VII CONGRESSO GDS SIN NEOANATOLOGIA E SVILUPPO
CURE ESSENZIALI NEI PAESI A BASSE RISORSE

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Firenze, AOU Meyer

La qualità delle cure alla nascita

Giulia Dagliana, MS, PSM
Coordinatrice WHO Collaborating Center
Centro Gestione Rischio Clinico e sicurezza del paziente, Regione Toscana
daglianag@aou-careggi.toscana.it

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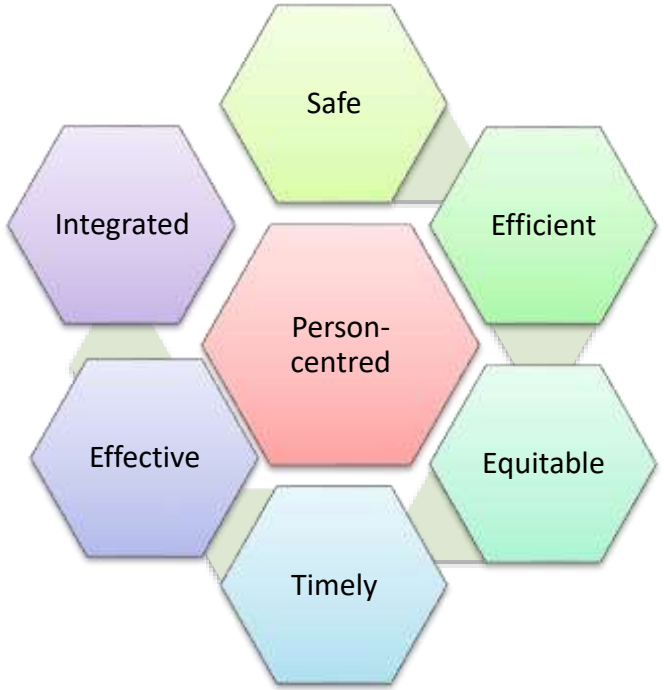
Quality of care is a multi-dimensional concept

IOM _ “the extent to which health care services provided to individuals and patient populations improve desired health outcomes”

WHO_ Integrated people-centered care “(…) means putting the comprehensive needs of people and communities, not only diseases, at the centre of health systems, and empowering people to have a more active role in their own health.”

Safe_ Delivering health care that minimizes risks and harm to service users, including avoiding preventable injuries and reducing medical errors



Institute of Medicine (IOM)

Bellagio Declaration on high-quality health systems _2018

"A high-quality health system is one that **optimizes health care in a given context**
by consistently delivering care that improves **health outcomes**,
by being valued and trusted by all people
and by responding to changing population needs"

High-quality health systems are underpinned by four values:

- high-quality health systems are for people
- Are equitable
- Are resilient
- Are efficient

Context and outcomes

Bellagio Declaration on high-quality health systems _The Lancet Global Health_Comment_VOLUME 6, ISSUE 11, PE1144-E1145, NOVEMBER 01, 2018.

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A new framework to measure quality

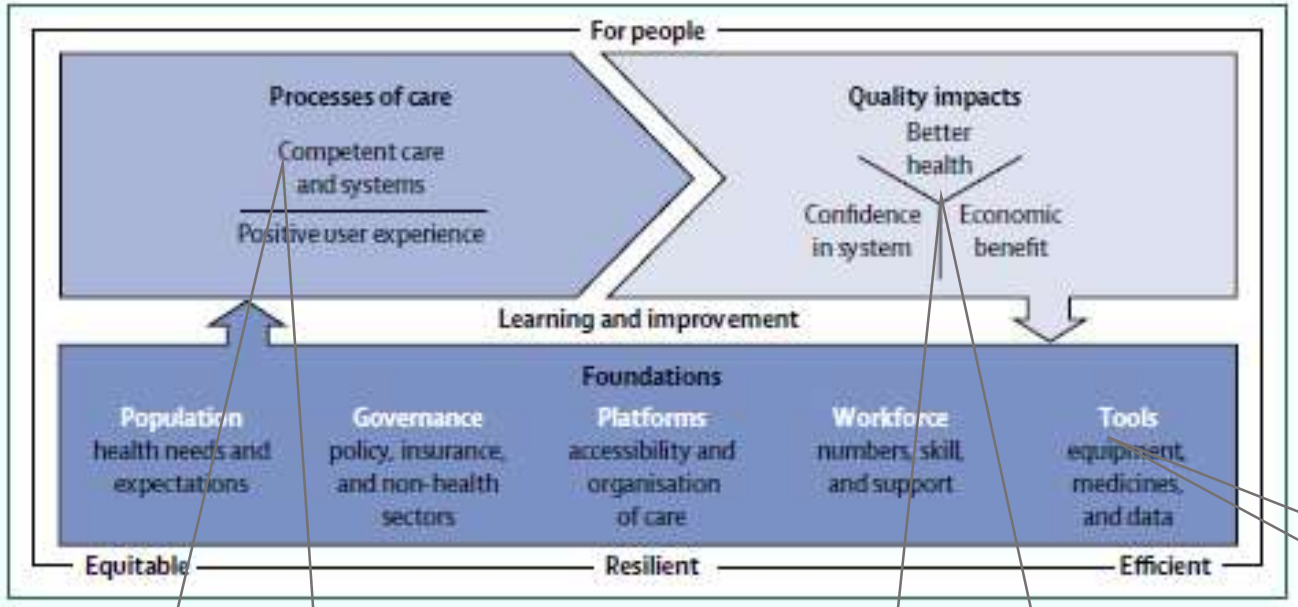

Figure 1: High-quality health system framework

PROCESSES AND IMPACT

(i.e adherence to guidelines, communication

i.e. perioperative mortality, caesarean section)

VS

INPUTS

(i.e. stock level, equipment functionality, devices)

Evidence- based care, safety, prevention, integration

Satisfaction, trust, care uptake, economic benefit

Health needs knowledge, preferences, skills, behaviours , supervision, hardware and software

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Measuring and using data

Measures should reflect **what matters most to people**:

- Competence and courtesy of health providers
- Outcomes
- Confidence in the health system
- Experience of patients
- Experience of healthcare workers

Stronger measurement promotes accountability and will help countries build health systems that learn, adapt, and improve, traits that are key tenets of a high-quality health system.

Key messages

CONTEXT	Implementation science Human factor approach
PROCESSES AND IMPACT	Non-technical skills Resource management Cognitive support tools
DATA	Qualitative and quantitative research Epidemiology and ethnography

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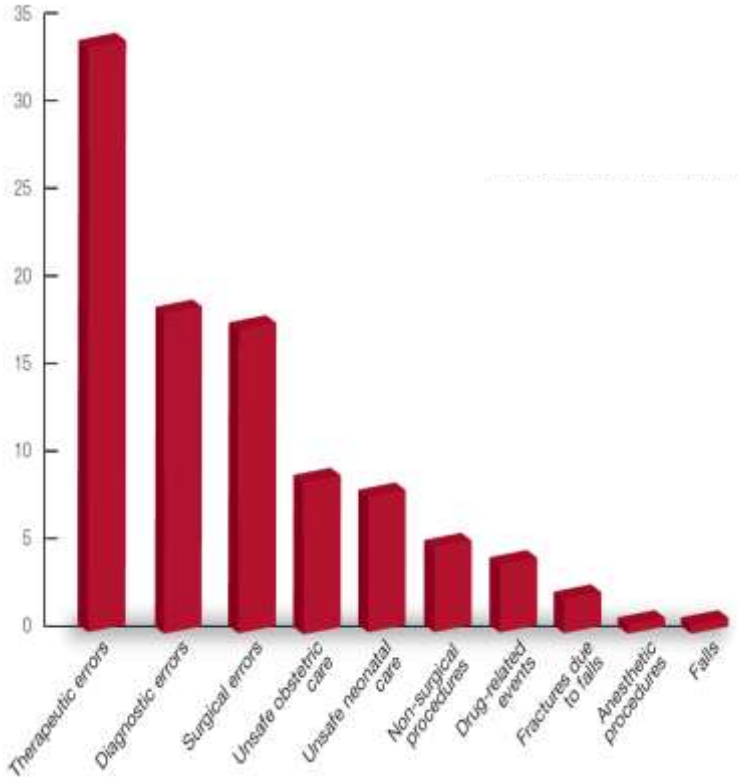
Broadening the focus: from access to quality and safety of care

Patient safety in developing countries: retrospective estimation of scale and nature of harm to patients in hospital

BMJ

- 8.2% showed at least one adverse event, with a range of 2.5% to 18.4% per country
- **83% were judged to be preventable**
- 30% were associated with death of the patient
- Main contributory factors:
  - Inadequate training and supervision of clinical staff
  - the failure to follow policies or protocols

The epidemic of poor-quality care



Most of the adverse event are related to therapeutic errors, diagnostic and surgical errors

In LMICs High-quality health systems could:

- Save over 8 million lives each year
- Prevent 2.5 million deaths from cardiovascular disease
- 1 million newborn deaths
- half of all maternal deaths each year
- mothers and children receive less than half of the recommended clinical actions in a typical visit, including failures to do postpartum and failures to monitor blood pressure during labour

maximize health outcomes, rather than access alone

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Focusing on Human Factors

Most Frequently Identified Root Causes of Sentinel Events Reviewed by The Joint Commission by Year

The majority of events have multiple root causes
(Please refer to subcategories listed on slides 5-7)

2013 (N=887)		2014 (N=764)		2Q 2015 (N=474)	
Human Factors	635	Human Factors	547	Human Factors	464
Communication	563	Leadership	517	Leadership	382
Leadership	547	Communication	489	Communication	343
Assessment	505	Assessment	392	Assessment	247
Information Management	155	Physical Environment	115	Physical Environment	88
Physical Environment	138	Information Management	72	Health Information Technology-related	74
Care Planning	103	Care Planning	72	Care Planning	64
Continuum of Care	97	Health Information Technology-related	59	Information Management	29
Medication Use	77	Operative Care	58	Medication Use	29
Operative Care	76	Continuum of Care	57	Performance Improvement	26

India

The Indian Janani Suraksha Yojana (JSY) program is a program in which the state pays women a cash incentive to deliver in an institution, with the aim of **reducing maternal mortality.**

From 2005-2010 increase in the proportion of all institutional deliveries from 23.9% to 55.9%

No significant association between JSY-supported delivery and changes in MMR

The lack of significant impact could be related to supply-side constraints:

- poor quality of care
- shortage of key staff required to deliver emergency obstetric care (EmOC),
- Lack of trained obstetricians, anaesthetists, and nurses
- facilities unable to deal appropriately with complications,
- Poor ability to conduct a caesarean section

An assessment of the impact of the JSY cash transfer program on maternal mortality reduction in Madhya Pradesh, India Marie Ngì, Archana Misra, Vishal Diwan, Global Health Action, 2014

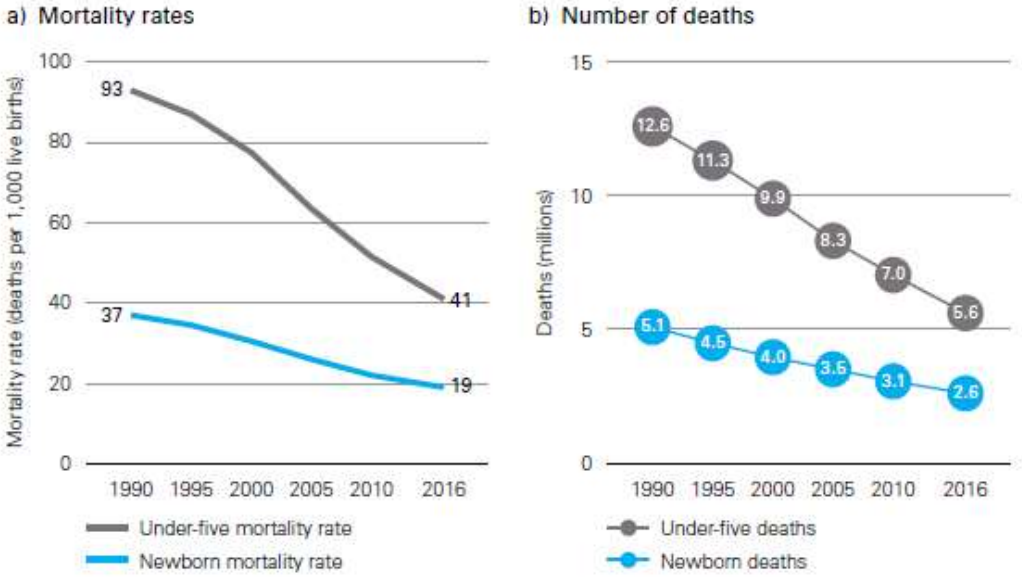
Pakistan

In Pakistan the percentage of mothers who **give birth in a health facility increased from 21% to 48%** between 2001 and 2013, and the proportion of women giving birth **with a skilled attendant** from 23% to 55%

But despite these remarkable increases Pakistan's very high
newborn mortality rate fell by less than one quarter, from 60 in 2000 to 46 in 2016

UNICEF, Every Child Alive, 2018

Q&S in maternal and neonatal care



Note: The estimates generated by the United Nations Inter-agency Group for Child Mortality Estimation are made following annual consultations with Member States, and may differ from their official statistics because the IGME estimates are standardized, based on all sources of data from the country available in July 2017, and extrapolated forward to the year 2016.

Source: United Nations Inter-agency Group for Child Mortality Estimation, 2017.

Global under-5 mortality rate has been reduced by almost 62%, but **neonatal mortality has decreased by only 49%**

44% percent of stillbirths, 73% of newborn deaths and 61% of maternal deaths occur **around the time of labour and birth and in the first week after birth**

80% of newborn deaths could be prevented with basic solutions such as affordable, quality health care delivered by well-trained doctors, nurses and midwives, antenatal and postnatal nutrition for mother and baby, and clean water

Every child alive, UNICEF, 2018

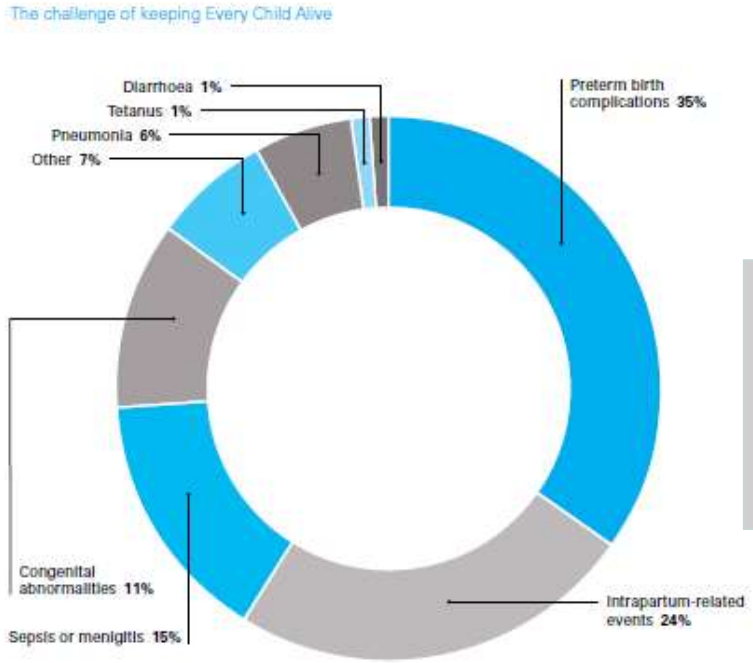
Q&S in maternal and neonatal care

WHERE

Countries with highest newborn mortality rates in 2016	Newborn mortality rate (deaths per 1,000 live births)	Skilled health professionals per 10,000 population
Pakistan	45.6 [33.9, 61.5]	14 (2014)
Central African Republic	42.3 [25.7, 68.6]	3 (2009)
Afghanistan	40.0 [31.6, 48.9]	7 (2014)
Somalia	38.8 [19.0, 80.0]	1 (2014)
Lesotho	38.5 [25.5, 55.6]	6 (2003)
Guinea-Bissau	38.2 [25.8, 55.2]	7 (2009)
South Sudan	37.9 [20.5, 67.3]	no data
Côte d'Ivoire	36.6 [26.3, 50.3]	6 (2008)
Mali	35.7 [20.1, 60.7]	5 (2010)
Chad	35.1 [27.4, 44.3]	4 (2013)

- Southern Asia
- Sub-Saharan Africa

WHY



- Complications of prematurity
- Intrapartum related neonatal deaths
- Neonatal infections (sepsis, meningitis, pneumonia, and diarrhoea)

system-wide approach

Every child alive, UNICEF, 2018

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System-wide approach

Place: Clean, functional health facilities

35 per cent of health facilities in 54 countries did not have water and soap for handwashing

People: Well-trained, paid and supervised health-care workers

In the 10 countries with the highest rates of newborn mortality, there are, on average, just 11 skilled health workers for every 10,000 people

Products: Life-saving drugs and equipment

Some of these supplies are sophisticated, but many are simple. A piece of cloth can be used to wrap a newborn onto his or her mother, keeping the baby warm and promoting breastfeeding

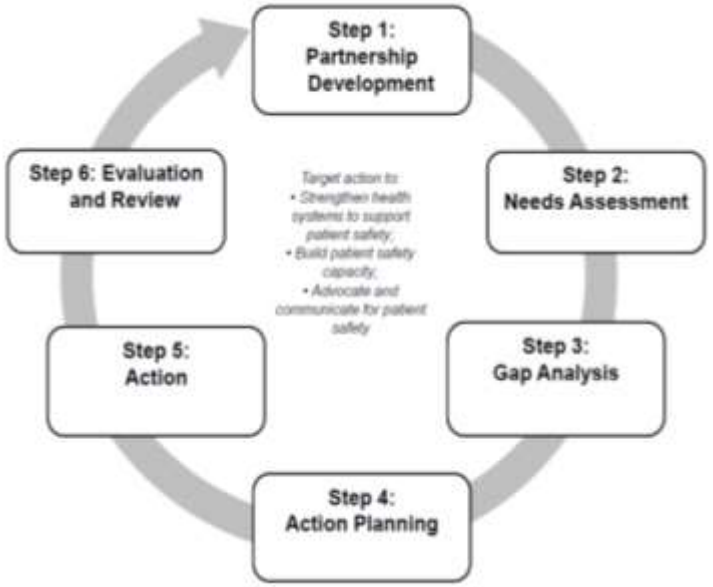
Power: Dignity, respect and accountability

In countries with the highest rates of newborn mortality, women often have low levels of education, political participation and economic empowerment, compared with men

Organization: *We cannot avoid human being from committing mistakes, but we can safer the environment where they act*

Every child alive, UNICEF, 2018

People_Ruaraka Uhai Neema Hospital



- WHO African Partnership for Patient Safety
- Assessment of logistic for safety and quality (WHO) and safety culture (AHRQ Survey)
- Multidisciplinary group for promoting safety and quality
- Bottom-up approach for defining areas of improvement

Centro Salute Globale

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world friends

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Contest and organization

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BEFORE BIRTH

WHO Safe Childbirth Ch

1 On Admission

Does mother need referral?
- ☐ No
- ☐ Yes, organized

Partograph started?
- ☐ No, will start when ≥4cm
- ☐ Yes

Does mother need to start:

Antibiotics?
- ☐ No
- ☐ Yes, given

Magnesium sulfate and antihypertensive treatment?
- ☐ No
- ☐ Yes, magnesium sulfate given
- ☐ Yes, antihypertensive medication given

☐ **Confirm supplies are available to clean hands and wear gloves for each vaginal exam.**

☐ **Encourage birth companion to be present at birth.**

☐ **Confirm that mother or companion will call for help during labour if needed.**

This checklist is not intended to be comprehensive and should not replace the case notes or par
For more information on recommended use of the checklist, please refer to the "WHO Safe Chil

WHO/MNH/SDS/2015.26

BEFORE BIRTH

WHO Safe Childbirth Ch

2 Just Before Pushing (Or Before

Does mother need to start:

Antibiotics?
- ☐ No
- ☐ Yes, given

Magnesium sulfate and antihypertensive treatment?
- ☐ No
- ☐ Yes, magnesium sulfate given
- ☐ Yes, antihypertensive medication given

Confirm essential supplies are at bedside and prepare for delivery:

For mother
- ☐ Gloves
- ☐ Alcohol-based handrub or soap and clean water
- ☐ Oxytocin 10 units in syringe

For baby
- ☐ Clean towel
- ☐ Sterile blade to cut cord
- ☐ Suction device
- ☐ Bag-and-mask

☐ **Assistant identified and ready to help at birth if needed.**

This checklist is not intended to be comprehensive and should not replace the case notes or cart
For more information on recommended use of the checklist, please refer to the "WHO Safe Child

Completed by _____

AFTER BIRTH

WHO Safe Childbirth C

3 Soon After Birth (Within 1

Is mother bleeding abnormally?
- ☐ No
- ☐ Yes, shout for help

Does mother need to start:

Antibiotics?
- ☐ No
- ☐ Yes, given

Magnesium sulfate and antihypertensive treatment?
- ☐ No
- ☐ Yes, magnesium sulfate given
- ☐ Yes, antihypertensive medication given

Does baby need:

Referral?
- ☐ No
- ☐ Yes, given

Antibiotics?
- ☐ No
- ☐ Yes, given

Special care and monitoring?
- ☐ No
- ☐ Yes, organized

☐ **Started breastfeeding and skin-to-skin contact (if mothe**

☐ **Confirm mother / companion will call for help if danger**

Responsibility for the interpretation and use of the material in this checklist lies with the user
from its use. For more information visit www.who.int/maternal_ch

AFTER BIRTH

WHO Safe Childbirth Checklist

World Health Organization

4 Before Discharge

☐ **Confirm stay at facility for 24 hours after delivery.**

Does mother need to start antibiotics?
- ☐ No
- ☐ Yes, given and delay discharge

Ask for allergies before administration of any medication
Give antibiotics to mother if any of:
- Mother's temperature ≥38 °C
- Foul-smelling vaginal discharge

Is mother's blood pressure normal?
- ☐ No, treat and delay discharge
- ☐ Yes

Give magnesium sulfate to mother if any of:
- Diastolic BP ≥110 mmHg and 3+ proteinuria
- Diastolic BP ≥90 mmHg, 2+ proteinuria, and any: severe headache, visual disturbance, epigastric pain

Give antihypertensive medication to mother if systolic BP >160 mmHg
- Goal: keep BP <150/100 mmHg

Is mother bleeding abnormally?
- ☐ No
- ☐ Yes, treat and delay discharge

If pulse >110 beats per minute and blood pressure <90 mmHg
- Start IV and keep mother warm
- Treat cause (hypovolemic shock)

Does baby need to start antibiotics?
- ☐ No
- ☐ Yes, give antibiotics, delay discharge, give special care

Give antibiotics to baby if any of:
- Respiratory rate >60/min or <30/min
- Chest in-drawing, grunting, or convulsions
- Poor movement on stimulation
- Baby's temperature <35°C (and not rising after warming) or baby's temperature ≥38°C
- Stopped breastfeeding well
- Umbilicus redness extending to skin or draining pus

Is baby feeding well?
- ☐ No, establish good breastfeeding practices and delay discharge
- ☐ Yes

☐ **Discuss and offer family planning options to mother.**

☐ **Arrange follow-up and confirm mother / companion will seek help if danger signs appear after discharge.**

Danger Signs

Mother has any of:
- Bleeding
- Severe abdominal pain
- Severe headache or visual disturbance
- Breathing difficulty
- Fever or chills
- Difficulty emptying bladder
- Epigastric pain

Baby has any of:
- Fast/difficult breathing
- Fever
- Unusually cold
- Stops feeding well
- Less activity than normal
- Whole body becomes yellow

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Completed by _____

The WHO Safe Childbirth Checklist

- The SCC is an organized list of evidence-based essential birth practices which addresses the major causes of:

  Maternal death: hemorrhage infection, obstructed labour and hypertensive disorders
  Intrapartum-related stillbirths: inadequate intrapartum care
  Neonatal deaths: birth asphyxia, infection and complications related to prematurity

  It helps healthcare workers to follow main safety practices:

  Hand washing
  Monitoring and treatment of women's blood pressure to prevent eclampsia
  Provision of uterine massage and appropriate medication to prevent maternal hemorrhage

The BetterBirth study _India, 2017

PRACTICE	INTERVEN.	CONTR.
Proper administration of oxytocin immediately following childbirth to prevent maternal hemorrhagVe	80%	21%
Initiation of breastfeeding	70%	4%
Skin-to-skin contact	79%	11%
Appropriate measurement of maternal blood pressure	68%	7%
Measurement of maternal temperature	63%	0,3%
Newborn temperature	43%	0,1%

BILL & MELINDA GATES foundation — Author Manuscript

Accepted for publication in a peer-reviewed journal

N Engl J Med. 2017 Dec 14 : 10.1056/NEJMoa1701075.
Published online 2017 Dec 14.
doi: [10.1056/NEJMoa1701075: 10.1056/NEJMoa1701075]

PMCID: PMC5672590
PMID: 29236628

Outcomes of implementing a coaching-based WHO Safe Childbirth Checklist program in India

Katherine E. A. Semrau,[1,2,3] Lisa R. Hirschhorn,[4] Megan Marx Delaney,[1] Vinay Pratap Singh,[5] Rajiv Saurastri,[5] Narender Sharma,[5] Danielle E. Tuller,[1] Rebecca Firestone,[6] Stuart Lipsitz,[1] Neelam Dhingra-Kumar,[7] Bhalachandra Kodkany,[8,*] Vishwajeet Kumar,[9,*] and Atul A. Gawande[1,10,11,*], BetterBirth Trial Group[#]

Each of the practices incorporated in the Checklist has its own evidence base, including effectiveness on improving maternal and/or neonatal outcomes

Coaching and Customization of the WHO SCC

6 MONTHS PILOTING

Coaching

- To a multiprofessional group
- “Coach the coachers”
- “cascade coaching”

Customization

- Hospital workflow and guidelines
- Health workers needs
- Cultural peculiarities

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Qualitative and qualitative evaluation

1- Usability, efficiency and functionality survey

- Anonymous questionnaire administrated to healthcare workers involved in the pilots

2- Prospective pre and post-intervention clinical record review for evaluating the effect of introduction of the checklist on some selected process measures

- Sample of 150 clinical records both before and after the intervention

3- Hospital Survey on Patient Safety (AHRQ)

- AHRQ anonymous questionnaire administrated to healthcare workers involved in the pilots

Process and outcomes indicators

Process indicators

1) N° of compiled checklists/n° of childbirths events

Pre-partum indicators

2) N° of partograph correctly compiled and present in the clinical chart/n° of childbriths events
3) N° of women with DBP >100 mmHg/ n. of childbriths events
4) N° of women treated with antihypertensive if DBP >100 mmHg / n. of childbriths events

Intra-partum indicators

5) N° of manually removed placenta/n° of childbriths events
6) N° of women treated with antibiotic if mannually removed placenta/ n° of childbriths events

Post-partum indicators

7) N° of women with blood loss >500ml / n. of childbriths events
8) N° of women treated with uterotonics if blood loss > 500ml / n. of childbriths events
9) N°.of early breastfeeding (within 2 hours) / n. of childbriths events
10) N° of temperature detections within 2 hours in newborns/ n. of childbirths events

Results_mothers

	Pre-intervention (N=239)		**Post-intervention (N=198)**				
Variable	*N (%)*	*NA*	*N (%)*	*NA*	*p-value**	*OR***	*95% CI*
Checklist present	–	–	138 (92.6)	–	–	–	–
Correctly compiled partogram	117 (80.1)	4	124 (86.1)	5	0.23	1.5	0.83-2.9
Hypertensive therapy (if Blood pressure > 100 mm/hg)	3 (50)	–	3 (75)	–	0.57	3	0.21-83
Antibiotic therapy (if BT > 38° OR premature membranes rupture	0 (0)	–	6 (54.5)	–	0.46	–	–
Antibiotic therapy (if manual removal of placenta)	27 (96.3)	1	24 (96)	–	1	0.92	0.035-24
Uterotonic drugs (if blood loss >500 mL)	13 (100)	–	18 (94.7)	2	1	–	–
Heart Rate check (pre-partum)	110 (73.3)	–	136 (91.3)	–	<.001	3.8	2-7.7
Evaluation every 4h	103 (88)	33	100 (95.2)	44	0.09	2.7	1-8.7
Pressure taken	122 (81.3)		131 (87.9)		0.16	1.7	0.89-3.2
Heart Rate check (post-partum)	115 (76.7)	–	129 (86.6)	–	<.05	2	1.1-3.6
Body temperature newborn taken within 2h	0 (0)	–	52 (34.9)	–	<.001	–	–
Breastfeeding within 2h	77 (61.1)	24	97 (75.2)	20	<.05	1.9	1.1-3.3

**p-values were derived from Chi-squared tests comparing frequencies pre vs post intervention; ** OR were estimated from logistic regression using the check-list presence as predictor.*

The logistic regression models showed that **the presence of the checklist was significantly associated :**

- **heart-rate check in the pre-partum**

(73,3% vs 91,3%).

- **evaluation every 4h**

(88% vs 95,2%)

Results_newborns

	Pre-intervention (N=239)		**Post-intervention (N=198)**				
Variable	*N (%)*	*NA*	*N (%)*	*NA*	*p-value**	*OR***	*95% CI*
Checklist present	–	–	138 (92.6)	–	–	–	–
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The logistic regression models showed that **the presence of the checklist was significantly associated**

- **Breastfeeding within 2 h from birth**

(0 vs 34,9%)

- **Body temperature newborn taken within 2 h**

(61,1% vs 75,25%)

Results

	Pre-intervention (N=239)		**Post-intervention (N=198)**				
Variable	*N (%)*	*NA*	*N (%)*	*NA*	*p-value**	*OR***	*95% CI*
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**p-values were derived from Chi-squared tests comparing frequencies pre vs post intervention; ** OR were estimated from logistic regression using the check-list presence as predictor.*

No statistically significant differences in the distributions of the following variables pre vs post interventions, most likely due to the very low sample sizes

- **hypertensive therapy** if BP >100
  50% vs 75%
- **antibiotic therapy** if temperature > 38° or premature membranes rapture
  0% vs 54.5%

Discussion

antibiotic therapy
if temperature > 38° C or premature membranes rupture

Impact on outcome

Causes of neonatal sepsis 2016-2019
Newborn deaths due to sepsis 2016-2019

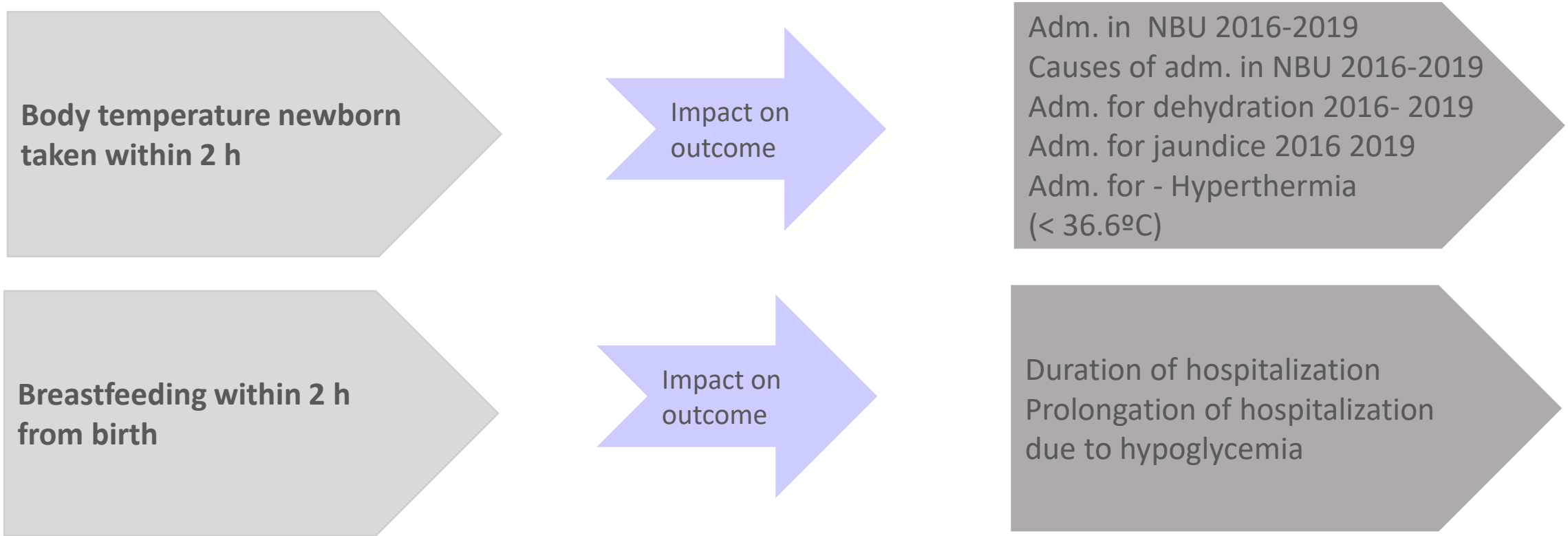
Heart-rate check in the pre-partum

Impact on outcome

Stillbirths 2016-2019 *
Neonatal asphyxia 2016- 2019

* To be excluded women that arrived in the H with a death foetus

Discussion


Body temperature newborn taken within 2 h
Impact on outcome
Adm. in NBU 2016-2019
Causes of adm. in NBU 2016-2019
Adm. for dehydration 2016- 2019
Adm. for jaundice 2016 2019
Adm. for - Hyperthermia (< 36.6ºC)
Breastfeeding within 2 h from birth
Impact on outcome
Duration of hospitalization
Prolongation of hospitalization due to hypoglycemia

Analyses of the maternal and neonatal pathway_FMEA

Detect possible failures in each phase of the pathway, causes of the failures and possible consequences on the patient

- Mother in labour flow (spontaneous or inducted)
- Elective Caesarean Section flow (CS)
- In-born flow
- Out-born flow

Simulation of the 4 pathways

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Giulia Dagliana, MS, PSM
Coordinator WHO Collaborating Center
Centre for Clinical Risk Managment and Patient Safett
daglianag@aou-careggi.toscana.it