FINAL REPORT

Evaluation of Oregon's
Adult Immunization Special Project
2012-2013

June 2015

EXECUTIVE SUMMARY

Project Goal and Objectives: The Oregon Immunization Program (OIP) was awarded $1.8 million in June 2012 by the Centers for Disease Control and Prevention to strengthen the state's adult immunization infrastructure. In turn, OIP awarded $1.4 million to 32 participating counties to carry out project activities with local partners. Local public health authorities (LPHAs) were to:

1. Establish partnerships with pharmacies to initiate or increase the number of doses of influenza and/or Tdap immunizations given to adults by 10% or more compared to the pharmacies' 2011-12 baselines.
2. Develop or improve relationships with non-healthcare employers with at least 50 employees with the goal of offering at least one employee influenza or Tdap adult vaccination event during 2012-13.
3. Work with community health centers to expand their adult influenza and/or Tdap immunization services by at least one event or activity during 2012-13.
4. Work with healthcare institutions to improve healthcare worker influenza vaccination rates with a goal of increasing coverage by 10% compared to the institutions' 2011-12 baselines.
5. Work with long-term care facilities (LTCF) to increase healthcare worker influenza vaccinations by 10% compared to facilities' 2011-12 baselines.

The project period was approximately one year. LPHAs began their work with local partners on July 16, 2012 and completed their activities on June 30, 2013.

Findings: LPHAs met the minimum targets for engaging three of the five partners in the adult special project. LPHAs were most successful at recruiting employers, healthcare institutions, and pharmacies. Targets for community health centers and long-term care facilities were not met. Overall, LPHAs engaged 635 of the 819 potential project partners contacted, for a participation rate of 78%.

LPHAs conducted 833 activities across the following five intervention categories: presentations and in-services; ALERT IIS assessments; educational materials distribution; partner incentives; vaccination events; and promotional activities. Vaccination events were the most frequently used intervention; 3,250 Tdap and 10,387 flu vaccinations were administered to adults during the project period. Participating counties experienced 9% and 31% increases, respectively, in adult flu and Tdap immunizations compared to non-participating counties.

Pharmacies: A four-fold increase in the number of new pharmacy users occurred over the project period. The number of pharmacy sites entering doses in ALERT IIS decreased minimally (n=4), but the number of adult immunizations entered in ALERT IIS by pharmacies increased by 67,299 doses. Also, the number of adult doses administered by pharmacies rose by 9,830 and 54,758 doses, respectively, for adult Tdap and influenza vaccinations. Both of these increases exceed the 10% target set in the project's objective for pharmacies.

Employers: More vaccination clinics (234) were held with employers (214) than were held with all of the other partners combined. As a result, the project met its objective of having employers hold at least one vaccination event.

Community Health Centers: Although LPHAs worked with 63 community health centers (CHC), the project target for the group was not met. Limited CHC staff time was a barrier to participation.

Healthcare Institutions: Among participating counties, the hospital (n=43) healthcare worker vaccination rate remained steady at 76% between 2011-12 and 2012-13. Among non-participating counties, hospital (n=13) healthcare worker vaccination rates increased 17% over the same time period, from 62% to 79%. The project objective of a 10% increase in participating counties was not met, but these rates surpassed the interim Healthy People 2015 goal of 75%.

Long-Term Care Facilities: The LTCF (n=89) healthcare worker flu vaccination rate rose by 9% over the project period, from 52% to 61%. This change did not quite meet the project objective of a 10% increase. Among non-participating counties, however, the LTCF (n=49) rate rose by only one percent, from 49% to 50%.

Conclusions: LPHAs can be agents for change when given the resources to work with local partners. Participating counties conducted over 800 activities with 635 partners during the one year intervention period. These activities were performed by 16.3 FTE in 32 counties at a final cost of $1,356,373. Factors external to the project were also working to increase adult immunization rates and project activities are not likely responsible for improvements seen among pharmacies and hospitals. However, a comparison of participating to non-participating counties suggests a positive effect of project activities on flu and Tdap vaccination rates in the general adult population. Direct medical costs alone for influenza disease among U.S. adults average $10.4 billion annually. Oregon's healthcare system will realize cost savings through continued investments in its adult immunization infrastructure.

BACKGROUND

This document presents the final report for Oregon's Adult Immunization Special Project (AISP). The Oregon Immunization Program (OIP) was awarded $1.8 million for the project in June 2012 by the Centers for Disease Control and Prevention/National Center for Immunizations and Respiratory Diseases (CDC/NCIRD) through the Prevention and Public Health Fund (PPHF). PPHF was designed to assist states in transitioning to an environment of expanded insurance coverage for adult immunizations under the Affordable Care Act. Adult project awardees were required to work with pharmacies and employers but could also chose to work with healthcare personnel, community health centers, and clients of sexually transmitted diseases and substance abuse clinics. Oregon chose to work with pharmacies, large non-healthcare employers, community health centers, healthcare institutions, and long-term care facilities.

For many years, OIP has actively promoted adult immunizations. Examples of its efforts include:

- Using Section 317 vaccine funds to enable local health departments (LHDs) to vaccinate high-risk adults
- Pioneering the billing of health plans for insured adults receiving immunization services at public clinics
- Coordinating the Health Care Legislative Workgroup to Immunize Health Care Workers
- Increasing access to immunizations by partnering with the pharmacy profession on legislation, vaccination protocols, and student internships (e.g., Oregon Board of Pharmacy, Pacific University School of Pharmacy, corporate and private pharmacists)
- Providing a full-time staff member to serve as the adult immunization coordinator

Despite these efforts, Oregon's adult immunization rates in the general population have remained low. The CDC's influenza vaccination coverage rate for Oregon adults (18 years of age and older) during the 2011-12 season was 36.1%.[1] The influenza vaccination rates among Oregon's healthcare workers in hospitals and long-term care facilities, for the 2011-12 season, were higher at 69% and 51%,[2] respectively, but still well below the Healthy People 2020 target of 90%[3].

To improve these rates, OIP sought to strengthen the adult immunization infrastructure by aiding LPHAs in reaching out to current and new partners. Specifically, the goal of AISP was to strengthen the adult immunization infrastructure in Oregon in order to increase the rate of adult influenza and Tdap vaccinations. These two vaccinations were chosen because of the epidemiology of flu and pertussis in Oregon. Oregon awarded funds to 32 of its 36 counties to

carry out project activities. Four counties (two large and two small) opted-out of the project and two sets of counties (6 total) worked jointly on the project (see Appendix A). (The individual and partnering counties are heretofore called the 28 participating LPHAs.) The participating counties expended $1,356,373 of the $1,445,511 distributed to them.

The principle evaluation questions for this project were:

1. How many and what type of partners participated in the project?
2. What were the challenges and successes around working with partners to strengthen the adult immunization infrastructure, including the reasons why some partners did not or could not participate?
3. Did the project increase adult Tdap and influenza vaccination rates?

The project's logic model can be found in Appendix B. Also included in this report are summaries about how portions of the PPHF funding was used for enhancements to the ALERT Immunization Information System (IIS) and to purchase vaccine, storage and handling equipment for the Oregon Department of Corrections and Oregon State Hospital. These summaries are presented in Appendices C and D, respectively.

OBJECTIVES

OIP selected the following five objectives to achieve the project's goal. LPHAs were to:

1. Establish partnerships with pharmacies to initiate or increase the number of doses of influenza and/or Tdap immunizations given to adults by 10% or more compared to the pharmacies' 2011-12 baselines.
2. Develop or improve relationships with non-healthcare employers with at least 50 employees with the goal of offering at least one employee influenza or Tdap adult vaccination event during 2012-13.
3. Work with community health centers to expand their adult influenza and/or Tdap immunization services by at least one event or activity during 2012-13.
4. Work with healthcare institutions to improve healthcare worker influenza vaccination rates with a goal of increasing coverage by 10% compared to the institutions' 2011-12 baselines.

5. Work with long-term care facilities (LTCF) to increase healthcare worker influenza vaccinations by 10% compared to facilities' 2011-12 baselines.

METHODS

This section presents the methodology used to evaluate the project. A quasi-experimental design with non-equivalent comparison groups was used for outcome measures such as vaccination rates. That is, pre- and post-measures were taken on groups that likely did not include the same individuals at each point in time. The target population was adults, 19 years of age and older.

Partner Selection: The minimum number of partners that LPHAs were required to work with was based on county population (see Appendix A). These partners were from the five categories listed below. LPHAs were free to choose their partners from within these categories as long as the minimums were met.

1. Pharmacies (retail or independent)
2. Non-healthcare employers with at least 50 employees
3. Community health centers, including Federally Qualified Health Centers and rural health clinics
4. Healthcare institutions, including hospitals; offices of physicians, dentists and other health care practitioners; home health care services; outpatient care centers; medical and diagnostic laboratories; other ambulatory health care services; and nursing care facilities. LPHAs were asked to approach hospitals first.
5. Long-term care facilities, including chronic acute care facilities, skilled nursing facilities, nursing homes, assisted living, residential care, and group homes

Variable Definition: Appendix E presents a measurement chart for each of the project's five objectives. In general, across the objectives, the selected measures included the type and number of partners engaged, the type and number of vaccination activities and events conducted, Alert IIS access, and the change in vaccination rates. For healthcare worker vaccination rates, employee was defined as all persons who received a paycheck from the healthcare institutions, whether or not they have direct patient care duties[4]. The following vaccines were examined for the change in vaccine type administered by pharmacists: pneumococcal, Tdap, flu, Zoster, HPV, meningococcal, hepatitis A, and hepatitis B.

The CDC asked awardees to examine specific outcome measures (see Tables 3-6), many of which were the same as OIP's measures. OIP defined pharmacist, however, as pharmacy users, which is a variable used by ALERT IIS. A pharmacy user can be either a pharmacist or a pharmacy technician.

Data Collection: LPHAs submitted monthly reports to OIP (see Appendix F). These reports included information about project activities, expenditures, and qualitative information about the challenges and success associated with the project. LPHA activities were summarized at the project's mid-point (December 2012) to see if they were on track to meeting the minimum targets and objectives. A summary table of the LPHAs status at the mid-point is presented in Appendix G.

Data Sources: Baseline and follow-up vaccine administration data and partner vaccination reporting status were obtained from the ALERT IIS for local pharmacies and community health centers. Information about vaccination events held by employers and community health centers was derived from the monthly LPHA reports. Healthcare worker influenza vaccination rates for healthcare institutions and long-term care facilities were taken from Oregon's annual influenza vaccination survey of healthcare workers[2, 4]. LPHAs were given a report containing baseline data about their CHCs, hospitals and LTCFs to help them target their interventions (see example report in Appendix H).

Timeframe: The project period was approximately one year. LPHAs began their work with local partners on July 16, 2012 when they received notification that their project agreements with OIP had been approved. LPHAs completed the activities on June 30, 2013.

INTERVENTION

Oregon's approach for the interventions differed from that of other PPHF awardees. That is, Oregon's LPHAs were given the autonomy to determine, with their partners, what interventions would best help them meet the project's objectives. The rationale behind this approach was that LPHAs are the most knowledgeable about their communities. They also know how to best tailor interventions to meet their partners' and the project's needs. This approach, however, results in the methodological limitation that the selected interventions were not implemented in a similar fashion across the participating counties. Oregon decided, however, that supporting the LPHAs' work with partners was more important than the methodological rigor in which the interventions were implemented. The LPHAs were encouraged to consider the evidence-based interventions recommended by the CDC (see Appendix I) in the selection of their interventions.

The interventions that participating LPHAs conducted solely with their partners were classified into the six categories below. Activities in the sixth category were also conducted with partners, but because of their promotional nature, were treated as a separate community-wide intervention.

1. **Presentations and in-services:** LPHAs gave formal presentations and trainings to partners on the topic of adult vaccinations

2. **ALERT IIS assessments:** LHPAs talked to partners about whether and how they were using the ALERT IIS, and helped them with training and access, as needed.

3. **Educational materials distribution:** LPHAs and their partners distributed materials such as flyers, posters, inserts, pamphlets and educational packets.

4. **Partner incentives:** LPHAs and their partners used gift cards as incentives during vaccination campaigns. For example, gift cards were used when hospital units competed to have the highest number of staff immunized against influenza.

5. **Vaccination events:** LPHAs worked with their partners to conduct onsite or offsite Tdap and influenza vaccination clinics for people affiliated with project partners (e.g., employees, clients, residents, patients). LPHAs also connected pharmacies with employers or they helped partners set up referral systems between each other.

6. **Promotional activities:** LPHAs worked with partners to promote adult immunizations via TV and radio public service announcements (PSAs), press releases, newspaper articles, TV and radio interviews, ads (buses, billboards, and other outlets), and social media.

OIP also purchased 16,000 doses of Tdap vaccine with CDC end-of-year funds to support LPHA intervention efforts. Before the start of the project, LPHA stated that they needed vaccine to entice partners to participate. This supply of vaccine was allocated to all Oregon counties, regardless of project participation status, and they could only be administered to uninsured adults, 19-64 years of age.

DATA ANALYSIS

Simple statistics (i.e., frequencies, proportions) were used to describe outcome measures related to the number and type of partner engaged, the number and type of vaccination events held, and number of partners gaining training on or access to ALERT IIS.

The change in influenza immunization rates among hospital and LTCF personnel was determined by comparing baseline and intervention year rates from the Oregon Health Authority annual healthcare worker influenza vaccination surveys[2, 4]. The numerator for these rates was the number of vaccinated employees, and the denominator was the total number of employees minus those with medical contraindications to influenza vaccines.

The original data analysis plan called for calculating changes in flu and Tdap vaccination rates with partner denominator data (e.g., total pharmacy and CHC clients served). However, some of denominator and vaccine administration data were not collected by the LPHAs or the data were otherwise deemed unreliable. In addition, the promotional activities intervention likely influenced the uptake of adult immunizations outside of the partner groups as did the allocation of the special project Tdap vaccine. To minimize the bias stemming from these influences, the analysis of flu and Tdap vaccination rates among adults in the general population was conducted at the macro (county) level. Data from the Alert IIS were used for this purpose because these data are considered reliable and valid. Flu and Tdap vaccination reporting into ALERT IIS, however, has been improving over time. To account for this reporting increase, vaccinations were compared among participating and non-participating counties. Rate ratios were calculated by dividing the influenza or Tdap vaccination rate for 2012-13 by the rate for 2011-12 within and between participating and non-participating counties. The value above or below one in these ratios indicates the percent change in rates over time. Confidence intervals (95%) were calculated around the rate ratios.

RESULTS

The first portion of this section presents the results for the project regarding its targets for engaging partners and the impact of the project on flu and Tdap vaccination rates. The remaining sections present the results for each partner category. A discussion of the results follows each of those sections.

As Table 1 indicates, participating LPHAs met the minimum targets for engaging three of the five partners in the adult special project. LPHAs were most successful at recruiting employers followed by healthcare institutions and pharmacies. The targets for community health centers and long-term care facilities were not met; 15 additional CHCs and 14 more LTCFs were required to meet these minimum targets. Overall, however, LPHAs engaged 635 of the 819 potential project partners contacted, which reflects a participation rate of 78%.

LPHAs conducted a total of 833 activities across the first five intervention categories (see Table 2). Vaccination events were the most frequently used intervention and incentives were used the least often. LPHAs reported that 3250 Tdap and 10,387 flu vaccinations were administered during vaccination events with partners.

Change in County-Level Vaccination Rates: The adult flu vaccination rate ratio for participating counties was 1.54 (95% CI, 1.53-1.55) when the 2012-13 rate was compared to the baseline 2011-12 rate. For non-participating counties, the rate ratio was 1.42 (95% CI, 1.41-1.43). A comparison of these two ratios results in a rate ratio of 1.09 (95% CI, 1.07-1.10). This finding indicates that participating counties had a 9% greater increase in adult flu immunizations than non-participating counties during the intervention period.

The total number of adult Tdap immunizations reported to ALERT IIS in participating counties (85,524) increased substantially compared to non-participating counties (58,588) across the two-year period. A ratio of 1.31 (95% CI, 1.29-1.33) was found when the rate ratios for intervention and baseline years were compared for participating and non-participating counties. This finding indicates that participating counties experienced a 31% greater increase in adult Tdap immunizations than non-participating counties.

Discussion: The project successfully met three of its five targets for working with partner groups. In addition, adult flu and Tdap vaccination rates increased in the general adult population in participating counties. Challenges about engaging specific partners groups will be discussed in the following sections. However, the fact that 78% of contacted potential partners engaged in project activities suggests that these businesses and organizations consider the topic of adult immunizations to be important and they respect their LPHAs as partners. Additional successes noted by LPHAs about the project include:

- Benefits around reaching out to new or overlooked partners
- Public Health being viewed as local experts and a resource
- Positive reception by partners
- Starting new initiatives together (e.g., local immunization coalitions, outreach to uninsured workers)
- Potential for future outreach and engagement

Pharmacies: Eighteen of the 28 participating LPHAs (64%) met their individual targets for engaging pharmacies. The vast majority (91%) of these were retail pharmacies. As indicated in

Table 2, LPHAs used four of the five interventions in their efforts to support pharmacies in increasing the number of influenza and Tdap doses given to adults. LPHAs reached out to pharmacies most frequently around the use of ALERT IIS. They also worked with them on distributing educational materials and in holding vaccine events.

Table 3 indicates that there was over a four-fold increase in the number of new pharmacy users; that is, 235 pharmacy users were enrolled during 2011-12 and 1082 were enrolled the following year. Every new user is required to complete an online ALERT IIS training before they can begin using the system so we can assume that 100% of these users were trained. The number of pharmacy sites entering doses in ALERT IIS decreased minimally (n=4), but the number of adult immunizations entered in ALERT IIS by pharmacies increased by 67,299 doses. Regarding the type of vaccines provided, pharmacies began administering pneumococcal vaccinations to adults in 2012-13 in addition to Tdap, flu, Zoster, HPV, meningococcal, hepatitis A, and hepatitis B. As seen in Figure 1, the number of doses administered by pharmacies rose by 9,830 doses for Tdap and 54,758 doses from baseline to the project period. Both of these increases exceed the 10% target set in the project's objective for pharmacies.

Discussion: Although impressive increases in the number of new ALERT IIS users and vaccinations administered occurred among pharmacies during the intervention period, it cannot be said that adult special project was responsible for them. Many factors external to the project likely had a greater impact on the findings than LPHA efforts with pharmacists. These factors include the following:

- Ongoing, concerted effort by Oregon's ALERT IIS team to enroll pharmacy users in the system
- Administrative rule changes (effective 1/1/12) requiring pharmacists to report immunizations to the ALERT IIS
- Passage of Senate Bill 167 (2013) that authorizes pharmacists to vaccinate persons age 3 or older during an emergency
- Update to Oregon's pharmacy vaccination protocols for immunizations requiring pharmacists to use the ALERT IIS to determine a patient's vaccine history and to forecast needed vaccines (announced in 5/14 with an implementation date no later than 1/1/14)

The adult special project was instrumental, however, in improving communications between pharmacies and LPHAs. Early in the project, LPHAs realized that many pharmacies did not have access to the internet, and therefore, could not access ALERT IIS. As a result, LPHAs and OIP began communicating with regional and corporate pharmacy chain representatives to gain access for pharmacies. These early conversations laid the groundwork for the future

requirement, as stated in revised pharmacy vaccination protocols, that pharmacies use ALERT IIS to look up and forecast clients' needed vaccinations. A recommendation for future projects would be to communicate with corporate representatives for retail pharmacies before the start of the project to prevent delays in initiating project activities.

Employers: Twenty seven of 28 (96%) participating LPHAs met their individual targets for engaging large non-healthcare employers. Overall, LPHAs engaged 214 employers, or 79% of those contacted. Private industry (34%), educational entities (31%) and county government agencies (16%) made up the majority of businesses who participated in the project.

As shown in Table 2, all intervention types were conducted with employers but the most frequent was vaccination events. More vaccination clinics were held with employers than were held with all of the other partners combined; 234 vaccination events were held among the 214 employers. This indicates that the project met its objective of having engaged employers hold at least one vaccination event. In addition, 7342 flu and 2586 Tdap vaccinations were administered during these events. This accounts for 71% and 80%, respectively, of the all the reported flu and Tdap vaccinations administered during project.

Discussion: Anecdotally, LPHAs expressed doubt at the beginning of the project that employers would want to work with them on project activities. The large number of vaccination events held, however, and the impressive number of vaccinations administered indicated that LPHAs were very successful with employers. One challenge for small (by population) counties was finding employers with 50 or more employees. This was remedied by grouping small employers under one business type. That is, for example, multiple small childcare businesses were treated as one large business for a county. Future similar projects should include businesses of all sizes.

Community Health Centers:

Nineteen (68%) of the participating LPHAs met their individual targets for engaging community health centers. In total, 63 CHCs were engaged in the project. As shown in Table 2, it was most common for LPHAs to work with CHCs on distributing adult immunization educational materials. Sixteen vaccination events were also held with CHCs. The proportion of CHCs reporting adult immunizations to ALERT IIS rose slightly from 81% to 82% during the project.

Discussion: In contrast to businesses, LPHAs thought that CHCs would be the easiest to work with on project activities because of the established relationships they had with them. In reality, however, CHCs were the most difficult partners to engage. LPHAs were told by CHCs that they were too busy. This may be the reason why LPHAs had the most success working with CHCs on distributing educational material but could conduct few of the other interventions, which are more time consuming. Future projects may need to consider other incentives to

entice CHCs in adult immunization work. This might include giving funds to CHCs to cover staff time for project activities.

Healthcare Institutions:

Sixteen (57%) of the 28 participating LPHAs met their individual targets for engaging healthcare institutions. Overall, 133 healthcare institutions participated in the project, and all five interventions were used with these partners. LPHAs worked most frequently with healthcare institutions on distributing educational material and conducting vaccination events. Only pharmacies were engaged more often in the project around ALERT IIS activities.

Among participating counties, the hospital (n=43) healthcare worker vaccination rate remained steady at 76% between 2011-12 and 2012-13. Among non-participating counties, hospital (n=13) healthcare worker vaccination rates increased 17% in the same time period, from 62% to 79%. Statewide, the rate for influenza vaccinations among hospital (n=60) healthcare workers increased from 69% in the 2011-12 influenza season to 77% in 2012-13 season. Although the project objective of a 10% increase in hospital healthcare worker vaccination rates was not met, 2012-13 rates statewide, and among participating and non-participating counties, surpassed the interim Healthy People 2015 goal of 75%[3].

Discussion: It is unclear why hospitals in participating counties began with higher healthcare worker vaccination rates that those in non-participating counties. As with pharmacists reporting vaccinations to ALERT IIS, however, factors external to the adult special project likely had a greater influence on the uptake of influenza vaccination among hospital healthcare workers than the adult special project. Hospitals held extensive vaccination campaigns that included the following activities[4]:

- All Oregon hospitals provided no cost vaccines
- 75% of hospitals had centralized mass vaccination fairs
- Mobile carts (85%), peer vaccination (80%), vaccination in congregate areas (85%), and vaccination at occupational health clinics (73%) were used as delivery methods by hospitals

Also, effective July 1, 2012, The Joint Commission revised standard IC.02.04.01[5], which strengthened the requirement for hospitals to immunize licensed independent practitioners and staff against influenza. The revised standard asks hospitals to set incremental goals for reaching the Healthy People 2020 objective of a 90% influenza immunization rate among healthcare workers.

One of the main challenges LPHAs reported was that potential hospital partners said they did not need LPHA assistance given the activities they were already conducting around healthcare worker vaccinations. Future adult immunization projects might focus on other healthcare institutions that have not yet reach the interim Healthy People 2015 objective. LTCFs are one such candidate, as will be shown in the next section.

Long-term Care Facilities:

Seventeen (61%) of the 28 participating LPHAs met their individual targets for engaging long-term care facilities. Overall, 101 LTCFs participated in the project. Vaccination events, education materials and presentations were the most frequent interventions conducted by LPHAs and LTCFs during the project.

Among participating counties, the change in LTCF (n=89) healthcare worker flu vaccination rates between the baseline and intervention years was 9%, rising from 52% to 61%. Among non-participating counties, the LTCF (n=49) rates rose by one percent, from 49% to 50%. Like hospitals, the statewide rate for influenza vaccinations among LTCF (n=139) healthcare workers demonstrated an increase from the 2011-12 influenza season to the 2012-13 season (51% and 57%, respectively). The current rate, however, is well below the Healthy People 2015 goal of 75%.

Discussion: LPHAs noted several challenges in working with LTCFs around adult immunizations. One of these is the expectation that LPHAs should provide and administer vaccine to LTCF clients and staff. LPHAs suggested that until influenza vaccination are required by law, LTCF management will not readily take on the responsibility for immunizations. Another challenge is the erroneous beliefs LTCF healthcare personnel hold about immunizations. LPHAs conducted a number of educational activities with LTCFs, in part, to help dispel these myths.

LTCFs may hold the greatest potential for future partnering with LPHAs around adult immunizations. Although the revised Joint Commission requirement is also directed at LTCFs, these facilities have taken limited action to address their immunization rates. As noted in Oregon's healthcare worker survey report, only 75% of LTCFs provided no cost vaccine to their healthcare workers during the 2012-13 influenza season. Few also used the various flu vaccination delivery methods to immunize their personnel: mobile carts (15%); centralized mass vaccination fairs (29%); peer vaccination (55%); vaccination in congregate areas (59%); and vaccination at occupational health clinics (5%).

As part of its adult grant work, Utah conducted site visits with LTCFs, initially targeting those that had the worst immunization rates[6]. The site visits consisted of the following components:

- Adult immunization recommendation education

- LTCF guidebook, Pink Book, temperature logs, policy prototype, standing order prototypes, storage and handling information
- Immunization tracking options
- Employee and resident immunization rate comparisons
- IIS demonstrations (access and training, if requested)
- Thermometers, if needed
- $400 reimbursement for better refrigerators, if needed

Future funding could be directed toward a similar effort in Oregon, capitalizing on existing relationships between LPHAs and LTCFs.

CONCLUSIONS

LPHAs can be agents for change when given the resources to work with local partners. Participating counties conducted over 800 activities with 635 partners during the one year intervention period. These activities were performed by 16.3 FTE in 32 counties at a cost of $1,356,373. Factors external to the project were also working to increase adult immunization rates. However, a comparison of participating to non-participating counties suggests a positive effect of project activities on adult flu and Tdap vaccination rates in the general adult population and for flu vaccination among long-term care facility healthcare workers. Direct medical costs for influenza disease alone in U.S. adults average $10.4 billion annually[7]. Oregon's healthcare system will realize cost savings through continued investments into its adult immunization infrastructure.

TABLES AND FIGURES

Table 1. Number and Percent of Partners Engaged in Project

	Pharmacies	Employers	CHCs	Healthcare	LTCFs	Total
Target number	117	116	78	117	116	544
Number engaged	123	214	63	133	102	635
% of target met	**105%**	**184%**	**81%**	**114%**	**88%**	**117%**

Table 2. Number and Type of Intervention, by Partner

	INTERVENTION				
PARTNER	**Presentations**	**ALERT IIS**	**Educational Materials**	**Incentives**	**Vaccination Events**
Pharmacies	2	57	33	0	14
Employers	35	4	91	7	234
Community Health Centers	2	9	36	4	16
Healthcare Institutions	18	35	53	13	37
Long-term Care Facilities	35	1	45	3	49
Total	**92**	**106**	**258**	**27**	**350**

Table 3. Pharmacy Shared Outcome Measures

Shared Outcome Measure	**Associated Intervention (describe in <25 words)**	**Baseline measurement** (2011-2012)	**Post-intervention measurement** (2012-2013)
Number of pharmacists trained in using registry	Interventions 1-5 as described on page 5	235	1082
Number of pharmacies who entered doses administered into registries	Interventions 1-5 as described on page 5	348	344
Number of doses entered into registry by pharmacies/pharmacists	Interventions 1-5 as described on page 5	214,475	281,774
Types of vaccines provided by pharmacies	Interventions 1-5 as described on page 5	7	8
Proportion of pharmacists trained to administer vaccines	No intervention conducted specific to training pharmacists on vaccine administration	44%	49%

Figure 1. Change in Pharmacy Doses Reported

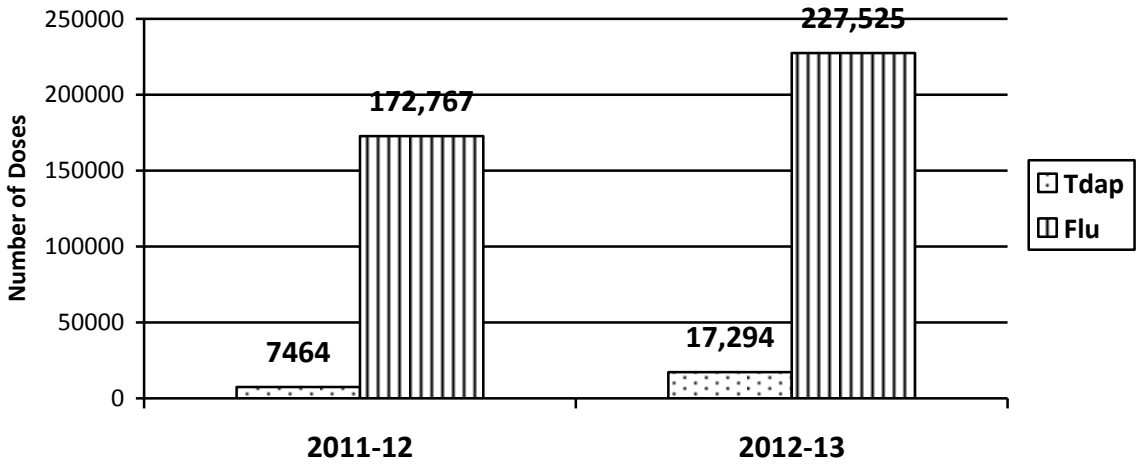


Table 4. Employer Shared Outcome Measures

Shared Outcome Measure	Associated Intervention (describe in <25 words)	Baseline measurement	Post-intervention measurement
Number of employers or worksites having an on-site flu vaccination clinic	Intervention #5 as described on p. 5	unknown	234
Usefulness of tool kits	Not used in project	n/a	n/a

Table 5. Community Health Centers Shared Outcome Measures

Shared Outcome Measure	Associated Intervention (describe in <25 words)	Baseline measurement	Post-intervention measurement
Proportion of CHC sites reporting adult vaccine doses administered via IIS	Intervention #2 as described on p. 5	81%	82%
Proportion of CHC sites provide vaccines to adults by vaccine type	Intervention #5 as described on p. 5	100% for all types	100% for all types
Proportion of CHC with	Not used in project	n/a	n/a

standing orders and/ or reminder recall systems for adult vaccines			

Table 6. Healthcare Personnel Shared Outcome Measures

Shared Outcome Measure	Associated Intervention (describe in <25 words)	Baseline measurement	Post-intervention measurement
Proportion of hospital-based HCP vaccinated against influenza	Interventions 3-5 as described on p. 5	77%	77%
Proportion of LTCF HCP vaccinated against influenza	Interventions 1, 3-5 as described on p. 5	56%	64%

REFERENCES

1. Centers for Disease Control and Prevention, *State-level cumulative influenza vaccination coverage estimates for the 2011-12 season, United States, May 2012.* Available at: http://www.cdc.gov/flu/professionals/vaccination/reporti1112/reportii/index.htm, last accessed August 25, 2014.

2. Oregon Health Authority, Office of Health Policy and Research, *Healthcare Acquired Infection Reporting Program Healthcare Worker Influenza Vaccination Rates: 2011-2012 Season.* Available at: http://public.health.oregon.gov/DiseasesConditions/CommunicableDisease/HAI/Documents/FluVacc_Report_2013.pdf, last accessed August 25, 2014.

3. HealthyPeople.gov, *Immunization and Infectious Diseases*, available at: http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=23, last accessed August 25, 2014.

4. Oregon Health Authority, Acute and Communicable Disease Prevention, *Healthcare Acquired Infection Reporting Program Healthcare Worker Influenza Vaccination Rates: 2012-2013 Season.* Available at: http://public.health.oregon.gov/DiseasesConditions/CommunicableDisease/HAI/Documents/FluVacc_Report_2013.pdf, last accessed August 25, 2014

5. T. Kurtz, *Presentation to the National Vaccine Advisory Committee*, U.S. Department of Health and Human Services, The Joint Commission, Feb. 6, 2013. Available at: http://www.hhs.gov/nvpo/nvac/meetings/pastmeetings/2013/joint_commission_feb2013.pdf, last accessed August 25, 2014

6. C. Shurtliff, *Utah PPHF Adult Immunization Grant Update*, CDC/NCIRD Reverse Site Visit Presentation, Atlanta, GA, November 2012

7. Molinari, N. et al. The annual impact of seasonal influenza in the US: Measuring disease burden and costs, Vaccine: 25 (2007), 5086-96. Available at: http://download.thelancet.com/flatcontentassets/H1N1-flu/epidemiology/epidemiology-14.pdf, last accessed August 25, 2014

APPENDIX A
REQUIRED NUMBER OF PARTNERSHIPS BY COUNTY

COUNTY	PHARMACIES	NON-HEALTHCARE EMPLOYERS	COMMUNITY HEALTH CENTER	HEALTHCARE INSTITUTIONS	LONG-TERM CARE FACILITIES
Baker	2	2	2	2	2
Benton	4	4	1	4	3
Clackamas	10	10	3	10	10
Clatsop	3	3	2	3	3
Columbia	3	3	2	3	2
Coos	4	3	2	4	4
Crook	3	3	1	3	3
Curry	2	2	3	2	2
Deschutes	6	6	2	6	6
Douglas	6	6	2	6	6
NE Central & Hood River (4 counties)[1]	3	3	7	3	3
Grant	1	1	na	1	1
Harney	1	1	na	1	1
Jackson & Josephine[1]	12	12	7	12	12
Jefferson	3	3	1	3	3
Klamath[2]	--	--	--	--	--
Lake[2]	--	--	--	--	--
Lane	10	10	9	10	10
Lincoln	3	3	11	3	3
Linn	6	6	1	6	6
Malheur	3	3	4	3	3
Marion	10	10	6	10	10
Morrow	2	2	1	2	2
Multnomah[2]	--	--	--	--	--
Polk	4	4	1	4	4
Tillamook	3	3	4	3	3
Umatilla	4	4	2	4	4
Union	3	3	2	3	3
Wallowa	1	1	na	1	1
Washington[2]	--	--	--	--	--
Wheeler	1	1	1	1	1
Yamhill	4	4	1	4	4
TOTAL	**117**	**116**	**78**	**117**	**116**

[1]Two sets of counties are collaborating on the project. Hood River County is working with Wasco, Sherman, and Gilliam Counties (North Central Health District), and Jackson County is working with Jefferson County; [2]County opted-out of the project; na – County does not have a community health center

APPENDIX B

<table>
<tr><th colspan="5">ADULT IMMUNIZATION SPECIAL PROJECT LOGIC MODEL</th></tr>
<tr><td colspan="5">Problem Statement: Oregon adult immunization rates are below public health targets

Project Goal: Increasing adult immunization rates through the strengthening of the local adult immunization infrastructure</td></tr>
<tr><th colspan="5">RESOURCES</th></tr>
<tr><td colspan="5">Local public health authority (LPHA) staff

Federal funding to LPHAs via OIP

Oregon Immunization Program subject matter experts

Local employers and providers interested in adult immunizations</td></tr>
<tr><th>Activities</th><th>Outputs</th><th>Short-Term Outcomes</th><th>Intermediate Outcomes</th><th>Long-Term Outcomes</th></tr>
<tr><td>Hire or assign staff to coordinate project</td><td>Number of FTE in participating counties</td><td>Improved LPHA focus on adult immunizations</td><td>Greater workplace support for adult immunizations</td><td>Institutional knowledge about adult immunizations</td></tr>
<tr><td>Contact and engage local partners</td><td>Number of contacts made with local employers and providers</td><td>Establishing relationships with existing and new partners</td><td>Partners rely on LPHAs as subject matter experts in planning activities</td><td>Partners view LPHAs as resource for future workplace immunizations</td></tr>
<tr><td>Support and train local partners</td><td>Number of immunization activities among partners</td><td>Higher amounts of seasonal influenza and Tdap vaccines</td><td>Improved local immunization rates</td><td>Activities building immunization infrastructure</td></tr>
<tr><th colspan="2">Rationale</th><th colspan="3">Assumptions</th></tr>
<tr><td colspan="2">• Improving adult immunization rates will lead to decrease disease rates and lower healthcare costs
• Building herd immunity protects the community as well as individuals who get immunized</td><td colspan="3">• LPHAs are capable of building effective local partnerships
• Local public-private partnerships can strengthen the adult immunization infrastructure
• Building the adult immunization infrastructure leads to higher immunization rates
• Further improvements in adult immunization rates depend on non-individual factors such as improving the availability of workplace immunizations</td></tr>
</table>

APPENDIX C
ALERT IIS Enhancements

In the fall of 2013, the Oregon Immunization Program (OIP) was awarded supplemental Sentinel Site Pandemic Preparedness and Response funds to support a targeted outreach effort to adult immunization providers. This effort focuses specifically on long term care facilities, OB/GYN practitioners, employee health providers, mass immunizers, and late-adopter specialty hospital providers. The following activities are being conducted:

1. Further develop and leverage ALERT's tools for assessing complete provider participation
2. Provide training for and outreach to non- or inconsistent routine adult immunization providers
3. Target associations and/or parent organizations that have the capacity to encourage or facilitate participation on behalf of their member organizations.

To ensure that Oregon's ALERT IIS has both the technical and human resource capacity to provide adequate end-user support, OIP asked CDC for permission to use $130,000 in unspent Adult Immunization Special Project grant funds to develop a more sophisticated interface between ALERT IIS software and Oregon's onboarding/contact management software, which is entitled Partner Organization Services Tracking system, or POST. Specifically, some of the most time-consuming processes were automated to improve the end-user experience. These include password resets and the onboarding website and procedures for new site enrollment and configuration. The improved interface would allow ALERT IIS to meet the increased demand of onboarding and supporting newly recruited adult immunization providers, who represent a significantly larger proportion of end users on the ALERT IIS system. Through leveraging automation, end users could complete much of the onboarding process independently before they begin working with an ALERT IIS analyst. This would allow analysts to provide help with the more complex aspects of onboarding, while supporting its current user base and expanding the remaining adult provider base without adversely impacting the system's level of end-user support.

The following sections described the enhancements made to the ALERT IIS.

Password Reset:

This function allows ALERT IIS users to reset their system password without the assistance of the ALERT IIS Help Desk. Currently, when a user cannot remember their password or locks their user account with three unsuccessful login attempts, they place a call to the ALERT IIS Help Desk to have their password

reset. Now users will be able to reset their passwords without intervention from the ALERT IIS Help Desk. All users will be required to establish security challenge questions for their account.

Upon initial login after the implementation, users will be required to establish security challenge questions and answers for their account. A new 'Establish Security Q & A' screen will be added to the system. This screen will allow the user to select three different security questions from a dropdown list. The user will also provide answers to the security questions within the established guidelines specified in the detailed solution. In addition, new users that are added to ALERT IIS will also be required to set up security questions and answers upon initial login to the system.

In order to start the password reset process, a 'forgot password?' link will be added to the ALERT IIS login screen. Selecting the 'forgot password?' link will navigate the user to the 'User Information' screen. This screen will require the user to enter their Org Code, Username, and email address associated with their ALERT IIS account. If a user enters their information successfully, they will be prompted with an informational message that an email has been sent to their email address. If the user enters their information incorrectly, they will receive an error message indicating that the Org Code, Username, or Email address is invalid, and the user will not receive the password reset email. All three fields must validate correctly in order to be considered a successful submission.

An email link will be generated and sent to the email address associated with the user's ALERT IIS account. The email will contain a link to the 'Challenge Questions' screen. The email link will be available to the user for 24 hours. If the user clicks the link after 24 hours they will receive an error message that the link is expired. If the email link expires before the user completes the security challenge questions, they will need to repeat the password reset process.

The 'Challenge Questions' screen will randomly display one question from the list the user has already established. The user will have three attempts to successfully answer the one question correctly. If the user is successful they will be navigated to the existing 'Change Password' screen. If the user fails the challenge question three times, they will receive an error message that their user account is locked and instructed to call the help desk or the organization administrator. After these three failed attempts, the password reset for the user will also be disabled in addition to their locked account.

POST Bidirectional Functionality:

Hewlett-Packard created bi-directional functionality between ALERT IIS and POST. OIP uses organization data stored in more than one information system; some data points are common between these systems, whereas other data points are unique to a particular system. Synchronization of common data points, between the ALERT IIS and other systems, is currently handled through an unreliable and labor-intensive combination of manual and semi-automated steps. This synchronization was, instead, automated such that two-way/bi-directional exchange of data may occur through a wholly automated approach.

APPENDIX D
VACCINE STORAGE AND HANDLING PURCHASE

This appendix contains the justification and equipment listing for the purchase of vaccine handling and storage equipment for the Oregon Department of Corrections and the Oregon State Hospital.

The Oregon Department of Corrections (ODOC) has 13 clinic sites and 2 pharmacies across Oregon. They serve high risk adults, male and female. All sites are Vaccines For Children (VFC)/317 certified. They receive many adult vaccines through the Oregon Immunization Program (OIP), including Varicella, Zoster, TdaP, and Hepatitis B.

Vaccine storage and temperature equipment at ODOC sites is timeworn. With a limited health services budget, several clinics have older, non-lab grade refrigerators. None have updated, currently recommended dataloggers with probes in glycol, although they do have older dataloggers. No ODOC clinic has a refrigeration system capable of handling frozen vaccines; we are hoping to include a portable Fridge/Freeze unit for each pharmacy to use when frozen vaccines are needed.

Since April 2013, there have been 5 cases of chickenpox identified at three different ODOC institutions. These cases involved 142 potential contacts needing varicella vaccine either because they have never had the disease or have not been vaccinated. No ODOC clinic has a freezer certified to manage vaccines. In each chickenpox response, OIP and local health departments provided the vaccine, and OIP loaned ODOC a Fridge/Freeze unit to transport and maintain the doses on-site.

ODOC is requesting updated dataloggers for all clinic and pharmacy sites. They also requested undercounter refrigerators and Fridge/Freeze portable units (to transport frozen vaccines to clinic sites where they will be used to maintain varicella and zoster stock during shot clinics and/or other situations where frozen vaccines are required).

Oregon State Hospital's (OSH) Communicable Disease (CD) Program has also requested upgrades to their equipment, as has the Central Pharmacy. OSH is Oregon's inpatient mental health facility for adults. CD staff are responsible for immunizing all OSH staff; the pharmacy is responsible for immunizing all patients. CD Program staff understand they cannot keep vaccine in their department due to the present refrigerator not meeting standards, and due to prior vaccine loss after temperature excursions in the past year. In order to more safely store VFC/317 supplied vaccines, they would like a lab-grade undercounter refrigerator with an alarm to alert security or the pharmacy on-call person about out-of-range temperatures, and

dataloggers with glycol probes. The pharmacy has requested an undercounter refrigerator, and undercounter freezer, and a large lab-grad refrigerator for the new hospital currently under construction.

Any funds left over after the above purchases will be used to acquire new dataloggers with glycol probes to supply to approximately 40 enrolled providers who maintain a focus on immunizing high risk adults. Those providers include several local community jails, non-profit community based clinics serving particular ethnic communities, and FQHC sites currently expanding their access to newly Medicaid-enrolled adults.

VACCINE STORAGE AND HANDLING PURCHASE LINE LISTING

Qty	Item Number	Description	Price	Extended	OSH Salem Pharmacy	OSH Salem IC	OSH Junction City	DOC	Total
11	MR05PA-SEEE-FS	Under the Counter Refrigerator 2C-4C 5.4 cubic feet Warrenty 2year Parts, 1 year Labor	$ 1,950.00	$21,450.00		1	6	4	11
1	ULT430A	Under the Counter Freezer to -30 C. 4.9 cubic feet Warrenty 2 yers parts and labor	$ 4,183.62	$4,183.62	1				1
1	MR49PA-GAEE-FS	49 cubic foot Refrigerator (2 door) +4 C Warrenty- 13 months Parts and Labor	$ 4,962.58	$4,962.58			1		1
16	Lascar # EL-WI-FI-TP	Lascar Temperature Data Logger	$ 170.10	$2,721.60	16		0	0	16
23	Lascar # EL-USB-TC-LCD	Lascar Thermocouple Data Logger w/LCD and USB Interface	$ 132.60	$3,049.80				23	23
39	Lascar # EL-PROBEA-3.0M-TP-GLY	Lascar Glycol Bottles	$ 62.37	$2,432.43	16			23	39
3	TBD	20 Liter FridgeFreeze +10 degrees C to -20 degrees C	$ 3,195.00	$9,585.00				3	3
3	TBD	Fridge Freeze Cart	$ 215.00	$645.00				3	3
97				**$49,030.03**					97

APPENDIX E
MEASUREMENT CHARTS BY OBJECTIVE

1. Establish partnerships with pharmacies to initiate or increase the number of doses of influenza and/or Tdap immunizations given to adults by 10% or more compared to the pharmacies' 2011-2012 baselines

Measure/Variable	Process vs. Outcome	Source of Data	Unit of Analysis	Timing of Measure	Type of Data	Responsible Party
Type and number of pharmacies engaged in the project *Enhancing Access to Immunizations*	Process	LHD monthly report	Pharmacies	Monthly	Nominal for type of pharmacy, interval	LHD project lead
Type and number of vaccination activities and events held by/with pharmacies *Strategies to increase community demand*	Process	LHD monthly report	Pharmacies	Monthly	Nominal for type of activities & events, interval	LHD project lead
Number of pharmacists given access to or training on ALERT IIS *HCP or System Based Strategies*	Process	LHD monthly report & ALERT IIS	Pharmacies	Monthly	Interval	OIP Lead
Baseline and change in adult influenza vaccinations administered and entered into the ALERT IIS by participating pharmacies (2011-12 vs. 2012-13) *Enhancing access to immunizations*	Outcome	ALERT IIS; pharmacy denominator data on adult clients served at site	Adults served by pharmacy	Pre-post measures	Proportion (by pharmacy) – no. of adult clients vaccinated/total number of adult clients seen	OIP project coordinator; ALERT IIS team
Baseline and change in adult Tdap vaccinations administered and entered into the ALERT IIS by participating pharmacies (2011-12 vs. 2012-13) *Enhancing access to immunizations*	Outcome	ALERT IIS; pharmacy denominator data on adult clients served at site	Adults served by pharmacy	Pre-post measures	Proportion (by pharmacy) – no. of adult clients vaccinated/total number of adult clients seen	OIP project coordinator; ALERT IIS team

2. Develop or improve relationships with non-healthcare employers with at least 50 employees with the goal of offering at least one employee influenza or Tdap adult vaccination event during 2012-2013.

Measure/Variable	Process vs. Outcome	Source of Data	Unit of Analysis	Timing of Measure	Type of Data	Responsible Party
Type and number of employers engaged in the project *Enhancing Access to Immunizations*	Process	LHD monthly report & evaluation plan	Employers	Monthly	Nominal for type of employer, frequencies	LHD project lead
Type and number of influenza and Tdap vaccination activities and events held by/with employers *Strategies to increase community demand*	Process	LHD monthly report & evaluation plan	Employers	Monthly	Nominal for type of activities & events, frequencies	LHD project lead
Percent of employees receiving an influenza vaccination during project period *Enhancing Access to Immunizations*	Outcome	Vaccine Administration Records (VARs); employee roster	Adult employees	Post-measure	Proportion (by employer location) – no. of adult employees vaccinated/total number of adult employees	LHD project lead
Percent of employees receiving a Tdap vaccination during project period *Enhancing Access to Immunizations*	Outcome	VARs; employee roster	Adult employees	Post-measure	Proportion (by employer location) – no. of adult employees vaccinated/total number of adults employees	LHD project lead

3. Work with community health centers to expand their adult influenza and/or Tdap immunization services by at least one event or activity during 2012-2013.

Measure/Variable	Process vs. Outcome	Source of Data	Unit of Analysis	Timing of Measure	Type of Data	Responsible Party
Type and number of CHCs engaged in the project *Enhancing Access to Immunizations*	Process	LHD monthly report & evaluation plan	CHC patients	Monthly	Nominal for type of CHC, frequencies	LHD project lead
Demographic characteristics of engaged CHC *(Not an intervention-related measure)*	Process	CHC records	CHC patients	Baseline	Proportions – no. of patients with characteristics over all patients	LHD project lead
Type and number of influenza and Tdap vaccination activities and events held by/with CHCs *Strategies to increase community demand*	Process	LHD monthly report	CHC patients	Monthly	Nominal for type of activities & events, interval	LHD project lead
Number of CHC personnel given access to or training on ALERT IIS *HCP or System Based Strategies*	Outcome	LHD monthly report & ALERT IIS	CHC patients	Monthly	Interval	OIP Lead
Baseline and change in adult influenza vaccination rate of doses entered into the ALERT IIS (2011-12 vs. 2012-13) *Enhancing Access to Immunizations*	Outcome	ALERT IIS; CHC denominator data on adult patients served at site	CHC patients	Pre-post measures	Proportion (by CHC location) – no. of adult patients vaccinated/total number of adult patients	OIP project coordinator; ALERT team
Baseline and change in adult Tdap vaccination rate of doses entered into the ALERT IIS (2011-12 vs. 2012-13) *Enhancing Access to Immunizations*	Outcome	ALERT IIS; CHC denominator data on adult patients served at site	CHC patients	Pre-post measures	Proportion (by CHC location) – no. of adult patients vaccinated/total number of adult pts	OIP project coordinator; ALERT team

4. Work with healthcare institutions to improve healthcare worker influenza vaccination rates with a goal of increasing coverage by 10% compared to the institutions' 2011-2012 baselines.

Measure/Variable	Process vs. Outcome	Source of Data	Unit of Analysis	Timing of Measure	Type of Data	Responsible Party
Type and number of health care institutions engaged in the project *Enhancing Access to Immunizations*	Process	LHD monthly report	Institution	Monthly	Nominal for type of institution, interval	LHD project lead
Type and number of vaccination activities and events held by/with healthcare institution *Strategies to increase community demand*	Process	LHD monthly report	Institution	Monthly	Nominal for type of institution, interval	LHD project lead
Number of healthcare personnel given access to or training on ALERT IIS *HCP or System Based Strategies*	Outcome	LHD monthly report & ALERT IIS	Pharmacies	Monthly	Interval	OIP Lead
Baseline and change in HCW influenza vaccination rate of doses entered into the ALERT IIS (2011-12 vs. 2012-13) *Increasing Vaccination Among Health-care Personnel*	Outcome	Oregon Health Policy & Research (OHPR) survey data ***or***, for institutions not studied by OHPR, chart reviews or EHR data runs	HCWs at each institution	Pre-post measures	Proportion (by institution) – number of HCWs vaccinated/total number of HCW	OIP project coordinator ***or*** LHD project lead for non-OHPR institutions

5. Work with long-term (LTC) facilities to increase healthcare worker influenza vaccinations by 10% compared to facilities' 2011-2012 baselines.

Measure/Variable	Process vs. Outcome	Source of Data	Unit of Analysis	Timing of Measure	Type of Data	Responsible Party
Type and number of LTCs engaged in the project *Enhancing Access to Immunizations*	Process	LHD monthly report & evaluation plan	LTC facility	Monthly	Nominal for type of facility, frequencies	LHD project lead
Type and number of vaccination activities or events held by/with LTCs *Strategies to increase community demand*	Process	LHD monthly report & evaluation plan	LTC facility	Monthly	Nominal for type of facility, frequencies	LHD project lead
Number of LTC personnel given access to or training on ALERT IIS *HCP or System Based Strategies*	Outcome	LHD monthly report & ALERT IIS	Pharmacies	Monthly	Interval	OIP Lead
Baseline and change in LTC employee influenza vaccination rate of doses entered into the ALERT IIS (2011-12 vs. 2012-13) *Increasing Vaccination Among Health-care Personnel*	Outcome	Oregon Health Policy & Research (OHPR) survey data ***or***, for institutions not studied by OHPR, chart reviews or EHR data runs	LTC employees	Pre-post measures	Proportion (by LTC location) – number of LTC employees vaccinated/total number of LTC employees	OIP project coordinator ***or*** LHD project lead for non-OHPR institutions

APPENDIX F
ADULT IMMUNIZATION SPECIAL PROJECT MONTHLY REPORTING FORM

Month activities conducted: Name of County/County Partnerships:
Report submission date:

OBJECTIVE (Original wording from LHD agreements)	**STATUS**	**CHALLENGES**	**SUCCESSES**
Establish partnerships with pharmacies to initiate or increase influenza and/or Tdap adult immunization by 10% or more	☐ Not started ☐ In progress ☐ Completed		
Develop or improve relationships with non-healthcare employers with at least 50 employees with the goal of each employer offering at least one employee influenza and/or Tdap adult vaccination program	☐ Not started ☐ In progress ☐ Completed		
Work with community health centers in their county to expand adult influenza and/or Tdap immunization services.	☐ Not started ☐ In progress ☐ Completed		
Work with healthcare institutions to improve healthcare worker influenza vaccination rates with a goal of increasing coverage by 10%	☐ Not started ☐ In progress ☐ Completed		
Work with long term care (LTC) facilities to increase employee influenza vaccinations by 10%.	☐ Not started ☐ In progress ☐ Completed		
Optional: Conduct activities or events or partner with community organizations, not covered in the other five objectives, to increase awareness of and access to adult immunizations.	☐ Not started ☐ In progress ☐ Completed		

1. In the table below, please record:
    A. The number of **new** partners engaged during the month
    B. The number of vaccine activities or events completed during the month, if any
    C. A brief description of the completed activity or event

Partners	**A. Number of NEW partners**	**B. Number of completed activities or events**	**C. Brief description of completed activity or event**
Pharmacists			
Non-health employers			
Community Health Center (FQHCs or Rural Health Centers)			
Healthcare Institutions			
Long-term care facilities			
Optional: Other events, activities, partnerships			

2. How many staff (in FTEs) are assigned to the project?

3. Please provide the following expenditure information, including the name of an authorized agent (i.e., a person who can sign off on financial information at your health department) and the date the expenditure information was approved:

    ☐ Amount awarded for the project:
    ☐ Amount spent to date:
    ☐ Percent of the total amount spent to date:
    ☐ Amount of the award left to expend:
    ☐ Name of authorized agent:
    ☐ Date information approved (mm/dd/yy):

Please record any additional comment here:

APPENDIX G

TARGETS MET AT MID-TERM					
	Pharmacies	**Large non-healthcare employers**	**Community Health Centers**	**Healthcare Institutions**	**Long-term Care Facilities**
Baker		Met		Met	Met
Benton					Met
Clackamas		Met	Met		
Clatsop	Met				Met
Columbia					
Coos	Met	Met	Met		
Crook			Met		Met
Curry		Met	Met	Met	Met
Deschutes		Met	Met	Met	Met
Douglas	Met	Met	Met	Met	Met
Grant	Met	Met	na[1]		Met
Harney	Met	Met	na	Met	Met
Hood River/ North Central		Met		Met	
Jackson/ Josephine					
Jefferson					
Lane					
Lincoln		Met			
Linn	Met	Met	Met	Met	
Malheur	Met	Met		Met	
Marion			Met		
Morrow		Met	Met	Met	Met
Polk	Met	Met			
Tillamook		Met		Met	Met
Umatilla		Met	Met	Met	Met
Union		Met	Met		
Wallowa	Met	Met	na	Met	Met
Wheeler	na	Met	Met	Met	Met
Yamhill		Met	Met		

[1]na = not applicable; county does not have this partner within its jurisdiction

APPENDIX H

COOS COUNTY

Adult Immunization Special Project Baseline Report

CENSUS DATA

Table 1: 2011 Census Data for Target Population in Coos County

Age Breakdown	Population	% of Total County Population
Adults, 18-64 yrs	37,154	59.0
Adults, 65 and over	13,790	21.9
Total Adult Population	50,944	80.9
Total County Population	62,960	100

Source: March 2012: 2011 Annual Population Report Tables, Portland State University Population Research Center

STATUS OF PHARMACIES

Table 2: ALERT IIS Data for Pharmacies

ALERT ID	PHARMACY	CITY	Aug 1, 2011 to July 31,2012		Submit Data to ALERT IIS?*
			# Adult Tdap Administered	# Adult Flu Administered	
AL3207	Bi-Mart Pharmacy 607	North Bend	6	494	Yes
AL3150	Rite Aid Pharmacy 05379	North Bend	8	403	Yes
AL3151	Safeway Pharmacy 1556	Coos Bay	17	477	Yes
AL3152	Safeway Pharmacy 1557	North Bend	19	662	Yes
AL3152	Safeway Pharmacy 4262	Coquille	8	725	Yes

Source: ALERT IIS Data Extract, October 2012; * Organization submitted at least one dose between Feb. 1, 2012 and July 31, 2012

STATUS OF COMMUNITY HEALTH CENTERS

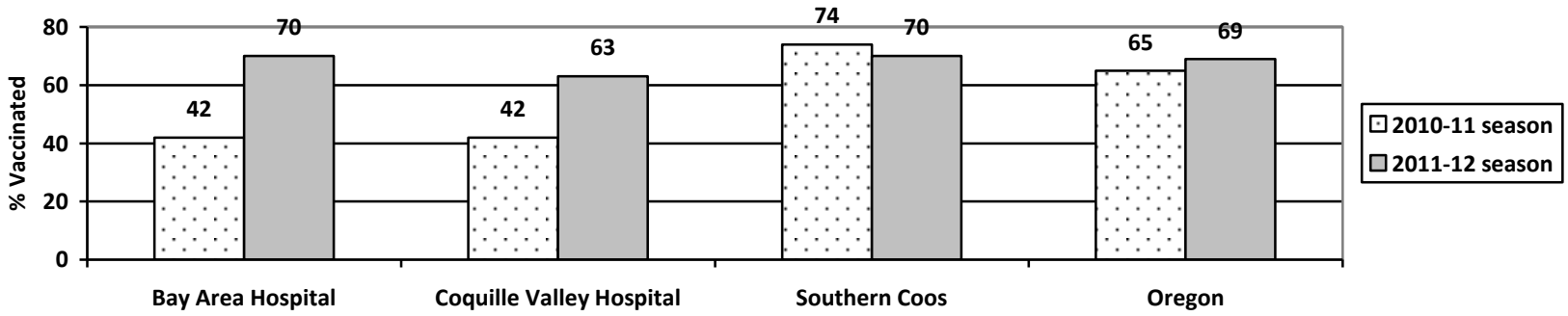
Table 3: ALERT IIS Data for Community Health Centers

ALERT ID	Community Health Center	CITY	Aug 1, 2011 to July 31,2012		Submitting to ALERT IIS?*
			# Adult Tdap Administered	# Adult Flu Administered	
AL0543	North Bend Medical Center - Bandon	Bandon	8	68	Yes
AL1909	North Bend Medical Center (NOS**)	Coos Bay	22	51	Yes
AL1688	Waterfall Community Health Center	North Bend	64	388	Yes

Source: ALERT IIS Data Extract, October 2012; * Organization submitted at least one dose between Feb. 1, 2012 and July 31, 2012; **Not otherwise specified

STATUS OF HOSPITALS

Figure 1. Hospital Healthcare Worker Influenza Vaccination Rates



Source: Office of Health Policy and Research, Healthcare Worker Influenza Vaccination Rates: 2010-2011, December 2011; Office of Health Policy and Research, Healthcare Worker Influenza Vaccination Rates: 2011-2012, October 2012

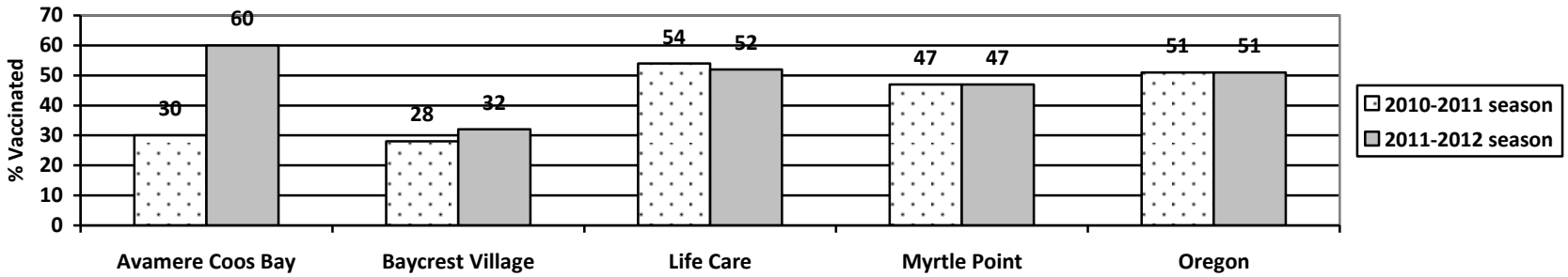
Table 4: Influenza Vaccination Rates for Hospitals, 2011-2012

HOSPITAL	VACCINATION RATES (%)				NUMBER OF DELIVERY METHODS USED[1]	NUMBER OF PROMOTIONAL STRATEGIES USED[2]	FORMAL EDUCATION CONDUCTED
	EMPLOYEES	NON-EMPLOYEES, CREDENTIALED	NON-EMPLOYEES (OTHER)	OVERALL FACILITY RATE			
Bay Area Hospital	70	66	70	69	3	6	No
Coquille Valley Hospital	63	0	0	49	2	3	No
Southern Coos	70	67	63	69	3	3	No

Source: Office of Health Policy and Research, Healthcare Worker Influenza Vaccination Rates: 2011-2012, October 2012;
1 – *Vaccination delivery methods* include: mobile carts; centralized mass vaccination fairs; peer vaccinator; provided vaccination in congregate areas; provided vaccination at occupational health clinic; and other; 2 – *Promotional strategies* include: Incentives; reminders by mail, email or pager; coordination of vaccination with other annual programs; required receipt of vaccination for credentialing; campaign including flyers, buttons, fact sheets, and other

STATUS OF LONG-TERM CARE FACILITIES

Figure 2. LTC Employee Influenza Vaccination Rates



Source: Office of Health Policy and Research, Healthcare Worker Influenza Vaccination Rates: 2010-2011, December 2011;
Office of Health Policy and Research, Healthcare Worker Influenza Vaccination Rates: 2011-2012, October 2012

Table 5: Influenza Vaccination Rates for LTC Facility Employees, 2011-2012

LONG-TERM CARE FACILITY	VACCINATION RATES (%)				NUMBER OF DELIVERY METHODS USED[1]	NUMBER OF PROMOTIONAL STRATEGIES USED[1]	FORMAL EDUCATION CONDUCTED?
	EMPLOYEES	NON-EMPLOYEES, CREDENTIALED	NON-EMPLOYEES (OTHER)	OVERALL FACILITY RATE			
Avamere of Coos Bay	60	---	0	55	2	2	No
Baycrest Village	32	0	---	29	2	1	No
Life Care Center	52	100	33	50	1	1	No
Myrtle Point Care Center	47	0	0	34	2	2	No

Source: Office of Health Policy and Research, Healthcare Worker Influenza Vaccination Rates: 2011-2012, October 2012; 1 – See footnotes 1&2 in Table 4

APPENDIX I
Prevention and Public Health Fund (PPHF) Program Area 5
Interventions and Shared Objectives

Prevention and Public Health Fund – Program Area 5, Increasing Adult Immunizations

The Prevention and Public Health Fund (PPHF) is designed to assist states in transitioning to an environment of expanded insurance coverage for adult immunizations expected under the Affordable Care Act (ACA). Objectives outlined in program area 5 of PPHF specifically seek to assist awardees in implementing interventions to increase adult immunizations provided by pharmacies and by employers, as required objectives. Awardees may also choose from one of five optional activities, including increasing vaccination among healthcare personnel, increasing influenza and pneumococcal vaccination among adults at hospital discharge, increasing adult immunization offered at community health centers, and increasing Hepatitis B vaccine series completion among STD and substance abuse clinics clients.

Funding for PPHF program area 5 activities for each awardee is expected to support implementation of evidence based interventions, outlined below. Working on improving access, use, functionality of immunization information systems for adult providers and complimentary providers is encouraged, as well. Awardees also are expected to evaluate the impact of at least one these interventions in each of their chosen objectives using the shared outcome measures listed below, where appropriate. Awardees should be able to document how each of their planned activities aligns with an evidence based intervention and how they plan to measure their interventions using these listed outcomes shared by all awardees.

I. Evidence Based Interventions for PPHF Program Area 5 (Increasing Adult Immunizations)

a. Enhancing Access to Immunizations
    i. Home visits to increase vaccination
    ii. Reducing client out of pocket costs
    iii. (expanding types of providers and locations to receive adult vaccinations)
b. Strategies to Increase Community Demand
    i. Client/ patient reminders
    ii. Community based interventions implemented in combination (client reminders/ recalls, tracking of clients and manual outreach, educational messaging, mass and small media, expanded access to vaccines)
c. Healthcare Provider or System Based Strategies
    i. Provider reminder systems (electronic or paper-based)
    ii. Provider assessment and feedback on vaccination coverage among clients
    iii. Standing orders (http://www.immunizationed.org/standingorders/)
    iv. Healthcare interventions implemented in combinations
d. Increasing Vaccination among Healthcare Personnel
    i. Offering reduced cost or free vaccination

ii. On-site vaccination
iii. Vaccinations offered at multiple times (e.g. day and night shifts on multiple days)
iv. Vaccination offered conveniently (e.g. mobile vaccination carts)
v. (Requirements and declination forms)

II. Shared Outcome Measures for PPHF Program Area 5 Awardees

a. Pharmacy Objective (required)
    i. Change in the number and proportion of pharmacists trained to administer adult vaccines
    ii. Change in proportion and number of pharmacists trained in using the state immunization information system (registry)
    iii. Change in the proportion and number of pharmacies or pharmacist entering doses into registry
    iv. Change in the number of doses administered by pharmacists entered into registry
    v. Increase in the types of adult vaccine provided by pharmacies
b. Employer Objective (required)
    i. Change in the number of employers or work-sites offering on-site influenza vaccination clinics
    ii. Usefulness of employer toolkits for offering on-site vaccinations
c. Community Health Center Objective (optional)
    i. Change in the number and proportion of community health centers offering adult vaccines through registry
    ii. Change in the number and proportion of community health centers providing adult vaccines by vaccine type
    iii. Change in the number and proportion of community health centers using standing order and/or reminder/ recalls systems to offer adult vaccines
d. Healthcare Personnel Vaccination Objective (optional)
    i. (Awardee should use proposed NQF measure for definition of healthcare personnel)
    ii. Change in the number of hospital-based healthcare personnel vaccinated against influenza
    iii. Change in the number of long term care facility personnel vaccinated against influenza