population was assumed to be unvaccinated due to their reported supply.

Approximately 224,000 doses were reportedly received in Oregon, translating to coverage for 22% of the priority population. Providers were also asked about estimated vaccine need for their population, however, this information was considered anecdotal at best. Instead, DHS projected need using population-based estimates of priority populations. Agreement from partners was reached on the allocation formula developed and vaccine was shipped to LPHAs on October 20th. Furthermore, partners recommended that DHS develop a better method to determine vaccine supply and to establish guiding principles of allocation for the larger volume of vaccine still expected to arrive in Oregon.

DHS, in collaboration with IPAT, established two workgroups, one to reassess vaccine supply and another to develop guiding principles for vaccine allocation. The information available to assess vaccine supply changed dramatically on October 22<sup>nd</sup>. CDC established the Secure Data Network (SDN) to post Flu Vaccine Finder data. This was proprietary distribution data from Aventis that tracked weekly running totals

from before October 5<sup>th</sup>. The Flu Vaccine Finder data were not perfect. The data included regional shipments or shipments to one county that were further distributed to other counties or states via large health care systems or mass immunizers, and until December, excluded 3<sup>rd</sup> party distributors. Nevertheless, the Flu Vaccine Finder data gave a more complete picture than the survey. Therefore the supply workgroup recommended basing future allocation decisions on the Flu Vaccine Finder data. As for guiding principles, three were recommended:

- Ensure fair and equitable distribution across geography and across priority groups;
- Assure that no doses go unused; and
- Make decisions based on the best information available rather than wait for perfect information.

After the announcement of the vaccine shortage, all vaccine remaining in the manufacturer and distributor warehouses was essentially sequestered in place until CDC devised a plan to distribute it to states on a fair and equitable basis. In Phase I, CDC distributed enough vaccine to states to fill their original VFC/317 orders; Oregon received 42,990 public-sector doses for the 500 public and private providers. Phase II distribution was based on an allocation formula that calculated each state's proportion of the national unmet need. This unmet need was estimated using supply data and need projections based on priority population prevalence. Under this reallocation plan, Oregon was allotted 76,000 doses in November/December and 33,000 doses in January 2005. Then DHS developed an allocation plan mimicking the CDC process of looking first at supply using Flu Vaccine Finder data and comparing it to need based on population data. Endorsed by both public and private partners, DHS developed an allocation formula to determine the vaccine doses available for each county.

#### *Mid-Season Challenges – Vaccine Distribution and Communication*

The biggest challenge DHS faced in November and early December was the delay in vaccine delivery to the State. Once the CDC adopted a phased delivery approach, there were numerous delays at the federal level as Oregon waited for the bulk of its Phase I and II shipments.

The reason for these delays was not due to slow ordering by DHS. On the contrary, DHS bought the state's entire November/December allotment from CDC and asked that it be delivered to the state Immunization Program for redistribution from the agency's vaccine depot. It is generally believed that states that followed this approach were able to fill provider orders much more quickly than states that submitted individual orders for each vaccine provider.

Once vaccine arrived in Oregon, there was an unprecedented effort to turn it around. Over the course of one 4-day period in late November, 76,000 doses were sent out to local vaccine providers. Many state public health employees pitched in and personally delivered vaccine to LPHAs several hours distant. While Oregon experienced delays

in receiving vaccine into the state, DHS minimized further delays to the best extent possible through efficient ordering and distribution systems.

LPHAs did their part by serving as the middleman between the state and private sector providers within their jurisdictions; the inventorying of existing supplies and the ordering of vaccine all funneled through the counties. The LPHA submitted one aggregate order to the state, which, in turn, filled the order from the doses received from the CDC. In most cases, the vaccine was then shipped out to counties who, in turn, distributed it to their local providers. In some counties, Rotarians volunteered to shuttle vaccine between the LPHA, clinics and hospitals in their areas. The advantage to the LPHAs taking on this role was that they had a first-hand understanding of the needs of their local providers.

Communicating health messages to the public and guidelines to the providers was a challenge throughout the season. Eleven news releases were issued and three press conferences were held to allow reporters opportunities to ask questions and clarify information. The agency's goal was to keep the public informed, in a timely manner, as events changed. Health education materials were developed and posted on the DHS website as well as offered to providers for use with their patient populations. The Oregon Flu Hotline, launched October 8<sup>th</sup>, continued to take calls until January 18<sup>th</sup>.

The Portland State Office Building was wired for 12 phone lines. DHS operated five lines continuously for the Hotline and added a sixth line when call volume spiked. Calls mirrored media activity and were high early on with news of the shortage and then peaked in late December and early January when vaccine restrictions were lifted. Existing DHS staff initially answered the phones but soon became overwhelmed. Temporary help was hired to assist DHS staff in operating the phone lines until January 18<sup>th</sup>, 2005. The volume reached 2,666 calls in an 8-hour period and as many as 66% of the calls went unanswered during peak call periods. More often, staff was able to answer 70-90% of the calls. In total, the hotline received 45,440 calls and were able to answer 26,330 of these calls, most of which were from older Oregonians (between the average ages of 60-70 years) trying to locate a flu shot.

Maintaining current information for callers about where vaccine was available required an intensive effort. Staff tracked which clinics had vaccine. Frequently, however, hotline staff could not identify a source of vaccine for callers from certain areas. Collecting caller zip code information, which, in hindsight, should have been done from the start, was not initiated until mid-season. This information helped identify areas of shortage where DHS could direct LPHAs and community immunizers.

DHS came to question the utility of a DHS-sponsored hotline, despite the clear need it served. Advantages of the hotline included ready access to adequate staffing and technological resources. One significant disadvantage, however, was that LPHAs were not as directly aware of their constituents' needs as they would if they had taken calls themselves.

### *Late Season Challenges – Vaccine Brokering and Communication*

In December, some providers had excess vaccine and others still needed more. To resolve supply issues, LPHAs acted as brokers to redistribute vaccine within their jurisdictions. In addition, DHS acted as a brokering information clearinghouse and as the actual broker for cross-county deals. One problem encountered was that contracts between providers and vendors prohibited resale of vaccine by the original purchaser. After some months, manufacturers and distributors did allow the resale of vaccine but not in time for optimal brokering. Approximately 14,700 doses of vaccine were brokered between providers from December 1, 2004 thru February 16, 2005 in Oregon.

Over the course of the season, and particularly in late December, several communications were sent to the public and providers about changes in vaccine prioritization. Information that DHS needed to get out quickly to the public and providers included the reversal of our policy on the use of FluMist on November 1st, and expansion of the priority groups to include anyone age 50 and older and those who worked as out-of-home caregivers on December 21<sup>st</sup>, and the lifting of all restrictions on January 5<sup>th</sup>. These changing health messages coupled with the routine waning of the public's interest in December and January, created a quandary for DHS and its partners. Oregon still had the opportunity to order up to 33,000 additional doses for delivery in January, however, concern was rising about the opportunities to administer that vaccine to an increasingly ambivalent public.

In late December and early January, DHS undertook a population-based survey of Oregon adults by contracting with the Gilmore Research Group of Portland, Oregon. The main objectives of this survey were to: 1) determine whether DHS had successfully reached the public with emergency health messages about the vaccine shortage, the VEPP high priority groups and the Oregon Flu Hotline; 2) measure the public's interest in late season vaccination; and 3) test the Department's ability to quickly survey the public during an emergency. The results of the survey indicated that public's interest in receiving late-season vaccination was low, despite reports that the season had not yet reached its peak. This information led to the decision, made together by DHS, LPHAs and stakeholders to lift the VEPP on January 5<sup>th</sup>, 2005 and open the remaining supply to all interested persons, and plan late season orders only when requested by a provider.

DHS received its final phase vaccine shipment on January 13<sup>th</sup>. About 7,400 doses of VFC vaccine, already distributed to providers, went unused because federal contracts required that it could only be used on VFC eligible children. By the time the last shipment arrived and the restrictions were lifted on January 27<sup>th</sup>: a) the logistics of transferring ownership of the vaccine was prohibitive; b) the need for vaccine had been met through brokering agreements, and c) the public's interest in vaccinations was very low.

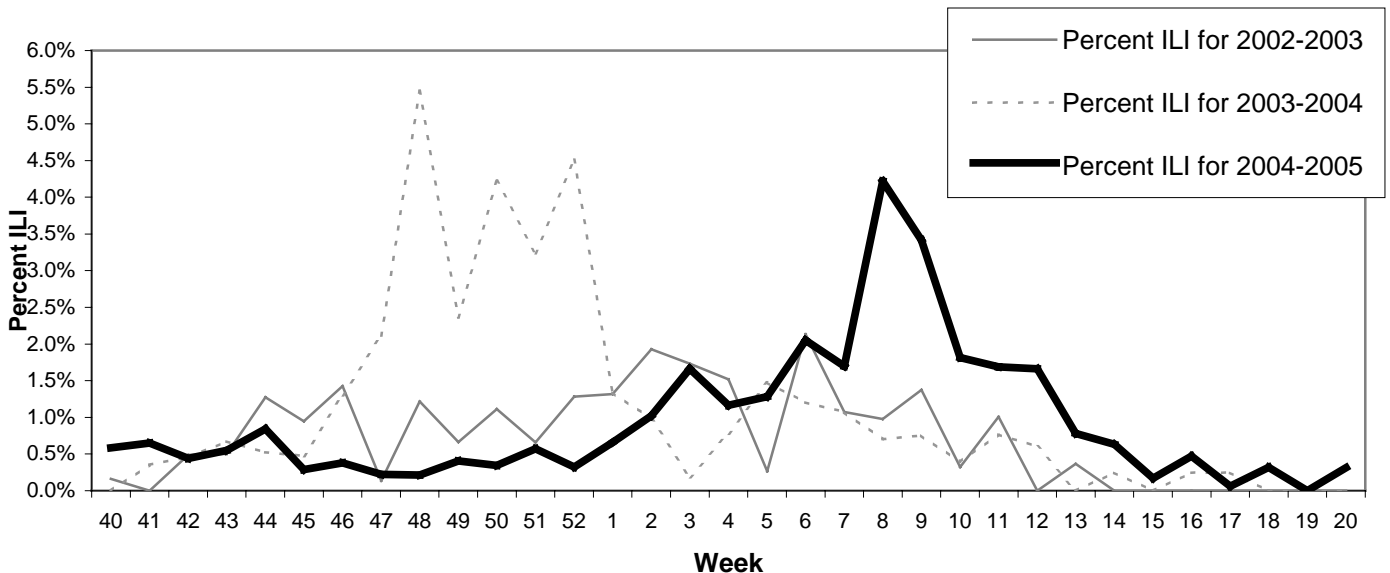
Using existing staff technical expertise, DHS generated invoices to all providers who received flu vaccine purchased by the State. After more than a year of billing, the State collected \$642,082 of the \$644,694 charged.

The Oregon Flu Hotline shut down on January 18<sup>th</sup> and the DHS response to the flu vaccine shortage ended with the termination of the incident management structure on January 19<sup>th</sup>, 2005.

*The Epidemiology of the Season*

Early in season, when demand for vaccine was high, reported cases of influenza were low. Unlike the 2003-2004 season (see Figure 2), which hit early and peaked by December, the 2004-2005 season was slow to start. By January, the flu season had not yet peaked; influenza vaccine, which requires approximately two weeks to mount an immune response, would have provided protection to many individuals. Although vaccines were plentiful at this time and available to anyone, it was unwanted by the public and providers. The 2004-2005 flu season peaked in mid-February.

**Fig. 2 Percent Influenza-like Illness (ILI) in Oregon  
Seasons: 2002-2003, 2003-2004, and 2004-2005**



Source: Emerging Infections Program, Oregon Dept. of Human Services

Given the events surrounding the shortage, it was fortunate that the season was not severe. The proportion of deaths in the United States attributable to pneumonia and influenza (P&I) was within the range seen for the previous three seasons<sup>2</sup>. In addition, the hospitalization rate for children, 0-4 years of age, fell well below the rate of 12/10,000 seen during the previous season<sup>2</sup>.

The remainder of this report presents an overview of the evaluation methodology and the major findings. The report concludes with a summary of the lessons learned from the 2004-2005 flu vaccine shortage and recommendations for DHS and its partners to consider for preparedness.

## ❧ METHODS ❧

A comprehensive study was designed to evaluate the response to the 2004-2005 influenza season. Internal and external evaluators developed the methodology, which included both quantitative and qualitative components. The quantitative component consisted of a cost analysis of DHS staff time, a general population survey, and a survey of health care professionals. The qualitative component consisted of three focus groups and interviews with 30 key informants. This section presents an overview of the methods used for each of these individual studies.

### *Methods: Quantitative Studies*

#### *Cost Analysis*

Subjects consisted of a convenience sample of DHS employees. An email, with the survey questionnaire attached to it, was sent to all employees in the Office of Family Health, Office of Disease Prevention and Epidemiology, and the Office of the State Public Health Officer to solicit participation from individuals who worked on activities related to the influenza vaccine shortage. Thirty-five (35) employees returned a completed questionnaire. The exact number of DHS employees who worked on flu vaccine shortage activities is unknown but is estimated to be about 50-60. However, based on respondents reported worksite and number of hours worked on flu vaccine shortage activities, the 35 returned questionnaires appeared to capture persons who were the most actively involved in the response.

On the questionnaire, respondents were asked to estimate the average weekly hours worked during the months of October 2004 to March 2005 for 18 activities that fell within the following major categories: vaccine management, the Oregon Flu Hotline, communications, and miscellaneous activities. The questionnaire also asked about basic job characteristics, the number of compensated, overtime and uncompensated hours worked, and whether staff cancelled or postponed other projects to work on flu vaccine shortage activities.

Using median hourly salaries, the study calculated the total number of hours worked in each activity, overall and by month, and the associated salary cost, which included a cost differential. Likely limitations to this study include non-response bias from employees who worked on influenza vaccine related activities but did not return a questionnaire, and recall bias due to the challenges of determining, retrospectively, the amount of time spent on various activities. This study will be referred to as the cost analysis throughout the remainder of this report.

#### *General Population Survey*

The Portland-based Gilmore Research Group conducted a random-digit dialing telephone survey of Oregon adults (ages 18 years or older) between December 29, 2004 and January 7, 2005. Calls were made to 3,193 unique telephone numbers. The final sample of completed surveys was 700 for a response rate of 22%. Data were weighted by age and gender to obtain a point estimate for the vaccination rate among

individuals 65 years of age and older. On average, interviews lasted five minutes. Interviews were conducted in English only.

The survey questionnaire was designed to capture the public's knowledge, attitudes and practices around influenza vaccination during the flu vaccine shortage. This survey was also conducted, in part, to test the ability of DHS to rapidly gather information from the public during an emergency. For these reasons, a 21-item questionnaire was developed, and interviewing was initiated in a brief six-day time period.

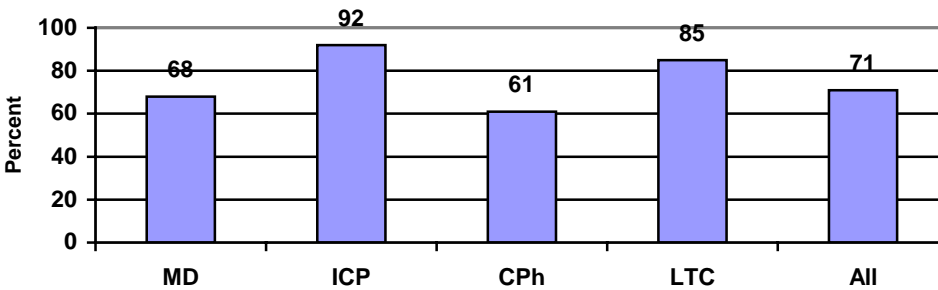
Those groups outlined in the December 21<sup>st</sup> supplement to the Vaccine Education and Prioritization Plan (VEPP) (see Appendix A) were used to operationalize high-priority groups for the study, with two exceptions; the questionnaire did not specifically ask respondents if they or household members were residents of a nursing home or long-term care facility, or if a child was on chronic aspirin therapy. Calls were made to private residences only; therefore, residents of nursing homes or long-term care facilities were not included in the sample. In addition, the prevalence of children on chronic aspirin therapy was thought to be too low to warrant inclusion of this group in the survey. The main limitation to the study's design was that individuals who did not have access to a landline telephone would have had a reduced chance of being selected as a respondent. This study will be referred to as the Gilmore survey throughout the remainder of this report.

#### *Health Care Professional Survey*

Four groups of health care professionals (N=881) were surveyed in order to capture their impressions about DHS's response to the influenza vaccine shortage. These groups consisted of physicians, infection control practitioners (ICPs), nursing directors from long-term care facilities, and pharmacists who were certified to administer influenza vaccine. A sample of 510 physicians (i.e., 170 each of Family Practice, Internal Medicine and Pediatric physicians) was randomly selected from the Oregon Board of Medicine's listing of physicians. Nursing directors (n=142) and certified pharmacists (n=170) were randomly selected from mailing lists, while one infection control practitioner from each of Oregon's hospitals (n=59) was selected for the sample.

A self-administered questionnaire was mailed in a priority envelope to each selected subject along with a \$5 dollar incentive. This 17-item survey asked questions about DHS's overall performance, actual and preferred methods of communication with DHS, and respondents' opinions and experiences around the flu vaccine shortage. Six hundred and five (605) health care professionals returned a completed questionnaire (335 physicians, 54 ICPs, 96 pharmacists, and 120 nursing directors). Non-response bias is the most likely source of bias to this study but it is considered minimal given the robust overall response rate of 71%.

**Fig. 3 Response Rates (%) by Health Care Profession, N=605**



Note: MD refers to physicians, ICP= Infection Control Practitioners, CPh = Certified Pharmacists, LTC = Long-term care facility nursing directors  
Source: Health Care Professional survey

This study will be referred to as the health care professional survey throughout the remainder of this report.

### ***Methods: Qualitative Study***

#### ***Interviews and Focus Groups***

The qualitative component of the evaluation included a combination of focus groups and in-depth interviews. The goal of these data collection methods was to elicit feedback on the collaborative process and outcomes of policy development. Because of the collaborative consultation model used during the shortage, DHS wanted formal feedback from those partners on their perceptions of the season as well as feedback from DHS staff on the internal workings of the season. Three focus groups were conducted; two with LPHA immunization coordinators and one with the Immunization Policy Advisory Team (IPAT). Efforts were made to conduct a 4<sup>th</sup> focus group with the Oregon Adult Immunization Coalition (OAIC) however schedule conflicts made that impossible. Instead, OAIC members were included in the in-depth interviews.

Thirty in-depth interviews were conducted, plus two additional partners provided written comments via email as they were unavailable for interviews. For the interviews, the Flu Evaluation Group helped compile a list of potential candidates. The list included administrators, health officers and nursing supervisors from small and large LPHAs in order to capture a variety of experiences from the local level. Private partners such as mass immunizers, health systems, and OAIC members were included to provide their perspective. Key DHS staff involved in the decision-making group was also interviewed. A total of nine LPHA staff, three mass immunizers, three health systems, four OAIC members and 11 DHS staff was interviewed.

#### ***Data Analysis Methods***

Data were drawn from the focus groups and phone interviews that were taped with participants' consent. Focus group conversations were transcribed and field notes were

immediately written after each interview. Coding was an inductive process that began as soon as the field notes and transcriptions were available. First, responses were sorted into broad categories with the help of a start list (a list of key salient issues or topics identified by the focus group facilitators) that was grounded in questions from the interview protocol. These general categories were then refined as common issues or themes emerged among the participants' comments. Finally, comments were reread and recoded for commonalities, consensus and varieties of response. This contextualizing strategy helped identify the key threads of opinions solicited and captured unique and summative responses.

The next section of this report presents the evaluation's findings. Rather than present distinct results for each of the four evaluation studies, the section will intertwine the findings of the qualitative and quantitative components to provide a cohesive assessment of DHS's performance during the shortage. Key findings are presented in five main categories: Cost Analysis, Vaccine Coverage, Leadership and Policy Development, Vaccine Resources Management, and Communications.

## ❧ FINDINGS ❧

### *Cost Analysis*

Results of the cost analysis study indicate that 35 staff from the following DHS offices assisted with the response to the flu vaccine shortage: Office of Family Health, Office of Disease Prevention and Epidemiology, and the Office of the State Health Officer. Sixty-percent (60%) of the responding staff was from the Immunization Program and 11% were from the Acute and Communicable Disease Prevention Program (ACDP).

The table in Appendix B provides a breakdown of the staff time associated with various response activities. The 35 staff reported working a total of 8,286 hours over the six-month period. This reflects an average of 237 hours per staff member or 39 hours per staff member per month above the regular 40-hour work week (i.e., approximately one additional work week per month). In addition, as Table 1 indicates, the amount of money required to respond to the shortage was not insignificant. DHS spent \$371,000 on staff time alone in its response.

**Table 1. Cost Analysis**

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Permanent Staff Time	\$327,546
Temporary Hotline Staff	\$43,709
<i>Total Staff Time</i>	<i>\$371,255</i>

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*Note:* Figures do not include compensation or overtime costs.

As shown in Figure 4, the months of October through December accounted for the bulk of the hours spent on flu vaccine shortage activities.

Source: Cost Analysis

Table 2 presents a breakdown of the hours by the major activity categories. A substantial amount of time (41%) was spent in communications-related activities and many of these hours can be attributed to attending in-house meetings and conference calls.

**Table 2. Frequency Distribution of Total Staff Hours by Activity Category, October 2004 to March 2005, N=35**

<i>Activity</i>	<i>Total Staff Hours (%)</i>
Vaccine Management	1,826 (22)
Oregon Flu Hotline	2,278 (27)
Communications	3,391 (41)
Miscellaneous Activities	791 (10)
<b><i>Total</i></b>	<b>8,286 (100)</b>

The analysis also identified a number of activities within the Immunization Program that were postponed or cancelled. Two of the program's CDC grant objectives were impacted by the vaccine shortage: 1) employee performance appraisals, review of position descriptions and individual training plans were not completed, and 2) a collaboration with health plans to ensure that national Advisory Committee on Immunization Practices (ACIP) recommended vaccines were systematically administered, included in covered benefits, and adequately reimbursed was postponed. Additional activities that were cancelled or postponed include: Vaccines for Children (VFC) site visits; ALERT Registry and AFIX trainings; publication of a training

manual; updates to pharmacists regarding vaccine protocols; Behavioral Risk Factor Surveillance System (BRFSS) data management activities (i.e., weighting, displays and web tables); nurse focus groups regarding hospital adult vaccine standing orders; a quarterly immunization bulletin to providers; county triennial reviews; filing and billing on vaccine accounts; an evaluation of hepatitis vaccine administration in county STD clinics; and an evaluation of a pediatric mass influenza clinic.

### ***Key Findings on Cost Analysis***

- DHS staff worked, on average, the equivalent of one additional work-week per month for six months on flu vaccine shortage activities. The response cost \$371,000 in staff time alone.
- Staff spent significant amounts of time in communication activities, such as meetings.
- The flu vaccine shortage resulted in the cancellation or delay of numerous Immunization Program projects.

### ***Vaccine Coverage***

The comparison of flu vaccination coverage rates for the 2004-2005 season with previous seasons provides a valuable means of determining how well Oregon's public health system responded to the flu vaccine shortage. For the evaluation, coverage rates based on the Gilmore survey data are compared to rates from The Centers for Disease Control and Prevention (CDC). The CDC determines coverage rates each year through telephone interviews with the public. These interviews are conducted as part of their BRFSS survey.

In previous seasons, which were not hampered by shortages, Oregon's vaccination rates for individuals 65 years of age and older fell between 70-71% (see Table 3). Oregon nearly reached that same level of coverage during the vaccine shortage; the vaccination rate among individuals 65 years of age and older was 67% based on Gilmore survey results, and 64% based on BRFSS data for Oregon. The two Oregon estimates are statistically equivalent as indicated by the overlapping confidence intervals. The findings suggest that Oregon's vaccination strategy was successful in directing supplies to individuals 65 years of age and older.

**Table 3. Percent Vaccinated Among Individuals 65+ Years of Age, 2005**

<i>Location</i>	<i>Study</i>	<i>Percent (95% CI)</i>
Oregon	Gilmore Survey <sup>a,1</sup>	67.3 (59.6, 74.2)
Oregon	BRFSS <sup>b,c,2</sup>	63.5 (57.4, 69.6)
United States	BRFSS <sup>3</sup>	62.7 (60.6, 64.8)
Oregon	BRFSS, 2002	70.5
Oregon	BRFSS, 2003	71.0

- a. Reflects vaccinations received through 1/7/05  
b. BRFSS = Behavioral Risk Factor Surveillance System  
c. Reflects vaccinations received through 1/31/05

*Sources:* 1. Gilmore Survey; 2. CDC, BRFSS Flu Vaccination Report, Oregon, Feb. 4, 2005; CDC, “Estimated Influenza Vaccination Coverage Among Adults and Children ---United States, September 1, 2004 – January 31, 2005” MMWR, April 1, 2005/54(12);304-307.

Much interest has been expressed in vaccination rates for children 6-23 month of age since the 2004-2005 season was the first season that vaccination was recommended for this age group. The vaccination rate for this age group was 48.4% nationally, which is regarded as noteworthy by the CDC for a first season<sup>3</sup>. The BRFSS rate for Oregon children of that age group cannot be calculated due to small numbers. Oregon’s ALERT registry sentinel data indicate flu vaccination coverage rates of 41%, 36%, and 25%, respectively, for children ages 6-11 months, 12-17 months and 18-23 months.

#### ***Key Findings on Vaccine Coverage***

- Oregon’s coverage rate for individuals 65 years of age or older approach the rate for previous seasons despite the flu vaccine shortage.

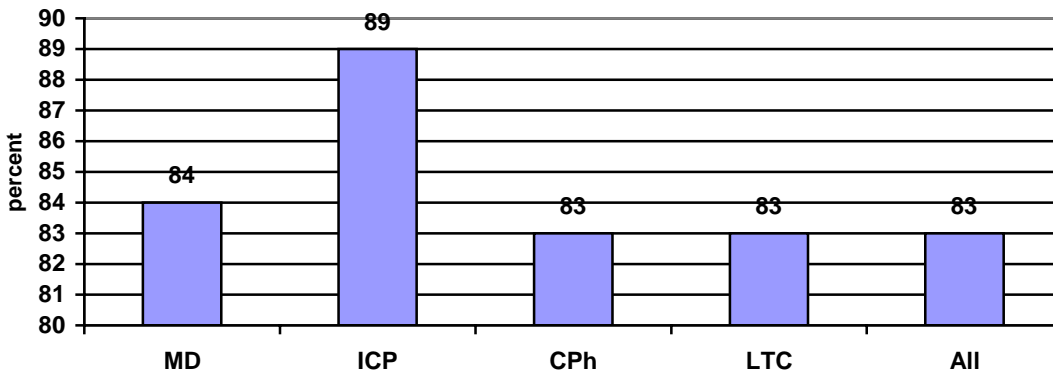
#### ***Leadership and Policy Development***

Results from the stakeholder interviews and health care professional survey provide most of the insights surrounding issues of DHS on this topic. Many stakeholders voiced appreciation to the State for quickly stepping in to lead discussions and make policy decisions while some felt that the State was hesitant to make decisions, waiting until CDC guidelines were released. In other cases, stakeholders applauded the State’s approach because it allowed time for the State to seek opinions from partners in the field. Some stakeholders expressed a desire for more clear lines of authority and leadership during the flu vaccine shortage, as would occur through the use of the IMS.

More generally, but with frequency, stakeholders described their frustration with the CDC and federal leadership throughout the crisis. A common observation was that the federal government moved slowly in developing guidelines and in deciding how to

distribute vaccine. In some cases, frustration was compounded by the belief that communications from the CDC were not always clear. Similarly, in unsolicited comments, some respondents from the health care professional survey acknowledged that DHS was at the mercy of the federal government on some issues during the shortage. When asked directly to characterize the overall performance of DHS, however, 82% of these health care professionals rated the DHS response as good, very good or excellent.

**Fig. 5 Percent of Health Care Professionals Rating DHS Response as Good, Very Good or Excellent, N=605**



*Note:* MD refers to physicians, ICP= Infection Control Practitioners, CPh = Certified Pharmacists, LTC = Long-term care facility nursing directors  
*Source:* Health Care Professional survey

Efforts to hear from partners before making policy decisions were respected and considered useful by stakeholders, but the process was wearisome for some, and even many of those who were enthusiastic about the collaborative approach noted that it slowed decision-making and action. In addition, a few stakeholders expressed concern that the decision-making process excluded some key players. A more representative group of stakeholders, it was suggested, would include fewer pediatric clinicians and more representation from long-term care associations, pharmacists, and elder associations. Challenges specific to rural or urban counties strained group communication during the flu shortage. According to a few stakeholders, issues facing urban counties dominated conference calls and left participants from rural counties frustrated and without answers from the State.

*Defining County and State Roles*

Working together as the statewide public health system, stakeholders noted that DHS and local public health authorities have a shared responsibility to respond to public health crises in a coordinated fashion. The flu vaccine shortage tested the boundaries of each agency’s authority and helped clarify the need for defined roles in this working relationship.

As a few DHS stakeholders noted, Oregon has a unique political culture, which is rooted in local control. This pattern of decentralized decision-making creates less clear

lines of authority and left some at DHS feeling that the State could have asserted a more commanding presence. Local health department respondents, however, offered mixed opinions on the subject. Some local respondents reported that they implemented a countywide IMS, which helped them redistribute other responsibilities and focus their efforts on vaccinating high priority people. A few expected the State to do the same, a process that would have clearly delineated a chain of command. The State did implement an IMS system, but it was limited to upper management positions.

Lacking that clear chain of command, many local stakeholders reported that they instead looked to the State for technical support, policy recommendations, and guidance on interpreting prioritization criteria. In turn, most respondents believed that local public health authorities should be responsible for implementing state mandates, as well as communicating with and coordinating local partners.

#### *Prioritization, Subprioritization and Liability*

Although one stakeholder felt that the initial prioritization criteria were clear, others expressed concern that the policy was too general and was difficult for providers to operationalize. Specifically, it lacked definitions or examples of what was meant by ‘healthcare workers with direct patient care’ and ‘persons aged 2-64 years with underlying chronic medical conditions.’ Local respondents spoke with frustration about their attempts to clarify these terms among themselves and to lay people in their communities. Other stakeholders, who were responsible for system-wide operations, reported that they called the CDC with questions on interpreting the guidelines, and then relayed the information to providers within their system.

Following the CDC’s lead, the State declined to subprioritize among those who met the criteria of high risk, leaving vaccine providers and local public health authorities to use their professional judgment about rationing and end user eligibility. Two concerns drove discussions of subprioritization among respondents. The first was a genuine desire to fully follow the guidelines and ensure that those who most needed flu vaccine received it. The second issue was about provider liability.

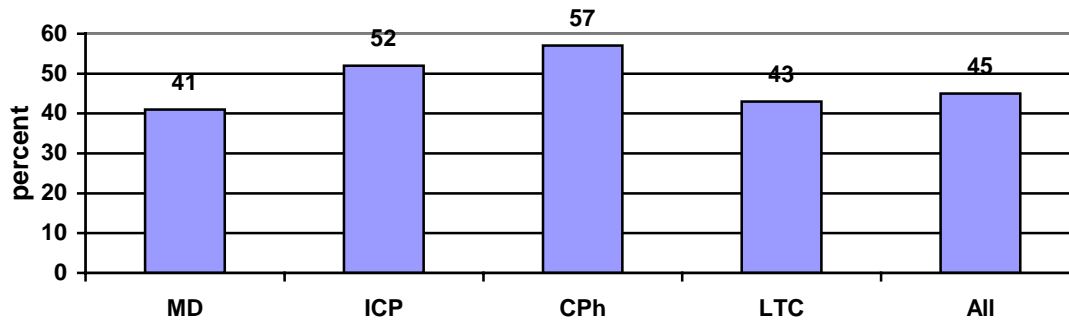
According to stakeholders who spoke out about the issue of provider liability, the State’s imposition of a \$500 civil penalty against any persons who knowingly violated the guidelines created a cautious atmosphere among providers and local public health authorities. In this context, subprioritization would have helped reduce provider liability concerns by explicitly communicating the rules about who should be given vaccine.

Stakeholders offered mixed reviews of the State’s imposition of a fine. The threat of a fine turned out to be a useful tool for a few respondents who felt it gave them leverage in decisions to turn away persistent people who did not meet the prioritization criteria. Others suggested that it was heavy-handed and unnecessary, with a few stakeholders viewing it as an empty threat.

Findings from the health care professional survey did not entirely support stakeholders’ opinions about subprioritization, but lent some support to their opinions about provider liability. The health care professionals gave no clear mandate about their need for

subprioritization. Overall, less than half of this group (43%) stated that DHS should have subprioritized. As indicated in Figure 6, physicians were least likely to call for subprioritization while ICPs and pharmacists expressed the greatest interest in subprioritization.

**Fig. 6 Percent Who Agree or Strongly Agree that DHS should have made Subprioritization Recommendations, N=605**



*Note:* MD refers to physicians, ICP= Infection Control Practitioners, CPh = Certified Pharmacists, LTC = Long-term care facility nursing directors

*Source:* Health Care Professional survey

To DHS staff, the penalty clause was a necessary component for writing the VEPP and a “last resort” option for non-compliers but it was not a programmatic priority. While not asked directly about the issue, a few health care professionals did express concern about the negative message sent to providers by the threat of penalty. In all, DHS received 34 complaints of which nine required some action. Seven of these were misunderstandings about the VEPP by the complainant and two involved a misunderstanding or mishandling of prioritization. None of the complaints lead to penalties. In the end, the penalty clause played a minor role in the crisis.

***Key Findings for Leadership and Policy Development***

- Health care professionals gave the State good overall ratings for its response.
- Most stakeholders felt that the State provided strong leadership in decision-making although some regarded the collaborative process as inefficient.
- Stakeholders generally considered the collaborative process to be responsive to local need but a few felt that urban county needs dominated county/state conference calls.
- Stakeholders felt that the State did not work with counties to establish clear lines of authority.
- Stakeholders criticized the CDC’s prioritization criteria as vague and stated that subprioritization by DHS would have been useful. Health care professionals, however, did not present a clear mandate for subprioritization.
- Many stakeholders and some health care professionals noted the disappointing federal response.
- Some criticized DHS and the statute for using the threat of penalty against providers who did not follow the prioritization criteria. This penalty was not a

programmatic priority for DHS and it played a minor role during the flu vaccine shortage.

### ***Vaccine Resources Management***

Without a doubt, limited vaccine resources were at the core of the challenges presented by the 2004-2005 influenza season and, thus, are central to this evaluation. The evaluation examines this issue to assess how effectively this limited resource was managed by the state's public health system.

#### ***Procurement***

Based on data from past influenza seasons, it was determined that Oregon would need approximately 500,000 doses of vaccine to maintain its coverage rates for high-risk populations. At the time the shortage was announced, DHS had just 4,000 doses under its control, and vaccine remaining in manufacturers' and distributors' warehouses were "sequestered-in-place" until CDC devised a plan to distribute the vaccine to states on a fair and equitable basis. Each state was allotted a certain amount of vaccine. The CDC set up a secured data link that allowed states to place individual orders from vaccine providers through them. Oregon took a different approach. DHS purchased its full allotment for November and December from the CDC, and then filled individual orders itself from vaccine providers. Looking across the United States, it is generally believed that states, which purchased their vaccine in this manner, were able to distributed vaccines more rapidly and waste less vaccine than states that did not use this process. Oregon also demonstrated initiative by purchasing 29,000 doses off of the CDC contract as soon as the shortage was announced, which allowed DHS to have greater flexibility on how the vaccine could be used.

At the local level, stakeholders interviewed for this evaluation had expected the State to immediately seize all available vaccine supply and redistribute it to private and public partners. After it became clear that there would be no such mandate, local public health authorities, hospitals and private partners attempted to resell and purchase vaccine amongst themselves. This led to unanticipated problems, including contractual arrangements with the manufacturer forbidding the resale of vaccine and an ad hoc market where those with a vaccine surplus had difficulty redistributing it to those who needed it. Many of the stakeholders expressed a desire for the State to take a lead role in the resale process.

#### ***Supply Assessments***

When the shortage was announced, some local public health authorities began to contact providers in their area to assess the amount of vaccine available. Shortly after, the State sent out a survey to the LPHAs requesting that they gather similar information. LPHA staff was then obliged to replicate their earlier efforts, which frustrated staff and, according to a few stakeholders, annoyed their providers.

Although some LPHA respondents understood the State's need for new and complete data, administering the State's survey drained staff resources and sometimes undercut the working relationship between state and LPHA authorities. In hindsight, a few DHS

stakeholders noted that more local input on the survey would have been useful. In some cases, this may have resulted in better buy-in from the county offices and added face value to the survey itself.

While the LPHAs from rural counties generally reported that the task of contacting providers was a relatively easy one, some officials in urban counties had a different experience. Contacting all providers was described as an arduous task in urban centers, which required the diversion of staff to complete. Urban LPHA stakeholders also dealt with the confusion of providers who saw patients in multiple counties, creating survey overlaps between two counties in some cases. Additionally, some respondents questioned the relevance of the surveys and showed little understanding of how the information was used by the State to allocate vaccine.

#### *Allocation*

The general consensus among stakeholders was that vaccine allocation across the state was done fairly even though the data used for the formula were imperfect. Few stakeholders participated in the allocation discussions, and those who did often could not recall the initial formula used. An exception to this was respondents from DHS, most of whom recalled the formula and process well, many noting that allocation decisions were based upon low quality data. This perspective was shared by many of the local public health officials and immunization coordinators in this study.

#### *Delivery from the State to Local Health Departments*

The flow of vaccine from the State to the LPHAs, who then distributed it among public and/or private partners, received mixed reviews from stakeholders. Most granted that it was a necessary delegation of power, but several stakeholders expressed frustration that the State did not listen to their opinions about county-level supply and demand. The view was held among some local respondents that this approach contributed to waste in some counties and shortage in others.

#### *Administration to the Public*

Although the State did not oversee flu clinics, some local public health officials and respondents from private health systems wished that the State would have offered logistical aid, including staff and administrative help, in setting up these clinics. One LPHA respondent expressed dissatisfaction about the chaos around public flu clinics during the season, suggesting that the State require clinics to be by appointment only. Another respondent agreed with the need to have appointment clinics instead of queues but pointed out that staffing costs were prohibitive. When it was possible, a few respondents mobilized volunteers to staff waiting rooms, transportation to clinics, and phone lines.

Findings from the health care professional survey provide insights into the practices of these individuals around the administration of influenza vaccine to the public. Table 4 presents the percent distribution for how late in a season health care professionals encourage flu vaccine for their patients or clients. As indicated, a substantial minority (at least 45%) from each profession encourages vaccination through January and February. One-fifth of ICPs stated that they encourage flu vaccines until their supplies are gone.

**Table 4. Percent Distribution for Encouraging Flu Vaccine among Patients,****N=605**

<u>Criteria</u>	<u>MD</u>	<u>ICP</u>	<u>CPh</u>	<u>LTC</u>
Through:				
November only	3%	3%	2%	10%
December only	15	15	26	20
January only	31	17	28	18
February only	32	28	21	29
Until flu season peaks	9	11	8	8
Until supplies are gone	8	20	12	5
Other criteria	2	6	3	10
<i>Total</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>

Source: Health Care Professional survey

Table 5 presents findings regarding challenges surrounding the administration of vaccine during the flu vaccine shortage. In general, the health care professionals surveyed did find the 2004-2005 influenza season to be challenging; a majority in each group agreed or strongly agreed that the season was more difficult on average. Physicians and pharmacists were more confident that they administered vaccine to high-risk individuals before others; only half of the infection control practitioners felt this way. The findings in Table 5 do not suggest that these professionals had difficulty complying with prioritization. A majority of physicians and pharmacists did report, however, that lack of vaccine made it difficult to follow the prioritization recommendations.

**Table 5. Characteristics of Vaccine Administration to Patients and Clients, Percent Who Agree or Strongly Agree, N=605.**

	<b>MD</b> (n=335)	<b>ICP</b> (n=54)	<b>CPh</b> (n=96)	<b>LTC</b> (n=120)
<i>I found this flu season more difficult than the average season</i>	53%	80%	83%	60%
<i>Our facility successfully gave vaccines to high priority patients before others</i>	95	52	93	na*
<i>It was difficult to follow prioritization recommendations because:</i>				
a) of demand from low-priority patients	29	17	32	26
b) high-priority pts did not want shots	33	36	20	26
c) we did not have enough vaccine	60	46	67	33
<i>Recommendations for “subprioritization” should have been made</i>	41	52	57	43
<i>What comes closest to how you dealt with the vaccine shortage in light of the number of high-priority patients needing vaccine?</i>				
No difficulty, enough vaccine	23	22	8	55
No difficulty, no vaccine given	4	4	5	<1
First come, first served	51	37	61	16
Vaccine subprioritized	17	35	7	18
Other strategy used	5	2	19	11

Source: Health Care Professional survey

\* This question was not asked of nursing directors at long-term care facilities.

Regarding strategies used to vaccinate high-risk individuals given limited supplies, a slight majority of physicians and pharmacists said they gave out vaccine on a “first come, first served” basis, and a slight majority of LTC nursing directors stated that they had enough vaccine. One out of every six (16%) health care professionals stated that they did subprioritize. Despite the fact that a majority of both ICPs and pharmacists indicated a need for subprioritization, just 7% of pharmacists subprioritized in comparison to one-third of ICPs. The manner in which these health care professionals subprioritized was not determined in this evaluation.

#### *Wasted Vaccine*

A mechanism for collecting data on vaccine waste in the private sector is currently not in place. Therefore, while DHS inventory records and findings from the health care

professional survey can provide insights into this issue, such data are not likely to provide an accurate and complete picture of vaccine wastage in the Oregon. DHS had 42,990 doses of VFC vaccine for distribution. Of that amount, DHS was unable to distribute 4,300 doses (10%). Most of those doses, which were stored at the DHS vaccine depot, were in the form of 0.25cc pediatric syringes. These doses had arrived late in the season and by this time providers were canceling their orders for them.

The Oregon Immunization Program was able to ascertain that an additional 7,425 (about 17% of the total VFC allocation) doses remained unused. These doses had already been distributed to VFC providers. The majority (67%) of these unused doses were in the form of pediatric syringes. They remained in provider offices until the CDC was able to negotiate a formal approval (announced January 27th) to resell the doses to the private sector. The barriers to using these vaccines once the restrictions had been lifted were significant. Redistribution would have required providers to pack and ship the vaccine back to DHS, receipt and inventorying of the returned vaccine by DHS, identifying who was still interested in receiving the vaccine, and re-packing and shipping the vaccine to those interested parties. In addition, at this point in the season, the public's interest in vaccination was very low.

Among stakeholders, reports of wasted vaccine varied although most respondents acknowledged that they were aware of wasted vaccine. LPHA stakeholders often voiced frustration that the State was slow to loosen prioritization guidelines and that this resulted in unused vaccine. Some respondents believed state or federal subprioritization would have resulted in more vaccinations, because without it, partners were overly cautious in dispensing vaccine.

Findings from the health care professional survey do not fully support this position and, instead, suggest that more complex factors are involved. As Table 6 indicates, 147 (24%) of the health care professionals surveyed by DHS reported that 26,414 doses of vaccine went unused during the season. The majority of unused vaccine (79%) was reported by ICPs, which is noteworthy given that 52% of the ICPs reported a need to subprioritize and 35% stated that they actually did subprioritize. The number of unused doses among pharmacists is the lowest despite the fact that 57% of that group also reported a need for subprioritization but just 7% reported doing so.

**Table 6. Unused Influenza Vaccine reported by Health Care Professionals, N=605**

<u>Health Care Professional</u>	<u>(%) Reporting Unused Vaccine</u>	<u># (%) Unused Doses</u>
ICPs (n=54)	44	20,863 (79)
Physicians (n=335)	15	4,213 (16)
LTC Nursing Directors (n=120)	47	1,033 (4)
Pharmacists (n=96)	11	305 (1)
<b>Total</b>	<b>26,414</b>	<b>(100)</b>

***Key Findings for Vaccine Resources Management***

- DHS purchased its full allotment of Phase II flu vaccine in one order from the CDC, rather than submitting individual provider orders, which allowed for efficiency in filling individual provider orders.
- DHS purchased vaccine with non-federal dollars thereby avoiding restrictions on distribution.
- The availability of the Immunization Program’s vaccine depot allowed for in-State receipt of large vaccine shipments and quick turn-around in vaccine orders.
- Stakeholders expressed a desire for DHS to take a lead role in brokering the resale of vaccine and assistance with removing legal barriers to vaccine resale.
- A few stakeholders expressed a desire for assistance from DHS in setting up flu clinics.
- Stakeholders were frustrated by the State’s attempt to assess the amount of influenza vaccine in Oregon by surveying providers, which was felt to duplicate some LPHA efforts, divert staff time and some did not understand how the data were used to allocate vaccine.
- Vaccine allocation was generally believed to be fair and objective.
- Health care professionals found the flu vaccine shortage season to be more difficult than a typical flu season.
- One out of every six health care professionals subprioritized but less than half of all the professionals surveyed wanted DHS to subprioritize for them. Most were confident that they administered vaccine to high-risk individuals before others.
- Many stakeholders felt that changing prioritization guidelines faster could have resulted in less wasted vaccine; however, good statewide data on unused vaccine were not available to make such a determination.
- Unused VFC/317 vaccine was the result of strict federal regulations on its use that were not lifted until late in the season when demand was low.
- Hospital infection control practitioners (ICPs) and pharmacists appear to have their own unique issues about vaccine management given their experiences

with the season. ICPs reported three-fourths of the unused vaccine in the survey of health care professionals.

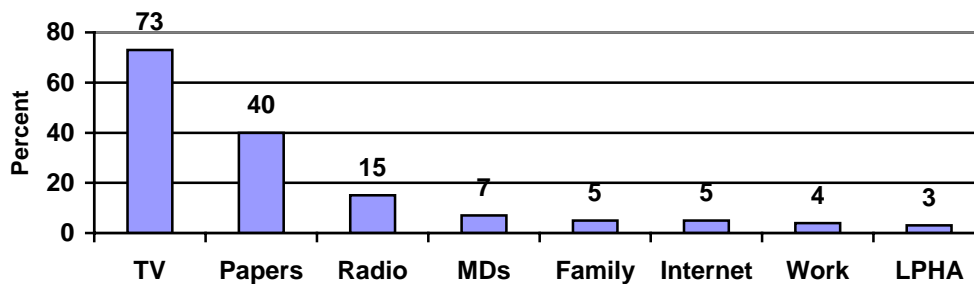
### *Communications*

During the 2004-2005 flu season, DHS needed to relay key information to the public and its partners throughout the state. DHS communicated directly with local health departments, its partners and the public. The Oregon Flu Hotline, available for use by the public, partners and LPHAs provided clinic information and answered questions about prioritization. In addition, messages were available to authorized partners on the Health Alert Network (HAN). This section examines the effectiveness and efficiency of these communications through three topics: source and clarity of DHS messages, communication approaches and mechanisms, and communication tools.

#### *Source and Clarity of DHS Messages*

As indicated in Figure 7, the vast majority of general population survey respondents received their information about the flu season and vaccine shortage from television, newspapers and, to a lesser extent, radio. Other sources, including physicians and local health departments, played a minor role in providing the respondents with information.

**Fig. 7 Source of Flu Season Message, General Population, N=700**



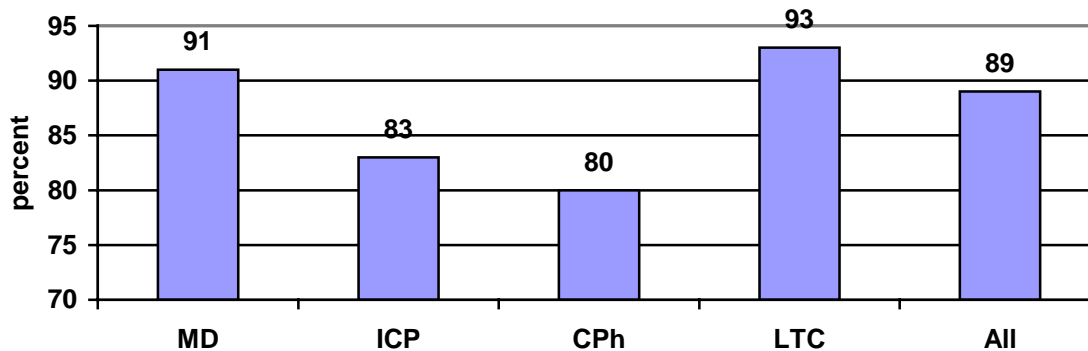
*Source: Gilmore Survey*

Although 24% of the health care professionals surveyed also noted news as a significant source of information, a larger percentage (39%) noted DHS communications as a primary source of information. Infection control practitioners (76%) were most likely to state that DHS-communications were their primary source while pharmacists (13%) were least likely to note DHS-communications as a primary source. A quarter of the pharmacists also stated that their corporate office was a primary source of information.

Results from both the health care professionals survey and the general population survey indicated that both groups, in general, clearly received messages about the flu shortage. The majority of individuals from the general population survey (69%) knew who should receive the vaccine and 70% of these respondents could correctly classify themselves as high-risk or not. A majority of health care professionals stated that they

clearly received messages about the vaccine shortage (83%), mandatory prioritization (79%), allowing FluMist for healthy individuals (58%), expansion of the high priority groups (70%), and lifting of the restrictions (73%).

**Figure 8. Messages Clearly Defined Priority Groups, Percent Who Agree or Strongly Agree, N=605**



*Note:* MD refers to physicians, ICP= Infection Control Practitioners, CPh = Certified Pharmacists, LTC = Long-term care facility nursing directors  
*Source:* Health Care Professional survey

The stakeholders who were interviewed recognized that DHS did not have control over the way the media delivered the story on the flu vaccine shortage or the way it was interpreted by the public, but they do believe that DHS has some say in the information that was released. Some stakeholders expressed a desire for more state control over media coverage of the shortage, but many discussed their belief that the public only listened to the first prioritization message and responded in one of two ways: some health care providers and high-risk patients forewent vaccination as a patriotic or civic responsibility; others, including many elderly, were alarmed and reactionary, which left them to queue up in long lines at clinics. Later in the season, when vaccine was available to non-prioritized people, there was a sense among many respondents that the public had lost interest in the issue and had moved on.

The perception that the public may have only listened to the first message finds some support from the Gilmore survey. Adults aged 50-64 years were most likely to incorrectly state that they or a household member did, or did not, belong to a high risk group ( $\chi^2=95.3$ ;  $df=2$ ;  $p<.001$ ). Fifty to 64 year olds age did not become a high-priority group until December. They may not have paid attention to additional messages, as suggested in the stakeholder interviews, or changing messages may have confused them. This finding may also reflect the possibility that DHS communication strategies did not adequately reach specific populations. As an additional example, results from the Gilmore survey indicate that Hispanics were significantly more likely than non-Hispanics to select an incorrect statement about who could receive a vaccine, 73% and 29%, respectively ( $\chi^2=22.7$ ;  $df=1$ ;  $p<.001$ ).

Stakeholders' perception that individuals deferred vaccination out of a sense of civic duty is not supported by the findings of the Gilmore survey. The main reasons given by high-priority respondents about why they did not get a shot were: 1) they did not want one; 2) they felt they did not need one; and 3) they had concerns about vaccine safety and adverse reactions. Few general survey respondents stated that they deferred out of civic duty. That deferral out of civic duty was a reason mentioned by some private citizens who called the Oregon Flu Hotline suggests that a select sample of individuals was making calls to the hotline.

#### *Communication Approaches and Mechanisms*

According to stakeholders, the flow of policy and guidelines from state to local health departments to partners burdened many local offices, but worked efficiently in some cases. In most rural counties, where local staff has ready access to the limited number of providers in the area, it was an effective way to relay information. In some cases, it was even suggested that the process helped legitimate their role as the local health authority and helped them build relationships with providers.

In urban areas, the expectation that local public health authorities convey information to and from providers proved unrealistic, although most agreed that it was their responsibility. One dissenting opinion on this topic among the urban public health officials who were interviewed, pointed out that in the Portland metropolitan area providers often move between clinics in different counties, thereby making county-based contacts redundant.

During these conference calls, the State would establish a timeline for press releases. Local respondents appreciated this opportunity to be kept in the loop, but several complained that the information was given to the media ahead of schedule and then local public health authorities would be caught off guard. In general, local public health authorities were overwhelmed by the rate of change in information they received from the State, which left them in the awkward position of relaying an inconsistent message to the public. Furthermore, one respondent noted that communications from the State sometimes conflicted with information sent out by other official organizations.

Early in the season, DHS realized that it could not reach all providers quickly. No single communication vehicle worked for everyone. As such, DHS ended up using a patchwork of methods that missed some clinicians and sent redundant information to others. Therefore, one objective of the evaluation was to ask stakeholders for their opinions on this topic and to ask providers about their preferences for receiving communications from DHS.

Many stakeholders appreciated the efficiency of being contacted through their member organizations, which often have blast fax capabilities that helped them stay abreast of evolving information. However, the use of statewide membership organizations was not without problems. A few respondents with multiple affiliations reported annoyance with the redundant information they received. Another respondent was uncomfortable sharing proprietary information with unofficial organizations. The issue of omissions was also raised, since affiliation with most member organizations is not

mandatory. A few stakeholders offered speculation about whether this would unfairly impact urban or rural providers.

The need for a current contact list of partners was a frequent theme among respondents. Some questioned, however, whether targeting partners is the most efficient way to deliver policy and gather information. Several respondents suggested pre-planning to identify key contacts such as office managers at clinics, rather than individual providers. In the case of multiple site health systems or corporations, identifying a system administrator as a liaison could speed provider notification and streamline data collection.

Stakeholders suggested that the method of contact should be tailored to each liaison. As Table 7 indicates, wide variation in preferences among health care professionals supports the concern that there may not be one universal or preferred method, for communicating with providers during a public health emergency. Whether professionals are willing to adapt or learn a standardized method of communicating with DHS was not examined in this evaluation.

**Table 7. Communication Mechanisms and Contact Preferences, Health Care Professionals, N=605**

	<i>MDs</i> (n=335) (n=120)	<i>ICPs</i> (n=54)	<i>CPh</i> (n=96)	<i>LTC</i>
<i>Typical mechanism by which received messages?</i>				
News	29%	--	39%	28%
Email	19	80	23	17
Fax	--	--	12	12
Oral communication	--	--	--	15
Printed copy in mailbox	29	--	--	16
<i>What would be the best mechanism?</i>				
Email	37	80	34	43
Fax	22	--	37	28
Printed copy in mailbox	26	--	--	16
<i>Who would be the best contact?</i>				
Office/operations manager	40	--	--	--
Medical director	23	--	--	--
Pharmacy director	--	33	39	--
Myself	15	39	21	--
Corporate office	--	--	28	--
Nursing director	--	--	--	74
<i>Who would be the best contact about vaccine supplies?</i>				
Office/operations manager	45	--	--	--
Medical director	13	--	--	--
Pharmacy director	13	65	41	--
Myself	--	22	26	--
Corporate office	--	--	26	--
Nursing director	--	--	--	71
Other, my facility	17	--	--	--

*Note:* Dashed lines denote percentages less than 10%

*Source:* Health Care Professional survey

### *Communication Tools*

#### *Oregon Flu Hotline*

Most stakeholders expressed appreciation for the quick set up of a flu vaccine hotline, finding it a useful and efficient resource for providers and the public. One LPHA respondent articulated concerns that the hotline left counties out of the information loop, finding that they were giving out conflicting referral information, which required staff to check back with the hotline for clarification. Some respondents from DHS expressed similar concerns.

Some stakeholders, who were public and private vaccine providers, expressed frustration that it was difficult to reach the hotline, due to the high volume of calls, and one stakeholder requested a separate line for vendor contacts. Providing consistent staffing for the hotline was a challenge noted by DHS staff, as was the need to document calls. One stakeholder wondered whether a hotline is the most efficient way to use DHS resources and relay information.

The DHS Oregon Flu Hotline received 45,440 calls of which 26,330 were answered. Despite this high volume of calls, few respondents from the general population survey were aware of the hotline. Only 14% of these respondents had heard about the hotline and none had utilized this resource. Furthermore, less than half (43%) of the health care professionals surveyed stated that the message about the availability of the flu hotline was clear, which suggests that many providers did not know about this resource as well.

#### *Health Alert Network (HAN)*

DHS maintains an emergency Health Alert Network (HAN) that is currently accessed by approximately 1,000 users. Fifty percent of these users are from local health departments, 30% are hospital staff, and 20% are from DHS. HAN was used to distribute initial messages from DHS about the shortage. The agency soon realized, however, that HAN had too narrow an audience to be an effective communication tool during the emergency. This may be reflected by the fact that just a few stakeholders, who voiced concerns that user restrictions limited its application, referenced HAN.

#### *Web-based Communication*

Many stakeholders emphasized web-based communication as playing a key role in future communication with the State. Several noted that while not all physicians use computers and the internet, it is increasingly common for them to do so, and that this mode of communication has the potential to offer all stakeholders the information they need quickly and efficiently. Some envisioned an interactive web site that would allow local public health authorities and individual partners to complete supply assessments without shuffling paper. Others focused on its utility as a clearinghouse for up-to-date clinic information, references and current guidelines that stakeholders could print and distribute, as needed.

#### ***Key Findings on Communications***

- DHS messages were clearly received by health care professionals and the general population.
- Most general population respondents received information about the season through the media, not their physicians or local health departments.
- The public may have heard only the first prioritization message or have been confused by changing messages, and communication strategies may not have adequately reached specific populations such as Hispanics.
- Stakeholder perceptions that individuals deferred vaccine out of a sense of civic duty were not supported by findings from the general population survey.
- Rural counties were better prepared to relay information to providers than urban counties.

- Information that counties were expected to relay from the State changed frequently and sometimes conflicted with that of other authorities.
- Stakeholders noted that communications through member organizations were fast but expressed concern that non-affiliated providers were missed.
- Redundant contacts from multiple organizations frustrated some stakeholders.
- Stakeholders recommended that a comprehensive list of providers be developed. Findings from the health care professional survey support the idea that the method of contact should be tailored to each liaison.
- Stakeholders viewed the Oregon Flu Hotline as a reliable way for the public and providers to access information but some expressed concern that it left LPHAs out of the information loop.
- Few general population respondents and health care professionals knew about the hotline. The hotline was also resource intensive for DHS.
- HAN was under-utilized during the flu vaccine shortage.

## ❧ LESSONS LEARNED AND RECOMMENDATIONS ❧

The 2004-2005 influenza vaccine shortage was fortuitous in that it provided a valuable opportunity for DHS to critically examine the strengths and weaknesses of its response to a public health emergency. This section will discuss the findings, examine costs and beneficial outcomes, and make recommendations for future preparedness planning efforts.

### *Cost Analysis*

The influenza vaccine shortage was not a public health emergency that involved excess morbidity, mortality or displacement of persons, but it still required significant staff time to mount a response. The evaluation's findings highlight the need for state and local health departments to develop surge capacity plans that ensure sufficient personnel for emergencies while also maintaining critical programmatic tasks. Employing measures, such as the Incident Management System (IMS), to use staff time more efficiently, may reduce costs associated with future responses.

### *Vaccine Coverage*

As is typical with routine influenza seasons, high-risk individuals did not seek out flu vaccine during the shortage because they did not perceive the need for vaccination, and they had concerns about vaccine safety and adverse reactions. The evaluation also showed that physicians and LPHAs were not significant sources of information about the season for members of the general population. DHS, LPHAs and physicians should take advantage of their existing relationships to mount an educational campaign that promotes the benefits and safety record of vaccines, and counterbalances current anti-vaccination movements. Such promotional efforts may enhance Oregon's vaccine coverage rates not only during routine influenza seasons but during public health emergencies, as well. An educational campaign that increases vaccine coverage rates may indirectly reduce influenza-related costs in Oregon because influenza vaccination is associated with reduced hospitalizations in the elderly<sup>3</sup>.

### *Leadership and Policy Development*

As DHS often looks to CDC for expertise and leadership, local and private sector partners look to DHS for similar guidance. The flu vaccine shortage challenged DHS to advocate and implement federal recommendations in a manner appropriate for Oregon. DHS sought a collaborative approach with its partners, seeking guidance and buy-in from the local public health system as well as advisory and coalition partners as policy decisions were made about mandatory vaccine prioritization, allocation of scarce resources, and messaging to the providers and the public.

DHS earned praise for the collaborative nature of its policy and decision-making processes, but the structure around those processes could have been organized in a more efficient manner to delineate clear lines of communication and authority. DHS did use an internal IMS structure during the shortage but it generally reflected only those tasks assigned to managers and administrators. DHS can correct this limitation by fully implementing IMS internally and with its partners, with the recognition that IMS does not negate collaboration but should enhance the process.

DHS has made progress in this direction. Many staff have received basic IMS training, and IMS structures have been practiced during recent State-level preparedness exercises. In addition, DHS is using IMS to structure its pandemic and avian influenza planning efforts and in its response to the 2005-06 influenza season. The next step is to expand the use of IMS to joint county/DHS activities.

Differing positions were held among stakeholders and health care professionals regarding the need for subprioritization. Stakeholders criticized the prioritization criteria as vague and called for DHS to subprioritize. Health professionals, on the other hand, did not give a clear mandate on the need for subprioritization. In the future, DHS will likely continue to support CDC prioritization recommendations but remains open to helping clarify the recommendations for its public and private partners.

#### *Vaccine Resources Management*

Managing limited vaccine resources in an equitable manner was a primary objective of the 2004-05 influenza season. To meet this objective, it was imperative for the public health system to understand the vaccine supply and demand, and for DHS to lead the effort in acquiring and distributing Oregon's share of the limited supply as rapidly as possible. DHS grappled with balancing rapid data collection and incomplete data reporting to produce a statewide picture of vaccine distribution in order to allocate new shipments of vaccine equitably. The data were imperfect, however, and stakeholders were frustrated with the incomplete information from providers, distributors, and manufacturers.

Stakeholders called for DHS to take a central role in brokering the resale of vaccine and help remove legal barriers to vaccine resale. Assisting with brokering is within the state health division's capabilities. Removing legal or contractual barriers, however, is not possible for DHS. This issue likely requires legal and/or federal intervention as seen with the VFC/317 regulations that prohibited the use of this vaccine for other purposes until these regulations were lifted late in the season.

Stakeholders also expressed a desire for DHS to help setup and staff flu clinics. DHS's own staffing limitations would be prohibitive on this point, particularly during an emergency. Efforts are underway, however, by the Preparedness Program and county partners to develop a standardized local SNS/Mass Prophylaxis plan template, and to conduct trainings for county personnel on setting up Points of Dispensing (PODs). One goal of this project is for county or State staff to deploy a POD at any site in Oregon.

The evaluation findings suggest that hospitals or hospital systems and pharmacists have their own unique issues around vaccine resources management. It is not clear from this evaluation, however, what those issues might be and what role DHS might play in addressing them. The public health system would benefit from a collaborative effort to further examine acquisition, use, resale and redistribution of vaccine in hospital and pharmacy settings.

Underlying the issues surrounding vaccine resources management are questions of whether permanent mechanisms should be in place to track the supply of vaccine throughout the state. This issue takes on greater importance with the recent release of the HHS Pandemic Influenza Plan<sup>1</sup>. In its supplement on Vaccine Distribution and Use, the expectation is put forth that state and local jurisdictions will track vaccine supply and distribution. This expectation warrants extensive discussion and planning between DHS and its public and private partners once CDC data requirements are known.

DHS was successful in its ability to purchase the entire supply earmarked for Oregon, and rapidly redistribute it locally. The availability of the Immunization Program's vaccine depot was determined to be essential for in-state receipt of large vaccine shipments and quick turn-around in vaccine orders. Orders were funneled through local health departments, then shipments and bills were sent directly to providers. This got the vaccine in the hands of providers and in the arms of clients much faster.

DHS and its partners should continue their discussions and planning efforts around vaccine management issues. System improvements around vaccine acquisition, prioritization, allocation and distribution will likely reduce costs by reducing vaccine waste and improving coverage rates.

#### *Communications*

During the vaccine shortage, DHS needed to relay key information in a timely fashion to the public and its partners throughout the state. The evaluation examined the effectiveness and efficiency of these communications by focusing on three topics: source and clarity of DHS messages, communication approaches and mechanisms, and communication tools.

DHS was generally effective in reaching the public and providers with its messages, but improvements are needed with regard to the strategies, mechanisms and tools used to reach the public and players within the public health system. For instance, stakeholders called for a contact list of providers that would be tailored to each liaison. This suggestion was supported, in part, by the finding that health care professionals do not have a single preferred method or point of contact for emergency information. A blast fax project has recently been implemented that allows DHS to contact every physician in Oregon; the goal is to contact physicians within two hours of its notification of an emergency. Health care professionals may need to be asked to adapt to the blast fax as the standard method for receiving communications from DHS during public health emergencies until a more tailored system is developed.

IMS may also ameliorate communication problems that arose during the flu vaccine shortage. These problems included frustration over redundant messages from multiple contacts, the need for consistency in messages, perceptions that urban county needs dominated conference calls, and concerns about including all significant partners in emergency communications. Use of IMS would streamline communications but allow multiple voices to be heard, which would likely result in strategies that are supported by most players.

DHS Public Information staff has worked to develop and exercise Joint Information Centers (JIC) or a virtual Joint Information System (JIS) between county and State information officers. Continued utilization and refinement of JICs or a JIS should also help to streamline communication needs around public messages during an emergency. DHS, however, should reexamine and test its emergency communications plans to assure that strategies are in place to reach special populations and those affected by changes in policy.

Additional lessons learned about communication tools and mechanisms from the flu vaccine shortage have already resulted in action by DHS. For example, the Oregon Flu Hotline proved to be too resource intensive; therefore, the DHS Immunization Program has partnered with the Oregon Lung Association (OLA) and SafeNet to address the issue of providing clinic information to the public. For the 2005-06 influenza season, OLA worked with SafeNet to post information about flu clinics on its website. This partnership is an excellent example of the type of creative collaboration needed to meet the federal requirement regarding State and local health departments' capacity to communicate emergency messages to the public.

Stakeholders viewed HAN as being underutilized during the flu vaccine shortage. HAN has the capability of expanding to other users such as clinicians, laboratorians, and first responders, and local preparedness personnel have administrative rights to sign-up new users. The challenges around the effective use of HAN, however, lay in the staff hours required to manage the system. State and county preparedness efforts would benefit from a strategic plan for the use of HAN that includes budgetary considerations for maintaining the system at the State and local level.

### *Recommendations*

This evaluation has documented key beneficial outcomes that balance, if not outweigh, the monetary costs of mounting a response to the shortage. These beneficial outcomes include adequate flu vaccine coverage, the provision of strong leadership, fair and objective allocation of available vaccine, and emergency messages that were received and understood by the public and health care providers. Future planning efforts should consider implementing the following recommendations:

#### **Leadership**

- **Continue to use a collaborative decision-making process for developing and implementing statewide policies.** The collaborative process resulted in decisions that were supported by stakeholders. Findings point to readily implemented changes that can improve the efficiency of the process while maintaining the model of collaboration.
- **Implement and exercise IMS and surge capacity plans to ensure the efficient use of staff and to clarify roles, responsibilities and lines of communication with internal and external players.** During the shortage, DHS utilized an IMS structure, which was limited to management level tasks, however, non-

management staff from diverse programs responded to the event as well. Education and training at multiple system levels will streamline our response.

### Vaccine Management

- **Maintain the DHS vaccine depot.** This asset allows DHS a proactive role in acquiring, distributing, and brokering vaccine in an emergency.
- **Examine different approaches for assessing and/or tracking vaccine supply in Oregon.** Understanding vaccine supply is crucial for making decisions about vaccine allocation and brokering in the event of a shortage. State and national possibilities may include a targeted provider survey, an electronic provider inventory management system, or relying on the release of manufacturer supply data.

### Communications

- **Develop and routinely test a comprehensive plan for communicating with health care providers on critical issues.** To uniformly implement emergency recommendations, it is imperative that providers can be reached in a timely, efficient manner. Communication tools, such as HAN, would benefit from a strategic plan regarding their use.
- **Mount a public health system-wide campaign to promote the benefits and safety of vaccines.** Despite efforts to target vaccine to priority populations, many high-risk individuals remained unconvinced of the safety and efficacy of annual influenza vaccination. Special efforts may be needed to reach specific populations (e.g., non-English speakers) and individuals affected by changes in policy.
- **Find alternatives to a DHS-run hotline.** Locally run and advertised hotlines and websites may be able to respond more appropriately to concerns of community members.

In conclusion, the Oregon public health system implemented a timely and effective response to the 2004-2005 flu vaccine shortage despite problems and issues that arose during the event. This evaluation has documented and examined those challenges, and it has made recommendations on how they can be transformed into improved procedures and response capabilities. DHS and its partners are to be commended for their efforts in ensuring the public's health during the flu vaccine shortage.

## ❧ REFERENCES ❧

- 1) U.S. Department of Health and Human Services, *HHS Pandemic Influenza Plan*, November 2005.
- 2) CDC, Update: Influenza Activity – United States, 2004-05 Season. *MMWR*, April 8, 2005/54(13); 328-331.
- 3) CDC, Prevention and Control of Influenza, Recommendations from the Advisory Committee on Immunization Practices (ACIP), *MMWR*, May 28, 2004/ 53(RR06);1-40

## ∞ APPENDICES ∞

### **APPENDIX A**

Vaccine Education and Prioritization Plan (VEPP)

VEPP Supplement 1 - FluMist

VEPP Supplement II – Expansion to Adults 50-64 years old and Caregivers

### **APPENDIX B**

Staff Time by Activity and Month

## APPENDIX A

### **Oregon Influenza Vaccine Education and Prioritization Plan 2004-05 Issued by the Oregon Department of Human Services October 8, 2004**

The Oregon State Health Officer has determined that, due to an influenza vaccine shortage, adverse and avoidable health consequences to identifiable categories of high-risk individuals could occur. Therefore, assistance with administration of vaccine is warranted to protect these individuals. Under Oregon Revised Statute 433.040, the State Health Officer and the Oregon Department of Human Services (DHS) implement this Oregon Vaccine Education and Prioritization Plan to protect the public during a vaccine shortage. The plan consists of: 1) guidelines for healthcare providers; 2) rules for imposing civil penalties for violation of the guidelines; 3) mobilizing public and private health resources; and 4) notifying health professional boards of violations. This Plan is effective immediately, October 8, 2004, and will stay in effect through March 31, 2005, unless otherwise amended or rescinded.

This Plan is directed to all healthcare personnel involved in vaccine administration or distribution and to any facility that may be a site for or directly provide influenza vaccination services in Oregon, including, but not limited to:

Providers' Offices (physicians, nurses)	Home-care agencies
Medical Clinics	Occupational Health Programs
Hospitals	Retail stores (grocery, pharmacy)
Local Health Departments (LHD)	Worksites
Health Systems	Community-based mass immunizers
Long-term-care (LTC) facilities	

#### ***Background***

This year's flu season promises to be memorable, but for the wrong reason: we are short 50 million doses of the 100 million that were expected to be available. On October 5, 2004, the Centers for Disease Control and Prevention (CDC) was notified by Chiron Corporation that none of its influenza vaccine (Fluvirin®) would be available for distribution in the United States for the 2004–05 influenza season. The company indicated that the regulatory agency in the United Kingdom, where Chiron's Fluvirin® is produced, had suspended the company's license to manufacture Fluvirin® in its Liverpool facility for 3 months, preventing any release of the vaccine for this influenza season. This action will reduce by approximately one half the expected supply of trivalent inactivated vaccine available in the US; therefore, there will not be adequate supplies to vaccinate all persons who want to be vaccinated this season.

The remaining supply of inactivated influenza vaccine that will be available in the US consists of approximately 54 million doses of Fluzone®, manufactured by Aventis

Pasteur, Inc. Of these, approximately 30 million doses already have been distributed by the manufacturer. In addition, approximately 1.1 million doses of live, attenuated influenza vaccine (LAIV/FluMist®) manufactured by MedImmune will be available.

Because of this severe shortfall, Oregon is adopting the interim recommendations issued by the CDC, in coordination with its Advisory Committee on Immunization Practices (ACIP), for influenza vaccination **during the 2004-05 season**. These recommendations have been endorsed by the American Medical Association and take precedence over earlier recommendations. These recommendations are hereby adopted as the Oregon Vaccine Education and Prioritization Plan under ORS 433.040.

### ***Guidelines for Health Care Providers***

With few exceptions (see below), healthcare providers are not authorized to vaccinate healthy persons 2 - 64 years old with influenza vaccine this season. Providers and facilities must inform persons who are not included in one of the priority groups about the vaccine shortage and may not knowingly vaccinate such persons.

The following groups have been identified as persons at high risk. Providers are therefore authorized to vaccinate individuals in the following priority groups with inactivated influenza vaccine this season:

- All children aged 6–23 months,
- Adults aged  $\geq 65$  years,
- Persons aged 2–64 years with underlying chronic medical conditions,<sup>1</sup>
- All women who will be pregnant during influenza season,
- Residents of nursing homes and long-term care facilities,
- Children 6 months through 18 years of age on chronic aspirin therapy,
- Healthcare workers with direct patient care, and
- Out-of-home caregivers and household contacts of children aged <6 months.

Collaboration among community providers is essential to ensure that vaccine is shared with those providers who have inadequate supplies to cover all persons at high risk.

### **Other Vaccination Recommendations (not Guidelines)**

- Healthy persons who are 5-49 years of age, not pregnant, and in a priority group (healthcare workers, except those who care for severely immunocompromised patients in special care units, and persons caring for children aged <6 months) are encouraged to be vaccinated with intranasally administered LAIV (FluMist®).

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<sup>1</sup> Persons with chronic medical conditions include adults and children who have chronic disorders of the pulmonary or cardiovascular systems, including asthma; required regular medical follow-up or hospitalization during the preceding year because of chronic metabolic diseases (including diabetes mellitus), renal dysfunction, hemoglobinopathies, or immunosuppression (including immunosuppression caused by medications or by human immunodeficiency virus [HIV]).

- Persons in priority groups identified above should be encouraged to search locally for vaccine if their usual healthcare provider has no vaccine.
- Many children aged <9 years require two doses of vaccine if they have not previously been vaccinated. All children at high risk of complications from influenza, including those aged 6–23 months, who present for vaccination should be vaccinated with a first or second dose, depending on vaccination status. However, **doses should not be held in reserve** to ensure that two doses will be available. Rather, available vaccine should be used to vaccinate persons in priority groups on a first-come, first-served basis.
- Pneumococcal vaccine should be administered to eligible high-risk persons along with influenza vaccine.
- High-risk persons in the following groups should not get flu vaccine before talking with their doctor:
  - Persons who have a severe allergy (i.e. anaphylactic allergic reaction) to chickens' eggs, and
  - Persons who previously developed Guillain-Barré syndrome (GBS) within 6 weeks after getting a flu shot.

#### ***Rules for Imposing Civil Penalties***

A civil penalty of \$500 may be levied against any person who knowingly violates the guidelines for each repeat violation of the guidelines, as provided in OAR 333-048-0030.

A person who receives a fine for a violation is entitled to a contested case hearing as provided in ORS Chapter 183.

#### ***Mobilizing Public and Private Health Resources***

Collaboration among community providers is essential to ensure that vaccine is shared with those providers who have inadequate supplies to cover all persons at high risk. Each community should have a strategy for sharing vaccine and a lead agency serving as the local public health authority responsible for coordinating these efforts.

#### The responsibilities of ambulatory clinics, LTC facilities, and others providing vaccination services:

- All such persons and entities should report their supply of and demand for influenza vaccines and antiviral agents to the LHD upon request from DHS;
- Providers who do not have sufficient vaccine for persons at high risk and who are part of a health system, should contact their parent company to determine if they can acquire vaccine from within said health system; and
- Providers and entities that do not have sufficient vaccine for persons at high risk **or** that have vaccine remaining after vaccinating their high-risk patients should contact their LHD.

The role of LHDs, as the local public health authority, is to maximize the

availability of influenza vaccination services for high-risk persons community-wide by coordinating, or delegating the coordination of, flu vaccine activities in their jurisdictions, including:

- Determining if all clinics and facilities in their area have adequate supplies to vaccinate all persons at high risk;
- Attempting to locate additional resources in the community or the state (e.g., vaccine, clinic services, etc.) for any clinic or facility that does not have vaccine sufficient to meet the demand;
- Reporting local vaccine and antiviral supplies and need to the State Immunization Program upon request from DHS; and
- Reporting to DHS facilities and providers suspected of violating these vaccination guidelines.

The role of DHS is to maximize the availability of vaccine supplies for high-risk clients by assisting with reallocation of vaccine between counties as requested by the local public health authorities by

- Compiling statewide assessment data on vaccine supply and demand, in collaboration with statewide organizations and LHDs; and
- Adopting by rule the Oregon Vaccine Education and Prioritization Plan, including:
  - Developing and distributing guidelines for vaccine providers,
  - Imposing civil penalties for violation of the guidelines,
  - Mobilizing public and private health resources, and
  - Notifying health professional regulatory boards of violations.

#### **Notifying Health Professional Boards of Violations**

In the event that a healthcare provider is levied more than two civil penalties for repeat violations of the Plan, DHS Health Services will report the provider to the appropriate licensing authorities per Oregon Administrative Rule 333-048-0030.

#### ***Other Protective Actions***

In this time of vaccine shortage, it is important to remind patients that there are other steps they can take to protect themselves and others against influenza. These include:

- Washing hands frequently with soap and warm water, or alcohol-based hand washing products, and teaching children to wash their hands;
- Covering the nose and mouth when coughing or sneezing, preferably with a facial tissue or arm (not hands) (A handy “Cover Your Cough” poster, suitable for framing, is available on the DHS website for downloading at [www.dhs.state.or.us/publichealth/acd/cough.cfm](http://www.dhs.state.or.us/publichealth/acd/cough.cfm)); and
- If one is ill, avoiding exposing others by staying at home until you one is no longer symptomatic.

#### **Resources**

Additional information may be found at the Oregon DHS Immunization Program website: <http://www.healthoregon.org/imm>. DHS will update these recommendations as new information becomes available.

The Oregon Flu Hotline will be available Monday through Friday, 8:30am-5:00pm, for providers and the public with questions about influenza and vaccine. Call toll free at 1-800-978-3040, or for those in the Portland metro area, call 503-872-6900.

Updated listings of flu clinics in Oregon may be obtained by calling 1-800-SAFENET or by logging on to the American Lung Association's Flu Locator website at [www.LungUSA.org](http://www.LungUSA.org).

Information on flu clinics in Clark County, Washington, may be obtained by calling the Clark County Health Department's immunization line at (360) 397-8401.

**To request this material in an alternate format, call 503-731-4020**

**Supplement to the October 8, 2004  
Oregon Influenza Vaccine Education and Prioritization Plan 2004-05  
Issued by the Oregon Department of Human Services**

**November 1, 2004**

The Oregon State Health Officer has determined that, due to new information about the supply of live attenuated influenza vaccine (LAIV, FluMist®) and clarified recommendations by the Centers for Disease Control and Prevention, Oregon is issuing a Supplement to the Vaccine Education and Prioritization Plan (VEPP) as published on October 8, 2004.

Providers are encouraged to continue to seek out persons who are in a priority group and eligible for live attenuated influenza vaccine (LAIV, FluMist) and vaccinate as appropriate. However effective November 1, 2004, providers are not limited to vaccinating only these priority persons with LAIV. **LAIV may now be used for any healthy person ages 5-49, regardless of priority status.**

Inactivated vaccine is still restricted for use among the priority populations only, as listed in the October 8, 2004 VEPP:

- Children ages 6-23 months;
- Adults ages 65 and older;
- Anyone ages 2 to 64 with underlying chronic medical conditions;
- Women who will be pregnant during influenza season;
- Residents of nursing homes and other long-term care facilities;
- Children ages 6 months to 18 years on chronic aspirin therapy;
- Health-care workers who deliver direct patient care; and
- Out-of-home caregivers and household contacts of infants under 6 months.

Please address any questions about the VEPP, Supplement, influenza, and vaccines to the Oregon Flu Hotline, available Monday through Friday, 8:30am-5:00pm. Call toll free at 1-800-978-3040, or for those in the Portland metro area, call 503-872-6900.

**Supplement II to the October 8, 2004  
Oregon Influenza Vaccine Education and Prioritization Plan 2004-05  
Issued by the Oregon Department of Human Services**

**December 21, 2004**

Following new recommendations by the Centers for Disease Control and Prevention and input from immunization partners statewide, the Oregon State Public Health Officer is issuing a second Supplement to the Vaccine Education and Prioritization Plan (VEPP) as published on October 8, 2004.

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The use of inactivated influenza vaccine is now expanded to two new priority groups.

**New Priority Groups:**

- Adults ages 50-64 years; and
- Out of home caregivers and household contacts of persons at risk for serious complications from influenza (priority groups a-f below).

The following high-risk priority populations **continue** to be eligible for inactivated influenza vaccine:

- a. All children aged 6-23 months;
- b. Adults aged ≥65 years;
- c. Persons aged 2-64 years with underlying chronic medical conditions;
- d. All women who will be pregnant during the influenza season;
- e. Residents of nursing homes and long-term care facilities;
- f. Children aged 6 months to 18 years on chronic aspirin therapy;
- g. Health-care workers involved in direct patient care; and
- h. Out-of-home caregivers and household contacts of children aged < 6 months.

Providers are encouraged to:

- Continue to vaccinate through January or as long as vaccine is available, even after influenza activity has been documented in the community;
- Continue to offer pneumococcal vaccination for eligible patients; and
- Continue to offer the live attenuated influenza vaccine (LAIV, FluMist®) to any healthy 5-49 year old.

To review the [October 8, 2004 Vaccine Education and Prioritization Plan](#) and the [November 1, 2004 Supplement](#), please access them on the DHS Immunization web pages <http://www.healthoregon/imm/fluseason.cfm#e>  
If you cannot access them on the web, please call the Immunization Program for copies, 503-731-4020.

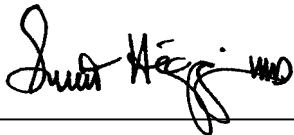
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The Oregon Flu Hotline is still available Monday through Friday, 8:30am-5:00pm. Call toll free at 1-800-978-3040, or for those in the Portland metro area, call 503-872-6900.

Vaccine providers should call the hotline with:

- Any questions about the VEPP, Supplements, influenza, or vaccines;
- Information about vaccine availability at your practice that you would like made available to the public through the statewide Flu Hotline; and

If you have information about excess vaccine you want to sell or additional vaccine you want to purchase, please first call your local health department and then the DHS Immunization Program (503-731-4020).



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Dr. Grant Higginson, State Public Health Officer

December 21, 2004

## APPENDIX B

### Staff Time by Activity and Month

<i>Activity</i>	<i>Total Average Weekly Hours Influenza Season 2004-2005</i>					
	Oct.	Nov.	Dec.	Jan.	Feb	March
<i>Vaccine management:</i>						
Needs assessment/allocation (e.g., county surveys).....	14	30.5	15	8	0	0
Ordering .....	3	2	2	2	0	0
Distribution (e.g., packing, shipping, delivery).....	43	101	55	50	41	41
Brokering.....	0	9	11	6	1	0
Billing.....	0	0	5	11	4	2
Other: _____	0	0	0	0	0	0
<b>Subtotal</b>	<b>60</b>	<b>142.5</b>	<b>88</b>	<b>77</b>	<b>46</b>	<b>43</b>
<i>Hotline:</i>						
Staffing phones.....	141	140.5	70	26	0	0
Technical support and coordination.....	45	48	45	32	2	0
Assessment & evaluation (data entry/analysis, presentation)	1	4	4	10	0	0
Other _____	0	0.5	0.5	0	0	0
<b>Subtotal</b>	<b>187</b>	<b>193</b>	<b>119.5</b>	<b>68</b>	<b>2</b>	<b>0</b>
<i>Communications:</i>						
In-house meetings (e.g. attending, arranging).....	120.5	111	86	55.5	14.5	4
Conference calls/partner mtgs (e.g., attending, arranging)....	31.5	24.5	18.25	10.75	1	0
Press releases (e.g., writing, editing).....	17	23	16	9	2	0
Press conferences (e.g., organizing, attending).....	13	3	2	3.25	2	0
Health education materials.....	12	22	18	8	6	0
Communications (e.g., public, partners, LPHAs, State, CDC).	37.5	51	43	19.5	4	2
Other: _____	3	3	3	7	2	2
Other: _____	9	9	8	11	0	0
<b>Subtotal</b>	<b>243.5</b>	<b>246.5</b>	<b>194.25</b>	<b>124</b>	<b>31.5</b>	<b>8</b>
<i>Miscellaneous/Other Activities:</i>						
Gilmore flu survey.....	0	0	22.5	46.5	16	2
BRFSS.....	0.25	3	10	10	2	0
IMS/preparedness support.....	1	0	1	1	0	0
Complaint process.....	8	7	4	2	0	0
Other: _____	2	8	25	10	7	1
Other: _____	3.5	0	2	1	0	0
<b>Subtotal</b>	<b>14.75</b>	<b>18</b>	<b>64.5</b>	<b>70.5</b>	<b>27</b>	<b>3</b>
<b>TOTAL HOURS</b>	<b>505.25</b>	<b>600</b>	<b>466.25</b>	<b>339.5</b>	<b>106.5</b>	<b>54</b>
Number of total hours charged as comp or overtime.....	36	57.5	14	10	3	0
Number of total uncompensated hours (managers only).....	68.5	47	25	14	5	0
<b>Subtotal</b>	<b>609.75</b>	<b>704.5</b>	<b>505.25</b>	<b>363.5</b>	<b>114.5</b>	<b>54</b>

