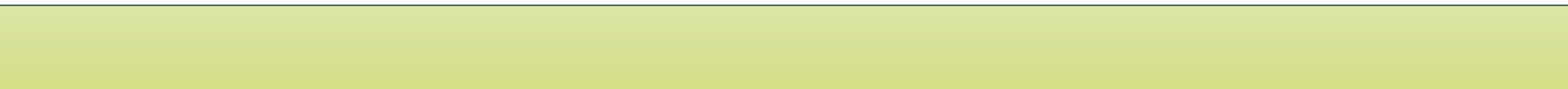
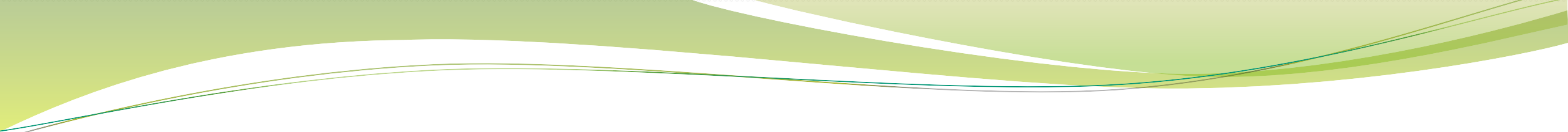




Capitalizing on Hospitalization to Improve Smoking Cessation: An Implementation Study

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CIIS 3/21/2017





In the setting of hospitalization, does an intervention that initiates tobacco treatment by proactive outreach to hospitalized smokers improve smoking quit rates, compliance with Tobacco Reporting Metrics, re-hospitalization, and mortality?

Tobacco dependence is a chronic disease that requires specific treatment

Smoking is a serious health threat, especially at BMC...

- **Smoking prevalence is inversely correlated with socioeconomic status**, and low Income and minority populations are less likely to be referred to, to utilize, and to complete evidence-based smoking cessation treatment
- 95% of people who try to stop smoking without a pharmacologic aid will continue to smoke or relapse within 1 year of quit attempt.

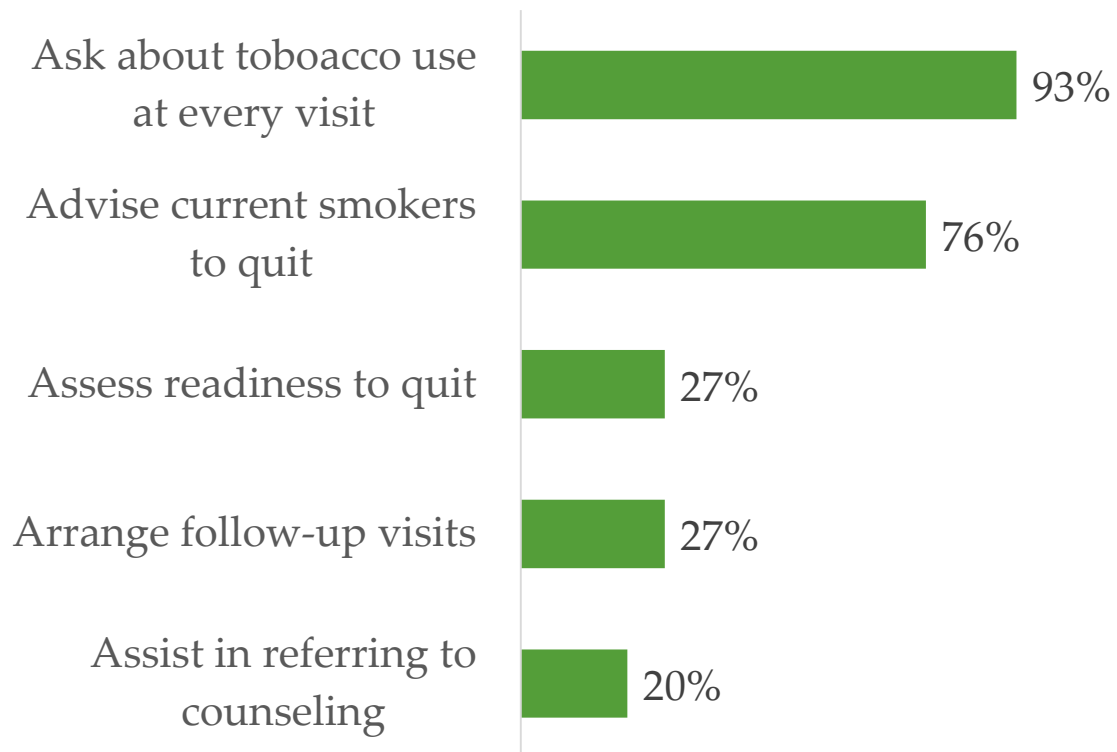
...and the guidelines for management are clear

- **US Preventative Task Force:** Clinicians ask all adults about tobacco use, advise them to stop, and provide behavioral interventions and FDA-approved pharmacotherapy for cessation to those adults who use tobacco (A-level recommendation)

Physician Barriers

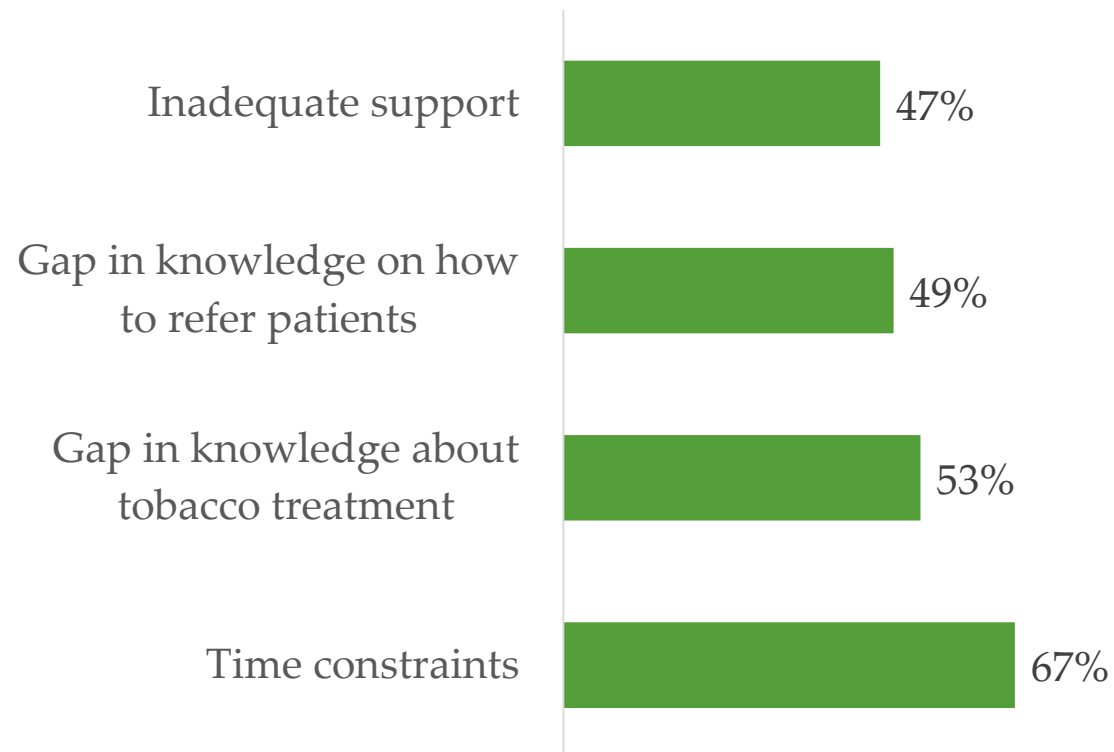
BMC Clinician Efforts to address Tobacco Use

Internal survey of providers, n=43



Barriers cited by BMC Clinicians

Internal survey of providers, n=43

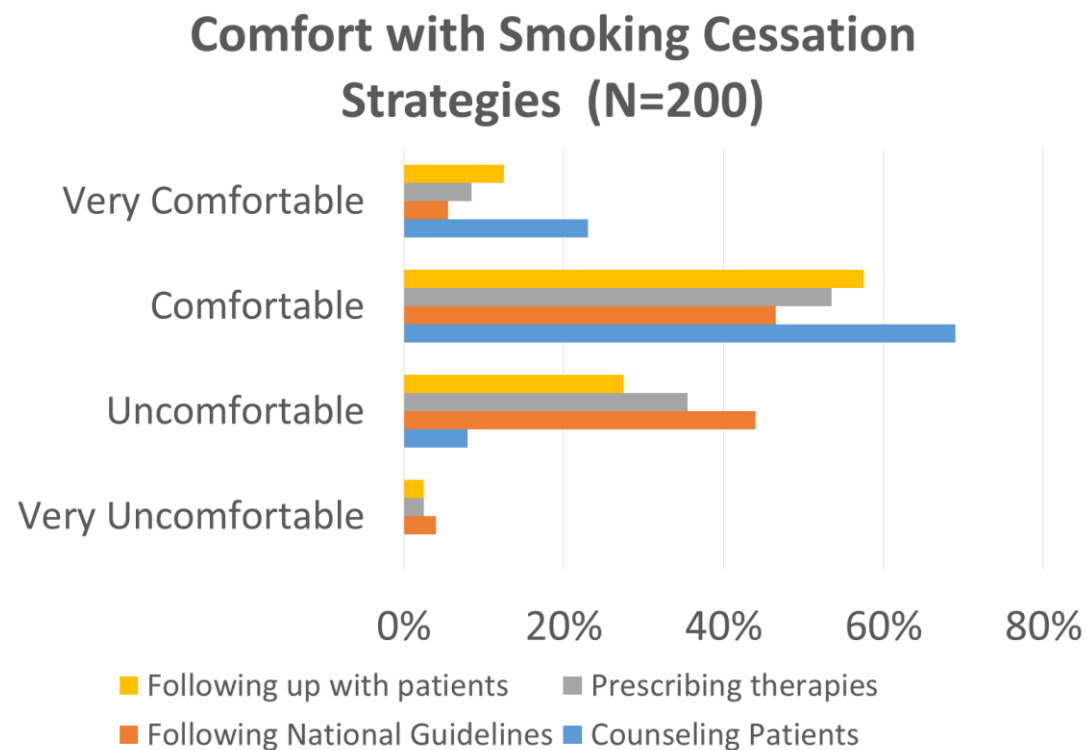


Perceived Barriers to Tobacco Dependence Treatment

Local Results (IM Residents)

RESIDENT PERCEPTIONS (n=86)	
Education for Smoking Cessation: Not Adequate	47%
Unfamiliar with National Smoking Cessation Guidelines	71%
Felt "very comfortable" with Counseling	27%
Felt "very comfortable" with Guideline Recommendations	12%
Felt "very comfortable" with Prescribing Pharmacotherapy	14%
Felt "very comfortable" with Arranging Follow-up	14%
Have Recommended E-Cigarettes for Smoking Cessation	24%

National Results (IM Residents)



Hospitalization: Teachable moment

- Hospitalization is an opportunity to engage smokers who may not otherwise seek tobacco treatment.
- It serves as a “teachable moment” of cognitive focus and emotional arousal, when smokers may be acutely aware of the consequences of smoking and thus, more receptive to cessation interventions.
- Intensive counseling that begin during the hospital stay and continue with supportive contacts for at least one month after discharge increases smoking cessation rates post-hospitalization by 40%.
- Inpatient smoking cessation treatments are associated with
 - Decreased post-discharge mortality, overall
 - Decreased post-discharge mortality and hospital readmission rates for patients admitted with CVD
 - Decreased rate of re-hospitalization in acute CVD and psychiatric patients,
 - Increased survival & decreased re-hospitalization in COPD patients.

Tobacco Cessation Metrics at BMC

Several public reporting programs require submission of Inpatient Tobacco Cessation Metrics (DSTI waiver program, MassHealth Pay for Performance program, Joint Commission ORYX).

These Inpatient Tobacco Cessation metrics include:

- Tob-1: Tobacco Use Screening
- **Tob-2: Tobacco Use Treatment, Counseling & Medication during Hospitalization**
- **Tob-3: Tobacco Use Treatment Management at Discharge**
- Tob-4: One Month Follow-Up Assessing Treatment Use/Cessation

Between April 2015-March 2016 (randomly selected MassHealth BMC hospitalized smokers):


- **19.7% (15/76) received tobacco use treatment during hospitalization (Tob-2)**
- **0% (0/57) patients received tobacco use treatment management at discharge (Tob-3)**

We created an Inpatient Tobacco Treatment Consult (TTC) service and a new smoking Cessation Best Practice Alert (BPA)+order set to help hospitalized patients quit smoking.


Inpatient smoking cessation consult service:

- Provides counseling
- Makes recommendations for nicotine replacement while hospitalized
- Establishes outpatient treatment following discharge.

BPA+order set has been designed to fire for all current smokers admitted to the hospital and displays orders for an Inpatient Consult to Tobacco Treatment


Patient is current/former smoker. Please order the following smoking cessation order.

Order
Do Not Order


Inpatient consult to Tobacco Treatment (No Call Necessary)

Acknowledge Reason

Will Place Order Later

Outcome Measures

Objective:

- Assess outcomes related to implementation of the BPA+order set intervention using the RE-AIM implementation science framework

Goals:

- Increase the number of hospitalized smokers who receive effective and timely stop smoking advice, counseling, and medications at the bedside and discharge
- Increase the support available to smokers after hospitalization
- Improve compliance with reporting programs: Delivery System Transformation Initiatives (DSTI) waiver program, MassHealth Pay for Performance, and Joint Commission ORYX requirement
- Improve patient outcomes by increasing patient quit rates and decreasing re-hospitalizations and mortality.

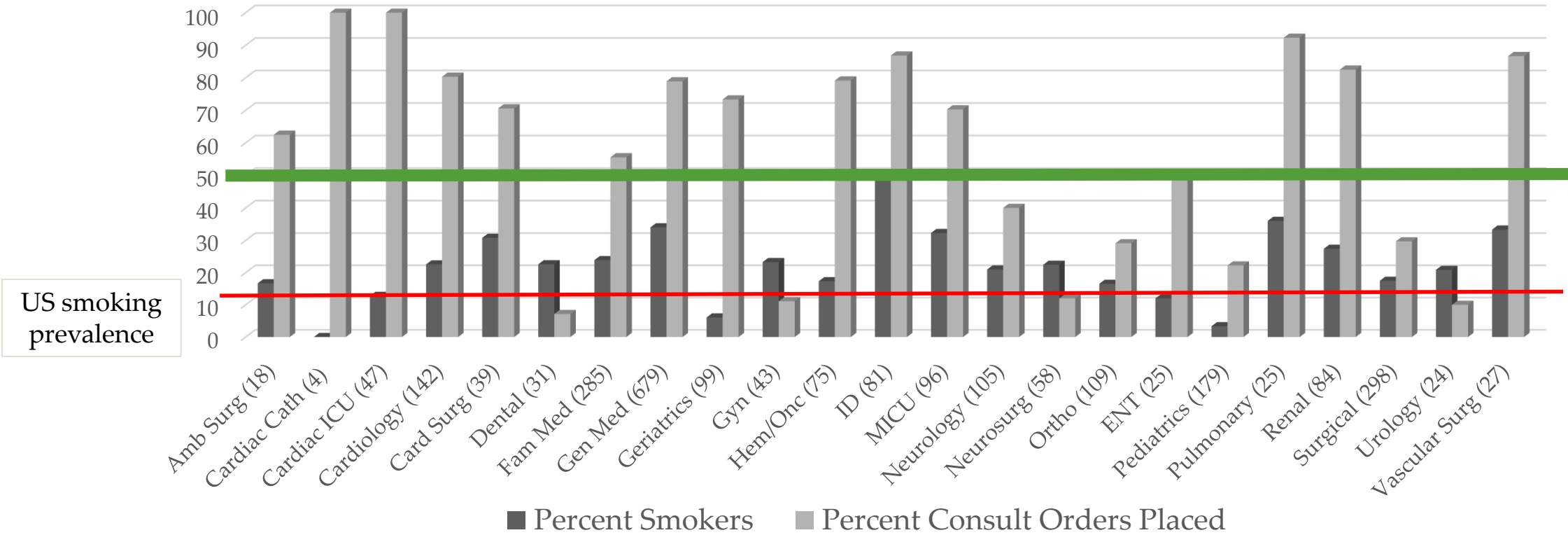
Funding from the Evans Center for Implementation and Improvement Sciences (CIIS)

RE-AIM measures for assessing the applicability of BPA+order set

RE-AIM domain	Outcomes Measured	Data Source
Reach	<ul style="list-style-type: none"> % smokers who received the 4 components as intended (inpatient counseling/medications and tobacco treatment management at discharge). 	<ul style="list-style-type: none"> Monthly BMC Epic Clarity Report and Clinician Data Warehouse Monthly reports from reporting programs
Effectiveness	<ul style="list-style-type: none"> % smokers who achieve 1 and 6 month cessation Compliance with performance measures 	<ul style="list-style-type: none"> Self-report +/- exhaled CO analysis Telephone surveys with patients Monthly reports
Adoption	<ul style="list-style-type: none"> % of clinicians who signed off on the order set Impressions of intervention: satisfaction, ease of use, barriers to adoption, suggestions for improvement 	<ul style="list-style-type: none"> Qualitative interviews with patients and clinicians Monthly reports
Implementation fidelity	<ul style="list-style-type: none"> Consistency of delivery as intended and the time/cost of the intervention. Unintended consequences, resources used during implementation, Barriers and enabling factors 	<ul style="list-style-type: none"> Workflow observations Patient and clinician interviews Monthly reports
Maintenance	<ul style="list-style-type: none"> Maintenance of intervention over time 	<ul style="list-style-type: none"> Monthly reports Workflow observations, interviews

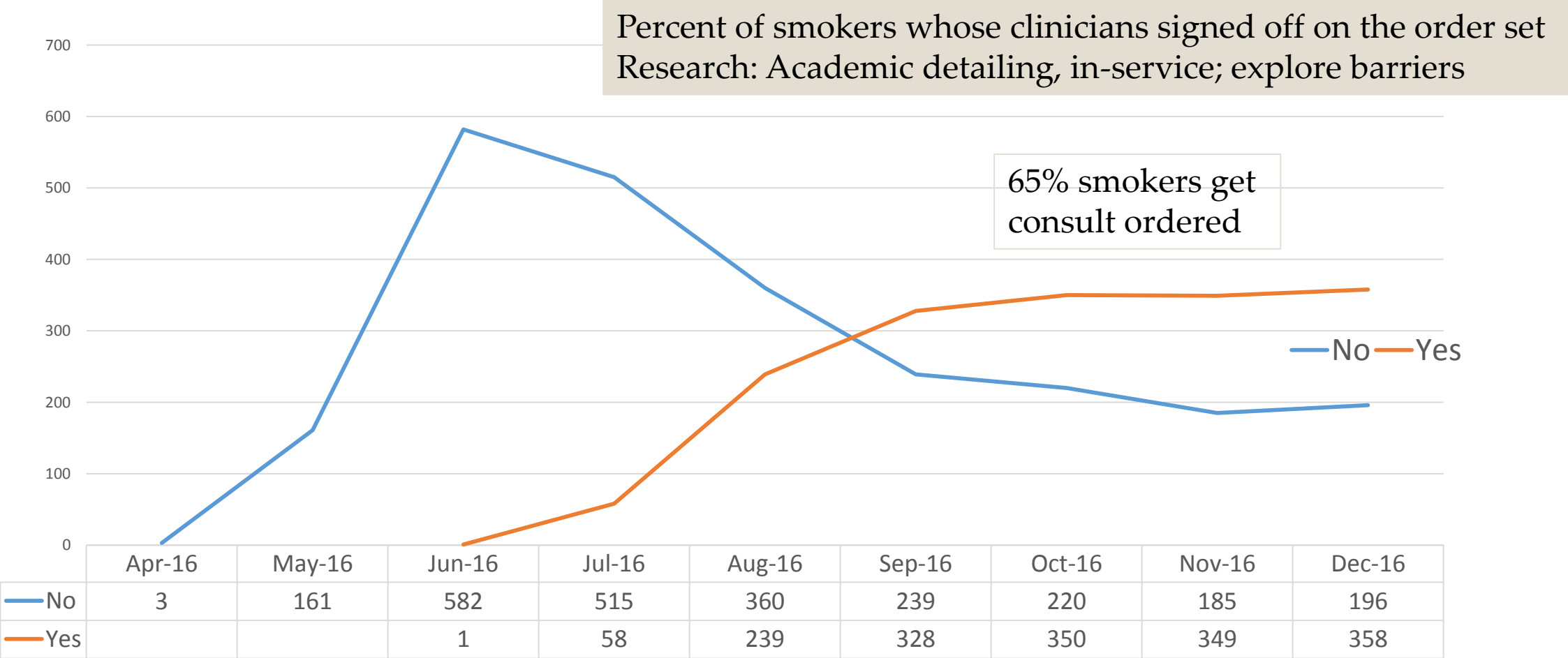
Percent of Smokers and Consults Ordered by Service (30 day)

US Smoking Prevalence (15% overall)	GED vs. high school	Below vs. above poverty level	Medicaid vs. private
	34.1% vs. 19.8%	26.1% vs. 13.9%	27.1% vs. 11.1%



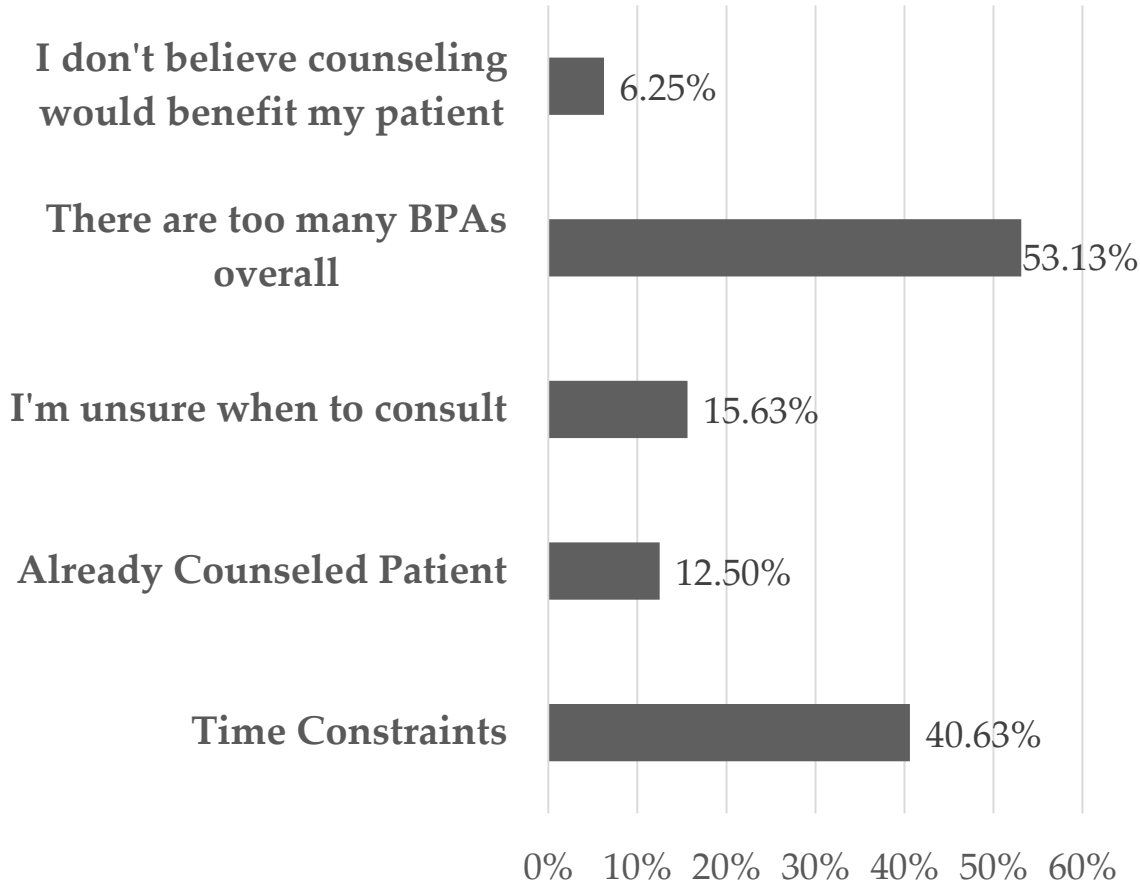
Nicole Herbst, Eric Helm, Carmel Fitzgerald, Charlie O'Donnell, Carolina Wong, Renda S Wiener, Hasmeena Kathuria Capitalizing on the Teachable Moment: Implementation of an inpatient smoking cessation consult service. (abstract). Am J Respir Crit Care Med Centers for Disease Control and Prevention, MMWR, 2016; 65(44), 1205-11.

Number of Smokers Who Had Consult Ordered



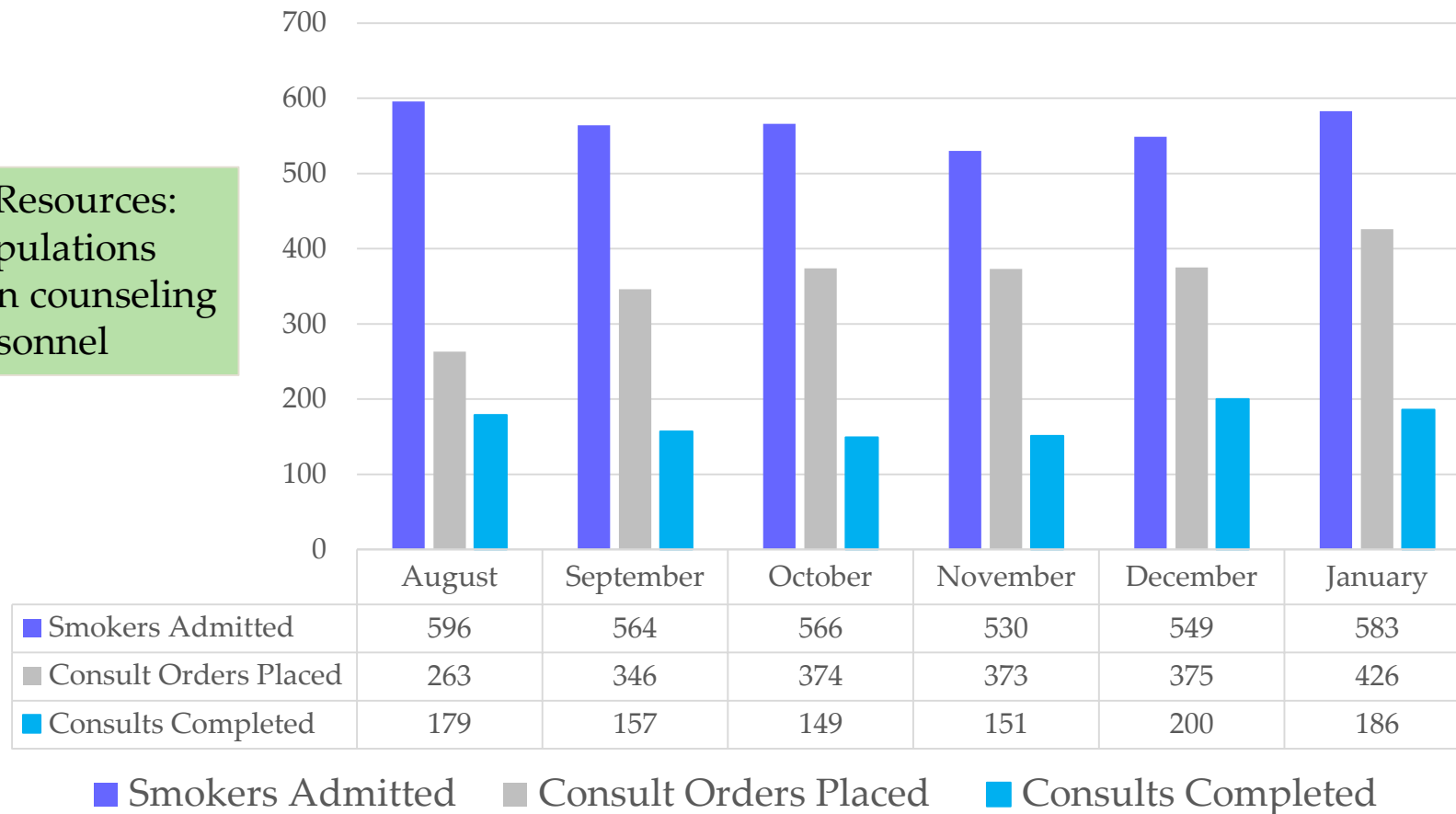
Medical Resident Barriers to Ordering Consult (n=32)

Physician Survey (N=33)	
How much of the time over past year have you counseled inpatients on smoking?	34%
Very Easy or Somewhat Easy to place consult order	90.9%
Very Satisfied or Somewhat Satisfied with BPA + order set	78.8%



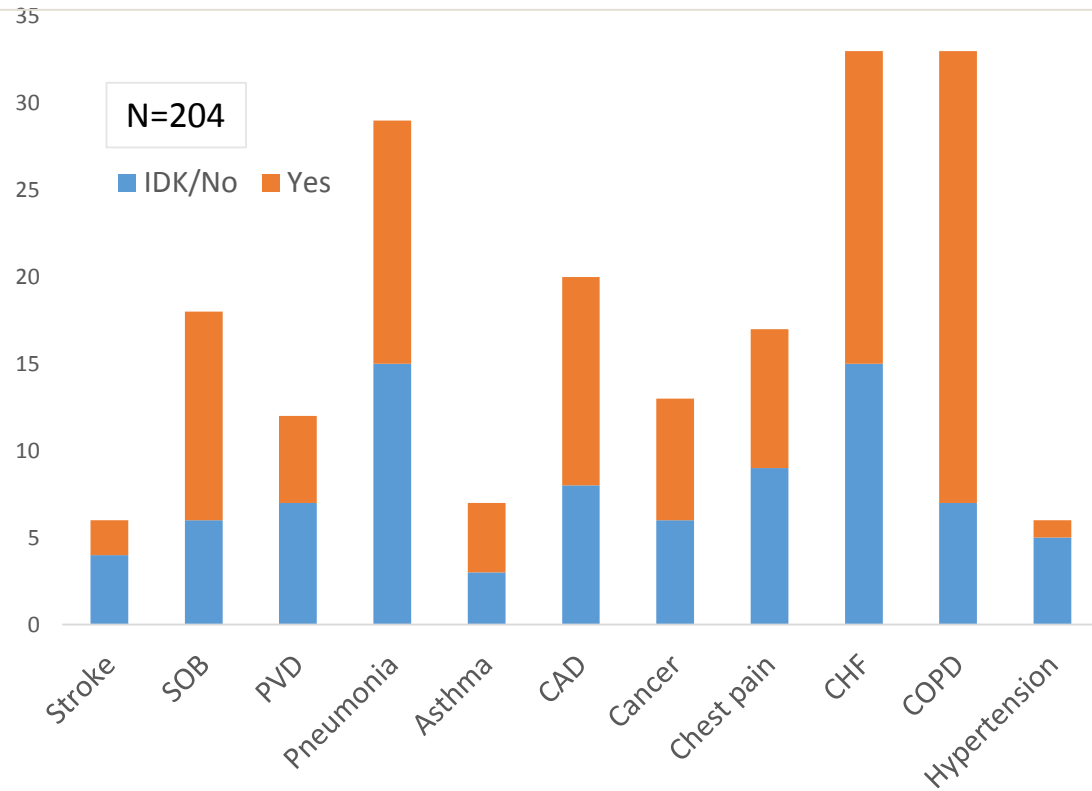
BMC Tobacco Consults Aug 2016- Jan 2017

Research: Limited Resources:
 ? target specific populations
 ? video vs in-person counseling
 ? Engage other personnel

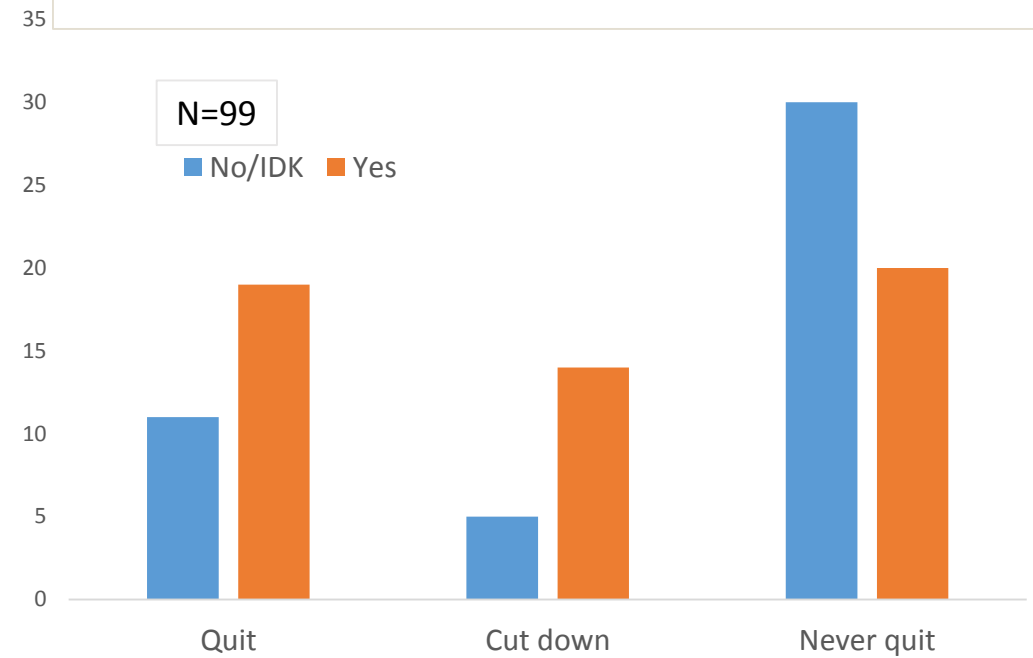


Do patient's perceive hospitalization as a teachable moment?

Patient Perception: Reason for Hospitalization Related to Smoking ?



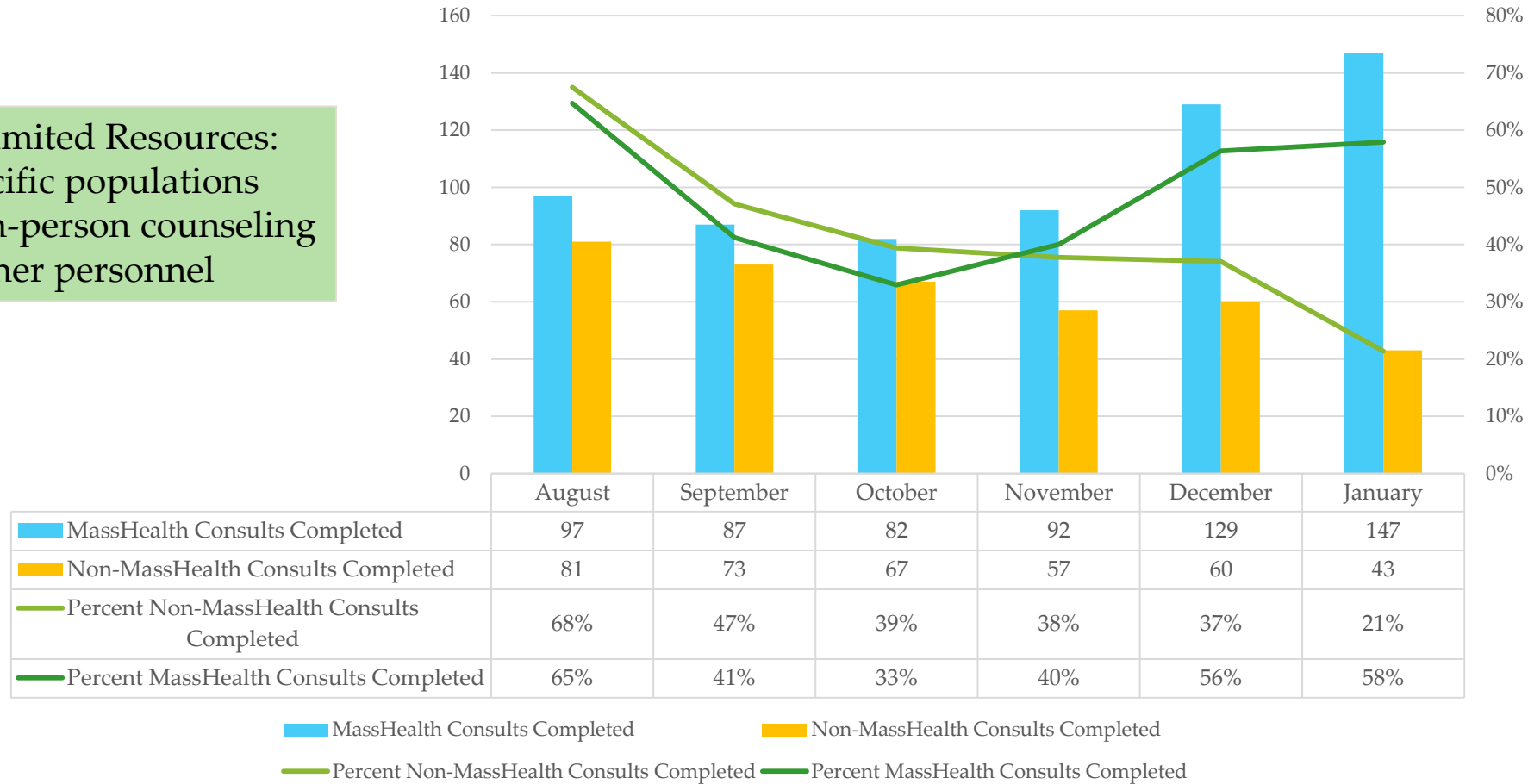
Possible Correlation Between Patient Perception of Reason for Hospitalization and Quit Status



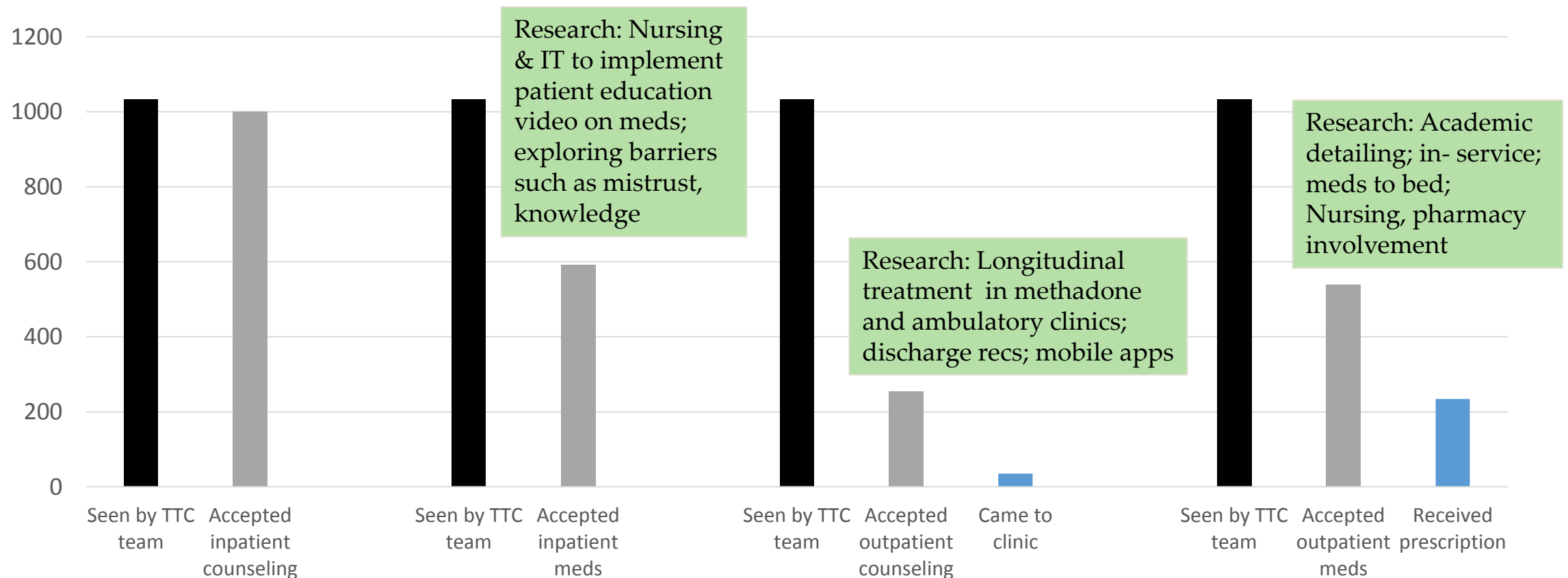
MassHealth vs Non MassHealth Tobacco Consults

MassHealth vs Non-MassHealth Consults Completed

Research: Limited Resources:
 ? target specific populations
 ? video vs in-person counseling
 ? Engage other personnel



Patient Acceptance of Counseling, Nicotine Replacement Therapy, and Outpatient Referrals (Aug 2016- Jan 2017)



Effectiveness

MassHealth Patients (July, 2016-January 2017)

	Seen by TTC Team	Not seen by TTC team
Number of patients	673	702
Inpatient NRT Prescribed	48.7%	31.2%
Outpatient NRT Prescribed	22.9%	10.1%
Inpatient & Outpatient NRT	20.6%	8.0%
6 month quit rates	??	??

Measure	2015	2016 (January through October)
TOB-1	96%	70.2%
TOB-2	2.7%	39.6%
TOB-3	0%	10.9%

Conclusions

Greater understanding of who the smokers are at BMC

- Data on demographics, education, race, ethnicity, income, insurance, co-morbidities, co-substance abuse
- Data on patient's motivation to quit, level of dependency, etc.

BPA+order set is adapted by many inpatient services, **but** not all (65% adapters)

Increased the number of hospitalized smokers who receive effective and timely stop smoking advice, counseling, and medications at the bedside and discharge, **but**

- Unable to meet demand of consults ordered
- Need for improvement and research in this area

Met compliance with reporting programs, **but** with unintended consequences (MassHealth vs motivated and high risk smokers (lung, cardiac, vascular, cancer))

Improve patient outcomes by increasing patient quit rates, decreasing re-hospitalizations and mortality.

Thank-you!

Tobacco Treatment Team

- **Charles O'Donnell (RRT)**
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- **Carolina Wong (Patient Navigator)**
- Suzanne Forti (RRT)
- Erin Wilcox (RRT)

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CTSI

Pulmonary Center

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Evans Center for Implementation and Improvement Sciences (CIIS)

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Other Members working on projects related to inpatient program

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- Minda Gowarty
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- Amanda Lerner
- Ryan Seibert
- Belinda Borrelli, PhD
- Karen Lasser, MD