

Knowledge, Perceptions, and Awareness of Electronic Cigarettes Among Healthcare Providers and In-Patients

Amber Al-Abed RRT, Tara Chung RRT, Elizabeth Lin RRT, and Intesar Ismail RRT
 Advisor: Georgianna Sergakis PhD, RRT
 Respiratory Therapy Division, School of Health and Rehabilitation Sciences
 The Ohio State University, Columbus, Ohio

Abstract

Electronic cigarettes (e-cigarettes) are battery powered inhalation devices that turn nicotine into vapor. E-cigarettes contain complex mixtures of chemicals, the safety of which is unknown and are not FDA approved. However, the e-cigarette market is evolving rapidly and the use of e-cigarettes has increased exponentially. As the use of e-cigarettes rises, healthcare providers should be prepared to provide consistent evidence-based advice to their patients regarding this emerging issue. **OBJECTIVE:** The purpose of the study was to investigate the knowledge, perceptions, and awareness of e-cigarettes among the in-patients, nurses, physicians, mid-level providers, and respiratory therapists at The Ohio State University Wexner Medical Center. An understanding of the deficits in knowledge and misperceptions will inform future healthcare interactions surrounding e-cigarette use. **METHODS:** This descriptive pilot study utilized an online survey instrument that was sent out to over 900 healthcare providers. Additionally, in-patient smokers at the institution completed a survey about their knowledge and perceptions of e-cigarette use and safety. In-patients were recruited from a list obtained by the Patient Education and Evaluation Program (PEEP) team, a group of RTs who educate and advise patients during brief tobacco counseling sessions at OSUWMC. These participants were recruited from self-reported past or current smoking history. **RESULTS:** A total of 306 HCPs and 24 in-patients were surveyed. HCPs reported receiving questions from patients about e-cigarettes but rated their confidence in providing information as low. Final results indicate that there is a gap in the knowledge and misperceptions regarding the utility and use of both the healthcare providers and the in-patients surveyed. Opportunities for HCP training and the dissemination of advice regarding e-cigarette should be initiated. **CONCLUSION:** More research and education needs to be conducted to address the safety and efficacy of using e-cigarettes to provide consistent evidence-based advice for patients.

Background & Research Questions

The purpose of this study was to explore in-patient and healthcare provider (HCP) knowledge, perceptions, and awareness of e-cigarettes in an acute care facility.

- E-cigarettes were invented in the 1960s, however it did not become popular until early 2000s.
- E-cigarette use is increasing.
- Safety of e-cigarettes are unknown and not FDA regulated.
- HCP knowledge and perceptions of e-cigarettes have not been studied.
- HCPs may not give consistent advice concerning e-cigarettes.
- Consumers could be misguided by the variable information given by HCPs.

Research question:

What is the knowledge, perception, and awareness of healthcare providers and in-patients regarding e-cigarettes?

Methods

Descriptive pilot study utilized survey instruments to measure e-cigarette knowledge, perceptions, and awareness.

Healthcare providers

- Subjects: physicians, mid-level providers, RTs, and RNs employed at OSUWMC.
- SurveyMonkey used to deliver questionnaire about the knowledge, perceptions and awareness of e-cigarettes.
- Subjects were offered a gift card incentive for completing the survey.

In-patients

- Subjects: In-patients admitted to OSUWMC with a past or current smoking history.
- Researchers delivered paper and pencil survey instrument about knowledge, perceptions, and awareness of e-cigarettes.
- Data Collection Procedure:
 1. Explained purpose of the study and obtained consent.
 2. Conducted chart review of smoking history.
 3. Administered knowledge, perception, and awareness survey.
 4. Answered any questions.

Data Analysis

- Descriptive statistics utilizing SPSS 21.0 software.

Results: Healthcare Providers

Participants

Physicians: 28
Mid-level Providers: 35
Respiratory Therapists: 62
Nurses: 179

Healthcare Providers' Knowledge and Perceptions of E-cigarettes					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Patients should be allowed to use e-cigarettes in the hospital.	23.5%	27.5%	25.2%	19.9%	3.9%
Patients should be permitted to use e-cigarettes in the hospital with their physician's approval.	18.3%	20.9%	19.3%	33.7%	7.8%
E-cigarettes are a recommended pharmacotherapy for tobacco cessation.	12.1%	28.4%	38.2%	20.3%	1.0%
E-cigarettes are safe.	11.8%	36.9%	41.5%	9.5%	0.3%
Further research needs to be conducted about e-cigarettes.	1.0%	1.3%	7.2%	41.8%	48.7%

Confidence In Providing E-cigarette Information	
Healthcare Providers	Mean
Physicians	5.36
Respiratory Therapists	3.89
Mid-level Providers	3.79
Nurses	3.68

On a scale of 1-10 (10 being most confident)

- HCPs reported that patients ask about e-cigarettes up to 5 times per month.
- 51% of HCPs believed patients should not use e-cigarettes in the hospital, however 41.5% believed it is acceptable with a physician's approval.
- 65.6% of HCPs said they have not given any advice on using e-cigarettes as a smoking cessation tool, while 34.4% of HCPs have advised patients.
 - Of those that have advised patients:
 - 53.6% HCPs said they would not advise patients to use e-cigarettes.
 - 46.4% HCPs said they would advise patients to use e-cigarettes.

Physicians

- 76.7% have practiced medicine for greater than 6 years.
- 97.1% did not include education about e-cigarettes in their medical school curriculum or residency.
- 67.7% would not allow in-patients to use e-cigarettes if requested.

Mid-level Providers

- 53.6% have had less than 10 years of experience.
- 100% did not include education about e-cigarettes in their school curriculum.
- 67.9% would not allow in-patients to use e-cigarettes if requested.

Nurses

- 65% have had less than 10 years of experience.
- 100% did not include education about e-cigarettes in their nursing school curriculum.

Respiratory Therapists

- 58% have had less than 10 years of experience.
- 93.5% did not include education about e-cigarettes in their respiratory school curriculum.

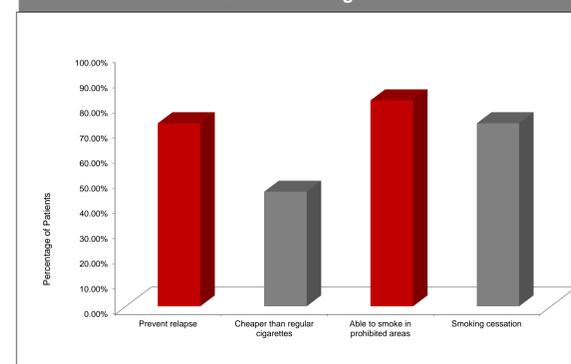
Results: In-Patients

Participants

- 24 in-patients recruited; 22 completed survey
- Mean age = 51.5 years; Range: 29-75 years
- 62.5% males; 36.4% females
- 70.8% current smokers
- 54.5% have tried an e-cigarette or currently using e-cigarettes

In-Patient Knowledge and Perceptions of E-cigarettes					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
E-cigarettes can help people quit smoking.	4.5%	9.1%	40.9%	22.7%	22.7%
E-cigarettes are less harmful than cigarettes.	4.5%	9.1%	31.8%	40.9%	13.6%
E-cigarettes are less addictive than cigarettes.	4.5%	13.6%	22.7%	45.5%	13.6%
E-cigarettes are a less expensive way to quit.	13.6%	13.6%	4.5%	55%	13.6%

In-Patient Beliefs in E-cigarette Initiation



Patients were instructed to select all that apply. The most popular combination was to both prevent relapse and ability to smoke in prohibited areas.



Discussion

- Majority of HCPs reported limited knowledge of e-cigarettes and concern with lack of FDA regulation. These issues are highlighted in the limited literature about e-cigarettes.
- Most participating RNs/RTs/Mid-level providers did not support the use of e-cigarettes in the acute care setting. However, with a physician's approval, HCPs agreed with e-cigarette use. Physicians reported they are not confident in providing advice about e-cigarettes. Opportunities for HCP training and the dissemination of advice regarding e-cigarette should be initiated.
- There is a gap in the knowledge and misperceptions regarding the utility and use of the both the healthcare providers and the in-patients surveyed.
- In-patient survey results were consistent with the literature. Most consumers thought e-cigarettes help with smoking cessation, preventing relapse, smoking in prohibited areas, and believed e-cigarettes are less harmful and addictive than regular cigarettes. This indicates a need for patient education about FDA approved pharmacotherapy for tobacco dependence.
- Majority of patients (54.5%) surveyed believed that e-cigarettes are less harmful than cigarettes. With over 250 brands of electronic cigarettes manufactured differently on the market, each may contain different concentrations of toxins. Due to these varying concentrations and increased use of e-cigarettes, there is an urgent need for FDA regulation and consumer education.

Conclusions

- Both healthcare providers and in-patients reported a lack of knowledge about e-cigarettes.
- An understanding of the deficits in knowledge and misperceptions will inform future healthcare interactions surrounding e-cigarette use.

Recommendations

- More research is needed to address the safety and efficacy of using e-cigarettes as a smoking cessation tool.
- Additional education will allow HCPs to provide consistent evidence-based advice.

Limitations

- Limited in-patient availability
- Time
- HCP response rate