



STEP: SUPPORT TEAM FOR EMERGENCY PREVENTION

- What is STEP?
- Areas of the hospital where STEP is active and not active
- STEP activation triggers
- How to activate STEP and what to expect after activation
- STEP Triage system
- STEP Outreach
- STEP activation or PICU Consult
- Education or Procedure Calls
- Family-initiated activation of STEP
- Where to find STEP documentation in connect care
- Appendix
 - STEP activation criteria
 - PEWS vital sign parameters chart
 - ACH PEWS escalation algorithm
 - Key differences between a PICU consult and STEP with ramp-up

WHAT IS STEP?

STEP is a pediatric critical care outreach team that is part of the Alberta Children's Hospital's (ACH) rapid response system (RRS). STEP is an acronym that stands for Support Team for Emergency Prevention. STEP is comprised of pediatric intensive care nurses, respiratory therapists and physicians and brings pediatric critical care expertise and experience to frontline care health care providers caring for children outside of the pediatric intensive care unit (PICU). STEP's primary goal is prevention of emergent or crash admissions to the intensive care unit, prevention of code blues and cardiac arrests and reduction of preventable morbidity and mortality from these events.

STEP is structured as a ramp-up response. This means that the STEP RN and Respiratory Therapist (RT) respond first and then will ramp-up to a PICU advanced practice provider (APP) or attending physician if required. It is important to note that STEP is separate and distinct from a code blue activation and is one of four hospital wide emergency medical responses. The other three responses are a Code Blue activation (the default is pediatric), Code 50 activation for non-life-threatening adult medical urgencies and an Adult Code Blue activation. Please review the My-Learning-Link module entitled 'Who to call in an emergency at ACH' to learn more about these responses.

AREAS OF THE HOSPITAL WHERE STEP IS ACTIVE AND NOT ACTIVE

STEP is the appropriate emergency medical team to call for any non-life-threatening urgent clinical problem for admitted patients at ACH, any patient being seen in an outpatient clinic at ACH, or any non-patient under 18yrs of age anywhere in the hospital. There are only three scenarios or areas where STEP is not active and should not be called. These are 1) non-admitted patients in the emergency department, 2) patients in an operating room (this does not include PACU where STEP is active), or 3) patients admitted to the NICU.

STEP ACTIVATION TRIGGERS

STEP activations can be triggered in several ways:

- A patient meets one of the STEP activation criteria (particularly in areas without PEWS)
- A Pediatric Early Warning Score of > 8 or a change in the PEWS of ≥ 4
- A healthcare provider is worried that their patient's condition is changing
- The parent or family of a child patient is worried and would like STEP to be called
- Parents and families may also initiate STEP directly known as family-initiated activation of STEP



HOW TO ACTIVATE STEP AND WHAT TO EXPECT AFTER ACTIVATION

STEP is activated by **paging 11024** and leaving a call back number or **calling switchboard at 600** asking for STEP to be paged. You will be asked for your call back number and location.

A member of the STEP team will call back within 5 minutes of receiving the page and will arrive at the patient's bedside within 15 minutes. If the patient's condition is changing faster than this timeframe will allow where the patient's condition may become life-threatening without immediate intervention, a code blue instead of STEP should be activated. In most cases, STEP will respond well before this 15 min timeframe.

Whenever STEP is activated a physician member of the patient's most responsible team will be asked to be present when STEP arrives to jointly assess the patient. This collaborative approach will help STEP perform a more comprehensive assessment if they have the additional context of the patient's medical condition, reason for the current admission, investigations or interventions that have occurred up until that point and any other information that will inform the plan.

STEP TRIAGE SYSTEM

STEP will triage the patient as A, B, or C.

- **A = Admission** to PICU required. The STEP will stabilize the patient with their ramp-up clinician and remain with the patient until they are admitted to the PICU.
- **B = Borderline** patient and requiring ramp-up STEP reassessment. Transfer to PICU is possible but not certain.
- **C = Consult.** Stable to remain on the ward. PICU transfer is unlikely.

If the patient remains on the ward after STEP activation, the team will provide guidance on what signs and symptoms to watch for that may herald a changing patient condition and when STEP will conduct a planned follow-up of the patient if deemed necessary.

Please note that a subsequent patient deterioration may occur outside of a planned STEP follow-up time and unit staff are encouraged to activate STEP in these situations and not wait for a pre-planned follow-up assessment. It is for this reason that STEP may recommend that they sign off so that there is no confusion about triggering an activation if they are needed again.

STEP OUTREACH

As a pediatric critical care outreach team, in addition to responding to activations, STEP performs a number of different outreach functions at ACH. These include follow-up of patients discharged from the PICU and NICU to an inpatient ward at ACH and follow-up of admitted patients following initial PICU consult or STEP activation in the emergency department who subsequently transferred to an inpatient ward. STEP will also follow all patients who experience a code blue on an inpatient ward and do not require transfer to the PICU.

Follow-up after PICU or NICU discharge to inpatient ward: The NICU or PICU charge nurse or nurse clinician will alert STEP about patients flagged for discharge to an inpatient unit at ACH. STEP will assess the patient to be discharged prior to transfer to establish a baseline and note any specific management considerations. Following transfer, STEP will visit the patient the twice to ensure a successful transition. Additional follow-up visits may be required as clinically needed. STEP will also attend EFFECT meetings if warranted prior to transfer. The charge RN or Nurse clinician will alert the STEP team to the day and time of the meeting.



Follow-up of admitted patients transferred to an inpatient unit after PICU consult or STEP activation in the emergency department (ED): This is also known as a **TAPT** follow-up, or **Transitional Assessment Post Transfer**. STEP will assess the patient in the emergency department prior to transfer and then will assess the patient following admission to the inpatient ward. If clinical concerns are identified prior to transfer, STEP will facilitate re-assessment by the MRP team and/or ramp-up to a PICU APP or attending physician if PICU admission is a possibility.

STEP ACTIVATION OR PICU CONSULT

STEP activation: STEP activation is usually most appropriate when the clinical question is whether patient needs urgent PICU admission and/or where the patient will benefit from the joint multi-disciplinary management and expertise of the STEP RN, RT and the ramp-up clinician. The MRP team can also request a ramp-up as needed.

PICU consult: A PICU consult is recommended when pediatric critical care expertise or procedural skills are required to inform/contribute to a patient's comprehensive treatment plan and is required in areas where STEP is not active. A PICU consult is physician driven and begins with assessment by a PICU resident or PICU APP without the multidisciplinary team that occurs with STEP. If necessary, a PICU consult can lead to subsequent STEP follow-up and if the PICU consult occurs in the ED and the patient is not admitted to the PICU, then STEP will complete a TAPT follow-up as described above. Please note the timeframe for a PICU consult is more variable than a STEP activation and is dependent on the patient acuity and triaging the consult with the needs of other patients in the PICU.

Please see [APPENDIX D](#) for more information about the indications and differences between a STEP activation with a ramp-up and a PICU consult.

EDUCATION OR PROCEDURE CALLS

At any time within ACH (both inpatient and ambulatory areas) STEP may be called if there is an education need. Notification of the MPR team is not required for education calls, unless there are concerns regarding the patient's clinical status, or there is a need to modify the patient's orders.

Examples of education or procedure calls include:

- Medication administration questions
- Equipment related questions
- Patient physiology
- Naso-jejunal (NJ) tube insertions
- Central venous line access

Staff at the Rotary Flames House (RFH) or Peter Lougheed Center (PLC) pediatric ward can page STEP for education calls that can be addressed over the phone. If the education call evolves to questions related to changes in the patient's clinical condition, STEP will advise to call the MRP team to assess the patient and escalate to the most appropriate specialty at ACH and/or RAAPID as needed to assess for transfer depending on the patient's status.

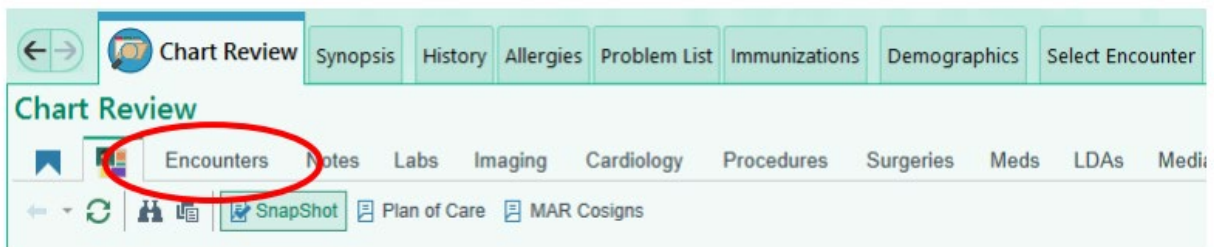
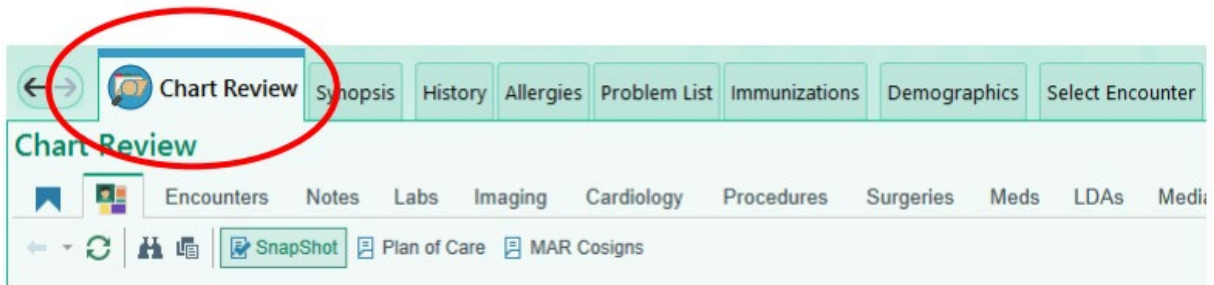
FAMILY-INITIATED ACTIVATION OF STEP

If parents or caregivers are worried that their child is getting sicker in the hospital, they are encouraged to raise these concerns with their bedside nurse to have a member of the medical team assess their child. They can also directly activate the STEP team directly by calling the switchboard at 57211 from any hospital phone or 403-955-7211 from their cell phone. They will be asked to provide switchboard with their child's last name and location (unit and room number).

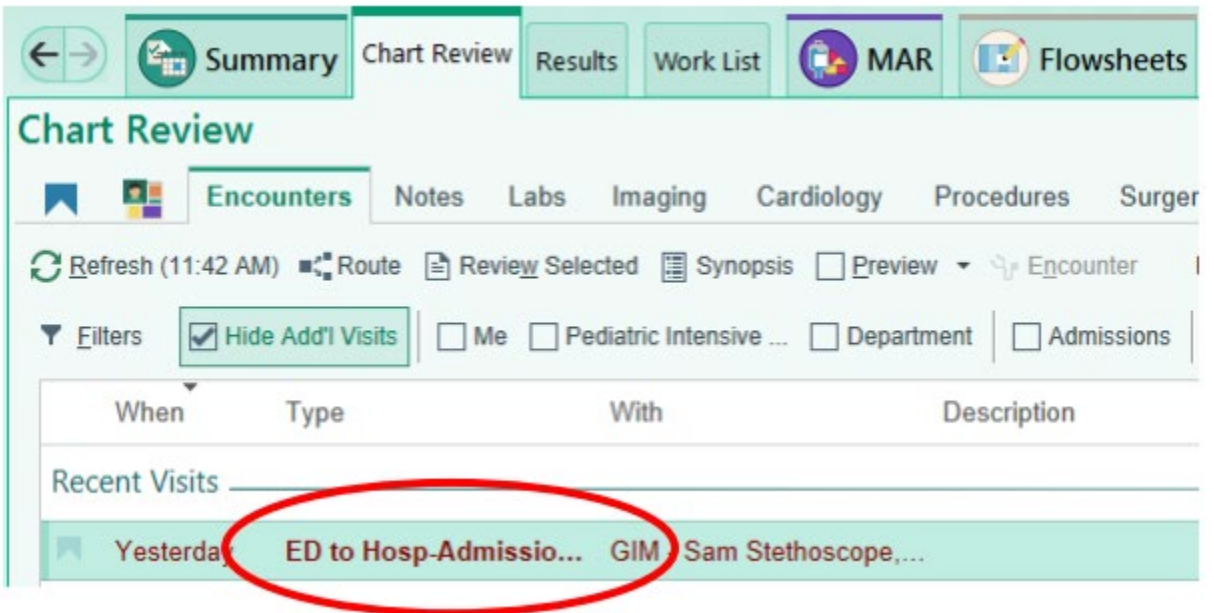
The STEP team will respond to the location within 15 minutes of being paged. On their arrival, they will notify the bedside RN/LPN, Charge RN and a member of the most responsible medical team of the family-initiated activation of STEP. The collaborative approach by STEP to assessment of the patient will then proceed as with any other trigger of STEP activation.

WHERE TO FIND STEP DOCUMENTATION IN CONNECT CARE

STEP 1: Select 'Chart Review' from the main tool bar and click the 'Encounters' tab



STEP 2: Select the appropriate admission from the list or recent hospital encounters





STEP 3: After clicking on the correct encounter, select rapid response from the Care Timeline.



* Ramp-up documentation by the PICU APP or attending is charted separately in the notes section as a 'STEP Team Ramp up note' under the service 'Rapid Response Team'. STEP follow-up documentation is located in the Rapid Response/ Code Follow-up flow sheet (search within Flowsheets Tab)

APPENDIX

APPENDIX A: STEP Activation Criteria

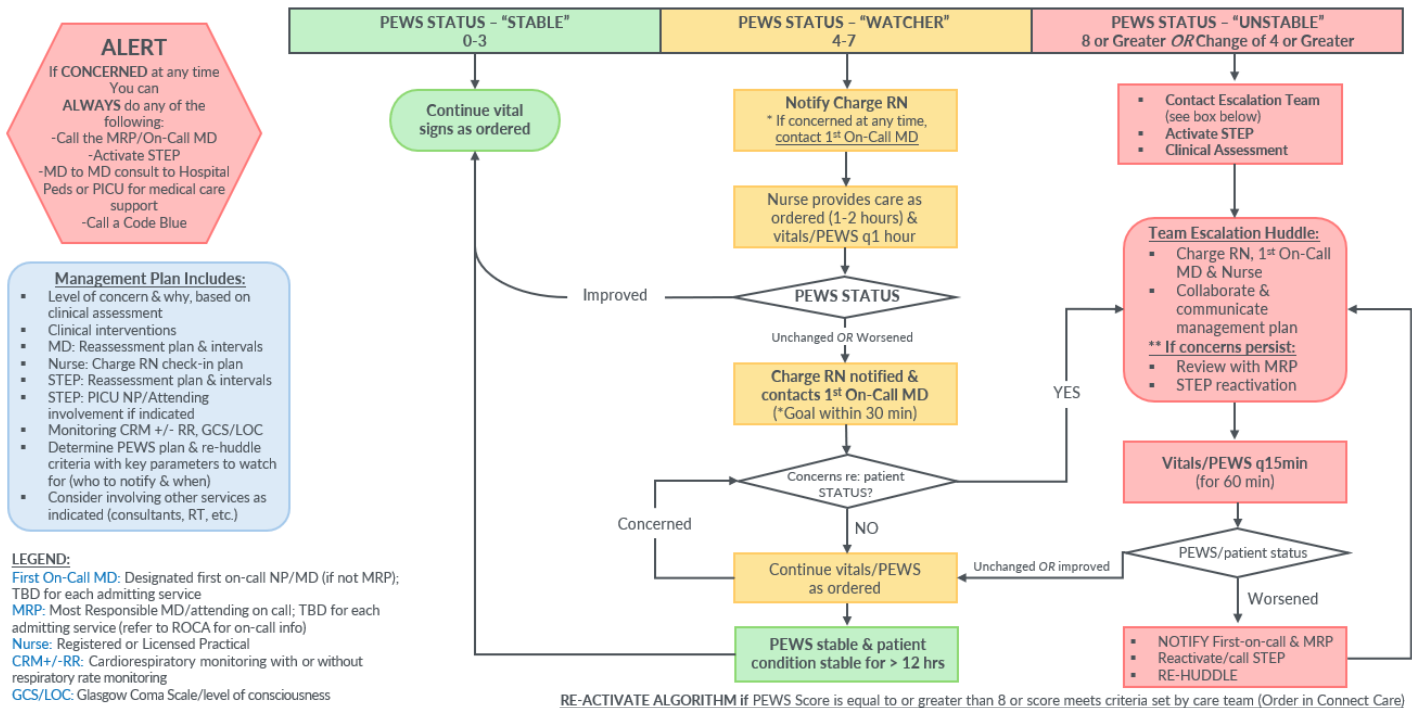
<p>A AIRWAY</p> <ul style="list-style-type: none"> Airway threat (obstruction, stridor, excessive secretions) 	<p>B BREATHING</p> <table border="0"> <tr> <td rowspan="2"> <ul style="list-style-type: none"> Moderate to severe respiratory distress Cyanosis Hypoxemia SpO₂ < 90% SpO₂ < 60% for children with cyanotic heart disease Abnormal breathing </td> <td>Abnormal breathing rate</td> </tr> <tr> <td> <table border="0"> <tr> <td>0-3 months</td> <td><20</td> <td>>60</td> </tr> <tr> <td>3-12 months</td> <td><20</td> <td>>50</td> </tr> <tr> <td>1-4 year</td> <td><15</td> <td>>40</td> </tr> <tr> <td>>4 years</td> <td><10</td> <td>>30</td> </tr> </table> </td> </tr> <tr> <td></td> <td>Apnea > 20 seconds CALL CODE BLUE</td> </tr> </table>	<ul style="list-style-type: none"> Moderate to severe respiratory distress Cyanosis Hypoxemia SpO₂ < 90% SpO₂ < 60% for children with cyanotic heart disease Abnormal breathing 	Abnormal breathing rate	<table border="0"> <tr> <td>0-3 months</td> <td><20</td> <td>>60</td> </tr> <tr> <td>3-12 months</td> <td><20</td> <td>>50</td> </tr> <tr> <td>1-4 year</td> <td><15</td> <td>>40</td> </tr> <tr> <td>>4 years</td> <td><10</td> <td>>30</td> </tr> </table>	0-3 months	<20	>60	3-12 months	<20	>50	1-4 year	<15	>40	>4 years	<10	>30		Apnea > 20 seconds CALL CODE BLUE	<p>C CIRCULATION</p> <table border="0"> <tr> <td rowspan="2"> <ul style="list-style-type: none"> Poor peripheral perfusion Hypotension (systolic BP/mmHG) <3 months <50 4-12 months <60 1-4 years <70 5-12 years <80 >12 years < 90 </td> <td>Abnormal heart rate (beats/min., sustained)</td> </tr> <tr> <td> <table border="0"> <tr> <td><1 years</td> <td><90</td> <td>>180</td> </tr> <tr> <td>1-4 years</td> <td><80</td> <td>>160</td> </tr> <tr> <td>5-12 years</td> <td><70</td> <td>>140</td> </tr> <tr> <td>>12 years</td> <td><60</td> <td>>130</td> </tr> </table> </td> </tr> <tr> <td></td> <td>Pulseless or difficulty finding pulse CALL CODE BLUE</td> </tr> </table>	<ul style="list-style-type: none"> Poor peripheral perfusion Hypotension (systolic BP/mmHG) <3 months <50 4-12 months <60 1-4 years <70 5-12 years <80 >12 years < 90 	Abnormal heart rate (beats/min., sustained)	<table border="0"> <tr> <td><1 years</td> <td><90</td> <td>>180</td> </tr> <tr> <td>1-4 years</td> <td><80</td> <td>>160</td> </tr> <tr> <td>5-12 years</td> <td><70</td> <td>>140</td> </tr> <tr> <td>>12 years</td> <td><60</td> <td>>130</td> </tr> </table>	<1 years	<90	>180	1-4 years	<80	>160	5-12 years	<70	>140	>12 years	<60	>130		Pulseless or difficulty finding pulse CALL CODE BLUE	<p>D DISABILITY</p> <ul style="list-style-type: none"> Change in neurological Status Acute drop in GCS>2 points New onset or prolonged seizures, unresponsive to prescribed therapy
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APPENDIX B: PEWS Vital Sign Parameters Chart

Vital Sign / Parameter	Age	PEWS in Epic (for patients less than 18 years old)							
		4	2	1	0	1	2	4	
Heart Rate	16 wks or less	80 or less	81 - 90	91 - 110	111 - 149	150 - 179	180 - 189	190 or greater	
	4 - 11 mos	70 or less	71 - 80	81 - 100	101 - 149	150 - 169	170 - 179	180 or greater	
	1 - 4 yrs	60 or less	61 - 70	71 - 90	91 - 119	120 - 149	150 - 169	170 or greater	
	5 - 11 yrs	50 or less	51 - 60	61 - 70	71 - 109	110 - 129	130 - 149	150 or greater	
	12 yrs or greater	40 or less	41 - 50	51 - 60	61 - 99	100 - 119	120 - 139	140 or greater	
Systolic BP	16 wks or less	45 or less	46 - 50	51 - 60	61 - 79	80 - 99	100 - 129	130 or greater	
	4 - 11 mos	60 or less	61 - 70	71 - 80	81 - 99	100 - 119	120 - 149	150 or greater	
	1 - 4 yrs	65 or less	66 - 75	76 - 90	91 - 109	110 - 124	125 - 159	160 or greater	
	5 - 11 yrs	70 or less	71 - 80	81 - 90	91 - 119	120 - 139	140 - 169	170 or greater	
	12 yrs or greater	75 or less	76 - 85	86 - 100	101 - 129	130 - 149	150 - 189	190 or greater	
Respiratory Rate	16 wks or less	15 or less	16 - 19	19 - 29	30 - 60	61 - 80	81 - 90	91 or greater	
	4 - 11 mos	15 or less	16 - 19	20 - 24	25 - 50	51 - 70	71 - 80	81 or greater	
	1 - 4 yrs	12 or less	13 - 15	16 - 19	20 - 40	41 - 60	61 - 70	71 or greater	
	5 - 11 yrs	10 or less	11 - 14	15 - 19	20 - 30	31 - 40	41 - 50	51 or greater	
	12 yrs or greater	9 or less	10	11	12 - 16	17 - 22	23 - 29	30 or greater	
Cap Refill (seconds)				Less than 2 secs OR 2 - 3 secs			3 secs or greater		
O2 Sat		90% or less	91 - 94%	95% or greater					
O2 Therapy				Room Air		Less than 4 LPM OR Less than 50% FIO2	4 LPM or greater OR 50% FIO2 or greater		

APPENDIX C: ACH PEWS Escalation Algorithm



A full-size PEWS Escalation Algorithm can also be accessed [here](#).



APPENDIX D: Key Differences Between a PICU Consult and STEP with Ramp-Up

PICU consult	STEP + Ramp-Up
<ul style="list-style-type: none"> ▪ Triggered by the referring MRP service ▪ Initial consultation may be completed by residents or APPs but must be signed off by a PICU attending. The timeframe to completion may be variable and linked to the patient acuity and triaging of other patient care in the PICU. ▪ More comprehensive written assessment and recommendations will not occur with imminent PICU admission as these will be included in the PICU admission note. (a written consult will only occur if patient is not admitted directly to the PICU following the consult assessment) ▪ AMA guidelines for consultation must be met (from AMA site): <ul style="list-style-type: none"> ○ The referring practitioner (i.e., physician, midwife, chiropractor, podiatrist, dentist, optometrist, physical therapist or nurse practitioner) must have examined the patient first and requested a consultation. ○ The referring practitioner makes a request (either verbal or written) for an opinion from the consulting physician. ○ The consulting physician completes a history, examination and review or ordering of diagnostic material. The physician then provides a written opinion with recommendations about treatment to the referring practitioner. Consultations may include a discussion with the patient and or the referring practitioner. ▪ Typical situations where a PICU consult is warranted <ul style="list-style-type: none"> ○ Non- admitted ED patients ○ NICU consultations ○ Need to access PICU specialized knowledge and expertise. This may include the timing or appropriateness of non-urgent PICU admission related to upcoming procedures or medical interventions ○ Overcapacity initiation of 'off-label' HFNC, NIV, or other therapies normally initiated inside the PICU ▪ <u>Documentation</u> in Connect Care using a PICU Consult Note ONLY if patient is not for imminent PICU admission wherein a PICU admission note replaces the need for a consult note (given the change in MRP service) 	<ul style="list-style-type: none"> ▪ The initial STEP activation does not require a consult to be entered in connect care and will result in patient assessment within 15 minutes. ▪ The ramp-up is triggered by STEP team members following an activation by any number of inter-disciplinary care providers; a ramp-up may be requested (see below) ▪ Ramp-ups are performed by APPs and PICU attendings only ▪ They are focused assessment based usually on determining need for PICU admission and is suitable for most situations without needing a full PICU consultation ▪ May also be needed to support the STEP team for recommendations related to more complex patients ▪ Other triggers for STEP ramp-ups <ul style="list-style-type: none"> ○ 2 or more activations on the same patient < 24 hrs. ○ Clarifications with MRP team about STEP treatment recommendations ○ If requested by MRP service through the STEP team ▪ <u>Documentation</u> in Connect Care occurs via a 'STEP Team Ramp-up Note' under 'Rapid Response Team' as the service
<p>** In both scenarios, if the PICU consult or STEP Ramp-up result in a PICU admission then a transfer summary by the MRP team is required</p>	