



Digitalization in MCH care in Africa Perspectives from Sudan

Mr Ahmed S.A.ElSayed

MBBS,FRCSED,FRCSED (CTh),FCS(ECSA)MHPE(Gaz),PGdHI (Bath)

- Consultant Cardiothoracic Surgeon, AlShaab Teaching Hospital
- Professor of Surgery Alzaeim Alazhari University

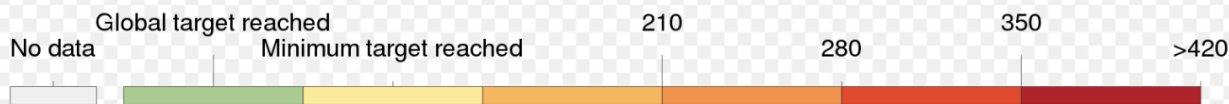
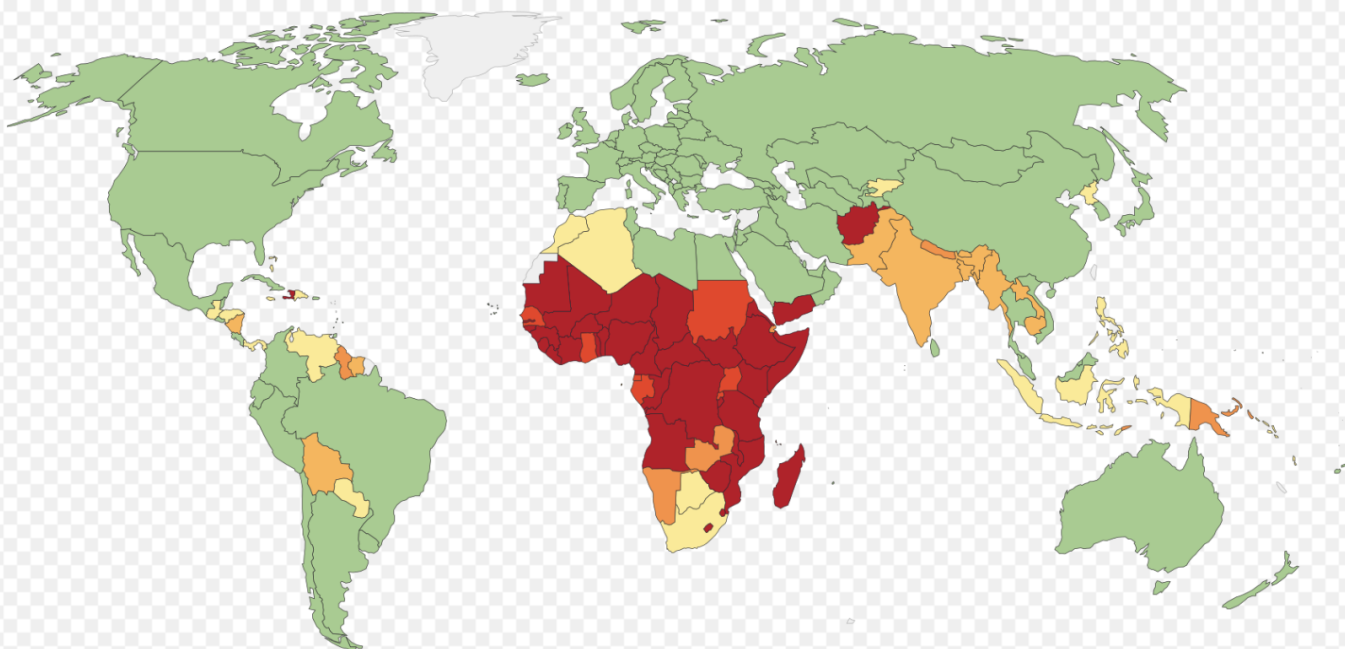
TICAD8 Side event Tunisia

Digitalization of Maternal and Child Health Handbooks and Information:
Benefits to Mothers and Children and Contributions to Public Health in Africa

Maternal mortality- world comparision

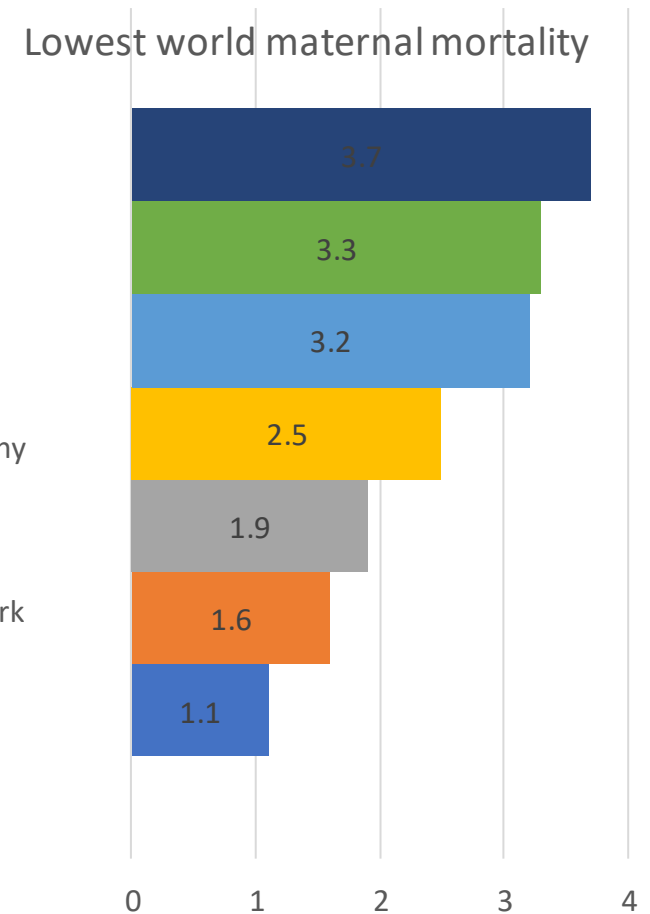
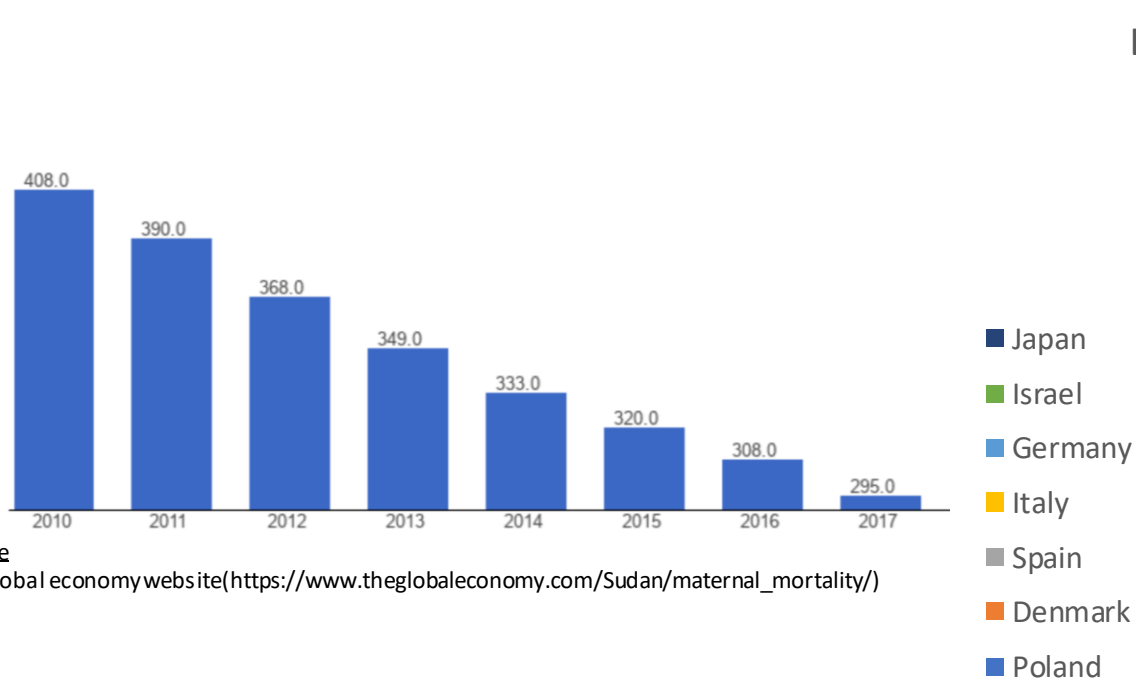
Maternal mortality ratio, 2015

Maternal mortality ratio is the number of women who die from pregnancy-related causes while pregnant or within 42 days of pregnancy termination per 100,000 live births. SDG Target 3.1 is to reduce global maternal deaths to less than 70 per 100,000 live births and all countries less than 140 per 100,000 live births.



Source: World Bank

Sudan maternal mortality

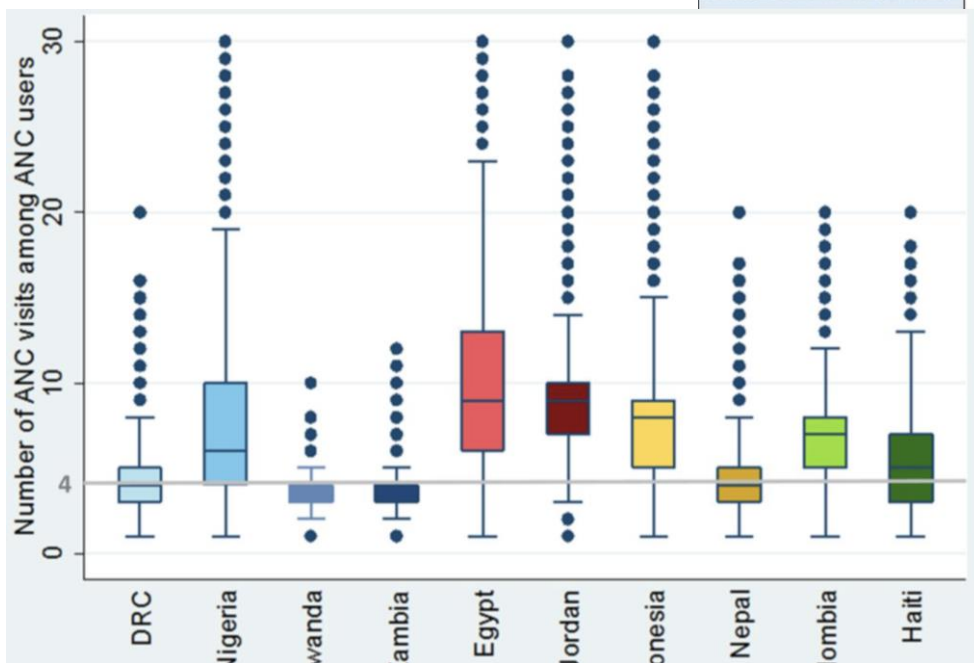


Source
World maternal mortality
Statista.com
(<https://www.statista.com/statistics/1240400/maternal-mortality-rates-worldwide-by-country/>)

Antenatal care



	DRC	Nigeria	Rwanda	Zambia	Egypt	Jordan	Indonesia	Nepal	Colombia	Haiti
Population in millions, 2015 ¹	76.2	181.2	11.9	16.1	93.8	9.2	258.2	28.7	48.2	10.7
Maternal mortality ratio (MMR), 2015 ²	693	814	290	224	33	58	126	258	64	359
% decrease in MMR between 1990-2015 ²	21.2	39.7	77.7	61.2	68.9	47.3	71.7	71.4	45.8	42.6



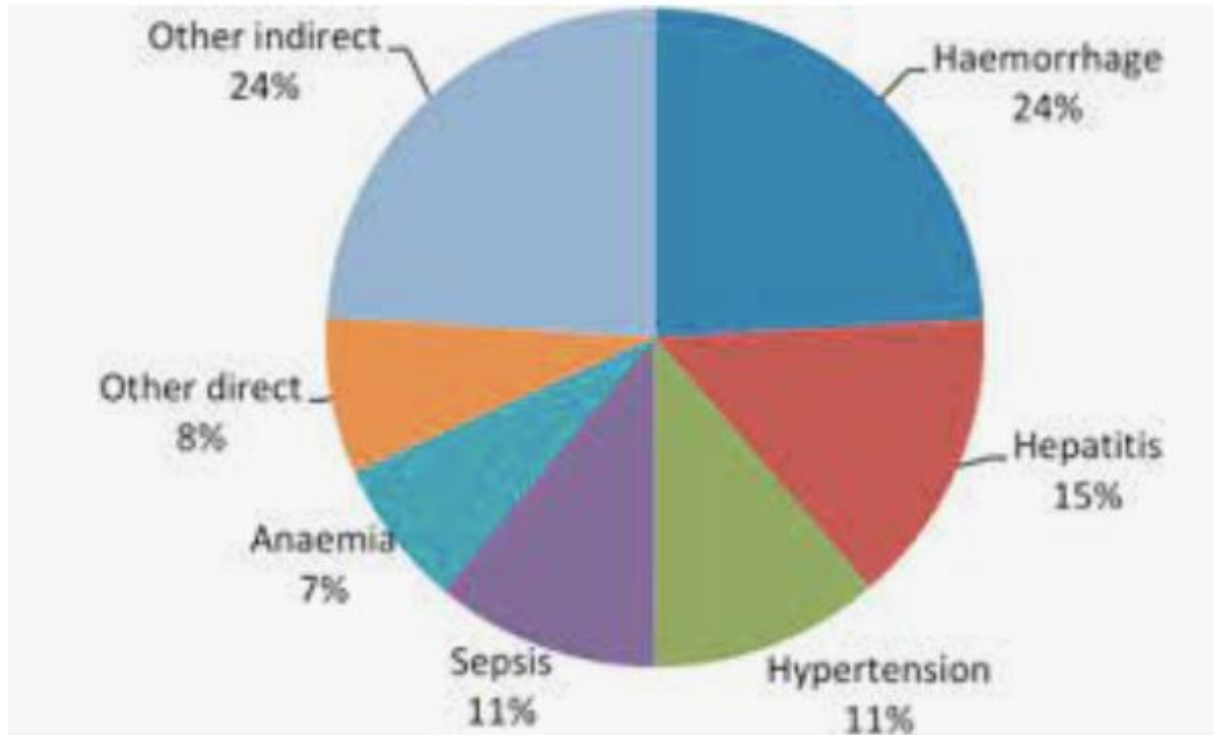
Conclusion

- 4 visits rare
- Six routine components varied widely
- Content of care was poor.

Sudan = same

- Mustafa MH, Mukhtar AM. Factors associated with antenatal and delivery care in Sudan: analysis of the 2010 Sudan household survey. BMC Health Serv Res. 2015 Oct 4;15:452. doi: 10.1186/s12913-015-1128-1. PMID: 26433875; PMCID: PMC4592751.
- Abdel Aziem A. Ali & Ishag Adam (2011) Lack of antenatal care, education, and high maternal mortality in Kassala hospital, eastern Sudan during 2005–2009, The Journal of Maternal-Fetal & Neonatal Medicine, 24:8, 1077-1078, DOI: [10.3109/14767058.2010.545908](https://doi.org/10.3109/14767058.2010.545908)

Causes of Sudan maternal mortality



Khalifa AA, et al 2015 Overview of maternal and perinatal mortality in Sudan, Seminars in fetal and neonatal medicine 20,5,P321-325,

Causes of Sudan maternal mortality analysis

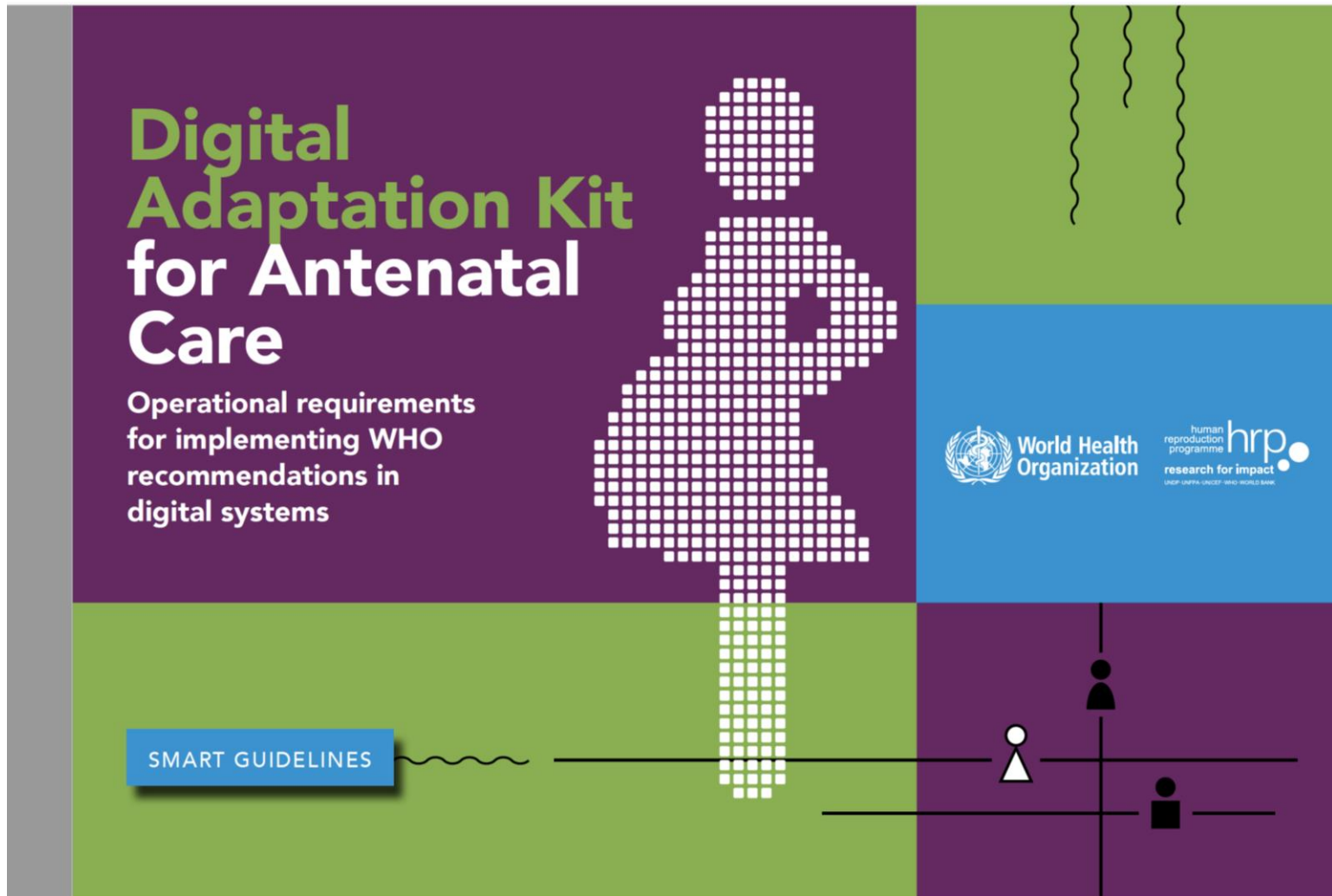
- Most deaths due to home deliveries without the presence of skilled birth attendants
- Lack of emergency obstetric care at medical facilities
- 85% of pregnant women have at least one antenatal care visit
- Those who have at least 4 antenatal care visits is just over 50%
- 34% of young mothers and their newborns receive post-natal care services
- 69% of women receive their tetanus toxoid vaccination

Source

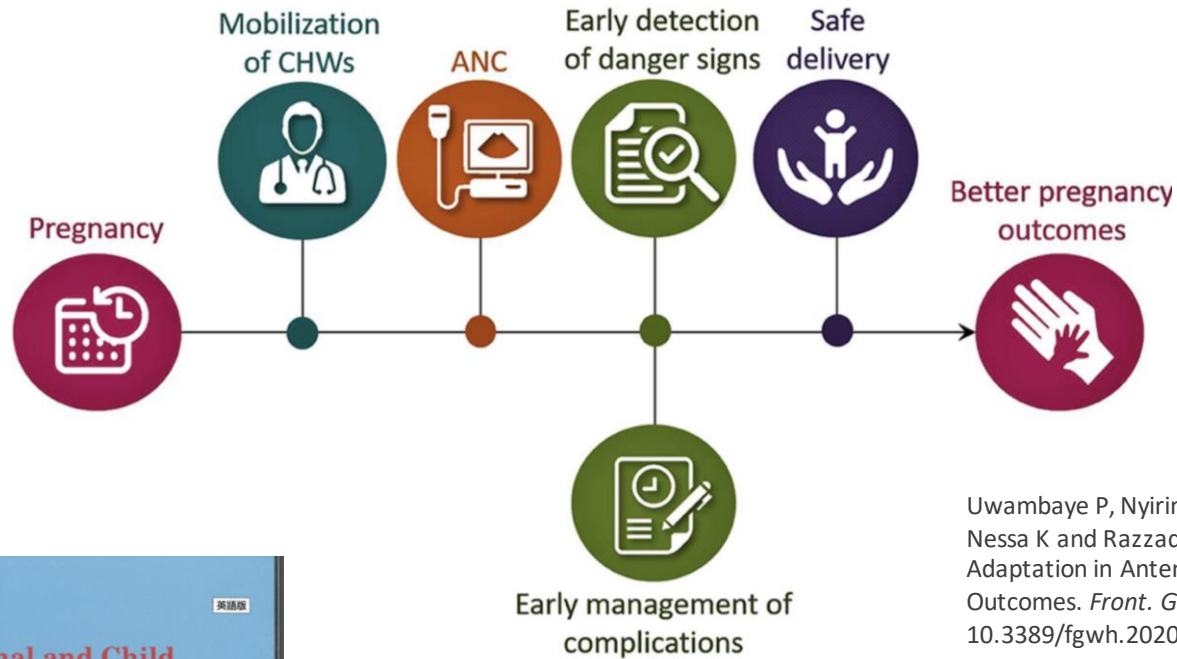
UNICEF 2022 Health Supporting high impact interventions to save lives of mother and babies
(<https://www.unicef.org/sudan/health>)



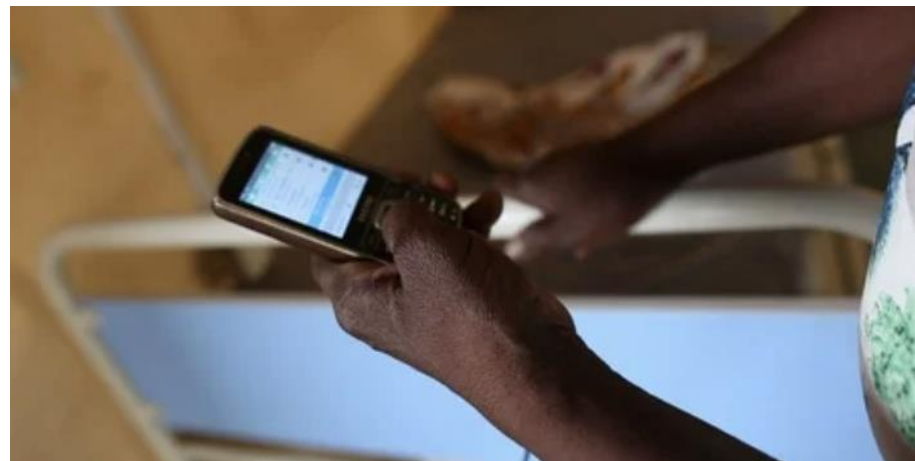
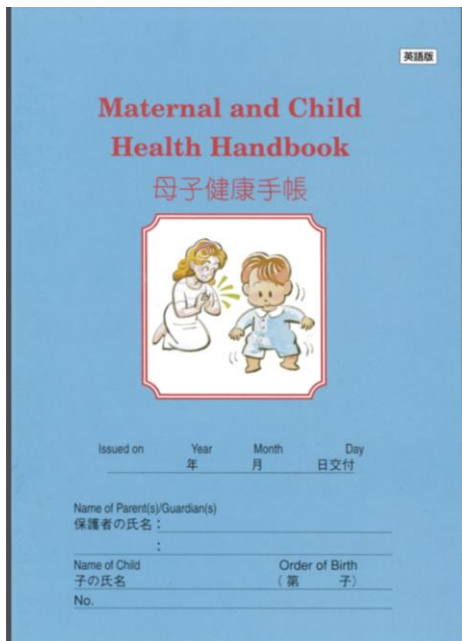
Digital is the way forward



The way forward =

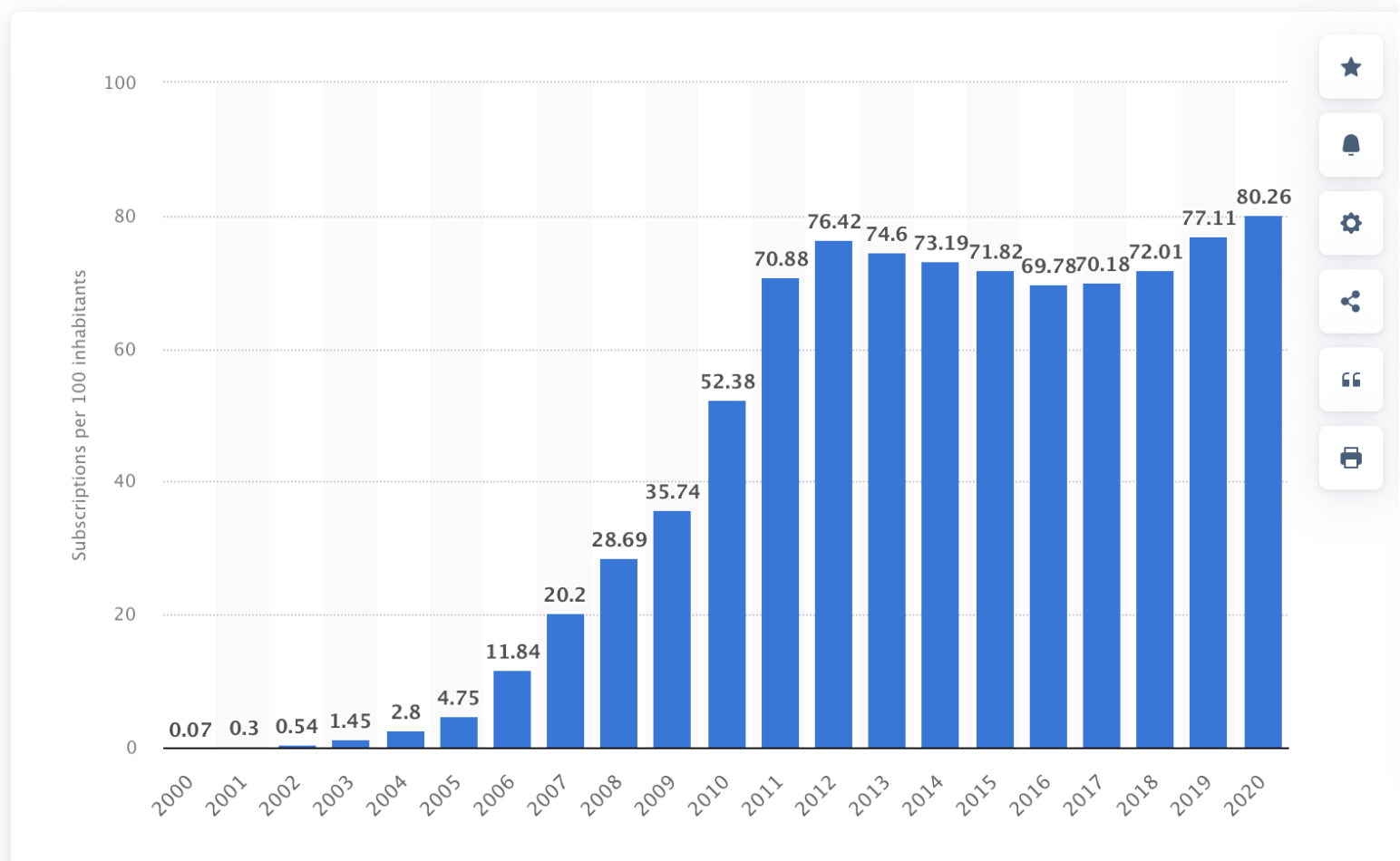


Uwambaye P, Nyiringango G, Musabwasoni SMG, Husaini Nessa K and Razzaque MS (2020) COVID-19 Pandemic: Adaptation in Antenatal Care for Better Pregnancy Outcomes. *Front. Glob. Womens Health* 1:599327. doi: 10.3389/fgwh.2020.599327



Sudan mobile phone penetration

Number of mobile cellular subscriptions per 100 inhabitants



Sudan nurses and midwives

Nurses and midwives (per 1,000 people) - Sudan

World Health Organization's Global Health Workforce Statistics, OECD, supplemented by country data.



Our Solution for Sudan

Alazhari Health Research Center + ROCINANTES



- Supervised rural midwife led antenatal care

Steps forward

- Antenatal care adaptation
- Software database
- Midwife training and education
- Pilot
- Dissemination

Envisaged end result

Full midwife led antenatal care

Digital stethoscope and ultrasound

Full history

ANC Assessment

Consultation Reference (*)

7679876876

Is this the first ANC consult?

☐ Yes ☐ No

Counselling, in-facility management and treatment

» Based on the previous steps, health worker provides counselling for potential risk, behaviours and diagnoses, as well as preventive services and any treatment that can be provided at the facility, including through admission to a different part of the facility.

Diseases or disorders

Past birth history

Check symptoms & follow-up

- | | | |
|------------------------------------|------------------------------------|------------------------------------|
| <input type="checkbox"/> Symptom 1 | <input type="checkbox"/> Symptom 3 | <input type="checkbox"/> Symptom 5 |
| <input type="checkbox"/> Symptom 2 | <input type="checkbox"/> Symptom 4 | <input type="checkbox"/> Symptom 6 |

Conduct physical exam (*)

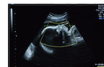


Telemetry device tests

☒ Digital Stethoscope



☒ Ultrasound Imaging



click to enlarge in new window

☒ Blood Pressure

Systolic Blood Pressure

110 mmHg

diastolic Blood Pressure

80 mmHg

Antenatal Care B

Consultation Reference (*)

6878698

Perform Quick check immediately arriving with woman.

If any danger sign is seen, call an ambulance/help the woman and send her quickly to the emergency room.

Always begin a clinical visit with Rapid assessment and management (RAM):

Check for emergency signs first

Rapid Assessment and Management (*)

☐ No danger

☒ Yes danger and refer

Perform Quick check immediately as you arrive with the woman. If any danger sign is seen, call an ambulance, help the woman and send her quickly to the emergency room.

Please list any additional danger information for mother

Is foetus/baby in danger?

☒ Yes ☐ No

Please list any additional danger information noticed for foetus/baby

Refer the patient? (*)

☒ Yes

☐ No

Please make a selection

additional comments

NEXT

Cancel

If emergency or priority signs present, provide emergency treatment and refer the woman urgently to hospital.

Complete the referral form

Check for priority signs. If present, manage according to charts.

Quick Check Details (*)

- | | | |
|---------------------------------------------|------------------------------------------------------------------|----------------------------------------------------------|
| <input type="checkbox"/> bleeding vaginally | <input type="checkbox"/> severe abdominal pain or looks very ill | <input type="checkbox"/> severe vomiting |
| <input type="checkbox"/> convulsing | <input type="checkbox"/> headache and visual disturbance | <input checked="" type="checkbox"/> in labour |
| <input type="checkbox"/> looking very ill | <input checked="" type="checkbox"/> severe difficulty breathing | <input checked="" type="checkbox"/> delivery is imminent |
| <input type="checkbox"/> unconscious | <input type="checkbox"/> fever | <input checked="" type="checkbox"/> other |
| <input type="checkbox"/> in severe pain | | <input type="checkbox"/> if other please specify |

Bruising on abdomen

Baby's Condition (*)

- | | | |
|------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------------------------|
| <input type="checkbox"/> slow cervical dilations | <input type="checkbox"/> insufficient oxygen levels | <input type="checkbox"/> frank breech |
| <input type="checkbox"/> slow effacement | <input type="checkbox"/> maternal anemia | <input type="checkbox"/> complete breech |
| <input checked="" type="checkbox"/> a large baby | <input type="checkbox"/> pregnancy-induced hypertension in the mother | <input checked="" type="checkbox"/> lying sideways |
| <input type="checkbox"/> a small birth canal or pelvis | <input type="checkbox"/> intrauterine growth retardation (IUGR) | <input type="checkbox"/> umbilical cord wrapped around the baby |
| <input type="checkbox"/> delivery of multiple babies | <input type="checkbox"/> meconium-stained amniotic fluid | <input type="checkbox"/> umbilical cord emerging before the baby |
| <input type="checkbox"/> irregular heartbeat in the baby | <input type="checkbox"/> placental abruption or placenta previa | <input type="checkbox"/> placenta previa |
| <input type="checkbox"/> problems with muscle tone and movement | <input type="checkbox"/> facing upward | <input type="checkbox"/> cephalopelvic disproportion |
| <input checked="" type="checkbox"/> low levels of amniotic fluid | | |

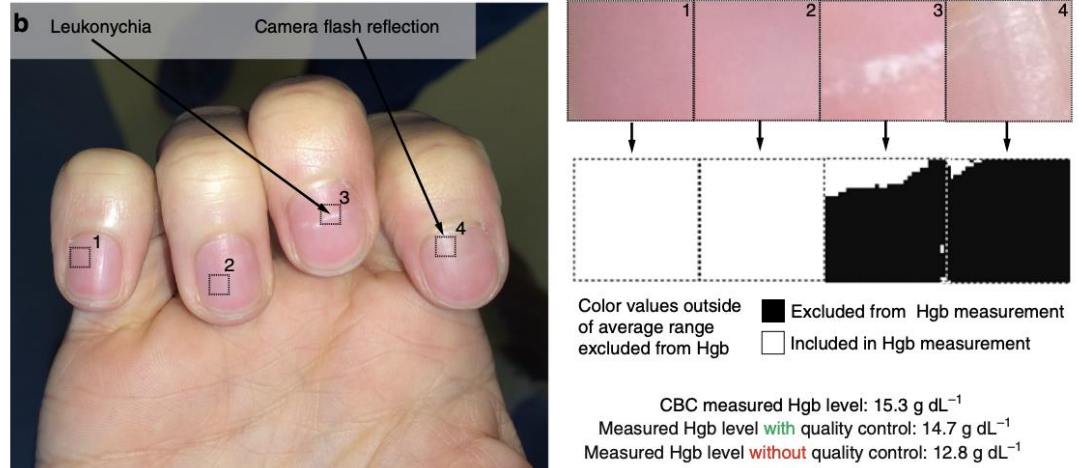
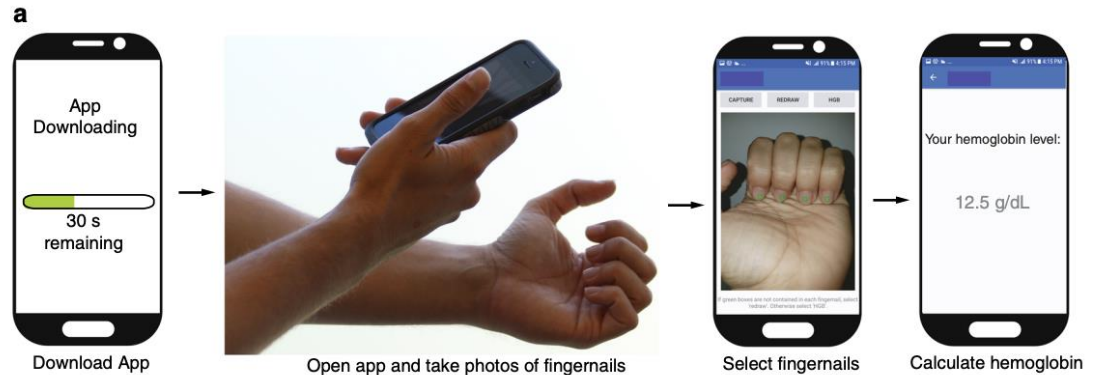
Referred to?

ANC emergency ward hospital

Anemia monitoring

- Anemia

- Ultrasound training



Ultrasound



