



Countdown to 2015

MNCH interventions – what is new and how can we integrate services more effectively?

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Save the Children®





Countdown to 2015

1. Interventions - what's new since 2005?

Maternal health

Newborn health

Child health /nutrition

Malaria

Immunisation

HIV/AIDS

2. Intervention delivery - new strategies?

IMPLICATIONS?

Add immediately

Context specific – eg if low access to care

On the horizon – need more evidence

3. Integrating packages and places of care and Implementation research



Countdown to 2015

Thanks to...

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Prioritise based on those that address:
Major cause of death
Major gap in coverage
Most votes!





New evidence Maternal health

Prevention of postpartum haemorrhage (PPH) MISOPROSTOL ORAL OR SUBLINGUAL

WHY?

- **Postpartum haemorrhage is the leading cause of maternal death in Africa and Asia**, (Khan KS et al, Lancet 2006)
- **Oxytocin injection is more effective than misoprostol or ergometrine for Active Management of Third Stage of Labour**
- **BUT should be given by skilled and licensed personnel, requires “cool chain” so is challenging where skilled attendance is low**

WHAT?

- **600mcg misoprostol compared to placebo after birth reduces haemorrhage by 69% if given orally (5 trials, 3519 women) or if sublingually reduces by 44% (95%CI 0.45 to 0.98; 1 trial, 661 women)**
- **BUT tendency to increased mortality** (Cochrane review 2007)
- **The most common side effects are transient shivering and pyrexia**



New evidence **Maternal health**

Prevention of postpartum haemorrhage (PPH) MISOPROSTOL ORAL OR SUBLINGUAL

IMPLICATIONS?

- **“Promising” but risks as well - to test with lower dose (Cochrane 2007)**
- **“In the absence of active management of the third stage of labour oxytocin or misoprostol should be offered by a health worker trained in its use for prevention of PPH (strong recommendation, moderate quality evidence) (WHO 2006)**
- **“In situations where no oxytocin is available or birth attendants’ skills are limited, administering misoprostol soon after the birth of the baby reduces the occurrence of haemorrhage” (FIGO/ICM 2006)**

**Need more rigorous research re dosing and side effects.
Consider use of misoprostol in settings with low skilled attendance IF
there is careful training, supervision and monitoring.
Goal is still to reach all women with the more effective intervention of
injection oxytoxin as part of full active management**

New evidence Newborn health

IDENTIFYING NEONATAL ILLNESS THROUGH IMCI

WHY?

- ~ 1.2 million neonatal deaths per year due to sepsis/pneumonia (Lawn JE et al 2006, Int J Epi)
- **Coverage of case management for neonatal illness with antibiotics is extremely low** (Darmstadt GL et al 2005, Lancet)
- **IMCI did not previously include case management of newborns, but is an important programmatic opportunity**

WHAT?

- **WHO Multi-center trial to develop an algorithm to identify illness in infants less than 2 months old brought to facilities**
- **Presence of any one of seven simple symptoms/signs has high sensitivity (85%) and specificity (75%)**
[difficulty feeding, convulsions, movement only when stimulated, respiratory rate of > 60 breaths per minute, severe chest indrawing, temp < 37.5°C or >35.5°C]

New evidence Newborn health

IDENTIFYING NEONATAL ILLNESS THROUGH IMCI

IMPLICATIONS? ADD IMMEDIATELY

- **Algorithm is ready and already 39 of 68 Countdown countries have policy of neonatal case management in IMCI and can use this**
- **BUT many newborns are not brought to facilities even when they are ill and this algorithm is not for postnatal visits/active surveillance so more work is required:**
 - **a screening algorithm to use during postnatal visits**
 - **approaches to bring case management closer to home – either to lowest level of the health system or to test home-based treatment in a range of settings**
 - **examine shorter antibiotic regimes and switch regimes (part injection/part oral)**

New evidence Child health / nutrition

ZINC SUPPLEMENTATION FOR DIARRHOEA TREATMENT

WHY?

- Estimated 1.6 million child deaths each year due to diarrhoea
- Recent change to low osmolarity ORS, now being rolled out in countries
- Zinc supplementation for diarrhoea was recommended at global level in 2004 based mainly on efficacy study evidence
- Country policy is moving (31 of 68 countries) but implementation is slow

WHAT?

Two new effectiveness studies, with random allocation to ORS or ORS & zinc

- India (~180,000 population)

Zinc usage 57% zinc use, higher ORS use, lower antibiotic use (2 vs 15%) and

For diarrhoea zinc treatment is moving in policy - increase the drive to implement more quickly.

For pneumonia treatment with zinc, more effectiveness studies targeting severe pneumonia are required

New evidence

Child health, malaria

INTERMITTENT PRESUMPTIVE TREATMENT FOR MALARIA IN INFANTS (IPTi)

WHY?

- ~800,000 child deaths per year from malaria

WHAT?

- Sulfadoxine-Pyrimethamine (SP) 3 doses in first year linked to immunisation schedule
- 6 trials with new meta-analysis show no significant mortality benefit but 30% reduction in malaria episodes and hospitalisation, and 15% reduction in anaemia

More evidence re drug safety and cost effectiveness

Additional research questions include:

- use after one year age if there is malaria seasonality
- development of alternative drugs

New evidence Immunisation

PNEUMOCOCCAL IMMUNISATION

WHY?

- **1.8 million child deaths due to pneumonia, with an estimated 814,000 due to pneumococcal infection** (Scott JA Vaccine, 2007)

WHAT?

- **The Gambia: 16% reduction in U5 deaths (CI 3-28%)** (Cutts et al, Lancet 2005)
- **Now approved by GAVI for 72 poorest countries, plus 10 valent and 14 valent conjugates in development**
- **Need more laboratory capacity for country surveillance**

NOVEL FINANCING MECHANISMS

Accelerated Development & Introduction Plan (ADIP)

Advance market commitments

Output based aid /contracts

Contributed to reducing the development time and especially time to reach poor countries

New vaccines

- **Rotavirus:**
 - High efficacy USA and Latin America
 - Trials in less developed countries
- **Malaria RTS,S/AS02A vaccine:**
 - **Gambia 58% reduction in severe malaria in the (CI 16-81%)** (Alonso et al, Lancet 2004)
 - **Mozambique RCT double blind phase I/IIb trial showed safe and well tolerated** (Macete EV et al, Trials 2007)

- **Uniject (needle free technology) for safe injection**
 - Tetanus Toxoid for pregnant women, or for oxytocin
 - Gentamicin injection for neonatal sepsis



Wind up powered robust technology

- Doppler fetal heart rate monitor
- Pulse oximeter



On the horizon.....

New home technologies

Chlorhexidine to prevent umbilical sepsis

- **4% Chlorhexidine on the umbilical cord in Nepal** Mullany L et al, Lancet 2005 (days 0,1,2,3,5,7,9) 24% reduction in neonatal mortality
- **Larger trial in progress in Bangladesh**



Water point of use disinfection

- **Meta-analysis of 33 studies found strong evidence of benefit from use of home disinfection technology especially chlorination even with poor sanitation** Clasen et al BMJ 2007
- **But affordability and acceptability require more testing**



Indoor air pollution/solid fuel use

- **Now more studies better defining the risks**
- **Limited, small studies for intervention**
- **Need more studies re possible solutions in practice**



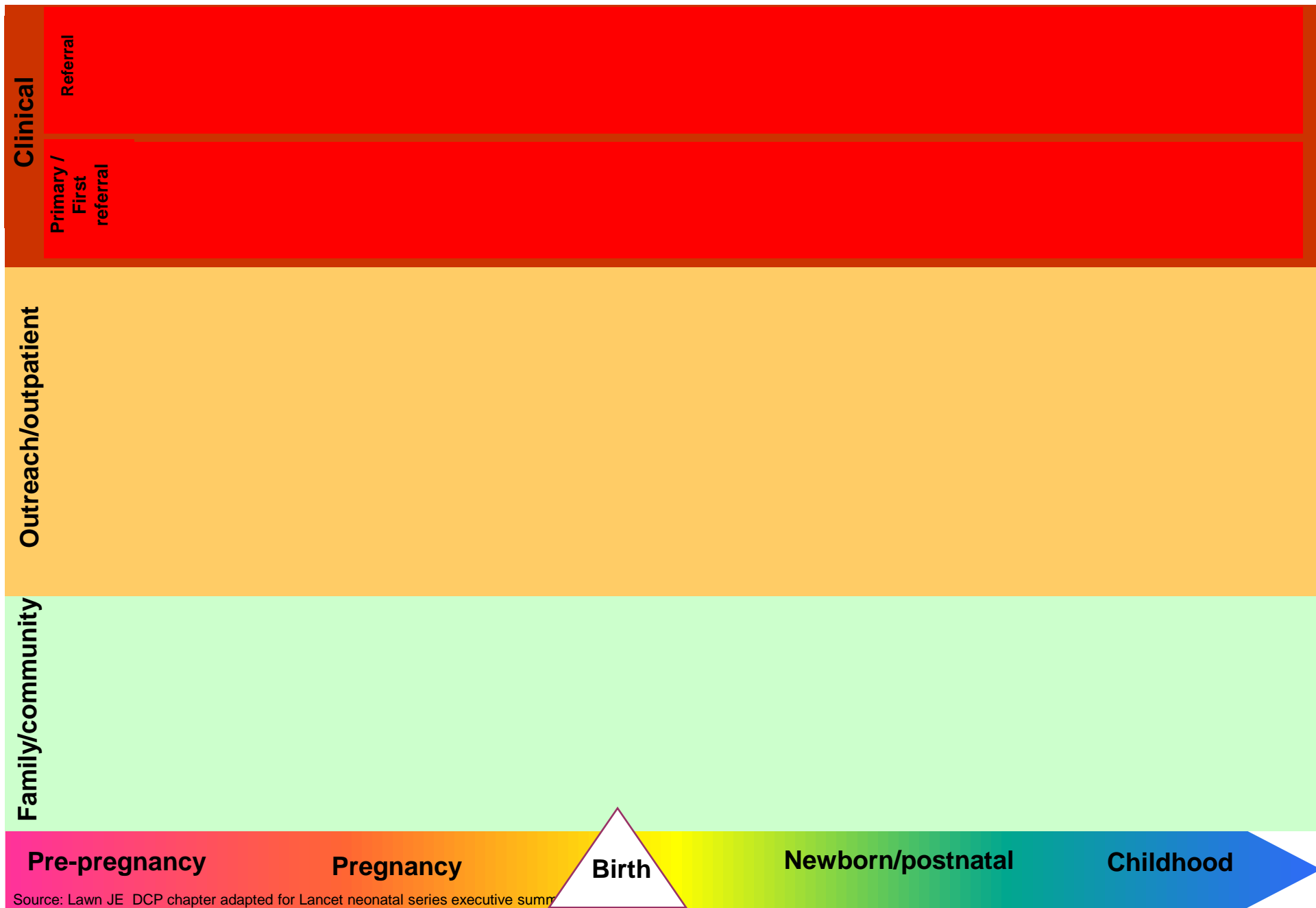
Proliferating interventions and proliferating Lancet series..

Over 190 single interventions listed



**Need to package the interventions and strengthen existing programmatic platforms to reach families.
A paradigm shift to MNCH continuum of care**

Delivery of interventions



Source: Lawn JE DCP chapter adapted for Lancet neonatal series executive summary

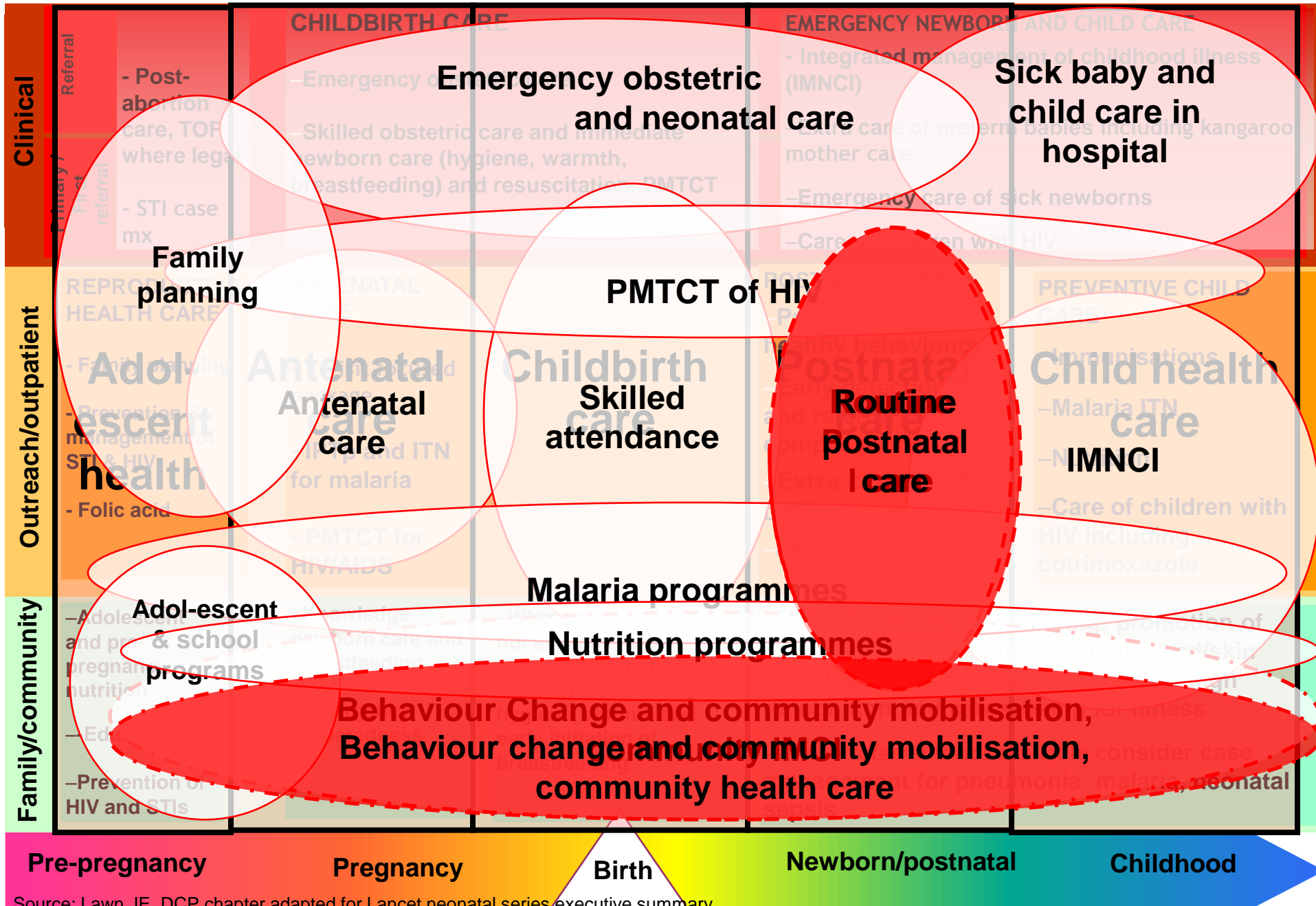
Integrated MNCH packages in the continuum of care

Clinical	Referral	<p>CHILDBIRTH CARE</p> <ul style="list-style-type: none"> - Emergency obstetric care - Skilled obstetric care and immediate newborn care (hygiene, warmth, breastfeeding) and resuscitation, PMTCT 	<p>EMERGENCY NEWBORN AND CHILD CARE</p> <ul style="list-style-type: none"> - Integrated management of childhood illness (IMNCI) - Extra care of preterm babies including kangaroo mother care - Emergency care of sick newborns - Care of children with HIV 	
	Primary / First referral	<p>REPRODUCTIVE HEALTH CARE</p> <ul style="list-style-type: none"> - Family planning - Prevention & management of STI & HIV - Folic acid <p>Adolescent health</p>	<p>ANTENATAL CARE</p> <ul style="list-style-type: none"> - Antenatal package - IPTp and ITN for malaria - PMTCT for HIV/AIDS <p>Antenatal care</p>	<p>POSTNATAL CARE</p> <ul style="list-style-type: none"> - Promotion of healthy behaviours - Early detection and referral of complications - Extra care of LBW babies - PMTCT for HIV <p>Postnatal care</p>
Outreach/outpatient	<ul style="list-style-type: none"> - Adolescent and pre-pregnancy nutrition - Education - Prevention of HIV and STIs 	<ul style="list-style-type: none"> - Knowledge newborn care and breastfeeding - Emergency preparedness 	<ul style="list-style-type: none"> - Where skilled care is not available, clean delivery and immediate newborn care including hygiene, warmth and early initiation of breastfeeding 	<ul style="list-style-type: none"> - Healthy home care including: promotion of exclusive breastfeeding, hygienic cord/skin care, keeping the baby warm, danger sign recognition and careseeking for illness - Where referral is not available consider case management for pneumonia, malaria, neonatal sepsis
Family/community				

Pre-pregnancy Pregnancy Birth Newborn/postnatal Childhood

Source: Kerber KJ, Lawn JE et al Lancet 2007

Reality for the delivery of integrated care



Source: Lawn JE DCP chapter adapted for Lancet neonatal series executive summary

Coverage along the continuum of care

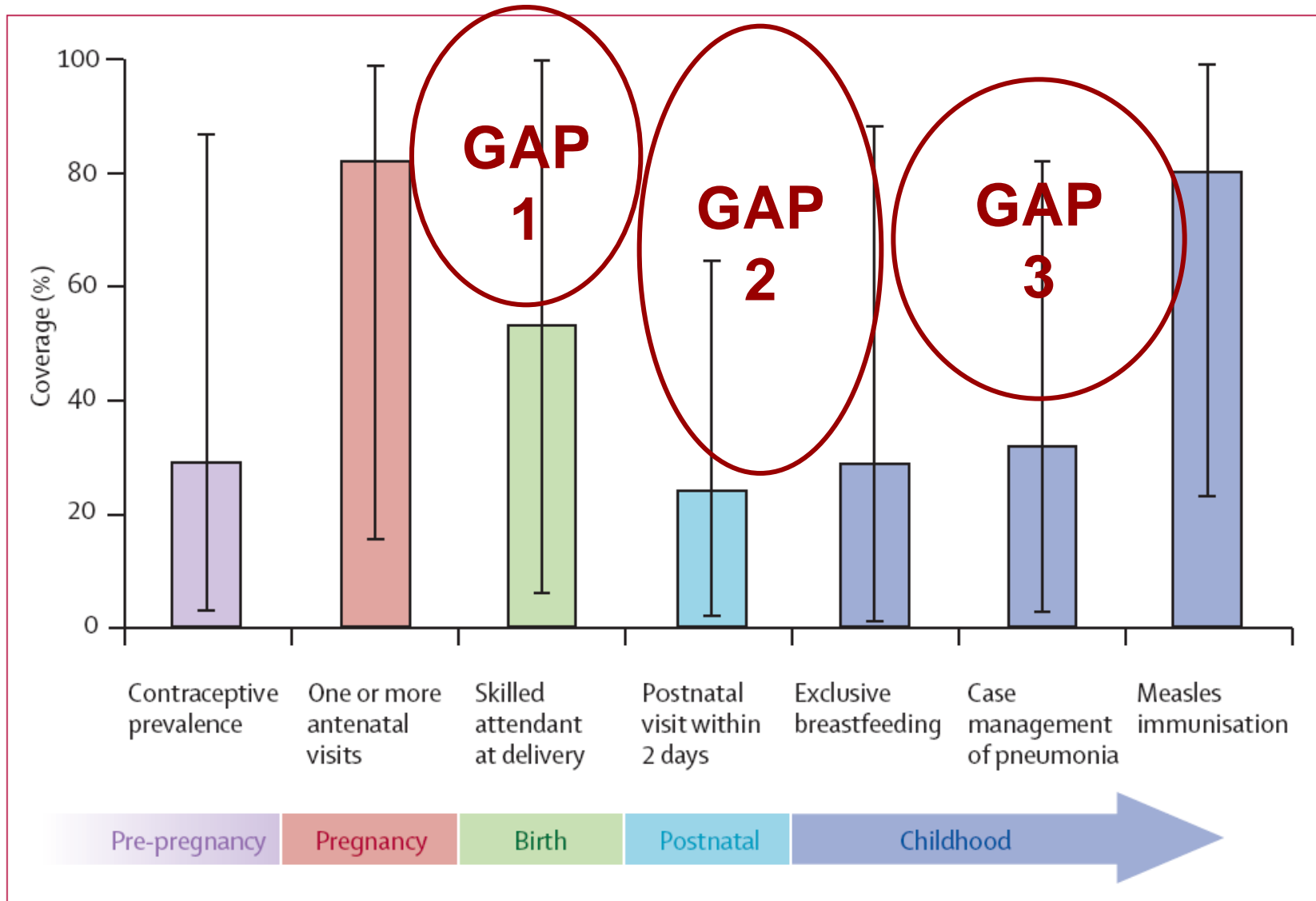


Figure 3: Coverage estimates for interventions across the continuum of care in the 68 priority countries (2000–06)

EMERGENCY OBSTETRIC CARE

CAESARIAN SECTION: Use of alternative cadres (non-physician clinicians (NPC) to provide C-Section

- Prospective data from Mozambique, Malawi, Tanzania
- Cover the majority of obstetric surgical procedures
- No difference detected in outcomes (eg infections, wound complications)
- Cost about 30% of using physicians
- Retention much higher especially in hard to serve areas (88% of NPC vs 0% physicians)



Staffan Bergström

EMERGENCY OBSTETRIC CARE

CAESARIAN SECTION: Use of alternative cadres (non-physician clinicians (NPC) to provide C-Section

Implications:

Add immediately for settings where access is limited and there is an appropriate cadre in the health system with supervision

**Swedish
midwives law
passed 1828!**



Staffan Bergstrom



Staffan Bergstrom

**2008 still only 27 of 68
Countdown countries
have legislation for
midwives to give
injections and do
vacuum extraction**

Evidence from Bangladesh about where & when?

Randomised Controlled Trial with >10,000 births, baseline neonatal mortality rate 41 per 1000 live births

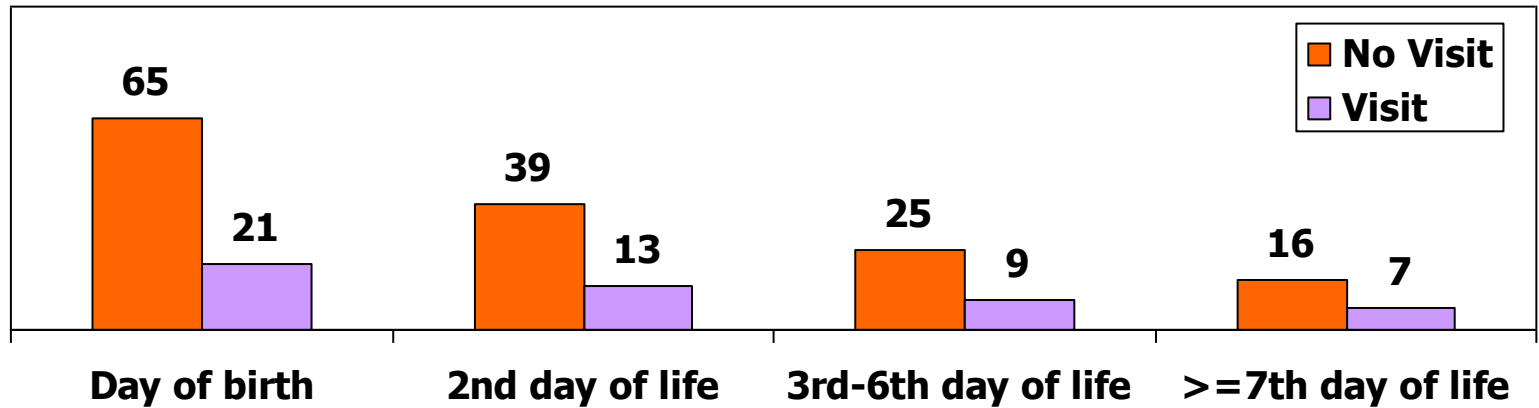
	Change in neonatal mortality rate (Jan 2003 to Dec 2005)
Arm 1- Control (usual care)	0%
Arm 2- Health system strengthening	0%
Arm 3- Health system strengthening plus home care	34% reduction

In the home care group

Trained CHW assessed newborns on days 1, 3 and 7 of life using an algorithm similar to IMNCI and referred if suspected illness
If referral was refused but parents consented to home treatment, CHWs treated these cases at home using injectable antibiotics for 10 days

Postnatal Care – when?

Neonatal mortality rate



NMR reduction
visit vs no visit
(adjusted)

77%

Highly sig

74%

Highly sig

40%

Close to sig

22%

Not sig

Implications: Postnatal visits reduce newborn deaths.

A first visit within 2 days of birth may reduce deaths by 77% – also when maternal deaths occur and key for breastfeeding.

Need to test integrated, scaleable packages especially in Africa as the cadre and package content will vary

COMMUNITY CASE MANAGEMENT OF PNEUMONIA

- **WHAT antibiotic to use?**
Oral amoxicillin short course is as effective as injection based on 2037 children randomly allocated (Hazir et al Lancet 2008)
- **WHERE?**
For children 2 months to 5 years, home is as good as hospital unless very severe illness (2-3% of cases) (Hazir et al Lancet 2008)
- **COUNTRY ACTION?**
Policy changing? 18 of 68 Countdown priority countries in 2008
Only increased by 2 countries since 2005, but 11 have programmes without policy (Marsh et al WHO Bull in press)
Country experience at scale – for example Nepal (Dawson et al WHO Bull in press, and in seminar today at 4pm)

Implications: Do now in settings where access is limited and there is an appropriate cadre linked to health system

COMMUNITY CASE MANAGEMENT OF MALARIA

- **WHAT antimalarial to use?**
Artemisinin-based combination therapies (ACTs)
All but one endemic country changed national policy to ACTS between 2003 and 2007 and drug disbursement up 20 fold 2003 to 2006 (UNICEF RBM, 2007)
- **WHERE?**
Malaria treatment coverage within 24 hours is only 23% (UNICEF RBM, 2007)
Emerging evidence re home case management, prompt treatment and correct dose and duration – 4 African sites (Ajayi et al, Malaria Journal 2008) and Mali study (Doumbia, Swedberg, Winch personal communication)
- **COUNTRY policy changing?**
A recent survey suggested that national policy change re community

Implications:

In malaria endemic areas it makes sense to treat malaria and pneumonia together for community case management as per usual facility IMCI protocols

MORE EVIDENCE FOR TREATMENT OF PREGNANT WOMEN: THE 'M' IN PMTCT

WHY?

- Pregnant women with CD4 counts < 200 are ~12-15% of all HIV-infected but account for:
 - **Maternal - ~50% non-obstetric maternal deaths**
 - **Baby - 40-50% of all mother to child transmissions**
 - **Children of low CD4 mothers have 3-4 fold risk of death**

WHAT?

- **PMTCT should link to treatment services especially for women with CD4 count < 200, perhaps also if maternal CD 4 count <400**
- **Peer counselling support package and/or women's groups may improve outcomes for mothers and babies (eg increasing exclusive appropriate feeding)**

**Paradigm shift from PMTCT to PMTCT plus – family centered
More evaluation of integrated implementation especially for
the gap in the first few weeks after birth**

Knowledge ≠ implementation



Kangaroo mother care
Effective, low cost
care for preterm
babies

Newspaper headline August 2007

Government tells mothers to use charcoal stoves as incubators



RISDEL KASASIRA
PARLIAMENT

INADEQUATE incubation services for premature babies in the country have forced the government to adopt use of charcoal stoves commonly known as sigili as an alternative source of

provide temperatures like those of a mother's womb. So where you don't have incubators, mothers can use sigili."

Premature birth incidents are common in rural areas where pregnant mothers are exposed to diseases like malaria. Dr Ronald Muheirwe of Star

the government has failed to deliver services to its people.

Ngoma County MP who is also a medical doctor Francis Eperati said exposing premature babies to charcoal stove heat is dangerous because the heat is hard to regulate. "This is a crude and desperate method. How do you con-



Countdown to 2015

CONCLUSIONS- Countdown 2005 Research advances talk Prof Betty Kirkwood

■ **ADD IMMEDIATELY**

- ✓ .
 - Increased emphasis on community-based involvement
- ✓ .
 - Ready to Use Therapeutic Feeding (RUTF) for severely malnourished children
- ± .
 - Oral amoxicillin for pneumonia
- ✓ .
 - Cotrimoxazole prophylaxis for HIV+ children

■ **NEED MORE EVIDENCE**

- ✓ .
 - Impact of zinc supplements on child mortality
- ✓ .
 - Pneumococcal vaccine
- ✓ .
 - Early initiation of BF & neonatal mortality
- ± .
 - Newborn skin/cord cleansing

NEED: Evidence on scaling up

±

CONCLUSIONS IN 2008

■ **ADD IMMEDIATELY**

- Postnatal care – especially early first visit
- PMTCT plus including treatment for the woman
- Pneumococcal vaccine
- Zinc treatment for diarrhoea
- Oral amoxicillin for pneumonia (unless severe)

■ **CONTEXT SPECIFIC**

- Alternative cadres for obstetric surgical procedures
- Community based case management pneumonia and malaria
- Misoprostol as an interim measure where injection oxytocin is not possible, with training and support

CONCLUSIONS IN 2008

- **ON THE HORIZON / need more evidence**
 - Community based case management of neonatal sepsis
 - Newborn skin/cord cleansing with chlorhexidine
 - Intermittent Presumptive treatment of infants (IPTi)
 - Zinc treatment for pneumonia
 - Rotavirus vaccine, malaria vaccine
 - Home water disinfection
 - Wind up technology for Doppler fetal ultrasound and pulse oximeter
 - UNIJECT

RESEARCH PRIORITIES

- **I**ntegrated health system packages
 - Adapted to local settings and health systems and cadres of worker (Hawes et al, HPP 2007)
 - More cost effective or just less effective??
 - What about time and system overload?
- **I**mpact and cost
 - Comparability – evaluation frameworks
 - Consistent definitions and methods
- **I**mplementation research

GRIPP

**Getting Research Into Policy & Practice
(lessons learnt from new immunisations)**



Everyone has a role to play...

Ambassador Mongella, President of the Pan-African Parliament, 2006

**“As government officials to lead,
As policy makers to guarantee
essential interventions and
equity,
As partners and donors to support
programmes,
As health workers to provide high
quality care,
As humans to advocate for our
newborns, mothers and children”**



**Let us all
play our
part!**