

Population Health: The Impact of Optimizing Multi-modal Smoking Cessation Education for High-Risk Individuals in an Emergency Department Setting

Mitchell Van Overloop, BSN, RN, CEN¹; Christopher Port, MD, FACEP¹; Trevor Cummings, MD, FACEP¹; Nicholas Kuhl, MD, FACEP¹; Andy Scott, MSE, MHSA²; Stephanie Mullennix, MSN, RN, AGCNS-BC, CEN, CPHQ¹
 Emergency Care Specialists¹
 Michigan Emergency Department Improvement Collaborative²



PURPOSE

Through participation in the Michigan Emergency Department Improvement Collaborative an interdisciplinary team of Physicians and Registered Nurses aimed to increase the percentage of patients who received multi-modal smoking cessation education (audio-visual, verbal, and written) to provide best practices in patient education to those patients with diagnosed Chronic Obstructive Pulmonary Disorder who still smoke.

DESIGN, SETTING, SAMPLE

Emergency Care Specialists (ECS) is an independent physician owned medical group who provides care to over 500,000 patients per year in Michigan. ECS is a member of the Michigan Emergency Department Improvement Collaborative (MEDIC). MEDIC is a unique physician-led partnership supported by a major third-party payer aimed at improving outcomes for Emergency Department (ED) patients across the State of Michigan. Member sites contribute electronic health record data which is reported by MEDIC. This evidence-based quality improvement project utilized a before and after design.

Emergency Department visits within the ECS member collaborative cohort include ten different EDs including urban, rural, critical access, a Level 1, primarily adult trauma center, and a Level 1, pediatric trauma center. The population sampled during the quality intervention period included adult and pediatric emergency department visits with an identified health history of smoking. The data is filtered to include only smoking patients who have a diagnosis of COPD in any of the following ICD-10 codes: J430-432, J438-441, and J449. Each site electronically reports on whether the MEDIC approved electronic and verbal smoking cessation counseling was provided to these patients or not. Cases were taken from when ECS started collecting data in August of 2022 until December of 2023.

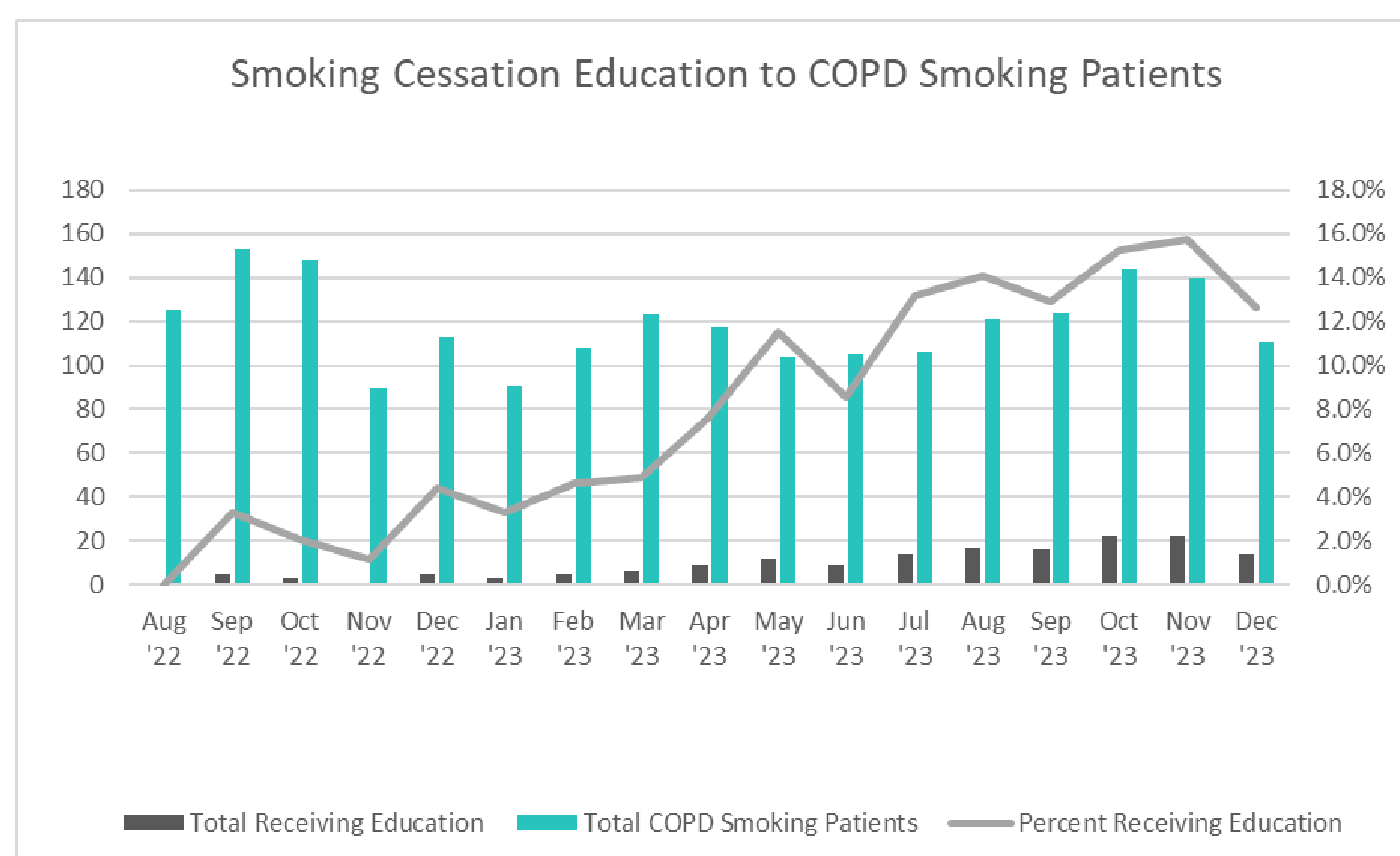
METHODS & ANALYSIS

An interdisciplinary team of physicians and nurses collaborated with a hospital-based Electronic Health Record informatics team to formulate data reports that captured the appropriate smoking patient population as identified by MEDIC. Donabedian's methodology was used to build the structure of the necessary data reports, address the discharge process, and add the additional components of the discharge education with an aim to increase the number of patients that received the smoking cessation education. See *Table 1* for more information. Data was used to establish a baseline of how often cessation education was being provided to the smoking COPD population and Microsoft Excel was used to demonstrate group and individual site performance. Performance metrics and goals were shared with regional site medical directors who helped instruct colleagues on what items needed to be included in the patient discharge paperwork. A Quick-Response (QR) code with a linked educational video explaining the many benefits of smoking cessation was also inserted in the discharge paperwork for patients to view when able.

Table 1

Structure:	Process:	Outcomes:
<ul style="list-style-type: none"> Physician and quality leads created an ED Dispo Smoking Cessation SmartSet within the Electronic Health Record (EHR) which was automatically suggested if a patient had a positive history of smoking in the ED triage and/or the patient's health history Developed a plan to communicate the use of the SmartSet Provide updates on the performance and utilization of the SmartSet to improve the percentage of patients that received the smoking cessation education 	<ul style="list-style-type: none"> Analyzed trends of the SmartSet utilization by monitoring documentation within the EHR Identified gaps in EHR documentation and the inclusion of the smoking history by performing manual audits of data reports Altered the EHR data set as a result of the audit to prevent non-smokers from being included in the data reports Posted site-specific and global performance trends on % of ED COPD patients that received smoking cessation education Provided updates at monthly Quality and Operational meetings 	<ul style="list-style-type: none"> Utilized Tableau and Excel to calculate performance trends Prior to the intervention period, smoking COPD patients received multi-modal smoking cessation education 0% of the time. During the "roll-out" period of Sep '22-Dec '22, patients received multi-modal smoking cessation education 2.2% of the time. During the "implementation period" of Jan '23-Dec '23, patients received multi-modal smoking cessation education 10.4% of the time with a 14% education rate in the last 6 months of the implementation period of Jul-Dec '23.

Figure 1



RESULTS

The percentage of smoking COPD patients that received multi-modal smoking cessation education prior to the implementation period was 0%. During the "roll-out" period of Sep '22-Dec '22, patients received multi-modal education 2.2% of the time and during the "implementation period" of Jan '23-Dec '23, patients received multi-modal education 10.4% of the time. During the last 6 months of the implementation period, smoking COPD patients received smoking cessation education 14% of the time with certain individual hospital sites providing smoking cessation education as high as 43% of the time. See *Figure 1* for more information.

CONCLUSIONS

Multi-modal education is one of the most effective ways to provide instruction. Effectively utilizing the EHR to incorporate modern technology in patient education is one of the first steps in reaching patients with important, health-altering information rather than relying on previous methods of verbal and written instruction. Layering the methods of patient education will likely cause patients to receive the education in their preferred method of learning which will influence their health and lifestyle choices which will positively impact population health.

ACKNOWLEDGEMENTS

Our team would like to extend a special thanks to our dedicated clinical teams and the MEDIC coordinating center team for their ongoing commitment to improving outcomes for ED patients in Michigan.

REFERENCES

- Bernstein, S. L., Bijur, P., Cooperman, N., Moadel, A., Jearld, S., & Gallagher, E. J. (2012). Predictors of in-person follow-up among subjects in an ED-based smoking cessation trial. *The American Journal of Emergency Medicine*, 30(9), 2067-2069. <https://doi.org/10.1016/j.ajem.2012.06.011>.
- Pelletier, J. H., Strout, T. D., & Baumann, M. R. (2014). A systematic review of smoking cessation interventions in the emergency setting. *The American Journal of Emergency Medicine*, 32(7), 713-724. <https://doi.org/10.1016/j.ajem.2014.03.042>.
- Rush, B., Lewis, S., Bains, M., Fogarty, A., & Johnson, G. (2018). Smoking cessation in the emergency department: A qualitative exploration of staff attitudes. *The Lancet*, 392, S77. [https://doi.org/10.1016/S0140-6736\(18\)32911-8](https://doi.org/10.1016/S0140-6736(18)32911-8).

Although Blue Cross Blue Shield of Michigan and MEDIC work collaboratively, the opinions, beliefs and viewpoints expressed by the author do not necessarily reflect the opinions, beliefs and viewpoints of BCBSM or any of its employees. Support for MEDIC is provided by Blue Cross and Blue Shield of Michigan and Blue Care Network as part of the BCBSM Value Partnerships program