



# Antibiotic dispensing in rural and urban pharmacies in Hanoi-Vietnam

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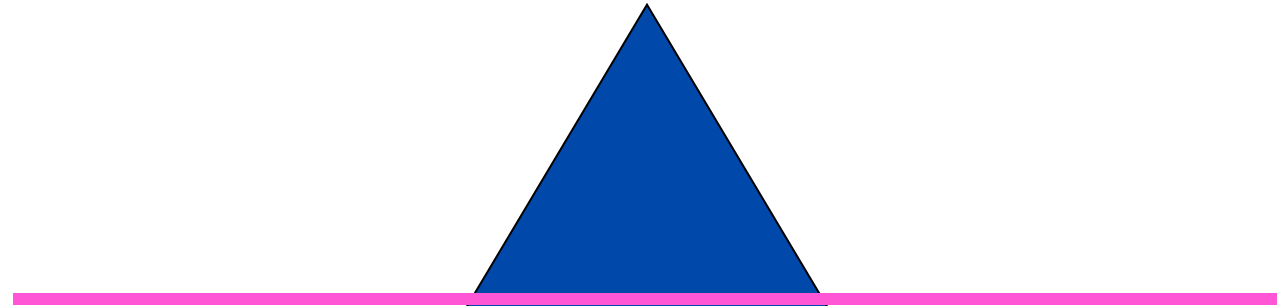


# Practical causes of antibiotic resistance

- Development of resistance is often complicated and multi factorial
- Important drivers:
  - Inappropriate use of antimicrobials in human medicine
  - Use in agriculture

# Community - important source of antibiotic use

Hospitals



Health stations



Pharmacies in  
community



38,916 retail drug outlets\*

# Objectives

- To assess the current practices and economic profitability of antibiotic sales for rural and urban pharmacies in northern Vietnam

# Setting of study: Hanoi region

Rural:  
Bavi  
District



Urban: Dong  
Da Districts

Time:

July-September  
2010

# Sample size and sampling

2000  
private pharmacies

Random  
selection

30  
private pharmacies

Rural:  
No refused cases

Urban:  
-2 cases refused  
-Selected 2 additional one

15 in urban

2 settings

15 in rural

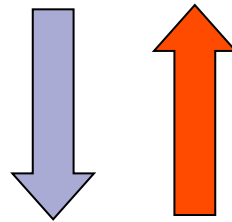
Exclude:

- Pharmacies inside Hospital
- Whole sale Pharmacies

# Data collection & analysis

- Combine Quantitative and Qualitative methods

- In-pharmacy observation
- Record drug sales to every client
- Post-observation questionnaire



In-depth interviews with drug sellers

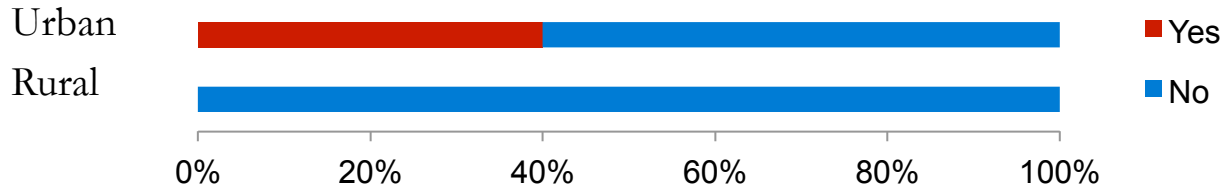
- Data analysis: MS Access, SPSS software

Descriptive statistics as appropriate

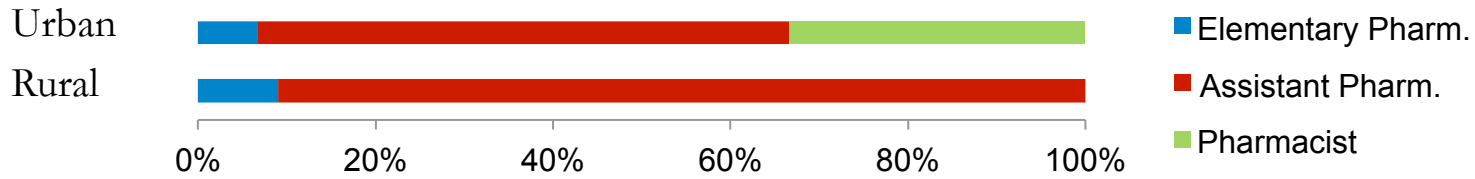
**Markup** of antibiotic = selling price – purchase price (wholesale price)

# Pharmacy profile

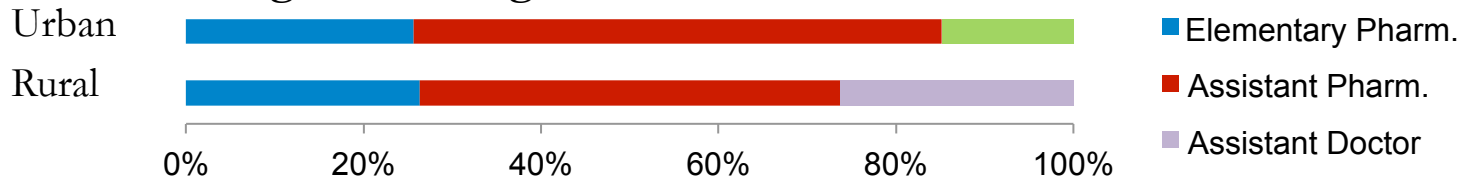
## GPP



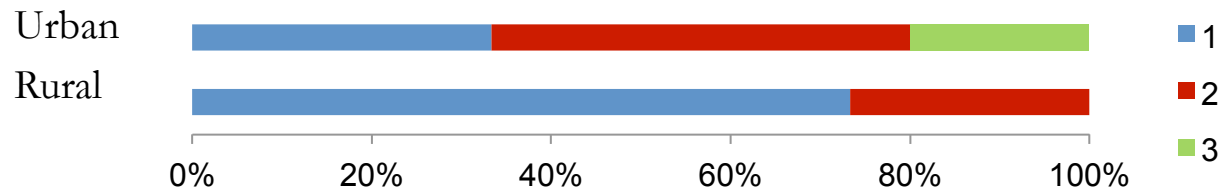
## Owner's degree



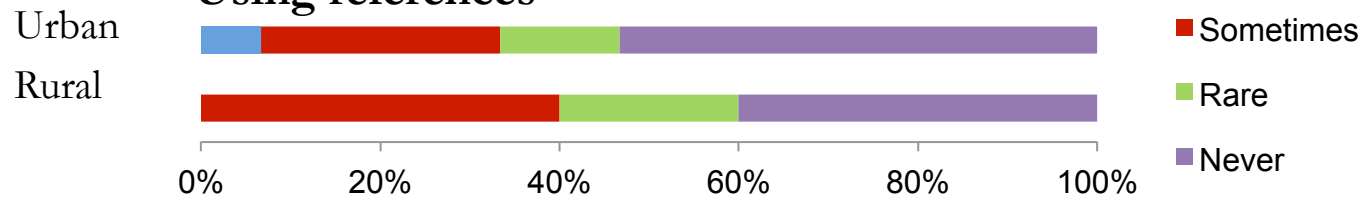
## Drug seller's degree



## Number of drug sellers

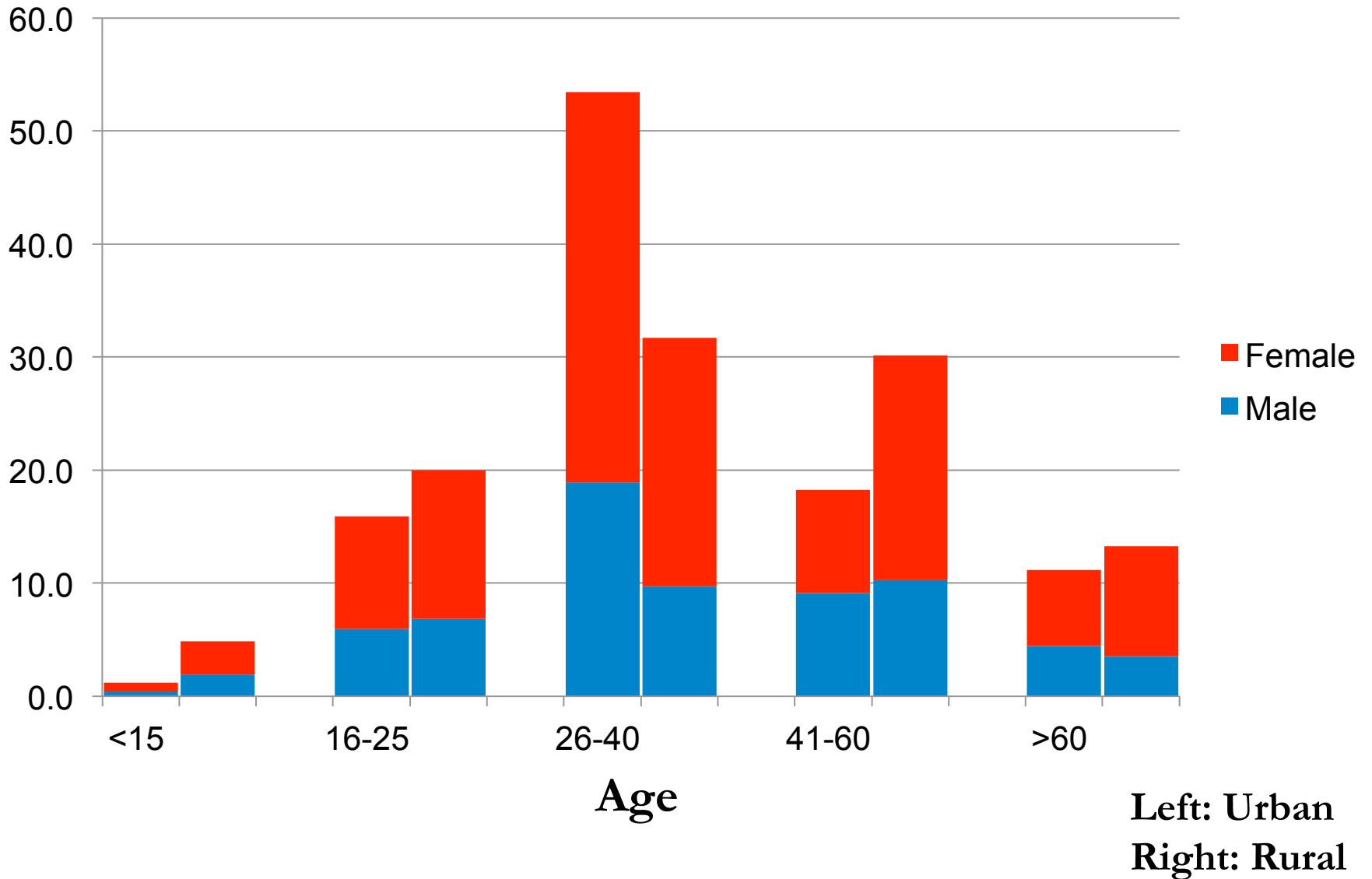


## Using references

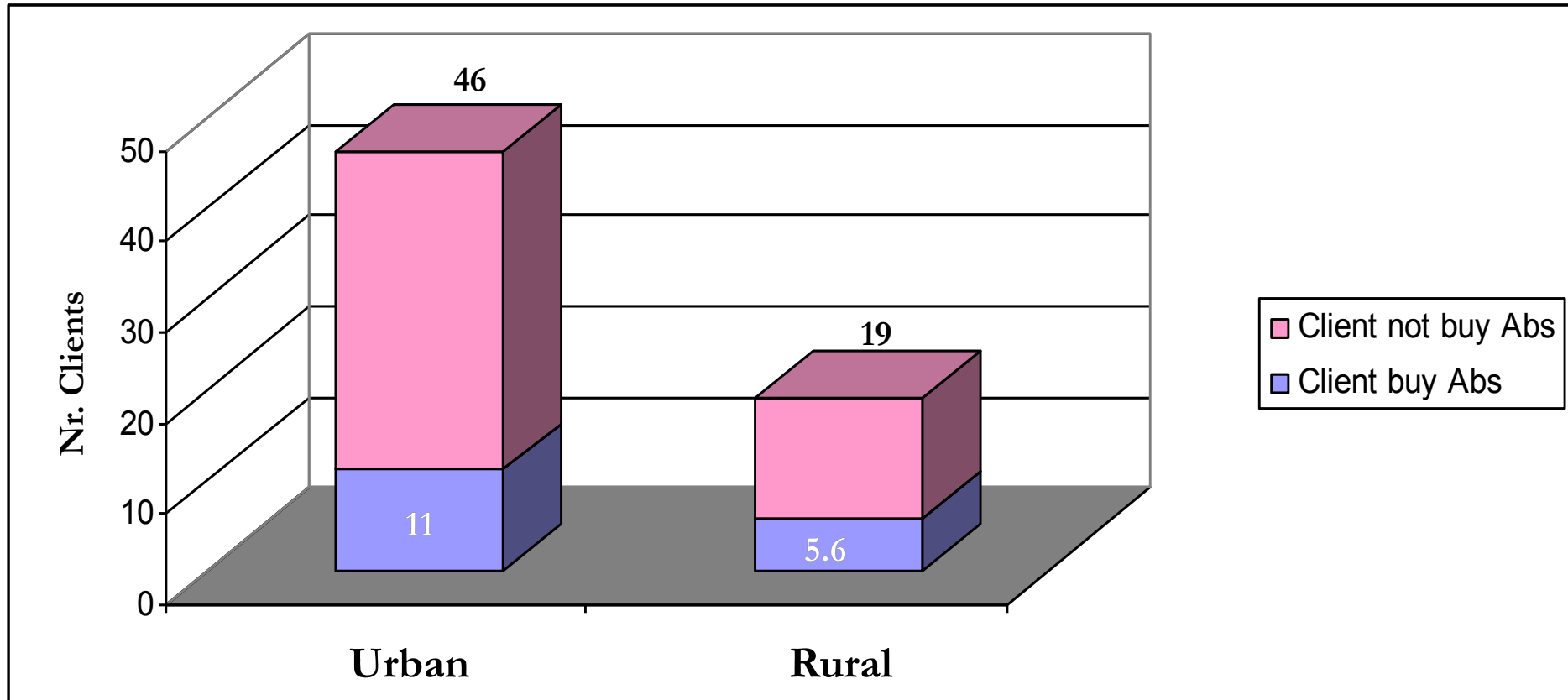




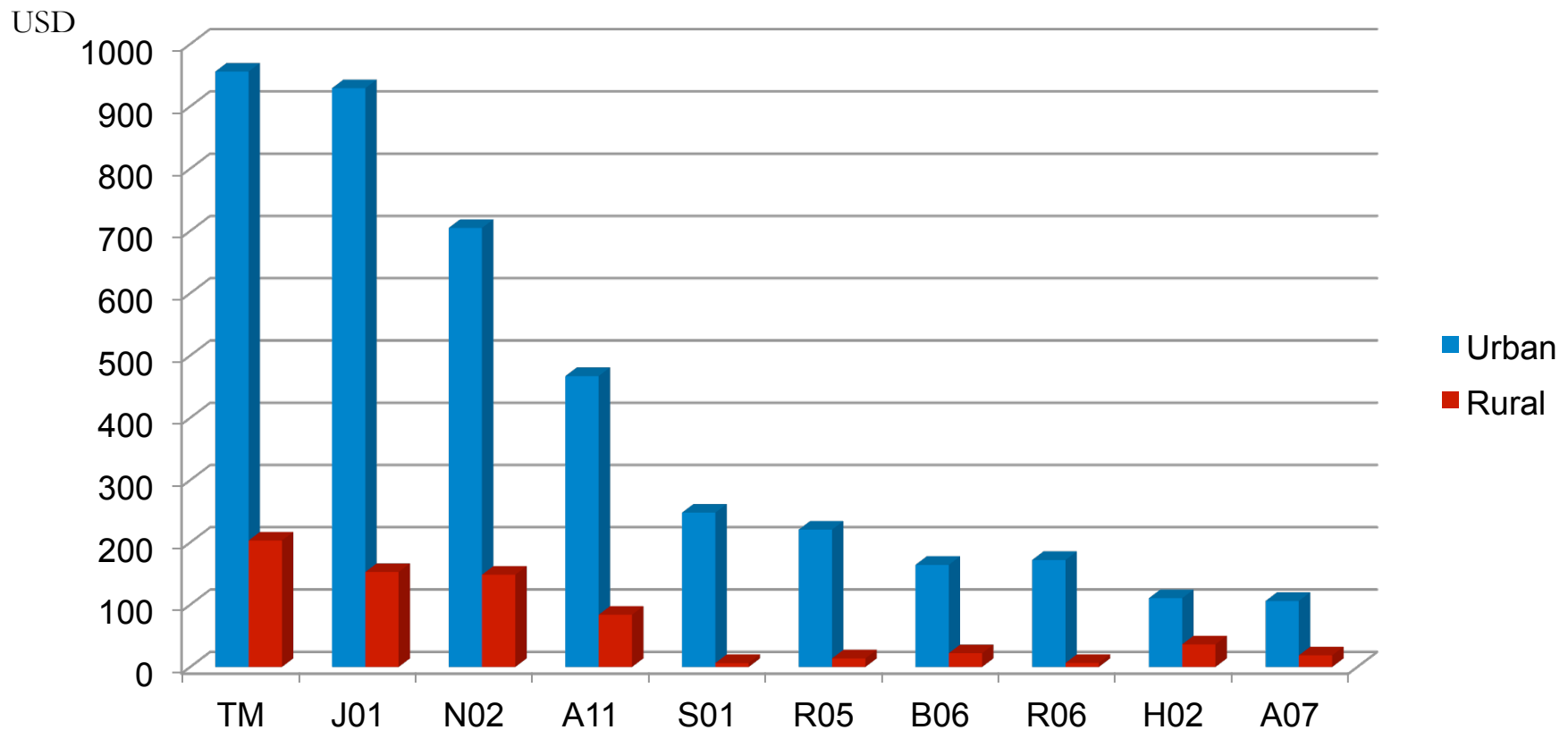
# Client profile



# Average number of customers/day/pharmacy



# The highest drug sales (in USD)



TM: Herbal medicines, J01: Antibiotics, N02: Analgesic, A11: Vitamins, R05: Cough&cold preparation, B06: Hematological agents, R06: Antihistamins, H02: Corticosteroids, A07: Antidiarrheals

❖ Antibiotics contributed 13.4% in urban and 18.7% in rural to the total sale of pharmacy

# Drugs with the highest mark-ups

Urban		Rural	
Generic name	ATC code	Generic name	ATC code
Azithromycin	J01	Vitamin 3B	A11
Cedesfarnin	H02	Alphachymotrypsin	B06
Mekocetin	H02	Multivitamin	A11
Efferagan	N02	Comvit h5000	A11
Panadol extra	N02	Vastaren	C01
Zinnat	J01	Vitamin C	A11
Coversyl plus	C09	Cerebral circulation	TM
Decolgen	N02	Strepsil	R02
Ampicillin	J01	Amoxicillin	J01
Vitamin C	A11	Cephalexin	J01
Terpin codein	R05	Loperamid	A07
Megyna	J01	Ampicillin	J01

# The top 10 antibiotics in sold

Rank	Active ingredient	ATC code	Frequency	Percentage
	Antibiotics	J01	743	
1	Amoxicillin	J01CA04	156	21.0
2	Cephalexin	J01DA01	91	12.2
3	Ampicillin	J01CA01	61	8.2
4	Azithromycin	J01FA10	54	7.3
5	Spiramycin	J01FA02	51	6.9
6	Cefuroxime	J01DA06	41	5.5
7	Cefixime	J01DA23	41	5.5
8	Sulfamethoxazole+Trimethoprim	J01EE01	37	5.0
9	Chloramphenicol	J01BA01	33	4.4
10	Metronidazole	J01XD01	23	3.1

# Antibiotic selling practices

Client	Urban		Rural	
	n	%	n	%
<b>Total transactions</b>	2083	100	870	100
<b>Buying antibiotics</b>	499	24.0	257	29.5
<b>With prescription</b>	60	<b>12.0</b>	23	<b>9.0</b>
- <i>Comply with prescription</i>	49	81.7	18	78.3
- <i>Not comply with prescription</i>	11	18.3	5	21.7
<b>Without prescription</b>	439	<b>88.0</b>	234	<b>91.0</b>
- <i>Client made decision</i>	218	49.7	66	28.2
- <i>Drug seller made decision</i>	221	50.3	168	71.8

# Reason for buying antibiotics

Urban			Rural		
R05	Cough	31.6	A03	Fever	21.7
R21	Throat symptom/complaint	17.8	D01	Abdominal pain/cramps general	13.5
A03	Fever	9.7	R05	Cough	12.2
D82	Limited function/disability	7.4	D11	Diarrhea	11.5
F01	Eye pain	5.2	R21	Throat symptom/complaint	4.9
R74	Upper respiratory infection acute	5.2	D82	Teeth/gum disease	4.6
S02	Pruritus	3.3	S02	Pruritus	3.9
D11	Diarrhoea	2.6	F01	Eye pain	3.6
F73	Eye infection/inflammation other	1.9	N01	Headache	3.6

# Opinion about important causes for inappropriate AB selling

	Urban			Rural		
	disagree	neutral	agree	disagree	neutral	agree
Pressure from customer	19.2	42.3	38.5	6.3	81.3	12.5
Lose customer	3.8	92.3	3.8	0.0	100.0	0.0
Low pharmacy practice quality	15.4	11.5	73.1	12.5	25.0	62.5
Abs should be prescribed only	42.3	34.6	23.1	18.8	12.5	68.8
Prescriber's fault	0.0	30.8	69.2	35.3	35.3	29.4
Drug seller's knowledge	42.3	30.8	26.9	41.2	35.3	23.5
Pharmaceutical distributors	0.0	80.8	19.2	64.7	29.4	5.9
High profitable Abs	23.1	46.2	30.8	17.6	47.1	35.3
Don't need change	57.7	34.6	7.7	52.9	29.4	17.6
Other causes	3.8	46.2	50.0	0.0	29.4	70.6



# Qualitative results

## In both urban and rural:

- ✓ Private pharmacy was the most common choice to go to for mild sickness
- ✓ Abs are purchased commonly without prescription for acute upper respiratory infections
- ✓ It is important for drug sellers to satisfy client
- ✓ Customer can easily buy antibiotics in another shop in case one refuses
- ✓ Knowledge of drug sellers and customer's awareness are weak, especially in rural area.
- ✓ Regulation: no enforcement

# Conclusions

- Profits of antibiotic sales are considerable.
- Currently, there is no sanction for not complying with regulations regarding selling prescription-only drugs without a prescription. This may explain why to this moment no pharmacy has been penalized for antibiotic dispensing without prescription, making implement difficult.
- Replacing antibiotic sales by selling symptom relieving drugs or vitamins may be a strategy to compensate pharmacies and motivate them to comply with government regulations.
- As the consumer often demands antibiotics without a prescription, public awareness campaigns should be also form part of future intervention strategies.

# Related posters

## *1. Pattern of Abs use in an urban slum in Lagos, Nigeria*

- ❖ Objectives: to assess the magnitude of adherence to AB dosage regimen and to determine factors responsible for non-adherence among adults in an urban slum community in Lagos, Nigeria
- ❖ Method: descriptive cross-sectional survey from 21<sup>st</sup> June to 9<sup>th</sup> July 2010
- ❖ Results:
  - Self-medication is prevalent in the community with frequencies ranging from 44.3% -79.2%.
  - Up to 63.44% did not adhere to the full duration of treatment
  - Reasons for non-adherence to antibiotic regimens include improvement in health condition (41.2%), side effects (32.4%) and for reason of affordability (11.1 %)

# Related posters (cont'd)

## *2. Prescription of antibiotics at the outpatient setting in Uganda and Zambia*

- ❖ Objectives: To analyze the pattern of antibiotics prescription in Uganda and Zambia
- ❖ Method: retrospective, used records of out-patients in 11 health centers in Uganda and 12 ones in Zambia; June/08-May/09
- ❖ Results:
  - 64% (6471/10172) in Uganda ended up with an antibiotic prescription while 41% (1711/4218) in Zambia
  - Cotrimoxazole and Amoxicillin are the two most prescribed antibiotics in Uganda and Zambia
  - Pneumonia, one of the top causes of mortality, is under-diagnosed at the outpatient setting

# Related posters (Cont'd)

## *3. Knowledge, belief and attitude of GPs in prescribing Abs for URTIs*

- ❖ Objective: To evaluate the knowledge, attitude & beliefs of GPs in prescribing Abs for URTIs.
- ❖ Method: A postal cross-sectional survey using 27-item questionnaire
- ❖ Results:
  - 88.5% of GPs concurred that prescription of antibiotics in primary-care could contribute to the problem.
  - 56% GPs agreed antibiotics may reduce the duration of URTIs.
  - 90% GPs stated they believe that patients expect antibiotics from them, but 78.4% GPs do not prescribe if they think the antibiotics are unnecessary.
  - First line treatment for uncomplicated URTI commonly chosen by the GPs is amoxicillin (53.2%).
  - The most influential determinant of the GPs: microbiology laboratory results (54%) and past prescribing experience (41%)



# Acknowledgement

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Thank you

