Enhanced Recovery Program Adoption, Variance Reduction in an Anesthesia Practice with Use of Evidence Based Elements

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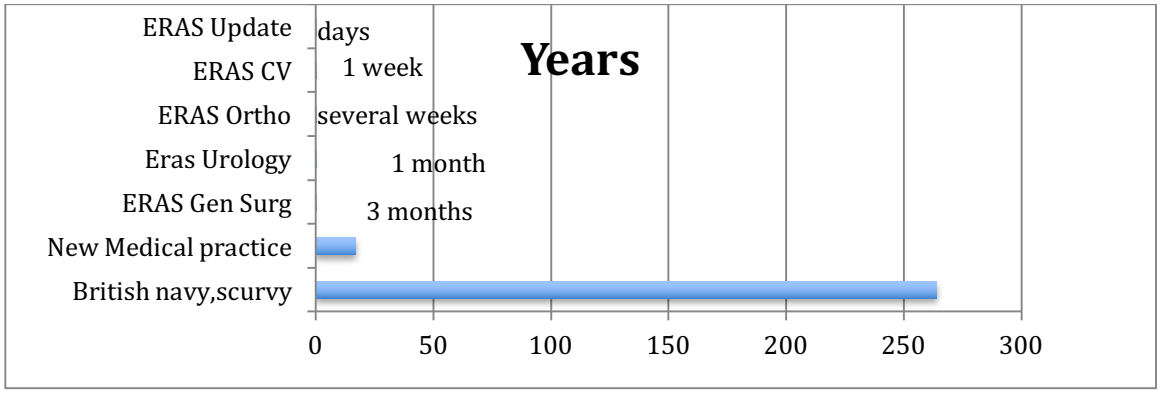
Introduction: Beginning an enhanced recovery (ER) program utilizing a focused small team[1] achieved a marked reduction in anesthesia practice variance. An additional observation was that adoption of evidence-based elements followed the usual pattern of change adoption with early and late adopters. The acceleration of adoption with each iteration mimics incorporation of change in medicine in general with a more compressed time-line in our setting consistent with a single practice location.[2,3] Introduction of subsequent pathways for newer service lines followed an accelerating adoption curve. More rapid variance reduction in practice and adoption of evidence-based elements moved from months to days. Reductions in fluid management variance, increased use of regional anesthesia along with other elements in a multimodal pain management scheme were incorporated into an algorithm resulting in dramatic improvement during the first pathway launch. Goals of hydration up to two hours prior to surgery and carbohydrate loading were achieved through order sets. Ambulation and diet advancement parameters required education outside the anesthesia department to gain compliance. An overall theme of stress reduction for the patient linked all elements and new techniques to the ER program, thus allowing easier expansion into other areas of care like nutrition, delirium reduction and organ protection.
Methods: Building on the platform of the first ER pathway unique improvements to each new service line were more easily addressed. As an example, in cardiovascular surgery efforts were targeted at reducing the incidence of postoperative cognitive dysfunction, delirium, and prolonged intubations. This was accomplished through ER implementation, medication changes, and concerted efforts of the ICU staff following education on these complications. Introducing a nutritional component to the ER pathways, focused on major surgery and on the frail patient, impacted the program on several levels. Using a small team as the change agent with backing from the practice leadership reduced the interval between early adopters and holdouts.
Results: Evidence for the change coupled with early positive outcome results squelched the resistance to change. Enthusiasm from surgeons and patients increased the pressure for change. The patients recognized that the team was more interested in their outcome. Patient satisfaction survey results improved. Engaging the patient and the family around what they could do to prepare helped gain compliance. The anesthesiology preadmission clinic addressed the nutrition component relieving the surgeon of this task. All surgical specialists had a very positive response to this element and its implementation.
Conclusions: Several conclusions from this experience in a community hospital private practice setting may be of use to future early adopters.

1) A small, dedicated team is essential. [1]
2) Variance in practice declines rapidly with each iteration of ER in a new service line either through enthusiasm of the surgeons or from results demonstrated in the previous line.
3) Debates around evidence that conflicted with individual elements declined as reproducible results accumulated.
4) Compliance with pathway elements that are essential for variance reduction requires ongoing education.



General surgery introduction to general acceptance (variance reduction): 3 months
Urologic surgery: 1 month, Orthopedic surgery: Several weeks, Cardiovascular surgery: Days
Pathway updates: initiated on the target date picked by the ER team

[1] Chris Trimble, Harvard Business Review March 9, 2016; The Best Way to Improve Health Care Delivery Is with a Small Dedicated Team
[2] Postgrad Med J. 2002 Nov;78(925):695-6. James **Lind's Treatise of the Scurvy (1753)**
[3] https://www.cs.umd.edu/~ben/papers/Gillam2009healthcare.pdf