Surveillance of antimicrobial use in resource-constrained community settings

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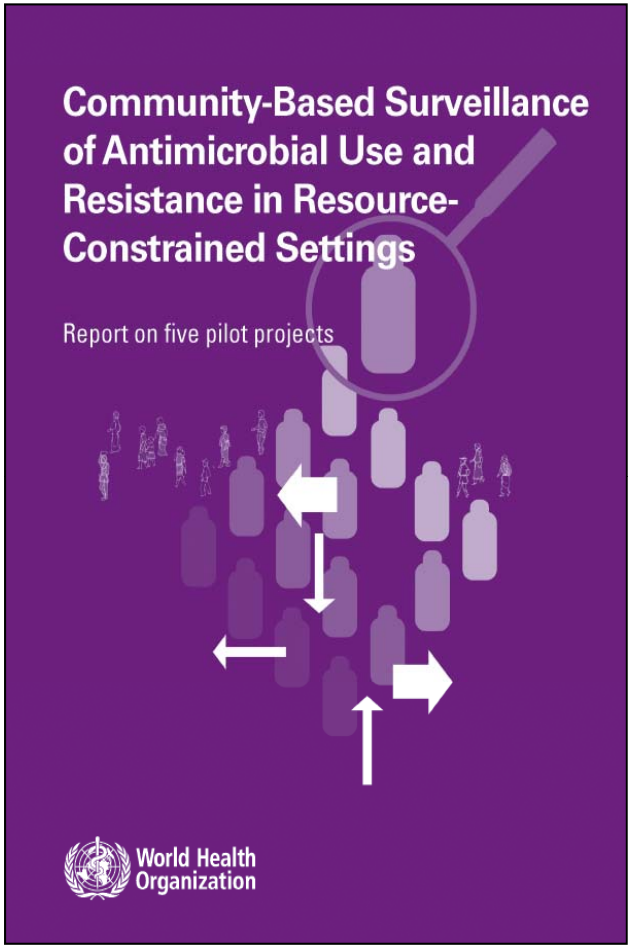
on behalf of on behalf of:

The Community-Based Surveillance of Antimicrobial Use and Resistance in Resource-Constrained Settings Project Group*



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Background

- Increasing AMR globally
  - Risk of non-antibacterial medicine (ABM) future
  - Antibiotic consumption a major contributor
- Poor data available in resource-constrained settings
  - Very little data on ABM use particularly in the private sector, where most consumption occurs
- No standard methodology for surveillance of ABM use in the community
  - WHO 2001 Global Strategy recommends surveillance of ABM use at all levels of health care
- WHA51.17, WHA54.14, WHA58.27
  - WHO to support implementation of Global Strategy for AMR containment and surveillance initiatives
  - Projects initiated in response to resolutions and donor request

Objectives

- To develop a model for community-based surveillance of antibacterial medicine use (ABM) in resource-poor settings
- To collect useful base-line data

Methods

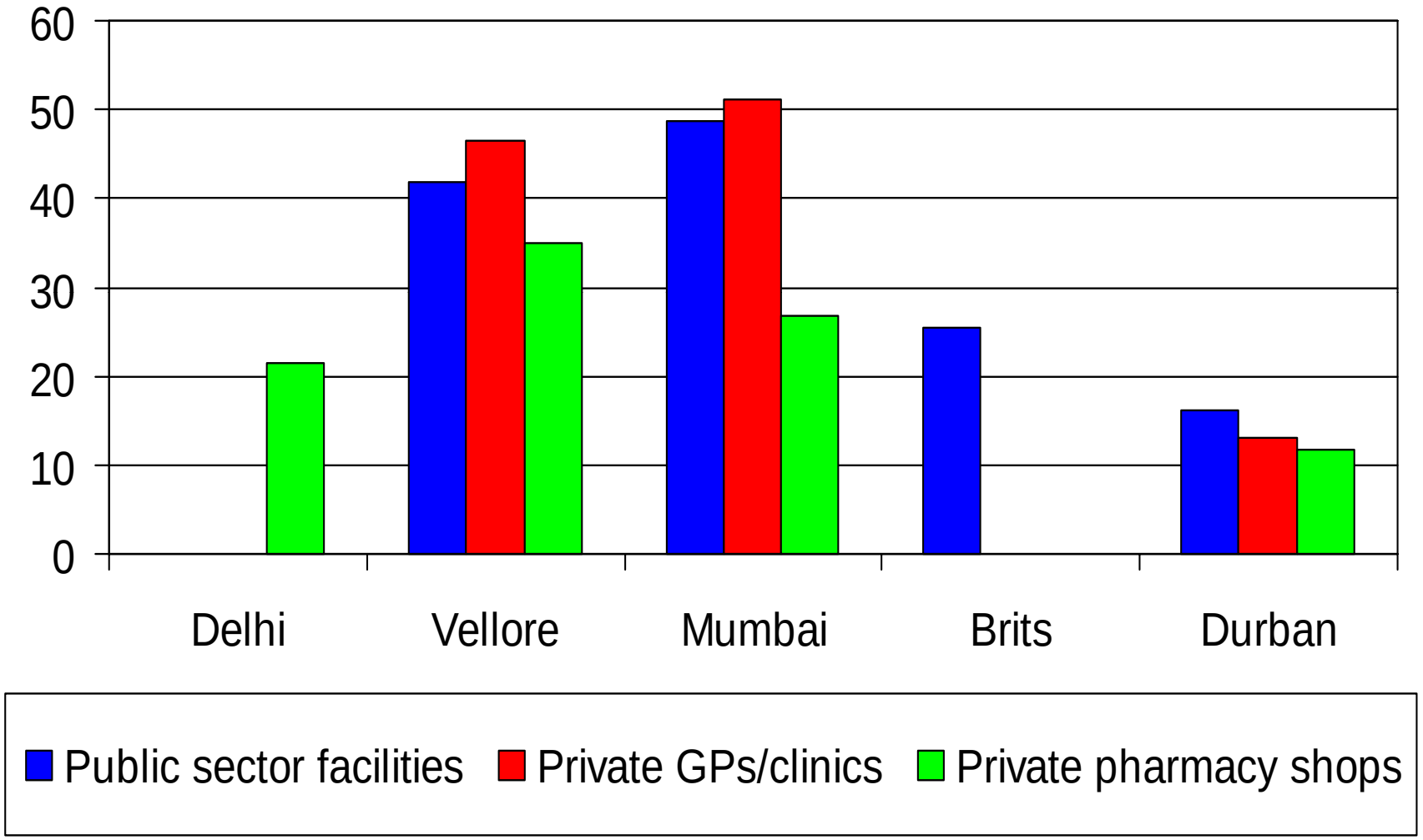
common skeleton protocol with local adaptation

- AMR and ABM use data
  - collected monthly from same community/geog.area over 1-2 years
- Indicator organisms (abstract 341)
  - *E.Coli* - in stools (1 site), urine of pregnant women (2 sites), urine of patients with suspected UTI (1 site)
  - *S.pneumonae* and *H.influenzae* in sputum of patients with suspected respiratory tract infection (1 site)
  - % isolates resistant to specific antibiotic
- Antibiotic / antibacterial medicine (ABM) use
  - collected from public facilities and private GPs, pharmacies, hosps
  - exiting patient interviews, prescription/sales/dispensing data
  - % patients receiving specific antibiotic
  - no. DDDs of specific antibiotic per 100 persons attending facility

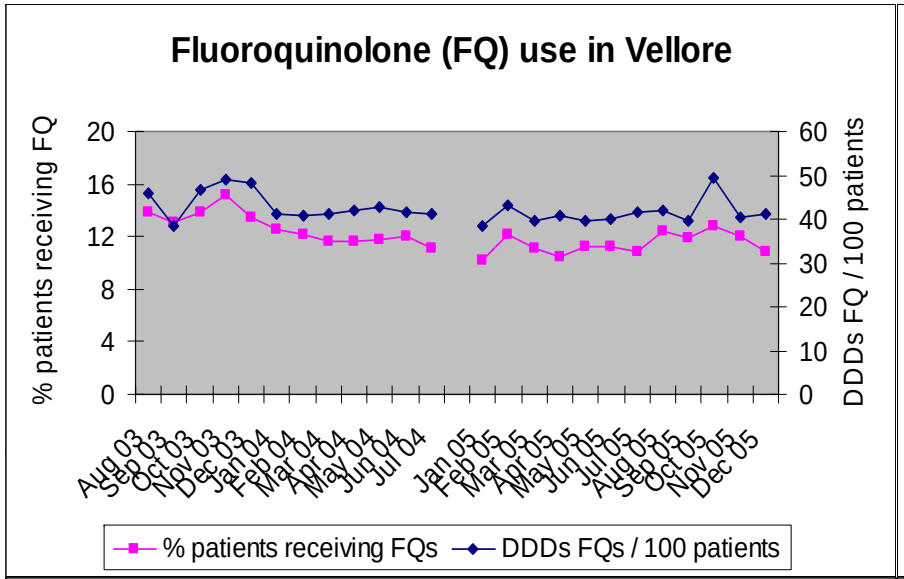
Results: antibiotic use

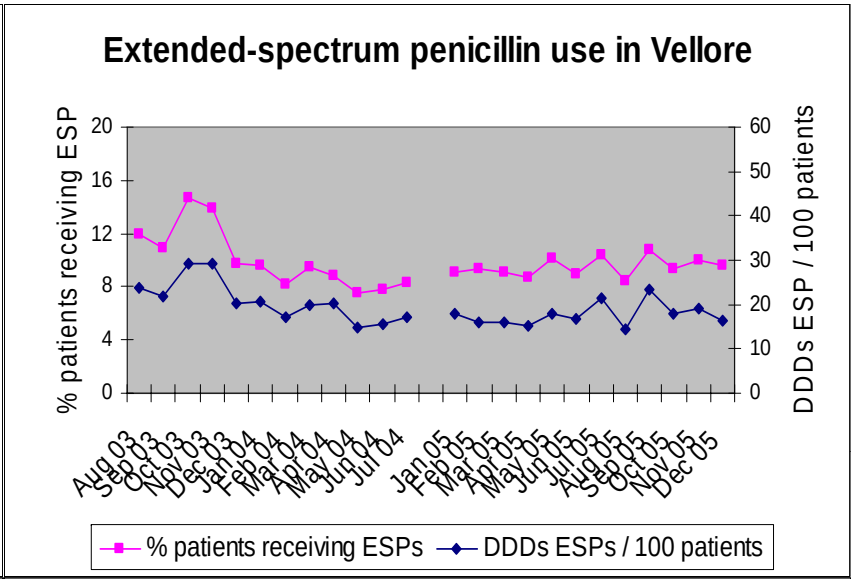
- Percentage of patients receiving antibiotics in each site:
  - similar to other studies done in the same regions
- Indian sites appeared to have much higher antibiotic use compared to the South African sites
  - in all types of facility both private and public
  - comparison not main objective and difficult due to data collection differences
- Inexpensive older antibiotics (cotrimox, tetracycline) used more in public facilities and expensive newer ones (fluoroquinolines, cephalosporins) in private facilities
  - in both India and South Africa
- Seasonal variation for overall antibiotic use seen with both measures - % patients receiving antibiotics and no.DDDs/100 patients seen
  - Seen mostly for older antibiotics in the public sector but difficult to see for newer antibiotics in the private sector

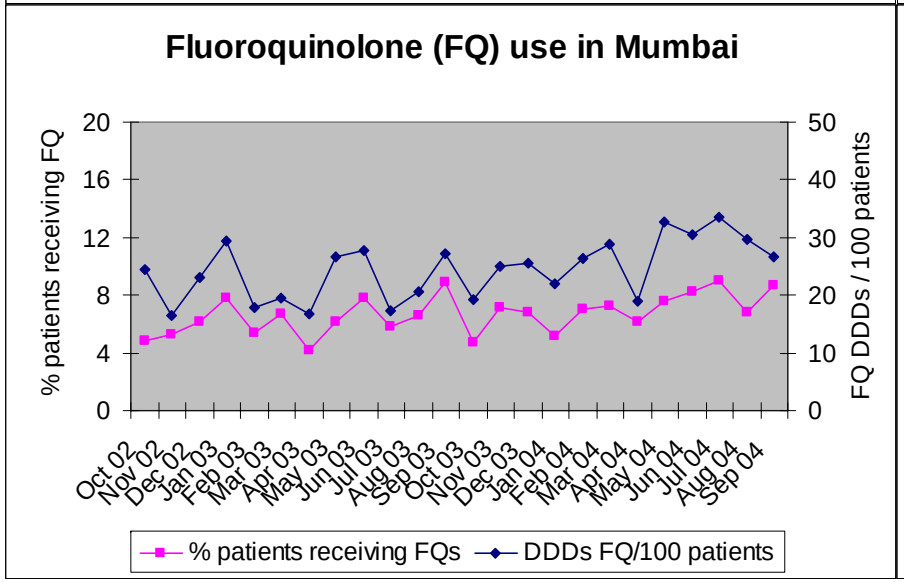
Percentage of patients receiving an antibiotic

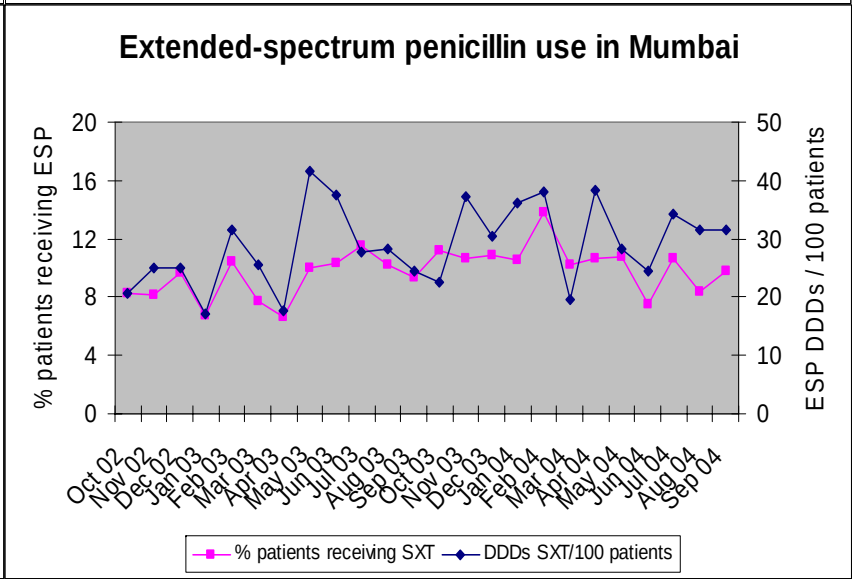


Fluoroquinolone & Extended-spectrum penicillin use in Vellore & Mumbai









Comparing antibiotic use in different facility types in Durban using:

(1) % patients receiving specific ABM

(2) no.DDDs specific ABM per 100 patients seen

Fig. 6.4 Annual use of ABM measured as percentage of prescriptions with specific ABM: Feb'03-Jan'04

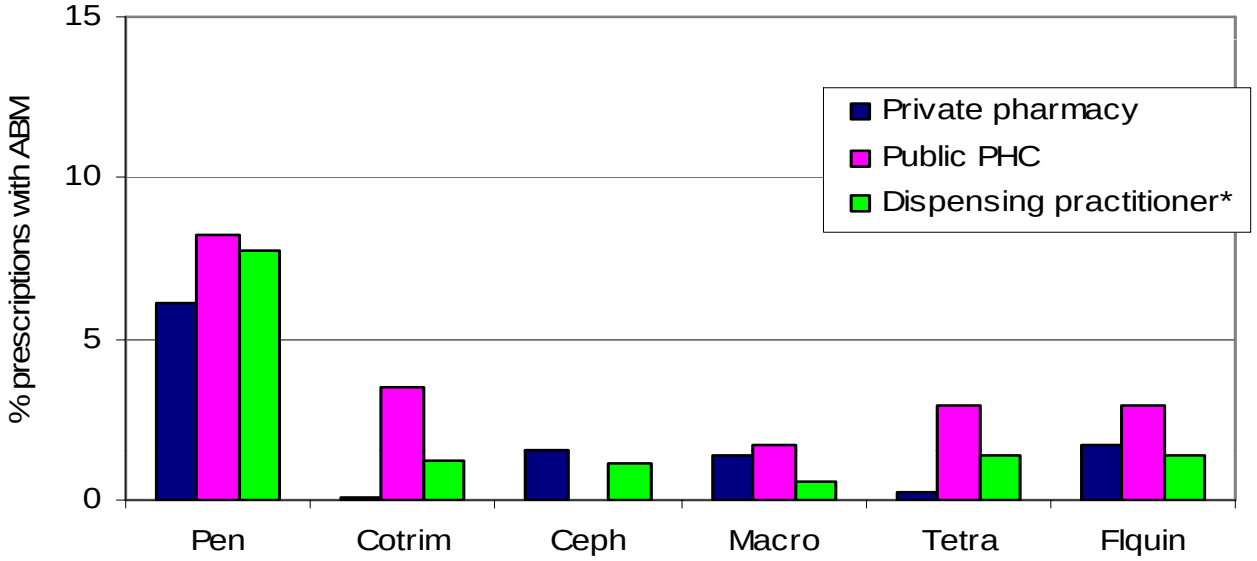
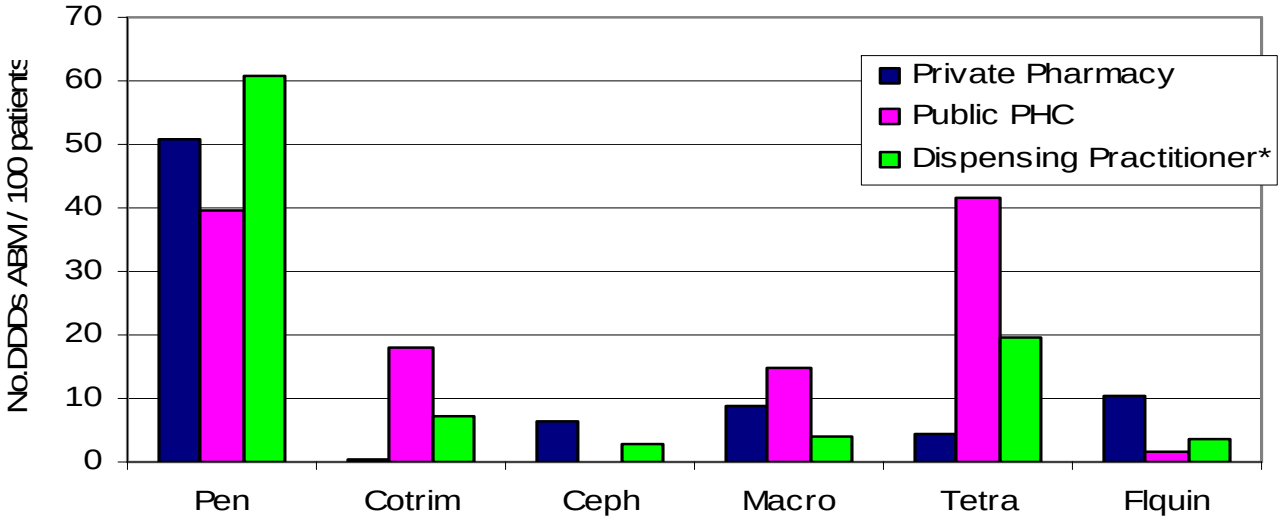


Fig. 6.5 Annual use of specific ABM measured as number of DDDs per 100 patients: Feb '03-Jan '04



Problems

- Lack of capacity much greater than foreseen
  - Technical support required for all aspects of data collection, most data cleaning, analysis & write-up done in HQ
- Poor supervision by Principal Investigators
  - Many did not supervise data collection/entry, protocol not always followed, none gave sufficient time for analysis and write-up
- Supervision by WHO insufficient
  - Done by HQ 6-12 monthly, but not enough & no supervisory capacity in regional and country offices
- Variable methods of data collection
  - Mixing dispensing & sales data contrary to the protocol
- Sample size for patients/prescriptions not always achieved
  - Only found on examination of the raw data
  - Due to non-cooperation of facilities in two sites and to lack of supervision and "study fatigue" in one site
- DDDs for combination antibiotic products
  - Difficult to handle in the databases
- Denominators not included in antibiotic use databases
  - Only data on patients receiving antibiotics incorporated so denominators had to be incorporated manually

Lessons learnt

- Community-based surveillance possible in resource-constrained settings
  - enables development of local multidisciplinary expertise
  - generates baseline data for evaluating intervention impact
- Future community-based surveillance projects require:
  - better integration into existing systems
  - long-term technical support to ensure adherence to SOPs
  - multidisciplinary team including: community health personnel, competent data manager, qualified pharmacist &/or pharmacologist
- % patients receiving specific antibiotic
  - easier to collect and more reliable than DDDs of specific antibiotic per 100 patients attending the health facility
- DDDs of specific antibiotic per 100 patients attending the health facility
  - provides more information about exposure of patients / microbes to antibiotics and patterns of use
- 2 data collectors required to collect data by interview in private facilities
  - one to interview patients receiving ABs and the other to count the total number of patients attending (with or without antibiotics)
- Procurement / Sales data
  - Unreliable in private shops & bulk data not sensitive enough to monitor use over time

Conclusions

- Key Lessons Learnt
  - Much antibiotic overuse in the community
  - Community-based surveillance possible in resource-constrained settings: provides useful baseline data & develops multi-disciplinary capacity to promote rational use of antibiotics
  - Many useful methodological lessons learnt but greater technical support & budget required (1 million USD for 5 sites over 7 years)
- Policy Implications
  - Monitoring antibiotic use is essential in programs to contain AMR and to develop effective containment strategies, but…
  - who should pay for surveillance? World Health Day 2011 calls for comprehensive nationally funded actions to contain AMR
- Future Research Agenda
  - Sustainable methods built into the health system for surveillance of antimicrobial use
  - Methodology for the integrated monitoring of antimicrobial use and resistance in the community