INTERVENTIONS AT THE VA

Vasilios Papademetriou, MD
Professor of Medicine
Georgetown University
VA MEDICAL SYSTEM
THE VETERANS HEALTH ADMINISTRATION TODAY

- 8.8 million patients
- 168 Medical Centers
- 300 Vet Centers,
- 827 Community-based Outpatient Clinics (CBOC),
- 135 Community Living Centers,
- 6 Independent Outpatient Clinics, and
- 103 Residential Rehabilitation Centers
- $180 billion budget

The largest Health Care System in the US
21 Veterans Integrated Service Networks

**VISNs are the Funding & Accountability Unit in VA**

- **1995:** Creating VISN’s
- Objective to transform from VA “Hospitals” to a “Health System”
- From “Safety Net” to “Health Promotion & Disease Prevention”
- Creating “System-ness”
  - VISN Funding
  - Performance Measures
  - Electronic Health Records

**In January 2002, VISNs 13 and 14 were integrated and renamed VISN 23**
Main Objective 1995 -2005

- Improvement in Patient care
- Decrease in cost
- Improvement in outcomes

Safe, Effective, Efficient, Compassionate Health Care
Without the Need for an Advocates
Integrate Notes, imaging, Pharmacy, labs, orders etc
VistA Use

- **Documents** (Progress Notes, Discharge Summaries, Reports)
  - 796,000,000 ........ +586,000 each workday

- **Orders**
  - 1.55 Billion ........ ... +916,000 each workday

- **Images**
  - 454,000,000 ........ +633,000 each workday

- **Vital Sign Measurements**
  - 977,000,000 ........ +672,000 each workday

- **Medications Administered with the Bar Code Medication Administration (BCMA) system**
  - 776,000,000 ........ +599,000 each workday
### Recent Lab Results

<table>
<thead>
<tr>
<th>Test Description</th>
<th>Value</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vancomycin Blood Serum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mineral Panel Blood Serum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cbc Blood W/C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urotransaminase (patients) U/S</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Vital Signs

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>99.6</td>
</tr>
<tr>
<td>Pulse</td>
<td>89</td>
</tr>
<tr>
<td>Respiration</td>
<td>18</td>
</tr>
<tr>
<td>Blood Pressure</td>
<td>116/69</td>
</tr>
</tbody>
</table>

### Active Problems
- Low Back Pain
- Lack Of Housing
- Swelling, mass, or lump in head and neck
- Tobacco Use Disorder - 5 Cig/Day
- Malignant neoplasm of hypothalamus
- Unspecified Psychosocial Circumstance

### Active Medications
- Vancomycin Inj
- Levodopa/carbidopa Inj
- Sodium Chloride 0.33% Soln. Inj
- Acetaminophen & 1000 mg
- Multivitamins Liquidated
- Lorazepam Inj
- Morphine Inj

### Appointments/Visits/Accidents

- Mar 29, 11:00: Radiation Therapy - Hussain M
- Mar 28, 11:00: Radiation Therapy - Hussain M
- Mar 27, 11:00: Radiation Therapy - Hussain M
- Mar 26, 11:00: Radiation Therapy - Hussain M
- Mar 25, 11:00: Radiation Therapy - Hussain M
Good things are happening at the VA with all three pillars of Academic Medicine:

- Clinical Medicine
- Medical Education
- Medical Research
The VA is the largest provider of medical training in the United States.

### Table 1. VA Medical Training at the Trainee Level (2014-2015)

<table>
<thead>
<tr>
<th>Trainee Type</th>
<th>Description</th>
<th>Number in Training (2014-2015)</th>
<th>VA</th>
<th>U.S. Total (including VA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Students</td>
<td>The VA serves as a site for clinical rotations during medical school; this is also called undergraduate medical education.(^a)</td>
<td>22,931</td>
<td>113,079</td>
<td></td>
</tr>
<tr>
<td>Medical Residents</td>
<td>Through affiliations with hospitals and academic medical centers, the VA serves as a training site for medical residents; this is also called graduate medical education (GME).</td>
<td>41,223</td>
<td>118,366</td>
<td></td>
</tr>
<tr>
<td>Fellows</td>
<td>Through affiliations with hospitals and academic medical centers, the VA serves as a training site for fellows (individuals who have completed residency training and are pursuing additional training in order to subspecialize.)</td>
<td>311</td>
<td>20,779</td>
<td></td>
</tr>
</tbody>
</table>
Animal Research

Biosafety and biosecurity research

Co-operative studies program: Mission statement

- To advance the health and care of Veterans through cooperative research studies that produce innovative and effective solutions to Veteran and national healthcare problems.
- CSP has a clinical research infrastructure that operates under the management of Central Office in Washington, D.C.

35 active co-op studies

- CSP #474 - Radial Artery vs. Saphenous Vein Grafts in Coronary Artery Bypass Surgery (Radial Artery)
- CSP #592 - Efficacy and Safety of ICD Implantation in the Elderly (PI: Steve Singh)
- CSP #517-FS - ROOBY Trial Extension (Randomized on pump and off pump bypass surgery: Long Term Follow-up)
- CSP #571—DES vs BMS in vein grafts

Million Veteran Program (MVP)
Hypertension treatment and control saves lives
The program is entering the next phase of making these data available, first to VA investigators with plans for expanding in the future to non-VA investigators, for genomic and epidemiological studies that will inform health care delivery.

Genetics of Cardio-Metabolic Diseases in the VA Population

Dr. Philip Tsao at the VA Palo Alto Health Care System and Dr. Kyong-Mi Chang at the Philadelphia VA Medical Center will lead a study to explore the role of genetics in obesity, diabetes, and abnormal lipid levels (namely, cholesterol and triglycerides), as drivers of heart disease. This project will help more thoroughly understand underlying causes of cardiometabolic disease and develop new therapies that are safe, effective, and personalized.

Pharmacogenomics of Risk Factors and Therapies Outcomes of Kidney Disease

Dr. Adriana Hung at the VA Tennessee Valley Healthcare System will lead a study focusing on how genes affect the risk and progression of kidney disease, one goal is to examine how patients with diabetes—who often develop kidney problems—respond differently to the drug metformin, the standard first-line treatment for diabetes, based on their genetic profile. The project will also look at the genetics of hypertension, a major risk factor for kidney disease.

Cardiovascular Disease Risk Factors, Prevalent Cardiovascular Disease and Genetics in the Million Veteran Program

Dr. Peter Wilson at the Atlanta VA Medical Center and Dr. Kelly Cho at the Boston VA Healthcare System will lead an effort probing the genes that influence how obesity and lipid levels affect heart risk. Using MVP data, this study will also look at whether these genetic factors differ among African Americans and Hispanics.
VINCI is an initiative to improve researchers' access to VA data and to facilitate the analysis of those data while ensuring Veterans' privacy and data security. VINCI welcomes all researchers in the VA community to explore the environment and tools available.

VINCI is a partner with the Corporate Data Warehouse (CDW) and hosts all data available through CDW as well as some unique data.

Extracts data from:
- CDW extractions from VistA
- MedSAS in SAS and SQL
- DSS in SAS and SQL
- TIU
- Radiology notes

For more information visit VINCI Central Intranet site at: http://vaww.vinci.med.va.gov/vincicentral/default.aspx

VINCI has a common access point using Remote Desktop Connection to connect from anywhere within the VA network.
Fiscal Year 2016 Update
(October 2015-September 2016)

Thomas M. Maddox MD MSc
Director, VA CART Program
December 20, 2016
The VA CART Program is a clinical quality program for all VA cath labs.
CART mission statement

The VA Clinical, Assessment, Reporting, and Tracking (CART) Program is a clinical program to improve cardiac outcomes. Its mission is to optimize Veterans’ cardiac outcomes by supporting a learning healthcare system that integrates information technology into healthcare delivery to facilitate safe, effective, and high-value care; to implement quality initiatives; and to generate and disseminate knowledge.

- Improve cardiac outcomes
- Implement quality initiatives
- Disseminate knowledge
DIGITAL CAPTURE OF CORONARY PROCEDURES

CART data digitally captures each coronary procedure.
CART collects data at the point of care, integrated into clinical workflow.
CART adverse event and device complications are rapidly reviewed by clinical experts.
Adverse event “lessons learned” are shared with all VA cath labs.

- In FY16, 41 (0.07%) major adverse events out of 49,083 coronary procedures were identified
- 23 deaths, 8 strokes, 9 emergent revascularization, 1 other
- 6 (14.6%) with possible quality issue
- Issues included better coordination of heart teams, need for anticoagulation protocols, hemodynamic support in high-risk PCI, better documentation
Device complications are shared with VA Patient Safety Office and FDA.

- In FY16, 231 (0.5%) coronary device issues out of 49,083 coronary procedures were identified.
- 15 (6.5%) were reported to the FDA for monitoring.
- Continual, bidirectional coordination with FDA and VA National Patient Safety Office.
- In talks with the FDA National Evaluation System for Health Technology (NEST).

Contrast-Induced Nephropathy (CIN) risk prediction program

- CART has developed a VA-specific CIN model (*Brown JR, et al, JAHA 2015*)
- Conducting a CIN prevention practice variation analysis
- Assessing if machine-learning techniques improve prediction
- Will build prediction model into CART workflows to allow for selective deployment of risk mitigation strategies
Vascular bleeding risk prediction program

- CART is building a VA-specific bleeding model
- Conducting a bleeding prevention practice variation analysis
- Assessing if machine-learning techniques improve prediction
- Will build prediction model into CART workflows to allow for selective deployment of risk mitigation strategies
Internal CART research projects

- 14 peer-reviewed publications in FY16
- 38 since program inception
- Examples:
  - Risk for CIN
  - Pulmonary HTN outcomes
  - Peri-operative risks in PCI patients
INTEGRATION WITH GENETICS

Partnership with Million Veterans Project

“The Genetics of Cardiometabolic Disease in the Veteran Population”

MVP | CART
CARDIOLOGY PROCEDURES IN 2016

- 78 cath labs
  - 39,735 coronary angiographies
  - 12,305 PCIs
  - 6,902 CABGs
  - 1,783 peripheral angiographies
  - 8,452 right heart caths

- Electrophysiology:
  - 554 permanent pacemakers,
  - 501 temporary wires
  - 297 ICDs
  - 217 ablation procedures
  - 193 Bive+ICDs

- Structural:
  - 280 TAVR procedures
  - 71 valvulaplasties
  - 17 pfo closures

GOOD THINGS ARE HAPPENING AT THE VA

GOOD THINGS ARE HAPPENING IN CARDIOLOGY
CORONARY ANGIOGRAPHY
N=39,375
## REASONS FOR PCI

<table>
<thead>
<tr>
<th>Reason</th>
<th>Count</th>
<th>Percentage</th>
<th>Type</th>
</tr>
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<tbody>
<tr>
<td>Stable angina</td>
<td>3117</td>
<td>34.6%</td>
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<tr>
<td>Unstable angina</td>
<td>2,292</td>
<td>25.4%</td>
<td>ACS</td>
</tr>
<tr>
<td>NSTEMI</td>
<td>2,053</td>
<td>22.8%</td>
<td>ACS</td>
</tr>
<tr>
<td>STEMI</td>
<td>576</td>
<td>6.4%</td>
<td>ACS</td>
</tr>
<tr>
<td>Other</td>
<td>990</td>
<td>11%</td>
<td></td>
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<tr>
<td>Restenosis</td>
<td>507</td>
<td>6.5%</td>
<td></td>
</tr>
</tbody>
</table>
PRESENTATION OF STEMI

Median contrast for PCI 200 cc, fluoro time 20.4 min
NUMBER OF LESIONS TREATED

#lesions

- 1
- 2
- 2
- 2
- unprotected LM
Interesting-Didactic Cases

Vasilios Papademetriou, MD
VA Medical Center
Washington DC
68 YO M with DM, HTN, HLD, CKD-3
- Drove to the ER at 9 am, feeling dizzy, c/o nausea/vomiting.
- Got out of the car and passed out in the parking lot
- ER personnel to the rescue
- ER, c/o N/V, lightheadedness, but no C/P. Thought had food poisoning
- BP 80/54 mmHg, P=110
- ECG ??

Troponin in ER 2.3
Bedside echo shows inferolateral hypokinesis’
- Overall LV function preserved.
- Patient denies h/o c/p, CAD
- Labs: Glucose 110 mg/dl, BUN/CR= 34/2.4, K=4.1, Na=141
AJ-ER ECG

5 JUN 1948 (68 yr)
Male Black
Age: Black
Race: Black

Technician:
Test Ind:

Ref: 2/21/2017 11:45:59 AM

Re: 2/21/2017 11:45:59 AM

Conf: 2/21/2017 11:45:59 AM

EKG:
- Vent. rate: 115 BPM
- PR interval: * ms
- QRS duration: 108 ms
- QT/QTc: 378/522 ms
- P-R axes: * 83 145

Arrhythmia observed:
- Atrial fibrillation with rapid ventricular response

Interpretation:
- ST elevation consider inferior injury or acute inferior
- *** *** *** ACUTE MI *** *** ***
- Consider right ventricular involvement in acute inferior infarct
- Abnormal ECG
- When compared with ECG of 13-FEB-2017 11:05,
- No significant change was found

Confirmed by FRANZ MD, MICHAEL R (173) on 2/14/2017 11:49:59 AM

Referred by:

Confirmed By: MICHAEL R, FRANZ MD
S-JUN-1948 (63 yr)

Ventricular rate: 82 BPM
PR interval: 182 ms
QRS duration: 90 ms
QT/QTc: 346/404 ms
P-R T axes: 6 51 53

Normal sinus rhythm
Normal ECG

When compared with ECG of 03-OCT-2005 11:19,
No significant change was found
Confirmed by FRANZ MD, MICHAEL (173) on 8/17/2011 2:33:37 PM

Technician: Test ruled elevated potassium

Referred by:
Confirmed By: MICHAEL FRANZ MD
Patient transferred to the Cath lab
CASE-1 JA
MR-JA
MR-JA
Moral: N/V can be lethal
Q: Large thrombus: Aspirate or just STENT
Q: Just the Culprit or complete revascularization

Good things are happening in Cardiology at the VA
- Patient is 78 YO oriental male
- Admitted with chest pain and positive cardiac enzymes
  - Serum troponin I, 1.2
- Initial cardiac cath showed:
  - Occluded LCx, Collaterals from the left
  - Occluded RCA, Collaterals from the left
  - 90% proximal LAD
  - EF 45%
ECG AT PRESENTATION

78 yr, Male, Asian

- Vent. rate: 69 BPM
- PR interval: 186 ms
- QRS duration: 132 ms
- QT/QTc: 442/473 ms
- P-R-T axes: 57 51 -58

Normal sinus rhythm
Possible Left atrial enlargement
Right bundle branch block
Inferior infarct (cited on or before 16-JUN-2008)
Abnormal ECG

When compared with ECG of 16-JUN-2008 09:14,
No significant change was found

Technician: MCOY

Referred by: PETER CARSON, MD
Confirmed by: HANS MOORE MD
Patient schedule for bypass surgery the next day
At 1 AM patient walked to the shower, coded!!!
Code blue called, CPR performed for 20 min,
  - Patient intubated, pulse stabilized
ECG significant for marked ST elevation/depression
Acute MI team called for emergency PCI
Acute inferior infarct (cited on or before 16-JUN-2008) with anterior ischecn
Abnormal ECG
When compared with ECG of 17-JUN-2008 00:56,
Vent. rate has increased BY 59 BPM
Questionable change in QRS duration
Questionable change in initial forces of Inferior leads

Referred by: [Signature]
Confirmed by: HANS MOORE MD
Patient taken to the cath lab
RCA and Lcx re-vascularized
Patient stabilized with an IABP
Taken to CCU
Patient did well, stabilized. Transferred to CCU, low dose dopamine, planning staged PCI next day
MR-W
Taken to CCU in stable condition
POST 3 VESSEL PCI. 2 DAYS LATER PATIENT DOING WELL

78 yr  Vent. rate  74 BPM  Normal sinus rhythm
Male  PR interval  166 ms  Right bundle branch block
Asian  QRS duration  124 ms  Possible Lateral infarct, age undetermined
Room:11  QT/QTc  460/510 ms  Inferior infarct (cited on or before 16-JUN-2006)
Loc:2  P-R-T axes  58 152 -84  Abnormal ECG

When compared with ECG of 17-JUN-2006 02:33,
Vent. rate has decreased by 53 BPM
Questionable change in QRS duration

Technician: MCCOY

Referred by: PETER CARSON, MD
Confirmed by: HANS MOORE, MD
Unfortunately the next day patient developed bleeding PUD and perforation! underwent surgical repair!!
Troponine - I
Serum Creatinine
Blood Pressure
Patient did well, Discharged to home
  - Pre-discharge echo, EF = 45%
Attends clinics regularly
Very compliant to Meds
Enjoys life

Good things are happening at the VA
Animal Research
Biosafety and biosecurity research
Co-operative studies program: Mission statement
  - To advance the health and care of Veterans through cooperative research studies that produce innovative and effective solutions to Veteran and national healthcare problems.
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    - CSP #571—DES vs BMS in vein grafts

Million Veteran Program (MVP)
Optimal Medical Therapy with or without PCI for Stable Coronary Disease

William E. Boden, M.D., Robert A. O'Rourke, M.D., Koon K. Teo, M.B., B.Ch., Ph.D., Pamela M. Hartigan, Ph.D., David J. Maron, M.D., William J. Kostuk, M.D., Merrill Knudtson, M.D., Marcin Dada, M.D., Paul Casperson, Ph.D., Crystal L. Harris, Pharm.D., Bernard R. Chaitman, M.D., Leslee Shaw, Ph.D., Gilbert Gosselin, M.D., Shah Nawaz, M.D., Lawrence M. Title, M.D., Gerald Gau, M.D., Alvin S. Blaustein, M.D., David C. Booth, M.D., Eric R. Bates, M.D., John A. Spertus, M.D., M.P.H., Daniel S. Berman, M.D., G.B. John Mancini, M.D., and William S. Weintraub, M.D., for the COURAGE Trial Research Group*

Courage 2007
STABLE CORONARY DISEASE
MEDICAL THERAPY VS PCI

All Cause Mortality + MI

Overall Survival

Survival free of ACS

Survival free of MI
LONG-TERM SURVIVAL IN PATIENTS WITH STABLE ISCHEMIC HEART DISEASE: PCI VS MEDICAL THERAPY F/U COURAGE

NEJM 2015
KAPLAN–MEIEIR ESTIMATES OF SURVIVAL IN THE TWO TREATMENT GROUPS

F/U courage NEJM 2015
Drug-Eluting Stents vs. Bare Metal Stents In Saphenous Vein Graft Angioplasty (DIVA)

Emmanouil S. Brilakis, MD, PhD
on behalf of the DIVA Trial Investigators and the Veterans Affairs Cooperative Studies Program #571 Study Team, USA
Ticagrelor (Target, POPular CABG)
Prasugrel SVG
eMESH-1
Statin – START CABG
Polyarginine, Duragraft
No touch

Natural history of SVGs

0 CABG

1 Early remodeling
   Early occlusion

2 Intermediate lesions

3 Severe lesions

4 Occlusion

DIVA - DES
## RCTs: DES vs. BMS in SVGs

<table>
<thead>
<tr>
<th>Study</th>
<th>Year</th>
<th>N</th>
<th>Primary endpoint</th>
<th>DES event rate (%)</th>
<th>BMS event rate (%)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>RRISC</td>
<td>2006</td>
<td>75</td>
<td>6-month angiographic restenosis</td>
<td>13.6</td>
<td>32.6</td>
<td>0.031</td>
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<tr>
<td></td>
<td>2007</td>
<td></td>
<td>MACE at 32 months</td>
<td>58</td>
<td>41</td>
<td>0.13</td>
</tr>
<tr>
<td>SOS</td>
<td>2009</td>
<td>80</td>
<td>12-month angiographic restenosis</td>
<td>9</td>
<td>51</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td></td>
<td>Target vessel failure at 35 months</td>
<td>34</td>
<td>72</td>
<td>0.001</td>
</tr>
<tr>
<td>ISAR-CABG</td>
<td>2011</td>
<td>610</td>
<td>12-month composite of death, MI and TLR</td>
<td>15</td>
<td>22</td>
<td>0.02</td>
</tr>
<tr>
<td>BASKET-SAVAGE</td>
<td>2016</td>
<td>173</td>
<td>12-month composite of cardiac death, MI</td>
<td>2.3</td>
<td>17.9</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
Study Design

- Prospective, double-blind, multicenter, randomized trial
- **Primary endpoint**: 12-month incidence of target vessel failure

(TVF: composite of cardiac death, target vessel myocardial infarction, or target vessel revascularization)
Study Design

Baseline

12 m

12-60 m

SVG with 50-99% stenosis

R

DES

12-months P2Y12 inhibitor

BMS

1-month P2Y12 inhibitor (for non-ACS pts)

Clinical FU

blinded

Clinical FU

Design paper: Brilakis et al. Clinical Cardiology 2017; DOI: 10.1002/clc.22763
Statistical design

- **Initial sample size:** 519 pts to achieve 90% power for the primary endpoint at 12 months FU assuming 12-month TVF rate 30% in BMS and 18% in DES

- **Interim analysis:** sample size increased to 762 due to lower than anticipated TVF rate

- **Enrollment stopped 12/31/2015:** 599 pts enrolled – 597 included in analysis due to improper consent in 2 pts
Primary endpoint: 12-month TVF

Log-Rank = 0.43
p-value = 0.67
Total Events = 109
Hazard Ratio of DES Relative to BMS = 0.92

composite of cardiac death, target vessel myocardial infarction, or target vessel revascularization

DES
BMS

No. at Risk

Months Post-Randomization

0
1
2
3
4
5
6
7
8
9
10
11
12

0
5
10
15
20

%
DIVA

12-month Outcomes I

Log rank p values

- TVF: 17 (DES) vs 19 (BMS), P = 0.67
- Death: 8 (DES) vs 7 (BMS), P = 0.64
- Cardiac death: 5 (DES) vs 4 (BMS), P = 0.36
- MI: 10 (DES) vs 10 (BMS), P = 0.63
- Target vessel MI: 4 (DES) vs 5 (BMS), P = 0.71
12-month Outcomes II

Log rank p values

Revascularization: P = 0.57
PCI: P = 0.65
CABG: P = 0.82
TVR: P = 0.74
TLR:
12-month outcomes III

Definite stent thrombosis

- DES: 2
- BMS: 2

\[ P = 0.84 \]

Definite/probable stent thrombosis

- DES: 5
- BMS: 6

\[ P = 0.68 \]
Antiplatelet medications during FU

<table>
<thead>
<tr>
<th></th>
<th>DES</th>
<th>BMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspirin 12 Months</td>
<td>97</td>
<td>93</td>
</tr>
<tr>
<td>P2Y12 Inhibitor 12 Months</td>
<td>93</td>
<td>89</td>
</tr>
<tr>
<td>Aspirin 24 Months</td>
<td>93</td>
<td>93</td>
</tr>
<tr>
<td>P2Y12 Inhibitor 24 Months</td>
<td>58</td>
<td>64</td>
</tr>
<tr>
<td>Aspirin 36 Months</td>
<td>86</td>
<td>84</td>
</tr>
<tr>
<td>P2Y12 Inhibitor 36 Months</td>
<td>48</td>
<td>44</td>
</tr>
</tbody>
</table>
TVF during long-term FU
median FU: 2.7 years

Log-Rank = 0.73
p-value = 0.46
Total Events = 213
Hazard Ratio of DES Relative to BMS = 1.11

No. at Risk
DES: 292 277 263 245 229 213 194
BMS: 305 292 274 260 241 225 206

Months Post-Randomization
DES: 175 158 131 114 97 78 58 52 43 33 24
BMS: 187 168 149 134 109 91 74 61 46 38 22

ESC CONGRESS
BARCELONA 2017
#esccongress
www.escardio.org/ESC2017

ESC CONGRESS
BARCELONA 2017
#esccongress
www.escardio.org/ESC2017
Long-term Outcomes I  
median FU: 2.7 years

**TVF**
- DES: 37
- BMS: 34
- Log rank p value: 0.46

**Death**
- DES: 19
- BMS: 17
- Log rank p value: 0.54

**Cardiac death**
- DES: 9
- BMS: 7
- Log rank p value: 0.45

**MI**
- DES: 18
- BMS: 20
- Log rank p value: 0.51

**Target vessel MI**
- DES: 12
- BMS: 13
- Log rank p value: 0.76
Long-term Outcomes II
median FU: 2.7 years

Revascularization: 37% DES, 31% BMS, P = 0.15
PCI: 35% DES, 31% BMS, P = 0.26
CABG: 2% DES, 1% BMS
TVR: 23% DES, 19% BMS, P = 0.18
TLR: 16% DES, 8% BMS, P = 0.29

Log rank p values
Long-term Outcomes III
median FU: 2.7 years

Definite stent thrombosis

- DES: 3
- BMS: 3

P = 0.89

Definite/probable stent thrombosis

- DES: 9
- BMS: 10

P = 0.69

Log rank p values
Limitations

- Nearly all patients were men
- Study completed before reaching revised enrollment target, but still more patients than initially planned
Conclusions

When stenting de novo SVG lesions:

• No difference in short- and long-term outcomes between DES and BMS

• Novel strategies needed for treatment of severe SVG lesions
- The VA developed a successful interventional program that
  - Provides optimal treatment to patients with heart disease
  - Contributes to Medical education
  - Pursues innovative medical research