

Learning New Skills in Practice: How Surgeons Adopt and Implement New Procedures

Shay Seth¹, Carol-anne Moulton², Timothy J. Wood³, Wade Gofton^{1,3}

¹Department of Surgery, University of Ottawa, ²Department of Surgery, University of Toronto, ³ Department of Innovation in Medical Education, University of Ottawa

INTRODUCTION

- Surgeons adapt and change their practices as they learn new skills, techniques and technologies
- Making a change in practice is associated with significant risks due to a learning curve
- Individual surgeons are solely responsible for ensuring that they learn and implement new skills in a safe manner
- The individual surgeon experience of risk when adopting and implementing new skills is poorly understood

PURPOSE

To explore how surgeons experience and evaluate risk when learning and integrating a new procedure into practice

METHODS

- Qualitative methodology guided by Charmaz's constructivist grounded theory approach
- Semi-structured interviews with 18 surgeons at two academic health centres
- Sampling:
 - Maximum variation
 - Snowball
 - Theoretical and Negative Case
- Iterative data collection and analysis
- Member checking interviews conducted for resonance of findings

RESULTS

- The process used to learn and implement new skills is independent of risk tolerance
- There are multiple barriers and facilitators to the process
- Leaders in innovation are both risk tolerant and risk averse
- Surgeons cite various motivations for learning new techniques
- Institutional culture and societal pressures influence all aspects of the experience

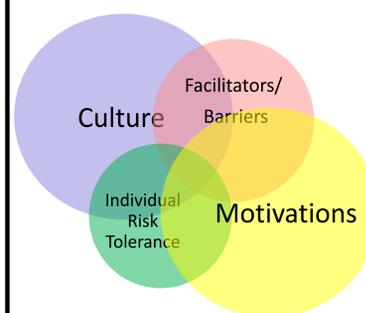
CONCEPTUAL FRAMEWORK

Factors Influencing the Acquisition of Skills (FIAS) Model

The FIAS model is a dynamic representation of the multifactorial interplay that influences a surgeon's experience of adopting and implementing a new procedure. The role that each factor plays in a surgeon's experience varies between surgeons and within one surgeon over time.

EXAMPLE 1

This surgeon, with 25 years of experience, recently learned and implemented a well-established surgical technique. The surgeon's motivations and cultural factors were the driving forces behind the experience.



Motivations

"The pressure to decrease length of stay"

"It's competition. Competition within academic centres in Ontario. Financial pressures. To be seen to be cooperating with senior management. You know, we want to do what's best fiscally for the hospital as well and for patient care."

Culture

"We had rounds, multidisciplinary rounds, you know, the Wednesday morning things where the people from finance showed a case cost average for [our hospital] versus other centres in Ontario and it's like okay, this is obviously important to them. The writing's on the wall. And people are asking for it. Why not? Right? So that was kind of the tipping point. Where patients were not asking for it in 08, 05 or 06 or 08. They weren't asking for it. Now they were."

EXAMPLE 2

This surgeon, with 5 years of experience, introduced a new procedure to Canada. The surgeon recruited two colleagues from the USA to assist with implementation. The surgeon's personal risk tolerance and logistical factors were the most influential aspects of the experience.



Facilitators/Barriers

"...there were surprising hurdles within our hospital and our administration that were not as supportive as I would have liked to see...It was incredibly difficult to get them privileges, insurance... [Surgeon 1] couldn't scrub at all because she doesn't have a valid Ontario licence, even as an observer...[Surgeon 2], who does have a Canadian licence would have needed CMPA coverage and that was going to be several thousand dollars at my own cost ...so it was actually really difficult."

"[Surgeon 2] got all her own accommodations and [Surgeon 1] stayed at my house."

Individual Risk Tolerance

"I think that a hundred percent the person that you are outside of medicine is the way you are as a surgeon in every aspect. I think I'm that classic Type A. I am bossy. I am ambitious. I like to take risks. I like to be challenged. I like to debate and I think I live my life like that and I live my work like that..."

"I mean I think it probably had to do with me like doing it at all, right. Like, what, like why do something that you don't know how to do when you can, God knows there's no shortage of things that you can do to fill your OR time that are within your comfort zone."

IMPLICATIONS

Surgeon Level Impact

- The FIAS Model can help individual surgeons by:
 - Encouraging reflection on internal factors that play a role in learning a new technique
 - Increasing awareness of the external factors that may also affect the experience

System Level Impact

- The FIAS Model can help to identify areas where surgeons need support so that they can learn and implement new skills safely and effectively, including:
 - Addressing administrative, logistical and financial barriers that hinder innovation and knowledge translation
 - Providing information that motivates surgeons to embrace positive change
 - Fostering a culture where surgeons feel supported to innovate and make changes to their practice

CONCLUSIONS

The experience of adopting and implementing a new surgical procedure is influenced by a multifactorial interplay between a surgeon's motivations, individual tolerance for risk, logistical facilitators/barriers and cultural factors.

The FIAS model furthers our understanding of this experience and can serve to support surgeons at the individual and system levels.

ACKNOWLEDGEMENTS

The authors would like to acknowledge Melanie Hammond at the Wilson Centre and Meredith Mackay at DIME for their support of this project.

Thank you to Drs. Katherine Moreau and Angus McMurtry for their ongoing guidance and advice.

Funding for this project came from the RCPSC Medical Education Research Grant and the University of Ottawa PGME Educational Initiatives in Residency Education Grant.