Reducing Readmissions After Coronary Artery Bypass Graft (CABG) Surgery

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REDUCING READMISSIONS AFTER CORONARY ARTERY BYPASS GRAFT (CABG) SURGERY

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Objectives

1. Compare readmission diagnoses of patients treated for heart failure with patients treated for obstructive coronary artery disease (CAD).

2. Identify risk factors for readmission by patients undergoing coronary artery bypass grafting (CABG).

3. Describe strategies to reduce readmission s/p CABG.
Background

• Value-based care; bundled payment

• Team-based & home-based care

• Lack of appropriate quality measures/metrics

• Are the ‘players’ limited to MDs, hospitals, administrators, payers, & post-acute facilities?

• Can surgeons singly provide high quality care by decreasing complications & unnecessary readmissions after patient discharge?
ACA, CMS, IPPS, DRG, HRRP ...

- **ACA**: Affordable Care Act
- **CMS**: Centers for Medicare & Medicaid Services
- **IPPS**: Inpatient Prospective Payment System
- **DRG**: Diagnosis Related Group
- **HRRP**: Hospital Readmissions Reduction Program

Section 3025 of the ACA requires CMS to reduce payments ("adjustment"; max. 3%) to IPPS hospitals with excess readmissions (within 30 d) related to certain DRG-related procedures (effective dates):

- **FY 2013-14**: myocardial infarction, heart failure, pneumonia
- **FY 2015-16**: COPD, hip arthroplasty, knee arthroplasty
- **FY 2017**: pneumonia (updated), coronary artery bypass surgery

Why are *Heart Failure* patients readmitted?

- Heart failure diagnoses?
- Other, non-heart failure diagnoses?
  - Infections (UTI, septicemia, C diff, pneumonia)
  - Electrolyte disturbances
  - Renal dysfunction
  - Chronic lung disease
  - Acute myocardial infarction (AMI)
- Tend to be *preventable* causes

Most readmission diagnoses are *not* heart failure

What has been done to reduce *Heart Failure* readmissions?

**Transitional Care Intervention (TCI) / aka Transitional Care Model (TCM)**

**COMPONENTS**

- home visits
- telephone follow-up
- clinic visits

**RESEARCH**

Vedel & colleagues reviewed 41 RCTs* of TCIs that may:
- increase comprehension & engagement
- improve medication adherence
- increase patient satisfaction

**FINDINGS**

- **Hi-intensity TCIs**
  - both home visits & telephone follow-up plus clinic visits
  - efficacious *regardless* of duration

- **Moderate-intensity TCIs**
  - efficacious if longer than 6 months

- **Low-intensity TCIs**
  - not efficacious if only follow-up in clinics or via telephone

*RCT = Randomized Control Trials
AKA – Transitional Care Model (TCM)

![TCM's Impact on Readmission Rates After Index Hospitalization](chart)


Are these findings applicable to the CABG patient?

YES and NO
## Heart Failure (HF) & Obstructive (Ischemic) Coronary Artery Disease (CAD)

### Heart Failure
- May require transplant or VAD to ‘cure’; cardiac resynchronization
- *Medical* treatment
- Electrolyte disturbance
- Renal dysfunction/failure
- Pulmonary infection
- Activity levels
- Medications
- Other

### Coronary Artery Disease
- CAD **not** ‘cured’ by CABG; CAD progresses; need lifestyle changes
- *Surgical* treatment
- Includes both HF **PLUS** CAD problems
- Lifestyle modification can retard CAD
- Diet
- Exercise
- Control: hypertension, diabetes (I & II)
- Obesity
- Cardiac rehabilitation
- Medications
- Educational needs
- Stress management
- Social support
Differences between Tx for HF and CAD

- **Surgery** expands on the potential risks for complications & readmission
- **Surgically-related risks:** (eg)
  - Hemorrhage
  - Surgical site infection, mediastinitis
  - Stroke
  - Renal failure
- Expanded number of people in OR
- Increased supplies, instruments, etc.
- **More stakeholders** (Perfusion, Anesthesia, Rehab, Pharmacy, Blood Bank, Lab, Sterile Processing, ... )
CLINICAL FACTORS
Related to
CABG
The Cardiac Operating Room (OR)
Both intrinsic *patient* factors and extrinsic *staff* and *environmental* factors affect outcomes & readmissions.
Patient Factors: *Intrinsic*  
(*sources of wound contamination*)

**Patient’s own bioburden/flora** *(bacterial, viral, fungal)*

**Comorbidities** *(Diabetes I & II, obesity, immunosuppression meds)*

**Nasal carriage: test for S. aureus** *(mupiricin protocol)*

**Preoperative / postoperative length of stay** *(assisted living, ICU)*
Patient Factors: *Intrinsic*  
(*sources of wound contamination*)

Infection at a remote body site

Genetic predisposition, family history, sex

Skin sloughing; shedding of hair, dandruff  
(can apply both to patient and staff – pre- and post-operatively)

Preoperative showering  
(chlorhexidine gluconate)
POLL QUESTION #1

Do you manage nasal carriers of *Staph aureus* and/or MRSA? * (Patients & Staff)

☐ YES

☐ NO

* methicillin-resistant staphylococcus aureus
Other Factors: *Extrinsic*

Unsterile instruments, unclean equipment
Dirty Operating Rooms (ORs)
Poor coordination among team members
Inadvertent hypothermia
Lack of preparation, delays, missing supplies
Improperly cleaned/sterilized endoscopes
(bronchoscopes, TEE* probes)

*TEE – TransEsophageal Endoscopic...
POLL QUESTION #2

Do you monitor hand hygiene in the OR?

- [ ] YES
- [ ] NO
Other Factors: *Extrinsic*

- Insufficient hand washing; poor hand hygiene
- Delayed antibiotic prophylaxis
- Glycemic control
- Poor aseptic technique
- Improper patient hair removal (clip, not shave)
- (Skin) shedding by surgical team
Other Factors: *Extrinsic*

Not following accepted guidelines, standards for

- Full draping for insertion of central lines
- Insertion of urinary drainage catheter
- Proper hand washing (the ‘scrub’)

**Insufficient air exchanges**
(minimum 15, 20-25/hr. preferred)

**Non-compliance with**

**OR attire policies**
(contain skin shedding)

Please note that the dog’s ID is properly placed **above** the waist

photo courtesy of Delta Society
Perioperative nurses and other members of the surgical team *can control the dose of bacterial contamination.*
Reducing the risk of wound contamination – Key Factors

• Testing *for S. aureus* (mupiricin protocol)

• **Antibiotic prophylaxis** (within 1 hr of incision; 48 hrs post-op)

• **Hand hygiene** (actively monitor; ensure sufficient dispensers)

• **Aseptic technique** (reintroduce/reinforce “Back-to-Basics”)

• **Hair removal** (clip; *never* shave)

• **Normothermia** (active pre-warming; active warming pre & post bypass)

• **Glycemic control** (perioperative period; post-op x 48 hrs)
EDUCATION
(& Training)
FACTORS
POLL QUESTION #3

Do you present Surgical Site Infection (SSI) data to the OR staff at least annually?

- YES
- NO
Patient Education / Discharge Planning
(Should start when surgery 1st recommended)

> Engage patients (what do they expect; want; fear; need ...)

> Assess education, reading level; identify learning needs & defense mechanisms

> Confirm understanding of diagnosis, treatment, care path, complications

> Identify: Whom to contact? Under what conditions?
  Confirming by: follow-up (phone?, visit?)

> Share teaching plan & plan jointly with clinicians all along the continuum?
EDUCATION (& Training) FACTORS

*Patient* Education / Discharge Planning

**Practical Suggestions**

Recorded discharge instructions *(CIPHERHEALTH.COM)*

> increase comprehension & engagement

> improve medication adherence

> increase patient satisfaction

http://cdn2.hubspot.net/hubfs/498900/Cipher_WP_Nov.pdf?t=1454270306295&utm_campaign=CipherHealth_WP_November+2015_Landing+Page&utm_source=hs_automation&utm_medium=email&utm_content=23563672&_hsenc=p2ANqtz-Vkl1vBbyThsibqOfNkXCTY6BhLqrfcZPJB0L72xc2UM03T8yyGykEweOvvcXDolOCvd5vTtumBt9bH8RE3wGNe-BKwQ&_hsmi=23563672
EDUCATION (Training) FACTORS

Patient Education / Discharge Planning

Practical Suggestions

Mobile devices to reinforce learning (Vocera Communications)

> smartphones
> tablets
> targeted ‘apps’

http://cdn2.hubspot.net/hubfs/498900/Ebook_Five-Ways-Mobile-Devices_Vocera-Zebra.pdf?t=1454270306295&utm_campaign=Vocera_WP_October+2015&utm_source=hs_automation&utm_medium=email&utm_content=22917645&hsenc=p2ANqtz-934kO56DaHEHtOZ_MgHgV-497Nw1amA_TERbr2gyAkV_O2o9P7oq6o26Fj6_84H79HkBlnJlutVc0BdIMmZwY_dyPMXg&_hsmi=22917645
EDUCATION (& Training) FACTORS

Patient Education / Discharge Planning

Practical Suggestions

Create a notebook (not everyone can/wants to use ‘cell phone’ technology)

> sections for pre-op, intra-op, post-op, discharge, follow-up, rehabilitation

> include 1-2 clear plastic sheets to hold business cards & sheet of phone #s
EDUCATION (& Training) FACTORS

Staff Education

More innovation:

Google glasses

Nurses.com/Article/Smart-Glasses-Wounds
Simulation

> Among team members (OR) – TeamSTEPPS, CRM

> Between units (eg, OR and ICU clinicians to practice chest opening)

> Training to (eg) insert urinary catheters & central lines (RNs, MDs, Techs)
EDUCATION (& Training) FACTORS

Multidisciplinary/Interprofessional Activities

> Team training
> Asking questions
> Collaborating
> Coordinating


http://dx.doi.org/10.1016/j.jamcollsurg.2015.11.008
Staff Education

According to ECRI, #5 of the Top 10 Health Technology Hazards for 2016 is:

“Insufficient Training of Clinicians on Operating Room Technologies puts Patients at Increased Risk of Harm.”

Per ECRI (2015), 70% of accidents involving a medical device can be attributed to user error or technique of use. Make training a key part of the acquisition process for new OR technologies (as well as ongoing consideration for existing technologies).
POLL QUESTION #4

Do you have clinical educators in the OR?

- [ ] YES
- [ ] NO
POST-OPERATIVE FACTORS
Clinical Practices

• Wound care

• Removal of urinary catheters

• Removal of central lines, chest tubes

• Pulmonary ‘toilet’ (deep breathing & coughing)

• Exercise, ambulation

• Family support
POST-DISCHARGE FACTORS
Patient Activities, Needs

• Participate in cardiac rehabilitation
• Encourage patients to ask questions
• Apply Transitional Care practices (learned from heart failure experiences)
  > Telephone follow-up
  > Clinic visits
  > Home visits
  > Group teaching
• Encourage *patient* participation in teaching *other patients* (as part of Mended Hearts or from personal interest)
Post-Discharge Opportunities
Expanding the Workforce

• Where will post-acute care occur? (Advisory Board, 2014)

• Consider community paramedics for patient follow-up

• Apply for federal grants to educate/train additional Advance Practice Nurses for primary care (Advisory Board, August 1, 2012; Conover & Richards, 2015)

• Promote supporting the BSN for nursing

• Consider retired “boomers” to perform QI, document, mentor, teach, review, write, develop policy
Workforce RECOMMENDATIONS

• Actively work to remove barriers to Advanced Practice RN’s (see Conover & Richards, 2015, on benefit to North Carolina); see Oliver, et al, 2014, and Sawatzky, et al, 2013, on benefits of APRNs re: readmissions, costs, outcomes)

• Use Advanced Practice Nurses for follow-up

• Actively monitor hand washing in the OR as well as the rest of the facility

• Encourage new, creative ways to problem-solve; engage front-line staff to participate (applies also to patients, families)

• Recognize innovative ideas (applies also to patients, families)

• Ensure that STAFF remain up-to-date with latest technology
Patient-related RECOMMENDATIONS

• Employ group teaching as well as 1-on-1 & the internet

• Identify language, educational, cultural barriers (pt & family)

• Review all patients admissions for trends – incorporate information into new patient assessment & planning.

• Make it easy for patients to communicate with care providers, educators, clinicians, ...

• Employ social media where appropriate & meaningful

• View the issue(s) as, “What does the patient need?”
Patient-related RECOMMENDATIONS

• Solicit candid and specific patient/family feedback

• Support mutual support among/between patients

• Walk the patient’s, family’s route to obtain care

• Encourage questions (dumb & brilliant) & curiosity

• Confirm patient’s understanding (via ‘active teach back’) for diagnosis, disease, discharge instructions, etc.
QUESTIONS?

Thank you

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Upcoming May Webinar

- May 24, 2016
- 12:00-1:00 PM
- Presentation by Novant Health
- Registration Link: https://ncqualitycenter.webex.com/ncqualitycenter/onstage/g.php?MTID=e77781e78c5674ef127ba545c276ec8e8
- Password: quality
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   http://www.aannet.org/edgerunners

   (August), 198(2): 157-162.


   https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/Downloads/HRRP-Matrix.pdf

Centers for Medicare & Medicaid Services. Hospital Readmissions Reduction Program data.

   https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/index.html

REFERENCES


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See also references list at http://www.transitionalcare.info/publications

