Moulton, Holly HLTH:EX

From: Saunders, Joan [CORP] <Joan.Saunders@vch.ca>
Sent: December 10, 2018 7:28 AM
To: Elaine McKnight; John Bethel; [PHSA] Long, Michael; Quirk, Ron EHS:IN; Vandenberg, Tena [VC]; Powell, Wynne HLTH:EX; [PHSA] Haley, Owen; XT:Ackenhusen, Mary HLTH:IN; Brian Campbell ; XT:Dalton, Fiona HLTH:IN
Cc: Brown, Stephen R HLTH:EX; XT:HLTH Landry, Anne-Marie; Crowell, Holly [VC]; [PHSA] Dailly, Janet; Megan Simpson; Office of the CEO [PH]; XT:HLTH Price, Winnie; susie.to@ca.ey.com
Subject: RE: Additional Documents RE: December 12th CST Project Board Agenda Package

Hi:

Please delete the email I sent at **0709** hours as a document was attached in error. My apologies for any confusion this may have caused. Thanks.

Joan

From: Saunders, Joan [CORP]
Sent: Monday, December 10, 2018 7:15 AM
To: Ackenhusen, Mary [CORP]; Brian Campbell ; Carl Roy; Dalton, Fiona [PH]; Elaine McKnight; John Bethel; Michael Long (michael.long@phsa.ca); O'Connor, Patrick; Quirk, Ron; Vandenberg, Tena [VC]; Wynne Powell (Wynne.Powell@gov.bc.ca); [PHSA] Haley, Owen
Cc: stephen.brown@gems4.gov.bc.ca; Anne-Marie Landry; Crowell, Holly [VC]; Janet Dailly; Megan Simpson; Office of the CEO [PH]; Price, Winnie [CORP]; susie.to@ca.ey.com
Subject: RE: Additional Documents RE: December 12th CST Project Board Agenda Package

HI:

Attached are the following documents for the December 12th CST Project Board meeting:

Revised Proposed Motions
7.0 Project Update
8.0 Upcoming Financial Approvals

Please note that agenda item 8 is noted on the agenda as information but it is for approval and I updated proposed motions document to reflect this. Thanks!

Joan

From: Saunders, Joan [CORP]
Sent: Wednesday, December 05, 2018 11:46 AM
To: Ackenhusen, Mary [CORP]; Brian Campbell ; Carl Roy; Dalton, Fiona [PH]; Elaine McKnight; John Bethel; Michael Long (michael.long@phsa.ca); O'Connor, Patrick; Quirk, Ron; Vandenberg, Tena [VC]; Wynne Powell (Wynne.Powell@gov.bc.ca)
Cc: stephen.brown@gems4.gov.bc.ca; Anne-Marie Landry; Crowell, Holly [VC]; Janet Dailly; Megan Simpson; Office of the CEO [PH]; Price, Winnie [CORP]; Saunders, Joan [CORP]; susie.to@ca.ey.com
Subject: December 12th CST Project Board Agenda Package

Hi:

Please find attached the agenda package for the December 12th CST Project Board meeting which is being held in the 10th Floor Board Room, 601 W. Broadway. Please note that the meeting will be running to 1300 hours. Thanks!

Joan

CLINICAL + SYSTEMS TRANSFORMATION

Our path to smarter, seamless care

CST PROJECT BOARD

Wednesday, December 12, 2018
9:00 am – 1:00 pm
10th Floor Board Room
601 W. Broadway, Vancouver

Dial-in Information: s.15,s.17 **Participant Code:** s.15,s.17

Board Members:
Wynne Powell, Chair
Elaine McKnight, Vice-Chair
Mary Ackenhusen
Carl Roy

Ex-Officio:
Fiona Dalton

Invited Guests:
John Bethel, E&Y
Brian Campbell, E&Y

Staff:
Michael Long
Ron Quirk
Tena Vandenberg
Patrick O'Connor

AGENDA

		Item	Information/ Decision	Attachment	Lead
9:00 (5 min)	1.0	Call to Order			
		1.1 Motion to Hold Meeting In-Camera			Wynne Powell
		1.2 Approval of the Agenda	Approval	Attachment	Wynne Powell
		1.3 Approval of the Minutes of the Previous Meeting – October 24, 2018	Approval	Attachment	Wynne Powell
9:05 (15 min)	2.0	Coastal Update:			Michael Ducie/
		2.1 LGH MSP Report	Information	Attachment	Patrick O'Connor
		2.2 PSLS Quality Information	Information	Attachment	Darren Kopetsky/ Patrick O'Connor
9:20 (15 min)	3.0	CST HR Priorities	Approval	Attachment	Michael Long
9:35 (15 min)	4.0	Adoption Support Roles in CST	Approval	Attachment	Michael Long

9:50 (5 min)	5.0	Financial Insights • FESR Changes • IMITS Transfers & Staffing	Information	Attachment	Michael Long
9:55 (5 min)	6.0	PharmaNet Integration	Information		Ron Quirk
10:00 (15 min)	7.0	Project Update • LGH MSA Meeting • BCNU Relationship • Cancellation of Zynx Subscription • Achievements since October 24, 2018 • Oncology / BC Cancer Progress • Acute/Ambulatory Progress • BCMHSUS and C&W Progress • Review of Potential Richmond Launch	Information	To be distributed	Michael Long / Owen Haley
10:15 (10 min)	8.0	Upcoming Financial Approvals • Cerner Consulting Extension • Specimen collection • Facility Construction	Information	To be distributed	Michael Long
10:25 (15 min)	9.0	Financial Update	Information	Attachment	Brian Campbell John Bethel
	9.1	Contingency Spend Report	Information	Attachment	T. Vandenberg Michael Long
10:40 (20 min)	10.0	CST Cancer Go-Live Approach	Discussion	"Walk-in"	Owen Haley/ Malcolm Moore
11 00 (90 min)	11.0	Integrated Project Planning/Forecast	Information	Attachment & "Walk-in"	Brian Campbell John Bethel
12:30 (10 min)	12.0	Roadmap	Approval	"Walk in"	Michael Long
12:40	13.0	Adjournment			
	14.0	Next Meeting: February 13, 2019 9:00 am to 12:00 noon 10th Floor Board Room 601 West Broadway, Vancouver			
12::40 – 13:00		In-Camera Session - - Board Members only			
15.0	*Distributed for Information Only*	*CST Program Dashboard*		Attachment	

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CST PROJECT BOARD
MINUTES
Wednesday, October 24, 2018

A meeting of the CST Project Board Committee was held on Wednesday, October 24, 2018, commencing at 9:00 a.m. in the 10th Floor Board Room, 601 W. Broadway, Vancouver, BC

Board Members	Wynne Powell (Chair)	Elaine McKnight (Vice-Chair)
	Mary Ackenhusen	Carl Roy
Ex-Officio	Fiona Dalton	
Executives	Michael Long	Tena Vandenberg
	Patrick O'Connor	Ron Quirk
Invited Guests	John Bethel (E&Y)	Brian Campbell (E&Y)

1.0 Call to Order

1.1 It was duly MOVED

THAT the meeting be declared in-Camera at 0900 hours

CARRIED

1.2 Approval of the Agenda

It was duly MOVED

THAT the agenda be approved as amended.
CARRIED

1.3 Minutes of Previous Meeting

It was duly MOVED

THAT the minutes of the September 12, 2018 CST Project meeting be approved.

2.0 Coastal Update –

2.1 LGH MSP Report – Patrick O'Connor & Michael Ducie

Michael Ducie reviewed the MSP billings up to July 31st which contained one month of data where clinical and non-clinical supports were removed. In comparison to 2017, the total volume of services provided is down by 3% and the total amount paid is up by 4% and the data is showing there is no impact on productivity due to Cerner.

Fiona Dalton indicated that the PHC physician groups are starting to engage in conversations around compensation in regards to go live and inquired about LGH and what was agreed to. Dr. O'Connor provided further details and Michael Ducie is available to answer any specific questions that may arise in her conversations with the physicians.

Dr. O'Connor reported that all providers/clinicians spend more time in an EMR, but pointed out that perception varies and some providers are still expressing this concern. This is partly a reflection of provider proficiency but also reaffirms the need to get the local Clinical Informatics Team proficient in Cerner and providing the on-site support that is required.

2.2 PSLS Quality Information – Patrick O'Connor & Darren Kopetsky

Dr. O'Connor updated the Committee that as the Project Board does not meet the criteria of a restricted quality committee as set out in section 51 of the Evidence Act, it may receive only summary and aggregate data concerning safety events as part of its governance of the implementation of CST. In response to the Chair's question whether the information would be accessible in a timely fashion should there be any significant safety events considered to be CST-related, Dr. O'Connor advised that for events involving the computer system the exploration of the cause is timely and organizational leaders would be alerted of concerns promptly; the implementation of actions across the organization would be undertaken as expeditiously as possible.

Dr. O'Connor reviewed the document distributed with the agenda noting the data to date shows a surge of events at Coastal around go live with a return to near baseline as familiarity with the clinical processes and the electronic health record increases. The most frequently reported category of events is medication related, consistent with pre-implementation experience, and overall there has been little change in the distribution of events with the implementation of Cerner and its new technology and processes. Further factual details were provided on two events and it was reported to the Board that there was no severe harm and no death related incidents related to the implementation of CST.

There are ongoing issues with lab orphan specimens which the Lab /Cerner team is exploring with other North American Cerner/Sunquest installs and how they approached them with Cerner and Sunquest modules. There is an ongoing effort with lab and the local clinical informatics team to reduce the volume through education and awareness which has shown positive results with the volume of orphan specimens continuing to drop.

2.3 LGH/SGH Operating Metrics – Patrick O'Connor

Dr. O'Connor reviewed the preliminary data for some key operating and efficiency metrics for LGH and SGH for the period of go live and post go-live relative to performance a year prior. These included: ER visits, admissions/discharges, surgical case volumes and patient care, OR time utilization, and operating room efficiency metric. In general, there was a slight dip overall in the metrics at go-live but they have all recovered.

With some providers voicing concerns over the amount of time they are spending in the chart, data was highlighted which captured the efficiency of emergency physician's with 50 patients seen who spent more than two minutes in the chart. The data indicated that as physicians became more proficient with the Cerner system they became more efficient, but as Dr. O'Connor has mentioned on many occasions for those providers at the rural sites who do not see the same volumes it takes them much longer to get to that level of proficiency.

3.0 CST Project Update– Michael Long

Coastal – Whistler/ Pemberton Launch

The go-lives at Pemberton on September 27th followed by Whistler on October 1st went smoothly and there have been no major issues. At-the-elbow support has been extended through to the end of October and will be re-evaluated at that time.

Bella Bella & Bella Coola

Medical Imaging went live with CST Cerner on October 23, 2018 and it went well. Medical Imaging at Sechelt and Powell River are scheduled to go-live in November.

BC Cancer Progress

Michael Long advised the Board on the recent change in CST leadership for BC Cancer. He noted that upon reviewing the status of completion of work that what was thought to be complete was not. This is being addressed and his expectation is that March 2019 is still the target date. He advised he will know by November if there are any significant changes as the "re-sequence" of work to the end of the plan will have been completed.

PharmaNet Integration

Michael Long reported that the challenges with connectivity between Cerner and PharmaNet have not been resolved. Different integration tools are being looked at to help mitigate the situation but this still won't entirely address the major issue of the manual entry of patients' medication history from PharmaNet into Cerner.

The discussion highlighted that the MOH's long-term plan for PharmaNet is not known and whether they are aware of the impact this is having on CST and all other clinical systems in the Province. Ron Quirk will follow up with the Ministry and will also determine whether PharmaNet is the source of truth for the data. Mary Ackenhusen requested an analysis be prepared of the costs incurred for layering on more operational people as the workaround solution to the PharmaNet issue. There was agreement this would be beneficial and should also be provided to Ron as background for his discussion with the MOH.

Action: *Michael Long to provide Ron with an analysis of the costs incurred for layering on more people as the workaround solution to the PharmaNet issue of having to manually enter medications into Cerner*

Ron to follow up with the Ministry regarding the long-term plan for PharmaNet and report back to Wynne Powell. He will also determine whether PharmaNet is the source of truth for the data.

VA/PHC

Michael Long reported that recent conversations with the PHC Executive Implementation team indicate PHC have targeted go-live for the fall 2019 and most likely October 2019. Ron Quirk reminded that as the Integrated Project Plan isn't available until December it is difficult to make an informed decision on as to whether October 2019 is even doable given PHC's massive dependencies from a system and technological perspective. In response to Fiona's question whether October is the date official there was agreement that the messaging should be that the launch will not be in the spring 2019 and in all probably it will be the fall 2019, but it is still a work in progress.

4.0 CST HR Report – Michael Long

The Chair introduced this item by stating this report is being received as information only and is a work in progress. Its intent is to look at possible compensation options to retain and recruit CST staff, keeping in mind the government policies and guidelines, and reduce consultant costs, which are presently backfilling vacant positions.

Michael advised that a meeting is scheduled with PHSA to discuss this in further detail with Mary Ackenhusen requesting that all health organization's CST HR representatives be invited to attend for this discussion and be involved in the development of the proposal. As suggested at the September 12th and which was reiterated, a proposal needs to be developed for discussion with PSEC and HEABC. The proposal needs to incorporate a level of detail which should include the selected positions, the number in the selected positions, specified time frame. More definitive answers will be available for the December meeting.

By way of information, Carl Roy informed the Board of PHSA's MOH mandate of the expectation to prepare a proposal to address the market differential for IT positions to ensure that the compensation levels were adjusted.

5.0 s.13,s.17

s.13,s.17

6.0 Go Forward Approach Update – Michael Long

This item was not discussed.

7.0 Adoption Support Roles in CST – Michael Long

Michael Long advised this request is coming forward to support the approved go-forward approach. These adoption support roles have been created as additional capacity is required to enable concurrent activities to be undertaken across multiple sites. There will be a total of 70 – 90 people hired within the health organizations (PHC and Vancouver Acute have identified 42) with the hiring staggered throughout the year. They will be assigned to the project to be immersed in CST and become experts in workflows and system usage and will have the knowledge and capability to support quality implementations at all of the remaining CST sites.

Michael confirmed that this this is new money on the design and build phase and the saving benefits accrue at implementation, as these individual will fulfill at-the-elbow support which is in the implementation budget and has been previously provided by higher cost consultants.

In response to the Chair's question whether this qualifies as a capital entry, Tena confirmed it does and it has been through the Financial Working Group and is in alignment with the Accounting Handbook, and the agreed to principles that implementation(operating) and project costs (capital) are separate and have not been altered.

Ms. Ackenhusen apprised the Board of the outcome of her meeting with her Senior Executive leads as she had concerns as it is significant ask, but advised that she is supportive of this approach and agree to it in principle. The members were also in agreement that these positions are beneficial and will add value, but also voiced their concern in regards to:

- No Business Case to support this request
- The unknown of what will be traded off in future capital requests for this $7M capital expense
- No guarantee that the individuals will remain in the position for the specified term, apart from a moral obligation

Michael asked for the Board's guidance as to what to include in the financial business case noting he has no comparative baseline. Suggestions included:

- Risk mitigation
- Cost savings during implementation (extrapolating data from LGH implementation costs)
- The financial cost that would be incurred for slippage against the current burn rate
- Cost savings by reducing the reliance on external consultants for these roles
- Improved internal organizational knowledge by use of internal staff versus the hiring of external consultants

The Chair requested that the CEOs review and agree on the documentation prior to it coming back to Project Board.

It was MOVED,

THAT the CST Project Board approves in principle the Adoption Support role, to be sourced from the Health Organizations, being a defined role within and funded by the CST project for up to $7.1M capital expenditure incremental to the November 2017 forecast, subject to additional documentation being submitted to the Board for its approval.

CARRIED

8.0 Front-End Speech Recognition and CST - Michael Long

Michael summarized the history behind the CST Project Board approval of Front-End Speech Recognition which is an independent project managed by LM Health Informatics but funded by CST. He is recommending changes to the originally approved structure and approach, as recent learnings from LGH has shown there is no significant differentiation in FESR adoption for those physicians who trained early versus those who trained just-in-time. Michael confirmed that this FESR training will be available earlier than CST to the health organizations if there is the physician demand and Fiona Dalton asked that this be included in the recommended changes.

These proposed changes will result in financial savings. As it wasn't entirely clear what the cost savings are, the Board requested Tena take this to the Financial Working Group for their review. Tena noted that if approved, the next steps are for the Financial Working Group to work through the mechanics of the numbers and then have discussions with Finance, LM HIM and Fraser Health as this change will impact them.

It was MOVED,

THAT the CST Project Board approves the following changes to the Front-End Speech Recognition approach and structure:

1. **Integrate FESR into the CST project and dissolve it as an independent project.**
2. **Remove the mandate to implement FESR before CST**
3. **Integrate FESR microphones into the CST/IMITS device and peripherals catalogue and processes**
4. **Health organizations continue to have the flexibility to implement Mmodal FESR at any point in time to gain efficiencies**

CARRIED

Action: FESR: Tena to have the Financial Working Group review the cost savings

9.0 Financial Insights – Michael Long

- In-Kind Resources (Non-IMITS)
- IMITS Transfers & Staffing
- Projects Funded by CST

This item was provided as information as another area where there could be potential for financial savings in regards to "getting value for money spent" from a CST project fund perspective. In particular, it focuses on IMITS staffing and J/V transfers. Michael explained the arrangement for the funding transactions noting it was established in the past and within a different context and is very complex, confusing and it needs to be simplified. The Board agreed that this is an area that should be looked into and requested that the document be reworked to include a proper analysis which is reviewed and validated by the Financial Working Group prior to coming back to CST Project Board for further discussion.

10.0 E&Y Update on Integrated Project Planning (IPP)/Forecast Update – Brian Campbell

Brian Campbell reported that the financial work stream has been going ahead. The focus has been on the financial top down forecast estimate, and on collecting information and data (through workshops and extrapolating data from LGH) and validation of the data. Validation is a key component in the process and the most time consuming in order to ensure its quality before entering into the IPP framework. These streams are running in parallel to meet the December timeline for the IPP report.

He advised of his meeting with Owen Haley and the agreement that Owen and his team will continue with the design and build planning at Level 4 and Level 5 and the E&Y team will be embedded with his team as they develop the implementation, sustainment and all other parts of the plan. This is a departure from the original methodology but in his opinion this is a very efficient process in building the IPP.

The Board noted that it has been relying on the internal plans created by the design and build which are have been reviewed by E&Y in order to improve the granularity and accountability within. These plans are guiding the work that the Board has established as a priority and are short term, and the IPP provides the long-term life of the project.

The IPP will be available for the December meeting for review/approval and the goal is that the IPP will be the baseline. Brian advised the reports generated from the IPP will provide the information that the Board is requiring in order to make informed decisions.

11.0 Financial Update – Brian Campbell

s.13,s.17

11.1 Report on YTD Allocation Posting Corrections – Tena Vandenberg

The year-to-date correction will be done in Period 8. The Chair reminded that the monthly data for P8 will be skewed either negatively or positively due to this correction.

12.0 Adjournment

The meeting adjourned at 1132 hours. Staff left and Board members held an in-camera session.

13.0 Next Meeting – December 12, 2018
9:00 am to 12:00 noon
10th Floor Board Room
601 West Broadway
Vancouver

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Prepared for: CST Project Board

☒ For Information

Prepared by: Michael Ducie
Executive Director, Physician Engagement & Contract Strategies

Endorsed by: Dr. Patrick O'Connor
VCH Physician Executive Lead, CST

Date: November 27, 2018

Issue: MSP Physician Data

Implementation of the Cerner system occurred on April 28th at Lions Gate Hospital. To support implementation of the new clinical system, funding for additional physician resources was provided. This funding provided for additional physicians or shifts to be added to service areas to enable maintenance of productivity while staff increased their familiarity and efficiency with the new system.

The latest physician billings report cumulative up to September 30, 2018 includes the third month where clinical and non-clinical supports have been removed and therefore beginning to illustrate if there are any potential productivity impact trends due to the implementation of the Cerner system.

In comparision to September 2017, the total volume of services provided is down by 5 percent, the total amount paid is up by 0.8 percent both are well above the five year average. This is compared to the decline of 2.1 and increase of 1.8 percent from the previous month. The average midnight patient census in September was up 1 percent from August.

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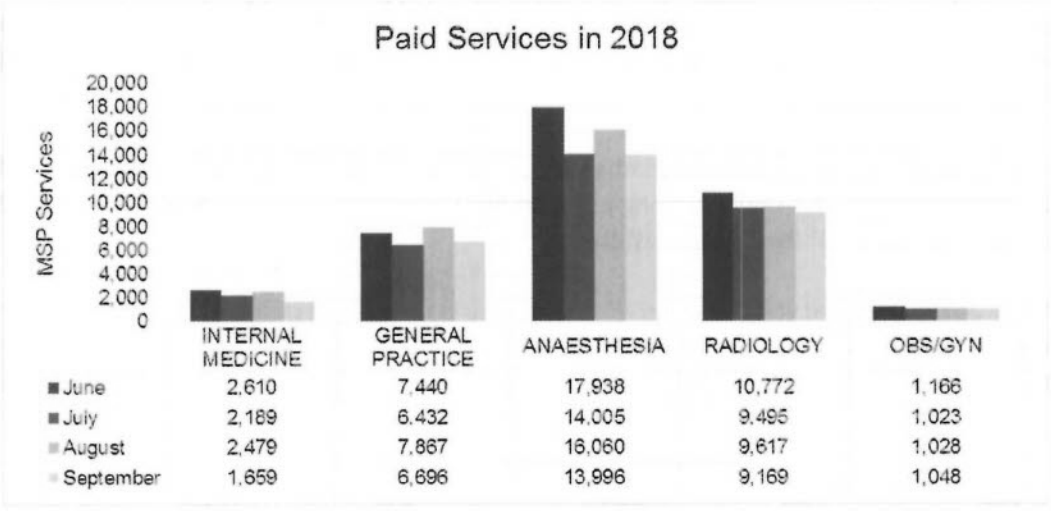
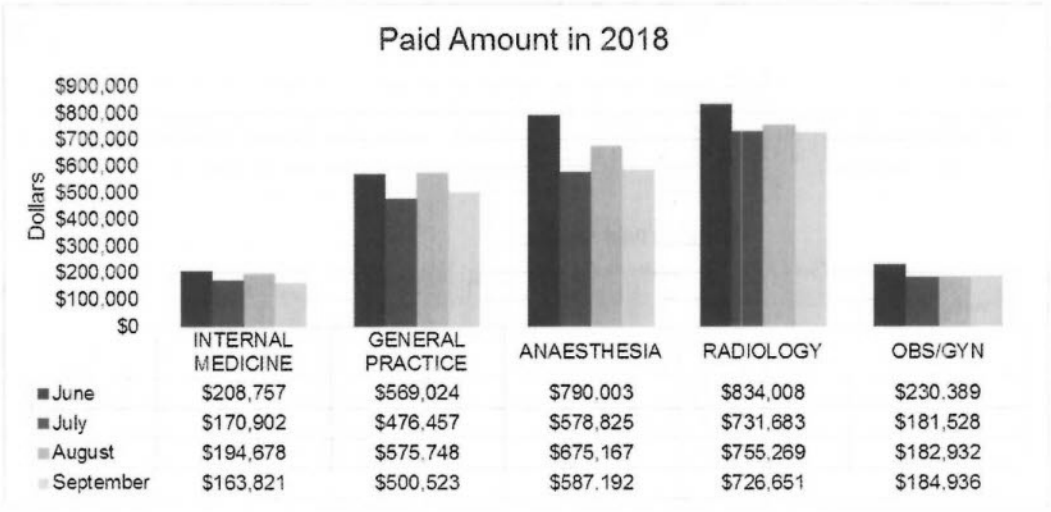
Certain non-Cerner related issues seem to be having an impact on some service areas, non-physician staffing being a key issue for some areas.

There are key specialties that are the bellwether services that will demonstrate any potential on going productivity and reduction in clinical support issues due to their size and relation to other service areas within the hospital; Internal Medicine, General Practice, Anaesthesia, Radiology, and Obstetrics.

Illustrated in the following charts is the productivity and billing amounts from June to September for the five service areas. The past three months have been fairly consistent and the monthly patient census has flucuated by only 2 percent so the consistency is to be expected. It will be important to continue to monitor the productivity levels as the hospital moves into a higher demand season to ensure that capacity of the various services areas are able to cope with the increased demand.



	INTERNAL MEDICINE	GENERAL PRACTICE	ANAESTHESIA	RADIOLOGY	OBS/GYN
June	2,610	7,440	17,938	10,772	1,166
July	2,189	6,432	14,005	9,495	1,023
August	2,479	7,867	16,060	9,617	1,028
September	1,659	6,696	13,996	9,169	1,048



	INTERNAL MEDICINE	GENERAL PRACTICE	ANAESTHESIA	RADIOLOGY	OBS/GYN
June	$208,757	$569,024	$790,003	$834,008	$230,389
July	$170,902	$476,457	$578,825	$731,683	$181,528
August	$194,678	$575,748	$675,167	$755,269	$182,932
September	$163,821	$500,523	$587,192	$726,651	$184,936

MSP Billing in Lion's Gate Hospital:

Monthly Report for VCH (May-September 2018)

BRITISH COLUMBIA | Ministry of Health

MSP Billing of practitioners in VCH in May (for specified practitioners):

- In May 2018, MSP paid $5.4M for 92.7K services provided in hospital service locations. Compared with May 2017, MSP services decreased by *-4.7%*, and expenditure decreased by *-3.3%*.
  - In the previous report (October 2018), data indicated that MSP services decreased by *-4.7%*, and expenditure decreased by *-3.3%* in May 2018, the same as this update.
- While paid services decreased relative to May 2017, both paid services and paid amounts were higher than the 5 year average for May (2013-2017):
  - Average MSP paid amount in May 2013-2017 was $4.5M;
  - Average services were 80.1K
- The 4 practitioner specialties with the highest decrease rate in paid services in May 2018 were Respirology, Neurosurgery, Hematology Oncology and Psychiatry.

MSP Billing of practitioners in VCH in June (for specified practitioners):

- In June 2018, MSP paid $5.4M for 91.8K services provided in hospital service locations. Compared with June 2017, MSP services decreased by *-2.8%*, and expenditure increased by 2.0%.
  - In the previous report (October 2018), initial data indicated that MSP services decreased by *-2.9%*, and expenditure increased by 1.9% in June 2018.
  - The additional data in this report indicates that services decreased less than previously indicated (-2.8% vs. -2.9%). Expenditures increased more than previously indicated (2.0% vs. 1.9%).
- While paid services decreased relative to June 2017, both paid services and paid amounts were higher than the 5 year average for June (2013-2017):
  - Average MSP paid amount in June 2013-2017 was $4.3M;
  - Average services were 78.1K.
- The 4 practitioner specialties with the highest decrease rate in paid services in June 2018 were Respirology, Nephrology, Infectious Diseases and Emergency Medicine.

MSP Billing of practitioners in VCH in July (for specified practitioners):

- In July 2018, MSP paid $5.1M for 85.9K services provided in hospital service locations. Compared with July 2017, MSP services decreased by *-1.5%*, and expenditure increased by *2.9%*.
  - In the previous report (October 2018), initial data indicated that MSP services decreased by *-1.6%*, and expenditure increased by 2.4% in July 2018.
  - The additional data in this report indicates that services decreased slightly less than previously indicated (-1.5% vs. -1.6%). Expenditures increased more than previously indicated (2.9% vs. 2.4%).
- While paid services decreased relative to July 2017, both paid services and paid amounts were higher than the 5 year average for July (2013-2017):
  - Average MSP paid amount in July 2013-2017 was $4.2M;
  - Average services were 75.1K.
- The 4 practitioner specialties with the highest decrease rate in paid services in July 2018 were Respirology, Critical Care Medicine, Internal Medicine and Ophthalmology.

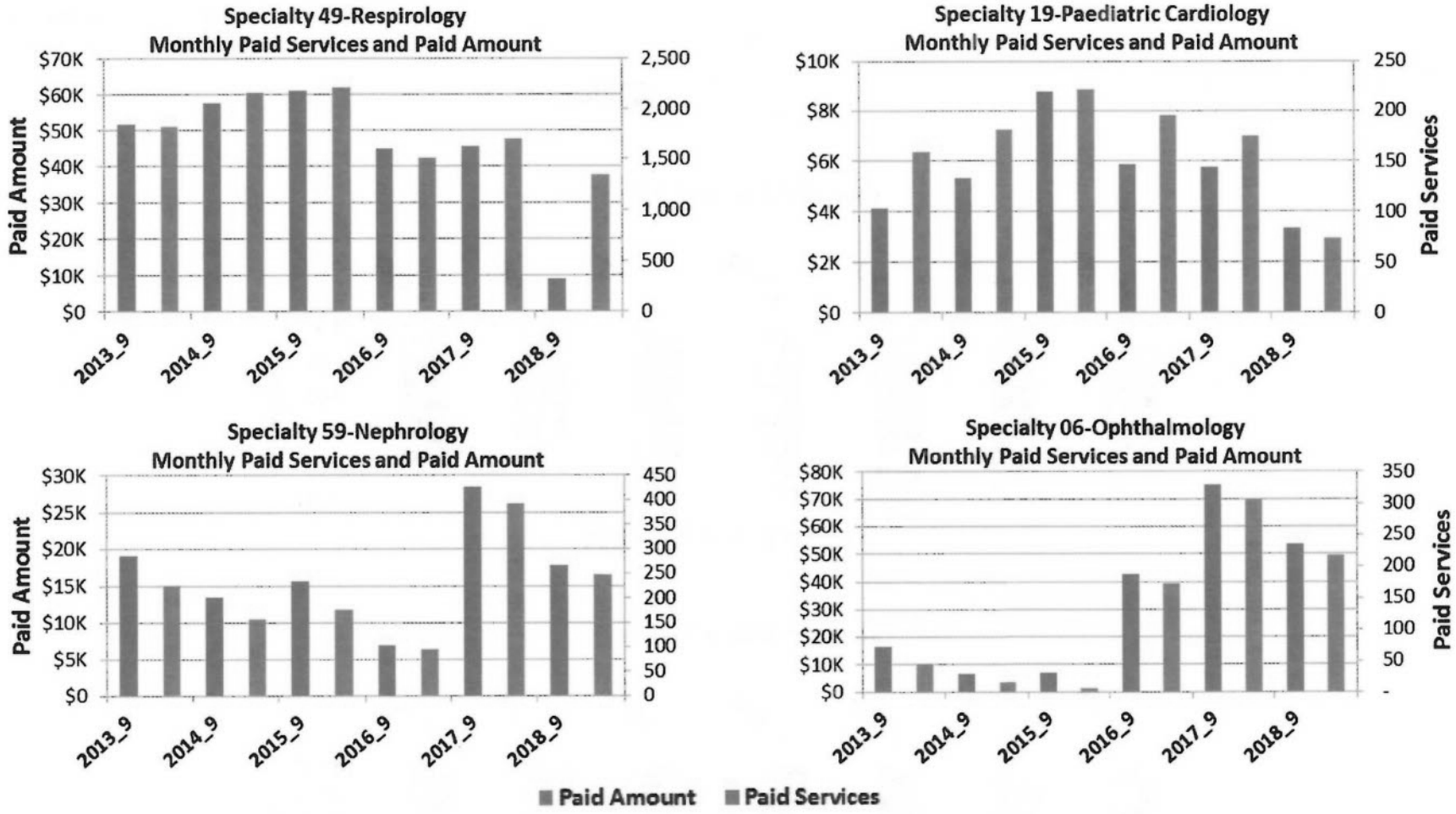
MSP Billing of practitioners in VCH in August (for specified practitioners):

- In August 2018, MSP paid $5.1M for 84.6K services provided in hospital service locations. Compared with August 2017, MSP services decreased by *-2.1%*, and expenditure increased by 1.8%.
  - In the previous report (October 2018), initial data indicated that MSP services decreased by *-1.0%*, and expenditure increased by 2.3% in August 2018.
  - The additional data in this report indicates that services decreased more than previously indicated (-2.1% vs. -1.0%). Expenditures increased less than previously indicated (1.8% vs. 2.3%).
- While paid services decreased relative to August 2017, both paid services and paid amounts were higher than the 5 year average for August (2013-2017):
  - Average MSP paid amount in August 2013-2017 was $3.9M;
  - Average services were 71.4K.
- The 4 practitioner specialties with the highest decrease rate in paid services in August 2018 were Respirology, Hematology Oncology, Ophthalmology and Infectious Diseases.

MSP Billing of practitioners in VCH in September (for specified practitioners):

- In September 2018, MSP paid $4.5M for 77.7K services provided in hospital service locations. Compared with August 2017, MSP services decreased by -*5.0*%, and expenditure increased by -0.8%.
- While paid services decreased relative to September 2017, both paid services and paid amounts were higher than the 5 year average for September (2013-2017):
  - Average MSP paid amount in September 2013-2017 was $3.7M;
  - Average services were 71.4K.
- The 4 practitioner specialties with the highest decrease rate in paid services in September 2018 were Respirology, Paediatric Cardiology, Nephrology and Ophthalmology.

Top 4 practitioner specialties with the highest decrease rate in paid services in September, 2018



MSP Billing Volume in May (2013-2018)

MSP Billing Volume in June (2013-2018)

MSP Billing Volume in July (2013-2018)

MSP Billing Volume in August (2013-2018)

MSP Billing Volume in September (2013-2018)

MSP Volume, May-September, 2013-2018

MSP Billing Volume By Service Code: Specialty 49-Respirology

Practitioner's Most Recent Specialty	MSP Service Code	MSP Paid Services	
		May-September 2017	May-September 2018
49 RESPIROLOGY	15 SPECIALIST SERVICES COMMITTEE		10
	22 CONSULTATION (FULL MINOR REPEAT,SPECIALIST)	81	252
	23 SUBSEQUENT VISITS (SPECIALISTS)	5	30
	24 COUNSELLING PSYCHOTHERAPY (SPECIALISTS)	1	
	26 EMERGENCY VISITS (SPECIALISTS)	8	4
	27 INSTITUTIONAL VISITS (SPECIALISTS)	57	490
	30 SPECIALISTS CRITICAL CARE SERVICES	158	174
	43 SURGERY (NON-MINOR, EXCISIONAL)	2	19
	46 DIALYSIS/TRANSFUSIONS	4	8
	67 APB ENCOUNTER RECORDS	1	
	95 PULMONARY FUNCTION	10,245	271
	98 OTHER (NEEDLE BIOPSIES, 0X99, ETC.)	248	368
49 RESPIROLOGY Total		10,810	1,626

Respirology: The largest decrease is from service code 95. Please see Appendix for list of fee codes in service code 95.

Notes:

1) Service date between April and September from 2013 to 2018; paid date as November 15 of each year.
2) Claims included: Medical services delivered by a physician, including those resulting from referrals by nurse practitioners and midwives.
3) Includes MSP service locations: hospital inpatient, hospital outpatient, hospital day surgery and hospital emergency room.
4) Includes only practitioners in the list provided by VCH.

Appendix: Service Code 95: Pulmonary Function fee items billed by LGH physicians, May – September 2017

MSP Fee Code
11962 OXIMETRY REST/EXERCISE WITH/WITHOUT OXYGEN-PROF FE
11963 OXIMETRY REST/EXERCISE WITH/WITHOUT OXYGEN-TECH FE
910 OVERNIGHT HOME OXIMETRY - PROFESSIONAL FEE
911 OVERNIGHT HOME OXIMETRY - TECHNICAL FEE
932 LUNG VOLUMES - TECHNICAL FEE
935 SPIROMETRY,FORCED EXPIRATORY,BEFORE AND AFTER-PROF
936 SPIROMETRY,FORCED EXPIRATORY,BEFORE AND AFTER-TECH
940 FLOW VOLUME LOGS - BEFORE AND AFTER BRONCH - PROF
941 SPIROMETRY-FLOW VOLUME LOOPS-BEFORE & AFTER BRONCH
942 DIFFUSION STUDIES - CARBON MONOXIDE/PROFESSIONAL
943 DIFFUSION STUDIES WITH CARBON MONOXIDE - TECHNICAL
945 PULMONARY FUNCTION STUDIES - DETAILED/PROFESSIONAL
946 PULMONARY FUNCTION STUDIES - DETAILED - TECHNICAL
964 PLETHSYSOMOGRAPHY AND AIRWAY RESISTANCE - PROF
965 PLETHSYSOMOGRAPHY AND AIRWAY RESISTANCE - TECH
968 INHALATION CHALLENGE - PROFESSIONAL FEE
969 INHALATION CHALLENGE - TECHNICAL FEE
974 INSPIRATORY & EXPIRATORY MUSCLE STRENGTH - PROF
975 INSPIRATORY & EXPIRATORY MUSCLE STRENGTH - TECH

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☒ For Information

Prepared for: CST Project Board

Prepared by: Darren Kopetsky
Regional Director, Client Relations & Risk Management, VCH

Endorsed by: Dr. Patrick O'Connor
VCH Physician Executive Lead, CST

Date: December 3, 2018

Issue: Overview of Safety Events

One of the drivers for CST is improved quality and safety; one measure of the degree to which that is being achieved is the nature and learning from voluntary reports of safety events documented in the Patient Safety and Learning System (PSLS).

As part of the implementation and stabilization of the CST at Coastal, an enhanced review and response process has been implemented for safety events reported in the Patient Safety and Learning System (PSLS), the online event reporting and management system in place across British Columbia. An overview of the analysis of PSLS data is attached.

Introduction of the Electronic Health Record and Computerised Provider Order Entry and closed loop medication delivery processes introduces a much larger computer interface into clinical care than the current paper record and electronic registration processes. Unsurprisingly this results in more reporting of computer events in our provincial wide Patient Safety learning System for staff reporting of safety events. Our data to date shows a surge of events at and around go live with a return to near baseline as familiarity with the clinical processes and the electronic health record increases. The majority of events are medication related. We show the percent and characteristics of computer events at Coastal with a full electronic system implementation vs all of VCH with primarily computer registration only and relative rates of events reported in the system.

No issues of particular concern are noted.

CST - learning from reports in the Patient Safety & Learning System (PSLS)

December 3, 2018

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PSLS & CST - reporting

- PSLS has been the organizational mechanism for documenting reports and follow up on safety events and hazards since 2008, in all health authorities across BC.
- Staff in Coastal were encouraged of the expectation and opportunity to
  - report safety events in PSLS to aid safety and learning, as well as to
  - engage CST implementation colleagues in issue review and remediation.
- For the last 3 years, across BC, a field has been included, asking staff 'Did a computer system contribute to this safety event'?

PSLS & CST - followup

- During Go-live and stabilization, PSLS reports were reviewed with additional attention, in addition to the usual review by the program supervisor 'Handler':
  - Clinical Informatics staff reviewed each CIC* 'Yes' or 'Unknown' (initially also CIC No)
  - Clinical Informatics collaborated with unit Handler on investigation and resolution,
  - SWAT Team, involving appropriate VCH and CST stakeholders depending on the issue to address reports of serious concern (#s not recorded, but reported as some, not frequent)
  - PSLS Review Committee review of all complex files – Clinical Informatics, Professional Practice, Quality & Patient Safety, Risk Management

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*reported as "Computer involved or contributing"

Anecdotal observations I

Very good news:

- Computerized Provider Order Entry (CPOE) uptake has been very good

Noteworthy learning from analysis and action on reports:

- **Initial reporting spike** due staff anticipation; return to baseline likely a combination of fewer actual events and lower anxiety
- **'Orphan specimens'** arriving in Lab without corresponding direction for analysis. -> Remediated with partial new manual workflow; implementation of Collection Manager (software) will force function to ensure Lab information system aware of testing to be undertaken
- Staff concern about **duplicate orders related to multiple Power Plans** in use; education to focus on medication administration record (MAR) as the source of truth and orders requiring action (ie staff to not worry about pending orders)

Anecdotal observations II

Ongoing attention and improvement:

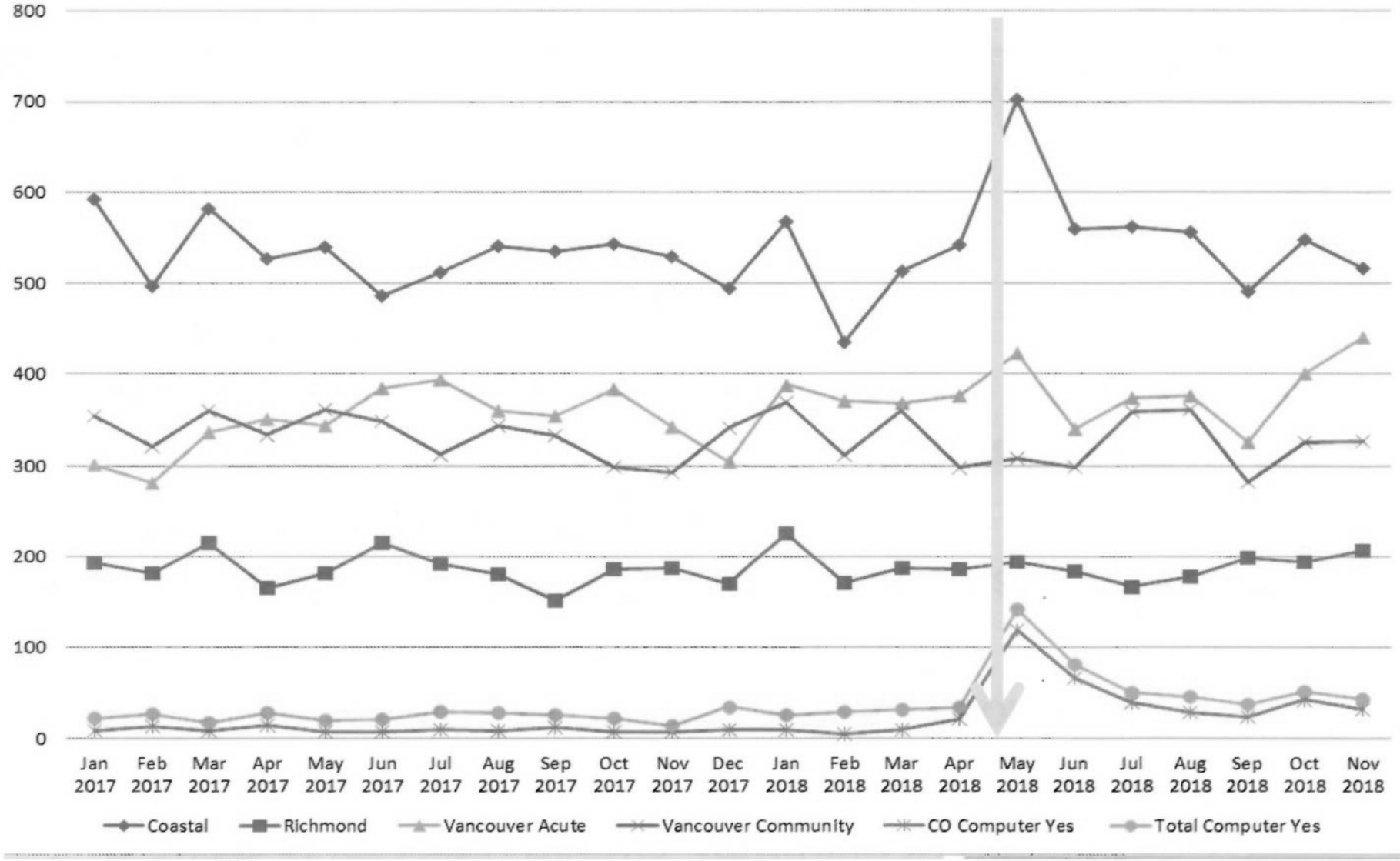
- Closed loop medication management (bar coding) a complex workflow requiring ongoing education and monitoring.

- Medication Reconciliation (Med Rec) workflow within system is new.
  - When best possible medication history (BPMH) is completed appropriately, Cerner enables Providers to do Med Rec more easily.
  - Providers are taking some time to get used to these new workflows.
  - Education ongoing for nurses to ensure BPMH is completed where Pharmacy techs are not able to perform.

Observations from PSLS data

- A spike in reported events, returning to baseline
- (# of events reported declining across VCH generally)
- No "Serious harm" or "Death" events reported as computer involved or contributing (CIC)
- Documentation intense Medication and Lab processes most frequently reported as CIC
- Orientation, communication, and unfamiliar workflow the most frequent specific factors associated with computer involvement.

PSLS Reports VCH January 2017 - November 2018



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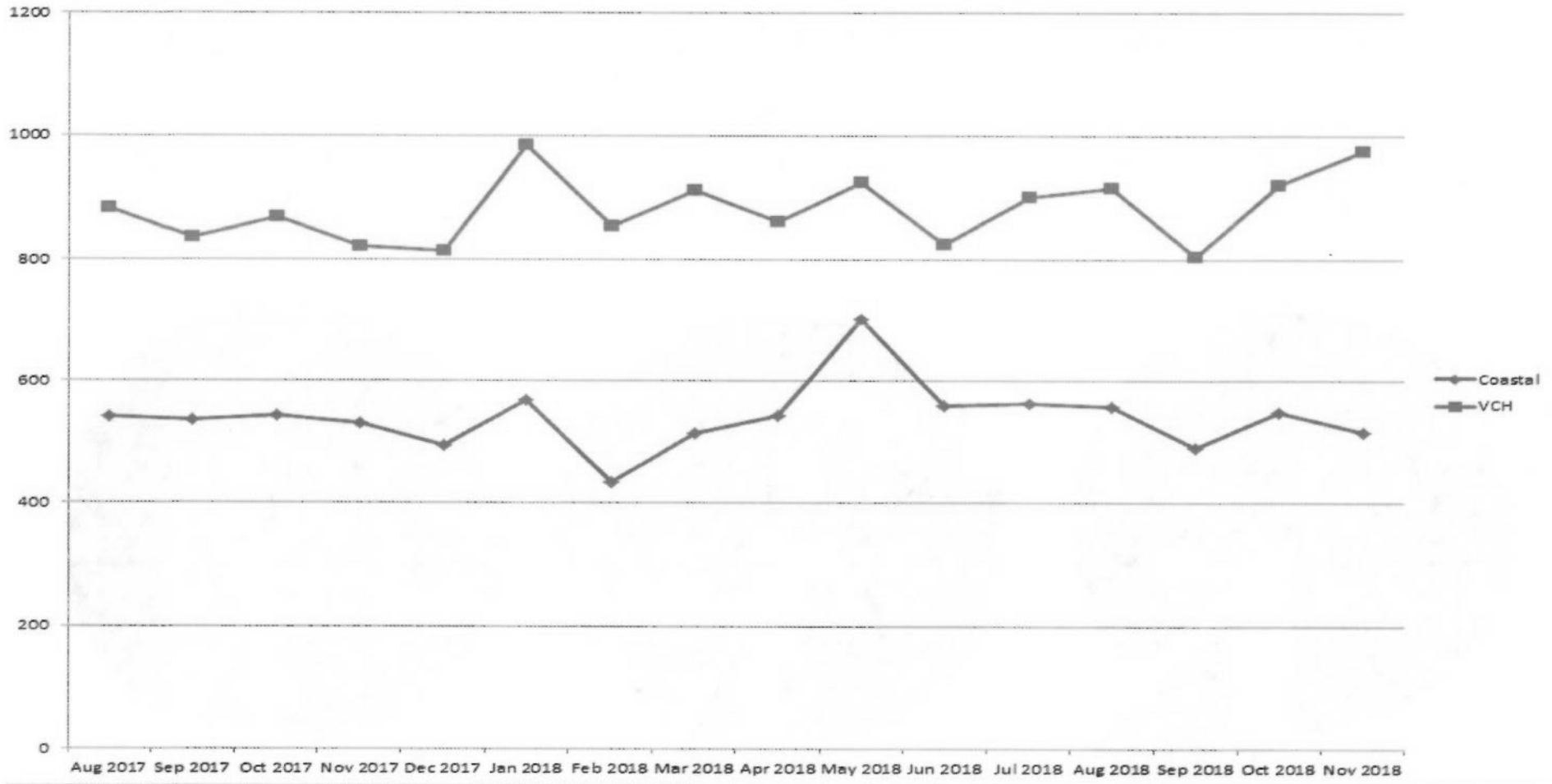
CST Go-live

All Patient Safety Events

Coastal and VCH other than Coastal



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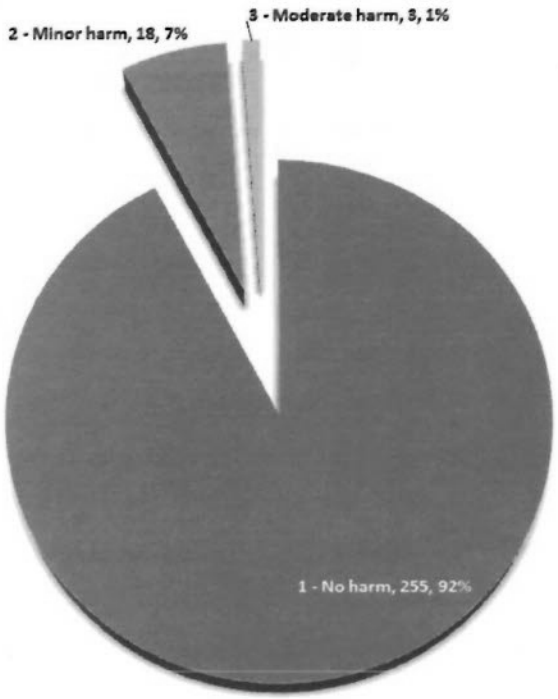
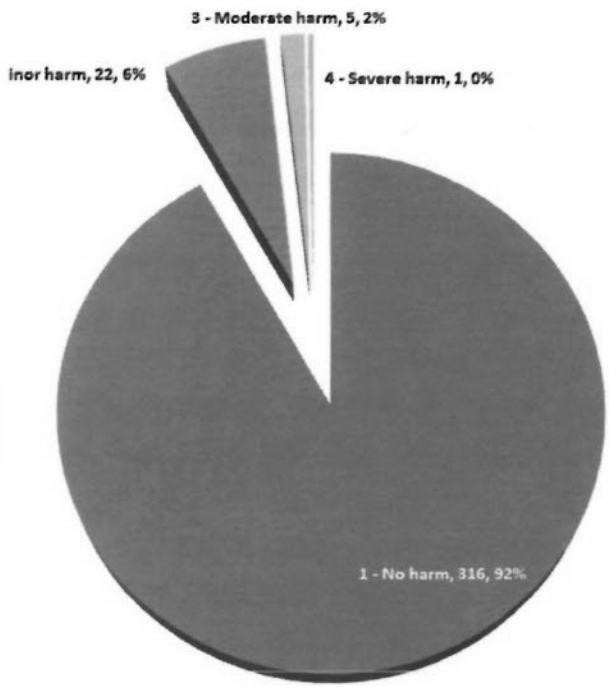
PSLS Events by Degree of Harm
Computer Involved, Contributed / Final Approved



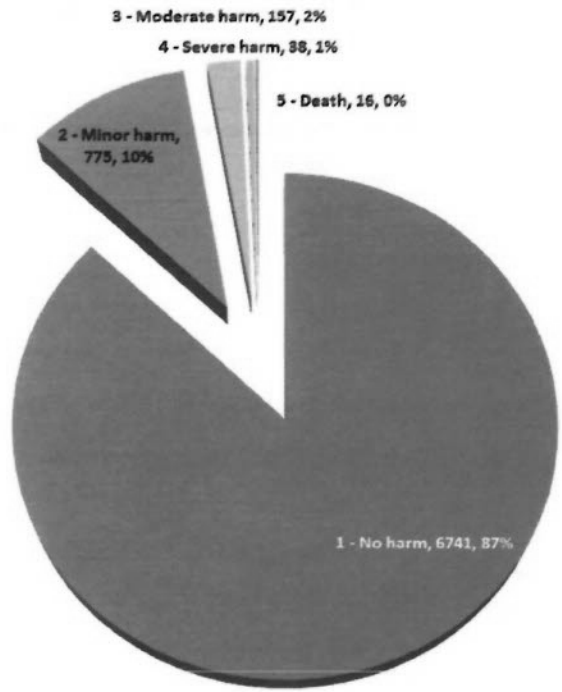
Coastal
April 28 – November 30
Computer involved

92% no harm



Across VCH
April 28 – November 30
Computer involved

92% no harm

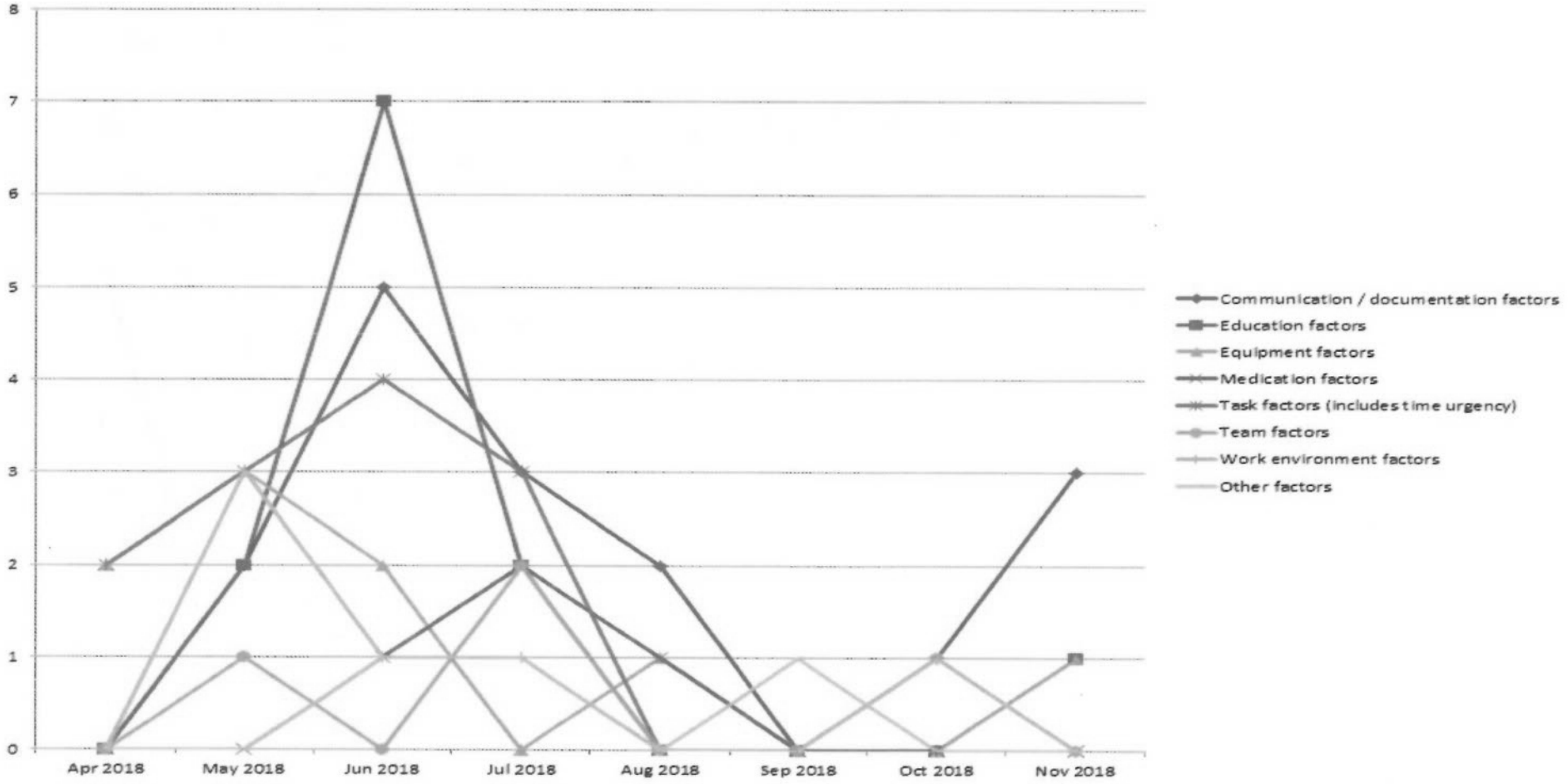


Across VCH
April 28 – November 30
All Reports

87% no harm

Focus of actions for CIC involved medication events

April – November 2018



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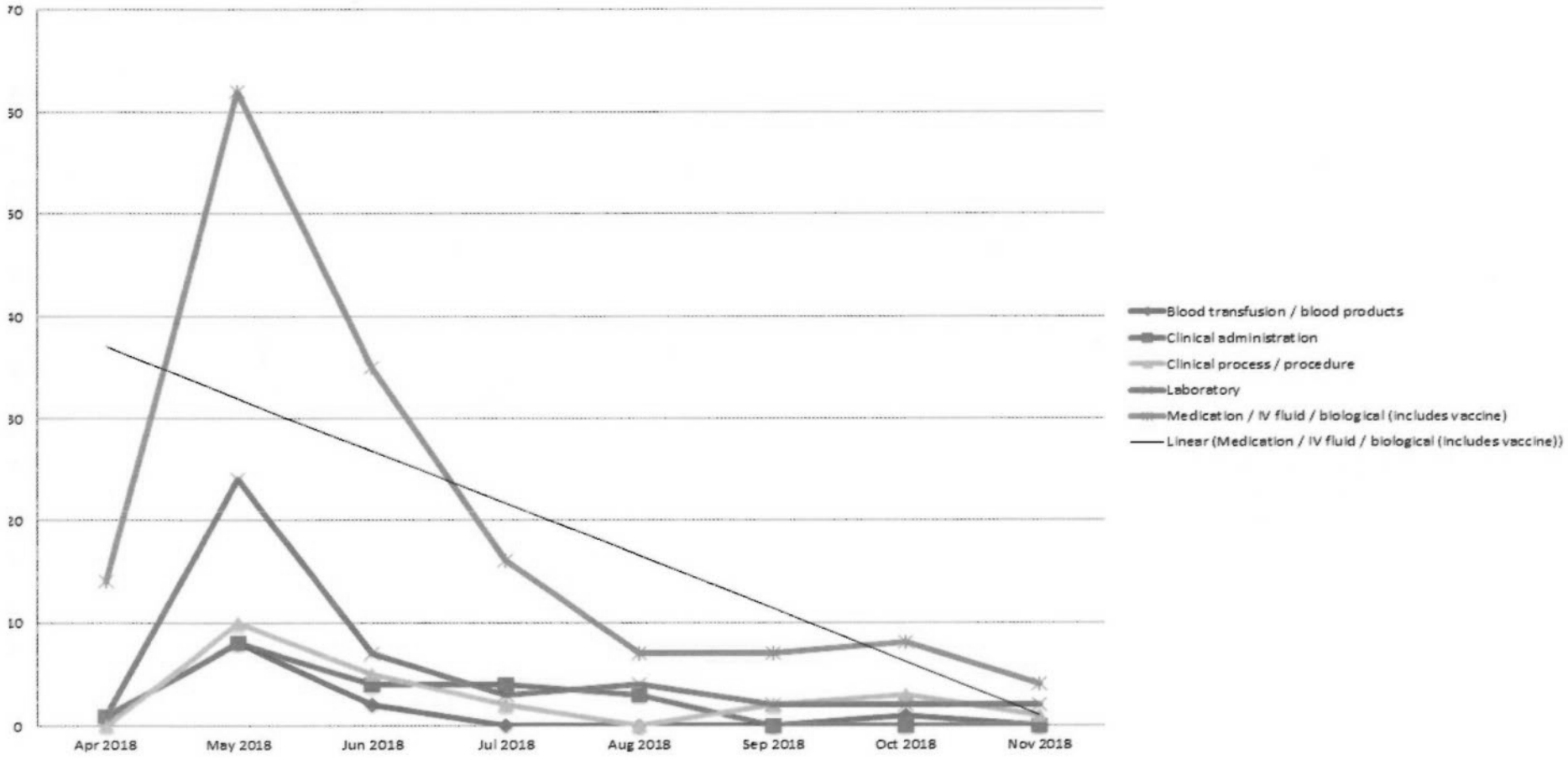
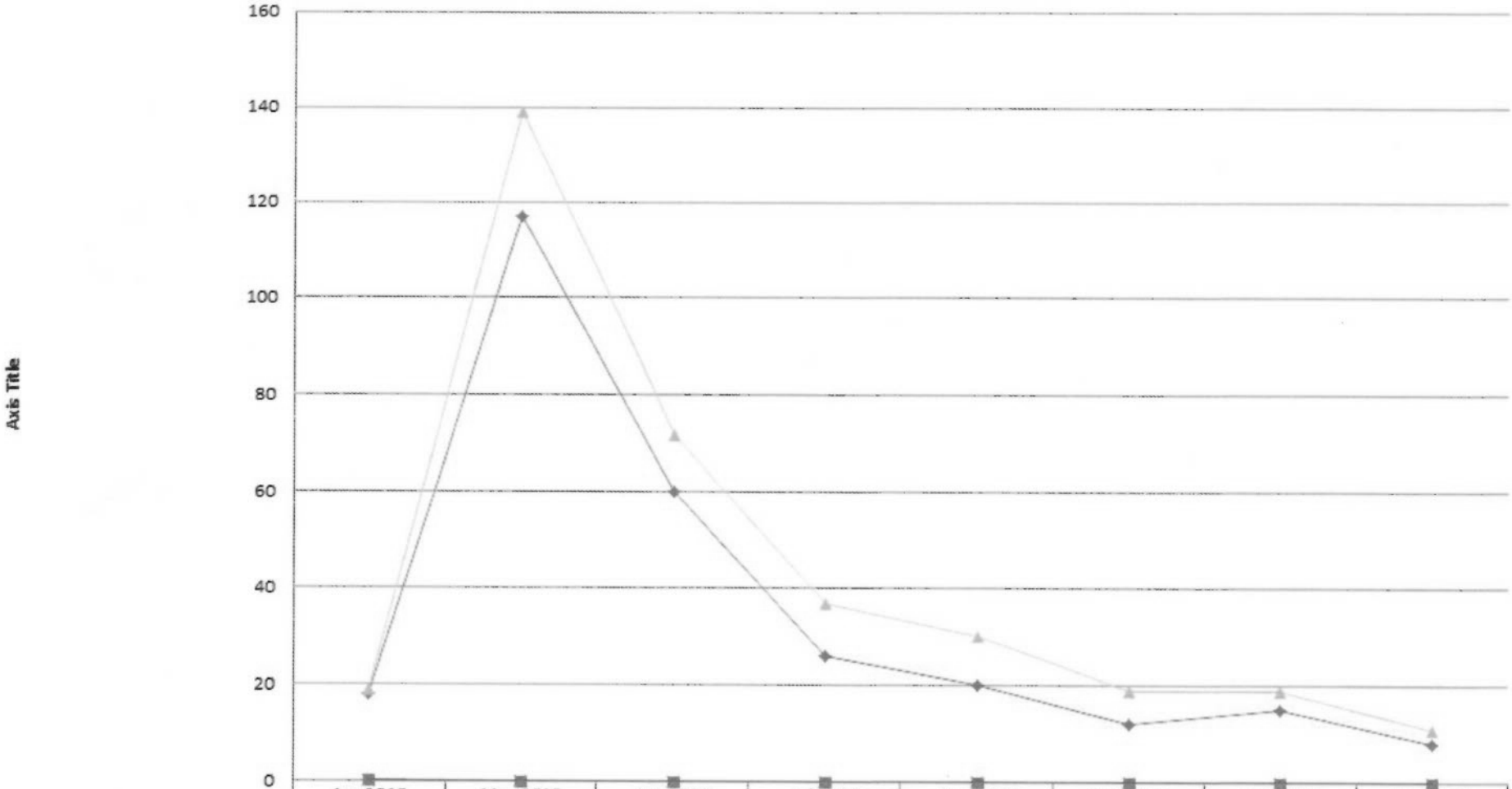
Top 5 Categories for Computer Involved Events April 1 – November 30 (FA)



Percentage of all CIC events CO and VCH vs all patient safety events (FA)



	Apr 2018	May 2018	Jun 2018	Jul 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018
Computer Involved - Coastal	18	117	60	26	20	12	15	8
% Coastal	25%	17%	12%	6%	5%	4%	4%	4%
Computer Involved - VCH	19	139	72	37	30	19	19	11
% VCH	13%	9%	6%	3%	3%	2%	2%	2%

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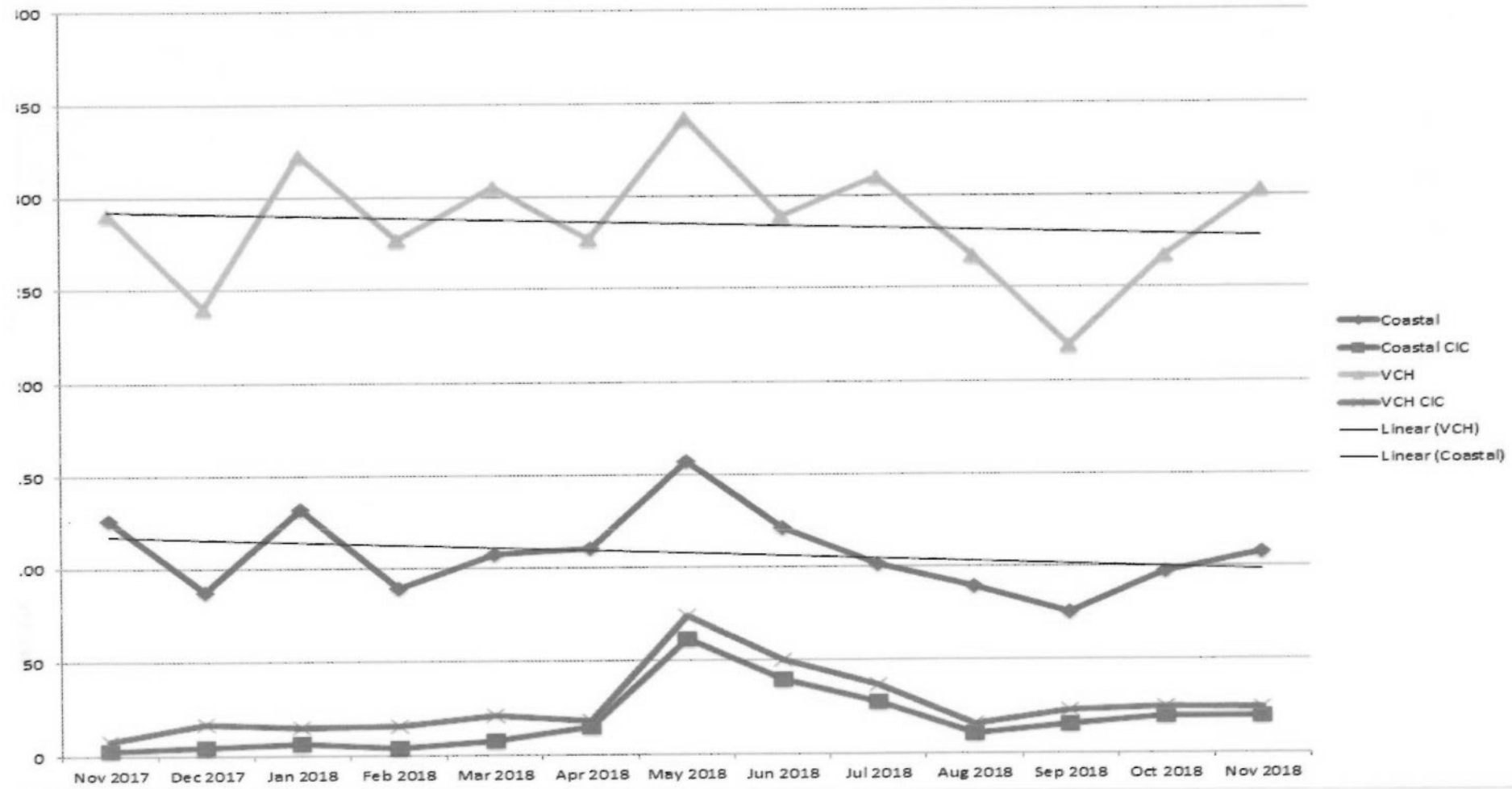
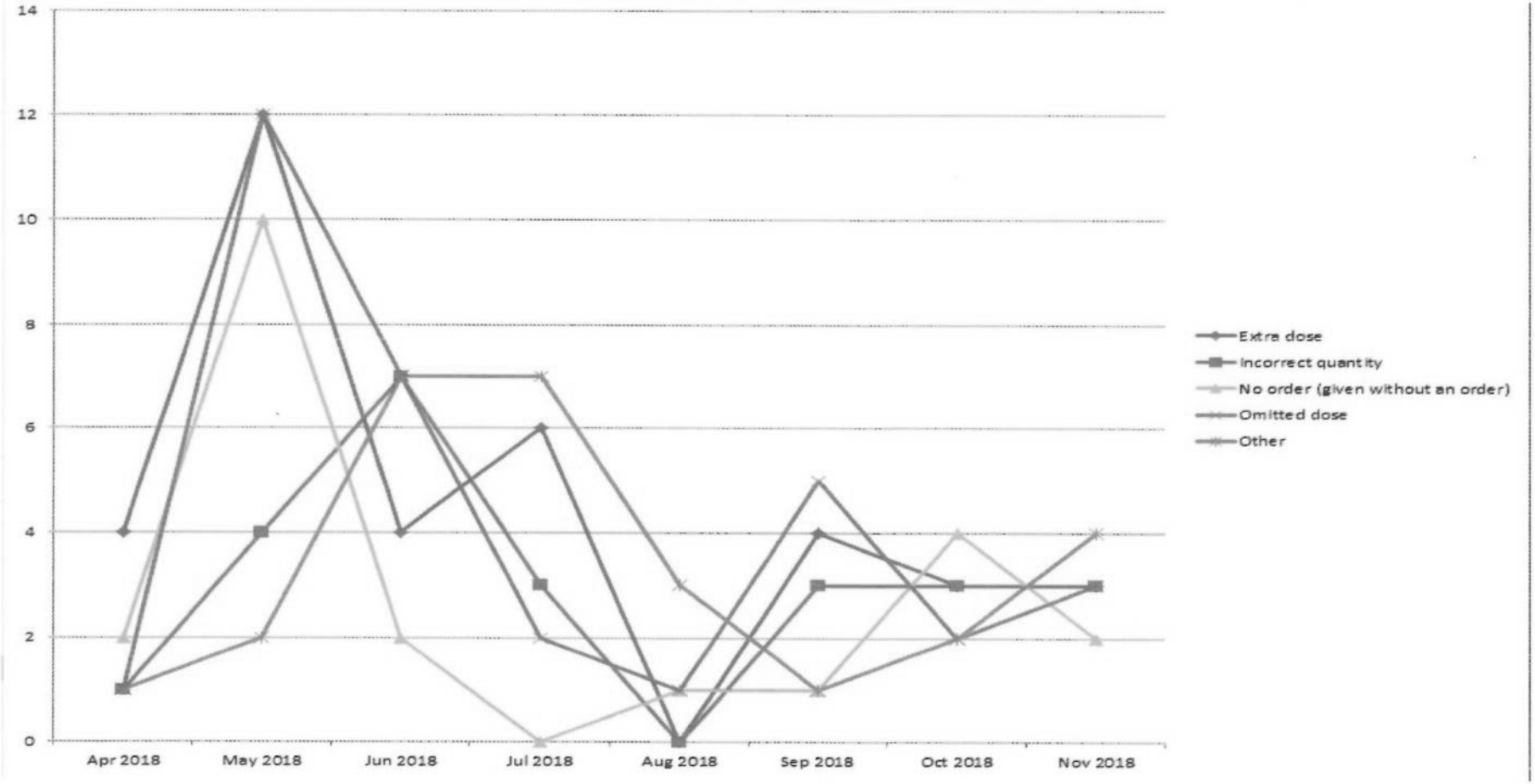
Reported medication events Coastal and VCH November 2017 – November 2018 (CIC or no)



Type of medication events (CIC)
April – November, 2018



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Prepared for: CST Project Board

Prepared by: Michael Long, CST Chief Transformation Officer

Endorsed by: Carol McCord, CST Director of HR

Date: December 4, 2018

Issue: CST Human Resources – Priorities

BN Type:
☐ For Information
☐ For Input/Feedback
☒ For Decision

Decision Request

To support CST developing and executing HR strategies in collaboration with the health organizations but without the need for consensus. This includes:

- Managing non-contract salaries
- Working directly with HEABC as required
- Implementing common practices for expenses and non-salary compensation
- Managing recruitment

Executive Summary

The CST project needs the ability to make human resources (HR) decisions, primarily recruitment, compensation, and management development, more independently in order to function in a timely manner and assist in meeting project objectives. The goal is to develop HR strategies that consider existing collective agreement, non-contract terms and conditions, compensation and general policies and procedures like expenses and travel but allow the flexibility and independent decision-making needed to meet the needs of the project and the CST project team members.

The priority areas for strategy development and execution are retention, recruitment and management development. CST will work collaboratively with the health organizations on these priorities but may need to move forward with implementation of specific items without health organization consensus.

Retention

The roles with the greatest pressure on retention are those with clinical or operations backgrounds. These roles are also of the greatest value to the organizations to retain within the project for knowledge continuity and effectiveness. There are other roles with fairly narrow parameters, such as project schedulers, for which retention is also a critical challenge.

Current considerations include:

- Unionized and non-contract HO employees are working alongside contractors who are being paid substantially greater compensation for the same work.

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- Non-contract salaries are determined in collaboration with the home health organizations who are considering equity with health organization employees not working in the same jobs or environment.
- Unique working conditions requiring excessive OT, travel and non-traditional scheduling needs are not considered in current union contracts or non-contract terms and conditions. The project needs flexibility in these areas to resource accordingly.
- Current CST leaders have limited time and training to support teams and individual team members with performance expectations and management.
- HR decisions are currently being made as a joint process with the three participating health organizations which causes delays in decision making.
- The ability to give people additional time off for excessive or unusual hours is limited as the requirements of the project require people to be at work. Vacation embargos are currently used during certain phases of the project.

s.13,s.17

Recruitment

The roles experiencing the greatest challenge with recruitment echo those of greatest pressure of retention – clinical and operational experience with some small pockets of specific skills, such as project schedulers.

Current considerations include:

- Current recruitment is divided between the current health authority recruitment teams as one of several portfolios being serviced within the health organizations. CST's resourcing priorities are often superseded by those wholly internal to the health organization.
- Recruitment for unionized positions needs to follow collective agreement requirements regarding classification, posting and selection. It is currently passive rather than targeted recruitment and there would be immediate benefits to CST if the process were more tightly managed.
- Compensation is dictated by collective agreements (union positions) and the Compensation Reference Plan (non-contract positions). These limitations significantly impede CST's ability to recruit the top talent it needs to successfully execute the project.

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- The CST project is now competing with internal CST implementation projects and other large health care projects such as St. Paul's redevelopment for the same pool of staff. In some cases, health professionals are accepting offers to work at CST and using their new role as a short-term stepping stone into positions in other health organizations, undermining the project's ability to execute its work.
- Contractors are being used to fill gaps but they are costly and are likely not be available to be part of the sustainment workforce needed to support the systems going forward due to compensation limitations of unionized positions.
- Recruitment, to fill temporary positions, from other Health Authorities is constrained by the inability to reimburse travel and living costs.

The key areas of focus for recruitment are:

1. Targeted recruitment within the current health organizations by engaging senior level stakeholders who can sell opportunities to potential candidates and serve as visible champions for a recruitment communications campaign. This engagement would also enable co-ordination of the competing needs for similar resources.
2. Engage other health authorities in the province in a targeted recruitment campaign to find staff who could commute between the Lower Mainland and their home community. Lifting the restriction on reimbursement of travel and living expenses for staff outside of the Lower Mainland is required support this approach.
3. Engage external agency expertise to provide recruitment branding and marketing support once a recruitment strategy is defined and agreed.
4. Hire a dedicated CST Recruitment resource to lead all CST recruitment activities; including working with existing recruitment teams in rolling out the project's recruiting strategy. The ideal candidate will need to understand recruitment in a unionized environment along with strategic recruitment strategies.

Management Development

The team leaders and managers within CST need to have the tools, skills and resources to support staff. Effective, timely development of the project's management talent will further improve the retention and recruitment efforts.

The CST project has a high number of individuals who are relatively new to people management roles. As they are operating in a high-pressure environment, development of key competencies and knowledge has been constrained. The existing health organization management development programs run over an extended period of time and provide a broad base of competency development. However, the project requires management development to occur on a more expedited manner with focus on the key areas of greatest impact to CST.

The key areas of focus for management development are:

1. Establish a management development group with representation from the health organizations to provide input on development priorities and access to expertise within the health organizations.
2. Identify sources of competency and knowledge from the health organizations – and beyond - whom can be leveraged to provide focused learning events and individualized coaching and mentoring to meet needs.

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ID # (DIN): CST-35246(a)

BN Type:
☒ For Information
☐ For Input/Feedback *(for future decision)*
☐ For Decision

Prepared for: CST Project Board

Prepared by: Michael Long, CST

Reviewed by: Owen Haley, CST Project Director
CST Finance Working Group

Date: November 27, 2018

Issue: **Follow-Up for Adoption Support Role in CST**

At the October CST Project Board meeting, approval in principle for the adoption support roles was provided as per the briefing note provided at that meeting (attached to this briefing as Appendix 1). Additional information was requested to provide more clarity on the overall financial value to the project for these roles.

As a recap, the CST Finance Working Group assessed the roles to be a capital cost in the Planning, Design & Testing phases of the role's responsibilities on the project and operating for the Adoption Activities and Activation phases. s.13,s.17
s.13,s.17

Benefits of the Adoption Support Roles

1. Risk mitigation

   Using health organization employees for these roles provides a level of continuity and commitment through the phases reducing risks of schedule slippage. Local resources conducting workflow reviews with clinical staff decreases change resistance and risks of poor adoption.

   Creating this pool of knowledgeable employees increases the opportunity for concurrent work on separate implementations providing further mitigation for schedule slippage.

2. Cost efficiency

   The key value of the role is realized in implementation and go-live activities whereby using health organization employees will be more effective and less expensive than the use of external contractors.s.13,s.17
   s.13,s.17

s.13,s.17 Should this displacement of contractor roles be realized for 80,000 hours (which equates to less than 1200 hours per individual for the 70 Adoption Support roles), the additional costs incurred in design & build will be fully offset by this cost efficiency.

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The qualitative benefits of the Adoption Support roles include familiarity with current practices, patient safety, and health system policies/standards in addition to in-depth knowledge of the CST Cerner build. These benefits will increase the effectiveness of the individuals in implementation and go-live support activities as contrasted to external contractors which increases the cost efficiency by reducing the total number of hours required to provide effective adoption support.

3. s.13,s.17

4. Improved internal organizational knowledge

Building the knowledge and skill set within these roles creates a smooth transition to ongoing support after go-live increasing the speed at which the project can move onto the next implementation sites. The immediate strength of the local clinical support team provides greater capability for the site to implement improvements, enhancements and leverage the capability of the new CST Cerner platform.

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ID # (DIN): CST-35246

BN Type:
☐ For Information
☐ For Input/Feedback *(for future decision)*
☒ For Decision

Prepared for: CST Project Board

Prepared by: Michael Long, CST

Reviewed by: Owen Haley, CST Project Director
CST Finance Working Group

Date: October 15, 2018

Issue: **Adoption Support Role in CST**

Decision Request
To approve the Adoption Support role, to be sourced from the Health Organizations, being a defined role within and funded by the CST project for up to $7.1M capital expenditure incremental to the November 2017 forecast.

Executive Summary

To support the approved go-forward approach, additional capacity is required of clinical staff who understand and are highly knowledgeable of the CST Cerner system, workflows and content. This capacity is required to enable concurrent activities to be undertaken across multiple sites as well as increase efficacy of the incremental design and build activities and, especially, implementations.

CST leadership has identified the role of "adoption managers" to fulfill this requirement. These individuals are to be sourced from the health organizations on a site/program basis and will participate in the project from this point forward through incremental design/build, implementation and stabilization phases at multiple sites. The attachment to this BN outlines the key responsibilities of these roles through the project phases as well as some of the key benefits to each phase.

These roles provide their greatest value to the project through the implementation phase at each site, however, without their immersion and extensive direct participation in the project prior to implementation, this value can't be realized. Hence these roles are hired by the Health Organization and immediately assigned to the CST project as soon as possible.

CST has identified resource requirements with Providence and Vancouver Acute for these roles and they have been posted as "Clinical Informatics Specialists" in full-time, temporary positions. CST has also started the conversation with BCMHSUS and C&W on these requirements to be sourced from their organizations. Additional resources will be required from Richmond and the LMCs. BC Cancer has already created and filled one of these positions per Regional Cancer Centre and assigned the title of 'Adoption Leads'. With the parallel tracks of activity in the go-forward approach, it is expected that a total of 70-90 such resources from the Health Organizations will be added to the project team over the next few months.

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Financial Summary

One-time Costs	s.13,s.17
Capital	
FTE equivalent	
Labour	
Total Capital	
Operating	
FTE equivalent	
Labour	
Total Operating	
Total Costs	
Existing Budget - Operating	
Total Funding Requested	

Ongoing Sustainment Costs *	
Operating	
Sustainment (Labour)	
Sustainment (Non-Labour)	
(Savings)	
Total Operating - Sustainment	

s.13,s.17

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☒ For Information

Prepared for: CST Project Board

Prepared by: Michael Long, CST Chief Transformation Officer

Reviewed by: Tena Vandenberg, CST Finance
Shelley Browne, Executive Director, HIM
Ron Quirk, Chief Information Officer

Date: December 3, 2018

Issue: Financial Insights – Follow-Up

At the CST Project Board meeting on October 24, 2018, there were two specific topics concerning "value for money" that were brought forward by CST Leadership. This is a follow-up to keep CST Project Board members current.

FESR Changes

The Front-End-Speech Recognition (FESR) scope for CST was established as a distinct project managed by LMC Health Information Management and funded by CST. Through evaluation of the forecasted spend and incorporating the experiences from the Coastal go-live, CST Project Board approved a restructure of the FESR project to provide direct cost savings and improved efficacy of execution.

Through subsequent discussions with HIM leadership, it has been identified there are touch points from the FESR project with other parts of HIM – in addition to the touch points to CST. The CST Project Board support for restructuring has enabled targeted discussions with HIM leadership about making potential, beneficial, changes to team size and structure to reduce costs. These discussions have not completed and the intention is to identify final recommendations in January 2019.

IMITS Transfers & Staffing

There have been two tracks of activity with respect to understanding and ensuring "value for money" in the transfers of funds to IMITS.

1. Cerner Support. The ongoing charge of $2.3M annually to CST for support of legacy Cerner is now understood to be a 100% PHSA funded Cerner support cost entered to the general ledger by PHSA Finance to maintain alignment with the original business case. Some further research is being completed to ensure there is an appropriate auditable trace for this item and its place in the project financial reporting.
2. RFP Premium for support of legacy Cerner. Conversations with IMITS and C&W site leadership have been initiated to determine how to maximize value from the $3.1+M committed spend on the contractors who are supporting legacy Cerner. The intent is to reduce the level of effort on legacy support and then leverage the resources to assist CST, particularly in the local build for the sites using legacy Cerner. As the IPP development is a key input to decisions, the conversations will be continued in January and February 2019.

CST Project Board

12 December 2018

Agenda Item 9: Financial Update

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Building a better working world

Contents

Financial Update - EY

- 9.1 s.13,s.17
- 9.2

Page 056 to/à Page 058

Withheld pursuant to/removed as

s.13;s.17

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Prepared for: CST Project Board

☒ For Information

Prepared by: Michael Long, CST Chief Transformation Officer

Reviewed by: Tena Vandenberg, CST Finance
CST Finance Working Group

Date: December 3, 2018

Issue: Update on Financial Contingency

The financial contingency of the CST project was established at the onset and the authorization to allocate from the contingency to support project expenditures is vested in the CST Project Board. s.13,s.17

s.13,s.17

Page 060 to/à Page 061

Withheld pursuant to/removed as

s.13;s.17

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☒ For Information

Prepared for: CST Project Board

Prepared by: EY & CST

Date: December 12 2018
Issue: Update - Integrated Project Plan and Top-Down Forecasting

Purpose
To provide CST Project Board on the results of the top-down financial forecasting efforts, as well as an update on the development of the integrated project plan (IPP) for CST. The goal is to enable Board Members to familiarize themselves with the content and draft results so that any required questions or modifications can be addressed. Once any changes have been incorporated, both the financial forecast and IPP will be brought to Project Board for approval to proceed with re-baselining the project.

Overview
As directed by CST Project Board in September 2018, CST and EY teams have worked together to develop a top-down forecast (TDF) and integrated project plan (IPP). The work has progressed largely on-track with the timeline identified in September, with some delays on the IPP stream of work in order to enable on continued progress with BC Cancer and other ongoing project delivery activities.

The TDF has been developed in draft, and is ready for review and discussion with CST Project Board. An overview of the methods and assumptions of the TDF are included in the attachments for this briefing note, and the outputs and results of top-down forecast will be provided to CST Project Board on December 12. The TDF identifies projected costs for Design & Build, Implementation, Ongoing Support, and selected other CST-related costs, using actual financial performance and extrapolations of the data to estimate the remaining spend. The forecasting model and assumptions were developed through an iterative series of weekly working sessions with CST leadership, and the results have also been reviewed with CST, VCH and PHSA finance personnel. In addition to providing visibility to Project Board of total potential spending based on historical performance, the TDF will also enable the resource estimates that will be included within the IPP to be challenged and refined based on prior performance.

The IPP continues to be developed, and a live view will be provided to CST Project Board on December 12. An update on progress and remaining work for the IPP is included in the attachment to this briefing note. The IPP provides a view of the schedule, effort and resources for the remainder of the project across Design & Build, Implementation, and Ongoing Support, to at least a level 3 maturity[1]. The IPP consolidates the remaining D&B plans within the newly developed Level 3 Implementation and Support plans (subsequent to BC Cancer). In aggregate, it will enable the ability for aligned and consistent reporting at multiple levels (e.g., Board, project team, and site) based on a single source of truth, as well as the ability to evaluate and understand the schedule and cost impacts of different delivery scenarios.

Once completed, the top-down forecast and the integrated project plan should be merged to provide a consistent and aligned view for reporting against the project's schedule and finances.

[1] *Refer to previous EY report for September 12 2018 CST Project Board for maturity definitions.*

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In addition to the executive-level update attached to this briefing note, a draft report encompassing the full scope of work will be provided to Project Board prior to a request for formal approval. This report will provide greater details on the financial estimates and assumptions, the structure of the IPP and its sustainment needs, as well as limitations and project risks used to identify potential impacts to both the cost and schedule forecast.

Requested Decision

No decision required for the December 12 Project Board meeting. At a subsequent CST Project Board meeting, the combined and merged outputs from the TDF and IPP (including schedule, resources, and finances) will be brought forward for formal review and approval decisions.

During the December 12 Project Board meeting, it is requested that Board Members a) identify key questions or matters that should be addressed prior to finalization of the TDF and IPP, and b) direct EY and CST to bring back the merged and finalized version of the forecast and IPP for formal approval at a subsequent Project Board meeting.

Action Required

Ahead of the December 12 Board Meeting, it is requested that Board Members review the following attachment:

- *IPP & Forecast Executive Update*

CST Project Board

IPP & Forecast Executive Update

12 December 2018

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EY

Building a better working world

Agenda

1. Context of the forecast and IPP
2. Overview of financial forecast
3. Overview of integrated project plan
4. Discussion
5. Next steps

During the Project Board meeting on December 12, a live view of the IPP will be provided, along with the results from the top-down forecast.

Context of the forecast and integrated project plan

Development of an Integrated Project Plan (IPP) along with a top down forecast (TDF) is being conducted to improve the ability to execute and govern the project

As directed by Project Board in September, CST and EY have worked together to develop a top-down forecast and IPP.

- Work has progressed largely on-track with the timeline identified in September, with some minor delays with detailed project planning in order to enable continued progress with BC Cancer and other ongoing project delivery activities.

The top-down forecast has been drafted, and is ready for discussion with Project Board.

- Identifies costs for Design & Build, Implementation and Support, using actual financial performance and data to estimate the remaining spend.
- Provides visibility to Project Board of total potential spending based on historical performance, and will help to challenge and refine the resource and effort estimates within the detailed IPP using that historical information.
- The forecasting model and assumptions were developed through a series of working sessions with CST leadership. It has also been reviewed with CST, VCH and PHSA finance personnel, which further helped to refine the model and inform the limitations identified in this document.

The integrated project plan continues to be developed, and a live view will be provided to Project Board on Dec 12.

- Identifies a bottom-up view of the schedule, effort and resource estimates for the remainder of the project across Design & Build, Implementation and Support, to at least a level 3 maturity in all areas.
- Aligns dependencies within CST and with dependent projects to understand impacts of delays to milestones.
- Provides the ability for aligned and consolidated reporting at multiple levels (Board, project team, and site) based on a single source of truth.

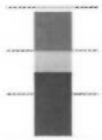
Once completed and approved, the top-down forecast and the integrated project plan should be merged to provide a consistent and aligned view of the project's schedule and finances.

The IPP and top-down forecast are complementary

While developed in parallel, going forward the integrated project plan and forecast need to be merged to provide an accurate re-baseline of the project's schedule and costs until the completion of the project

The Top Down Forecast was created to provide a view of costs to completion based on historical performance, in parallel to the development of the bottom-up IPP.

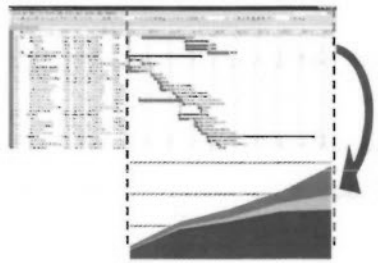
The TDF uses historical performance to estimate the remaining total costs to completion. It includes all types of costs, not just resource costs. It is not intended to provide a timeline of costs.



Total Costs

The TDF and IPP will need to be merged. The TDF will help challenge and refine the resource estimates in the IPP, and the IPP's schedule will be used to provide of the timeline of forecasted costs.

Once combined, it will provide more accuracy of forecasted spending aligned to planned efforts. The IPP can provide greater accuracy of resource-specific costs, while the adjusted TDF covers the non-resource cost estimates.



Total Costs Over Time

The IPP is being developed to provide a comprehensive plan to completion of CST.

The IPP provides a view of the timeline/schedule, resourcing and sequence of activities for all remaining work past Group 2.

Once completed, it will enable for reporting of progress against planned efforts, schedule and finances to be in alignment.

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Topics for discussion

- **Reliability of historical data for future forecasting**
  - The forecasting model relies on extrapolation of Group 1 implementation and other historical data
  - Inaccuracy of Group 1 implementation costing data has required assumptions to be put in-place to address it
  - CST and HA finance teams will need to ensure the accuracy of cost data for Group 1
  - As more accurate information become available, it can be directly incorporated into the forecasting model
- **The forecasting model includes mechanisms to address uncertainty**
  - A range of +/- 10-30% has been applied as appropriate to address uncertainty
  - Additional contingency has also been estimated in proportion with remaining spending
- **Project scope and progress to completion remains unclear**
  - For Enterprise Build, a confirmed % of progress to completion could not be provided. As a result, the % progress from the Accenture/Cerner report has been used and a higher uncertainty range applied. This only applies to Enterprise Build estimates
  - An updated % of completion from the project team will improve the accuracy of the forecast
- **Some CST-related costs are currently tracked outside of project cost centres**
  - The forecasting model uses health authority GL extracts for project cost centers as a key data source
  - Comprehensive HA sustainment costs are not currently reflected in the forecast
  - HAs will need to verify any other project-related costs outside of project cost centers
- **Confidence level to apply to the IPP**
  - Various scenarios and options can be run in the IPP. The target schedule for CST to drive to is aggressive, and it is worth considering the risks that should be applied at this stage of the project
  - Various scenarios have been developed to discuss site sequencing. The strategy for the sequencing should be reviewed by Project Board
  - A high-level analysis of resources indicates that resource requirements at peak activity will be in excess of the current capacity of the team
  - Implementation plans have not yet been validated with sites

Linking the forecast to the original business case for CST

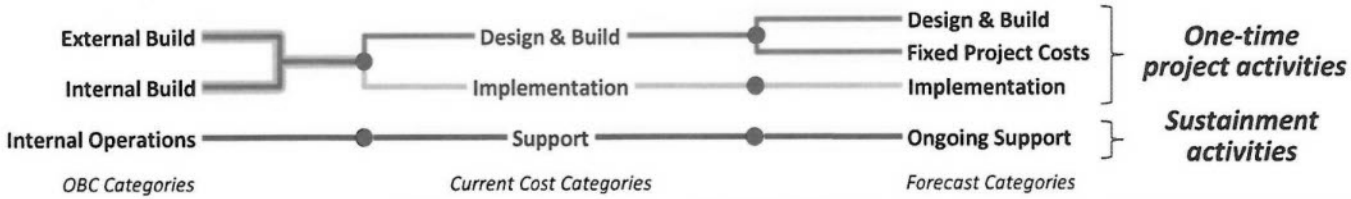
The original business case for CST from April 2013 remains one of the authoritative sources of truth for project scope and finances. However, it is an imperfect source and in some cases makes direct comparisons challenging

The original business case (OBC) estimated costs based on a delivery model that involved a higher degree of external outsourcing, as well as other assumptions expected at the time it was developed but which have not been able to be realized in practice.

- The three major cost categories of the original business case were:
  - **External Build** and **Internal Build**, which included elements like Ambulatory Clinics, Anesthesia, Optimization, Design & Build Accelerators, and Implementation.
  - **Internal Operations**, which included elements like Legacy Applications Management, Cerner Support and Maintenance, and Hardware & Software.
- The OBC identified a total cost of ownership over a ten-year period (TCO) of $842m, which included contingency and inflation across all three categories above.
  - Within the $842m TCO, the OBC also identified $285m of existing "base" spending related to legacy applications and systems, resulting in $557m in estimated "net new" spending.
  - Finances were identified as a key area of uncertainty and risk in the OBC, including having adequate finances committed for the full project and that funding requirements exceeded reliable planning cycles.
- In addition to costs envisaged within the OBC, additional required costs are being or have been incurred by the project that were not expected when the OBC estimate was developed, such as implementation costs related to training.

The forecast and IPP aligns and builds upon the current cost categories, and provides additional precision by grouping them into "one-time" and "sustainment" activities to enable more accuracy in future reporting.

- Estimated costs for one-time project activities will be able to be compared to the OBC. Efforts are underway with CST/VCH/PHSA Finance to confirm the amount of one-time costs in the OBC.
- Estimated costs for sustainment activities will need to be revisited and confirmed how they should be accounted for within the project by CST/VCH/PHSA Finance. Forecasts and actual costs may not be directly comparable to the OBC for sustainment activities, as not all items identified within the OBC have been or are being tracked within CST-related cost centers (particularly those related to base spend, where costs may relate to CST as well as other areas of operations within the health organizations).



Once any requested changes have been addressed, the financial forecast and IPP will be brought to Project Board for approval to proceed with re-baselining the project. Once approved, reporting and any potential changes should relate to the re-baseline, rather than the OBC.

Top-down forecast – Inputs, data sources and methods

The forecast was developed through iterative working sessions with CST project leadership (see Appendix for details), using key assumptions alongside actual costs to-date within the GL and site information provided by health organizations

The financial estimation model is built in Excel using data from the general ledgers and site information from the health authorities. It is documented in detail to enable transparency and adjustments to inputs, assumptions and formulas/methods should it be required.

Key Inputs / Data Sources

D&B and Implementation Actuals:
- Consolidated HO GL Data
- Project Board Briefing Notes containing fee schedules

Group 1 timelines:
- CST Group 1 Project Plans

Enterprise Build work complete:
- Accenture/Cerner Report
- CST Group 1 Project Plans

In Scope Sites vs. Implemented Sites:
- 2016 CST Roadmap
- CST Group 1 Project Plans

Site size measures (beds, FTEs, etc.):
- CST Data Snapshot Master File

Ongoing Support Costs:
- Consolidated HO GL Data
- Cerner Hosting Contract Schedule
- Software Maintenance Contracts

Other Costs / External
- VCH analysis of device & infrastructure spend
- ESC Briefing Notes containing fee schedules

Key Assumptions

1. Costs can be estimated by extrapolating Group 1 actuals against remaining work and sites, adjusting for efficiency
2. When historical GL data does not exist or cannot be isolated, the following can be used as alternative data sources:
   - Contracts and payment schedules
   - Estimates provided to Project Board
   - Actuals and estimates provided by the HO Finance teams
3. When site-specific information and data is incomplete or missing (e.g., missing # of beds, # of users), the average of available data for similarly-sized sites can be used

Calculation & Estimation Methods

1. **By work remaining, based on progress and costs to-date**
2. **By site data, based on costs to-date for similar sized sites**
3. **By burn rate over time**
4. **By proportional increases, based on growth rates or similar % changes**
5. **By direct input, based on contracts or otherwise committed spending**

+

Adjustment factors based on uncertainty regarding accuracy of inputs, as applicable.

Forecast Outputs

Estimated Remaining Costs & Estimated Total Costs for:
- Design & Build
- Implementation
- Ongoing Support
- Contingency
- Other Costs / External

The forecast can be automatically adjusted by:
- Changing inputs and assumptions *(e.g. number of beds and users at a site)*
- Changing which sites are in scope
- Adjusting the uncertainty range, separately per line item

Illustrative Calculation Method: ***Implementation Estimates***

[[[**$ Group 1 Implementation Costs** − **$ Group 1 Non-Recurring Costs Incurred**]] × **% Adjustment for post-Group 1 Efficiency Gain**] ÷ **# Group 1 Sites Sizing Data**] × **# Remaining Sites Sizing Data** = **$ Forecast Implementation**

Once an initial draft was developed, the forecasting and estimation model was reviewed with personnel from CST/VCH/PHSA Finance teams to challenge the results and improve its reliability.

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Top-down forecast – Assumptions

Summary estimation methods and confidence levels for the forecast

One-Time Project Cost Estimates	Degree of confidence: **Higher**
Design & Build	***Summary of estimation method, per item***
Enterprise Build	Using GL data and splitting for Local and Enterprise Build based on project plans and EY/CST analysis, and extrapolating based on the % of completion.
Local Build	Using GL data and splitting for Local and Enterprise Build based on project plans and EY/CST analysis, and extrapolating based on site data for all remaining sites.
Additional Adoption Support for D&B	Using briefing notes provided to CST Project Board, applying the additional costs required for Design & Build for Adoption Support.
Other Historical D&B Spend	N/A – Other historical spending on Design & Build, which was not used for estimating remaining spending.
Implementation	Using GL data and project plans for Group 1, applying an efficiency factor, and then extrapolating based on site data for all remaining sites.
Project Fixed Costs (e.g. PMO, Facilities)	For PMO and other fixed costs, using GL data and extrapolating until implementation is completed. For facilities, using leases and applying them for duration of leases.
Contingency	Applying contingency rates identified in the original business case, based on the estimated remaining spend.

Sustainment Cost Estimates	Degree of confidence: **Moderate**
Ongoing Support	***Summary of estimation method, per item***
End-User Support	Using GL data and extrapolating at a burn rate that grows linearly, based on the total expected number of end users across all sites.
App. & Technical Support	Using GL data, and extrapolating at a burn rate that grows at ½ the rate of End-User Support (as it is less directly correlated to the number of end users).
Remote Hosting	Using contract fee schedule to identify total to completion.
Software Maintenance	Using contract information to identify total to completion and incurred costs to date.
Cerner Upgrades	Using estimates provided by CST Leadership, based on the expected duration and effort of upgrades.
Contingency	Applying the contingency rates identified in the original business case, based on the remaining spend

Other / External* Cost Estimates	Degree of confidence: **Lower**
Other / External Costs	***Summary of estimation method, per item***
Devices	Using actuals and Group 2 estimates provided by HO's, and extrapolating based on sites remaining.
Infrastructure	Using actuals and Group 2 estimates provided by HO's, and extrapolating based on sites remaining.
Downstream Projects	Using the contract fee schedule to identify total to completion, and using IMITS data for the costs incurred to date.

** Currently, no contingency is included for other / external costs.*

Some CST-related costs are currently tracked outside of project cost centres. HAs will need to verify any other project-related costs outside of project cost centers.

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Top-down forecast – Key considerations and limitations

Although it uses site information and actual financial performance and estimates an allowance for contingency, the forecast also relies on a set of assumptions that may result in higher or lower spending than will occur in practice

- **The TDF provides an estimate of total costs, and is not a timeline or intended to provide a period-by-period breakdown**
  - Once the IPP is developed and merged with the forecast, a calendarized view of spending will be possible. The schedule and timing identified within the IPP will also influence estimates for inflation, estimates based upon a burn rate (e.g., office leases and project management), as well as on ongoing support costs.
- **Improved efficiencies as a result of learnings from Group 1 go-lives may not be adequately factored in**
  - As the forecast relies primarily on the extrapolation of historic costs, learnings and efficiency improvements following Group 1 may not be adequately factored into the current forecasting model. An assumption has been included that there would be at least a 15% cost improvement for similar sites in the future.
- **Local Build and Implementation estimates rely on site data, which is incomplete and may not factor in all the potential complexity differences compared to Group 1 sites**
  - Individual site information provided by the health authorities (including # of beds, clinics, physicians, and users) was used to estimate local build and implementation efforts. However, some information provided was missing information, and furthermore, some project workload is driven by elements outside of the available data sets. An higher uncertainty factor (20% vs 10%) has been applied to all sites subsequent to BC Cancer for local build and implementation estimates, to account for this.
  - The IPP's development of sequencing and resourcing is expected to increase the accuracy of Local Build and Implementation cost estimates.
- **Ongoing Support and External/Other Costs have only limited actual costs to base estimates on, resulting in lower levels of confidence**
  - Since many ongoing support costs only apply after implementation completes, there are currently a small number of reporting periods to base future estimates upon. As a result, a higher proportion of uncertainty has been applied for remaining support costs.
- **For Enterprise Build estimates only, the assessment of progress from the prior report from Accenture/Center has been used.**
  - For Enterprise Build, and Enterprise Build only, an approved % of progress to completion could not be provided or ascertained. As a result, we have utilized the results of an assessment of progress from a report from Accenture/Cerner. We have applied a higher uncertainty factor for this estimate as a result.
  - Once an approved % of completion for the Enterprise Build has been confirmed, the forecasting model can be updated to reflect this information.

Combining the top-down forecast estimates with the estimates of the integrated project plan will help to reduce the uncertainty around total spend.

IPP – Scope and Deliverable

The IPP consolidates detailed schedules for all remaining work on the CST program into a coherent document that informs planning and reporting at each level of the program.

- EY and CST Leadership have agreed on a coordinated approach to the IPP
  - CST prepared the Design & Build plans
  - EY prepared the Implementation and Ongoing Support plans
- Work on the IPP is in progress. It will be developed to a Level 3+ maturity for the Board deliverable to inform on high-level sequencing and program durations
- Schedule optimization strategies are being explored and site-sequencing options will be presented for review and consideration
- Following Board endorsement of the schedule approach, individual plans will be developed to the level of detail required to inform accurate bottom-up resource and cost estimates
- Defined governance procedures and resource continuity will be necessary to ensure a functional & sustainable tool
- The current IPP is a "best case" scenario with aggressive assumptions around learning across implementation and support

IPP – Progress and Next Steps

Work on the IPP is in progress and will need to continue following the Board Meeting to ensure a functional and sustainable tool.

Where We Are Today

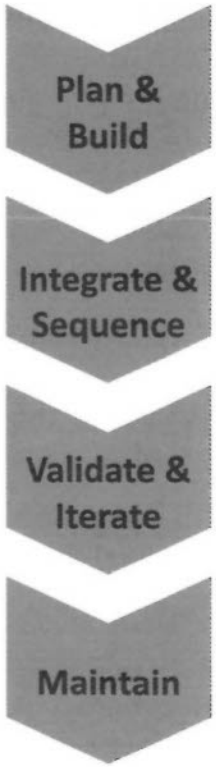
- Established Work Breakdown Structures for Implementation and Ongoing Support
- Validated schedule durations and a resourcing strategy based on available data
- Building-out of individual project plans is in progress

Where Will We Be – December 12th Board Meeting

- Individual project plans will be built and validated
- Dependencies will be coordinated and project plans will be linked in Server
- Program contingency will be added to the schedule based on CST leadership input
- Stream and site sequencing will be optimized, and schedule options developed for Board review
- Resources have not been 'levelled' (matching demand for the resource with availability) which will happen with future revisions of the IPP

What Will Happen Next – Post-Board Meeting

- Finalize scheduling approach to remaining work and baseline in IPP
- Iterate with financial forecasting model to reflect established schedule baseline and identified risk
- Define governance procedures for management and sustainment of IPP
- Continue developing all individual project plans to task-level detail



Once completed, the merged IPP and forecast will be provided to Project Board for formal review and approval.

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IPP – Assumptions and Limitations

A number of key assumptions were made in the development of the IPP. Understanding the impact of these assumptions led to the identification of limitations to the IPP.

Key assumptions for the main components of the IPP are as follows:

- **Work Breakdown Structure, Durations and Dependencies**
  - Data from Group 1 projects
  - Input from key CST personnel based on lessons learned and expected gains in efficiency
  - Input from CST leadership for dependencies between individual sites
- **Resourcing Strategy**
  - For *near-term work* with well-defined scope, individual resources are being assigned at the task level
  - For *further-out work*, Effort estimates are being derived from Go-Live data and extrapolated based on site-specific criteria
  - Adjustment factors are being applied based on CST feedback/lessons learned.
  - Blended labour rates align with the Top Down Forecast

Three primary limitations to the IPP have been identified :

- Data is limited and does not included representative samples for larger and more complex sites (ie. VGH, St. Paul's). Duration and resource estimates for these sites are therefore more dependent on CST input
- For the higher-level plans, resources need to be assigned as groups. This constraint required site-sequencing and program durations to be driven by utilization estimates, as opposed to a leveling of individual resources
- There is limited data to inform resourcing and duration estimates for Ongoing Support work

Key Risks

Five key risks have been identified that could result in a material schedule delays and increases to the total estimated program costs.

As each risk will impact the CST program's ability to finish according to the new estimates, it is recommended that CST develop and track mitigations plans.

Risk	Description	Likelihood of Realization	Severity if Realized
1. Resource Availability	The extent of resources required may be unable to be provided by the health organizations, resulting in an inability to complete all in-scope project activities. The realization is expected to significantly increase the likelihood of the Resource Continuity and Adoption Resistance risks be realized.	High	High
2. Resource Continuity	Loss of institutional knowledge or inability to effectively coordinate project activities due to: • Unexpected departure of key individuals • Unfilled key roles	Moderate	High
3. Adoption Resistance	Delays and rework due to lack of willingness to adopt new systems and processes at one site may impact subsequent sites/plans. Inadequate time, effort and resources applied to pre-implementation and post go-live support will increase the likelihood of this risk.	Moderate	High
4. Impact of External Review	Loss in workforce productivity due to: • Time requirements to fulfill audit requests • A decrease in morale due to being reviewed by an external party	High	Moderate
5. Quality of Information	An underestimation of the schedules and costs to complete the CST program due to inaccurate or incomplete CST data sources	Moderate	Low

Next Steps

Now that an initial view into project completion costs has been obtained, the TDF will be merged into development of the IPP. Once the IPP is developed, it can be used to create forecasts with greater accuracy.

1. Enhance the Top Down Forecast and Then Roll It Into the IPP Development Effort

The new financial forecast provides a reliable estimate of remaining costs, however there are a number of additional tasks that can be undertaken to enhance the value of these forecasts:

- Confirm and complete the reconciliation between the forecast and the original business case, to enable comparability
- Confirm the capital vs. operating breakdown of the cost estimates
- Use the top down forecasts to help challenge and refine the resourcing and schedule estimations in the IPP

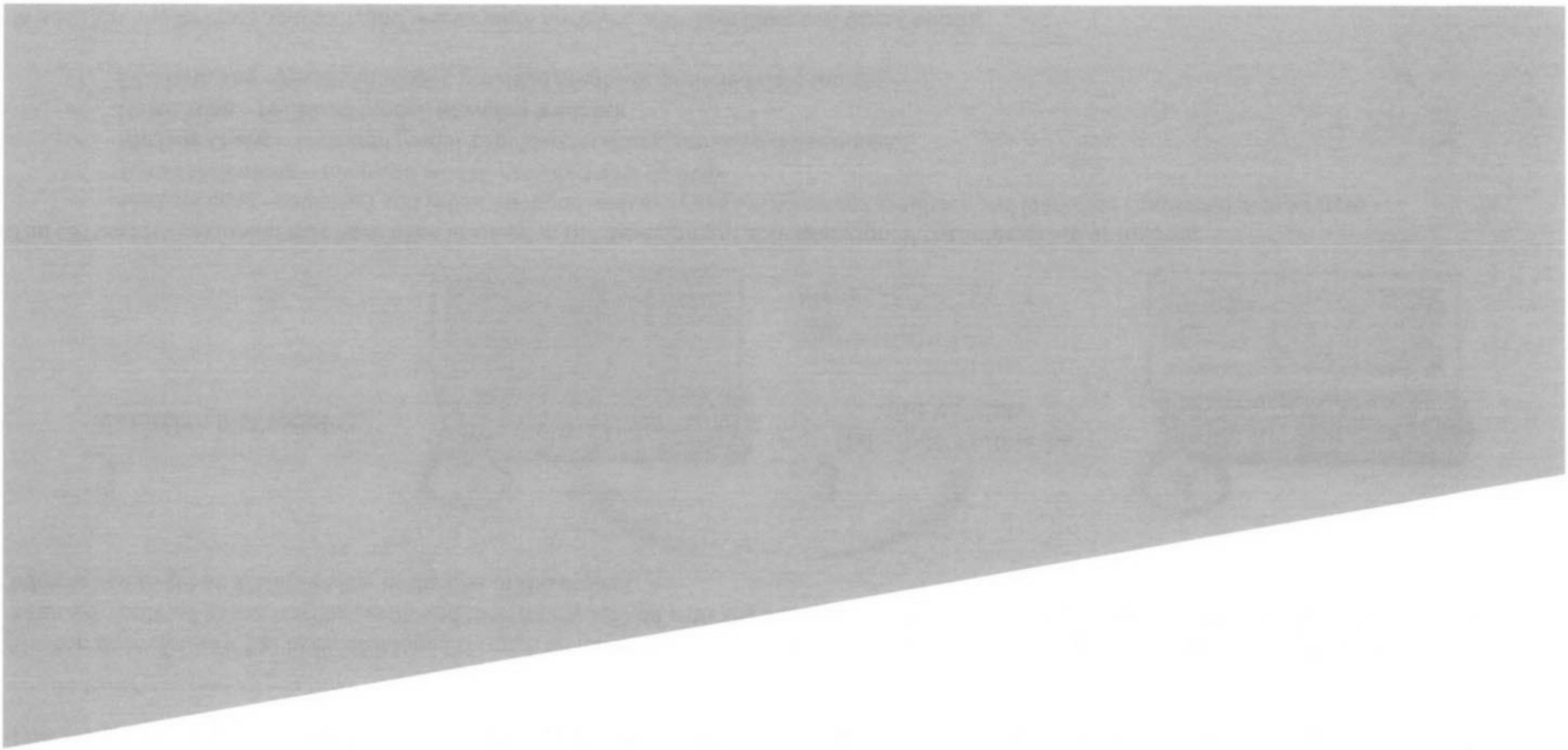
2. Continue IPP Development and Enable Sustainment

Additional development is required to bring the IPP to the level of detail required for the creation of reliable bottom-up estimates for the duration of the CST program. To gain the full value of the IPP, the following is recommended:

- Utilize the TDF to help refine resource estimates in the IPP (and providing a calendarized view of the forecast)
- **Address any changes requested by Project Board, and bring a merged IPP and updated forecast to Board for approval for re-baselining**
- Maintain resource continuity of the IPP development team
- Onboard Stream Leads to help drive the IPP development
- Establish a monitoring and reporting cadence for the IPP

Direction is required from Project Board to a) identify key questions or matters that should be addressed prior to finalization of the TDF and IPP, and b) direct EY and CST to bring back the merged and finalized version of the forecast and IPP for formal approval at a subsequent Project Board meeting.

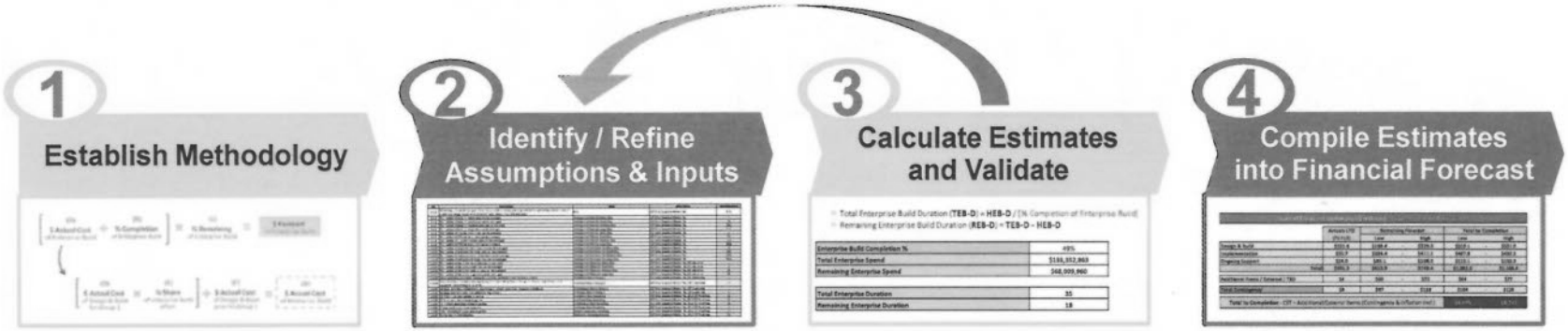
Appendix



Top Down Forecast – Development Approach

The Forecast was developed using historics to estimate the remaining costs until project completion.

The top down forecast has been developed through an iterative workshop-based approach with CST project leadership, where historical actuals have been extrapolated as the starting point, and then jointly refined with any assumptions developed on how to apply, adapt or adjust this historical information to get an accurate view to the end of the project.



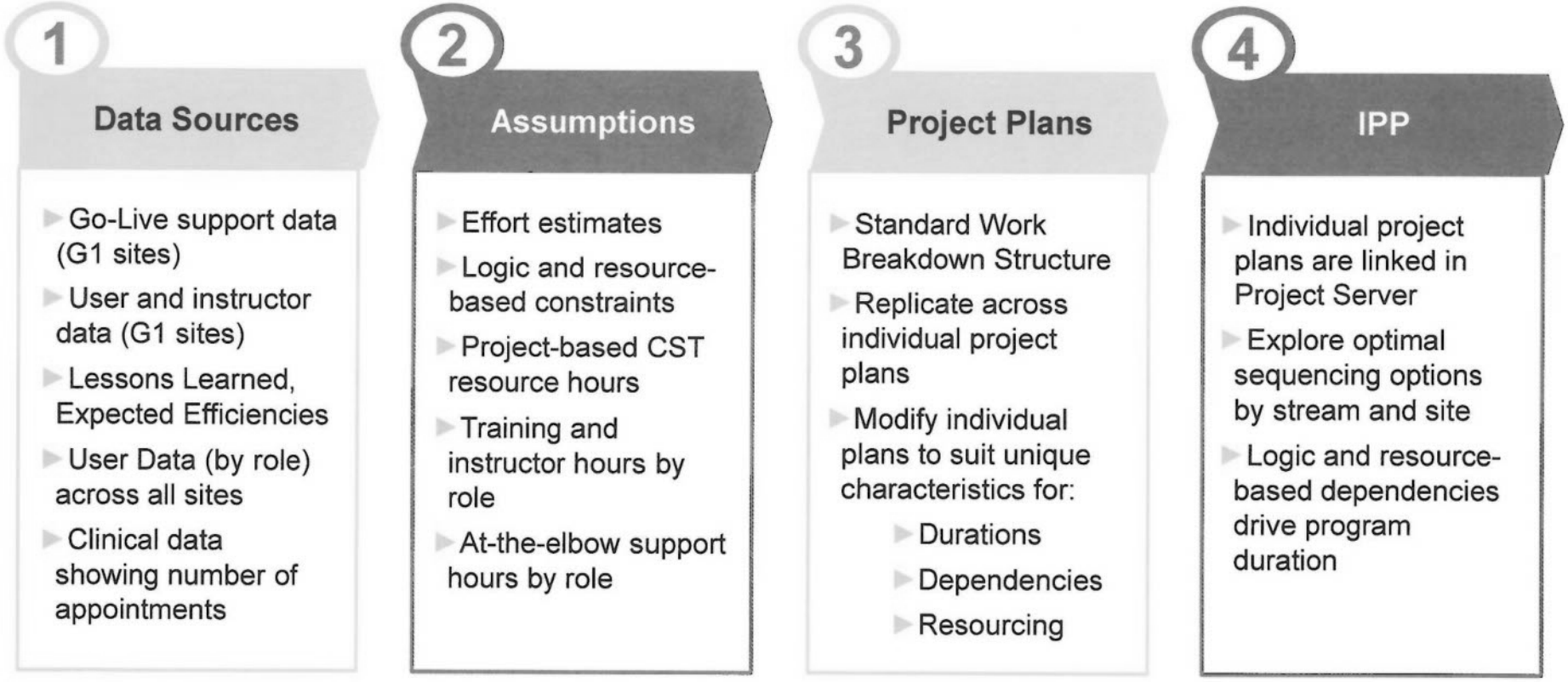
The CST and HA personnel that have been involved in the development and validation of the forecast are as follows:

- **Michael Long** – reviewed and validated model and assumptions, provided feedback and identified / provided data sources
- **Tena Vandenberg** – reviewed model, provided data sources
- **Michele Chang** – reviewed model, provided feedback, provided data sources
- **Helen Yung** – reviewed model, provided feedback
- **Elizabeth Kao** – reviewed model, provided feedback, provided data sources

In addition, the forecast approach and results were reviewed with **Tom Chan** and **Glen Copping**.

IPP – Methodology

The IPP development starts with CST data sources and SME input, and results in a plan that includes all individual team project plans. This effort is conducted by a joint CST / EY team.



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CST Program Update – Current Spotlights

Period Ending November 23, 2018

Overall Program Status G

Current Phase: Implementation and Future Planning

Executive Summary

CIS : Two new CPOE-M areas have been established (BC Cancer and Acute/ Ambulatory. BC Cancer CPOE-M have completed their plans but are working through resourcing issues. 3 Other teams are also reporting Red but they consider the overall team to be at Amber. Most issues are based on dependencies and resourcing as is usual. Teams continue to push forward in building.

A new update is being provided for non-Oncology Order Sets.

Sustainment: Having absorbed Sechelt and Power River into ongoing sustainment has seen the backlog hold steady which is very positive. There have been events that caused impacts to sustainment. EMPI and Pharmanet were down for a period during November 27th.

Sechelt & Powell River: Site is Live with no major issues being reported.

BC Cancer: Go-Live Dates are still being finalized while all teams are overall progressing at an expected pace.

Implementation Teams	Status
Clinical Information System Build (CIS)	G
Sechelt & Powell River (Medical Imaging)	Live
BC Cancer	G
Providence Health Care	A
Sustainment	G

Site	Upcoming CST Deliverables and Milestones	Status
Sechelt/ Powell River	Sechelt & Powell River Go Live – November 20 *All areas reporting green ahead of Go-Live*	Live
Sustainment	Deploy Service Now to optimize and transition user support processes *Reporting requirements are being developed by the vendor.*	G
BC Cancer	Build Complete *Dates are still being finalized*	TBD

CST Enterprise Risks & Issues

Impacted Sites	Summary & Update	Impact
Coastal *CST-30536*	Nurses Failing to Complete their Charting Task, Lab Orders Held Up - *A new workflow that has nursing units monitors specimen collection has proven successful in mitigation and being deployed across all units.* - *A final "Collection Manager" solution is being investigated by CST, currently comparing alternatives. Various build items are being tracked against this item.*	Major

CST Enterprise Decisions

Summary & Update	Impact
BC Cancer Go-Live Date Finalization *Dependent on firmer fact-based schedule and plan detail*	Major

Sustainment – Overview

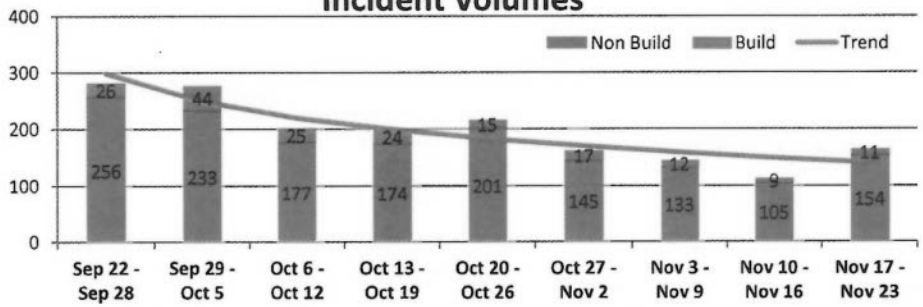
Period Ending November 23, 2018 – As of November 28, 2018

Key Updates

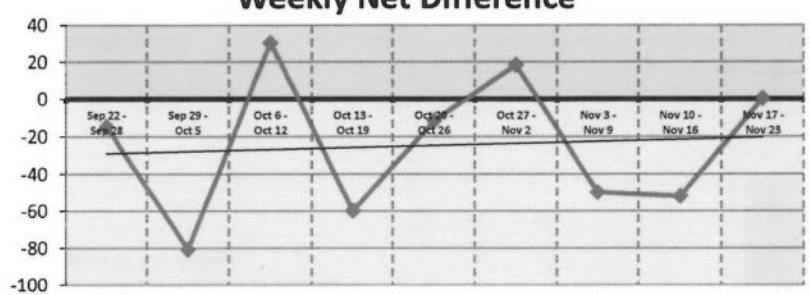
- November 16th - VGH phone reset took down the phone support number for approximately an hour
- November 25th - Citrix in Toronto crashed causing Cerner to go down
- Rolling anti-virus updates impacted the tracking boards causing an outage
- November 27th - EMPI and PharmaNet were down

Incident Metrics			
Open Non-Build Items	428	Open Build Items	203
Created last week	165	Creation Trend Past 4 Weeks	▼ 2.3/week ▼ 1.9% 4wk TOTAL
Closed last week	165	4 Week Difference Difference Trend	▼ 84 ▼ 5.6/week

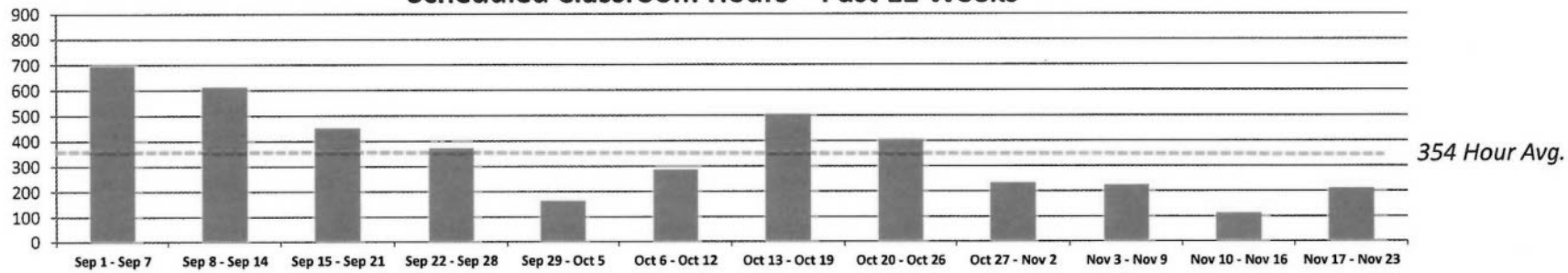
Incident Volumes



Weekly Net Difference



Scheduled Classroom Hours – Past 12 Weeks

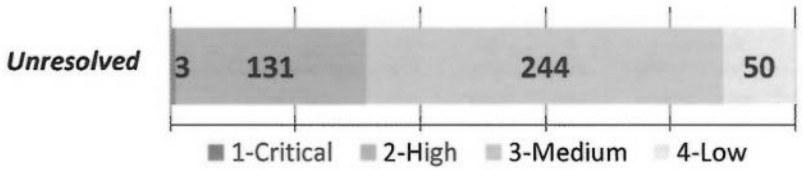


Sustainment – Unresolved Incidents Volumes

Period Ending November 23, 2018 – As of November 28, 2018

Non-Build Incidents (68%)

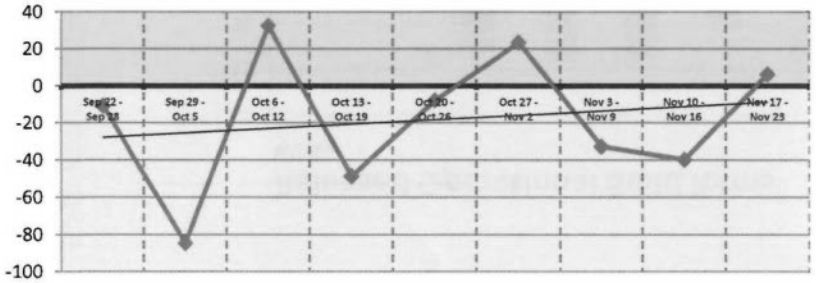
428 Open



Last Week Difference	▲49 Items| 46%
Ave. Net Difference *Past 4 Weeks*	▼ 11 Items
Net Difference Trend	▲ 2.4 /week

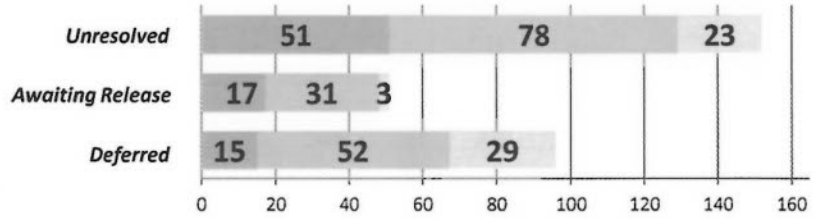
Most Outstanding	Total
Learning	91
Site Education	64
Site Management	47

Non Build Net Difference



Build Incidents (32%)

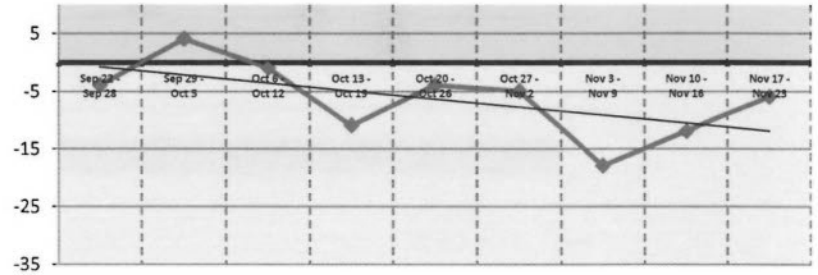
203 Open | 152 Unresolved | 51 Awaiting Release
96 Deferred



Last Week Difference	▲ 2 Items| 22 %
Ave. Net Difference *Past 4 Weeks*	▼ 10.25 Items
Net Difference Trend	▼ 1.4 /week

Most Outstanding	Total
Acute Care	18
Medication Management	16
HIM / Document Imaging	14

Build Net Difference

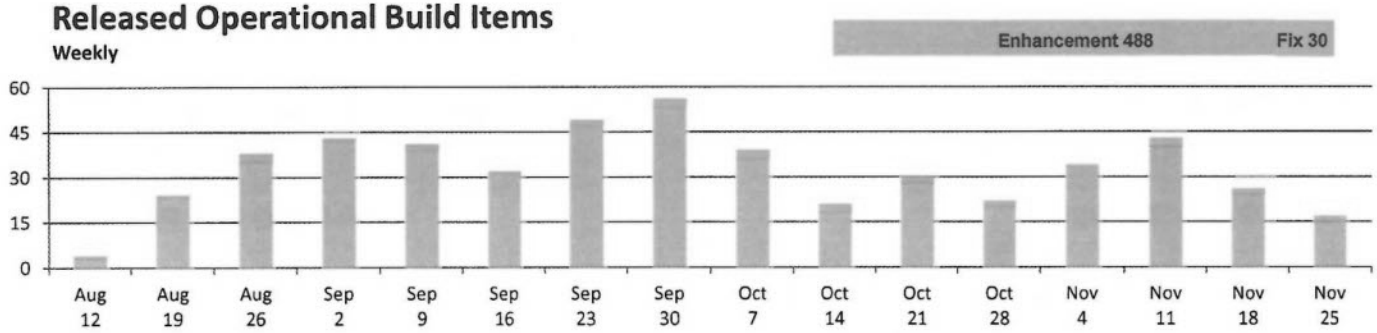


Sustainment - Operational Build Item Releases

Period Ending November 25, 2018

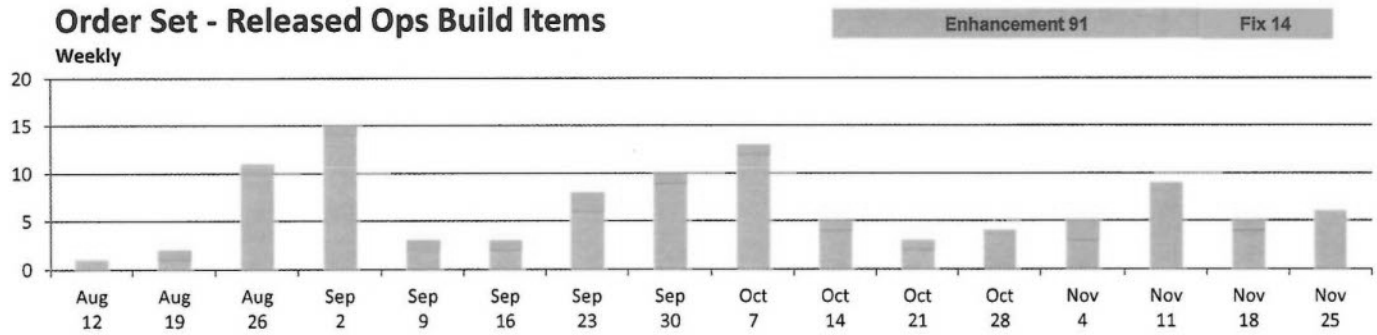
Released Operational Build Items

Weekly



Order Set - Released Ops Build Items

Weekly



Notes and Assumptions

A Special Off-Schedule Release to Enhance Transfusion Medicine was re-scheduled for January 17th. However, a Special December 5t release is still scheduled for an IVIG Enhancement.

- *Operational Build Items are changes that have impacts on live production areas. These do not include items for areas not currently being used in live environments.*
- *Metrics are cumulative across all live sites.*
- *Totals are for the periods presented and does not include items released before the reporting periods.*

Page 085 to/à Page 089

Withheld pursuant to/removed as

s.13

Key Tech Dependencies

Period Ending November 9, 2018

Initiative Status

			BC Cancer Activation						PHC	Vancouver Acute	BCMHSUS	C&W
Initiative Type	**Accountable**	**Initiatives**	Abbotsford	Prince George	Surrey	Victoria	Kelowna	Vancouver	Overall	Overall	Overall	Overall
Network Readiness	CST/BCCSS	BCCSS CST Network Gap Analysis										
	CST	Cerner Network Analysis										
	IMITS	IBM Network Assessment										
	IMITS	Managed Wi-Fi Project										
	IMITS	Network Core Upgrades										
	IMITS	Edge Switch Upgrades						Jan 2019				
	IMITS	Converged Edge Migration										
	IMITS	Environmental remediation										
Device Readiness	IMITS	DTP										
	CST/Biomed	Biomed Device Readiness										
	CST	CST Device Readiness										
Dependant Downstream Readiness	IMITS	Sunquest Greenfield (enterprise)										
	IMITS	Regional Cardiac ECHO (RCES)/Syngo										
	IMITS	Regional Endoscopy Solution										
	IMITS	HRCM (BART)										
	HIM	HIM Coding Phase 3A (Med 2020)										
	HIM	Fluency for Transcription										
Other Readiness Areas	HIM	Data Remediation										
	HIM	FESR										
	CST	Pharmacy Infrastructure (PI)										

Legend

	Complete or Substantially complete
	Planning or Delivery In Progress
	Business Case – In Progress
	Required – Not Yet Started
	TBD
	Not Applicable

CST PHC Implementation Dashboard – Workstreams Status

Reporting Period: As of November 23, 2018

Overall Project Status:	AMBER

Executive Sponsor	Leanne Heppell	Physician Leader	Charles Lo

Clinical Leader	Grant McCullough Rosa Hart	Project Leader	Andy Yngreso

Workstreams

Workstream	Overall Status	Details
Implementation Planning	A	- Implementation timeline to be determined. - Clinical Informatics Specialists hiring in process to complete in December. - Cost estimates baseline for PHC Implementation and Device costs completed. - "CST Central" construction in process for completion end of January - PHC Scope priorities have been escalated to CSC along with proposed Residential Care scope. - PHC Ambulatory Clinics inventory development in process - Comox building to be set up as CST project team workspace - FESR Project to be initiated
Adoption	G	- PHC profiles for Residential Care in process - Computer literacy assessments have started with nursing. Planning with other clinicians underway.
Clinical & Business Readiness	G	See detailed report on separate page of status report
Technical Readiness	G	See detailed report on separate page of status report
VPP CIS & Related Systems	G	Approach being developed in partnership with CST
Activation	Not Started	
Sustainment	Not Started	

Executive Summary

Residential Care (RC) and Tertiary Mental Health (TMH) will target Spring 2019 go live. RC functionality (ie. CPOE, eMAR, etc) scope to be finalized 12/05 at Residential Care Working Group. Amber status due to awaiting of CST Project Team to formally engage PHC for Project plan development and Design Session Planning.

Current focus: CST PHC Budget and Resource finalization, Device projections validations, and Design Prep. Hiring for Clinical Informatics Specialists in process targeting December completion. Planning, prioritization, and execution of clinical readiness projects (Ie. AUD, MEWS/Sepsis) continues. Practice change education underway.

Required Local PHC Decisions

1. Approval of budgets will impact (1) Device budget funding source and (2) Implementation Team budget for RC and TMH spring go lives.
2. Residential Care scope, sequencing, and timeline
3. Device procurement start (Resolved: Device Procurement for Spring go live to start immediately)

Top Risks

The following risks must be mitigated in order to facilitate device procurement and work activities for RC and TMH spring 2019 go live.

1. Device Budget funding source is to be determined
2. Implementation Budget for Team Resources not approved

Workstream Status Indicator Definitions

Team is tracking to plan.	G
Team is behind schedule. Mitigation strategy in place.	A
Team needs immediate attention.	R

CST PHC - Clinical & Business Readiness Workstreams - Overview

Reporting Period: As of November 23, 2018

CLINICAL + SYSTEMS TRANSFORMATION
Our path to smarter, seamless care

Projects/Initiatives

Workstream	Overall Status	Lead(s)	Details
Review of CST Clinical Decisions Target completion: 10/31/2018	G	Any Yngreso/ Grant McCullough	- PHC Triage meetings occurring weekly ~ 62% closed - Completion date revised until PHC CST Go Live
MEWS & Sepsis Go Live 12/01/2018	A	PM: Amy Hamill Lead: Julie Carleton	- Meetings occurring with other areas to see if work can be done while waiting for a decision from the SBAR - Medicine Program has gone live. - 90% of Patient Care Managers have attended an education session.
Med Rec on discharge in Surgery Go Live 09/25/2018	R	PM: Karl N Clinical: Stephanie Chan & Isabel Diogo	- Future state process map completed - Options developed for prescriptions that require coordination between Addictions and Surgery - Education materials completed
Roll out of FIM in Rehab Go-live HF Rehab 2 (Neurology) 10/15/2018 - Completed Go-live HF Rehab 1 (Orthopedics) 01/27/2019	G	Cheryl Harris	- Allergy Policy Change completed - Go Live HF Rehab 2 (Neurology) completed
FESR Flex Project Go Live: Rolling Go live as per users tbd	G	Jay van Brunt	- Mini-Charter drafted; PHC CST Physician and Implementation Leadership has **Approved project to proceed.** - Deployment project plan and specific physician users to be identified.
PHC Policy Review & Update Target completion: 03/31/2019	A	Kelly Lee	- Gathered list of all PHC policies and clinical decision support tools - Review of list to determine needed update underway
Medication Label printer project	Not Started		- Dependant on Omnicell version upgrade by LM Pharmacy

Required Local Decisions

1. Decision needed on MDC Pin code management – ***This is being taken to Nursing/Pharmacy working group.***
2. **Med Rec Project** - Education cannot proceed until clinical leadership in Surgery and Addictions can reach an agreement on the process for the discharge as it relates to opioid and non-opioid prescriptions.
3. MEWS/SEPSIS Project: - Project paused while waiting for a decision from the SBAR

Top Risks

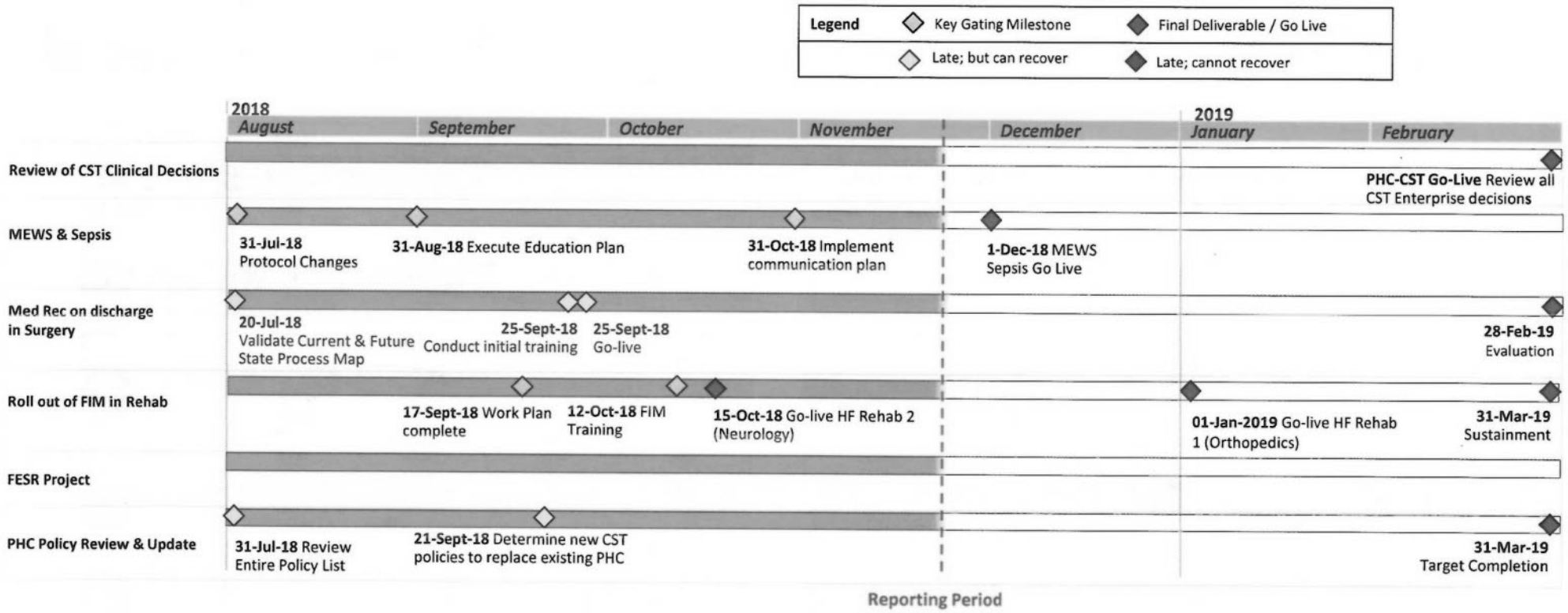
1. Pending Project Manager with Pharmacy Background to look at workflows and project management functions for other Pharmacy/Nursing projects.
2. **MedRec Project:** Schedule on hold until Sr. Medical Director is hired and interviews are week Oct 5th, 2018
3. **MEW&Sepsis:** Nurse educator workloads; Situation awareness education challenges; and evaluation will require paper chart audits.

Workstream Status Indicator Definitions

Team is tracking to plan.	G
Team is behind schedule. Mitigation strategy in place.	A
Team needs immediate attention.	R

CST PHC - Clinical & Business Readiness - Detail

Reporting Period: As of November 23, 2018



CST PHC - Technical Readiness

Reporting Period: As of November 23, 2018

Executive Summary

Site validations in progress, approx. 10/40 complete. Continued collaboration with LMFM, IMITS to plan work for site remediation. Scope document for contractors to be posted by Nov. 30; delayed in order to include additional information for contractors. Managed wifi team consulted; floor plans shared re device needs; PHC wifi to be live in stages beginning Dec. 13 at SPH; leadership decision to use wifi devices where possible. Leadership direction to include PHC CDUs in full scope, including biomed monitor integration; biomed team has begun assessments.

Legend

Complete	*100%*
In Progress	*70% - 99%*
Started	*<70%*
Not Started	*0%*

Assessment Progress by Site

St. Paul's Hospital (81 Areas)

1.1 Tech Assessment	1.2 DU Assessment	1.3 Compilation	1.4 Proposal	1.5 CST Validation
97%	93%	99%	97%	64%

Mount St. Joseph Hospital (29 Areas)

1.1 Tech Assessment	1.2 DU Assessment	1.3 Compilation	1.4 Proposal	1.5 CST Validation
91%	93%	99%	98%	34%

Holy Family Hospital (18 Areas)

1.1 Tech Assessment	1.2 DU Assessment	1.3 Compilation	1.4 Proposal	1.5 CST Validation
100%	100%	100%	90%	5%

Youville Residential (8 Areas)

1.1 Tech Assessment	1.2 DU Assessment	1.3 Compilation	1.4 Proposal	1.5 CST Validation
100%	100%	100%	90%	5%

St. John Hospice (1 Area)

1.1 Tech Assessment	1.2 DU Assessment	1.3 Compilation	1.4 Proposal	1.5 CST Validation
100%	100%	100%	90%	5%

St. Vincent Brock Fahrni (4 Areas)

1.1 Tech Assessment	1.2 DU Assessment	1.3 Compilation	1.4 Proposal	1.5 CST Validation
100%	100%	100%	90%	5%

St. Vincent Langara (11 Areas)

1.1 Tech Assessment	1.2 DU Assessment	1.3 Compilation	1.4 Proposal	1.5 CST Validation
92%	100%	100%	90%	5%

St. Vincent's Honoria Conway (1 Area)

1.1 Tech Assessment	1.2 DU Assessment	1.3 Compilation	1.4 Proposal	1.5 CST Validation
100%	100%	100%	5%	5%

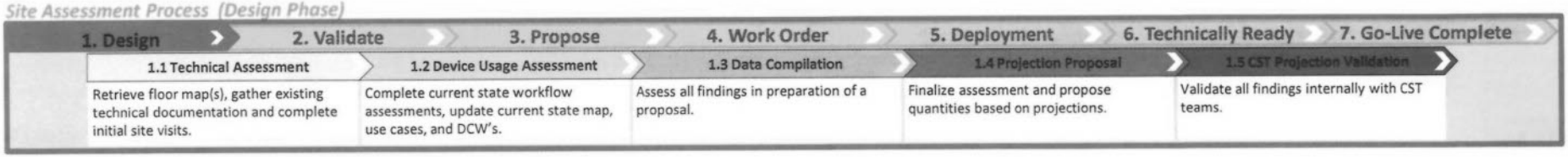
Community Dialysis Units (7 Areas)

1.1 Tech Assessment	1.2 DU Assessment	1.3 Compilation	1.4 Proposal	1.5 CST Validation
87%	86%	86%	86%	0%

Other (24 Areas)

1.1 Tech Assessment	1.2 DU Assessment	1.3 Compilation	1.4 Proposal	1.5 CST Validation
66%	49%	28%	4%	4%

Site Assessment Process (Design Phase)



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E info@CSTproject.ca

CST PROJECT BOARD

Wednesday, December 12, 2018
0900 – 1300 Hours
10th Floor Board Room
601 W. Broadway

Proposed Motions

Agenda Item #	Matter	Proposed Motion
1.1	Declare In-Camera Meeting	It was MOVED by , **THAT** the meeting be declared in-camera.
1.2	Approval of Agenda	It was MOVED by , **THAT** the agenda be approved as circulated.
1.3	Minutes of October 24, 2018	It was MOVED by , **THAT** the minutes of the in-camera meeting held on October 24, 2018 be approved.
3.0	CST HR Priorities	It was MOVED by , **THAT** the CST Project Board supports CST developing and executing HR strategies in collaboration with the health organizations but without the need for consensus. This includes: • Managing non-contract salaries • Working directly with HEABC as required • Implementing common practices for expenses and non-salary compensation • Managing recruitment

4.0	Adoption Support Roles in CST	It was MOVED by , **THAT** the CST Project Board approves the Adoption Support role, to be sourced from the Health Organizations, being a defined role within and funded by the CST project for up to $7.1M capital expenditure incremental to the November 2017. AND **THAT** in order for the Board to be assured that the financial efficiencies are being achieved by approving these adoption support roles, a report will be provided at every second Board meeting of the year-to-date expenses.

Moulton, Holly HLTH:EX

From: Brown, Stephen R HLTH:EX
Sent: April 26, 2018 7:38 PM
To: Powell, Wynne HLTH:EX
Cc: Feulgen, Sabine HLTH:EX
Subject: Re: CST Project in Brief: April 2018

Thks Wynne s.22

Sent from my iPhone

On Apr 26, 2018, at 3:47 PM, Powell, Wynne HLTH:EX <Wynne.Powell@gov.bc.ca> wrote:

> to keep you informed...discussion this morning was excellent in my view
>
> Regards
>
> Wynne

G. Wynne Powell, CPA,FCPA,FCGA,D.Tech (hons)
CST CHAIR & Special Advisor to Health Minister
office: 4580 Cowley Crescent,
Richmond, B.C. V7B 1B8
mobile 1-604-209-3210
e-mail: Wynne.Powell@gov.bc.ca

From: Long, Michael <Michael.Long@phsa.ca>
Sent: April-26-18 11:38 AM
To: Powell, Wynne HLTH:EX; XT:Roy, Carl EHS:IN; XT:Ackenhusen, Mary HLTH:IN; [VCH] Dalton, Fiona [PH]; 'John Bethel'; Feulgen, Sabine HLTH:EX
Subject: FW: CST Project in Brief: April 2018

This was sent out to a cross-HO distribution . Good encapsulation on recent progress in preparation for go-live.

Michael

From: infocstproject
Sent: Wednesday, April 25, 2018 4:31 PM
To: <<>>

Cc: Long, Michael
Subject: CST Project in Brief: April 2018

CLINICAL + SYSTEMS TRANSFORMATION
Our path to smarter, seamless care

CST PROJECT IN BRIEF

For leaders and physicians at VCH, PHSA and PHC

OUR.CSTPROJECT.CA

April 2018

What's new

The CST project is on track to reach a major milestone: on April 28, Lions Gate Hospital and Squamish General Hospital will be the first two acute care sites to go-live with the new Cerner clinical information system. LGH and SGH are the first of about 40 sites **across VCH, PHSA and PHC** that will go through the transformation **over the next two to three years.**

On April 20, health organization and project leaders had a "T-1" checkpoint meeting to review the current state of the project and collectively affirm confidence in delivering a safe and successful first go-live. The group looked at clinical and technical readiness, key activities and milestones for the foundational ("enterprise") build of the system, CST implementation preparations at Coastal, and other readiness areas such as network/infrastructure upgrades and connectivity with other systems. The final checkpoint meeting will be held in the days before go-live.

Recent milestones and project highlights

In the final lead-up to the big day, March and April have seen many milestones and project highlights for the Coastal CST implementation team:

- In March, Cerner conducted a readiness assessment that gave all applications in the new system a green light.
- On April 4, the Vancouver Pharmacy Production Centre successfully went live with the Supply Chain module of the new Cerner clinical information system. This first module is part of the same system that's going to roll out as part of CST, and it covers the purchasing, receiving, inventory and financial tracking of medications.
- Over 740,000 patient records have been successfully loaded into the new system.
- 143 registrations, 6,000 appointments and 8,000 results have been entered.
- 11,000 orders have been placed.
- Since training began in January, there have almost 1,000 in-person classroom events.
- More than 70 nurses have been seconded or recruited from other VCH Communities of Care and local health organizations like Providence Health Care and trained to work at LGH and SGH before and after the system is activated to increase overall capacity to provide quality care.
- Four mock cutover exercises were held at LGH and SGH. These trial runs have helped inform the cutover process and project the amount of time and people required for clinical cutover that will happen in the days leading up to go-live. The mock cutovers have been largely focused on acute care.

24/7 support planned for Lions Gate and Squamish providers and clinicians

To help ensure successful adoption of the new system, **the clinical support model for LGH/SGH will include extensive at-the-elbow support for physicians and clinicians as well as a 24/7 Clinical Support Command Centre.**

A Support Quick Reference Guide has been provided to LGH and SGH with information about what support is available and how to get help, which includes the four different levels of help: at-the-elbow floor support (clinical and technical), the 24/7 clinical support command centre, specialized roamers, and an issues response "SWAT" team that will resolve critical issues. It also covers reporting patient safety events (through PSLS), how to handle media requests, and access information for the CST Whistleblower Program – a last resort

option. Go-live support lanyard cards with contact information and more have also been supplied.

Patient volume mitigation

A number of strategies have been put in place to support patient volume mitigation for LGH and SGH throughout the go-live period, including: up-staffing physicians, nurses and support staff; diversion of some referrals and ambulances to other regional hospitals; repatriation of patients where possible to reduce pressure on LGH/SGH; a message on the regional emergency department dashboard; reduction in operating room and ambulatory clinic activities; and a daily regional ED/Access touch base call.

Communications supporting the big go-live event

Materials have been distributed at LGH and SGH (e.g. pamphlets, posters and tabletop signage) to help patients and families understand the changes and benefits that they'll be experiencing after go-live.

The latest issue of INSIDE CST Coastal has been released, covering messages from Coastal leadership and tips for a successful go-live. There are also two toolkits (one for Providers, one for Clinical Leaders/Peer Mentors) featuring everything they need to know before go-live, from FAQs to a quick reference guide, and to help support other providers and clinicians.

Two new episodes of *The Doctors Are In* podcast have been released. One features Dr. Jeremy Theal, Gastroenterologist and Chief Medical Information Officer for North York General Hospital, who offers tips for physicians working with a new clinical information system, and the other is a candid interview with Dr. Eric Grafstein, Emergency Physician and CST's Chief Medical Information Officer for VCH/PHC, that's a must-listen for physicians worried about whether they'll be supported through the activation period.

CST training is nearly complete

Almost all providers and clinical staff have completed their training. Final "skill-sharpener" sessions are underway to reinforce what they've learned from e-learning modules and classroom training. Providers are getting personalization sessions in which they set up their preferences in the new system with a Cerner expert. Training continues into early May for those that require it.

BC Cancer update

The LGH and SGH oncology outpatient clinics will go-live with Cerner for registration, scheduling, documentation and computerized provider order entry (CPOE) except for chemotherapy. Due to the numerous variations of treatment, LGH Oncology Clinic will aim to go-live with chemo orders in conjunction with the enterprise build for cancer and the BC Cancer activation.

Sequencing has been approved for BC Cancer centre go-lives, which will take place in four phases: (1) Abbotsford and Prince George; (2) Surrey and Victoria; (3) Kelowna; and (4) Vancouver. Provincial and regional leaders provided valuable feedback and considerations included: size and complexities of centres; interconnections between centres; current technical and physical infrastructure at each centre; and needs liked to associated health authorities, satellites and CONS.

Target dates will be determined after VCH-Coastal's go-live and once there is an estimation of time required to complete critical work (e.g. additional oncology design, build and validation work as well as order set validation). Following the announcement that BC Cancer - Prince George is part of phase one, they are now actively participating in implementation planning alongside BC Cancer - Abbotsford.

A video has been produced showing how to order chemotherapy using CPOE. With CPOE, there will be clearer orders, safety checks and balances within the system, and faster communication between health care teams.

Core Clinical and Operations Advisory Team (CCOAT) decisions

Note: After go-live, CST's governance groups, including CCOAT, will be meeting twice daily as part of the triage process for quickly resolving any issues. Here are recent decisions from the CCOAT team:

- Documenting patient allergies in the Acute and Ambulatory Clinical Cutover/conversion for Group 1: All allergies will be entered for all patients based on "Allergy and Intolerance Form" plus Pre-Anesthesia Clinics (PACS).
- When it comes to changing the current settings as to how many charts can be open at one time in Cerner, the decision was to change the setting to only allow one chart open, except for the following positions: OB-Nurse, OB-Nurse Postpartum, Nurse-Rural, Midwife, Midwife Student.
- As an interim measure in advance of system activation at LGH and SGH, an additional test will be added to the red blood cell transfusion nursing task.
- For external prescription history (PharmaNet Integration), both the view and import/side-by-side options will be made available allowing users to access patient's PharmaNet profile.
- CCOAT endorsed the workflow regarding the transition of a patient from inpatient to transitional care unit (TCU), which requires the creation of a full inpatient discharge followed by a complete admission as a residential

care patient with TCU medical service.

For more information on clinical governance decisions, please contact Rosa Hart, Director, Clinical Informatics, CST at rhart@providencehealth.bc.ca.

Get in touch

Do you have a question or need more information about the CST project?

Email info@CSTproject.ca **or visit** Transformation Central**.**

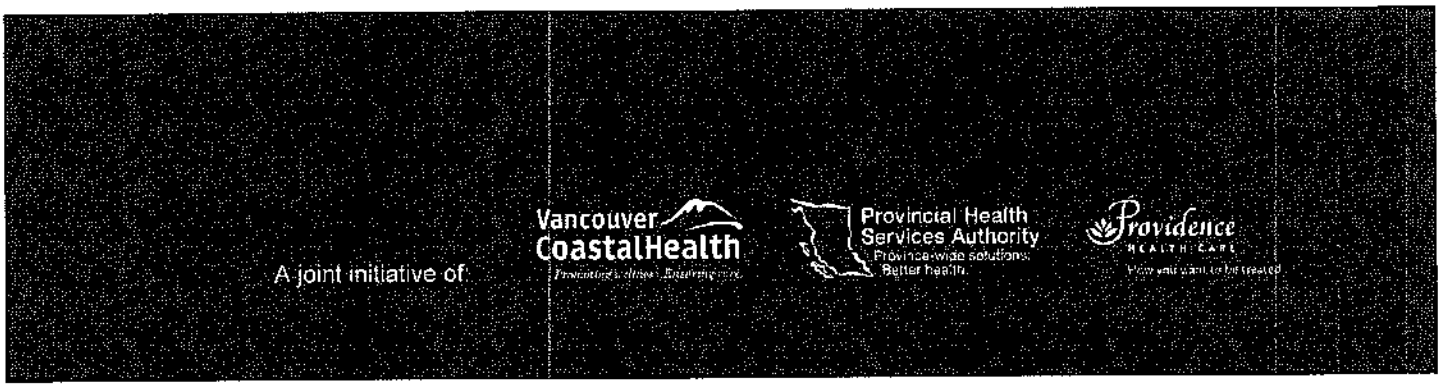
Note: Physicians and clinicians across VCH, PHSA and PHC can access Transformation Central from any computer or smart phone. Click on the link or type **our.cstproject.ca** into Chrome or a comparable browser. If you're not on our shared computer network, you'll be prompted to enter your usual info (domain\username and password).

CST careers

Interested in a once-in-a-career opportunity to be part of a large-scale, bold transformation project that has been identified as a top priority by VCH, PHSA, and PHC? Visit our careers page.

Read more at: our.cstproject.ca

The Clinical & Systems Transformation (CST) project will transform health care systems and


A joint initiative of
Vancouver
CoastalHealth
Provincial Health
Services Authority
Province-wide solutions.
Better health.
Providence
HEALTH CARE

Moulton, Holly HLTH:EX

From: Brown, Stephen R HLTH:EX
Sent: February 6, 2018 9:36 AM
To: Powell, Wynne HLTH:EX
Cc: Feulgen, Sabine HLTH:EX
Subject: RE: CST consultant activities chart

Thks

From: Powell, Wynne HLTH:EX
Sent: Tuesday, February 6, 2018 9:03 AM
To: Brown, Stephen R HLTH:EX
Cc: Feulgen, Sabine HLTH:EX
Subject: CST consultant activities chart

To assist making clear the current consultant activities Tom Chan prepared this for us.

See you tomorrow

Regards
Wynne

G. Wynne Powell, CPA,FCPA,FCGA,D.Tech (hons)
CST CHAIR & Special Advisor to Health Minister
office: 4580 Cowley Crescent,
Richmond, B.C. V7B 1B8
mobile 1-604-209-3210
e-mail: Wynne.Powell@gov.bc.ca

CST Project and Related Initiatives