

# Patient Reported Outcomes Assessment after Percutaneous Coronary Intervention (PCI)

## Background

Percutaneous coronary intervention (PCI) is the most commonly performed revascularization modality for chronic stable angina and obstructive coronary artery disease. Despite the frequency with which PCI is performed at BIDMC and nationally, improvement in symptoms and quality of life - the principal benefits of the procedure in the elective setting - are rarely assessed in a reproducible manner in routine clinical care. Measurement of patient reported outcomes is central to BIDMC's ability to assess the quality and improve value for patients. It is also a growing priority nationally, with the creation of the Patient-Centered Outcomes Research Institute (PCORI) in 2010 as part of the Patient Protection and Affordable Care Act.

## Aims

**Aim 1:** To assess the feasibility of electronic collection of patient reported outcomes such as angina, dyspnea and quality of life for patients presenting for elective coronary angiography in the BIDMC Cardiac Catheterization Laboratory.

**Aim 2:** To assess the feasibility and yield of electronic collection of patient reported outcomes and quality of life in follow-up after PCI, delivered through a patient healthcare information portal, PatientSite.

**Aim 3:** To quantify symptom benefit after PCI using baseline and follow-up assessments of patient-reported outcomes, and identify predictors of symptom improvement.

## Team

This project is being led by the Richard A. and Susan F. Smith Center for Outcomes Research in Cardiology with support from the Center for Healthcare Delivery Science.

- Smith Center: Robert Yeh, MD, MSc; Jordan Strom, MD; Linda Valsdottir, MS; Joanne Healy, MBS.
- CardioVascular Institute: Baker 4 reception area staff, Cath Lab nursing staff.
- Larry Markson, MD, VP for Clinical Information Systems
- Amy Goldman, Director of Ambulatory Operations
- Scott Devlin, Health Care Quality; William Cochran, IS - Security

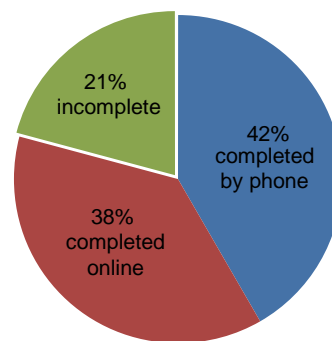
## Interventions

- Developed a REDCap survey using three validated questionnaires: the Seattle Angina Questionnaire for chest pain, the Rose Dyspnea Scale for shortness of breath, and the Patient Health Questionnaire for depression status.
- Questionnaires administered on an iPad by receptionists or nursing staff before each elective PCI or coronary angiography procedure. This is automatically delivered to patients again after 30 days, 6 months and 1 year by e-mail or phone.
- All completed questionnaires are uploaded to the webOMR to be used by clinicians to show patients how their symptoms have changed post-procedure.

## Results/Progress to Date

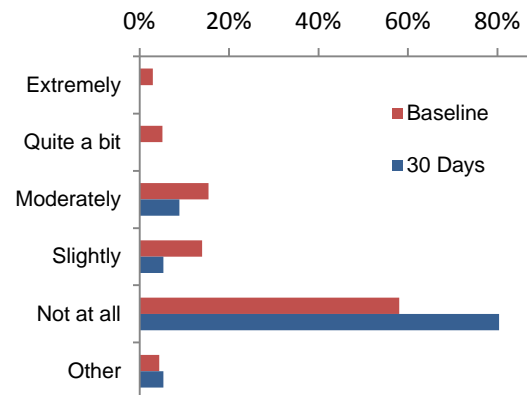
- 131 total participants between 12/18/2016 and 2/25/2017 (24% of all coronary angiograms) – enrollment ongoing
- Of those participants, 77% use e-mail and 23% say they do not

### 30-Day Follow Up (n=72)



Incomplete follow-up surveys:  
7% declined, 7% unreachable,  
3% no English, 1% died

### SAQ1: Walking indoors - limitation due to chest pain



## Lessons Learned

- Challenging to enroll patients who feel unwell in a busy clinical setting
- The original plan was to use PatientSite as a platform to email patients the follow-up surveys. We discovered we could do this automatically through REDCap. Response rate to email follow-up is low, requiring time-consuming follow-up via phone
- iPad based survey completion may work optimally in some clinical settings (waiting area), but not others (holding area)
- WiFi connectivity and accessibility have been important and challenging issues

## Next Steps

- Continue to make the results clinically relevant and demonstrate how electronic patient reported outcomes (ePRO) provide value to patients and clinicians alike.
- Continue enrollment and move from research to clinical setting.
- Create modular technology solutions which are easily implemented in other clinics so that they, too, can use ePRO to enhance their patient/clinician experiences.
- Explore more ways to automate the process of collecting ePRO.

