

# Supply Annual Report 2016



70  
1946  
2016

unicef   
70 YEARS FOR EVERY CHILD

**'You see things, and you say why?  
But I dream things that never  
were, and I say why not?'**

James P Grant, UNICEF Executive Director  
1980-1995, quoting George Bernard Shaw

The Expanded Programme on Immunization (EPI) was launched in 1974, just as the end of smallpox was within reach. In 1977, the World Health Assembly set the goal to achieve universal child immunization (UCI) against six childhood diseases by 1990.

Between 1983 and 1985, worldwide demand for vaccines tripled, resulting in a corresponding decline in vaccine-preventable deaths. In 1985, UN member states passed a resolution supporting UCI. In 2016, 86 per cent

of the world's children received the required three doses of diphtheria-pertussis-tetanus containing vaccines.

The Supply Annual Report 2016 highlights the complexities and challenges of vaccine markets and procurement, and also looks to opportunities within the UN's current development framework that unifies sustainability and collaboration – inspiring UNICEF's goal to reach 19.4 million infants who still miss out on life-saving vaccines.



**India:** Circa 1956, a boy is tested for tuberculosis as part of a mass immunization campaign in New Delhi



**Iraq:** A boy is vaccinated against measles in Erbil, Kurdistan Region

**Cover photo**

**Myanmar:** Children in Hakha, Chin State happily posing for pictures during a country-wide polio vaccination campaign in 2016

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# Supply: Fit for future

The diverse meanings of sustainability – social, economic and environmental – are central to UNICEF's global supply strategies that focus on availability, affordability and access for every child

The Sustainable Development Goals (SDGs) reflect 70 years of UNICEF's commitment to children through supplies. In 2016, the impact of UNICEF Supply as an enabler towards children's health, learning, protection and inclusion was evident and wide ranging.

In 2016, UNICEF procured \$3.519 billion worth of supplies and services for children. Together with partners, UNICEF delivered price reductions for vaccines and other supplies that resulted in \$588.2 million in savings. In five years, the total savings for governments and partners has reached \$1.656 billion.

Throughout the year, UNICEF worked with its partners to mobilise the best of strategic thinking, technical capacity and ingenuity to increase access for the realisation of children's rights to meet the SDGs, for example:

- Competition and strategic procurement approaches achieved parity in pentavalent vaccine pricing for both low and middle income countries. Vaccines at less than \$1 per dose will increase access and help save 5.7 million children from dying of five preventable diseases by 2020.
- UNICEF sourced over half of its ready-to-use therapeutic food from manufacturers in countries

with high concentrations of child malnutrition. This will help local health systems to expand the use of this life-saving product.

- From assessing the efficiencies of solar-driven water pumps to requiring shipping companies to report on environmental impact, UNICEF actions around procurement got greener.

This report highlights the most essential supply component of national health systems: vaccines. In seven decades of procurement, no other commodity compares in terms of scale, impact and lessons learned. In 2016, UNICEF procured vaccines reaching 45 per cent of the world's children under five years old. UNICEF's commitment to partnerships and action in vaccine research, development and availability will help secure vaccine supplies to prevent and control disease epidemics and to close gaps that still contribute to 16,000 preventable deaths among children under five years old every day.

2016 marked decisive shifts into new areas of work and new ways of working. Maximising the impact of product innovation requires healthy markets for new life-saving supplies. Building stronger, nationally-led supply chain systems requires strategic decision-making based on analyses

and approaches that recognise trade-offs in speed and cost. UNICEF Supply collaborates with entire industry sectors to orient core businesses towards the needs of children.

Responding urgently to infectious disease crises, UNICEF and partner action included the procurement and delivery of one million oral cholera vaccine doses to Haiti, more than 29 million yellow fever vaccine doses to Angola and the Democratic Republic of the Congo and 191 million polio vaccine doses to Nigeria and neighbouring countries. UNICEF, partners and industry launched a systematic effort to develop a point of care diagnostic device and discover a vaccine to stop the Zika virus.

In the seemingly interminable upheavals of emergencies that have forced 50 million children to flee for their lives, supplies were fundamental to sustaining hope. UNICEF launched emergency supply responses in countries throughout the world, including five large-scale emergencies calling for UNICEF-wide mobilisation.

This report acknowledges the diverse skills and experience of UNICEF's Supply Community, united in the commitment to bring supplies to children, now and in a future where every child's life is safe and complete.



Evolving markets and changing operational contexts demand the rethinking of prevailing approaches and capitalising on new opportunities to ensure that every child can access life-saving supplies. Fit-for-future global supply strategies will help UNICEF to deliver results targeting the Sustainable Development Goals.

# Strategy

◀ Ethiopia: Friends smiling in front of their primary school in Jijiga

# UNICEF Global Supply Strategies

## Supply and the Sustainable Development Goals

In 2016, UNICEF recalibrated its working vision to ensure alignment with the SDGs in realising child rights. Through reflection and analysis, UNICEF worked with partners and stakeholders to identify how UNICEF Supply will keep adjusting - to accelerate the achievement of results in new programmatic scopes, in different operating contexts, using alternative funding models.

### FOCUS AREAS

#### Products and markets

Innovation and market influencing to make supplies accessible, affordable, appropriate in the context of climate change, urbanisation, migration, neglected infectious diseases, etc.

#### The science of delivery

Using supply chain analyses to inform decisions to improve value for money, speed, quality, national ownership and systems strengthening.

#### Domestic resource mobilisation

Strengthening domestic resource mobilisation as more countries move from donor- to self-financing their procurement of life-saving supplies.

#### Evidence, analysis and knowledge

Developing a more holistic approach to recording, monitoring, analysing and sharing knowledge on markets, products and services for children.



**Uganda:** Children play at the UNICEF supported Integrated Early Childhood Development Centre, Bidibidi Refugee Settlement in Yumbe



## CORE SUPPLY STRATEGIES – linking supply approaches to the SDGs

### Service delivery

Providing timely and responsive service delivery by ensuring value for money and expertise on products, markets and supply chains. In 2016, UNICEF procured \$3.519 billion in supplies and services for programmes and Procurement Services partners.

1 2 3 4 5 6 10 12 13 17

### Services

Improving management of service contracts, through better guidance, monitoring tools and reporting mechanisms. This significant area of procurement reached a value of \$882 million in 2016.

1 3 4 5 6 9 17

### In-country logistics

Performance-focused in-country logistics (i.e. transport, warehousing and customs clearance) and reducing risks in managing inventory in transit and in warehouses.

1 2 3 4 5 10 12 13 17

### Emergency response

Meeting UNICEF's Core Commitments for Children in humanitarian action by providing supplies and expertise to ensure timely and appropriate emergency response, including for public health emergencies. In 2016, procurement with emergency funds reached \$379.1 million.

1 2 3 4 5 6 9 10 11 13 17

### Influencing markets

Working to positively impact market dynamics for supplies that are essential in driving down child mortality. In 2016, an expanded supplier base contributed to a more competitive pentavalent vaccine market, and a higher percentage of procurement from local suppliers.

1 2 3 4 5 6 8 9 10 12 17

### Product innovation

Driving research and development of products, such as a Zika point of care diagnostic test and a rapid E. coli detection device which are not currently available on the market. In 2016, seven target product profiles (TPPs) were launched, inviting partners, industry and academia to work together to develop innovative life-saving products.

1 2 3 4 5 6 7 9 10 12 13 17

### Strengthening supply chains

Reducing costs, stock-outs and wastage, through capacity development and technical assistance to governments and to local supply chains. Country-to-country knowledge exchange and standardisation of monitoring tools for countries and partners were featured in 2016.

1 2 3 4 5 6 8 9 10 12 13 17

### Supply financing solutions

Ensuring that countries can procure life-saving supplies, even if funding is delayed. Bridging gaps through UNICEF's prefinancing mechanisms or finding solutions through the banking sector supports emerging middle income countries and local suppliers looking to enter the market or expand production.

1 2 3 5 8 9 10 16 17

### Monitoring

Closely tracking several data points along the supply chain, while keeping the whole chain in perspective. In 2016, much was done to align the use of tools and processes across countries and between partners to better manage supply chains for results.

1 2 3 4 5 6 12 17



## ENABLING STRATEGIES

**Partnerships** aims at becoming a better partner by ensuring a timely and collaborative approach, continuous self-reflection and placing value on contributing to shared results.

**Supply community** aims at ensuring the professional development and career mobility of UNICEF staff working in the supply function and fostering professional belonging and teamwork.

**Working together for results** aims at fostering a project management and a team approach to work.

**Optimising UNICEF Supply** aims at continuously improving the performance of UNICEF's supply chain and increasing efficiencies to achieve programmatic results.

**Evaluation** aims at examining UNICEF Supply's strategic results and supporting the implementation of results-based management.

# Vaccine markets & procurement

Across seven decades, vaccine markets have evolved. In the last three, lessons learned have transformed UNICEF vaccine procurement into a strategic activity



## 1940s

From 1947, UNICEF supported post-war tuberculosis (TB) vaccination campaigns in Europe, reaching 16 million people with Bacillus Calmette–Guérin (BCG) vaccine through the Scandinavian Red Cross. Many vaccines (e.g. smallpox, diphtheria, pertussis, tetanus (DPT), yellow fever) were already available and mass production enabled large-scale procurement.

## 1950s

Public health campaigns moved to developing countries. Medicines (e.g. penicillin) became cheaper. UNICEF-procured antibiotics saved millions of people from yaws, leprosy, trachoma, etc. BCG reached 1 million children a month. In wealthy countries, inactivated polio vaccine (IPV) entered the market and other vaccines were in development.

## 1960s

It became clear that in developing countries, the impact of mass campaigns was not sustainable without due attention to context (e.g. trained health workers, basic infrastructure, strong governance, etc.). Vaccine procurement declined even as oral polio vaccine (OPV), and measles, mumps & rubella vaccines became available.

## 1970s

In 1974, WHO launched the Expanded Programme on Immunization (EPI) in developing countries. UNICEF procured measles, DPT, OPV and BCG vaccines, as well as syringes and refrigerators. The cost of EPI vaccines was low because manufacturers did not need to change their production capacity to meet demand. In 1977, the World Health Assembly set the goal to achieve Universal Child Immunization by 1990.

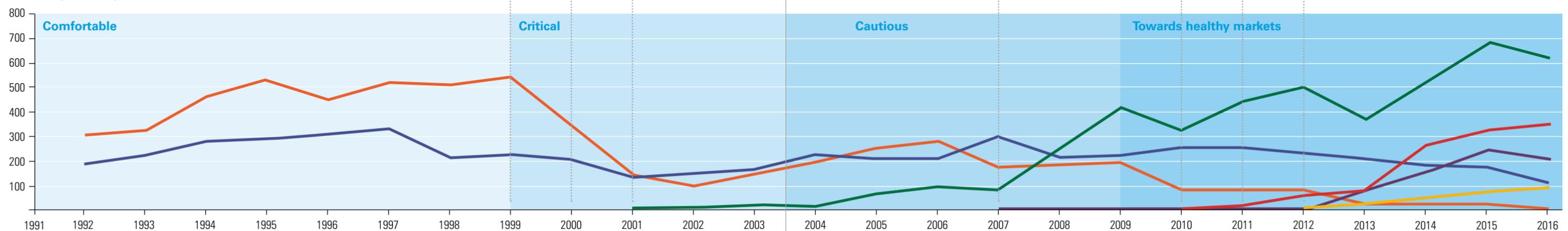
## 1980s

WHO's new prequalification (PQ) programme ensured all UN-procured vaccines were safe and effective. National Regulatory Agencies were strengthened so they could assess the quality of vaccines imported or produced by their country. Emerging economies such as India and Indonesia looked towards making prequalified vaccines. Global polio eradication was launched in 125 countries, with UNICEF leading procurement.

Using selected vaccine markets and mapping changes to supply (measured as number of doses offered to UNICEF) this illustration broadly depicts the volatility of markets and how global health policy, partnerships and procuring together, shape supply outcomes.

Over time, UNICEF vaccine procurement has evolved into a strategically planned activity that aims to ensure every child's right to safe, effective and affordable vaccines.

Number of doses offered to UNICEF (in millions)



### 1999–2002

As expensive combination and conjugate vaccines became available, e.g. measles-mumps-rubella (MMR) and acellular pertussis, they were quickly adopted by countries that could afford them. Many manufacturers stopped making traditional, low-cost EPI vaccines.

### 2000

Gavi, the Vaccine Alliance was launched to help introduce new vaccines into the EPI schedules of the 73 poorest countries.

### 2001

The Measles Initiative was launched advocating increasing supply and uptake.

### 2007–2009

In 2007, WHO recommended introducing PCV to the EPI. To bring prices down, Gavi members established an advance market commitment (AMC) with manufacturers to provide the vaccine at a low sustainable price (\$3.40-\$3.50 per dose).

### 2010–2016

Pentavalent contains DPT plus hepatitis B (HepB) and haemophilus influenzae type B (Hib). In 2010, the first 10-dose vial was licensed, which reduced per dose prices and increased supply and uptake. It was the first vaccine introduced to all 73 Gavi countries.

### 2011–2020

The Global Vaccine Action Plan (GVAP) was endorsed by the 194 Member States of the World Health Assembly to achieve the Decade of Vaccines vision by delivering universal access to immunization.

### 2012

The Measles Initiative changed its name to the Measles & Rubella Initiative. Between 2001 and 2015, 2 billion doses of measles-containing vaccine were delivered. Measles deaths have declined by 79 per cent.

### 1992–2001

UNICEF procurement was driven by price and short-term contracts.

### 1991

UNICEF launched the Vaccine Independence Initiative giving self-financing countries access to pooled procurement and capacity development.

### 1999

UNICEF held its first industry consultation which has since become an annual forum for strategic dialogue with suppliers.

### 2002

Vaccine security required an expanded supplier base and UNICEF awarded arrangements to multiple suppliers, accepting a range of prices. Improved demand forecasts and longer-term contract awards brought more certainty to production planning.

### 2011

UNICEF published a 10-year retrospective of its vaccine prices and began publishing prices for awards at the conclusion of each vaccine tender. Transparency increases competition between suppliers and enables governments and partners to make better informed procurement decisions. Regularly updated market analyses covering different vaccine markets have become an authoritative source for information.

### 2012–2013

Reduction in rotavirus vaccine pricing was influenced by a five-year supply contract when the vaccine was launched into lower income countries.

### 2016

On the premise that each vaccine market evolves differently, UNICEF began applying specific procurement strategies according to supply/demand analysis. Through this "Healthy Markets Framework", UNICEF decided to use multi-phased tendering which achieved a record low price for pentavalent vaccine.

### 2016

Four multinational companies absorbed 80 per cent of global vaccine revenue. However, there is a growing number of manufacturers in emerging economies that contributed to half of the UNICEF doses procured.

- Diphtheria-pertussis-tetanus (DPT)
- Measles
- Measles-rubella (MR)
- Pneumococcal conjugate vaccine (PCV)
- Pentavalent
- Rotavirus vaccine (RV)

# Influencing vaccine markets



In 2016, UNICEF and partners applied the healthy markets framework to achieve a breakthrough pentavalent vaccine price in an already competitive market

In 2016, UNICEF collaborated with Gavi and the Bill & Melinda Gates Foundation to develop the healthy markets framework (HMF) - an analytical tool to evaluate vaccine markets, and identify market influencing and procurement approaches that will achieve supply security, as well as longer-term, sustainable supply efficiency.

The HMF longer-term view takes into account a range of factors impacting child immunization programmes, for example cold chain capacity, operational requirements and other challenges. The longer-term view also considers future prospects for competition and innovation to ensure industry remains engaged around pricing and developing products that address deficiencies

to choose the vaccine presentation that best suited their programme needs. For the 2016 pentavalent vaccine tender exercise, the HMF analysis helped to identify a multi-phased tender as the modality for maintaining a sustainable, affordable vaccine supply in an already competitive market.

Suppliers were invited to make pricing offers, contracts were awarded for the most competitive prices and these were published. UNICEF then launched a second request for proposals which gave time for suppliers to maintain or adjust their initial prices. Awards were made to six manufacturers, out of which five have R&D pipelines for six products being developed for the poorest countries. UNICEF is also following

## FOUR TIERS OF HEALTHY VACCINE MARKETS

### 1. Supply meets demand

- Countries have vaccines of the right quality, in the right quantity and at prices to meet their immunization needs.

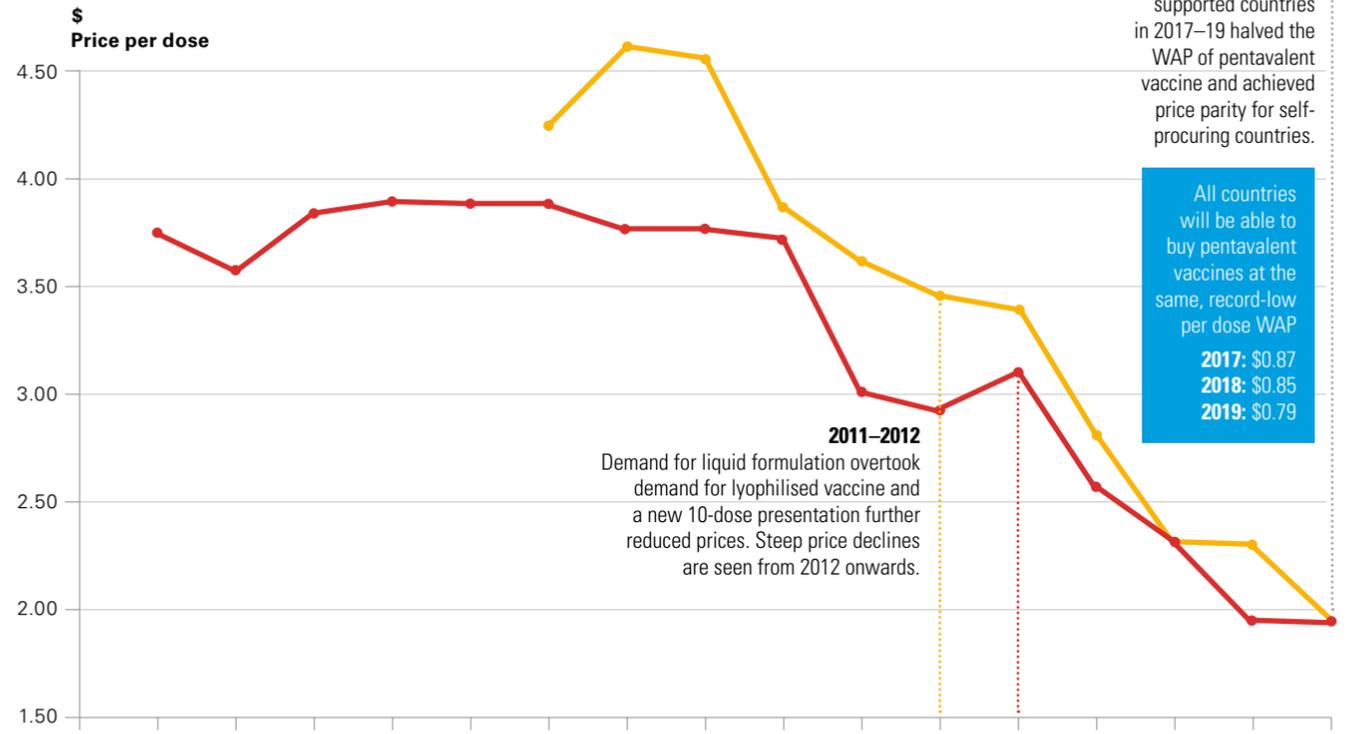
### 2. Supply meets country preferences

- Countries have access to vaccines in the presentation, vial, size, packaging, etc., that meets the particular requirements of a country's immunization programme.

### 3. Supply security

- There are enough buffer stocks available to cover unexpected shortages.
- There is no over-dependency on individual suppliers.

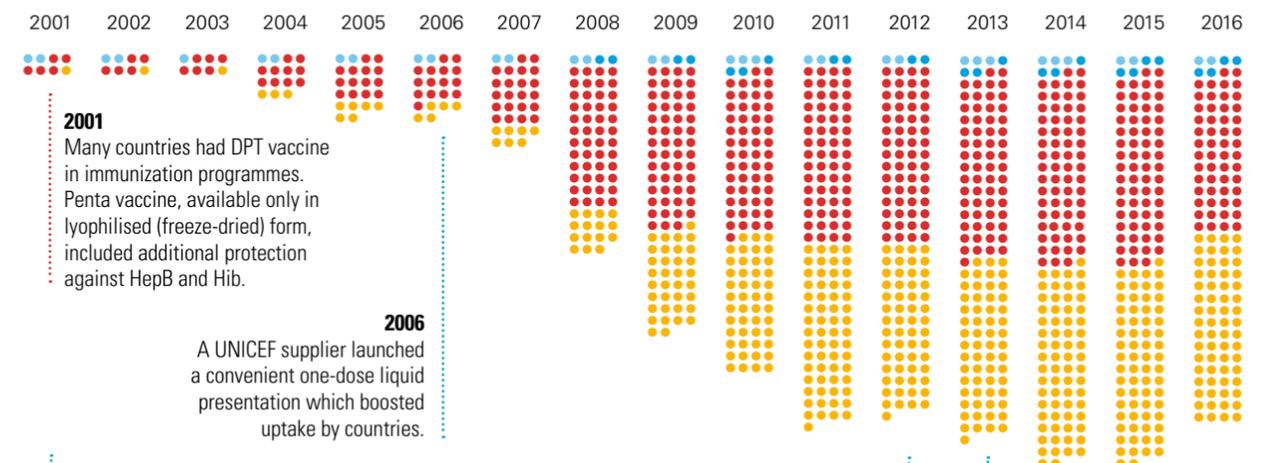
## The pentavalent vaccine market



**2016**  
UNICEF's multi-phased tender for Gavi-supported countries in 2017-19 halved the WAP of pentavalent vaccine and achieved price parity for self-procuring countries.

All countries will be able to buy pentavalent vaccines at the same, record-low per dose WAP  
**2017: \$0.87**  
**2018: \$0.85**  
**2019: \$0.79**

**2011-2012**  
Demand for liquid formulation overtook demand for lyophilised vaccine and a new 10-dose presentation further reduced prices. Steep price declines are seen from 2012 onwards.



**2001**  
Many countries had DPT vaccine in immunization programmes. Penta vaccine, available only in lyophilised (freeze-dried) form, included additional protection against HepB and Hib.

**2006**  
A UNICEF supplier launched a convenient one-dose liquid presentation which boosted uptake by countries.

**2001-2013**  
Multi-year contracts, improved demand forecasts and special contracting terms helped to double and triple the supplier base.

**2012-2013**  
Because of production problems, WHO delisted two suppliers making single-dose liquid vaccines. This accelerated countries' switch to the 10-dose presentation.

**2001-2015**  
Demand by Gavi-supported countries pushed up procurement from 14.5 million to over 235 million doses.

Price for Gavi-supported countries (red line), Price for non-Gavi countries (yellow line). One dot represents a supplier: blue dot from a high income country, yellow dot from an emerging economy. Red dot represents a Gavi-supported country, yellow dot represents a non-Gavi supported country.

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