



# Primary Care Provider Education to Address Barriers and Reduce Disparities in Lung Cancer Screening and Smoking Cessation Treatment: A Pilot Trial

Randi M. Williams<sup>1</sup>, \*Laney Smith<sup>1</sup>, Julia Whealan<sup>1</sup>, Jack Childs<sup>2</sup>; Katharine Glassmeyer<sup>2</sup>; Andrea K. Shepherd, DNP, FNP-C<sup>3</sup>; Allison Windels, MD<sup>4</sup>; Maria Geronimo, MSN<sup>5</sup>; Vicky Parikh, MD<sup>6</sup>; Joan Breece, NP<sup>4</sup>; Namita Puran, NP<sup>7</sup>; George Luta, PhD<sup>1</sup>; Eric Anderson, MD<sup>4</sup>; Lucile Adams-Campbell, PhD<sup>2</sup> & Kathryn L. Taylor, PhD<sup>1</sup>

<sup>1</sup>Georgetown University Medical Center, <sup>2</sup>Georgetown University, <sup>3</sup>Baylor University, <sup>4</sup>MedStar Georgetown University Hospital, <sup>5</sup>Anne Arundel Medical Center, <sup>6</sup>MedStar Shah Medical Group, <sup>7</sup>Medstar Washington Hospital Center

\*Presenting author

## Summary

The current study describes the development of a 30-minute self-paced e-learning course that aims to address patient and provider level barriers to lung cancer screening (LCS) and smoking cessation treatments. The study also provides preliminary evidence regarding the feasibility and impact of this newly created Health Disparities course among primary care providers (PCPs) at MedStar Health.

## Introduction

- Primary care provider-initiated discussions about LCS are low overall, and African Americans and other racial and ethnic minority individuals are less likely than Whites to have these discussions.<sup>1</sup>
- Racial and ethnic disparities also exist in receiving advice to quit smoking from their providers.<sup>2</sup>
- Effective methods are needed to improve provider knowledge about LCS, tobacco-related disparities, and to provide resources to achieve equity in LCS rates.

## Objectives

1. **Understand** patient and provider level barriers to tobacco treatment and LCS.
2. **Develop** a course to (1) educate PCPs about these barriers and (2) provide resources for providers to address these barriers with their patients.
3. **Report** the feasibility and impact of integrating a self-directed 30-minute Lung Cancer Health Disparities course with the LuCa National Training Network Lung Cancer Screening course (LuCa)<sup>3</sup> on providers' knowledge of LCS and its associated health disparities.

## Methods

### Phase I: Qualitative interviews

- Completed qualitative interviews with PCPs (N=9) and African American patients eligible for LCS (N=8; 4 screened, 4 unscreened) to assess barriers to LCS and tobacco cessation.

### Phase II: Designing the course

- Common barriers were used as framework for the development of a 30-minute e-learning provider education course.
- The Health Disparities (HD) course covered the following topics: 1) disparities in the burden of lung cancer; 2) disparities in smoking patterns and utilization of evidence-based smoking cessation treatments; 3) patient barriers to LCS; and 4) resources for providers to address common LCS barriers (e.g., patient reminders to support scheduling the scan, offering transportation options).
- Experts in health disparities (N=6) and LCS (N=9) provided detailed critiques of the course content and presentation.

### Phase III: The quasi-experimental study

- Eligible primary care providers from MedStar Health were recruited to complete a pre-test to assess providers' knowledge and attitudes about LCS and associated health disparities.
- Providers (N=91) were assigned to complete the LuCa only course or the LuCa + HD course.
- Providers completed a post-test to assess the impact of the intervention on knowledge and attitudes. There were 6 total knowledge items asked at the pre- and post-test.

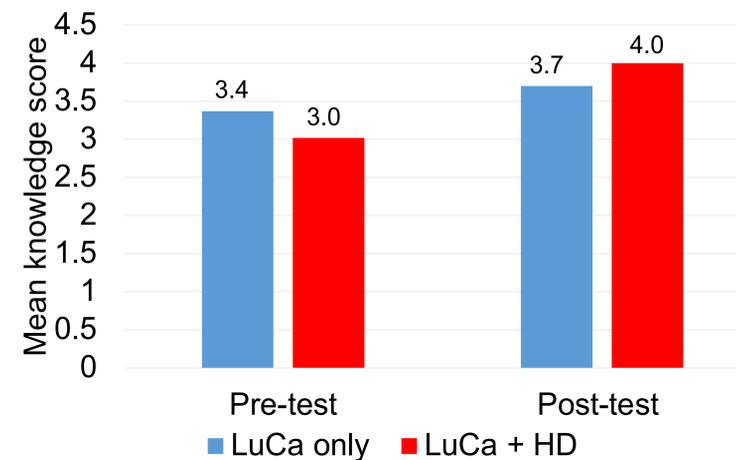
## Results

- Majority of the providers (N=91) were residents (60.4%) and specialized in internal medicine (63.7%). Baseline knowledge and attitudes did not differ between groups ( $p>0.05$ ).

**Table 1. Characteristics by Study Arm**

	LuCa (N=49)	LuCa + HD (N=42)	Total (N=91)
<b>Provider Characteristics</b>			
Age, Mean (SD)	35.5 (9.5)	31.7 (6.3)	33.7 (8.3)
Gender, Male N (%)	24 (49.0)	21 (50.0)	45 (49.5)
Race, White N (%)	25 (56.8)	22 (56.4)	47 (56.6)
Years since completing medical education, Mean (SD)	8.7 (9.4)	4.3 (5.7)	6.6 (8.2)
<b>Practice-related Characteristics</b>			
Average number of patients you see per week, Mean (SD)	40.2 (24.9)	32.3 (22.3)	36.6 (23.9)
In the last year, how often did you order LCS? N (%)			
0, I have not ordered LCS	5 (10.2)	11 (26.2)	16 (17.6)
1+ LCS orders	44 (89.8)	31 (73.8)	75 (82.4)

**Figure 1. Pre- and post-test knowledge scores**



- There was no significant difference between the study groups on post-test knowledge scores when controlling for baseline knowledge, number of years since completing one's medical education, and the average number of patients seen per week ( $p>0.05$ ).
- Within study arms, there was a significant improvement in knowledge scores pre- and post-test (LuCa only ( $p=0.03$ ) and LuCa + HD ( $p<0.001$ )).

## Discussion

- Although the post-test mean knowledge scores were not significantly different, the results suggest that the LuCa + HD course may increase a provider's knowledge about LCS-related disparities.
- Both arms indicated the amount of information provided was 'just right' (87.5% LuCa only; 82.9% LuCa + HD) suggesting that even the longer intervention (1.5 hours) may be a feasible education tool among busy PCPs.
- Limitations of this study include a small sample size and provider participation was confined to one health system.
- As a next step, we intend to evaluate the course in a randomized trial to look at the impact of the course on providers' lung screening referrals and whether referrals differ by race.

## Conclusions

Preliminary evidence shows the two e-learning courses can be easily disseminated and are effective in increasing providers' knowledge on LCS, smoking cessation, and related disparities impacting patients.

**Scan the QR code to access the course**

It is best viewed on a computer



## Acknowledgements

The authors would like to thank the providers who participated in this study, as well as the NCI for supporting the project:

3R01CA207228-05S1

## References

1. Landrine H, Corral I, Campbell KM. Racial disparities in healthcare provider advice to quit smoking. *Prev Med Rep.* 2018;10:172-175. doi:10.1016/j.pmedr.2018.03.003
2. Tibuakuu M, Okunrintemi V, Jirru E, et al. National Trends in Cessation Counseling, Prescription Medication Use, and Associated Costs Among US Adult Cigarette Smokers. *JAMA Netw Open.* 2019;2(5):e194585. doi:10.1001/jamanetworkopen.2019.4585
3. LuCa National Training Network. Lung Cancer and the Primary Care Provider. Online course offered via: AMA Ed Hub; Louisville, KY.