

Sacral Pressure Injury Prevention in the Vascular Surgery Population

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Purpose

To reduce OR (operating room) related sacral/buttocks HAPIs (hospital acquired pressure injuries) in the vascular surgery population.

Introduction

Previous facility OR standard for prevention of HAPI's in patients undergoing vascular surgery for bypass graft, and AAA (Abdominal Aortic Aneurysm) repair included:

- Applying a sacral silicone bordered foam dressing for surgeries ≥ 2 hours
- Utilizing a 2" memory foam mattress

Despite these prevention measures, there were 3 cases (June 2019-July 2019) of sacral and/or buttocks DTPI (Deep Tissue Pressure Injuries). All three patients had the below averages:

- Age 72
- BMI 26
- Surgery Time 9.8 hours

Method

The Focus>Plan>Do>Study>Act (PDSA) performance improvement model was used to plan for change. Use of an air-inflated static seat cushion (ASSC) under the sacral/buttocks was the outcome, to promote better pressure redistribution.

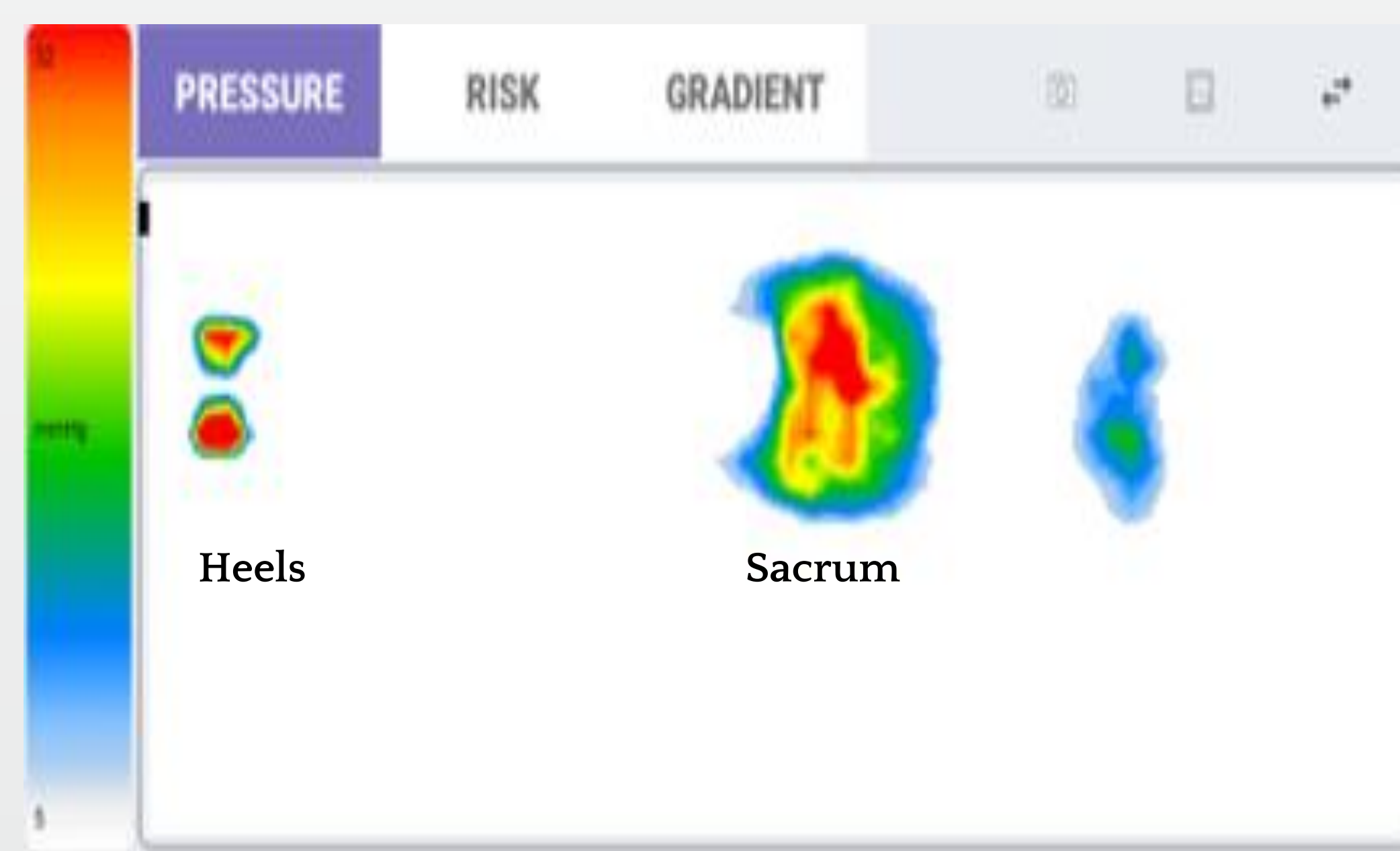


Air-Inflated Static Seat Cushion (ASSC)

Plan

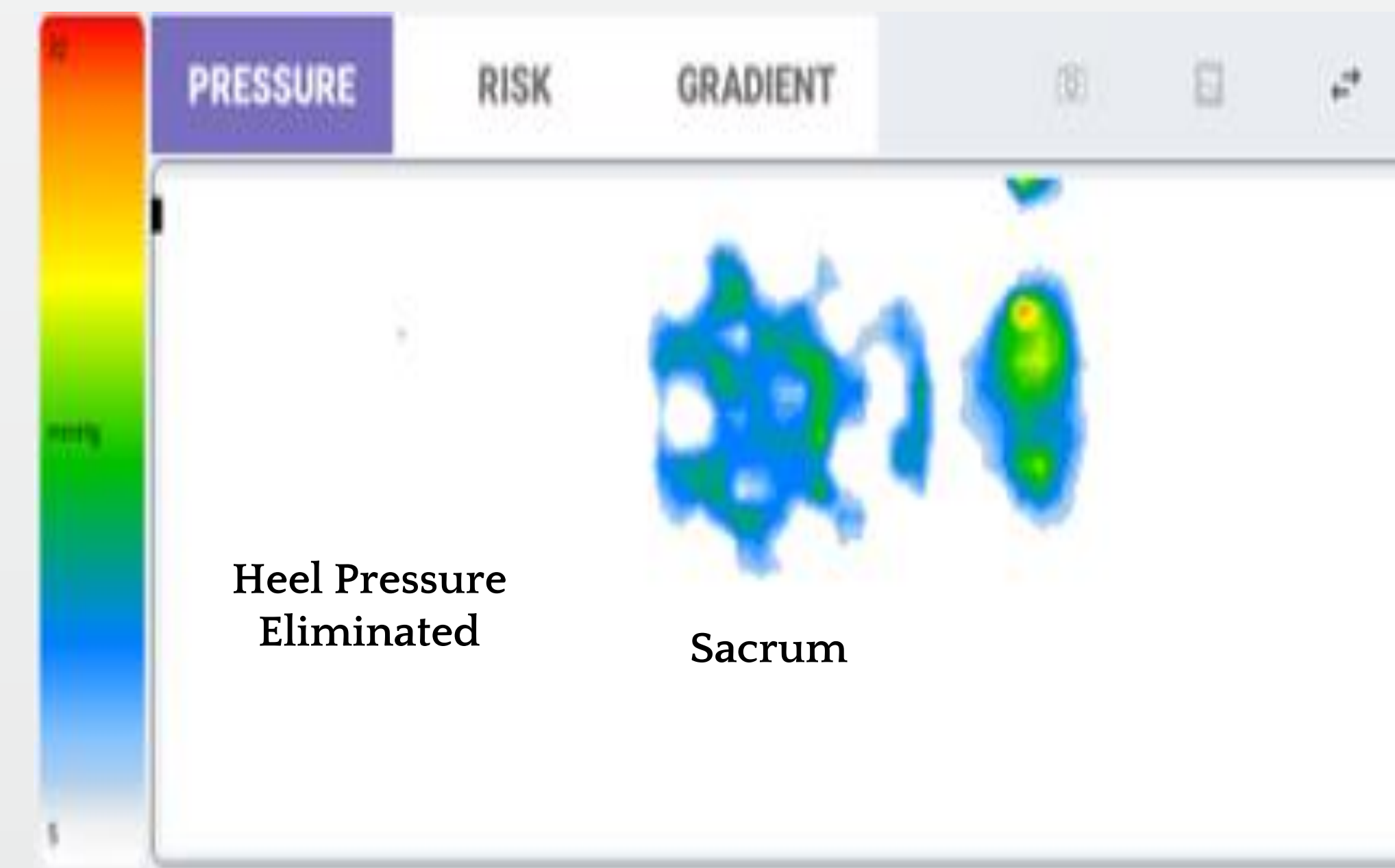
- Root cause analysis: was performed on the 3 vascular surgery HAPI cases.
- Literature Review: Health care costs related to HAPIs are estimated to be between \$44,000 and \$128,000 per pressure injury, with 11.2% in-hospital mortality rate.^{2,3,5} Studies suggest the use of an ASSC had the best pressure redistribution properties for sacral/buttocks pressure injury prevention.^{1,4}
- Pressure Mapping: was completed on a healthy subject on a vascular OR table. Results showed better pressure redistribution to the sacrum/buttocks with use of an air-inflated static seat cushion.

OR Table Supine Without Air-Inflated Static Seat Cushion



Red= High Pressure

OR Table Supine With 17"x17" Air-Inflated Static Seat Cushion



Blue/Green= Low Pressure

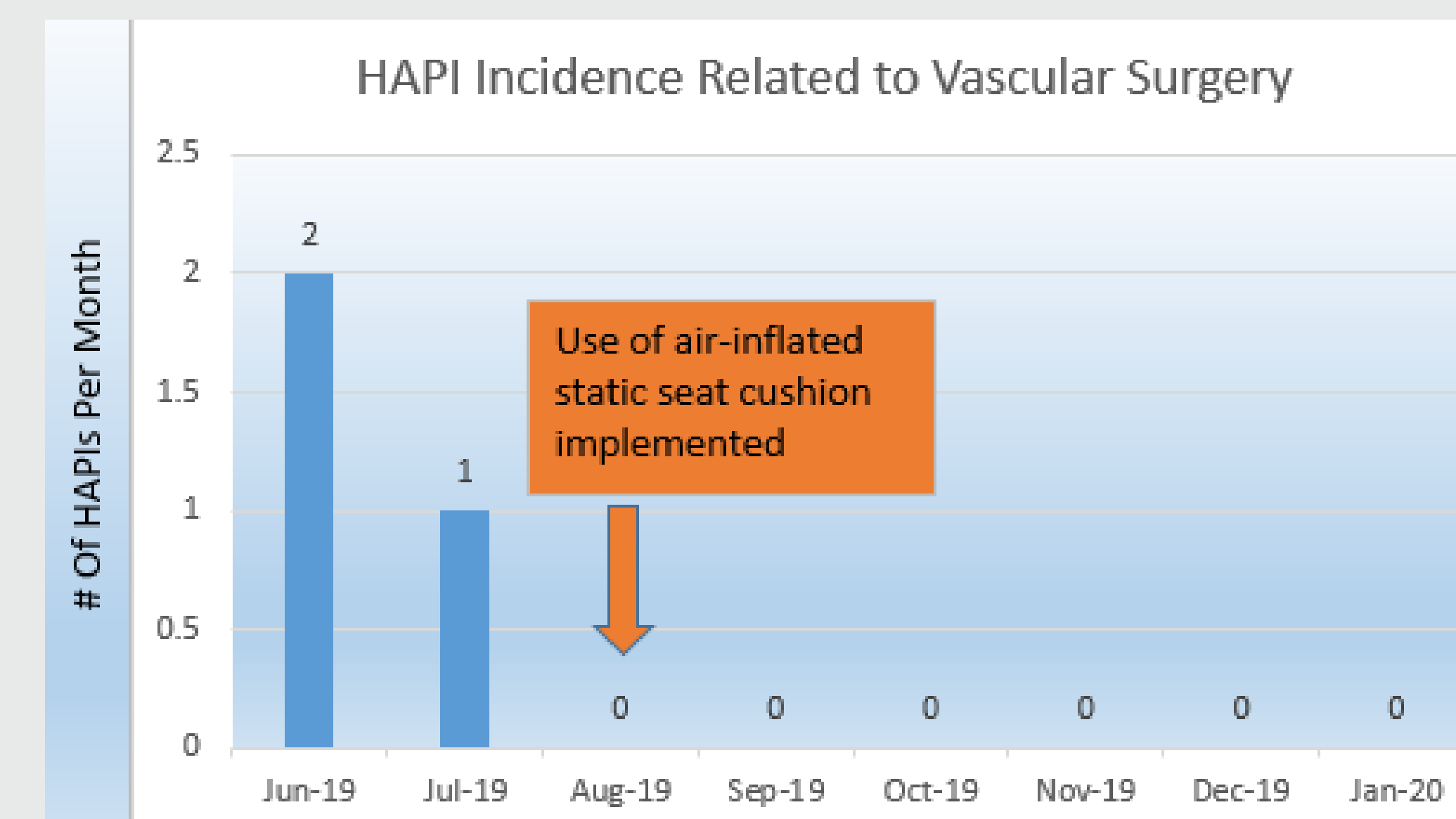
- Providing Staff Education: In addition to the use of a sacral silicone bordered foam dressing, a ASSC will be placed under the sacral/buttocks area for all vascular surgery cases, regardless of table time.

Do>Study

- Conducting a Trial- from August 2019 to January 2020, 15 patients who underwent vascular surgery for bypass graft, or AAA repair had an air-inflated static seat cushion under their sacrum/buttocks during surgery.
- Data- collected data included if a HAPI occurred within 7 days post-op vascular surgery, including the day of surgery.

Results

Of the 15 patients in the study, 12 had bypass grafts, and 3 had AAA repair. The average surgery time was 4.8 hours. Zero patients developed a HAPI within 7 days post-op vascular surgery, including the day of surgery.



Act

Use of an ASSC under the sacrum/buttocks area for all vascular and general surgery patients was approved by the OR management team and by our value analysis committee. Patients that will be excluded from this practice are lithotomy and robotics, due to table type and patient positioning. Roll out of this new practice will be completed in Q1 2020.

Conclusion

Sacral/buttocks pressure in the vascular surgery population was significantly reduced with use of an Air-inflated static seat cushion. During the trial it was noted that a 28"x22" ASSC provided better sacral/buttocks and lumbar support for our patient population vs. a 17"x17" ASSC. Furthermore, the ASSC is cost-effective and easy to use.⁶ Due to the success of this trial, we plan to expand the use of this preventative intervention to the cardiac surgery population.

References

1. Association of perioperative Registered Nurses. (2020). Pressure-reducing surfaces. In A. Wood (Ed.) Guidelines for perioperative practice (2020, pp. 646-650). Denver, CO; Association of perioperative Registered Nurse.
2. Brem H, Maggi J, Nierman D, et al. High cost of stage IV pressure ulcers. *Am J Surg*. 2010;200(4):473-477.
3. Chan B, Ieraci L, Mitsakakis N, Pham B, Krahn M. Net costs of hospital-acquired and Pre-admission PUs among older people hospitalized in Ontario. *J Wound Care*. 2013;22(7):341-342. 344-346.
4. Kirkland-Walsh H, Teleten O, Wilson M, Raingruber B. Pressure Mapping Comparison of Four OR Surfaces. *AORN J*. 2015;102(1):61-69.
5. Lyder CH, Wang Y, Metersky M, et al. Hospital-acquired pressure ulcers: results from the National Medicare Patient Safety Monitoring System study. *J Am Geriatric Soc*. 2012;60(9):1603-1608.
6. Qaseem A, Mir T, Starkey M, Denberg T. Risk Assessment and Prevention of Pressure Ulcers: A Clinical Practice Guideline From the American College of Physicians. *Ann Intern Med*. 2015;162:359-369.