Delivering Better Birthdays

Professor Tim Draycott – Consultant Obstetrician, North Bristol Trust

Cathy Winter – Lead Midwife, PROMPT Maternity Foundation

PROMPT

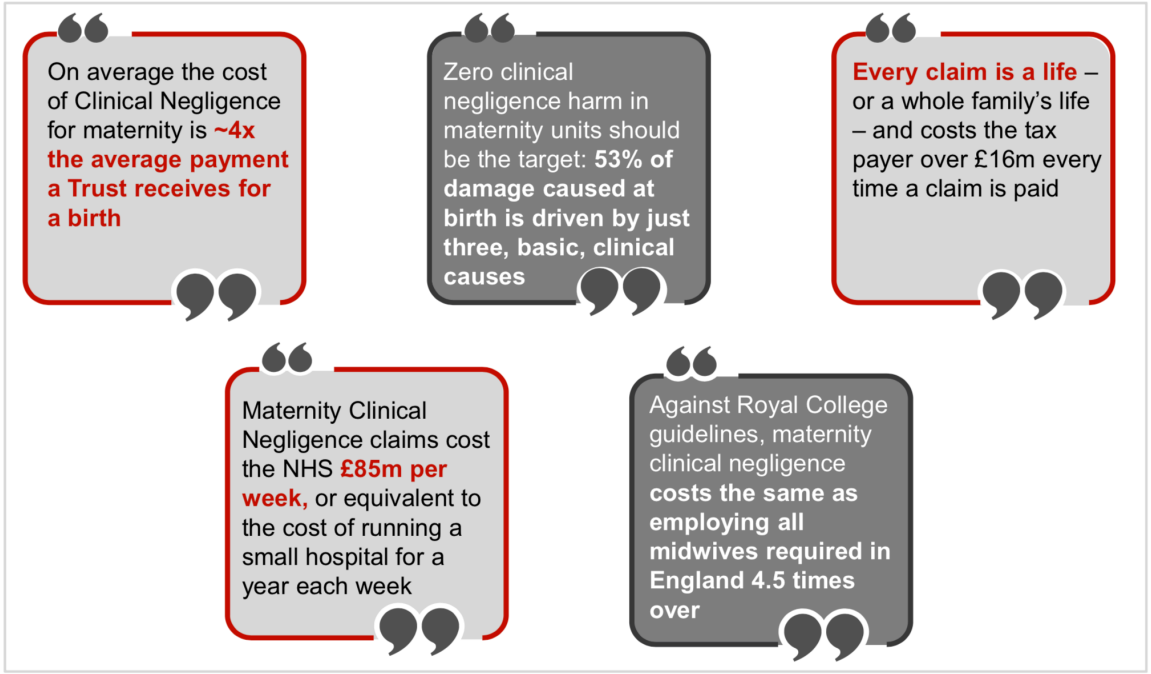
PRactical Obstetric Multi-Professional Training®

Training & simulation

- Some Births are not as good as they could, and should, be
- Simulation useful, but not magic
- Mobilise evidence to practice….. and policy
- Generalisable
- Joy into practice and training

Some births are not as good as they should be

Five compelling reasons for addressing harm in maternity units



Perinatal recommendations

- Simulated emergencies should be organised to improve management of rare obstetric emergencies

CESDI – 4th Annual Report 1997
CEMD – Why Mothers Die 1998
CEMACH – Saving Mothers Lives 2007
Kings Fund: Safer Births everybody's business. 2008
NHSLA. CNST Maternity Standards 2009
CMACE. Saving Mothers Lives. 2010

- All units should maintain or initiate on-going multi-disciplinary team training for their maternity staff

MBRRACE UK – Saving Lives, Improving Mothers' Care. 2014

Not all training is equal or effective

- Recent, robust & well designed studies
  - TOSTI Study (Netherlands)
    - Sim Centre based intervention for obstetric emergencies
    - 24 units randomised to intervention or control
    - No improvements in clinical outcomes

Fransen. BJOG. 2016

  - Sign up to Safety (UK)
    - 25 obstetric units - Interrupted time series study
    - 75% of interventions: fetal monitoring, staff & training
    - No improvements in Apgar score <7[5]mins or other improvements in clinical outcome

Personal Communication. E Pizzo. 2017

Recent studies continued

- National Perinatal Safety programme (Sweden)
  - All 46 obstetric units
  - Peer review process & implementation of guidelines
  - Web based fetal monitoring programme
  - No change in Apgar score <7[5]mins
  - Doubled 'injudicious' use of syntocinon

Luthander. Acta Scand O&G. 2017

- CTG education programme (Denmark)
  - National study with historical controls - 331,282 births
  - 53 courses & 97% of maternity carers trained
  - No change in Apgar score <7[5]mins

Thellesen. Submitted. 2017

Isolated TW & HF Training

- MedTeams OB
  - 17 Units randomised to TW Training or not
  - No Significant Improvement in either arm

Nielsen, P.E., et al Obstet Gynecol, 2007. 109 p. 48-55

- CRM training
  - CRM does not change behaviour or outcomes

Kemper. BMJ Q&S. 2016

- RCT of HF training
  - No effect on staff behaviour or clinical outcomes

Timmons S. Emerg Med J. 2015

Teamwork Training

- Declare the emergency
- Clear, directed messages
- Maintain Situational Awareness
- Co-ordinate & motivate the team
- Feedback
- SBAR–like structured communication

- Training in multi-professional teams improves team working

Siassakos et al. The active components of effective training in obstetric emergencies. *BJOG* 2009

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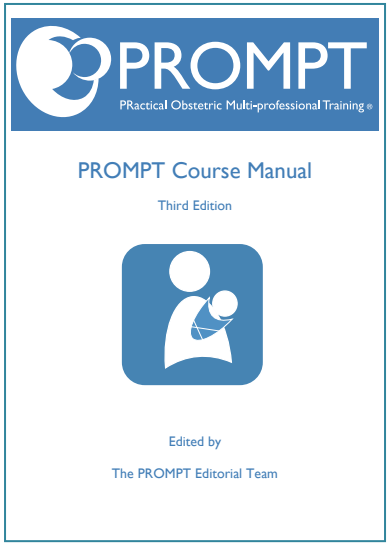
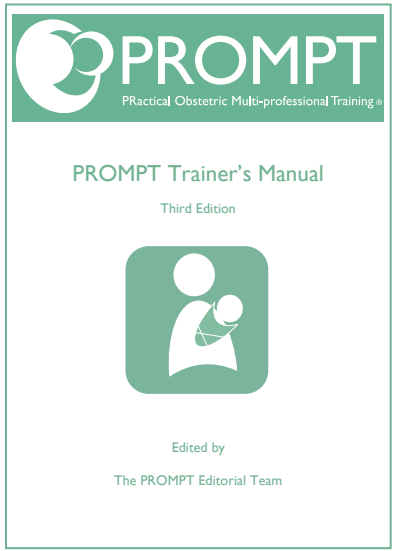
- **PR**actical **O**bstetric **M**ulti-**P**rofessional **T**raining
  - Local multi-professional maternity training for the management of obstetric emergencies
  - Includes clinical and teamwork training
  - Train the Trainers (T3) model for dissemination of PROMPT Course in a Box
  - Multi-professional teams take the training package back to their units and run local PROMPT courses
  - Aim to train ALL maternity staff together, in their own unit, annually

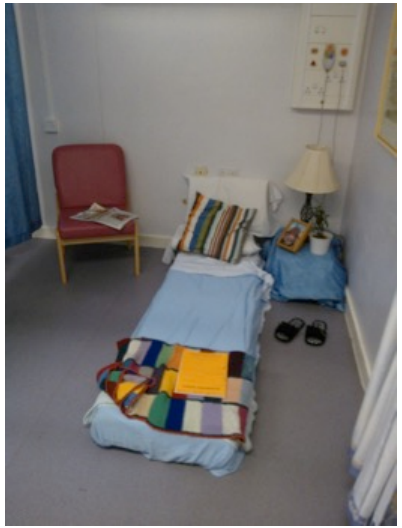
PROMPT ‘Course in a Box’

- Course Manual for participants
- Trainer’s Manual
- Additional evidence-based downloadable tools, checklists, algorithms
- Email and telephone support





Drills in the clinical area



Run drills in appropriate clinical areas, labour ward, birth suite, obstetric theatres, whenever possible……

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Communication - Patient Actors

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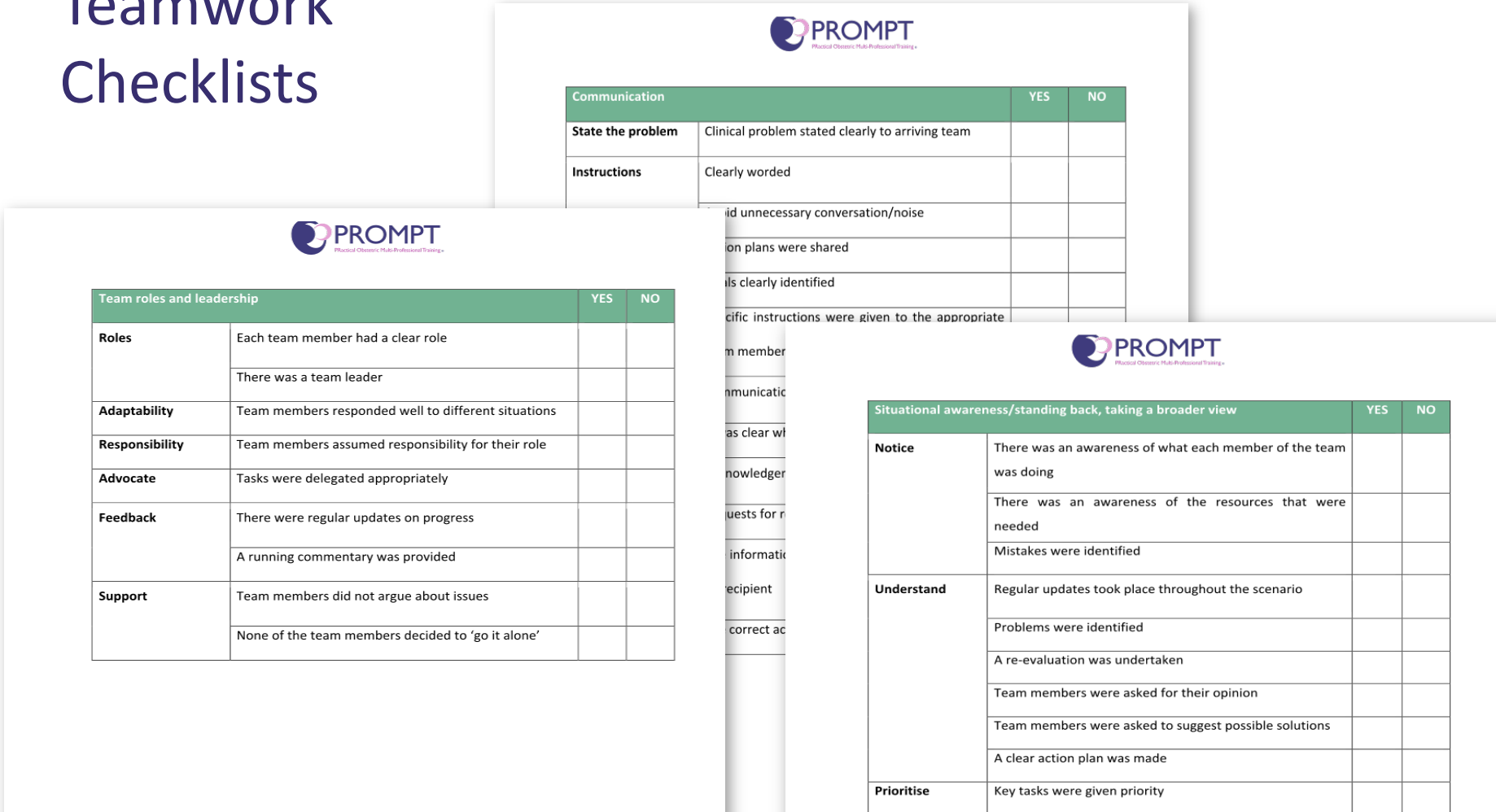
Teamwork Checklists



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Communication		YES	NO
State the problem	Clinical problem stated clearly to arriving team		
Instructions	Clearly worded		
	id unnecessary conversation/noise		
	on plans were shared		
	ls clearly identified		
	cific instructions were given to the appropriate		
	m member		
	nmunicatio		
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	correct ac		

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Team roles and leadership		YES	NO
Roles	Each team member had a clear role		
	There was a team leader		
Adaptability	Team members responded well to different situations		
Responsibility	Team members assumed responsibility for their role		
Advocate	Tasks were delegated appropriately		
Feedback	There were regular updates on progress		
	A running commentary was provided		
Support	Team members did not argue about issues		
	None of the team members decided to 'go it alone'		

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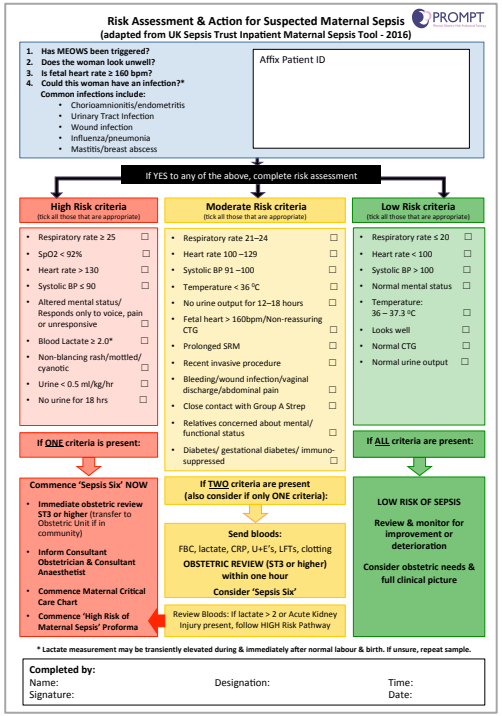
Situational awareness/standing back, taking a broader view		YES	NO
Notice	There was an awareness of what each member of the team was doing		
	There was an awareness of the resources that were needed		
	Mistakes were identified		
Understand	Regular updates took place throughout the scenario		
	Problems were identified		
	A re-evaluation was undertaken		
	Team members were asked for their opinion		
	Team members were asked to suggest possible solutions		
	A clear action plan was made		
Prioritise	Key tasks were given priority		

Tools: Documentation and escalation



Risk Assessment & Action for Suspected Maternal Sepsis
(adapted from UK Sepsis Trust Inpatient Maternal Sepsis Tool - 2016)

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1. **Has MEOWS been triggered?**
2. **Does the woman look unwell?**
3. **Is fetal heart rate ≥ 160 bpm?**
4. **Could this woman have an infection?***

Common infections include:
- Chorioamnionitis/endometritis
- Urinary Tract Infection
- Wound infection
- Influenza/pneumonia
- Mastitis/breast abscess

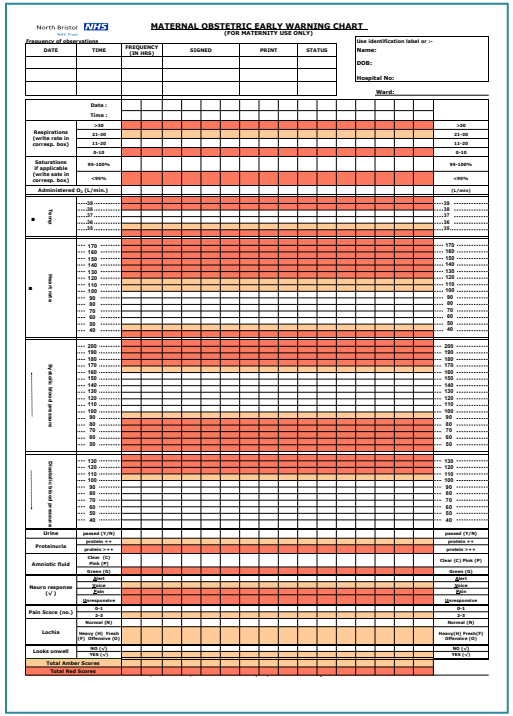
Affix Patient ID

If YES to any of the above, complete risk assessment

High Risk criteria (tick all those that are appropriate)	**Moderate Risk criteria** (tick all those that are appropriate)	**Low Risk criteria** (tick all those that are appropriate)
• Respiratory rate ≥ 25 ☐	• Respiratory rate 21–24 ☐	• Respiratory rate ≤ 20 ☐
• SpO2 < 92% ☐	• Heart rate 100 –129 ☐	• Heart rate < 100 ☐
• Heart rate > 130 ☐	• Systolic BP 91 –100 ☐	• Systolic BP > 100 ☐
• Systolic BP ≤ 90 ☐	• Temperature < 36 ºC ☐	• Normal mental status ☐
• Altered mental status/ Responds only to voice, pain or unresponsive ☐	• No urine output for 12–18 hours ☐	• Temperature: 36 – 37.3 ºC ☐
• Blood Lactate ≥ 2.0* ☐	• Fetal heart > 160bpm/Non-reassuring CTG ☐	• Looks well ☐
• Non-blancing rash/mottled/ cyanotic ☐	• Prolonged SRM ☐	• Normal CTG ☐
• Urine < 0.5 ml/kg/hr ☐	• Recent invasive procedure ☐	• Normal urine output ☐
• No urine for 18 hrs ☐	• Bleeding/wound infection/vaginal discharge/abdominal pain ☐	
	• Close contact with Group A Strep ☐	
	• Relatives concerned about mental/ functional status ☐	
	• Diabetes/ gestational diabetes/ immuno-suppressed ☐	
If ONE criteria is present:	**If TWO criteria are present (also consider if only ONE criteria):**	**If ALL criteria are present:**
Commence 'Sepsis Six' NOW • **Immediate obstetric review ST3 or higher** (transfer to Obstetric Unit if in community) • **Inform Consultant Obstetrician & Consultant Anaesthetist** • **Commence Maternal Critical Care Chart** • **Commence 'High Risk of Maternal Sepsis' Proforma**	**Send bloods:** FBC, lactate, CRP, U+E's, LFTS, clotting **OBSTETRIC REVIEW (ST3 or higher) within one hour** **Consider 'Sepsis Six'** Review Bloods: If lactate > 2 or Acute Kidney Injury present, follow HIGH Risk Pathway	**LOW RISK OF SEPSIS** **Review & monitor for improvement or deterioration** **Consider obstetric needs & full clinical picture**

* Lactate measurement may be transiently elevated during & immediately after normal labour & birth. If unsure, repeat sample.

Completed by:
Name: Designation: Time:
Signature: Date:



North Bristol NHS Trust

MAXIMUM OBSTETRIC EARLY WARNING CHART
(FOR MATERNITY USE ONLY)

Frequency of observations

DATE	TIME	FREQUENCY (IN HRS)	SIGNED	PRINT	STATUS

Use identification label or :-
Name:
DOB:
Hospital No:
Ward:

Date :
Time :

Respirations (write rate in corresp. box) — >30 / 21-30 / 11-20 / 9-10

Saturations if applicable (write sats in corresp. box) — 95-100% / <95%

Administered O_2 (L/min.)

Temp — 39 / 38 / 37 / 36 / 35

Heart rate — 170 / 160 / 150 / 140 / 130 / 120 / 110 / 100 / 90 / 80 / 70 / 60 / 50 / 40

Systolic blood pressure — 200 / 190 / 180 / 170 / 160 / 150 / 140 / 130 / 120 / 110 / 100 / 90 / 80 / 70 / 60 / 50 / 40

Diastolic blood pressure — 130 / 120 / 110 / 100 / 90 / 80 / 70 / 60 / 50 / 40

Urine — passed (Y/N)
Proteinuria — protein + / protein ++ / protein +++
Amniotic fluid — Clear (C) / Pink (P) / Green (G) / Black (B)
Neuro response (√) — Alert / Voice / Pain / Unresponsive
Pain Score (Abs.) — 0-1 / 2-3
Lochia — Normal (N) / Heavy (H) Fresh (F) Offensive (O)
Looks unwell — NO (-) / YES (√)

Total Amber Scores
Total Red Scores

Intrapartum intermittent auscultation (IA)
Practice Recommendations (based on FIGO 2015)

Features to evaluate	Action	What to document
Fetal heart rate (FHR) (Normal: 110 – 160 bpm)	Duration: Listen for at least 60 seconds Timing: Listen towards the end of the contraction (as soon as it is comfortable for mother) and continue for at least 30 seconds after contraction Interval: 1st stage: every 15 minutes 2nd stage: every 5 minutes	• FHR as single number having counted for 60 seconds • Any slowing of FHR that may indicate decelerations or bradycardia • Any increase of FHR that may indicate fetal tachycrdia
Uterine contractions	Palpate before and during FHR auscultation	• Number of contractions in 10 minutes
Fetal movements	Palpate at the same time as contractions The fetal heart rate may speed up in association with fetal movement	• Presence or absence of fetal movements • Any speeding up of FHR associated with fetal movement
Maternal pulse rate	At start of IA and at least hourly or if any FHR abnormality	• Maternal pulse as single counted number

If any abnormal features are identified, refer to:
'IA: Guidance & management if abnormal features identified in labour'

Complete an Intermittent Auscultation (IA) proforma on commencement of IA in labour and at handover of care during active labour

Record FHR & any required actions on the partogram

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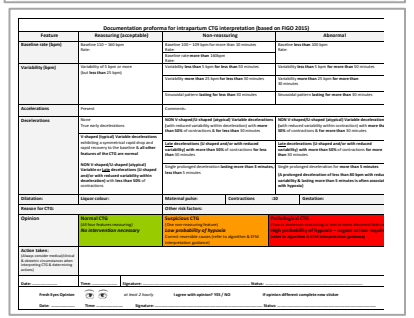

Documentation proforma for intrapartum CTG interpretation (based on FIGO 2015)

Feature	Reassuring (acceptable)	Non-reassuring	Abnormal
Baseline rate (bpm)	Baseline 110 – 160 bpm	Baseline 100 – 109 bpm for more than 30 minutes Baseline rate more than 160bpm	Baseline less than 100 bpm Bpm
Variability (bpm)	Variability of 5 bpm or more but less than 25 bpm)	Variability less than 5 bpm for less than 50 minutes Variability more than 25 bpm for less than 30 minutes	Variability less than 5 bpm for more than 50 minutes Variability more than 25 bpm for more than 30 minutes
Accelerations	Present	Absent/reduced pattern lasting for less than 50 minutes Comments:	Absent/reduced pattern lasting for more than 50 minutes
Decelerations	None True early decelerations **V-shaped (typical) Variable decelerations** switching a symmetrical rapid drop and rapid recovery to the baseline & all other features of the CTG are normal **NON-V-shaped/U-shaped (atypical) Variable** or **Late decelerations** (U-shaped and/or with reduced variability within decelerations) with less than 50% of contractions	**NON-V-shaped/U-shaped (atypical) Variable decelerations** (with reduced variability within decelerations) with **more than 50%** of contractions & **for less than** 30 minutes **Late decelerations** (U-shaped and/or with reduced variability) with more than 50% of contractions **for less than** 30 minutes Single prolonged deceleration lasting **more than 3 minutes, less than** 5 minutes	**NON-V-shaped/U-shaped (atypical) Variable decelerations** (with reduced variability within decelerations) with **more than 50%** of contractions & **for more than** 30 minutes **Late decelerations** (U-shaped and/or with reduced variability) with more than 50% of contractions **for more than** 30 minutes Single prolonged deceleration for **more than 5 minutes** 3 prolonged deceleration of less than 60 bpm with reduced variability & lasting more than 5 minutes is often associated with hypoxia)
Dilatation:	Upper cohort:	Maternal pulse: Contractions: /10	Gestation:
Reason for CTG:		Other risk factors:	
Opinion	**Normal CTG** (All four features reassuring) **No intervention necessary**	**Suspicious CTG** (One non-reassuring feature) **Low probability of hypoxia** Correct reversible causes (refer to algorithm & FIGO consensus guidance)	**Pathological CTG** (Two or more non-reassuring features or one abnormal feature) **High probability of hypoxia – urgent action required** (refer to algorithm & FIGO consensus guidance)
Action taken:			
Date:	Time:	Signature:	Name:
Fresh Eyes Opinion	at least 2 hourly	I agree with opinion? YES / NO	If opinion different complete row sticker
Date:	Time:	Signature:	Name:

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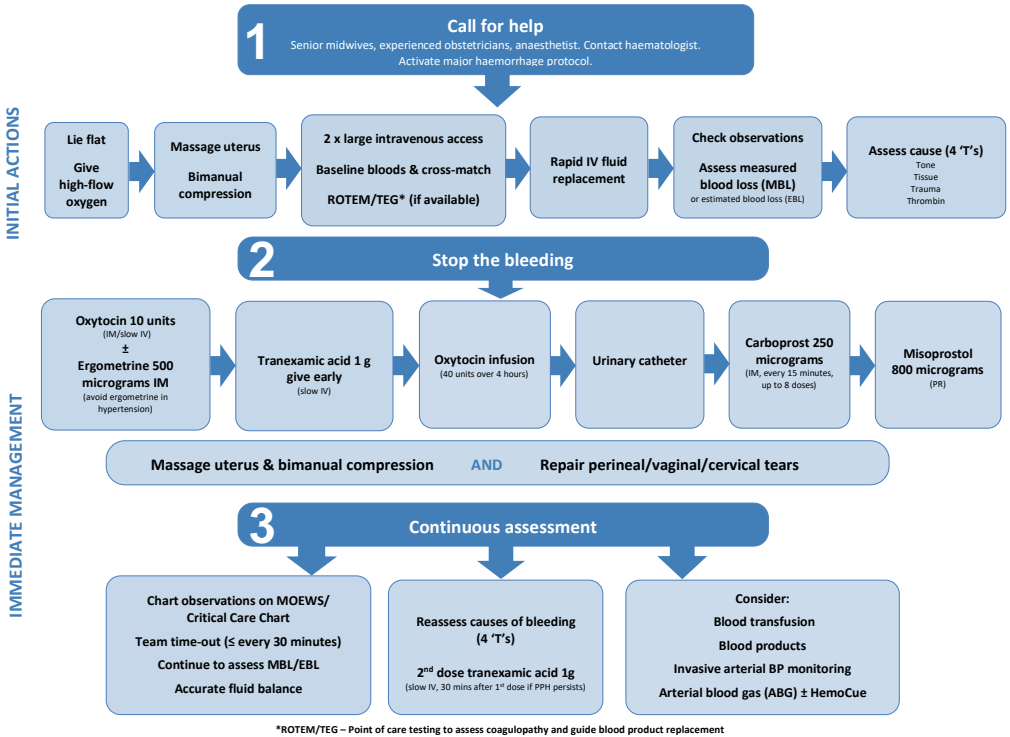
Make the right way the easy way

Immediate management of major postpartum haemorrhage (PPH)



*ROTEM/TEG – Point of care testing to assess coagulopathy and guide blood product replacement

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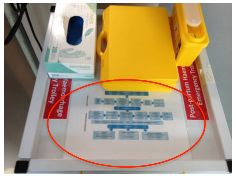
Emergency Boxes & trolleys

New PPH Emergency Trolley on CDS

Location: On right hand side of central workstation & next to 'emergency-use' infusion pump

PPH treatment algorithm taped to top of trolley



Dry weights chart for blood loss calculation & Code Red Major Haemorrhage protocol attached to trolley frame.

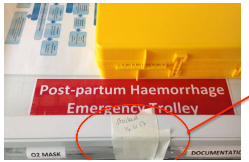
Top shelf: Emergency medication in sealed yellow box (Tranexamic Acid & Misoprostol).

Syntocinon, Syntometrine and Carboprost (Hemabate) are kept in sealed box in drug fridge.

Drawers contain:

- IV crystalloids & giving sets
- Fluids & giving set for syntocinon infusion
- Syringes, drawing up needles, additive labels
- Catheter and urometer
- Documentation pro formas

Masking tape applied across all of the drawers and dated at the top to identify that trolley is restocked



Improved perinatal outcomes

Bristol: 2000 – 2015

- 50% reduction in low Apgar scores & HIE

  Draycott T et al. BJOG. 2006

- 45% reduction in school age CP

  Odd D, Draycott T et al. Submitted. Arch Dis Child. 2018

- 100% reduction in permanent BPI after shoulder dystocia

  Crofts et al. BJOG. 2015

- Reduction in DDI for cat 1 birth - 23 to 14 mins

  Siassakos et al. BJOG. 2009

- >91% reduction in NBT Litigation costs

  Draycott et al. Best Practice Res O&G. 2015

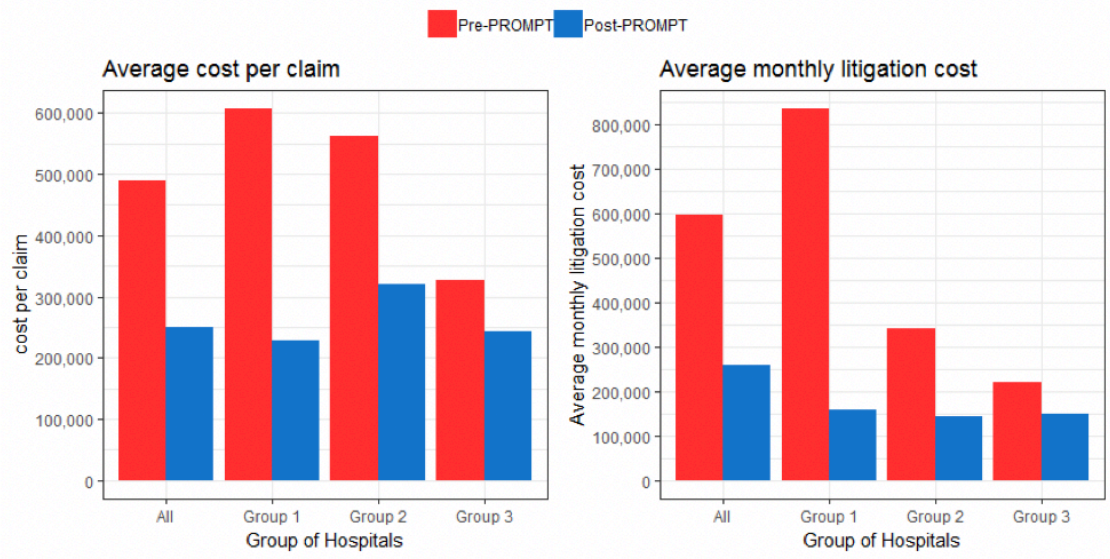
Victoria, Australia

- 8 units trained across Victoria
- Improvements in Safety Attitudes/Culture
  - Teamwork
  - Safety
- Clinical outcomes:
  - Apgar <7[1] min: 9.1% vs 7.7% p<0.001
  - Cord lactate (>5.27): 25 vs 23 p<0.028
  - Baby length of stay: 2.85 vs 2.79 p<0.006

Barnett et al. BJOG. 2014


Impact of introducing Practical Obstetric Multi-Professional Training (PROMPT) into maternity units in Victoria, Australia

Impact on claims costs



- 50% reduction in both average cost per claim and average monthly litigation cost

PROMPT: Bulawayo, Zimbabwe

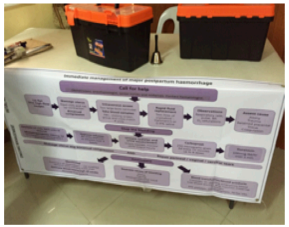
- All maternity staff trained in Mpilo hospital by March 2013 (THET grant)
- 87% of staff had never received any training before
- Matron, Labour ward sister and 2 obstetricians now training staff in other units
- 34% reduction in maternal deaths at Mpilo after 2 years of training

Onsite training of doctors, midwives and nurses in obstetric emergencies, Zimbabwe

PROMPT Philippines

- 7 tertiary urban hospitals (43,000 births pa)



- 26% reduction in Maternal Mortality – Philippines DOH 2018

Cost of Training

- Approximately £140,000 per year
  - Assuming standard staff-birth ratios - £20K per 1000 births
- 92% of costs - release of staff to attend training and as faculty
- If improvements in outcomes as a result of training:
  - Better care for mothers and babies
  - Financial outlay can be off-set against reduced litigation costs

- Yau et al. Acta Obs & Gyn 2016

NHS Resolution CNST Incentivisation – Cost to Value

8. Can you evidence that 90% of each maternity unit staff group have attended an 'in-house' multi-professional maternity emergencies training session within the last training year?

NHS Resolution

Required standard	Training should include fetal monitoring in labour and integrated team-working with relevant simulated emergencies and/or hands on workshops. The training syllabus should be based on current evidence, national guidelines/ recommendations, any relevant local audit findings, risk issues and case review feedback, and include the use of local charts, emergency boxes, algorithms and pro-formas. There should also be feedback on local maternal and neonatal outcomes. Maternity staff attendees should include: obstetricians (including Consultants, staff grades and trainees); obstetric anaesthetic staff (Consultants and relevant trainees); midwives (including midwifery managers and matrons, community midwives; birth centre midwives (working in co-located and stand alone birth centres) and bank midwives); maternity theatre and critical care staff; health care assistants (to be included in the maternity skill drills as a minimum) and other relevant clinical members of the maternity team. Trusts should be evidencing the position **as at end April 2018**.
Minimum evidential requirement	Completion of the **'CNST local training record'** form following each training day, including details of the programme used as well as entering all attendees on their local training database to ensure they can demonstrate the percentage attendance for each staff group.
Validation process	Self-certification report to Board using template report.

Unit level safety

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How to be a very safe maternity unit: An ethnographic study

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Making birth Safer Together

- Use training with an evidence base for effect
- Local, multi-professional training for all staff annually
- Effective training is more about training teams to use tools, boxes and checklists - not transfer of knowledge.
- Effective training is not cheap, but can be very cost-effective
- Policy levers (& funding) to incentivise training

Thank you

- State Claims Agency

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