



**MCAI** | Maternal & Childhealth  
Advocacy International



MINISTRY  
OF HEALTH  
OF UKRAINE



Supporting perinatal care, including fetal monitoring by mothers, in 61 hospitals in Ukraine disrupted by the ongoing war

Professor Iryna Mogilevkina  
Professor David Southall

## Project aim

To enhance existing obstetric management by providing humanitarian assistance in the prevention of birth asphyxia, and consequent disability, in Ukrainian hospitals in which the monitoring during labour of fetal well-being is being or could be disrupted by ongoing armed conflict

# Project team

- **Program Directors**
  - Professor Iryna Mogilevkina (Ukraine / Sweden)
  - Professor Dmytro Dobryansky (Ukraine)
  - Professor Tetiana Znamenska (Ukraine)
  - Professor David Southall (UK)
  - Dr Rhona MacDonald (UK)
- **Technical assistance:** Dr Olena Kostyuk (Ukraine)
- **Hospital coordinators:** 61 Ukrainian Obstetrician Gynaecologists
- **Humanitarian Charitable Organisation ‘We help together’:** Svitlana Krasnoselska

# The project would have been impossible without the following support:

Many thanks to the following donors who made this program possible: The Rotary Fellowship of Healthcare Professionals, MCAI Trustees (in particular Dr Rhona MacDonald and Dr Barbara Phillips), Colin and Lilian MacDonald, Joseph Southall, Edward Southall, Richard Southall, and John Southall and Jenny and Alistair Stuart, and Dr Diane Watson (MCAI volunteer), The DAK Foundation and Rotary International Australia, Pack and Send Glasgow, an anonymous donor through The Charity Aid Foundation, Donors through Just Giving, Mr Eddershaw of Hone and Jones.

Our special thanks to the volunteers of the Humanitarian Charitable Organisation in Ukraine and all who helped them distribute this life saving equipment, drugs and supplies.

The following companies and organisations provided valuable support: Edinburgh University, Diamedica, Genpower, Kamall Trading, Sinapi, Eden Instruments, APEC, Zug Medical, Laborie, Blizzard, Portable Ultrasound Machines and Durbin Pharmaceuticals.

Many thanks to the following individuals who provided special support: Thomas Wyllie and Angharad Jones Cardiff and Vale UHB Pharmacy, Ian Blackford MP and Linda Dignan of the SNP, The Ukrainian Consul in Edinburgh, Dr Coherty, Dr Aniko Deierl, Jonny Miller, Malcom McArdle, Catherine Stowell, Helen McArdle, Alison Pitchfork, Steve Schnabel and Paul Sutherland and Dr Brigid Hayden.

# RCPCH: British Association of Perinatal Medicine Contact Group to support Ukraine

Professor David Southall (MCAI)



Professor Dmytro Dobryanskyy (neonatologist)

Professor Tetiana Znamenska (neonatologist)



Professor Iryna Mogilevkina (obstetrician and gynaecologist)



Network of Obstetricians and Gynaecologists in Ukraine



# Scientific background to initiate the project

Borzie et al. *BMC Pregnancy and Childbirth* (2020) 20:362  
<https://doi.org/10.1186/s12884-020-02921-z>

BMC Pregnancy and Childbirth

RESEARCH ARTICLE

Open Access

## Monitoring intrapartum fetal heart rates by mothers in labour in two public hospitals: an initiative to improve maternal and neonatal healthcare in Liberia

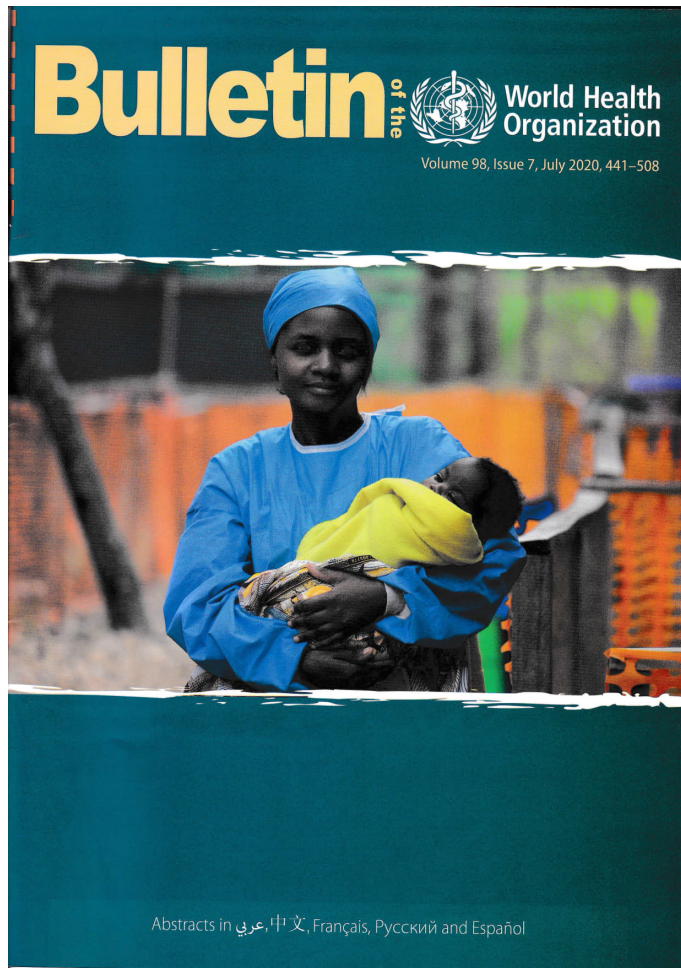


K. Borzie<sup>1</sup>, N. Jasper<sup>2</sup>, D. P. Southall<sup>3\*</sup>, R. MacDonald<sup>4</sup>, A. A. Kola<sup>5</sup>, O. Dolo<sup>6</sup>, A. Magnus<sup>7</sup>, S. D. Watson<sup>8</sup>, M. Casement<sup>9</sup>, B. Dahn<sup>10</sup> and W. Jallah<sup>11</sup>

# Rationale for fetal heart rate (FHR) monitoring by mothers

- Preliminary results 6378 mothers in birth (MCAI MOH program in Liberia, 4 hospitals, 6 yrs):
  - own baby auscultation with a doppler ultrasound probe
  - 30-60 seconds following the end of every contraction
  - latent / active phases of labour
  - from the time of admission
- Findings:
  - mothers were able to identify changes in the FHR allowing initiation of fetal distress management
- FHR changes identified by mothers – 5.6% (n= 354)
- Intrapartum death: 10 of 6378 (1.6 /1000)
- Maternal experience: > 95% happy - empowerment through involvement in monitoring their unborn babies

# WHO interest in intervention proposed



News

## Providing mothers with fetal heart monitors

Enabling mothers in labour to monitor their baby's heart is improving maternal and neonatal outcomes in Liberia. Tatum Anderson reports.

When Rebecca Molubah (not her real name) entered the busy government hospital in Gbarnga, Liberia, to give birth to her second child, she was anxious about her prospects.

Having been through the experience eight years earlier, the 32-year-old knew what it was like to give birth without any sort of pain relief. She had also heard enough childbirth stories with unhappy endings – including endings where the mother returned home without a baby or didn't return home at all – to be concerned about her and her baby's chances of survival.

The Liberian Ministry of Health has only recently begun to collect national data on perinatal deaths. However, a study of births in a rural Liberian referral hospital in 2010 showed that 11.8% (196 of 1656) deliveries in one year involved perinatal deaths, 143 of which were classified as stillbirths.

Molubah knew that one of the main reasons for the unhappy endings was a chronic shortage of doctors, nurses and midwives. So when she walked into the maternity ward of the CB Dunbar Hospital she was pleased to see midwives in attendance.

Her pleasure turned to surprise when one of the midwives asked if she would be ready to monitor her baby's heart rate.

"The midwife told me that my baby's heartbeat was an important indicator of how well it was doing during labour and that if the rate went below 120 or above 160 beats per minute it might mean there was a problem," Molubah says.

The midwife explained that because of their workload, it was sometimes difficult for the midwives to give fetal heart monitoring the attention it required. "She said that if I could do the job it would improve my baby's chances, since the sooner midwives and doctors were made aware of a problem, the sooner they could act," Molubah adds.

Molubah agreed to take on the task and was given a device called a sonicaid. About the size of a smart phone with a small ultrasound probe attachment, sonicaids allow the user to hear the baby's heart and read the heart rate on a simple numerical display.

The midwife spent 15 minutes showing Molubah how to use the device and

demonstrated the difference between normal, fast and slow heart rates by tapping out a rhythm. She then told her to monitor her baby's heart rate for about a minute immediately after the end of every uterine contraction and to inform a midwife if the heart rate got significantly faster or slower.

By taking responsibility for monitoring her baby's heart rate, Molubah became part of a study which ran from July 2017 until October 2018 in two Liberian hospitals - CB Dunbar and CH Rennie, another government hospital located in the city of Kakata in the neighbouring county.

The study was funded by Maternal & Child Health Advocacy International (MCAI), a medical charity based in Scotland, which supports pregnant women and adolescent girls in some of the world's poorest and most troubled countries.

"MCAI had been working with Liberia's health ministry for almost 9 years

on task shifting, training midwives to perform obstetric physicians' jobs, and nurses to perform advanced neonatal care," explains Dr David Southall, MCAI's Honorary Medical Director. "The new initiative was an extension of that work – using task sharing with mothers."

The main aims of the study were to assess the feasibility of educating women in labour to monitor their unborn babies' heart rates and to alert a midwife of any significant changes detected, and to assess whether the midwives would respond appropriately.

MCAI's hope was that sharing the task would not only benefit mothers and their babies, but would also take some of the pressure off overworked health-care professionals.

One of those health-care professionals is Korpo Borzie, the midwife who led the CB Dunbar study.

"We often have to care for five or six women in labour at the same time," Borzie says, adding that she must also take on the tasks that doctors do in other countries, including caesarean section and vacuum delivery. "You are supposed to monitor fetal heart rates while you may be dealing with somebody coming in with an incomplete miscarriage or someone with a retained placenta," she says.

**The new initiative [used] task sharing with mothers.**

David Southall

Adewemo Abass Kola (left) with a mother and baby in the CB Dunbar Hospital neonatal unit.

Courtesy of MCAI

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Bull World Health Organ 2020;98:445-446 | doi: <http://dx.doi.org/10.2471/BLT.20.020720>

## HANDBOOK OF HOSPITAL CARE FOR OBSTETRIC EMERGENCIES INCLUDING TRAUMA IN LOW RESOURCE AND EMERGENCY SETTINGS



 **Irish Aid**  
Rialtas na hÉireann  
Government of Ireland

 **MCAI** Maternal & Childhealth  
Advocacy International



THE UNIVERSITY  
of EDINBURGH



2021 Maternal & Childhealth Advocacy International (MCAI)



# Project timelines

Phase	Activities	Date
I	<ul style="list-style-type: none"><li>Collecting statistical information from the hospitals (n=16) to analyze needs related to the project aim</li><li>Definition of equipment and supplies needed to improve intrapartum fetal monitoring in war condition</li><li>Donors identification</li><li>Support from Ministry of Public Health, Ukraine, Association of Obstetricians and Gynaecologists, Association of Neonatologists, Ukraine</li><li>Additional hospitals (n=21) recruited</li><li>Collaboration agreement between MCHI and each Hospital signing</li><li>Equipment procurement and donation as humanitarian assistance (n=37)</li></ul>	August 2022       December 2022
II	<ul style="list-style-type: none"><li>Additional 12 hospitals recruited</li><li>Equipment procurement and donation as humanitarian assistance (n=12, total 49)</li></ul>	January 2023
III	<ul style="list-style-type: none"><li>Additional 12 hospitals now recruited</li><li>Equipment procurement and donation as humanitarian assistance (n=12, total 61)</li></ul>	April 2023
IV	<ul style="list-style-type: none"><li>Monitoring and Evaluation</li><li>Trainings</li></ul>	February 2023 May 2024



**МІНІСТЕРСТВО ОХОРОНИ  
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**To Director of Maternal & Childhealth  
Advocacy International (MCAI)  
Prof. David Southall, MD, MRCP,  
MBBS, FRCPCH**

**LETTER OF SUPPORT**

The Ministry of Health of Ukraine expresses its gratitude for the proposal to implement the program "Quality Improvement actions to enhance existing obstetric management in the prevention of birth asphyxia, and consequent disability, in 36 hospitals in Ukraine in which the monitoring during labor of fetal well-being is being or could be disrupted by the ongoing war".

We are very interested in achieving the goal set by the Program and will fully support its implementation.

**First Deputy Minister**

**Oleksandr KOMARIDA**



АСУД "ДОК ПРОФ 3"  
Міністерство охорони здоров'я України  
№25/23187/2-22 від 04.10.2022  
КЕЛ Комаріда Олександр Олександрович  
58E2C9E7F90307B04000006FD8280024D39500

Міністерство охорони здоров'я України  
25/23187/2-22 від 04.10.2022



**ГРОМАДСЬКА ОРГАНІЗАЦІЯ  
«АСОЦІАЦІЯ АКУШЕРІВ - ГІНЕКОЛОГІВ УКРАЇНИ»  
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№ 832 6.10.2022

Director of Maternal & Childhealth Advocacy  
International (MCAI)  
Prof. David Southall

Chair, International Rotary Fellowship  
of Healthcare Professional  
Dr John Philip

**LETTER OF SUPPORT**

Public organization "Association of Obstetricians and Gynaecologists of Ukraine" is grateful for the proposal to implement the program "Quality Improvement actions to enhance existing obstetric management in the prevention of birth asphyxia, and consequent disability, in hospitals in Ukraine in which the monitoring during labor of fetal well-being is being or could be disrupted by the ongoing war".

We are very interested in the program and looking forward to improve quality of maternal and neonatal care by inviting mothers to monitor their fetal well-being and ensuring the most effective identification of peripartum asphyxia. Public organization "Association of Obstetricians and Gynaecologists of Ukraine" will fully support program implementation.

Chairman of the executive committee  
Association of Obstetricians and Gynecologists of Ukraine,  
Academician of the NAMS of Ukraine,  
Head of the Department of Obstetrics, Gynecology and  
Reproductive medicine Shupyk National Healthcare  
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№ 04.10.2022 № 413  
№ \_\_\_\_\_ from \_\_\_\_\_

To Director of Maternal & Childhealth Advocacy International (MCAI)  
Prof. David Southall, MD, MRCP, MBBS, FRCPCH

**LETTER OF SUPPORT**

Association of Neonatologists of Ukraine expresses its gratitude for the proposal to implement the Program "Quality Improvement actions to enhance existing obstetric management in the prevention of birth asphyxia, and consequent disability, in 36 hospitals in Ukraine in which the monitoring during labor of fetal well-being is being or could be disrupted by the ongoing war".

Fetal monitoring can become problematic during wartime, and perinatal asphyxia and its serious long-term consequences are an important cause of morbidity and mortality worldwide. That is why we are very interested in achieving the goal set by the Program and will support its implementation.

President,  
Professor

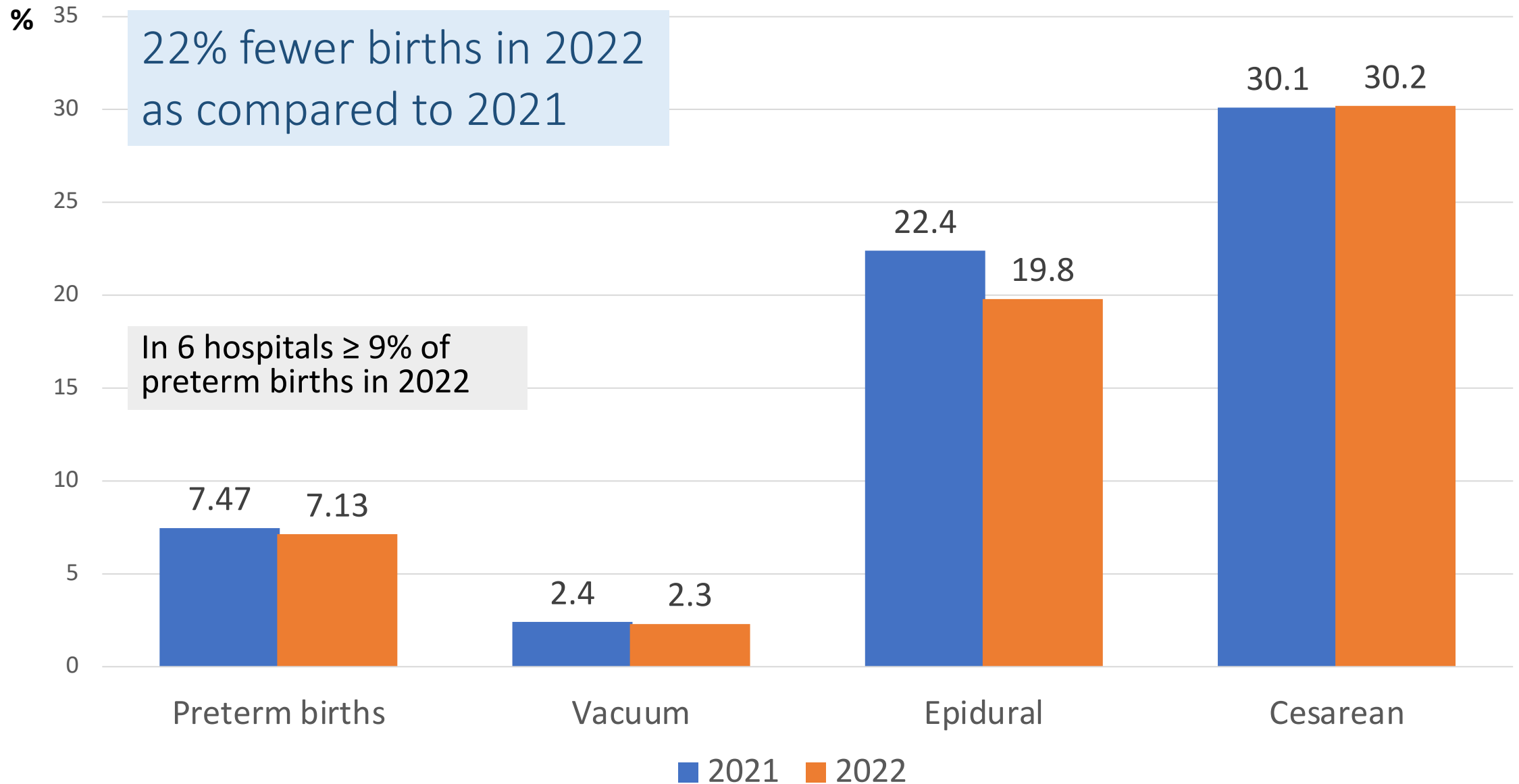


T. Znamenska

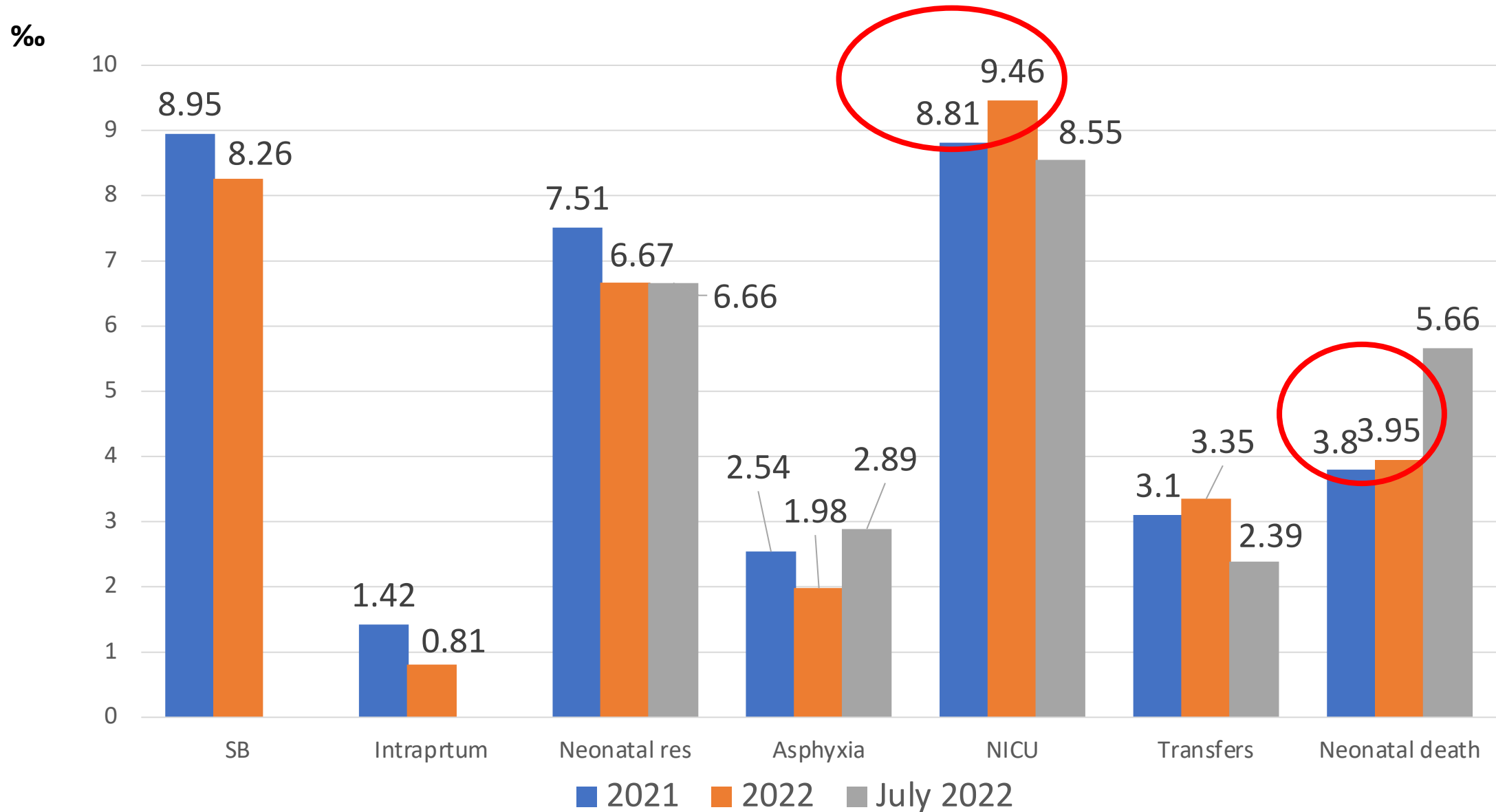
# Maternity units in Ukraine prospective analysis of first 16

Name Hospital	N deliveries Jan to June 2021	N deliveries Jan to June 2022	July 2022	Total	Max delivery same time	Preterm	Twins	Vacuum	Forceps	CS	Live births	SB	Antenatal IUFD	IP SB	Apgar < 7 at 5 min	Neo Resus	NICU	Birth asphyxia	Early NND	Transfer	Maternal death
	989	575↓	103	1667	6	150	41	38	0	450	1706	5	4	1	13	141	141	2	7	3	0
	<b>1589</b>	1193	245	3027	8	241	63	37	3	880	3049	43	35	8	21	430	191	296	9	23	0
	225	227	38	490	2	3	5	25	0	105	496	1	1	0	0	18	16	6	2	16	0
	464	448	86	998	3	25	6	2	0	307	1000	4	4	0	1	8	21	7	0	6	0
	746	739	145	1630	6	209	42	38	2	492	1659	13	13	0	13	159	155	8	11	13	2
	863	691↓	150	1704	5	228	40	29	0	581	1720	21	21	0	8	120	163	0	11	100	0
	236	246	42	524	3	13	6	14	0	73	527	2	NA	NA	0	6	6	0	0	6	0
	797	424↓	35	1256	3	37	16	42	2	251	1266	6	6	0	1	26	40	10	2	66	0
	170	76↓	9	255	1	43	8	5	3	114	255	8	4	4	14	22	73	5	3	20	0
	710	644↓	96	1450	3	180	43	15	0	421	1451	40	33	7	2	227	369	9	19	45	1
	<b>1011</b>	934	169	2114	10	94	39	85	3	736	2142	12	12	0	4	81	214	2	2	153	0
	263	260	34	557	2	9	7	14	0	70	562	2	2	0	1	2	34	3	1	51	0
	256	712	146	1114	12	38	13	5	0	250	1124	3	3	0	1	34	38	1	1	12	0
	739	547↓	104	1390	5	60	10	89	0	533	1393	7	6	1	67	25	109	18	1	33	0
	-	473	119	592	6	49	20	0	2	196	606	2	0	2	18	20	74	6	0	58	0
	584	312↓	70	966	5	71	33	24	0	454	990	9	6	3	5	93	163	90	11	12	0
<b>TOTALS</b>				<b>19,734</b>	<b>80</b>	<b>1450</b>	<b>392</b>	<b>462 2.3%</b>	<b>15</b>	<b>5,913 30%</b>	<b>19,946</b>	<b>178 0.9%</b>	<b>150</b>	<b>26</b>	<b>169 8.5%</b>	<b>1,412 7%</b>	<b>1807 9%</b>	<b>463 2.3%</b>	<b>80 0.4%</b>		<b>3 15/100K</b>

# Key indicators: Mothers (n=16)



# Key indicators: Neonates (n=16)



# 16 regions in which 61 hospitals are based



Political Map of Ukraine

# Project components

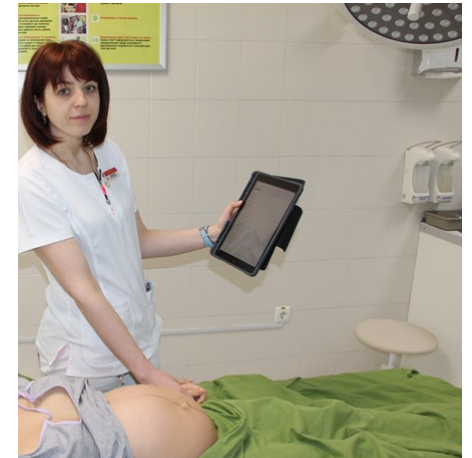
- **Humanitarian assistance component**

- ✓ Electricity and heat
- ✓ Obstetric and neonatal equipment:
  - ✓ FHR monitoring by mother
  - ✓ Ultrasound in labour
  - ✓ Mother /Baby monitoring
  - ✓ Emergency equipment
  - ✓ Medicines

- **Monitoring**

- ✓ IPADs
- ✓ Monitoring forms
- ✓ Memento Database

- **Training**

A screenshot of a mobile application interface showing a 'Create' form for patient data. The form has tabs for 'GENERAL', 'MATERNAL', 'NEONATAL', and 'SUMMARY'. The 'GENERAL' tab is selected. The form fields include: Mother Name (Laura), Age (24), Case Record Number, Hospital, Date of Delivery, Time of Delivery, Partner Present (toggle), Monitoring By Mother (toggle), and Displaced Mother (toggle). The interface is on an iPad, with a keyboard visible at the bottom.

# Monitoring

## Fetal Heart Rate Monitoring

Nu	Norm	✓	Changed	X	Confirmed
1	☺		Time		Time
			Faster	Yes	No
			Slower		
2	☺		Time		Time
			Faster	Yes	No
			Slower		
3	☺		Time		Time
			Faster	Yes	No
			Slower		
4	☺		Time		Time
			Faster	Yes	No
			Slower		
5	☺		Time		Time
			Faster	Yes	No
			Slower		
6	☺		Time		Time
			Faster	Yes	No
			Slower		
7	☺		Time		Time
			Faster	Yes	No
			Slower		
8	☺		Time		Time
			Faster	Yes	No
			Slower		
9	☺		Time		Time
			Faster	Yes	No
			Slower		
10	☺		Time		Time
			Faster	Yes	No
			Slower		
11	☺		Time		Time
			Faster	Yes	No
			Slower		
12	☺		Time		Time
			Faster	Yes	No
			Slower		
13	☺		Time		Time
			Faster	Yes	No
			Slower		
14	☺		Time		Time
			Faster	Yes	No
			Slower		
15	☺		Time		Time
			Faster	Yes	No
			Slower		
16	☺		Time		Time
			Faster	Yes	No
			Slower		
17	☺		Time		Time
			Faster	Yes	No
			Slower		
18	☺		Time		Time
			Faster	Yes	No
			Slower		

Meconium present YES / NO

## Mother's Name .....

Nu	Norm	✓	Changed	X	Confirmed
19	☺		Time		Time
			Faster	Yes	No
			Slower		
20	☺		Time		Time
			Faster	Yes	No
			Slower		
21	☺		Time		Time
			Faster	Yes	No
			Slower		
22	☺		Time		Time
			Faster	Yes	No
			Slower		
23	☺		Time		Time
			Faster	Yes	No
			Slower		
24	☺		Time		Time
			Faster	Yes	No
			Slower		
25	☺		Time		Time
			Faster	Yes	No
			Slower		
26	☺		Time		Time
			Faster	Yes	No
			Slower		
27	☺		Time		Time
			Faster	Yes	No
			Slower		
28	☺		Time		Time
			Faster	Yes	No
			Slower		
29	☺		Time		Time
			Faster	Yes	No
			Slower		
30	☺		Time		Time
			Faster	Yes	No
			Slower		
31	☺		Time		Time
			Faster	Yes	No
			Slower		
32	☺		Time		Time
			Faster	Yes	No
			Slower		
33	☺		Time		Time
			Faster	Yes	No
			Slower		
34	☺		Time		Time
			Faster	Yes	No
			Slower		
35	☺		Time		Time
			Faster	Yes	No
			Slower		
36	☺		Time		Time
			Faster	Yes	No
			Slower		

Actions if FHR change confirmed

## Date/Time: ..... Case record .....

Nu	Norm	✓	Changed	X	Confirmed
37	☺		Time		Time
			Faster	Yes	No
			Slower		
38	☺		Time		Time
			Faster	Yes	No
			Slower		
39	☺		Time		Time
			Faster	Yes	No
			Slower		
40	☺		Time		Time
			Faster	Yes	No
			Slower		
41	☺		Time		Time
			Faster	Yes	No
			Slower		
42	☺		Time		Time
			Faster	Yes	No
			Slower		
43	☺		Time		Time
			Faster	Yes	No
			Slower		
44	☺		Time		Time
			Faster	Yes	No
			Slower		
45	☺		Time		Time
			Faster	Yes	No
			Slower		
46	☺		Time		Time
			Faster	Yes	No
			Slower		
47	☺		Time		Time
			Faster	Yes	No
			Slower		
48	☺		Time		Time
			Faster	Yes	No
			Slower		
49	☺		Time		Time
			Faster	Yes	No
			Slower		
50	☺		Time		Time
			Faster	Yes	No
			Slower		
51	☺		Time		Time
			Faster	Yes	No
			Slower		
52	☺		Time		Time
			Faster	Yes	No
			Slower		
53	☺		Time		Time
			Faster	Yes	No
			Slower		
54	☺		Time		Time
			Faster	Yes	No
			Slower		





# Monitoring



We are looking for support in monitoring

MOTHER NAME..... AGE..... CASE RECORD NU..... HOSPITAL.....  
 DATE/TIME OF DELIVERY..... PARTNER PRESENT..... MONITORING BY MOTHER..... DISPLACED MOTHER.....

**FETAL MONITORING PROJECT DATA**

Maternal data (FILL IN/CIRCLE everything related)	Neonatal data (FILL IN/CIRCLE everything related)
1. Gestational age .....	1. Date of birth.....
2. Pregnancy Nu ..... Delivery Nu.....	2. Time of birth.....
3. Pregnancy: Single / Multiple	3. Sex: Boy / Girl
4. Fetal position (1 <sup>o</sup> ): Vertex/ Breech / Transverse	4. Weight at birth, grs .....
5. Uterine scar: No / Previous CS / Uterine surgery	5. Length at birth, sm .....
6. Maternal disease: Chronic hypertension / Chronic renal diseases / Heart diseases decompensated / Urinary tract infections in pregnancy / Diabetes mellitus / Gestational diabetes / Acute respiratory syndrome at delivery / Trauma	6. Head circumference, sm .....
7. Date/Time admission for delivery .....	7. SGA: No / Yes
8. Cervical dilatation on admission .....	8. If multiple, sequence number .....
9. Stage of labour on admission: Latent/Active/2 stage	9. If multiple, type of birth: Spontaneous vaginal / Vacuum / Forceps / Cesarean Section
10. Pregnancy / delivery complications: Placenta Previa / Placenta abruption / Uterus rupture / PROM>24h / Chorioamnionitis / Antepartum Haemorrhage / BP drop / Preeclampsia severe / Eclampsia / FGR / Cord prolapse / Inadequate contractions&dilatation / Obstructed labour / Fetal distress / Meconium&Fetal distress/ Shoulder dystocia / PPH <1000 ml / PPH >1000 ml	10. Baby alive at delivery: No / Yes (if No - p.31)
11. CTG on admission: No / Yes	11. Resuscitation: No / Yes (if No - p.14)
12. If Yes, CTG on admission: Normal / Suspicious	12. Measures of Resuscitation: Bag&Mask / Intubation / Chest compressions / Medications
13. Continuous CTG in labour: No / Yes	13. Duration of Resuscitation, min .....
14. Duration of continuous FHR monitoring ..... hs	14. Apgar 1 min .....
15. FHR monitoring by mother: No / Yes (if No - p.21)	15. Apgar 5 min .....
16. FHR changed detected by mother: No/Yes (if No - p.21)	16. Apgar 10 min ....., if <7 at 5 min
17. If Yes, time of detection: .....	17. Apgar 15 min ....., if <7 at 5 min
18. Type of changes: Faster / Slower	18. Apgar 20 min ....., if <7 at 5 min
19. FHR change confirmed by personnel: No / Yes	19. Lactate, mmol/l .....
20. How many times mother detected FHR change ....	20. Admission to neonatal ward: No / Yes (if No - p. 27)
21. Suspicious FHR detected by staff on auscultation: No/Yes (if No- p.25)	21. Indications for neonatal ward: HIE / Respiratory / HDN / Congenital anomaly / Prematurity / Infection / Others, specify
22. If Yes, time of detection: .....	22. Admission to NICU: No / Yes (if No - tp.27)
23. Type of FHR change detected clinically: Decelerations / Bradycardia / Tachycardia	23. HIE (if >34 wks): No / Yes
24. Actions taken: Lateral tilt / IV fluid / Stop Oxytocin / Vaginal exam / CTG started / O2 / Tocolysis / Vacuum / Forceps / Cesarean Section	24. HIE stage: 1 / 2 / 3
25. Changes on CTG: Decelerations: Late/ Complicated variable / Prolonged / Variability <=5 / Absent variability / Sinusoidal / Bradycardia / Tachycardia (if No- p.28)	25. Seizures: No / Yes
26. CTG analysis time .....	26. Cooling applied: No / Yes
27. Actions taken: Lateral tilt / IV fluid / Stop Oxytocin / Vaginal exam / O2 / Tocolysis / Vacuum / Forceps / CS	27. Baby: Discharge / Transfer another hospital/ Died
28. Delivery interventions: Labour induction / Labour augmentation / Epidural analgesia / Spinal for CS	28. Date of Discharge / Transfer/ Death .....
29. Delivery: Spontaneous vaginal / Vacuum / Forceps / Cesarean Section	29. If Transfer to another hospital: Age (hours).....
30. Vacuum /Forceps indication: Suspicious FHR/ Other	30. If Death: Age (hours) .....
31. Cesarean Section indication: Maternal request / Elective CS/ Emergency CS FHR not related / Emergency CS FHR related	31. Cause of death: Asphyxia / Complications of prematurity / Infection / Congenital anomaly / Others, specify
32. Duration of birth: 1 period..... 2 period.....	
32. Mother: Discharge / Transfer another hospital/ Died	
33. Date of Discharge / Transfer/ Death .....	
	<b>Comments on self FHR monitoring</b>
	1. Mother/partner's Experience on FHR: Excellent (5) / Good (4) / Alright (3) / Poor (2) / Very bad (1)
	2. Problems with self-FHR monitoring: No / Yes
	3. If Problem, specify
	<b>Donated equipment / medicines</b>
	1. Donated equipment/medicines used: No / Yes
	2. US scanner in labour: No / Yes
	3. BP monitor: No / Yes
	4. Ellavi UBT: No / Yes
	5. Pulsoxymeter mam: No / Yes
	6. Pulsoxymeter baby: No / Yes
	7. Skin to skin wrap: No / Yes
	8. Urine test strip: No / Yes
	9. Vacuum KIWI: No / Yes
	10. Misoprostol: No / Yes
	<b>Medical workers who filled out the form</b>
	...../.....

# Training

- **Ultrasound scanning during labour and delivery**

Only 13% of ObsGyns trained in Ultrasound Scanning!

- **Intrapartum Hypoxia prevention / detection / management**

- ✓ ObsGyns – 284
- ✓ Anaesthesiologists – 13
- ✓ Neonatologists – 8
- ✓ Midwives – 40
- ✓ Nurses - 5

We are looking for collaboration and support to  
arrange trainings for professionals in Ukraine

# Humanitarian assistance

- Address the consequences of the ongoing armed conflict, in particular the targeting of civilians leading to massive numbers of internally displaced pregnant women, babies and children
- Targeting of electricity / heat supplies to hospitals
- Provision of humanitarian assistance in the form of high quality, up to date medical equipment, emergency drugs and supplies to maternity hospitals throughout Ukraine

# Electricity and heat supply

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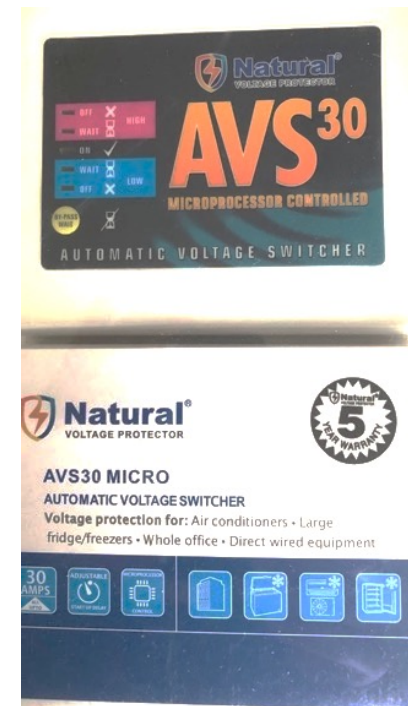
- Medical generators/ invertors  
(2.2 KW power, use little petrol, quiet)

They are ideal for charging medical equipment as they produce sine-wave electrical power that will not damage sensitive electronic equipment

# Electricity and heat supply

- AVS30 surge protectors

To help prevent damage to medical equipment sensitive to spikes in electricity resulting from damage to mainstream electricity supplies and the essential use of generators in hospitals



# Electricity and heat supply



- Rechargeable battery-operated heat pads for mothers and babies

To prevent hypothermia resulting from electricity failure due to deliberate targeting

# Electricity and heat supply



- “Survival mountain rescue-based” blankets for mothers and babies

To prevent hypothermia resulting from electricity failure due to deliberate targeting of civilian equipment



# Obstetric equipment



- Portable battery-operated ultrasound scanners

To improve the management of difficult deliveries such as retained second twin, breech with extended head, placenta praevia, ruptured uterus



# Obstetric equipment

- Fetal doppler ultrasound probes

For fetal heart rate (FHR) monitoring by mothers during labour using intermittent auscultation in addition to existing FHR monitoring during labour



# Obstetric equipment



- **Kiwi devices** updated to provide traction control  
To enhance vacuum delivery for those babies suffering fetal distress during the second stage of labour
- **Head torches**  
To provide of emergency procedures including Caesarean Section and cervical tear repairs

# Obstetric equipment

- Lactate Pro 2 monitors + stick tests
  - To measure lactic acid in cord blood to help guide management of HIE
  - ONLY provided so far for first 37 hospitals
- Multi-stick urine testing
  - To improve identification of pregnancy, complications



# Obstetric and neonatal equipment



- Portable battery-operated pulse oximeters

To manage shock / heart failure in pregnant women before / after birth and in newborn infants needing resuscitation



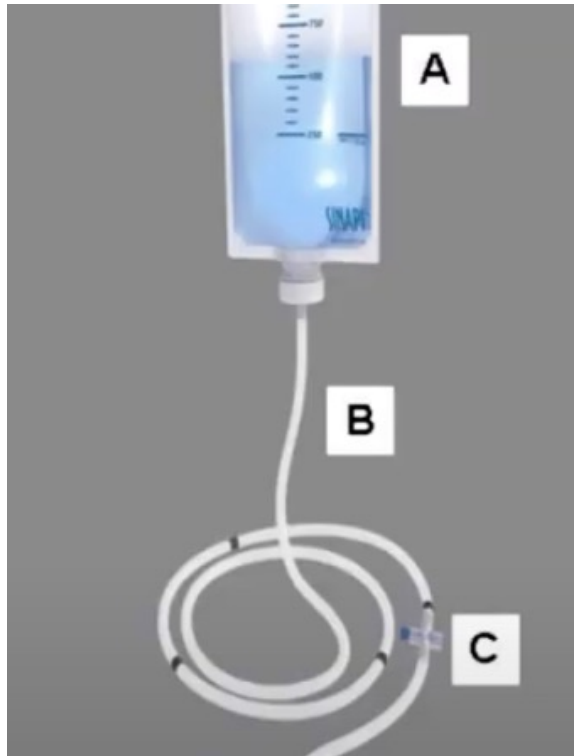
## Obstetric equipment

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- APEC rechargeable blood pressure monitors

To manage preeclampsia / shock in pregnancy, including post partum haemorrhage

# Obstetric equipment



- **Ellavi** uterine balloon tamponade device

To manage post partum haemorrhage due to atonic uterus and resistant to standard procedures and drug treatment

# Obstetric and neonatal drugs

- **Misoprostol** (not available in Ukraine)
  - for managing of post partum haemorrhage
  - to induce labour
- **Glyceryl trinitrate sprays**
  - to provide short-acting uterine muscle relaxation in cases of fetal distress
  - to manage of peri-natal cardiac failure in pregnant women
- **Phenobarbital intravenously (permission awaited from MOH)**
  - to manage HIE seizures in newborns suffered birth asphyxia
  - This is a controlled drug, has not been available until now in Ukraine, and arrangements to supply this drug by MCAI are now underway with support from the Association of Neonatologists in Ukraine

# Obstetric and neonatal equipment

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- Skin-to-skin care wraps
  - to prevent of hypothermia
  - improve breast feeding
  - manage low-birth-weight babies
  - Improve maternal/baby interactions



# Obstetric and neonatal problems addressed

- IPADs
- Education materials downloaded including videos in English and Ukrainian on subjects related to the donated equipment
- To collect information using a Memento Database on those patients treated in each hospital

The screenshot shows a mobile application interface for creating a patient record. The form is titled 'Create' and has tabs for 'GENERAL', 'MATERNAL', 'NEONATAL', and 'SUMMARY'. The 'GENERAL' tab is active. Fields include: Mother Name (Laura), Age (24), Case Record Number, Hospital, Date of Delivery, Time of Delivery, Partner Present (checkbox), Monitoring By Mother (checkbox), and Displaced Mother (checkbox). The bottom of the screen shows a keyboard and navigation buttons.

## Screen shots for training materials on the IPADs

### Section 1

- Introduction to training materials and Program docs
  - Final program document English.pdf
  - FINAL 2022 program document in Ukrainian.pdf
  - Introduction to the training materials on this IPAD\_ukr.pdf
- Skin-skin care KMC
  - PDF QliKMC flipchart Feb 2022.pptx (AMK 15-Feb-2022).pdf
  - Importance of immediate skin to skin care in low birth weight infants .pdf
  - Skin to skin care and COVID.pdf
  - N12 Carrying baby skintoskin for mothers Global Health Media
  - N15 Continuous skintoskin care Global Health Media
  - N40 Keeping small baby warm Global Health Media
  - N82 Wrap designs for skintoskin care Global Health Media
  - N71 Small baby providing right amount milk Global Health Media.mov
  - N5 Born Too Soon- Kangaroo Mother Care Saves Preterm Babies.mp4
  - N68 Skin to skin care KMC MCAI
  - N38 Kangaroo mother care MRC South Africa
  - N76 The Cold Baby Global Health Media
  - Kangaroo Mother Care Implementation Guide USAID 2012

### Section 2

- Introduction to training materials and Program docs
- Skin-skin care KMC
- Stillbirth and birth asphyxia
  - Preventing stillbirths.pdf
  - WHO Bulletin news feature on fetal monitoring.pdf
  - Final publication of fetal monitoring by mothers in labour in Liberia.pdf
  - Stillbirths BJOG 2018.pdf
- Caesarean section
  - CS in low resource settings.pdf
  - Deaths from caesarean sections 100 times higher in developing countries/ global study.pdf
  - New WHO guidance on non-clinical interventi...esigned to reduce unnecessary caesarean.pdf
  - The Robson classification implementation manual.pdf
  - Caesarean section rates continue to rise, amid growing inequalities in access.pdf
  - WHO 2015 Recommendations on CS including Robson scale.pdf
  - Optimal CS rates JAMA.docx
  - c-section wound care management booklet.pdf
  - ICRC andWFSA recommended drugs and monitoring.docx
  - ICRCAnaesthesia\_Handbook\_WEB\_1.pdf
  - Caesarean birth surgical techniques.docx
  - Hypoglycaemia during CSection.pdf
  - 8. Canadian CS video.mp4
  - 35. Difficult Caesarean Sections. NCCEMD South Africa
  - 28. Caesarean section Module 6 Postoperative care MAF
  - 27. Caesarean section Module 5 Complications MAF
  - 26. Caesarean section Module 4 Closure uterus and abdomen MAF
  - 25. Caesarean section Module 3 Delivery of baby MAF
  - 24. Caesarean section Module 2 Opening abdomen and uterus MAF
  - 23. Caesarean section Module 1 Preparation for surgery MAF
  - 101. Safe surgery saves lives checklist WHO
  - 100. Caesarean section evidence-based surgical technique WHO

# Long way: From Highlands of Scotland to Poland/Ukraine border

From MCAI office in NW Scotland to Polish/Ukrainian border using converted motorhome and Mercedes Sprinter van loaned by “Pack and Send” Glasgow



# Distribution of equipment and medicines

Collection of equipment at Poland/Ukraine border by Humanitarian organisation based in Khmelnytskyi and distribution to hospitals with support from the Ukrainian military, where appropriate

Distribution of Humanitarian Assistance to 61 perinatal hospitals completed

23<sup>rd</sup> December 2022 (n = 37)

6<sup>th</sup> February 2023 (n = 12)

12<sup>th</sup> April 2023 (n = 12)



# Equipment provided

Equipment	Number	Equipment	Number	Equipment	Number
Fetal doppler monitors	392	Head torches	168	Invertor/ generators	49 = 1KW 12 = 2.2KW
Obstetric ultrasound scanners	61	Heated pads	12	LactatePro + test strips	<b>37</b>
Pulse oximetry	62	Baby wraps	300	Urine strips	296 bottles of 100 sticks each
BP monitors	299	Blankets/ Baby bags	100 /200	Apple IPADs plus printed data sheets	61
Kiwi vacuum	672	Misoprostol	299 boxes of 60 tabs	Sterile elbow length gloves	500
Ellavi Balloon	627	Glyceryl TriNitrate	365 sprays	Ultrasound gel	392
Surge protectors	65	EU/UK adaptors	61	USB/EU plug adapters	163

# Dunaevci, Khmelnytskyi Region



We sincerely thank the donors ....  
for their hard work, for providing  
high-quality and much-needed  
help today!

**PEACE TO ALL AND GOODNESS!**

**Dunaevci, Khmelnytskyi Region**

# Zhytomir, Ovruch



We are very grateful for the help! It will greatly benefit our patients and make the work of doctors easier!  
Ovruch, Zhytomir Region

# Lutsk, Perinatal Center



In times when you sit without light for half a day and think about switching to "Zemstvo" medicine, you gave us the opportunity to remember the most important thing, that we are doctors and that our patients deserve quality care, this is extraordinary Lutsk



# Izmail Maternity Hospital, Odessa Region

VIDEO BELOW





# Kyiv, Perinatal Center



VIDEO BELOW



# Future plans to make this program sustainable

- Monitoring and evaluation of the program in all 61 hospitals who have received equipment, drugs and supplies
- Addition of lactic acid monitoring from cord blood to diagnose birth asphyxia in the second and third consignments involving 24 hospitals
- Establishment of an emergency store of equipment, drugs and supplies within Ukraine to replenish those used up as part of the program
- Educational activities designed to address prevention /management of birth asphyxia in all 16 regions

**Thank you for your attention!**