



## Portland Area Indian Health Service Influenza Action Plan 2015-2016

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## Executive Summary

The Indian Health Service (IHS) has adopted the Healthy People 2020 (HP 2020) goal to immunize 70% of all American Indians/Alaska Natives (AI/AN) served against influenza annually. Each IHS Area has been asked to develop plans to meet this goal, beginning with the 2015-16 influenza season. This document provides critical scientific data necessary to understand the rationale of the HP 2020 goal, recommendations for strategies that can be used and identification of the primary and secondary drivers that should be addressed to achieve this goal.

Each year, the world experiences an epidemic in the form of influenza. Enormous amounts of money, time and energy are expended by the world's nations to combat this annual epidemic. Immunization against influenza remains one of the primary methods by which influenza can be prevented. The population coverage needed to avert or mitigate the impact of an influenza epidemic depends on the vaccine effectiveness and the infectivity (measured by  $R_0$ ) of the specific influenza strain.

The Indian Health System operates under many constraints including chronic personnel shortages and inadequate funding. Yet, this system delivers high-quality healthcare under some of the most austere and remote conditions to be found in the US. To ensure a successful influenza campaign, it is critical to understand these constraints and develop plans that are achievable given the current Indian Health System.

Three strategies have been identified that can lead to an increase in influenza vaccine coverage:

- 1. Starting sooner** simply means that we are vaccinating as many people as possible as soon as the vaccine arrives.
- 2. Sustain maximum vaccination rate longer** means vaccinating at the maximum rate usually seen in October and continuing that effort throughout the month of November.
- 3. Increase weekly vaccination uptake by some percent (e.g, 25%)** requires that the clinics/systems adapt to provide more vaccinations/week than the previous year.

Models of these three strategies show that no single strategy above, by itself, is adequate to achieve the goal of 70% coverage for the 2015-16 influenza season. However, a combination of these strategies could achieve the HP 2020 goal. For each of these individual strategies, specific primary drivers should be addressed to achieve success (See Table 4, page 9). For example, **starting sooner** will require addressing clinic capability by planning flu-shot clinics earlier, ordering adequate supplies and ensuring staff are trained. Community readiness also needs to be cultivated by ensuring that information is distributed in ways that are acceptable to the community and that immunization sites in the clinic and the community are accessible. **Vaccinating longer** is driven by clinic capability and community demand or acceptance. By addressing the primary and secondary drivers for each strategy chosen, our clinics will be better positioned to improve influenza vaccine coverage and increase the likelihood of preventing a more serious epidemic of influenza this season.

## Background

Each year, the United States experiences an epidemic of influenza. The timing of the epidemic has shifted since the 2009 (A California) H1N1 pandemic strain emerged. Prior to 2009, influenza activity in the Northwest typically began in late January to mid-February. Activity peaked in late February or early March. Since 2009, influenza activity has begun much earlier, typically in late November or early December, with peak activity in late December or early to mid-January. Because influenza vaccine is not delivered until September, the amount of time available to adequately vaccinate the population prior to the earlier onset of influenza transmission is significantly compressed.

Recently, the Indian Health Service (IHS) has tasked each Area to develop a plan to achieve increased population coverage with annual influenza vaccine. The goals put forth in this plan state that by 2020, 70% of all American Indian/Alaska Natives served by IHS would receive influenza vaccination (Appendix 1).

The purpose of this document is to lay out the rationale and strategy for planning an effective influenza vaccination campaign for the 2015-2016 flu season in response to the IHS plan.

## Rationale

### Vaccine Effectiveness

Various studies have demonstrated the effectiveness of influenza vaccine to prevent illness from influenza and secondary pneumonia, to prevent hospitalization and mortality from these specific causes as well as all-cause mortality<sup>1,2,3</sup>. The vaccine effectiveness (VE) for each of these outcomes varies with each influenza season, by vaccine type, by age and by the setting in which the estimates are derived. Table 1 shows average VE by age group for influenza seasons from 2007/08, 2010/11, 2011/12, 2012/13, 2013/14<sup>2</sup>.

**Table 1. Pooled Average Vaccine Effectiveness (VE)**

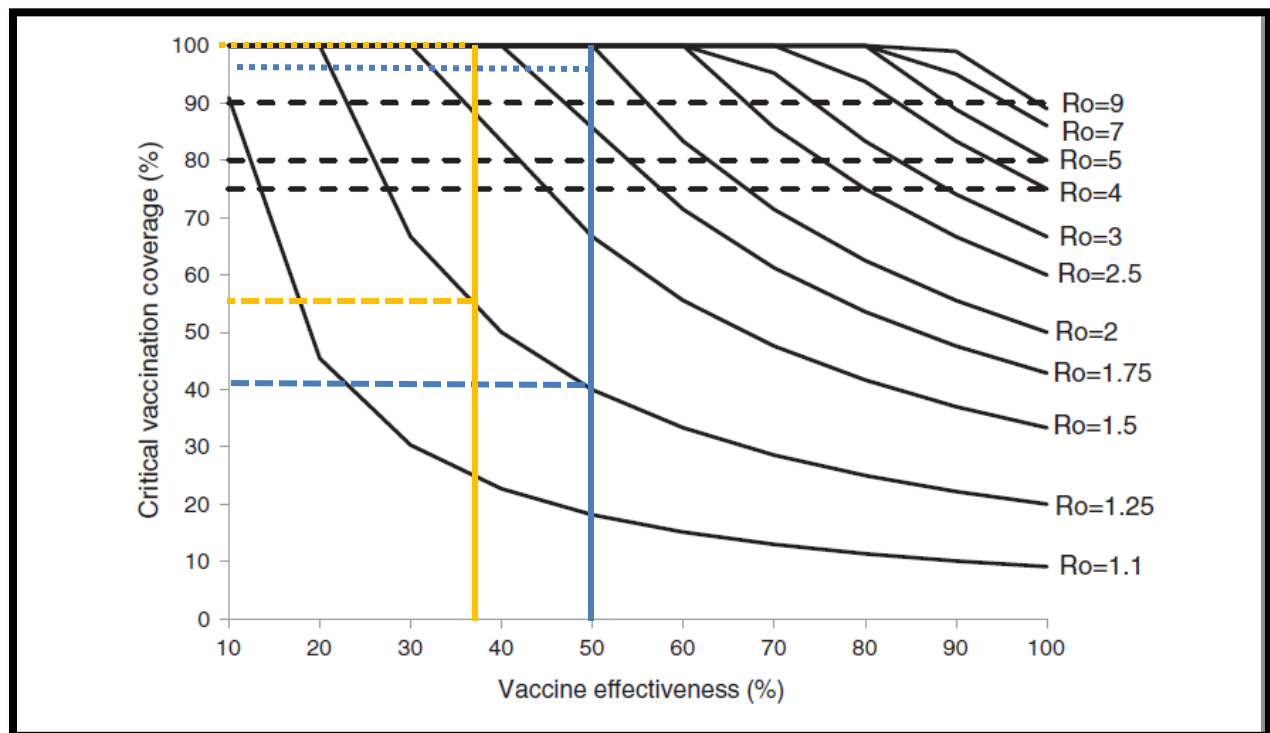
(Adapted from Foppa, *et al.* Vaccine, 2015)<sup>2</sup>

Age range (yrs.)	Average VE	Range
0.5–4	52%	39%-67%
5–19	50.25%	46%-59%
20–64	50%	46%-52%
≥65	37.5%	32%-43%

## Herd Immunity and Reproductive Number ( $R_0$ )

The concept of herd immunity describes the setting in which people who are unvaccinated or vaccinated but still susceptible (e.g., the elderly population) are protected because of sufficiently high levels of vaccination uptake in the rest of the population. By definition, achieving herd immunity will prevent an epidemic of disease. Herd immunity depends on a number of variables including the relative infectivity of the strain of influenza, the proportion with prior immunity, age distribution within the population and measures of distribution and interaction between those who are infected, immune, and susceptible. These factors are used to derive the reproductive number ( $R_0$ )<sup>4</sup>. Figure 1 shows the level of vaccine coverage that would be required to prevent an influenza epidemic based on different levels of  $R_0$  and VE. For any given  $R_0$ , herd immunity (critical vaccination coverage) decreases as VE increases.

**Figure 1. Critical Vaccination Coverage as a function of Vaccine Effectiveness for given level of  $R_0$**  (Adapted from Plans-Rubio, 2012)<sup>4</sup>



Seasonal Influenza Coverage 6 mos-64 yrs	— — — — —
Pandemic Influenza Coverage 6 mos-64 yrs	.....
Seasonal Influenza Coverage ≥65 yrs	- - - - -
Pandemic Influenza Coverage ≥65 yrs	.....

Analysis of numerous estimates specific to the 1918-19 pandemic A/H1N1 influenza virus show a median  $R_0$  of 1.84 (interquartile range of 1.47-2.27). Estimates for other pandemic years range from 1.46 2009-10 A/H1N1 to 1.80 (1968 A/H3N2) and for non-pandemic seasonal strains the median was 1.28 (interquartile range 1.19-1.37).<sup>5</sup>

Initial Healthy People 2020 goals for achieving sufficient vaccine coverage to achieve herd immunity were 80% in healthy persons and 90% in those at high risk for severe disease. Revisions to the Healthy People 2020 goals, which form the basis of the IHS plan, call for 70% vaccine coverage universally (all people aged 6 months and older). Based on the estimates of  $VE^2$ ,  $R_0^5$ , and herd immunity<sup>4</sup> the Healthy People 2020 goal would not be adequate to prevent an influenza pandemic nor could it prevent a more than average severity seasonal influenza epidemic with an  $R_0 > 1.5$  given current levels of  $VE$  (Figure 1 and Table 2-3)<sup>4</sup>.

**Table 2. Estimated Critical Vaccine Coverage Needed for Typical, Seasonal Influenza**

Age Group	VE	$R_0$	Critical Vaccine Coverage Needed
6 months to 64 years	50%	1.28 (1.19-1.37)	~40%
≥ 65 years	37.5 %	1.28 (1.19-1.37)	~55%

**Table 3. Estimated Critical Vaccine Coverage Needed for Severe/Pandemic Influenza**

Age Group	VE	$R_0$	Critical Vaccine Coverage Needed
6 months to 64 years	50%	1.84 (1.47-2.27)	>90%*
≥ 65 years	37.5 %	1.84 (1.47-2.27)	100%*

\* Even with 100% coverage, the limited  $VE$  would mean that an epidemic could not be prevented

Achieving 50-55% influenza immunization coverage should be considered the minimum coverage needed to achieve herd immunity in a typical influenza season with the pooled average  $VE$  estimates available (Table 1). Small decreases in  $VE$  or increases in  $R_0$  would necessitate a large increase in the critical vaccine coverage needed for herd immunity (Figure 1). For severe or novel pandemic influenza seasons, unless  $VE$  is improved, even complete (100%) coverage could not prevent the pandemic. In such a scenario, we will need to accept and assume that a lower level of population coverage can at least mitigate the impact of influenza and prevent a certain number of infections, hospitalizations and deaths.

## Improving Influenza Vaccine Coverage in the Portland Area IHS

Strategies to increase the uptake of influenza vaccine in the Portland Area IHS hinge on actions taken by clinic administration and staff as well as those actions taken at the community level, through tribal health programs, employment policies, schools and individuals.

Within the clinic, single strategies can be grouped into three single categories, and a fourth category made up of combinations:

- 1. Starting sooner** simply means that we are vaccinating as many people as possible as soon as the vaccine arrives. The models that follow project starting as much as 3 weeks sooner, which is admittedly a stretch. Even starting 1 or 2 weeks sooner would increase the early uptake of vaccine.
- 2. Sustain maximum vaccination rate longer** means taking the four weeks with the highest vaccination rates (# people vaccinated/week), usually the month of October, and extending a running average of those four weeks for four more weeks (until Thanksgiving holiday). The advantages of this strategy is there is no expectation of starting earlier, which is dependent on vaccine supplies, and the clinics (systems) already have a proven capacity to vaccinate at this rate.
- 3. Increase weekly vaccination uptake by some percent (e.g, 25%)** requires that the clinics/systems adapt to provider more vaccinations/week than last year. This could include adding additional evening or weekend clinics or adding community-based vaccine sites/efforts. And it requires the increased effort to be maintained throughout the flu season, though once the “goal” is achieved the effort could be tapered off.
- 4. Combination Strategies** would be to use more than one of these strategies in combination.

The driver diagram (Table 4) and projection models (Figures 4 and 5) that follow provide more details that may help sites choose which strategies to adopt as well as information to improve success.

It is first important to look at the capabilities of the current system. Figure 2 shows the weekly counts of influenza immunization that were given in the 2014-15 influenza season as reported in the Influenza-Like Illness Awareness System (IIAS). A description of this surveillance system is published elsewhere.<sup>6</sup> The weekly immunization counts rose sharply in mid-September through mid-October but then fell off rapidly during November and December. The maximum number of vaccines given per week was about 1000 (80% of these were given to adults). There was a small increase in vaccination activity after the first of the year but this was only sustained for 2-3 weeks. Figure 3 shows the cumulative percent of the active clinical population that received at least one dose of influenza vaccine. The percent of children and adults vaccinated by November 30th is only 32 and 33%, respectively, well below the 50% minimum threshold needed for herd immunity. By this same time, ILI activity has already begun to rise and has

reached the “epidemic threshold” of 2% indicating the start of the influenza season. These two figures emphasize the need to vaccinate as early as possible and to continue efforts to vaccinate at the maximum level for longer than four weeks if we are to reach the goal of 50% coverage for all ages by the end of November.

Figure 4 depicts the projected influenza vaccination coverage that could be achieved using three individual strategies—starting sooner, maintaining the maximum vaccination rate longer, or vaccinating 25% more individuals each week. Note that all three strategies would be predicted to increase the level of immunization by the target of November 30<sup>th</sup> by 37-41% but none of the strategies alone could achieve the minimum herd immunity threshold of 50% by that date. It is clear that more than one strategy will need to be employed to reach 50% coverage by the end of November. Figure 5 shows projections of immunization coverage for three such combination strategies—starting sooner and sustaining the maximum vaccination rate, sustaining the maximum vaccination rate and increasing the total number of vaccinations each week by an additional 25% or employing all three strategies.

These immunization coverage projections provide a realistic view regarding the effort that would need to be expended in order to achieve the minimum herd immunity immunization threshold of 50% by the end of November, before influenza activity exceeds the epidemic threshold.

For severe influenza seasons or pandemic influenza situations, achieving high levels of influenza immunization coverage (90-100%) would be a monumental undertaking. The sheer number of doses of influenza vaccine that would be needed represents a barrier that cannot be overcome in the near future.

### **Special Population Considerations**

The American Committee on Immunization Practice (ACIP) and the Centers for Disease Control and Prevention (CDC) have identified special populations at high risk for severe disease or complications from influenza.<sup>7</sup> These include: Children younger than 5 (especially children younger than 2 years old), adults 65 years of age and older, pregnant women, residents of long-term care facilities, American Indians and Alaska Natives, people who have medical conditions including: asthma, neurological and neurodevelopmental conditions, chronic lung, heart disease, blood disorders, endocrine disorders, kidney disorders, liver disorders, metabolic disorders, weakened immune system due to disease or medication, people younger than 19 years of age who are receiving long-term aspirin therapy, people who are morbidly obese (Body Mass Index, or BMI, of 40 or greater).

Although it is important to protect those special populations with influenza vaccination, because of reduced VE in some of these same populations, further protection can be added by increasing the influenza immunization coverage among healthy children and younger adults since they experience a greater VE and thereby may reduce the probability of infection spreading to those at higher risk for severe disease or complications from influenza.<sup>8,9,10</sup>

## **Immunization of Health Care Providers (HCPs)**

IHS does not currently have a policy to require HCPs to receive influenza immunization each year. Most clinical sites, however, offer it free of charge to all employees and strongly encourage their employees to receive the immunization. Data from healthcare systems that have implemented mandatory influenza immunization for HCPs have shown favorable outcomes regarding employee acceptance and compliance.<sup>11,12</sup> Data on the effectiveness of HCP influenza immunization as a control strategy is more limited but at least one study has demonstrated a positive impact on influenza immunization uptake among patients in a primary care setting.<sup>13</sup>

## **Limitations**

The immunization coverage projections shown in Figure 4 and Figure 5 are based on actual data from the most recent influenza season (2014-15). However, these projections may not be generalizable to all influenza seasons because of special circumstances surrounding the 2014-15 season. Chief among these was the emergence of antigenic drift in the circulating strains of influenza A H3N2 virus resulting in a vaccine mismatch that was highly publicized early in the influenza immunization season. This may have caused people who might otherwise have gotten immunized to choose not to, thereby reducing uptake of immunizations. A brief glance at 2012-13 and 2013-14 influenza seasons shows that while higher coverage was achieved by the end of the season, early season coverage was the same (30-35% by week 48; 40% by week 52). Another limitation is that not all possible combinations of strategies or all possible scenarios (e.g. starting 1 week or 2 weeks earlier) were modeled. Finally, the data used for these projections do not represent all clinical sites in the Portland Area but only those that participate in the IIAS.



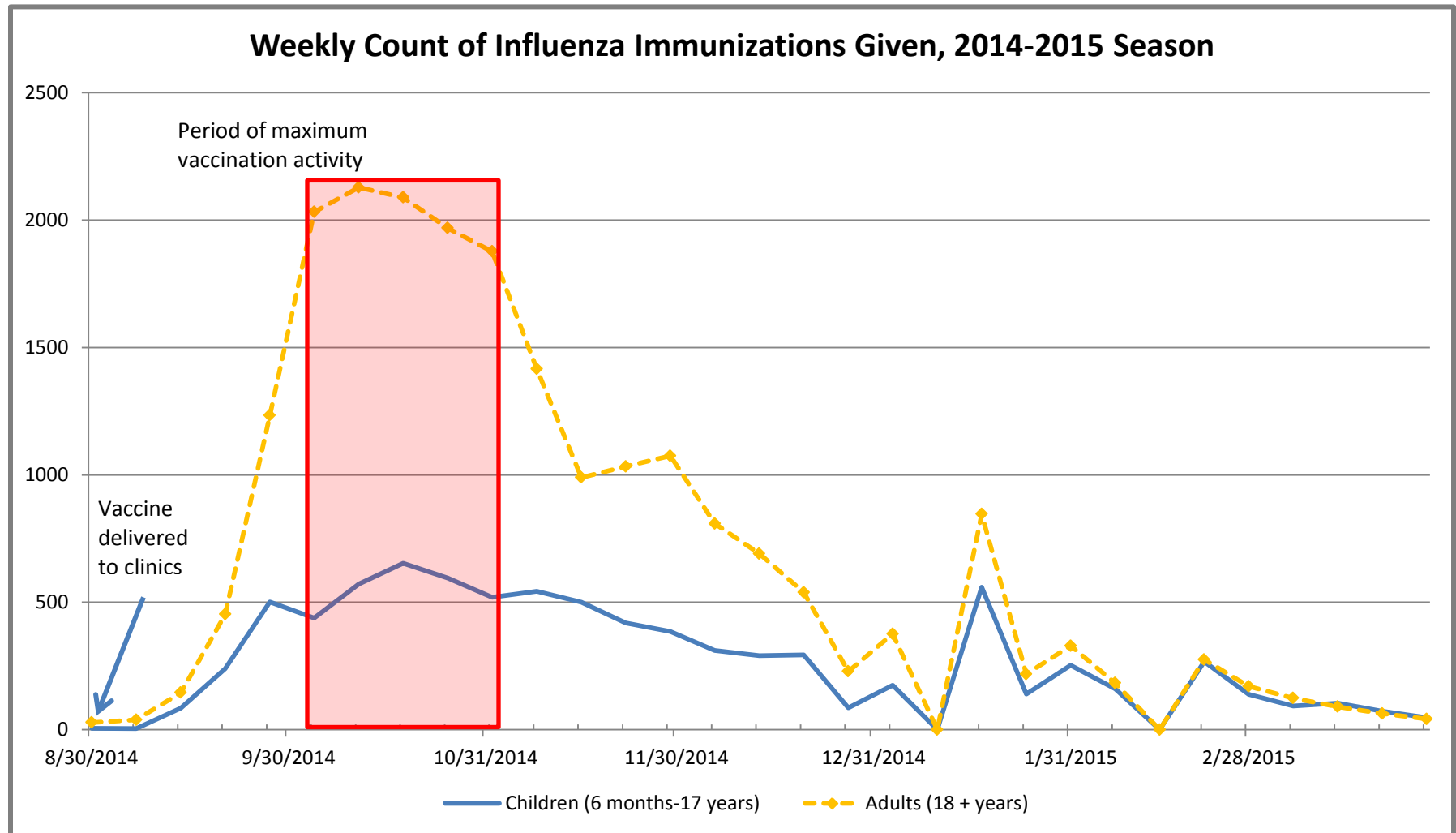
**Table 4. Driver Diagram for Improving Influenza Vaccine Coverage**

Strategy ( or Change Concept)	Primary Drivers	Secondary Drivers	Constraints
<b>Start</b> vaccinating <b>sooner</b>	Clinic Readiness	<ul style="list-style-type: none"> <li>• Pre-scheduled walk-in flu vaccine clinics</li> <li>• Pharmacists, MAs and nurses trained and ready to vaccinate</li> <li>• All necessary supplies in place prior to arrival of vaccines (gloves, syringes, needles, alcohol wipes, Band-Aids, VIS, etc.)</li> </ul>	Highly dependent on timely vaccine supply delivery to clinic
	Community Readiness	<ul style="list-style-type: none"> <li>• Pre-placed articles/ads in local newspapers about when flu vaccines will be given, benefits of flu vaccines, etc.</li> <li>• Messaging throughout the community- posters, brochures, PSAs, video-messages, Social Media, radio, etc.</li> <li>• Community-based vaccine days/sites pre-planned</li> </ul>	

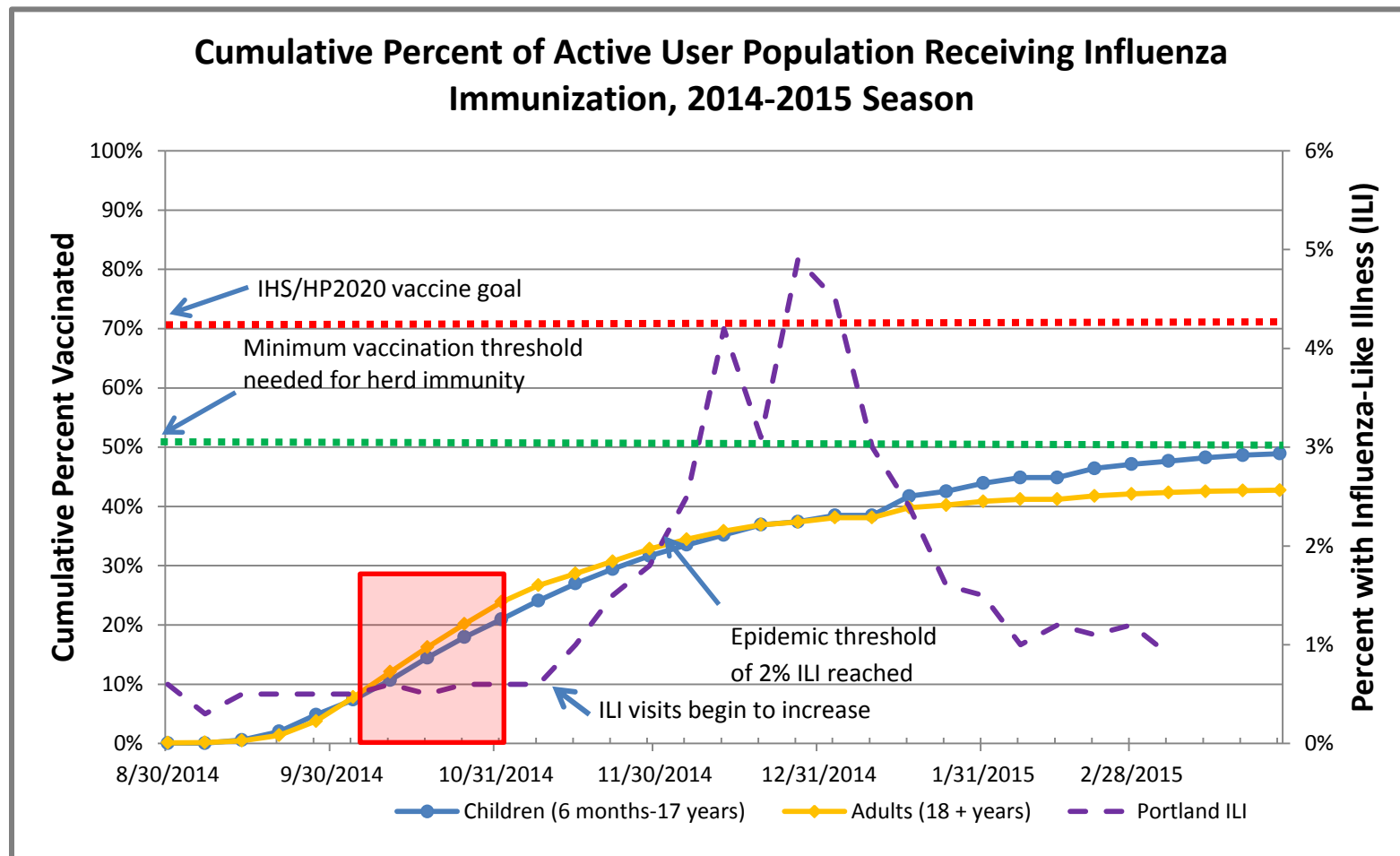
Strategy ( or Change Concept)	Primary Drivers	Secondary Drivers	Constraints
<b>Sustain</b> period of maximum <b>vaccination</b> rate <b>longer</b>	Clinic Capability	<ul style="list-style-type: none"> <li>• Ensure adequate staffing throughout the month of November</li> <li>• Extend/maintain flu vaccine walk-in clinics</li> <li>• Ensure adequate supplies to last for the duration of the extend flu vaccine campaign</li> </ul>	<ul style="list-style-type: none"> <li>• Dependent on a sustained demand from patients/community</li> <li>• May require additional efforts to vaccinate outside of the clinic</li> </ul>
	Community Demand or Acceptance	<ul style="list-style-type: none"> <li>• May need to develop new messaging strategies or repeat messages multiple times</li> <li>• Anticipate and provide information about the benefits of flu vaccine specific to any issues that develop (vaccine mismatch, adverse events, reported “severity” of the circulating flu strain, special populations.</li> </ul>	<ul style="list-style-type: none"> <li>• Mistrust of IHS/CDC</li> <li>• Negative media messages</li> </ul>

Strategy ( or Change Concept)	Primary Drivers	Secondary Drivers	Constraints
<p><b>Increase</b> weekly number of vaccines given per week by some percent (e.g., <b>by 25%</b>)</p>	<p>Clinical systems change to increase capacity</p>	<ul style="list-style-type: none"> <li>• Remove barriers to getting flu vaccine (standing orders, walk-in clinics, offering universally to all patients, etc.)</li> <li>• Provide multiple types of vaccine (live attenuated, preservative free, high-dose, quadrivalent, etc.)</li> <li>• Providers educated and committed to providing flu vaccine to all patients</li> <li>• Providers and staff get vaccinated</li> <li>• Create new vaccination venues- evening/weekend clinics, community-based clinics, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• System must increase its daily capacity to give vaccines (staff must work harder than previous years)</li> <li>• Staff reluctance to promote vaccine or reluctance to receive their own flu vaccine</li> <li>• Insufficient staff to provide evening/weekend vaccination clinics</li> </ul>

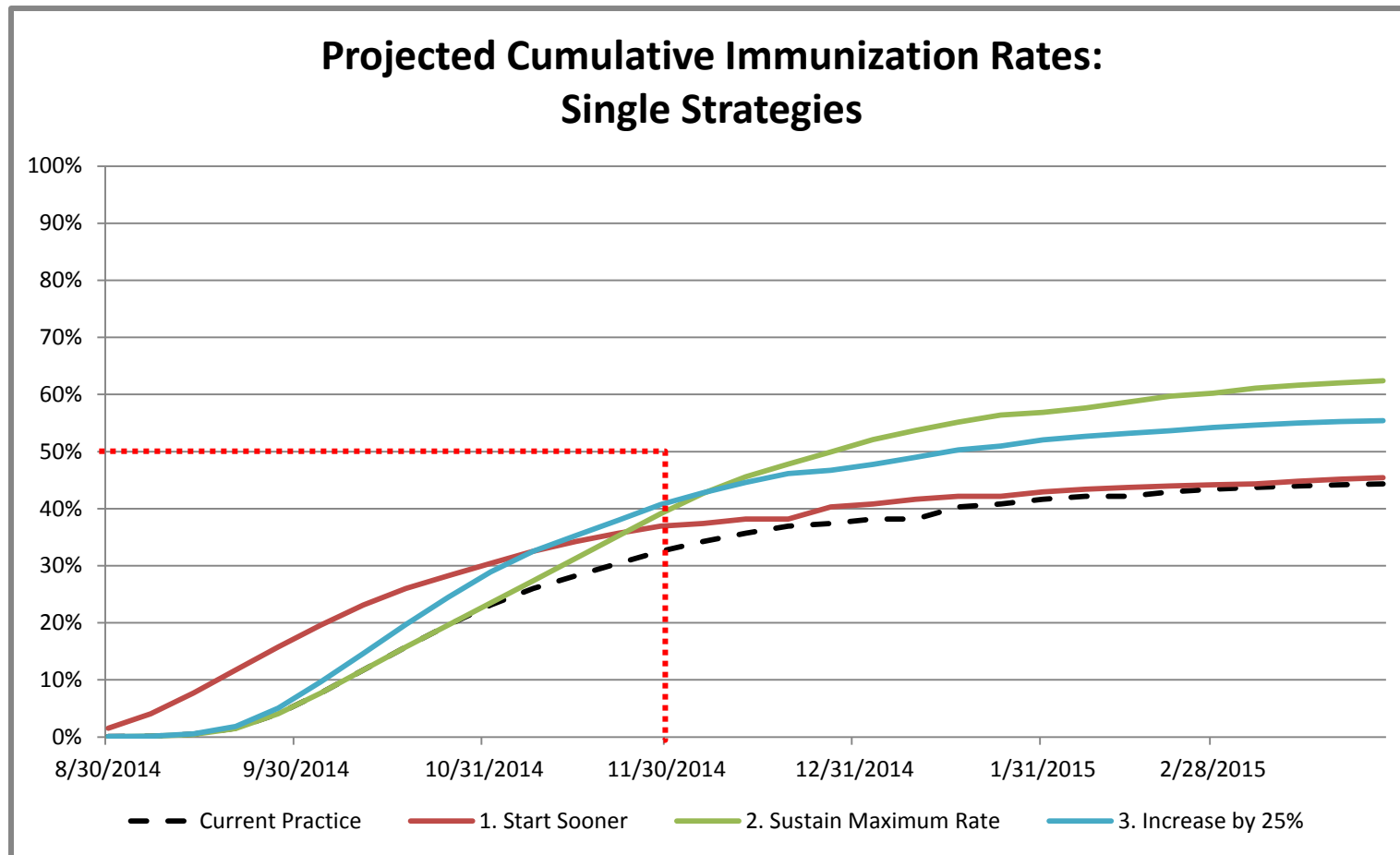
**Figure 2. Weekly count of influenza vaccine doses given in Portland Area IHS for the 2014-15 influenza season.** Vaccination activity rises 3-4 weeks after earliest vaccine arrival. Vaccine uptake is steepest from 10/4/14 to 11/1/14 as indicated by the red shaded area, then declines through the 2<sup>nd</sup> week of January. A small, late-season surge is seen after the 2<sup>nd</sup> week of January.



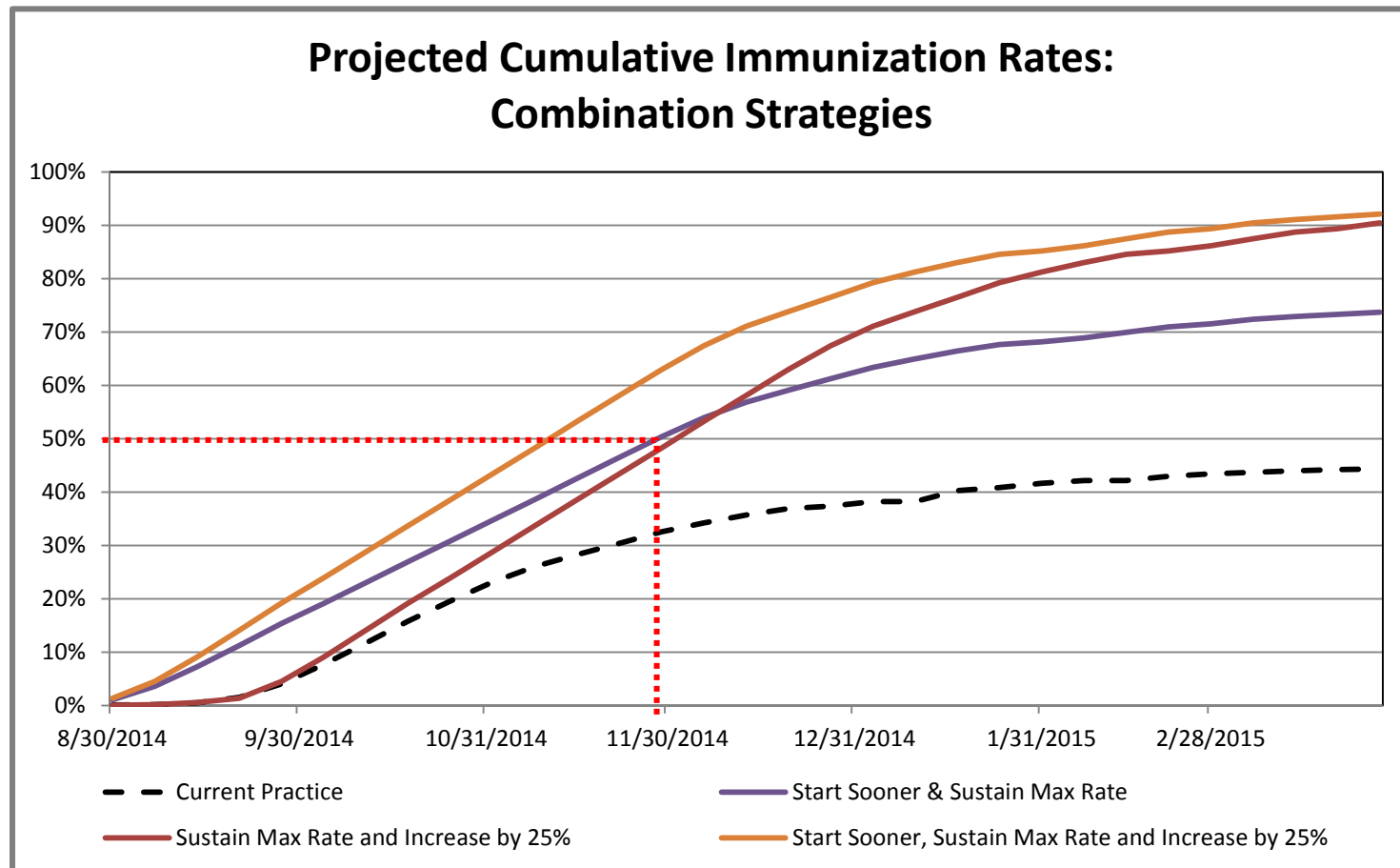
**Figure 3. Cumulative percent of active user population that received at least one dose of influenza vaccine, Portland Area IHS, 2014-15 influenza season.** The period of maximum vaccine uptake as indicated by the red shaded area ends approximately 1 week before ILI transmission starts to increase. The rate of vaccine uptake is much lower throughout the period of maximum ILI activity (purple dashed curve).



**Figure 4. Projected cumulative influenza immunization rates using three single strategies compared to current practice.** Minimum herd immunity threshold to be reached by 11/30/2015 is shown in red. All three strategies are projected to show increased coverage but no single strategy will reach the goal of 50% before ILI activity would be expected to begin.



**Figure 5. Projected cumulative influenza immunization rates using three combination strategies compared to current practice.** Minimum herd immunity threshold to be reached by 11/30/2015 is shown in red. All three strategies are projected to meet or exceed the goal of 50% before ILI activity begins. All strategies could meet the IHS/HP 2020 goal of 70% coverage for the flu season but only on (using all three single strategies) will achieve this goal before ILI activity would be expected to peak.



## Recommendations

Clinical sites in the Portland Area should review their local influenza policies and practices as well as data on levels of influenza immunization achieved in prior years to determine where attention should be placed to achieve immunization levels that approach the IHS goal of 70% coverage for all aged 6 months and older. The data projections in this plan (Figures 4 and 5) demonstrate that more than one single strategy will likely need to be employed to reach the goal.

The strategies outlined in the driver diagram (Table 4) can be achieved by adopting new policies and practices aligned with the primary and secondary drivers shown and by addressing the constraints for each. Support for these activities include technical and subject matter expert advice coordinated through the IHS Division of Epidemiology and Disease Prevention as outlined in the Appendix 1. Further support, particularly with data analysis and various media/outreach materials (posters, postcards, PSAs and articles for local publication) will be provided by the Portland Area IHS through the Office of the Director and the Division of Clinical Support. Appendix 2 is a toolkit for engaging patients and communities through conversation, outreach and multimedia. The resources in this toolkit should be an integral part of any campaign or plan to improve influenza immunization coverage.



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## Appendix 1. IHS Strategic Plans for Improving Influenza Immunization

1. IHS Division of Epidemiology and Disease Prevention (DEDP) will host monthly flu update calls throughout influenza season. For 2014-2015, these will occur on the 3rd Wednesday of every month at 3pm EDT/EST.
  - a. Oct. 15th
  - b. Nov 19th
  - c. Dec. 17th
  - d. Jan. 21st
  - e. Feb. 18<sup>th</sup>
2. IHS Chief Medical Officer will send out monthly report to all Area CMOs and Area Directors with influenza vaccine coverage by Area for children 6 months – 17 yrs, adults 18 years and older, and overall coverage for everyone 6 months and older.
3. IHS Public Affairs will contact and facilitate the distribution of radio PSAs developed for AI/AN communities to Tribal radio stations.
4. IHS Public Health Nursing (PHN) program will host at least 2 webinars for PHNs to highlight PHN influenza vaccination strategies.
5. IHS PHN program will establish goals for each Area re: number of flu shots to be administered by PHNs at the start of each influenza season, using data from the 2013-2014 influenza season.
6. IHS Chief Medical Officer will include Influenza vaccine coverage goals as part of the SES performance plans. For FY 2015, the goal will be to achieve 70% coverage with influenza vaccine among adults 65 years and older. During the 2013-2014 season, IHS achieved coverage of 68.1% of adults 65 years and older. Table 1 includes a breakdown of the number of adults 65 years and older that need to be vaccinated in each Area's federal facilities to meet this goal.

### Increasing Community Engagement

7. IHS DEDP will work in conjunction with the CHR program to develop training for CHRs re: adult immunizations, including influenza, and communication strategies CHRs can use to educate their communities on the importance of vaccines.
8. IHS DEDP in collaboration with the CHR program will host a webinar for CHRs to provide information about influenza and the importance of vaccination.
9. IHS DEDP in collaboration with the Great Plains Tribal Epidemiology Center is working with KAT Communications to develop PSAs on the importance of adult immunizations. These PSAs will be made available for IHS and Tribal sites that currently use GoodHealth TV in their facilities.

**For 2016-2017 and beyond**

1. Change GPRA Influenza Measure – A developmental measure to measure coverage with influenza vaccine among children 6 months – 17 years and adults 18 years and older, will be included as part of the Clinical Reporting System Version 15.1 that will be released in the summer of 2015. These data will be used to justify the change in the GPRA measure and presented to OMB to establish goals for IHS with this new influenza measure, starting in FY 2016 or 2017.
2. Identify Health Promotion and Disease Prevention activities to promote importance of Flu vaccination at local community activities.
3. Work with PHN Programs to improve outreach and patient education on the importance of Flu vaccination.

## Appendix 2. Community Outreach and Media Resource Toolkit

The goal of this appendix is to identify resources that can be used for educating providers about the importance of influenza vaccination for patients and themselves and to identify resources that are targeted to patients and community members about the importance of influenza vaccination. It has been suggested that for healthcare personnel, the following priorities should be addressed<sup>1</sup>:

1. Educate ourselves and other health care workers about influenza
2. Recommend vaccination to our high-priority patients
3. Set up systems for promoting vaccination in our practices
4. Evaluate our efforts and provide feedback to providers
5. Consider new locations for vaccine delivery
6. Get ourselves and our staff immunized.

### 1. Educate ourselves and other health care workers about influenza

Numerous opportunities exist for healthcare personnel to learn about the importance of influenza vaccination to protect themselves, their patients and even their families. Below are a few resources that can make a difference:

- <http://www.cdc.gov/vaccines/hcp.htm>
- <http://www.immunize.org/>
  - <http://www.immunize.org/handouts/influenza-vaccines.asp>

### 2. Recommend vaccination to our high-priority patients

A strong recommendation to patients to get vaccinated is one of the most influential actions we can take to help get patients get the vaccines they need. It is important to talk with patients and parents in an open, non-judgmental tone and to use language that is easier for them to understand. Written materials should target a 6<sup>th</sup> grade reading level. Assessing a patient's or parent's literacy level could help improve the method and manner used for communicating complex health topics like immunizations. Motivational interviewing techniques can be used to help patients understand and accept influenza vaccination.

- <http://www.cdc.gov/vaccines/ed/patient-ed.htm>
- <http://www.cdc.gov/vaccines/hcp/patient-ed/conversations/conv-materials.html#talkpvi>
- <http://www.immunize.org/talking-about-vaccines/>
- <http://www.immunize.org/resources/>
- [http://www.ecbt.org/index.php/strategies\\_and\\_resources/article/education](http://www.ecbt.org/index.php/strategies_and_resources/article/education)

### 3. Set up systems for promoting vaccination in our practices

Too often, vaccine information is given to patients only moments before they are being asked to make the decision about receiving the vaccine resulting in insufficient time to read and understand the benefits and risks to receiving the vaccine. Providing this information earlier in the visit and through multiple channels could prove to be helpful for patients who want to know more.

Other promotional materials besides the standard required CDC Vaccine Information Statement or VIS may also be helpful. For example Video or TV displays can carry informational messages, videos or digital stories from real patients or respected tribal leaders to encourage patients to get vaccinated. These can be more powerful if they include Native languages. Good Health TV (<http://www.goodhealthtv.com/native/>) is an excellent resource for video streaming health messages that are specific for Native people and often can include message in specific Native languages.

Brochures that explain the importance of influenza vaccination using simple language and including photos or art work from the local community can help build trust in the information and the services being offered.

### 4. Evaluate our efforts and provide feedback to providers

Improving immunization practice, including seasonal influenza immunization, is a complex undertaking. The clinic system must be designed to provide immunizations in the most efficient manner possible. Key recommendations include the efficient use of Electronic Medical Records (EMR); access to state Immunization Information Systems (IIS); real-time, two-way data exchange between EMRs and IISs; and developing policies to implement standing orders for immunizations. Setting these systems in place and evaluating them using the Model for Improvement (Plan –Do –Study –Act cycle) are needed to guide improvement efforts.

- <http://immunization.acponline.org/>
- <http://www.preventchildhoodinfluenza.org/>
- <http://www.adolescentvaccination.org/>
- <http://www.adultvaccination.org/>

### 5. Consider new locations for vaccine delivery

Community-based efforts to vaccinate at health fairs, elder programs, day-cares, preschools and schools can increase the number of people in the community who get influenza vaccines. The goal is to make the vaccine as available as possible and to make getting the vaccine as easy as possible. Successful venues have included providing flu vaccines at fun run events, drive-through vaccination campaigns, combining flu vaccination with colorectal cancer screening (Flu-FIT) and many others. Providing incentives to attract people to the event or for getting immunized can help increase your success. School-based influenza vaccination campaigns have also been shown to decrease influenza and increase school attendance.<sup>2</sup>

## 6. Get ourselves and our staff immunized.

IHS is considering a mandatory flu vaccine policy for healthcare providers. This is an effort to increase the level of vaccination for our employees which will have the double effect of: 1) protecting staff and patients from the flu; and 2) encourage patients to receive the flu vaccine by following our example. Many healthcare and professional organizations across the country are implementing mandatory flu vaccination for their employees. Regardless of whether your organization adopts mandatory flu vaccination of healthcare workers, providing information to encourage employees to get vaccinated and making the vaccine available free of charge to employees can help improve employee vaccine coverage.

- <http://www.immunize.org/hcw/>
- <http://www.cdc.gov/vaccines/adults/rec-vac/hcw.html>

## References

1. Improving influenza vaccination rates among adults. K NICHOL, CLEVELAND CLINIC JOURNAL OF MEDICINE VOLUME 73 • NUMBER 11 NOVEMBER 2006
2. School-Located Influenza Vaccination Decreases Laboratory-Confirmed Influenza and Improves School Attendance. P Pannaraj, H Wang, H Rivas, H Wiryawan, M Smit, N Green, G Aldrovandi, A El Amin, and L Mascola. Clinical Infectious Diseases (2014) 59(3):325–32.