

## Characterizing Tanzania's Drug Prescribing, Dispensing, and Use—SDSI Objective 3 Summary

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A number of assessments and routine supervision visits have been conducted to monitor medicines use practices in ADDOs and surrounding communities. These assessments have tended to look at individual components, such as dispensing or care seeking behavior. None has taken a holistic view of the interrelationship between medicines and their sources in Tanzanian communities by combining information from consumers, public health facilities, ADDOs and pharmacies, and key stakeholders.

The goal of SDSI Objective 3 was to conduct a holistic assessment of health care-seeking behavior, medicines availability, medicines use, and stakeholder perceptions in communities served by ADDOs in Tanzania. The activity was described in our SDSI proposal as follows—

*Objective 3. Define and characterize data elements related to consumer access to and use of medicines, quality of products and services provided by drug sellers, and government officials' and health care providers' and users' perception and knowledge regarding medicine use and antimicrobial resistance (AMR) for use in developing public health policy, regulatory standards, and treatment guidelines.*

Working with technical advisors from Harvard University, we developed an outline of the research that would allow us to—

- Characterize public and private sector facility-based medicine practices
- Characterize community care-seeking practices and attitudes regarding medicine access and use and AMR
- Characterize professionals' perceptions, knowledge, and attitudes regarding medicines access/use and AMR
- Test quality of pharmaceutical products dispensed in ADDOs and pharmacies

In addition to collecting and analyzing this data, we wanted to demonstrate how our methods could be used as part of a cost-efficient strategy for ongoing monitoring of the quality of products and services provided in the ADDOs. Toward that end, we collaborated with Tanzanian organizations to build their capacity to be able to continue data collection, analysis, and use for ongoing policy development and regulatory purposes.



Wherever possible, the components of the assessment will be linked to programmatic activities of the collaborating government partners who are working with SDSI: the Tanzania Pharmacy Council, Tanzania Food and Drugs Authority, and the Pharmaceutical Services Section of the Ministry of Health and Social Welfare, as well as the implementing partners, which include Management Sciences for Health, Apotheker Consultancy Ltd., INRUD Tanzania, the Schools of Pharmacy and Public Health at the

Muhimbili University of Health and Allied Sciences, the Tanzania Consumer Advocacy Society, and the Invention and Technological Ideas Development Organization. The future role in ongoing assessment

and monitoring by other organizations such as ADDO associations and community-level advocacy groups will be defined separately based on the results of the cross-sectional assessment.

A strategy for future ADDO monitoring will be informed by the experience and lessons learned from this cross-sectional assessment. The Pharmacy Council, Tanzania Food and Drugs Authority, and Pharmaceutical Services Section can use our methods to develop an ADDO monitoring strategy and determine the roles and responsibilities for maintaining it.

## **METHODOLOGY**

The facilities, households, and individuals included in this assessment were sampled in 4 regions (3 districts each) that were purposively selected based on their—

- Geographic location and accessibility
- Socioeconomic range
- Experience with ADDOs (i.e., regions where the ADDO program was implemented prior to 2006, between 2006–2010, or after 2010)

The assessment regions included—

- Morogoro: eastern region, mature ADDO region
- Tanga: northern region, ADDOs in operation for 2 years
- Mbeya: southern highland region, ADDOs 2–3 years, relatively high socioeconomic status
- Singida: central region, relatively poor, 10-12% CHF penetration, with historical data (site of previous household survey in 2009–2010)

Our study approaches and data sources included—

- Price, availability, dispensing record audits in ADDOs (N = 96) and private pharmacies (N = 13)
- Mystery shoppers at ADDOs (N = 306)
- Patient exit interviews and health provider interviews at public and nongovernmental health facilities (N = 98)
- Household interviews (N = 1200)
- Central and district government representatives (N = 43) and ADDO owner and dispenser interviews (N = 84)
- Analytic testing of drugs from ADDOs and pharmacies (N = 240 samples)

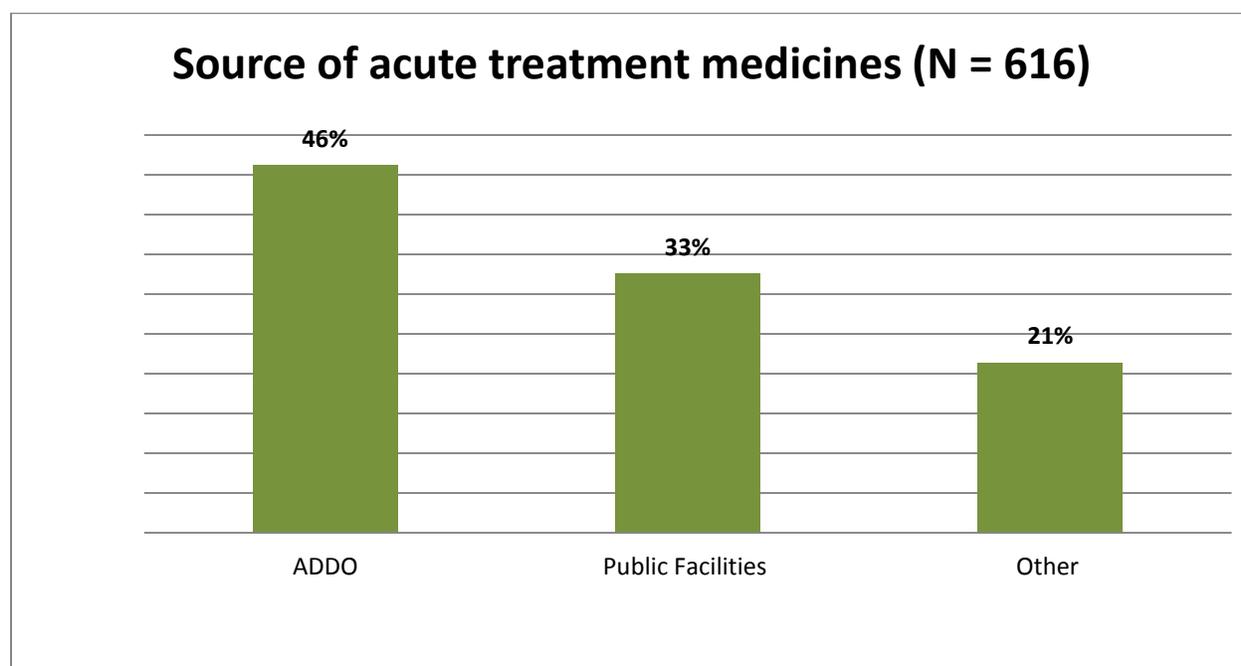
## **SELECT RESULTS**

### ***Mystery shoppers (N = 306)***

- 61% of dispensers under pneumonia scenario asked probing questions compared with mild ARI scenario (22%)
- 71% of pneumonia cases got antibiotics vs. 34% with mild ARI
- 42% of immediate referrals were for pneumonia
- Thirty-four per cent of the mystery shoppers presenting a case of mild ARI were sold an antibiotic, whereas 85% presenting mild symptoms were sold one on request; 85% of mystery shoppers presenting a case of pneumonia received an antibiotic, were referred to a trained provider, or were asked to bring the child for review

### Household surveys (N = 1185)

- 616 household members (10%) from 477 households (40%) had suffered from an acute disease in the previous two weeks
- 467 (76%) members from 367 (77%) households sought care outside the home
- 44% sought care in a public facility, 33% in an ADDO or drug shop; 19% went to a private practitioner, mission clinic or NGO
- Of the 93 who went first to an ADDO, 28 (30%) were referred to a public facility for a diagnosis
- 29% of household members going to a public facility first obtained an antibiotic there; many more (48%) later purchased an antibiotic at an ADDO



### Sources of recommendations about medicines and places where medicines were obtained for treating recent acute illness

Obtained from:	ADDO/ DLDB		Public Facility		Private or Mission or NGO		Home/Friend/ Shop or blank		Grand Total	
<b>All Medicines</b>										
<b>Recommended by:</b>										
<b>Dr/Nurse</b>	95	16.4%	182	31.4%	93	16.1%	4	0.7%	<b>374</b>	<b>64.6%</b>
<b>ADDO</b>	144	24.9%	1	0.2%	4	0.7%	6	1.0%	<b>155</b>	<b>26.8%</b>
<b>Self/HH Member/Friend</b>	27	4.7%	0	0.0%	2	0.3%	11	1.9%	<b>40</b>	<b>6.9%</b>
<b>OTHER</b>	2	0.3%	1	0.2%	7	1.2%	0	0.0%	<b>10</b>	<b>1.7%</b>
<b>Grand Total</b>	<b>268</b>	<b>46.3%</b>	<b>184</b>	<b>31.8%</b>	<b>106</b>	<b>18.3%</b>	<b>21</b>	<b>3.6%</b>	<b>579</b>	<b>100.0%</b>

<b>Antibiotics</b>										
<b>Recommended by:</b>										
<b>Dr/Nurse</b>	18	14.1%	37	28.9%	23	18.0%	0	0.0%	<b>78</b>	<b>60.9%</b>
<b>ADDO</b>	37	28.9%	0	0.0%	1	0.8%	0	0.0%	<b>38</b>	<b>29.7%</b>
<b>Self/HH Member/Friend</b>	6	4.7%	0	0.0%	1	0.8%	2	1.6%	<b>9</b>	<b>7.0%</b>
<b>Other</b>	1	0.8%	0	0.0%	2	1.6%	0	0.0%	<b>3</b>	<b>2.3%</b>
<b>Grand Total</b>	<b>62</b>	<b>48.4%</b>	<b>37</b>	<b>28.9%</b>	<b>27</b>	<b>21.1%</b>	<b>2</b>	<b>1.6%</b>	<b>128</b>	<b>100.0%</b>

### **Quality product testing (N = 243)**

- 9 products sampled: antibiotics, antimalarials, anti-inflammatory, oxytocics
- 203 samples from ADDOs; 40 samples from pharmacies
- 23 (6.2%) of total number of samples did not conform to quality standard for active ingredient: ergometrine (100% of sample)

### **ADDO and public health facility audits (N = 96, 84)**

- Availability of antibiotics was better in ADDOs than in public health facilities (63% v 50%), particularly suspensions and syrups (82% v 51%)
- Prices were 14% higher in ADDOs
- Of 369 ADDO records of antibiotic dispensing, 63% were dispensed from a prescription

### **Interviews with ADDO dispensers (N = 84)**

- 90+% knew that AMR was caused by unnecessary antibiotic use  
**BUT**
- Our clients are used to taking antibiotics to treat various illnesses, just because physicians have prescribed them antibiotics before. When they come here, they demand antibiotics. (Dispenser, Songea Urban)
- There are clients who understand what type of medicine is written in their prescriptions, so when you start arguing with the patient, he asks you, “give me what the doctor has written, are you more professional than him?” So we give them according to doctor’s prescriptions. (Dispenser and owner, rural)

### **NEXT STEPS**

- Draft reports and articles to submit for publication
- Develop recommendations to policy makers including feasibility of future monitoring
- Disseminate results and recommendations for integrating data collection into routine functions to national stakeholder meeting