The Pneumococcal Initiative in a Primary Care Setting

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Background

Pneumococcal infections are particularly important to address for adults, ages 19 to 64 years, with chronic conditions like type 2 diabetes mellitus (T2DM) as they increase the risk for severe health complications and outcomes

Prolonged hospitalizations
- T2DM patients 3x more likely for hospitalizations[5]
- 2021 DM with pneumonia hospitalizations ~23.2%

Heavy health expenditures
- Pneumonia related hospitalizations 2x to $20B since 2010 [10]
- Nationally
  2017: $327B ; 2019: $760B[1]
- CA: $39.47B[1]

Increased mortality rates
- DM related pneumonia mortality rate increased 7.5% in US this past year[8]
- DM and pneumonia top 10 causes of death in Los Angeles[6]

Aims

Improve pneumococcal vaccination amongst T2DM ages 18 to 64 years in a primary care setting

- To improve knowledge about pneumococcal vaccination in providers at a primary care clinic over 12 weeks
- To increase pneumococcal vaccination screening among T2DM patients by 55% with provider utilization of CDSS in eClinicalWorks over 12 weeks
- To increase diabetic patient vaccination acceptance and adherence by 18% by the end of 12 weeks

Methods

Design
- Pre- and post-intervention design

Setting
- Underserved primary care community clinic, in a large urban city

Sample
- Providers, patients, and convenience sample

Evidence-Based Interventions
- Provider Pneumococcal Toolkit[12]
- Provider Diabetes Order Set (DOS)[2,9,13]
- Patient Point-of-care Handout[3,4,5,11]

Measures
- Pneumococcal pre- and post- quiz, KAP survey
- Pre- and post-DOS use
- Pre- and post-vaccine status

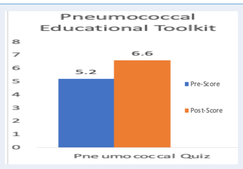
Sample Characteristics

Adult Primary Care Providers (n=5)	
Physicians	2 (40%)
Nurse Practitioners	3 (60%)

Adult Diabetic Patients (n=345)	
Male	111 (32.2%)
Female	234 (67.8%)
Average age (years)	52.5 (SD = 12.542)

Results

Aim 1



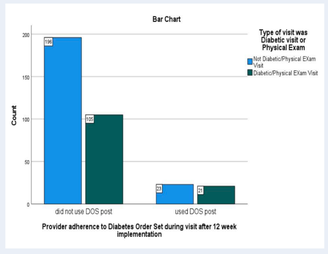
- Higher score means higher knowledge
- Wilcoxon signed rank test determined statistical significance with p=.038

KAP Survey

- Positive outcome shows intervention effectiveness

Aim 2

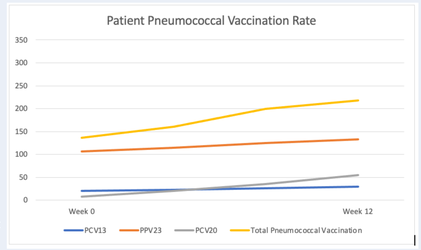
- Frequency analysis of diabetic encounters (n=345) showed 12.8% (n=44) use of the DOS over 12-weeks



Additional findings:
- Chi-square test showed no relationship between:
  - DOS use and type of visit (diabetes visit/physical exam versus other type of visit) p = .098
  - In-person versus telehealth visit p=.788

Aim 3

- Pneumococcal Vaccination Increase
  PCV13 by 1.4%
  PPV23 by 7.5%
  PCV20 by 13.6%
- Overall total increase by 37.7%
  - 130 of 345 vaccinated
- Pneumococcal Initiative shows statistical significance with the chi-square independent test ($\chi^2 = 35.08$, $p<.001$)



Conclusion

An educational Pneumococcal toolkit helped reinforce provider knowledge
Positive provider confidence and satisfaction

Although EHR tools may be advantage for some clinics, there was no statistical significance to the DOS
Clinical significance – EHR infrastructure review
Further findings emphasize the challenges in the telehealth system

Point-of-care patient handouts increased patient pneumococcal vaccine acceptance and adherence

Overall increase in patient pneumococcal vaccination adherence rate of 37.7% after 12-week

Future QI projects in a primary care setting would add validity

Limitations | Sustainability

- Small provider sample size – findings cannot be generalized
- Lack of proper EHR mapping/infrastructure
- Vaccine cost and hesitancy

- Continued stakeholder involvement
- Partnering with primary care community clinic organizations
- Educational toolkits are feasible practices can be readily adopted and integrated into routine healthcare practices for long-term benefits.
- Financial cost can be relatively low

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