E-Cigarettes as Smoking Cessation Aids in Patients with Schizophrenia

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**BACKGROUND**
Smoking is the single largest preventable cause of disease and death in the US.
• About 400,000 premature deaths per year
• About $300 billion dollars per year in costs
Pennsylvania has a higher smoking rate than the national average:
- National Average: 18%
- Pennsylvania Average: 21%
- Allegheny County Average: 23%
The rate of smoking in populations with schizophrenia is two to three times as much as the general population. The rate of smoking in this population is notably high due to many reasons such as self-medication or improvement of cognitive impairment caused by medication side-effects.

Why e-cigarettes? In 2014, 12% of adults had tried an e-cigarette and almost half of current smokers had used one. It is important to address any possible safety concerns with patients who inquire about them due to their increasing popularity.

Why is this important? Smoking influences the metabolism of certain anti-psychotics to reduce or enhance their effects so a patient’s smoking status is extremely important when determining dosing.

**DESCRIPTION OF SITE**
Forbes Pharmacy is located in downtown Oakland, near many other UPMC facilities. It is a unique outpatient setting that specializes in behavioral health pharmacy, which services many patients with schizophrenia and schizophrenia disorders in the Pittsburgh area.

**OBJECTIVES**
1. Understand current studies on safety of the e-cigarette
2. Research effectiveness of e-cigarettes as smoking cessation aids in comparison to FDA-approved smoking cessation aids
3. Research data pertaining specifically to e-cigarettes and patients with schizophrenia
4. Evaluate current patient knowledge regarding e-cigarette safety and regulation
5. Apply data to create patient friendly educational material

**RESULTS**

**Importat Safety Points**
• Reported side effects: mouth irritation, cough, nausea
• May cause more third hand exposure due to vapor settling on surfaces
• Aerosol contains some toxicants present in tobacco smoke but at much lower levels
• FDA review found substances known to be toxic and carcinogenic in e-cigarette aerosols and liquids
• High temperatures cause propylene glycol and glycerol to break down into carbonyl compounds (formaldehyde and acetaldehyde)
• EC produce high levels of free radicals that fall in range of 100-1000 times less than levels in regular cigarettes

**Efficacy as NRT in General Populations and Populations with Mental Illness**

<table>
<thead>
<tr>
<th>Study</th>
<th>Mullin, et al.</th>
<th>Purpose</th>
<th>Population</th>
<th>Method</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>FEEL IF</td>
<td>people &gt;18 years of age wanted to quit but were not using any other cessation aid</td>
<td>No change in smoking cessation</td>
<td>No difference in effectiveness of e-cigarettes and NRT. Quit rates higher than expected. Statistical evidence insufficient to conclude nicotine e-cigarettes were better than NRT or placebo e-cigarette.</td>
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<tr>
<td>Caporizzo, et al.</td>
<td>To assess the safety and efficacy of e-cigarettes for smoking cessation</td>
<td>people &gt;18 not attempting to quit or only doing so in the next 30 days</td>
<td>No change in smoking cessation</td>
<td>No change in smoking cessation</td>
<td></td>
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</table>

**CONCLUSIONS**

**OBJECTIVES**
1. Gathered baseline information from patients at Forbes Pharmacy via survey asking smoking status, quit attempts, previous e-cigarette use and knowledge on regulation and safety
2. Used feedback from survey to create patient friendly handout on basic information regarding e-cigarettes