Pneumonia, Diarrhoea and New Vaccines

The Programmatic Context: Communication & Cold Chain

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Global Communication Group
In spite of our technical advances – (including being able to land on the moon …)
The world is not yet on track to achieve its MDG commitment to a 67% reduction in child mortality by 2015
In many communities, more than one in ten children die before their fifth birthday, from preventable diseases
Simple interventions can shift the balance from death to life for millions of children each year like...
Clean water
Adequate Nutrition
Immunization
New vaccines offer hope against the two leading child killers – pneumonia and diarrhoea.
But vaccines are only part of the solution: other vital health interventions must extend their reach.
And immunization must reach out further to the 23 million children that still go un-immunized each year.
At the heart of our thinking is a coordinated communication approach …
...tying the key interventions together in an unprecedented race to save nearly 3 million children’s lives each year...
...and focusing on the power of individual, family and community ‘healthy actions’ to save lives.
‘Healthy actions’: the behaviours that increase a child’s chance for survival and healthy development.

‘Healthy actions’ play a key role in nearly all recommended interventions.
Why pneumonia & diarrhoea?
Progress: but not enough

Source: WHO
Causes of child deaths, 2008

33% of child deaths are due to pneumonia & diarrhoea;

WHO CHERG estimates, Black et al Lancet 2010
Top 10 countries for pneumonia and diarrhoea deaths

10 countries with largest burden of pneumonia deaths
- Afghanistan
- Angola
- Bangladesh
- China
- DR Congo
- Ethiopia
- India
- Pakistan
- Niger
- Nigeria

• >1,200,000 pneumonia deaths
• 62% of global pneumonia deaths

10 countries with largest burden of diarrhoea deaths
- Afghanistan
- Angola
- Bangladesh
- China
- DR Congo
- Ethiopia
- India
- Pakistan
- Niger
- Nigeria

• >1,100,000 diarrheal deaths
• 64% of global diarrheal deaths

Source: WHO 2004 global burden of disease sub analysis
Mortality rate* per 100,000 children under five years of age due to *Streptococcus pneumoniae*, 2000

* HIV+ve deaths excluded

WHO/JHU disease burden study
Why pneumonia & diarrhoea?

- Leading post-neonatal child killers globally, and in most countries: but limited progress
- New vaccines available: prevent many but not all cases
- Potential contribution across programmes
- WHO-UNICEF strategies
- 2010 WHA Resolution 63.24
Protect, prevent and treat interventions

**Protect**
- Exclusive breast feeding
- Adequate nutrition
- Zinc & Vitamin A supplementation
- Hand washing
- Safe water and sanitation
- Reduce indoor air pollution

**Prevent**
- Vaccines: pertussis, measles, Hib, PCV and rotavirus
- Cotrimoxazole prophylaxis for HIV-infected and exposed children

**Reduce pneumonia and diarrhoea morbidity and mortality**

**Treat**
- Improved care seeking
- Case management at the health facility and community level
- Supplies: Low osmolarity ORS, Zinc, antibiotics & oxygen
## Contribution of healthy actions for pneumonia and diarrhoea interventions

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Disease</th>
<th>Behavioural contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early and exclusive breast feeding</td>
<td>Both</td>
<td>Primary</td>
</tr>
<tr>
<td>Hand washing with soap</td>
<td>Both</td>
<td>Primary</td>
</tr>
<tr>
<td>Improve care-seeking</td>
<td>Both</td>
<td>Primary</td>
</tr>
<tr>
<td>Oral rehydration therapy (ORT)</td>
<td>Diarrhoea</td>
<td>Primary</td>
</tr>
<tr>
<td>Immunization</td>
<td>Both</td>
<td>Partnership</td>
</tr>
<tr>
<td>Case management</td>
<td>Both</td>
<td>Partnership</td>
</tr>
<tr>
<td>Zinc treatment-supplementation</td>
<td>Both</td>
<td>Partnership</td>
</tr>
<tr>
<td>Vitamin A supplementation</td>
<td>Diarrhoea</td>
<td>Partnership</td>
</tr>
<tr>
<td>Adequate nutrition</td>
<td>Both</td>
<td>Contributory</td>
</tr>
<tr>
<td>Prevent low birth weight</td>
<td>Pneumonia</td>
<td>Contributory</td>
</tr>
<tr>
<td>Safe water and sanitation</td>
<td>Diarrhoea</td>
<td>Mixed</td>
</tr>
<tr>
<td>Reduce indoor air pollution</td>
<td>Pneumonia</td>
<td>Mixed</td>
</tr>
</tbody>
</table>
Uneven coverage patterns across interventions

Coverage levels for countdown interventions and approaches, 68 priority countries

- Though the global average immunization coverage is high, coverage with Hib vaccine is low and pneumo and rotavirus vaccines have to be introduced and scaled up
- Coverage with other interventions is low and in some instances declining

Source: WHO CAH department; WHO-UNICEF immunization coverage estimates

Little progress in expanding case management for common childhood illnesses across Africa

Note: Trend analysis is based on a subset of African countries covering 75 per cent (pneumonia care-seeking), 50 per cent (ORT with continued feeding) and 57 per cent (antimalarial treatment) of the under-five population in this region.

Source: UNICEF Global Database, Nov 2009
Compiled from MICS, DHS and other national surveys
Communication...what?

Communication for Development (C4D), programme communication, COMBI, communication for behaviour change, health promotion ... what do we mean?

Communication:
a research-based strategic process designed to address individual and group behaviours linked to programme goals.

Communication for Development (C4D) in UNICEF is a systematic, planned and evidence-informed strategic process to promote positive and measurable behaviour and social change that is integral to development programmes.
Communication context

Building on lessons learned and the strong foundation of success and experience of programmes.

• Knowledge does not necessarily lead to action
  • Need skills and ‘self-efficacy’
  • May need resources, support and changes in norms

• Ottawa Charter for Health Promotion(1986) ???
  • Healthy public policies
  • Create supportive environments
  • Strengthen community action
  • Build personal skills
  • Reorient health services

3 strategies: Advocate; Enable; Mediate
Communication lessons: what works, what doesn’t

What works:

• Use of evidence-based messages and approaches that speak to local populations with a personal approach.

• Use of a combination of approaches including one-on-one contact and community-based approaches.

• Continuous communication at multiple levels.

What doesn’t work:

• Generic messages (“breast is best”) with no discussion of WHY and no context.

• Using only information, education, communication (e.g., posters, slogans, mass media).

• Expecting campaign approaches to be sufficient (e.g., World Breastfeeding Week).

Adapted from UNICEF Webinar: “Improving Exclusive Breastfeeding Practices by using C4D in Infant and Young Child Feeding Programmes.”
Communication lessons learned
new vaccines

Parents **DO need to know:**

- Immunization is important (good) for their children’s health
- When and where they should bring their child for his/her next vaccination
- A new vaccine means that their child will receive more protection, usually without any extra visits
- It is safe to receive an additional vaccine and more than one injection on the same visit
- There are not likely to be any important additional side effects (discomfort) because of the additional vaccine given on the same visit

Parents **DO NOT need to know:**

- Details of vaccines and disease prevented, unless desired
- The vaccination schedule (by heart)

**Additional considerations**

- Preparedness to respond to allegations/rumours and AEFIs and build parental trust in vaccinator and system
- Communication not been largely identified as an issue in PIEs

Excerpt from presentation: “Good Practices and Challenges – communication for introduction of new vaccines,” Michael Favin, The Manoff Group,
Communication Framework

1. Coordination
2. Capacity
3. Change
Communication Framework goals

To support:

**Coordination**
Enhanced coordination across programmes that aim to prevent and/or treat pneumonia or diarrhoea;

**Capacity**
Strengthened national communication capacity to achieve programme goals using systematic, participatory, and evidence-based approaches that engage and empower communities;

**Change**
Increased adoption of individual and community healthy actions to protect against, prevent and treat pneumonia and diarrhoea;
Communication Framework

Guidance to help countries:

• Develop communication plans for new vaccine introduction

• Strengthen individual and community ‘healthy actions’ for the prevention and treatment of pneumonia and diarrhoea.
  • ‘Healthy actions,’ i.e.: hand-washing, early and exclusive breastfeeding, timely care seeking

Additional opportunity to...

...coordinate across programmes,

...help Member States implement WHA resolution 63.24 on pneumonia,

...strengthen partnerships for improved service delivery and health systems.
Before starting, remember...

The first mantra
Do nothing. Produce no T-shirts, no posters, no leaflets until you have a clear, specific behavioural goal.

The second mantra
Do nothing until an appropriate (situational market) analysis uncovers the specific behavioural outcomes required.

Analysis – new vaccines

analysis and research should identify key issues that will impact the communication plan such as:

• nature of the vaccine being introduced and potential communication implications with parents and health providers (additional injection, schedule modification, etc.);

• public perception of immunization and the immunization program;

• presence or absence of an active anti-vaccination movement or of a political group that might latch on the vaccination as an issue;

• public familiarity with the specific disease that the new vaccine protects against (this may positively influence community demand for new vaccine).
Mobilize families and communities around key ‘healthy actions’
Cold Chain & Logistics: Key Messages

• No cold chain & logistics \( \Rightarrow \) No immunization!
• CCL is neglected part of health system: Developing country governments, development partners and donors need to invest more to build, maintain and replace
• Newer vaccines are more expensive, so to buy these vaccines and not invest in improved CCL would be penny wise and pound foolish. We need to protect the investments in these vaccines.
Key issues

• The **huge unmet needs** for current vaccines; even more for future
• Major deficiency **human capacity**
• Focus on **equipment** of rather than **systems**; **storage** rather than **logistics/vaccine management**
CCL Taskforce, an Interagency Partnership

• Partners:
  • CDC, Gates, JSI, PATH, CHAI, Project OPTIMIZE, GAVI, AMP, WHO, and UNICEF (Supply Division, Regional Officers, Programme Division)

• From 2011 open to
  • Independent Consultants
  • Anyone with interest and expertise
CCL Taskforce Vision

• The capacity of national immunization programmes is strengthened so that every individual can benefit from vaccines of **assured quality**; delivered in the **right amount** at the **right time** through **efficient logistics**, **proper vaccine management**, and a well-functioning **cold chain system**.

TechNet 2010, Kuala Lumpur, 30 November 2010
2007 Goals & Outcomes

• Partners work together to develop:
  (1) a framework for CCL strengthening;
  (2) indicators to monitor progress;
  (3) methods and database to share information;
  (4) country prioritisation;
  (5) roles for each agency

• Adequate number of vaccines are available for every immunization session,
• Vaccine wastage is minimized without affecting coverage
• Vaccines are stored and transported without temperature damage
• New vaccine introduction is not constrained by lack of storage/transport capacity
• There is greatly increased coordination and a commitment towards effective integration with procurement and management of other priority health commodities
NOTE: this site is under development. You are invited to contribute by reviewing and adding suggestions.

Please e-mail rvenu@unicef.org to join our community and contribute to this site.

PURPOSE OF THIS SITE

At present there is no overarching CCL system strengthening guidance, but many related tools and publications are available. The Cold Chain and Logistics (CCL) Taskforce established a Guidance Subgroup, to collect and review available guidance to identify overlaps, conflicts and areas where new guidance is needed or current guidance requires updates based on new developments.

This site aims to develop simple, concise guidance focussed on the needs of specific actors roles and responsibilities.
"World Famous slide"

- $635.50**
  - 4100 doses of Polio and Measles Vaccines
  - Rural hospital storage, Mozambique

- $4,687.50**
  - 625 doses of Rotavirus Vaccine
  - District vaccine store, Brazil

* Source: WHO. Guidelines on the international packaging and shipping of vaccines. 2002; WHO/V&B/01.05.

** Based on $7.50/dose for Rotarix and $0.155 per dose for polio and measles
Current & anticipated vaccines volumes per child

<table>
<thead>
<tr>
<th>Vaccine Type</th>
<th>Volumes, cm³</th>
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<tbody>
<tr>
<td>TV + Penta_liq + PCV-7</td>
<td>20/41/35/36</td>
</tr>
<tr>
<td>TV + Penta + PCV-2-dose vial + Rota</td>
<td>20/41/21/240</td>
</tr>
<tr>
<td>TV + Penta + PCV-7</td>
<td>20/41/177/240</td>
</tr>
<tr>
<td>TV + Penta</td>
<td>20/41</td>
</tr>
<tr>
<td>Tradi Vax</td>
<td>32</td>
</tr>
</tbody>
</table>

Todays' requirements

New target for Pneumo & Rota

Initial target for Pneumo & Rota

Legend:
- Traditional Vax
- dtp/hepB/Hib combo
- PCV
- Rota
## Status of Central Cold Chain Capacity

<table>
<thead>
<tr>
<th>Group of Countries</th>
<th>Adequate Capacity</th>
<th>Moderate Gap</th>
<th>Severe Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMR</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>ARF-C</td>
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<td>3</td>
<td>3</td>
</tr>
<tr>
<td>AFR-E&amp;S</td>
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<td>6</td>
</tr>
<tr>
<td>AFR-W</td>
<td>5</td>
<td>6</td>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
<td>SEAR</td>
<td>3</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>WPR</td>
<td>5</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>26</strong></td>
<td><strong>27</strong></td>
<td><strong>17</strong></td>
</tr>
</tbody>
</table>

### Pie Chart

- **Adequate Capacity**: Insufficient for both PCV and Rota (24%)
- **Severe Gap**: Insufficient for both PCV and Rota (24%)
- **Moderate Gap**: Sufficient for only one vaccine (39%)

Source: WHO/IVB, presented at NUVI Meeting, Montreux 16-18 June 2009
Challenges for outreach

Capacity of Vaccine Carriers

- Need for bigger & lighter vaccine carriers to be prequalified (PQS)!!!
Upgrading cold chain takes Time!

- Assessing the need → 3 months
  - Central & intermediate → 1-2 months
  - Intermediate & service → 2-3 months
- Preparing & ordering → 6-9 months
- Receiving and installation → 3-6 months

- It can take at least 12 months to upgrade needed cold chain capacity for new vaccines introduction
- And money: rough estimate $5-10 per birth
Analysis of 22 VMAs

VMA Score by Administrative Level

Source: P. Lydon, Optimize
The switch from a 10-dose DTwP to a single dose pentavalent vaccine increased refrigeration storage volume per fully vaccinated child by 106% at national and regional levels and by 71% at the three lower levels of vaccine distribution. ... The most important system cost item is cold storage, amounting to US$ 0.62 per child in the birth cohort and US$ 0.03 per additional cm$^3$ of cold storage.

In Ethiopia introduction of pentavalent vaccine necessitated considerable investments in additional cold storage equipment as well as an increase in vaccine transport frequency. A GAVI Alliance introduction grant of US$0.30 per child in the birth cohort would cover approximately 20% of the capital investments undertaken to facilitate introduction.
Our best thinking got us here

“The problems that we face cannot be solved by the same level of thinking that created them.”

Albert Einstein
30 Day monitor: FRIDGE-TAG

Monitors storage temperature
PQS pre-qualified
Accuracy +/- 0.3°C
Shows current temperature last 30 day record
Show ALARM if
- FREEZE: >1h at -0.5°C or less
- HEAT: > 10h at >8°C

2 year life span
Cost: approx US$20
THANK YOU!