

Additional File 7

Clinical data on mothers and babies where 5-minute Apgar scores were 7 or more and with **changes in FHR monitoring in labour including 1 neonatal death n = 351.**

Additional File 7A Mothers at Martha Tubman Memorial Hospital **with changes in FHR** and Apgar 7 or higher at 5 minutes.
n= 164

MTMH	Maternal Age yr	Apgar scores at 1 and 5 minutes	CHANGES IN FHR	ACTIONS and mode of delivery	Any obstetric disorder. Yes/No If yes describe	Neonatal resus? Yes/No If Yes what used?	How long in minutes neo resus?	NICU admit Yes/No How long?	Seizures in NICU	Type of BA
	42	6 & 10	22c no changes then 102bpm on 12-13 c	CS	2.8Kg	Yes	5	Yes	no	No BA
	20	8 & 10	16 c no changes then 106,110 108	IVF 3.8K CS	Footling breech	No	No	3	no	No BA
	30	6 & 10	8c no changes then 2 at 110 100	VD	Meconium	Yes due to meconium	3	Yes	no	No BA
	38	5 & 8	3c no changes then 1 at 108	VD	2.6K	Yes	6	Yes	no	NOBA
	17	9.&10	5c no changes then 116 and 116	IVF D50 VD	2.9Kg	None		None		No BA
	16	5 & 8	4c at 7cm dilated 119 Aged 16	IVF D50 VD	2.6K	Yes	4	Yes	no	No BA
	50	4 & 7	9c all abnormal 110, 111, 115bpm	CS age (50) and gravida G13 P11 OBC provided all materials for surgery DELAY	Prolonged labour 4Kg Long distance from clinic to hospital Meconium	Yes		Yes due to meconium	No	BA
	28	7&10	4 c no changes but contacted MW as worried	CS fetal distress	3.3k	Yes	4	Yes	no	No BA
	16	2 & 7	2 no changes then 8 at 84-102bpm	IVF D50 LLT CS		Yes Bag Mask Oxygen	NR	Yes	No	BA
	17	6 & 8	On arrival 110-115	IVF D50 LLT Birth chair VD	2.7kg Meconium	Yes	4	Yes	no	No BA

MTMH	Maternal Age yr	Apgar scores at 1 and 5 minutes	CHANGES IN FHR	ACTIONS and mode of delivery	Any obstetric disorder. Yes/No If yes describe	Neonatal resus? Yes/No If Yes what used?	How long in minutes neo resus?	NICU admit Yes/No How long?	Seizures in NICU	Type of BA
	17	6 & 9	7c no changes then 2c 176, 171	VD whilst CS awaited Relatives getting materials. DELAY	2.5K Meconium Breech	Yes	3	Yes	no	No BA
	NR	3 & 8	5c no changes then 6 X	IVF D50 CS	Meconium Retained 2nd twin at clinic	Yes	5	Yes	no	No BA
	18	5 & 7	On arrival from clinic where stayed long time abnormal 114 and 119 bpm	IVF D50 LLT VD	2.8K	Yes	4	Yes	NO	BA
	16	5 & 8	5c no changes then 3 112-119	CS	3kg Eclampsia MgSO4	Yes	5	Yes	no	No BA
	43	6 & 10	4c no changes then 3 117-119	IVF D50 LLT birth chair VD	4kg	Yes	2	Yes	no	No BA
	23	5 & 8	5c no changes then 9 115-119	IVF D50 LLT CS		Yes	4	Yes	no	No BA
	20	6 & 8	3c no changes then 2 116-119	IVF D50 VD	2.5K	Yes	2	Yes	no	No BA
	29	5 & 8	On arrive 116-119	VD	3K 8cm dilated	Yes	2	Yes	no	No BA
	21	5 & 7	On arrive 114-119	IVF D50 birth chair VD	2.7K	Yes	6	Yes	no	BA
	23	7 & 10	On arrive 117-119 then 121-128	IVF D50 VD	2.7K	Yes	4	Yes	no	No BA
	20	6 & 8	On arrive 117-120	IVF D50 birth chair VD	3kg Meconium	Yes	4	Yes	no	No BA
	26	5 & 7	4c no changes then 115-119	IVF D50 LLT CS	Obstructed labour	Yes	5	Yes	no	BA
	33	6 & 8	2 c no changes then 4c 116-119	IVF LLT CS	Breech 4Kg	Yes	3	Yes	no	No BA
	38	6 & 10	On arrive 3c no changes then 119-118	Birth chair VD	Fully dilated 3.8Kg	Yes	3	Yes	no	No BA
	17	6 & 8	113-191	CS	3kg Mother malaria	Yes	3	Yes 6	no	No BA

MTMH	Maternal Age yr	Apgar scores at 1 and 5 minutes	CHANGES IN FHR	ACTIONS and mode of delivery	Any obstetric disorder. Yes/No If yes describe	Neonatal resus? Yes/No If Yes what used?	How long in minutes neo resus?	NICU admit Yes/No How long?	Seizures in NICU	Type of BA
	20	6 & 7	2c no changes then 116-118	IVF LLT CS supplies needed before could be undertaken DELAY	3.1K Long labour in clinic	Yes	2	Yes 6	no	BA
	36	5 & 7	2c no changes then 4 117-119	IVF VD	2.9K	Yes	4	Yes 7	no	BA
	26	6 & 10	13c no changes then 1c at 118 at 8cm dilated	IVF, ARM birth chair VD	3.1K Cord entangled	Yes	3	Yes 5	no	No BA
	27	8 & 10	6c no changes then 3c 112-119	IVF LLT VD	2.9K Double cord entangled	No		No		No BA
	37	6 & 7	5c abnormal 163-175	IVF CS	Prolonged labour 42w + 6d At home in labour 2 d 3.1K Twins	Yes	3	Yes 6	no	BA
	20	6 & 7	1 st C no changes then 117-119	VD	Mother exhausted 3kg	Yes	3	Yes 3dy	No	BA
	17	5 & 7	3c no changes then 4 115-119	IVF LLT CS	Convulsion at clinic Eclampsia MgSO4	Yes	2	Yes 5dy	No	BA
	23	5 & 7	2c no changes then 2 116 119	VD	Long time at home Cord entangle 2.6K	Yes BM CC	2	Yes 5dy	No	BA
	21	7 & 10	7c no changes then 1 119	IVF VD	Meconium 2 nd twin Face presentation 2.4K	No		Yes	No	No BA
	21	4 & 8	2c no changes then 2 118-119 8cm	IVF Birth chair 8cm VD	Breech 2.9Kg	Yes	4	Yes 7dy	No	No BA
	21	4 & 7	On arrive 3c 113-117	IVF Birth chair VD	3kg	Yes	5	Yes 6dy	No	BA
	20	4 & 8	1 st C no change then 4 117-119	IVF LLT CS	Breech and previous CS x 1	Yes	3	Yes 8dy	No	No BA
	22	3 & 7	On arrival 3c 116-119	IVF CS	Poor progress and breech 3.8K	Yes	2	Yes 10dy	No	BA
	27	5 & 8	Arrive 3c 115-118	IVF LLT CS	Placenta praevia bleeding at home in labour Previous CS 3.1 K	Yes	4	Yes 5dy	No	No BA

MTMH	Maternal Age yr	Apgar scores at 1 and 5 minutes	CHANGES IN FHR	ACTIONS and mode of delivery	Any obstetric disorder. Yes/No If yes describe	Neonatal resus? Yes/No If Yes what used?	How long in minutes neo resus?	NICU admit Yes/No How long?	Seizures in NICU	Type of BA
	20	4 & 7	Arrive 5 c 112-119	IVF D50 LLT CS materials needed with delay	2.8K Long stay Konobo clinic far away	Yes	2	Yes 7dy	No	BA
	19	6 & 8	Arrive 3c 108-118	8cm ARM IVF D50 Birth chair VD	4kg	Yes	3	Yes 6dy	No	No BA
	22	6 & 10	Arrive 4 116-119	IVF D50 + oxytocin birth chair VD	3.2Kg	Yes	1	Yes	no	No BA
	35	6 & 10	Arrive 117-119	IVF LLT CS	From Konobo Cord prolapse 3.8K	Yes	3	Yes 12dy	No	No BA
	32	5 and 7	3 c abnormal 116, 118, 119	NS 500ml & D50% set up. patience placed over the birthing chair. VD	Already at 9cm dilated on arrival.	Yes	??	Yes for birth asphyxia	No	BA
	36	6 & 10	Arrive 3c abnormal 117-119	IVF Birth chair VD	Fully dilated 3.5K	Yes	3	Yes 7dy	No	No BA
	27	6 and 8	3 c abnormal 119, 117 and 116	VD		Yes	??	Yes for BA	No	No BA
	36	6 & 8	3c no changes then 4 116-110	IVF D50 LLT CS Family materials needed delay	Post-date Prolonged labour Arrest descent 3.4K	Yes	1	Yes 8dy	No	No BA
	20	6 & 8	On arrive from home long stay 4c 116-119	Birth chair VD	2.9K	Yes	4	Yes	No	No BA
	37	6 & 8	On arrive 5c 117-119 <i>MUM bless you for saving my children because my first 2 children died after birth</i>	Fully dil IVF D50 CS	Meconium Breech 2nd twin 2.7K	Yes	3	Yes	No	No BA
	22	6 & 8	2c no changes then 2 XX	IVF Birth chair +oxytocin VD	2.8K Double cord entangle	Yes	5	Yes	No	No BA

MTMH	Maternal Age yr	Apgar scores at 1 and 5 minutes	CHANGES IN FHR	ACTIONS and mode of delivery	Any obstetric disorder. Yes/No If yes describe	Neonatal resus? Yes/No If Yes what used?	How long in minutes neo resus?	NICU admit Yes/No How long?	Seizures in NICU	Type of BA
	30	6 & 8	3c no changes then 4 117-119	IVF CS	3.8K	Yes	3	Yes	No	No BA
	30	3 & 7	On arrive 4c abnormal 108-118	IVF LLT CS	Obstructed labour Long stay 3kg	Yes	4	Yes	No	BA
	19	6 & 8	On arrive 5c abnormal 103-119	IVF Birth chair +oxytocin VD	2kg	Yes	6	Yes	No	No BA
	20	6 & 9	On arrive 3c abnormal at 117-119 at 8cm	IVF Birth chair VD	Breech 2.4K	Yes	3	Yes	No	No BA
	25	4 & 8	3 no changes then 2 110-120	IVF CS	4kg Prolonged labour Macrosomia	Yes	2	Yes	No	No BA
	35	5 & 7	4c no changes then 4 103-116	IVF LLT CS D50	Prolonged labour 3.7K	Yes	4	Yes	No	BA
	36	5 & 8	2c no changes then 3 117-118	IVF birth chair D50 VD	2.9K Long at home	Yes	5	Yes	No	No BA
	36	2 & 10	2c on arrival abnormal 165 and 176	IVF LLT D50 CS	3K	Yes	7	Yes	Yes; 4 min.	HIE
	33	7 & 10	2c no changes then 3 116-119	IVF D50 VD	3.7K	Yes	2	Yes	No	No BA
	21	3 & 7	Arrive fully dilated 3 c abnormal 112-117	IVF birth chair D50 VD	2.8Kg	Yes	1	Yes	No	BA
	27	6 & 10	3c on arrival abnormal 116-119	IVF birth chair D50 VD	3k 9cm dilated	Yes	3	Yes	No	No BA
	23	5 & 8	4c on arrival abnormal 116-117	IVF LLT CS material problem and delay	3.7Kg Long in clinic Macrosomia	Yes	3	Yes	No	No BA
	33	6 & 10	3c on arrival abnormal 116-118 from home	IVF birth chair D50 VD	Footling breech 2.8Kg	Yes	1	Yes	No	No BA
	19	5 & 8	2c on arrival abnormal 117-119	IVF birth chair D50 ARM VD	2.2K	Yes	6	Yes	No	No BA
	NR	5 & 7	2 on arrival abnormal 106-119	IVF birth chair VD	2.8k	Yes	7	Yes	No	BA

MTMH	Maternal Age yr	Apgar scores at 1 and 5 minutes	CHANGES IN FHR	ACTIONS and mode of delivery	Any obstetric disorder. Yes/No If yes describe	Neonatal resus? Yes/No If Yes what used?	How long in minutes neo resus?	NICU admit Yes/No How long?	Seizures in NICU	Type of BA
	21	7 & 8	2 no changes then 3 100-119	IVF D50 CS	Face presentation 3.3Kg	No		No	No	No BA
	29	5 & 8	3 no changes then 3 117-119	IVF birth chair D50 ARM VD	Double cord entangled	Yes	3	Yes	No	No BA
	17	5 & 8	2 no changes then 2 109-112	IVF D50 CS	Abruption 2.2k	Yes	4	Yes	No	No BA
	26	8 & 10	4c no changes then 3 170-190	IVF LLT CS	Failed induction	No		Yes sepsis risk	No	No BA
	25	8 & 10	2c on arrival abnormal 90-109	IVF D50 CS	2.4K	Yes	2	Yes sepsis risk	No	No BA
	20	6 & 10	3c on arrival abnormal 104-109	IVF VD	3.2K	Yes	4	Yes	No	No BA
	32	7 & 10	On arrive XX then 119 then 3 normal contractions	IVF D50 VD	3.6K	No		No	No	NO BA
	37	6 & 7	2 no changes then 3 116-120	IVF CS	Prolonged labour 2 previous CS 2.1Kg	No		Yes risk sepsis	No	BA
	23	5 & 8	9 no changes then 4 116-118	CS	Prolonged pregnancy Fail induction	Yes	40 sec	Yes	No	No BA
	32	6 & 7	8 c on arrival abnormal 116-119 then 3 normal then	IVF D50 oxytocin VD	3kg 8cm dilated	Yes	1	Yes	No	BA
	19	6 & 8	4 c on arrival abnormal 117-119	VD	Meconium 9cm Breech 2.7K	Yes	3	Yes	No	No BA
	36	3 & 8	19c no changes then 3c at 110-120	IVF CS	Malposition and large fetus 3.1K	Yes	6 min	Yes	Yes	No BA
	26	3 & 8	13c no changes then 9 abnormal (no figs)	IVF LLT Push VD	2.7K	Yes	2mins to 5 mins	Yes	No	No BA
	18	5 & 10	4c no changes then 5 117-121 then 2 normal	CS	Breech 3.4Kg	Yes	4 mins	Yes	No	No BA
	25	3 & 7	On arrive from long time at home 9cm 3c abnormal 105-119	IVF D50 LLT VD	3.1Kg Long time at home	Yes	7 min	Yes	Yes	BA

MTMH	Maternal Age yr	Apgar scores at 1 and 5 minutes	CHANGES IN FHR	ACTIONS and mode of delivery	Any obstetric disorder. Yes/No If yes describe	Neonatal resus? Yes/No If Yes what used?	How long in minutes neo resus?	NICU admit Yes/No How long?	Seizures in NICU	Type of BA
	16y	5 & 8	8cm on arrive 4c abnormal at 107-117 and 186	IVF D50 VD	2.8K	Yes	6 min	Yes	No	No BA
	19	5 & 7	6c on arrival abnormal at 110-120	IVF LLT VD	3.6K	Yes	5	Yes	No	BA
	19	5 & 8	7c no changes then 4 118-120 then 5 normal then 5 XX no figs	IVF LLT CS	Prolonged obstructed labour	Yes	7 min	Yes	No	No BA
	15	4 & 9	11c no changes then 3c 118-119	IVF LLT CS	Material delay Prolong labour 2.7K	Yes	5 min	Yes	No	No BA
	NR	5 & 9	3c on arrival at 118-120	CS	Fail to progress 3.1K	Yes	3 min	Yes	No	No BA
	22	6 & 7	6c no changes then 3 118-122 then 2 normal	IVF LLT VD	3.4k	Yes	5 min	Yes	No	BA
	20	4 and 8	1c no changes then from 2 nd contraction 120, 118, 119, 120	NS 500ml VD		Yes	3 min	Yes Sepsis risk	Yes	HIE
	19	3 & 7	On arrival 1c at 110 then 5c at 162-186	IVF CS	Prolonged Obstructed labour	Yes	3 min	Yes	No	BA
	35	3 & 7	On arrival 5c abnormal 163-188	CS	2.1 K	Yes	5 min	Yes	No	BA
	18	4 & 7	On arrival 3c abnormal 106-110	IVF D50 ARMLLT VD	2.6K Fully dilated	Yes	5 min	Yes	No	BA
	21	4 & 8	On arrival 11c no changes then *c XX	IVF LLT VD	3.2K	Yes	3 min	Yes	No	No BA
	36	5 & 7	On arrival from clinic 4c 108-119	CS	Abruption APH Severe bleeding	Yes	3 min	Yes	No	BA
	19	6 & 10	On arrival from clinic 4 c no changes Then 2c 118-120	Vacuum	3.3K Meconium	No		Yes ? sepsis	No	NO BA

MTMH	Maternal Age yr	Apgar scores at 1 and 5 minutes	CHANGES IN FHR	ACTIONS and mode of delivery	Any obstetric disorder. Yes/No If yes describe	Neonatal resus? Yes/No If Yes what used?	How long in minutes neo resus?	NICU admit Yes/No How long?	Seizures in NICU	Type of BA
	21	4 & 7	On arrive from home 5c abnormal 106-119 9cm	IVF LLT D50 VD	3k	Yes	5 min	Yes	No	BA
	37	6 & 10	On arrival from Konobo far away clinic 5c abnormal 111-119	IVF LLT D50 CS	Prolonged obstructed labour 2.7K	Yes	4	Yes	No	No BA
	19	8 & 10	On arrival 2c 118-119	IVF LLT D50 CS	Prolonged labour Anaemia 10cm dilated	No		No	No	NO BA
	32	4 & 7	9 no changes then X at 118	IVF VD	3.9K Meconium	Yes	2 mins	Yes	No	BA
	24	6 & 10	2c no changes then 4c 108-119	IVF LLT D50 VD	3.8K	Yes	3 mins	Yes	No	No BA
	31	6 & 10	On arrival 4c no changes then 3c 109	LLT CS	Prolonged 2 nd stage Malposition 3.5K	Yes	2 min	Yes	No	No BA
	22	6 & 10	6c no changes then 5c abnormal XX	CS		Yes	2 min	Yes	No	No BA
	25	6 & 8	4c no changes then 4c 118-123	IVF birth chair VD	3.2K Meconium	No		Yes sepsis	No	NO BA
	21	6 & 8	9c no changes then 2c 116-118	IVF VD	3.2K	Yes	3	Yes	No	No BA
	19	6 & 8	4c no changes then 4c 116-120	CS	APH Abrupton bleeding 2.8Kg	Yes	4	Yes	No	No BA
	NR	6 & 10	10c no changes then 6c 118-120	IVF VD	3.1Kg Meconium	Yes	3	Yes	No	No BA
	18	4 & 7	On arrival 4c abnormal 104-109	IVF + oxytocin birth chair LLT VD	3.2Kg	Yes	4	Yes	Yes	BA
	38	6 & 8	11c no changes then 167-190	IVF LLT CS	3 previous CS 3.8Kg	Yes	4	Yes	No	No BA
	34	4 & 7	4c no changes then 4c 116-121 then 5c normal then 3c 118-121	IVF Push VD	2.9Kg	Yes		Yes	No	BA

MTMH	Maternal Age yr	Apgar scores at 1 and 5 minutes	CHANGES IN FHR	ACTIONS and mode of delivery	Any obstetric disorder. Yes/No If yes describe	Neonatal resus? Yes/No If Yes what used?	How long in minutes neo resus?	NICU admit Yes/No How long?	Seizures in NICU	Type of BA
	17y	6 & 8	On arrival 4c abnormal 108-119	IVF LLT D50 VD	3.1Kg	Yes	1	Yes	No	No BA
	17y	6 & 8	18 c no changes then from 19c 120, 119 and 118 bpm	Push VD	3.1 Kg Fully dilated	No		Yes	No	No BA
	16y	5 & 8	18c no changes then from 18c 108,110, 119, 118	IVF LLT VD	3.4Kg Meconium Fully dilated	No		Yes Mild BA	No	No BA
	19	5 & 7	14c no changes then 15c 120,118, 119, 118, 116, 120	IVF Fully push VD	2.8Kg Meconium Fully Dilated	No		Yes	No	BA
	18	5 & 7	10c no changes then from 11c 170, 172, 165, 178, 173, 170, 170, 171, 163	IVF, LLT CS	3.4Kg Meconium	Yes BM CC	3	Yes	No	BA
	23	9 & 10	10 c no changes then From 11c 120,119,118,120	IVF CS?	2.7Kg	No		Yes	No	No BA
	29	6 & 8	12c no changes then from 13c 121,120, 119, 118 bpm	CS	3.3Kg Patient unconscious Eclampsia	Yes BM	2	Yes Mild BA	No	No BA
	22	8 & 10	7c all abnormal 177, 176, 162, 160	LLT IVF CS	Prolonged 2 nd stage 2.6Kg	No		No	No	No BA
	20	4 & 7	3c no changes then from 4 th contraction 107, 100, 101	LLT, IVF, CS	Twins 2.4Kg	Yes BM, drugs	6 mins	Yes	Yes	BA
	42	3 & 7	17c no changes then at 18c 115, 119, 111, 109, 113	IVF Vacuum	3.7Kg	Yes BM	8 min	Yes	Yes	BA
	16	5 & 8	From 1c abnormal 100, 106, 107	LLT IVF VD	3.4K	Yes BM	4 min	Yes	No	No BA

MTMH	Maternal Age yr	Apgar scores at 1 and 5 minutes	CHANGES IN FHR	ACTIONS and mode of delivery	Any obstetric disorder. Yes/No If yes describe	Neonatal resus? Yes/No If Yes what used?	How long in minutes neo resus?	NICU admit Yes/No How long?	Seizures in NICU	Type of BA
	29	5 & 8	7c no changes then from 8c 108, 109, 112, 116	CS	Previous CS 3.4Kg	Yes BM	2min	Yes mild BA	No	No BA
	31	4 & 8	16c no changes then from 17c 117,118, 109, 110, 115, 112	IVF VD	3.6Kg	Yes BM	5	Yes Mild BA	No	No BA
	24	5 & 8	3c all abnormal 109,107,106 8cm	From Home IVF, D50 CS	Previous CS 3.7K Prolonged pregnancy	Yes	3	Yes	No	No BA
	NR	5 & 8	5c all abnormal 118, 119, 116, 119, 118	VD	2.9Kg	Yes BM CC	2	Yes	No	No BA
	36	4 & 9	3c all abnormal at 106, 112	LLT IVF, D50 CS	Prolonged labour at home 3.5Kg	Yes BM	3 mins	Yes	No	No BA
	17y	6 & 8	2c no changes then from 3 rd c 119, 118, 117	IVF, D50 VD	2.6Kg Fully dilated fetus visible	Yes BM	10min	Yes	No	No BA
	22	7 & 10	4c all abnormal 107,111,111,110	IVF, D50 ARM VD	3.2Kg 8cm dilated	Yes BM	3 min	Yes Mild BA	No	No BA
	28	6 & 8	4c normal then from 5c 116, 107	VD	3.8Kg	Yes BM CC	10 min	Yes	No	No BA
	23	4 & 9	5c no changes then 4c abnormal 100,101,102	IVF, D50, LLT VD		Yes BM	3 min	Yes	Yes	No BA
	33	6 & 8	15c no changes then from 16c 109,112,108,115,120	IVF Push VD	2.9Kg	No		No	No	No BA
	25	6 & 8	6c no changes then from 7 th c 118,119,116,107, 105, 119, 120x3, then from 20c 119,116,121	CS	Obstructed labour 2.8Kg	Yes	2min	Yes O2	No	No BA
	26	5 & 7	4c abnormal from onset 114, 109, 115, 117	IVF D50 VD	2.3Kg Fully dilated	Yes	2min	Yes BA	No	BA

MTMH	Maternal Age yr	Apgar scores at 1 and 5 minutes	CHANGES IN FHR	ACTIONS and mode of delivery	Any obstetric disorder. Yes/No If yes describe	Neonatal resus? Yes/No If Yes what used?	How long in minutes neo resus?	NICU admit Yes/No How long?	Seizures in NICU	Type of BA
	19	5 & 7	18c no changes then from 19c 118,119,119,116	IVF Push VD	3.1K	No		Yes	No	BA
	29	5 & 7	14c no changes then from 15c 118,119,109	CS	3.7Kg	Yes BM	4 min	Yes Mild BA	No	BA
	23	6 & 8	4c no changes then from 5 th 100, 101, 102	LLT, IV, D50 CS	3kg	Yes BM + drugs	4 min	Yes	No	No BA
	37	4 & 8	8c no changes the from 9 th 116,117,115	VD	3Kg	Yes BM CC	6 min	Yes	No	No BA
	18	6 & 8	2c no changes then from 4 th 119,117	IVF, D50, LLT VD	3.8K	Yes BM CC	4 min	Yes	No	No BA
	36	4 & 7	3c all abnormal 109,108	IVF, D50, VD	3.3kg	Yes BM	2 min	Yes	No	BA
	18	3 & 7	7c no changes then from 8 th 109,105, 107, 117, 115, 113, 118, 118, 119, 119	IVF, O2, LLT, push VD	2.8Kg	Yes BM drugs	5 min	Yes	No	BA
	19	6 & 8	19 c no changes then from 20 c 118,1881, 108	VD	3.2 Kg	Yes BM	5 min	Yes mild BA	No	No BA
	36	6 & 8	4c all abnormal 111,102, 105, 109	IVF, D50 ARM VD	2.6K	Yes BM	4 min	Yes		No BA
	20	5 & 8	5c no changes then 4c 106,108,108,109	IVF, D50 VD	2.3K	Yes BM	3 min	Yes	No	No BA
	33	6 & 10	4c all abnormal 106,107,109,107	IVF, D50 VD	3.9Kg Fully dilated	Yes BM	5 min	Yes	No	No BA
	19	5 & 7	4c all abnormal 100,107,116,118	IVF, D50 VD	2.7K Fully dilated	Yes BM	5min	Yes	No	BA

MTMH	Maternal Age yr	Apgar scores at 1 and 5 minutes	CHANGES IN FHR	ACTIONS and mode of delivery	Any obstetric disorder. Yes/No If yes describe	Neonatal resus? Yes/No If Yes what used?	How long in minutes neo resus?	NICU admit Yes/No How long?	Seizures in NICU	Type of BA
	33	6 & 8	11c no changes then 12 th 4c XXXX	IVF Push Oxytocin VD	3.8K	None		Yes mild BA	No	No BA
	25	6 & 8	4c no changes then From 5 th 108,106, 119	IVF, D50 VD	2.4K	Yes BM	1 min	Yes	No	No BA
	17	7 & 10	18c no changes then from 19c 164, 168, 169,174	IVF Push VD	2.8K	No		Yes Mild BA	No	NO BA
	18	3 & 7	18c no changes then from 19-22c XXX	IVF LLT VD	2.6K	Yes BM Drugs	12 min	Yes	No	BA
	18	???	4c no details	LLT D50 CS	No	Unknown??		Yes for mother to become conscious	No	NR
	20	7 & 8	13c no changes then from 14 th C 118,114,108	IVF Push VD	2.9K Unconscious due to Eclampsia	No		Yes sepsis	No	NO BA
	20	7 & 10	8c no changes then from 9 th 119,109,106	IVF Oxytocin Push VD	3kg	No		Yes sepsis	No	NO BA
	20	7 & 10	8c no changes then from 9 108,106,103	IVF Oxytocin VD	3.1Kg	No		Yes	No	No BA
	18	6 & 8	7c no changes then from 8 th 116,115,111,109, 118,117,109,110, 109	IVF Push VD	2.3K	Yes	7 min	Yes	No	No BA
	22	5 & 10	13c no changes then from 14c 118, 109, 110, 108	IVF Oxytocin VD	3.6K	No		Yes	No	No BA
	19	6 & 8	15c no changes then from 16c 199,189,165,165,188	IVF Oxytocin Push VD	3.2K	No		No	No	No BA

MTMH	Maternal Age yr	Apgar scores at 1 and 5 minutes	CHANGES IN FHR	ACTIONS and mode of delivery	Any obstetric disorder. Yes/No If yes describe	Neonatal resus? Yes/No If Yes what used?	How long in minutes neo resus?	NICU admit Yes/No How long?	Seizures in NICU	Type of BA
	NR	6 & 10	3c no changes then from 4 th 110,117,119,118	IVF D50, LLT VD	3kg	Yes BM, CC	6 min	Yes	No	No BA
	NR	5 & 8	14c no changes then from 15c 115,109,106,111,117,113, 109,105	IVF VD	2.9K	Yes BM CC	2min	Yes	No	No BA
	36	6 & 10	4c no changes then from 5c 109,110,107, 110	IVF D50, LLT CS	Prolonged labour Breech 1.9Kg	Yes BM	3min	Yes	No	No BA
	20	2 & 7	15c no changes then from 16c 100,100,105,108,110	IVF Push VD	2.9K	Yes BM CC	3 min	Yes	No	BA
	19	8 & 9	13c no changes then from 14c 170,171, 165, 169 then 5 normal	IVF CS for CPD	CPD 3.6K	No		No	No	No BA
	23	3 & 7	5c no changes then From 5c 119, 109, 117, 115, 118	IVF D50, LLT CS	2.7K CPD	Yes BM	5 min	Yes BA	No	BA
	37	6 & 10	2c no changes then from 9c 109,106,110	CS	4.1K Previous CS	Yes BM	2min	Yes sepsis	No	No BA
	17	5 & 9	5c abnormal from first 101,90,110	VD	2.5K Meconium	No		No	No	No BA
	20	5 & 8	2c no changes then From 6 c 102,107,110	VD	3.7K Meconium	Yes BM CC	2 min	Yes	No	No BA
	34	5 & 8	3c all abnormal 120,120,100	IVF Push Fully dilated VD	3.9K	Yes BM CC	5 min	Yes	No	No BA
	20	3 & 7	10c no changes then from 11 th 105,100 1S	IVF, LLT CS	Obstructed labour 2.8Kg	Yes BM CC	15	Yes	Yes	HIE

Summary of mothers at Martha Tubman Memorial Hospital with changes in FHR and Apgar >6 at 5 minutes. n= 164

HIE =3, BA = 45, No BA = 115, 1 =NR

Total 164

VD=98, CS=64, Vacuum 2

12 breech malpresentation.

Resus at birth: 137 +1 NR: 9=6min, 5=7 min, 1=8min, 2=10min, 1=15min and 118 = 5min or less.

7 delays resulting from stock-out of drugs and supplies.

1 retained second twin from clinic.

10 long time and distance from hospital

Eclampsia 3

Cord tangles 4

Exhausted 1

Praevia 1

Meconium 18

Obstructed labour 4

Abruptio 3

Number with Apgar scores of 10 at 5 minutes = 41 cases (25%) +1NR

Maternal ages: 14 aged 17 yrs, 8 aged 16yr, 1 aged 15yr

Additional file 7B Mothers at CB Dunbar Hospital with changes in FHR and Apgar 7 or higher at 5 minutes. n = 145 (144+1) death

CBD	Maternal age yrs	Apgar scores at 1 and 5 minutes	Changes FHR C=contractions	ACTIONS and mode of delivery	Obstetric issues Describe	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long in days	Seizures or fits in NICU	Type of BA
CBD Died aged 2 days	3-7	19	32 c no change then 33 rd c = 100 bpm	IVF, D50, oxygen	Poor maternal expulsive efforts Fully dilated. Vacuum	Yes	2	No	No	SBA
	19		9c no change then FHR found to be 95-100bpm by mother, FH was repeated by midwife and confirmed low, 95-98bpm,	Left literal tilt position and Doctor on call was also informed. Patient was reviewed and decision to section patient was taken for fetal distress plus prolonged labour CS	NRFS, Prolonged labour	Yes	No	Yes	No	No BA
	14		10c no change then On 11th contraction noted slow <i>heart rate midwife was contacted but she found the heart rate was 153.</i>	the obstetric clinician was contacted. Mother's membranes were ruptured and vacuum delivery undertaken	There was no meconium	No		No	No	No BA
	17		14c no change Midwife noted FHR 118 and informed obstetric clinician. repeat fetal heart rate 105 put patient in lateral tilt and	LLT and Emergency CS was performed	Meconium. NRFS	No	No	No	No	No BA

CBD	Maternal age yrs	Apgar scores at 1 and 5 minutes	Changes FHR C =contractions	ACTIONS and mode of delivery	Obstetric issues Describe	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long in days	Seizures or fits in NICU	Type of BA
			informed Dr who reviewed patient and found fetal heart rates 110 105 108							
	22	6 and 9	10c no change then On 11th contraction noticed bradycardia midwife confirmed heart rate 118	LLT and called Obstetric clinician Grade 3 Meconium was present obstetric clinician found FHR 110 cervix fully dilated vacuum delivery	Grade 3 meconium. Vacuum	Yes	?	Yes	No	No BA
	22	5 and 7	13c then confirmed - by midwife 95-100 b/m on two different occasions	CS	NRFS	No		Yes	No	BA
	28	6 and 10	13c no changes then Yes FHT 102, CO weakness Call for help. Obs Clin contacted IV line 500ml RL	VD	No meconium 4.2 Kg BWt	Yes	5	Yes Nasal CPAP Infection	No	No BA
	16	5 and 10	13c no changes then On the 14th contraction she call the midwife because the fetal heart rate was low the midwife confirmed a heart rate of 98 bpm the midwife call for help	The obstetric clinician was contacted she opened IV line and gave R/L 1000 mL informed the doctor on call the doctor came and assessed the patient and said we should prepare patient for caesarean section CS	Meconium. 4Kg	Yes	7	Yes 8 days	No	No BA
	15	7 and 10	6c no changes then Fetal bradycardia detected by Mum 105 bpm. Midwife	Ob Clin called Arranged fast delivery as 9cm cervix dilated.	Meconium Grade 3. 1.93Kg SGA	Yes	2	Yes	No	No BA

CBD	Maternal age yrs	Apgar scores at 1 and 5 minutes	Changes FHR C =contractions	ACTIONS and mode of delivery	Obstetric issues Describe	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long in days	Seizures or fits in NICU	Type of BA
			called and checked and confirmed 105	VD						
	28	5 and 8	5c no changes then 108bpm MW confirmed	NS 500ml at flow rate.. OBC contacted VD followed	Meconium.	Yes	NR	Yes	No	No BA
	32	6 and 8	2c both abnormal and 190 midwife called for help and confirmed rapid heart rate.,	N/S 500ml set up, Dr called, vacuum delivery was done		Yes	1	Yes	No	No BA
	17	6 and 7,	5c no changes then mother detected slowing. MW confirmed fall in FHR to 109 R/L	500mls IVF was put up at flow rate D 50% 30CC served. OBC contacted and quickly delivered the baby VD	Meconium	No	No	No	No	No BA
	NR	7 and 10	26c no changes then Mother detected slowing and MW confirmed 109 bpm.	Open IV line with 18g R/L 500mls to run at flow rate. Dr on call contacted, pt prepared for surgery CS	Grade 2 meconium	Yes	2	Yes Minor Birth asphyxia	No	No BA
	16	9 and 10	6c no changes detected then mother detected fast FHR and MW confirmed: 167 bpm	Normal saline 500mls put up and Dr on call informed. CS performed.	Patient fully dilated Obstructed labor, 3+ caput	No	No	Yes waiting for Mum to recover from CS	No	No BA
	NR	6 and 8	6c no changes then mother noted a slow FHR MW confirmed 102 bpm	N/S 500mls set up, present, cord prolapse identified, inform OB clinician, knee chest position, N/S 300mls	meconium present, cord prolapse identified 30 weeks gestation B Wt 1.7Kg	Yes Bag and mask	1-3	Yes. 14days	No	Went home after 14 days

CBD	Maternal age yrs	Apgar scores at 1 and 5 minutes	Changes FHR C =contractions	ACTIONS and mode of delivery	Obstetric issues Describe	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long in days	Seizures or fits in NICU	Type of BA
				inserted into bladder to avoid compression, CS performed						No BA
	NR	7 and 8	11c no changes then mother reported slowing but MW found 124 bpm. Then FHR fell to 119 bpm	Call OB clinician and Dr on call. Set up R/L 500 ml CS done	grade 3 thick meconium Previous CS x1. 2.4Kg	No		Yes for sepsis Foul meconium	No	No BA
	32	5 and 7,	7c no changes then mother noted a slowing of FHR Midwife contacted and found 110bpm	Patient put in left lateral position, obstetric clinician informed. Repeat FHT 112, cx fully dilated, patient taken to delivery table for quick delivery. Was ready with vacuum but born VD within 5 mins. Baby had v short cord.	Post date meconium present,	Yes	5	Yes Abiotic	No	BA
	31	8 and 9	29c no changes then mother noted at 30th contraction a slow FHR MW confirmed- 118b	Midwife informed the obstetric clinician and set up R/L 500ml. With respect to FHR, intern Dr on call ordered repeat and was done (106b/m). Discussion for CS was undertaken but no CS materials so patient was referred to Phebe hospital at 7:05am. Cx still 4cm dilated. Descent 3 / 5 CS at Phebe Hospital		No resus needed after CS at Phebe hospital		Yes. 7days	No	No BA

CBD	Maternal age yrs	Apgar scores at 1 and 5 minutes	Changes FHR C =contractions	ACTIONS and mode of delivery	Obstetric issues Describe	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long in days	Seizures or fits in NICU	Type of BA
	19	5 and 7	38c no changes then Mother noted FHR slowing on 39th contraction No meconium MW and OC confirmed FHR 115, 118,122	IV N saline 500ml plus D50% 30ml Cervix 10cm Obs clin did vacuum with Dr present but failed 3 times Dr and Obs clin immediate CS	Intra-op Meconium CPD	Yes	5mins	Mild birth asphyxia Yes. 5days	No	BA
	22	8 and 10	50c no changes then mother noted slowing on 51st contraction MW recorded FH 109, 178,120,110,181,102,130	Meconium was present Notified obs clin IV fluids, 50% dextrose 30ml, called dr and senior obs clin to review Due to FHR changes, high station O and bad obstetric history G4P0 CS done	meconium	No		Yes. 3days	No	No BA
	30	8 and 10	47c no changes then 110 b/m and 115 b/m OC confirms fetal distress 110/bm.	Put in left lateral position, inform obstetric clinician. Opened 2nd IV line and 18G cannulae normal saline 1L and flow rate,	Grade 1 meconium. Prolonged labour	No		Yes?? NR	No	No BA

CBD	Maternal age yrs	Apgar scores at 1 and 5 minutes	Changes FHR C =contractions	ACTIONS and mode of delivery	Obstetric issues Describe	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long in days	Seizures or fits in NICU	Type of BA
				inform Dr and OR team, patient quickly council and prepare for CS. CS done						
	29	9 and 10	Yes-from first contraction FHR was 195 then the FHR was slow for the subsequent 12 contractions (115; 110; 108; 115; 108; 115; 110; 108; 105; 119; 110; 118)	Could not be taken to OR immediately due to lack of IV fluid, and another patient in OR undergoing CS, No abiotic for preop available CS done	No meconium	No		No	No	No BA
	42	6 and 9	21 c no changes then at 22nd contraction 119; 118; 120	Oxygen LLT, D50 Emergency CS at 8cm		Yes	9mins	Yes. 4days	No	No BA
	29	5 and 9	12c no change then Yes- 110; 115; 119	Expedited delivery BY VACUUM	Fully dilated Bradys	Yes	6mins	Yes	No	No BA
	18	6 and 8	40c no changes then at 41st contraction FHR 120; 119; 116; 119;117; 118 SEE COMMENT	IVF, OXYGEN, LLT CS		Yes	8mins	Mild BA Yes. 10days	No	No BA
	22	8 and 10	MW was monitoring MUM refused and at 14th contraction FHR – see comments 114-119 bpm	IVF, OXYGEN , LLT, D50 CS	Not fully dilated	No		No	No	No BA
	20	8 and 10	11c Mother reported change but FHR confirmed as normal range by MW	However was given IVF, LLT, oxygen and said to improve -129; 129; 122; 120; 126 VD	Meconium was however present	No		No	No	No BA

CBD	Maternal age yrs	Apgar scores at 1 and 5 minutes	Changes FHR C =contractions	ACTIONS and mode of delivery	Obstetric issues Describe	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long in days	Seizures or fits in NICU	Type of BA
	21	8 and 10	Within normal range but at 25th contraction, FHR recorded at 122 and 120 Mum considered a change	Patient put in left lateral tilt position and encouraged to ambulate. At 49th contraction FHR 130; 129; 132 VD		No		No	No	No BA
	26	7 and 10	21c no changes then at 18th contraction 117. Then at 22c contraction FHR 116.	Patient put on her left side and encouraged to ambulate. R/L 500ml set up. OB Clin fluctuating FHR At 22nd oxygen set up @ 5L/m Amp 2g stat Vacuum	Meconium and poor maternal efforts	No		Yes	No	No BA
	18	4 and 7	Yes-from first contraction-118; 113; 114; 116; 100; 112; 108	Bladder empty, LLT, IVF, Oxygen VD		Yes	3mins	Yes 10 days sepsis	No	BA
	20	3 and 7	4c no changes then at 5th contraction 121; 117; 113; 107; 116	IVF, LLT, oxygen CS	Previous CS x1 prolonged active phase labour	Yes BM and CC	10mins	Yes	No	BA
	21	8 and 10	at 14th contraction FHR 120 and patient put on left side and oral fluid intake. FHR increased to 129	VD		No		No	No	No BA
	19	8 and 10	12c no changes but then 11th Contraction 115, 12th 105	Put patient in left lateral position. Oxygen. N/S 1 L at full rate. Dr informed. Taken to OR for CS		No		No	No	No BA

CBD	Maternal age yrs	Apgar scores at 1 and 5 minutes	Changes FHR C =contractions	ACTIONS and mode of delivery	Obstetric issues Describe	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long in days	Seizures or fits in NICU	Type of BA
	22	8 and 10	29c no changes then Yes at 30th contraction 166 then 157	Obs clin contacted Vacuum	Poor maternal efforts	No		Yes	No	No BA
	29	8 and 10	29c no changes then at 30th contraction FHR 113 then 111	IVF, LLT, oxygen CS for fetal distress by obs clin		No		No	No	No BA
	24	6 and 10	32c no changes then at 33rd contraction FHR 90.	Obs clin LLT, oxygen, IVF and CS		no	no	Yes	No	No BA
	25	7 and 10	26c no changes then at contraction 27=109bpm	Patient place in left lateral tilt position, discontinued oxytocin drip put patient on oxygen, and patient prepare for CS done by ob clinician	Meconium	No		No	No	No BA
	22	7 and 8	19c no change then 20c 109bpm	ob clinician informed patient put in lt lateral position oxygen 5l/minstat patient vie cx 6cm counsel and prepare for CS by ob clinician		No		Yes	No	No BA
	31	8 and 10	38c no change then Yes 39 – 172bpm 40 – 180bpm 41 – 176 bpm	Place pt in leftt lateral position give oxygen 5l/min stat, piv-cx 6cm n/s i.5 liv counsel,		No		No	No	No BA

CBD	Maternal age yrs	Apgar scores at 1 and 5 minutes	Changes FHR C =contractions	ACTIONS and mode of delivery	Obstetric issues Describe	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long in days	Seizures or fits in NICU	Type of BA
			42 – 170bpm 43 – 179bpm 44 – 182bpm 45 – 106bpm	prepare for CS done by ob clinician						
	19	8 and 10	27c no changes then contraction 28 - 110bpm,	patient placed in left lateral position oxygen at 5l stat, fhr repeated 105bpm, plu cx 8cm dilated, patient counsel and prepared for CS done by ob clinician. 2 ND IV LINE 5 MIN READINGS UNTIL CS Pain control see form		No		No	No	No BA
	35	7 and 10	29c no changes then contraction 30 - 105bpm Ob clinician order that fhr to be monitored every 5 mins after a contraction until patient is taken to a OR.	Patient placed in left lateral position oxygen at 5l stat, n/s 1l IV flow rate cx 7cm dilated, patient counsel and taken for surgery CS done by ob clinician	Grade 1 meconium	No		No	No	No BA
	20	8-10	23c no changes then 24th contraction 113bpm.	Patient placed in left lateral position. oxygen given. Counselling for CS		No		No		No BA
	20	4-7	26c no changes Then 27th contraction 110bpm	Prepared for vacuum delivery	Occurred 2 nd stage Prolonged Stage 1 meconium OB Clin Vacuum	Yes	5mins	NR	No	BA
	20	5-7	23c no changes then on 24th contraction	Placed in left lateral position, place on	Cervix 9 cm +1 OB clin	Yes	4mins	Yes	No	BA

CBD	Maternal age yrs	Apgar scores at 1 and 5 minutes	Changes FHR C =contractions	ACTIONS and mode of delivery	Obstetric issues Describe	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long in days	Seizures or fits in NICU	Type of BA
			115bpm. Repeat FHT 110bpm.	Oxygen and prepare for C/S						
	22	6-8	25c no changes then 26th contraction 113bpm.	Episiotomy done VD		Yes	6mins	Yes	No	No BA
	25	5-8	27c no changes then 28th contraction 110bpm.	Placed in left lateral position. I2 N/S. FHT 105bpm. prepped for C/S	8 cm dilated	Yes	3mins	Yes	No	No BA
	22	6-8	25 no changes then 115bpm by OC.	Episiotomy then difficult vaginal delivery VD		Yes	2mins	Yes	No	No BA
	31	8-10	23c no changes then 24th contraction 109bpm.	Patient placed in left lateral position oxygen and prepared for C/S	Grade 1 Meconium Cx 3cm Ob clin Maternal comment: I feel very fine during the monitoring of my baby heartbeat because the midwife teach me about the normal and abnormal heartbeat and I just want to tell you mighty God thank you for all the midwives in our country and thank God I was able to know when my baby was not breathing fine the midwife and the doctors then helped to save my baby. I am very happy for my baby.	No		Yes. 5days	No	No BA
	19	5-8	23c no changes then 24th contraction 110bpm	Cx fully dilated. patient taken to delivery table for vacuum delivery		Yes	5mins	Yes. 7days	No	No BA

CBD	Maternal age yrs	Apgar scores at 1 and 5 minutes	Changes FHR C =contractions	ACTIONS and mode of delivery	Obstetric issues Describe	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long in days	Seizures or fits in NICU	Type of BA
	17	5-7	32c no changes then 33rd contraction 102bpm.	NS 500ml and D50% oxygen given placed in left lateral position. 2 nd IV line prepared for C/S	Meconium	Yes	5mins	Yes. 11days	No	BA
	22	6-8	16c no changes Then 17th contraction 108bpm.	patient taken to delivery bed for fast delivery by vacuum		Yes	2mins	Yes Mild BA and risk sepsis	No	No BA
	20	6-8	13c Missing form? FHR value??	Yes. patient placed in left lateral position. Fully dilated taken to delivery table for fast vacuum delivery		Yes	3mins	Yes. 7day	No	No BA
	38	6-8	37c no changes then	38th contraction 115bpm. patient fully dilated taken to delivery table for fast delivery VD		No		Yes	No	No BA
	18	6-8	35c no changes then 36th contraction 111bpm.	taken to delivery table for fast delivery VD	Fully dilated	No		Yes	No	No BA
	24	6-8	32c no changes then 33rd contraction 110bpm	NS 500ml set up D50%. Fully dilated Quick delivery VD		Yes	3mins	Yes	No	No BA
	30	7-8	24c no changes then 25th contraction 115bpm.	part of baby head showing. Episiotomy done to delivery baby quickly VD		Yes	3mins	Yes	No	No BA
	17	5-8	19c no changes then 20th contraction 85,101,112 bpm	NS 500ml & oxygen set up. patient placed in left lateral position. prepared for CS		Yes	3mins	Yes	No	No BA

CBD	Maternal age yrs	Apgar scores at 1 and 5 minutes	Changes FHR C =contractions	ACTIONS and mode of delivery	Obstetric issues Describe	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long in days	Seizures or fits in NICU	Type of BA
	20	6-9	26c no changes then changes 10 X noticed from 27th contraction	Prepared for CS		Yes	4mins	Yes	No	No BA
	20	7-10	29c no changes then 30th contraction 110bpm.	placed in left lateral position O2 started NS 500ml. prepared for CS		No		No		No BA
	25	5-7	32c no changes then 33rd contraction 110 bpm.	NS 500ml & D50% set up. Episiotomy. Patient taken for quick delivery VD		Yes	3mins	Yes	No	BA
	27	6-8	30c no changes then 31st contraction 110bpm	D50% & NS 500ml set up and quick delivery done VD	By OBC	Yes	8mins	Yes	No	No BA
	29	5-7	26c no change then 27th contraction 108bpm	.NS 500ml D50% & quick VD	By OBC fully dilated	Yes	10mins	Yes	No	BA
	17	7-9	31c no change then 32nd contraction 100bpm.	D50% and NS 500ml set up. OBC ordered vacuum delivery		No		Yes	No	No BA
	17	7-8	28c no change then 29th contraction 100bpm	NS 500ml & D50% set up. O2 therapy. Quick vacuum delivery	OBC	No		Yes	No	No BA
	29	4-8	24c no change then 25th contraction 114bpm.	NS 500ml & D50% set up. O2 therapy. Prepared for CS by OBC		Yes	3mins	Yes	No	No BA
	21	5-8	32c no change then 33rd contraction 108bpm.	NS 500ml & D50% set up. O2 therapy. Prepared for CS		Yes	3mins	Yes Needed O2 BA	No	No BA
	18	5-8	35c no change then on 36th contraction X MARKED.	CS	NRFS. Obstructed labour	Yes	2mins	Yes	No	No BA

CBD	Maternal age yrs	Apgar scores at 1 and 5 minutes	Changes FHR C =contractions	ACTIONS and mode of delivery	Obstetric issues Describe	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long in days	Seizures or fits in NICU	Type of BA
	23	8-10	30c no change then 31st contraction FHR change noted. Prepared for CS X MARKED	CS		No		No		No BA
	28	8-10	35c no change then 36th contraction 105bpm. XMARKED	Placed in left lateral position. O2. prepared for CS		No		No		No BA
	20	4-7	33c no change then 34th contraction 100bpm.	D50% NS500 ml set up O2 therapy. patient 10cm dilated. quick delivery ordered VD		Yes	5mins	Yes. FOR BA 5mins	No	BA
	20	5-8	32c no change then 33rd contraction 100bpm.	D50% NS500 ml set up O2 therapy. patient 10cm dilated. quick delivery ordered VD		Yes	5mins	Yes. Mild BA 2mins	No	No BA
	20	6-7	32c no change then 33rd contraction 100bpm.	D50% NS500 ml set up O2 therapy. patient 10cm dilated. quick delivery ordered VD		Yes	2mins	Yes. 3mins	No	BA
	18	5-8	33c no change then 34th contraction 103bpm.	Patient placed in left lateral position NS 1000ml set up. O2 given. prepared for CS		Yes	4mins	Yes. 4days	No	No BA
	33	7-10	33c no change then 34th contraction 175bpm.	placed in left lateral position NS500 ml set up O2. prepared for CS	OBC	No		Yes for close monitoring	No	No BA
	19	5-7	29c no change then 30th contraction 110bpm.	NS 500ml set up. fully dilated. taken to delivery table for quick delivery. Episiotomy		Yes	2min	3 days	No	BA

CBD	Maternal age yrs	Apgar scores at 1 and 5 minutes	Changes FHR C =contractions	ACTIONS and mode of delivery	Obstetric issues Describe	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long in days	Seizures or fits in NICU	Type of BA
				VD						
	22	5-8	33c no change then 34th contraction 113bpm.	fully dilated. taken to delivery table for quick delivery OBC VD		Yes	6mins	Yes mild BA	No	No BA
	19	8-10	32c no change then 33rd contraction change noted. caesarean-NRFS MARKED WITH X	CS	NRFS	No		No		No BA
	23	4-7	Yes-1st contraction 180bpm	Already in 2nd stage of labour and fully dilated. O2 & NS 500ml set up. Urinary cath Episiotomy VD		Yes	7mins	Yes	No	BA
	20	9-10	30c no change then 31st contraction FHR change noted. MARKED WITH X	CS		No		No		No BA
	35	4-7	32c no change then 33r contraction 100bpm.	NS 500ml & D50% set up O2 therapy started. OBC ordered quick delivery VD		Yes	5mins	Yes BA	No	BA
	17	5-8	18c no change then 19th contraction 120bpm	ceftriaxone 2g IV set up. active phase of labour began. NS500ml Pitocin VD	offensive meconium.	Yes	1min	Mild BA Yes	No	No BA
	21	8-10	18c no change then 19th contraction 171bpm.	NS 500ml set up D50%. O2 therapy. prepared for CS	OBC	No		No		No BA
	23	2-7	38c no change then Yes 105 bpm	VD	Breech	Yes		Yes		BA

CBD	Maternal age yrs	Apgar scores at 1 and 5 minutes	Changes FHR C =contractions	ACTIONS and mode of delivery	Obstetric issues Describe	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long in days	Seizures or fits in NICU	Type of BA
	21	7-7	33c no change then 34th contraction 105bpm and 106 bpm.	Patient placed in left lateral position. O2. NS 500ml. prepared for C-section	Obstructed labour	No		Mild BA Yes	No	BA
	NR	9-10	17c no change then 18th contraction 185bpm. She was taken to the ultrasound to confirm the reading from the moyo and the sonorine (Dopper) and it was 163bpm.	OBC informed and he said since she's not in active phase pf labour. Patient was immediately place on O2 & D50% set up. Patient prepared for C-section.		No		No	No	No BA
	36	8-10 / 8-10	Non reassuring FHT.	OBC reassessed patient. Multiple gestation. Pre-eclampsia and non reassuring FHT. CS	NRFS. Multiple gestation. Pre eclampsia.	No		No		No BA
	22	5-7	21c no change then 22nd contraction 112bpm.	D50% OBC order quick delivery VD		Yes	7mins	Yes	No	BA
	19	5-7	18c no change then 135 bpm /116 bpm from 19th contraction.	N/S 500 ml set up at flow rate, D50% 40cc served. OBC assessed and orders quick vaginal delivery. VD		Yes	3mins	Yes Mild BA	No	BA
	33	5-8	33c no change then 138 bpm, 128 bpm, 114 bpm from 34th contraction.	Yes- We were already preparing this patient for C/S when the FHT started dropping and immediately she was rushed for CS		Yes	2mins	Mild BA Yes	No	No BA

CBD	Maternal age yrs	Apgar scores at 1 and 5 minutes	Changes FHR C =contractions	ACTIONS and mode of delivery	Obstetric issues Describe	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long in days	Seizures or fits in NICU	Type of BA
	36	8-10	First contraction 121 bpm - 26th contraction. 141 bpm: Active phase of labour begin at 3:00 pm. - 31st contraction 165 bpm	N/S 500 ml set up at flow rate, D50% was not served because patient said she was diagnosed as Diabetes before. O2 therapy initiated at high flow. OBC reassessed patient and ordered that be prepared for C-Section .	Diabetes.	No		No	No	No BA
	16	5-8	24c no changes then 25th contraction 110 bpm	. Pitocin drip was D/C. N/S 500 ml at flow rate FHT repeated-112 bpm O2 at 5 L. Patient placed in left lateral position, P/V done cervix 7 cm dilated membrane absent. OSB 30 cc served IV. Patient was quickly preparing for CS		Yes	1mins	Yes	No	No BA
	26	8-10	13c no changes then from 14th contraction 112 bpm. OBC reassessed FHR=110 bpm	patient placed in left lateral position, 500 ml of N/S set up at flow rate, O2 therapy established, D50% 40cc served IV CS	Previous CS x2	No		No	No	No BA
	18	9-10	39c 80pm via the moyo and it was repeated on ultrasound and FHR- then 106 bpm	OBC quickly informed. N/S 500 ml. set up at flow rate, D50% cc was served. O2 therapy initiated at high flow. OBC ordered that pt be quickly prepared for CS		No		No	No	No BA

CBD	Maternal age yrs	Apgar scores at 1 and 5 minutes	Changes FHR C =contractions	ACTIONS and mode of delivery	Obstetric issues Describe	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long in days	Seizures or fits in NICU	Type of BA
	19	8-10	14c no changes then 106 bpm from 15th contraction	N/S 500 ml was set up @ flow rate, D50% 30cc iv push served, O2 therapy initiated @ high flow. OBC informed and reassessed patient. Patient was fully dilated and ordered quick vaginal delivery. VD		No		No	No	No BA
	24	8-10	Yes- from first contraction 100 bpm. Patient was admitted with FHR of 100 bpm,	Doctor informed came, reassessed patient and ordered that Pt be placed on O2 and prepared for C/S .		No		No	No	No BA
	35	9-10	29c no changes then 110 bpm, 105 bpm.	Yes- Placed in left lateral position, O2 at 5L. N/S 500ml at flow rate, OBC informed. CS by OBC		No		No	No	No BA
	16	4-8	1c 171 bpm.	Pt came fully dilated from the ER and was referred from Totota Clinic. VD		Yes	3mins	Yes	No	No BA
	18	5-8	179 bpm. Patient was Dx of malaria In pregnancy with 2nd Quinine protocol just ending at the ER	Dr assessed patient and order that she be prepare for C/S. She was placed in left lateral position, O2 5L/min start after monitoring about 3 hour delay for surgical materials to allow patient to deliver. VD		Yes	3mins	Yes	No	No BA
	19	5-7	20c no changes then from 21st	Patient was placed in left lateral position, D50%		Yes	5mins	Yes	No	BA

CBD	Maternal age yrs	Apgar scores at 1 and 5 minutes	Changes FHR C =contractions	ACTIONS and mode of delivery	Obstetric issues Describe	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long in days	Seizures or fits in NICU	Type of BA
			contraction=100bpm. OBC reassess. FHT-101 bpm	40cc served iv, O2 therapy 5l/min established, N/S 500ml set up at flow rate. Plu-cx fully dilated, pt taken to del. table for quick delivery Vacuum						
	18	1st= 0-0 2nd= 8-10	Yes- from 1st contraction = 160bpm/138bpm from 19th contraction=100bpm.	Referral from Shankpalai clinic for multiple gestation. Patient was placed in left lateral position. 30cc of D50% iv served, N/S 500ml iv set up at flow rate, order by Dr. after reassessing patient + FHT-102bpm. CS	Multiple gestation.	No		Yes. 4days sepsis only	No	1st twin DIED Few mins
	25	7-10	26c no changes then From 27th contraction = 114 bpm.	Patient placed in left lateral position, O2 at 5L/min N/S 1L at flow rate, p/v cx 6cm dilated CS was order.		No		No	No	No BA
	21	4-8	28c no changes then 29th contraction 110bpm.	OBC informed and reassured and patient prepared for CS		Yes	5mins	BA Yes	No	No BA
	27	8-10	1st contraction 160bpm.	OBC reassess patient and order patient be prepared for emergency CS .	Arrest of descent ? Macrosomia BWT 3.4KG	No		No	No	No BA
	17	4-7	29c no changes then 30th contraction 100bpm. OBC	Patient laid on her left side. NS 500ml O2 therapy VD		Yes	10mins	BA and sepsis Yes	No	BA

CBD	Maternal age yrs	Apgar scores at 1 and 5 minutes	Changes FHR C =contractions	ACTIONS and mode of delivery	Obstetric issues Describe	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long in days	Seizures or fits in NICU	Type of BA
			reassessed patient FHR 104bpm.							
	30	3-10	46 c normal but during delivery 2 nd stage on delivery bed FHR 95bpm	VD	Delivery complicated by three cord entanglements	Yes BM	Over 30 min	Yes	No	BA
	29	5-7	24c no changes then 25th contraction 105bpm. Dr reassess FHR 102bpm.	NS500ml. Left lateral. D50% O2 therapy Quick delivery VD		Yes	3mins	BA and risk of sepsis	No	BA
	22	5-8	28c no changes then 29th contraction 108bpm. Dr reassess FHR 106bpm	NS500ml. Left lateral. D50%. CX 10cm. taken to delivery table for quick delivery VD		Yes	1mins	Yes	No	No BA
	19	3-8	28c no changes then 29th contraction 109bpm. Dr reassess FHR 106bpm.	NS500ml. Left lateral. D50%. CX 10cm. taken to delivery table for quick delivery VD		Yes	4mins	BA Yes	No	No BA
	20	6-8	1st contraction 178bpm.	referral from Karyata clinic with NRFS CS		Yes	5mins	BA Yes	No	No BA
	19	5-8	30c no changes then 31st contraction 106bpm. Dr reassess FHR 102bpm	left lateral NS500ml D50% O2 therapy CX 10cm patient taken to delivery table for quick delivery VD		Yes	2mins	Yes SEPSIS	No`	No BA
	28	9-10	30c no changes then 31st contraction 115bpm.	OBC assess patient and order patient be taken to OR for C/S		No		No		No BA

CBD	Maternal age yrs	Apgar scores at 1 and 5 minutes	Changes FHR C =contractions	ACTIONS and mode of delivery	Obstetric issues Describe	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long in days	Seizures or fits in NICU	Type of BA
	19	4-7	34c no changes then 35th contraction 102bpm. Dr, reassessed FHR-100bpm,	Patient was encouraged to lie down on her left side, NS 500ml IV set at flow rate, D50%-40ml IV was served and O2 therapy 5l/min was connected CS		Yes	4mins	Yes BA Risk of sepsis	No	BA
	18	9-10	1st contraction 100bpm.	Patient was placed in a left lateral position, O2 5l/min started, NS put at flow rate and patient was prepared for C/S	Prolonged labour	No		No	No	No BA
	18	4 and 8	37c no changes then 38 cons normal then on delivery table OBC found FHR 115	Initiated IVF and quick delivery VD	2.6Kg	Yes BM	10 mins	Yes 6 days	no	No BA
	29	4-8	17c no changes then 18th contraction 106bpm. OBC reassessed FHR-102bpm,	Pt was told to lie on her left side, NS 500ml IV setup at flow rate, 30cc of D50% IV served, O2 therapy 5l/min was established. CS	Fail to progress	Yes	3mins	Yes BA risk sepsis	No	No BA
	23	6-10	9c no changes then 10th contraction 108bpm.	Patient was placed on the left side, NS 500ml was established after reassessing FHR-103bpm, D50% (30cc) IV & O2 therapy 5l/min was established. CS		No		Risk sepsis Yes	No	NO BA
	33	9-10	33c no changes then 34th contract 118bpm.	Patient was placed on the left hand & NS 500ml	2kg Bwt	No		No	No	No BA

CBD	Maternal age yrs	Apgar scores at 1 and 5 minutes	Changes FHR C =contractions	ACTIONS and mode of delivery	Obstetric issues Describe	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long in days	Seizures or fits in NICU	Type of BA
			OBC reassessed FHR (118bpm),	was set up at flow rate. CS						
	16	8-10	28c no changes then 29th Contraction 115bpm.	Patient was placed in left lateral position, O2 at 5L/min attached and NS 1L served at flow rate CS		No		No	No	No BA
	20	5-8	24c no changes then 25th Contraction 168bpm. Dr reassess 172 bpm	Patient was placed on her left side, NS 500ml was served & O2 therapy 5l/min was established. CS	Fail to progress Preeclampsia	Yes	3mins	Mild BA Yes	No	No BA
	22	8-10	27c no changes then 28th contraction 119bpm. Dr. reassessed FHR-114bpm,	Pt. was laid on her left side & NS 500ml was set up at flow rate. CS	2.3Kg	No		No	No	No BA
	31	7-10	41c no changes then 42nd contraction 168bpm. OBC reassessed FHR-169bpm	NS 500ml IV setup at flow rate, O2 therapy 5l/min was established & Patient was placed on the left side VD		No		Yes risk sepsis	No	No BA
	36	8-10	1st contraction 118bpm. Dr reassess 114bpm	Patient was placed on the left side, D50% 30cc IV served & NS 500ml was setup. VD	Fully dilated	No		No		No BA
	18	6-9	1	Dr assessed and patient taken to ER for surgery. CS	Referred from clinic and seen in ER Prolonged labour and malaria What was FHR in admission?	Yes	2mins	Yes mild BA	No	No BA
	18	3-7	38c no changes then 39th contraction 112bpm. OBC	placed patient on the left side, NS-500ml IV set up @ flow rate, D50%-30cc IV served and patient		Yes	6mins	Yes severe BA	No	BA

CBD	Maternal age yrs	Apgar scores at 1 and 5 minutes	Changes FHR C =contractions	ACTIONS and mode of delivery	Obstetric issues Describe	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long in days	Seizures or fits in NICU	Type of BA
			reassessed FHR- 110b/m,	was taken to the delivery table for quick delivery VD						
	38	2-8	35c no changes then 36th contraction 115bpm.	Patient was placed on the left lateral position. OBC came and reassessed, took her to the delivery table and a difficult vaginal delivery was done. VD	3.5kg BWT	Yes	8mins	Yes Severe BA	No	No BA
	21	9-10 & 9-10	1st contraction 120bpm	NS 500ml was set up IV at flow rate TWINS VD	Twins 2.4Kg and 2.4Kg	No		No	No	No BA
	20	4-8	5th contraction 101bpm. OBC reassessed FHR 103bpm,	Pt was placed on on the left side, NS 500ml IV served and O2 therapy 5 l/min established and pt was prepared for an emergency CS	Previous CS x2 Obstructed labour	Yes	3mins	Yes Mild BA	No	No BA
	33	7-10	51c no changes then 52nd contraction 110bpm. OBC reassessed Pt FHR- 113bpm,	She was placed on the left side N/S 500ml IV set up at flow rate, D50%- 30cc IV Served, O2 therapy 5l/min established CS		No		Yes. 3days	No	No BA
	33	7-10	30c no changes then 31st contraction 113bpm.	NRFS LLT, IVF, D50 NRFS Then 109bpm CS		No		No	No	No BA
	20	8-10	22c no changes then 23rd contraction 115bpm.	OBC reassessed Patient and ordered that patent be prepared for CS	Fetal distress Obstructed labour CPD	No		No		No BA

CBD	Maternal age yrs	Apgar scores at 1 and 5 minutes	Changes FHR C =contractions	ACTIONS and mode of delivery	Obstetric issues Describe	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long in days	Seizures or fits in NICU	Type of BA
	28	8-10	1st contraction 100bpm.	Pt was placed on her left side, N/S 500ml was set up at flow rate and O2 therapy 5l/min was established. OBC assessed FHR 106bpm CS	Prolonged latent phase, FHR problem	No		Yes. 3days risk of sepsis	No	No BA
	35	9-10	45c no changes then 46th contraction 114bpm. Dr. reassessed FHR-110bpm,	Pt was placed on the left side, NS 500ml IV was set up at flow rate and D50%-30cc was served IV CS		No		No	No	No BA
	37	8-10	39c no changes then 40th contraction 115bpm.	OBC reassessed Patient and ordered that the patient be prepared for C/S	2.3Kg	No		Yes. 5days Risk sepsis	No	No BA
	37	8-10	1st c 170bpm.	Pt was placed on her left side, NS 500ml + D50%-40cc was set up at flow rate & O2 therapy 5 l/min was established after OBC reassessed FHR-178bpm. CS	3 previous CS 2.4Kg	No		No	No	No BA
	22	8-10	34c no changes then 35th contraction 112bpm.	CS	NRFS. Prolonged 2nd stage.	No		No	No	No BA
	24	7-10	1 st c 197 bpm/	Patient came in fully dilated, referred from a local clinic and the patient was rushed in the delivery room from the ER VD		No		No		No BA

CBD	Maternal age yrs	Apgar scores at 1 and 5 minutes	Changes FHR C =contractions	ACTIONS and mode of delivery	Obstetric issues Describe	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long in days	Seizures or fits in NICU	Type of BA
	18	8-10	45c no changes then 46th contraction 114b/m	NS 500ml was set up, D50% (30cc) was also served & patient was placed on the left side after assessment by Dr. CS undertaken as an emergency	NRFS	No		No		No BA
	24	8-10	30c no changes then 31st contraction 110b/m Dr. reassess FHR- 109b/m,	NS 500ml setup at flow rate, O2 therapy 5l/min established, D50%-30cc iv was served and Pt was prepared for C/S	NRFS Emergency CS	No		No		No BA
	23	8-10	49c no changes then 50th contraction 112b/m	Patient was placed on her left side with NS 500ml setup after reassessment. CS	NRFS OBC Emergency CS	No		No		No BA
	31	9-10	35c no changes then 36th contraction 115b/m OBC assessed FHR- 113b/m,	NS 500ml IV was setup @ flow rate & D50%-40cc IV served. CS	NRFS Emergency CS	No		No		No BA
	23	9-10	49c no changes then 50th contraction 110b/m OBC reassessed FHR- 112b/m,	NS 500ml set up at flow rate CS	NRFS Emergency CS	No		No		No BA
	28	8-10	36c no changes then 37th contraction 110b/m OBC assessed FHR- 118b/m,	NS 500ml was setup at flow rate, D50%-30cc IV served and Pt was prepared for an emergency CS	NRFS Emergency CS 2.4Kg	No		No		No BA

CBD	Maternal age yrs	Apgar scores at 1 and 5 minutes	Changes FHR C =contractions	ACTIONS and mode of delivery	Obstetric issues Describe	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long in days	Seizures or fits in NICU	Type of BA
	22	8-10	20c no changes then 21st contraction 110-113b/m	LLT, IVF CS	NRFS & Previous C/S X 1 Emergency CS performed	No		No		No BA
	23	5-7	46c no changes then 47th contraction 109b/m OBC reassessed FHR-106b/m,	NsS 500ml IV setup, D50%-30cc IV served & Pt was placed on her left side. CS	NRFS Emergency CS performed	Yes bag and mask	3 mins	Yes BA present	NO	BA
	42	3-7	32c no changes then 33 rd contractions 110b/m OBC reassessed FHR-112b/m,	Pt encouraged to lie down on her left side, NS 1liter setup at flow rate and was prepared for CS	Failure to progress/NRFS Emergency CS performed	Yes bag and mask	9 mins	Yes BA present		BA

Summary of findings at CB Dunbar Hospital with changes in FHR and Apgar scores >6 at 5 minutes. **n = 144**

In 3 patients, absence of emergency drugs and supplies led to major delays in emergency treatment, including in one case the need to transfer to Phebe Hospital for CS.

3 abnormal FHR on arrival. 19 normal FHR on arrival but then became abnormal.

57 given additional inspired oxygen (40%) Not in first 400 numbers.

70 received resuscitation (49%)

27 had BA, 116 had No BA

21 had meconium.

6 episiotomy.

VD = 45 CS= 86 Vacuum = 13 =1 (failed = CS)

68 of 144 (48%) patients had Apgar score at 5 minutes of 10 +1NR

1 cord prolapse (CS)

1066 Good comment

1 Breech

1 Diabetes

1 had 3 cord entanglements but possible error as 30 minutes resuscitation yet Apgar at 5 minutes recorded as = 10.

Additional file 7C Mothers at Sinje Major Health Centre with changes in FHR and Apgar 7 or higher at 5 minutes. n=15

Sinje	Maternal Age yr	Apgar scores at 1 and 5 minutes	CHANGES IN FHR	ACTIONS and mode of delivery	Obstetric disorder	Resus	Duration resus (min)	NICU admit Yes/No If YES for how long?	Seizures in NICU Yes/No	Type of BA
		6-10	45c no changes then c46 110 Confirmed USS	Dex50/ NS Vacuum		Yes. B+M	5	yes antibiotics 4 days	No	No BA
		4-8	16c no changes then c17 110	Dex50/ NS CS	obstructed labour fetal distress	B+M yes	10	Yes. 3days	No	No BA
		6-8	57c no changes then c58 119	Dex50/ NS CS	prev CS CPD 7cm dilated	yes B+M	5	yes birth asphyxia. 5days	No	No BA
		7-10	c1 116, given fluids, c5 122 c18 112	Dex50/ NS CS	NRFS	no	No	no	No	No BA
		7-10	43c no changes c44 110	Dex50/ NS VD	OA – 8cm dilated 4/5 descent suspected cord entanglement	no	No	No	No	No BA
		5-8	c1 abnormal 110	Dex50/ NS VD Episiotomy	fully dilated	yes B+M	3	birth asphyxia. Yes. 5days	No	No BA
		5-8	c1 abnormal 110	Dex50/ NS Vacuum	fully dilated	yes B+M	5	birth asphyxia. 7days	No	No BA
		4-10	C1 abnormal 113	Dex50/ NS Oxygen VD		yes B+M	5			No BA
		2-10	c1 abnormal 100	Dex50/ NS Oxygen VD	fully dilated	yes B+M	10	Yes. 10days	No	No BA
		3-8	11c no changes then c12 110	Dex50/ NS Oxygen CS	fetal distress due to labour dystocia 5cm dilated	yes B+M	4	birth asphyxia. 6days	No	No BA
		4-8	c1 abnormal 101	Dex50/ NS Urine catheter CS	Abruptio placentae NRFS	yes B+M	2	yes birth asphyxia sepsis risk. 8days	No	No BA

Sinje	Maternal Age yr	Apgar scores at 1 and 5 minutes	CHANGES IN FHR	ACTIONS and mode of delivery	Obstetric disorder	Resus	Duration resus (min)	NICU admit Yes/No If YES for how long?	Seizures in NICU Yes/No	Type of BA
		7-10	c1 117 FHR 117 in latent phase FHR monitoring continued for 45 contractions no other abnormal FHR recorded	Dex50/ NS VD		no	No	yes ?sepsis. 8days	No	No BA
		7-10	c1 abnormal 108	Dex50/ NS CS	severe PET 28wks gestation BWT 1.2Kg congenital malaria	no	No	Yes 20 days	No	No BA
		8-10	c1-3 abnormal 110	Dex50/ NS Oxygen CS	Previous CS x1 fetal distress	no	no	no	No	No BA
		7-10	17c no changes then 18c 112 on USS	CS	Meconium, early fetal distress, Arrest of descent, NRFS, Eclampsia,	No	no	NR	No	No BA

Summary of mothers at Sinje Major Health Centre with changes in FHR and Apgar >6 at 5 minutes. n=15

15 No BA

5 VD, 8 CS, 2 Vacuum

9 resuscitated:

1 episiotomy, 1 abruption, 1 severe preeclampsia 28 weeks,

1 obstructed labour

1 meconium

1 suspected cord tangle

Number with Apgar scores of 10 at 5 minutes = 9 cases

Additional file 7D Mothers at Tellewoyan Hospital with changes in FHR and Apgar 7 or higher at 5 minutes. n=27

Tellewoyan	Maternal Age yrs	Apgar scores at 1 and 5 minutes	CHANGES IN FHR	ACTIONS AND mode of delivery	Obstetric issues	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long?	Seizures or fits in NICU	Type of BA
	17	6 and 8	c36 – 110bpm	VD episiotomy	maternal malaria	Yes	4	Yes mild asphyxia 7 days	No	No BA
	25	4 and 7	c32 – 105bpm	Oxygen LLT Vacuum	ref from clinic prolonged labour Fully dilated	Yes	5	Yes Asphyxia sepsis risk 6days	No	BA
	20	4 and 8	c34 – 82	Oxygen LLT CS	NRFS prolonged 2 nd stage	No		Yes sepsis 5 days	No	No BA
	27	5 and 10	c37 – 119 c38- 105 c39-100	Oxygen LLT VD		Yes	15	Yes Asphyxia sepsis risk 6 days	No	No BA
	28	5 and 10	c41 – 110,118	Oxygen LLT VD		Yes	5	Yes Asphyxia 6 days	No	No BA
	19	5 and 10	c29 – 120	Oxygen LLT VD	Preeclampsia	Yes	16	Yes 7 days Asphyxia sepsis risk	No	No BA
	30	6 and 10	c24 120	Oxygen VD	Prolonged 2 nd stage due to shoulder dystocia	YES	15	6 days	No	No BA
	24	5 and 7	c36 120	CS	Malposition Shoulder dystocia prolonged 2 nd stage	Yes	14	yes birth asphyxia sepsis risk 4 days	No	BA
	27	9 and 10	c22 120	oxygen fluids NS CS	fetal distress prolonged 2 nd stage	No		no	No	No BA

Tellewoy an	Maternal Age yrs	Apgar scores at 1 and 5 minutes	CHANGES IN FHR	ACTIONS AND mode of delivery	Obstetric issues	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long?	Seizures or fits in NICU	Type of BA
	21	9 and 10	c21 120 (c1 140, c15 138)	Oxygen Emergency CS	prolonged 2 nd stage CPD	No		no	No	No BA
	19	4 and 10	c6 105 (c1 120, c2 128)	Oxygen CS	fetal distress CPD	Yes	18	yes severe birth asphyxia	No	NO BA
	19	3 and 10	c 36 110 (c1 140)	assisted VD by OBC – “difficult”	malposition	Yes	10	yes birth asphyxia	No	No BA
	29	9 and 10	c1 120 -122	Oxygen CS	fetal distress Breech Meconium	No		no	No	No BA
	22	9 and 10	c10 117 (c1 138, c7 124)	CS	large fetus CPD fetal distress prolonged 2 nd stage	Yes	5	no	No	No BA
	18	4 and 7	c2 116	Oxygen CS	referral fetal distress	Yes	5	Yes 12 days sepsis	No	BA
	20	9 and 10	c29 114	Oxygen CS	NRFS long 2 nd stage, CPD	No		no	No	No BA
	33	7 and 10	c35 118	Oxygen LLT VD	Preterm 2.8Kg	No		yes premature	No	No BA
	18	2 and 10	c1 116	Oxygen CS	referral transverse lie	Yes	7	Yes 9 days	No	No BA
	21	3 and 7	c1 119	Oxygen IVF VD	referral active labour	Yes	10	Yes 5 days Congenital malaria	No	BA
	NR	NR	c1 119	Oxygen CS	CPD previous CS	Yes	4	Yes	No	No BA
	37	8 and 10	c1 110 On admission, patient	Cervix @ 9cm dilated. Quickly prepared for CS for NRFS	Referred from clinic for fetal distress.	No		no		No BA

Tellewoyan	Maternal Age yrs	Apgar scores at 1 and 5 minutes	CHANGES IN FHR	ACTIONS AND mode of delivery	Obstetric issues	Baby resus	Duration resus (min)	NICU admit Yes/No If Yes how long?	Seizures or fits in NICU	Type of BA
			presented with 110 b/m							
	23	8 and 10	c1 119	IVF CS		No		no	No	No BA
	25	9 and 10	c6 158 (c1 148)	CS	previous CS x 1 CPD prolonged labour	No		no	No	No BA
	21	9 and 10	c49 119	Oxygen D50% IVF CS	prolonged latent phase CPD	No		no	No	No BA
	37	9 and 10	c54 119	fetal distress D50 Oxygen CS		No		no	No	No BA
	20	9 and 10	c46 119	Oxygen D50% CS		No		no	No	No BA
	30	9 and 10	c54 119 CS (c1 138 c29 137 c44 120)	Oxygen D50% CS	Twins prolonged labour FD in Twin 1	No		no	No	No BA

Summary of mothers at Tellewoyan Hospital with changes in FHR and Apgar >6 at 5 minutes. n=27

VD = 8, Vacuum = 1, CS = 18

20 given additional inspired oxygen.

14 received resuscitation

BA = 4, No BA = 23

1 meconium, 2 shoulder dystocia, 1 breech, 1 transverse lie, 1 twin

Episiotomy 1

Number with Apgar scores of 10 at 5 minutes = 20 (74%) with 1 NR