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Enhanced Recovery After Colorectal Surgery Impact and ROI Study

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ENHANCED RECOVERY AFTER COLORECTAL SURGERY IMPACT AND ROI STUDY

INTERIOR HEALTH - KELOWNA GENERAL HOSPITAL

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BACKGROUND

Setting

Kelowna General Hospital (KGH) is a hospital within Interior Health (IH), British Columbia. Dr. Ron Collins, an Anesthetist with KGH and a core clinical team have worked diligently implementing the Enhanced Recovery After Colorectal Surgery (ERACS) Pathway in KGH. There is a core team of healthcare professionals that developed the Pathway including training, manuals, patient booklets and other resources to ensure the Pathway is followed by the patient and the healthcare provider. To date KGH has treated over 30 patients on the ERACS Pathway with positive results and outcomes.

One significant component of the Enhanced Recovery pathway success is a high level of provider engagement and commitment at the site level. Cooperation within the medical team is also essential to ensure successful implementation. Effective training of all healthcare professionals is required to result in cooperation and patient recovery success. With a high level of provider engagement together with the training of providers KGH has an effective team that is implementing the ERACS Pathway successfully.

Rationale for the Study

The implementation of the ERACS process within Kelowna General Hospital has demonstrated successful outcomes including reduced length of patient stay and improved patient outcomes leading to significant reduction in complications; both of these resulted in reduced per-capita costs. With any investment and new process the issue of value for money becomes an important concern. The IH Senior Executive and other stakeholders need to clearly understand the progress that has been made, the value that has been delivered, as well as the challenges that need to be addressed to ensure successful continuation of the implementation of Enhanced Recovery processes. As with any major change there are always barriers to overcome and resistance to minimize. A study is needed to clearly understand the current status and common barriers to success, and changes that are necessary to make improvements.

In addition, the Surgical Network Team is seeking additional funding to continue with and expand the Enhanced Recovery Pathway implementation. The principle resources needed to expand, continue and

improve the Enhanced Recovery processes are education and training of healthcare professionals. There is a cultural transition that also needs to occur which requires education and support in facilitating the changes that enable the positive results. This requires additional funding, and this study was conducted to support the request for the funding.

Objectives of this Study

With this backdrop, this study has the following objectives:

1. Assess the status of the ERACS process with inputs from healthcare professionals, administrative staff and KGH patient records.
2. Capture the value for money for the investment to date in the ERACS process at KGH.
3. Develop a chain of value of ERACS as the various stakeholders react, learn, apply, and produce an impact within the hospital.
4. Set the foundation to implement an evaluation process, the ROI Methodology, as an ongoing tool to show the value of projects and programs at KGH and within Interior Health including the development of ROI studies.

ROI METHODOLOGY

The ROI Methodology, from the ROI Institute, is the evaluation approach used for this study. This Methodology has been implemented by 4,000 organizations in 58 countries. With more than 60 books authored or edited by the ROI Institute founders, the process has become a premier tool for measuring the success of all types of programs, including Healthcare initiatives.

The methodology served as a valuable evaluation tool for the ERACS process because it:

- balances six types of evaluation data to reflect the status of ERACS;
- follows a set of consistent and conservative guiding principles that generate credible results;
- and offers a methodical, step-by-step process that is user-friendly.

A Balanced Set of Measures

The concepts of cost-benefit analysis and ROI have shown the value of programs, processes, and initiatives for centuries. Cost-benefit analysis is grounded in welfare economics and public finance, while ROI is grounded in business accounting and finance. Together, the two are the ultimate measures of profitability; alone, they are insufficient. While cost-benefit analysis and ROI report the financial success of programs, they lack a critical explanation for the financial impact. The Phillips ROI Methodology balances financial impact with an evaluation of the systems and processes that support the outcomes to tell a complete story of a program's success.

The ROI Methodology categorizes evaluation data into five levels, as shown in Table 1. When combined with intangible data, these five levels tell the complete story of a program's success.

Table 1. The Evaluation Framework

Level	Measurement Focus
1. Reaction & Perceived Value	Measures reaction to the program and captures perceived value of the program
2. Learning and Confidence	Measures changes in knowledge and skills.
3. Application & Implementation	Measures the use of knowledge and skills.
4. Impact	Measures changes in critical impact measures.
5. Return on Investment (ROI)	Compares the monetary value of impact to program costs; expressed as a percentage

Level 1: Reaction

This initial level of evaluation is the most commonly used. Data at this level are usually collected with an end-of-course questionnaire. With this feedback, instructors can improve facilitation, materials, and the overall learning process.

When used appropriately, the Level 1 reaction data can predict the actual use of newly obtained skills and knowledge. Level 1 evaluation answers important questions, including the following:

1. Is the ERACS process of care efficient?
2. Is the ERACS process practical?
3. Is the ERACS process important to the long-term success of Interior Health?

Level 2: Learning and Confidence

Participant mastery of the knowledge and skills taught in a program is a critical level of evaluation. Learning measurement typically takes place during the program through a variety of techniques, such as tests, facilitator assessment, self-assessment, and observation. Learning data gathered after the training for the ERACS evaluation answer four critical questions:

1. Do the healthcare professionals know the steps in the ERACS process?
2. Do the resources provided enhance the learning?
3. Do patients know the ERACS process?
4. Do patients learn the process steps easily?

Level 3: Application and Implementation

Measurement of application and implementation provides evidence that the learning of the ERACS process and steps are used after the training.

Success in application and implementation is measured when patients and providers have applied their new knowledge and skills. Data are collected for the ERACS evaluation through techniques such as questionnaires, interviews and observations of patient flowsheets and charts. A critical component of application and implementation measurement is the determination of enablers supporting the use of the ERACS process and the barriers preventing the use of it. Measurement at Level 3 provides the richest source of data of the five levels, because it addresses program success from a system perspective,

answering the question, “Is the evidenced based process being followed?” Five key questions are usually answered when measuring success at Level 3:

1. To what extent are patients and providers applying their newly acquired knowledge and skills?
2. What success are patients and providers having with the use of knowledge and skills?
3. What is supporting their success of knowledge and skills?
4. What is inhibiting success if they are not successful?

Level 4: Impact

Impact measurement tracks the consequences as the ERACS process improves critical measures linked to the system, such as length of stay, quality, cost, and time. Other measures of success, such as patient care, comfort, satisfaction, engagement, as well as provider engagement are also important in achieving institutional goals. Level 4 impact measures are defined as the consequence of applying the ERACS Pathway steps learned in the training. Measuring these consequences connects the ERACS Pathway to business impact.

Level 5: ROI

The ultimate measure of financial success of a program, process, or initiative is ROI, which compares the monetary benefits to the costs of the program. To develop ROI, six steps of cost-benefit analysis are taken:

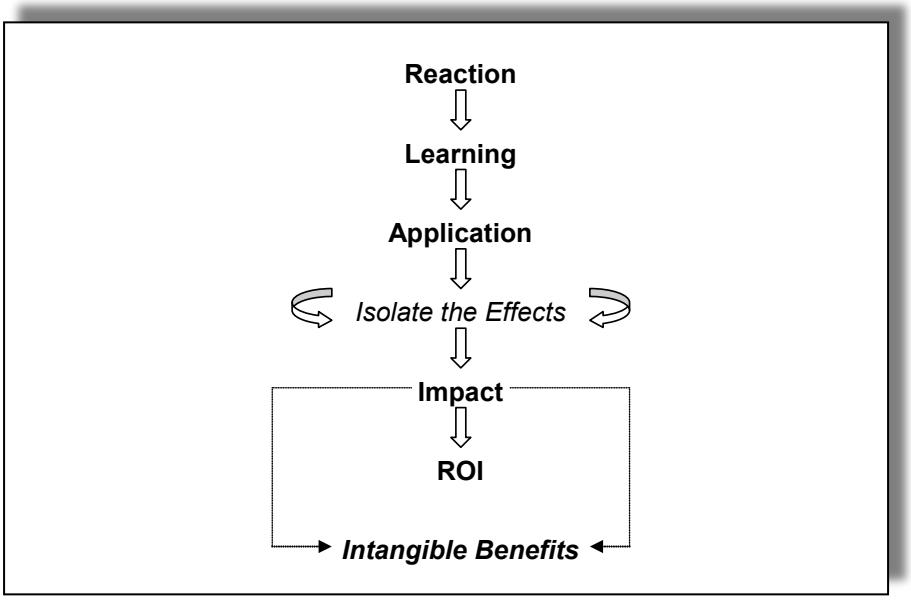
Step 1. Identify the impact measures that have changed.
Step 2. Isolate the effects of the program on the impact data.
Step 3. Convert the impact measures to monetary value.
Step 4. Tabulate the fully loaded costs.
Step 5. Identify the intangible benefits (impact measures not converted to money).
Step 6. Compare the monetary benefits to the cost.

The first step in this series, identify impact measures, is part of the follow-up evaluation phase. Step 2 shows the amount of the business impact connected to the program. In Step 3, the impact measures are converted to monetary value. In Step 4, the fully loaded cost profile is developed. Step 5 identifies the intangible benefits. Finally, Step 6 compares the monetary benefits of the program (impact measures converted to monetary value) to the fully loaded costs of the program to calculate an ROI. Measurement at Level 6 answers a critical question: Do the monetary benefits of the ERACS process meet or exceed the costs?

When fully developed, the five levels of evaluation data (plus the intangible benefits) represent a chain of impact that occurs when participants are involved in a program and they react, learn, apply, and have an impact on the organization. Figure 1 depicts this chain of impact.

Not all programs are evaluated at all five levels; only certain ones require such a comprehensive evaluation. Expensive programs, programs that have a long life cycle, those with a very broad reach, comprehensive programs, and programs that instill significant positive change in the organization are potentially suited for evaluation at the

Figure 1. The chain of impact tells the complete story of program success.



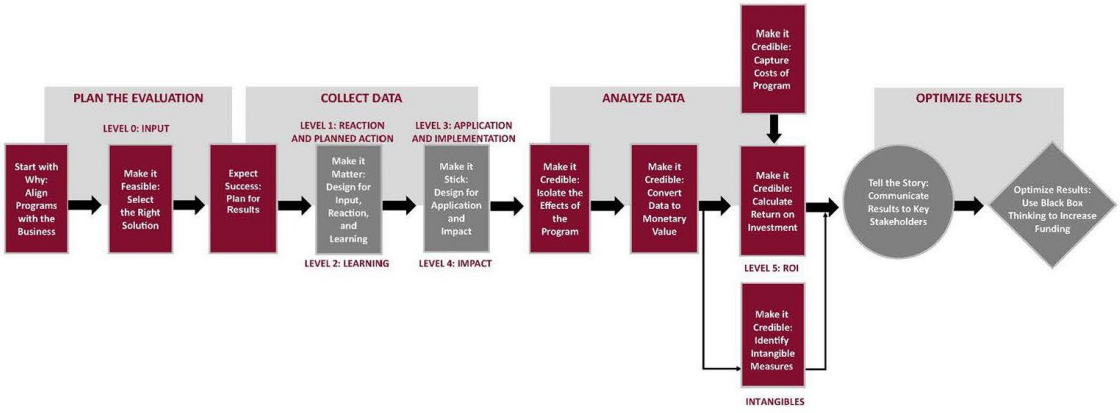
ROI level. Other variables, such as the need for the program, the purpose of the evaluation, and the stakeholders' needs, drive the level to which a program is evaluated. Figure 1 the chain of impact, tells the complete story of program success.

The ROI Process Model

The ROI Methodology includes a step-by-step process to ensure that the appropriate data are analyzed and reported. Figure 2 represents the ROI process model, which begins with developing program objectives and planning the evaluation. Data are collected at two different time frames – during the program and after the program.

Improvements in key impact measures are isolated to the program. When appropriate, these improvements are converted to monetary value and compared to the fully loaded costs of the program to develop the ROI. Two major processes are involved: data collection and data analysis.

Figure 2. The ROI Process Model



STANDARDS FOR GUIDING THE ROI METHODOLOGY

The ROI Methodology used to evaluate the ERACS process adheres to Twelve Guiding Principles established to keep the process consistent and conservative. Decisions with regard to data collection and data analysis were made based on these guiding principles. Table 2 lists the principles used in this evaluation.

Table 2. Guiding Principles for the ROI Methodology

1. When conducting a higher-level evaluation, collect data at lower levels.
2. When planning a higher-level evaluation, the previous level of evaluation is not required to be comprehensive.
3. When collecting and analyzing data, use only the most credible sources.
4. When analyzing data, select the most conservative alternative for calculations.
5. Use at least one method to isolate the effects of a project.
6. If no improvement data are available for a population or from a specific source, assume that little or no improvement has occurred.
7. Adjust estimates of improvement for potential errors of estimation.
8. Avoid use of extreme data items and unsupported claims when calculating ROI.
9. Use only the first year of annual benefits in ROI analysis of short-term solutions.
10. Fully load all costs of a solution, project, or program when analyzing ROI.
11. Intangible measures are defined as measures that are purposely not converted to monetary values.
12. Communicate the results of ROI Methodology to all key stakeholders.

DATA COLLECTION

From the beginning this study was planned with data collection involving a variety of data collections and audiences. The study approach is sequential explanatory research where questionnaires were used involving healthcare providers involved in the ERACS Pathway and interviews were used to explain the data from the questionnaire. KGH patient records were used to collect application and impact data. Refer to Table 3 for the Data Integration Plan. Based on input from the core ERACS group, the issues around the use, implementation, and issues involved in the implementation are clearly known. These issues form the basis for developing the questionnaires and the interviews are developed to explain the data from the questionnaires and amplify what is needed.

Table 3. Data Integration Plan

Method	Input Data	Level 1 Reaction	Level 2 Learning	Level 3 Application	Barriers Enablers	Level 4 Impact
Provider Questionnaire	X	X	X	X	X	X
Provider Interviews	X	X	X	X	X	X
KGH Patient Records	X			X		X

Questionnaire

A questionnaire was developed and administered to the healthcare professionals involved in the ERACS process. The questionnaire was designed to ask the professionals 12 questions arranged in a sequence of value add levels of data, beginning with input and progressing to application and some impact. The questionnaires went out to all the providers who are trained in the ERACS process. In total 36 providers' questionnaires were completed.

Interviews

Detailed interviews were conducted with a total of 5 multidiscipline providers, examining the benefits, the barriers, and enablers to the ERACS process in KGH. The interviews provided a rich set of data about the issues. Particularly with the barriers and enablers to success.

EVALUATION RESULTS AND DATA

Level 1 – Reaction

The healthcare professional's reaction to the ERACS process is a very critical issue. Unenthusiastic or adverse reaction always translates into problems and results in limited learning and use. This evaluation has revealed high levels of positive reaction. Figures 3 and 4 show the positive reaction from the professionals obtained from the questionnaire. High levels for reaction are: they believe it is important to the long term success of Interior Health and it is highly practical to use.

Figure 3.

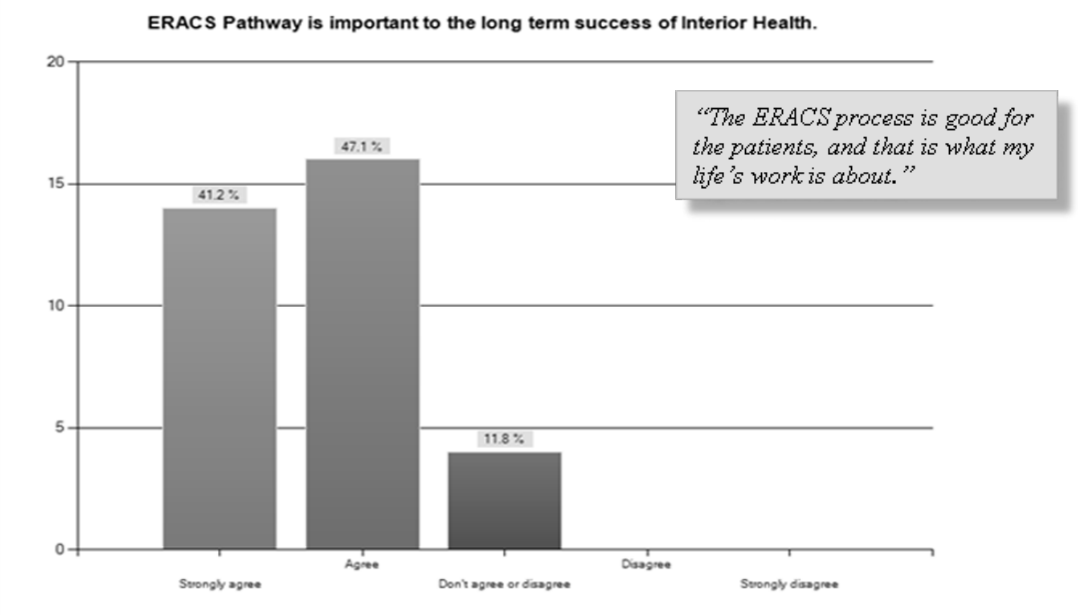
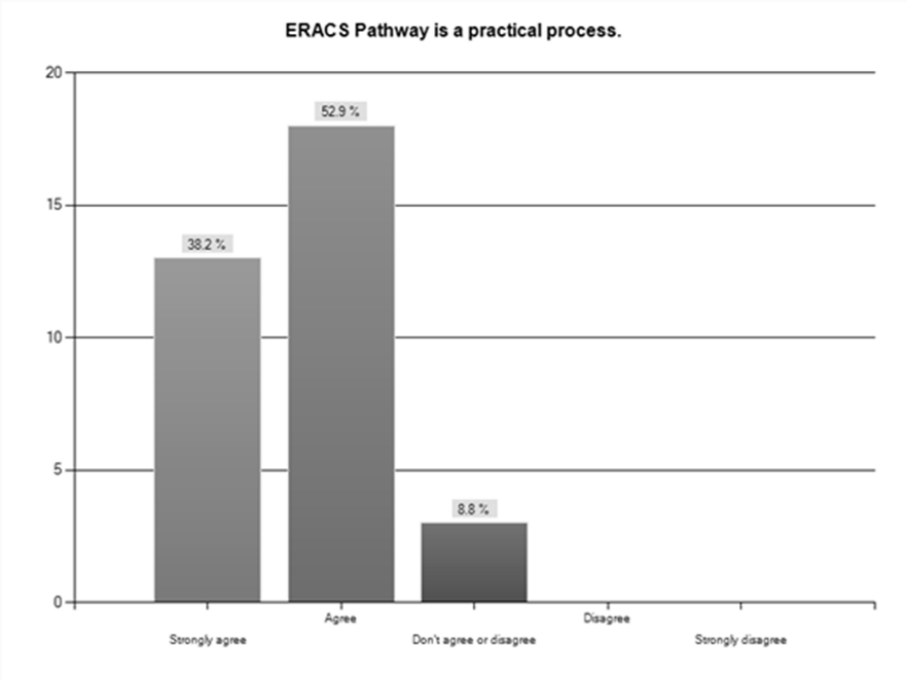


Figure 4.

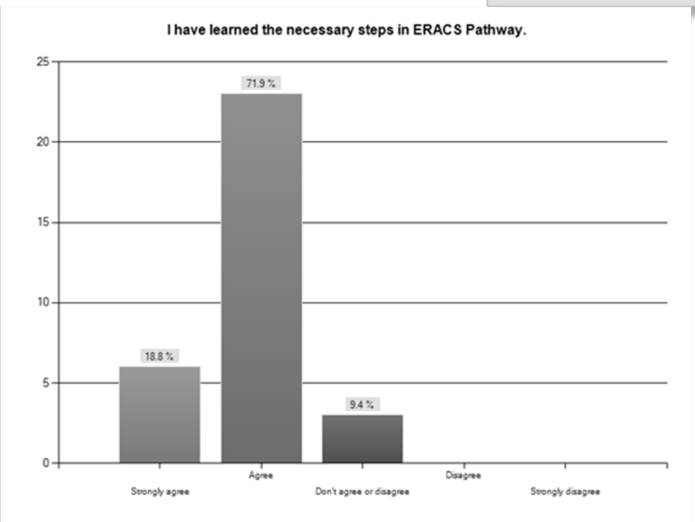


Level 2 – Learning

To ensure the healthcare providers are successful using the ERACS Pathway in their delivery of care they must learn the ERACS steps that pertain to them and their duties and in addition the patients must learn the steps they need to take independently. The majority of providers state that they know the necessary steps in the ERACS Pathway, refer to Figure 5.

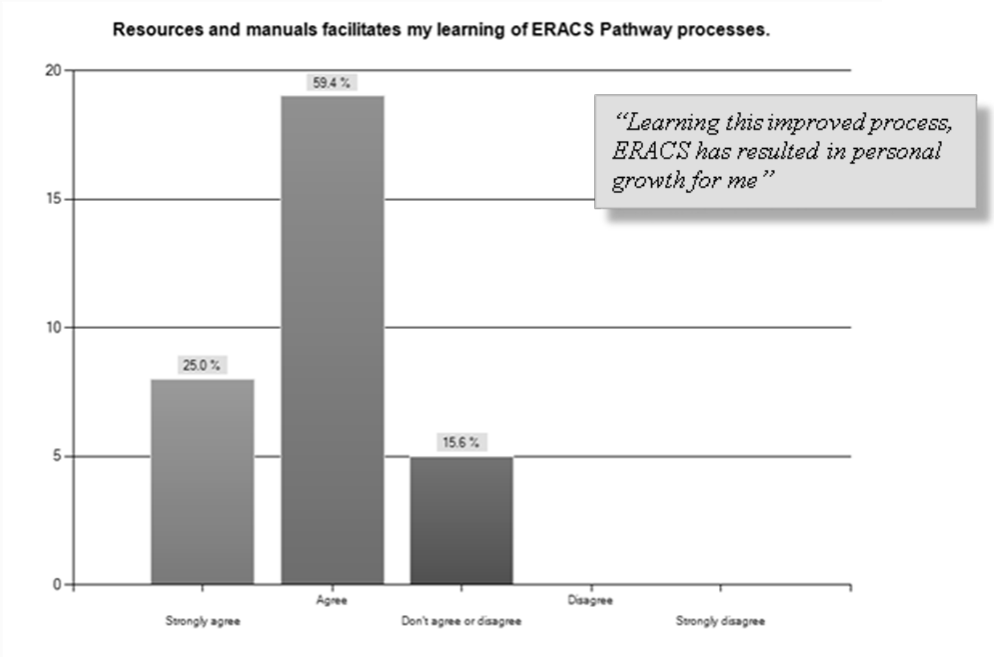
Figure 5.

"ERACS Pathway is a step by step process, it takes us 1 hour of training to learn what to do and we create huge benefits."



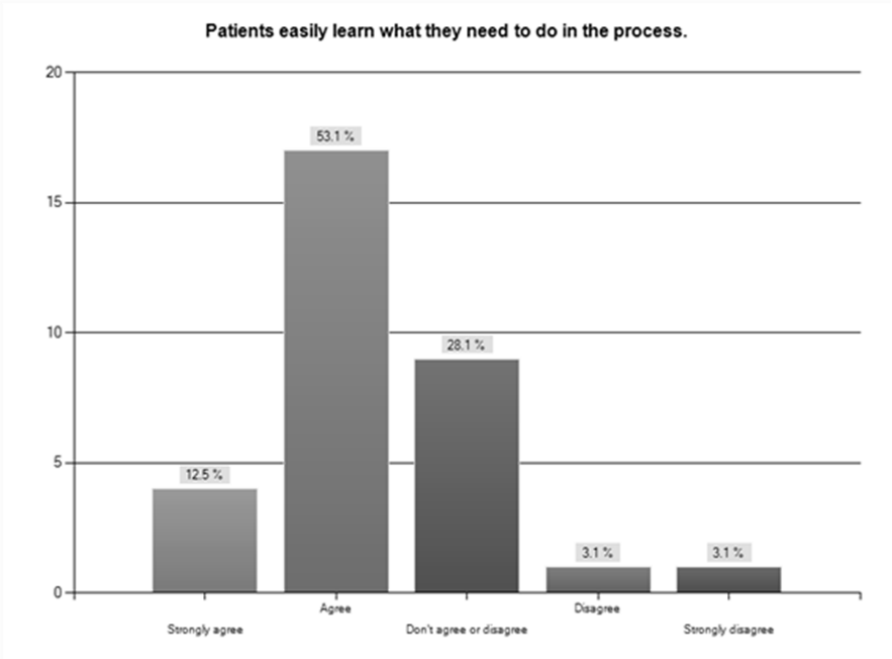
A significant component to learning the ERACS process steps and continued learning are the education materials and resources developed within KGH. These learning resources consist of booklets and manuals for both the patient and the provider. The professionals acknowledge that these resources facilitate their learning; 84% agree or strongly agree. Refer to Figure 6.

Figure 6.



The questionnaire also shows that patients easily learn what they need to do in the ERACS process. However only 69% of providers agree or strongly agree; this is due to lack of trained staff available to give patients their required education and instructions. Refer to Figure 7.

Figure 7.

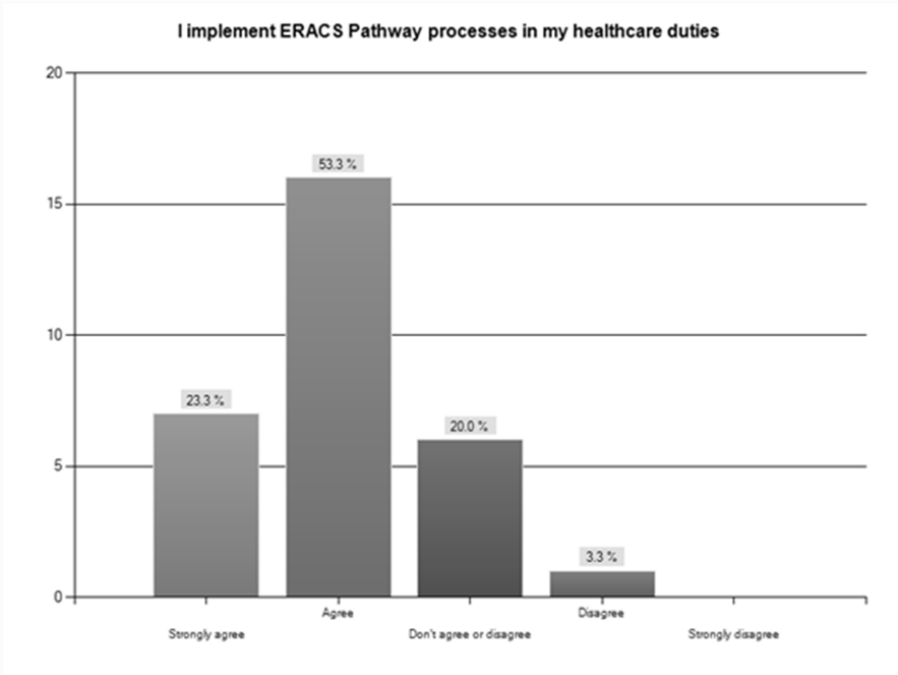


Level 3 – Application

Application data is evidence that the learning is used after completing the training. This evaluation found application data that showed providers were using what they learned in the ERACS Pathway training. The questionnaire shows that 76% are implementing the Pathway process in their healthcare duties. Refer to Figure 8.

There was a review of the KGH patient charts and flowsheets completed for the 16-patient sample to determine the extent of the application of each step in the Pathway. This review concluded that the majority of the patient sample was compliant with the ERACS Pathway. The ERACS process includes a flowsheet for each patient listing the necessary 23 steps of the Pathway. Each step is to be signed off by the provider indicating it is complete. This serves as a control in the Pathway to ensure each step has been completed. The 16-patient sample had flowsheets showing non completion of steps. The indicated missed steps were in fact completed and documented in other sections of the patient record. The flowsheet was introduced later after original training was completed. There needs to be some training conducted to ensure the ERACS flowsheet becomes an integral part of the ERACS Pathway.

Figure 8.



Barriers and Enablers to Use and Application

As there has been a transfer of knowledge and skills to enable providers and patients to use a new surgical process to enhance patient recovery there are barriers to application and use by both. In addition to barriers the data provides enablers; what enabled application of the ERACS Pathway? Identifying barriers show what needs to be done or changed to make the Pathway more successful for the providers, the patients, the hospital and Interior Health. Enablers are what make use and application a success.

Together barriers and enablers form a path to repeat success and or improve in the future.

Barriers

Figures 9 and 10 show the barriers that were identified by the providers, and Tables 4 and 5 are the comments on barriers from the providers.

This data shows a strong emphasis on the need for building capability. Figure 9 barriers to individual providers, shows the largest barrier to be "time to build capability" 47%. Other barriers listed in Figure 9 and Table 4 are important as well and need to be addressed and eliminated to increase and continue success.

Figure 9.

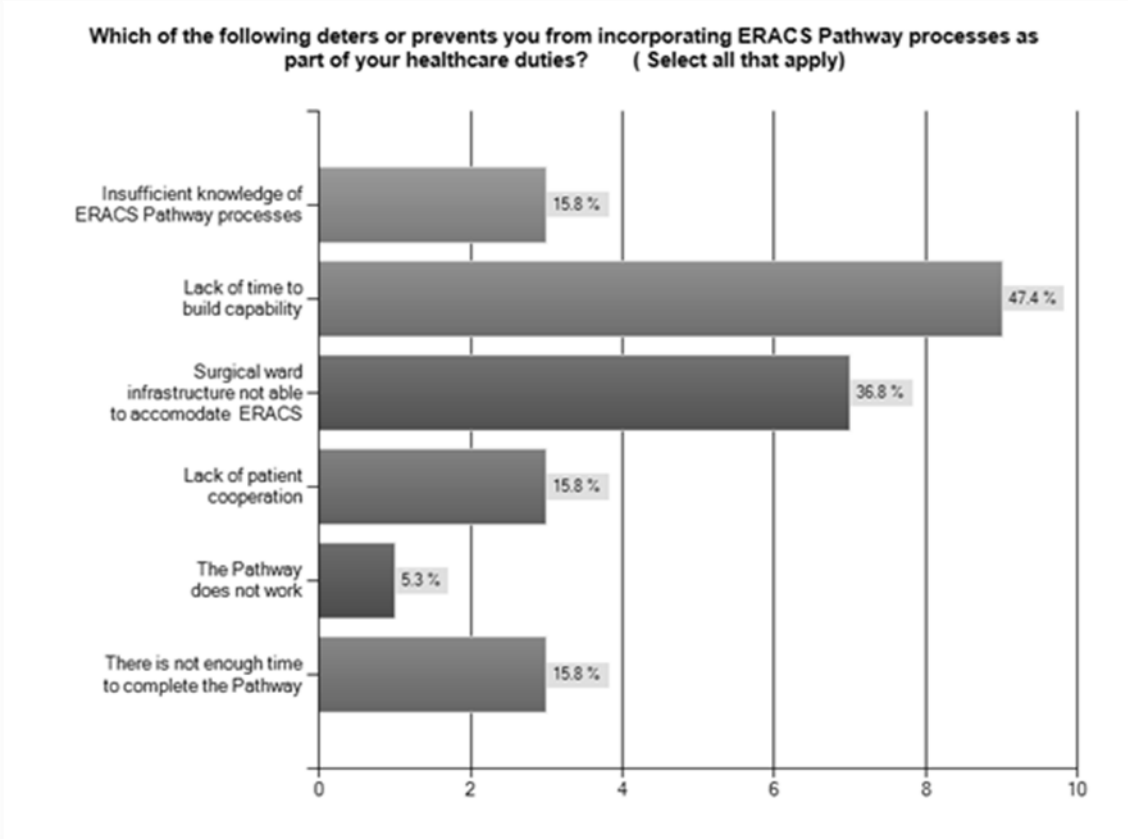


Table 4.

Barriers to Application – Comments from Providers

- In pre-surgical screening there are too many info sheets to give to patients hence their comprehension may be impaired with too much knowledge in too many papers. Many are overwhelmed with the diagnosis and find it hard to absorb all the extra information.
- Patients who fall off the pathway – e.g. ileus, sepsis
- Sometimes it is difficult to find the "right" person to answer patient questions. Different surgeons have different preferences for the program e.g: taking or not taking vitajoule
- Lack of time on my part to teach the new ostomy clients
- Patient not being aware of ERACS when they come for prescreening, this should be done in the surgeon's office prior. Time consuming to be teaching, measuring out and labeling of vitajoule as this is not dispensed by the pharmacy. Vitajoule should be given to patients in the surgeon's office.

- The Pathway is a change that not all providers want to make, they believe the previous methods are superior

The questionnaire also provided data to show the barriers to KGH to increasing implementation of the ERACS Pathway. This data shows insufficient knowledge of the Pathway process as the largest barrier to increased implementation. Refer to Figure 10 for the results and Table 5 for additional barriers listed by the providers; these need to be addressed as well.

Figure 10.

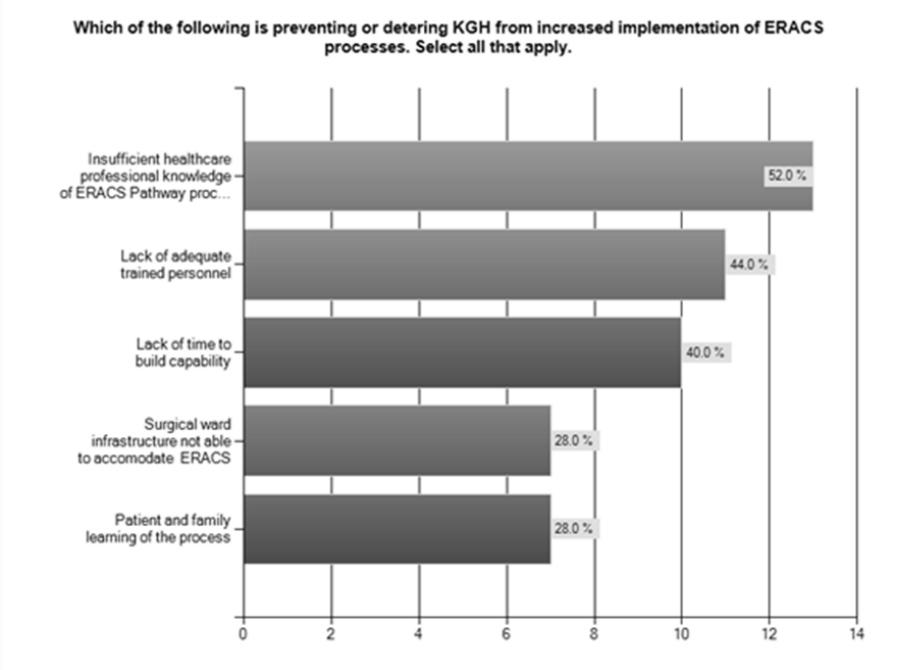


Table 5.

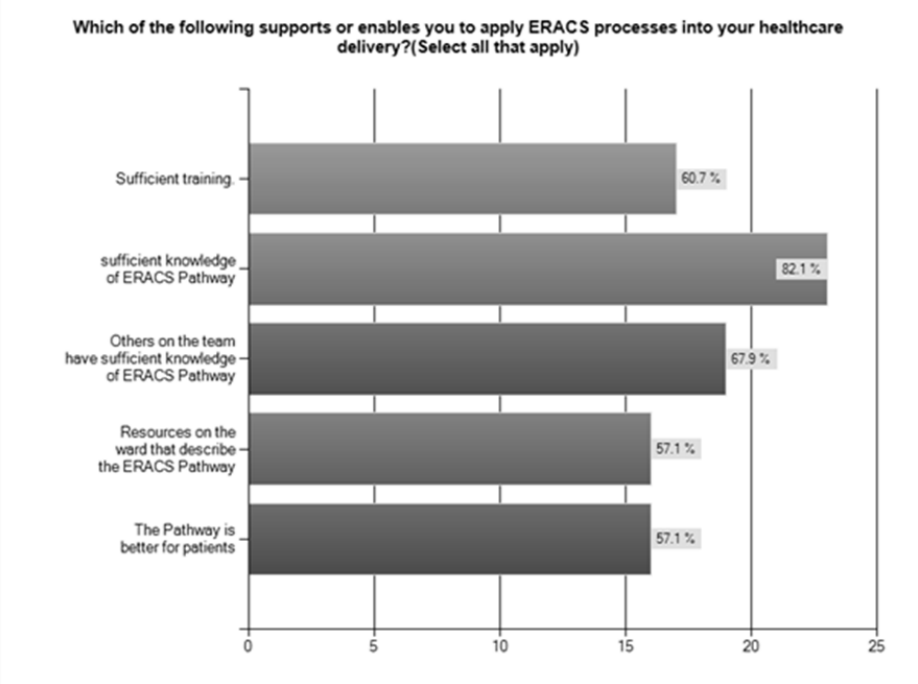
Barriers to KGH Increasing Implementation

- Funding
- The rest of the surgical floors would need to be trained in the ERACS program
- Information and teaching needs to take place at surgeon's office. At KGH PAR staff and educator were not aware of ERACS program until first patient arrived in department.
- Some patients are not fully informed before coming to Pre surgical.
- Need for ERACS CNS
- No ostomy coverage on weekends and case load too heavy to spend a lot of time with the new ostomy clients so D/C is sometimes held up due to teaching and supply needs.

Enablers

When a program is successful, the obvious question is "how can we repeat this, or even improve on it, in the future?" The answer to this question can be found in the enablers identified. Identifying the factors that directly contribute to the success of ERACS is necessary. The providers were asked the question found in Figure 11, and they identified the largest enabler to implementing the ERACS Pathway to be "sufficient knowledge" at 82%. The barriers as detailed above, and the enablers identified below both point to sufficient education, training and knowledge as critical to ERACS success.

Figure 11.



In addition to the enablers in the questionnaire the interviews provided enablers that are listed in Table 6.

Table 6.

Enablers to Implementing ERACS

- Providers are motivated by seeing healthy patients after surgery; they are not starving and dehydrated
- Motivated patients
- There are no tubes in the way for me to do my job – easier to work with patients
- I believe in it, therefore makes it easy for me to implement it

Level 4 - Impact

Impact data is often the most important data from funding, executive and administrator perspectives. Impact represents the consequences of all the activities involved in the ERACS Pathway. Impact data is typical in two categories: tangible and intangible.

Tangible are those data items that can be converted to money credibly with a reasonable amount of effort. They are typically converted to money in an ROI calculation. The intangibles are those measures that can

not be easily converted to money credibly. The tangible data in this study represent the cost savings to KGH of implementing the ERACS Pathway when compared to the traditional process of colorectal surgery. This formed the basis of an ROI calculation presented in the next section. However, there is important data from this evaluation that is in the intangible area. Impact data not converted to money. They still represent critical and important data sets that are valuable to many executives and other stakeholders. These are often characterized as soft data and they are reported in this section but only when the impact is directly connected to the ERACS Pathway.

The data for impacts come from several sources. First, the questionnaires completed by the healthcare providers. Also the interviews with the providers provided more detail on impacts. Finally, KGH patient records reveal monetary impacts, such as a reduction in complications and length of hospital stay resulting in a reduced RIW for ERACS patients and an increase in available bed days.

Impacts are examined in this study in three perspectives the impact that the ERACS Pathway is having on patients, on providers, and within KGH and Interior Health. These are presented next.

Impact on Patients

As shown in Table 7 the impact on patients is impressive. In all, twelve impacts were identified from one or more of the sources listed above. The first one, improved patient comfort was almost universal. The questionnaire showed 78% agreeing or strongly agreeing that the ERACS process provided improved patient comfort compared to the traditional surgical process. Having the patients involved in the process from the beginning and having them understand the steps and what to expect engages them in their recovery and they become proactive, this leads to a quicker recovery. The second impact was better patient care; the questionnaire showed 88% in agreement that the Pathway provided better patient care. Both of these impacts align with the Triple Aim goal to positively impact the experience of the patient and the provider. Comments from providers during interviews are “patient care is better, as everyone realizes they have significant impact along the Pathway”; the providers and the patient are a team along the pathway. This is perhaps the most important impact, making patients aware of the Pathway and learning what they need to implement to enhance their own recovery.

Next , less chance of infection or complications lead to cost savings. The 16-patient sample show zero readmissions and zero complications, compared with KGH’s traditional process of 5.9% readmission rate and a 21% complication rate. The average age of the patients receiving colorectal surgery at KGH is older, a more senior population. The ERACS Pathway allows for this higher risk population to recover quicker and has significant impact on reduction of complications

Figure 12.

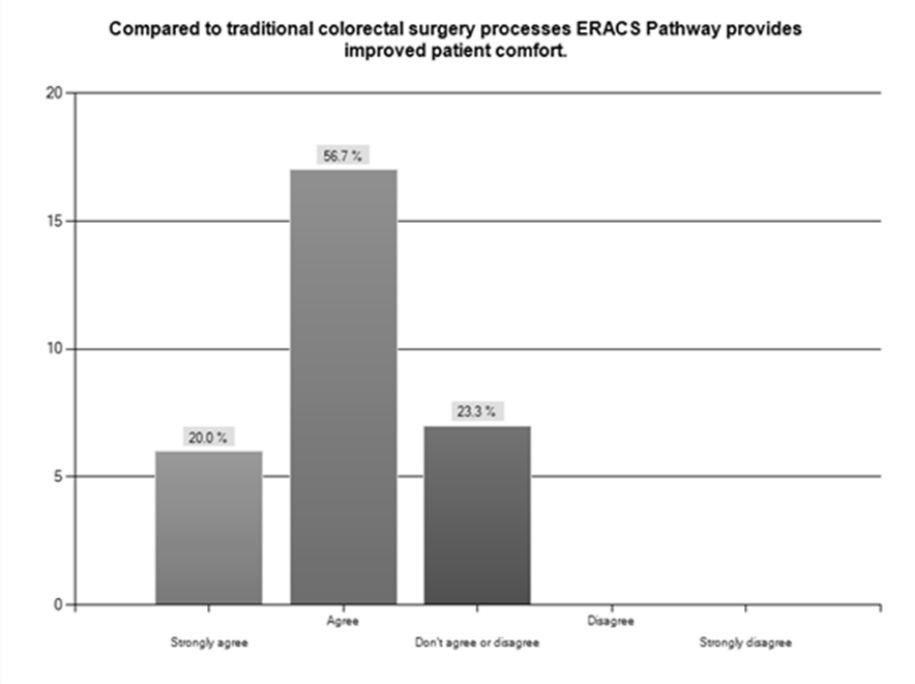


Figure 13.

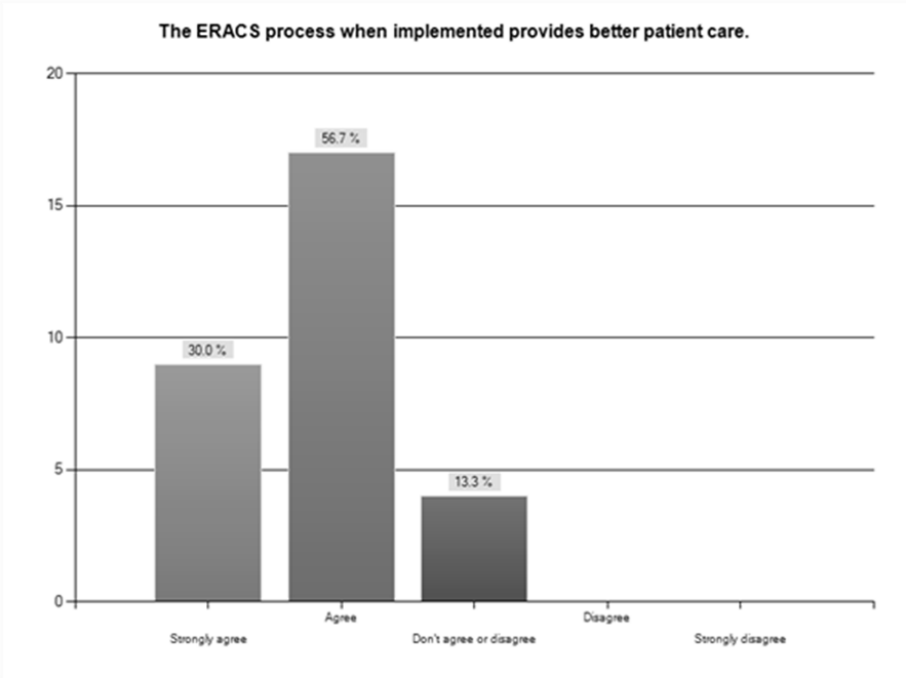


Table 7. Patient Impact

Healthcare Providers' Comments - Interviews
• Better patient care
• Improved patient comfort
• Increased communication between provider and patient
• More positive patients – they are more engaged in their care
• Patients are proactive about their recovery not reactive
• Less chance of infection
• Reduced length of hospital stay
• Stronger after surgery – they are not starved and dehydrated
• Quicker patient mobility
• Increased patient awareness – they understand the Pathway and what is happening to them
• Improved patient clarity of expectations

Impact on Providers

As Table 8 shows there are several impacts on the healthcare providers that are very impressive and encouraging. As expected the implementation of the ERACS Pathway brings into focus the dynamics of change. It makes the providers aware of what is possible and what can be done. It introduces them to a process they need and can use in many different ways.

There is increased communication with patients instead of less interaction. The patient as well as the provider can monitor the patient recovery, resulting in more success and this is very satisfying for the provider.

For providers who embrace the ERACS Pathway and have used it properly voiced very much satisfaction with this process. As with any change there is some reluctance but this process has not seen a lot of that, there has been a high level of engagement as the providers see the benefit. This translates into increased healthcare provider engagement resulting in providers being more satisfied with their job and their work.

Table 8. Provider Impact

Healthcare Providers' Comments - Interviews
• Increased knowledge of the patient
• Increased interaction with the patient
• Increased engagement of providers
• I am able to deliver the best care to patients
• There is a team situation(high engagement) with all providers on the pathway
• I enjoy working with patients after surgery that are stronger, look better and feel better – this is a result of the ERACS Pathway
• I appreciate being involved in a change that is results based

Along with the positives there are negatives. There are some providers that resist this change. Some believe that the traditional processes are superior and have not implemented the new procedures. An example of this is in anesthesia where there are some professionals that are resisting standardization.

Impact on the Hospital

Several positive impacts were identifed. Many of these impacts were consistent with the expected outcomes from the IH Health Strategy Map. The most important one is improved patient care. As providers reported, the ERACS Pathway delivers the Strategy Map's System outcomes: Improved population health, enhance patient and provider experience of care and reduce the costs of providing health care.

Perhaps one of the most visible and important outcomes is the reduction in complications after colorectal surgery and the reduced length of stay resulting in improved population health, improved experience of care for both the patient and provider and a significant cost reduction. These 2 impacts are tangible and form the monetary benefits found in the ROI calculation.

From a hospital perspective the ERACS Pathway has generated interest from other surgical specialties within the hospital and the process can easily be transferred to those other specialties; the foundation is in place. The establishment of enhanced recovery pathways will result in the "new normal", which will enhance quality patient care and further reduce costs to the hospital.

Table 9. Hospital Impact

Healthcare Providers' Comments – Interviews
Tangible Impacts
• Reduced length of patient hospital stay
• Reduced complications
Intangible Impacts
• Increased provider engagement – affecting retention positively
• More providers want to be involved, more want to learn the Pathway
• Enhanced image; seen as innovative

ROI

The objectives of the ERACS Pathway are to improve patient outcomes, reduce length of stay and reduce per-capita costs. These objectives have been met in the 16 patient sample as the data shows. The question that needs to be answered is "do the monetary benefits of the ERACS Pathway meet or exceed the costs?"

The return on investment is calculated by converting the impact of the process to a monetary value and comparing it to the costs of the process. The monetary benefit was determined by the difference between the traditional recovery process cost per case and the ERACS Pathway cost per case. As shown in Table 10, the monetary benefit is estimated at $7,690.39 per case. The costs used in the ROI calculation are fully loaded. This is a conservative approach and follows the Methodology's Guiding Principle # 10. With this approach, all costs that can be identified and linked to the process are included. The fully loaded cost summary is in Table 11.

The ROI of the ERACS Pathway is calculated to be 118%, refer to Table 12.

Table 10.

ERACS Monetary Benefits Summary

16 patient cases sample

*KGH Traditional Recovery process cost per case	$15,884.81
*ERACS Cost per case	(8,194.42)
Cost saving per patient	$7,690.39
Savings (Benefits) for 16 patient sample (16 x 7,690.39) *Both costs based on CIHI RIW (Resource Intensity Weight)	$123,046.24

Table 11.

ERACS Cost Summary

16 patient cases sample

Cost Description		**Total**
*Development Costs (wages + benefits)		$15,754.02
Training Costs (wages & benefits)		$2,481.25
Lead Nurse	$1,125.00	
Assistants	356.25	
Training room	1,000.00	
Training – staff time (116 staff; wages & benefits)		$5,832.50
*Documents –Pre op, family booklet Post op, discharge booklet		$1,500.00
Cardio probe $210 x 16		$3,360.00
Vitajoule $4.73 x 16		$75.68
Evaluation – ROIIC	$21,500.00	$27,410.00
Travel	1,500.00	
KGH Staff time	4,410.00	
Total Fully Loaded Costs		$56,413.45

*Not pro-rated

Table 12.

Benefit Cost Ratio & ROI Calculation

$$\text{Benefits/Costs Ratio} = \frac{\text{Monetary Benefits } \$123{,}046.24}{\text{ERACS Costs } \$56{,}413.45} = 2.18$$

$$\text{ROI (\%)} = \frac{\text{Net Monetary Benefits } \$66{,}632.79}{\text{ERACS Costs } \$56{,}413.45} \text{ X } 100 = 118\%$$

The Development Costs of $ 15,754.02 and the document costs of $ 1,500.00 are included in the fully loaded costs have been left in the ROI calculation at 100%; they have not been prorated. The ERACS study shows a positive ROI of 118%, if those costs were prorated the ROI would be increased.

The monetary benefit estimates show the approximate dollar value attributed to a resource intensity weight (RIW) for KGH as a proxy indicator.

Traditional colorectal patients at KGH had an average RIW value 3.4176, compared to 2.6957 for traditional IH patients and 1.7630 for the KGH ERACS patient cohort. This represents a significant decrease in RIW. Given the significant decrease in length of stay in the KGH ERACS patient cohort compared to traditional recovery patients (4.0 versus 12.8 days), KGH could potentially increase its overall RIW value by increasing the throughput of patient discharges.

This is the first ROI study completed in Interior Health and it is recommended that additional ROI studies be conducted in the future using the capability of the staff and the ROI Institute Canada to show impact and ROI, aligning with the IH Strategy Map.

RECOMMENDATIONS

Future Measurement and Evaluation

To continue to bring increased accountability to Interior Health and to have routine measurement of the success including the financial ROI on initiatives several additional efforts should be undertaken to develop ROI capability within Interior Health.

The first issue is the focus of developing and implementing more precise objectives. Setting objectives at each level sets up expectations for all stakeholders from reaction, to learning, to application and impact. This would mean that the staff needs to understand how to write specific objectives. This can be accomplished in a half day workshop offered to the staff.

The second issue is to build additional measurement and evaluation capability. It is recommended that additional capability should be increased and several IH staff should be involved in an ROI certification course. To achieve full certification the participants involved would complete an ROI study on a particular program.

The third item is that routine studies should be conducted comparing the traditional processes to the ERAS Pathway, and other initiatives undertaken within IH. These could be combined to clearly show the impact that initiatives have on the patients, the providers and Interior Health.

ABOUT ROI INSTITUTE®

ROI Institute, Inc., founded in 1992 as a service-driven organization, assists professionals in improving programs and processes using the ROI Methodology® developed by Dr. Jack J. Phillips and Dr. Patti P. Phillips. This Methodology is the global leader in measurement and evaluation including the use of return on investment (ROI) in non-traditional applications. ROI Institute regularly offers workshops, provides consulting services, publishes books and case studies, and conducts research on the use of measurement and ROI. This makes ROI Institute the leading source of content, tools, and services in measurement, evaluation, and analytics. Working with more than one hundred ROI consultants, ROI Institute applies the ROI Methodology in 20 fields in over 70 countries. ROI Institute authors have written or edited over 100 books, translated into 38 languages. Organizations build internal capability with the help of ROI Institute and its ROI Certification process. By successfully completing this process, individuals are awarded the Certified ROI Professional® (CRP) designation, which is respected by executives in organizations worldwide.

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