COVID-19 vaccine prices and procurement in LMICs during the height of the COVID-19 pandemic

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BACKGROUND

- Large variations in COVID-19 vaccine prices
- Efforts to lower prices have been challenged by emerging variants of the virus
- COVAX initiative for fair allocation of COVID-19 vaccines worldwide
- Vaccine price is a key barrier to health access and equity

- Production of COVID-19 vaccines exceeded that for all other vaccines combined, 2021-2022

Figure source: UNICEF Vaccine Dashboard (2022)
OBJECTIVES

01 Evaluate how COVID-19 vaccine prices varied across vaccine manufacturers, geographical regions, country income groups and procurement arrangements, 2021-2022.

02 Assess how COVID-19 vaccine procurement may have affected Government health expenditures
METHODOLOGY

01 Price data analysis
From COVID-19 Vaccine Market Dashboard

02 Literature review
Targeted search on COVID-19 vaccine prices and procurement

03 Interviews
Key informants on COVID-19 vaccine procurement at national and global levels
UNICEF COVID-19 VACCINE DASHBOARD

- Overview of vaccine manufacturing agreements, doses, prices
- Price data as reported in public “reliable” sources, incl. media and vaccine manufacturers
- Data extracted 30 March 2023
- n=121 price observations
  - 2020: n= 31
  - 2021: n= 75
  - 2022: n= 15

Source: https://www.unicef.org/supply/covid-19-market-dashboard
RESULTS I: PRICE ANALYSIS

- Price single dose of COVID-19 vaccine Dec. 2020 - end March 2022
  - $13 - average price
  - $10 - median price
  - $2 - $120 range

- Slight decrease in mean prices from $13.30 to $12.6 in two years, and a larger drop in median prices: $10.50 (2020), $10 (2021) and $4 (2002)

- In private markets (n= 14) prices often higher than in public markets, eg. Covishield by Serum Institute of India in Bangladesh: $13 vs $4 (2021).
  - exception of India due to maximum private-market price by the government
Average COVID-19 vaccine prices per dose, 20210–2022, by manufacturer

18 manufacturers

Largest manufacturers (65%):
- Pfizer BioNTech
- Sinovac
- Sinopharm
- Serum Institute of India
Evolution of median prices per COVID-19 vaccine dose, 2020–2022, by procurement type

- Pooled procurement shows lower prices consistently
- Self procurement decreased further
- Most agreements as single procurement
- Pooled procurement: COVAX (n=15), the European Commission (n=9) and the African Union (n=3)
Average COVID-19 vaccine prices per dose, 2020–2022, by country/territory/region
Average COVID-19 vaccine prices per dose, 2020–2022, per geographic region
Average COVID-19 vaccine prices per dose, 2021–2022, by country income group

Notes: African Union and COVAX classified as low- and middle income countries and Latin America countries as upper-middle income countries to reflect the income level of the majority of countries in these regions. Data for low-income countries omitted because only one data point (Senegal)

- The higher the income level, the higher the price
- Price for COVAX and African Union is half that of LMICs
RESULTS II: LITERATURE REVIEW

- 700+ screened → 70+ reviewed → 21 selected
- Classification by information on: (1) price; (2) procurement; (3) others related

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<th>Author (year)</th>
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<td>Boro and Stoll (2021)</td>
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INTERPRETING PRICES: **CAUTION!!**

1. Publicly available data, only a small share of all contracts
2. Likely to exclude rebates and discounts
3. Need to factor in number of doses negotiated
4. Prices may entail other conditions, e.g. commitments (hidden costs)
5. Time factor is critical: higher prices may indicate early access
6. Need to factor in vaccine characteristics
7. Other procurement and delivery costs

BOTH OVER AND UNDERESTIMATION OF PRICES
LIMITATIONS AND FURTHER RESEARCH

- Small sample size and questionable comparability of prices
- Future research:
  - relate unit prices and volumes
  - use trimester data
  - differentiating between the contract and actual procurement dates
  - look at other vaccines for differences between publicly reported prices and “real” prices, and factors reducing prices in time

Next phase: interviews with key informers to add to price analysis
TAKEAWAYS

- Average prices for COVID-19 vaccines decreased only slightly until 2022
- Wide price variation among manufacturers, geographic regions and country income levels
- Theoretical prices differ from real/final prices
- Recommendation 1: Pooled procurement
- Recommendation 2: Transparency of vaccine prices