High Dose Influenza Vaccine Utilization at Inland Hospital in Waterville, Maine

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Project mentors:

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Problem Identification

- Influenza carries a high morbidity and mortality[1]
  - Annual US hospitalizations: 140,000-710,000
  - Annual US deaths: 12,000-56,000
  - Adults over 65 years are at increased risk with 90% of influenza-related deaths
- While adults over 65 years old are most at risk from influenza, they also are the population in which the standard-dose influenza vaccine is least efficacious due to the decline in immune function with aging.[2]
- High-Dose influenza Vaccine has been approved by the FDA for use in adults 65 and older and has been shown to reduce:
  - Incidence of influenza[4]
  - Hospitalizations
  - Pneumonia
  - Cardio-respiratory events[5]
  - Mortality from influenza[8]

Problem identification - Waterville

- While high-dose influenza vaccine is shown to be more effective, it has not been widely utilized by the primary care providers of Inland Hospital.[6]
- In the 2016-2017 season, a total of 600 high-dose flu vaccines were utilized by Inland Hospital for 5,197 patients over 65 years old.[9]

Public Health Cost (US) of Influenza

- Direct medical costs: $10.4 billion annually.
- Projected lost earnings due to illness and loss of life: $16.3 billion annually.
- Total economic burden of annual influenza epidemics using projected statistical life values: $87.1 billion.[10]

Community Perspective

- *"Influenza carries a tremendous morbidity and mortality for our community. The high-dose influenza vaccine is currently under-utilized by our outpatient practices and is a valuable tool for prevention."*

  - Sara Donovan, RN, Infection Preventionist, Inland Hospital[6]

- The low high-dose vaccine utilization rate at Inland hospital led to a waste of healthcare dollars at Inland Hospital.

  "For the high-dose flu vaccine in 2016-2017 I purchased 1500 doses and only 600 doses were given to patients. At $45.00 per dose that's a huge loss."

  - John Merchant, Pharm D, Director of Pharmacy, Inland Hospital[9]

Intervention and Methodology

- In order to increase awareness of the data about the use of high-dose influenza vaccine, a Power Point presentation was created and delivered to the primary care providers of Inland Hospital at one of their regularly scheduled monthly meetings.
- I obtained data from Inland Pharmacy – the supplier of the high-dose influenza vaccines to all Inland outpatient practices – about the number of high-dose influenza vaccines ordered in the 2016-2017 season as well as the 2017-2018 season.
- I obtained data from the outpatient practices to assess how many high-dose influenza vaccines each practice administered in both the 2016-2017 and 2017-2018 season.

Results

Practice	2016-2017 # high-dose influenza vaccines administered	2017-2018 # high-dose influenza vaccines administered
Inland Health Madison	36	135
Inland Health Unity	20	25
Inland Health Oakland	50	400
Inland Health Waterville	350	620

Results (continued)

- Inland Hospital Pharmacy Data

Flu Season	Doses Ordered	Doses utilized
2016-2017	1500	600
2017-2018	1350	1350

Evaluation of Effectiveness and Limitations

- Utilization of high-dose influenza vaccines increased by a factor of 2.25 between the 2016-17 and 2017-18.
- Approximately 25% of Inland primary care patients over the age of 65 received the high dose flu vaccine in the 2017-2018 flu season as compared with 11.5% in the 2016-2017 season.
- Increase was supported by the Power Point presentation delivered at the family medicine meeting in September though that is an association and not causal.
- Several other factors encouraged the increase usage including:
  - Patient request of the vaccine prompted by increased advertising on television and other media.
  - Email communications between the chief medical officer of Inland Hospital and primary care providers providing data about and encouraging use of high-dose influenza vaccine

Recommendations for future intervention

- As familiarity with high-dose influenza vaccine grows among both providers and patients, utilization should increase. However, reminders at the beginning of future influenza seasons as the vaccinations are starting to be administered, some communication with providers would be appropriate.
- High-dose influenza vaccine is not currently administered to hospitalized patients at Inland Hospital. This could be offered in future flu seasons and would increase the utilization.
- Future community projects could include:
  - Evaluation of the effectiveness of high-dose influenza vaccine in the local area as compared with the effectiveness of standard-dose influenza vaccine.
  - Patient-directed education materials regarding the high-dose influenza vaccine.

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Informed consent

- Thank you for agreeing to be interviewed. This project is a requirement for the Family Medicine clerkship. It will be stored on the Dana Library ScholarWorks website. Your name will be attached to your interview and you may be cited directly or indirectly in subsequent unpublished or published work. The interviewer affirms that he/she has explained the nature and purpose of this project. The interviewee affirms that he/she has consented to this interview. Yes __x___ / No _____ If not consenting as above: please add the interviewee names here for the department of Family Medicine information only.
- Name:

Sara Donovan, RN, Infection Preventionist, Inland Hospital

John Merchant, PharmD MHA BCPS, Director of Pharmacy - Inland Hospital