

# Innovative Solutions: Early Recovery After TAVR and Same Day Discharge

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# Disclosure of Relevant Financial Relationships

Within the prior 24 months, I have had a financial relationship with a company producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients:

## Nature of Financial Relationship

Consultant Fees/Honoraria

## Ineligible Company

Edwards Lifesciences

# Need for innovative strategies

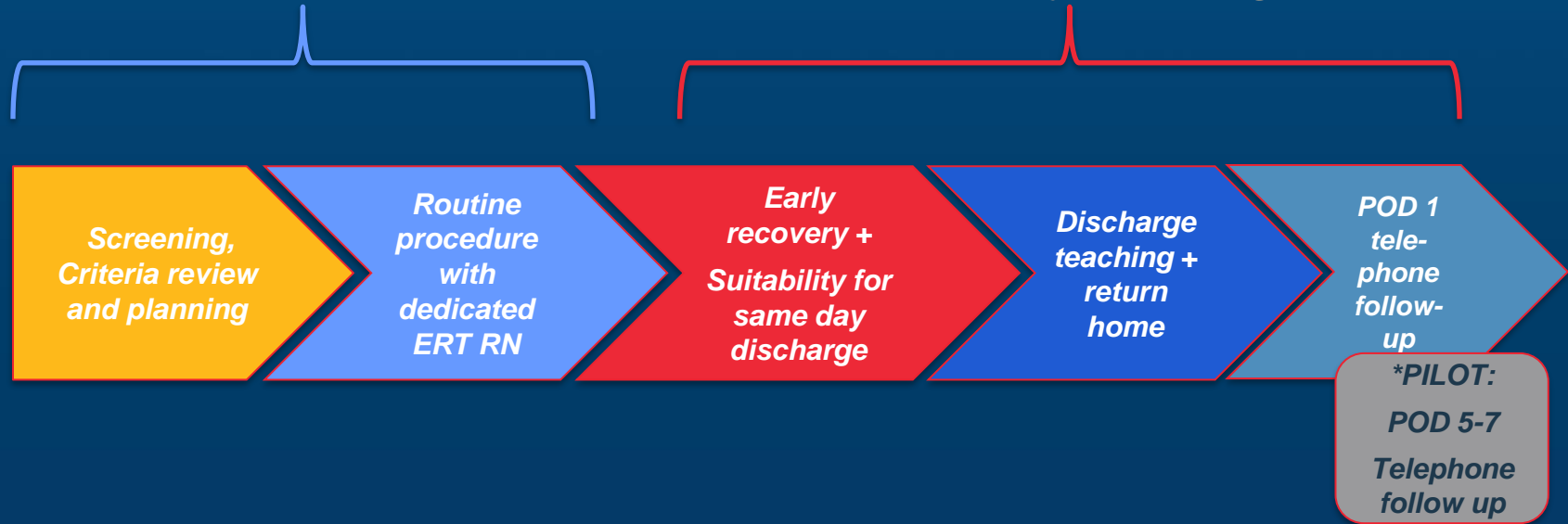


- *Increasing* TAVR volumes
- *Increasing* wait times to procedure
- Support flexible scheduling and procedural capacity
- Demand for limited resources: space and personnel
- Competing demands for Anaesthesia

# Early Recovery after TAVR (ERT)+ Same Day Discharge: *Process*

*ERT = Nurse supported sedation*

*Same Day Discharge*



# Evidence:

## Everything that was learned from Vancouver Clinical

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### NEW RESEARCH PAPERS

#### STRUCTURAL

## Feasibility and Safety of Same-Day Discharge Following Transfemoral Transcatheter Aortic Valve Replacement

Amar Krishnaswamy, MD,<sup>1,\*</sup> Toshiaki Isogai, MD, MPH,<sup>2,\*</sup> Ankit Agrawal, MD,<sup>3</sup> Shashank Shekhar, MD,<sup>3</sup> Rishi Puri, MBBS, PhD,<sup>4</sup> Grant W. Reed, MD, MSc,<sup>5</sup> James J. Yun, MD, PhD,<sup>6</sup> Shinya Unai, MD,<sup>7</sup> Daniel J.P. Burns, MD, MPH,<sup>8</sup> Patrick R. Vargo, MD,<sup>9</sup> Samir R. Kapadia, MD<sup>1</sup>



### Innovations in Care

## Vancouver Transcatheter Aortic Valve Replacement Clinical Pathway

### Minimalist Approach, Standardized Care, and Discharge Criteria to Reduce Length of Stay

Sandra B. Lauck, PhD; David A. Wood, MD; Jennifer Baumbusch, PhD; Jae-Yung Kwon, MSN; Dion Stub, MBBS, PhD; Leslie Achten, BSN; Philipp Blanke, MD; Robert H. Boone, MD; Anso Jonatha

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## The Vancouver 3M (Multidisciplinary, Multimodality, But Minimalist) Clinical Pathway Facilitates Safe Next-Day Discharge Home at Low-, Medium-, and High-Volume Transfemoral Transcatheter Aortic Valve Replacement Centers

The 3M TAVR Study



#### STRUCTURAL HEART

2020, VOL. 4, NO. 4, 302-309  
<https://doi.org/10.1086/24748706.2020.1773591>

#### ORIGINAL RESEARCH



## Nurse Led Sedation: The Clinical and Echocardiographic Outcomes of the 5-Year Emory Experience

Patricia Keegan, NP, DNP<sup>a</sup>, John C. Lisko, MD, MPH<sup>a</sup>, Norihiko Kamioka, MD<sup>a</sup>, Samuel Maidman, MD<sup>a,\*</sup>, Jose N. Binongo, PhD<sup>b</sup>, Jane Wei, MPH<sup>b</sup>, Ratna Vadlamudi, MD<sup>c</sup>, J. Kirk Edwards, MD<sup>c</sup>, Nishant Vatsa, MD, Aneesha Maini<sup>a</sup>, Shawn Reginald<sup>a</sup>, Patrick Gleason, MD<sup>a</sup>, James Stewart, MD<sup>a</sup>, Chandan Devireddy, MD<sup>a</sup>, Peter C. Block, MD<sup>a</sup>, Adam Greenbaum, MD<sup>a</sup>, Robert A. Guyton, MD<sup>a</sup>, and Vasilis C. Babaliaros, MD<sup>a</sup>

<sup>a</sup>Division of Cardiology, Emory University School of Medicine, Atlanta, Georgia, USA; <sup>b</sup>Department of Biostatistics, Rollins School of Public Health, Emory University, Atlanta, Georgia, USA; <sup>c</sup>Division of Anesthesiology, Emory University School of Medicine, Atlanta, Georgia, USA; <sup>d</sup>Division of Cardiothoracic Surgery, Emory University School of Medicine, Atlanta, Georgia, USA

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Derk Frank<sup>1,2,\*</sup>, Eric Durand<sup>3</sup>, Sandra Lauck<sup>4</sup>, Douglas F. Muir<sup>5</sup>, Mark Spence<sup>6</sup>, Mariuca Vasa-Nicotera<sup>7</sup>, David Wood<sup>4</sup>, Francesco Saia<sup>8</sup>, ..

## Criteria and planning

# Setting up for success

### Patient considerations:

- ✓ Local residence
- ✓ Social support available and appropriate
- ✓ No major mobility concerns
- ✓ No communication barriers
- ✓ Frailty score
- ✓ Patient/family interest

### Clinical considerations:

- ✓ Low risk of vascular complications
- ✓ Planned minimalist procedure in cath lab
- ✓ Absence of high-grade conduction delay

*Confirmed at Heart team meeting*

### Exclusion criteria:

- X Barriers to emergent intubation
- X Inability to lie supine
- X Failed previous procedural sedation or extreme anxiety
- X Iliofemoral <5.5 mm
- X If in-patient: Hemodynamic instability or other significant medical issue(s)
- X Significant cognitive impairment that limits ability to understand/follow instructions

**Routine  
procedure  
with  
dedicated  
ERT RN**

## **Local anaesthesia, nursing coaching and sedation**

### **Nursing staffing model:**

Responsibilities of ERT RN:

- Monitoring of patient status (VS, ETCO<sub>2</sub>) and comfort
- Administration of medications as per MD verbal orders
- Coaching and support
- Communication and advocacy

### **Other staffing complement:**

- Scrub/Crimp RN
- Circulating RN
- Hemodynamic/documentation RN
- Radiology technologist

**1<sup>st</sup> Case of the day**

**Dedicated ERT RN**

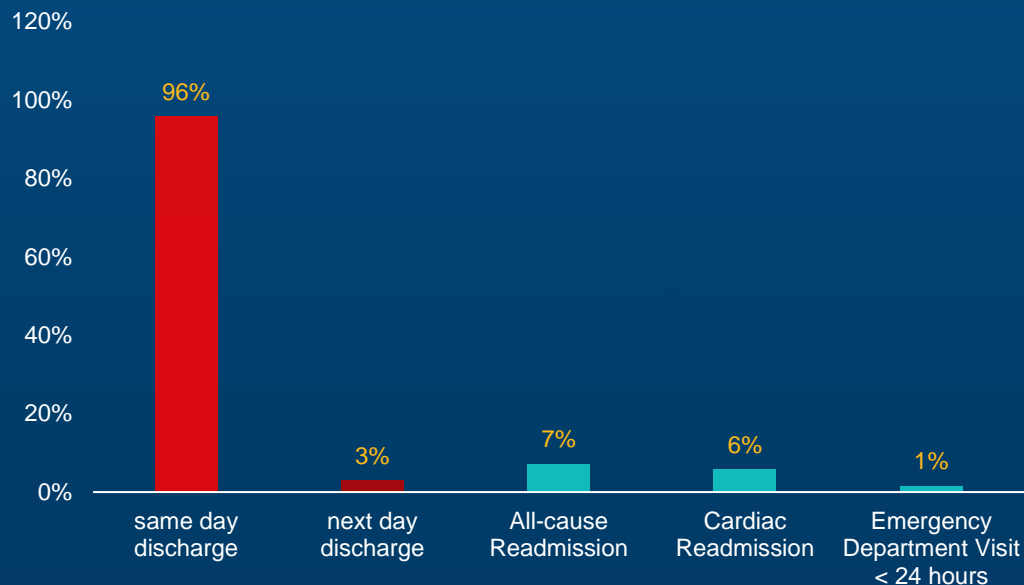
**'Back up plan' for  
hemodynamic instability**

**ERT '*checklist*'**

Anaesthesia  
available if  
needed



# Vancouver ERT: Discharge Disposition and 30-day Health care utilization Outcomes (n=75)





# Patient experiences POD #5-7 (N=33):

***“ I would rather been asleep... but happy and worth it to get back to my home same day”***

***“ ...hard to hear, lots of voices around me”***



***“...better than my angiogram”***

***“ I like the frequent check-ins, staff introductions, being part of the team”***

# Keys to Success



**BUILD THE DREAM  
TEAM:  
MULTIDISCIPLINARY  
'CHAMPIONS'**



**DEVELOP  
PROTOCOLS:  
SELECTION  
CRITERIA &  
ROLES**



**CREATE  
WORKFLOWS,  
ENSURE PT  
SAFETY**



**IMPLEMENTATION  
'GO LIVE' DATE,  
CONSISTENT  
SCHEDULING**



**CONDUCT:  
TRAINING/  
SIMULATIONS**



**COLLECT DATA AND SHARE:  
OUTCOMES  
'SPACE' FOR FEEDBACK**

# Major Milestone for the ERT journey...

- 6 cases/day
- ERT pathway
- 4 successful same day discharge



# Future Directions

- **EPIC TAVR:** Enhanced Pathway for Inpatient Care - “*Treat and return*”
- **ER- TEER:** *Awake* TEER with 4-D ICE
- **Ad hoc** ERT any day as needed
- Regularly scheduled ERT day 1 day a week (5-6 cases)



# Conclusion

- ERT is a promising approach to *optimize* resource utilization and improve procedural efficiency without compromising patient safety or outcomes
- *ERT supports access to care*: addressing scheduling and procedural capacity whilst maintaining quality care
- *leveraging expertise* of the cath lab nursing scope and practice
- **RECIPE for SUCCESS** = Criteria for patient selection + robust protocols/back up mechanisms + streamlined procedure + thoughtful implementation/review

