

**Mobility  
Matters**

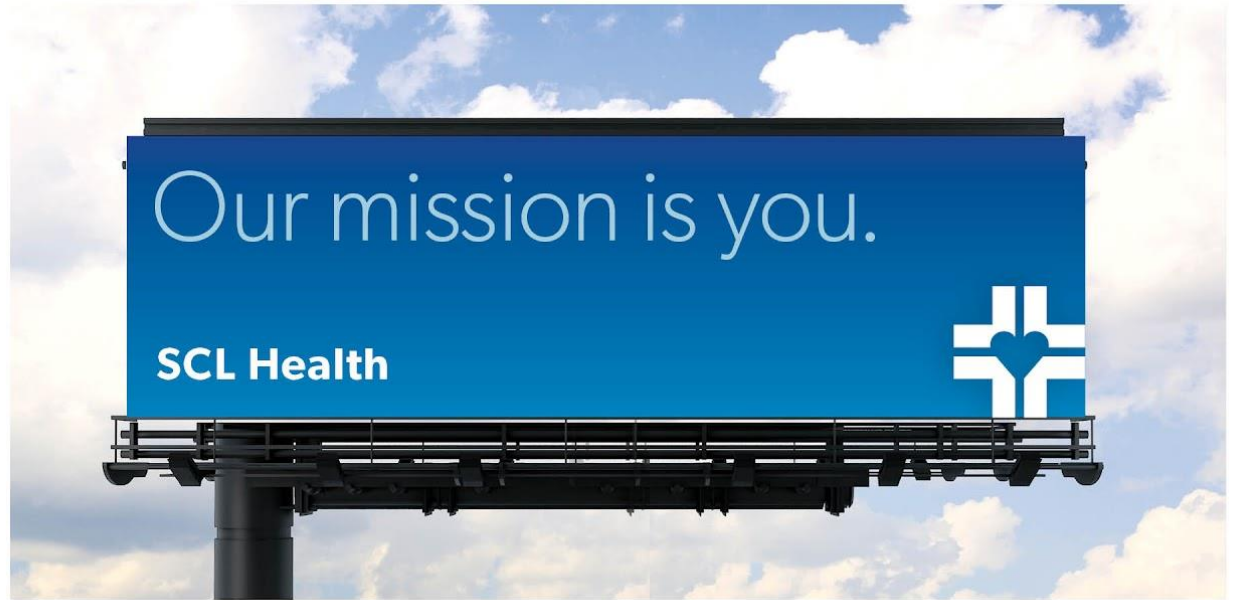


# **Ventilated Proning Process Improvement for Patient and Caregiver Safety**

Nancy McGann PT, CSPHP, CPPS on behalf of the  
SCL Health Proning Safety Grant Team



# Bio



Nancy McGann PT, CPPS, CSPHP  
System Manager of Clinical Associate Safety  
SCL Health, Quality and Safety

# No Conflicts of Interest

# Objectives

- Participants will understand the concept of One Safety as it relates to proning vent dependent patients.
- Participants will understand the patient and caregiver safety risks related to proning.
- Participants will leave with a model for improvement that incorporates the foundational strategies of Safe Patient Handling & Mobility.
- Participants will learn methods of measuring patient safety and quality when deploying Safe Patient Handling & Mobility tactics.

## Mission

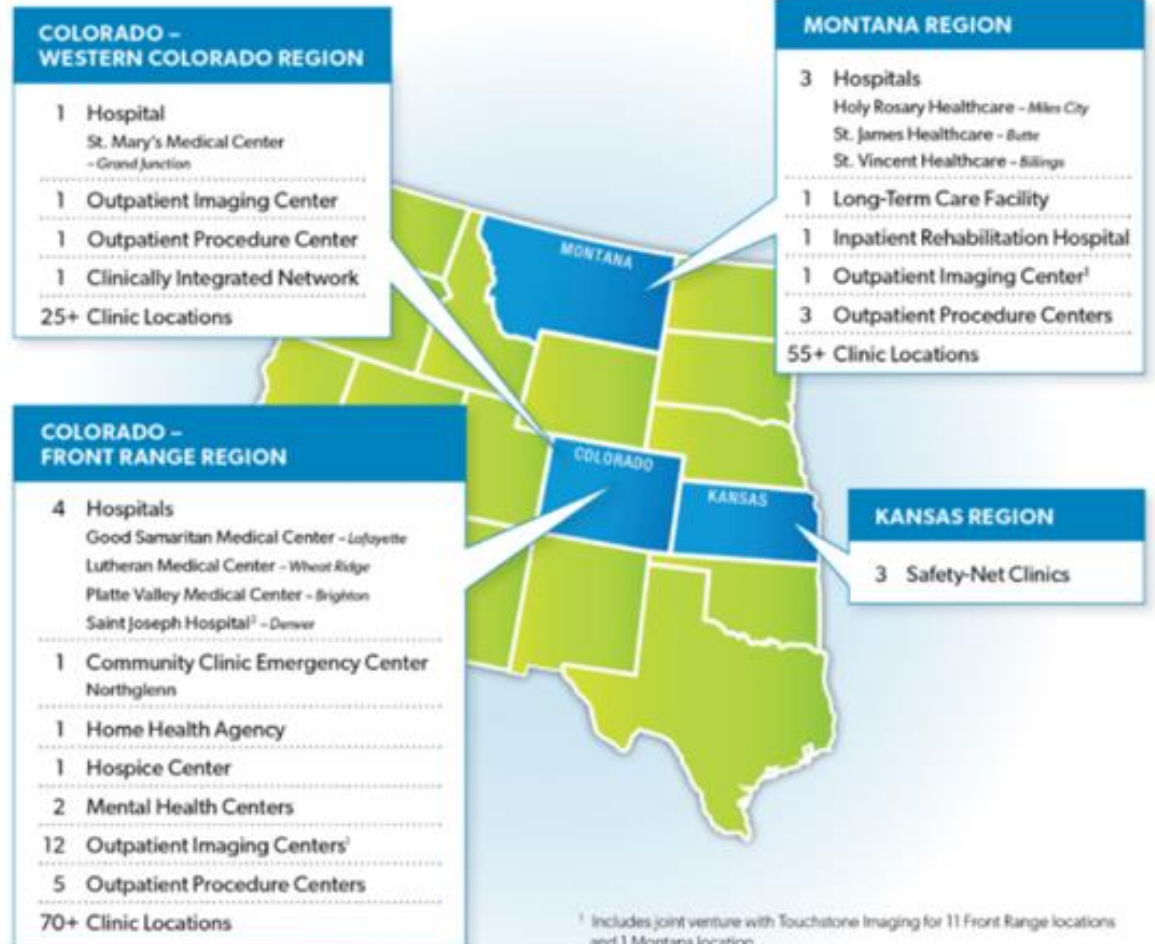
We reveal and foster God's healing love by improving the health of the people and communities we serve, especially those who are poor and vulnerable

## Vision

Inspired by our faith, we will partner with our patients and communities to exceed their expectations for health

## Values

Caring Spirit | Excellence | Good Humor | Integrity | Safety | Stewardship



<sup>1</sup> Includes joint venture with Touchstone Imaging for 11 Front Range locations and 1 Montana location

<sup>2</sup> joint operating agreement with National Jewish Health

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# One Safety



# Protecting Patients and Caregivers



**PPE**



**Ergonomics**

# Proning Vented Patients

- Prone = lying on one's stomach
- Proning = positioning a patient on their stomach
- A life-saving, high-risk procedure when performed on vented patients
  - Improves oxygenation in Acute Respiratory Distress Syndrome (ARDS)
- Increased use of proning to treat COVID-19 in vented and awake patients during the Spring 2020 COVID Surge
  - Noted a large increase in hospital-acquired pressure injuries (HAPI's)



Guérin, Claude, et al. "Prone Position in Ards Patients: Why, When, How and for Whom." *Intensive Care Medicine*, vol. 46, no. 12, 2020, pp. 2385–2396., <https://doi.org/10.1007/s00134-020-06306-w>.

Clarke, J., et al. "Prone Positioning Improves Oxygenation and Lung Recruitment in Patients with SARS-COV-2 Acute Respiratory Distress Syndrome; a Single Centre Cohort Study of 20 Consecutive Patients." *TP52. TP052 ARDS STUDIES*, 2021, [https://doi.org/10.1164/ajrccm-conference.2021.203.1\\_meetingabstracts.a2683](https://doi.org/10.1164/ajrccm-conference.2021.203.1_meetingabstracts.a2683).



# Background

- COVID-19 significantly increased how often we prone
- Proning has significant risk of patient and caregiver injury such as Hospital Acquired Pressure Injury (HAPI)
- Manual proning requires significant time and PPE
- Pressure injuries at SCL Health increased during the 1st COVID-19 surge (Mar/April) especially to the face and lips



Is there a better way?



# Poll Question 1:

**How did your healthcare institution primarily prone patients prior to the Covid-19 Pandemic?**

- Manual proning with traditional draw sheets / bed sheets
- Friction reducing sheets only
- Mobile or ceiling lift and sling only
- Mobile or ceiling lift, sling, and friction reducing sheet

# Multidisciplinary Team



# Methods

- Johns Hopkins Nursing Evidence-Based Practice Model
- The practice question, “Is there an optimal method for proning patients that will reduce the risk of injury to patients and staff?”
- Research is lacking in the optimal use of lifts for proning
- Proning processes reviewed were primarily manual methods with sheets or friction reducing devices (FRD’s)
- The team developed a three-tiered approach based on best practices for our 8-hospital healthcare system

## Poll Question 2:



**How does your healthcare system primarily prone today?**

- Manual proning with traditional draw sheets / bed sheets
- Friction reducing sheets only
- Mobile or ceiling lift and sling only
- Mobile or ceiling lift, sling, and friction reducing sheet



# Timeline

## June/July 2020

- Virtual and Live Meetings
- Literature search, brainstorm problems and solutions, define summer work
- Participants from 3 Denver Metro sites that treated the majority of COVID-19 in the spring surge

## August 2020

- 8 hour simulation day with SPHM, ETT and skin protection devices
- All participants were patient and caregiver
- Tier 1 & 2 felt drastically better as patient and caregiver

## Sept/Oct 2020

- Toolkit draft shared in draft with MT hospital during their first surge
- Toolkit finalized and shared prior to 2nd Colorado Surge
- Workflow Diagram, Checklist, Ceiling/Mobile Lift Comparison & Job Aid

## November 2020 - Present

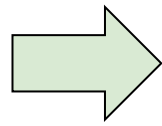
- Continuous Improvement
  - New Technologies
  - Process Efficiencies
- Infection Prevention updates due to CAUTI & CLABSI increases

# Practice Change

All 3 methods use friction reducing devices, prophylactic dressings, positioners and tape securement for endotracheal tubes while prone

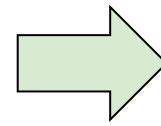
## Tier 1

Ceiling Lift



## Tier 2

Mobile Lift



## Tier 3

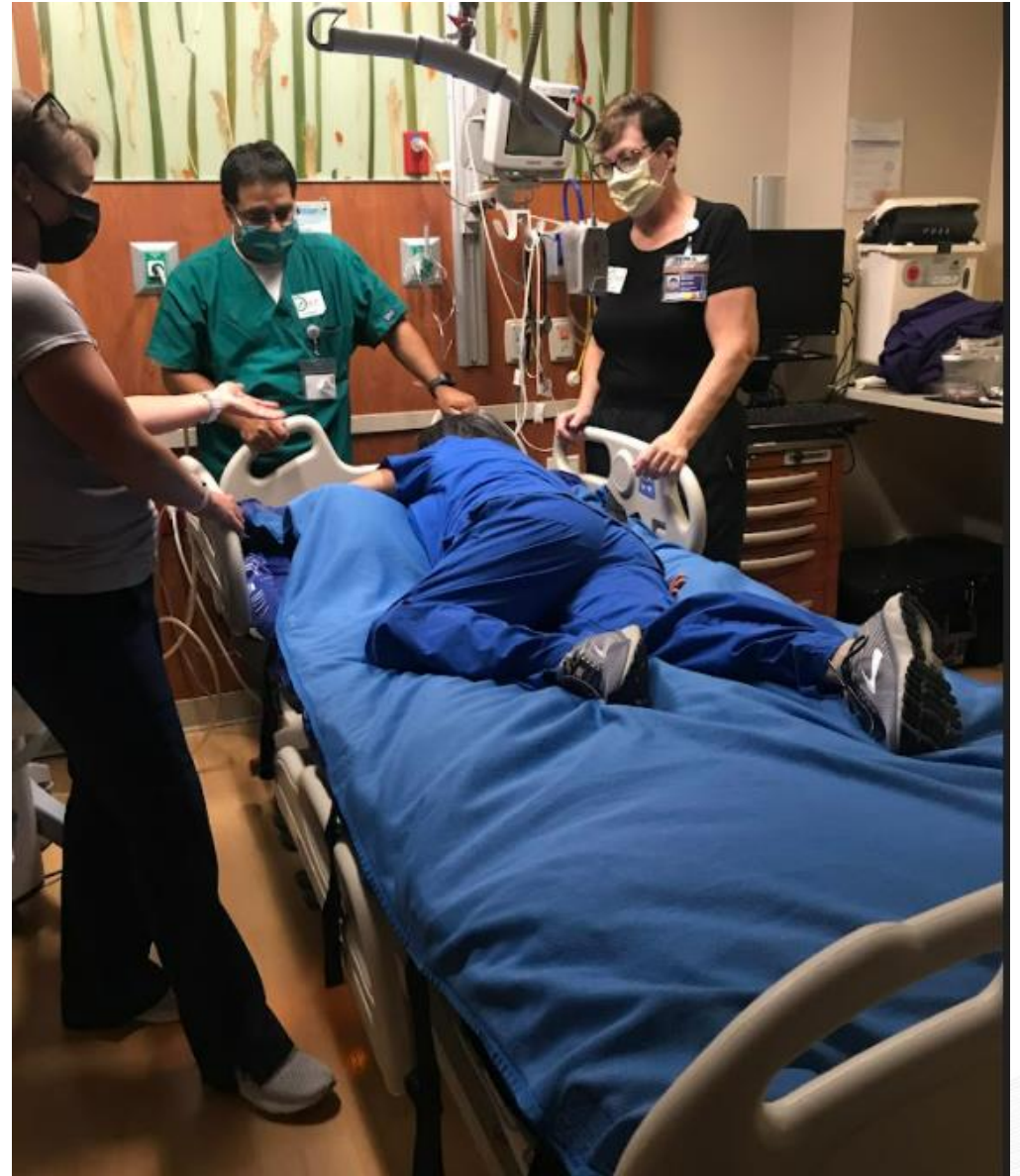
Manual Prone  
with FRD











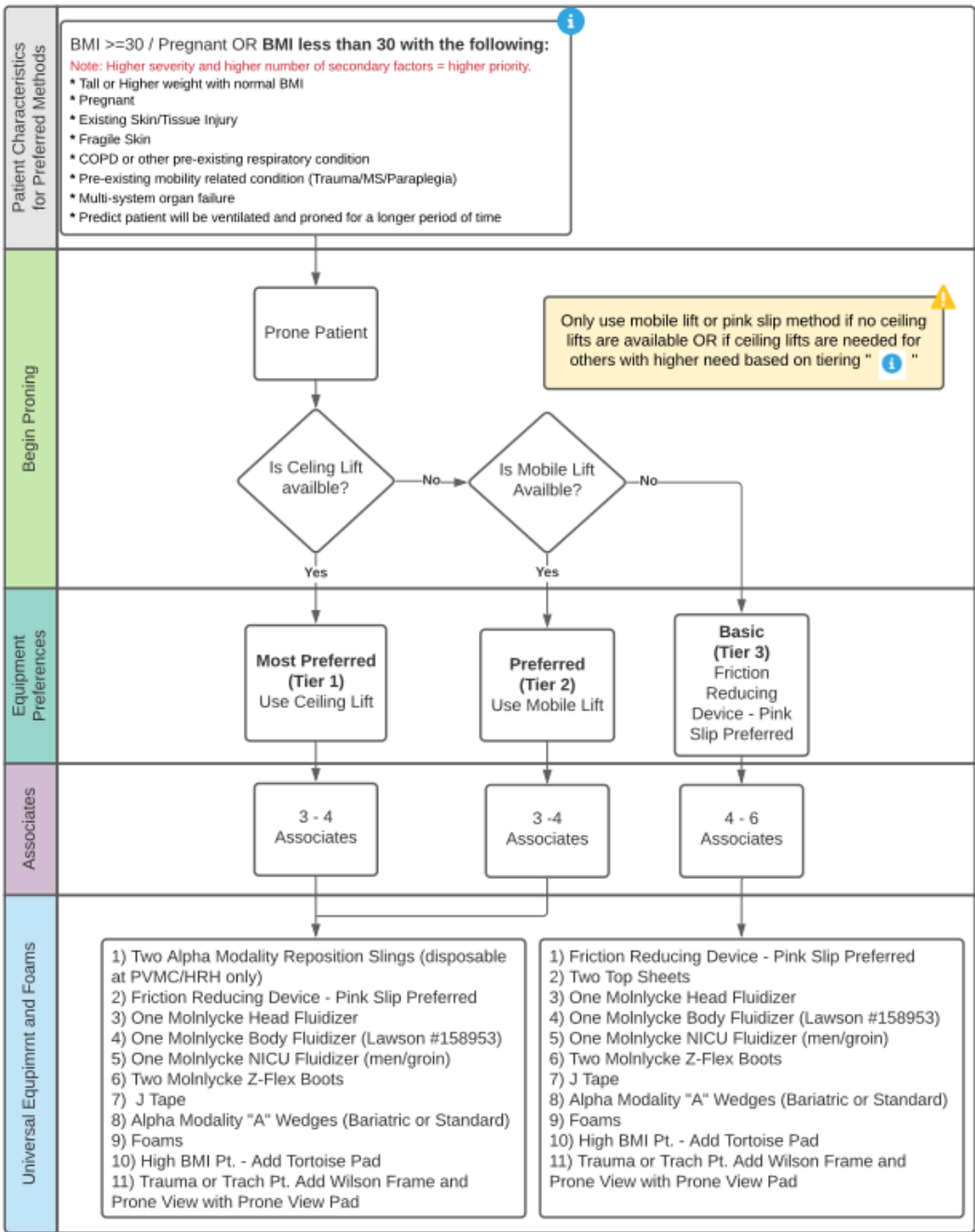


# Video Example






# TOOLKIT



**Product Visual Guide with Tips, Pros and Cons**

**1) Alpha Modality Reposition Slings**




Tips

- 1) If patient is turning left, you hook up loops on the right

Lawson #: 121235

**2) Friction Reducing Device - Pink Slip Preferred**




Tips

- 1) Arrows go left to right
- 2) Remove by pulling from one corner after proning, do not pull out sideways

Lawson #: 121235

**3) Molnlycke Head Fluidizer**




Tips

- 1) Mold to position in order to minimize pressure on ears
- 2) Single pt use

Lawson #: 137022

**4) Molnlycke Body Fluidizer**




Tips

- 1) Take patient consideration into account when placing
- 2) Do not force under patient
- 3) single pt use

Lawson #: 158953 Standard  
Lawson #: 158952 Bariatric

**5) Molnlycke NICU Fluidizer**




Tips

- 1) To be used for the groin
- 2) Dimensions 7 x 10 inches
- 3) Single pt use

Lawson #: 44261

**6) Molnlycke Z-Flex Boots**




Tips

- 1) Can be worn supine or prone, may need to elevate legs so toes do not dig into the bed
- 2) Use wedge or cushion under the shin once prone
- 3) Ensure foot is in proper position to stand and prevent foot contracture

Lawson #: 153405

**7) J Tape**




Tips

- 1) Consider added skin protection as appropriate
- 2) Double tape is necessary
- 3) Reinforce with "pink" (hy-land) tape
- 4) Chngae prior to placing patient prone
- 5) Change when the patient is supine, either new tape or hollister
- 6) Tape mid lip

Lawson #: 171706

**8) Alpha Modality "A" Wedges**




Tips

- 1) Available in soft and firm
- 2) Do not use handles to pull
- 3) are wipeable and reusable

Lawson #: 171215 Foam, 23 in  
Lawson #: 171216 Foam, 16 in  
Lawson #: 171213 Bead, 23 in  
Lawson #: 171214 Bead, 16 in  
Lawson #: 171212 Bariatric

**9) Tortoise Pad**




Tips

- 1) For use in prone only when clinically indicated
- 2) Single patient use

Lawson #: 1400800 Standard  
Lawson #: 171359 Bariatric

**10) Wilson Frame Prone View for Trauma or Trach Patients**



Tips

- 1) For trauma and trach patients
- 2) Helps with c spine stabilization
- 3) Prone view good for patients with a trach

Lawson #: 138165 Wilson Frame  
Lawson #: 21314 Prone View Cushion  
Lawson #: 171715 Prone View Adjustable Helmet

**11) Foams and Lawson #**

Allewyn Gentle Border Multisite	148983
Allewyn 2x4 bordered foam	207162
Allewyn 4x4 bordered foam	40334
Allewyn 6x6 bordered foam	207164
Meplex 5x6 Border Flex Oval	171358
Meplex 2x5 bordered foam	207162
Meplex 4x4 bordered foam	20703

Tips

- 1) Foam sizes can vary on patient needs
- 2) Place foams according to diagram below
- 3) Assess additional pressure points and place foams as needed

More foams or padding should be placed on any additional pressure points

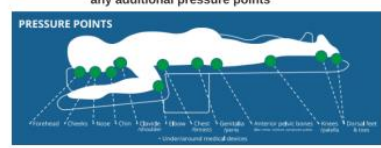


Diagram showing pressure points on a prone patient: Occipital, Crown, Neck, Clav, Scapula, Elbow, Wrist, Forearm, Ankle, Heel, Sacrum, Coccyx, Peroneal, Ankle.



## Poll Question 3:

### Why do we use checklists in healthcare?

- To avoid human error due to memory lapses during complex tasks
- So untrained caregivers can help with the process
- To improve teamwork
- To ensure the entire team is on the same page

# Checklist

## 5 STEP ICU VENTED PRONE POSITIONING CHECKLIST

### Initial Set-up

- Identify patient as potential proning candidate.
- Discuss potential contraindications with critical care physician
- Confirm that the patient has bowel regimen order placed with intubation
- If patient has a femoral line, attempt replacement for a more accessible line in the proning position
- Obtain required physician's order for prone positioning.
  - 1) Must include frequency and duration.

### Prepare for Prone Positioning

#### IMMEDIATELY PRIOR

- Explain procedure to patient/family
- Gather equipment
  - 1) Appropriate bed (and accessories as needed)
  - 2) Foam dressings
  - 3) 2nd sling and chux pad
  - 4) Fluidized repositioners / A wedges / pillows / 2 reposition slings or 2 sheets
  - 5) EKG lead stickers
  - 6) (add equipment list with all items)
- Hold tube feeds for one hour prior to proning and empty drains
- Bathe the patient with CHG wipes
- Remove ETT securement device and change to tape, ensure ETT is secure (double tape if necessary)
- Remove the Foley securement device
- Empty ileostomy, colostomy and Foley bags
- Ensure that a one piece ostomy bag is in place
- Perform oral and ETT suction and ensure inline suction remains in place.
- Ensure all lines are secure
  - 1) Ensure adequate analgesia, sedation, and paralytic as ordered.
  - 2) Pause and disconnect non-essential medications.

- Apply foam dressings over all pressure points and sensitive skin areas (anterior shoulders, breasts/areolas, anterior hips, knees, top of feet, etc.)
- Form plan for post-prone positioning and support of head, extremities, hips, legs, etc.
- Assemble team and delegate responsibilities
- Minimum of 3 individuals (RT, primary RN, RN or CCT), may need more depending on lift availability / patient requirements.
  - 1) Identify team leader (bedside or charge RN) to direct the proning process.
  - 2) Must have a dedicated person (RT) to manage the airway at head of bed.
  - 3) Ensure RT holds ETT close to patient's mouth.
  - 4) Place appropriate number of staff members per side to assist with positioning and turning.
  - 5) Prefer that MD present on unit to assist with emergencies
- Ensure all lines/tubes have a dedicated person monitoring throughout turn.
- Review plan (direction of turn, post-turn positioning, concerns, etc.) with team.
- Connect sling to lift and prepare new sling/chux to roll under patient.
- Remove EKG leads and BP cuff/cable. Leave O2 probe on if able. ART line cables should remain connected at all times.
- Begin actual prone process.

### Evaluate patient

- Assess patient and response to therapy

#### Head

- Soft silicone multi-layered foam prophylactic dressings placed appropriately on pressure points on face.
- Thin foam dressings applied under medical devices.
- Offload head
- Maintain eye care

#### Torso

- Airway patency and vent synchrony.
- Place EKG leads on back while proning.
- Ensure prophylactic foam dressings applied to pressure points.
- Ensure central lines, arterial lines and cannulas are secured
- Ensure that there are no unsecured devices under the torso.

# Checklist

	<b>Legs</b>
	<input type="checkbox"/> Ensure prophylactic foam dressings to pressure points applied.
	<input type="checkbox"/> Ensure that there are no unsecured devices under legs.
	<input type="checkbox"/> Ensure natural body alignment and appropriate support with wedges/pillows, feet are positioned in proper ankle flexion, swimmers position (legs slightly spread apart)
	<input type="checkbox"/> Reconnect all monitoring devices (EKG leads, pulse ox, BP cuff, etc.) and ensure adequate stable values.
	<input type="checkbox"/> Reconnect any remaining lines disconnected for turn.
	<input type="checkbox"/> Complete visual assessment at bedside with team and decide if any additional needs are present.
<b>Step 4</b>	<b>Monitoring Patient</b>
	<input type="checkbox"/> Patient's tolerance to turning
	<input type="checkbox"/> Reposition head hourly while prone to prevent skin breakdown - be sure that the IJ is positioned to prevent lack of breathability
	<input type="checkbox"/> Reposition arms every 2 hours
	<input type="checkbox"/> Assess skin for breakdown
	<input type="checkbox"/> Assess central line dressing (IJ, PICC, SC, femoral) with every repositioning. Change dressing if it is not clean, dry or intact.
	<input type="checkbox"/> Assess need for central lines daily
	<input type="checkbox"/> Perform oral care frequently and suction oral secretions
	<input type="checkbox"/> Maintain tube feeding as needed
	<input type="checkbox"/> Perform pericare at least twice daily and as needed
	<input type="checkbox"/> Change foam dressings PRN
<b>Step 5</b>	<b>Returning to supine</b>
	<input type="checkbox"/> Change saturated dressings - specifically central line dressings
	<input type="checkbox"/> Assess need for IJ
	<input type="checkbox"/> Bathe patient with CHG wipes
	<input type="checkbox"/> Assess need for Foley after final supine - then refer to straight cath protocol for patients who are retaining following Foley removal





## Pros and Cons of Ceiling versus Mobile Lifts for Proning

Proning with lift technology using 2 reposition slings is the recommendation of the Proning Grant Project Team. Ceiling lifts are Tier 1 and most ideal while Mobile lifts are Tier 2. Manual methods using a friction reducing devices (FRDs) like the Pink Slip is Tier 3. The Pink Slip FRD is preferred to the Tortoise Proning Pad and Comfort Glide. Below are considerations for the Tier 1 and 2 methods.

	Ceiling Lifts	Mobile Lifts
Virtually eliminates friction to skin with 2 repo slings and Pink Slip	Yes	Yes
# Associates Needed to Prone	3-4	3-4
Ideal for all patient weights	Up to lift's weight capacity (usually 550 or 1,100 lbs)	Do not exceed lift's weight capacity (Golvo- 440lb & Viking 660lbs, 75% of capacity is ideal thus 330lb and 495lb)
Requires battery charging	Most have continuous charge rails.	Must be plugged in when not in use.
Easy to access	Readily available with no adjustment	Must find and ensure there is room for the lift and ensure bed is high enough to allow lift to fit under bed.
Ease of maintaining center of gravity of patient when using lift.	Self-Centers Patient	Does not center-keep wheels unlocked and position lift on the side opposite the turn.
Infection Prevention	Terminal Clean Required	Care-site cleaning protocol should be followed when lift leaves the patient room. It is ideal to leave in the room if possible.



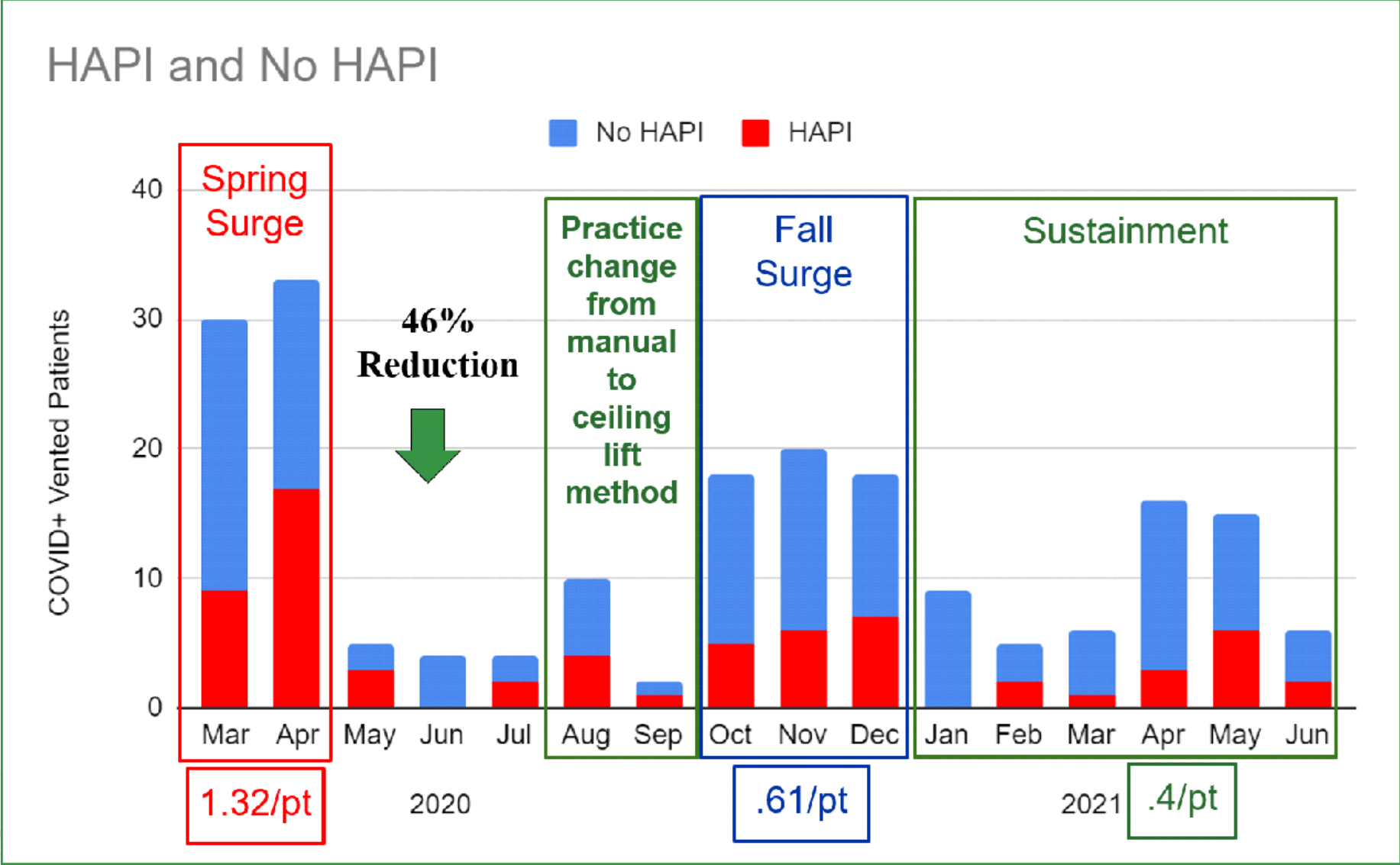
# Clinical Outcomes - Saint Joseph Hospital

**Process Improvement Study:** 365 bed teaching hospital with 100% inpatient ceiling lift coverage

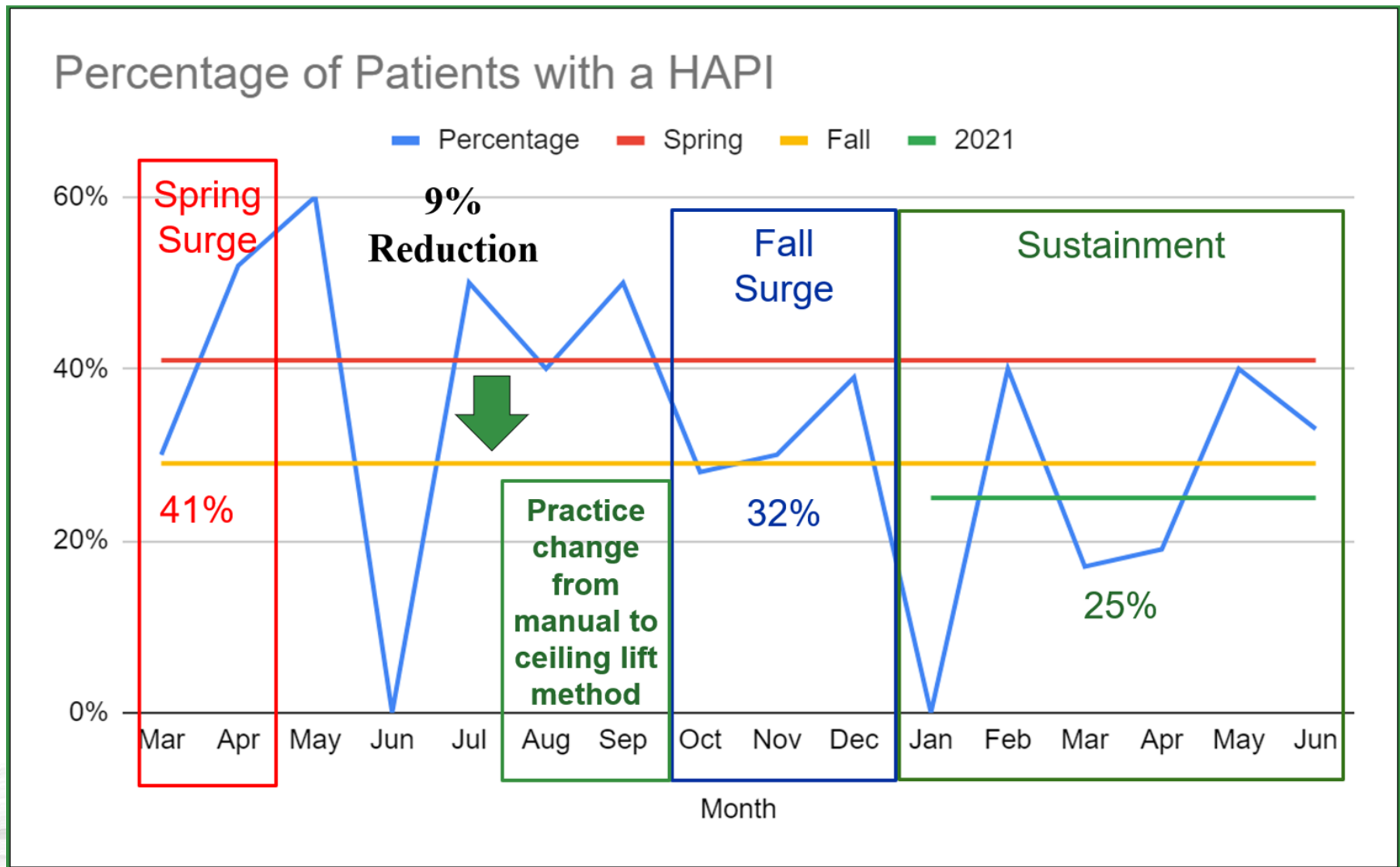
- Surge 1 (Mar/Apr) - Majority manual method with FRD's
  - July-Sept - System Grant Process Improvement Work
  - Aug-Sept - Educated in Ceiling Lift Method
- Surge 2 (Oct-Dec 2020) & Sustaining (Jan-June 2021) - Majority ceiling lift method
  - Outcomes measured by extraction from Epic
- Continued Monitoring
  - Measures show continued improvement with reduction in HAPI and decreased CAUTI at sites deploying new tactics.

# COVID-19 Vented Patients

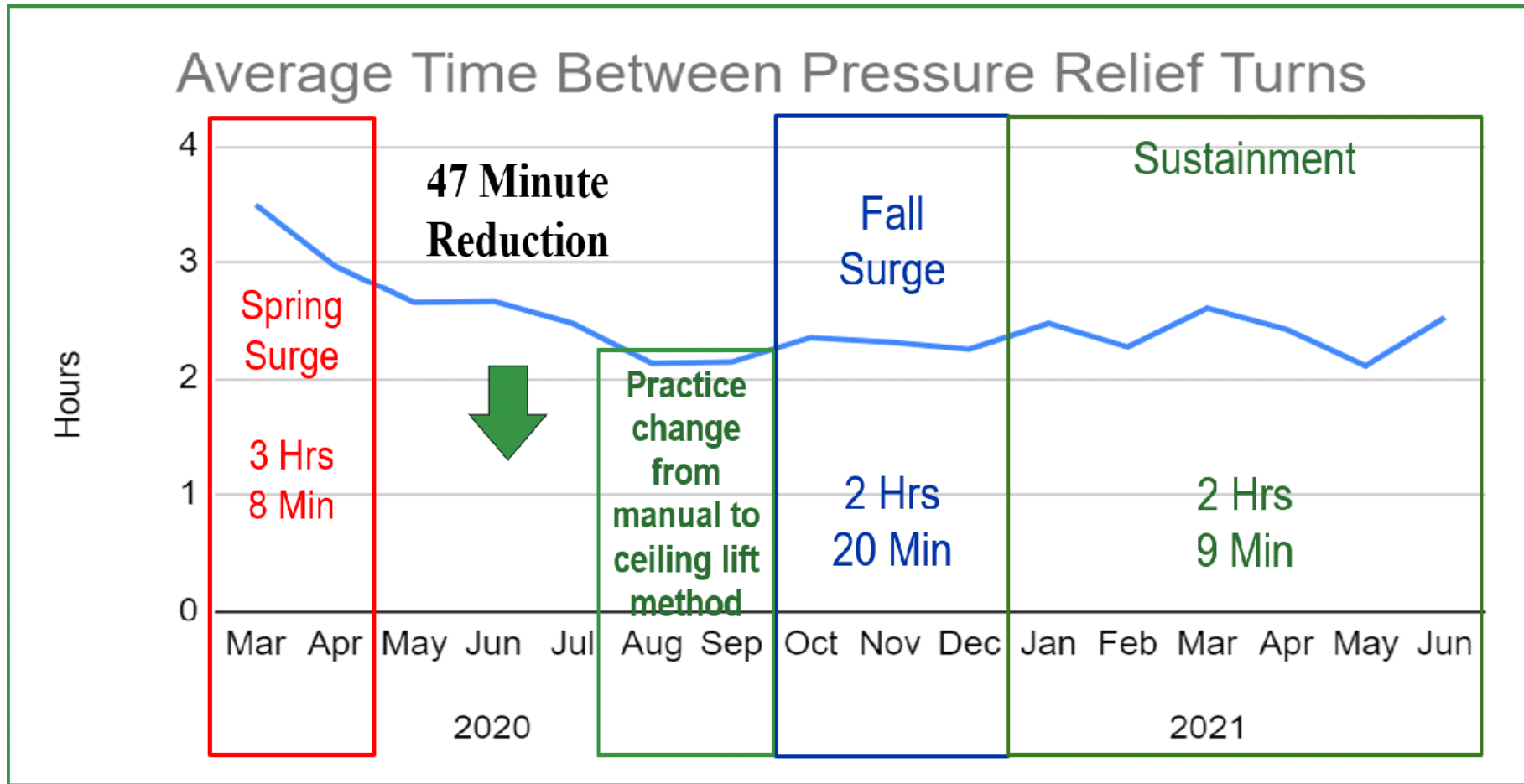
HAPI – Hospital Acquired Pressure Injury



# Patients with One or More HAPIs



# 25% Increase in Position Changes



# HAPI Rates Continue to Decline in Sustainment

Summary of HAPI Rate Reduction (# HAPI's per Vented Patient with Covid)				
HAPI Rate	Spring	Fall	Sustain	Reduction
Facial HAPI's	.83	.27	.16	80%
All HAPI's	1.32	.61	.4	70%



# Clinical Outcomes - Saint Joseph Hospital

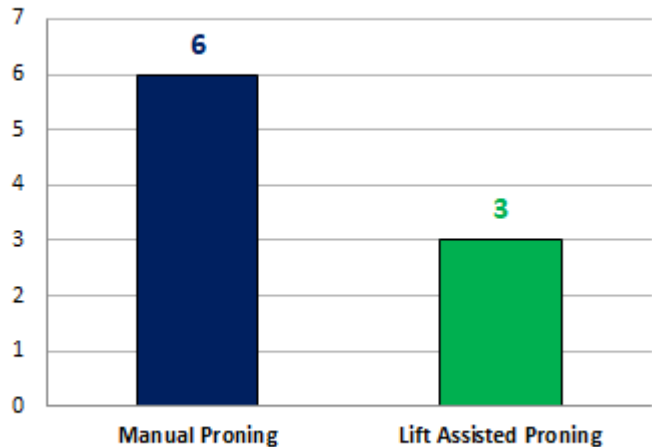
**Did HAPI decrease occur due to other factors?**

Measure	Spring 2020 Surge	Fall/Winter 2020 Surge	Sustaining (Jan-June 2021)
ICU Mortality (Acuity)	27%	52%	31%
Average ICU Length of Stay	337 Hours	365 Hours	383 Hours

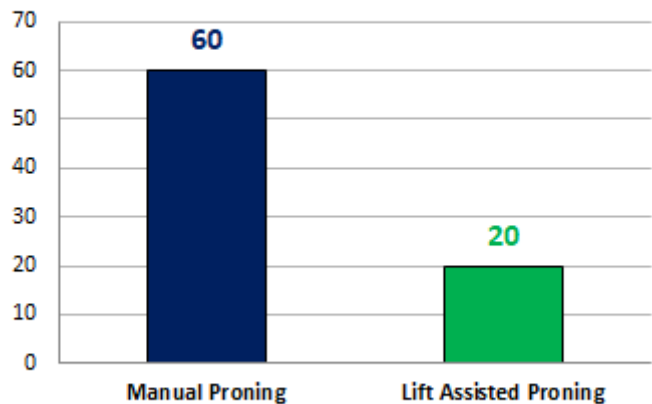
**Most likely factor in HAPI reduction was due to proning method change.**

# Good Samaritan Time and Staffing Study

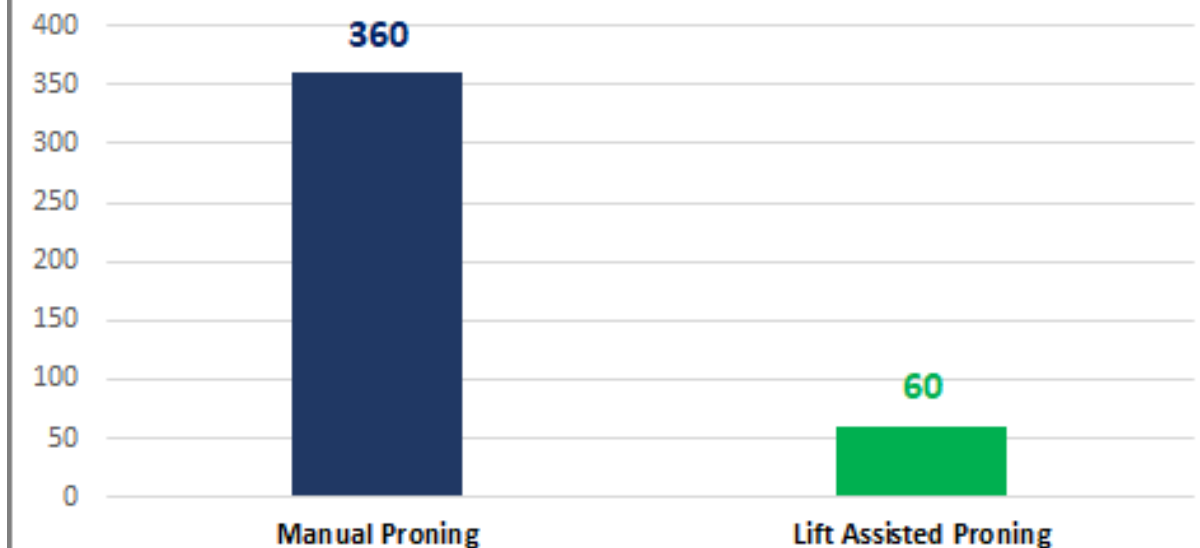
# of Staff to Prone Reduced by 50%



Minutes to Prone Per Patient Reduced by 66%



Total ICU Minutes to Prone Per Patient Reduced by 83%



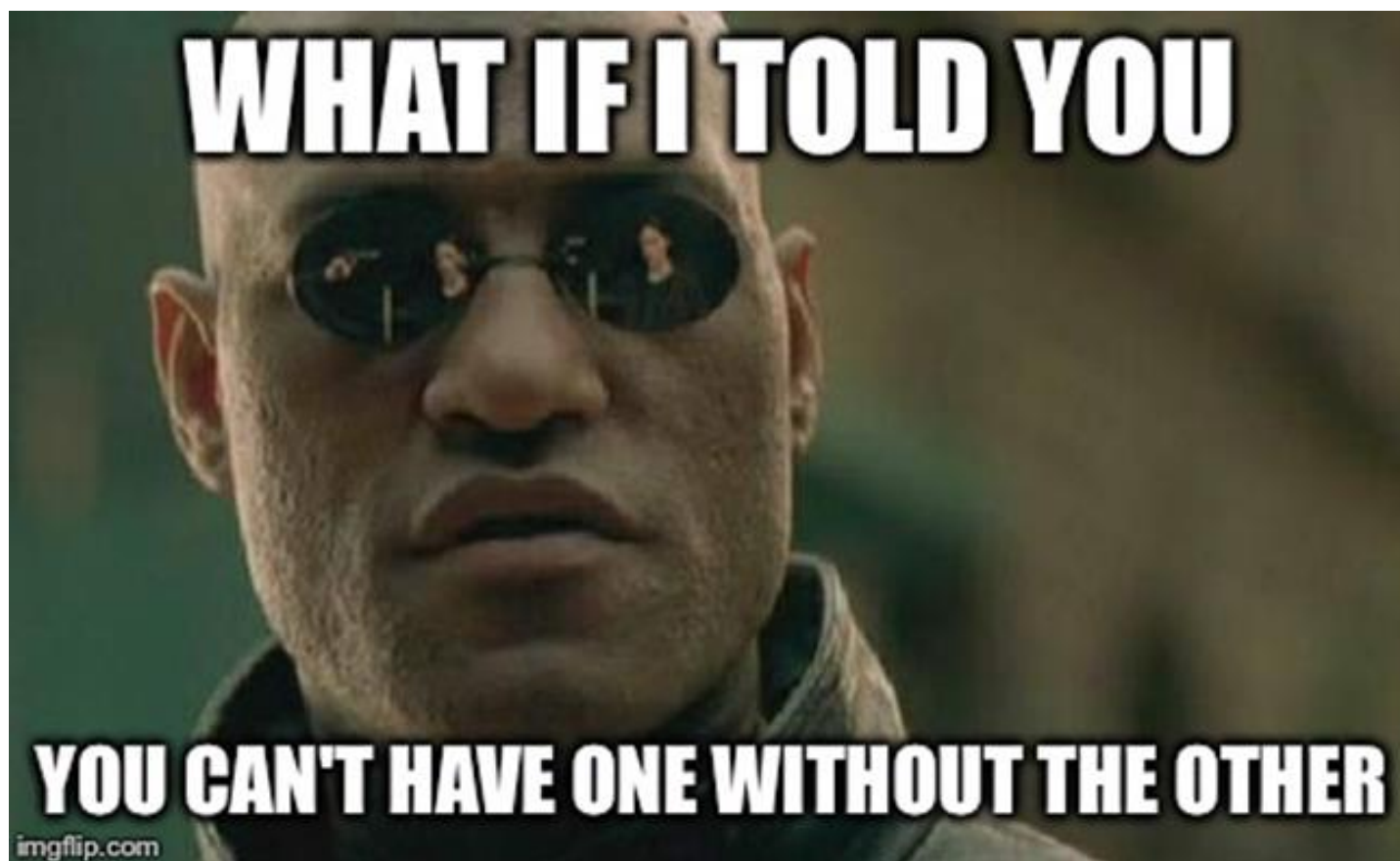
# Implications for Safe Patient Handling & Mobility

## Linking Staff & Patient Outcomes with SPHM Technology

- Use of SPHM technology reduces pressure injury and employee overexertion
- Use of Mobile or Ceiling Lifts reduces # of staff and PPE usage
- Research focusing on use of safe patient handling technology to prevent patient and employee injury is needed.

**Proning with SPHM Technology has shown to be an excellent example of the interdependence of patient and employee safety.**

# One Safety







## Poll Question 4:

**How are you performing your CHG bathing on your prone patients?**

- Full bath when in supine position
- Full bath when in prone position
- Partial bath when in prone and partial bath when in supine position
- Varied practice

# Discussion of Next Steps

- Proning documentation enhanced using accordion reports to centralize needed data
- Extra mobile lifts to ICU's without ceiling lifts
- Live simulation training at sites not using Tier 1 process by system experts after vaccination
- Encourage co-horting COVID-19 ICU's in locations with ceiling lifts or with room for mobile lifts
- Ongoing data analysis for both patient handling injury and skin/tissue injury
- Continuous process improvement including IP enhancements

# Continuous Improvement



ETT Securement in Prone



Bathing in Prone and Supine



Technology to Improve Patient & Caregiver Safety

# Special Thanks

## The SCL Health Proning Grant Team

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<b>Sandra Vannice, DNP, RN, CNS, AOCN</b>	Evidence-based Practice Specialist, Saint Joseph Hospital, Denver Colorado

- The Good Samaritan Medical Center ICU for leading the way in standardizing proning practice with ceiling lifts in the Spring surge
- The Saint Joseph Hospital ICU for changing practice, sustaining the change and measuring patient outcomes



# Thanks to All of You!





# Any Questions



# Contact Information



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# References

## References:

AON, (2018). Health Care Workers Compensation Barometer. <https://www.aon.com/getmedia/4748a551-9c85-4ae4-b916-2badba48298c/Health-Care-Workers-Comp-Barometer-2018-Executive-Summary.aspx>

Bamford, P., Denmade, C., Newmarch, C., Shirley, P., Singer, B., Webb, S., & Whitmore, DI. (2019). Guidance for: Prone positioning in adult critical care. Intensive Care Society. [https://www.ficm.ac.uk/sites/default/files/prone\\_position\\_in\\_adult\\_critical\\_care\\_2019.pdf](https://www.ficm.ac.uk/sites/default/files/prone_position_in_adult_critical_care_2019.pdf)

Gomaa, A., Tapp, L., Luckhaupt, S., Vanoli, K., Sarmiento, R., Raudabaugh, W., Nowlin, S., & Sprigg, S. (2015). Occupational traumatic injuries among workers in health care facilities - United States, 2012-2014. *MMWR. Morbidity and mortality weekly report*, 64(15), 405–410.

Guerin, C., Reignier, J., Richard, J.-C., Beuret, P., Gacouin, A., Boulain, T., ...Ayzac, L. (2013). Prone positioning in severe acute respiratory distress syndrome. *The New England Journal of Medicine*, 368(23), pp. 2159-2168. <https://doi.org/10.1056/NEJMoa1214103>

Lucchini, A., Bambi, S., Mattiussi, E., Elli, S., Villa, L., Bondi, H., Rona, R., Fumagalli, R., & Foti, G. (2020). Prone position in acute respiratory distress syndrome patients: A retrospective analysis of complications. *Dimensions of Critical Care Nursing*, 39(1), 39-46. <https://doi.org/10.1097/dcc.0000000000000393>

Mitchel, D., & Seckel, M. (2018). Acute respiratory distress syndrome and prone positioning. *AACN Advanced Critical Care*, 29(4), pp. 415-425. <https://doi.org/10.4037/aacnacc2018161>

Munshi, L., Del Sorbo, L., Adhikari, N., Hodgson, C. L., Wunsch, H., Meade, M. O., Uleryk, E., Mancebo, J., Pesenti, A., Ranieri, V. M., & Fan, E. (2017). Prone Position for Acute Respiratory Distress Syndrome. A Systematic Review and Meta-Analysis. *Annals of the American Thoracic Society*, 14(Supplement\_4), S280–S288. <https://doi.org/10.1513/AnnalsATS.201704-343OT>

Padula, W. V., & Delarmente, B. A. (2019). The national cost of hospital-acquired pressure injuries in the United States. *International wound journal*, 16(3), 634–640. <https://doi.org/10.1111/iwj.13071>

Wiggerman, N., Zhou, J., Hillrom, & McGann, N. (2020). Effect of repositioning aids and patient weight on biomechanical stresses when repositioning patients in bed. *Human Factors: The Journal of the Human Factors and Ergonomics Society. Advance online publication*. <https://doi.org/10.1177/0018720819895850>



# Mobility Matters



## Thank You!



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