

Developing a vision for future vaccine cold chain and logistics systems

Michel Zaffran introduced a single slide showing a typical vaccine supply chain and challenged the participants to think 10 to 15 years ahead to describe the characteristics of the supply chain of the future, recognizing that logistics management is not a valued skill in many countries.

This discussion had been held before in other forums and the purpose of the meeting was to develop a common vision of future supply chains so that all organizations concerned could contribute consistently towards developing it.

The 32 participants¹ debated this issue freely for 45 minutes and the outcomes are re-arranged below under five heading:

- ✓ improved information systems,
- ✓ more appropriate product profiles,
- ✓ stronger planning and management,
- ✓ effective transport, and
- ✓ more integration of vaccine supplies with other products.

Each is described in more detail below.

Improved information systems

There is a need to develop the skills to assess vaccine need *accurately*. UNICEF doesn't have the capacity to take on this role. Who can develop the training needed and to support its wide use?

Bar codes (in Costa Rica) will be used to track adverse events and more closely manage vaccine stock controls. VVMs have taken 20-30 years to implement: a consistent demand from partners would help to implement bar codes more quickly.

Assam State in India is already exploring adding bar codes on vaccine packaging but there is no plan yet to add bar codes to vaccine vials.

Serum Institute of India (SII) is exploring adding bar codes and datamatrices to vaccine vials but unfortunately there is a monopoly supplier of bar code labels in India. Outside the meeting I was told that they are working with a company from Singapore on datamatrices for vaccine vials. SII is targeting the private market first. SII can however respond to requests for bar codes and will supply UNICEF if asked, for an additional cost. SII is currently also working on HB vaccine out of the cold chain. Hib vaccine may also be re-classified as more heat stable in the future.

¹ 24 of the 32 participants left their contact details and these are reproduced on pages 3 and 4 of this note.

More appropriate product profiles.

It is critically important to communicate optimal product profiles to vaccine and other manufacturers. For vaccines particularly: lower volume, Vaccine Vial Monitors added, needleless delivery, and more heat stability. Recommendations and messaging to manufacturers should however be sensitive to their commercial realities.

We already know some existing 'choke points' resulting from sub-optimal product profiles and these should be our priorities for what we work on first.

VVM excessive heat indicators exist, we also need a similar indicator on each vial for freeze monitoring.

We need to assess the new vaccine pipeline for the next 15 years with each vaccine's anticipated product profiles – particularly its anticipated heat stability. What new vaccines will we see during the next 15 years and what will be the manufacturing capacity to produce them?

Stronger planning and management.

The management of the supply system, its flexibility, efficiency and cost are critically important. Furthermore, the capacity of the country to implement changes and to retain national ownership is fundamental. The converse of developing optimal product profiles, is that the supply system still needs to be flexible enough to accept and deliver efficiently whatever products arrive. Human resources remains a challenge at all levels due to rapid staff turnover, particularly.

Should Government be managing the vaccine/pharmaceutical supply chain? Their interest and skill are in epidemiology and disease control. Perhaps supply systems should be outsourced to those who have these special skills.

Supply chains need to be flexible to accommodate the needs of both routine and pandemic immunizations.

Vaccine procurement and registration needs to be an integral part of distribution.

Health centres are not the only end points for vaccine and drug delivery. The private sector and schools need to be considered. Supply chains are at different levels of development and need different types of support.

Price! New vaccines will remain more expensive for the foreseeable future and supply chain will need to be better managed to reduce wastage and reduce the stock retained in the supply chain. The existing private sector supply systems could be a role model for this increased efficiency.

Effective transport.

Transport is not universally problematic and difficult to manage. In some areas, for example in urban areas, transport is available and the supply chain can already be developed to have shorter transit times and to retain less stock. Where transport remains difficult reserve stocks will continue to be needed.

Furthermore, several levels in the supply chain will continue to be needed where there are health centres without a vaccine refrigerator; vaccine needs to be kept elsewhere but close by.

More integration of vaccine supplies with other products.

There are already many examples of immunization and other services being integrated: UNICEF Child Health Days already combining vaccines, ORS, vitamin A, and anti-helminths. Although effective and useful these, and other examples of integration, are piecemeal and we need to more ambitious.

Drug supply management systems are currently not rigorous enough for vaccines to be added to the same distribution system. However, drug supply systems are developing fast and when drugs delivery standard have improved vaccines and drugs deliveries will be able to be merged without difficulty.

List of participants:

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Background paper:

**Developing a vision for future vaccine cold chain and logistics systems
(vaccine supply systems) (M. Zaffran, Project Optimize) Salle 13**

Meeting aim:	<ul style="list-style-type: none"> ▪ Reflection and brainstorming on a global 2025 vision for immunization supply chains systems. ▪ Participants will be asked to draw on their own experiences to share : <ul style="list-style-type: none"> ○ How they imagine an ideal vaccine supply systems and what characteristics and attributes would it have ○ What innovative experiences and approaches are used in countries that could have wider benefits if scaled up? ○ How can we mobilize a collective effort to strengthen cold chain and logistics systems
Agenda	<ul style="list-style-type: none"> ▪ Brief introduction (5 minutes) ▪ Facilitated discussion/brainstorming building on/drawing from concrete examples (45 minutes) ▪ Summary and way forward (10 minutes)
Main presenters	Michel Zaffran, James Cheyne, Patrick Lydon (Project Optimize)

James Cheyne (PATH: jcheyne@path.org), Rapporteur. 4 February 2010
With acknowledgements to Patrick Lydon (WHO)