

Appendix A: MEOWS tool as used in DHs

Risk identification and MEOWS tool to be used in patients charts

Risk identification too

Criteria	High risk	Moderate risk	Low risk
Hemorrhage	<p>Recognition:</p> <p>-On admission:</p> <ol style="list-style-type: none"> 1. Placenta previa, low lying placenta 2. Suspected Placenta accreta or percreta 3. Hematocrit < 30, refusal of transfusion, AND other risk factors: 4. Platelets < 100,000 5. Active bleeding (greater than show) 6. Known coagulopathy <p>-Evaluate for development of additional risk factors in labor and postpartum:</p> <ul style="list-style-type: none"> • Prolonged 2nd Stage labor • Prolonged oxytocin use • Active bleeding •Chorioamnionitis • Magnesium sulfate treatment <p>-1 or more high risk criteria: High risk of hemorrhage</p>	<p>Recognition:</p> <p>-On admission:</p> <ol style="list-style-type: none"> 1. Prior cesarean birth(s) or uterine surgery 2. Multiple gestation 3. > 4 previous vaginal births 4. Chorioamnionitis 5. History of previous PPH 6. Large uterine fibroids <p>-Evaluate for development of additional risk factors in labor and postpartum:</p> <ul style="list-style-type: none"> • Prolonged 2nd Stage labor: • Prolonged oxytocin use • Active bleeding • Magnesium sulfate treatment <p>-1 or more moderate risk criteria: Moderate risk of hemorrhage</p> <p>Response:</p> <p>-Consider referral if not in labor (clinical judgment)</p> <p>-If in labor close monitoring, type and screen, book 2 units of blood, delivery</p>	<p>Recognition:</p> <p>-On admission</p> <ol style="list-style-type: none"> 1. No previous uterine incision 2. Singleton pregnancy 3. < 4 previous vaginal births 4. No known bleeding disorder <p>-Evaluate for development of additional risk factors in labor and postpartum:</p> <ul style="list-style-type: none"> • Prolonged 2nd Stage labor • Prolonged oxytocin use: • Active bleeding •Chorioamnionitis • Magnesium sulfate treatment <p>No moderate or high risk of hemorrhage: Low risk of hemorrhage</p> <p>Response:</p> <p>-Standard of care</p>
Conclusion	<p>Response:</p> <p>-Consider referral if not in labor</p> <p>-If in labor close monitoring, type and screen, order 2 units of blood, delivery</p>		

pre-eclampsia/Eclampsia	<p>Recognition: CNS: Awareness: unresponsive</p> <p>Headache: Unrelieved headache</p> <p>Vision: Temporary blindness</p> <p>CVS: SBP: ≥ 160 DBP: 50-89 HR: 61-110 Chest pain</p> <p>RS: RR: <10 or >30</p> <p>GIT: Nausea and vomiting Abdominal pain</p> <p>Renal: u.o in mls: ≤ 30 (in 2 hrs)</p> <p>Proteinuria: Not relevant</p> <p>Platelet: <50</p> <p>ASAT/ALAT: >70</p> <p>Cr: >1.2</p> <p>MgSO4 toxicity: Respiration <12</p>	<p>Recognition: CNS: Awareness:</p> <ul style="list-style-type: none"> • Agitated/confused • Drowsy • Difficulty speaking <p>Headache:</p> <ul style="list-style-type: none"> • Mild headache • Nausea, vomiting <p>Vision: Blurred or impaired</p> <p>CVS: SBP: 140-159 DBP: 50-89 HR: 111-129 Chest pain</p> <p>RS: RR: 25-30</p> <p>GIT: Nausea and vomiting Abdominal pain</p> <p>Renal: u.o: 30-49</p> <p>Proteinuria:</p> <ul style="list-style-type: none"> • $> +1$, • 300mg/24 hours <p>Platelet: 50-100</p> <p>ASAT/ALAT: >70</p> <p>Cr: 0.9-1.1</p> <p>MgSO4 toxicity: Depression of patellar reflexes</p> <p>1 or more moderate risk</p>	<p>Recognition: CNS: Awareness: Alert/oriented</p> <p>Headache: None</p> <p>Vision impairment: None</p> <p>CVS: SBP: 100-139 DBP: ≥ 105 HR: > 130 No chest pain</p> <p>RS: RR: 11-24</p> <p>GIT: None None</p> <p>Renal: u.o: ≥ 50</p> <p>Proteinuria: Trace</p> <p>Platelet: >100</p> <p>ASAT/ALAT: <70</p> <p>Cr: <0.8</p> <p>MgSO4 toxicity:</p> <ul style="list-style-type: none"> • DTR +1 • Respiration 16-20 <p>No moderate or high risk</p>

<p>Conclusion</p>	<p>1 or more high risk criteria: High risk of pre-eclampsia/eclampsia</p> <p>Response: Immediate evaluation (ABCDE approach)</p> <ul style="list-style-type: none"> • Transfer to higher acuity level • 1:1 staff ratio • Labetalol/hydralazine in 30 min • In-person evaluation • Magnesium sulfate loading or maintenance infusion • O2 at 10 L per rebreather mask • R/O pulmonary edema • Chest x-ray • Safe referral to tertiary center 	<p>criteria: Moderate risk of pre-eclampsia/eclampsia</p> <p>Response:</p> <ul style="list-style-type: none"> • Notify In charge RN or Midwife • In-person evaluation • Order labs/tests • Anesthesia consult • Consider magnesium sulfate • Supplemental oxygen • Physician should be made aware of worsening or new-onset proteinuria 	<p>criteria: No risk of pre-eclampsia /eclampsia</p> <p>Response: Proceed with protocol for normal pregnancy</p>
<p>Sepsis</p>	<p>Recognition for every woman (on admission): Risk factors:</p> <ol style="list-style-type: none"> 1.gestational diabetes, diabetes or other comorbidities 2.needed invasive procedure such as caesarean section, forceps delivery, removal of retained products of conception within 6 weeks 3.prolonged rupture of membranes 4.continued vaginal bleeding or an offensive vaginal discharge <p>Diagnosis criteria 1.CNS: new altered mental state on examination</p>	<p>Recognition for every woman (on admission): Risk factors:</p> <ol style="list-style-type: none"> 1.gestational diabetes, diabetes or other comorbidities 2.needed invasive procedure such as caesarean section, forceps delivery, removal of retained products of conception within 6 weeks 3.prolonged rupture of membranes 4.continued vaginal bleeding or an offensive vaginal discharge <p>Diagnosis criteria 1.CNS: History of new altered mental state: ----- 2.RS: RR>21 -24: -----</p>	<p>Recognition for every woman (on admission): Risk factors:</p> <ol style="list-style-type: none"> 1.gestational diabetes, diabetes or other comorbidities 2.needed invasive procedure such as caesarean section, forceps delivery, removal of retained products of conception within 6 weeks 3.prolonged rupture of membranes 4.continued vaginal bleeding or an offensive vaginal discharge <p>Diagnosis criteria No high risk or moderate risk criteria met: -----</p>

<p>Conclusion</p>	<p>2.RS: RR>25 : ----- or need of FiO2> 40% to keep Sat>92%: -----</p> <p>3. CVS: SBP<90 mmHg: ----- or HR>130: -----</p> <p>4.Renal: No urine in 18 hours : ----- or if foley catheter U.O<0.5 ml/kg/h: -----</p> <p>5.Temperature >39°C: ----- -----</p> <p>6.Skin: Mottled appearance, Cyanosis of skin, lips or tongue, Non-blanching rash of skin: -----</p> <p>-1 or more high risk criteria: High risk of sepsis</p> <p>Response: -immediate review by senior clinical decision maker (ABCDE approach) -Blood test: -blood gas for glucose and lactate· _ blood culture· _ full blood count· _ C-reactive protein· _ urea and electrolytes· _ creatinine· _ clotting screen - MEOWS -IV antibiotics within 1h -500 ml bolus every 15 min, repeat up to 3 times, if SBP<90 mmHg give adrenaline 1mg/500 ml NS to keep MAP>65 or SBP>90 -Refer to a tertiary hospital</p>	<p>3.CVS: SBP:91-100 mmHg: -- ---or HR: 100-130: -----</p> <p>4.Renal: No urine in 12-18 hours: ----- or if foley catheter U.O: 0.5-1 ml/kg/h: -----</p> <p>5.Temperature <36°C: -----</p> <p>6.Skin: Signs of potential infection, including redness, swelling or discharge at surgical site or breakdown of wound: ----- --</p> <p>-1 or more moderate risk criteria: Moderate risk of sepsis</p> <p>Response: -Blood test: -blood gas for glucose and lactate· _ blood culture· _ full blood count· _ C-reactive protein· _ urea and electrolytes· _ creatinine· _ clotting screen - review by senior clinical decision maker within 1 hour -IV antibiotics within 1h -500 ml bolus every 15 min, repeat up to 3 times - If no definitive condition identified, repeat structured assessment at least hourly -MEOWS -Source control within 6 hours, if deep infection refer to a tertiary hospital</p>	<p>-no high or moderate risk criteria: Low risk of sepsis</p> <p>Response: -Clinical assessment and manage according to clinical judgement</p>
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Modified Early Obstetric Warning Score (MEOWS) tool

Score	3	2	1	0	1	2	3
Temperature		<35° .C		35-37.4° .C		37.5-39° .C	>39° .C
Systolic * BP	≤70	71-79	81-89	90-139	140-149	150-159	≥160
Diastolic * BP			≤45	46-89	90-99	100-109	≥110
Pulse		≤ 40	40-50	51-100	101-110	111-129	≥ 130
Respiratory Rate		≤ 8		9-14	15-20	21-29	≥30
AVPU				Alert	Responds to Voice	Responds to Pain	Unconscious
Urine output mLs/hr	< 10	<30		Not Measured			

If the pulse rate is higher than the systolic blood pressure then score 2 for 'Pulse'

MEOWS less or equal to 2: Current plan

MEOWS =3-5: Repeat observations, Senior midwife to review, Medical review

MEOWS high or equal to 6: Inform Coordinator or Senior Midwife, Medical review, Anesthesia review, Referral

Appendix B: A Sample Record of Collected Data using CDC's Epi Info Software

Enter - [RisfactorsMeows11\Hugo]

File Edit View Tools Help

Open Form Save Print Find New Record 1 of 800 Delete Undo Line Listing Dashboard Map Edit Form Help

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Page 1

Use of risk identification and MEOWS tool

PATIENTS CHARACTERISTICS

Age: 22

Insurance: Yes

Marital Status: []

Ubudehe Social Category: []

Date of admission: 05/01/19

Gravidity: 02 Parity: 00 ANC Visits: 00

Types of delivery: SVD

Time of admission: 1:00:00 PM

Number of Vital signs checks post-delivery 8hours: 00

Number of Vital signs checks post-delivery 4hours: 00

Number of Vital signs checks post-delivery 2hours: 00

Number of Vital signs checks post-delivery 12hours: 00

Number of Vital signs checks postdelivery 24hours: 00

Risk identification and MEOWS tool is available in the file

No []

completed

not completed

partial completed

Infections: []

Preclampsia: []

MEOWS Score: []

PPH: []

Hospital

Kibagabaga DH

Muhima DH

Kabutare DH

Nyanza DH

DELAY

Date of MgSO4: []

Date to refer: []

Time to start MgSO4: []

Time to refer: []

Time to start transfusion: []

Time to start antibiotic: []

Time to Start Nifedipine: []

Date to start Nifedipine: []

Date of delivery: []

Unlink Add Exposure View SNA Graph