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.

- T2DM patients 3x more likely for hospitalizations
- 2021 DM with pneumonia hospitalizations ~21%
- Nationally:
  - 2017: $337B; 2019: $760B
  - CA: $50.4B

- DM related pneumonia mortality rate increased 7.5% in US the past year
- DM and pneumonia top 10 causes of death in Los Angeles

Methods

- Design: Pre- and post-vaccine status
- Setting: Underserved primary care clinic, in a large urban city
- Sample: Providers, patients, and convenience sample

Evidence-Based Interventions

- Provider Pneumococcal Toolkit
- Provider Diabetes Order Set (DOS)
- Patient Point-of-care Handout

Measures

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

Aims

- 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

Sample Characteristics

<table>
<thead>
<tr>
<th>Adult Primary Care Providers (n=5)</th>
<th>Adult Diabetic Patients (n=345)</th>
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<tbody>
<tr>
<td>Physicians (2 (40%))</td>
<td>Male 111 (32.2%)</td>
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<tr>
<td>Nurse Practitioners (3 (60%))</td>
<td>Female 234 (67.8%)</td>
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<td>Average age (years) 52.5</td>
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<td>SD = 12.542</td>
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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 (telephone vs physical exam vs other type of visit)
  - p = .098
  - In-person versus telehealth visit

Aim 3

- Pneumococcal Vaccination
  - PreV13 by 1.4%
  - PPV23 by 7.5%
  - PCV20 by 13.6%

- Overall total increase by 37.1%
  - 136 of 345 vaccinated

- Pneumococcal Initiative shows statistical significance with the chi-square independent test (χ² = 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

Overall increase in patient pneumococcal vaccination adherence rate of 37.7% after 12-week intervention effectiveness
- Future QI projects in a primary care setting would add validity

Limitations

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

Sustainability

- 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

References

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