Key ISCL Challenges Impacting Immunization Programs

The Immunization Supply Chain and Logistics (ISCL) systems designed in the 1980's have supported the achievement of acceptable coverage rates using coping mechanisms to overcome enduring challenges in vaccine storage, distribution, and management. The dedication, intelligence, and creativity of health workers acting within an ISCL designed for low-resource settings has substituted for an abundance of assets and capital. Despite their efforts, national vaccination programs struggle to meet the demands of routine immunization and supplemental campaigns and are not in position to respond to the influx of new vaccines.

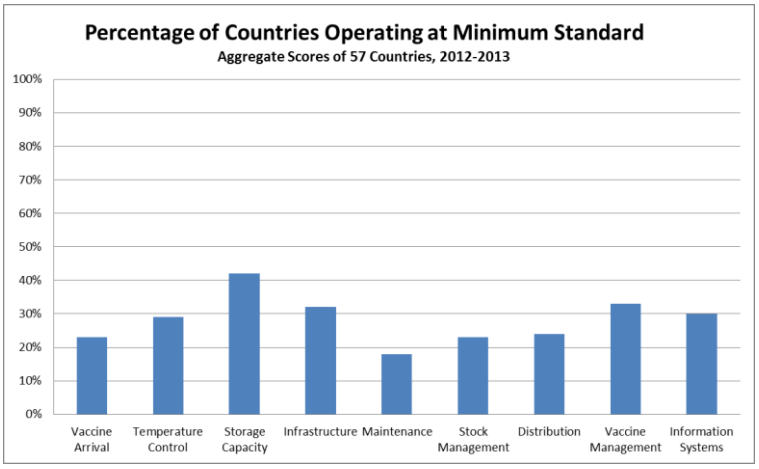
The introduction of new vaccines and higher coverage targets has increased demands on ISCL systems. Comparing the requirements of ISCL systems in the 1980's to the present, it is clear that the landscape has grown inherently more complicated, as national vaccination programs prepare to:

- Provide protection against 2.5 times as many diseases[1]
- Increased age ranges from infants to adults[2]
- Administer 3 times as many doses per child[3]
- Store and transport 4 times more vaccine volume per fully immunized child[4]
- Increase 6-fold the spending on vaccines to fully immunize one child[5]
- Serve a global target population size that has doubled[6]

ISCL systems originally designed to manage fewer and less expensive health biologicals are not keeping pace with the changing landscape of national vaccination programs, resulting in stock-outs, potential administration of ineffective vaccines, avoidable wastage, and inadequate cold chain capacity, all of which have considerable access and cost implications.

A recent study[7] of 57 GAVI-eligible countries shows that a vast majority of ISCL's are underperforming. Analyzing average scores, as depicted in Figure 1, reveals that less than 25% of countries are operating at even a minimum standard within the criteria of Maintenance, Stock Management, and Distribution. Further, the best scores show that only 30% of countries are meeting minimum standards for Temperature Control.

Figure 1 - Percentage of GAVI-eligible countries with ISCL operating at minimum standards, based on Effective Vaccine Management assessments, 2012-2013[8]



Clearly, current processes and coping mechanisms are not adequately keeping pace with the changing vaccine landscape. To be able to continue to serve their populations, it is essential that national vaccination programs analyze their supply chains as a means to improve availability of potent vaccines and related supplies and reduce avoidable wastage without compromising the goals of increasing coverage.

[1] Varies by national immunization schedule; represents maximum. In 1980, standard vaccines included diphtheria, pertussis, tetanus, measles, polio and tuberculosis. In 2010, the additional vaccines include pneumococcal conjugate , rotavirus, hepatitus B, hib, yellow fever, rubella, japanese encephalitis, and meningitis A.

[2] Generally, vaccinations for the first 30 years focused on infants and women of reproductive age. The current mix of vaccines is provided for infants, children (measles), pre-teens (HPV), and adults (Meningitis A and tetanus/diphtheria).

[3] Represents maximum, assuming the maximum number of doses as above. In 1980, this included 1 BCG, 3 DTP, 3 OPV, 1 measles. In 2010, the total number is based on 2012 WHO immunization position papers.

[4] Based on projected volume per fully immunized child for 20 countries according to introduction plans. This compares 2001 volumes for traditional vaccines with 2020 expected volumes, where growth is driven by penta, pneumococcal conjugate, rubella, and HPV. Additional surge capacity is required for mass campaigns.

[5] Based on 2008 projections. WHO Bulletin, 62 (5):729 -736 (1984); Optimize Vaccine Supply Chains, Optimize (2009); State of the world's vaccines and immunization, WHO (2009); Vaccine volume calculator, S. Kone, WHO (2011); Immunization position papers, WHO (2012). Historical analysis of cMYPs in GAVI-eligible countries, L. Brenzel and C. Politi (2012)

[6] United Nations Population Division, World Population Prospects: The 2010 Revision, medium variant (2011)

[7] Colrain, P. Study of EVM assessments from 57 GAVI-eligible countries, 2012-2013.

[8] Ibid.