

# Evaluation of Appropriate Screening and Administration of Tdap Vaccination in Adult Emergency Department

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## Problem

- The Centers for Disease Control and Prevention (CDC) and Advisory Committee on Immunization Practices (ACIP) recommend a tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) booster every 10 years for adults and a prophylactic dose if patient obtains a tetanus-prone wound at least five years since the last tetanus-containing vaccine
- Ensuring Tdap vaccinations align with recommended intervals not only enhances public health by increasing immunity to pertussis, but also reduces unnecessary healthcare costs associated with inappropriate or excessive Tdap vaccinations
- As of September 2023, UChicago Medicine purchases each dose of Tdap for \$46.07
- Emergency Department (ED) encounters for wound management offer an opportunity to ensure up-to-date Tdap immunization. However, determining optimal timing remains a challenge

## Goal

- We aim to describe the appropriateness of screening and administration of Tdap in the adult ED during May 2023 by reviewing patient electronic health records (EHR), including vaccination histories, and pharmacist intervention data
- Using these findings, we hope to identify opportunities to minimize waste due to inappropriate Tdap administration (less than five years from last dose of tetanus-containing vaccine)

## Intervention Design

- This was a retrospective medication evaluation of patients who had Tdap vaccine ordered or dispensed from an automated dispensing cabinet (ADC) in the CCD ED in May 2023
- Reviewed 450 patient encounters
- 145 encounters were excluded due to duplication or not treated in the ED
- Providers determined patients had tetanus-prone wounds, making them eligible for Tdap. Patients without EHR documentation of recent tetanus vaccination were considered unvaccinated in the past five years, ensuring appropriate vaccination

- The primary outcome is the percentage of Tdap vaccinations administered to adult ED patients that could be considered inappropriate based on the timing of their previous tetanus vaccination
- Secondary outcomes include assessing emergency medicine (EM) clinical pharmacist intervention on Tdap ordering and administration, and costs associated with inappropriate premature Tdap vaccination

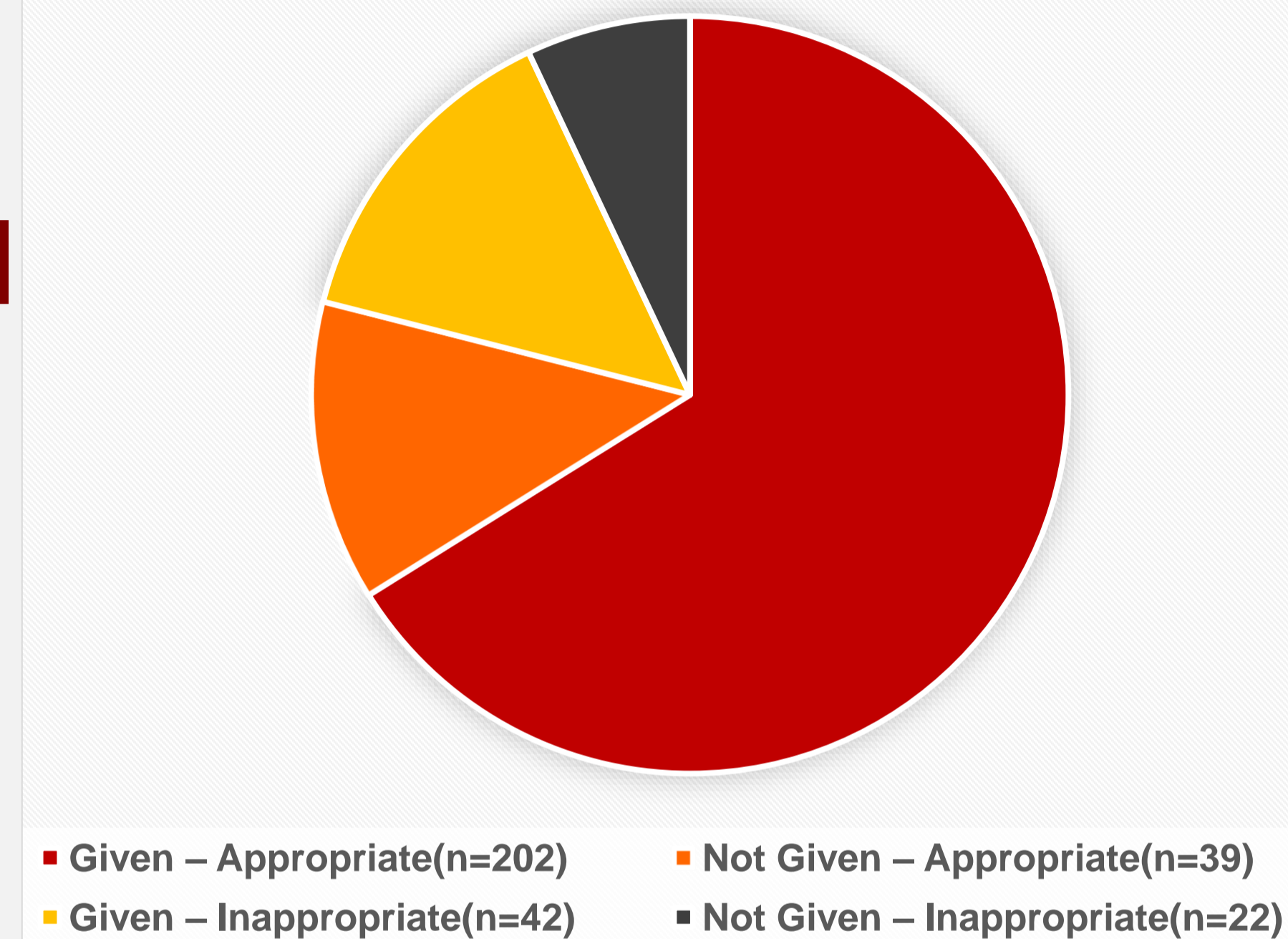
## Results

- A total of 305 patients who had a tetanus-containing vaccine ordered or administered in the CCD ED in May 2023 were evaluated for appropriateness of Tdap administration
- Previous vaccination records were unavailable or unknown for 131 (42.8%) of patients
- Review of the EHR determined that 244 (80%) of the patients either appropriately received the Tdap vaccine or appropriately had it withheld
- Conversely, 39 (12.8%) patients inappropriately received the Tdap vaccine
- Twenty-two (7.2%) patients did not receive a Tdap vaccine when it was indicated for a variety of reasons, including patient refusal or patient going to the operating room prior to administration in the ED
- An additional 24(7%) patients had documented pharmacist intervention avoiding inappropriate administration, resulting in more than \$1000 in cost-avoidance during May

Table 1-Patient Demographics with Immunization History

	Duration (years) since last DT, DTaP, Td and Tdap	Number (n) Percent(%)
<b>Males</b>	<5	36(11.8)
	>5	80(26)
	Unknown	95(31)
	Total	210(69)
<b>Females</b>	<5	18(5.9)
	>5	41(13)
	Unknown	36(11.8)
	Total	95(31)

Figure 1. Appropriateness of Tdap Administrations



## Conclusions

- Nearly 15% of Tdap administrations in the CCD ED in May 2023 were inappropriately given within five years of the previous vaccination
- At least 7% of inappropriate Tdap vaccines were documented as prevented by EM Clinical Pharmacists
- Delaying Tdap until reviewing immunization history in the EHR could have prevented over 20% Tdap inappropriate administrations, saving nearly \$35,000 annually

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