CMBES/SCGB

CANADIAN MEDICAL AND BIOLOGICAL ENGINEERING SOCIETY

NEWSLETTER

LA SOCIÉTÉ CANADIENNE DE GÉNIE BIOMÉDICAL

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50

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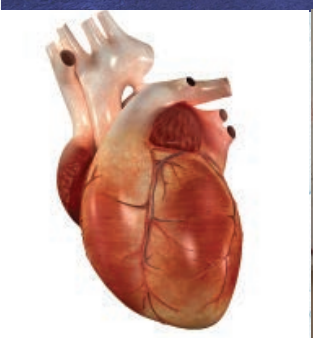

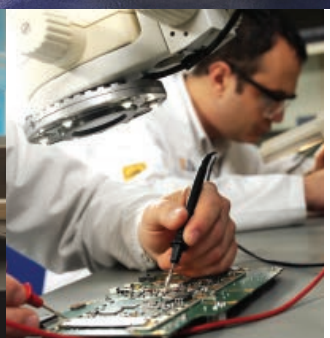

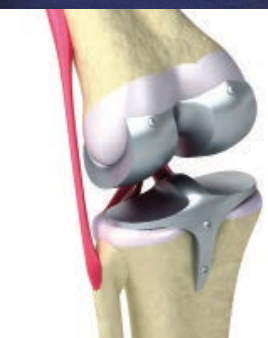

A Word from the President

Greetings Biomedical/ Clinical Engineering Community,

There are some challenging issues our profession is dealing with these days. In the clinical engineering field, we have an ongoing challenge with some vendors not providing adequate service information or tools to permit in house clinical engineering staff to service the medical technology. The FDA has issued a call for feedback on third party repair issues and perceptions from both the industry and clinical engineering perspectives. Whether this will result in the US FDA changing some of its regulations remains to be seen, but we are often impacted in Canada.

We are also dealing with the ongoing challenges of interfacing medical technology to the electronic health record. When will the industry catch up and provide medical technology with network cards and communication via HL7 protocols. It's amazing that such a fast paced telecommunications industry fails to trickle down to medical technology. How can we influence our industry and research partners to make these improvements?

This issue contains a variety of articles including improvement suggestions for Clinical Engineering departments and Durham College's introduction of an alternative career path from core Biomedical/Clinical Engineering in healthcare technology management.

Your thoughts and ideas foster change through our communication forums at our conferences and our on line forum so please take the time to share.

Cheers,

Martin Poulin, P.Eng,
President

CMBES/SCGB

TALK TO US!

We Want To Hear From You!

Comments? Questions? Information? Ideas for the next Newsletter?

Contact Us!
Phone: 613-728-1759
Email: secretariat@cmbes.ca

How to Get Your First Job in Biomedical Engineering

By Gad Acosta

Even though it was over a decade ago, I remember my first interview quite well. There were white walls, beige chairs, and an almost absolute silence except for the intermittent voices in the room. It was for a full-time position, and I really needed to succeed as I was an international student and it was the only way to continue living in this amazing country I now call home. It was also crucial to open that door in order to enter the professional world.

There were general questions about biomedical engineering that I was able to answer correctly thanks to the college program I took and many hours of studying hard; however, when there was a real biomedical world component, I found that this type of information was not fully explored during my educational formation. I did not get that position, but that did not discourage me. I had various conversations with people who knew about the field and were successful.

The wisest advice I had, was from Adrian Johnson, our instructor at the time. He recommended joining the Canadian Medical and Biological Engineering Society as a way to learn more about our fascinating profession: "But I am only a student!" I said.

Adrian quickly answered, "There's student membership as well."

I joined. For the second interview opportunity, when it came to talking about biomedical engineering, it turned out to be my favorite part since I had over ten minutes of conversation regarding my areas of great interest. This time the outcome was favorable, and I understood a fundamental benefit of joining CMBES.

Our field of work is vast, and there are many areas that can be explored. I find it natural, that there will be topics which will grab your interest and like a good book, you will find it hard to stop learning more about them, while others might as well become bedtime reading material for a good night's sleep.

The best way to discern between them would be to become actively involved with your local provincial society, as well as our national one. By attending webinars, whether in person or remotely, you will learn of actual problems with medical equipment, hear from experts, talk to current professionals, as well as find valuable tips that can reduce countless hours of designing or troubleshooting into one efficient session.

Our yearly conference offers a window to various topics, and if this is the profession you are passionate about, you will find it hard to choose among the plethora of sessions that will be of your interest. If something appeared to be promising, and it turned out not to be what you thought, you have a chance to go to an alternative presentation and learn about something else.

If you need further clarification, do not hesitate to ask as this will further your understanding of the topic and you will remember. Most importantly, if you face any variant of the question regarding your greatest area of interest, you will be prepared. I am sharing the best piece of advice I ever received with you, as I am certain that it will make a difference in your journey, as it did in mine.

Contact us at:
secretariat@cmbes.ca

Durham College Targets Growing Divide Between Medical Technology and Leadership with Honours Bachelor of Health Care Technology Management

By Melissa McLean, Communications Officer, Durham College

Durham College (DC) has announced the launch of its Honours Bachelor of Health Care Technology Management (BHCTM) program. The first program of its kind in Canada, the BHCTM degree addresses an identified need in the health care sector for professionals with a diverse skill set that combines expertise in medical technologies, life sciences and business practices.

Rick Tidman, Honours BHCTM Program Coordinator
Photo: Ryan Pfeiffer / Metroland

"As health care continues to surge ahead in its rapid transition to a technology-driven industry, it leaves in its wake an ever-widening gap between new and innovative medical technology and those tasked with integrating such technology into their organizations," said Rick Tidman, professor and program co-ordinator with the college's School of Science & Engineering Technology. "This has left health care, by and large, calling out for new professionals who can close this gap. At DC, we're not only heeding this call, we are answering it."

Students in the BHCTM program will develop knowledge in the principles of health care management and business practices, the management of biomedical technology, safety, and regulatory and legislative requirements to support industry standards and positive patient outcomes. Learning will occur in the classroom, laboratories and the field, and will prepare graduates to bridge the gap between health care business management, clinical practices and the comprehensive technological requirements related to the planning, procurement and management of biomedical equipment.

The BHCTM program has been developed by DC in collaboration with subject matter experts and representatives from regional hospitals and health care organizations, advocacy groups, non-profits and major biomedical equipment manufacturers. The core of the program comprises six streams of study including science and technology, biomedical equipment and clinical systems, mathematics and quantitative methods, management, research and design, and the health care industry, professionalism and ethics.

"We know that medical technology is the key to optimizing delivery of health care in Ontario and around the world, but as that technology advances so does the need for professionals who speak the language of both the innovators and the practitioners," said Dr. Elaine Popp, vice-president, Academic, DC. "Graduates of the BHCTM program will be the implementers who can bridge the two sides, providing strategic leadership that encompasses the assessment of current and innovative technologies and matching them to clinical objectives."

For more information, visit www.durhamcollege.ca/bhctm.

Forum Of Healthcare Professionals, Ex Patients (Fohprep) – An Opportunity To Improve The Healthcare System From Within

Gnahoua Zoabli, P.Eng., M.Eng., PhD., Chief of Biomedical Engineering – Asset Management CISSS des Laurentides, St-Jérôme, Québec.

As part of our work as a clinical engineer, we are working to acquire medical devices that will improve the health of the patients. To the best of our knowledge, we incorporate ergonomic and safety considerations. Our technological choices will promote patient care with dignity and confidentiality. Patients are always at the center of technological decisions without being personally involved. Our organizations are trying their best to involve them in clinical and medical decisions. But, what about the technological aspect?

Our facilities have complaint commissioners or suggestion boxes to allow patients to provide feedback on their episode of care, to improve it for future recipients. But all do not contribute and can not be forced. There is no mechanism to easily and automatically assess the level of appreciation of the services a patient has received.

The disease afflicts every human being in his existence, and our hospitals are full of patients who are physicians, clinicians, health professionals or administrators in health care facilities.

To our knowledge, there is yet no process to gather the observations of this category of patients. With respect for their pain and medical concerns, they constitute a gold mine to improve the various levels of the healthcare system from the inside. An organization or forum that would recruit these healthcare professionals could be an essential partner of the medical industry and focus groups of healthcare institutions looking for continuous improvement in their services to patients. The comments and suggestions of health professionals who have been treated in the health network would greatly help to improve it from within.

> “The comments and suggestions of health professionals who have been treated in the health network would greatly help to improve it from within.”

We made our first pass on a hospital bed on Easter Sunday, 2016, and our observations and suggestions for improvements were presented at CMBEC40 (Winnipeg, Manitoba - May 23-26, 2017), in a paper entitled, ‘ELECTRIC BED DESIGN AND FEATURES FOR NEXT GENERATION OF BEDSIDE NURSING’. We invite you to continue the conversation and contribute to the improvement of the care and the stay of the patient in our healthcare facilities.

If you are interested in joining the select Club of Health Professionals Ex-Patients, and would like to share your constructive comments, you can join the FoHPreP LinkedIn forum and we will continue our exchanges in search of medical technologies better suited to the patient.

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Forum des professionnels de la santé qui ont déjà été patients du réseau (fohprep) – une opportunité pour améliorer le sytème de santé de l'intérieur

Gnahoua Zoabli, ing., M.ing., PhD., Chef du service du génie biomédical – volet immobilisation des équipements médicaux CISSS des Laurentides, St-Jérôme, Québec.

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Dans le cadre de notre travail d'ingénieur clinique, nous faisons le nécessaire pour acquérir des dispositifs médicaux qui amélioreront l'état de santé du patient. Au meilleur de nos connaissances, nous y incorporons entre autres des considérations ergonomiques et sécuritaires. Nos choix technologiques favoriseront des soins qui seront prodigués au patient en toute dignité et confidentialité. Le patient est toujours au centre des décisions technologiques sans être personnellement impliqué. Nos organisations tentent du mieux qu'elles peuvent de l'impliquer dans les décisions cliniques et médicales. Mais qu'en est-il du volet technologique?

Nos établissements ont des commissaires aux plaintes ou des boites à suggestions pour permettre aux patients de fournir un feed-back de leur épisode de soins, question de l'améliorer pour les futurs bénéficiaires. Mais tous ne contribuent pas et on ne peut les y forcer ni même estimer leur niveau d'appréciation des services reçus.

La maladie afflige tout être humain dans son existence, et nos hôpitaux regorgent de patients qui sont des médecins, des cliniciens, des professionnels de la santé ou des administrateurs dans des établissements de santé.

A notre connaissance, il n'existe pas encore de processus pour canaliser les observations de cette catégorie de patients. En tout respect de leur douleur et de leurs préoccupations médicales, ces personnes constituent une mine d'or pour améliorer les différents paliers du système de santé de l'intérieur.

Un organisme ou forum qui recruterait ces ex-patients professionnels de la santé pourrait être un partenaire essentiel de l'industrie médicale et des focus groupes des établissements de santé en quête d'amélioration continue de leurs services aux patients. Les commentaires et suggestions des professionnels de la santé qui ont été traités dans le réseau de la santé aideraient grandement de l'améliorer de l'intérieur.

> "Les commentaires et suggestions des professionnels de la santé qui ont été traités dans le réseau de la santé aideraient grandement de l'améliorer de l'intérieur."

Nous avons fait notre premier passage sur un lit d'hôpital le dimanche de pâque 2016 et nos observations et propositions d'améliorations ont fait l'objet d'un article qui a été présenté au CMBEC40 (Winnipeg, Manitoba – 23-26 mai, 2017). Il est titré 'ELECTRIC BED DESIGN AND FEATURES FOR NEXT GENERATION OF BEDSIDE NURSING'. Nous vous invitons à poursuivre ensemble la réflexion et contribuer de cette autre façon à l'amélioration des soins et du séjour du patient dans nos établissements de santé.

Si vous êtes intéressé(e) à faire partie du Club select des ex-patients professionnels de la santé, et souhaitez partager vos observations constructives, vous pouvez joindre le forum linkedIn FoHPreP et nous poursuivrons nos échanges en quête de technologies médicales de mieux en mieux adaptées au patient.

The Role of Pharmaceutical Quality Assurance in Ensuring Product Safety & Effectiveness

Quality Assurance – A Systematic Approach to Overcoming the Surge of Substandard Medical Products

Quality assurance entails all the arrangements made to ensure that pharmaceutical products are safe, effective and have the desired quality according to their intended use. Quality assurance is considered a good manufacturing practice for meeting the standards and specifications of pharmaceutical products in terms of quality, reliability, efficacy and safety. To ensure the safety of public health, standard operating procedures are designed in compliance with scientific regulations and executing the SOPs is the responsibility of the QC department. Calibration services play a vital role in various aspects of quality assurance right from manufacturing of medical devices to ensuring adherence to product releases. Calibration services ensure compliance with pharmaceutical quality standards for patient safety.

Ensuring Quality on the Floor

The quality assurance unit of highly specialized organizations is responsible for delegating the operations to quality employees who must ensure that the law is complied to and the end-users are protected from the potential accidental defects in the manufacturing process. Every pharmaceutical company knows the risks involved in the mass manufacturing of products for patient use but not many are aware of how to combat these hazards efficiently. Calibration services reduce the risk and improve product safety.

Today medical device manufacturing practices are governed by FDA and ISO and more and more companies are accustomed to the impact of instrument calibration on product liability. This has compelled companies to follow safety oriented procedures and reduce the risks associated with product liability.

Steps Involved in Quality Assurance

Quality assurance is a broad concept that encompasses monitoring and management of production processes, documenting, and analyzing data to maintain product quality.

- QA starts with consulting the program advisor and the technical crew on developing and designing QA measures to fulfill the standards mandated by the regulatory authorities.
- Locating calibration services to perform the required external checks
- Evaluating in-house resources and capabilities to identify the limitations
- Making recommendations for process improvements that can be implemented over time

The Solution

Professional organizations need to actively cultivate a culture where quality management is the core focus. For this, organizations need to develop a robust training program that efficiently addresses quality management issues and covers technical documentation and reporting obligations for timely investigation of quality issues. Internal and ex-

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The Role of Pharmaceutical Quality Assurance in Ensuring Product Safety & Effectiveness

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ternal checks should be performed by quality employees and field technicians at the project sites.

Internal Checks should Include the Following Verifications:

- The use of de-ionized water for identifying contamination
- Filtering of buffered water used for testing results in positive and negative plates
- Field duplicates are collected at the same time and at the same place for sampling precision
- Samples are segregated into subsamples before they can be analyzed for precise comparison
- The instrument is set to zero using de-ionized water and blanks are employed to check for drifts
- Instruments are calibrated against multiple standard concentrations of a specific indicator

External checks should be performed by a licensed QC lab while ensuring that:

- The duplicated sample collected at the site is analyzed at the same time and at the same place by an independent sampler
- One sample is analyzed by both the project lab and the independent lab and both the results are compared for discrepancies
- All the field duplicates are sent to an independent lab and the results are duly compared with the measurements
- All the labeled samples with known concentrations are sent to the QC lab for analysis before the first run is performed and the results are compared for discrepancies
- For unknown samples, the findings should be compared with known values by an independent QC lab and any discrepancies should be reported

Pharmaceutical companies that ignore these quality checks are likely to suffer serious consequences. Focusing on compliance is not enough to succeed, companies need calibration services to make sound decisions regarding product quality.

Quality Assurance v.s. Compliance

While industries have a singular focus on quality, regulatory authorities concentrate on compliance. Both the terms are used interchangeably but there is a considerable difference between the two. Quality assurance entails all the processes and procedures implemented in an organization to ensure high-quality standards that meet regulatory requirements while compliance is a function that simply documents the quality of your manufacturing processes and products. It is possible to ensure quality even without compliance checks but there can be no compliance in the absence of quality. Compliance treats the symptoms of a problem but quality treats the cause itself.

Author Bio: Edward Simpson is a seasoned Calibration and Technical Engineer working for RS Calibration Inc. Edward has a knack for finding faults in machines and does not rest until they are rectified to perfection. He lives in Pleasanton, CA and can be contacted anytime for matters related to machines. He also invites people to visit his company www.rscal.com to learn more about the type of calibration work he does.

Improving IPM Completion Rates – How Service New Brunswick Used the "Critical Percentage" Concept to Meet Its Goals

ECRI Institute

EXECUTIVE SUMMARY

Service New Brunswick (Fredericton, NB, Canada) was named a finalist for ECRI Institute's 11th Health Devices Achievement Award in May 2017 for the simple but effective approach it used to improve completion rates for medical device inspection and preventive maintenance (IPM) procedures throughout the province.

Several years ago, the eight clinical engineering groups serving the healthcare facilities in New Brunswick, Canada, were consolidated into a single group. One challenge associated with this consolidation was completing IPM procedures in a timely manner across the organization. Any IPMs that were not completed during one month would spill over into the next, compounding the problem.

The organization needed a way to provide technologists with better guidance to help them prioritize the equipment on their lists. Their solution was to forget about "due dates" and instead to embrace a concept called the "critical percentage."

The critical percentage for any piece of equipment is determined by dividing the number of days since the equipment's last inspection by the recommended frequency of inspection (in days). That figure is then multiplied by 100 to obtain a percentage. Whereas the due date communicates only when an inspection is due for a piece of equipment, the critical percentage expresses the due date in relation to the recommended IPM frequency for that piece of equipment. In this way, it helps technologists prioritize their work by identifying the most urgent IPMs to complete at any given time.

Plus, the critical percentage is expressed as a single value. This makes it easy to see at a glance which equipment should be given priority (higher numbers are a higher priority than lower ones). It also simplifies generating reports so that technologists, managers, and administrators can track progress toward meeting the organization's IPM goals for each facility in the system. Since instituting this change, the organization achieved marked improvement in its IPM completion rates and has consistently maintained that level of performance.

ECRI Institute presents the Health Devices Achievement Award to recognize innovative and effective initiatives undertaken by member healthcare institutions to improve patient safety, reduce costs, or otherwise facilitate better strategic management of health technology. For details about the other submissions that achieved recognition, see The Health Devices Achievement Award: Recognizing Exceptional Health Technology Management.

Service New Brunswick (Fredericton, NB, Canada) was selected as a finalist for ECRI Institute's 11th Health Devices Achievement Award for the simple but effective approach it used to improve completion rates for medical device inspection and preventive maintenance (IPM) procedures throughout the province.

The Health Devices Achievement Award recognizes innovative and effective initiatives undertaken by member healthcare institutions to improve patient safety, reduce costs, or otherwise facilitate better strategic management of health technology.

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Improving IPM Completion Rates – How Service New Brunswick Used the "Critical Percentage" Concept to Meet Its Goals

ECRI Institute

ECRI Institute announced the winner and three other finalists for the 11th award in May 2017. For details about the other submissions that achieved recognition, see The Health Devices Achievement Award: Recognizing Exceptional Health Technology Management.

ECRI Institute congratulates the project team members: Brett Fraser, Ron Sturge, Daniel Richard, Rejean Gauvin, and Troy Target.

THE CHALLENGE

To improve IPM completion rates for the medical devices used in the province of New Brunswick, Canada.

THE LANDSCAPE

1. In 2011, the eight clinical engineering groups serving the healthcare facilities in New Brunswick were consolidated into a single group. Analyses conducted during the reorganization identified that, too often, IPM procedures were not being completed in a timely manner.

2. This problem persisted for the first few years under the new arrangement, illustrated by failures to achieve the key performance indicators (KPIs) that had been established for the facilities in this Canadian province—namely:
a) A 100% completion rate for life-critical devices (an inventory of about 1,000 devices)
b) An 80% completion rate for high-risk devices (over 10,000 devices)

Note: U.S. hospitals must comply with the Centers for Medicare & Medicaid Services (CMS) requirement to meet a 100% completion rate for all equipment. View the recording of our January 2017 webinar for a detailed discussion of this issue.

3. Technologists would receive a list of devices that were due for inspection that month, but they were not given sufficient direction to help them prioritize the equipment on their lists. Any IPMs that were not completed during the month would spill over into the next month, compounding the problem.

THE PROCESS

1. The tide began to turn in 2013, when the organization embraced the "critical percentage" concept to help technologists better prioritize their worklists.

a) The critical percentage is a single value that communicates the urgency for performing any particular IPM at any given time. It is used instead of, and provides more information than, a due date.

b) While not the first organization to use the critical percentage concept, Service New Brunswick demonstrated the benefits that can be realized when an organization commits to this approach.

2. The critical percentage for each piece of equipment is determined by dividing the number of days since its last inspection by the recommended frequency of inspection (in days). That figure is then multiplied by 100 to obtain a percentage:

$$\frac{\text{Days Since Last IPM}}{\text{IPM Frequency (in Days)}} \times 100 = \text{Critical Percentage}$$

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Improving IPM Completion Rates – How Service New Brunswick Used the "Critical Percentage" Concept to Meet Its Goals

ECRI Institute

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3. Whereas the due date communicates only when an inspection is due for a piece of equipment, the critical percentage expresses the due date in relation to the recommended IPM frequency for that piece of equipment. In this way, it helps technologists prioritize their work by identifying the most urgent IPMs to complete at any given time.

4. Consider the following example:

Device	IPM Frequency	Days Since Last Inspection	Days Overdue	Critical Percentage
A	1 year (365 days)	408	43	112%
B	6 months (180 days)	197	17	109%
C	3 months (90 days)	104	14	116%

a) In this example, three devices are overdue for inspection:
(1) Device A, which has an inspection interval of once a year, was last inspected 408 days ago. Its critical percentage is (408 ÷ 365) × 100 = 112%.
(2) Device B, which has an inspection interval of once every six months, was last inspected 197 days ago. Its critical percentage is (197 ÷ 180) × 100 = 109%.
(3) Device C, which has an inspection interval of once every three months, was last inspected 104 days ago. Its critical percentage is (104 ÷ 90) × 100 = 116%.

b) Judging by just the due dates, device C would appear to be the lowest priority since it is only 14 days past its due date, compared with 43 and 17 days overdue for the other devices. However, the critical percentage values show that device C should in fact be given the highest priority, resulting from its need for more frequent inspections.

5. Service New Brunswick incorporated the critical percentage into its in-house-developed computerized maintenance management system (CMMS) in early 2014. To help staff shift away from the due-date mindset, the critical percentage value was displayed instead of the due date in all equipment records, on every work order, and within the dashboard that is used to drive the IPM program.

6. Using the dashboard, technologists are able to filter and sort the equipment list—for example, by critical percentage—to identify equipment in need of inspection and to generate a work order for that IPM.

THE RESULTS

1. Productivity enhancements—Service New Brunswick reports that its implementation of the critical percentage concept has improved productivity, resulting from benefits such as the following:

a) The availability of a single number that shows the IPMs that war-

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Improving IPM Completion Rates – How Service New Brunswick Used the "Critical Percentage" Concept to Meet Its Goals

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rant priority status on any given day. This information removes the guesswork about how technologists should prioritize their work.

b) The ability to sort equipment lists by critical percentage. This allows technologists to identify the devices that are coming due for inspection, and those that can wait.

c) The presence of the critical percentage value in equipment records and on work orders. This allows technologists to see the IPM status for a piece of equipment whenever they are working on that equipment.

(1) If the critical percentage is approaching 100%, the technologist can take that opportunity to also perform the IPM.

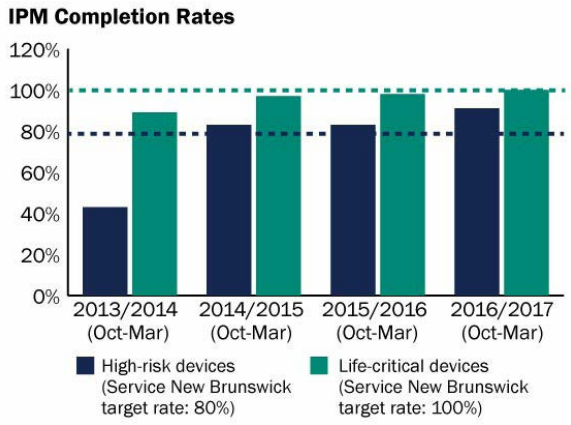
(2) If the critical percentage is over 100%, a pop-up window notifies the technologist that the IPM is required.

2. Improved reporting capabilities—Using a single number simplifies generating reports that allow technologists, managers, and administrators to track progress toward meeting the organization's IPM goals for each facility in the system.

3. Achieving KPIs—The graph below shows the extent to which IPM completion rates have improved since the critical percentage concept was introduced. (Totals encompassing all eight facilities are shown.)

a) Data from the last half of the 2013/2014 fiscal year show that the organization was not meeting its target completion rates (80% for high-risk devices, 100% for life-critical devices).

b) Data from subsequent years show marked and improvement and consistent performance.



KEY TAKEAWAYS

1. Fully integrating the critical percentage concept into the CMMS and the organization's workflow has brought structure to the process. It allows technologists to make more informed decisions about how to approach their IPM tasks, and it allows managers to better track progress toward meeting the organization's goals.

2. Shifting away from the due-date mindset was a real culture change. However, the value of the critical percentage approach quickly became apparent once technologists began using it. The term is now an integral part of the team's vocabulary.

3. At the time the critical percentage concept was introduced, the organization was still trying to get individuals at different facilities to work as one unit. This concept was one change that has helped Service New Brunswick improve its IPM completion rates and achieve consistent results across the eight facilities it manages.

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Improving IPM Completion Rates – How Service New Brunswick Used the "Critical Percentage" Concept to Meet Its Goals

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RELATED RESOURCES

The Health Devices Achievement Award: Recognizing Exceptional Health Technology Management

Designing Custom Apps to Improve Patient Care—An Award-Winning Initiative from Penn Medicine's Center for Health Care Innovation

Strategic Planning in the Clinical Engineering Realm—Norton Healthcare's Approach for Improving Health Technology Management

Transitioning to a Highly Reliable Recall Management Program—How St. Luke's Health System Optimized Technology, Systematized Processes, and Mobilized People

CITATION

ECRI Institute. Improving IPM completion rates–how Service New Brunswick used the "critical percentage" concept to meet it's goals. *Health Devices* 2017 May 8.

CMBES eBulletin - Membership Publications Spotlight

If you or your organization have a publication that would be of an interest to the CMBES membership, we'd like to know about it. Please contact the Secretariat with a copy of your work so we can publish it in the Membership Publications Spotlight section in our next monthly eBulletin or Newsletter!

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Sponsor Research and/or Product Information

The Meditek InSight Equipment Assessments Program

Barret Davis, Meditek, Winnipeg

MEDITEK
Here for L.I.F.E.

Recently, Meditek was awarded a contract to remanufacture the majority of the surgical table fleet at a major health authority over the course of 2 years.

Surgical tables of all makes and models from multiple sites made this contract logistically complex. The solution to this project depended on finding a remanufacturer that possessed:

- Experience with all surgical table brands
- Ability to maintain the schedule
- Proven history and capacity to remanufacture surgical tables
- Value in the price point and depth of warranty

The decision to remanufacture its fleet of tables took time, as many different tables from numerous facilities had to be accounted for and evaluated.

The health authority ended up saving hundreds of thousands of crucial capital budget money.

During the two years that this is in process, the health authority will benefit from "as-new" surgical tables each time another remanufactured table arrives. The tables that have been remanufactured will have the same life span again as when they were purchased originally from the OEM.

One of the worst feelings in the world is that of not knowing.

In the world of biomedical engineering, it could be not knowing when something is going to break down. And of course, when something does break down, it will probably be at the most inconvenient time, as that always tends to happen.

This is the story of a Surgical Director of Financing for a major health authority.

For quite some time, frustration grew as department heads were frequently going to the Director with requests for new surgical tables, as the existing ones were breaking consistently breaking down.

The Director had his budget. He was not expecting these requests. But month after month, they came in. To buy new tables every time they thought that a new table was called for was going to be expensive. His budget would definitely take a hit.

What Are The Options?

The Director's biggest concern was that he had no way of telling what tables would be next. In the next 4 months, would he have 4 requests for new tables? Or none at all?

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Sponsor Research and/or Product Information

The Meditek InSight Equipment Assessments Program

Barret Davis, Meditek, Winnipeg

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Want to know the price of a general surgery table and what influences the cost?
https://www.meditek.ca/cost-of-general-surgery-table-options-accessories-prices/

He needed to know this information in order to plan ahead and allocate his budget accordingly. Did he put aside $20,000 for repairs? Or, did he put aside $150,000 for new surgical tables?

Eventually, he came across the solution – the Meditek InSight Equipment Assessments https://www.meditek.ca/services/insight-equipment-assessments/ program.

The outcome of the InSight program would make life easier for himself, but also for the many biomedical engineers that were the ones responsible for keeping the fleet of tables functional.

A Day In The Life Of A Biomedical Engineer

We all know how busy a day in the life of a biomed engineer can be.

Equipment from all departments converging on the one with a multitude of problems, each one is more important than the other, and needing to be fixed last week.

In regards to what happened in this particular story, the Biomedical Engineers were put in a position where the scope of fixing went beyond the regular maintenance.

Departments from multiple facilities were sending their tables to Biomed for repair, when the repair required a surgical table specific technician, who have the proper tools and manuals.

Without the proper tools or manuals at their disposal, the Biomeds were doing the best they could with what they had.

But, it wasn't enough for a long-term solution.

Other challenges they faced, apart from the lack of specialized tools and manuals, were not knowing where or how to source the parts, who to call for guidance, and more in-depth technical knowledge (such as hydraulics or electrical circuits).

When there were surgical tables breaking down every so often, the confidence that the surgical team could do their job without interruptions was diminishing.

The Biomedical team never knew when to expect the next one. And when the next one did come in, the pressure was on to get it fixed, as surgeries faced getting cancelled.

Taking A Look Inside

The Director needed to know what the current conditions of all the tables in the health authority were.

He needed to know that Table A from Facility XYZ was on its last legs and needed to be replaced. He needed to know that Table B from Facility ABC was still functional but would need some repair done within the next year.

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Sponsor Research and/or Product Information

The Meditek InSight Equipment Assessments Program

Barret Davis, Meditek, Winnipeg

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That's when Meditek was brought in to do an InSight inspection on all the tables in the entire health authority.

When all was said and done, Meditek came back with a fully detailed report on every single table, including photos that displayed its current inner and outer condition. The report included a section that indicated the date that it was likely that the table would be replaced. Now knowing what he was up against, the Director, with the guidance of the Biomedical team, started the process of putting a tender together that would take care of this problem once and for all.

Some of the tables were destined to be replaced by new ones, while other tables were to be remanufactured. https://www.meditek.ca/products-page/remanufacturing/

The idea to remanufacture some of the tables came directly from the fact that it was financially impossible to buy all brand new.

With dozens of tables in need of repair or replacement, buying brand new would cost a fortune.

Alternatively, remanufacturing can save up to 60% off the cost of new. It was a no brainer.

Bump In The Road

The tender was eventually released.

But with so many facilities that had so many different brands and models of tables, it was very hard to come to a consensus that fit everyone's agenda.

The tender was cancelled, and life went on as it did before.

More bad news came for the Biomedical team when the Director changed employment.

The new Director had the issue brought before him, but he didn't know the details.

Months of studying the issue, and with the crucial input and guidance of the Biomedical team, the new Director released a new tender.

ReNew®
Equipment Restoration Program

The Solution

Literally, years had passed since the old Director first started on this journey.

The tender was awarded to Meditek and work could finally begin.

Because the needs of the facilities crossed over brands and models, they were looking for a vendor that was familiar with all of them.

Continued on next page >

Sponsor Research and/or Product Information

The Meditek InSight Equipment Assessments Program

Barret Davis, Meditek, Winnipeg

Meditek's ReNew https://www.meditek.ca/products-page/remanufacturing/meditek-remanufactured-surgical-tables/ program, which started remanufacturing surgical tables in 1981, had seen basically every brand and model go through its process over the years. The program restores equipment to as-new condition and has a two-year all parts and labour warranty, which backs up the quality of the process.

Being a distributor and not a manufacturer, Meditek was in a unique position where they were not tied to just one brand.

For the tables that needed to be replaced with new, Meditek was able to accommodate this with its line of Skytron tables (https://www.meditek.ca/products-page/new-skytron-surgical-tables/), a leading surgical table manufacturer.

This combination of having a multi-brand remanufacturing program, exclusive line of leading surgical tables, and decades of technical and logistical knowledge, were the successful formula for winning the tender.
Additional Information

Have questions about the remanufacturing process? Learn more about it here. (https://www.meditek.ca/remanufacturing-hospital-equipment/)

Sponsor Research and/or Product Information

A Whole Range of Medical Batteries

Mark Coyne, BBM Battery, Mississauga

BBM Biomedical Manufacturing is an ISO 13485 quality standard company with a Health Canada Medical Device manufacturing Licence for rechargeable medical batteries. BBM is the only Canadian based medical replacement battery company with these very important credentials. These credentials allow our customers to purchase, worry-free, rechargeable medical batteries in all chemistries' that meet all the quality standards, traceability and labelling requirements established and monitored by Health Canada . Please see below our press release announcing our Health Canada License in 2015.

BBM BIOMEDICAL BATTERY MANUFACTURING RECEIVES MEDICAL DEVICE MANUFACTURING LICENCE FROM HEALTH CANADA

BBM becomes the first Canadian Company licenced by Health Canada to manufacture rechargeable medical batteries.

Mississauga, Ontario – BBM Biomedical Battery Manufacturing, a market leader in the supply of biomedical batteries to the Canadian Market is pleased to announce, that it has been licenced by Health Canada to manufacture rechargeable medical batteries. As part of Health Canada licensing process BBM has also been awarded the prestigious ISO 13485:2003 quality standard certification. ISO 13485:2003 specifies requirements for a quality management system where an organization needs to demonstrate its ability to provide medical devices and related services that consistently meet customer requirements applicable to medical devices and related services. These quality system requirements came into effect January 1, 2003.

Company CEO John Shoreman, a 28 year veteran of the Canadian battery business, is pleased with his company's landmark achievement, "I am extremely proud of my team for the key roles they played in meeting and exceeding all the ISO13485 and Medical Device Manufacturing License requirements. Mr. Shoreman believes the time and resources devoted to securing this license was well worth the effort, "we feel that it is important for the Canadian Market to have the option to purchase medical batteries manufactured in Canada".

Currently there are several battery companies in Canada that have a Health Canada Medical Device Establishment License. It should be noted, this license, does not authorize these companies to manufacture medical batteries or perform any value added work on medical batteries. Typically, these companies import and distribute batteries from one US based company licensed by Health Canada to manufacture medical batteries.

"I congratulate BBM on attaining their Health Canada manufacturing license. I have been doing business with BBM since 2001 and have always appreciated the quality of their products and the high level of service they provide" Ray Sabadin, Biomedical Engineering, Hospital for Sick Children, Toronto, Ontario.

Established in 1994, BBM Biomedical Battery Manufacturing Inc. is dedicated to serving the Medical

Sponsor Research and/or Product Information

A Whole Range of Medical Batteries

Mark Coyne, BBM Battery, Mississauga

and Healthcare Industry/Community. Providing this industry with only the finest replacement batteries is our primary focus. For more information please visit our website: www.biobatman.com

B.B.M. Medical Battery is pleased to announce the addition of three new replacement batteries to their product lineup.

1. Welch Allyn Connex VSM (Batt 99)
http://www.biobatman.com/medical_battery_manufacturer_models_search1.php?searchword2=Welch+Allyn+BATT99+Li-Ion.+Fits+Connex+6000+Vital+Signs+Monitor+%28VSM%29&x=23&y=13

2. GE Mini Dash, GE Solar 8000i, GE Protransport series patient monitors
http://biobatman.com/medical_battery_manufacturer_models_detail.php?id=3510

3. Alaris Medley 8000 infusion pump (special pricing available)
http://biobatman.com/search_product_part.php?searchword=5073&x=27&y=7

BBM has recently entered into a distribution agreement with Physio-Control/Stryker to distribute AED batteries to the Canadian market. All BBM Biomedical batteries come with a minimum 1 year guarantee. Please direct any enquiries to Mark Coyne: email address mark@bbmbattery.com : business ph: 1-888-328-6587 mobile ph: 289-979-9590

Congratulations to the the 2017 CMBES Awards Winners!

Outstanding Canadian Biomedical Engineer - Gordon Jasechko, **Victoria BC**

Outstanding Canadian Biomedical Technologist - Kelly Kobe, **Calgary AB**

Early Career Achievement Award - Marie-Ange Janvier, **Ottawa ON**

Fellowship Member - Petr Kresta, **Winnipeg MB**

Congratulations to our Paper Competition Winners!

Best Overall Paper ($2000) - Dr. Sean O'Brien (Absent)

1st Place Student ($500) - Mr. Sultan Khetani

2nd Place Student ($300) - Mr. Sohail Younas

3rd Place Student ($200) - Mr. Anwar Shatil

Thank you so very much for taking the time to participate in CMBEC40 this year.

We sincerely hope you enjoyed your time at the conference and in Winnipeg. The event was a resounding success thanks to the contributions of CMBES members, our exhibitor community and our fabulous organizing committee.

We look forward to seeing you all again next year in Charlottetown, Prince Edward Island!




Group photo from the Awards Dinner at the Fort Gibraltar, Winnipeg, Manitoba




CMBES/SCGB

THE ATLANTIC CANADA CLINICAL ENGINEERING SOCIETY (ACCES) AND THE CANADIAN MEDICAL & BIOLOGICAL ENGINEERING SOCIETY (CMBES)

Delta Hotels Prince Edward
Charlottetown, Prince Edward Island

SAVE THE DATE!

May 8-11, 2018

2018 CMBEC41 JOINT CONFERENCE

The planning is underway for our next conference to be held May 8-11, 2018 in Charlottetown PEI. It will be a Joint Conference with the Atlantic Canada Clinical Engineering Society (ACCES). To make the conference a success, we are looking for volunteers. It is a good opportunity to gain leadership skills, network and get to know your colleagues, contribute to the profession, and have some fun.

Interested?

If you are interested in volunteering, please contact Murray Rice: Murray.Rice@uhn.ca.