

### Introduction

- Hospital acquired pressure ulcers (HAPU) continue to pose a significant health problem in the US, affecting up to 3 million adults in acute care facilities at a cost of up to \$11 billion annually
- Postoperative pressure ulcer (PPU) rates are as high as 66%
  - PPU incidence in on-pump cardiovascular (CV) patients ranges as high as 50%
- The Braden Score is a well accepted predictor of pressure ulcer risk
  - May not accurately reflect PPU risk
- The Scott Triggers <sup>™</sup> instrument shows great potential as a preoperative predictor of postoperative pressure ulcer development (PPUD)

#### Scott Triggers<sup>TM</sup>

Criteria	Scoring	
Age >62		
Albumin <3.5		
ASA Score ≥3		
Surgical time > 3 hours		Ir
Patients receive I point for each trigger. A score pressure injury.	e of ≥ 2 is at high risk for	
Purpose		
<ul> <li>The purpose of this study was to explore the use</li> </ul>	e of the Scott Triggers™	AS
instrument in predicting PPU risk in on-pump CV	' surgical patients	A
Methods		
<ul> <li>Retrospective exploratory design</li> </ul>		A
<ul> <li>Purposive, convenience sample</li> </ul>		
<ul> <li>Adults &gt; 18 years</li> </ul>		A
<ul> <li>Undergoing an on-pump CV surgical pro</li> </ul>	ocedure	A
<ul> <li>Electronic medical record abstraction of a 1 ve</li> </ul>	ar period of patients undergoing	/ \.

 Electronic medical record abstraction of a 1 year period of patients undergoing surgery with expected inpatient stay

#### **Selected References**

- Coleman, S., Gorecki, C., Nelson, E. A., Closs, S. J., Defloor, T., Halfens, R., . . . Nixon, J. (2013). Patient risk factors for pressure ulcer development: Systematic review. International Journal of Nursing Studies, 50, 974-1003.
- Cox, J. (2012). Predictive power of the Braden Scale for pressure sore risk in adult critical care patients. Journal of Wound, Ostomy & Continence Nursing, 39(6), 1-9.
- He, W. (2012). The Braden scale cannot be used alone for assessing pressure ulcer risk in surgical patients: A meta-analysis. Ostomy Wound Management, 58(2), 34-40.
- Kim, E., Lee, S. M., Lee, E., & Eom, M. R. (2009). Comparison of the predictive validity among pressure ulcer risk assessment scales for surgical ICU patients. [Article]. Australian Journal of Advanced Nursing, 26(4), 87-94.
- NPUAP, EPUAP, & Pan Pacific Pressure Injury Alliance. (2014). Prevention and Treatment of Pressure Ulcers: Clinical Practice Guideline. Perth, Australia: Cambridge Media.

# Exploration of the Scott Triggers<sup>TM</sup> Instrument in Predicting Postoperative Pressure Ulcer Risk in the On-Pump CV Surgery Patient

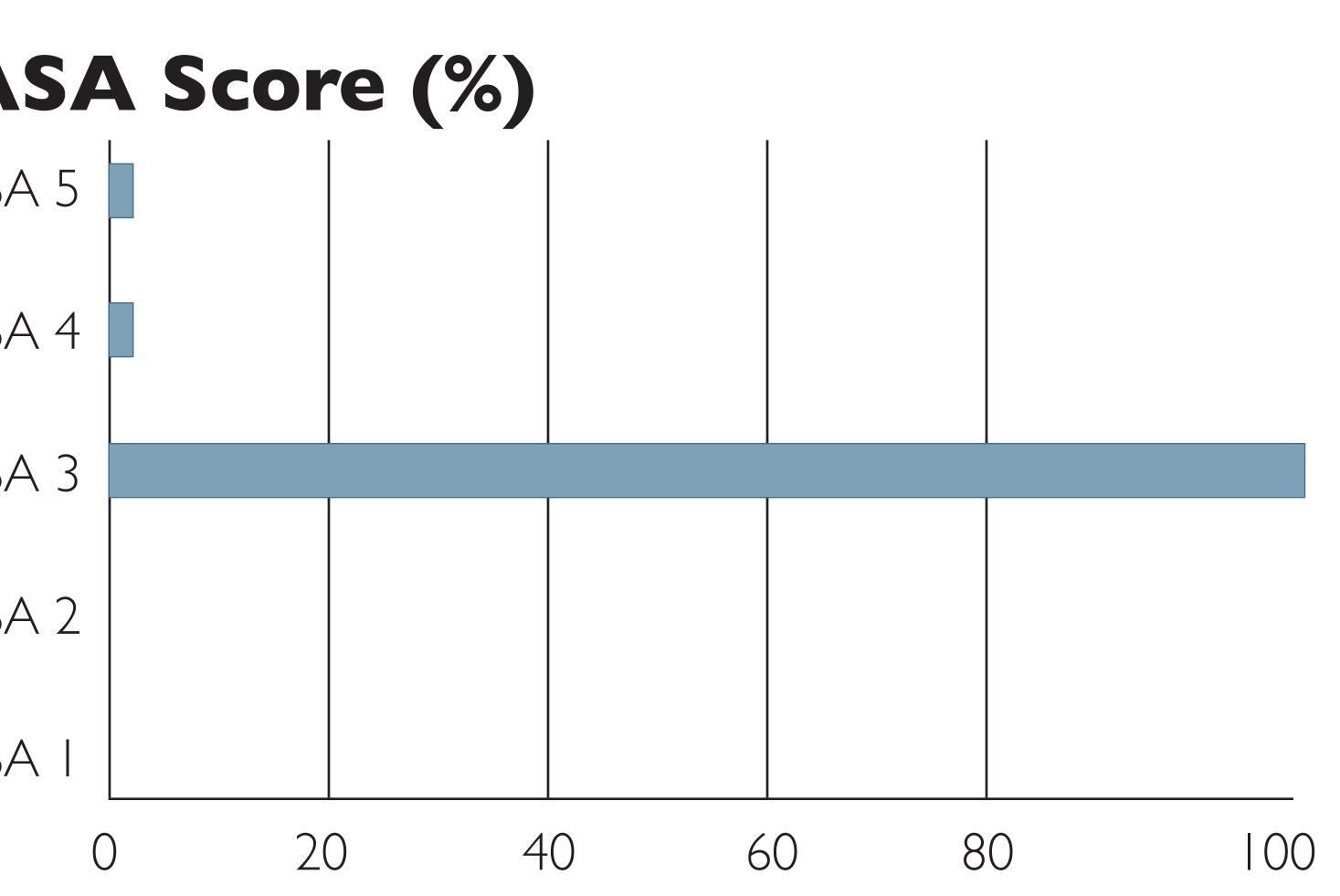
Jeanie Bollinger MSN, RN, ACCNS-AG, CCRN • Cheryl S. Postlewaite MSN, RN, CWCN Sheri Denslow PhD, MPH • Vallire Hooper PhD, RN, CPAN, FAAN Mission Health • Asheville, NC

#### Results

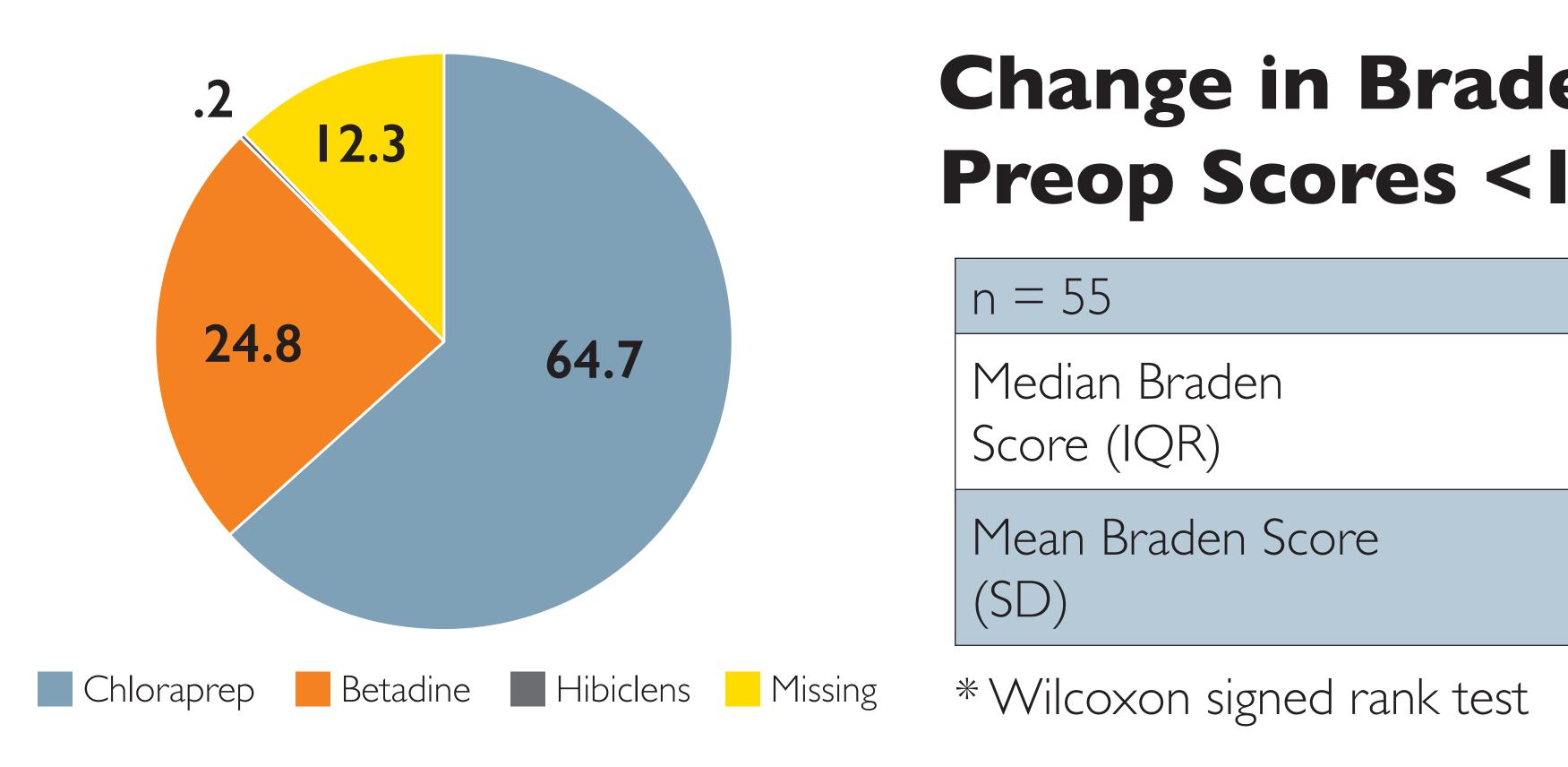
#### **Selected Demographics**

6	7	5

492 (72.9%)
183 (27.1%)
569 (84.3%)
5 (0.7%)
6 (0.8%)
95 (14.1%)
68 (+/- 12)
29 (+/-6)
319 min (+/- 106)
317 (47%)
358 (53%)
2.7 +/.05
0%

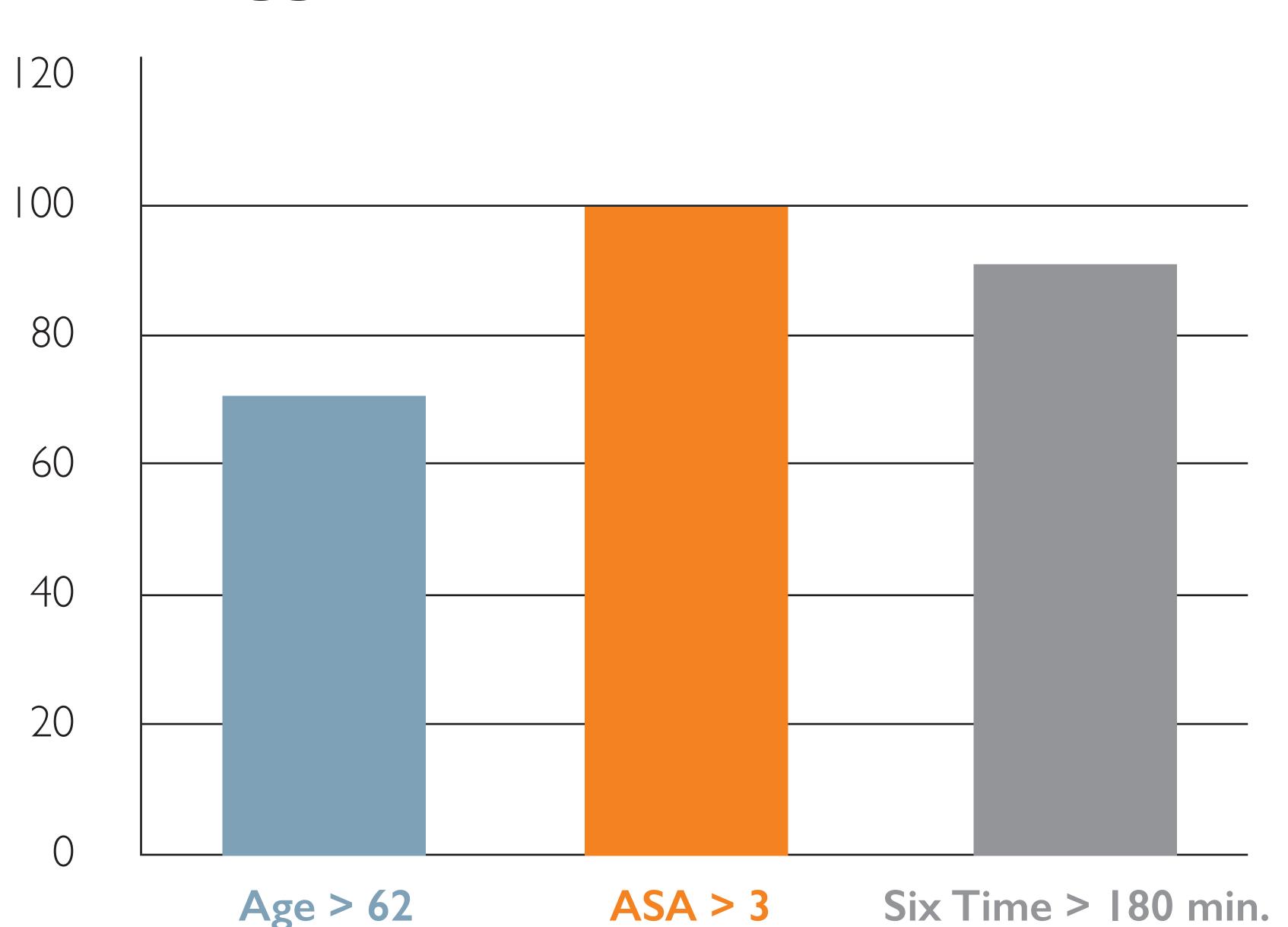


#### Skin Prep (%)



#### **Pressure Risk Scores**

Mean Preop Braden Mean Postop Braden Mean Scott Triggers TM



#### **Change in Braden Score Pre to Post**

n = 403	Preoperative	Postoperative	Change	p-value*
Median Braden Score (IQR)	20 (2)	13 (3)	-7 (4)	< 0.0
Mean Braden Score (SD)	20 (2)	14 (2)	-6 (3)	

\* Wilcoxon signed rank test

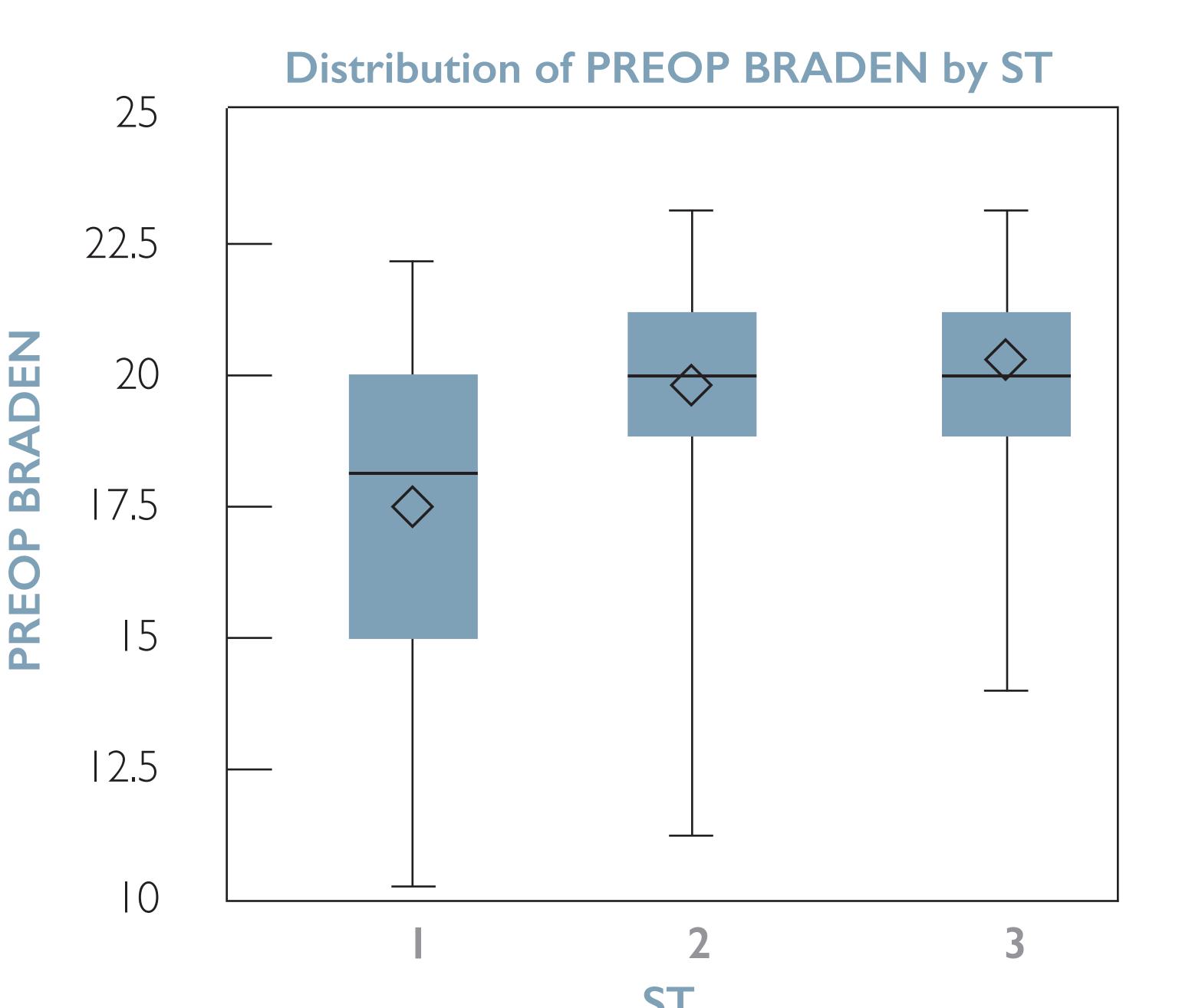
#### Change in Braden Score Pre to Post with **Preop Scores < 18**

n = 55	Preoperative	Postoperative	Change	p-value*
Median Braden Score (IQR)	17 (3)	13 (3)	-3 (5)	<0.0
Mean Braden Score (SD)	16 (2)	13 (2)	-3 (3)	

20 +/- 2
14 +/- 2
2.7 +/- 0.5*
* Albumin levels unavailable

#### Scott Triggers <sup>TM</sup> Predictor Breakdown

### **Distribution of Scott Triggers<sup>TM</sup>** to Pre-op Braden



## **Regression Analysis to Identify Factors Associated With Braden Score Change**

	Univariate Analysis (95% CI)	pvalue	Multivariate Analysis (95% CI)	p-value	
Age, 10 y increments	0.1 (-0.1, 0.4)	0.37	0 (-0.2, 0.2)	0.94	
Sex					
Male	REF	_	REF		
Female	-0.3 (-1.0, 0.3)	0.31	-0.4 (-0.9, 0.2)	0.18	
BMI, 5 unit increments	0.2 (0, 0.4)	0.13	0.2 (0, 0.4)	0.05	
Surgery room time, 10 min increments	0 (-0.1,0)	0.06	0 (0, 0)	0.27	
Braden score pre-op	-0.8 (-1.0, -0.7)	< 0.0	-0.8 (-1.0, -0.7)	< 0.0	
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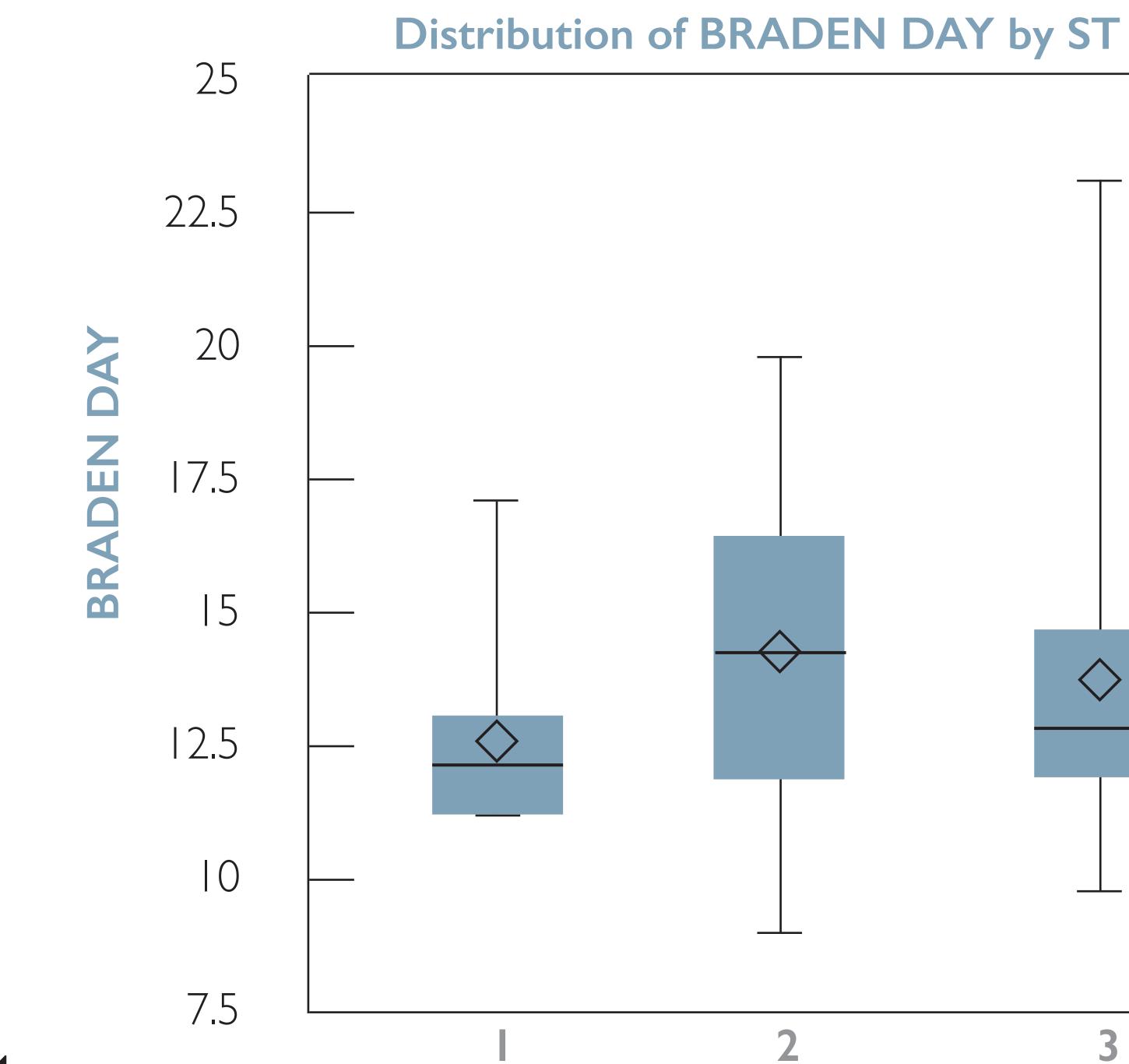
Multivariable analysis adjusts for age, sex, BMI, surgery room time, and preop Braden score

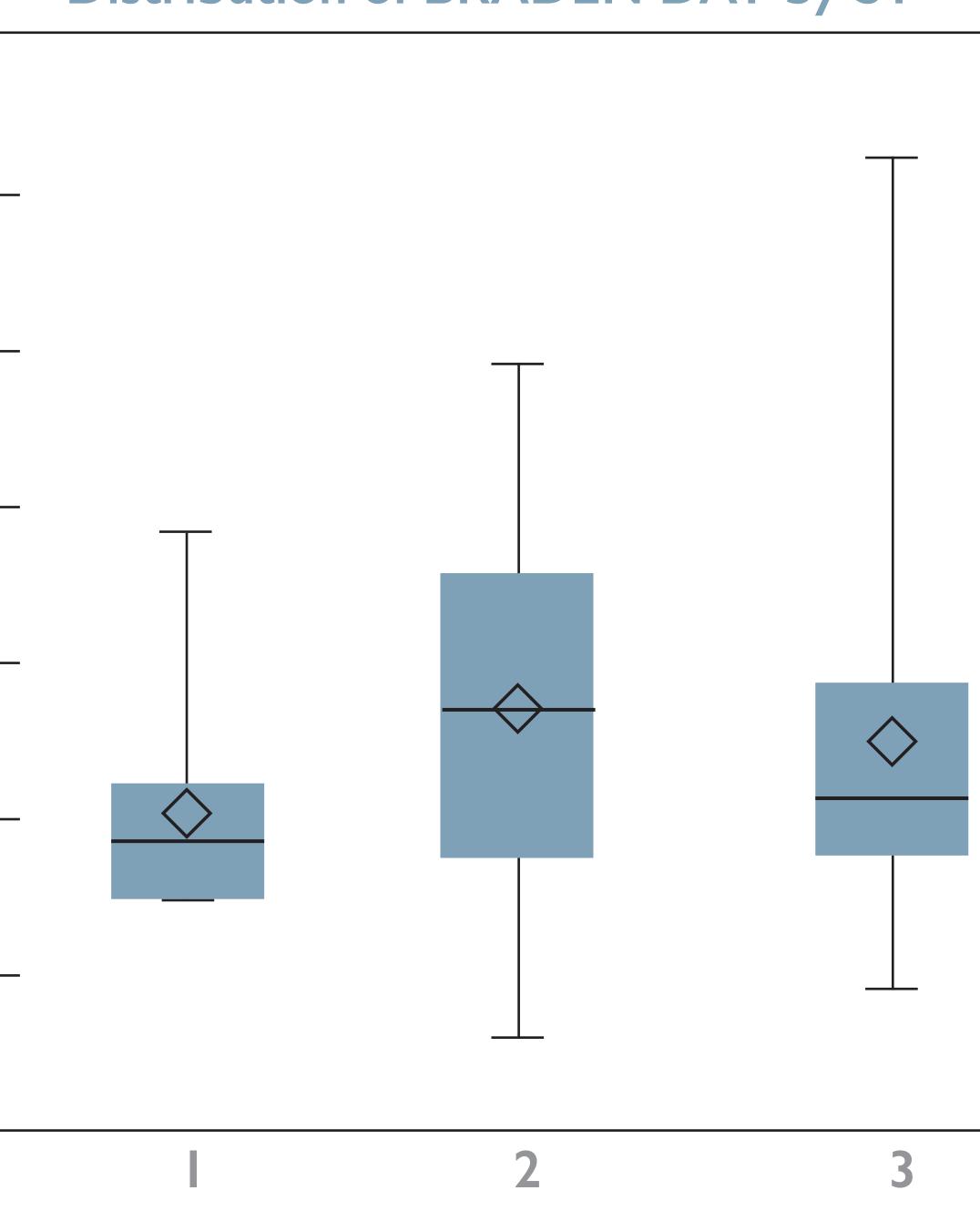
#### Conclusion

- Scott Triggers<sup>™</sup> more readily identifies preoperative risk of PPU development in the on-pump CV surgery patient as compared to the preoperative Braden Score
- All on-pump CV surgery patients appear to be at risk for PPU development



#### **Distribution of Scott Triggers<sup>TM</sup>** to First Post-op Braden





#### Recomendations

- Pre and intraoperative precautions should be taken in **all** on-pump CV surgery patients to reduce the risk of PPU development
- Albumin is not a standard preoperative lab for this patient population
  - Further research is needed to examine if factors other than albumin should be included in the Scott Triggers<sup>™</sup> instrument

#### Acknowlegements

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