

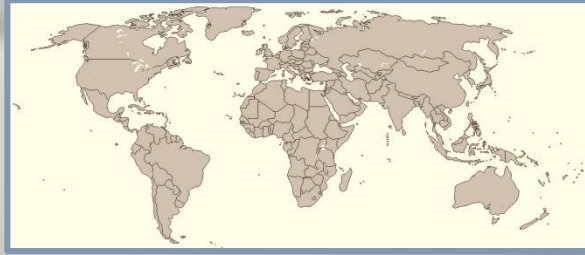


Nutritional interventions for Ill & Vulnerable Newborns

Institutional & country level

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Understanding Neonatal Health



135 million births each year.

20 million babies have low birth weight.

15 million preterm births.

2.6 million die in the neonatal period.



27 million births each year. **20%** of global share.

7.6 million babies have low birth weight. **38%** of global share.

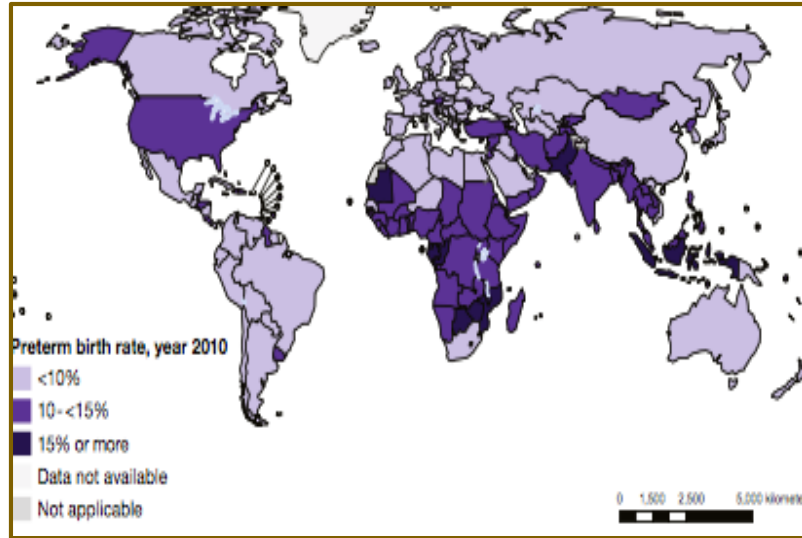
3.5 million preterm births. **23%** of global share .

0.76 million die in the neonatal period. **29%** of global share.



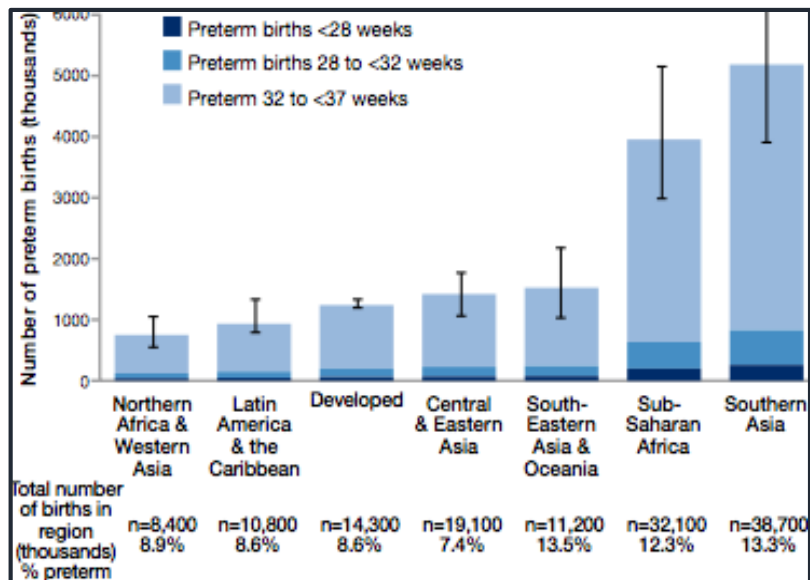
An estimated **47%** babies born in India are small for gestational age or “born too small” – making them more vulnerable.

Preterm birth – Absolute numbers



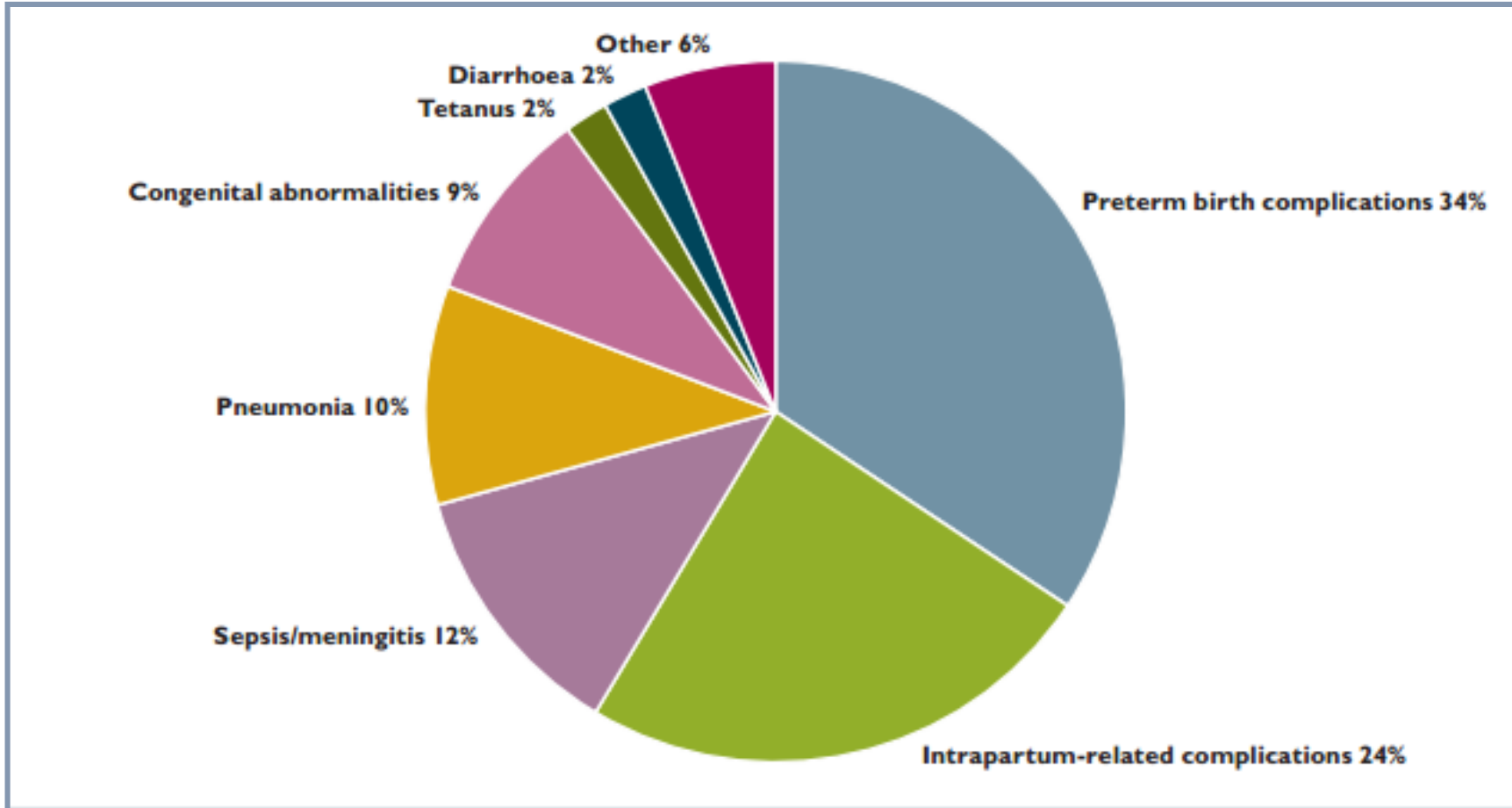
10 countries with the greatest number of PT births:

India:	3 519 100
China:	1 172 300
Nigeria:	773 600
Pakistan:	748 100
Indonesia:	675 700
USA:	517 400
Bangladesh:	424 100
Philippines:	348 900
Congo:	341 400
Brazil:	279 300



Blencowe H et al. National, regional and worldwide estimates of preterm birth. The Lancet, June 2012

Prematurity is the leading cause of neonatal mortality



An estimated three-fourth premature babies can be saved with cost-effective and feasible interventions.

Breastfeeding is the most powerful intervention to prevent neonatal deaths

- ~230,000 lives could be saved globally.

Neonatal resuscitation



- ~450,000 lives could be saved globally.

Kangaroo mother care



- ~ 500,000 lives could be saved globally.

Infection prevention



- ~ 823,000 (14%) of <5 deaths would be prevented by breastfeeding alone.

Early and exclusive breastfeeding



However, breastfeeding rates continue to remain low in India.

Human milk

- Breast milk is a complete food
- Species specific
- Quantitatively & qualitatively appropriate & adequate
- Considered crucial to child survival and health

Human milk

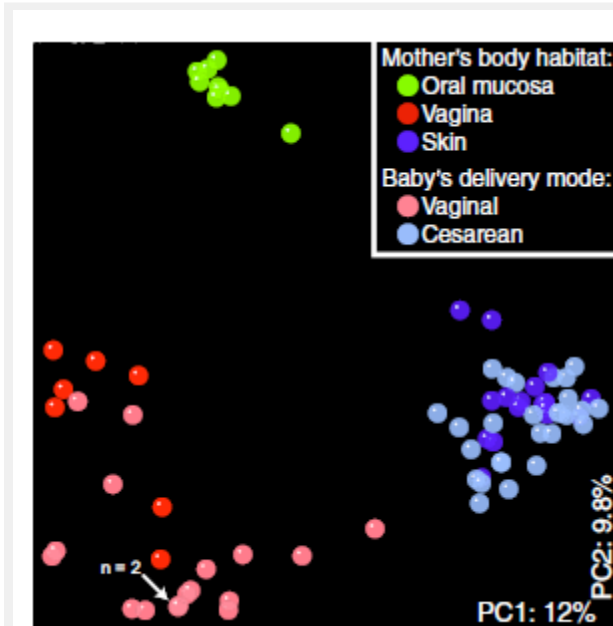
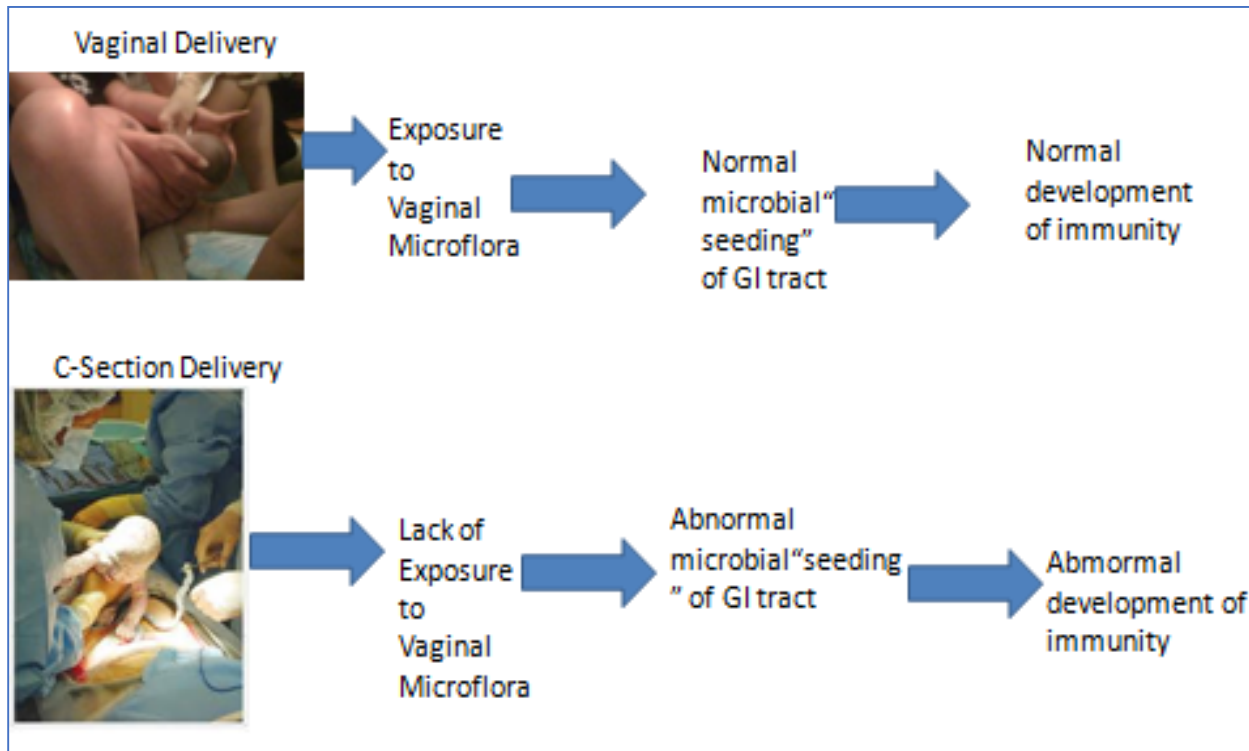
In absence of human milk the vulnerable infant (Sick & small) is deprived of

- Nutrients as well as
- Anti-infective factors
- Growth factors

7 crucial components of human milk

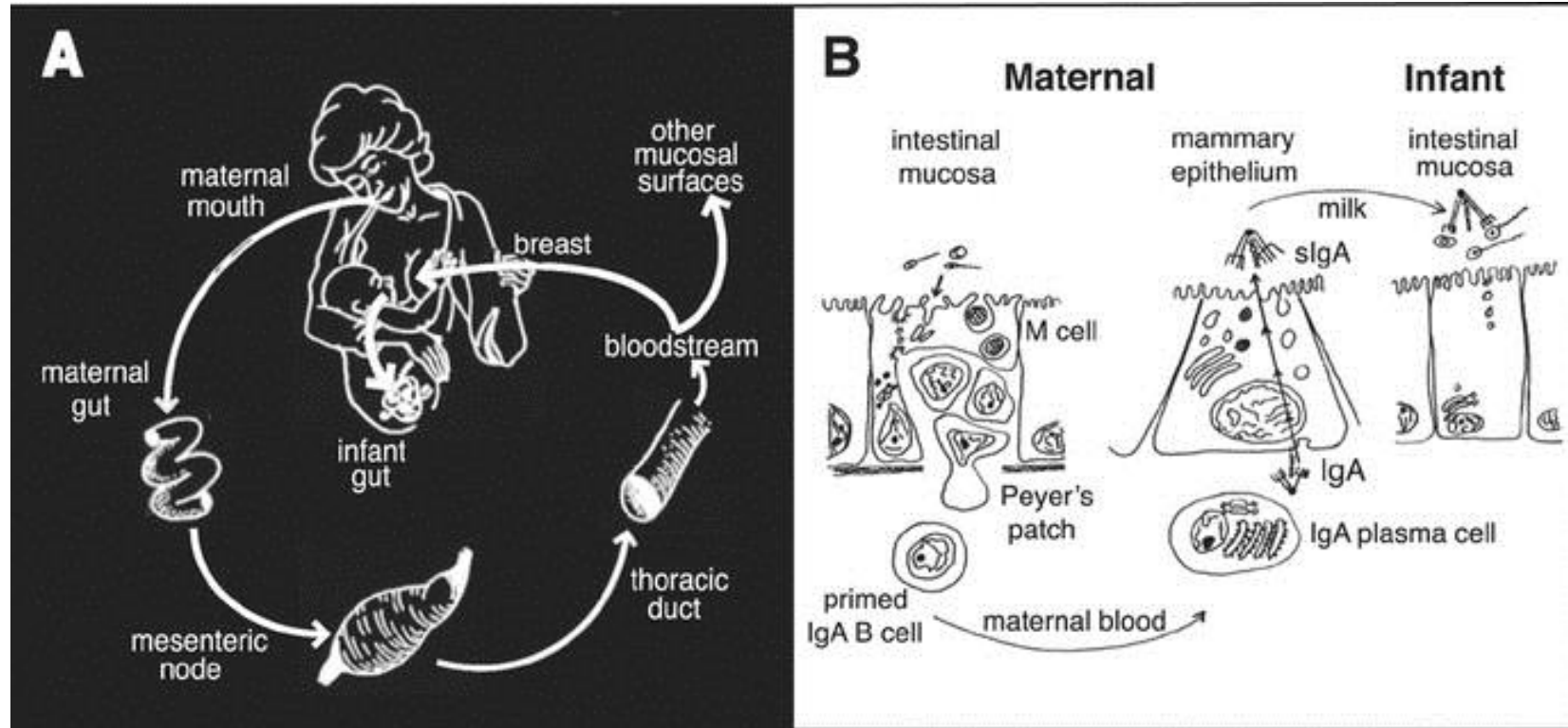
- Human milk Oligosaccharides
- Antibodies
- Anti-oxidants
- Lactoferrin
- Osteopontin
- White blood cells
- Stem cells
- **Microbiome - microbiota**

Vaginal vs. C-section Delivery



Vaginally delivered infants acquired bacterial communities resembling their own mother's vaginal microbiota and C-section infants harbored bacterial communities similar to those found on the skin surface. (Dominguez-Bellow, MG. Proc Natl Acad Sci U S A. 2010 Jun 29;107(26):11971-5)

Entero-mammary Circuit



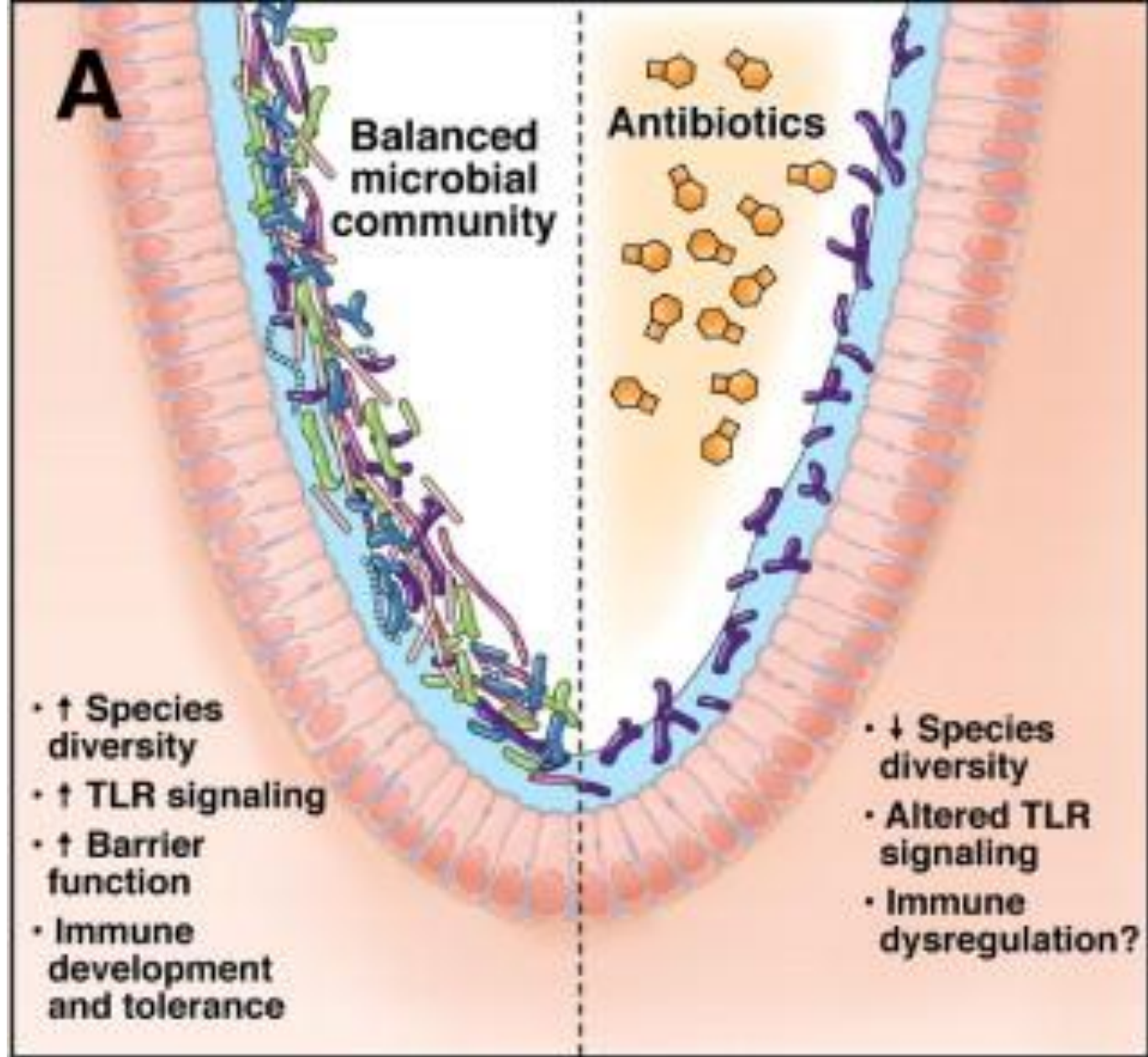
Newburg DA, Walker WA. *Pediatr Res.* 2007 Jan;61(1):2-8.

Intravenous Antibiotics and NEC

Table 5a. Multivariable Logistic Regressions: Antibiotic Duration and NEC or Death *

Outcome	Duration of initial empirical antibiotics (odds per day)		Prolonged initial empirical antibiotics (≥ 5 days)	
	OR (95% CI)	p-value	OR (95% CI)	p-value
NEC or Death Total N=3883 N w/outcome=884	1.04 (1.02, 1.06)	<0.01	1.30 (1.10, 1.54)	<0.01
NEC Total N=3899 N w/outcome=427	1.07 (1.04, 1.10)	<0.001	1.21 (0.98, 1.51)	0.08
Death Total N=3882 N w/outcome=631	1.16 (1.08, 1.24)	<0.001	1.46 (1.19, 1.78)	<0.001

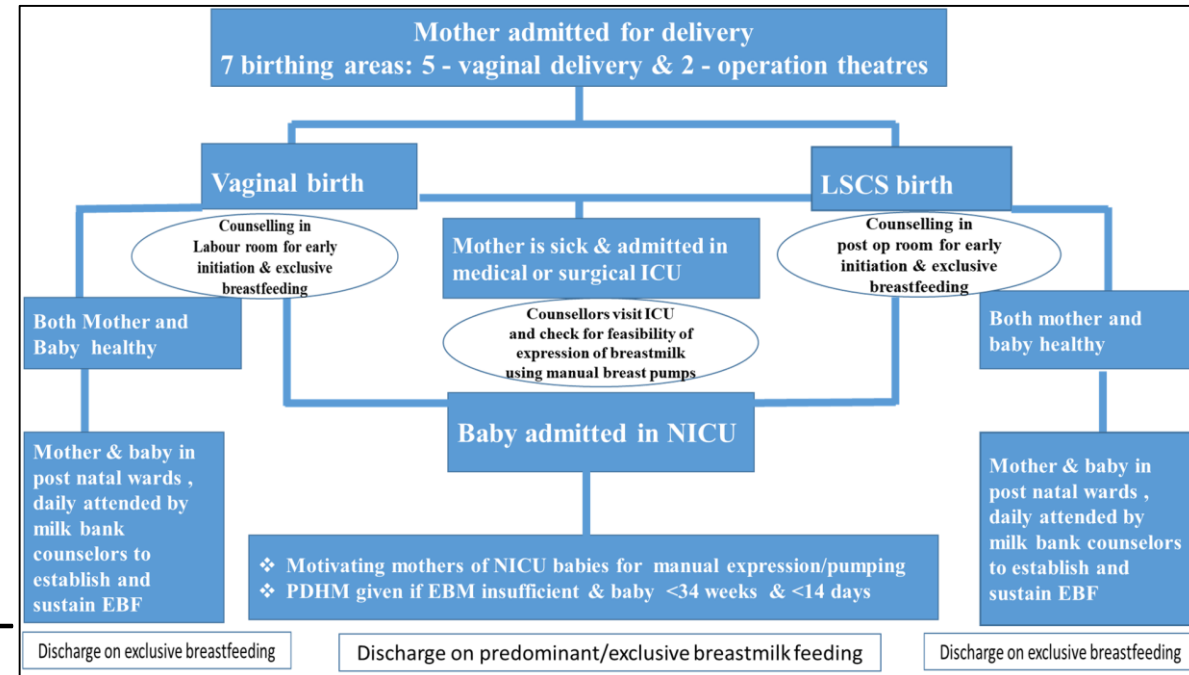
Cotten et al. *Pediatrics*.2009; 123: 58-66.



Preidis and Versalovic, *Gastroenterology* 2009;136:2015-2031

Institutional level

1. LHMC – 14000 births a year
2. Prematurity rate -25%
3. LBW rate – 38%
4. Birth – Sick or Healthy
5. Healthy – Maternity wards
6. Sick – NICU
7. Stable preterm, LBW <2000 Gm & SGA –
Small baby ward



Expression of breastmilk for NICU babies

- Manual expression
- Pumping



Mother's Expressed Breastmilk for Biologic baby



Early Total Enteral Feeding in Stable Very Low Birth Weight Infants: A Before and After Study

by Sushma Nangia,¹ Amit Bishnoi,² Ankita Goel,² Piali Mandal,²
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Table 2. Outcome parameters

Parameter	Phase 1 (N = 73)	Phase 2 (N = 51)	Phase 3 (N = 84)	p value
Day of full feed achievement* (days)	14.44 ± 6.2	8.97 ± 4.9	5.47 ± 1.8	0.0001
Day of regaining birth weight* (days)	16.4 ± 7.6	14.1 ± 6.5	12.3 ± 5.8	0.0006
Incidence of feed intolerance [#]	16 (22%)	7 (14%)	12 (14%)	0.28
Incidence of NEC [#]	10 (14.2%)	2 (4%)	0	0.028
Incidence of clinical sepsis [#]	67 (92%)	24 (47%)	19 (23%)	0.0001
Incidence of culture-proven sepsis [#]	32 (44%)	6 (12%)	3 (3.5%)	0.0001
Duration of antibiotic therapy* (days)	11.2 ± 6.8	4.3 ± 6.1	2.1 ± 4.2	0.0001
Duration of IV therapy* (days)	12.1 ± 5.7	6.47 ± 3.2	1.5 ± 0.4	0.0005
Duration of hospital stay* (days)	28.04 ± 6.76	19.47 ± 5.22	15.5 ± 4.04	0.0005
Mortality [#]	3 (4%)	1 (2%)	1 (1.2%)	0.18

Note: *Mean ± SD, [#]Number (%).

Discharge Criteria for NICU & Small baby ward

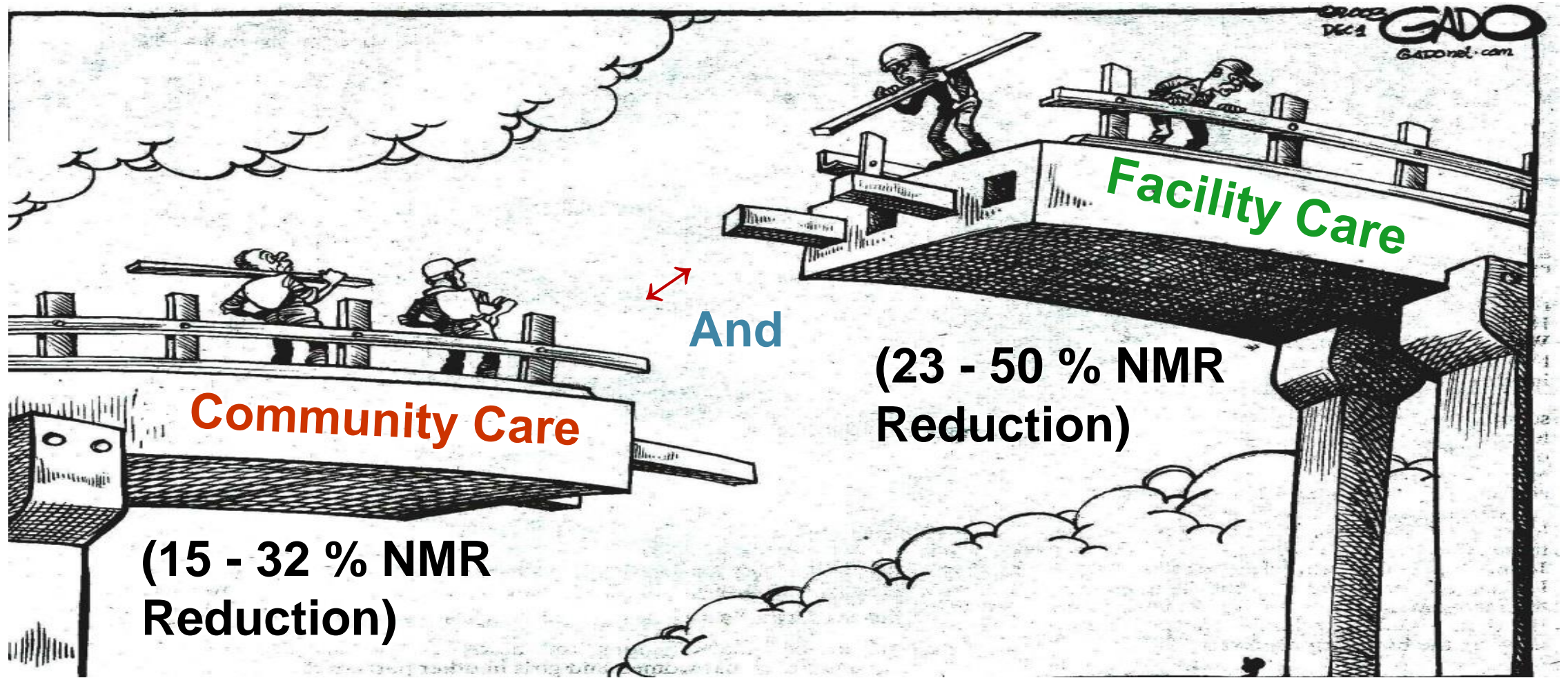
- Regained Birth weight and is about 1350 +/- 50 gms.
- Consecutive weight gain for last 3 days – no less than 10gm/kg/day
- Maintaining temperature without external heat source
- Mother confident to take care of the baby
- Receiving & tolerating 180ml/kg/day feeds by paladai or on direct breastfeeds

Discharge advise:

- Maintain hygiene
- Tactile assessment & maintenance of temperature
- Breastfeeding & KMC at home (till baby wriggles out)
- Danger signs & immediate care seeking
- Follow up visits
- Immunization

6 RCTs on Early vs conventional discharge (1973-2000). No adverse effect of early discharge on Mortality/Later growth

It has to be... Community **And** Facility



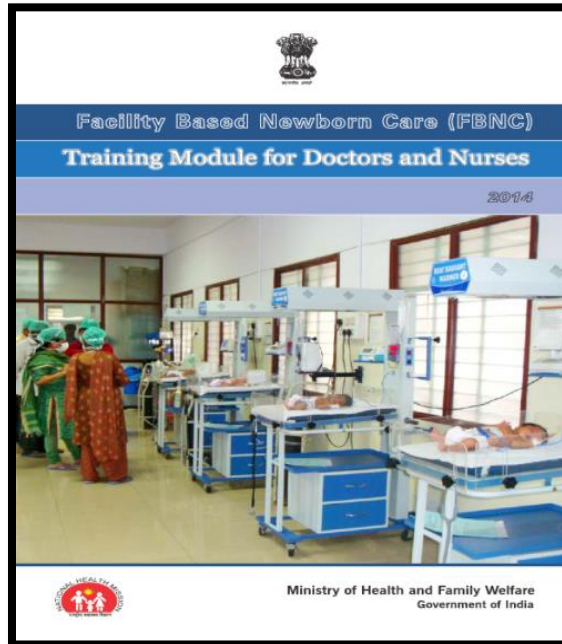
Out reach Care : (6 to 9 % NMR reduction)

Newborn care facilities at different levels

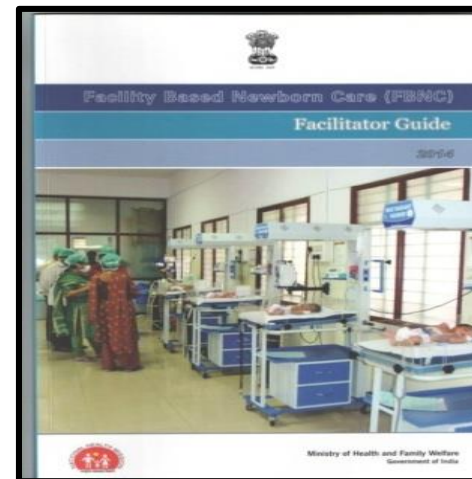
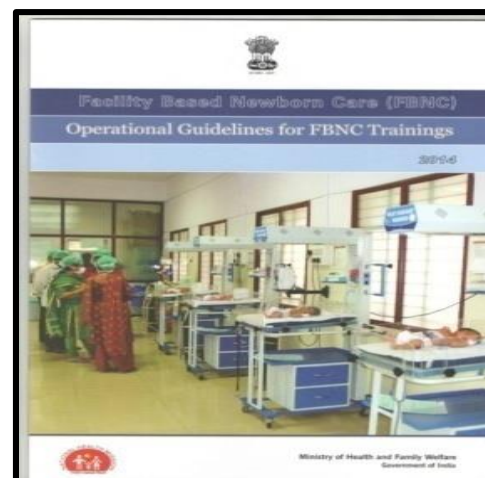
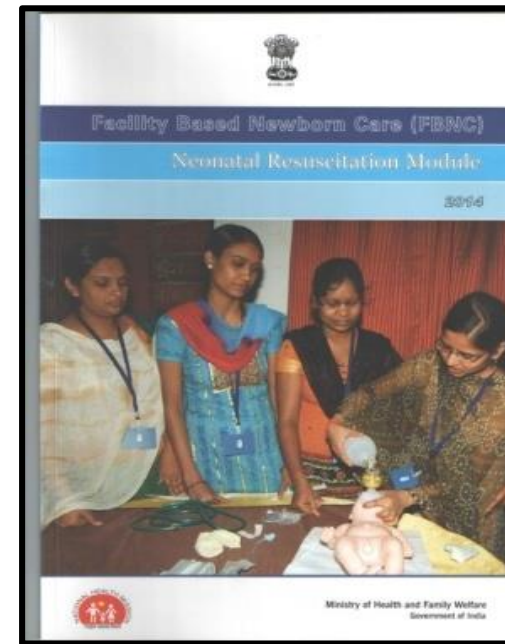
LEVEL	Facility for all newborns at birth	Facility for Sick newborns
PHC	Newborn Corner in Labour rooms	-----
CHC/FRU	Newborn Corner in Labour rooms and in OT	Neonatal Stabilization Unit
District Hospitals	Newborn Corner in Labour rooms and in OT	Special Care Newborn Unit
Medical Colleges	Newborn Corner in Labour rooms and in OT	Neonatal Intensive Care Unit



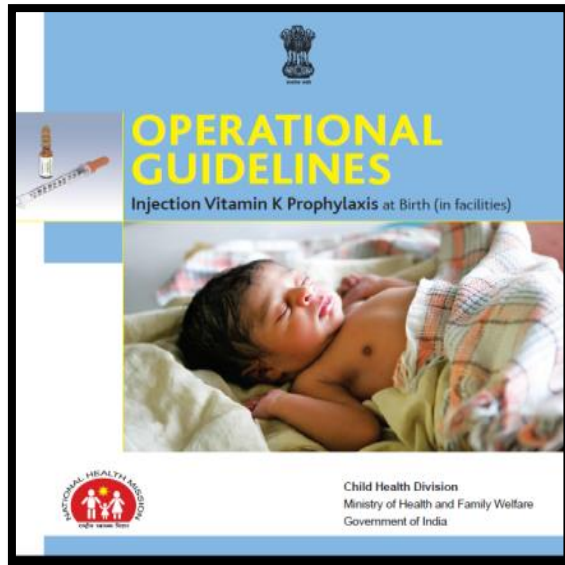
Government of India – Initiatives



‘SNCU Training Package’

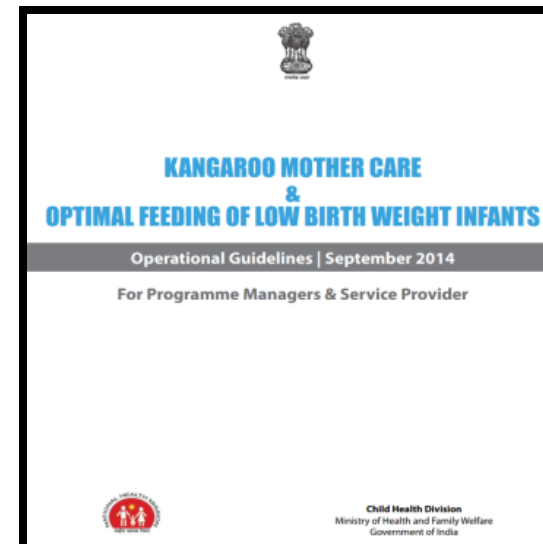
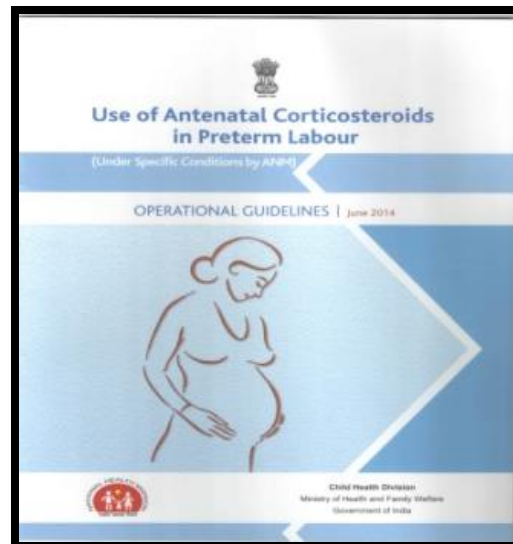
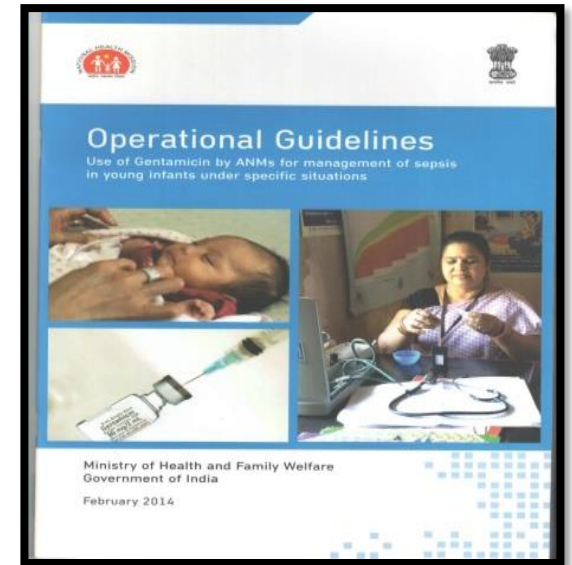


Government of India – Initiatives



Operational Guidelines on:

1. Inj Vit K prophylaxis at birth
2. Use of ANCS for preterm labour
3. KMC & optimal feeding of LBW Infants
4. Use of Inj Gentamicin by ANM



THE INDIA NEWBORN ACTION PLAN

INAP
India Newborn
Action Plan

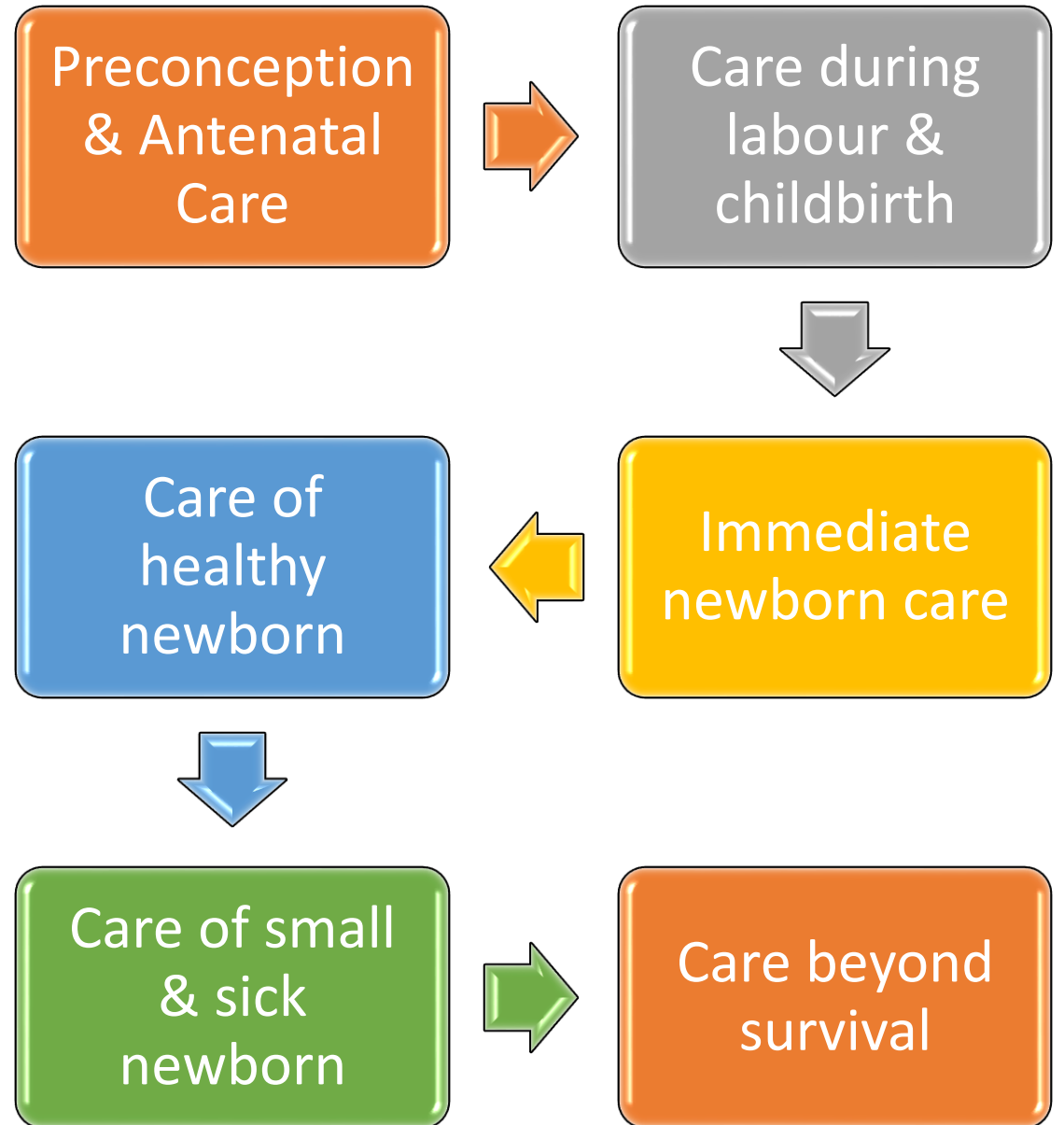


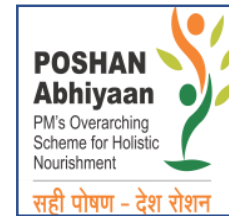
India envisions a health system that eliminates preventable deaths of newborns and stillbirths and where every pregnancy is wanted, where every birth is celebrated, and where women, babies, and children survive, thrive, and reach their full potential.

Targets to achieve single digit NMR and SBR by 2030



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Home Based Care By ASHA



Home based Newborn care - 2011

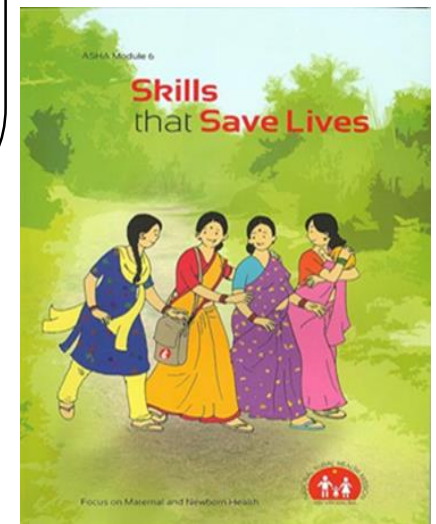
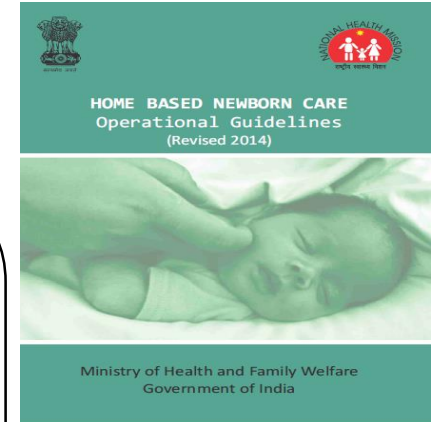
Currently 9.4 Lakh ASHAs are in place

Currently on an average one ASHA covers a 899 population. 7 % gap in ASHA selection – mostly in difficult / hard to reach areas leaving the most vulnerable groups uncovered

States with 1 ASHA for more than 1000 population are Rajasthan, Bihar, UP, Karnataka, Maharashtra, Punjab and WB (12% - 20% in Rajasthan and WB)

Guidelines, dedicated budget lines in PIP, Institutional Mechanisms, Training package, Job aides, HBNC kits, support structure in place

In 2017-18 **Rs 300 crores (27 %)** approved as incentives for ASHAs under HBNC
States with higher allocation : UP 58%, Punjab 36% , Gujarat 32%, Haryana & Bihar 30%



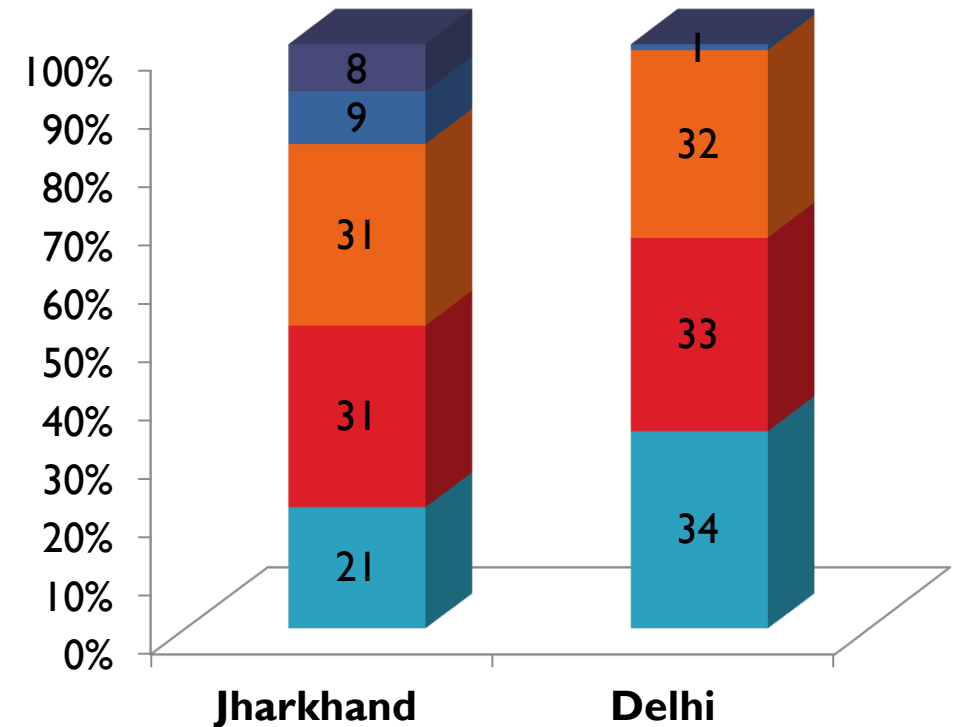
ASHA Evaluation – (18 states), 2018

High coverage of HBNC visits observed during field visits

Role in increasing access for **institutional deliveries, immunization, family planning services** and more than 55% users sought ASHA's advice for **management of the sick newborn**

Average time spent per day by ASHAs ranges from 1-4 hrs in Delhi to 4-6 hrs in Jharkhand of which – 70% is spent on MCH activities

Expanding range of activities thus difficulty in adhering to schedule of visits by ASHAs



- Village level meetings
- Other
- Health Facility Visits
- Travelling

Key Learnings from HBNC roll out -

Building the capacity

Institutionalizing the mechanism

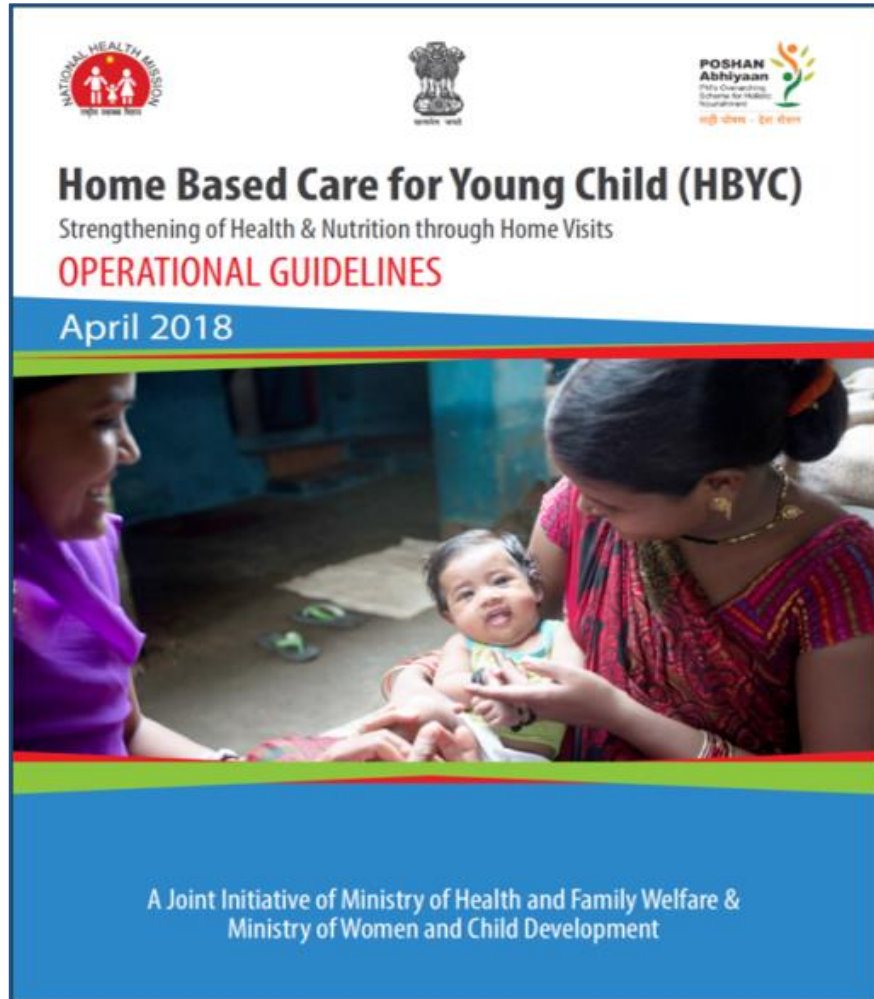
- Completion of training of Module 6&7
- Ensure 15 days of training every year
- On the Job Support and mentoring – by ANM and ASHA facilitators ANM

monitoring and review systems

Strengthening of data systems and ownership

- Revitalize performance monitoring to identify weak areas
- Regular joint reviews to plan for corrective measures
- Enable functional referral mechanisms with effective follow up – both at the facility and community level
- Strengthen community participation by engaging with VHSNCs

Home Based Care for Young Child



Objectives of HBYC programme is to:

- Reduce child mortality and morbidity
- Improve **nutrition status, growth and early childhood development** through structured, focused and effective **home visits** by ASHAs.

Domain Specific Actions & Incentives

Promotion of evidence based interventions in four key domains:

KEY DOMAINS	SPECIFIC ACTIONS
NUTRITION	<ul style="list-style-type: none"> • Exclusive breastfeeding for six months • Adequate complementary feeding from six months & continued breast feeding up to two years of age • Iron and folic acid (IFA) supplementation • Promote use of fortified food
HEALTH	<ul style="list-style-type: none"> • Full immunization for children • Regular growth monitoring • Appropriate use of Oral Rehydration Solution (ORS) during diarrhoea episodes • Early care seeking during sickness
CHILD DEVELOPMENT	Age appropriate play and communication for children
WASH	Appropriate hand washing practices

Each ASHA will be entitled for a sum total of INR 250 **for completion of 5 additional home visits for each young child** starting from 3rd months and extending into 2nd year of life (in 3rd, 6th, 9th, 12th and 15th months).

In case of twins/triplets the amount of incentive will be provided per child.

The payment given after validating age appropriate vaccination and growth monitoring in MCP Card

Age Appropriate Interventions to be Promoted During HBYC Visits



Use of MCP
Card as a tool

Promote
exclusive
breastfeeding

3
months

1st visit

Initiate
complimentary
feeding (CF),
introduce IFA
syrup, ORS

6
months

2nd visit

Increase
frequency
of CF and
measles
vaccine

9
months

3rd visit

Increase
amount of CF,
give feeds
adequate in
quality and
quantity

12
months

4th visit

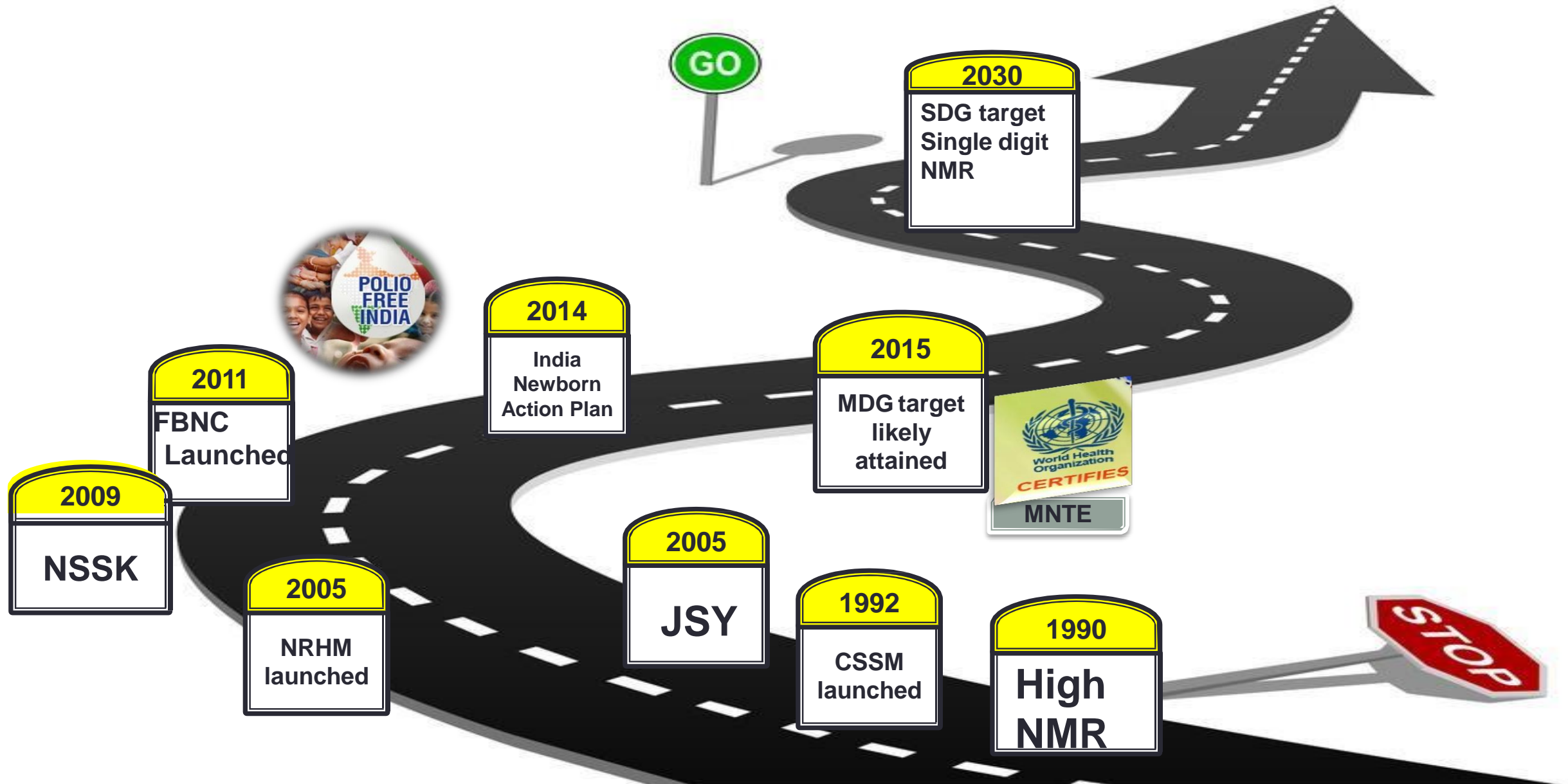
Add variety
of food from
family pot,
booster
vaccination

15
months

5th visit

Age Appropriate Play and Communication

Key milestones of Newborn Survival in India



Shhhhhh....

