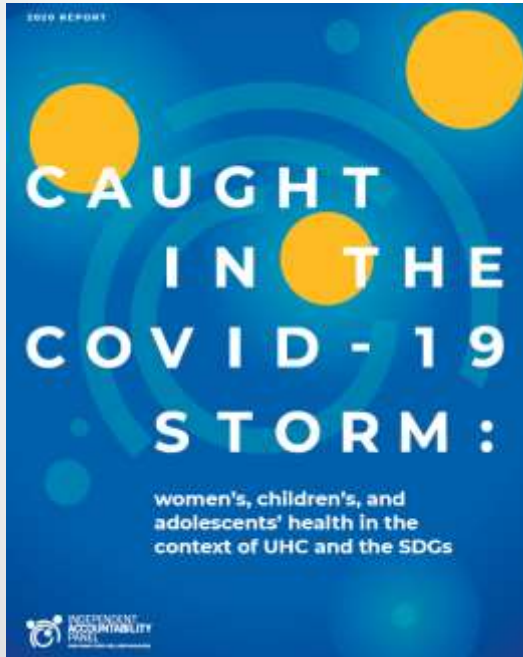


La Salute materno-infantile con il COVID-19

in Kenya, a Nairobi

Maria Vittoria De Vita, Stefano Zani, Barbara Tomasini



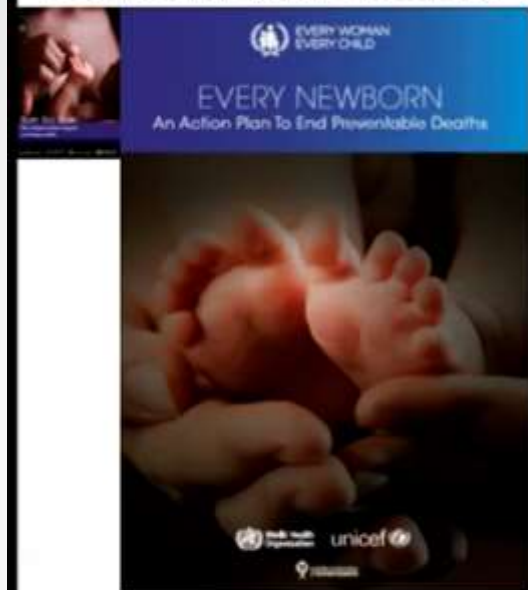
Centro
Salute
Globale
Regione Toscana



Azienda ospedaliero-universitaria Senese



Together the world has committed to end preventable stillbirths, newborn and maternal deaths



By 2030
stillbirth and neonatal mortality targets



By 2025
4 coverage targets



#MNHalign #EveryNewborn

Mortalità Infantile < i 5 anni
Mortalità Neonatale e Natimortalità
Mortalità Materna

25 per mille nati vivi
12 per mille nati vivi
70 per 100.000 nati vivi

COVERAGE
TARGET 1



EVERY PREGNANT
WOMAN

Indicator: Four or more antenatal care contacts

Global target 90% global coverage of four or more antenatal care contacts

National target 90% of countries have > 70% coverage

Subnational target 80% of districts have > 70% coverage

COVERAGE
TARGET 2



EVERY BIRTH

Indicator: Births attended by skilled health personnel

Global target 90% global average coverage of births attended by skilled health personnel

National target 90% of countries with > 80% coverage

Subnational target 80% of districts with > 80% coverage

COVERAGE
TARGET 3



EVERY WOMAN
AND NEWBORN

Indicator: Early routine postnatal care (within 2 days)

Global target 80% global coverage of early postnatal care

National target 90% of countries with > 60% coverage

Subnational target 80% of districts with > 60% coverage

COVERAGE
TARGET 4



EVERY SMALL AND
EVERY SICK NEWBORN

Global target

80% of countries have a national implementation plan that is being implemented in at least half the country, with an appropriate number of functional level-2 inpatient units linked to level-1 units to care for small and sick newborns, with family-centred care.

**National and
Subnational targets**

80% of districts (or equivalent subnational unit) have at least one level-2 inpatient unit to care for small and sick newborns, with respiratory support including provision of continuous positive airway pressure. (See Table 1 for definitions of levels 1 and 2 newborn units.)

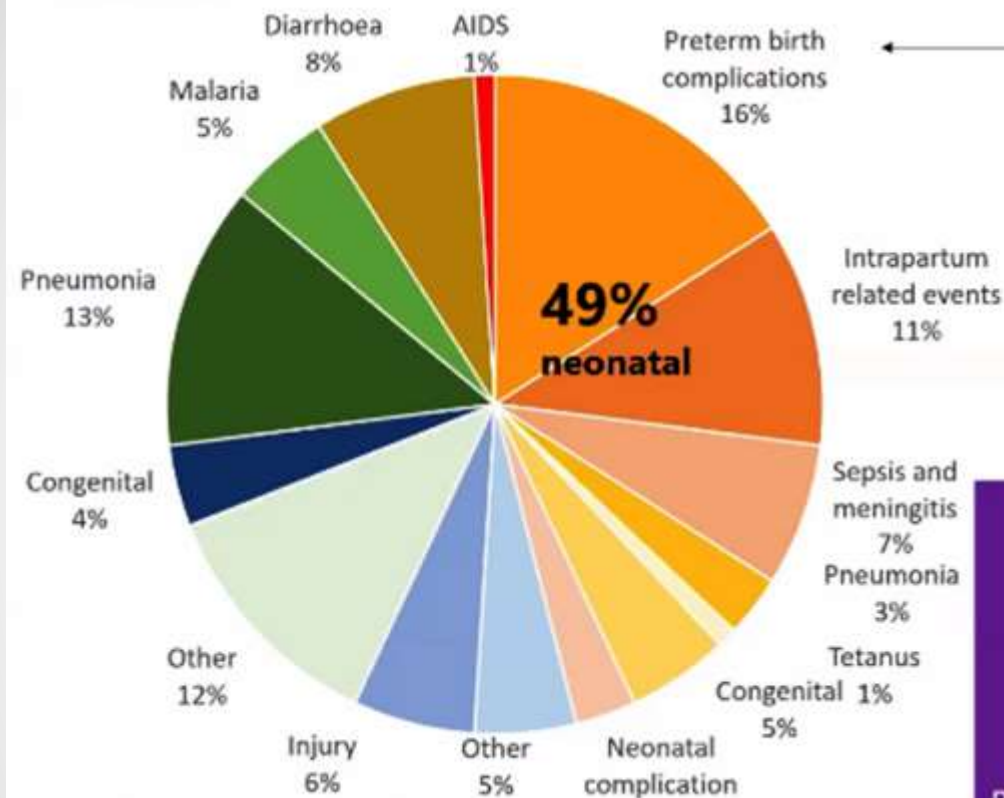


FIGURE
2

Global mortality rates and number of deaths by age, 1990–2019



Note: All figures are based on unrounded numbers. The solid line in the left panel represents the median estimate and the shaded area represents the 90 per cent uncertainty bound around the median value.

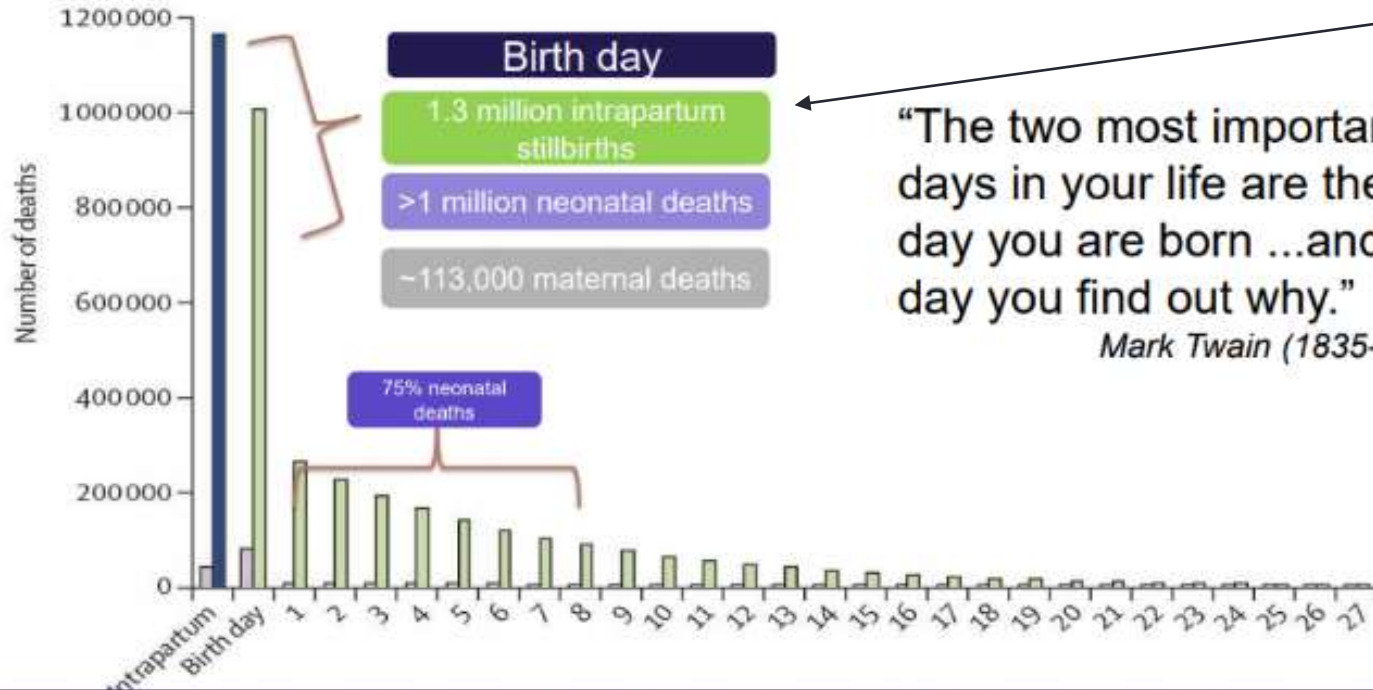


Preterm birth now
top cause of
CHILD deaths
~1 million
Also important cause
of disability and loss
of human capital

Biggest condition in GBD 2019
Neonatal conditions 7.3% of all
DALYs mostly due to mortality,
especially preterm

More than all of Cancer DALYs, 3 x AIDS
Preterm deaths & disability are mostly preventable

When? For women, stillbirths, newborns, highest risk is at same time

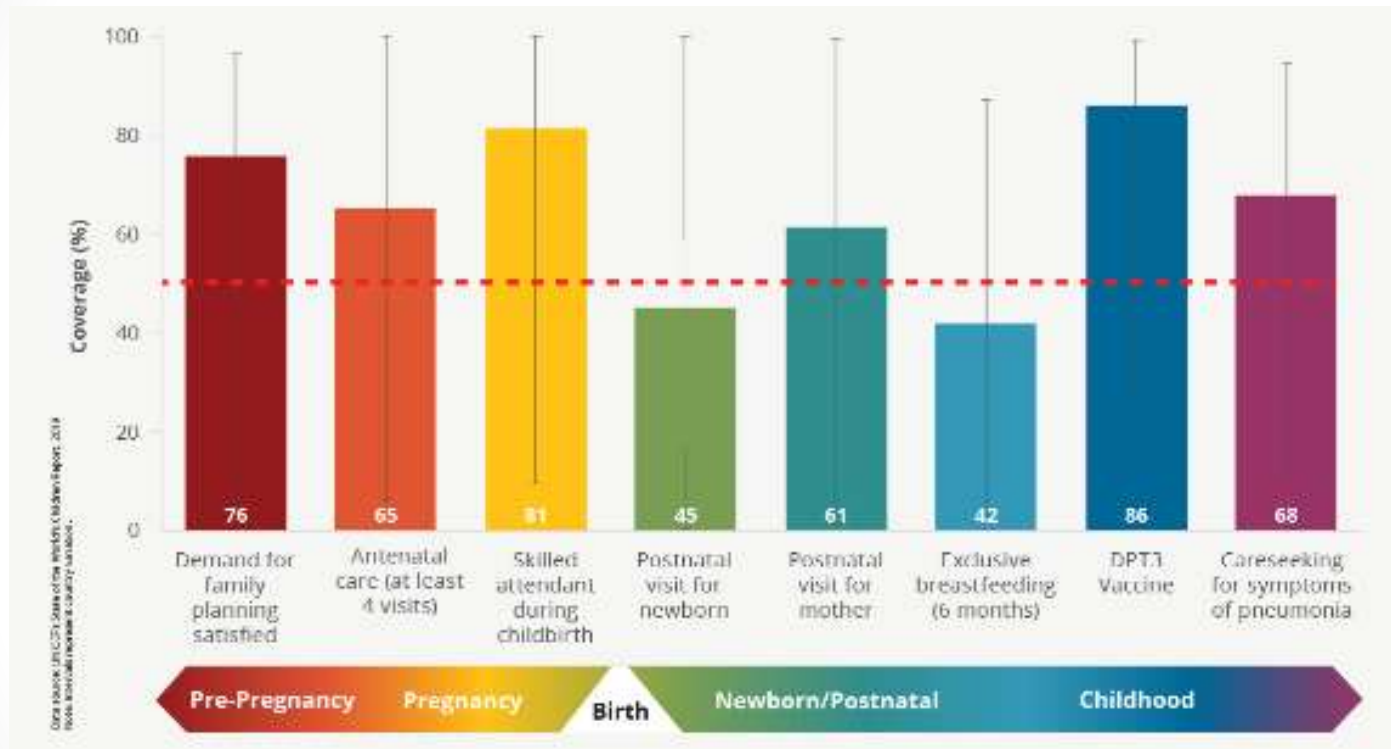


“The two most important days in your life are the day you are born ...and the day you find out why.”

Mark Twain (1835-1910)

Birth is the time of greatest risk of death and disability
TRIPLE return on investment – quadruple if count child development outcomes
Intrapartum stillbirth is the most sensitive outcome indicator of quality of care

Interventi efficaci...Sistema Sanitario



Comunità-Dispensari-Ospedali

CLASSIFICATION OF INTERVENTIONS ACCORDING TO THE LEVEL OF HEALTH CARE DELIVERY

Intervention	Referral level	1 st level	Community
Postnatal (newborn)			
Immediate thermal care	✓	✓	✓
Initiation of exclusive breastfeeding (within first hour)	✓	✓	✓
Hygienic cord and skin care	✓	✓	✓
Neonatal resuscitation with bag and mask (professional health worker)	✓	✓	-
Case management of neonatal sepsis, meningitis and pneumonia	✓	✓	-
Kangaroo mother care for preterm and for less than 2000g babies	✓	✓	-
Management of newborns with jaundice	✓	✓	-
Surfactant to prevent respiratory distress syndrome in preterm babies	✓	-	-
Continuous positive airway pressure (CPAP) to manage babies with respiratory distress syndrome	✓	-	-
Extra support for feeding small and preterm babies	✓	✓	-
Presumptive antibiotic therapy for newborns at risk of bacterial infections	✓	-	-

REFERRAL LEVEL/DISTRICT HOSPITAL



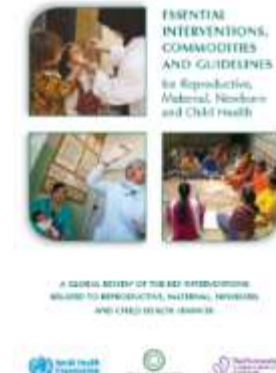
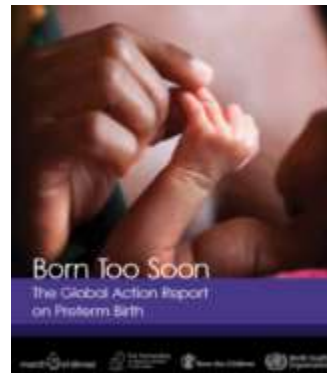
FIRST LEVEL/OUTREACH



COMMUNITY LEVEL/HOME



1. Standards Cure Neonatali WHO (Medicina Perinatale)
2. Essential Newborn Care (caldo, roseo, pulito, al seno)
3. Raccolta dati per orientare alle azioni (Babies Matrix)
4. Extra Newborn Care (LBW-Prematurità, Ittero, Infezioni, RDS)



Interventi efficaci...Sistema Sanitario

- Oltre i due terzi delle morti neonatali potrebbero essere prevenute attraverso interventi sanitari materni e neonatali economici e a bassa tecnologia.
- Le strategie basate sull'evidenza includono una serie di interventi , di solito vengono forniti attraverso pacchetti di servizi integrati a diversi livelli lungo il continuum assistenziale, dal pre-gravidanza, attraverso la gravidanza e il parto, nonché l'assistenza postnatale .
- I dati sulla copertura nazionale sono disponibili per alcuni servizi (ad esempio, assistenza prenatale, assistenza qualificata) e per alcuni interventi specifici che sono stati al centro dell'attenzione per un periodo più lungo, come l'immunizzazione con il tossoide tetanico.
- Altri interventi neonatali ad alto impatto con attenzione recente, come la *Kangaroo Mother Care* e la rianimazione neonatale, non hanno dati nazionali disponibili.

Pathways to reduce the burden of preterm birth



1. Prevent preterm birth

- **Preconception** care package especially family planning
- **Antenatal** care package
- Effective **childbirth** care
- Policy environment including smoking cessation, employment safeguards of pregnant women

Manage preterm labour

- Antenatal corticosteroids
- Antibiotics for pPROM
- Tocolytics to slow down labour

2. Preterm newborn care

- **Essential newborn care**, especially neonatal resuscitation and feeding support
- **Kangaroo Mother Care**
- **Small and sick newborn care** especially for respiratory distress syndrome, infections, jaundice
- **Neonatal intensive care**



DIRECT EFFECTS

Increased preterm risk

Noting challenge of higher caesarean section rates

Reduce rates of preterm birth

Mortality reduced among babies born preterm



DIRECT EFFECTS

Low risk for neonates

(still relatively limited data)

Direct effects of COVID-19 infection on pregnant women/newborns are important but not common. Preterm & stillbirths risk may be increased.
Indirect effects through lockdown and policy change are MAJOR





PATHWAY 1: PREVENT PRETERM

INDIRECT EFFECTS OF COVID-19 PANDEMIC

Reduction in preterm births during the COVID-19 lockdown in Ireland: a natural experiment allowing analysis of data from the prior two decades.

👤 Roy K Philip, 👤 Helen Purtill, Elizabeth Reidy, 👤 Mandy Daly, 👤 Mendinaro Imcha, 👤 Deirdre McGrath, 👤 Nuala H O'Connell, 👤 Colum P Dunne

doi: <https://doi.org/10.1101/2020.06.03.20121442>

Impact of COVID-19 mitigation measures on the incidence of preterm birth: a national quasi-experimental study

👤 Jasper V Been, 👤 Lizbeth Burgos Ochoa, 👤 Loes CM Bertens, 👤 Sam Schoenmakers, 👤 Eric AP Steegers, 👤 Irwin KM Reiss

doi: <https://doi.org/10.1101/2020.08.01.20160077>

73% reduction in very low birthweight

15-23% reduction preterm birth (stillbirths missed)

Changes in premature birth rates during the Danish nationwide COVID-19 lockdown: a nationwide register-based prevalence proportion study

Gitte Hedermann, Paula L Hedley, Marie Baekvad-Hansen, Henrik Hjalgrim, Klaus Rostgaard, Porntiva Poorisrisak, Morten Breindahl, Mads Melbye, David Hougaard, Michael Christiansen, Ulrik Lausten-Thomsen

doi: <https://doi.org/10.1101/2020.05.22.20109793>

90% reduction in extremely premature birth

OPPORTUNITY!

Insight on preterm prevention. Mechanisms?

- ↓ infection exposure?
- ↓ workload/stress?
- ↓ pollution??

BUT data all are from high income settings...

Measurement challenges (exposure/selection biases, missing stillbirths, non-medically indicated C-sections)



International
Perinatal
Outcomes with
Pandemic
Study

Appreciation to Sarah Stock



PATHWAY 1: PREVENT PRETERM

INDIRECT EFFECTS OF COVID-19 PANDEMIC

Lancet Global Health 2020

Effect of the COVID-19 pandemic response on intrapartum care, stillbirth, and neonatal mortality outcomes in Nepal: a prospective observational study

Ashish KC*, Rejina Gurung*, Mary V Kinney, Avinash K Sunny, Md Moiruddin, Omkar Basnet, Prajwal Paudel, Pratiksha Bhattacharj, Kalpana Subedi, Mahendra Prasad Shrestha, Joy E Lawri, Mats Malmqvist†



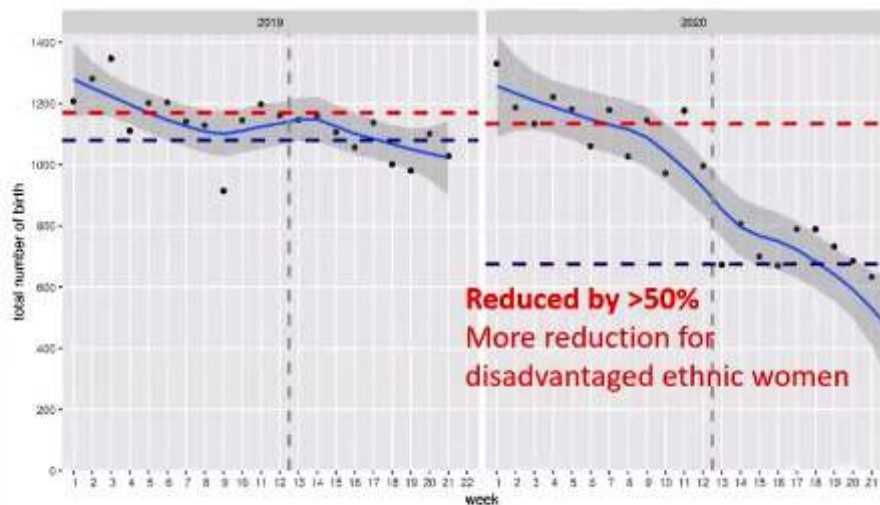
20% increase in preterm birth
57% increase in stillbirth

Measurement challenges

- Selection bias, complex cases, not whole population
- Numerator, accurate measures of gestational age

**Reduced care is major problem,
especially for most vulnerable**
Indirect effects more than direct

Institutional births halved during lockdown





PATHWAY 3: PRETERM NEWBORN CARE

INDIRECT EFFECTS OF COVID-19 PANDEMIC

High income contexts:

Experience of care

- Mothers & babies separated, breastfeeding
- Visitation policies, partners not allowed

WHO survey >1200 respondents

- Reduced facility admissions, fear of facilities
- Health worker stress, not supported
- Nurses and even oxygen supplies being removed from newborn wards
- Mothers & babies separated, KMC reduced

Data challenges

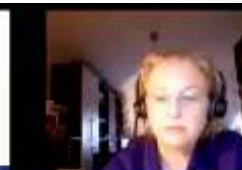
Limited primary data...

Surveys and reported perceptions are still important

Protect high quality, family centred care



Zero separation. Together for better care!



PRETERM BIRTHS IN A COVID19 WORLD

LONDON
SCHOOL of
HYGIENE
& TROPICAL
MEDICINE



CHARITÉ

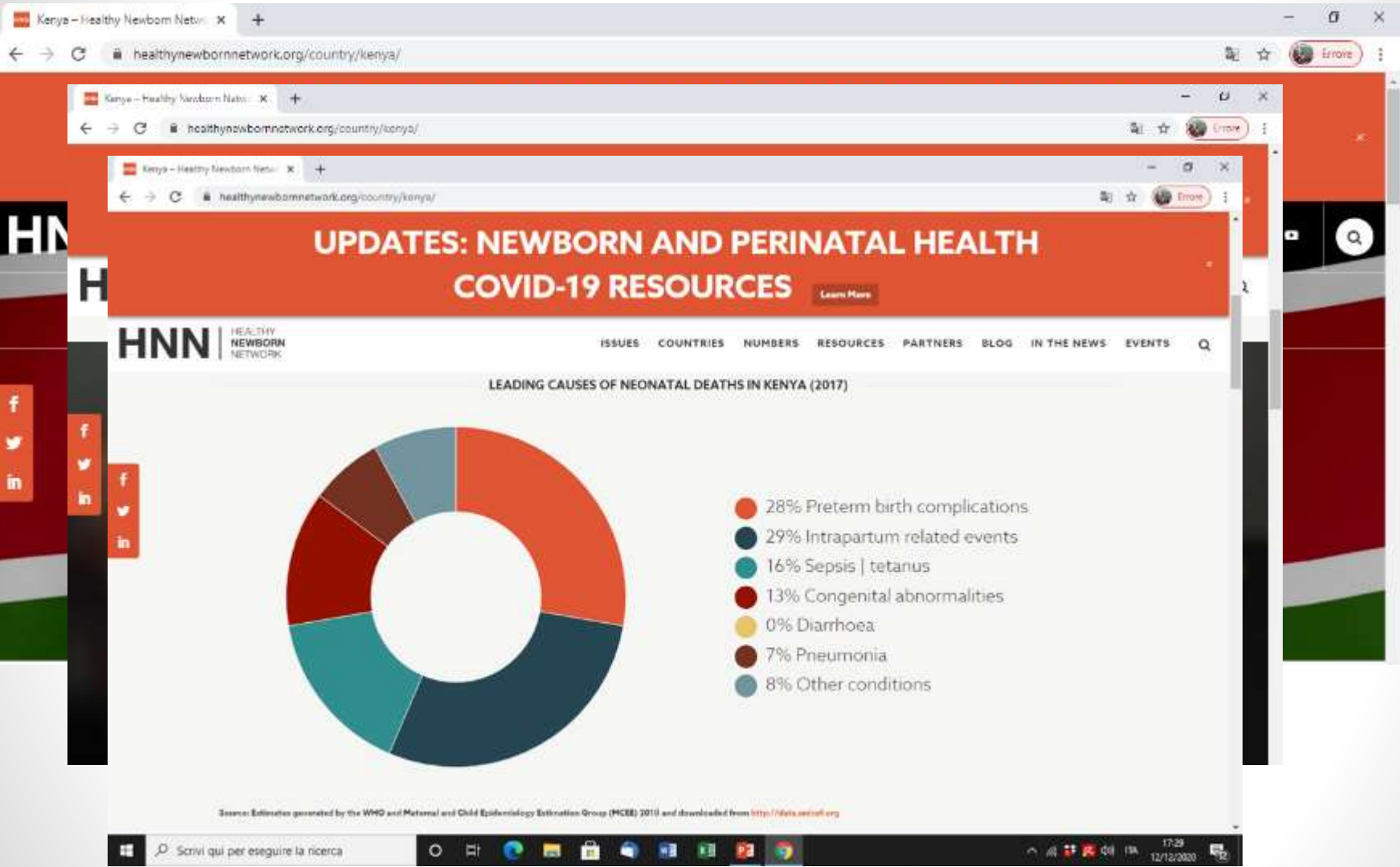
Richard Horton 2020 «Lancet»

- Approccio sindemico a COVID-19 «Due tipologie di malattie stanno interagendo all'interno di popolazioni specifiche – una infezione con grave, acuta sindrome respiratoria coronavirus 2 (Sars-CoV-2) e una serie di malattie non trasmissibili (NCD). La combinazione di queste malattie su uno sfondo di disuguaglianza sociale ed economica accentua gli effetti negativi di ogni singola malattia. Covid-19 non è una pandemia. È una Sindemia.
- la previsione che nel 2021 gli indicatori di Salute arretrino di 20 anni...malnutrizione, povertà, mortalità.....



Our Goal is to improve Neonatal Quality Care in RUNH oltre 10 anni di attività

- Perinatal team with midwife, nurse, doctors and clinical officer with the same skills and knowledge on neonatal issue
 - Midwife for healthy newborn
 - Nurse for sick newborn (NU, KMCU...)
- Production of Protocols, SoPs, M/M, Audit, collect data and analysis to follow and guides improvements on Quality of Care.
- Collaborazione dall'inizio delle attività del RUNH come day hospital/maternity all'apertura 24/24 come Servizio Materno Infantile....ad oggi SST coinvolto anche come Rischio Clinico e Centro di collaborazione WHO Regione Toscana



RUNH data analysis

2017/2018/2019



TERMINOLOGY FOR PART ONE

Fetal-infant mortality rate =	$\frac{\text{Stillbirths} + \text{Infant first year deaths}}{\text{Total births}} \times 1,000$
Gestational age: Number of completed weeks since the last menstrual period of the mother. A term baby is a baby born between 37 and 42 completed weeks of gestation.	
Infant mortality rate (IMR) =	$\frac{\text{Deaths of infants under one year of age}}{\text{Live births}} \times 1,000$
Late fetal death rate =	$\frac{\text{Babies born dead after 28 weeks of gestation (or birth weight over 1kg)}}{\text{Total births}} \times 1,000$
Live births: A baby born with any sign of life regardless of weight or gestation.	
Low birth weight (LBW): Birth weight less than 2,500 grams	
Neonatal mortality rate (NMR) =	$\frac{\text{Number of babies born alive who die in the first 28 days of life}}{\text{Live births}} \times 1,000$
Neonatal period: The first 28 days of life, divided into early neonatal period (first 7 days) and late neonatal period (days 8-28). In the manual neonatal and newborn will be considered equivalent.	
Perinatal mortality rate (PMR) =	$\frac{\text{fetal deaths (after 22 or 28 weeks gestation)} + \text{early neonatal deaths (first 7 days of life)}}{\text{total births (live births + late fetal deaths)}} \times 1,000$
Post-term births: live birth after 42 completed weeks of gestation.	
Preterm births: live birth before 37 completed weeks of gestation.	
Stillbirths: baby born showing no sign of life who weighs over 1 kg or is over 22 weeks of gestation.	

WHO recommends that international comparison of late deaths or perinatal mortality be based on late fetal (after 28 weeks gestation) or 1 kg birth-weight. The International Classification of Disease definition of perinatal mortality includes fetal deaths from 22 weeks of gestation.

	2017	2018	2019 *
NMR	14 %° + Referrals = 26%°	11 %° + R = 23 %°	13.6 %° + R = 16,3 %°
PMR	40 %° + Referrals 50 %°	25 %° + R = 37 %°	31,4 %° + R = 34 %°
SBR	25 %°	15 %°	18,3%°

Babies Matrix analysis at Neema Hospital

Jan-
June
2019

WEIGHT	MSB (during pregnacy)	FSB (during delivery)	NND	REFERRED	NND PAEDIATRI C	BORN ALIVE	TOT delivery
<1500 g	1	2	6	5		4	18
1500-2499 g	5	4	2	3	2	53	69
>2500 g	6	3	4	3+7	1	1042	1059
TOTAL	12	9	12	11+7	3	1099	1146

2018

WEIGHT	MSB (during pregnacy)	FSB (during delivery)	NND	REFERRED	NND PAEDIATRI C	BORN ALIVE	TOT delivery
<1500 g	5	3	5	6	0	14	
1500-2499 g	6	6	8	5	1	178	
>2500 g	9	7	11	10+9	1	2215	
TOTAL	20	16	24	21+9	2	2407	2499

CON O SENZA COVID-19

- Secondo i dati dell'OMS (1990–2015) il Kenya è tra i paesi con alti tassi di mortalità materna e neonatale:
 - 342/100 000 madri in gravidanza
 - 19/1000 nati vivi
- Nel rapporto sulle morti materne del 2017, il 20% delle morti materne viene descritto come evitabile a livello di comunità
- Circa il 61% dei parti condotti da esperti adeguatamente formati

UN CASO DI SALUTE PUBBLICA

- I tassi di mortalità per COVID-19 sembrano essere bassi nei bambini e nelle donne in età riproduttiva
- MA questi gruppi potrebbero essere colpiti in modo sproporzionato dall'interruzione dei servizi sanitari



MADRE-NEONATO... ora più che mai al centro

Le risorse sanitarie sono state dirottate sulla popolazione generale, a svantaggio dei bisogni specifici di gruppi vulnerabili, come donne e bambini.

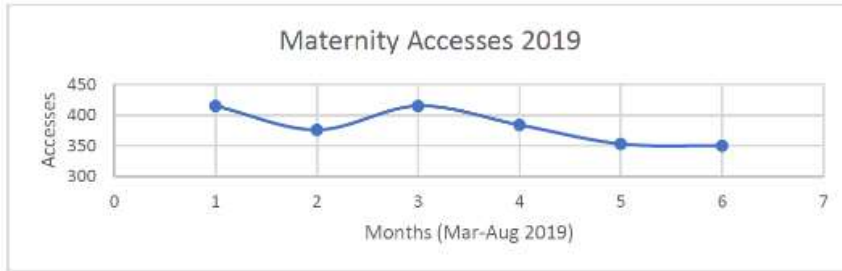


PRIMI DATI

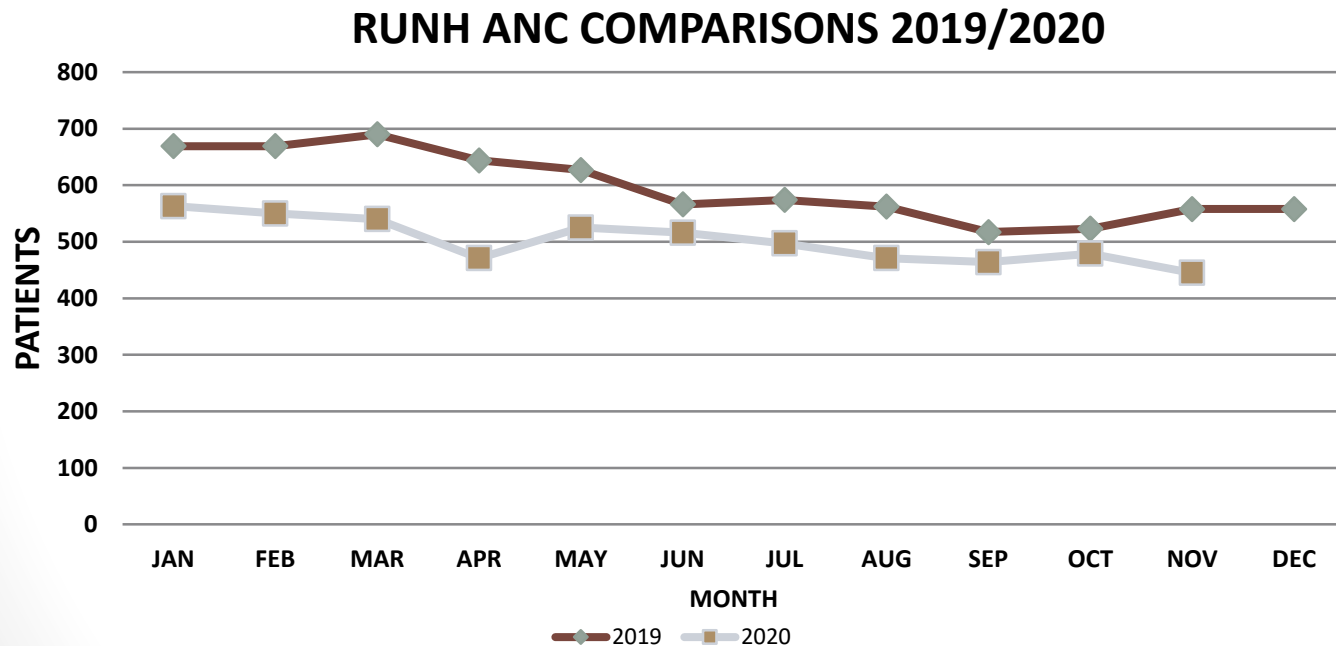
- In Kenya, ci sono state diminuzione delle visite prenatali, delle vaccinazioni e dei parti in ospedale, con conseguente aumento della mortalità perinatale
 - Limitato l'accesso alle strutture sanitarie dovuto alle misure restrittive e ai controlli delle forze dell'ordine.
 - La paura di contrarre il COVID-19 (come era stato per la pandemia dell'Ebola)



I NOSTRI DATI

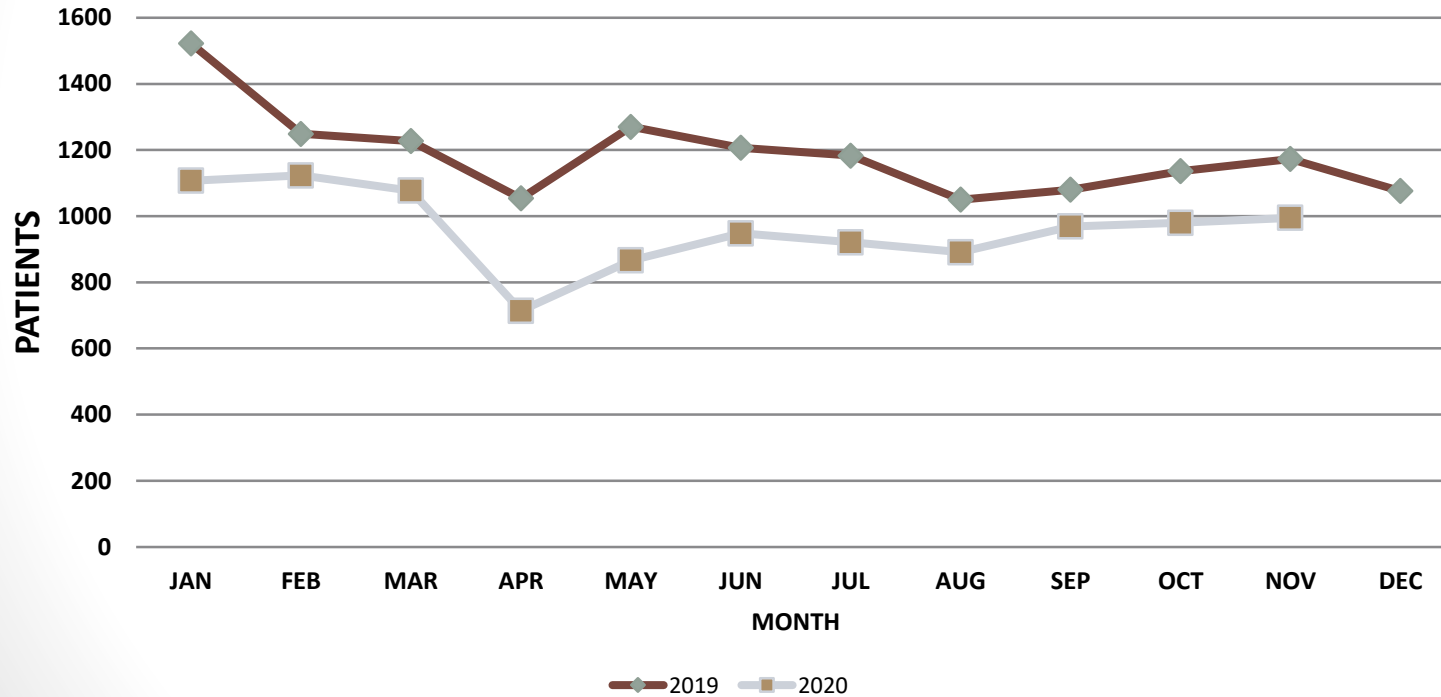


RIDUZIONE ACCESSI ANC



RIDUZIONE ACCESSI VACCINAZIONI

RUNH WELL BABY CLINIC COMPARISONS 2019/2020



TEENAGER

- In questa crisi prolungata, con la chiusura delle scuole e l'aumento della violenza domestica, si contano tassi elevati di gravidanze tra adolescenti



PARTI SENZA ASSISTENZA ADEGUATA

- Aumento dei parti a domicilio, con aumento dei rischi
 - Parto critico e emergenze-urgenze ostetriche
 - Emorragia post-partum
 - Riduzione dell' allattamento al seno
 - Aumento delle infezioni

AUMENTO DI INFEZIONI E MALNUTRIZIONE

- Minime interferenze nella copertura vaccinale possono comportare un calo complessivo della copertura della popolazione
 - Effetti su herd immunity e riduzione della mortalità
- Riduzione dell'allattamento materno, problemi legati a food security



INTERVENTI EFFICACI E SICURI

- Ridurre al minimo le interruzioni dei sistemi sanitari
- Priorità e mantenimento dei servizi per mamme e bambini



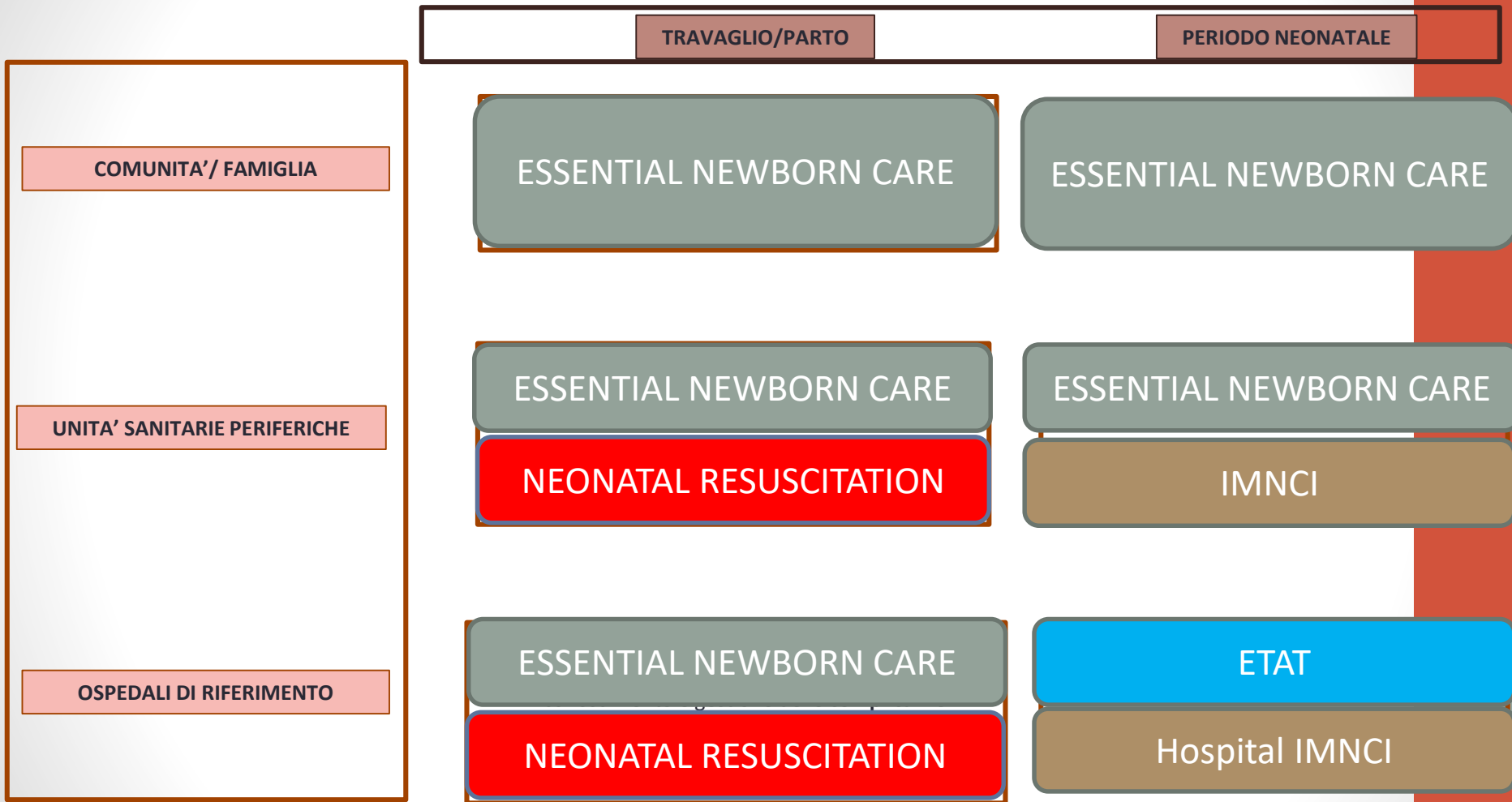
INTERVENTI EFFICACI AL PARTO

- Garantire la copertura di quattro interventi al parto
 - somministrazione parenterale di ossitocina
 - antibiotici
 - protocollo per gestione ipertensione e pre-eclampsia
 - controllo e prevenzione delle infezioni
 - Sala operatoria
 - Disponibilità di sangue



RETE PERINATALE DI INFORMAZIONE E FORMAZIONE





CURE EXTRA-PRETERMINE



RIDURRE LA MORTALITA' INFANTILE

- Mantenimento della copertura di antibiotici per sepsi neonatale e polmonite
- Soluzione di reidratazione orale per la diarrea
- Campagne di vaccinazione di recupero priorità dopo la pandemia



INTERVENTI SUL TERRITORIO

- Ripensare e riprogrammare servizi di pianificazione familiare a casa e nelle comunità.



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