MI4A
MARKET INFORMATION FOR ACCESS TO VACCINES

MI4A | Country Case Studies

In 2018, the World Health Organization (WHO) launched the Market Information for Access to Vaccines (MI4A) initiative which aims, among others, to strengthen national and regional capacity for improved access to vaccines supply. MI4A focuses in particular on improving availability of information and use of data in self-funding and self-procuring middle-income countries to inform immunization decisions, procurement, and budgeting processes. Those countries are mostly excluded from international support and the majority do not have sufficient access to purchase data.

MI4A collects price and procurement data from countries reporting through the WHO/UNICEF Joint Reporting Form (JRF). Although country names are not displayed, data is publicly available on the WHO website[1]. Since this information has been compiled and published, more countries are completing their JRF which increases the value of the database.

WHO is working to support countries in leveraging available market information. Knowing what information is available, where to find it and how to use it to strategically inform procurement decisions can help countries improve access to vaccines, including securing lower prices, avoiding supply shortages, and procuring the best product for their country's programmatic needs.

MI4A also aims to support information sharing between countries and across regions so that countries can apply lessons learned to their specific context.

A few use cases are shown below to describe how countries have used vaccine purchase data and related outcomes. It is expected that additional use cases will be documented in the years to come.[2]

For further information and to share additional experiences in using market intelligence, please email MI4A@who.int.

The Market Information for Access to Vaccines (MI4A) initiative was set up by WHO to contribute to the achievement of Strategic Development Goal 3.8 (Universal Health Coverage) by enhancing access to safe, effective, quality, and affordable vaccines for all. MI4A is part of a broader WHO effort to ensure availability of essential medicines, and responds to specific requests from member states and the WHO Strategic Advisory Group of Experts on Immunization (SAGE) to address vaccine market information gaps.

MI4A contributes to broader efforts to increase access to medicines and vaccines, an important topic highlighted by the World Health Assembly in 2019 with the endorsement of a Roadmap for Access to Medicines and Vaccines[3], and the adoption of a new resolution on improving the transparency of markets for medicines, vaccines and other health products. This resolution urges Member States to enhance public sharing of information on prices paid by governments and other buyers for health products.

Access the MI4A website

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Eswatini
To inform a change of procurement mechanism

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[1] WHO MI4A Vaccine Purchase Database
[2] This document was finalized in April 2021
[3] Road Map for Access to Medicines, Vaccines and Other Health Products

To inform a change of procurement mechanism

Eswatini

BACKGROUND

Eswatini's gross national income (GNI) per capita declined between 2014 (US$4 340) and 2019 (US$3 670.)

The country is not eligible for Gavi support.

The country successfully introduced pneumococcal conjugate vaccines (PCV) and rotavirus vaccines and has been considering introduction of human papillomavirus vaccines (HPV.)

CONTEXT

A WHO-led mission was conducted in Eswatini to support the country in improving access to vaccines. This led to three results:

- Establishment of a NITAG to facilitate decision making processes
- Recognition of the need to expand fiscal space to fund immunization
- Consideration of vaccine market information and prices for more efficient procurement

Eswatini continues to grapple with limited capacity on forecasting and planning, tendering processes, and vendor selection.

HOW MARKET INTELLIGENCE WAS USED

Following this mission, WHO provided Eswatini with market intelligence from MI4A to compare vaccine prices between those available through self-procurement versus UNICEF Supply Division (SD.)

The analysis of vaccine prices showed there was an opportunity for savings for at least three vaccines: HepB, DTP-HepB-HiB and PCV.

Eswatini effectively switched procurement to UNICEF SD and compared the prices paid through the first three orders with the prices offered by previous suppliers: **the total savings amounted to US$273,510 or nearly 12%.** Table 1 provides a comparison of vaccine prices paid by Eswatini.

KEY FACTS[4]

GNI per capita (2019): US$3 670
Increase in DTP3 coverage (2015-19): 90%
Birth Cohort (2020): 30 000
DTP3 coverage (2019): 90%

Overview of Price Reductions:

HepB: from US$5.66 to US$0.70 per dose
DTP-HepB-HiB: from US$3.50 to US$1.20
PCV: from US$20.11 to US$16.63

Table 1. Analysis of vaccines prices paid by Eswatini through UNICEF vs previous supplier[5]

	Total Cost UNICEF	Total Cost Previous Suppliers	Savings	Percent Savings
1st	415,277.50	396,848.87	(+18,428.63)	-4.6%
2nd	754,732.28	863,208.25	108,475.97	12.6%
3rd	859,813.57	1,043,276.43	184,462.86	17.6%
Total US$	2,029,823.35	2,303,333.55	273,510.20	11.9%

11.9% overall savings

KEY TAKEAWAYS

WHO's MI4A supported the use of market intelligence in Eswatini to identify opportunities to access affordable and quality vaccines, which led the country to start procuring through UNICEF SD.

Eswatini saved nearly 12% on vaccine orders and improved timely access to vaccines. In 2019, no stock outs were reported at national or subnational levels while in 2018, the country had reported several stock outs (including BCG, Measles, and OPV.)

[4] WHO vaccine-preventable diseases: monitoring system. 2020 global summary

[5] This information has been reviewed and endorsed by the Ministry of Health of Eswatini

To inform tender negotiations

North Macedonia

BACKGROUND

North Macedonia is not eligible for Gavi support.

The country self-procures its vaccines.

HPV vaccine was introduced in North Macedonia in 2009 and was prioritized by the country before pneumococcal and rotavirus vaccines.

CONTEXT

In 2013, the country reported a price of US$93 for HPV4, which represented a large portion of the country's budget for immunization.

In 2012, the Ministry of Health (MOH) presented an update to SAGE[6] on the status of new vaccine introductions, and the challenges faced by the country and other middle-income countries (MICs.) North Macedonia requested more information from WHO on vaccine prices[7] and opportunities for improving vaccine purchases..

HOW MARKET INTELLIGENCE WAS USED

With support from WHO, North Macedonia was able to review prices paid by other countries for HPV vaccines. The analysis showed that in 2013, only 10 countries reported prices of HPV vaccines.

- 5 countries across high income countries (HICs) and MICs reported HPV4 pricing: the lowest price reported was US$39.71 and excluding North Macedonia, the median price was approximately US$50 per dose.
- 5 countries across HICs and MICs reported HPV2 pricing: the lowest price was US$20.94, and the median price was approximately US$38 per dose.
- North Macedonia paid the highest price among the 10 countries that reported.

WHO supported the MOH in reviewing available price information that would inform its decision to switch from HP4 to HPV2. This would secure a more affordable price for HPV vaccines.

KEY FACTS

GNI per capita (2019)[8]: US$5 840
Birth Cohort (2020)[9]: 22 000
DTP3 coverage (WUENIC 2019)[10]: 93%
Increase in DTP3 coverage (2015-19)[11]: +2%

OUTCOMES

Using the reference of prices reported by other countries, North Macedonia was able to enter into negotiations with suppliers to secure a more affordable price.

As a result, the country switched from HPV4 to HPV2 and negotiated a price of US$45 in 2014 and US$22 in 2015, representing an overall reduction of 77% on the price of HPV.

Since 2014, the MOH strengthened its procurement process by introducing multi-year planning and procurement for mandatory vaccines (over 2 years.) Procurement challenges remain such as low or no responses to tenders. PCV and rotavirus vaccine are yet to be introduced in North Macedonia.

KEY TAKEAWAYS

Availability of price information led North Macedonia to switch to another HPV vaccine and enter into negotiations with suppliers resulting in a price reduction of 77%.[12]
As a result of the dialogue the Ministry of Health strengthened its vaccine procurement processes by introducing multi-year tenders.

[6] WHO Strategic Advisory Group of Experts on Immunization (SAGE)
[7] New Vaccines Introduction in the Former Yugoslav Republic of Macedonia. Manevska.November2012
[8] https://data.worldbank.org/country/north-macedonia
[9] WHO vaccine-preventable diseases: monitoring system
[10] Ibid.
[11] Ibid.
[12] This case study is based on publicly available information.

To inform new vaccine introduction

Georgia

BACKGROUND

Georgia fully graduated from Gavi support in 2018.

Georgia has introduced PCV, rotavirus, and HPV and, as a graduated country, it benefits from manufacturers' price commitments[13] for these vaccines.

Georgia continues to procure most vaccines through UNICEF Supply Division (SD).

The government vaccine expenditure on routine immunization increased from US$1.1 million in 2012, to US$8.6 million in 2018.[14]

Overall, there is strong political will to improve immunization systems in Georgia and immunization is considered a priority by the government.

CONTEXT

In December 2015, the country introduced hexavalent vaccine (DTP-HepB-HiB-IPV)[15] within the framework of the Global Polio Eradication Initiative (GPEI). The NITAG[16] recommended the introduction of hexavalent over IPV standalone based on several factors including mitigating the risk of IPV shortages. Hexavalent was not available through UNICEF SD which led the MOH to self-procure the vaccine.

HOW MARKET INTELLIGENCE WAS USED

With support from WHO, the MOH conducted market research and analyzed price acceptability for hexavalent vaccine, reviewing options for procurement from the two producers, GSK and Sanofi.

The availability of data on vaccine prices from the MI4A vaccine purchase database allowed the country to compare the different prices paid by countries depending on their income group.

KEY FACTS

GNI per capita (2019)[17]: US$4 740
Birth Cohort (2020)[18]: 53 000
DTP3 coverage (2019)[19]: 94%
Increase in DTP3 coverage (2015-19)[20]: +2%

Table 2. Median price of hexavalent vaccine – 2016 to 2018[21]

	Median price per dose 2016 (US$)	Median price per dose 2017 (US$)	Median price per dose 2018 (US$)
PAHO Revolving Fund	19.00	19.80	20.60
Self-procuring MICs	29.37	35.66	29.52
Self-procuring HICs	41.52	41.57	35.89
Prices reported by Georgia	17.70	20.70	20.19

Table 2 provides an overview of the median price for self-procuring countries of hexavalent vaccine in 2016 and 2017, based on the information reported by countries through the Joint Reporting Form (JRF). Prices reported varied widely with up to US$92 per dose reported by one high income country (HIC).

The analysis also included the price offered by the PAHO Revolving Fund (RF) for reference. Overall, self-procuring middle-income countries (MICs) pay a higher price than the PAHO RF price for most vaccines. In the case of hexavalent, self-procuring MIC median price in 2017 was US$15.86 higher than the PAHO RF.

Countries with small populations such as Georgia can face particularly acute challenges accessing affordable vaccines, as their small market size may not be as attractive to suppliers, resulting in higher prices and low or no response to tenders.

[13] Manufacturer price commitments for HPV, PCV and rotavirus vaccines for Gavi-transitioned countries are public commitments offered by manufacturers.
[14] Reported from the Joint Reporting Form.
[15] Georgia's introduction of the hexavalent vaccine: Lessons on successful procurement and advocacy. E.Paatashvili, V.Getia. Learning Network for Countries in Transition. Blog posted September 20, 2019.
[16] National Immunization Technical Advisory Groups (NITAGs)
[17] https://data.worldbank.org/country/georgia
[18] WHO vaccine-preventable diseases: monitoring system
[19] Ibid.
[20] Ibid.
[21] MI4A Global Vaccine Market Report 2017, 2018, 2019

OUTCOMES

Hexavalent is the first vaccine introduced by Georgia after the country graduated from Gavi support and remains the only vaccine that the country is self-procuring.

Having access to global market price data was crucial for the preliminary price negotiations with the two manufacturers. Georgia was able to negotiate a competitive price for hexavalent vaccine, US$18 in 2015, which was lower than the PAHO RF price the same year. Georgia reported small variations in price in the following years.

The introduction of hexavalent vaccine was also an opportunity to reaffirm the country's strong political and financial commitment to immunization, and to further implement smart regulation and procurement policies to attract suppliers and gain competitive vaccine prices.[22]

KEY TAKEAWAYS[23]

Access to vaccine prices allowed Georgia to compare initial offers from manufacturers with prices paid by other countries.

In spite of representing a small market, Georgia managed to secure an affordable price comparable not only to larger countries, but also to the price available through the PAHO Revolving Fund.

Georgia started reporting vaccine purchase data through the Joint Reporting Form in 2016 (on 2015 data) after having used the available data.

[22] Georgia's introduction of the hexavalent vaccine: Lessons on successful procurement and advocacy. E.Paatashvili, V.Getia. Learning Network for Countries in Transition. Blog posted September 20, 2019.
[23] This case study is based on publicly available information.

To inform vaccine switch

Middle Income Country in the EMRO Region

BACKGROUND

The country is not eligible for Gavi support.
The country fully self-procures its vaccines.
Rotavirus vaccine was introduced in 2012, hexavalent (DTaP-IPV-Hib-HepB) vaccines were introduced in 2016, and pneumococcal conjugate vaccines (PCV) in 2017.

CONTEXT

In recent years, the country has been facing challenges in procuring and making available medicines and vaccines in a timely manner to meet its needs. Some vaccine stock outs have been reported due to several factors including economic and political crises resulting in insufficient and unstable health sector budget allocations for procuring adequate vaccines, medicines, and medical supplies.

HOW MARKET INTELLIGENCE WAS USED

In 2017, the country reported a price of ~US$30.00 per dose for hexavalent (DTaP-IPV-Hib-HepB) and ~$20.00 for PCV representing a large share of the country's immunization budget. Overall, acellular pertussis (aP) containing vaccines are significantly more expensive than whole-cell pertussis (wP) containing products.[24]
In 2018, the country requested support from WHO to identify opportunities to rationalize their Extended Program on Immunization (EPI) schedule by estimating and comparing vaccines prices with other prices paid by MICs in the region. The government and WHO jointly reviewed procurement practices, identified and addressed bottlenecks, and sought opportunities to optimize health spending.
WHO provided the government with an analysis using the MI4A vaccine purchase database on the reported prices for the vaccines in the country's EPI schedule paid by other middle income countries (MICs) through self-procurement, and through UNICEF Supply Division (SD) - as shown in table 3.

KEY FACTS[27]

GNI per capita (2019): ~US$6 000
Birth Cohort 2019 (WUENIC): >1 000 000
DTP3 coverage (2019): >80%
Increase in DTP3 coverage (2015-19): +16

Table 3. Comparison of Prices Paid

Vaccine	Median price paid by MICs procuring through UNICEF	Median price paid by self-procuring MICs*	2016 prices reported by the country	
BCG	$0.11	$0.20	BCG	●
bOPV	$0.14	$0.22	bOPV	●
DTwP	$0.22	$0.22	DTaP-HepB-HiB-IPV	●
DTwP-HepB-Hib	$0.87	$1.20		
IPV	$2.38	$4.99		
Measles	$0.31	$0.90	Measles	●
MMR	$2.50	$5.65	MMR	●
PCV	$14.00	$22.76	PCV	●

● Under or equivalent to median price by self procuring MICs
● Within 10% median price by self procuring MICs
● Over 10% of median price by self-procuring MICs

In 2016, UNICEF SD announced the availability of pentavalent vaccine (DTwP-Hib-HepB) at an average price of US$0.84 for all countries including self-procuring countries.[26]
The review of prices paid showed that if this EMRO country switched from aP hexavalent to procuring wP pentavalent and IPV standalone through UNICEF SD, the cost would be ~16% of the actual cost for aP hexavalent, representing savings of ~US$17 for each dose of hexavalent vaccine procured.
While programmatic costs would be higher due to the use of two separate vaccines (e.g. doubling of storage for two vaccines instead of one, doubling administration times and costs, etc.), the savings on vaccine cost justified the decision to switch. UNICEF SD confirmed the availability of both vaccines for this country. The decision was reviewed and endorsed by the country's National Immunization Technical Advisory Group (NITAG.)

[24] Please refer to the 2020 Global Vaccine Market Report for full review of vaccine prices.
[25] While prices offered to Gavi-eligible countries through UNICEF SD are public, prices for MICs procuring through UNICEF SD are not publicly available. Information is reported solely by countries through the Joint Reporting Form and available through MI4A.
[26] https://news.un.org/en/story/2016/10/543142-millions-more-children-will-have-access-5-1-vaccine-through-unicef-supply
[27] WHO and UNICEF National Immunization Coverage (WUENIC)

OUTCOMES

The analysis showed that aP hexavalent vaccine was a major expense in the immunization budget and it could be replaced with an alternative, cheaper schedule using wP combination vaccine. Based on the scenarios and available information on prices paid by other MICs the country was able to implement the switch from aP hexavalent vaccine to wP pentavalent and standalone IPV to be procured through UNICEF SD.

In 2019, the government confirmed that the switch resulted in a savings of US$70 million, which was reinvested to improve access to medicines.

KEY TAKEAWAYS

After using vaccine price data to rationalize its schedule, the country confirmed the switch from aP hexavalent vaccine to wP pentavalent and standalone IPV and resumed reporting vaccine purchase data through the WHO-UNICEF Joint Reporting Form (JRF.)

The availability of information and support from WHO was used in a context of broader need to reform the country's procurement system.

[28] WHO Pertussis Position Paper (Last update August 2015)

To inform market research for cross-border collaboration

The Baltic Procurement Initiative

BACKGROUND

Estonia, Lithuania and Latvia comprise the Baltic Procurement Initiative.

All participating countries are High Income Countries (HIC) in the European region.

All participating countries are reporting vaccine purchase data through the UNICEF-WHO Joint Reporting Form (JRF).

CONTEXT

In May 2012, the three Baltic countries signed a partnership agreement to pool procurement of vaccines, and a lending agreement for medicines and medical devices.

The objective of the agreement was to facilitate pooled procurement between the three countries, with the overall aim to reduce states' expenditures and ensure the continuity of access to medical products including vaccines.

A first step involved the comparison of vaccines in each countries' schedule to identify opportunities for pooled procurement. Table 1 below provides an overview of the three countries' schedules:

- BCG was identified as the first product to procure jointly. This attempt was unsuccessful with only one manufacturer registered in all three countries which did not bid.
- Subsequently, the partnership undertook three successful pooled procurements (PCV, rotavirus, and hexavalent.)

Table 4. Overview of Baltic States Vaccine Schedules in 2015 [2]

	BCG	D&T containing	Rotavirus*	PCV
Estonia	BCG	DTaP-HebB-Hib-IPV (Hexavalent)	Rotavirus	N/A
Latvia	BCG	DTaP-HebB-Hib-IPV (Hexavalent)	Rotavirus	PCV10
Lithuania	BCG	DTaP-Hib-IPV	N/A	PCV10

*both countries reported using RotaTeq® which requires 3 doses

HOW MARKET INTELLIGENCE WAS USED

A cross-border working group was tasked with identifying a specific product for pooled procurement and agreeing on the lead partner to perform the procurement procedure in accordance with each countries' national laws and regulations.

Lessons learned from the unsuccessful BCG attempt highlighted the importance of market research in the preparatory phase, a phase that was underestimated and not conducted strategically at that time.

KEY FACTS[1]

	Estonia	Latvia	Lithuania
GNI per capita (2019)	$23 220	$17 730	$18 990
Birth cohort (2020)	14 000	20 000	28 000
DTP3 coverage (2019)	91%	99%	92%

Per the agreement, market research includes the following steps:

- Identify the lead market research partner
- Set a timeline for the research, analysis and reporting
- Agree on key research topics, e.g. suppliers and supply chain, available products, price variations, market structures
- Identify key market information resources, e.g. MI4A, WHO's Global Vaccine Report, former tendering results, sector reports
- Confirm market authorizations in each participating country
- Convene technical meetings with suppliers and the broader industry

Available data from the WHO MI4A database was used to compare products and prices paid by other countries, with detailed analysis per income group and comparison of prices with other HICs. The analysis also considered authorizations, volumes, and contract length for consistency with the countries' markets.

OUTCOME

The Baltic Procurement Initiative (BPI) decided not to publicly disclose prices paid, but instead communicate on the percentage increase or decrease resulting from pooled procurement. Table 2 shows results achieved through pooled procurement leading to a decrease in prices paid, even though the price for rotavirus increased between 2016 and 2018.

Table 5. Outcomes of Baltic States Pooled Procurement[3]

	Rotavirus 2016	PCV 2017	Rotavirus and Hexavalent 2018
Countries participating	Estonia, Latvia	Latvia and Lithuania	Estonia, Latvia
Product procured and awarded manufacturer	Rotavirus Merck	PCV10 GSK	Hexavalent - GSK Rotavirus - Merck
Reported outcome*	Price reduction compared to 2015 prices: Estonia 25%, Latvia 10%	Price reduction: 15% compared to 2015	Price reduction: Hexavalent: 20% Rotavirus: 13% increase compared to 2016 but still 9% decrease compared to 2015 in Estonia

[1] WHO Vaccine-Preventable Diseases; Monitoring System 2020 Global Summary
[2] ibid
[3] *Voluntary cross-border joint procurement of vaccines: Baltic countries.* PowerPoint presented by Eveli Bauer, Estonian Health Insurance Fund. September 2019.

Not all three member countries participated in each pooled procurement effort as immunization schedules differ across the countries; only two of the three participated in each pooled procurement round.

The availability of timely data made possible by improved reporting through the JRF, and a centralized, publicly available database provided on the WHO website contributed to the successful pooled procurement of pneumococcal, rotavirus and hexavalent vaccines.

In addition to ongoing analyses of available market information, preparation of future joint tenders will include technical dialogues with industry to gauge their market interests, consideration of alternative products and suppliers, and validation of market authorizations in each country.

The Baltic Procurement Initiative has been documented and published as a successful example of cross-border collaboration. The basic principles of cross-border collaboration and pooled procurement are described in the table below. While central contracting and purchasing is often seen as a gold standard (e.g. the PAHO Revolving Fund), it has multiple implications and is challenging to fully set up. Information sharing and use of market information are essential to build such efforts.

The Baltic Procurement Initiative is presented as an example to inform similar initiatives such as the Southern Eastern Europe Health Network (SEEHN) , a network of Middle-Income Countries in the EURO region experiencing unstable vaccine marketplaces, supply shortages, and unaffordable pricing. In 2019, WHO supported SEE countries in mapping out opportunities to strengthen vaccine procurement performance and access to vaccines. This focused on strengthening national capacity on vaccine procurement and increasing access to quality-assured vaccines at affordable and optimum prices by using vaccine market information and sustaining in-country and cross-border cooperation. SEE countries identified influenza vaccines as a possible candidate for regional procurement. Further engagement with SEE is expected in the future.

Table 6. The Basic Principles for Cross-Border Collaboration and Pooled Procurement

INDIVIDUAL	GROUP		
Informed Buying	Coordinated Informed Buying	Group Contracting	Central Contracting and Purchasing
Countries share price and supplier information	Countries conduct joint market research, share supplier information, and monitor prices	Countries jointly negotiate prices, select suppliers, and agree to purchase from the same suppliers	Countries jointly conduct tenders and award contracts through a partner acting on their behalf
Procurement done individually	Procurement managed by central buying unit		

KEY TAKEAWAYS

Experience from the Baltic Procurement Initiative is a successful example of cross-border collaboration and demonstrates how such initiatives can improve access to affordable vaccines. The BPI can serve as model for similar initiatives such as the Southern Eastern European Health Network. Market information is an essential step in building those efforts as the experience in the Baltic States has shown.

The MI4A database, building on vaccine purchase data reported by Member States through the JRF, provides an essential resource that countries can use to improve vaccine procurement and increase access to quality-assured vaccines at affordable and optimum prices.

[4] Cross-Country Collaborations to improve access to medicines and vaccines in the WHO European Region. WHO. 2020.

[5] Southeastern Europe Health Network website