



Outcomes of an accelerated discharge pathway after spinal fusion

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Background

- Scoliosis = Lateral curvature and rotation of the spine
- Adolescent Idiopathic Scoliosis
 - most common type of scoliosis
 - affects children 10 – 18 years
 - has no identifiable cause
- Posterior Spinal Fusion = surgery to stop curve progression and reduce the curve to some degree



Posterior Spinal Fusion

Background

- Fletcher et al. developed accelerated discharge pathway following posterior spinal fusion in patients with adolescent idiopathic scoliosis (AIS)
- Results =
 - Length of stay 48% shorter in pathway group
 - Decrease hospital cost by 33%
 - No difference in wound or medical complications

(Fletcher et al. 2014)

Background



	RCH practice	Fletcher et al. Accelerated Discharge Pathway
Transition from intravenous to oral pain medication	Day 3 or Day 4 post surgery	
Mobilise with Physiotherapist	Sit over edge of bed Day 1 Step transfers to chair Day 2 Walking Day 3 Seen x2 daily	
Removal of urinary catheter	Once mobilising Approx Day 3	
Transition to eating	Once bowel sounds heard Approx Day 2 or Day 3	
Discharge	Day 5 – 7 post surgery	

Background



	RCH practice	Fletcher et al. Accelerated Discharge Pathway
Transition from intravenous to oral pain medication	Day 3 or Day 4 post surgery	Day 1 post surgery
Mobilise with Physiotherapist	Sit over edge of bed Day 1 Step transfers to chair Day 2 Walking Day 3 Seen x2 daily	Walking Day 1 morning Seen x 2 daily
Removal of urinary catheter	Once mobilising Approx Day 3	Day 1
Transition to eating	Once bowel sounds heard Approx Day 2 or Day 3	Day 1 as tolerated (despite bowel sounds)
Discharge	Day 5 – 7 post surgery	Day 2 or 3 post surgery

Planning Phase

Multidisciplinary Team

- Meet with each team involved in care

Objectives

- No increase in complications
- No increase in readmission
- No compromise to patient/family satisfaction
- Reduce length of stay
- Reduce hospital costs



Preparation Phase

1. Patient Criteria for Pathway

- Age 10 and older
- Uncomplicated Posterior Spinal Fusion for AIS
- No significant co-morbidities

2. Post Operative Orders

- Standardised post operative orders
 - Mobilising as tolerated, no brace, can sit up in bed

Preparation Phase

3. Resources Developed

- Pathway formulated
 - for staff
- Pre admission clinic handout
 - for family/patient
- Daily goal sheet
 - for family/patient



SURGERY

Day 1 after scoliosis surgery



Nursing and monitoring



- Nurse to check your vital signs such as breathing, heart rate and temperature every 4 hours
- Nurse to check your movement and sensation every 4 hours
- You will be given fluids through a line into your arm
- Your bladder tube (urinary catheter) will be removed in the evening

Pain management



- Pain Team review
- Stop use of green button (PCA)
- Nurse will give you oral pain medication

Activity



- Physiotherapy review in the morning and afternoon. They will help you:
 - Sit out of bed in a chair in the morning and afternoon
 - Walk outside your room

**Nutrition/
Diet**



- Nurse to give laxatives/stool softeners

RCH staff

Patient and family

- You will move yourself, with or without the help of nurse or your family, by a log roll into a more comfortable position

- Eat, drink and brush your teeth on your own in bed or in a chair

- Drink clear fluids
- Eat small amounts of simple solids if tolerated
- Chew sugarless gum

If you have any questions about the above please ask your nurse

SURGERY

Day 2 after scoliosis surgery



Nursing and monitoring



- Nurse to stop monitoring your vital signs (such as breathing and heart rate), movement and sensation when you are stable and on oral medication
- Nurse to stop giving you fluid through the line in your arm once you are drinking enough oral fluids
- Spinal x-ray (taken in standing) in the afternoon

Pain management



- Pain Team review
- Nursing staff to give oral pain medication
- Medication may be altered if necessary for pain management

Activity



- Physiotherapy review in morning and afternoon. They will help you:
 - Walk longer distances with less help
 - Walk outside your room

**Nutrition/
Diet**



- Continue to have laxatives/stool softeners

Patient and family

- You can move yourself (on your own or with very little help) into a more comfortable position

- Sit out of bed 2-3 times (morning, afternoon and evening)
- Walk to and from the bathroom and toilet
- Eat, drink and brush your teeth on your own in bed or in a chair
- Have a shower (sitting up or standing) with help if needed

- Regular diet as tolerated
- Chew sugarless gum

If you have any questions about the above please ask your nurse

Implementation

1. Education and Training

2. Preadmission Review

- Surgeon identified if patient planned for pathway
- Surgeon and Scoliosis Coordinator educated patient/family on pathway

3. Ward Management

- Daily goal sheet in the patient's room

Outcomes

Six Month Review

Retrospective Audit

- 2013

- 17 patients

- 2014

- 15 patients

Prospective Audit

- Feb – July 2016 (6 months)

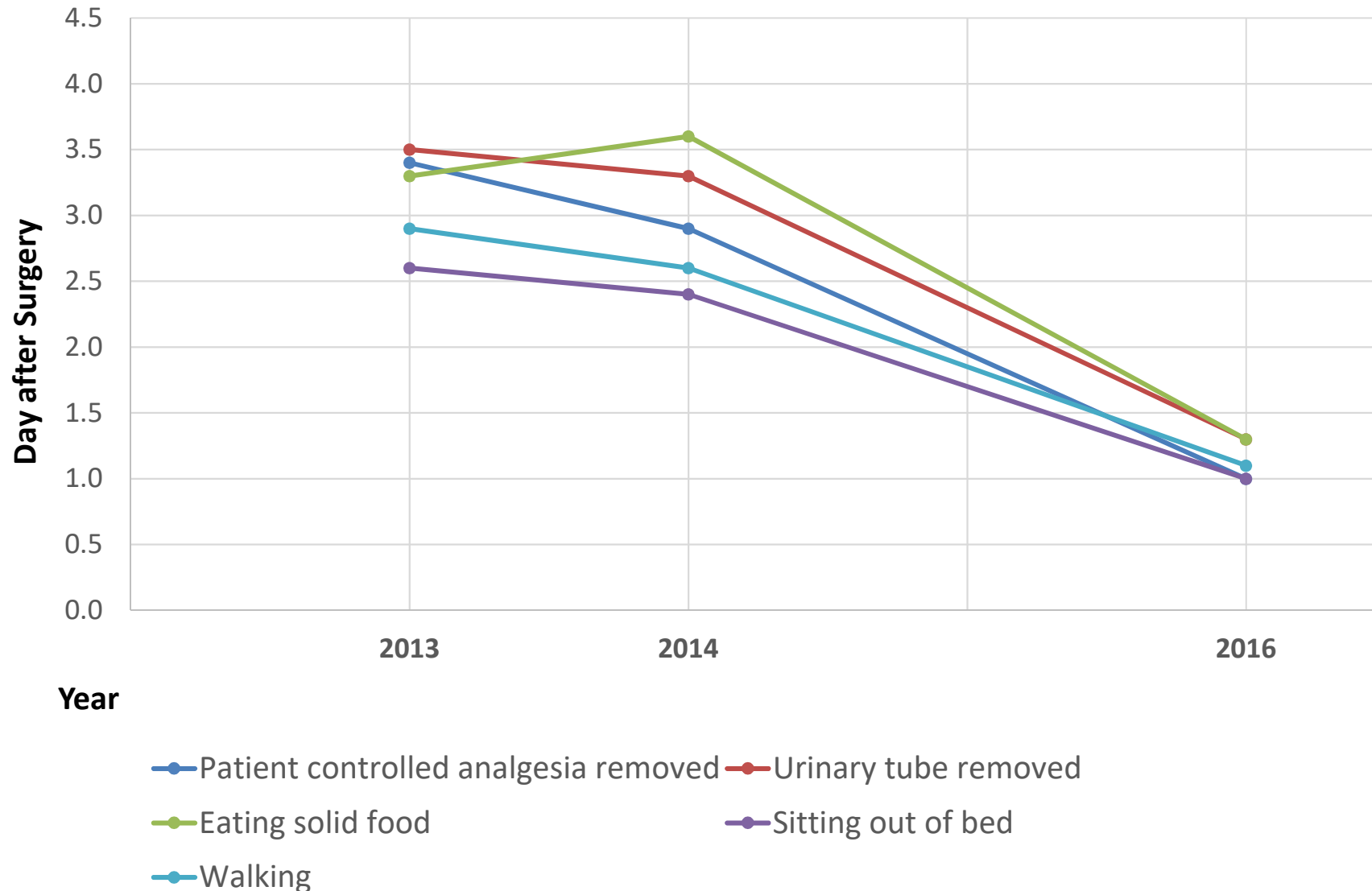
- 19 patients

- No difference in cohorts at time of surgery

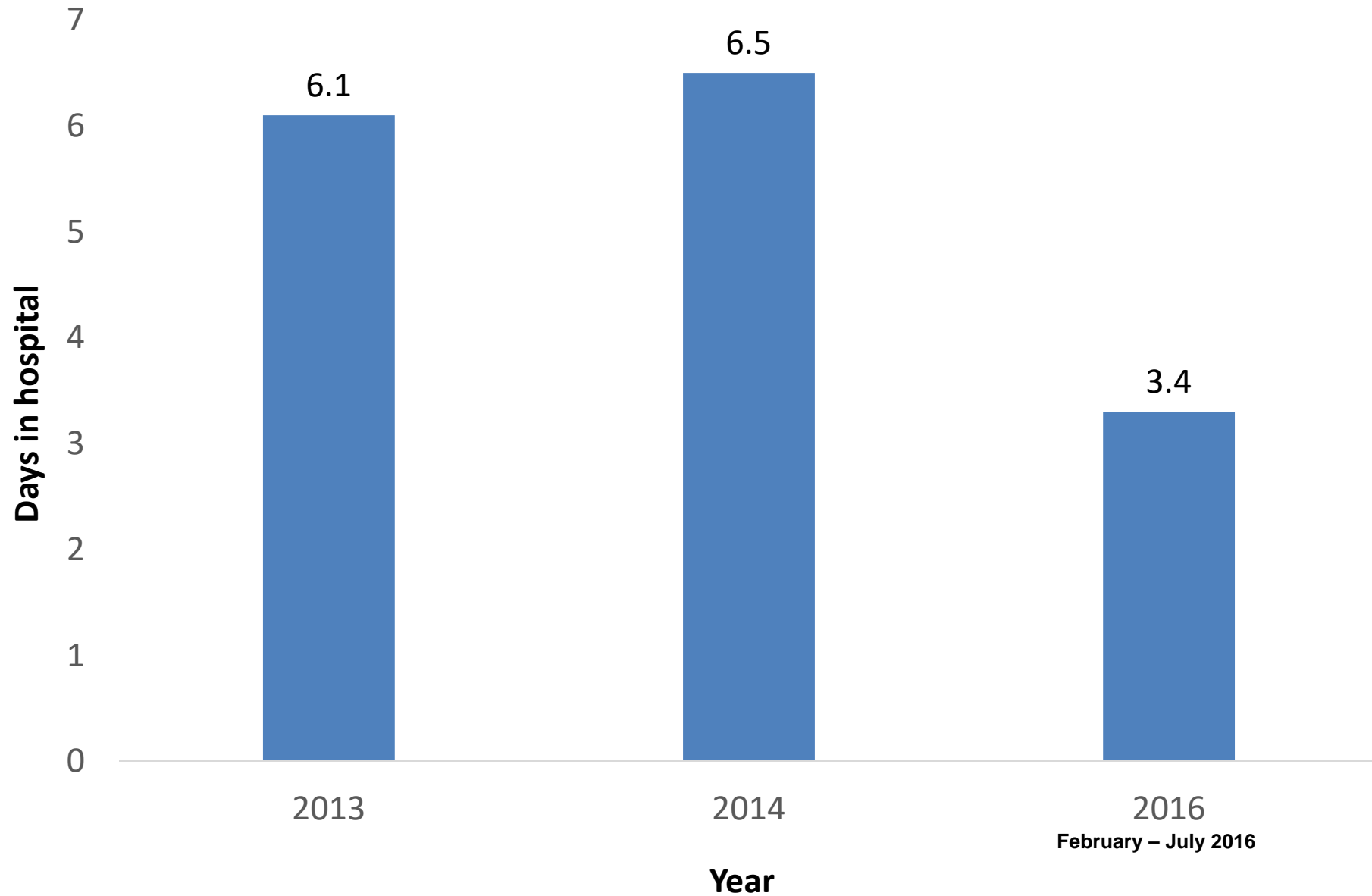
- Age, gender, pre surgery curve angle, medical history, number vertebrae fused, pedicle screws used



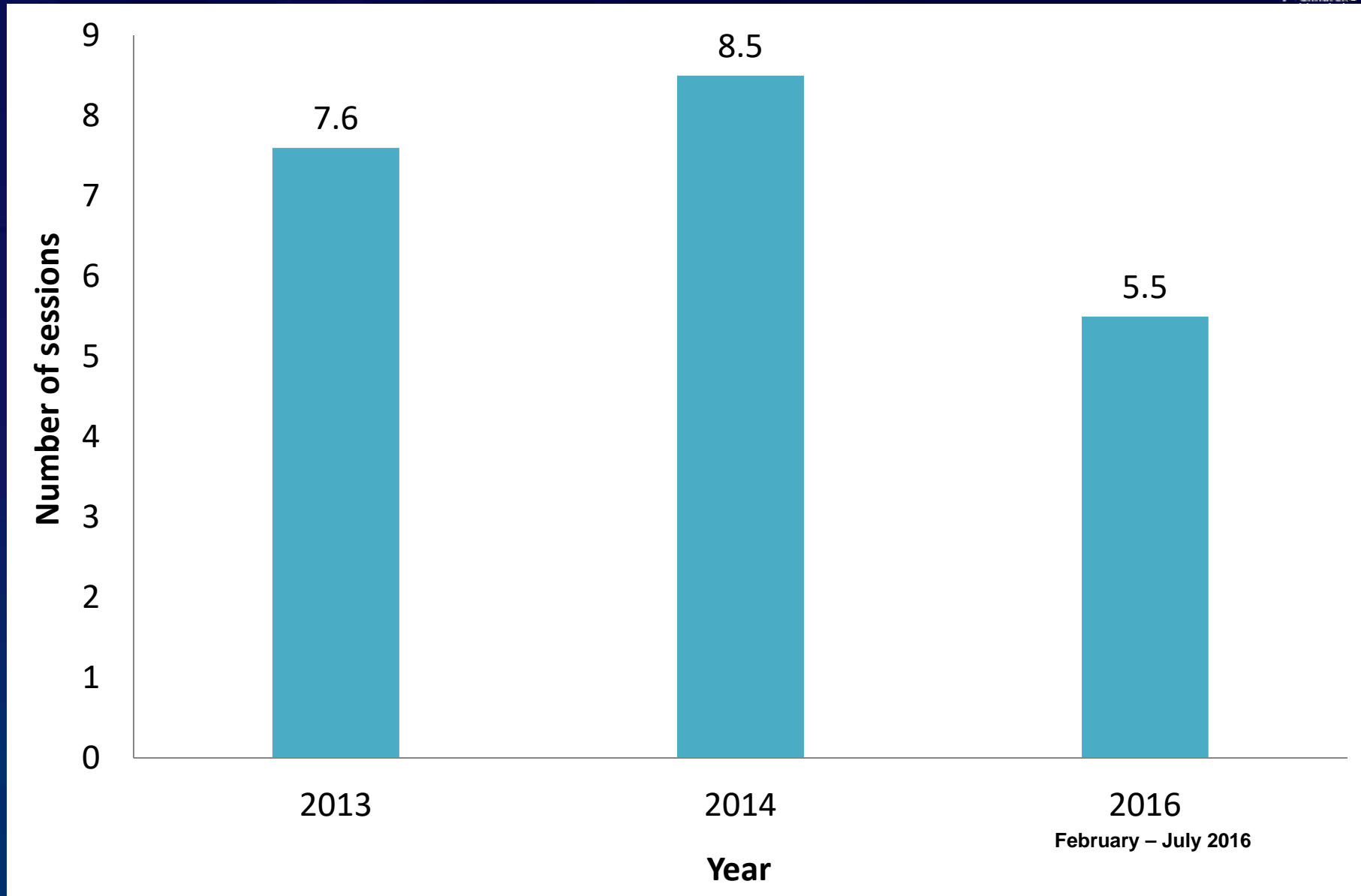
Changes in Post Surgical Care after Spinal Fusion



Hospital Length of Stay

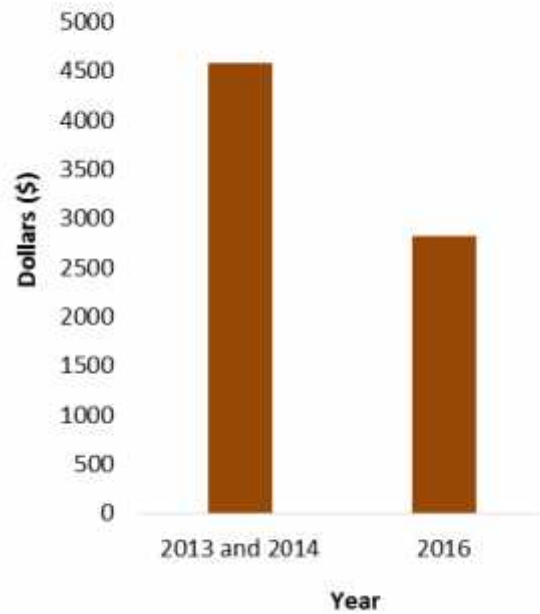


Number of Physiotherapy Sessions

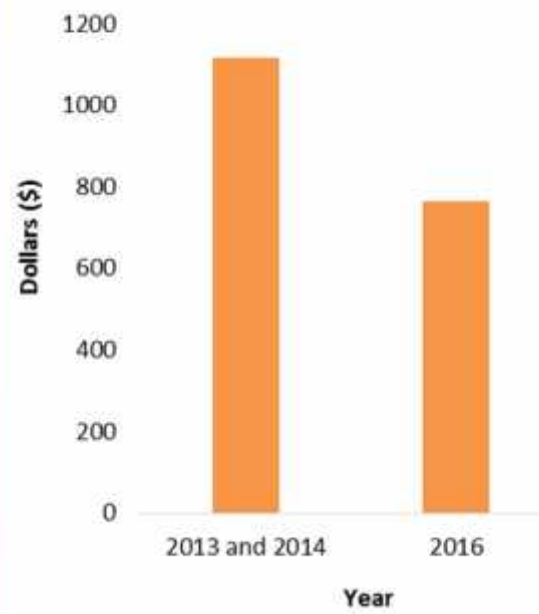


Cost Saving per Patient

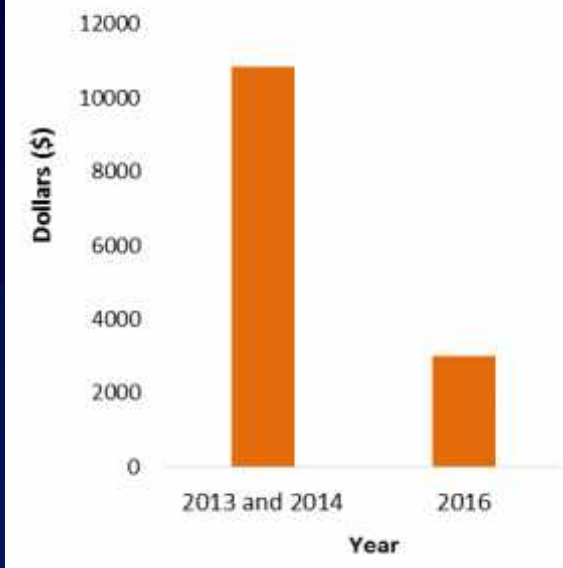
Ward Nursing Cost



Allied Health Cost



Ward Orthopaedic Medical Cost



Complication and Readmission Rate



	2013 n = 17	2014 n = 15	
Complication Rate	1	0	
Readmission Rate	1	1	

Complication and Readmission Rate



	2013 n = 17	2014 n = 15	2016 n = 19
Complication Rate	1	0	1
Readmission Rate	1	1	0

Patient/Family Satisfaction Survey

- Global satisfaction rating = 9.2/10
- Communication with parent = 9.3/10
- Communication with child = 9.1/10
- Attention to safety & comfort = 8.5/10

Summary

Introduction of an Accelerated Discharge Pathway for AIS

- Reduced length of stay and hospital costs
- No compromise in patient safety
- No compromise in patient satisfaction

Reference:

Fletcher, N., Shourbaji, P., Mitchell, P., Oswald, T., Devito, D. & Bruce, R. (2014). Clinical and economic implications of early discharge following spinal fusion for adolescent idiopathic scoliosis. *J Child Orthop*, 8:257-263.

Thank you