U4 BRIEF

Transparency and accountability in an electronic era:
the case of pharmaceutical procurements

The burgeoning HIV/AIDS epidemic means that more labor and financial resources are being dedicated to the procurement of antiretroviral (ARV) medicines for treatment. While patients, physicians, national governments and development partners are eager to see treatment programs expanded, rapid scale-up often results in circumstances whereby resources have to be spent quickly, and sometimes resources are added to systems that are already weak and vulnerable to corruption. Program expansion in these circumstances can result in more risk, waste and losses, especially in the procurement process. Transparency of ARV prices is the first step towards identifying and minimizing corruption in procurement. This U4 Brief describes how international partners and national procurement agencies have used information technology to improve transparency and increase accountability in procurement of HIV/AIDS medicines.

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Background

After personnel, pharmaceuticals are the largest category of health expenditure in many countries. It is no surprise, then, that procurement of medicines is vulnerable to inefficiencies and corruption. Problems are due to many factors, including untrained staff, inability to draft proper bidding documents, delayed payments to suppliers, and national procurement laws that are not specifically designed to handle pharmaceuticals. Inefficiencies in procurement can also be a result of corruption. Bribes and other corrupt practices can influence the choice of seller, the quantities of medicines procured, the prices paid and the quality of medicines purchased. In rich and poor countries alike, the ability to detect and address these issues is hampered by a lack of transparency in medicine prices. Historically, the pharmaceutical industry has intentionally not published information on medicine prices, making it difficult for purchasers to negotiate a fair price. The secrecy which shrouds medicine prices also makes it difficult to hold procurement staff accountable for good procurement practices. This information asymmetry, combined with procurement systems that allow critical decisions to be made by a few powerful people, create environments prone to corruption.

Recent advances in information technology have kindled interest in improving transparency in drug price information. For example, it is becoming increasingly common for countries and donors to manage and store drug procurement information in electronic format. These drug procurement databases have great potential to advance the transparency agenda in pharmaceuticals. Yet transparency is only achieved if data are consistently reported, reliable in terms of quality, and in a format which can be used to identify potential issues and hold responsible agents accountable. In this brief we describe how Boston University researchers drew on publicly available data from the Global Fund to Fight AIDS, TB, and Malaria (GFATM) and the World Health Organization (WHO) Global Price Reporting Mechanism (GPRM) to improve transparency in medicines procurement by strengthening data quality, creating performance indicators and benchmarking reports, and promoting public dialogue.

Advances in transparency of medicine procurements

While most major donors require reporting of procurements as a contingency of funding, no other donors disclose ARV procurement information in such a transparent fashion as the Global Fund. The unprecedented policies and procedures implemented by the Global Fund have changed the landscape around transparency of medicine procurements. All medicine and commodity procurements made through Global Fund programs are mandated to be reported by the principal recipients and then posted on Global Fund's publicly available website.[1]

Some procurements not reported through the Global Fund's system are nonetheless available through another public database, the Global Price Reporting Mechanism (GPRM) managed by the World Health Organization (WHO).[2] The GPRM contains procurements reported by non-Global Fund programs such as the President's Emergency Plan for AIDS Relief (PEPFAR), as well as procurements reported by international procurement agencies, and the Global Fund. Because the GPRM is inclusive of Global Fund and non-Global Fund programs, it now serves as a global data repository on medicine procurements for HIV/AIDS, TB, and malaria.

Transparency and accountability

Information on medicines procurement is useful for many purposes, including planning, policy setting, management decision making and transparency. However, to improve public deliberation and accountability, disclosure of information by web posting is not enough. A fully operational policy on transparency also requires that information be consistently reported and consistently accessible, of reliable quality, standardized, comparable, and disaggregated to further a defined public purpose.[3] Clear, easy-to-understand, and timely information must be provided to people who can use it to hold public or private institutions accountable.

While the Global Fund and WHO have vastly improved transparency of ARV procurements by making transactions publicly available on the web, this data has not been extensively used. A survey conducted by WHO reported that more than 50% of the intended audience for the database rarely or never access it.[4] Under-use of this data is likely to be related to a combination of factors, including a lack of awareness that such data exists in the public domain, a lack of knowledge in how such information can be used, and issues around data quality and user-friendliness.

How can the public health community move from mere transparency towards external accountability in how procurements of ARV medicines unfold? To address this question, we need to consider the three key elements of transparency: the discloser, the information being disclosed, and the recipient of the information. Intervening in each of these elements can make transparency more effective and improve accountability.

- **Increasing coverage of who discloses**. Optimal use of this data for promoting transparency will require higher levels of reporting compliance among Global Fund recipients (currently estimated to be only 30-35%) and a mandate from other donors that procurements be reported to WHO GRPM. This expands the number of organizations disclosing and the scope of procurements disclosed.

- **Improving the reliability and accuracy of data**. Multiple spellings, misspellings, confusion around definitions of data labels and data entry errors need to be eliminated at the point of data entry. Design features such as drop-down menu options, which minimize the use of free text data entry should be incorporated, and forms pilot tested to ensure consistent interpretation of items.

  Data verification routines should be built into systems to minimize erroneous data entries for variables such as price, which do not lend themselves to drop down menus. Automated price verification would signal a warning message when prices reported are far in excess of prices in the database for the identical product, and ask for verification before accepting the report.

- **Assuring consistent, reliable access to disclosed information in a practical format**. Access to web-based data must be consistent and reliable. Considerations should be made to avoid system down time, and to address the limited internet connectivity that exists for users in low resource settings. In addition, indicators need to be created which transform raw data into performance indicators, and which communicate how particular procurements or countries stack up against standards or against the performance of others.
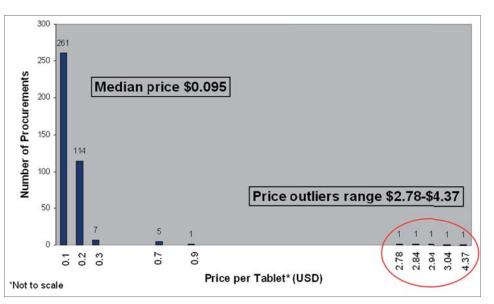

Figure 1: High price outlier analysis, lamivudine 150mg

Moving forward on the transparency agenda

Researchers at Boston University, with funding from the United Kingdom Department for International Development, have been helping to implement some of these recommendations for moving from transparency to accountability, building on the work of WHO and the Global Fund. First, the Global Fund database and the WHO GPRM database were merged into a single dataset to ensure all reported ARV procurements were captured. Next, the merged dataset was extensively cleaned to remove erroneous and duplicate entries. New variables were added to allow for more robust analysis. Overall, the improved database contained more than 5,000 procurement transactions for the time period November 2002 through June 2006, totalling over USD 230 million. Data included 27 variables providing detailed ARV procurement information on country, region, products, manufacturers, suppliers, mode of delivery, product quality, price and participation in price-negotiation and differential pricing schemes.

In addition to cleaning and expanding the data, researchers developed tools to measure and assess relative efficiency within and between countries around ARV procurement. While differences in efficiency are not necessarily due to corruption, these measures highlight areas where there may be management problems. As the "essence of accountability is answerability", funding organizations and supervisors should use these indicators to ask questions, and procurement officers should be able to explain variation in prices or gaps in efficiency. Through this dialogue, it is possible to determine areas for individual improvement, identify needs for system-wide reform and suggest where new policies may be helpful.

The two main transparency tools which BU helped to create are high price outlier analysis and country benchmarking of prices paid.

High price outlier analysis

The first transparency tool, price outlier analysis, conducted on each ARV, allows information users to quickly zero in on procurements whose prices are far in excess of the global distribution of prices paid for that same product. In the BU study, researchers identified 80 high price outliers over the time period November 2002-June 2006.

High price outlier reports can be used internally by donor programs to screen procurements and identify where problems may exist. Once identified, case studies could be conducted to better understand and address factors contributing to excessively high prices. Examples of high price outlier analyses are provided pictorially as histograms in figures 1 and 2, where price per tablet is plotted on the x-axis and the number of procurements for that product is plotted on the y-axis. In figure 1, the bulk of procurements for lamivudine 150mg are clustered on the left side of the graph with most prices paid ranging between US $0.05 and $0.33 per tablet. But on the far right side of the chart are scattered procurements where countries paid US $2.90, $3.2 and $4.8 for the same product. These severe price variations cannot be easily explained as natural and expected price variations in the market.
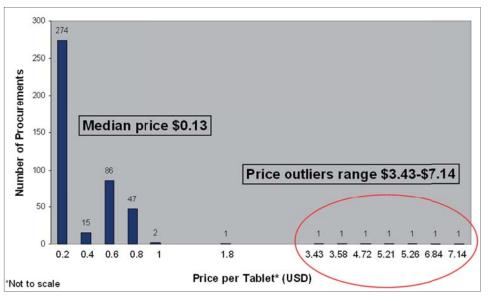
Figure 2: High price outlier analysis, nevirapine 200mg

Figure 2 is perhaps the most striking example of price outlier analysis. In this histogram, the price distribution for nevirapine 200mg presents as a bimodal distribution with generic prices ranging from US $0.07-0.40 and brand prices ranging from US $0.63-0.75; but in the far right are price outliers where prices paid ranged from US $3.6-11 per tablet. In this example, one may investigate not only why a country would pay high outlier prices, but why a country would choose to purchase a brand name product that is considerably more expensive than equivalent generic products.

Country benchmarking of prices paid for ARVs

The second transparency tool that can be used to assess prices paid for medicines is a benchmark that compares prices paid in-country to global median prices paid for identical products. The BU researchers benchmarked all 90 countries in the database but report as a sample here only 8 countries (names removed to focus attention on the tool). In Table 1 the percent of country procurements are described across quartiles of the global price distribution for the time period July 2005-June 2006. In this distribution, it is desirable for countries to have the majority of their procurements ranked in the 25-50th percentile and <25th percentile, meaning their prices were at or below global me-

dian prices for identical products. Countries would prefer to avoid rankings in the 50-75th percentiles and >75th percentiles, meaning the prices they paid were above global median prices for identical products.

In this example, Country A had 100% of its procurements priced in the 75th percentile of global procurements. Further investigation could determine why this country consistently pays higher prices for all ARV procurements. At the bottom half of Table 1 are the four countries with the highest number of procurements priced less than the 25th percentile of all global prices for identical products. Both Country F and Country H show more than 60% of their procurements priced less than the 25th percentile of global prices; it is worth further exploration to understand the best practices used to obtain such low prices.

Conclusion

Conventional wisdom suggests improvements in transparency will lead to improved efficiency and decreased opportunities for corruption in pharmaceutical procurement. Yet transparency is only a first step on the road to accountability. Information systems create opportunities to advance the transparency agenda through public disclosure of procurement information via the World Wide Web, but high-level political commitment is needed to mandate, enforce and disclose procurement reports. Procurement information must be accurate, consistently accessible and user-friendly. More work is needed to transform valuable raw procurement data into information tools to facilitate and monitor procurement at program, country and donor levels. This case brief provides illustrative examples of the types of tool that could be developed using existing data sources. Once the appropriate tools have been developed, they need to be incorporated into monitoring and evaluation systems that enable excessive prices to be identified and further investigated to support the goal of improving efficiency and linking accountability to transparency.

Table 1: Global price distribution country performance, July 2005-June 2006

% of Country procurements across quartiles of global price distribution				
Country (WHO Region)	>75th percentile	>50-75th percentile	25-50 percentile	<25th percentile
Countries with lowest performance:				
Country A (E.Europe)	100%			
Country B (S. America)	80%	20%		
Country C (C. Asia)	82%		9%	9%
Country D (Sub-S. Africa)	58%	8%	17%	17%
Countries with highest performance:				
Country E (W. Africa)		25%	17%	58%
Country F (W. Africa)		4%	32%	64%
Country G (Caribbean)	4%	12%	44%	40%
Country H (E. Europe)	21%	3%	14%	62%

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Further Reading

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