Advisory Board | Cardiovascular Roundtable

Optimizing Same-Day Discharge for CV Procedures

Lessons for CV leaders to achieve procedural efficiency

Look inside for

- Key strategies to increase physician comfort with same-day discharge
- Best-practice guidance on standardizing pathways and hardwiring an efficient procedural infrastructure
- Implementation resources including same-day discharge protocols, patient eligibility criteria, and follow-up phone call instructions

The best practices are the ones that work for you.SM

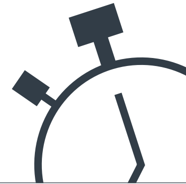
research technology consulting

TOPIC

CV **same-day discharge**

READING TIME

20 min.



BEST FOR

CV service line administrators and clinical leaders

RECOMMENDED PREP

Have your computer available to download related tools and resources

LEARN HOW TO

- Increase physician comfort with same-day discharge
- Enhance adoption of radial access
- Streamline outpatient procedural operations through standardized pathways
- Build efficient procedural infrastructure

Optimizing Same-Day Discharge for CV Procedures

Lessons for CV leaders to achieve procedural efficiency

Cardiovascular Roundtable

Project Director

Kristen Barlow, JD

barlowkr@advisory.com

(202) 568-7204

Research Team

Julie Bass, MPH

Ashley Riley, MPH

Marissa Schwartz

Program Leadership

Lindsay Conway

Brian Contos

Sruti Nataraja, MPH

Design Consultant

Kate Hinnenkamp

LEGAL CAVEAT

Advisory Board is a division of The Advisory Board Company. Advisory Board has made efforts to verify the accuracy of the information it provides to members. This report relies on data obtained from many sources, however, and Advisory Board cannot guarantee the accuracy of the information provided or any analysis based thereon. In addition, Advisory Board is not in the business of giving legal, medical, accounting, or other professional advice, and its reports should not be construed as professional advice. In particular, members should not rely on any legal commentary in this report as a basis for action, or assume that any tactics described herein would be permitted by applicable law or appropriate for a given member's situation. Members are advised to consult with appropriate professionals concerning legal, medical, tax, or accounting issues, before implementing any of these tactics. Neither Advisory Board nor its officers, directors, trustees, employees, and agents shall be liable for any claims, liabilities, or expenses relating to (a) any errors or omissions in this report, whether caused by Advisory Board or any of its employees or agents, or sources or other third parties, (b) any recommendation or graded ranking by Advisory Board, or (c) failure of member and its employees and agents to abide by the terms set forth herein.

The Advisory Board Company and the "A" logo are registered trademarks of The Advisory Board Company in the United States and other countries. Members are not permitted to use these trademarks, or any other trademark, product name, service name, trade name, and logo of Advisory Board without prior written consent of Advisory Board. All other trademarks, product names, service names, trade names, and logos used within these pages are the property of their respective holders. Use of other company trademarks, product names, service names, trade names, and logos or images of the same does not necessarily constitute (a) an endorsement by such company of Advisory Board and its products and services, or (b) an endorsement of the company or its products or services by Advisory Board. Advisory Board is not affiliated with any such company.

IMPORTANT: Please read the following.

Advisory Board has prepared this report for the exclusive use of its members. Each member acknowledges and agrees that this report and the information contained herein (collectively, the "Report") are confidential and proprietary to Advisory Board. By accepting delivery of this Report, each member agrees to abide by the terms as stated herein, including the following:

1. Advisory Board owns all right, title, and interest in and to this Report. Except as stated herein, no right, license, permission, or interest of any kind in this Report is intended to be given, transferred to, or acquired by a member. Each member is authorized to use this Report only to the extent expressly authorized herein.
2. Each member shall not sell, license, republish, or post online or otherwise this Report, in part or in whole. Each member shall not disseminate or permit the use of, and shall take reasonable precautions to prevent such dissemination or use of, this Report by (a) any of its employees and agents (except as stated below), or (b) any third party.
3. Each member may make this Report available solely to those of its employees and agents who (a) are registered for the workshop or membership program of which this Report is a part, (b) require access to this Report in order to learn from the information described herein, and (c) agree not to disclose this Report to other employees or agents or any third party. Each member shall use, and shall ensure that its employees and agents use, this Report for its internal use only. Each member may make a limited number of copies, solely as adequate for use by its employees and agents in accordance with the terms herein.
4. Each member shall not remove from this Report any confidential markings, copyright notices, and/or other similar indicia herein.
5. Each member is responsible for any breach of its obligations as stated herein by any of its employees or agents.
6. If a member is unwilling to abide by any of the foregoing obligations, then such member shall promptly return this Report and all copies thereof to Advisory Board.

Table of Contents

Advisors to Our Work 4
Executive Summary 5
Introduction: Assessing the Outpatient Shift 6
Lesson 1: Demonstrate Safety and Efficacy with Data 10
Lesson 2: Formally Incentivize Behaviors That Promote Same-Day Discharge 14
Special Report: Increasing Physician Adoption of Radial Access 16
Lesson 3: Set Clear Criteria for Every Stage of Care 20
Lesson 4: Include Non-clinical Factors in Considering Eligibility 22
Lesson 5: Reconfigure the Cath Lab Schedule 23
Lesson 6: Alter Post-procedure Infrastructure 24
Key Takeaways 27

Additional Implementation Resources

Please see the online appendix for additional resources to support implementing strategies in this publication, including:

- Same-day discharge eligibility criteria
- Protocols and pathways
- Follow-up phone call instructions

These resources and more are available at: advisory.com/cr/samedaydischarge

©2016 Advisory Board • All Rights Reserved • 33986

Advisors to Our Work

The Cardiovascular Roundtable is grateful to the individuals and organizations that shared their insights, analysis, and time with us. We would especially like to recognize the following institutions for being particularly generous with their time and expertise.

With Sincere Appreciation

Abington Health
Abington, PA

Allen Hospital
Waterloo, IA

Anaheim Regional Medical Center
Anaheim, CA

AtlantiCare
Egg Harbor, NJ

Atlantic Health
Morristown, NJ

Baptist Health Lexington
Lexington, KY

Boston Medical Center
Boston, MA

Carilion Clinic
Roanoke, VA

Cedars-Sinai
Los Angeles, CA

Central Maine Healthcare
Lewiston, ME

Community Health Systems
Franklin, TN

Cone Health
Greensboro, NC

Dignity Health
San Francisco, CA

Emory Healthcare
Atlanta, GA

Evangelical Community Hospital
Lewisburg, PA

Franciscan St. Francis
Indianapolis, IN

Harrison Medical Center
Bremerton, WA

Health First
Melbourne, FL

Holy Name Medical Center
Teaneck, NJ

Indiana University Health Bloomington
Bloomington, IN

Indiana University Health La Porte Hospital
La Porte, IN

John Muir Health
Walnut Creek, CA

Kaleida Health
Buffalo, NY

Lee Memorial Health System
Fort Meyers, FL

Mayo Clinic
Rochester, MN

MedStar Union Memorial
Baltimore, MD

Mercy General Hospital
Sacramento, CA

Mercy Health
Youngstown, OH

McLeod Health
Florence, SC

Our Lady of the Lake Regional Medical Center
Baton Rouge, LA

Parkview Health
Fort Wayne, IN

Piedmont Healthcare
Atlanta, GA

Providence Health & Services
Portland, OR

Reid Hospital
Richmond, IN

Rush University Medical Center
Chicago, IL

Saint Alphonsus Regional Medical Center
Boise, ID

Sanford Health
Fargo, ND

Sharp HealthCare
San Diego, CA

St. John Hospital and Medical Center
Detroit, MI

St. Joseph Mercy Health System
Ypsilanti, MI

St. Mary's Hospital
Madison, WI

St. Peter's University Hospital
New Brunswick, NJ

St. Vincent Hospitals and Health Services
Indianapolis, IN

Tampa General Hospital
Tampa, FL

Tufts Medical Center
Boston, MA

UC Davis Medical Center
Sacramento, CA

UCSD Health System
San Diego, CA

UMass Memorial Healthcare
Worcester, MA

UNC Center for Heart and Vascular Care
Chapel Hill, NC

University of Alabama
Birmingham, AL

University of Kansas Medical Center
Kansas City, KS

©2016 Advisory Board • All Rights Reserved • 33986

Executive Summary

Lessons for Optimizing Same-Day Discharge

Same-day discharge for cardiovascular procedures is a growing priority. An accelerating outpatient shift, associated with reimbursement decreases, mandates focus on efficiency and throughput. This is ideally accomplished through same-day discharge.

However, many institutions do not have the physician buy-in, consistent criteria, and infrastructure requirements in place to enable same-day discharge. We have identified six lessons to overcome these barriers and hardwire same-day discharge.

1. **Share targeted data to alleviate physician concerns about same-day discharge.**
   Hospital-specific and general data on complications can address physicians' resistance to discharging patients on the same day as their PCI. This extends to electrophysiology procedures, less often a focus for same-day discharge.
2. **Align incentive structures to promote same-day discharge.**
   Attaching same-day discharge to at-risk pay can help overcome the force of old practice patterns. Similar strategies, including the use of management agreements, apply to increasing radial access adoption.
3. **Establish clear criteria through each stage of care.**
   Initial same-day discharge eligibility criteria should extend throughout the day to reflect potential changes in patient status. Accountability should be hardwired at each stage to ensure timely assessment.
4. **Integrate non-clinical factors into eligibility assessments.**
   Patients' social determinants of health influence their ability to thrive after same-day discharge, so these factors should be hardwired into evaluations.
5. **Organize the cath lab schedule in a principled manner.**
   Prioritizing morning appointments for likely same-day discharge candidates increases the program's ability to discharge patients in a timely manner.
6. **Modify post-procedure infrastructure to accommodate same-day discharge.**
   Appropriate recovery setting, staffing models, and discharge plans can all enable same-day discharge for eligible patients.

Source: Cardiovascular Roundtable research and analysis.

©2016 Advisory Board • All Rights Reserved • 33986

Assessing the Outpatient Shift

Over the past several years, the cardiovascular service line has seen a steady migration of procedures from the inpatient to outpatient care setting. Due to policy changes, regulatory measures (e.g., the Two Midnight Rule), and increased payer pressure, this shift is expected to accelerate in coming years. Going forward, more procedures will be billed as outpatient, regardless of the care that patients receive while in the facility.

For example, 11% of Medicare PCIs were billed as outpatient procedures in 2013. However, among the remaining 89% of inpatient PCIs, almost half had a one to two-day length of stay. These short-stay procedures are prime targets of the shift to outpatient billing.

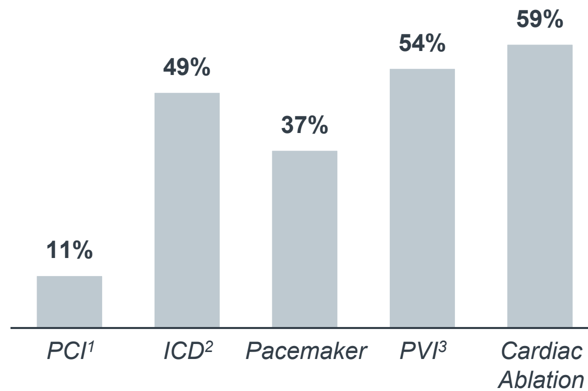
While a higher percentage of EP[4] procedures, such as ICDs, are currently billed as outpatient, the shift will continue for EP as well.

As the proportion of CV procedures performed as outpatient grows, it is imperative that programs find opportunities to increase efficiency. By doing so, programs can offset the lower reimbursement associated with outpatient billing, preserve inpatient beds for patients who require that level of care, and remain profitable.

Short-Stay Cases Vulnerable to Payment Scrutiny

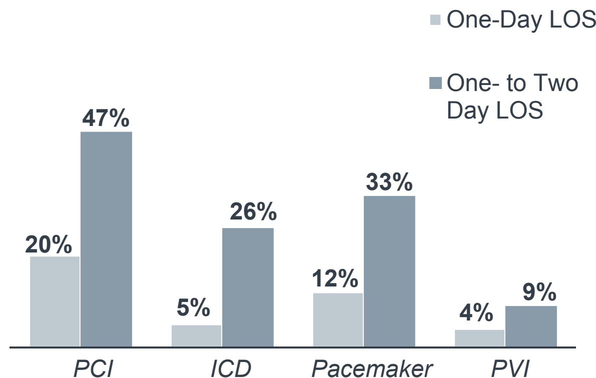
Procedures Billed as Outpatient

Medicare, 2013



Inpatient Procedures with 1-2 Day LOS

Medicare, 2013



Key Drivers of the Outpatient Migration of CV Procedures

- The two-midnight tule
- Recovery audit contractors
- Private payer pressures

Access these related resources from the Cardiovascular Roundtable at **advisory.com/cr**

- The Outmigration of CV Services
- The Highly Productive Cardiovascular Enterprise

1) Percutaneous coronary intervention.
2) Implantable cardioverter defibrillator.
3) Peripheral vascular intervention.
4) Electrophysiology.

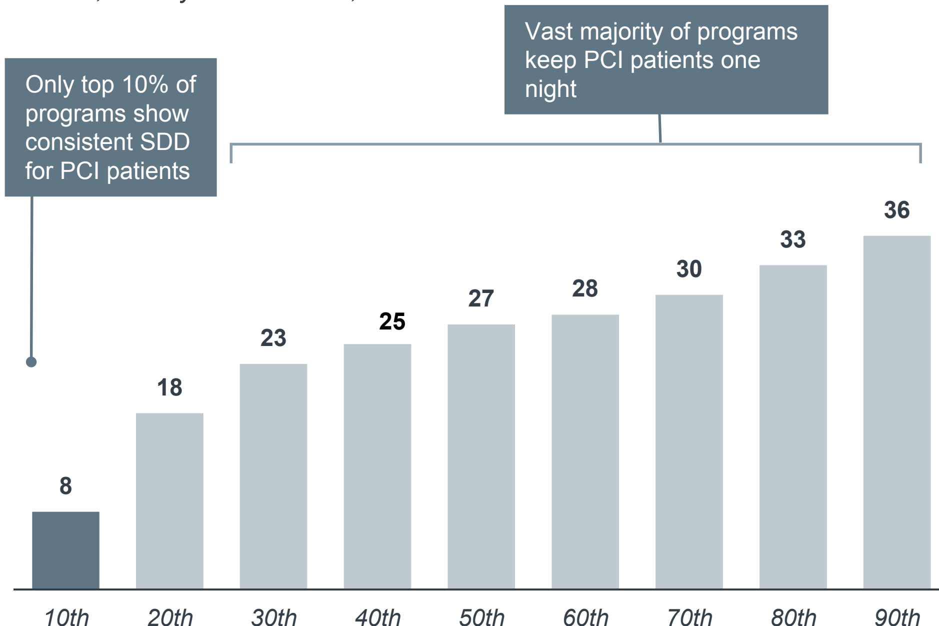
Source: Cardiovascular Roundtable research and analysis.

©2016 Advisory Board • All Rights Reserved • 33986

A primary strategy to increase efficiency for CV procedures is via same-day discharge (SDD). SDD is defined as discharging patients the same day as the procedure, or alternatively at a length of stay of 12 hours or fewer.

Despite its efficiency benefits, few CV programs are pursuing this strategy aggressively, as the deciles for PCI length of stay show. The vast majority of programs have lengths of stay between 20 and 37 hours, indicating that most routinely keep patients overnight. However, there is a noticeable drop-off in length of stay for programs in the top decile, indicating opportunity for programs focusing on same-day discharge.

Few Programs Aggressively Pursuing SDD[1]



Same-day discharge provides multiple benefits. First, it streamlines throughput, as patients leave the hospital on the same day as their arrival.

Second, same-day discharge optimizes profits by avoiding the cost incurred by an overnight stay.

Finally, same-day discharge greatly improves patient experience, with 89% of patients reporting satisfaction.

For those programs not yet focused on same-day discharge, there is clear opportunity. This whitepaper will detail the necessary steps to enable and maximize same-day discharge.

Making the Most of Outpatient Procedures

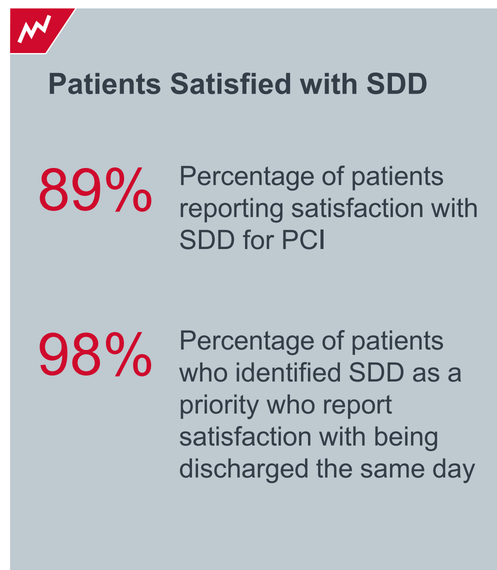
SDD Improves Efficiency, Increases Patient Satisfaction

Benefits of SDD

Streamlines patient throughput

Optimizes outpatient reimbursement

Improves patient experience



1) Same-day discharge.

Source: Ziakas A, et al., “Same-Day Discharge is Preferred by the Majority of the Patients Undergoing Radial PCI,” *J Invasive Cardiol*, 16, no. 10 (2004): 562-565; Cardiovascular Roundtable research and analysis.

©2016 Advisory Board • All Rights Reserved • 33986

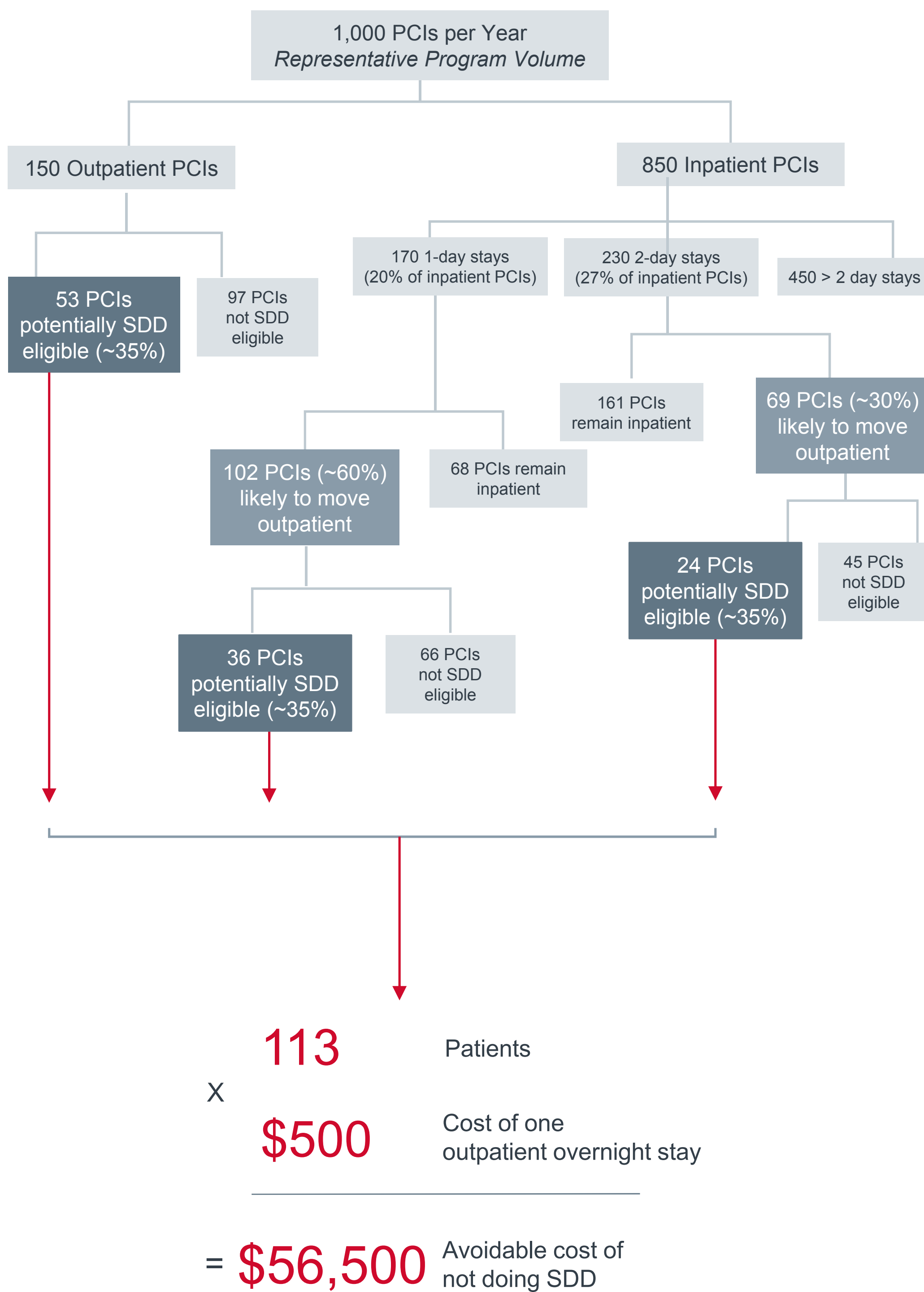
A hypothetical scenario illustrates how same-day discharge helps improve a CV program's bottom line. Assume a typical average annual program volume is 1,000 PCIs. Current national data indicate that about 150 of these are billed as outpatient procedures. Of those, about 53 patients are theoretically eligible for same-day discharge. This is based on a conservative estimate that 35% of outpatient patients will be eligible to go home the same day, if the CV program has in place the infrastructure to support same-day discharge.

Among the 850 inpatient cases, a small subset has length of stays over two days and are not subject to payment scrutiny. But the remaining one and two-day inpatient stays are vulnerable to payment scrutiny. Of the 20% of cases with one-day stays, we estimate that 60% are vulnerable to payment scrutiny and consequent shift to outpatient billing. Of the 27% of cases with two day stays, 30% are vulnerable. Again, 35% of these outpatient PCIs are likely eligible for same-day discharge.

As a result, 113 patients, or about 11% of *total* PCI volumes, are eligible for same-day discharge. Assuming the cost of one outpatient overnight stay is $500, the program would realize savings of $56,500, simply by optimizing same-day discharge.

The Avoidable Cost of an Overnight Stay

Modeling the Savings Potential of SDD



Source: Cardiovascular Roundtable research and analysis.

©2016 Advisory Board • All Rights Reserved • 33986

Despite the benefits of same-day discharge, three primary barriers stand in the way.

First, physicians may be concerned about the safety and feasibility of same-day discharge. For example, they may worry that a PCI patient may experience bleeding complications at home.

Second, it can be difficult to identify patients who are candidates for same-day discharge.

Lastly, same-day discharge requires a reworking of operational infrastructure.

The six lessons in this whitepaper will address these challenges.

Three Primary Obstacles to Implementing SDD

Solutions for Hardwiring SDD for Elective Outpatient Procedures

Barriers to SDD:

Physician Concerns

Difficult to Identify Eligible Patients

Inadequate Operational Infrastructure to Support SDD

Solutions:

- Lesson 1: Demonstrate Safety and Efficacy with Data
- Lesson 2: Formally Incentivize Behaviors That Promote SDD

- Lesson 3: Set Clear Criteria for Every Stage of Care
- Lesson 4: Include Non-clinical Factors in Considering Eligibility

- Lesson 5: Reconfigure Cath Lab Schedule
- Lesson 6: Alter Post-procedure Infrastructure

It is fundamental to begin with gaining physician support for same-day discharge. However, in the Cardiovascular Roundtable's 2015 Outpatient Efficiency Benchmarking survey, members cited physician concerns as the primary barrier to this strategy.

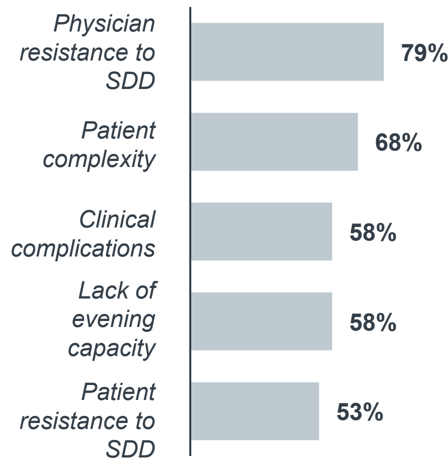
There are three core reasons for physician resistance: patient safety concerns, the difficulty of changing engrained practice patterns, and the learning curve associated with adopting new approaches.

Addressing physician concerns is a timely process, mandating targeted strategies.

Physician Concerns Center on Patient Safety

Inhibiting SDD

Percentage of Respondents who Agreed with Each Inhibitor[1,2]



Primary Reasons for Physician Concerns

- Safety concerns
- Inertia of engrained practice patterns
- Learning curve associated with new approaches

Old Habits Hard to Break

"Old habits are hard to break, and the mindset is these patients have to spend the night. And so it's just been a very slow process of trying to shift that thinking, and so we just keep pecking away at it every month…"

Director, Cardiovascular Services
Hospital in Northeast

1) Strongly agreed, agreed, or tended to agree.
2) Totals more than 100% because respondents could pick multiple options

Source: 2015 CV Outpatient Efficiency Benchmarking Survey; Cardiovascular Roundtable interviews and analysis.

©2016 Advisory Board • All Rights Reserved • 33986

Demonstrate Safety and Efficacy with Data

Hospital-Specific Data Allays Physician Concerns

An initial strategy for alleviating physician concerns about same-day discharge is demonstrating safety and efficacy with data.

Granger Hospital, a pseudonym, used hospital-specific data to inflect same-day discharge.

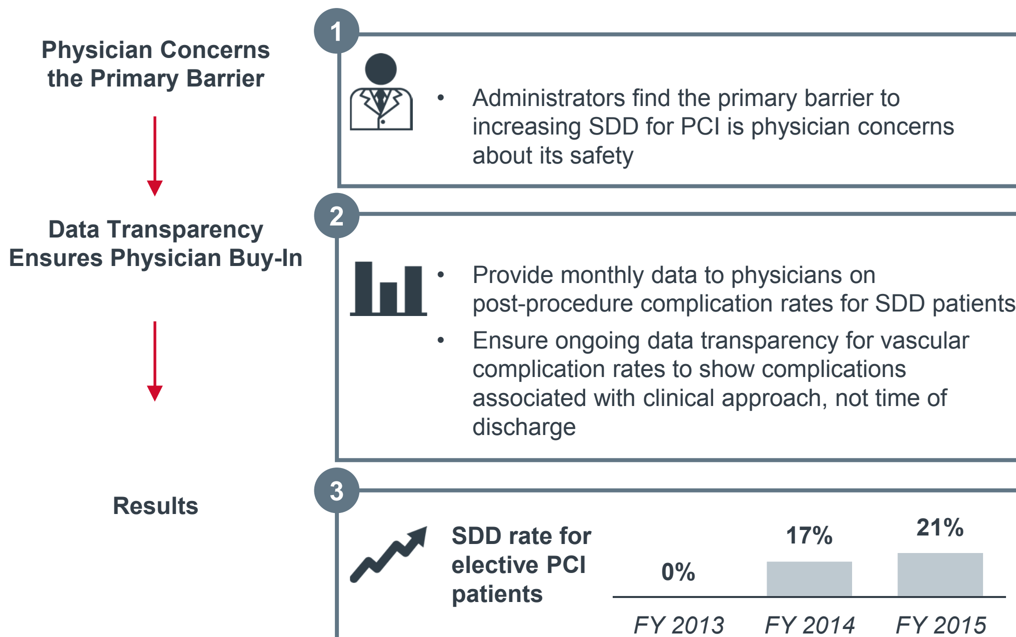
CV physicians at Granger had achieved a radial access rate of 40% for PCI. Despite this high rate, and consequent shorter recovery, physician concerns about post-procedure complications prevented same-day discharge.

To address physician safety concerns, CV administrators began reporting each month on post-procedure complication rates. The data indicated that the clinical approach–radial vs. femoral–rather than the time of discharge was the best predictor of vascular complications.

In response to this finding, the team at Granger established same-day discharge as the default on order sets for elective PCI via radial access.

As a result, Granger increased same-day discharge for elective PCI patients from 0% to17% in one year, and to 21% over a two-year period.

Case 1: Granger[1] Provides Monthly Data on SDD Safety



Case in Brief: Granger Hospital

- Teaching hospital based in the Northeast
- Following physician adoption of radial access, CV administrators prioritize SDD for PCI
- However, physicians expressed concerns about the safety of SDD for patients undergoing a PCI, noting the potential for bleeding complications
- To address these concerns, administrators provide physicians with monthly, hospital-specific data on complications from PCI procedures
- The data indicate that access approach, rather than length of stay, caused most vascular complications among PCI patients
- As an additional measure to increase SDD, administrators set SDD as the default on order sets for patients undergoing elective PCI via radial access in their EMR
- As a result of their efforts to engage physicians, Granger increased their SDD rate from 0% to a monthly average of 21% in two years

1) Pseudonym.

Source: Cardiovascular Roundtable interviews and analysis.

©2016 Advisory Board • All Rights Reserved • 33986

Revisit "Standard" Clinical Practices

An additional cause for physician resistance to same-day discharge is a misperception of what should be "standard practice."

Watson Medical Center, a pseudonym, addressed this issue when considering same-day discharge for simple electrophysiology procedures.

Watson's EP physicians were interested in same-day discharge for pacemaker implants and lead or generator changes. However, patients were traditionally given a second dose of antibiotics the morning following their procedure, presenting a barrier to same-day discharge.

In response, CV administrators, physicians, and hospital pharmacists collaborated to review the relevant clinical literature. They concluded that the second dose was not necessary. Watson administrators and physicians were then comfortable in piloting same-day discharge.

As a result, Watson's same-day discharge rate rose from 0% to 36% in one year.

Case 2: Watson's[1] Collaborative Effort to Overcome EP SDD Barriers

Process for Enabling SDD

Identify Barriers to SDD for EP

Concern about need for second dose of antibiotics the morning after simple EP procedures sole physician-identified clinical barrier to SDD

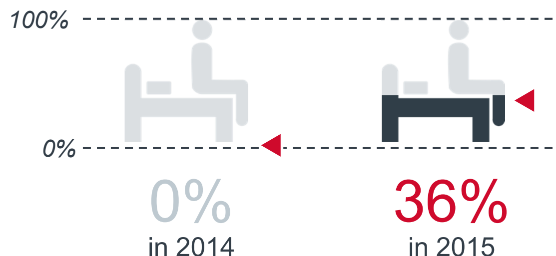
Consult Pharmacy and Literature

Physicians and EP administrators consult with the pharmacy and collectively reviewed clinical literature on necessity of second antibiotic dose

Discontinue Second Dose

Determine pharmacy department and clinical literature agree that the second dose was not clinically necessary

Percentage of Patients Receiving SDD for Uncomplicated EP Procedures



Case in Brief: Watson Medical Center

- Hospital located in the Northeast
- CV administrators target SDD for EP procedures as an important priority to increase bed capacity and optimize outpatient finances
- EP physicians were interested in SDD for simple EP procedures (e.g., pacemaker implants, lead or generator changes), but expressed concerns about the need for patients to receive a second dose of antibiotics the morning after the procedure, which necessitated an overnight stay
- In response, CV administrators and physicians consult with the hospital's pharmacy and reviewed clinical literature to determine the necessity of the second dose
- Together, the CV administrators, physicians, and pharmacists conclude that the second dose of antibiotics is not supported as a requirement in the clinical literature
- In one year, Watson's SDD rate for simple EP procedures increased from 0% to 36%

1) Pseudonym.

Source: Cardiovascular Roundtable interviews and analysis.

©2016 Advisory Board • All Rights Reserved • 33986

Expand SDD Beyond PCI

Unlike Watson, many CV programs do not consider non-PCI procedures for same-day discharge.

All-payer data indicates minimal same-day discharge for pacemakers and ICDs. For example, the 20th percentile of institutions has a 19-hour outpatient length of stay after a pacemaker implant. Further, decile-level analysis did not reveal a breakaway group of top performers with significantly lower lengths of stay.

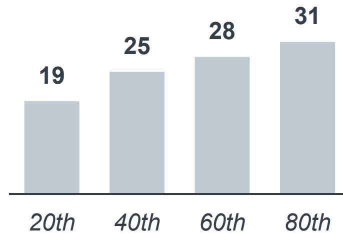
This gap is attributable to a lack of focus on same-day discharge, rather than a lack of opportunity.

The SDD Gap for Non-PCI Procedures

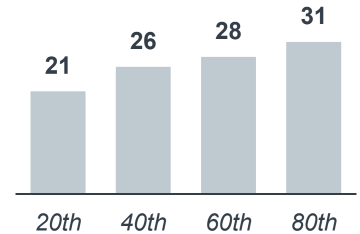
Outpatient Length of Stay

Quintiles, All Payer 2013-2014, in Hours

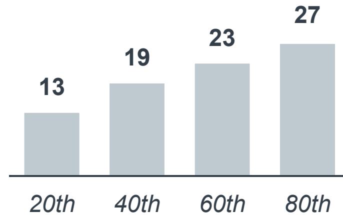
Pacemaker



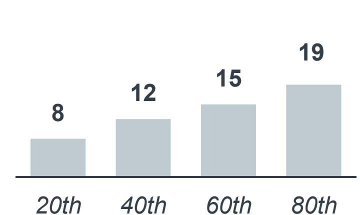
ICD



Cardiac Ablation



PVI

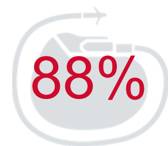


Assess the Potential

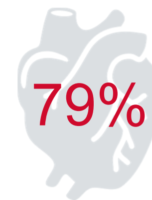
Concerns about complications are the primary barrier to non-PCI same-day discharge, but are often misplaced. For example, the most common complications for ICD patients (e.g., cardiac perforation, mechanical complications) typically occur immediately following the procedure or are detected at a later follow-up visit. Accordingly, studies have shown no significant difference in short-term complications that could be avoided by keeping patients overnight. In fact, clinical literature supports the safety and efficacy of SDD for a range of CV procedures. For example, up to 95% radiofrequency catheter ablation patients may be eligible.

Clinical Studies Support Feasibility and Safety of SDD Across Procedures

Potential Eligibility for Same-Day Discharge

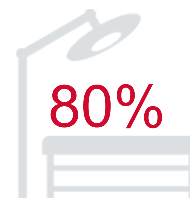


Percentage of **pacemaker** patients



Percentage of **ICD** patients

Percentage of **radiofrequency catheter ablation** patients



Percentage of **PVI** patients treated with manual groin compression

Source: Darda S, et al., "Feasibility and Safety of Same-Day Discharge after Implantable Cardioverter Defibrillator Placement for Primary Prevention," *Pacing Clin Electrophysiol*, 36, no. 7 (2013): 885-891; Brahmbhatt DH, et al, "Day Case Pacemaker Implantation Feasible Acceptable and Safe," *Heart*, 99, Suppl S2 (2013): A50-A51; Marijon E, et al., "Feasibility and Safety of Same-Day Home Discharge After Radiofrequency Catheter Ablation," *Am J Cardiol*, 104, no. 2 (2009): 254-258; Akopian G, Katz SG, "Peripheral Angioplasty with Same-Day Discharge in Patients with Intermittent Claudication," *J Vasc Surg*, 44, no. 1 (2006): 115-118; Cardiovascular Roundtable research and analysis.

©2016 Advisory Board • All Rights Reserved • 33986

Address Barriers to SDD for ICD Implantation

Additional clinical barriers are commonly identified as preventing same-day discharge for ICD patients. However, clinical literature suggests strategies to overcome these challenges.

For example, programs can hardwire monitoring for several hours to ensure complete recovery from sedation and to detect any immediate complications. Likewise, necessary imaging can be completed before discharge, and patient compliance can be reinforced with clear discharge instructions.

The benefits of same-day discharge for ICDs are substantial. As for PCI, same-day discharge is more efficient for the hospital, increasing bed capacity, and is often preferred by patients.

There are also tangible financial benefits. One institution saved over one million dollars over three years by performing same-day discharge for ICD patients.

Potential Strategies to Optimize SDD for ICDs

Barriers to SDD for ICD | **Sample Solutions from Clinical Literature**

Need to monitor patients post-procedure for complications

6 hours in cardiovascular observation unit to ensure complete recovery from sedation; no immediate complications

Required post-procedure x-rays, typically done the morning following the procedure

Portable chest x-ray 3 hours post-procedure to rule out pneumothorax; confirm lead placement

Concerns about patient compliance in home setting; ensuring appropriate follow-up care

Instructions before discharge:

- Sling; movement restriction for 2 weeks
- Sealed, dry bandage for 48 hours
- Follow-up in 2 weeks at outpatient clinic for wound check; follow-up phone calls

Cost Savings Associated with SDD for ICD Implantation

$5,590

Cost savings per patient for SDD compared with one overnight stay

$1.1M

Cost savings for one institution performing 198 SDDs over 3 years

Source: Darda S, et al., "Feasibility and Safety of Same-Day Discharge after Implantable Cardioverter Defibrillator Placement for Primary Prevention," *Pacing Clin Electrophysiol*, 36, no. 7 (2013): 1-7; Datino T, et al., "Safety of Outpatient Implantation of the Implantable Cardioverter-defibrillator," *Rev Esp Cardiol*, 68, no. 7 (2015): 579-584; Haegeli LM, et al., "Feasibility and safety of outpatient radiofrequency catheter ablation procedures for atrial fibrillation," *Postgrad Med J* 86 (2010): 395-398; Cardiovascular Roundtable research and analysis

©2016 Advisory Board • All Rights Reserved • 33986

Formally Incentivize Behaviors That Promote SDD

Promote SDD by Increasing Eligibility Screening

In addition to using data, CV programs can further increase physician adoption of same-day discharge by providing incentives to promote the practice.

St. Joseph Mercy Health System in Michigan incentivized their CV physicians to screen PCI patients for same-day discharge eligibility. Physicians' at-risk pay totaled two million dollars for the group, and a metric for same-day discharge screening was included in the at-risk agreement. The metric was assigned $150,000 in at-risk value. Continual data tracking enabled administrators to see progress in screening rates.

As a result of this incentive structure, 95% of patients undergoing a PCI are screened for same-day discharge eligibility.

Moreover, as an indication that increased screening yields improved rates of same-day discharge, 16% of St. Joseph Mercy's PCI patients are now discharged the same day as their procedure.

Case 1: St. Joseph Mercy Incentivizes Physicians to Screen Patients

St. Joseph Mercy's Incentive Structure

Adjust Group At-Risk Pay
List of 15 quality metrics linked to 15% of physicians' pay as a group representing a potential $2 million

Set Expectation
100% adherence to SDD eligibility screening protocol for PCI patients required to meet metric

Create Eligibility Screening Metric
SDD eligibility screening metric attached to $150,000 of total at-risk pay

Measure Adherence
Track portion of PCI patients assessed for SDD eligibility and portion who met SDD criteria

95%

Percentage of PCI patients who were assessed for SDD eligibility in May 2015

16%

Percentage of elective outpatient PCI patients who were discharged on the same day within two years of implementation

Case in Brief: St. Joseph Mercy Health System

- Six-hospital health system based in southeast Michigan
- Cardiologist group's incentive structure places 15% of group's pay at-risk, tied to a list of 15 quality metrics
- To increase SDD, administrators added 100% eligibility screening for SDD for PCI to the list of incentive metrics
- Eligibility screening was linked to $150,000 at-risk dollars and administrators tracked the proportion of patients who were screened for SDD
- 95% of patients were assessed for PCI SDD eligibility in May 2015
- Within two years of implementation, 16% of elective, outpatient PCI patients were discharged on the same day as their procedure

Source: St. Joseph Mercy Health System, Ypsilanti, MI; Cardiovascular Roundtable interviews and analysis.

©2016 Advisory Board • All Rights Reserved • 33986

Discharge Timing Improves with Physician Incentives

Whereas St. Joseph Mercy's incentive structure revolves around eligibility screening, incentives can also directly encourage timely discharge.

At Sirius Regional Medical Center, a pseudonym, CV administrators appointed physician leaders to the hospital Joint Operating Committee. The Committee tasked the physician leaders with developing preliminary criteria for same-day discharge for PCI. However, simply having criteria was not sufficient to change physicians' practice patterns. Therefore, the group added adherence to the eligibility criteria as a quality metric in their co-management agreement. As a starting point, the metric was weighted at 10% of at-risk pay, with a target to discharge 25% of eligible patients before 10 p.m.

Before implementing the incentive structure, Sirius had no same-day discharge. One year after tying same-day discharge criteria adherence to at-risk pay, Sirius discharged 55% of eligible PCI patients the same day, demonstrating the power of incentive structures to impact practice patterns.

Case 2: Sirius Regional Medical Center[1] Incentivizes Timely Discharge

Attaching SDD to At-Risk Pay

CV administrators at Sirius began developing SDD criteria for PCI, but garnering physician support required additional effort

SDD criteria for PCI were approved by the physician and hospital joint operating committee, and adherence was included as a quality metric for at-risk pay in co-management agreement

Discharge before 10 p.m. for at least 25% of SDD-eligible patients was weighted at 10% of the group's at-risk pay

0%

Percentage of eligible PCI patients who were discharged on the same day prior to tying SDD criteria adherence to at-risk pay

55%

Percentage of eligible PCI patients who were discharged on the same day one year after tying SDD criteria adherence to at-risk pay

Case in Brief: Sirius Regional Medical Center

- 700-bed teaching hospital based in the Pacific Northwest
- Due to payer pressure, all elective PCIs are billed as outpatient procedures, creating pressure to optimize SDD for eligible patients
- The Joint Operating Committee appoints physician delegates to create preliminary SDD criteria and share the criteria with the entire physician group for approval and modification
- The Joint Operating Committee approves the criteria, which were then included in the metrics tied to the at-risk pay for the physician group through their co-management agreement
- Discharge of at least 25% of eligible patients (who met all criteria for SDD) by 10 p.m. is weighted at 10% of at-risk pay; currently, 55% of eligible patients are discharged the same day

1) Pseudonym.

Source: Cardiovascular Roundtable interviews and analysis.

©2016 Advisory Board • All Rights Reserved • 33986

Increasing Physician Adoption of Radial Access

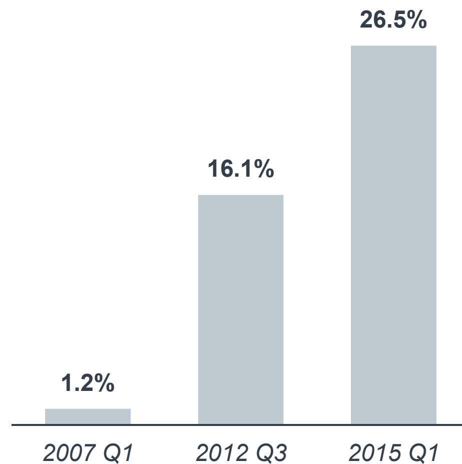
Limited, but Growing, Adoption of Radial Access

Although not a prerequisite, the radial access approach can be a significant enabler of same-day discharge. 100% of members surveyed in the 2015 Outpatient Efficiency Benchmarking Survey agreed that radial access helps increase same-day discharge, due to the smaller catheter size, ease of recovery, and early ambulation.

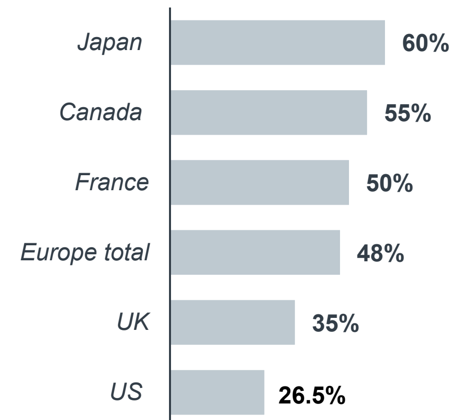
Despite this, adoption remains low. Although rates have increased significantly since 2007, the US still lags far behind other countries. In Japan, 60% or more of all PCIs are performed via radial access.

U.S. Rate Growing, Still Lagging Behind Internationally

National Radial Access Rate
NCDR Cath PCI Registry Q1, 2015



International Radial Access Rates
Estimates by Nation



Radial Access Showing Clear Benefits

Two factors have spurred recent growth in radial access: clinical evidence and patient experience. More specifically, vascular complications are the primary complication for PCI patients, occurring in 5.5% of cases and responsible for significant costs. However, compared to femoral access, radial access is associated with a 65% reduction in major vascular access site complications, and a 35% reduction in the need for transfusions, making it a clinically superior option when feasible. Moreover, patients almost unanimously prefer radial access, due to its less invasive nature.

Mounting Evidence Supports Radial Access

Vascular Complications

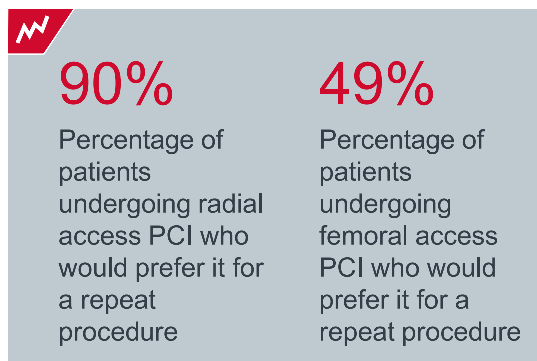
5.5% Percentage of patients undergoing PCI experience vascular complications

$4,000 Incremental cost associated with avoidable vascular complication

Clinical Benefits of Radial Approach

65% Percent reduction in major vascular access site complications compared to femoral access

35% Percent reduction in necessary transfusions compared to femoral access



90% Percentage of patients undergoing radial access PCI who would prefer it for a repeat procedure

49% Percentage of patients undergoing femoral access PCI who would prefer it for a repeat procedure

Patient Benefits

- Early ambulation
- Easier recovery
- Less pain
- Reduced bleeding
- Fewer activity restrictions
- Patient perception as less intrusive

Source: Feldman DN, et al., "Adoption of Radial Access and Comparison of Outcomes to Femoral Access in PCI," *Circulation*, 127 (2013): 2295-2306; Caputo RP, et al., "Transradial Arterial Access for Coronary and Peripheral Procedures: Executive Summary by the Transradial Committee of the SCAI," *Catheter Cardiovasc Interv*; (2011): 1-17; Meier P, et al., ""Radial Versus Femoral Access for Primary PCI", *Heart*, 98, no. 4 (2012): 269-270; Rao SV, et al., "Radial Versus Femoral Access," *JACC*, 62, no. 17 (2013): S11-S20; Jabara R, et al., "Ambulatory discharge after transradial coronary intervention," *American Heart Journal,* 156, no. 6 (2008):1141-1146; Cardiovascular Roundtable research and analysis.

©2016 Advisory Board • All Rights Reserved • 33986

Foster Friendly Competition

Increasing radial access requires a dedicated focus from CV physician. One strategy that has been found successful in engaging physicians in this pursuit is the use of comparative data.

At Carrow Medical Center, a pseudonym, CV administrators recognized that their program lagged behind the national average for radial access. They set a goal to increase radial access rates from 6% to 40% in 2015. Achieving this goal would put Carrow above the national average.

To motivate friendly competition, administrators began tracking the percentage of eligible PCIs performed via radial access. They included the data at both a group level–as a dashboard metric–and on an individual physician level, with results shown to cath lab attendings and the chief physician executive. Physicians were motivated to increase the group rate and to perform as well as, or better than, their colleagues.

In addition to the internal data, administrators shared the radial access rates at competitor hospitals. They also highlighted data on patients' preference for radial access, demonstrating that physicians risked losing patients by not adopting the technique.

As a result, radial access rates rose from 6% to 30% in less than one year.

Case 1: Carrow[1] Compares Physicians to Colleagues, Competitors

Leveraging Internal and External Competitive Factors

INTERNAL

Radial access as dashboard metric

Each month, group progress toward goal presented to entire cath lab community and CV leadership

Rates tracked by individual physician

Percentage eligible cases done transradial; data shown to cath lab attendings and chief physician executive

EXTERNAL

Information about competitors' rates

Rates from other area hospitals spur competition

Patient preference factor

Teach physicians that patients have come to expect radial access

Case in Brief: Carrow Medical Center

- 400-bed teaching hospital based in the Southeast
- CV administrators established a goal to increase their radial access rate from 6% to 40% in 2015
- Administrators begin tracking the percentage of eligible cases done through the radial approach and presented this data to the physician group
- Administrators track each physician's individual radial access rate, and these individual data points were also presented to the group of interventionists and the chief physician executive
- Administrators also share external data on competitor hospitals' radial access rates, in an effort to show physicians that radial access is a major patient preference item
- In nine months, radial access rates increased to 30%

1) Pseudonym.

Source: Cardiovascular Roundtable research and analysis.

©2016 Advisory Board • All Rights Reserved • 33986

Invest in Training to Increase Radial Access

A primary hurdle to radial access adoption is a lack of physician skill and experience. Therefore, CV programs can benefit from investing in physician training and providing hands-on support.

At Atlantic Health in New Jersey, CV administrators identified radial access as a priority. However, administrators found that more tenured physicians were uncomfortable with the technique, citing lack of training. In response, administrators recruited a physician champion of radial access to assist his colleagues, providing both training and hands-on support during procedures.

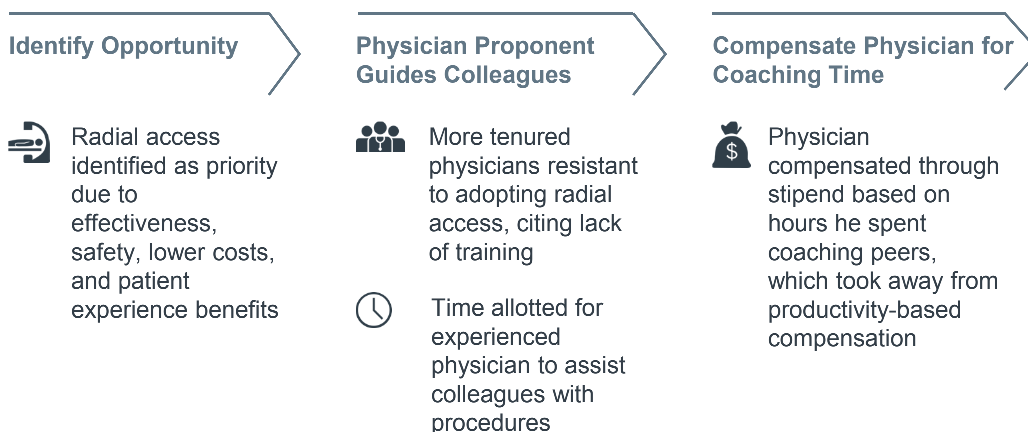
The physician was compensated with a fair market value stipend for the time he spent training his colleagues.

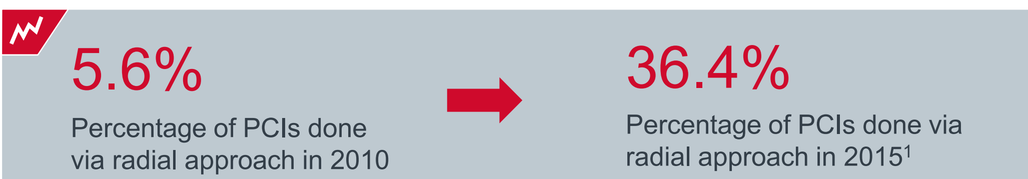
As a result of these initiatives, Atlantic Health's radial access rates increased markedly, from 5.6% in 2010 to 36.4% in 2015. They saw particular gains between 2014 and 2015, with a 55.5% growth in radial access use.

If investing program resources in radial access training is not feasible, an alternative training method can involve free videos available online, geared toward skill training for the radial approach.

Case 2: Atlantic Health Compensates Physician Preceptor for Training

Prioritizing Radial Access with Physician-to-Physician Skills Training





Case in Brief: Atlantic Health

- Five-hospital network based in Morristown, New Jersey
- CV administrator William Neate prioritizes radial access due to its effectiveness, safety, and patient benefits
- However, more tenured physicians were not comfortable with radial access, citing lack of training
- To address physician concerns, CV administrators allot time for a physician proponent who is experienced in radial access to assist those colleagues who were less familiar with radial skills training
- The physician coach is compensated for time taken away from his RVU-based compensation via a fair market value stipend
- The group's radial access rate increased from 5.6% of total PCIs in 2010 to 63.4% of total PCIs in 2015
- From 2014-2015, the growth rate for radial access was 55.5%

1) Year-to-date as of September 2015.

Source: Atlantic Health, Morristown, NJ; Cardiovascular Roundtable interviews and analysis.

©2016 Advisory Board • All Rights Reserved • 33986

Provide Education for All Members of the Team

Since radial access involves the entire cath lab team, training should, as well.

At Lee Memorial Hospital in Florida, the program's medical director identified radial access as a priority to reduce complication rates. However, several physicians and cath lab staff were unfamiliar with the approach.

In response, Lee Memorial created a training program led by visiting physicians and cath lab technical directors with extensive radial access experience. The guest physicians offered CME lectures and proctored physicians to improve techniques, while the guest cath lab directors offered corresponding training to clinical staff.

Beyond offering skills training, Lee Memorial created incentives for radial access adoption, included in the co-management agreement. This led to a significant increase in radial access rates.

Moreover, same-day discharge rates rose to 35% in response to reduced concern over bleeding complications with the radial approach.

Case 3: Lee Memorial Provides Comprehensive Radial Resources

Co-Management Agreement Includes Radial Access

- Annual achievement of group-based metrics triggers bonus pool
- Radial access included in group metrics, weighted at 20%
- Agreement includes two triggers for payout:
- 5% increase in radial access over FY14 baseline rates

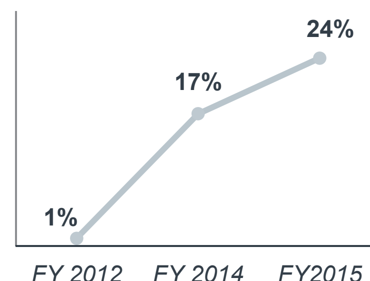
50% payout

- 10% increase in radial access over FY14 baseline rates

100% payout

Radial Access Adoption Increases

Percentage of Outpatient Elective PCI Procedures Performed via Radial Access



≈25% SDD rate for elective outpatient PCI procedures

"If a physician is comfortable with radial access, the reason for an overnight stay — risk of bleeding — are less, and SDD rates increase."

Dr. Richard Chazal, Medical Director of Heart & Vascular Institute

Case in Brief: Lee Memorial Health System

- Four-hospital system based in Fort Myers, Forida
- CV physician leaders and administrators prioritize radial access to reduce complication rates in PCI patients; accordingly, they invested in a training program and incentive model to increase radial PCIs
- The skills training component involved lectures and proctoring, with physician time in training reimbursed under the co-management agreement
- Administrators also invited cath lab technical directors to provide lectures for cath lab staff on the operational considerations of radial access
- To incentivize physicians to adopt radial access, the co-management agreement includes increasing radial access rates as group-based metric
- Since 2012, radial access rates have increased from 1% to 24%
- Indicating that radial access facilitates SDD by reducing the clinical need for an overnight stay to monitor for bleeding complications, SDD rates have also improved

Source: Lee Memorial Health System, Fort Myers, FL; Cardiovascular Roundtable interviews and analysis.

©2016 Advisory Board • All Rights Reserved • 33986

Set Clear Criteria for Every Stage of Care

Focused Protocols Key to Realizing SDD Potential

Even with physician buy-in for same-day discharge and supporting techniques like radial access, it is critical to develop clear eligibility criteria to ensure timely patient discharge.

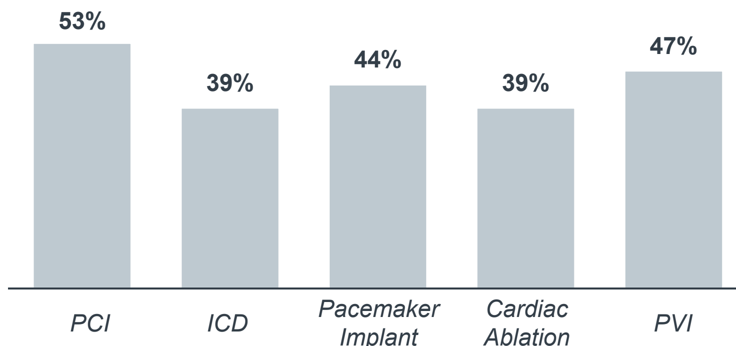
Clinical protocols for same-day discharge carry many benefits, including standardized care, efficiency, and principled patient selection, which can also increase physician and staff comfort.

Yet only about half of members surveyed in our 2015 Outpatient Efficiency Benchmarking Study have protocols in place.

Protocols Not Yet Widespread

SDD Protocols by Procedure Type

Percentage of Respondents with SDD Protocol or Pathway for Elective Procedures



To learn more about developing and implementing evidence-based practices, search for our study The New Economics of Quality on advisory.com/cr

Evaluate Both Initial and Ongoing Eligibility

Piedmont Healthcare in Georgia developed and implemented a comprehensive same-day discharge protocol, hardwiring assessments throughout the day. CV physicians began by developing eligibility criteria for same-day discharge. Importantly, they recognized that an initial eligibility assessment is not sufficient, as patient status can change during procedure day. Therefore, they systematically assess patients before, during, and after the procedure to ensure they continue to meet eligibility requirements. To reinforce the process, clear accountability for each assessment is assigned to one responsible individual.

Case 1: Piedmont's Comprehensive Protocols for SDD

SDD Eligibility Criteria for Low-Risk PCI Patients

Pre-procedure Criteria

- ❑ Age less than 75 years
- ❑ BMI less than or equal to 40
- ❑ Normal mental status
- ❑ No history of bleeding status
- ❑ Working phone at home
- ❑ Reliable transportation

APP indicates if patient meets pre-procedure criteria on "pink sheet," sends sheet with patient to cath lab

Peri-procedure Criteria

- ❑ Successful PCI
- ❑ No thrombus
- ❑ Optimal results
- ❑ Chest pain free for one hour post-PCI
- ❑ No coronary dissection or perforation
- ❑ No access complications

Interventionalist indicates if patient meets all peri-procedure criteria on "pink sheet"

Post-procedure Criteria

- ❑ Hemostasis obtained for sheath removal
- ❑ Meet all discharge criteria in EMR

APP ensures patients meet post-procedure criteria to discharge eligible patients in evening

Source: Woolf SH, et al., "Potential Benefits, Limitations, and Harms of Clinical Guidelines," *BMJ: Brit Med J*, 318, no. 7182 (2013): 527-530; 2015 CV Outpatient Efficiency Benchmarking Survey; Piedmont Healthcare, Atlanta, GA; Cardiovascular Roundtable research and analysis.

©2016 Advisory Board • All Rights Reserved • 33986

Three-Part Assessment Yields Substantial Results

By hardwiring criteria, Piedmont achieved a 12.5% increase in same-day discharge in one year, and a 0.5 day decrease in length of stay. Additionally, their process introduced significant financial benefits, with $60,000 in cost savings since implementing the protocols.

Of note, Piedmont achieved these results with the majority of their PCIs performed via femoral access. Thus, while radial access is a frequent enabler of same-day discharge, Piedmont's experience demonstrates that same-day discharge is possible regardless of clinical approach.

Piedmont's Protocol Follows Patients Before, During, and After PCI

12.5% Percent increase in SDD for PCI patients in one year after implementing clinical eligibility criteria

0.5 days Decrease in average length of stay since implementing clinical SDD eligibility criteria for PCI

$60K Savings per year since implementing clinical SDD eligibility criteria for PCI

For Piedmont's full criteria, visit **advisory.com/cr/samedaydischarge**

Case in Brief: Piedmont Healthcare

- Six-hospital health care system based in Atlanta, Georgia
- Across the health system, CV physicians establish comprehensive protocols to implement and standardize SDD for PCI as part of a system-wide initiative to increase SDD for eligible patients
- The protocols include pre-, peri-, and post-procedure factors that patients must meet in order to be eligible for SDD
- Responsibility for assessing eligibility at each stage is assigned to different providers, with criteria checked off on one sheet to streamline the SDD process
- SDD rates rose from 0% to 12.5% in one year with zero complications
- Additionally, the average LOS for PCI reduced by 0.5 days
- Cost savings to the system attributed to SDD were estimated at $60,000
- Notably, strides in SDD adoption have occurred with low rates of radial access, as most physicians are still using the femoral approach

Source: Piedmont Healthcare, Atlanta, GA; Cardiovascular Roundtable Interviews and analysis.

Include Non-clinical Factors in Considering Eligibility

Adopt a Holistic Approach to Patient Selection

Same-day discharge criteria should include considerations beyond clinical appropriateness. To ensure patient safety, and to minimize the risk that patients will need to return to the hospital, it is also critical to assess the patient's home environment and support structure.

CV administrators at Sirius Regional Medical Center, a pseudonym, realized the importance of considering not just clinical but also social factors when evaluating same-day discharge eligibility. They therefore include social determinants of health in their formal same-day discharge criteria. For example, they ensure patients have reliable transportation, adequate home support, and accessibility to emergency medical services. Only patients with both positive clinical criteria and positive social determinants of health are eligible for same-day discharge.

Assessing social determinants of health allows Sirius to consider a holistic picture of patients' readiness for same-day discharge.

Case 1: Sirius[1] Uses SDH[2] to Risk-Stratify Patients for SDD Eligibility

Sirius's Social Determinants of Health Criteria

Transportation

Functional Status

Home Support

Living within 60 Miles of the Facility

Proximity to Emergency Medical Services

Social Determinants of Health

"…[C]onditions in the environments in which people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks."

HealthyPeople 2020 Initiative

Case in Brief: Sirius Regional Medical Center

- 700-bed teaching hospital based in Pacific Northwest
- Administrators and physicians recognize that strictly considering only clinical criteria for SDD fails to account for the home environment into which patients returned following PCI
- Collaborate to incorporate SDH into eligibility criteria in order to ensure that patients received adequate support at home
- SDH criteria are included to minimize the risk of complications that could arise due to home factors, lack of support for the patient, or distance from the facility

1) Pseudonym.
2) Social determinants of health.

Source: "Social Determinants of Health," HealthyPeople.gov, http://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-health;; Cardiovascular Roundtable interviews and analysis.

©2016 Advisory Board • All Rights Reserved • 33986

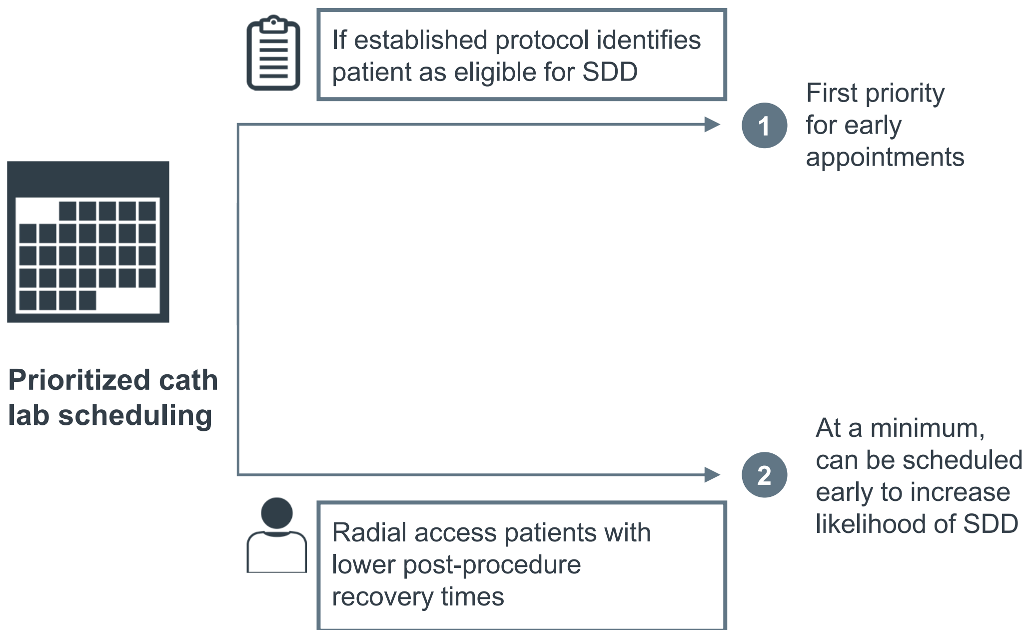
Reconfigure the Cath Lab Schedule

Front-load the Schedule to Maximize Efficiency

Even with established criteria, SDD requires an adequate operational infrastructure. For example, many cath lab schedules fail to accommodate SDD. If an otherwise eligible patient undergoes PCI in the afternoon, that patient will likely not go home until the next morning. Therefore, it is ideal to schedule patients who are likely eligible for same-day discharge in the morning, to enable timely discharge.

If unable to identify eligible patients in advance, programs can, at a minimum, front-load radial access patients, who typically have shorter recovery times.

Prioritizing Early Appointments for SDD Patients



Significant Impact of an Optimized Schedule

There is substantial missed opportunity associated with not front-loading the cath lab schedule. Two representative hospitals with the same number of cath lab slots, average recovery time, and latest discharge time, but with different schedules, illustrate this impact. The hospital that front-loads its schedule with likely same-day discharge candidates can discharge double the number of patients the same day as their procedure. If a drastic schedule reorganization is not feasible, programs should still assign patients initially eligible for same-day discharge earlier slots when possible.

Quantifying the Impact of a Front-Loaded Schedule

Non-Front-loaded Schedule

Time Slot	Patient
7am	Non-Eligible
8am	**SDD-Eligible**
9am	Emergent
10am	Non-Eligible
11am	Non-Eligible
12pm	**SDD-Eligible**
1pm	Non-Eligible
2pm	Emergent
3pm	**SDD-Eligible**
4pm	**SDD-Eligible**

Patients eligible for SDD scheduled throughout the day

Late appointments prevent otherwise eligible patients to leave the same day

Last Discharge Time: 6pm
Typical post-procedure LOS: 4 hours
Total SDD Capacity: 2 patients

Front-loaded Schedule

Time Slot	Patient
7am	Emergent
8am	**SDD-Eligible**
9am	Non-Eligible
10am	**SDD-Eligible**
11am	**SDD-Eligible**
12pm	**SDD-Eligible**
1pm	Non-Eligible
2pm	Emergent
3pm	Non-Eligible
4pm	Non-Eligible

Early slots reserved for emergent PCI

Eligible patients front-loaded in morning appointments

Last Discharge Time: 6pm
Typical post-procedure LOS: 4 hours
Total SDD Capacity: 4 patients

Source: Cardiovascular Roundtable research and analysis.

©2016 Advisory Board • All Rights Reserved • 33986

Alter Post-procedure Infrastructure

Interventional Recovery Unit Enables Same-Day Discharge

While a front-loaded schedule increases the likelihood that eligible patients will be ready for same-day discharge, hospitals also need the appropriate infrastructure to care for these patients in the critical hours after their procedure. Recovery space, staff, and discharge models are all important infrastructure considerations.

CV administrators at Providence Health & Services in Washington faced a particular operational barrier to same-day discharge: patients recovered in overflow or telemetry units. Post-PCI patients were dispersed throughout the hospital, far from the cath lab, and cared for by nursing staff whose expertise didn't align with their needs. This often prevented the early ambulation and efficient recovery needed for same-day discharge.

To address the issue, Providence shifted post-procedure care to an interventional recovery unit located closer to the cath lab, facilitating efficient handoffs. The unit is focused solely on prep-and-recovery, and staffed by nurses who had developed skills catered toward achieving same-day discharge.

In two years, Providence's same-day discharge rate increased from 10% to 24%, demonstrating the importance of an appropriate recovery space.

Case 1: Providence Changes Care Setting to Enhance Efficiency

Post-procedure Patients Previously Sent to Overflow/Telemetry Units

Drawbacks:

- Overflow/telemetry units located far from cath lab
- Post-PCI patients intermingled with general patient population
- Nursing staff unfamiliar with post-PCI SDD
- Difficult to achieve early ambulation and efficient recovery

Shifted Care Setting to the Interventional Recovery Unit

Benefits:

- Patients closer to interventionalists and cath lab staff enabling more efficient handoff
- Unit solely functions as a prep-and-recovery area
- Nursing staff adopt a regular and efficient routine catered toward achieving SDD

Improving Rates of SDD

24% Percentage of elective PCI patients who were discharged on the same day in 2015

10% Percentage increase in same-day discharge rate for elective PCI patients since 2013

Case in Brief: Providence Health & Services

- 35-hospital system based in Renton, Washington
- CV administrators proactively target SDD as an area for process improvement and cost avoidance across the system
- Beyond clinical criteria for patient eligibility, administrators identify operational barriers to SDD, including sending patients to telemetry or overflow units
- These units typically lack dedicated staff who are familiar with SDD patient needs
- Transition SDD patients to recover in the Interventional Recovery Unit (IRU) to ensure the patient is closer to interventionalists and cath lab staff
- IRU staff are trained and familiar with post-PCI patients who are eligible for SDD and ensure that appropriate steps are taken to minimize LOS
- 24% of elective PCI patients had SDD after a PCI in 2015, marking a 10% increase over the 2013 rate of 14%

Source: Providence Health & Services, Renton, WA; Cardiovascular Roundtable interviews and analysis.

©2016 Advisory Board • All Rights Reserved • 33986

Dedicated Role to Expedite Patient Recovery

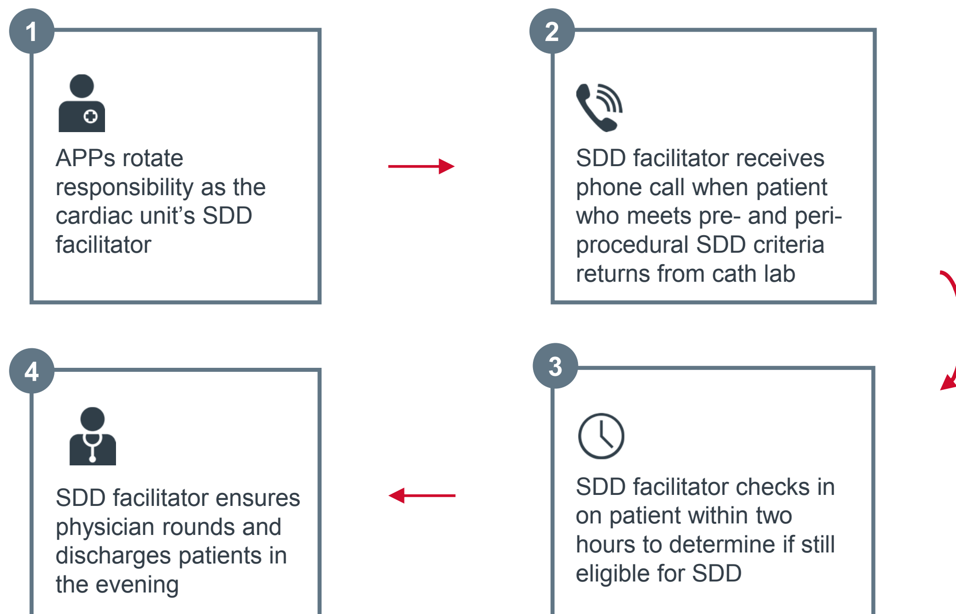
An important element of Providence's success was their recovery unit staff's familiarity with post-PCI patient needs. Similarly, at Piedmont, CV administrators focused on staffing efficiency by establishing a dedicated role for a "same-day discharge facilitator." This role is assigned each day to a different advanced practice provider (APP) who is already scheduled in the cardiac observation unit, where patients recovery post-procedure.

The facilitator is the point person for same-day discharge patients in recovery. She receives a phone call when a patient eligible for same-day discharge leaves the cath lab. She then checks in on the patient within two hours of arrival in the recovery unit to determine whether the patient meets the post-procedure criteria for same-day discharge. The facilitator also coordinates with the physician to ensure that the physician rounds on the patient in time for evening discharge.

This facilitator role, along with other clinical and operational efforts, led to a 12% increase in same-day discharge post-PCI in one year.

Case 2: Piedmont Establishes SDD Facilitator to Aid Evening Discharge

Piedmont's Evening Discharge Process



Case in Brief: Piedmont Healthcare

- Six-hospital health care system based in Atlanta, Georgia
- In addition to developing extensive eligibility criteria, CV administrators consider operational aspects of maximizing SDD
- Established a dedicated role for an "SDD facilitator," who ensures timely discharge according to developed criteria
- The SDD facilitator responsibility is tasked daily to a different APP in the cardiac observation unit
- SDD facilitator ensures that appropriate communication takes place with the interventionalist, tracks the patient's progress towards SDD
- Piedmont's SDD rate rose from 0% to 12.5% in one year, with expected additional improvement

Source: Piedmont Healthcare, Atlanta, GA; Cardiovascular Roundtable interviews and analysis.

©2016 Advisory Board • All Rights Reserved • 33986

Traditional Discharge Models Inhibit SDD

Beyond space and staff, a common barrier to same-day discharge is discharge model. Traditionally, physicians must round on patients before they are discharged, often causing delays.

Some CV programs have implemented alternative discharge strategies. For example, select programs have shifted discharge responsibilities to non-physician practitioners. However, note that state scope of practice laws may apply, so first consult with legal counsel.

A final strategy to enable same-day discharge is extending recovery hours.

Evaluating Alternative Discharge Options

Traditional Discharge Model

- Physicians must round on patient before discharge
- Waiting for physician rounding delays discharge process
- Waiting for physician rounding prevents SDD for patients who have procedures later in the day or when physician isn't available

Laws vary by state; please consult your legal counsel regarding possible alternative discharge models

Alternative Discharge Models

- ❑ Physician rounding happens later in the day, but physician still sees patient before discharge
- ❑ Discharge responsibility shifted to APPs, who work later in the day
- ❑ Discharge responsibilities shifted to nursing staff in recovery unit, who are provided clear conditional discharge orders (e.g., no complications, adequate home support)

Extended Recovery Unit Hours Accommodate SDD

At Goldstein Hospital, a pseudonym, the CV recovery unit was only open until 6 p.m., requiring post-PCI patients to stay overnight.

To enable SDD, physician leaders considered extending unit hours. The team weighed several factors, including extra expenses against cost savings from reducing the need for beds. Eventually, Goldstein's team determined, based on the community standard, to close at 11 p.m.

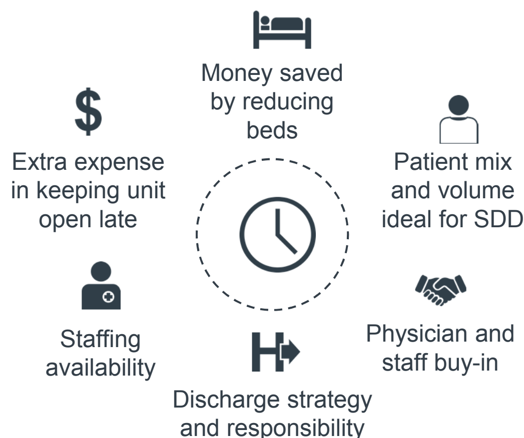
Keeping the unit open later had dual effects: increasing same-day discharge by 35%, and improving patient satisfaction by avoiding overnight stays.

Case 3: Goldstein Hospital[1] Recovery Unit Operates Until 11 p.m.

Recovery Unit Hours

- In the past, Goldstein's Recovery Unit only open until 6 p.m., requiring post-PCI overnight stay
- Exacerbated bed shortage in hospital
- CV physician leader considers extending unit hours
- Involves physicians in decision-making; weighed pros and cons of extending hours
- Decides to extend hours to 11 p.m. based on practice at nearby hospitals
- Improved patient satisfaction and increased SDD by 35%

Weighing the Pros and Cons



Case in Brief: Goldstein Hospital

- 600- bed hospital based in the Midwest
- CV physician leader and colleagues decide to extend unit hours to 11 p.m. based on community standard

1) Pseudonym.

Source: Cardiovascular Roundtable research and analysis.

©2016 Advisory Board • All Rights Reserved • 33986

Key Takeaways

In summary, an ongoing outpatient shift of CV procedures, predicted to accelerate in coming years, requires CV programs to maximize procedural efficiency. Hardwiring same-day discharge is a critical step to improve throughput, optimize profits by avoiding unnecessary overnight stay costs, and increase patient satisfaction.

While same-day discharge is not a new concept, its implementation requires dedication to changing practice patterns and operational processes. Addressing physician concerns through data assists in this effort, as does providing formal incentive structures, when appropriate.

Radial access adoption helps facilitate same-day discharge as well. Many CV programs are making substantial progress in this area, but physicians remain key stakeholders here. Providing skills training and support can lead to dramatic increases in radial access, and by extension, same-day discharge.

Of course, identifying patients eligible for same-day discharge is vital. Protocols and criteria should encompass eligibility throughout a patient's stay, as well as consider non-clinical, social factors. Finally, altering operational practices, such as scheduling, discharge models,and recovery location is the final step to ensuring that all patients who can safely be sent home the same day actually are.

Optimizing Same-Day Discharge

1) **Share data on the safety and efficacy of SDD to increase physician confidence.**
   Physician concerns are often the primary barrier to SDD. CV administrators can help physicians become more comfortable by providing physicians with patient data, evidence from clinical literature, and skills-based training or proctorship.
2) **Provide incentives for physicians to adopt behaviors that increase SDD.**
   For example, programs may reward physicians for screening patients for SDD eligibility, discharging patients by a specific time, or performing a percentage of PCIs through the radial approach.
3) **SDD patient selection criteria should consider every stage of patient care.**
   Patients should be assessed for SDD eligibility before, during, and after the procedure so that any change in patients' condition can be identified immediately and their care plan changed accordingly.
4) **Incorporate social factors into SDD eligibility criteria.**
   In addition to clinical criteria, the care team should assess patients' support at home, access to emergency health care services, and functional status to determine whether SDD is safe.
5) **Front-load SDD eligible patients on the cath lab schedule.**
   Patients need adequate time to recover post-procedure before being sent home. If the procedure is performed late in the day, they may not have sufficient time.
6) **Create infrastructures that support SDD.**
   CV administrators should consult with physicians and staff to choose the most efficient recovery setting and evaluate alternative discharge strategies.

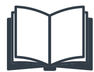
Source: Cardiovascular Roundtable research and analysis.

©2016 Advisory Board • All Rights Reserved • 33986

©2016 Advisory Board • All Rights Reserved • 33986

Want more on **CV procedural efficiency**?

This study is a publication of the Cardiovascular Roundtable, a division of Advisory Board. As a member of the Cardiovascular Roundtable, you have access to a wide variety of resources, including webconferences, studies, toolkits, our blog, and more. Check out some of our other resources on CV outpatient efficiency.

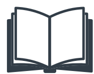


White paper: Perfecting CV Short-Stay Patient Management

Access strategies to enhance the efficiency of short-stay CV patient management by hardwiring appropriate ED triage, streamlining observation operations, and providing decision support.

Tool: Cardiovascular Market Estimator

Our inpatient and outpatient volume forecast estimators allow you to understand expected fluctuations in your market and customize growth strategies accordingly.

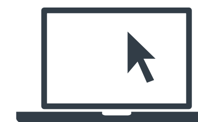


Study: The Highly Productive CV Enterprise

Learn how to safeguard future CV margins by reducing length of stay, enhancing hospital-based outpatient services, and redeploying available resources to optimize efficiency and productivity.

Visit us at: **advisory.com/cr**

Email us at: **cardiovascular@advisory.com**



2445 M Street NW, Washington DC 20037
P 202.266.5600 | F 202.266.5700 | **advisory.com**