Clinical Governance Unit

Revisions to the Paediatric Rapid Detection and Response Observation Charts

FACT SHEET

Government of South Australia
SA Health

BACKGROUND

The purpose of Rapid Detection and Response (RDR) Paediatric Observation Charts is to assist clinicians to recognise early signs of physical deterioration, and take appropriate action, including triggering a review by other clinicians. In some cases, this will need to be a Medical Emergency Response (MER / MET / CodeBlue).

RDR charts were first introduced to SA Health in July 2012. Adult RDR charts were reviewed in 2020 and the suite of Paediatric charts have now been revised in 2022.

Feedback was received from all Local Health Networks (LHN's) using the paediatric charts and the review process was assisted by a workgroup of the Child and Adolescent Health Community of Practice (CAH-CoP). All feedback provided by LHNs, individuals and small expert groups has been considered and used to inform the revised version of the paediatric charts.

FORM REVISIONS

The following information outlines the revisions made to each section of the chart.

1. Layout / structure of the forms

Sections moved for improved usability and inclusion of additional information and to align more closely with the layout of the adult RDR charts.

- Modifications table now on page 3, opposite where the observations are documented, rather than having to turn the chart over.
- Title for charts – Under 3 months now 0-3 months. 12+ years now 12-17 years

2. Local / state guidelines

Refer to state guidelines and/or local procedures for guidance on:

- Frequency of observations and who can alter these
- Modifications - level of doctor who can write/alter them
- Tools used for assessing pain score. Pain scales not included in charts – SA Health website for FLACC scale or Faces scale Acute Pain Management and Opioid Safety in Children (sahealth.sa.gov.au) - Paediatric Clinical Practice Guidelines | SA Health
- Tools for assessing Level of consciousness – use AVPU assessment tool OR Level of sedation – use Sedation Score descriptor at Page 4 (Section H)

- Documenting Blood Pressure 95th percentile, BP cuff size, mid arm circumference, oxygen flow rate, oxygen delivery method and oximeter probe change

3. General instructions - Section A: Page 1

Record the Chart number, Mid Arm circumference (cm), Height (cm) and Weight (in kilograms) at the top of page 1.

General Instructions include:

- the minimum set of observations and additional observations to be taken as indicated.
- how to record observations in Section C
- information on other observations – systolic blood pressure

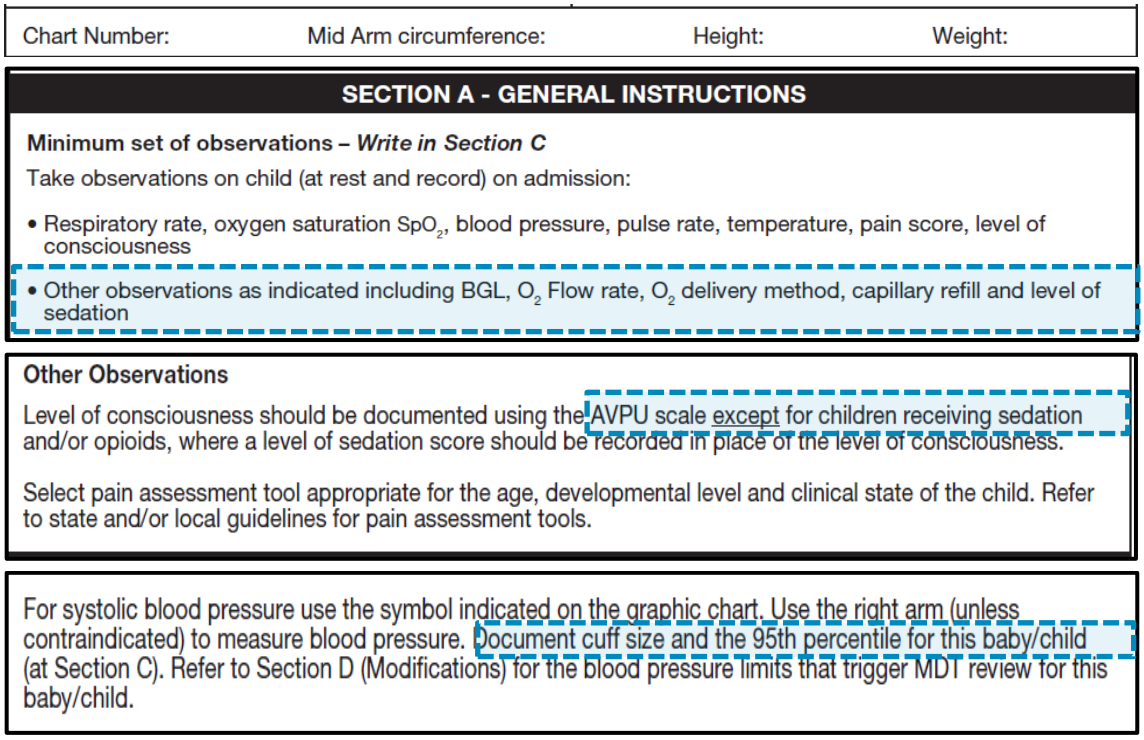


Chart Number:	Mid Arm circumference:	Height:	Weight:

SECTION A - GENERAL INSTRUCTIONS

Minimum set of observations – *Write in Section C*

Take observations on child (at rest and record) on admission:

- Respiratory rate, oxygen saturation SpO_2, blood pressure, pulse rate, temperature, pain score, level of consciousness
- Other observations as indicated including BGL, O_2 Flow rate, O_2 delivery method, capillary refill and level of sedation

Other Observations

Level of consciousness should be documented using the AVPU scale except for children receiving sedation and/or opioids, where a level of sedation score should be recorded in place of the level of consciousness.

Select pain assessment tool appropriate for the age, developmental level and clinical state of the child. Refer to state and/or local guidelines for pain assessment tools.

For systolic blood pressure use the symbol indicated on the graphic chart. Use the right arm (unless contraindicated) to measure blood pressure. Document cuff size and the 95th percentile for this baby/child (at Section C). Refer to Section D (Modifications) for the blood pressure limits that trigger MDT review for this baby/child.

4. Assessment of respiratory distress - Section B: Page 1

This section is now on page 1 and each assessment category is clearly coloured to match the relevant escalation response.

- Respiratory pattern has been replaced with 2 categories ‘Colour’ and ‘Apnoea’
- Now 6 assessments used with Respiratory Rate to assess respiratory distress
- Work of breathing’ title replaces ‘Accessory muscle use
- Assessment categories coloured to match the relevant escalation response
- Other changes – airway – no secretions just stridor, work of breathing – chest retraction, behaviour/ feeding – crying, no tube feeds, Apnoea and Oxygen - more detail, hypoxaemia defined as SpO_2<90% on Oxygen, HHHFNO or CPAP - purple zone

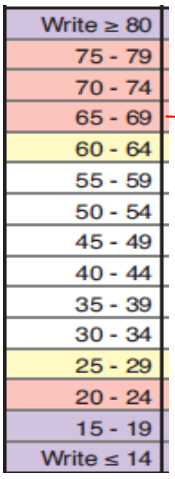
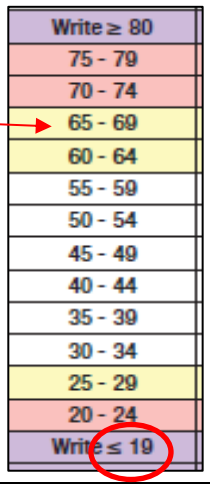
SECTION B - ASSESSMENT OF RESPIRATORY DISTRESS Used together with Respiratory Rate to provide further information about the airway and breathing assessment. Not all features may be present. Escalate as indicated.			
	MILD	**MODERATE**	**SEVERE**
Airway	Stridor only with exertion / crying	Some stridor at rest	Biphasic or increasing severity of stridor at rest
Work of breathing	Mild chest retraction (intercostal and/or suprasternal recession)	Moderate chest retraction (moderate intercostal and/or suprasternal recession) Tracheal tug / head bob / nasal flaring may be present	Severe chest retraction (marked intercostal, suprasternal and sternal recession) Tracheal tug / head bob / nasal flaring Grunting / gasping
Colour	Pink	Pallor	Dusky, mottled, cyanotic, extreme pallor
Behaviour / feeding	Normal behaviour / interactive No difficulty feeding Talks in sentences Loud cry	Intermittent irritability / difficult to console / more tired than usual Difficulty feeding Some difficulty talking (words only)	Agitated / confused or lethargic / looks exhausted Refuses / unable to feed Unable to talk or cry (too breathless)
Apnoea	Transient No desaturation	Transient with brief desaturations	Apnoea that is recurrent or prolonged or requires intervention
Oxygen	No oxygen requirement	New or increasing oxygen requirement	Hypoxaemia (SpO_2 < 90% on Oxygen, HHHFNO or CPAP)

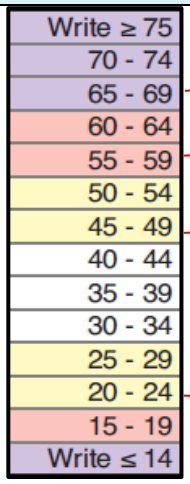
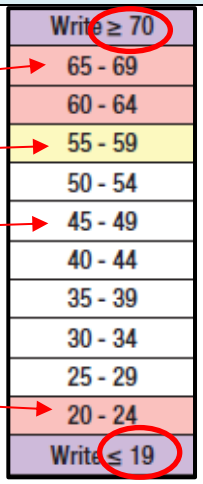
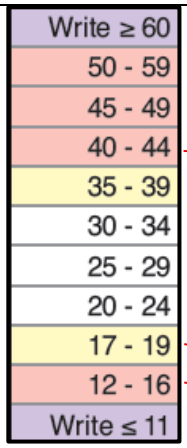
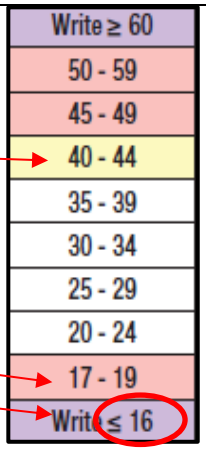
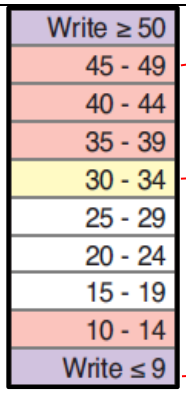
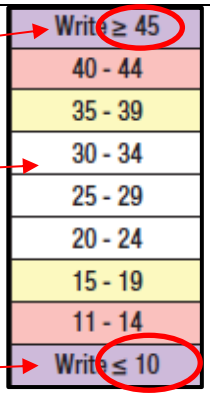
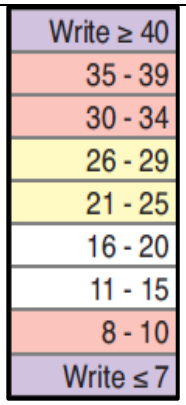
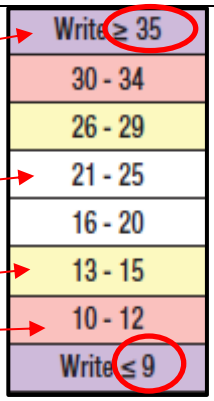
5. Observation chart - Section C: Page 2

Changes to the parameters are highlighted with snips in each observation type below.

Respiratory rate

> Respiratory Rate is used together with the Assessment of Respiratory Distress (Section B)

MR Form	Previous chart Respiratory Rate	Revised chart Respiratory Rate
MR-59B **0 - 3 months**		

MR Form	Previous chart Respiratory Rate	Revised chart Respiratory Rate
MR-59C **3 months – 1 year**		
MR-59D **1 – 4 years**		
MR-59E **5 – 11 years**		
MR-59F **12 - 17 years**		

Respiratory Distress

> **No change** to graph - Refer to Assessment of Respiratory Distress - (Section B) Page 1

Oxygen Saturation SpO2 (%)

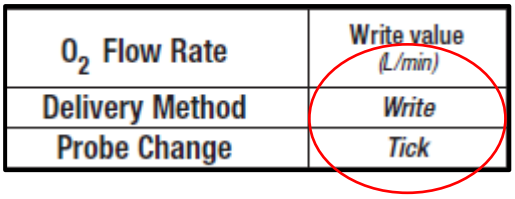
> **No change** to graph

Oxygen Flow Rate, Delivery Method and Probe change

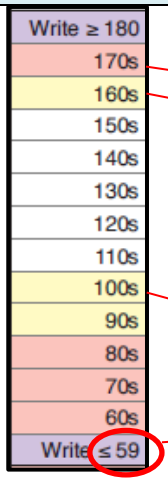
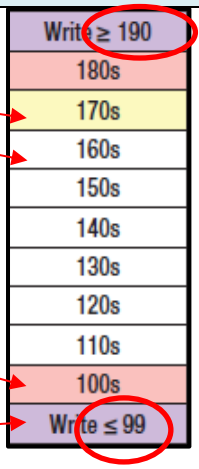
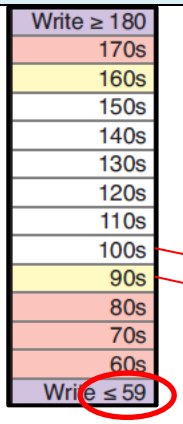
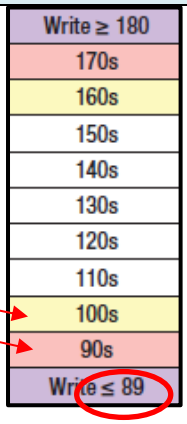
All charts

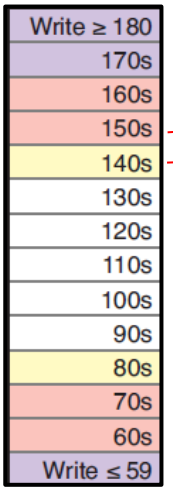
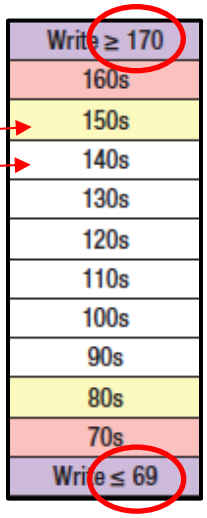
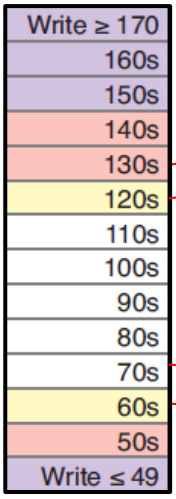
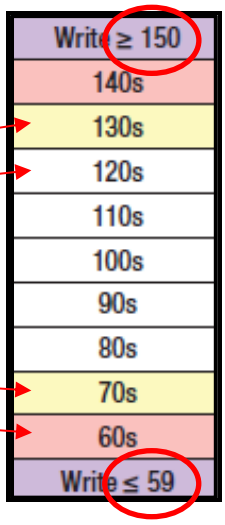
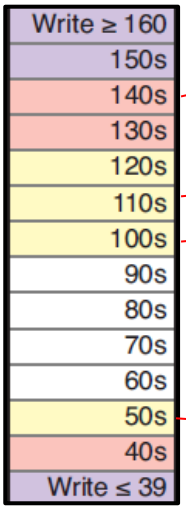
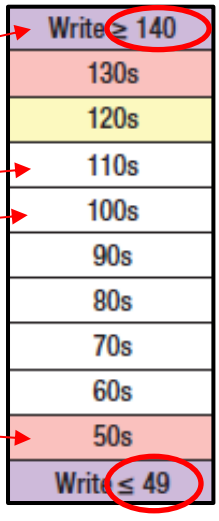
> Write in oxygen flow rate (L/min) and delivery method

> Tick box added – tick to indicate oximeter probe change time



Pulse Rate (beats/min)

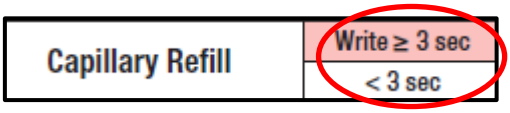
MR Form	Previous chart Pulse rate	Revised chart Pulse rate
MR-59B **0 - 3 months**		
Significant reduction in tolerance for bradycardia in a baby 0-12 months: **Change of 30 - 40bpm** MER Call for pulse rate: • ≤99 for 0-3month old and • ≤89 for 3months-1year old (was ≤59)		
MR-59C **3 months – 1 year**		

MR Form	Previous chart Pulse rate	Revised chart Pulse rate
MR-59D **1 – 4 years**		
MR-59E **5 – 11 years**		
MR-59E **12 – 17 years**		

Capillary Refill

All charts

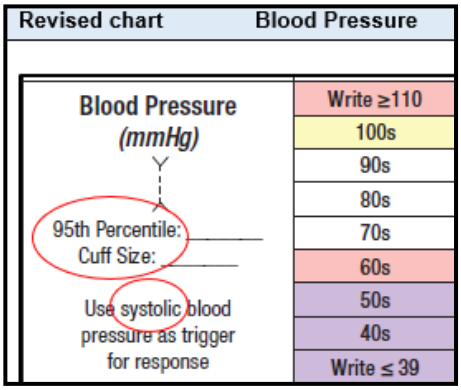
- revised to 3 seconds

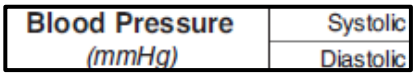
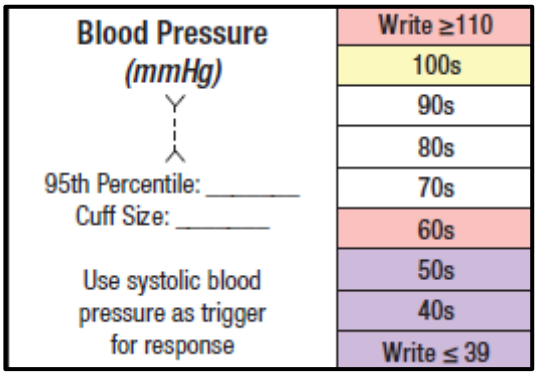
MR Form	Previous chart Capillary Refill	Revised chart Capillary Refill
All charts		

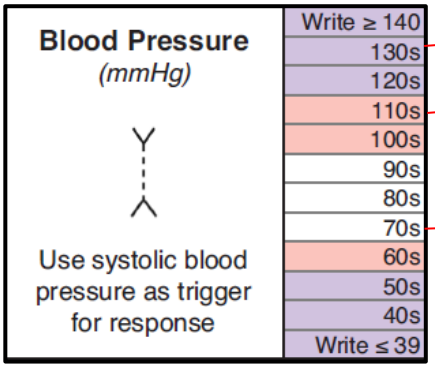
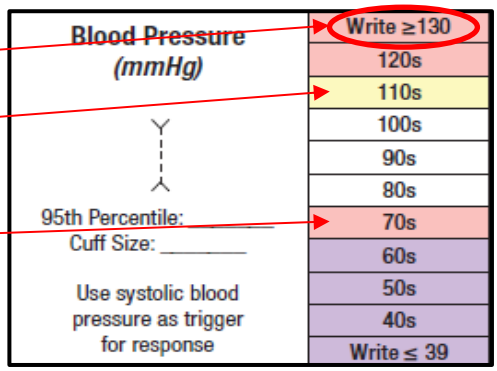
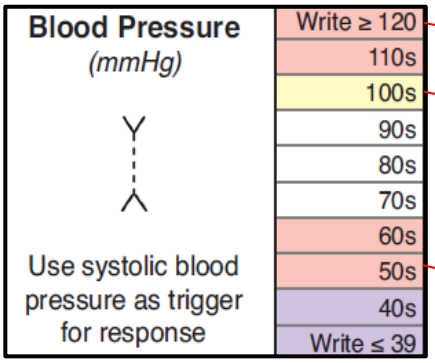
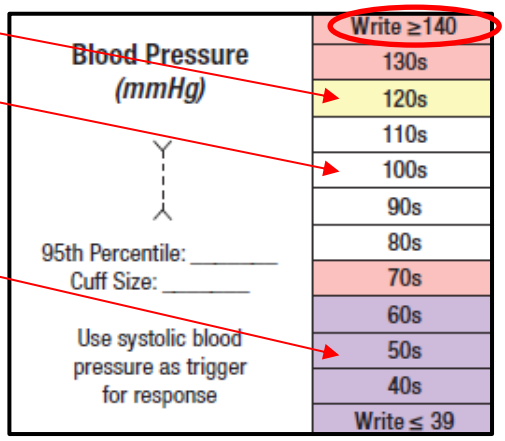
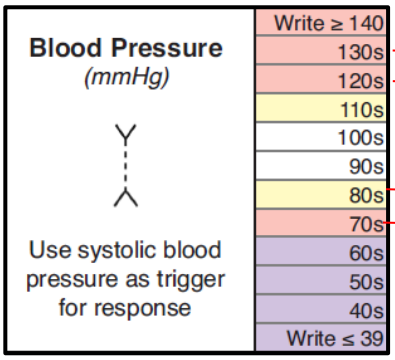
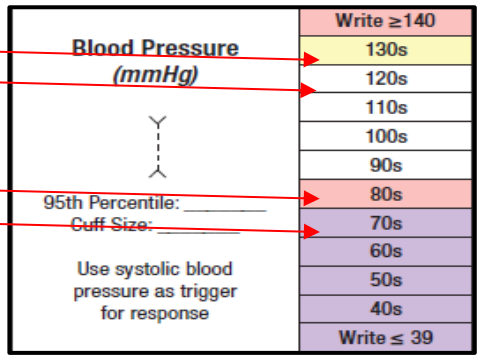
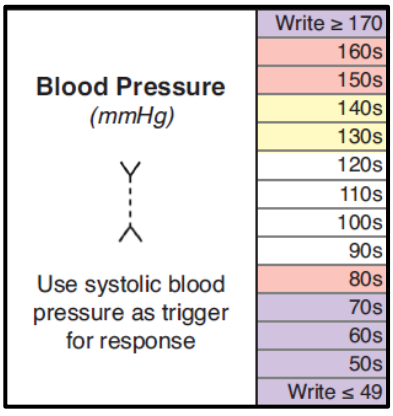
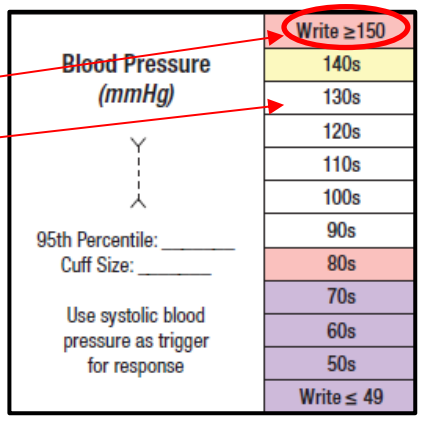
Blood Pressure (mm/Hg)

Changes:

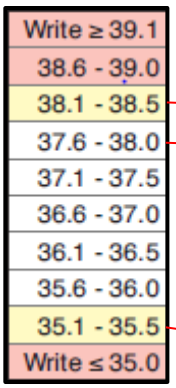
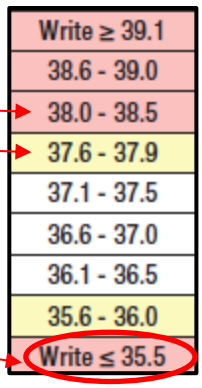
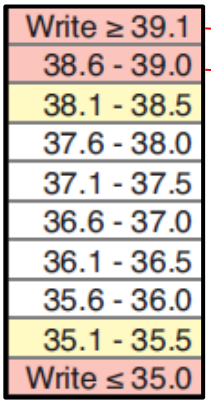
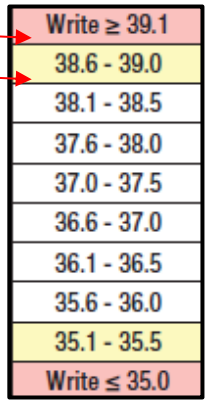
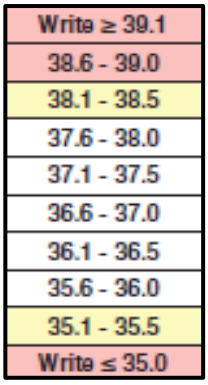
- Addition of space to record mid-arm circumference and height – Section A: Page 1
- Space to record BP cuff size and 95th percentile blood pressure for the baby/child. (This is optional additional information – refer to local procedures for recording)
- RN/RM Review trigger for hypotension removed.
- Parameters for all age groups.
- No MER Call for hypertension.



MR Form	Previous chart Blood Pressure	Revised chart Blood Pressure
MR-59B **0 - 3 months**		

MR Form	Previous chart Blood Pressure	Revised chart Blood Pressure
MR-59C **3 months – 1 year**		
MR-59D **1 – 4 years**		
MR-59E **5 – 11 years**		
MR-59F **12 – 17years**		

Temperature (Degrees Celsius)

MR Form	Previous chart Temperature	Revised chart Temperature
MR-59B **0 - 3 months**		
MR-59C **3 months - 1 year** **MR-59D** **1 – 4 years** **MR-59E** **5 – 11 years**		
MR-59F **12 - 17years** (no change)		

Level of Consciousness – *additional to Section C*

Previously, all charts combined *Level of Consciousness* and *Sedation Table*, and *Additional Observations* appeared as a separate observation assessment in Section C.

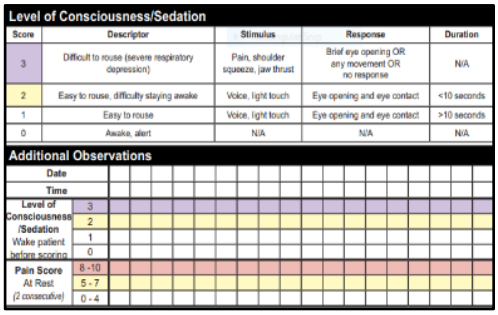
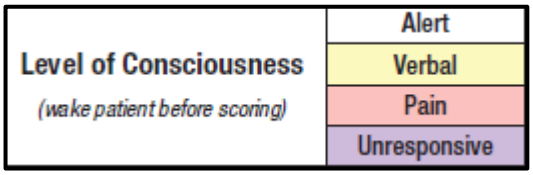
Changes:

Only <u>one</u> assessment to be used (not both)

- Level of Consciousness – use AVPU scale (Alert, Verbal, Pain, Unresponsive)

  OR

- Level of Sedation – use for children receiving sedation and/or opioids (don't use AVPU)

MR Form	**Previous chart - page 3** Level of Consciousness/Sedation	**Revised chart – page 2** Level of Consciousness (only)
All charts		

Level of Sedation - *Additional to Section C*

- **For children receiving sedation and/or opioids <u>only</u>**
- Sedation score of 2 is now a red zone trigger - MDT review (was RN/RM review)

  (Refer to Section H: Sedation Score: page 4 to calculate score and document page 3)

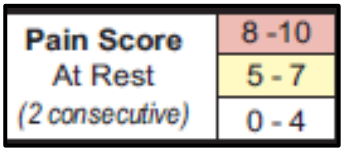
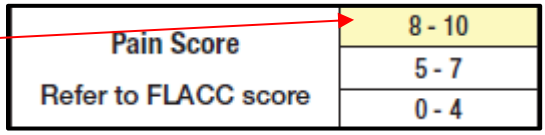
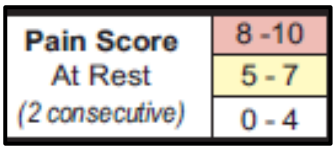
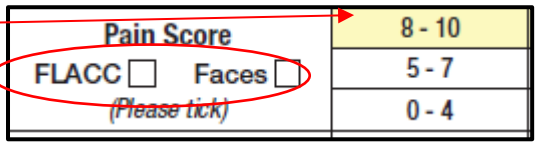
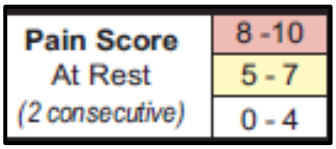
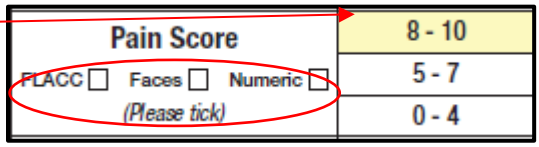
<table>
<tr><td>MR Form</td><td>Previous chart - page 3
Level of Consciousness/Sedation</td><td>Revised chart – page 2
Level of Sedation (only)</td></tr>
<tr><td>All charts</td><td>
<table>
<tr><td colspan="5">Level of Consciousness/Sedation</td></tr>
<tr><td>Score</td><td>Descriptor</td><td>Stimulus</td><td>Response</td><td>Duration</td></tr>
<tr><td>3</td><td>Difficult to rouse (severe respiratory depression)</td><td>Pain, shoulder squeeze, jaw thrust</td><td>Brief eye opening OR any movement OR no response</td><td>N/A</td></tr>
<tr><td>2</td><td>Easy to rouse, difficulty staying awake</td><td>Voice, light touch</td><td>Eye opening and eye contact</td><td><10 seconds</td></tr>
<tr><td>1</td><td>Easy to rouse</td><td>Voice, light touch</td><td>Eye opening and eye contact</td><td>>10 seconds</td></tr>
<tr><td>0</td><td>Awake, alert</td><td>N/A</td><td>N/A</td><td>N/A</td></tr>
</table>
<table>
<tr><td colspan="3">Additional Observations</td></tr>
<tr><td>Date</td><td></td><td></td></tr>
<tr><td>Time</td><td></td><td></td></tr>
<tr><td rowspan="4">Level of Consciousness /Sedation Wake patient before scoring</td><td>3</td><td></td></tr>
<tr><td>2</td><td></td></tr>
<tr><td>1</td><td></td></tr>
<tr><td>0</td><td></td></tr>
<tr><td rowspan="3">Pain Score At Rest (2 consecutive)</td><td>8 -10</td><td></td></tr>
<tr><td>5 - 7</td><td></td></tr>
<tr><td>0 - 4</td><td></td></tr>
</table>
</td><td>
<table>
<tr><td>Level of Sedation
<u>For children receiving sedation and/or opioids only</u>
(wake patient before scoring)</td><td>3</td></tr>
<tr><td></td><td>2</td></tr>
<tr><td></td><td>1</td></tr>
<tr><td></td><td>0</td></tr>
</table>
</td></tr>
<tr><td></td><td colspan="2">Revised chart – page 2
Level of Sedation (only) – Section H: Sedation Score
<table>
<tr><td colspan="5">SECTION H - SEDATION SCORE</td></tr>
<tr><td>Score</td><td>Descriptor</td><td>Stimulus</td><td>Response</td><td>Duration</td></tr>
<tr><td>3</td><td>Difficult to rouse</td><td>Pain, shoulder squeeze</td><td>Brief eye opening OR any movement OR no response</td><td>N/A</td></tr>
<tr><td>2</td><td>Easy to rouse, difficulty staying awake</td><td>Voice, light touch</td><td>Eye opening and eye contact</td><td>< 10 seconds</td></tr>
<tr><td>1</td><td>Easy to rouse</td><td>Voice, light touch</td><td>Eye opening and eye contact</td><td>≥ 10 seconds</td></tr>
<tr><td>0</td><td>Awake, alert when approached</td><td>N/A</td><td>N/A</td><td>N/A</td></tr>
</table>
</td></tr>
<tr><td></td><td colspan="2">Previous chart - page 3
Level of Consciousness/Sedation
<table>
<tr><td colspan="5">Level of Consciousness/Sedation</td></tr>
<tr><td>Score</td><td>Descriptor</td><td>Stimulus</td><td>Response</td><td>Duration</td></tr>
<tr><td>3</td><td>Difficult to rouse (severe respiratory depression)</td><td>Pain, shoulder squeeze, jaw thrust</td><td>Brief eye opening OR any movement OR no response</td><td>N/A</td></tr>
<tr><td>2</td><td>Easy to rouse, difficulty staying awake</td><td>Voice, light touch</td><td>Eye opening and eye contact</td><td><10 seconds</td></tr>
<tr><td>1</td><td>Easy to rouse</td><td>Voice, light touch</td><td>Eye opening and eye contact</td><td>>10 seconds</td></tr>
<tr><td>0</td><td>Awake, alert</td><td>N/A</td><td>N/A</td><td>N/A</td></tr>
</table>
</td></tr>
</table>

Pain Score – *additional to Section C*

- **FLACC table removed**

  Refer to local guidelines, reference tools - *Acute Pain Management and Opioid Safety in Children (sahealth.sa.gov.au)* - Paediatric Clinical Practice Guidelines | SA Health

- **Changes to Escalation Response criteria**:
  - unrelieved or unexpected pain triggers
  - escalation to RN/RM review.
- **One assessment of pain**
  - at score of 8-10 > triggers RN/RM review

MR Form	Previous chart - page 3 Pain score	Revised chart – page 2 Pain score
MR-59B **0 - 3 months** **MR-59C** **3 months** **- 1 year**		
MR-59D **1 – 4 years**		
MR-59E **5 – 11 years** **MR-59F** **12 – 17 years**		

Blood Glucose Level (BGL) – *additional to Section C*

All charts

- needs to be written in mmol/L, in line with date and time
- no triggers

Initials – *additional to Section C*

All charts

- space for clinician to record their first and last name initials

6. MODIFICATIONS - SECTION D - Page 3

All charts

- Adapted to match the Adult RDR charts.
- Moved to page 3, opposite the Observation chart.

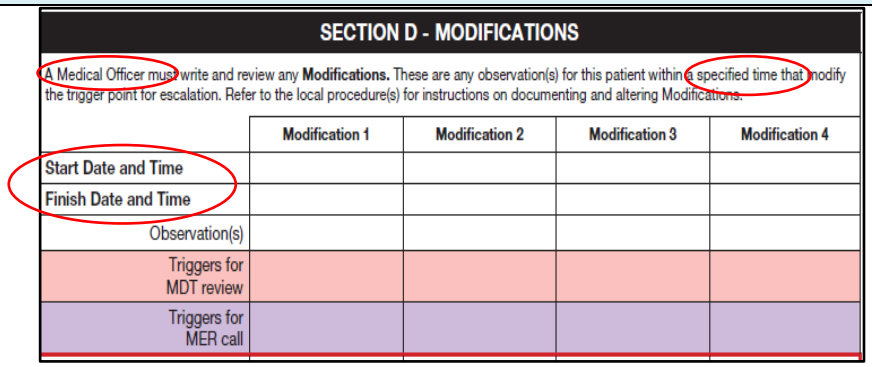
Wording has changed to make clear:

- Modifications are observations for this patient within a specified time that modify the trigger point for escalation.
- Trigger points are colour coded for MDT review or MER call.

Additional space for:

- Information about triggers for MDT review MER call.
- Start and finish date and time for a modification.
  (The modification stops at the finish time and the observation parameters go back to the pre-set triggers).
- Colour added to triggers for review.
- Medical Officer to write and review any modifications.
- The space for documenting the clinician's name, designation and signature remains the same.

Revised chart – page 3
Modifications

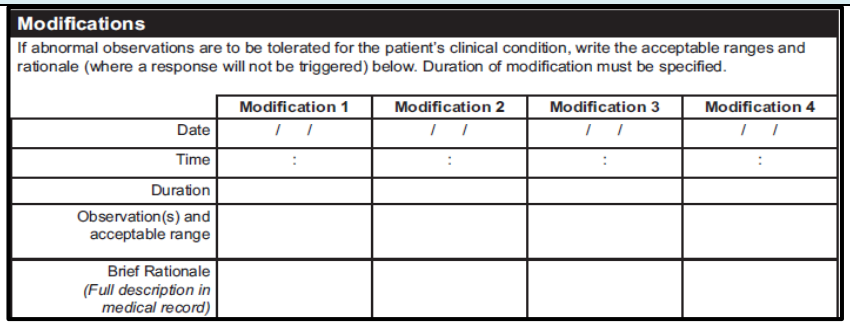


SECTION D - MODIFICATIONS

A Medical Officer must write and review any **Modifications.** These are any observation(s) for this patient within a specified time that modify the trigger point for escalation. Refer to the local procedure(s) for instructions on documenting and altering Modifications.

	Modification 1	Modification 2	Modification 3	Modification 4
Start Date and Time				
Finish Date and Time				
Observation(s)				
Triggers for MDT review				
Triggers for MER call				

Previous chart - page 3
Modifications



Modifications

If abnormal observations are to be tolerated for the patient's clinical condition, write the acceptable ranges and rationale (where a response will not be triggered) below. Duration of modification must be specified.

	Modification 1	Modification 2	Modification 3	Modification 4
Date	/ /	/ /	/ /	/ /
Time	:	:	:	:
Duration				
Observation(s) and acceptable range				
Brief Rationale *(Full description in medical record)*				

7. FREQUENCY OF OBSERVATIONS - SECTION E: Page 3

All charts

- Adapted to match the Adult RDR charts.
- New section to document the ordering of a change in the frequency of observations (observations are at least 4 hourly unless Section E specifies something different).
- Refer to local procedures (e.g., only a senior RN to change frequency).
- Increase to minimum of hourly if MDT review.

SECTION E – FREQUENCY OF OBSERVATIONS							
Observations should be performed routinely at least 4 hourly unless advised below. Refer to local procedure for who can alter frequency.							
Date	(e.g) 06/04/2021	/ /	/ /	/ /	/ /	/ /	/ /
Frequency	2/24						
Name/Designation	Smith RN						

8. INTERVENTION OR REVIEW DONE - SECTION F: Page 3 (INCLUDING MDT OR MET CALL)

All charts

- Adapted to match the Adult RDR charts.
- Document the time of intervention as a reference point (in previous chart reference was A, B, C etc.)

SECTION F - INTERVENTION OR REVIEW DONE (INCLUDING MDT OR MET CALL)					
Date / Time	Intervention or review (e.g. Urine Output, increase frequency BGL's, O_2 changes etc)	Patient family/ carer concern	Physical state change	Mental state change	Name / Signature
		☐	☐	☐	

9. RESPONSE CRITERIA AND ACTIONS TO TAKE - SECTION G: Page 4

Changes:

- Wording and formatting changed to align with adult RDR chart
- Addition of 'Patient or consumer concern' has been added to all three categories of response criteria

MER CALL

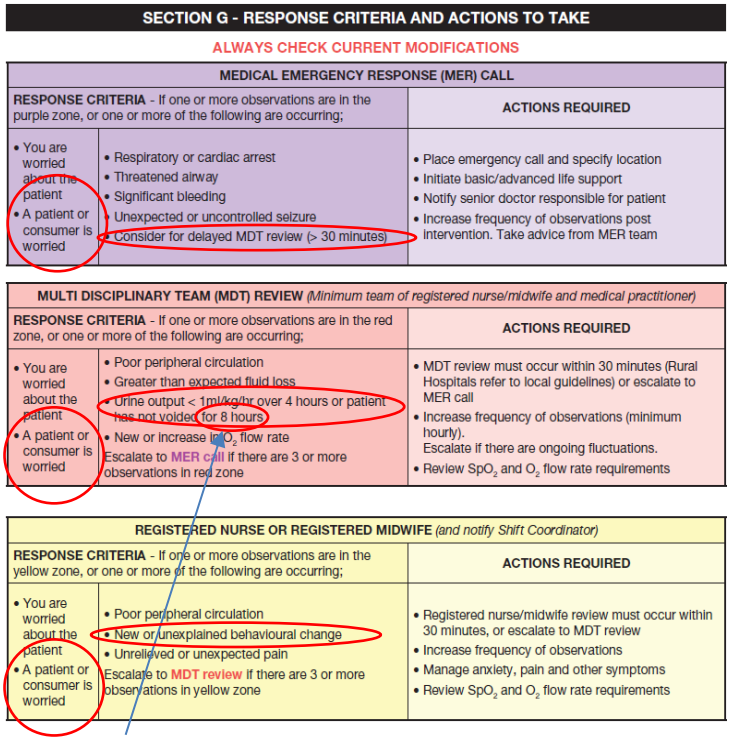
- Time specified (> 30 mins) for a delayed MDT review - consider MER

MDT Review

- 0-3 months and 3 months – 1 year chart - patient has not voided for 8 hours (reduced from 12 hrs)
- New or increase in Oxygen flow rate
- Minimum hourly observations, as response to MDT review (Escalate if ongoing fluctuations).
- New or unexplained behavioural change removed - moved to RN/RM review criteria

RN/RM Review

- New or unexplained behavioural change added - moved from MDT review
- Unrelieved or unexpected pain
- Escalate to MDT review if not reviewed by RN/RM within 30 minutes
- Review SpO2 and O2 flow rate requirements



SECTION G - RESPONSE CRITERIA AND ACTIONS TO TAKE

ALWAYS CHECK CURRENT MODIFICATIONS

MEDICAL EMERGENCY RESPONSE (MER) CALL

RESPONSE CRITERIA - If one or more observations are in the purple zone, or one or more of the following are occurring;		ACTIONS REQUIRED
• You are worried about the patient • A patient or consumer is worried	• Respiratory or cardiac arrest • Threatened airway • Significant bleeding • Unexpected or uncontrolled seizure • Consider for delayed MDT review (> 30 minutes)	• Place emergency call and specify location • Initiate basic/advanced life support • Notify senior doctor responsible for patient • Increase frequency of observations post intervention. Take advice from MER team

MULTI DISCIPLINARY TEAM (MDT) REVIEW *(Minimum team of registered nurse/midwife and medical practitioner)*

RESPONSE CRITERIA - If one or more observations are in the red zone, or one or more of the following are occurring;		ACTIONS REQUIRED
• You are worried about the patient • A patient or consumer is worried	• Poor peripheral circulation • Greater than expected fluid loss • Urine output < 1ml/kg/hr over 4 hours or patient has not voided for 8 hours • New or increase in O_2 flow rate Escalate to MER call if there are 3 or more observations in red zone	• MDT review must occur within 30 minutes (Rural Hospitals refer to local guidelines) or escalate to MER call • Increase frequency of observations (minimum hourly). Escalate if there are ongoing fluctuations. • Review SpO_2 and O_2 flow rate requirements

REGISTERED NURSE OR REGISTERED MIDWIFE *(and notify Shift Coordinator)*

RESPONSE CRITERIA - If one or more observations are in the yellow zone, or one or more of the following are occurring;		ACTIONS REQUIRED
• You are worried about the patient • A patient or consumer is worried	• Poor peripheral circulation • New or unexplained behavioural change • Unrelieved or unexpected pain Escalate to MDT review if there are 3 or more observations in yellow zone	• Registered nurse/midwife review must occur within 30 minutes, or escalate to MDT review • Increase frequency of observations • Manage anxiety, pain and other symptoms • Review SpO_2 and O_2 flow rate requirements

Note: 8 hours for MR-59B and MR-59C only. Others12 hours.

10. REFERENCES

Vital sign trigger changes as per ViCTOR charts (Victorian Paediatric Trigger Charts) based on extensive evidence (see full list of studies here).

Predominately Bonafide et al. 2013

For more information

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