

A Simple Protocol to Reduce Perioperative Urinary Catheter Associated Complications in Patients Undergoing Atrial Fibrillation Ablation: A Quality Improvement Initiative



Elysia Grose^a BHSc, Mouhannad M. Sadek^b MD, Simon Gagne^b BScN, Pablo B. Nery^b MD, Girish M. Nair^b MD MSci, Andres Klien^b MD, Calum Redpath^b MBChB PhD, David Birnie^b MD, Mehrdad Golian^b MD

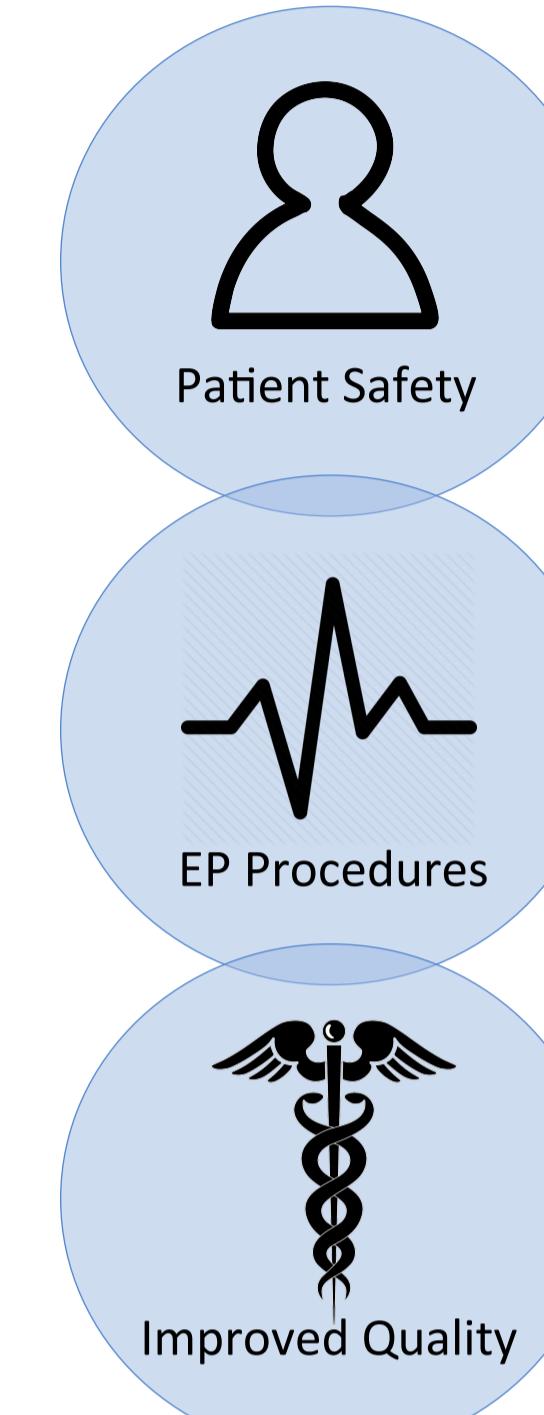
^a Faculty of Medicine; University of Ottawa

^b Division of Electrophysiology, University of Ottawa Heart Institute

UNIVERSITY OF OTTAWA
HEART INSTITUTE
INSTITUT DE CARDIOLOGIE
DE L'UNIVERSITÉ D'OTTAWA

INTRODUCTION

- Catheter associated complications (CAC) have been associated with lower patient satisfaction, longer hospitalization, increased morbidity, healthcare cost and mortality
- Up to 30% of reported healthcare associated infections are related to instrumentation of the urinary tract¹
- In addition, nosocomial bacteremia is associated with high mortality, up to 10%, with approximately 17% of healthcare associated bloodstream infections originating from a urinary source²
- Many operative patients receive a urinary catheter on routine basis. Currently for patients undergoing atrial fibrillation ablation procedures at the University of Ottawa Heart Institute (UOHI) no appropriate use protocol for urinary catheter insertion exists. There are greater than 300 ablations done per year with further increase to greater than 400 in 2018



OBJECTIVES

- To directly compare the rates of CAC before and after the implementation of a standardized protocol for urinary catheter insertion in patients undergoing atrial fibrillation ablation

METHODOLOGY

All patients underwent atrial fibrillation ablation at the University of Ottawa Heart Institute by a fellowship trained electrophysiologist under general anesthesia

We introduced an appropriate urinary catheter use protocol (March 2018) and arranged an in service teaching of proper technique for urinary catheter insertion every 3 months with the lead nurse educator

A retrospective chart review of all patients undergoing atrial fibrillation ablation from March 2017 to August 2018 was performed looking at urinary catheter use and CAC

All clinically significant CAC were recorded. CAC were defined as:

- Sepsis
- Urinary tract infections (UTI)
- Hematuria
- Urinary retention
- Death

Calculate urinary catheter use rate and rate of complications before and after the introduction of the protocol

METHODS

Appropriate Urinary Catheter Use Protocol

Pre EP Procedure

- If anticipated duration is less than 4 hours do not insert a urinary catheter, unless most responsible physician (MRP) requests a urinary catheter
- If anticipated duration is greater than 4 hours, confirm need for urinary catheter insertion with MRP

Post EP Procedure

- In patients that have received a urinary catheter, remove the catheter as early as possible post extubation
- In patients without urinary catheter, if no urine output at 2 hours post EP procedure, a bladder scan should be performed to assess for urinary retention
- If greater than 100 cc is present the MRP should be informed for further management
- Ambulate patient as soon as possible per MRP direction

RESULTS

	All patients (n=318)	Before Protocol implementation (n=216)	After Protocol Implementation (n=102)
Reason for ablation, %:			
• Persistent AF	• 32	• 34	• 27
• Paroxysmal AF	• 64	• 62	• 68
• Long Lasting AF	• 1	• 1	• 2
• Atypical Atrial Flutter	• 3	• 3	• 3
Mean duration of procedure in minutes (standard deviation)	290 (100)	300 (107)	269 (82)
Patients that had urinary catheters inserted, %	67	79	41
Patients that had CAC, %	10	13	2

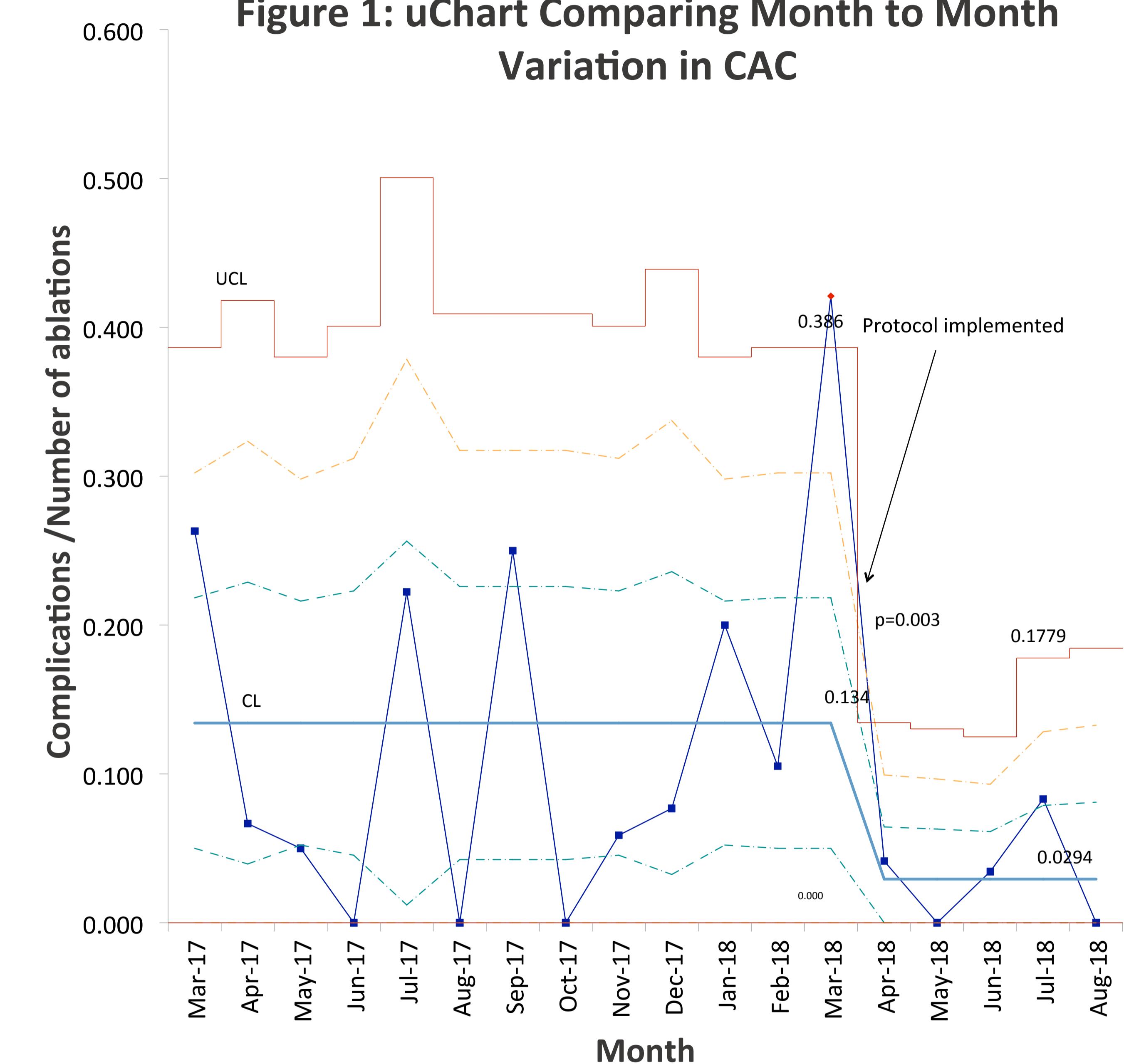
Table 1: Baseline procedure characteristics and percent of patients with CAC

Type of CAC	% of Patients with CAC
Hematuria	39.4
UTI	30.3
Urinary Retention	27.3
Sepsis	3
Death	0

Table 2: Percent of CAC by type

RESULTS

Figure 1: uChart Comparing Month to Month Variation in CAC



- Prior to protocol implementation, 79% of patients had a urinary catheter inserted compared to 41% of patients after implementation ($p<0.005$)
- Mean CAC prior to protocol was 13.4%
- CAC were reduced to 2.5% after protocol introduction ($p<0.005$)

CONCLUSION

- With the introduction of an appropriate urinary catheter use protocol, perioperative CAC were significantly reduced
- This improves patient safety and procedural quality for patients undergoing atrial fibrillation ablation
- After passing initial testing, similar protocols can be applied to other services including cardiology wards and surgical floors

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Disclosures: The authors declare no conflicts of interest.