



**HEALTH SYSTEM**  
UNIVERSITY OF MICHIGAN



# Quality Improvement to Create Value

**David A. Spahlinger, MD**  
*President, UM Health System and  
Executive Vice Dean for Clinical Affairs*

Michigan Center for Clinical Systems Improvement

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Successful organizations endlessly adapt to the changing world...





If the rate of change on the outside  
exceeds the rate of change on the  
inside, the end is near.

*Jack Welch, Former CEO, GE*

“Successful organizations endlessly adapt to the changing world...

...changing their structure and processes **while preserving the core missions and values** of the organization.”

Modified from Collis and Porras HBR, 1996



We create the future of healthcare through the discovery of new knowledge for the benefit of patients and society; educate the next generation of physicians, nurses, health professionals and scientists; and serve the health needs of our citizens



# Today's Agenda

- **Value**
- **Patient-Centered Care**
- **Population Management**
- **Quality Improvement through a Population Health Lens**
  - Patient centered medical home
  - Medical neighborhood
  - Clinical design



# Value Equation in Healthcare

$$\text{Value} = \text{Appropriateness} \times (\text{Outcomes}/\text{Costs})$$



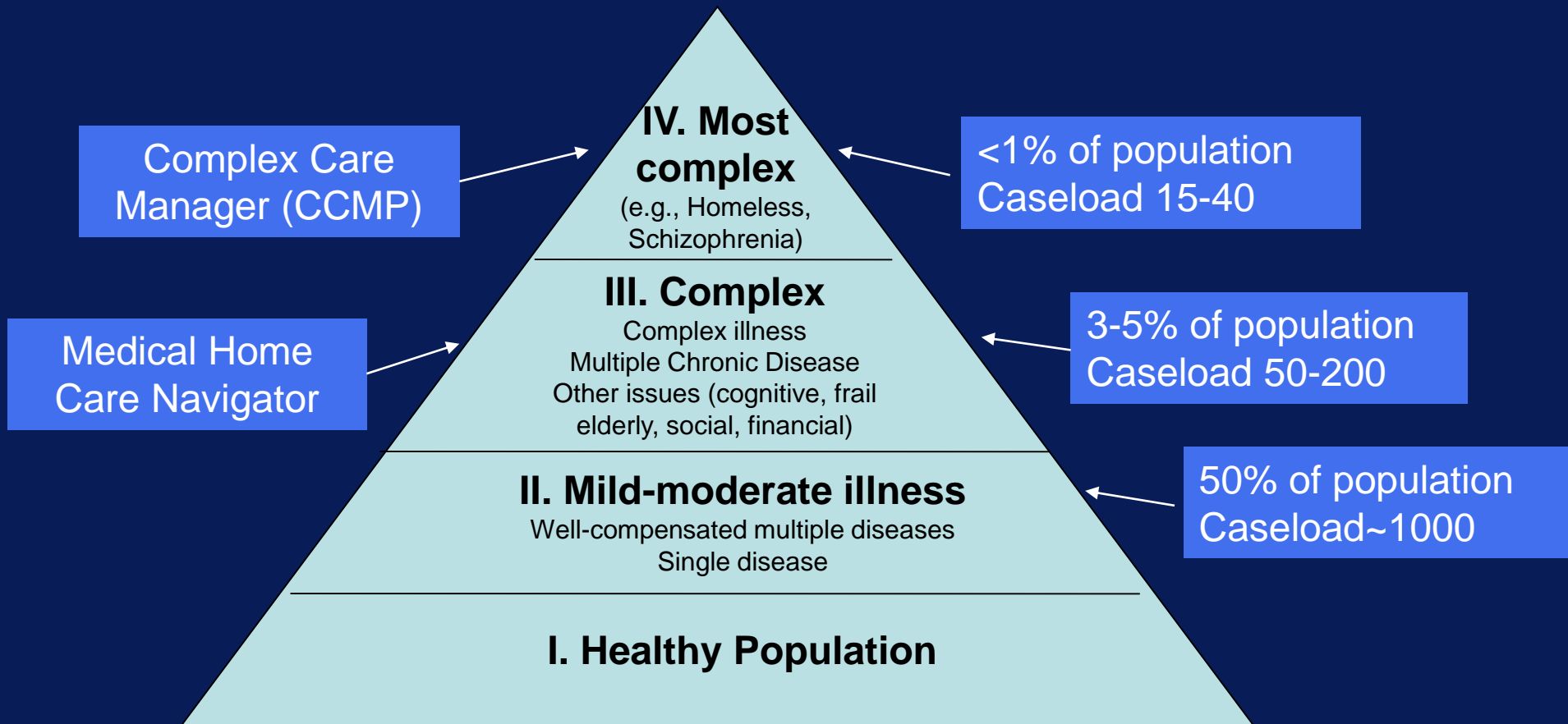
Modified from Michael Porter

# Patient and Family Centered Care

- Patients are active participants in their care
- Patients serve on operating committees
- Patients participate in the design of new facilities
- Care processes examined from the patient prospective



# UMHS - Managing Populations: Stratified approach to care management



# Spending Change Associated with Physician Group Practice Demonstration

Beneficiary Type	Estimated Change in Spending Annually (95% CI) US Dollars	
	LVC Rate Adjusted	HCC Adjusted
<b>Geisinger</b>		
All	252	-745
Dual Eligible	79	-376
<b>Park Nicollet</b>		
All	-16	-65
Dual Eligible	-1610	-1058
<b>University of Michigan</b>		
All	-866	-1155
Dual Eligible	-2499	-2072

Modified from Colla et al, JAMA September 12, 2012, Vol. 308, 1015-1023

# Patient Centered Medical Home

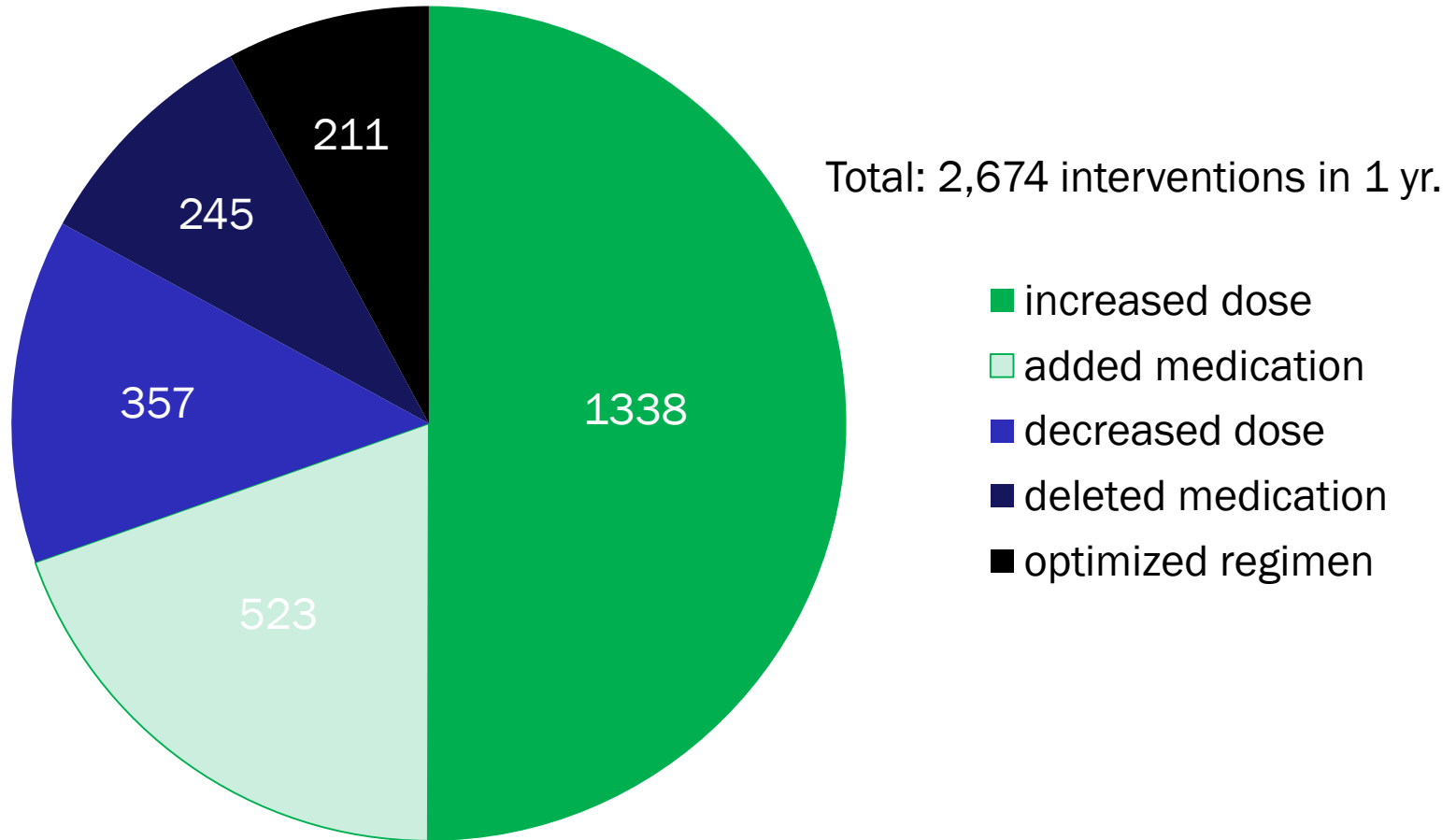
- Disease registries/EHR
- Care Navigators
- Patient portal
- Patient access
- Risk assessment, Stratification
- PharmD and mental health integration
- Quality and patient satisfaction expectations

- 11 embedded pharmacists in all primary care clinics
  - 5.2 clinical FTE
  - 8 general medicine and 6 family medicine sites
- Pharmacist's time at PCMH sites varies depending on patient volume (range: 1 – 3 days/week)
- Provide disease management services (diabetes, hypertension, and hyperlipidemia) and comprehensive medication review services

- **Disease Management Services**
  - Focus on diabetes, hypertension, and hyperlipidemia.
  - Proactively identify potential candidates through disease registry and/or provider clinic schedule.
  - Patients are scheduled for initial 30-minute clinic appointments or phone
  - Schedule patients for 15 – 30 minutes follow-up appointments to improve disease control and/or medication management.

- **Comprehensive Medication Review (CMR) Services**
  - Initial appointment:
    - focus on patient's medication concerns, confirm medication use, assess patient's understanding of disease states and treatment plan, and identify potential barriers to treatment including drug cost.
  - Follow up appointment (2 weeks); discuss new treatment plans to improve efficacy, safety and lower drug costs.
  - Both initial and follow up appointments can be conducted over the phone or at the clinic for a total of 75 - 90 minutes of CMR experience.

# Outcomes – Therapeutic Interventions by PCMH Pharmacists

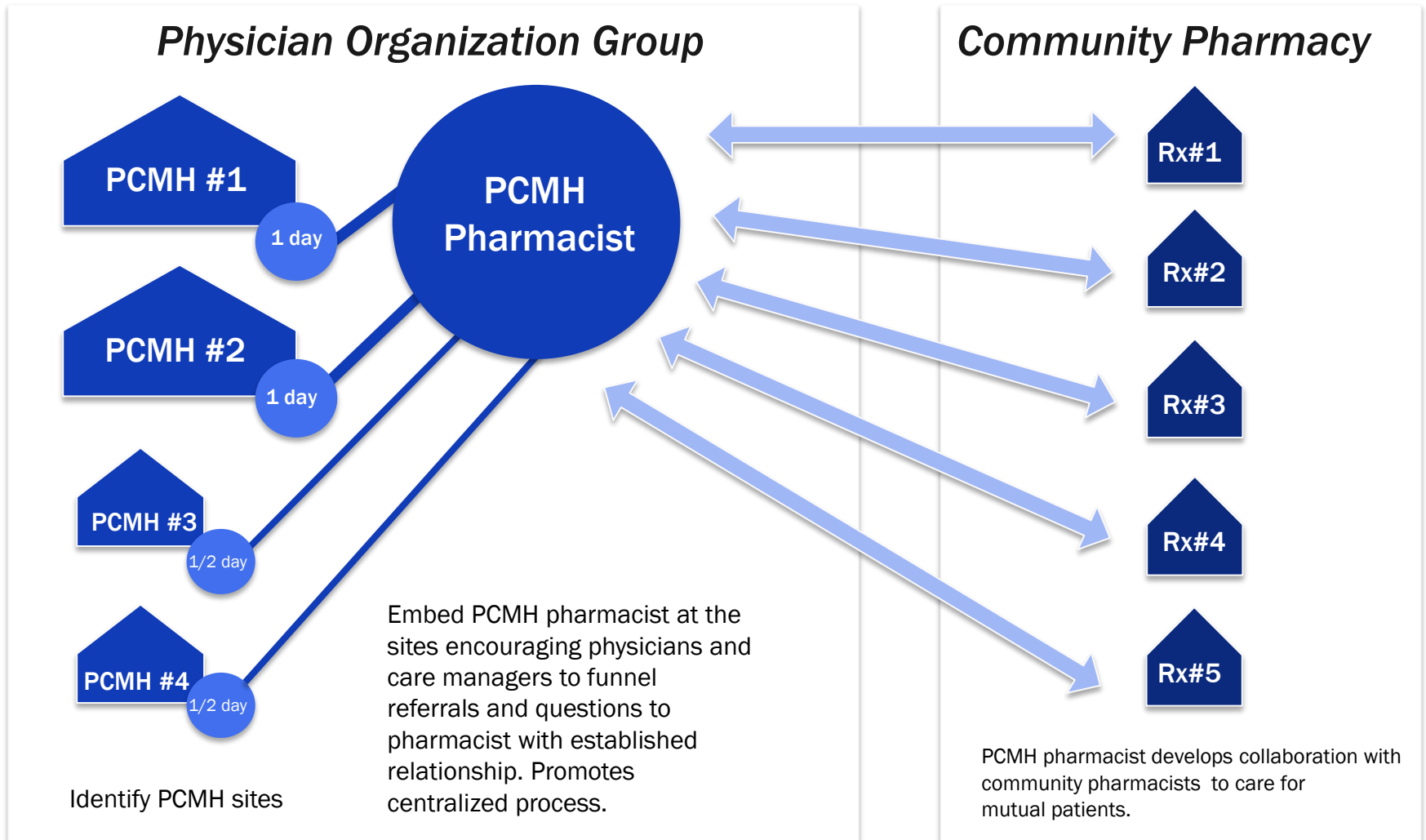




# PCMH Practice Model: Building Blocks for Future Innovations

- Expansion of PCMH pharmacy care model to specialty clinics
- Building a medical neighborhood by developing collaborative care between PCMH and community pharmacies
- Creating telehealth partnership with home care services
- Implementation of employer-based comprehensive medication review program

# Connecting Medical Neighbors



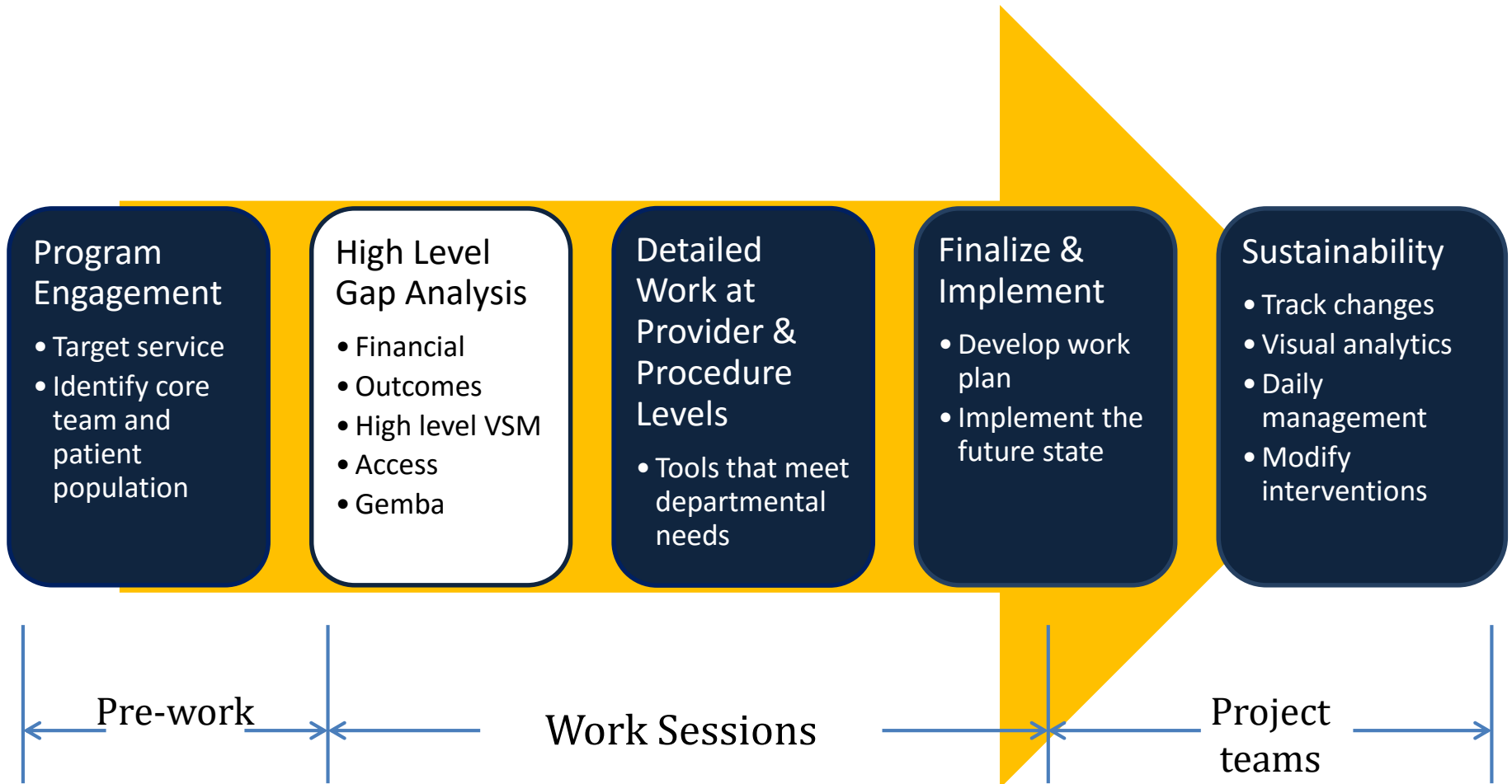
# *Moving from “Good Idea” to Reality: Pilot Initiative with Community Pharmacy*

- **Two pilot PCMH sites with embedded PCMH pharmacists**
- **Two pilot CVS pharmacies near PCMH sites**
- **4-Step Process**
  - Month 1 – 3
    - Train 2 CVS Pharmacists (0.5 FTE/pharmacist) at PCMH to establish relationship with providers and PCMH team
  - Month 3 – 18
    - Extend direct patient care in the community by offering PCMH services at  
pilot CVS pharmacies
  - Month 7 – 18
    - Train staff pharmacists at pilot CVS pharmacies to provide adherence counseling, disease-specific education, and target certain quality measures
  - Month 12 – 18
    - Initiate new collaboration with other physician organizations

# Clinical Design

- A standard approach to measure cost and outcomes for an episode of care
- Clinical design and clinical teams work together to measure and understand variations in clinical outcomes, processes and cost
- Utilize a “Lean” approach to determine root causes, develop and implement countermeasures and monitor results

# Clinical Design Process



# Initial Targeted Programs

- **Surgical Services**
  - Total hip arthroplasty
  - Total knee arthroplasty
  - Mitral Valve Replacement
  - Colectomy
  - Radical Cystectomy
  - TAVR
- Head and Neck Cancer
- Pancreatectomy
- Esophagectomy
- **Medical Services/  
Other Condition**
  - Atrial Fibrillation

# Joint Replacement Program

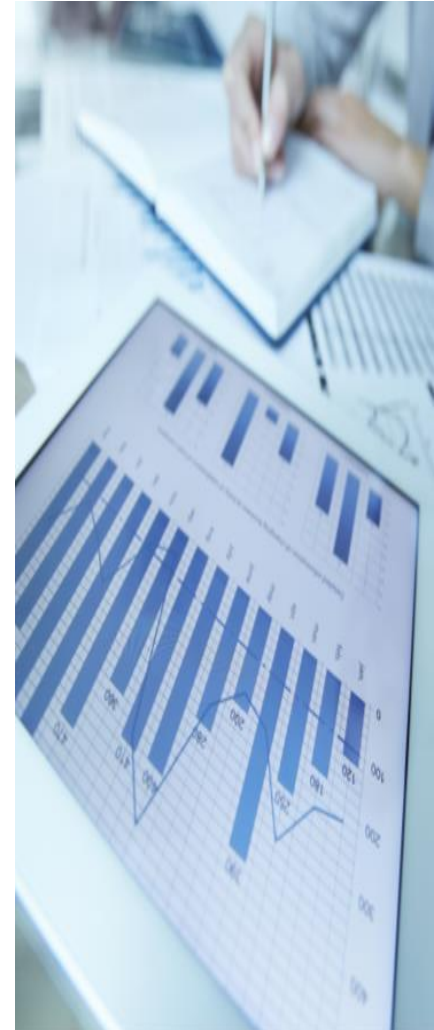
- ACO beneficiary testimonials
- Physician Organization of Michigan ACO data: Subacute Nursing Facility (SNF) average length of stay – 27 days
- Average Length of stay after joint replacement 27 days
- Percentage of total joint replacement patients going to SNF 40%





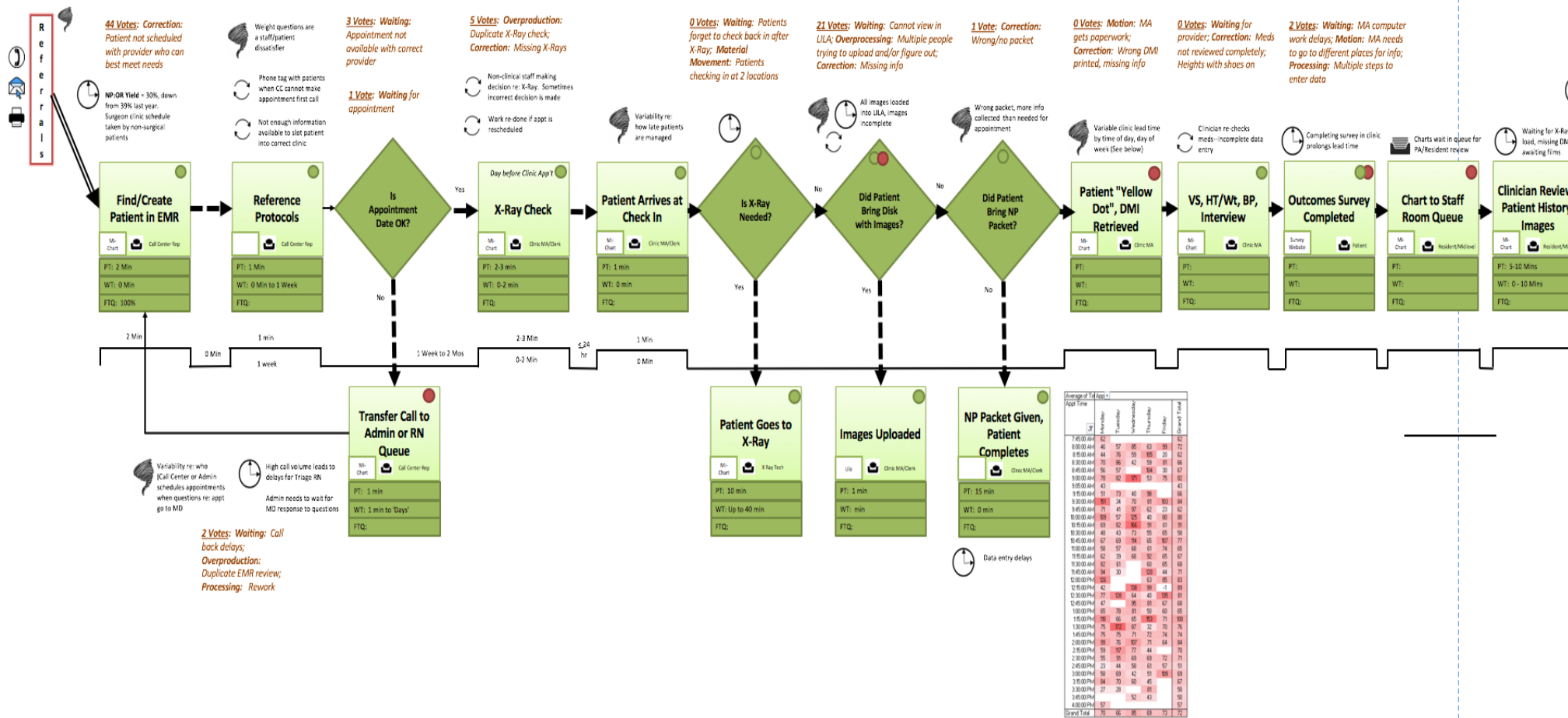
# Project Objectives

- Reduce length of stay for knee and hip replacement
- Increase patient satisfaction
- Increase provider satisfaction
- Reduce clinic wait times
- Improve transitions and continuity of care
- Improve appointment wait times/appropriate access
- Maximize surgeon utility (slots/week)
- OR Efficiency (Scheduling processes?)



# Orthopedic Surgery Joint Replacement Current State

March 25, 2015



# Action Plan

## Orthopedics Joint Project

Status Key:

- (Project is on schedule, within budget, within scope, no major issues)
- ▲ (Project is on schedule, within scope, but there are issues)
- ✘ (Project has major issues which require management attention)

23-Dec-15

### Open Issues:

Deliverables	Objectives/Targets	Start Date	Expected Completion	Responsible	Status	Barriers / Strategies / Comments	
<b>1 New Patient Clinic Re-Design Team</b>							
Target:							
Tasks	1.a	Create Joint-Specific MChart Referral	8-May-15	Joe	In process	Plot started 7/29. Dorothy will place tracking tool for provider feedback in Ortho staff room. Will start monitoring on which patients did not go through the process correctly. (9/9) Finalizing issues this week. Demo at next meeting. (9/30) The duplicate referrals have been resolved. Will track after 10/14. (10/28) Will start tracking on Nov 2nd (11/4) Form is ready to track. Will review Nov data in Dec. (11/11) Move to clinic initiative to look at flow issues	
	1.a.1	Create scheduling algorithm for Call Center reps.	8-May-15	3-Aug-15	Marisa, Dorothy	In process <span style="color: green;">●</span>	Joe working with Derek on triage tool--Currently another team uses an Excel tool, but Derek is exploring wether it can be added to MChart or other web-based app. (8/26) To start using excel document at call center. (9/9) Need to finish development (9/30) Met on 9/29 with Northville. Will take 2 more weeks to develop and pilot. (10/14) Draft developed in electronic form (10/28) Algorithm is built. Needs Dr. Maratt to review (11/4) Draft sent to faculty for feedback (11/11) Individual feedback meetings are ongoing. Met with Andy on Monday.
	1.b	Develop plan for PT in clinic	8-May-15	31-Jul-15	Jill	In process <span style="color: green;">●</span>	Plot underway at Northville. Exercises will be added to new booklet Ruste working with Ryan Cunningham to evaluate # NPs seen at Northville, time required and exercises given. (8/5) Space is found to be available when needed. (8/12) Need to analyze data (Ruste and Ryan) - DONE (8/26) Since 7/21 70 patients seen. Keep monitoring data to see implications at Taubman (11/4) Good process for patients that need it. (The PT is there anyway, but may not be the model for dedicated for Taubman.) We could look at renovating the cast room. Investigate combined job with scribe? (11/11) Athletic trainer at med sport is also used as scribe. Will get job description.

### 3 Improve communication with all NP referrers

Tasks	4.b	Establish surgical case order criteria	26-May-15	26-May-15	Ally, Lisa	Not possible Aligned with pathway (hip, simple knee first case). Team noted that this would be difficult and would cause inefficiencies in OR. 5/26/15
						(8/19) Initial Patient LOS's were: 24hrs, 28hrs, 26hrs, 26hrs (are at the 25hr target) (8/26) Nursing education inservices started. Planned completion by 8/31.
						(10/7) New RN hired and will start post DC calls. (11/4) RN is in orientation until early Dec. (11/18) In process of launching
						throughput work--Mary's AA setting up meeting. **Update team on plan 8/12 (10/14) work kick-off with Mary Duck



# HIP

## replacement

## Preparing For Surgery

Once your doctor determines that you are a candidate for hip replacement, several weeks of preparations begin to promote healing and offer the best chances of a successful surgery.

### Find a support coach

A support coach is a relative or friend that helps you while you prepare for surgery, are in the hospital, and recover at home. You may have more than one support coach if one person is not available for all steps below. A support coach must be available to:

- Attend the pre-op class with you (other family and friends are welcome as well)
- Bring you to surgery.
- Come to the hospital the first morning after surgery at 8:00 am to work with you during your physical therapy session and learn about your exercises, pain control, and important hip precautions.
- Assist with all subsequent in-hospital therapy sessions.
- Take you home from the hospital; many patients go home the day after surgery.
- Help you around your house with meals, assistive devices, dressing, self-care, etc.
- Drive you to post-op appointments/labs.

### Attend a pre-op class

You will be scheduled to attend a two hour class to learn about your hip replacement. Bring this book and your coach with you to the class.

Other family members or friends are welcome to attend. You will learn what to expect before surgery, hospitalization, and post-operative recovery. There is opportunity to ask questions. Patients and families find this session very informative.

### Medical history & physical exam








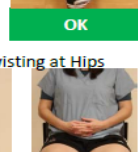

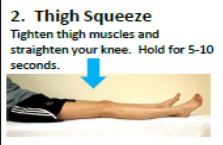
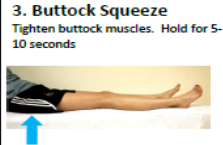
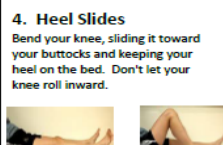
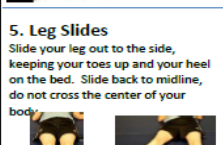
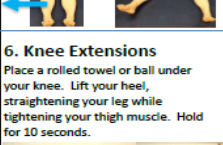
An appointment will be scheduled for you either at the Taubman center or at Domino's Farms. Bring a list of your medications and dosages or bring all your medicine bottles to this appointment. Your pre-op testing will include blood tests, nasal swabs (see page --), and possibly an ECG. Some patients may also need to see a medical specialist, such as a heart doctor or lung doctor, before surgery. This decision will be made when you are seen for your physical exam or when we receive the results of your blood tests or ECG.

### Stop smoking before surgery

It is important that you stop smoking.

- Smoking is bad for your heart and lungs, interferes with healing, and increases the risk of infection.
- All nicotine must be out of your system at the time of surgery.
- Do not use any products containing nicotine during the 30 days before surgery, including nicotine gum, nicotine patches, electronic cigarettes, etc.
- You may be tested after you stop all nicotine and tobacco products to ensure you are nicotine free.
- Your surgery may be cancelled if you continue to smoke.
- The Hospital is a smoke free campus.

## Inpatient Total Hip Replacement Pathway

Day of Surgery		Day 1 After Surgery		Going Home															
Patient and Support Coach Jobs																			
What Should I do?		Patient and Support Coach Jobs		Keys to Discharge															
<h3 style="text-align: center;">Hip Precautions</h3> <p><b>No Bending Past 90 Degrees</b></p>     <p><b>Do Not Cross Legs at Knees</b></p>   <p><b>Avoid Forceful Twisting at Hips</b></p>  		<p><b>1. Ankle Pumps</b> Do 10 every hour.</p>  <p><b>2. Thigh Squeeze</b> Tighten thigh muscles and straighten your knee. Hold for 5-10 seconds.</p>  <p><b>3. Buttock Squeeze</b> Tighten buttock muscles. Hold for 5-10 seconds</p>  <p><b>4. Heel Slides</b> Bend your knee, sliding it toward your buttocks and keeping your heel on the bed. Don't let your knee roll inward.</p>  <p><b>5. Leg Slides</b> Slide your leg out to the side, keeping your toes up and your heel on the bed. Slide back to midline, do not cross the center of your body.</p>  <p><b>6. Knee Extensions</b> Place a rolled towel or ball under your knee. Lift your heel, straightening your leg while tightening your thigh muscle. Hold for 10 seconds.</p> 		<p><b>• Ask for assistance from staff (RN, therapist, aide) to get up from bed or chair.</b></p> <p><b>• Ice your hip often (you need to ask for ice and ice refills). Start your exercises.</b></p> <p><b>• Let us know if you have pain, ask for pain medicine.</b></p> <p><b>• Use your incentive spirometer 10 times every hour.</b></p> <p><b>• Wear your hip squeezers (SCDs) on both legs at all times unless you are walking.</b></p> <p><b>• If your squeezers are not on, or you don't feel them squeezing, let staff know.</b></p> <p><b>• Wear TED Hose on both legs.</b></p> <p><b>• You may be hungry, but your stomach may not be able to tolerate solid food yet. Nausea and vomiting is common after surgery. Listen to your nurse.</b></p>		<p><b>• Have your Support Coach arrive by 8:00 AM, we suggest using valet parking.</b></p> <p><b>• Let RN know when you urinate (there should be a hat in the toilet). The RN will need to do a bladder scan immediately after you urinate.</b></p> <p><b>• Ask for assistance from staff (RN, therapist, aide) to get up from bed or chair.</b></p> <p><b>• Ice your knee often (you need to ask for ice and ice refills).</b></p> <p><b>• Keep leg straight. Don't put blankets or pillows under your knee.</b></p> <p><b>• Continue your exercises.</b></p> <p><b>• Use your incentive spirometer 10 times every hour.</b></p> <p><b>• Wear your squeezers (SCDs) on both legs at all times unless you are walking.</b></p> <p><b>• If your squeezers are not on, or you don't feel them squeezing, let staff know.</b></p> <p><b>• You may be ready to eat a regular diet, but eat slowly.</b></p>		<p><b>Most patients are discharged the day after surgery.</b></p> <p><input type="checkbox"/> Support Coach</p> <p><input type="checkbox"/> Tolerate diet</p> <p><input type="checkbox"/> Comfortable on oral pain medication</p> <p><input type="checkbox"/> Met Physical Therapy Goals</p> <p><input type="checkbox"/> Met Occupational Therapy Goals</p> <p><input type="checkbox"/> No difficulties urinating after foley catheter is removed</p> <p><input type="checkbox"/> Walker is delivered to room (if needed)</p> <p><input type="checkbox"/> Must have bladder scan less than 250 mL (two times)</p> <p><input type="checkbox"/> Discharge order placed in computer by MD/PA</p> <p><input type="checkbox"/> Prescriptions sent/e-prescribed to your pharmacy.</p> <p><input type="checkbox"/> Patient has copy of post-discharge pathway (handed out in pre-op class, additional copies available on 5A) and home care plan.</p>											
										Prevent pneumonia and blood clots		Patient and Support Coach Role		Medical Team Role					
										Diet						Medication		<p><b>• Last dose of day of surgery meds (Decadron/Toradol) if not already completed.</b></p> <p><b>• Unless contraindicated, Celebrex (anti-inflammation), Neurontin (pain). (During hospital stay only).</b></p> <p><b>• Decadron not given to diabetics</b> <i>Some meds may not be ordered due to medical conditions</i> <i>Other medications given based on patient needs or med hx.</i></p>	
										Medication						Comfort Measures			
										Comfort Measures						Activity			
										Activity						Diet			
Diet		Status																	
Status		Final Steps		<p><b>1 Review written discharge instructions with nurse</b></p> <p><b>2 Nurse will remove IV</b></p> <p><b>3 Support coach or transport services can take you to the front entrance in a wheelchair. Contact valet services to bring your car up, their number is (810) 360-1386.</b></p>															



## Hip Replacement

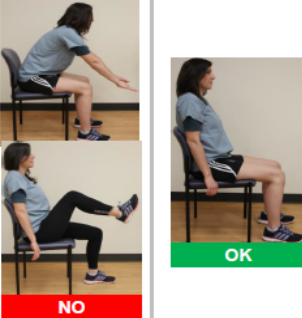
### Care Pathway After Discharge

\_ / \_ / \_    \_ / \_ / \_    \_ / \_ / \_    \_ / \_ / \_    \_ / \_ / \_    \_ / \_ / \_

**Day 1**    **Day 2**    **Day 3**    **Day 4**    **Day 5**    **Day 6**    **Day 7**

### Hip Precautions

No Bending Past 90 degrees



### Do Not Cross Legs at Knees



### Avoid Forceful Twisting at Hips



### When to Call

If you cannot control your pain | There is drainage from your incision | Your incision is redder or hotter | If you have a fever over 101.5 degrees ➔

Control Pain and Swelling	<b>Take Pain Medication</b>	Take pain medication as directed by your surgeon for the first few days. Begin to wean off of pain meds as tolerated. (Decrease the number of pills or increase the time between pills.)	Take Medication	Take Medication	Take Medication	Take Medication (being weaning)	Take Medication (begin weaning)	Take Medication (continue weaning)	Take Medication (continue weaning)
	<b>Take Blood Clot Medication</b>	Take medication to prevent blood clots (as directed)	Take Medication <input type="checkbox"/>	Take Medication <input type="checkbox"/>	Take Medication <input type="checkbox"/>	Take Medication <input type="checkbox"/>	Take Medication <input type="checkbox"/>	Take Medication <input type="checkbox"/>	Take Medication <input type="checkbox"/>
	<b>Wear TED Stockings</b>	Wear during the day and may remove at night. Check skin daily to make sure you have not developed a sore.	Check Skin <input type="checkbox"/>	Check Skin <input type="checkbox"/>	Check Skin <input type="checkbox"/>	Check Skin <input type="checkbox"/>	Check Skin <input type="checkbox"/>	Check Skin <input type="checkbox"/>	Check Skin <input type="checkbox"/>
	<b>Ice Your Hip and Thigh</b>	Apply an ice pack for 20 minutes on and 20 minutes off, as tolerated throughout the day	Ice often <input type="checkbox"/>	Ice often <input type="checkbox"/>	Ice often <input type="checkbox"/>	Ice often <input type="checkbox"/>	Ice often <input type="checkbox"/>	Ice often <input type="checkbox"/>	Ice often <input type="checkbox"/>
	<b>Elevate your Leg</b>	Prop your leg when sitting throughout the day  Elevate your leg above your heart 2x/day at 10am and 2pm for 20-30 mins	Elevate leg above your heart 20-30 mins <input type="checkbox"/> 10 AM <input type="checkbox"/> 2 PM	Elevate leg above your heart 20-30 mins <input type="checkbox"/> 10 AM <input type="checkbox"/> 2 PM	Elevate leg above your heart 20-30 mins <input type="checkbox"/> 10 AM <input type="checkbox"/> 2 PM	Elevate leg above your heart 20-30 mins <input type="checkbox"/> 10 AM <input type="checkbox"/> 2 PM	Elevate leg above your heart 20-30 mins <input type="checkbox"/> 10 AM <input type="checkbox"/> 2 PM	Elevate leg above your heart 20-30 mins <input type="checkbox"/> 10 AM <input type="checkbox"/> 2 PM	Elevate leg above your heart 20-30 mins <input type="checkbox"/> 10 AM <input type="checkbox"/> 2 PM
Wound Care	<b>Care for your Incision</b>	Keep your incision clean and dry. Do not use ointments or lotions. Do not take a bath. You can shower, but cover the incision while you shower. Normal: Tenderness   Scabbing   Pink   Warm (can be warm for several months) Not Normal: Pain   Drainage   Red   Hot   Fever over 101.5 degrees	Call the Clinic at number below if: Increased pain   Drainage from your incision   Incision is redder   Incision is hotter   You have a fever over 101.5 degrees						
	<b>Avoid Constipation</b>	Take a stool softener and laxative every day that you are taking pain medications   Eat a high fiber diet   Drink plenty of fluids (water)	<input type="checkbox"/> Stool softener <input type="checkbox"/> Laxative <input type="checkbox"/> High fiber diet <input type="checkbox"/> Drink fluids	<input type="checkbox"/> Stool softener <input type="checkbox"/> Laxative <input type="checkbox"/> High fiber diet <input type="checkbox"/> Drink fluids	<input type="checkbox"/> Stool softener <input type="checkbox"/> Laxative <input type="checkbox"/> High fiber diet <input type="checkbox"/> Drink fluids	<input type="checkbox"/> Stool softener <input type="checkbox"/> Laxative <input type="checkbox"/> High fiber diet <input type="checkbox"/> Drink fluids	<input type="checkbox"/> Stool softener <input type="checkbox"/> Laxative <input type="checkbox"/> High fiber diet <input type="checkbox"/> Drink fluids	<input type="checkbox"/> Stool softener <input type="checkbox"/> Laxative <input type="checkbox"/> High fiber diet <input type="checkbox"/> Drink fluids	<input type="checkbox"/> Stool softener <input type="checkbox"/> Laxative <input type="checkbox"/> High fiber diet <input type="checkbox"/> Drink fluids
Exercises (based on therapist discretion)	<b>Ankle Pumps</b>	Do 10 reps every hour	10 Reps, every hour	10 Reps, every hour	10 Reps, every hour	10 Reps, every hour	10 Reps, every hour	10 Reps, every hour	10 Reps, every hour
	<b>Thigh Squeeze</b>	3 times per day, work up to 10 reps	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>
	<b>Buttock Squeeze</b>	3 times per day, work up to 10 reps	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>
	<b>Heel Slides</b>	3 times per day, work up to 10 reps	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>
	<b>Leg Slide</b>	3 times per day, work up to 10 reps	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>
	<b>Knee Extensions</b>	3 times per day, work up to 10 reps	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/>
<b>Walk</b>	Start with short distances to build up endurance   Try to increase your walking time each day   Walk comfortably, don't limp and use your assistive device	Walk <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Walk <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Walk <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Walk <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Walk <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Walk <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Walk <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

**Who Do You Call?**
**UM Orthopaedic Surgery Call Center: 734-936-5780 (8am-4:30pm M-F)**
**After Hours Paging Number: 734-936-6267 (ask for Orthopaedic Resident on-call)**

## Hip Replacement

### Care Pathway After Discharge

		Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14	Day 14
<b>Control Pain and Swelling</b>	<b>Take Pain Medication</b>	Take pain medication as directed by your surgeon for the first few days. Begin to wean off of pain meds as tolerated. (Decrease the number of pills or increase the time between pills.)		Take Medication (continue weaning)	Take Medication (continue weaning)	Take Medication (continue weaning)	Take Medication (continue weaning)	Take Medication (continue weaning)	Take Medication (continue weaning)
	<b>Take Blood Clot Medication</b>	Take medication to prevent blood clots (as directed)		Take Medication <input type="checkbox"/>	Take Medication <input type="checkbox"/>	Take Medication <input type="checkbox"/>	Take Medication <input type="checkbox"/>	Take Medication <input type="checkbox"/>	Take Medication <input type="checkbox"/>
	<b>Wear TED Stockings</b>	Wear during the day and may remove at night. Check skin daily to make sure you have not developed a sore.		Check Skin <input type="checkbox"/>	Check Skin <input type="checkbox"/>	Check Skin <input type="checkbox"/>	Check Skin <input type="checkbox"/>	Check Skin <input type="checkbox"/>	Check Skin <input type="checkbox"/>
	<b>Ice Your Hip and Thigh</b>	Apply an ice pack for 20 minutes on and 20 minutes off, as tolerated throughout the day		Ice often	Ice often	Ice often	Ice often	Ice often	Ice often
	<b>Elevate your Leg</b>	Prop your leg when sitting throughout the day.  Elevate your leg above your heart 2x/day at 10am and 2pm for 20-30 mins		Elevate leg above your heart 20-30 mins <input type="checkbox"/> 10 AM <input type="checkbox"/> 2 PM	Elevate leg above your heart 20-30 mins <input type="checkbox"/> 10 AM <input type="checkbox"/> 2 PM	Elevate leg above your heart 20-30 mins <input type="checkbox"/> 10 AM <input type="checkbox"/> 2 PM	Elevate leg above your heart 20-30 mins <input type="checkbox"/> 10 AM <input type="checkbox"/> 2 PM	Elevate leg above your heart 20-30 mins <input type="checkbox"/> 10 AM <input type="checkbox"/> 2 PM	Elevate leg above your heart 20-30 mins <input type="checkbox"/> 10 AM <input type="checkbox"/> 2 PM
<b>Wound Care</b>	<b>Care for your Incision</b>	Keep your incision clean and dry. Do not use ointments or lotions. Do not take a bath. You can shower, but cover the incision while you shower. Normal: Tenderness   Scabbing   Pink   Warm (can be warm for several months) Not Normal: Pain   Drainage   Red   Hot   Fever over 101.5 degrees <b>Call the Clinic at number below if:</b> Increased pain   Drainage from your incision   Incision is redder   Incision is hotter   You have a fever over 101.5 degrees							
	<b>Avoid Constipation</b>	Take a stool softener and laxative every day that you are taking pain medications   Eat a high fiber diet   Drink plenty of fluids (water)		<input type="checkbox"/> Stool softener <input type="checkbox"/> Laxative <input type="checkbox"/> High fiber diet <input type="checkbox"/> Drink fluids	<input type="checkbox"/> Stool softener <input type="checkbox"/> Laxative <input type="checkbox"/> High fiber diet <input type="checkbox"/> Drink fluids	<input type="checkbox"/> Stool softener <input type="checkbox"/> Laxative <input type="checkbox"/> High fiber diet <input type="checkbox"/> Drink fluids	<input type="checkbox"/> Stool softener <input type="checkbox"/> Laxative <input type="checkbox"/> High fiber diet <input type="checkbox"/> Drink fluids	<input type="checkbox"/> Stool softener <input type="checkbox"/> Laxative <input type="checkbox"/> High fiber diet <input type="checkbox"/> Drink fluids	<input type="checkbox"/> Stool softener <input type="checkbox"/> Laxative <input type="checkbox"/> High fiber diet <input type="checkbox"/> Drink fluids
	<b>Ankle Pumps</b>	Do 10 reps every hour		10 Reps, every hour	10 Reps, every hour	10 Reps, every hour	10 Reps, every hour	10 Reps, every hour	10 Reps, every hour
	<b>Thigh Squeeze</b>	3 times per day, work up to 10 reps		10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	<b>Buttock Squeeze</b>	3 times per day, work up to 10 reps		10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	<b>Heel Slides</b>	3 times per day, work up to 10 reps		10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	<b>Leg Slide</b>	3 times per day, work up to 10 reps		10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	<b>Knee Extensions</b>	3 times per day, work up to 10 reps		10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	<b>Walk</b>	Start with short distances to build up endurance   Try to increase your walking time each day   Walk comfortably, don't limp and use your assistive device		Walk <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Walk <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Walk <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Walk <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Walk <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Walk <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	<b>Hip Stretch</b>	3 to 6 times per day		3-6 times per day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	3-6 times per day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	3-6 times per day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	3-6 times per day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	3-6 times per day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	3-6 times per day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	<b>Standing Side Leg Raise</b>	3 times per day, work up to 10 reps		10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10 Reps, 3x/day <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

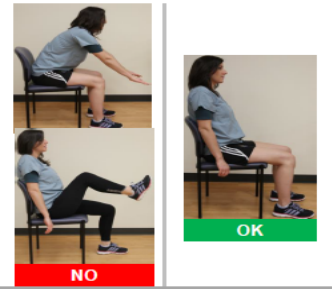
Control Pain and Swelling

Wound Care

Exercises (based on therapist discretion)

### Hip Precautions

No Bending Past 90 degrees



### Do Not Cross Legs at Knees



### Avoid Forceful Twisting at Hips



### When to Call

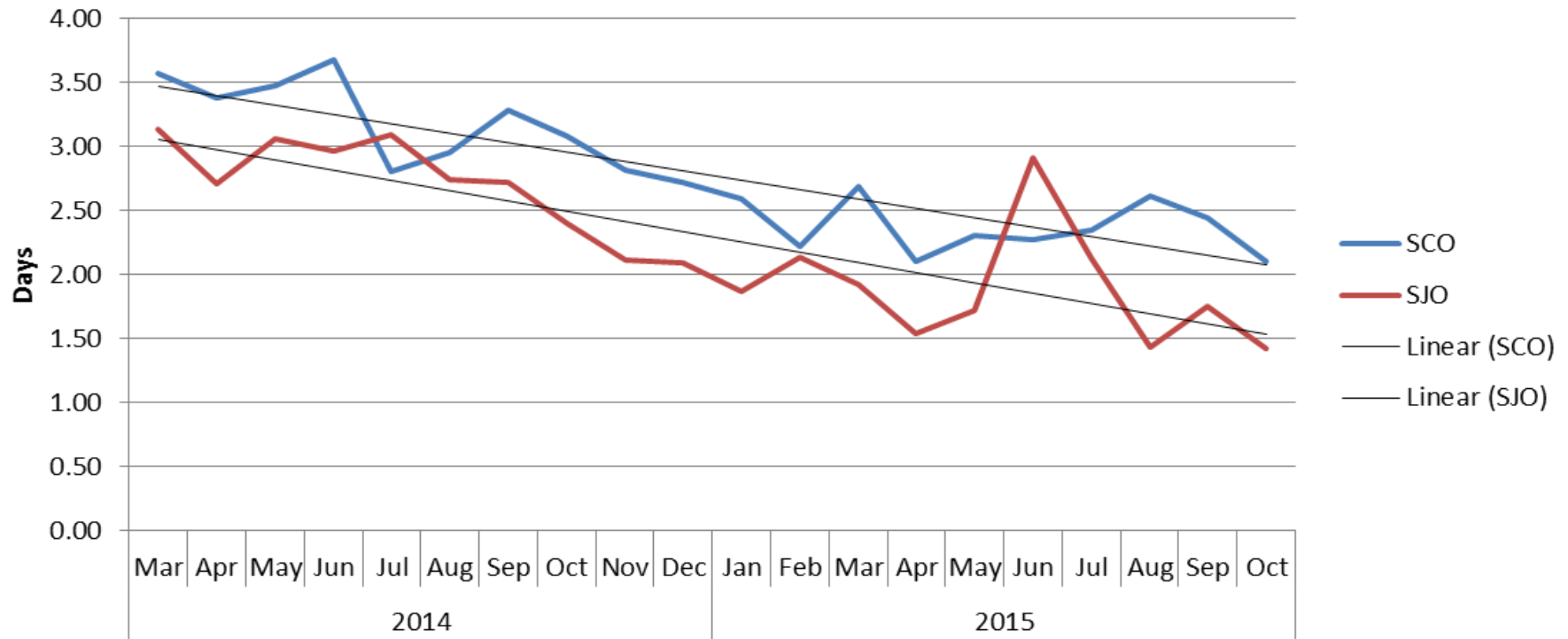
If you cannot control your pain | There is drainage from your incision | Your incision is redder or hotter | If you have a fever over 101.5 degrees →

**Who Do You Call?**    **UM Orthopaedic Surgery Call Center: 734-936-5780 (8am-4:30pm M-F)**  
**After Hours Paging Number: 734-936-6267 (ask for Orthopaedic Resident on-call)**



# Orthopaedics: Results

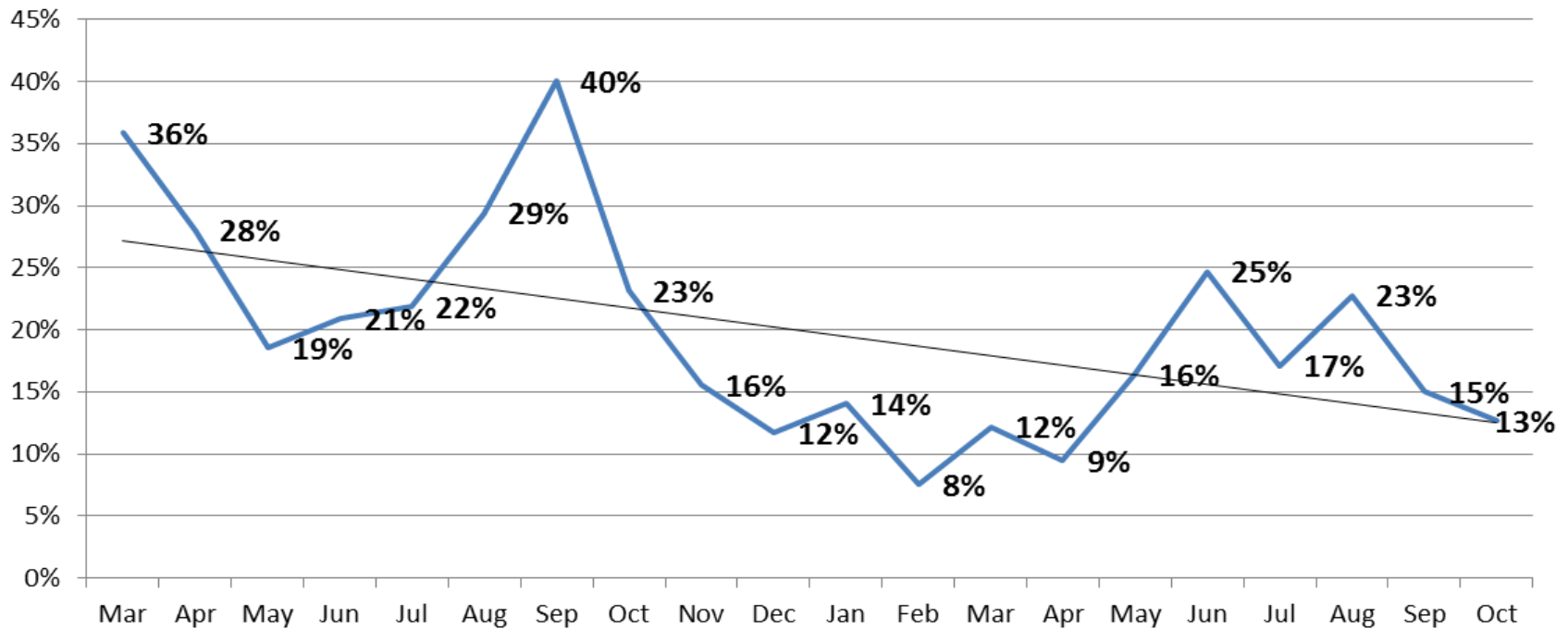
## Avg LOS



SCO=Surgery Combined Orthopaedics (orthopaedics & hospitalists) [more complicated illness/cases]  
SJO=Surgery Joint Orthopaedics

# Orthopaedics: Results

## % Patients d/c to SNF



# Joint Replacement Results

- Readmissions reduced 50%
- Total Medicare per beneficiary costs reduced 20% (\$24,300 to \$19,500)
- Medicare risk adjusted observed to expected cost ratio 1.40-0.80



# Invasive Bladder Cancer: Radical Cystectomy

- University of Michigan volume – 150/year
- Men: removal of bladder, prostate, lymph nodes
- Women: removal of bladder, uterus, ovaries and interior vaginal wall
- Urinary tract reconstruction
- Patients are elderly and frail
- 60-80% experience complications
- 90 day mortality 1-5%



# Radical Cystectomy: Countermeasures

- Created physician and nurse care pathway
- Improved patient education
- Standardized patient materials, supplies, care pathway
- Created patient journal for patients to record the care journey



## A Guide for Ostomy Care & Services

Having ostomy surgery can be a stressful time. The following information is meant as a guide to prepare you for your surgery and provide resources for a successful recovery.

- **Before surgery--** You will meet with the outpatient ostomy nurse. The nurse will provide you with education about living a full life with an ostomy. The ostomy site will be selected. The ostomy nurse will help you identify how to get supplies after you are discharged from the hospital. You may also want to think about a family member or friend that may be available to help you care for yourself at home.

- **Your resources:** Outpatient ostomy nurse, surgeon
- **After surgery--** While you are in the hospital, the inpatient ostomy nurse will teach you and your family how to care for your ostomy. You will have the opportunity to practice the care yourself and ask questions. Before you are discharged you will receive some supplies to use at home along with a prescription for additional supplies. Arrangements will be made to provide you with the opportunity to receive home care nursing services to continue with your ostomy teaching. We encourage you to take advantage of this, as most patients benefit from the service.

- **Your resources:** Inpatient ostomy nurse, staff nurses, your surgery team
- **At home--** The homecare nurse will help guide you through the process of caring for yourself independently, including how to obtain your ostomy supplies. Give a copy of the ostomy supply prescription to your homecare nurse so he/she will know what supplies you will need. If you have Medicare as your primary insurer, the home care nurse is responsible for providing you with ostomy supplies. If you have private insurance or you

# Radical Cystectomy: Results

- Robotic surgery – additional cost, no reduced LOS, or improved outcomes
- Reduction in readmissions by 55% (38% → 17%)
- Cost reduction per episode 18%
- Contribution margin increased by 20 percentage points





# Taking the Pathway to Patients and Care Team- Ileal Conduit

		<b>Cystectomy With Ileal Conduit Cancer Pathway</b>					Place Patient Label Here																																																
		<b>Day 0 (Day of Surgery)</b>	<b>Day 1</b>	<b>Day 2</b>	<b>Day 3</b>	<b>Day 4</b>	<b>Additional Days</b>																																																
<b>Activity</b>	Compression socks at all times	Compression socks at all times	Compression socks at all times	Compression socks at all times	Compression socks at all times	Compression socks at all times	Compression socks at all times	Compression socks at all times																																															
	Sit in chair	Chair x 3 <table border="1"><tr><td></td><td></td><td></td></tr></table>				Chair x 3 <table border="1"><tr><td></td><td></td><td></td></tr></table>				Chair x 3 <table border="1"><tr><td></td><td></td><td></td></tr></table>				Chair x 3 <table border="1"><tr><td></td><td></td><td></td></tr></table>				Chair x 3 <table border="1"><tr><td></td><td></td><td></td></tr></table>				Chair x 3 <table border="1"><tr><td></td><td></td><td></td></tr></table>				Chair x 3 <table border="1"><tr><td></td><td></td><td></td></tr></table>																													
<b>Discharge Planning</b>	Incentive Spirometer X 10 per hour	Walk in hall <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>									Walk in hall <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>									Walk in hall <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>									Walk in hall <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>									Walk in hall <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>									Walk in hall <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>								
Evaluate and screen for discharge needs	Incentive Spirometer X 10 per hour Binder fitting with ostomy hole Physical therapy as needed	Incentive Spirometer X 10 per hour Wear binder Physical therapy as needed	Incentive Spirometer X 10 per hour Wear binder Physical therapy as needed	Incentive Spirometer X 10 per hour Wear binder Physical therapy as needed	Incentive Spirometer X 10 per hour Wear binder Physical therapy as needed	Incentive Spirometer X 10 per hour Wear binder Physical therapy clearance	Incentive Spirometer X 10 per hour Wear binder Finalize physical therapy plan																																																
<b>Patient/Family Education</b>	Identify in-home caregiver/support	Confirm insurance coverage, resources available for care	Check progress and confirm discharge location - level of care needed	Check progress and confirm discharge location - level of care needed	Check progress and confirm discharge location - level of care needed	Finalize plan	Write final discharge plan																																																
	Initiate referrals	Follow up on insurance issues	Follow up on insurance issues	Follow up on insurance issues	Follow up on insurance issues	Confirm planned date of discharge	Arrange transportation if needed																																																
<b>Pain</b>	Introduction to Pathway	Ostomy Care: Introduction to Ostomy Team, Review Folder	Medication administration	Medication administration	Medication administration	Medication administration	Able to verbalize plan for staple (if needed)																																																
	Learning Activity	Learning Activity	Learning Activity	Learning Activity	Learning Activity	Learning Activity	Able to demonstrate ostomy self-care																																																
<b>Diet</b>	Introduction to Pathway	<a href="#">Introduction to ostomy checklist</a>	<a href="#">Ostomy care:</a>	<a href="#">Ostomy care:</a>	<a href="#">Ostomy care:</a>	<a href="#">Ostomy care:</a>	Home health care info provided to patient and family																																																
	Patient Family	Patient Family	Patient Family	Patient Family	Patient Family	Patient Family	<a href="#">Dehydration education</a> provided to patient and family																																																
<b>Drains/Stents</b>	Introduction to Pathway	<a href="#">Preventing patient falls during hospital stay</a>	Demonstration of appliance change	Demonstration of appliance change	Demonstration of appliance change	Demonstration of appliance change																																																	
	Patient Family	Patient Family	Patient Family	Patient Family	Patient Family	Patient Family																																																	
<b>Meds</b>	Incision Care	Update progress on ostomy checklist	Update progress on ostomy checklist	Update progress on ostomy checklist	Update progress on ostomy checklist	Update progress on ostomy checklist																																																	
	Patient Family	Patient Family	Patient Family	Patient Family	Patient Family	Patient Family																																																	
<b>Labs</b>	IV pain medicines	IV pain medicines	Oral / IV pain meds	Oral / IV pain meds	Oral / IV pain meds	Oral / IV pain meds	Discharge with oral pain meds																																																
	No food	No food: gum ok	Consider clear liquid diet	Consider solid food	Consider solid food	Consider solid food	Consider solid food																																																
<b>What are my medications for?</b>	Ice chips and sips of water	8 oz black coffee, tea, juice, or water every eight hours	No solid food; gum ok	Gum ok	Gum ok	Gum ok	Gum ok																																																
	Drains and stents in place	Drains and stents in place	Drains and stents in place	Drains and stents in place	Drains and stents in place	Drains and stents in place	Drains and stents in place																																																
<b>Labs</b>	Every four hours: Routine nursing care (e.g.vitals, measure fluid output, strip drain, etc.)	Every four hours: Routine nursing care (e.g.vitals, measure fluid output, strip drain, etc.)	Every four hours: Routine nursing care (e.g.vitals, measure fluid output, strip drain, etc.)	Every four hours: Routine nursing care (e.g. vitals, measure fluid output, strip drain, etc.)	Every four hours: Routine nursing care (e.g. vitals, measure fluid output, strip drain, etc.)	Every four hours: Routine nursing care (e.g. vitals, measure fluid output, strip drain, etc.)	Every four hours: Routine nursing care (e.g. vitals, measure fluid output, strip drain, etc.)																																																
	IV Antibiotics	Stop antibiotics	Colace, Alvimopan, Famotidine, Heparin	Colace, Alvimopan, Heparin	Colace, Alvimopan, Heparin	Colace, Alvimopan, Heparin	Colace and oral pain for home																																																
<b>Labs</b>	Heparin	Colace, Alvimopan, Famotidine, Heparin	Consider Lasix	Discontinue Famotidine if tolerating food	Consider Lasix	Consider Lasix	Heparin and Alvimopan until discharge																																																
	Labs in recovery unit	Labs at 3 A.M.	Labs at 3 A.M.	As needed	Labs at 3 A.M.	Labs at 3 A.M.	Consider Lovenox for home																																																
<b>What are my medications for?</b>		Alvimopan: Aids in recovery of gut function	Colace: Softens stool	Heparin: Helps prevent blood clot development	Famotidine: Decreases stomach acid	Labs at 3 A.M.	<a href="#">Lovenox patient education</a>																																																



# Thank You

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**Sangeeta Vijayagopalan**

**Alon Weizer, MD**

**Brent Williams, MD**