REMOTE TOBACCO CESSATION INTERVENTIONS

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Creating Aha! Moments In Healthcare

Outline

- **Background – The scope of the problem**
- **Evidence – Remote tobacco cessation interventions**
- **Teachable moments in the clinical context**

Background – The scope of the problem

- **Tobacco use remains the leading cause of premature death in the United States. Contributes to ~500,000 deaths each year**

- **Annual global toll of tobacco-related mortality exceeds 7 million**

National Center for Chronic Disease Prevention and Health Promotion (US) Office on Smoking and Health. The Health Consequences of Smoking—50 Years of Progress: A Report of the Surgeon General. Centers for Disease Control and Prevention (US); 2014. Accessed June 9, 2022. http://www.ncbi.nlm.nih.gov/books/NBK179276/; World Health Organization. WHO Report on the Global Tobacco Epidemic, 2017: Monitoring Tobacco Use and Prevention Policies. World Health Organization; 2017. Accessed June 9, 2022. https://apps.who.int/iris/handle/10665/255874

Background – The scope of the problem

- **Overall, the rate of tobacco use has declined due to:**
- Broader use of treatments
- Increased awareness of the harmful effects
- Expanded implementation of effective tobacco control policies

- **However, 12.5% (30.8 million) Americans still smoke**

- **Smoking rates can be 2-3 times higher in sub-populations**

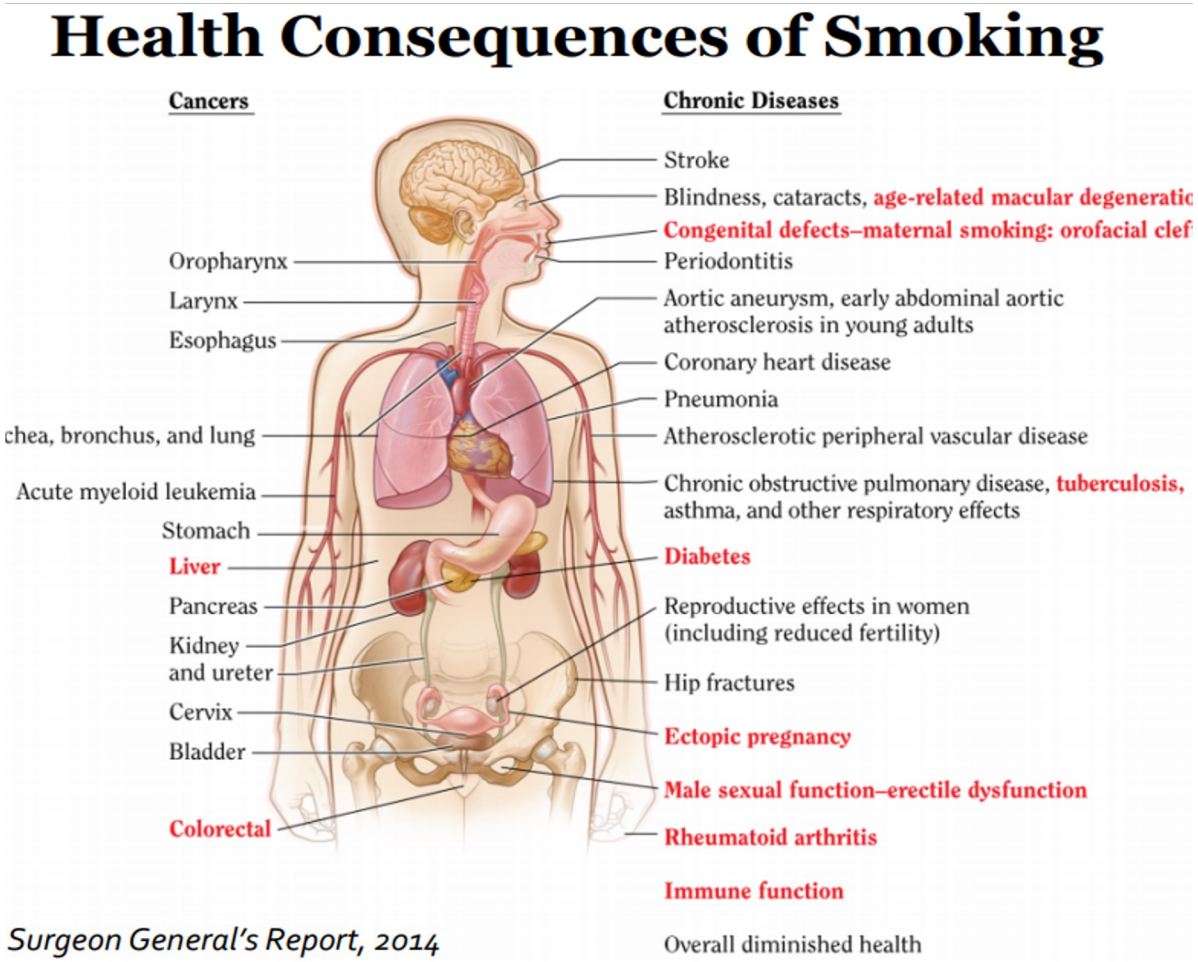
Cornelius ME, Loretan CG, Wang TW, Jamal A, Homa DM. Tobacco Product Use Among Adults — United States, 2020. MMWR Morb Mortal Wkly Rep 2022; 71:397–405. ; 2017 NSDUH Annual National Report | CBHSQ Data. Accessed June 9, 2022. https://www.samhsa.gov/data/report/2017-nsduh-annual-national-report

Background – The scope of the problem

- **40% of all cancers are linked to smoking**
- **50% of all cancer deaths are directly caused by smoking**
- **Analysis of over 400 studies addressing the impact of smoking on cancer patients and cancer survivors:**

Evidence that quitting smoking leads to decreased adverse outcomes

- all-cause mortality (30% reduction)
- cancer-specific mortality (60% reduction)
- risk of recurrence (28% reduction)



The Health Consequences of Smoking: 50 Years of Progress. A Report of the Surgeon General. Atlanta, GA: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2014.

Background – The scope of the problem

Treatment Complications & Persistent Smoking in Lung Cancer Care

Surgery

- Increased complications from general anesthesia
- Increased risk of postoperative pulmonary complications
- Increased risk of infection
- Detrimental effects on wound healing

Radiation

- Reduced treatment efficacy
- Increased toxicity and side effects

Chemotherapy

- Exacerbation of side effects; immune suppression, weight loss, fatigue, cardiac toxicity
- Drug interactions/toxicity
- Increased incidence of infection

Palliative care

- Poor pain control
- Respiratory distress
- Home oxygen therapy
- Hemodynamic instability
- Poor quality of life

Evidence – Remote tobacco cessation interventions

- **2020 Surgeon General's Report on Smoking Cessation**
- **2021 US Preventive Services Task Force (USPSTF) Grade A Recommendation**

Independently concluded that behavioral treatment **and** pharmacotherapy are safe and effective treatments for smoking cessation

Pharmacotherapy and behavioral support are each effective when used alone, but combining them is twice as likely to result in quitting

Rigotti, JAMA 2022; Treating Tobacco Use and Dependence: 2008 Update; Stead Cochrane Systematic Review, 2016

Evidence – Remote tobacco cessation interventions

Behavioral Treatment

- **Help patients prepare for quitting, develop problem-solving skills, and build motivation and confidence**
- **Based on conceptual theories and models**
- **Varied formats (phone, group, individual)**
- **Range in intensity and duration**

Pharmacotherapy

- **FDA approved 7 medications**
- 2 non-nicotine medications
  - Varenicline
  - Bupropion
- 5 nicotine replacement therapies
  - Patch
  - Gum
  - Lozenge
  - Inhaler
  - Nasal spray

Rigotti, JAMA 2022; Treating Tobacco Use and Dependence: 2008 Update

Evidence – Remote tobacco cessation interventions

- **Inclusion of behavioral counseling with any pharmacotherapy significantly improves outcomes vs. pharmacotherapy alone**

- **Effects are greater with more intensive behavioral interventions (e.g., more sessions)**

- **Importantly, the efficacy of tobacco use treatment is the same whether delivered in-person or by proactive telephone (e.g., quitlines, call-back counseling)**

Panel, T. U. (2008). Treating tobacco use and dependence: 2008 update. US Department of Health and Human Services.Matkin W, Ordóñez-Mena JM, Hartmann-Boyce J. Telephone counselling for smoking cessation. Cochrane Database Syst Rev. 2019 May 2;5(5):CD002850. doi: 10.1002/14651858.CD002850.pub4. PMID: 31045250; PMCID: PMC6496404.

Evidence – Remote tobacco cessation interventions

Meta-analysis: Effectiveness of and estimated abstinence rates for various types of formats (58 studies)

Format	Number of Arms	Estimated odds ratio (95% CI)	Estimated abstinence rate (95% CI)
No format	20	1.0	10.8
Self-help	93	1.2 (1.02-1.3)	12.3 (10.9-12.6)
Proactive telephone counseling	26	1.2 (1.1-1.4)	13.1 (11.4-14.8)
Group counseling	52	1.3 (1.1-1.6)	13.9 (11.6-16.1)
Individual counseling	67	1.7 (1.4-2.0)	16.8 (14.7-19.1)

Panel, T. U. (2008). Treating tobacco use and dependence: 2008 update. US Department of Health and Human Services.Matkin W, Ordóñez-Mena JM, Hartmann-Boyce J. Telephone counselling for smoking cessation. Cochrane Database Syst Rev. 2019 May 2;5(5):CD002850. doi: 10.1002/14651858.CD002850.pub4. PMID: 31045250; PMCID: PMC6496404.

Evidence – Remote tobacco cessation interventions

- **1-800-QUIT-NOW - Quitlines**

  Established nationwide in 2004

  50 states, District of Columbia, Puerto Rico and Guam

  Free, evidence-based, telephone-based tobacco cessation services including:

    Coaching and Counseling from trained specialists

    Referrals to local programs

    Mailed materials

    Free medications such as nicotine replacement therapy

  Commonly used in clinical settings, broad reach, and is cost-effective

National American Quitline Consortium, https://www.naquitline.org; Matkin W, Ordóñez-Mena JM, Hartmann-Boyce J. Telephone counselling for smoking cessation. Cochrane Database Syst Rev [Internet]. John Wiley & Sons, Ltd; 2019 [cited 2022 June 24];(5). Available from: https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD002850.pub4/full

Evidence – Remote tobacco cessation interventions

- **Behavioral interventions can be costly and have limited reach**
- **To overcome barriers, delivery of web-based, smart-phone, and text-based platforms have emerged**
- **Due to the ubiquity of cell/smartphones, low maintenance, costs, and the ability to increase reach, remote interventions are more common**
- **Diversity of content/format of remote interventions plus the rapid and routine evolution makes it challenging to evaluate the efficacy, however recent national guidelines have recommended their use in clinical contexts**

United States Public Health Service Office of the Surgeon General, National Center for Chronic Disease Prevention and Health Promotion (US) Office on Smoking and Health. Smoking Cessation: A Report of the Surgeon General. US Department of Health and Human Services; 2020. Accessed June 9, 2022. http://www.ncbi.nlm.nih.gov/books/NBK555591/; US Preventive Services Task Force, Krist AH, Davidson KW, et al. Interventions for Tobacco Smoking Cessation in Adults, Including Pregnant Persons: US Preventive Services Task Force Recommendation Statement. JAMA. 2021;325(3):265-279. doi:10.1001/jama.2020.25019

Evidence – Remote tobacco cessation interventions

Meta-analytic Studies

Web-based interventions

- Improves quit rates, compared to no treatment
- However, may be dependent on how interactive they are, with more static forms yielding a much lower impact on smoking rates

Text Messaging-based interventions

- Improves quit rates, compared to no treatment

Smartphone apps

- Recently used to deliver behavioral interventions for smoking
- Few studies have rigorously evaluated the apps

Phone-based interventions

- Demonstrated effectiveness among older individuals, those not ready to quit or not actively seeking treatment
- Quitlines significantly increase abstinence rates compared to minimal or no counseling interventions

Do HP, Tran BX, Le Pham Q, et al. Which eHealth interventions are most effective for smoking cessation? A systematic review. Patient Prefer Adherence. 2018;12:2065-2084. doi:10.2147/PPA.S169397; Graham AL, Carpenter KM, Cha S, et al. Systematic review and meta-analysis of Internet interventions for smoking cessation among adults. Subst Abuse Rehabil. 2016;7:55-69. doi:10.2147/SAR.S101660; Taylor GMJ, Dalili MN, Semwal M, Civljak M, Sheikh A, Car J. Internet-based interventions for smoking cessation. Cochrane Database Syst Rev. 2017;9:CD007078. doi:10.1002/14651858.CD007078.pub5

Teachable moments in the clinical context

The teachable moment heuristic posits that a cueing event (e.g., the period after *a cancer diagnosis or receipt of lung cancer screening results*) may increase:

- risk perceptions
- disease-specific worry
- behavior change (e.g., readiness to quit and smoking cessation)

Adding smoking cessation to lung screening:

- **Quitting reduces mortality due to lung cancer: 55-64 year olds who quit gain up to 4 years of life compared to those who continue smoking**

Joins disease prevention with early detection for older individuals with a long-term smoking hx:

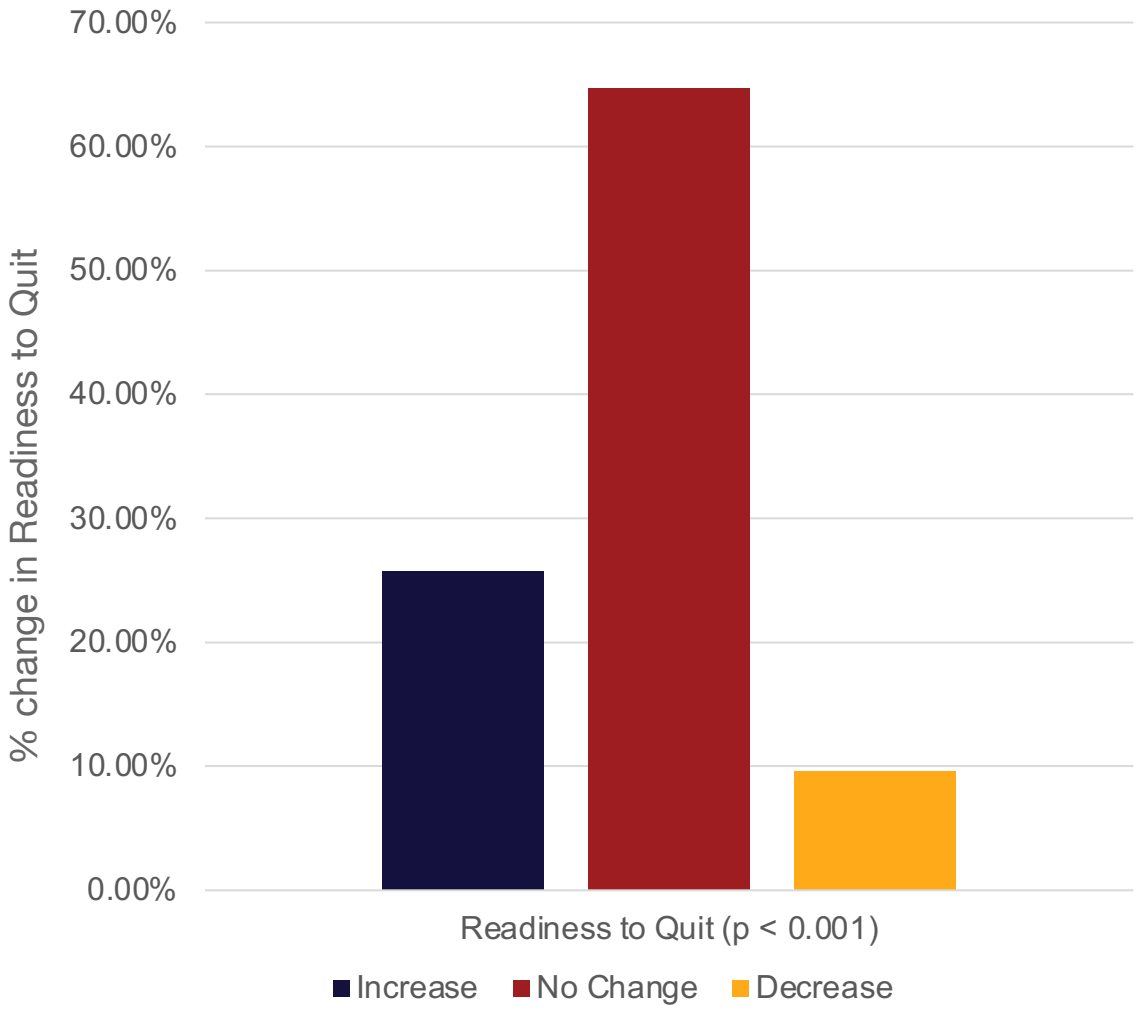
- **Screening provides access to an otherwise hard to reach group**
- **People who smoke are twice as likely to quit with evidence-based treatment compared to quitting 'cold turkey.'**

Over 50% of the 14.5 million screening-eligible individuals are currently smoking

- **A small increase in cessation will have a very large public health benefit**

Jha, P., Ramasundarahettige, C., Landsman, V., Rostron, B., Thun, M., Anderson, R. N., ... & Peto, R. (2013). 21st-century hazards of smoking and benefits of cessation in the United States. *New England Journal of Medicine*, *368*(4), 341-350.; McBride, Emmons & Lipkus, 2003; McBride & Ostroff 2003; Taylor et al. 2007; Williams et al. 2022

Teachable moments in the clinical context



Williams et al. 2022

Improved Motivation and Readiness to Quit After LCS

Pre-post LCS:

- 25.7% of participants increased readiness; 64.7% no change (p<.001)
- Motivation to quit increased (p<.05)
- CPD decreased (p<.001)
- Only 1.3% self-reported quitting

- Extreme worry (vs. no/little worry):
  - ready to quit <=30 days (OR=1.8, 1.1-3.0)
  - higher motivation (b=0.83, p<0.001)
- Undergoing a baseline scan (vs. annual)
  - more ready to quit <=30 days (OR=1.8, 1.3-2.5)

***The lung screening result was not significant in any of the models**

Increasing Cessation Using Remote Interventions

Providing Tobacco Treatment to Patients Undergoing Lung Cancer Screening

STAR: Smoking Treatment and Recovery Program

Addressing Health Disparities in Tobacco and Lung Cancer Screening Through Quality Improvement at MedStar Health

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Conquering Thoracic Cancers Worldwide

The Lung Screening, Tobacco, and Health Trial

NCI R01, Principal Investigator: Kathryn L. Taylor, PhD

<u>Purpose:</u> Multi-site RCT of phone-based cessation treatment (N=818) in the lung screening setting as part of the NCI's Smoking Cessation at Lung Examination (SCALE) collaboration. <u>Primary Outcome:</u> Biochemically verified abstinence at 3, 6, and 12 months.

Strengths:

Designed for subsequent implementation

- Broad inclusion criteria (eg 50% not ready to quit in next 30 days)
- Standard, evidence-based cessation interventions delivered remotely
- Opt-out approach for enrollment by each LCS site

Moderation suggested that the Intensive arm more effective for ppts with

- low readiness
- high dependence
- normal screening result

Cost-effectiveness analysis and the long-term population impact of the cessation interventions

Limitations:

Lower than expected quit rates (Intensive vs Minimal arm: 9.1% vs. 3.9% at 3-mos)

Most ppts were insured, white, and non-Hispanic

Providing Tobacco Treatment to Patients Undergoing Screening

NCI R01, Principal Investigator: Kathryn L. Taylor, PhD; Co-I: Randi M. Williams, PhD, MPH

<u>Purpose:</u> Promote the systematic uptake of cessation treatment into routine practice in the lung screening setting at a large health system.

1. **To compare e-referral to the Quitline vs. a centralized Health System intervention**

   Primary outcomes are: bioverified abstinence from cigarettes at 3- and 6-months.

   We will assess intervention mediators (e.g., treatment engagement) and moderators (e.g., readiness to quit) at 6-months.

2. **To evaluate reach and engagement overall and by subgroup (e.g., race and ethnicity, underinsured, readiness to quit):**

   Use mixed-methods to understand the contextual factors related to the feasibility and acceptability of the interventions

3. **To conduct an economic analysis to evaluate:**

   Costs

   Average and incremental cost per quit

   Budget impact of the intervention at 3- and 6-months from the health system perspective

STAR: Smoking Treatment and Recovery Program

MedStar, Program Lead: Kathryn L. Taylor, PhD

In 2016, the NCI recognized that Cancer Centers were not systematically addressing tobacco use

- **2017-2020:** Funded 52 cancer centers as part of the Moonshot Initiative
- **2019-present:** STAR program funded by MedStar Health and a donation from CVS Health of NRT

Goals of the NCI:

- Change method of screening for tobacco use
- Enhance capacity for tobacco treatment
- Develop a clinical program to exist after the NCI's funding period

Comprehensive tobacco treatment is part of the 'value added' of receiving cancer care at an NCI-designated Cancer Center

STAR: Smoking Treatment and Recovery Program

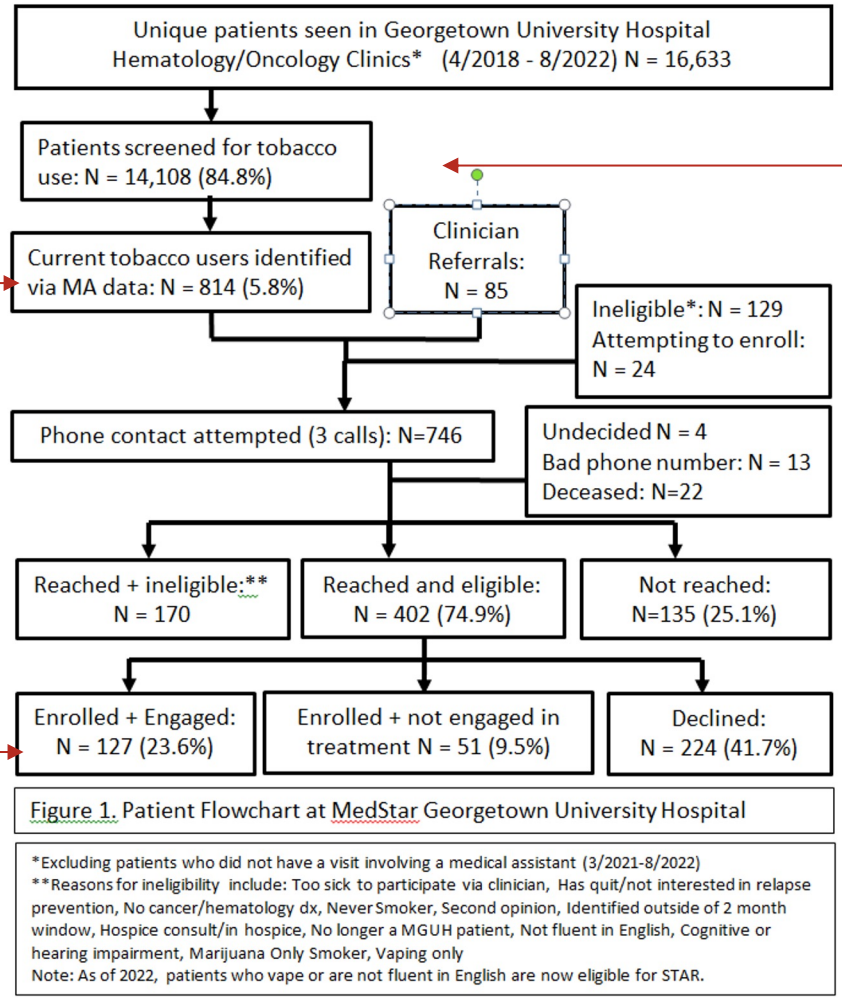

Figure 1. Patient Flowchart at MedStar Georgetown University Hospital

*Excluding patients who did not have a visit involving a medical assistant (3/2021-8/2022)
**Reasons for ineligibility include: Too sick to participate via clinician, Has quit/not interested in relapse prevention, No cancer/hematology dx, Never Smoker, Second opinion, Identified outside of 2 month window, Hospice consult/in hospice, No longer a MGUH patient, Not fluent in English, Cognitive or hearing impairment, Marijuana Only Smoker, Vaping only
Note: As of 2022, patients who vape or are not fluent in English are now eligible for STAR.

Opt-Out Approach:

- Medical Assistants assess all patients at each visit
- TTSs call (3x) those who smoked in <30 days
- Enroll (brief intake)
- Engage in treatment (4 phone and/or in-person sessions)
- In-person and telehealth sessions staffed by NP and tobacco treatment specialist
- Individualized and evidence-based counseling and medications
- Free NRT
- 2 booster sessions provided at 6 months for patients who continue to smoke

Taylor, K. L., Fallon, S., Subramaniam, D., Davis, K., To, C., Lobo, T., ... & Weiner, L. M. (2020). Implementation of the Smoking Treatment and Recovery (STAR) program: healthy cancer survivorship through integrated tobacco control. Journal of Cancer Survivorship, 14, 53-58.

Addressing Health Disparities in Tobacco and Lung Cancer Screening Through Quality Improvement at MedStar Health

DC Dept. of Health, MPIs: Randi M. Williams, PhD, MPH & Kathryn L. Taylor, PhD

<u>Problem:</u> Missing data in tobacco history is reducing tobacco treatment and lung cancer screening referrals.

1. Improve documentation of tobacco use

Develop new PowerForms to document tobacco and nicotine use, tobacco treatment methods, lung screening eligibility

2. Facilitate tobacco treatment options

E-referral to the tobacco quitline
Cessation medication orderset
Providers will be notified of individuals currently smoking (within 30 days) in Health Recommendations

3. Improve lung screening order form

Tobacco history and other eligibility criteria will be auto-populated
Providers will be notified of potentially eligible pts in Health Recommendations

Addressing Health Disparities in Tobacco and Lung Cancer Screening Through Quality Improvement at MedStar Health

DC Dept. of Health, MPIs: Randi M. Williams, PhD, MPH & Kathryn L. Taylor, PhD

E-referral to the Tobacco Quitline

- **Closed loop system**

E-referral available for DC, MD, VA residents

Providers e-refer patients to the quitline from EHR

Patients offered free counseling and free nicotine replacement

- **Result of quitline outreach returned to the EHR**

Discrete, searchable data elements displayed in Document Viewing and Results Review - Assessments

Track referrals and outcomes to determine effectiveness of e-referrals to the quitline

Acknowledgements

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Wanda Reece	Application Analyst
Charles Quartey	Sr. Interface Engineer, Integration Services

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