



# Antibiotic use and resistance. Possibility to improve drug sellers in antibiotic dispensing



Global  
Antibiotic  
Resistance  
Partnership

**CDDEP**

THE CENTER FOR  
Disease Dynamics,  
Economics & Policy

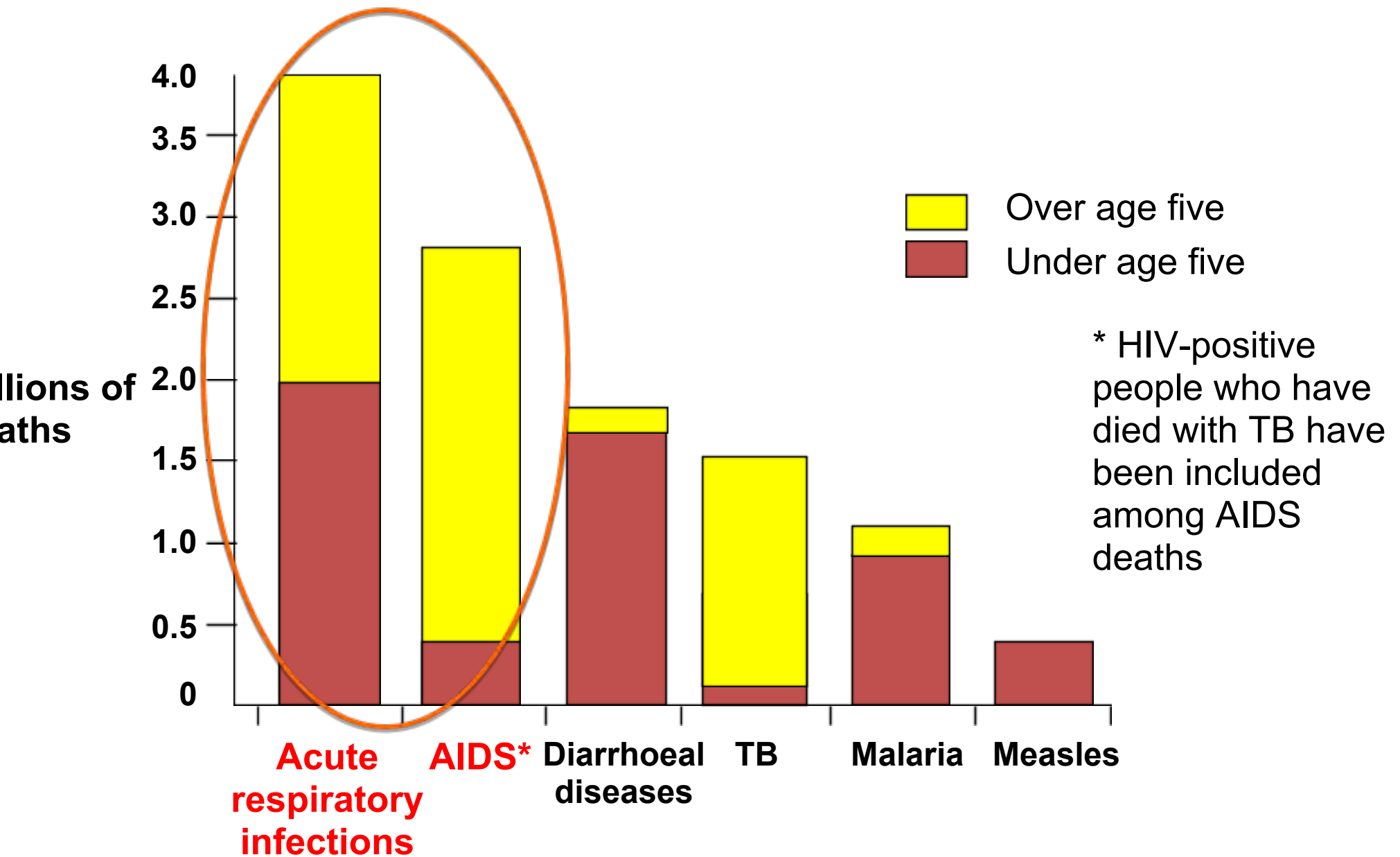
WASHINGTON DC • NEW DELHI

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# The Leading Infectious Cause of Death



Estimates for adults 2002; under 5's 2000-2003; World Health Report 2004/5

# Emergence of Antimicrobial

## Resistance

NDP, Regulation  
Enforcement  
Incentives  
Expectations from  
patients  
Perception of illness/  
treatment  
Knowledge  
Advertisement

**Prescribers**

**Dispensers**  
(staff)

**Community use  
of Antibiotics**



**Selective  
pressure  
Resistant  
organisms**

**Treatment  
failures  
Increased**



# Setting and time of studies



# Studies on antibiotic use and antibiotic resistance

- Community use of antibiotic and antibiotic resistance



Q/diary assessing  
Antibiotic use through  
interviews with the  
caretakers.

Naso-pharynx and throat  
specimens tested for antibiotic  
susceptibility with disk diffusion, E-  
test methods.

# Results: Antibiotic use 1999

200 Children 1-5 years

Symptoms of ARI and

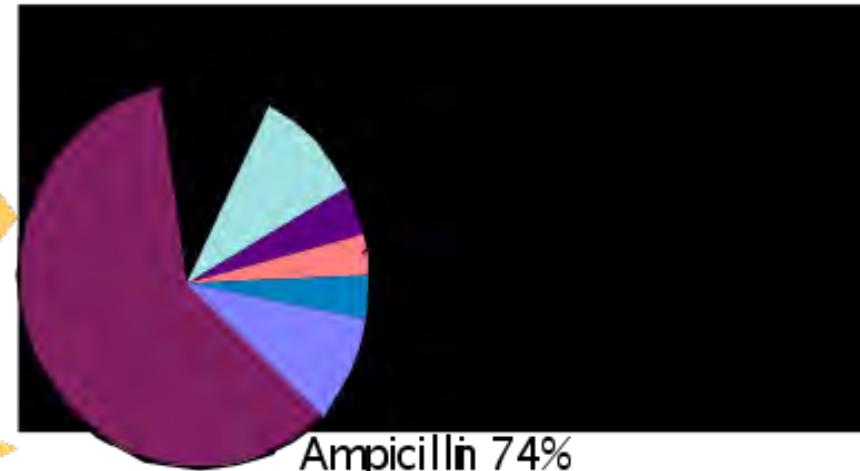
Health seeking

Antibiotics used



78% self-medicated via private drugs stores.  
67% consulted the pharmacy staff & 11% decided themselves

22% consulted a doctor



Ampicillin 74%

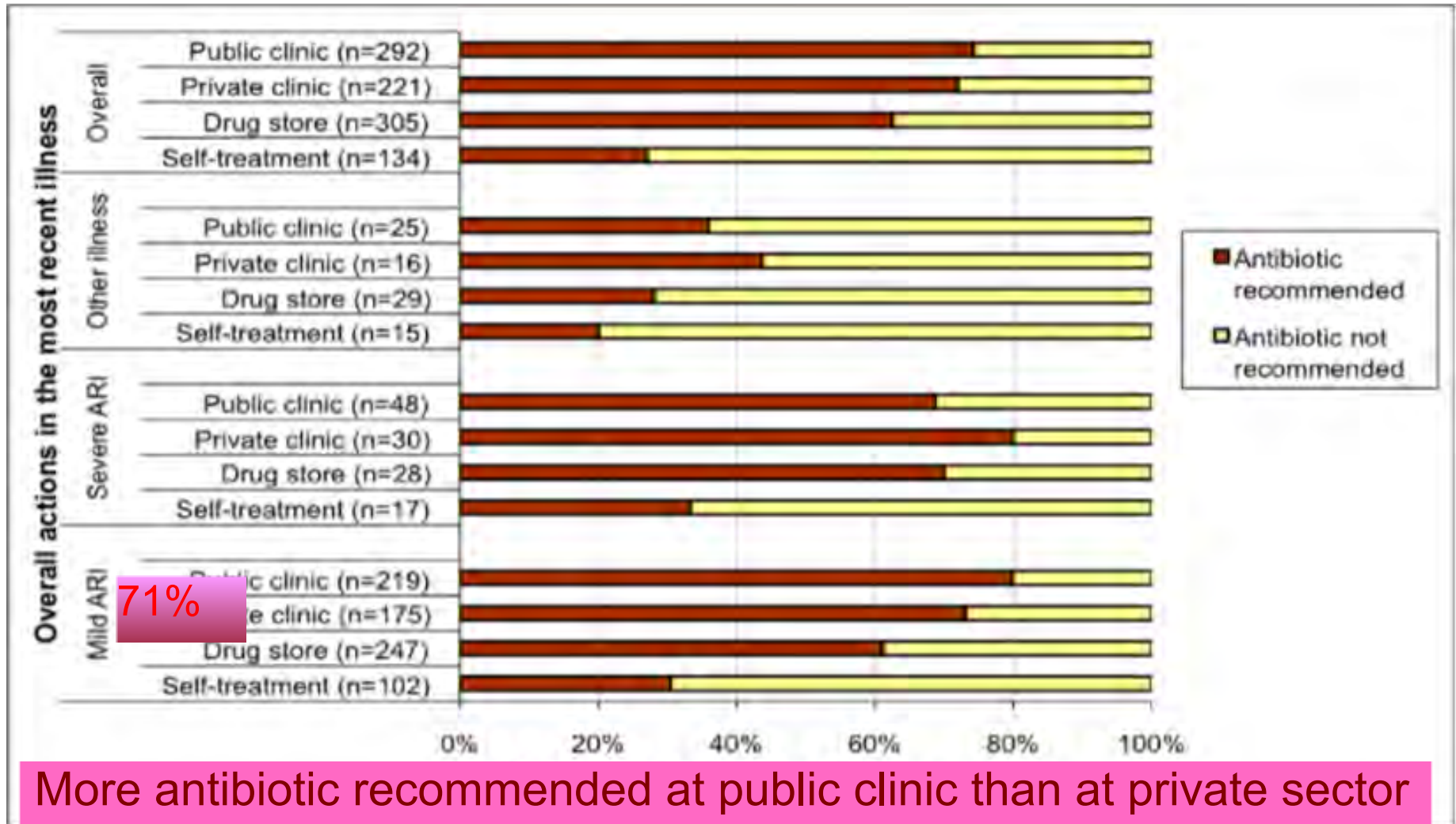
Average duration of treatment:

Ampicillin 3.2 days

Penicillin 2.5 days

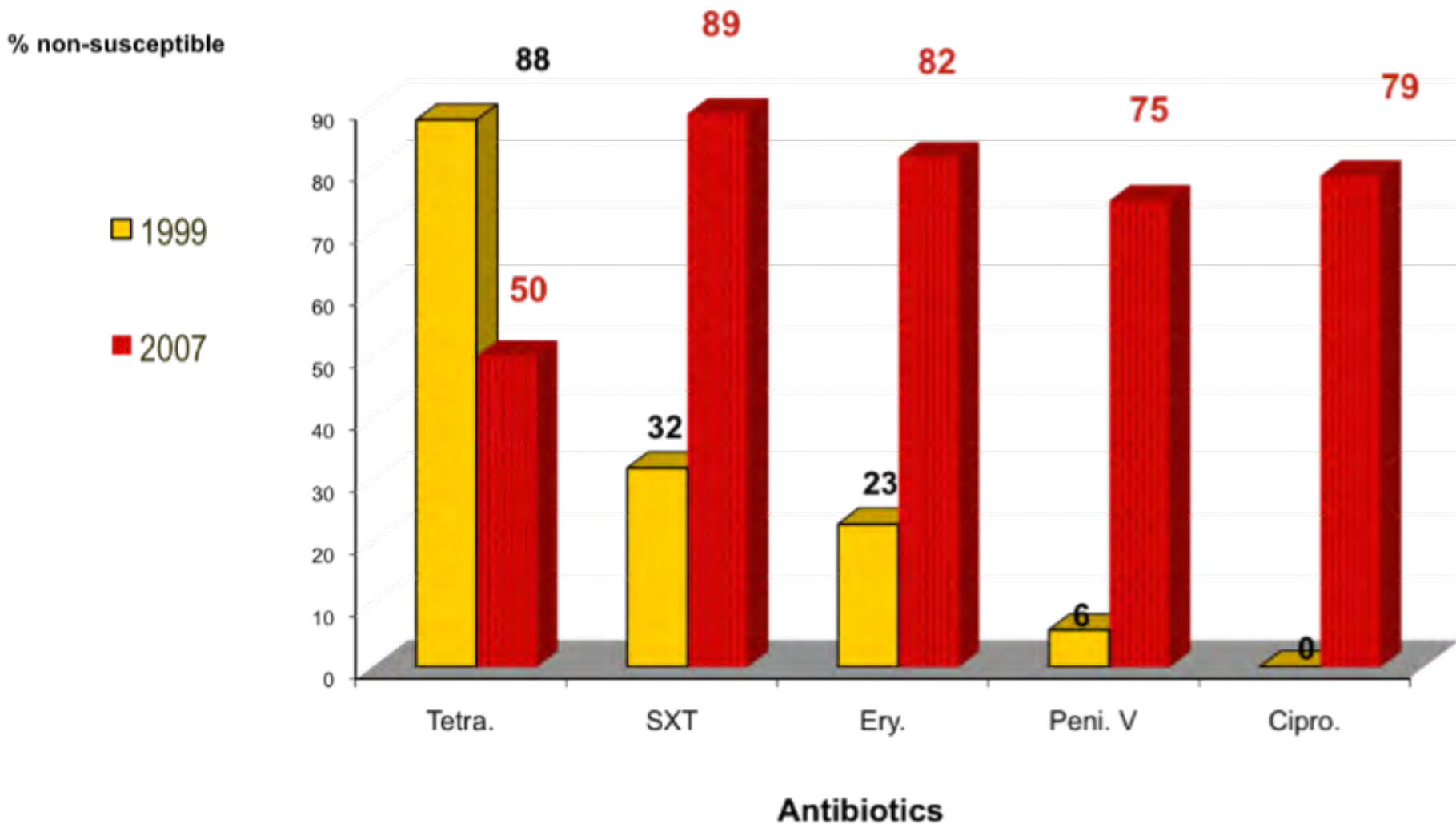
**80% of the antibiotics were purchased from Private pharmacies**

# Result: Antibiotic use and health care seeking for most recent illness





# Result: resistance trends among *S. pneumoniae* 1999 and 2007



# Studies on antibiotic use and antibiotic resistance (tt)

- **Antibiotics and pediatric AIR: Health care providers' knowledge, practical competence and reported practice**
- 409 health care providers: hospitals, CHSs, private clinics, drug stores
- Self-completion questionnaire:
  - Knowledge and perception about antibiotic resistance
  - Theoretical knowledge: Antibiotics for treatment of ARI symptoms
  - Practical competence: common colds scenario/pneumonia scenario
  - Reported practice: child encounter, symptoms and drugs were prescribed/dispensed

# Results

- 392/409 (96%) participated in the study
    - 65% of basic HCPs working in drug stores
  - Hearing of AB resistance: 97%
  - Correct knowledge on consequences of AB resistance: 27%
  - Contributing factors to develop of AB resistance:
    - Patients: self-medication, poor adherence (88%)
    - Drug sellers: Inappropriate dispensing (65%)
    - Prescribers: Inappropriate prescribing (59%)
-

# Knowledge and practical competence of HCPs

## ● Theoretical knowledge:

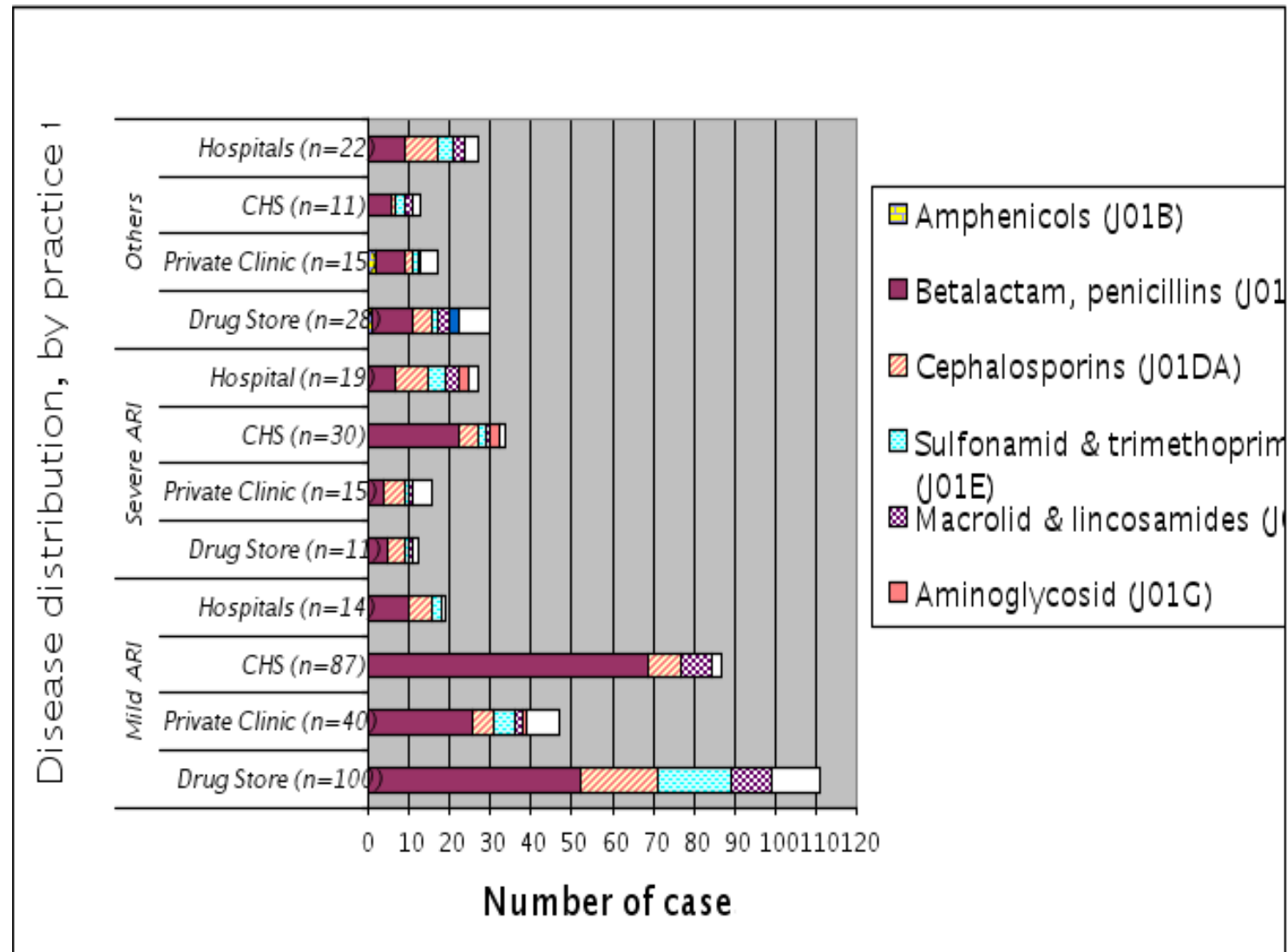
- Cough, runny nose, without fever: 21% HCPs need of antibiotics
- Cough, runny nose, with fever: 79% HCPs need of antibiotics
- Fast breathing, chest-indrawing, or stridor: 91% HCPs need of antibiotics
- Correct overall-knowledge of antibiotic use for ARIs: 19% of HCPs

## ● Practical competence:

- Scenario of common colds: 81% named of specific antibiotics
    - Antibiotic use was lower among HCPs had correct overall-knowledge
  - Scenario of pneumonia: 87% named of antibiotics, excl. 50% referral
    - No different with the rate of antibiotic use for common colds
-

# Antibiotic use for treatment in most recent encounter

- Drugs given: 95%
- Antibiotics: 92%
- Antibiotics prescribed/dispensed:
- Mild ARIs: 90%
  - Severe ARIs: 87%
  - Other diseases: 78%
- Most common used:  
amoxicillin, cephalixin,  
ampicillin



# **Intervention study: A randomised control trial to improve private pharmacy practice in Hanoi**

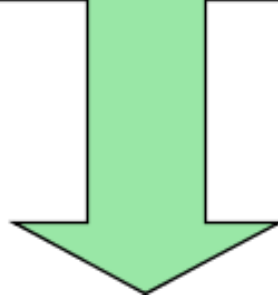
- **Questionnaire to assess Knowledge**
- **Simulated client methodology (SCM) to assess Practice**
- **Tracer conditions**

ARI: I have a (3,4,5) year old (daughter or son) who is coughing since two days. What should I buy?

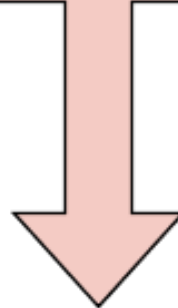
STD: My friend has a pain when peeing and have pus coming from their urethra for the last 3-4 days. Can you tell me how to assist him?

# Sample size and sampling

789  
private pharmacies



641  
private pharmacies



Turnover  
Proximity to hospital  
With or without Pharmacist

30  
control  
pharmacists

Randomly

30  
pairs

Randomly

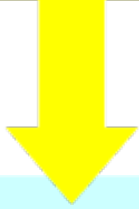
30  
Intervention  
pharmacists

## Exclude:

- Pharmacies inside Hospital
- Whole sale Pharmacies

# Intervention and monitoring

**Enforcement  
Regulation (ER)**



**Education  
(Ed)**



**Peer Influence  
(PI)**



**Intervention group : 30 pharmacies**  
**Control group : 30 pharmacies**

**SC  
M  
QUE  
S**

**SC  
M**

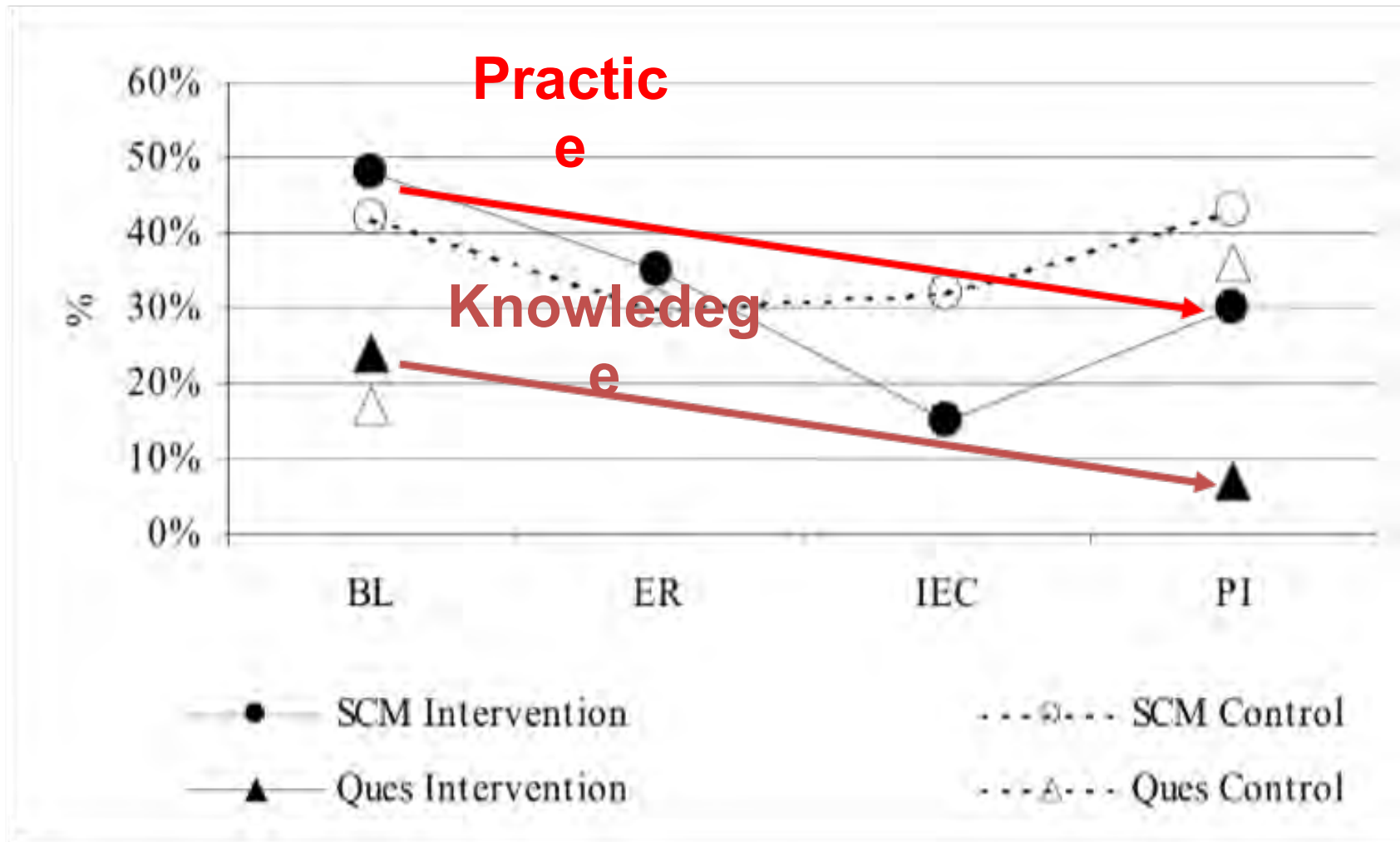
**SC  
M**

**SC  
M  
QUE  
S**



# Results

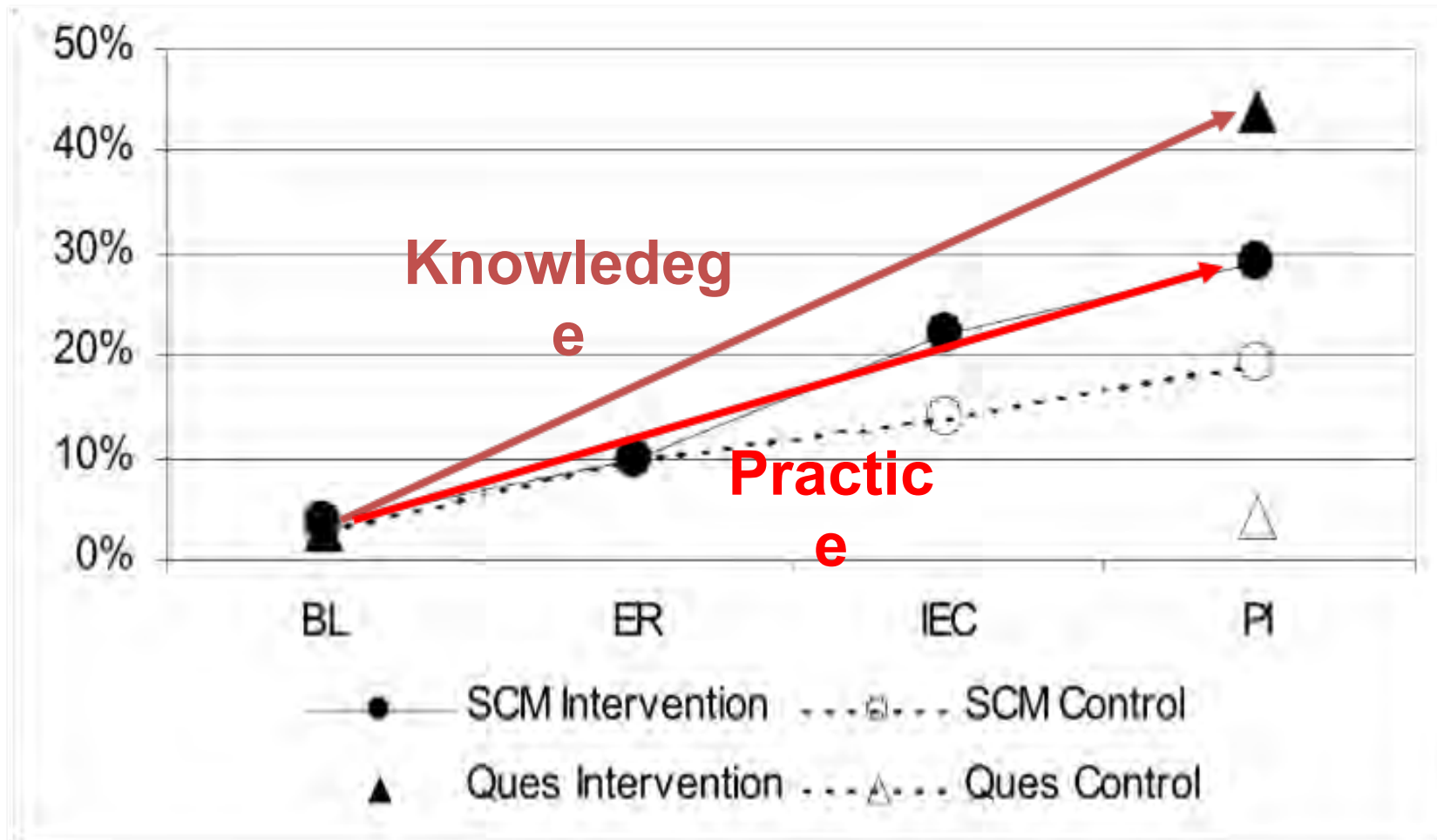
## ARI Case Management Dispensing of antibiotics



# Results

## STD Case Management

### Correct Symptomatic Treatment



# Future intervention needed (or recommendations)

- Improve knowledge of health care providers
  - Pharmacists/drug sellers
  - High level of health care services
- Regulation enforcements
- Peer intervention (Role of Professional Associations)



*Thank You  
Friend*