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The Impact of Emergency Department Based Influenza Vaccination

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Abstract

Objective: To quantify the proportion of the Wright-Patterson (WPAFB) Air Force Base Emergency Department (ED) patients presenting during a four month segment of the 2014-2015 influenza season who were eligible for influenza vaccination and model the impact of vaccinating them.

Methods: A random sample of 200 out of 5,624 ED patients who presented to the WPAFB ED between October 1st, 2014, and January 31st, 2015 was studied. Both ED charts and immunization records were reviewed to determine eligibility for influenza vaccine during the ED visit. Area under the curve (AUC) analysis was used to determine vaccine velocity (VV), which was used to model vaccine impact by calculating additional preventable cases of influenza.

Results: The sample included four patients meeting exclusion criteria, 75 patients ineligible for vaccination, and 121 eligible for vaccination. A comparison of VV in both groups showed that vaccination of all those eligible would increase overall vaccine impact more than 350%. Modeling this to the total study population predicts an extra 51 cases of preventable influenza.

Conclusions: Offering influenza vaccination to eligible ED patients could boost vaccine deployment and prevent influenza infections, and should be offered.

Keywords: vaccine velocity, immunization, Wright-Patterson Air Force Base

The Impact of Emergency Department Based Influenza Vaccination

The burden of disease resulting from the annual influenza season in the United States (US) is difficult to understate. With an annual global attack rate estimated at 5-10% in adults and 20-30% in children, millions of cases occur every year (World Health Organization [WHO], 2014). This results in 114,000 hospital admissions, and some 36,000 deaths annually (Pallin, Muennig, Emond, Kim, & Camargo, 2005). During epidemic years, hospitalizations average 226,000 (Hiller & Sullivan, 2009). A 2007 study found over 334,000 hospitalizations, 41,000 deaths, 31.4 million outpatient visits, and a total economic burden of $87.1 billion (Molinari et al., 2007). Cost effectiveness of influenza vaccination has been conclusively demonstrated (Nichol & Goodman, 2002).

As the overwhelming benefits of immunization have become obvious, vaccine production has increased, and the inclusion criteria broadened. In 2011 the Centers for Disease Control (CDC) recommended near-universal influenza vaccination, excluding only infants under six months of age, and those with unacceptable vaccination reactions or known severe allergy to vaccine components (Grohskopf et al., 2014).

Many strategies seek to increase both the overall vaccination rate, and to drive vaccinations earlier in the influenza season, when they are most effective. These include bold steps by the federal government, such as the Centers for Medicare and Medicaid Services promulgating rules that allow influenza vaccination administration and billing without a physician’s order (Pallin et al., 2005). This novel approach has transformed influenza vaccination from solely a physician-ordered activity based in hospitals or offices, and pushed it out into the community. People can now be vaccinated at grocery stores, pharmacies, schools, and even shopping malls. Other methods to boost vaccination rates include educating patients on the value of vaccination, issuing patient reminders (by post, email, or text), offering vaccine-only clinic days, giving vaccine after-hours, and stressing the importance of vaccination throughout the influenza season (Poland & Johnson, 2008; Stinchfield, 2008).

Despite these efforts, many still go unvaccinated, or get the vaccine later on in the season when it is less effective. One strategy to counter this is to offer influenza vaccination during emergency department (ED) visits. There are approximately 136 million annual ED visits in the United States (Centers for Disease Control [CDC], 2015b). EDs are often a healthcare safety-net serving underprivileged populations who otherwise have difficulty getting vaccinated (Cassidy et al., 2009). Furthermore, EDs already have vaccination-administration facilities and protocols in place, as tetanus and rabies vaccination are standard practice (Pallin et al., 2005).

Purpose Statement

The purpose of this study is to quantify what portion of the Wright-Patterson Air Force Base (WPAFB) ED patients presenting during a segment of the 2014-2015 influenza season would be eligible for influenza vaccination. This, in turn, provides data to project the potential impact of such a vaccination program, and paves the way for a prospective study where vaccine is actually administered.

Review of Literature

While far from routine practice, influenza vaccination during ED visits has been studied for nearly 30 years, in a specialty that has only officially existed since 1979 (Zink, 2008). The first article appeared in 1987, first-authored by an internal medicine physician (Polis, Smith, Sainer, Brenneman, & Kaslow, 1987). This was during an era long before near-universal influenza vaccination was recommended, and the focus was those at high-risk, including older patients, or those with comorbidities. Cautiously titled “Prospects for an Emergency Department-based Adult Immunization Program," the authors noted that only 47.8% of high-risk patients had ever received the influenza vaccination, and only about a quarter of those without a primary care provider had ever been vaccinated (Polis et al., 1987). They also found that 60% of those surveyed would elect to receive the shot if it was offered during their ED stay. They concluded by noting that "persons not served . . . by regular . . . providers may be captured by our strategy," a recurring theme throughout the literature (Polis et al., 1987, p. 2001).

A survey study published seven years later showed remarkably similar results. Only 57% of high-risk patients had ever received what should have been a yearly vaccination (Wrenn, Zeldin, & Miller, 1994). The study also queried patients as to why they had not been vaccinated. Their main reasons included being uninformed that it was necessary, or procrastination, both of which an ED-based program could address. The study also began to explore physicians' willingness to vaccinate in the ED. Eighty-nine percent of physicians in the academic center studied rarely or never gave the influenza vaccine, and only half said they were willing to administer it. Some simply stated that ED physicians were not primary care providers, while others cited concerns about inadequate resources and medicolegal liability.

Such staff hesitancy was common. The first study to report actual vaccine administration encountered so much staff reluctance that the authors commented on it in the article's abstract, noting that "despite initial resistance, and extreme variation in individual performance," many nurses and doctors eventually supported the effort (Slobodkin, Kitlas, & Zielske, 1998, p. 1795). They vaccinated 1,238 patients, representing 62% of those with high-risk criteria. They noted that initial opposition from physicians stemmed from a concern that providing vaccine would slow throughput in a large and extremely busy Chicago ED which served a minority population, 78% of which were uninsured. However, using standing orders, they found an average administration time of only four minutes, and noticeable delays in ED throughput did not occur. Their modeling predicted that routine influenza vaccination in all EDs nationwide would avoid 300 deaths, 1,000 hospitalizations, and save $225 million.

In 2000, one US and one Canadian paper both found similar results; just over half of high-risk patients had not been vaccinated, and a majority of them would consent to immunization (Chiasson & Rowe, 2000; Kapur & Tenenbein, 2000).

One of the ways to promote ED-based vaccination is to demonstrate a reduction in the seasonal surges in ED patients during influenza season, which can often swamp EDs and may compromise the care of high-acuity patients. However, when Ontario, Canada, started universal vaccination in 2002, a study found that rather than decreasing ED visits for upper respiratory symptoms, such visits actually increased (Groll & Henry, 2002). It should be noted that the study would have difficulty detecting the impact of vaccination against the overall setting of yearly increases in ED presentations, a trend that has continued since the specialty's inception.

Barriers to Adoption

With essentially all of the studies showing patient benefit, why has ED-based influenza vaccination not become standard of care? Reviewing the literature shows that a large part is likely historical. Vaccination is a preventative medicine procedure that falls in the realm of primary care, while EDs are set up to handle medical events that have—by definition—not been prevented. This concept is best illustrated by the vaccines that are routinely given in the ED to forestall tetanus and rabies infection. They are only given as secondary prevention. That is, a rabies or tetanus vaccine is only offered after an animal bite or laceration.

From its infancy as a medical specialty, it was important for emergency medicine to separate itself from other branches of medicine to avoid being seen as a competitor. Even as late as 2004, a study of pediatric ED-based vaccination wondered if it was preferable to wait until as late as December—well into the influenza season—“out of respect for a patient’s medical home” (Pappano, Humiston, & Goepp, 2004, p. 1081). The later date of this article highlights the fact that primary prevention has only recently begun to be studied in the ED setting. The American College of Emergency Physicians offers support, but not a definitive recommendation for ED-based influenza vaccination in a 2008 position statement (American College of Emergency Physicians, 2008).

One study highlighted this contradiction between primary and secondary prevention, noting that from 1992-2000, EDs administered over 27.7 million vaccines, 93% of which were against tetanus, a disease that only causes 25 deaths a year versus 36,000 for influenza (Pallin et al., 2005). The authors state frankly that “the number of ED patients who are vaccinated against tetanus is ‘a lot,’ and the number of ED patients who get tetanus is ‘approximately none’ (Pallin et al., 2005, p. 1050).” Even during the study period, which was characterized by narrower indications for influenza vaccination than today, they noted that over 27 million patients were eligible. In a 2008 review of the topic, Martin, Brauner, and Plouffe simply stated “yes, this is primary care in the ED, but this is what we do” (p. 565).

The other major factor blocking adoption of ED-based influenza vaccination stems from the views held by the leaders and providers within emergency medicine itself, which are likely a hold-over from the specialty’s inception. In 2011, Delgado et al. published a study that surveyed ED leadership on barriers to vaccination. Seventy-four percent of ED medical directors were worried about cost, but a 2012 study of ED-based influenza vaccination found it to be cost-effective (Patterson, Khare, Courtney, Lee, & Kyriacou, 2012), and another found a 34.5% profit margin (Venkat et al., 2010). Sixty-four percent were concerned about increased length of stay

(LOS), a not unfounded worry given how important minimizing LOS is to maintain a functioning ED. However, the only study to report time demands showed average vaccine administration only took four minutes (Slobodkin et al., 1998). Sixty percent of ED leaders were concerned with lack of follow-up, which seems irrelevant in the days of grocery-store vaccination. Fifty-three percent were concerned about worse outcome, and over a quarter had a philosophical opposition to providing vaccination.

Another survey study showed some interesting physician and nurse attitudes towards influenza vaccine. It found that while 78.8% of attending physicians had been vaccinated in the last year, only 44.8% of the nursing staff had (Fernandez et al., 2009). Similarly, 72.7% of the doctors thought influenza immunization should be offered in the ED, while only 31.6% of the nurses agreed. The authors concluded that before any ED-based influenza vaccination program could begin "it is essential to obtain 'buy-in' from the providers themselves" (Fernandez et al., 2009, p. 204). The need for ED personnel education was noted in another paper which found that only half of the ED staff received vaccine, and many avoided vaccination because they erroneously believed the immunization could trigger the disease (Piccirillo & Gaeta, 2006).

Methods

As this study was based in a military medical center, the first step was to obtain command approval. The flight commander of the ED, Lieutenant Colonel Ryan Mihata, provided a letter of support, as did the Chief of Allergy/Immunizations, Lieutenant Colonel Jeremy Sikora (see Appendices A and B). Based on their recommendations, the project was approved by the commander of the 88th Medical Operations Squadron, Colonel Thomas Cheatham.

As this was a retrospective chart-review study, the Institutional Review Board (IRB) at WPAFB classified this research as an evidenced-based practice project, allowing for an expedited review process. It was approved on February 3rd, 2015 (see Appendix C*).* In accordance with an institutional memorandum of understanding, a copy of this approval and the design study was also sent to the Wright State University IRB, which concurred on February 6th, 2015 (see Appendix D).

Prior to study initiation, the lead investigator underwent Seasonal Influenza Vaccination Training 2014-2015, an online certification program offered by the Immunization Healthcare Branch, a Defense Health Agency organization tasked with overseeing military vaccination operations (Defense Health Agency, Immunization Healthcare Branch, 2014). This included a full review of general vaccination principles, techniques, and contraindications.

A dataset was obtained from information technology support personnel, which queried the ED charting system and compiled extracted data. This included all ED patient visits from October 1st, 2014, to January 31st, 2015, which was peak influenza season. Data collected included date of arrival, name, age, sex, chief complaint, vital signs, diagnosis, and discharge disposition for a total of 7,096 visits. Those who visited repeatedly where only analyzed during their initial presentation, as further presentations would be redundant. This left a total of 5,624 individuals in the study. Two-hundred patients from this population were sampled using a random number generator.

Four patients were not studied as they met exclusion criteria. Exclusion criteria were based on several factors. One patient who registered with the triage nurse, but then left before evaluation was not studied, as in real life they could not possibly be vaccinated. In addition, the CDC's Advisory Committee on Immunization Practices (ACIP) guidelines on influenza vaccination were reviewed (CDC, 2013). Clear contraindications include age less than six months, which resulted in one infant being excluded. Additional contraindications include anaphylaxis to the vaccine or any of its components, which did not apply to any of the sampled patients.

ACIP precautions were also reviewed (CDC, 2013). These are written with reference to the out-patient setting, and are open to some interpretation regarding their applicability to ED patients. For example, “moderate or severe acute illness” is listed as a precaution under the guidelines, which stipulates that a physician should consider the risks and benefits of vaccination before proceeding. “Moderate or severe” is not defined; its interpretation was critical to the study, as almost any ED patient could be reasonably classified as having moderate illness.

Because the risks associated with influenza vaccination are demonstrably low, and in many cases theoretical, for the purpose of this study only patients deemed critically ill were excluded. Critically ill was defined as persistently abnormal vital signs and/or patients requiring the intensive care unit, operating room, or cardiac catheterization. While there are no proven risks associated with vaccinating critically ill patients, this seemed reasonable given the precautionary principle. Most critically ill patients are given only absolutely necessary treatments in the ED, so it seemed unrealistic to expect emergency physicians to vaccinate critically ill patients. However, because the WPAFB ED sees predominantly lower-acuity patients, only two people were excluded, one with the diagnosis of pulmonary embolism, and one with adrenal crisis associated with severe and refractory hypotension. Only one other study expressly addressed the definition of “moderate or severe” illness. In a 2010 paper, Venkat et al. decided that those too sick to be asked about their vaccination status would be excluded, a criteria that would not have eliminated this study’s two critically ill patients, who were both awake and talking.

For the remaining 196 patients, a separate military database was reviewed to determine their influenza vaccination status at the time of their presentation to the ED. Several outcomes were possible. If they had received the influenza vaccination for that season, then the patient was deemed ineligible for ED-based vaccination. If there was no record of their vaccination status in the military database, they were assumed to have not received the influenza vaccine, and were recorded as eligible for ED-based vaccination.

The patients were split up into 12 ten-day increments, with one three-day increment at the end of the study. Those eligible and ineligible to receive the vaccine were totaled up for each increment, and graphed. Area under the curve (AUC) was calculated using the trapezoidal rule.

AUC analysis was used as it incorporates not just total vaccination numbers, but also places weight on how early the vaccination is obtained. If everyone in a population was vaccinated on the first day the vaccine was available, the AUC would approach its maximum value of one. If no one was vaccinated, or everyone was vaccinated at the very end of the influenza season, then the graph would approach its minimum value of zero. The concept of using AUC in this manner was termed vaccine velocity (VV), with higher VV signifying a more thorough and faster vaccine uptake, which would predict a larger preventative impact.

Results

After four of the 200 patients in the sample were excluded, 75 patients were found to have already been vaccinated, and were deemed ineligible, while a total of 121 had no history of vaccination and were found to be vaccine-eligible, see Figure 1. Comparing the two groups calculated VVs showed that if all of those eligible to receive vaccine were vaccinated, the VV would increase over 350%, see Figure 2.

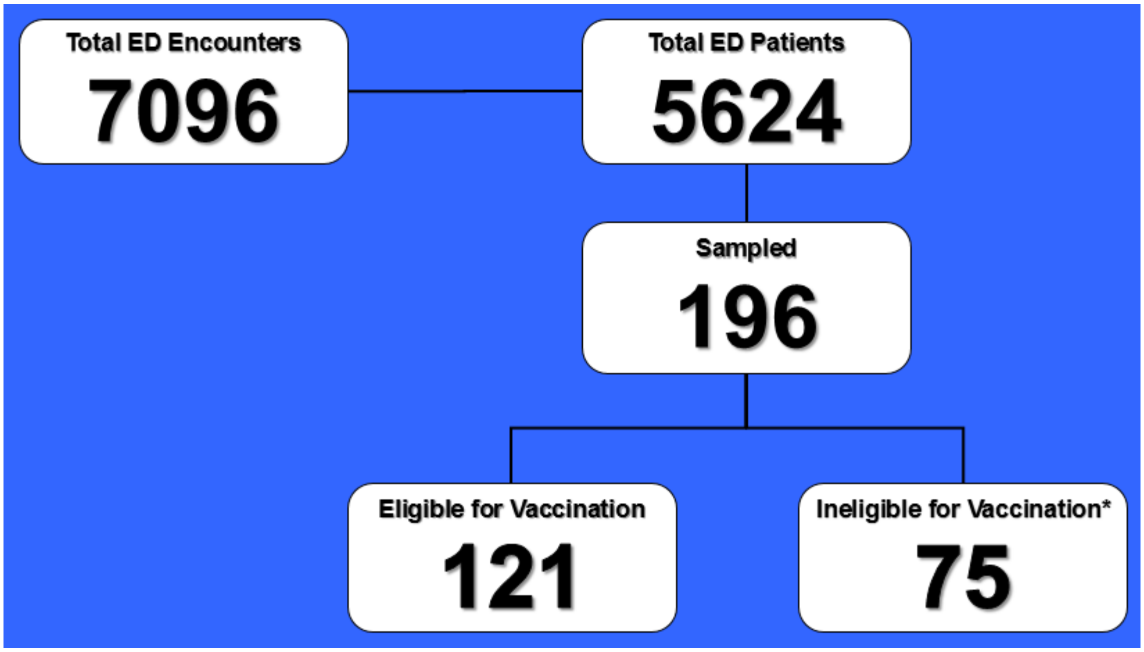

Figure 1. Study enrollment, sampling, and vaccine status.

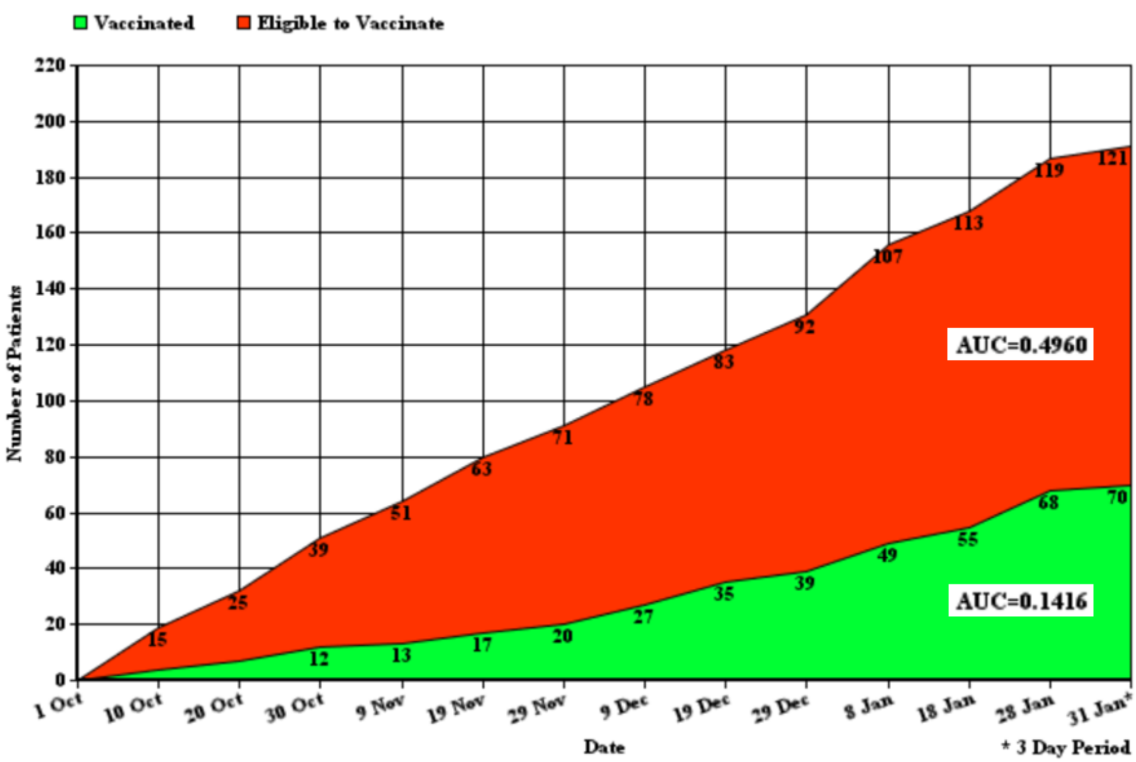

Figure 2. Cumulative patient vaccine status per 10-day increment, with calculated Vaccine Velocities, which equal AUCs.

Because the efficacy of the 2014-2015 season vaccine is known, and the influenza attack rate can be estimated, the effect of increasing the VV by a factor of 3.5 can be modeled. The effectiveness of the vaccine is reported at 19%, unusually low as the ten-year rolling average of vaccine effectiveness is approximately 40% (CDC, 2015a). The World Health Organization uses an average adult attack rate range of up to 10% and a pediatric attack rate as low as 20% (WHO, 2014). Using these attack rates weighted with the pediatric and adult populations in this study yielded an overall attack rate of 13.5%. By multiplying the total population, the attack rate, vaccine effectiveness, and the VV, the number of influenza cases that could be prevented by vaccination can be estimated:

Sample VV:	5624 (0.135) (0.19) (0.1416)	= 20 cases prevented
Theoretical VV:	5624 (0.135) (0.19) (0.4960)	= 71 cases prevented
Total additional preventable influenza cases		= 51

Discussion

The results of this study support the implementation of ED-based influenza vaccination. Especially in military EDs, most of the traditional barriers to such programs can be overcome. Cost—the number one concern of civilian ED directors—is largely irrelevant as the military is effectively self-insured. There are no turf-wars to fight either, as vaccination is a core mission in the medical corps and no single department’s bottom line would be impacted. Anecdotally, spreading the vaccination mission across the hospital was seen as a welcome division of labor, particularly as it would decompress the immunization clinic workload. Follow-up is assured within the system, and most military EDs are not overcrowded enough that LOS would become a real concern. In practice, the WPAFB ED average LOS is about 130 minutes. The few minutes it would take to vaccinate would likely be concurrent to the patient’s stay, rather than added at the end of the ED visit. In short, the impact on hospital and ED operations would be minimal and the program would likely receive support from hospital leadership, public health, and the immunizations clinic. In addition, because there are centralized databases that track immunization status, program implementation and effect could be easily studied.

A successful trial program at WPAFB could then be scaled-up to all EDs Air Force-wide. If that proved successful, implementation throughout the Department of Defense would be the next step. This could help drive a shift in the standard-of-care that could translate into civilian practice. Assuming that the WPAFB population studied is representative of the 136.3 million ED visits in 2011 (as a surrogate for 2014 visits), and ignoring repeat visits, the modeling in this study predicts that a total of 1,239,000 additional cases of influenza could have been prevented across the US. Such assumptions are questionable at best, but the possibility of preventing anything close to 1.2 million cases of influenza in a single year demands action.

This study has several limitations. Firstly, it is retrospective in nature. Our modeling assumed that 100% of those eligible to receive influenza vaccination would elect to do so. This does not reflect the historical average reported in the literature, which varies between a low of 54% (Cassidy et al., 2009; Rodriguez & Baraff, 1993; Wrenn et al., 1994), to a high of 78% (Cohen et al., 2013), and averages to 60% (see Table 1).

Table 1. *Average Percent of ED Patients Willing to be Vaccinated by Study*

Study Author	**Study Year**	**Percent Willing**
Polis et al.	1987	60
Rodriguez & Baraff	1993	54
Wrenn et al.	1994	54
Slobodkin et al.	1998	71
Chiasson et al.	2000	46.9
Kapur & Tenenbein	2000	59.3
Cassidy et al.	2009	54
Cohen et al.	2013	78

Note: Overall average of those willing to be vaccinated is 60%.

In addition, while the fidelity of the data is likely much higher than most civilian settings due to a relatively captive patient population and the comprehensive nature of military data systems, it is possible that some patients received a vaccine that was not documented in the military vaccination database. While unlikely in the active duty patients, as they are required to document their vaccination in the military database, there is no such requirement for dependent spouses and children, or retirees. It is possible that this population of non-active duty patients could get vaccinated at another facility, in which case their true vaccination status would not be accurately reflected in the military database. This effect is likely minimized as there are disincentives to outside vaccination, as patients would either have to pay out-of-pocket or supply military insurance information, two barriers not present if vaccinated in the military system. However, if a significant amount of patients did receive outside and undocumented vaccine—free at a civilian employer, for example—the strength of the study's findings would be diluted.

While powerful forces have blocked adoption of influenza vaccination in the ED in the past, times have changed. The literature shows that influenza vaccination in the ED can happen quickly, with minimal impact on operations, and can even generate revenue. While some provider attitudes may be hard to change, the sheer benefit to the patient population demands a change in culture around primary prevention in the ED.

Conclusions

This study adds to the robust body of evidence demonstrating the potential impact of successful ED-based influenza vaccination programs. Once powerful opposition to such efforts is fading away in the face of clearly demonstrable patient benefit. With a new regulatory environment that eases the administrative burden and even creates reimbursement opportunities, it is time to move ED-based vaccination programs from investigational to operational.

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Appendices

Appendix A - Letter of Support from Lieutenant Colonel Ryan Mihata

DEPARTMENT OF THE AIR FORCE
88th MEDICAL OPERATIONS SQUADRON
WRIGHT-PATTERSON AIR FORCE BASE OHIO

29 Jan 15

MEMORANDUM FOR WHOM IT MAY CONCERN

FROM: 88 MDOS/SGOE
4881 Sugar Maple Drive
Wright-Patterson AFB OH 45433

SUBJECT: Point-of-Care Influenza Vaccination in the Emergency Department

1. I am furnishing this letter in support of Dr. DeFlorio's Evidence Based Practice project entitled "Point-of-care influenza vaccination in the Emergency Department." He has fully briefed me on his plans to study and then implement a system of ED-based influenza vaccination.

2. This project is fully consistent with published guidelines and our mission of near-universal influenza vaccination. As such it has my full support, and I hope to incorporate point of care influenza vaccination into standard ED operations.

3. Please do not hesitate to contact me at (937) 257-8838 or ryan.mihata@us.af.mil if I can be of any further assistance.

RYAN G.K. MIHATA, LtCol, USAF, MC, FS
Emergency Services Flight Commander

Appendix B - Letter of Support from Lieutenant Colonel Jeremy Sikora

DEPARTMENT OF THE AIR FORCE
88th MEDICAL GROUP
WRIGHT-PATTERSON AIR FORCE BASE OHIO

24 Jan 15

MEMORANDUM FOR WHOM IT MAY CONCERN

FROM: Jeremy M. Sikora, MAJ USAF MC

SUBJECT: Point-of-Care Influenza Vaccination in the ED

1. I am furnishing this letter in support of Dr. DeFlorio's Evidence Based Practice project entitled "Point-of-care influenza vaccination in the Emergency Department." He has fully briefed me on his plans to study and then implement a system of ED-based influenza vaccination.

2. This project is fully consistent with published guidelines and our mission of near-universal influenza vaccination. As such it has my full support, but in material terms (in vaccination supply and oversight), and in a consultative role (for IO development and to handle any vaccine-related events).

2. Please do not hesitate to contact me at (937) 257-1684 or a jeremy.sikora@us.af.mil if I can be of any further assistance.

Jeremy M. Sikora, USAF, MC
Chief, Allerg/Immunizations
88MDOS/SGOMA
4881 Sugar Maple Dr.
Wright Patterson AFB, OH 45433

Appendix C - Wright-Patterson Air Force Base IRB Approval Letter

DEPARTMENT OF THE AIR FORCE
88TH MEDICAL GROUP
WRIGHT-PATTERSON AIR FORCE BASE OHIO

3 February 2015

MEMORANDUM FOR 88 MDOS/SGOE
ATTN: LT COL PAUL DEFLORIO

FROM: 88 MDG/SGNE

SUBJECT: Institutional Review Board (IRB) Research Determination

1. Your project proposal entitled "Point of Care Influenza Vaccination in the Emergency Department" has been reviewed by a member of the Wright-Patterson Medical Center (WPMC) IRB designated as a USAF Exempt Determination Official by the Air Force Surgeon General's Research Oversight and Compliance Division.

2. The purpose of this study is to retrospectively clarify what percentage of emergency department (ED) patients could receive influenza vaccine in the ED, establish a protocol for administering the vaccine, and implement vaccine administration. The goal would be to increase vaccination rates in the beneficiary population, and decrease the incidence of influenza.

3. It has been determined that this project does not meet the criteria to be considered research involving human subjects. The activity is an Evidence-Based Practice Change that is not designed to contribute to generalizable knowledge (32 CFR § 219.102). Therefore, research protocol approval and oversight by an IRB is not required. *Any changes to the activity may affect the study status and must be reviewed by the WPMC IRB.*

4. This determination does not give permission to conduct this study; this authority lies with the unit commander.

5. If you have any questions regarding this determination, please call me at (937) 257-4242.

FREDERICK H. FUNKE
Acting Chair, WPMC Institutional Review Board

Atch
Human Subject Research Checklist

Appendix D - Wright State University IRB Authorization Agreement

February 6, 2015

Assigned to: Robyn Wilks

REQUEST FOR REVIEW UNDER
IRB AUTHORIZATION AGREEMENT
WRIGHT STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD
Assurance Number: FWA00002427

IAA Number 546 (New) 2/23/15 **Protocol ID**

Item Type New

Title Point of Care Influenza Vaccination in the Emergency Department

Principal Investigator Paul Deflorio MPH

The attached protocol (and consent form, if applicable), or amendment/renewal thereof, has been approved by an IRB with which Wright State has a cooperative agreement allowing that IRB to approve the protocol without requiring WSU approval in addition. However, the agreement does allow the WSU IRB to disapprove protocols/amendments/renewals so approved.

You are requested to review the attached documents and indicate a response in one of the three check-boxes below. Then return this sheet and the protocol to the Program Coordinator, Jodi Blacklidge, in 201J University Hall.

[X] **Concur** with cooperating institution's IRB approval. RSW - this study is not research.

[ ] **Disapprove** because ______________________

____

[ ] Unable to perform this review, please re-assign.

Routing instructions:

If concurrence: After the IRB meeting, send a copy of this form to the cooperating institution IRB and file this form and the protocol/consent form/other institution IRB approval in the IAA file. Enter information in the IAA database.

If disapproval: Send a copy of this form along with a transmittal memo to the WSU IRB Chair as soon as possible. The Chair will forward the notice to the IRB Chair of the cooperating institution. The notice will request acknowledgment of receipt of the notice to be sent to the WSU IRB Coordinator (Robyn Wilks). File acknowledgment in the IAA file. Enter information in the IAA database.

If unable to review: Consult with IRB Coordinator to find an alternate reviewer.

Appendix E – Public Health Competencies Used in CE

Tier 1 Core Public Health Competencies

Domain #1: Analytic/Assessment Skills
Identifies quantitative and qualitative data and information (e.g., vital statistics, electronic health records, transportation patterns, unemployment rates, community input, health equity impact assessments) that can be used for assessing the health of a community
Applies ethical principles in accessing, collecting, analyzing, using, maintaining, and disseminating data and information
Uses information technology in accessing, collecting, analyzing, using, maintaining, and disseminating data and information
Selects valid and reliable data
Identifies gaps in data
Collects valid and reliable quantitative and qualitative data
Describes public health applications of quantitative and qualitative data
Uses quantitative and qualitative data
Describes assets and resources that can be used for improving the health of a community (e.g., Boys & Girls Clubs, public libraries, hospitals, faith-based organizations, academic institutions, federal grants, fellowship programs)
Describes how evidence (e.g., data, findings reported in peer-reviewed literature) is used in decision making
Domain #2: Policy Development/Program Planning Skills
Identifies current trends (e.g., health, fiscal, social, political, environmental) affecting the health of a community
Gathers information that can inform options for policies, programs, and services (e.g., secondhand smoking policies, data use policies, HR policies, immunization programs, food safety programs
Describes implications of policies, programs, and services
Domain #3: Communication Skills
Conveys data and information to professionals and the public using a variety of approaches (e.g., reports, presentations, email, letters)
Domain #5: Community Dimensions of Practice Skills
Recognizes relationships that are affecting health in a community (e.g., relationships among health departments, hospitals, community health centers, primary care providers, schools, community-based organizations, and other types of organizations)
Suggests relationships that may be needed to improve health in a community
Supports relationships that improve health in a community
Collaborates with community partners to improve health in a community (e.g., participates in committees, shares data and information, connects people to resources)
Domain #6:Public Health Sciences Skills
Retrieves evidence (e.g., research findings, case reports, community surveys) from print and electronic sources (e.g., PubMed, Journal of Public Health Management and Practice, Morbidity and Mortality Weekly Report, The World Health Report) to support decision making
Recognizes limitations of evidence (e.g., validity, reliability, sample size, bias, generalizability)
Describes evidence used in developing, implementing, evaluating, and improving policies, programs, and services
Describes the laws, regulations, policies, and procedures for the ethical conduct of research (e.g., patient confidentiality, protection of human subjects, Americans with Disabilities Act)
Contributes to the public health evidence base (e.g., participating in Public Health Practice-Based Research Networks, community-based participatory research, and academic health departments; authoring articles; making data available to researchers)
Suggests partnerships that may increase use of evidence in public health practice (e.g., between practice and academic organizations, with health sciences libraries)
Domain #7: Financial Planning and Management Skills
Describes government agencies with authority to impact the health of a community
Describes public health funding mechanisms (e.g., categorical grants, fees, third-party reimbursement, tobacco taxes)
Motivates colleagues for the purpose of achieving program and organizational goals (e.g., participating in teams, encouraging sharing of ideas, respecting different points of view)
Describes program performance standards and measures

Domain #8: Leadership and Systems Thinking Skills
Incorporates ethical standards of practice (e.g., Public Health Code of Ethics) into all interactions with individuals, organizations, and communities
Describes public health as part of a larger inter-related system of organizations that influence the health of populations at local, national, and global levels
Describes the ways public health, health care, and other organizations can work together or individually to impact the health of a community
Contributes to development of a vision for a healthy community (e.g., emphasis on prevention, health equity for all, excellence and innovation)
Identifies internal and external facilitators and barriers that may affect the delivery of the 10 Essential Public Health Services (e.g., using root cause analysis and other quality improvement methods and tools, problem solving)
Describes needs for professional development (e.g., training, mentoring, peer advising, coaching)
Participates in professional development opportunities

Concentration Specific Competencies

Public Health Management
Have a knowledge of strategy and management principles related to public health and health care settings
Be capable of applying communication and group dynamic strategies to individual and group interaction
Know effective communication strategies used by health service organizations
Have an understanding of organizational theory and how it can be utilized to enhance organizational effectiveness
Have a knowledge of leadership principles
Know change management principles
Have a knowledge of strategies used for monitoring, evaluating, and continuously improving program performance
Be capable of applying decision-making processes
Have a knowledge of systems thinking principles
Have an awareness of strategies for working with stakeholders to determine common and key values to achieve organizational and community goals
Be able to determine how public health challenges can be addressed by applying strategic principles and management-based solutions
A knowledge of ethical principles relative to data collection, usage, and reporting results
An awareness of ethical standards related to management
A knowledge of ethical standards for program development