

A microscopic view of red blood cells, showing a large, detailed cell in the foreground and many smaller ones in the background, all in shades of red.

MHP 2.0 Quality Metrics Portal

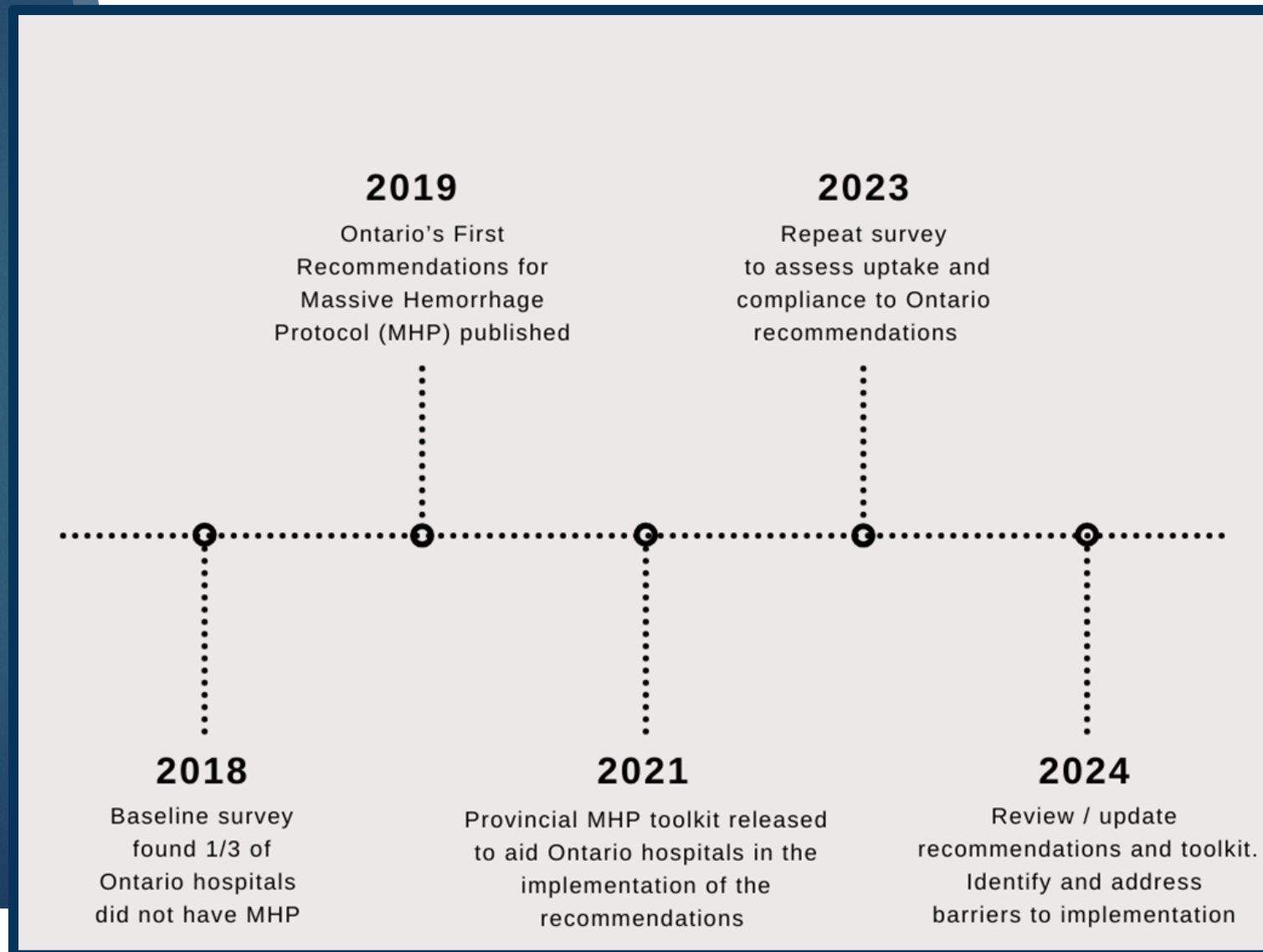
MARCH 26, 2025

Overview for March 26th

- ▶ Introduce:
 - ▶ REDCap portal
 - ▶ Data Entry
 - ▶ User guide
 - ▶ Excel Dashboards - interactive and static



MHP Timeline



Recommendation statement # 43

- ▶ States that **MHP activations should be reviewed by a multidisciplinary committee for quality assurance.**
- ▶ Compliance with MHPs is poor during the resuscitation of a critically ill patient who has multiple competing priorities.
- ▶ Implementation of an MHP is just the first step to improving the care of massively bleeding patients; training, simulations, check-lists, audit and feedback are needed to achieve high levels of performance.
- ▶ **At a minimum, the quality metrics listed in Recommendation statement 44 should be tracked on consecutive MHP activations** by a multidisciplinary team with feedback to the frontline staff at regular interval

- ▶ States the following **quality metrics should be tracked on all activations of the protocol** and the data reviewed quarterly at the hospital Transfusion Committee and the Medical Advisory Committee:

	Quality metric	Local Reporting	Provincial Reporting
Q1	The proportion of patients receiving tranexamic acid within 1 hour of protocol activation.	X	X
Q2	The proportion of patients in whom RBC transfusion is initiated within 15 minutes of protocol activation.	X	X
Q3	The proportion of patients (requiring transfer for definitive care) with initiation of call for transfer within 60 minutes of protocol activation.	X	
Q4	The proportion of patients achieving a temperature >35°C at termination of the protocol.	X	
Q5	The proportion of patients with hemoglobin levels maintained between 60- 110 g/L during protocol activation, excluding certain paediatric populations (e.g., neonates) that may require higher hemoglobin values.	X	
Q6	The proportion of patients transitioned to group specific RBCs and plasma within 90 minutes of haemorrhage protocol activation.	X	X
Q7	The proportion of patients with appropriate activation (>6 RBC units in first 24 hours; >40 ml/kg/24 hours of RBCs in paediatric patients) or death due to haemorrhage within 24 hours.	X	
Q8	The proportion of patients without any blood component wastage (including plasma that is thawed and not used within the 5 day limit on another patient).	X	


Recommendation statement # 44

For portal entry – Revised Wording for Upper and Lower Hgb Thresholds Reporting

Q5 was subsequently split into two separate quality metrics Q5 and Q6

- ▶ **Q5** The proportion of patients with hemoglobin maintained over 60 g/L in the first 24 hours or in time period prior to transfer to another facility.
- ▶ **Q6** The proportion of patients with hemoglobin below 110 g/L at 24 hours.

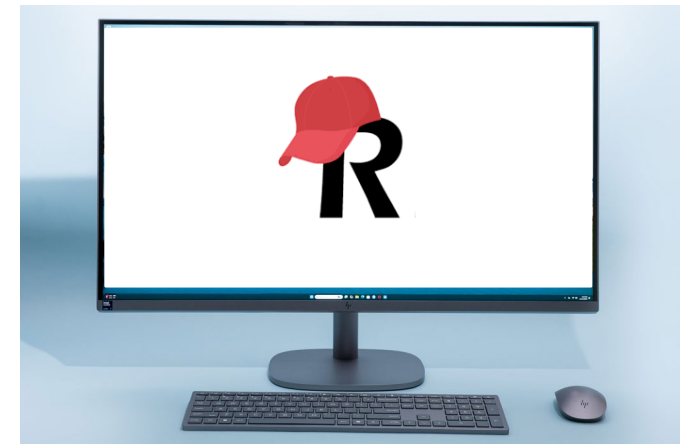
Quality Metric Questions are as follows



	Quality Metric
Q1	The proportion of patients receiving tranexamic acid within 1 hour of protocol activation.
Q2	The proportion of patients in whom RBC transfusion is initiated within 15 minutes of protocol activation.
Q3	The proportion of patients (requiring transfer for definitive care) with initiation of call for transfer within 60 minutes of protocol activation.
Q4	The proportion of patients achieving a temperature $\geq 35^{\circ}\text{C}$ at termination of protocol.
Q5	The proportion of patients with hemoglobin maintained over 60 g/L in the first 24 hours or in time period prior to transfer to another facility.
Q6	The proportion of patients with hemoglobin below 110 g/L at 24 hours.
Q7	The proportion of patients transitioned to group specific RBCs and plasma within 90 minutes of haemorrhage protocol activation.
Q8	The proportion of patients with appropriate activation (>6 RBC in 1 st 24 hours; >40 ml/kg/24 hours of RBCs in paediatric patients) Or death due to haemorrhage within 24 hours.
Q9	The proportion of patients without any blood component waste (including plasma that is thawed and not used within the 5 day limit on another patient).

Quality Metrics Portal Validation Pilot

- ▶ Developed in Research Electronic Data Capture (REDCap)
- ▶ Functionality of portal includes:
 - ▶ Entry of activations
 - ▶ Exporting data
 - ▶ Generation of reports
- ▶ Portal was validated in 15 hospitals across Ontario
 - ▶ A total of 1844 MHP activations were entered
 - ▶ Adult patients (n=1758)
 - ▶ Pediatric (n=86)
- ▶ **Portal was revised to MHP 2.0 Quality Metrics Portal – soft launch November 2023**



MHP 2.0 Quality Metrics Portal

User role

- ▶ **ORBCoN:** full functionality and data export rights – see all data
- ▶ **Data Entry:** This profile is assigned to users requiring report functionality and data export rights. This profile can create a new record, view and edit responses.
- ▶ **Data Access Group (DAG):** Each hospital/corporation will have unique DAG.
Users within a given DAG can access records created by users within that group.
User will see a blue banner at the top of every project page, which will present them with the option to switch to another DAG.



Two Data Collection Instruments

- ▶ Two data collection instruments:
 - ▶ Hospital Contact
 - ▶ MHP- Quality Metrics

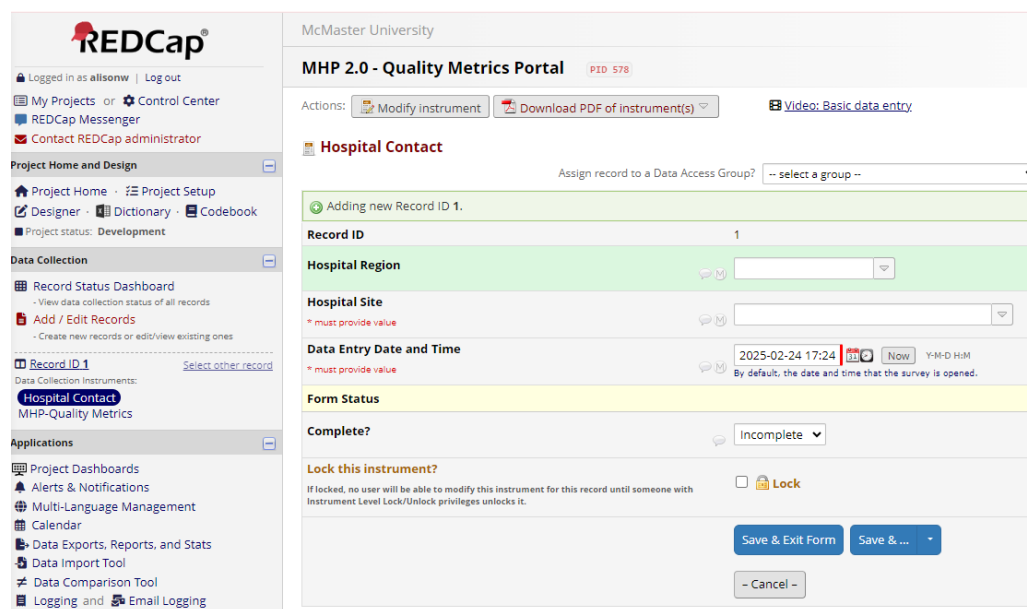
NEW Record ID 1

<input type="checkbox"/> Data Collection Instrument	Status
Hospital Contact	<input type="radio"/>
MHP-Quality Metrics	<input type="radio"/>



Two Data Collection Instruments

Hospital Contact



McMaster University
MHP 2.0 - Quality Metrics Portal PID 578

Actions: [Modify instrument](#) [Download PDF of instrument\(s\)](#) [Video: Basic data entry](#)

Hospital Contact
Assign record to a Data Access Group? -- select a group --

Adding new Record ID 1.

Record ID 1

Hospital Region

Hospital Site * must provide value

Data Entry Date and Time 2025-02-24 17:24 Now Y-M-D H:M
* must provide value
By default, the date and time that the survey is opened.

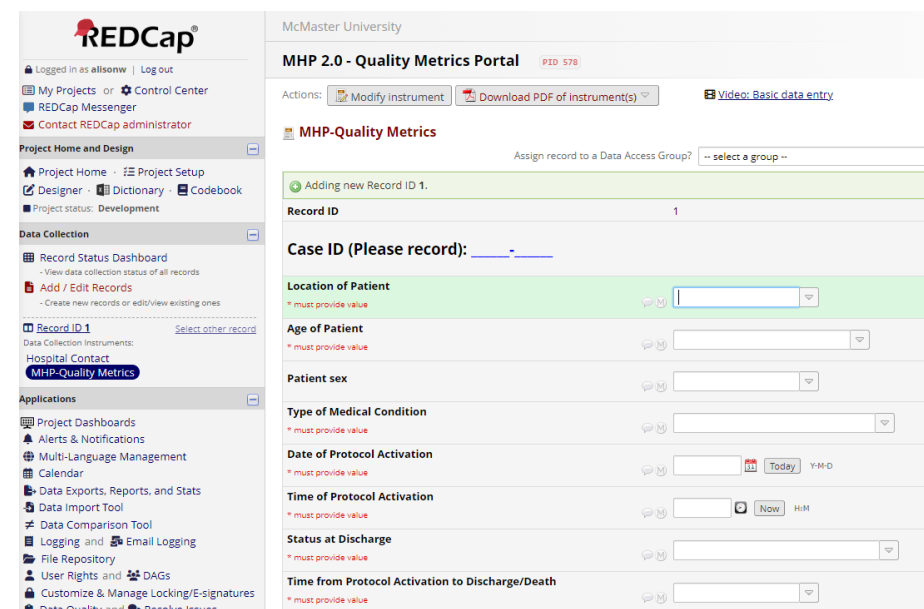
Form Status

Complete?

Lock this instrument?
If locked, no user will be able to modify this instrument for this record until someone with Instrument Level Lock/Unlock privileges unlocks it. Lock

[Save & Exit Form](#) [Save & ...](#) [Cancel](#)

MHP Quality Metrics



McMaster University
MHP 2.0 - Quality Metrics Portal PID 578

Actions: [Modify instrument](#) [Download PDF of instrument\(s\)](#) [Video: Basic data entry](#)

MHP-Quality Metrics
Assign record to a Data Access Group? -- select a group --

Adding new Record ID 1.

Record ID 1

Case ID (Please record):

Location of Patient * must provide value

Age of Patient * must provide value

Patient sex

Type of Medical Condition * must provide value

Date of Protocol Activation Today Y-M-D * must provide value

Time of Protocol Activation Now H:M * must provide value

Status at Discharge * must provide value

Time from Protocol Activation to Discharge/Death * must provide value



Simplified Guidance for all Users

- ▶ Each MHP activation is one record
- ▶ MHP Quality Questions – graded for quality of patient care
- ▶ Questions revised to reflect wording of metric to best collect data
- ▶ Question added regarding transfer for definitive care

Did your facility provide definitive care for this MHP activation? Yes
* must provide value No

Definitive care means:

1. Surgery to stop the bleeding (e.g., spleen removed after a trauma)
2. Interventional radiology to stop the bleeding (e.g., pelvic veins embolized after traumatic injury)
3. Patient banded after variceal bleed
4. Hysterectomy after post-partum hemorrhage by obstetrics
5. Leg amputated after traumatic amputation

Was the initiation for patient transfer to definitive care facility within 60 minutes of protocol activation? Yes
* must provide value No
 N/A - Patient expired before 60 minutes



User Guide and Participants

NOTE:

Hospital – DAG	Active Hospitals	#Users	# Users in multiple DAGs	Electronic Upload
165	76	64	29	1

continually scrolls down along with the form to the very bottom of the form.
In the top right corner of Hospital



Current instance: 1


 Editing existing: 3 (instance #1)

 Record ID: 2

Make appropriate edits to the record, save and exit form as above.



Easy to Use Interactive Dashboard



Quality Metric Summary of Activations

Grand total number of activations: 567

Date of Protocol Activation

All Periods: 2023 2024 2025 MONTHS

MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN

Location of Patient

- ER
- ICU
- Obstetrics
- OR
- Other
- Ward
- (blank)

Age of Patient

Adolescent (13-17 yrs)	Adult (>65 yrs)
Adult (18-65 yrs)	Pediatric (>1 month to 12 yrs)
(blank)	

Patient sex

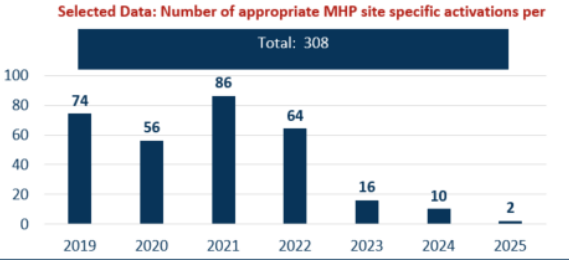
Female	Male
(blank)	

Type of Medical Condition

Cardiac surgery	Gastrointestinal bleed
Obstetrical	Other
Surgical bleed non-cardiac surgery	Trauma
Vascular	(blank)

Selected Data: Number of appropriate MHP site specific activations per

Total: 308



Year	Number of activations
2019	74
2020	56
2021	86
2022	64
2023	16
2024	10
2025	2

Summary of appropriate MHP site specific activations

	All MHP site specific activations			Selected site specific data		
	Total activations	Appropriate (n)	Appropriate (%)	Total activations	Appropriate (n)	Appropriate (%)
All years	567	308	54%	567	308	54%
2019	136	74	54%	136	74	54%
2020	100	56	56%	100	56	56%
2021	134	86	64%	134	86	64%
2022	123	64	52%	123	64	52%
2023	44	16	36%	44	16	36%
2024	26	10	38%	26	10	38%
2025	4	2	50%	4	2	50%

MHP 2.0 labelled | DASHBOARD MHP 2.0 | DASHBOARD MHP 2.0 (%)





Quality Metric Summary of Activations

Grand total number of activations:

567

Date of Protocol Activation

All Periods MONTHS

2023 2024 2025

MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN

Location of Patient

- ER
- ICU
- Obstetrics
- OR
- Other
- Ward
- (blank)

Age of Patient

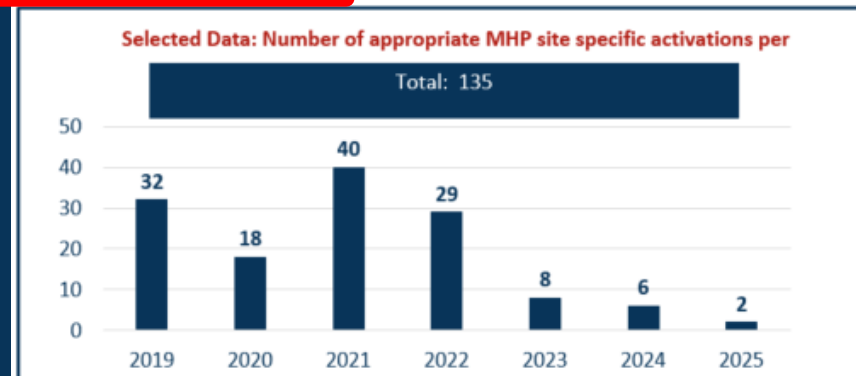
- Adult (>65 yrs)
- Pediatric (>1 month to 12 yrs)
- Adolescent (13-17 yrs)
- Adult (18-65 yrs)
- (blank)

Patient sex

- Female
- Male
- (blank)

Type of Medical Condition

- Cardiac surgery
- Obstetrical
- Surgical bleed non-cardiac surgery
- Vascular
- Gastrointestinal bleed
- Other
- Trauma
- (blank)



Summary of appropriate MHP site specific activations			
All MHP site specific activations			
	Total activations	Appropriate (n)	Appropriate (%)
All years	567	308	54%
2019	136	74	54%
2020	100	56	56%
2021	134	86	64%
2022	123	64	52%
2023	44	16	36%
2024	26	10	38%
2025	4	2	50%

Selected site specific data		
Total activations	Appropriate (n)	Appropriate (%)
276	135	49%
76	32	42%
36	18	50%
60	40	67%
61	29	48%
24	8	33%
17	6	35%
2	2	100%

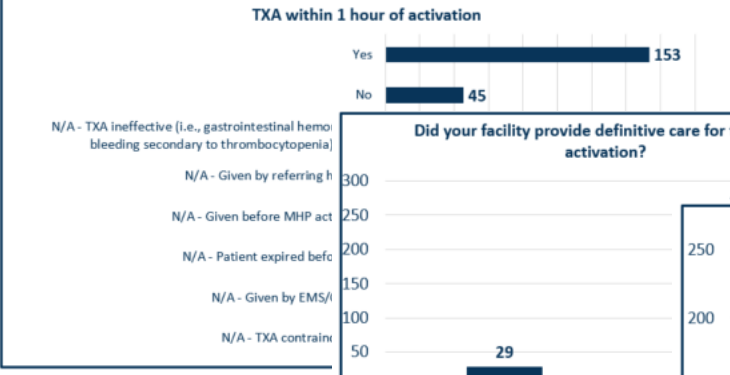
Filtered Data – Selected site specific by QM

Quality Metric	Summary of number of responses	All MHP site specific activations			Selected site specific data		
		Total	Appropriate score (n)	Appropriate score (%)	Total	Appropriate score (n)	Appropriate score (%)
1	Did patient receive TXA within 1 hour of activation?	567	432	76.2%	276	231	83.7%
2	Was RBC transfusion initiated within 15 minutes of protocol activation?	567	521	91.9%	276	261	94.6%
3a	Did your facility provide definitive care for this MHP activation?	567	531	93.7%	276	247	89.5%
3b	Was the initiation for patient transfer to definitive care facility within 60 minutes of protocol activation?	567	20	3.5%	276	17	6.2%
4	Was the patient's temperature $\geq 35^{\circ}\text{C}$ at termination of protocol or at time of transfer to another facility? (30 minutes prior to/after termination)	567	450	79.4%	276	217	78.6%
5	Was the patient's hemoglobin maintained over 60 g/L in the first 24 hours or in time period prior to transfer to another facility? *After 1st RBC unit to 24 hours after activation - No Hb value was $< 60\text{g/L}$	567	533	94.0%	276	262	94.9%
6	Was the patient's Hb below 110 g/L at 24 hours? * After 1st RBC unit to 24 hours after activation - No Hb value was $>110\text{g/L}$	567	365	64.4%	276	159	57.6%
7	Was the patient transitioned to group specific RBC/Plasma within 90 minutes of MHP activation?	567	528	93.1%	276	250	90.6%
8	Were any blood/blood products wasted during this MHP activation?	567	449	79.2%	276	216	78.3%
9	Was the MHP activation appropriate for this patient?	567	308	54.3%	276	135	48.9%

Filtered Data – Selected site specific Score and QM

Overall Score Statistics (All site specific data)		
Expressed as	Proportion	Score (0-9)
Average	0.71	6
Median	0.67	6
Min	0.33	3
Max	1	9
Score	n	%
0	0	0.0%
1	0	0.0%
2	0	0.0%
3	7	1.2%
4	24	4.2%
5	90	15.9%
6	169	29.8%
7	194	34.2%
8	82	14.5%
9	1	0.2%

Overall Score Statistics (Selected site data)		
Expressed as	Proportion	Score (0-9)
Average	0.71	6
Median	0.67	6
Min	0.33	3
Max	1	9



N/A - TXA ineffective (i.e., gastrointestinal hemorrhage secondary to thrombocytopenia)

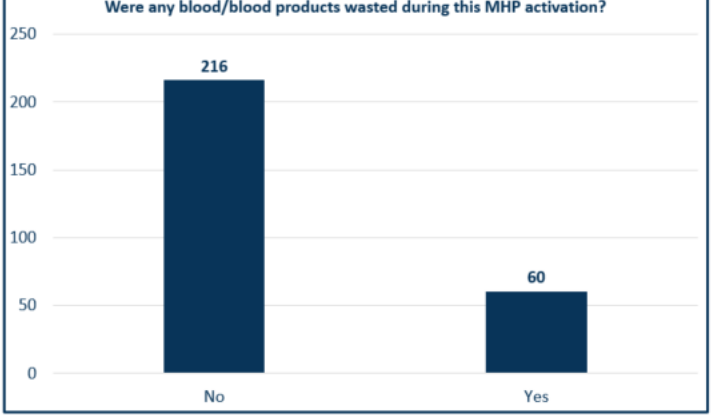
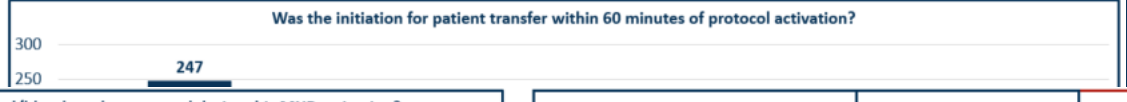
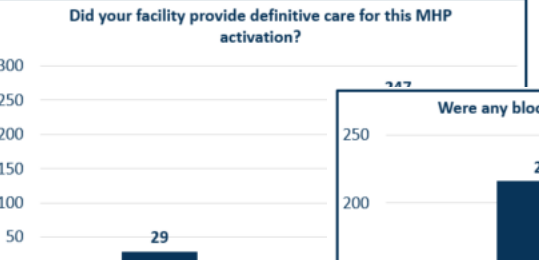
N/A - Given by referring hospital

N/A - Given before MHP activation

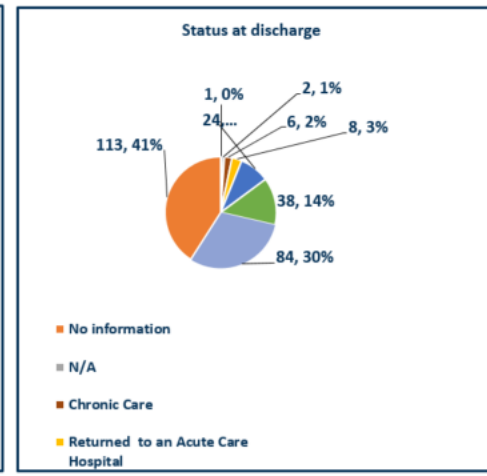
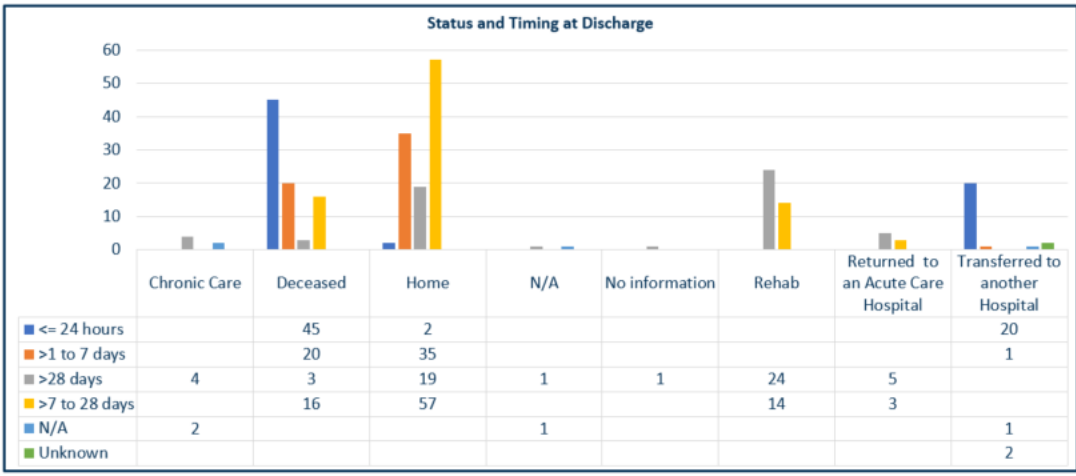
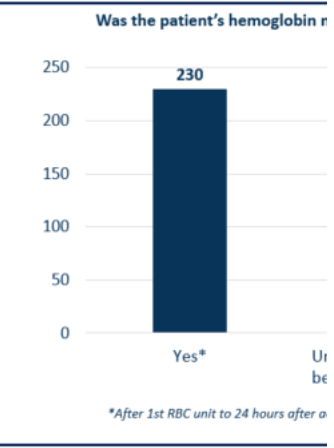
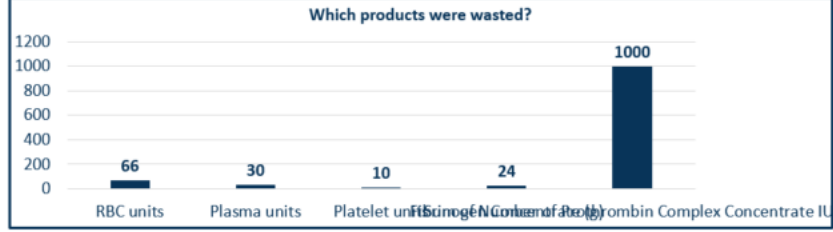
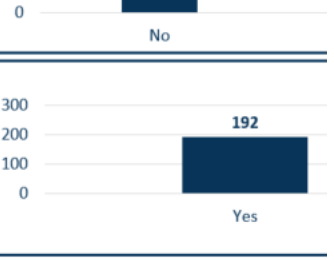
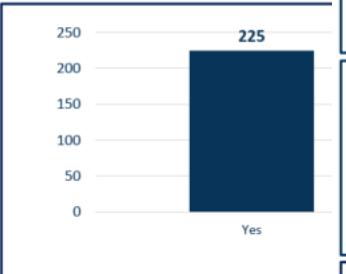
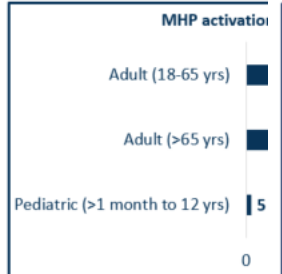
N/A - Patient expired before MHP activation

N/A - Given by EMS/other personnel

N/A - TXA contraindicated



Which products were wasted?	Overall (All site specific data)	Overall (Selected site data)
RBC	112	66
Plasma	68	30
Platelets	26	10
Prothrombin Complex Concentrate (IU)	1000	1000
Fibrinogen Concentrate (g)	74	24



Interactive Dashboard – Tab Dashboard 2.0 (%)

Quality Metric Summary of Activations



Grand total number of activations: **567**

Date of Protocol Activation

All Periods MONTHS

2023 2024 2025

JN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY

Location of Patient

ER
ICU
Obstetrics
OR
Other
Ward
(blank)

Age of Patient

Adult (>65 yrs)
Adult (18-65 yrs)
Pediatric (>1 month to 12 yrs)
Adolescent (13-17 yrs)

Patient sex

Female
Male
(blank)

Type of Medical Condition

Cardiac surgery
Obstetrical
Surgical bleed non-cardiac surgery
Vascular

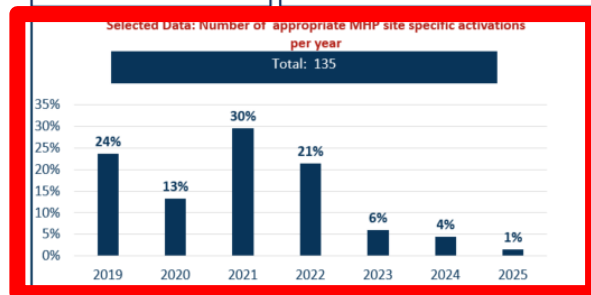
Gastrointestinal bleed
Other
Trauma
(blank)

Overall Score Statistics (All site specific data)

Expressed as	Proportion	Score (0-9)
Average	0.71	6
Median	0.67	6
Min	0.33	3
Max	1	9
Score	n	%
0	0	0.0%
1	0	0.0%
2	0	0.0%
3	7	1.2%
4	24	4.2%
5	90	15.9%
6	169	29.8%
7	194	34.2%
8	82	14.5%
9	1	0.2%

Overall Score Statistics (Selected site data)

Expressed as	Proportion	Score (0-9)
Average	0.71	6
Median	0.67	6
Min	0.33	3
Max	1	9
Score	n	%
0	0	0.0%
1	0	0.0%
2	0	0.0%
3	7	1.2%
4	24	4.2%
5	90	15.9%
6	169	29.8%
7	194	34.2%
8	82	14.5%
9	1	0.2%



Summary of appropriate MHP site specific activations

	All MHP site specific activations			Selected site specific data		
	Total activations	Appropriate (n)	Appropriate (%)	Total activations	Appropriate (n)	Appropriate (%)
All years	567	308	54%	276	135	49%
2019	136	74	54%	76	32	42%
2020	100	56	56%	36	18	50%
2021	134	86	64%	60	40	67%
2022	123	64	52%	61	29	48%
2023	44	16	36%	24	8	33%
2024	26	10	38%	17	6	35%
2025	4	2	50%	2	2	100%

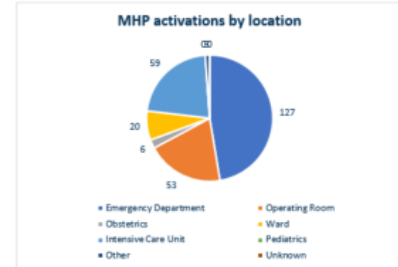
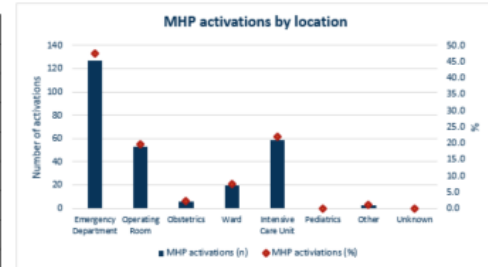


Static Dashboard

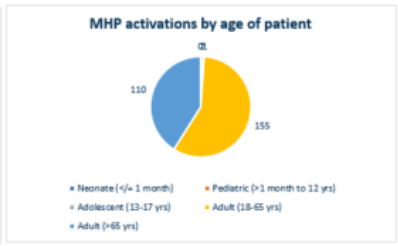
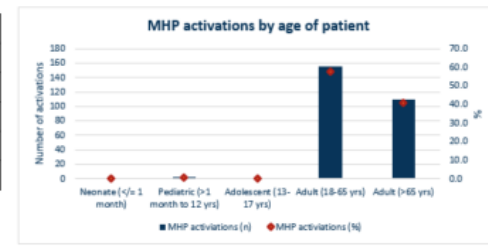
Demographic Summary

Displayed in chart, bar and pie graphs

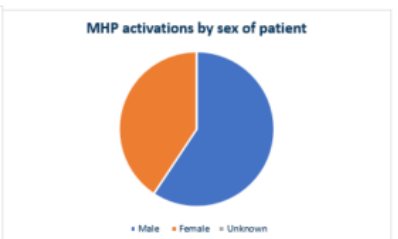
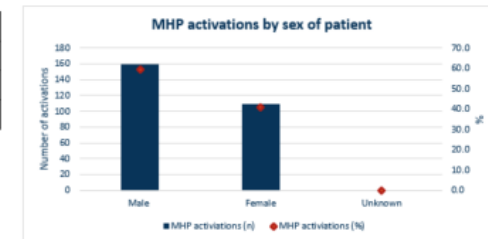
Number of MHP Activations		
Location	n	%
Emergency Department	127	47.4
Operating Room	53	19.8
Obstetrics	6	2.2
Ward	20	7.5
Intensive Care Unit	59	22.0
Pediatrics	0	0.0
Other	3	1.1
Unknown	0	0.0



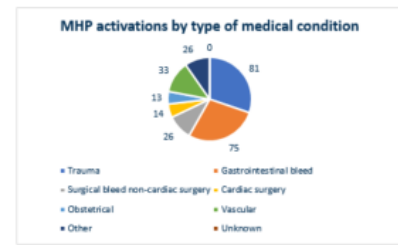
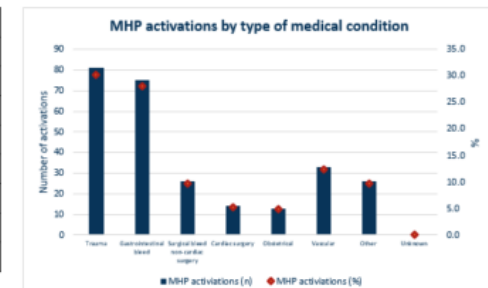
Age of Patient		
Age Group	n	%
Neonate (<= 1 month)	0	0.0
Pediatric (>1 month to 12 yrs)	2	0.7
Adolescent (13-17 yrs)	1	0.4
Adult (18-65 yrs)	155	57.8
Adult (>65 yrs)	110	41.0



Patient Sex		
Sex	n	%
Male	159	59.3
Female	109	40.7
Unknown	0	0.0



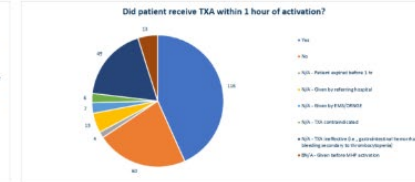
Type of Medical Condition		
Condition	n	%
Trauma	81	30.2
Gastrointestinal bleed	75	28.0
Surgical bleed non-cardiac surgery	26	9.7
Cardiac surgery	14	5.2
Obstetrical	13	4.9
Vascular	33	12.3
Other	26	9.7
Unknown	0	0.0



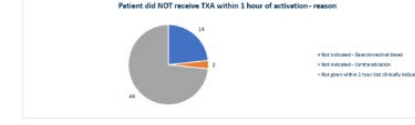
Static Dashboard Quality Metrics

Displayed in chart, bar and pie graphs

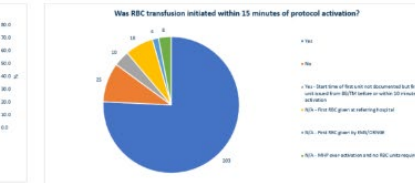
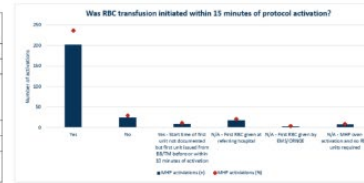
Number of MHP Activations		268	
Did patient receive TXA within 1 hour of activation?			
	n	%	
Yes	116	43.3	
No	60	22.4	
N/A - Patient expired before 1 hr	4	1.5	
N/A - Given by EMS/ORNGE	13	4.9	
N/A - TXA contraindicated	7	2.6	
N/A - TXA contraindicated	6	2.2	
N/A - TXA ineffective (i.e., gastrointestinal hemorrhage, bleeding secondary to thrombocytopenia)	49	18.3	
N/A - Given before MHP activation	13	4.9	



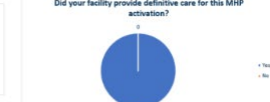
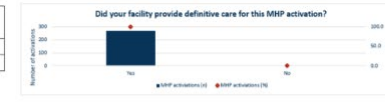
Patient did NOT receive TXA within 1 hour of activation - reason			
	n	%	
Not indicated - Gastrointestinal bleed	14	23.3	
Not indicated - Contraindication	2	3.3	
Not given within 1 hour but clinically indicated	44	73.3	



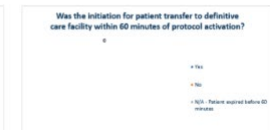
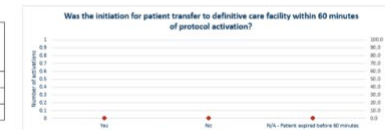
Was RBC transfusion initiated within 15 minutes of protocol activation?			
	n	%	
Yes	203	75.7	
No	25	9.3	
Yes - Start time of first unit not documented but first unit issued from BB/TM before or within 10 minutes of activation			
N/A - First RBC given at referring hospital	10	3.7	
N/A - First RBC given by EMS/ORNGE	18	6.7	
N/A - MHP over-activation and no RBC units required	4	1.5	
N/A - MHP over-activation and no RBC units required	8	3.0	



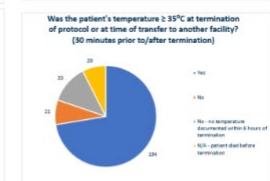
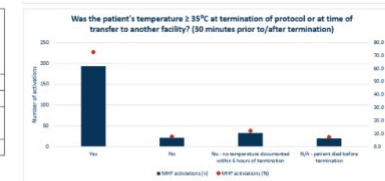
Did your facility provide definitive care for this MHP activation?			
	n	%	
Yes	268	100.0	
No	0	0.0	



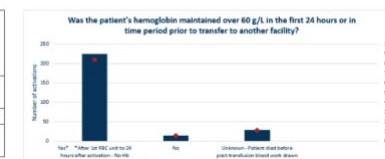
Was the initiation for patient transfer to definitive care facility within 60 minutes of protocol activation?			
	n	%	
Yes	0	0.0	
No	0	0.0	
N/A - Patient expired before 60 minutes	0	0.0	



Was the patient's temperature ≥ 35°C at termination of protocol or at time of transfer to another facility? (30 minutes prior to/after termination)			
	n	%	
Yes	194	72.4	
No	21	7.8	
No - no temperature documented within 6 hours of termination	33	12.3	
N/A - patient died before termination	20	7.5	



Was the patient's hemoglobin maintained over 60 g/L in the first 24 hours or in time period prior to transfer to another facility?			
	n	%	
Yes* *After 1st RBC unit to 24 hours after activation - No Hb value was < 60g/L	224	83.6	
No	15	5.6	
Unknown - Patient died before post-transfusion blood work drawn	29	10.8	

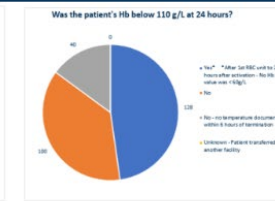
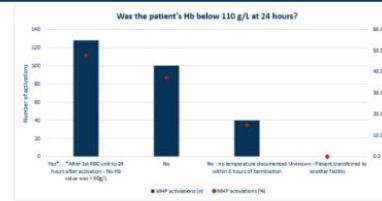


Static Dashboard

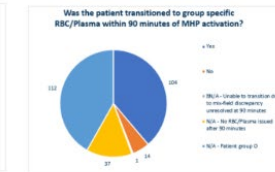
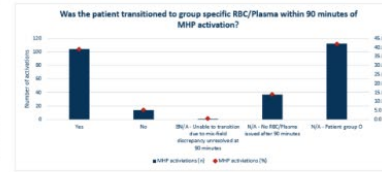
Quality Metrics Product Summary

Displayed in chart, bar and pie graphs

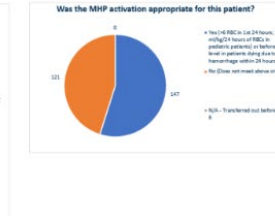
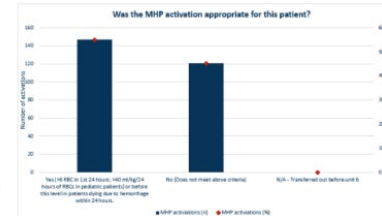
Was the patient's Hb below 110 g/L at 24 hours?		
	n	%
Yes* *After 1st RBC unit to 24 hours after activation - No Hb value was < 60g/L	128	47.8
No	100	37.3
No - no temperature documented within 6 hours of termination	40	14.9
Unknown - Patient transferred to another facility	0	0.0



Was the patient transitioned to group specific RBC/Plasma within 90 minutes of MHP activation?		
	n	%
Yes	104	38.8
No	14	5.2
N/A - Unable to transition due to mix-field discrepancy unresolved at 90 minutes	1	0.4
N/A - No RBC/Plasma issued after 90 minutes	37	13.8
N/A - Patient group O	112	41.8



Was the MHP activation appropriate for this patient?		
	n	%
Yes (>6 RBC in 1st 24 hours; >40 ml/kg/24 hours of RBCs in pediatric patients) or before this level in patients dying due to hemorrhage within 24 hours.	147	54.9
No (Does not meet above criteria)	121	45.1
N/A - Transferred out before unit 6	0	0.0



Product Summary

Number of MHP Activations		
		268
Were any blood/blood products wasted during this MHP activation?		
	n	%
Yes	59	22.0
No	207	77.2
Unknown	2	0.7



Which products were wasted?		n
RBC		56
Plasma		34
Platelets		13
Prothrombin Complex Concentrate (IU)		0
Fibrinogen Concentrate (g)		49



Static Dashboard

Score Summary



Total MHP Activations		268
Overall Score Statistics (All site specific data)		
Expressed as	Proportion	Score (0-9)
Average	6	9
Median	6	9
Min	3	1
Max	9	9
Score	n	%
0	0	0.0%
1	2	0.7%
2	2	0.7%
3	1	0.4%
4	2	0.7%
5	1	0.4%
6	1	0.3%
7	0	0.0%
8	1	0.4%
9	258	96.3%

Quality Metric		Total	Appropriate score (n)	Appropriate score (%)
Summary of number of responses				
1	Did patient receive TXA within 1 hour of activation?	268	208	77.6%
2	Was RBC transfusion initiated within 15 minutes of protocol activation?	268	243	90.7%
3a	Did your facility provide definitive care for this MHP activation?	268	268	100.0%
3b	Was the initiation for patient transfer to definitive care facility within 60 minutes of protocol activation?	268	0	0.0%
4	Was the patient's temperature $\geq 35^{\circ}\text{C}$ at termination of protocol or at time of transfer to another facility? (30 minutes prior to/after termination)	268	214	79.9%
5	Was the patient's hemoglobin maintained over 60 g/L in the first 24 hours or in time period prior to transfer to another facility?	268	253	94.4%
6	*After 1st RBC unit to 24 hours after activation - No Hb value was $< 60\text{g/L}$ Was the patient's Hb below 110 g/L at 24 hours? * After 1st RBC unit to 24 hours after activation - No Hb value was $>110\text{g/L}$	268	168	62.7%
7	Was the patient transitioned to group specific RBC/Plasma within 90 minutes of MHP activation?	268	254	94.8%
8	Were any blood/blood products wasted during this MHP activation?	268	207	77.2%
9	Was the MHP activation appropriate for this patient?	268	147	54.9%

Report Template Test

- ▶ Interested in participating in testing the MHP Quality Metrics Portal Report Template?
- ▶ Contact Alison Wendt
alison.wendt@sunnybrook.ca

