

Identifying Medicine Use Problems—Using Indicator-Based Studies in Health Facilities

Review of the Cesarean-section Antibiotic Prophylaxis Program in Jordan and Workshop on Rational Medicine Use and Infection Control

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Amman, Jordan, March 4-8, 2012

Organized by Ministry of Health, Royal Medical Services, and Jordan Food and Drug Administration in collaboration with SPS and SIAPS



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Acknowledgement

Training materials for this session were derived from the Drug and Therapeutics Committee Training Course developed by the Rational Pharmaceutical Management Plus Program of Management Sciences for Health with support from the U.S. Agency for International Development and the World Health Organization, 2008



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Outline

- Introduction
- WHO/INRUD indicators in primary health care
 - Prescribing indicators
 - Patient care indicators
 - Facility indicators
- Hospital Antimicrobial Indicators
- Summary



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Introduction

- Irrational medicine use is an extremely serious problem global problem that is wasteful and harmful.
- In developing and transitional countries, in primary care, less than 40% of patients in the public sector and 30% in the private sector are treated according to an established standard
- Antibiotics are misused and over-used in all regions. 70% of pneumonia cases receive an appropriate antibiotic and about half of all acute viral respiratory infections receive antibiotics inappropriately

Source: WHO 2011. The World Medicines Situation. Rational Use of Medicines



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Introduction (2)

- Patient adherence to treatment regimes is about 50% worldwide and lower in developing and transitional countries. Up to 50% of all dispensing events are inadequate
- Harmful consequences of irrational use include:
 - Unnecessary adverse medicines events
 - Rapidly increasing AMR
 - Spread of blood-borne infections such as HIV and Hepatitis B/C (due to unsterile injections)
 - Poor patient outcomes
 - Billions of dollars in excess healthcare cost

Source: WHO 2011. The World Medicines Situation. Rational Use of Medicines



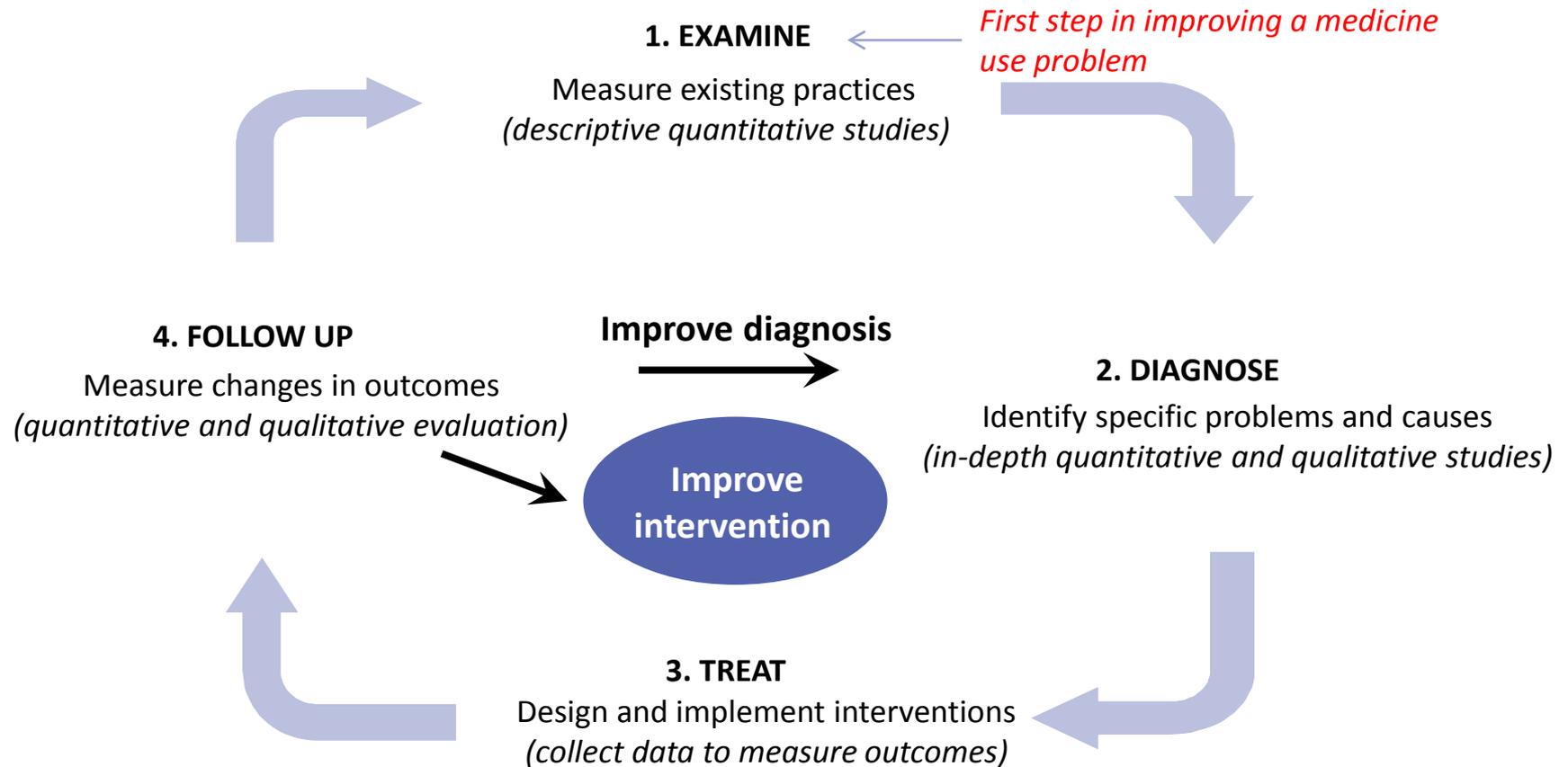
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Changing a Medicine Use Problem: An Overview of the Process



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Measuring Medicine use in Jordan (Prescribing Practices in Jordan)

- In 1999, drug prescribing practices were evaluated in 21 randomly selected PHC facilities in the Irbid governorate on the basis of WHO indicators.
- The mean number of drugs prescribed: 2.3 (average)
 - Percentage of drugs prescribed by generic name: 5.1% (low)
 - Percentage of prescriptions involving antibiotics: 60.9% (high)
 - Percentage of prescriptions involving injections: 1.2% (low)
- This study also investigated—
 - Mean time spent on physician-patient consultations: 4 minutes
 - Mean pharmacy dispensing time: 29 seconds
- They also found that no centre had an EDL and/or formulary available and only 80% of key drugs were available.

Source: Otoom S, Batieha A, Hadidi H, Al-Saudi K. Evaluation of drug use in Jordan using WHO prescribing indicators. Eastern Mediterranean Health Journal 2002; 8: Nos 4/5



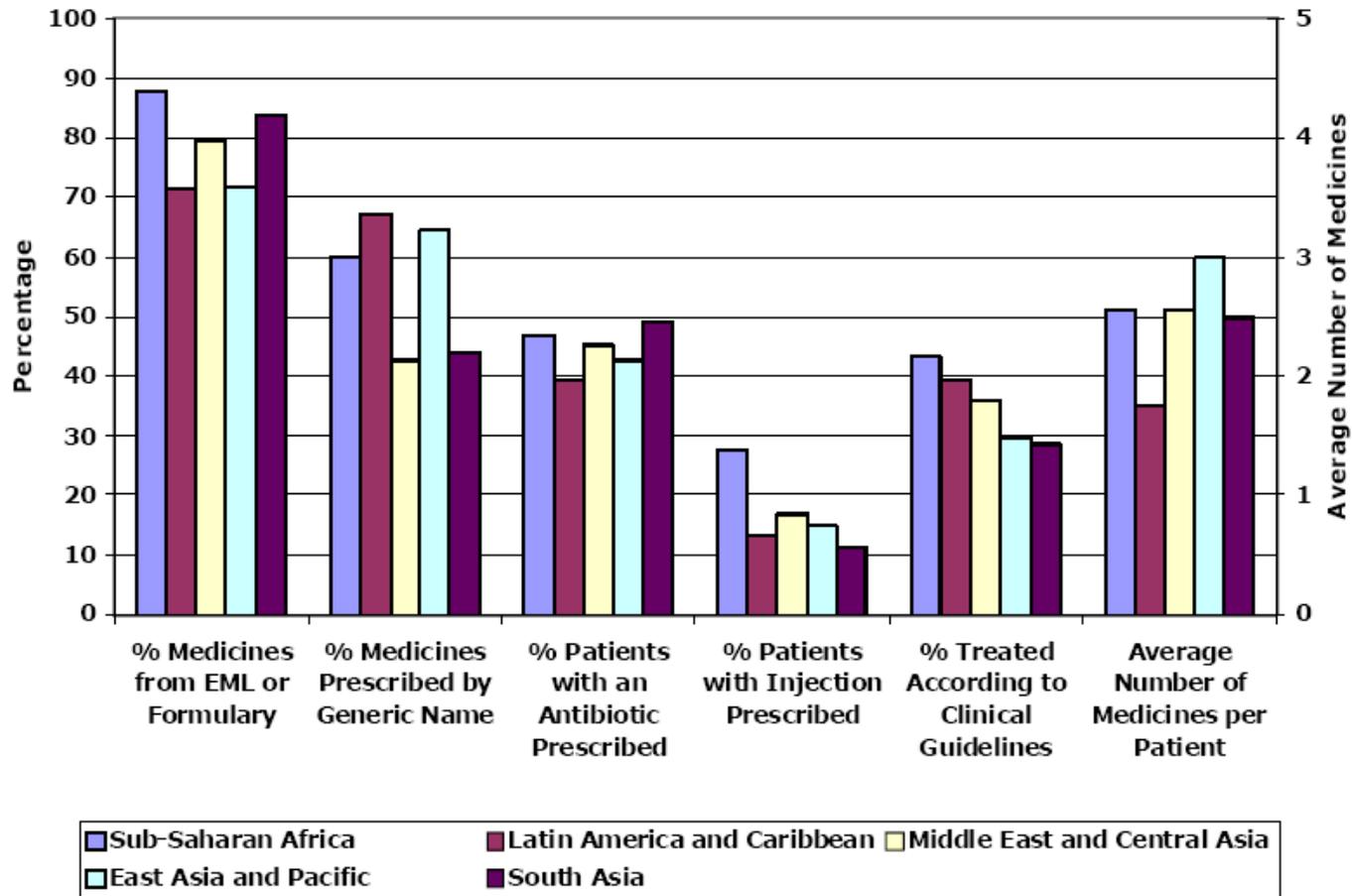
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Prescribing Practices in Developing and Transitional Countries—Prescribing Indicators



Source: WHO 2009. Medicine Use in Primary Care 1990-2006



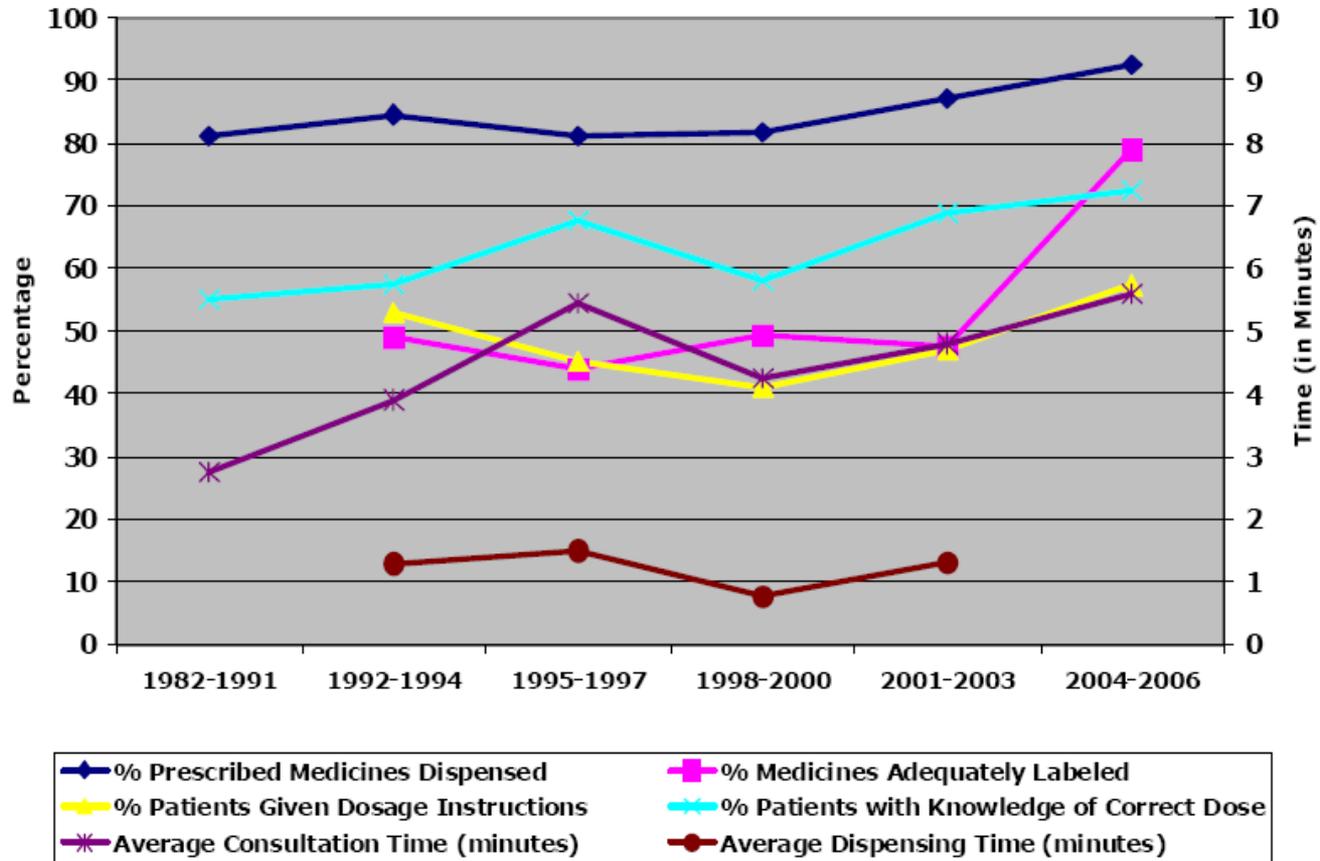
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Prescribing Practices in Developing and Transitional Countries—Patient Care Indicators



Source: WHO 2009. Medicine Use in Primary Care 1990-2006



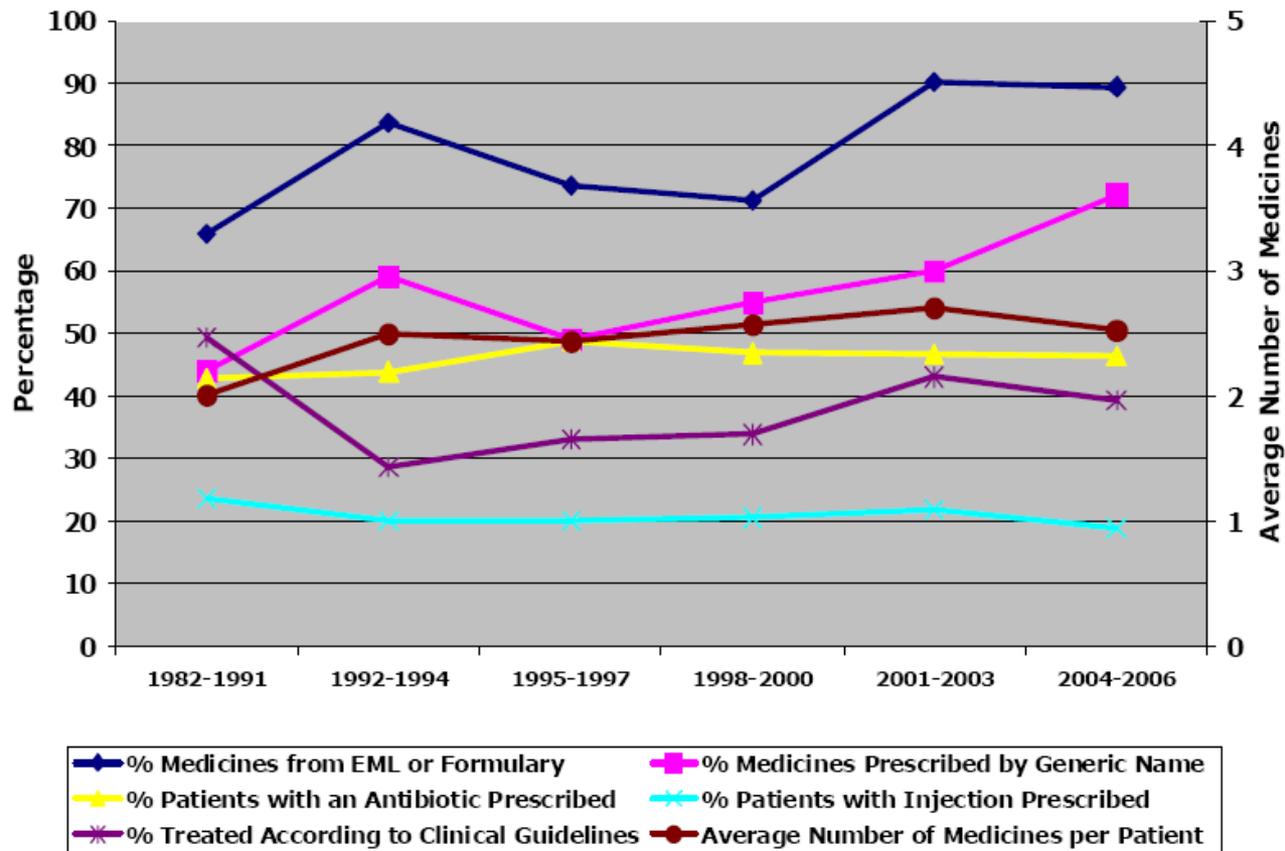
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Prescribing Practices in Developing and Transitional Countries—Facility Indicators



Source: WHO 2009. Medicine Use in Primary Care 1990-2006



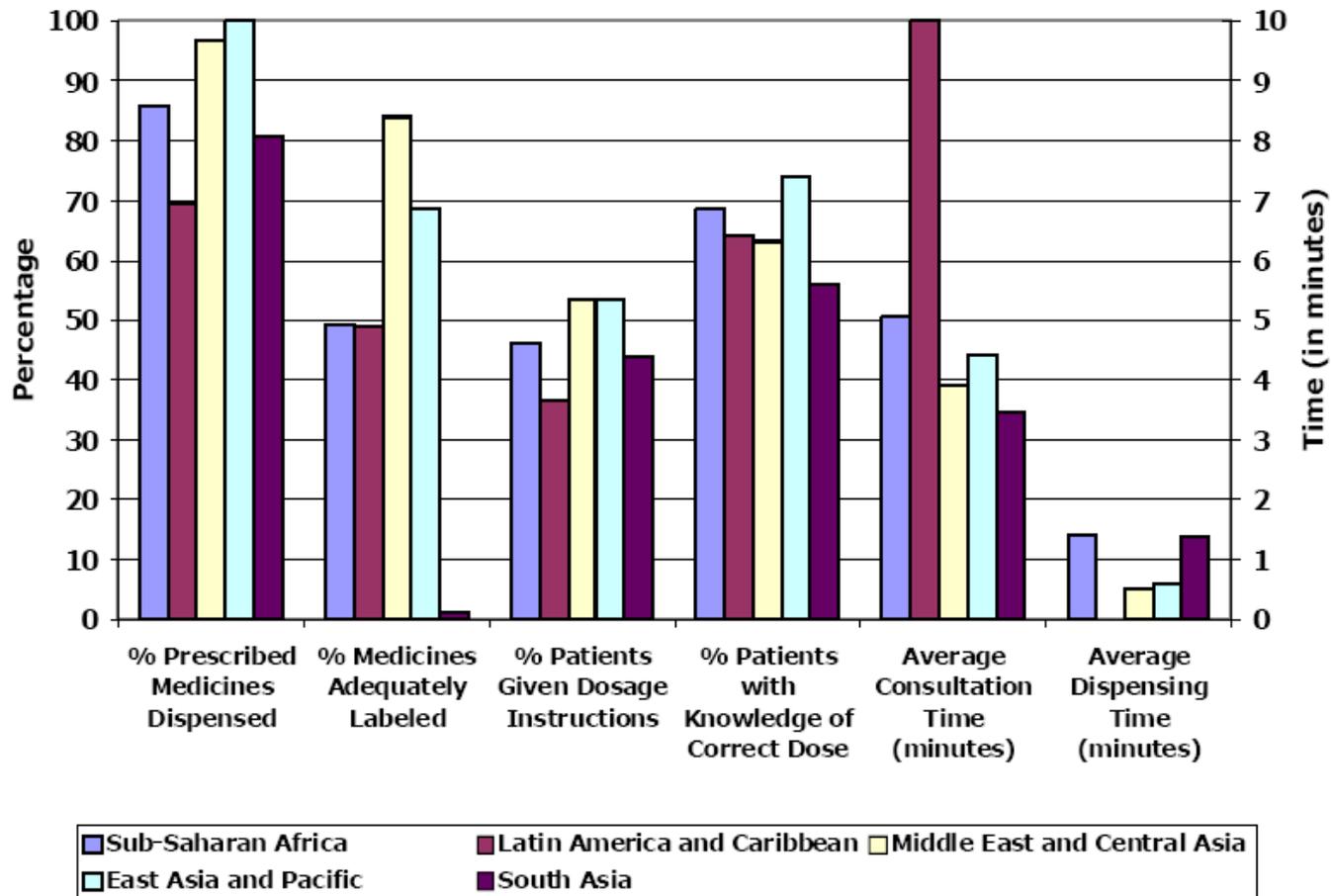
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Prescribing Practices in Developing and Transitional Countries—Patient Care Indicators



Source: WHO 2009. Medicine Use in Primary Care 1990-2006



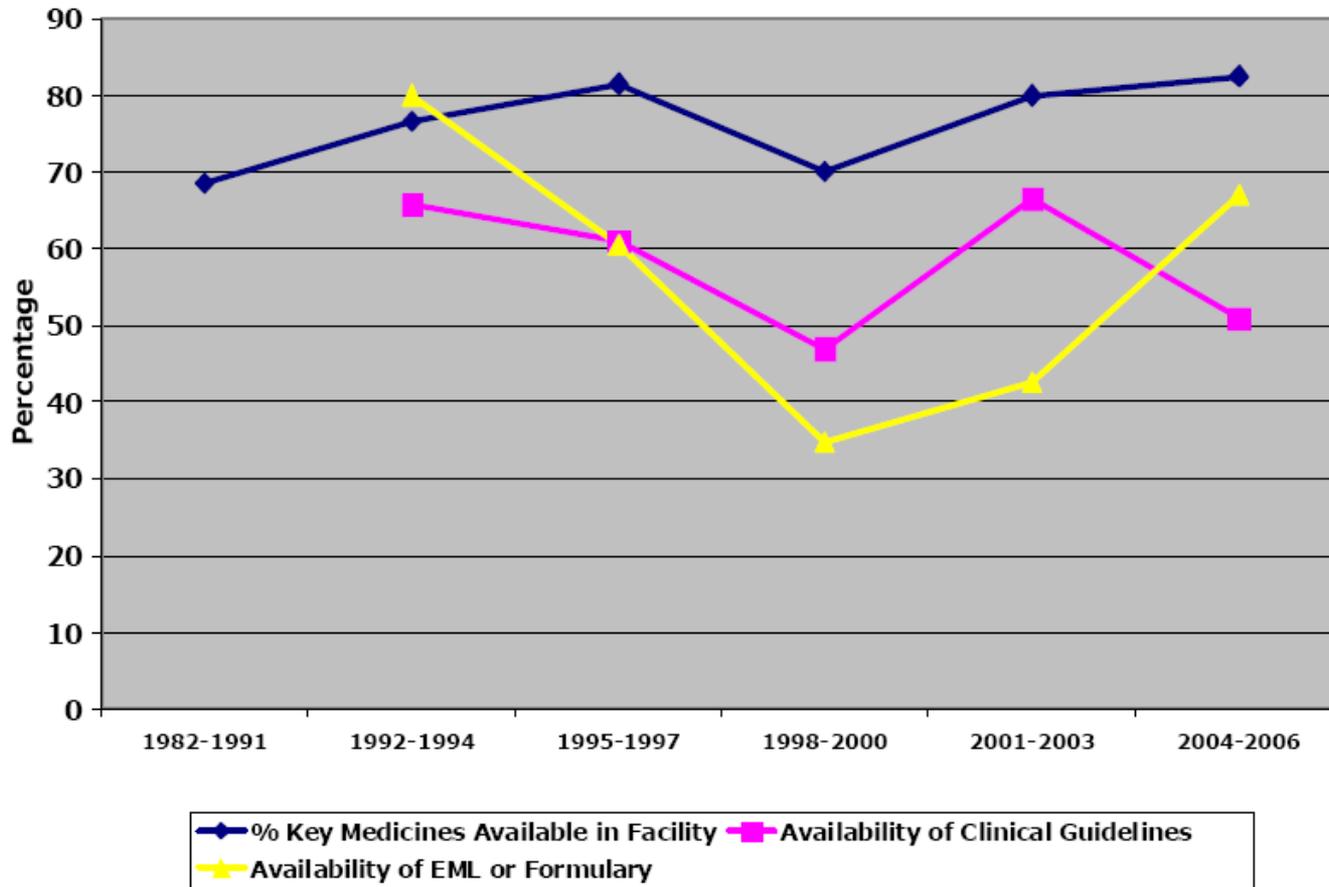
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Prescribing Practices in Developing and Transitional Countries—Facility Indicators



Source: WHO 2009. Medicine Use in Primary Care 1990-2006



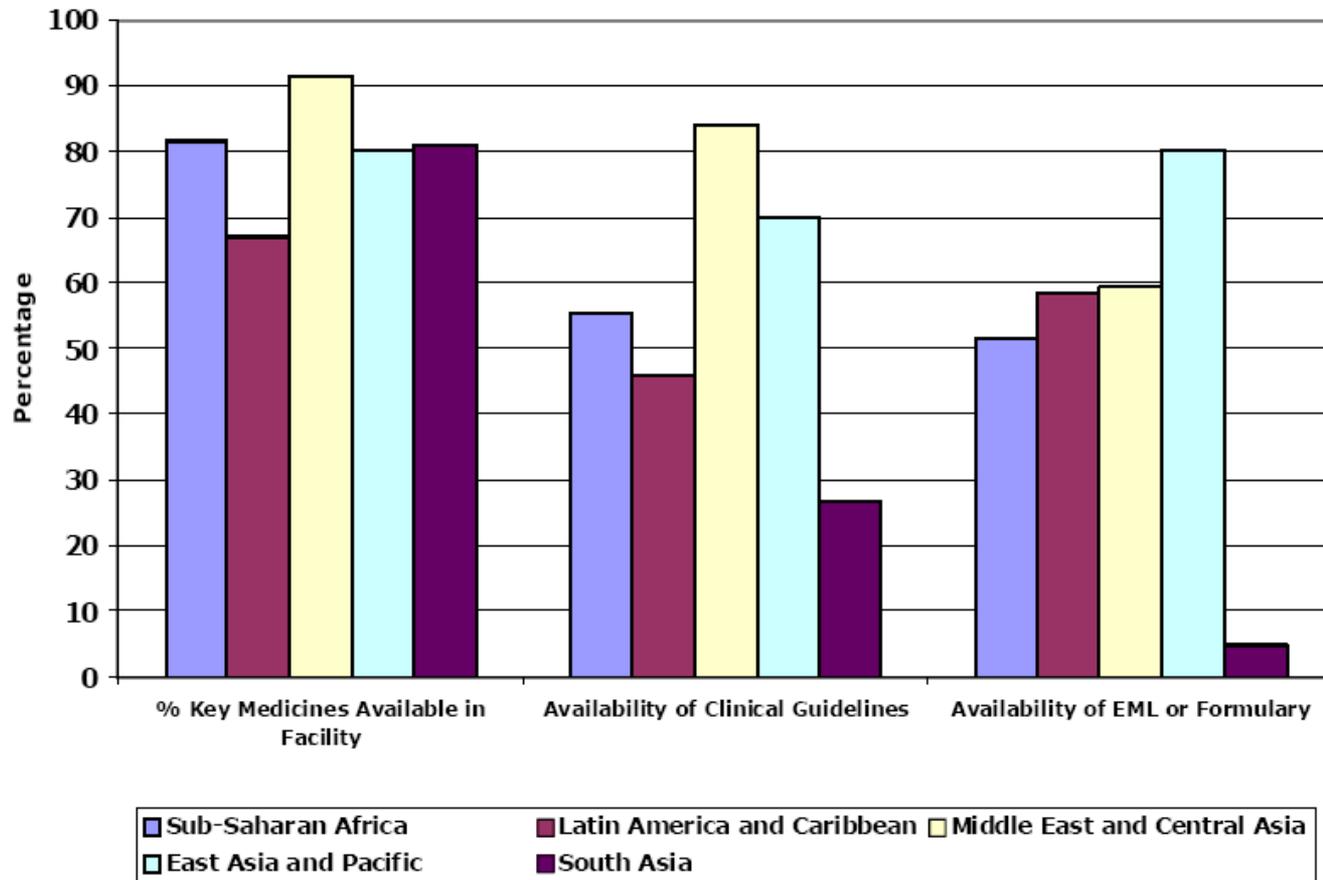
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Prescribing Practices in Developing and Transitional Countries—Facility Indicators



Source: WHO 2009. Medicine Use in Primary Care 1990-2006



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Indicators for Health Care Facilities (1)

- Measure specific aspects of medicine use and health provider activities in a hospital or health center
- Provide information to health care managers concerning medicine use, prescribing habits, and important aspects of patient care to compare or monitor facilities over time



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Indicators for Health Care Facilities (2)

- Characteristics of sound indicators
 - Relevant
 - Easily generated and measured
 - Reliable
 - Valid
 - Action-oriented



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Indicators for Health Care Facilities (3)

- Use of indicators
 - Determine where medicine use problems may exist—when an indicator study shows an extreme result, the DTC can investigate and, as necessary, take action to improve the situation.
 - Provide a monitoring mechanism
 - Motivate health care providers to improve and follow established standards



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WHO Indicators for PHC

- Developed by INRUD and WHO
- Used for assessing health care and medicine use for primary health care (PHC) in dispensaries, clinics or hospitals
 - Prescribing indicators
 - Patient care Indicators
 - Facility indicators
 - Complementary medicine use indicators

Source: INRUD- International Network for Rational Use of Drugs



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Prescribing Indicators—PHC

- WHO/INRUD health facility prescribing indicators
 - Average number of medicines per encounter
 - % of medicines prescribed by generic name
 - % of encounters with an antibiotic prescribed
 - % of encounters with an injection prescribed
 - % of medicines prescribed which are from the essential medicines list or formulary list



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Patient Care Indicators—PHC

- WHO/INRUD health facility patient care indicators
 - Average consultation time
 - Average dispensing times
 - % of medicines actually dispensed
 - % of medicines that are adequately labeled
 - % of patients who know how to take their medicines



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Health Facility Indicators—PHC

- WHO/INRUD health facility indicators
 - Availability of essential medicine list or formulary
 - Availability of key set of indicator medicines
 - Availability of standard treatment guideline (STG)



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Complementary Indicators—PHC

- WHO/INRUD medicine use indicators with less standardization and less experience in actual use
 - % of patients treated without medicines
 - Average medicine costs per encounter
 - % of medicine cost spent on antibiotics
 - % of medicine cost spent on injections
 - % of prescriptions in accordance with STG
 - % of patients satisfied with care provided
 - % of facilities with access to impartial information



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Performing an Indicator Study (1)

- Determine objectives, priorities, and indicators
- Determine study design according to objectives
 - Monitoring over time, comparing facilities
 - Cross-sectional survey, time series
 - Evaluating interventions
 - Randomized controlled trial, pre/post with control, time series
- Define indicators and data collection procedures
- Pilot-test procedures



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Performing an Indicator Study (2)

- Train data collectors
- Randomly select facilities (at least 20 if possible) in the region from which to collect data
- Obtain approximately 30 medicine use encounters for each facility (100 if only one facility is chosen)
- Analyze data
- Provide results to DTC for evaluation and follow-up



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Results of Indicator Studies

- Results can be used as follows—
 - Describing current treatment practices
 - Comparing the performance of individual facilities or practitioners
 - Periodic monitoring and supervision of specific medicine use behaviors
 - Identifying potential medicine problems that affect patient care
 - Assessing the impact of an intervention



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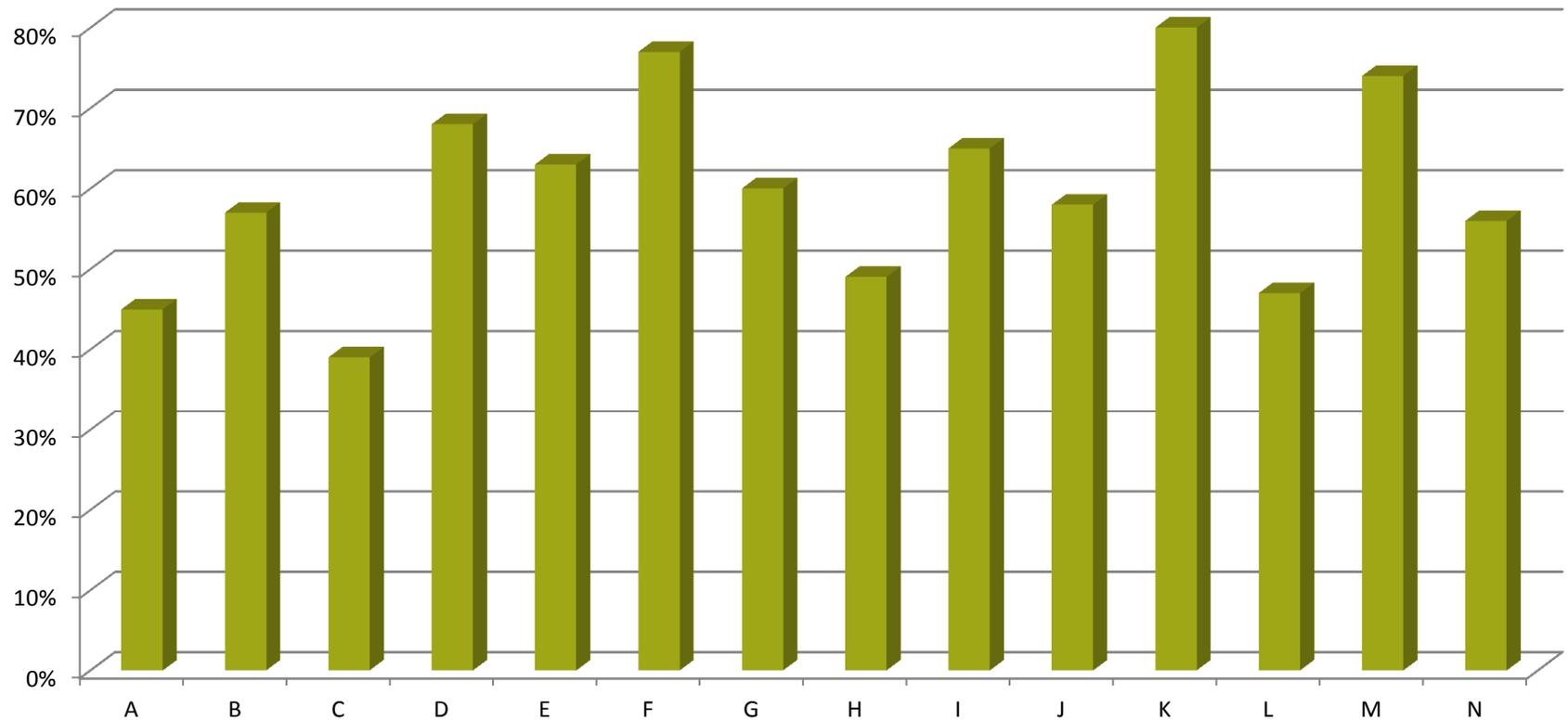


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Results from Indicator Data (1)

% of encounters with an antibiotic, by health facility



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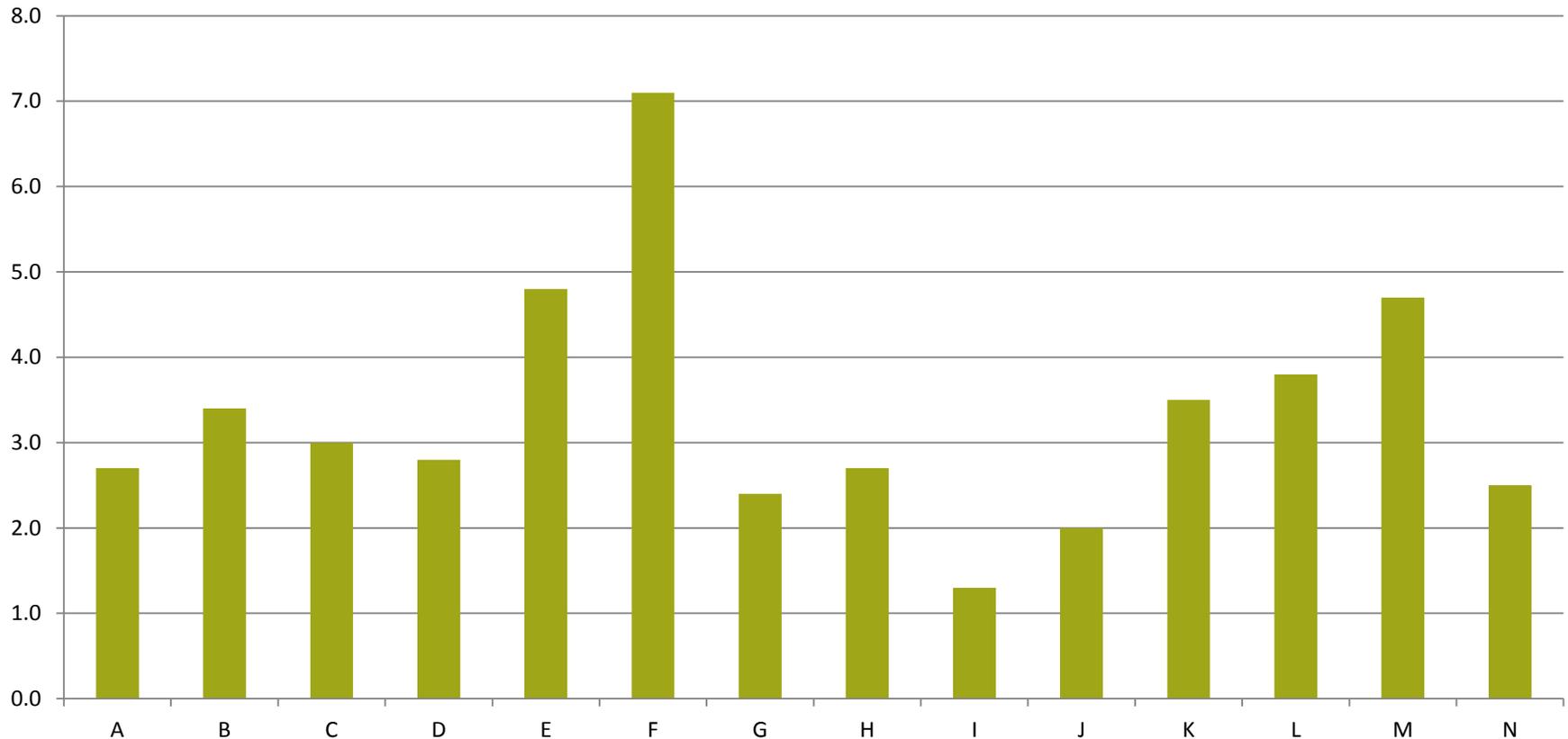


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Results from Indicator Data (2)

Consultation Times (minutes) by health facility



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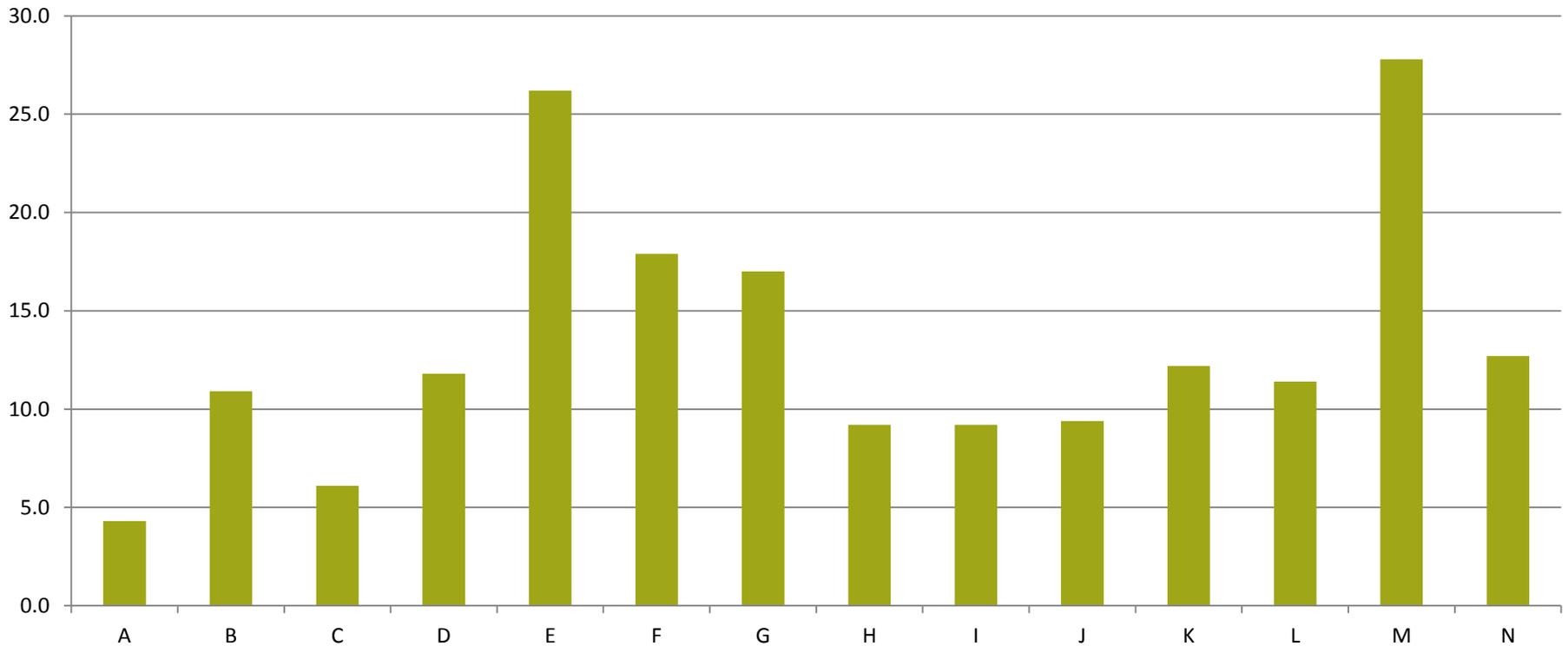


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Results from Indicator Data (3)

Dispensing Times (seconds), by health facility



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Hospital Antimicrobial Indicators

Introduction/Background (1)

- These indicators and manual is intended as a rapid assessment tool to identify problems with antimicrobial use in their hospitals.
- Designed to evaluate and improve antimicrobial use
- Indicators will allow basic comparisons of antimicrobial use both in one hospital over time and between hospitals.



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Hospital Antimicrobial Indicators

Introduction/Background (2)

- Indicators can be used at the district, regional, or referral hospital level.
- Tool can be used by
 - hospital administrators,
 - drug and therapeutics committees (DTCs),
 - researchers and program managers



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Hospital Antimicrobial Indicators (1)

- Hospital Indicators
 - Existence of STG for infectious diseases
 - Existence of an approved hospital formulary list or Essential medicine list
 - Availability of a key set of antimicrobials in the hospital stored on the day of the study
 - Average number of days that this key set of antimicrobials are out of stock over 12 months
 - Expenditure on antimicrobial medicines as a percentage of total hospital medicine costs



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Hospital Antimicrobial Indicators (2)

- Prescribing indicators (eight indicators)
 - Percent of hospitalizations with one or more antimicrobials prescribed
 - Average number of antimicrobial medicines prescribed per hospitalization
 - Percent of antimicrobials prescribed consistent with formulary list
 - Average cost of antimicrobials prescribed from hospitalizations with one or more antimicrobial prescribed



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Hospital Antimicrobial Indicators (3)

- Prescribing indicators (continued)
 - Average duration of prescribed antimicrobial treatment
 - Percent of patients that have a Cesarean Section procedure that receive Surgical Antibiotic Prophylaxis according to hospital guidelines (or international guidelines)
 - Average number of doses of surgical antimicrobial prophylaxis for Cesarean Section procedures
 - Percent of pneumonia patients who are prescribed antimicrobials in accordance with STG
 - Percent of antimicrobials prescribed by generic name



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Hospital Antimicrobial Indicators (4)

- Patient care indicators
 - % of doses of prescribed antimicrobial medicines actually administered
 - Average duration of stay of patients who receive antimicrobials
- Supplemental indicator
 - Number of antimicrobial medicine sensitivity tests reported



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Results of Indicator Studies

- Conducting a indicator study will allow comparisons of antimicrobial use both in one hospital over time and between hospitals
- General and specific problems with antibiotic use can be identified using these indicators
- After problems have been detected, investigators will need to interpret the meaning of the results in the context of the hospital (size, type of patient, level of complexity) and probe more deeply to uncover possible underlying causes



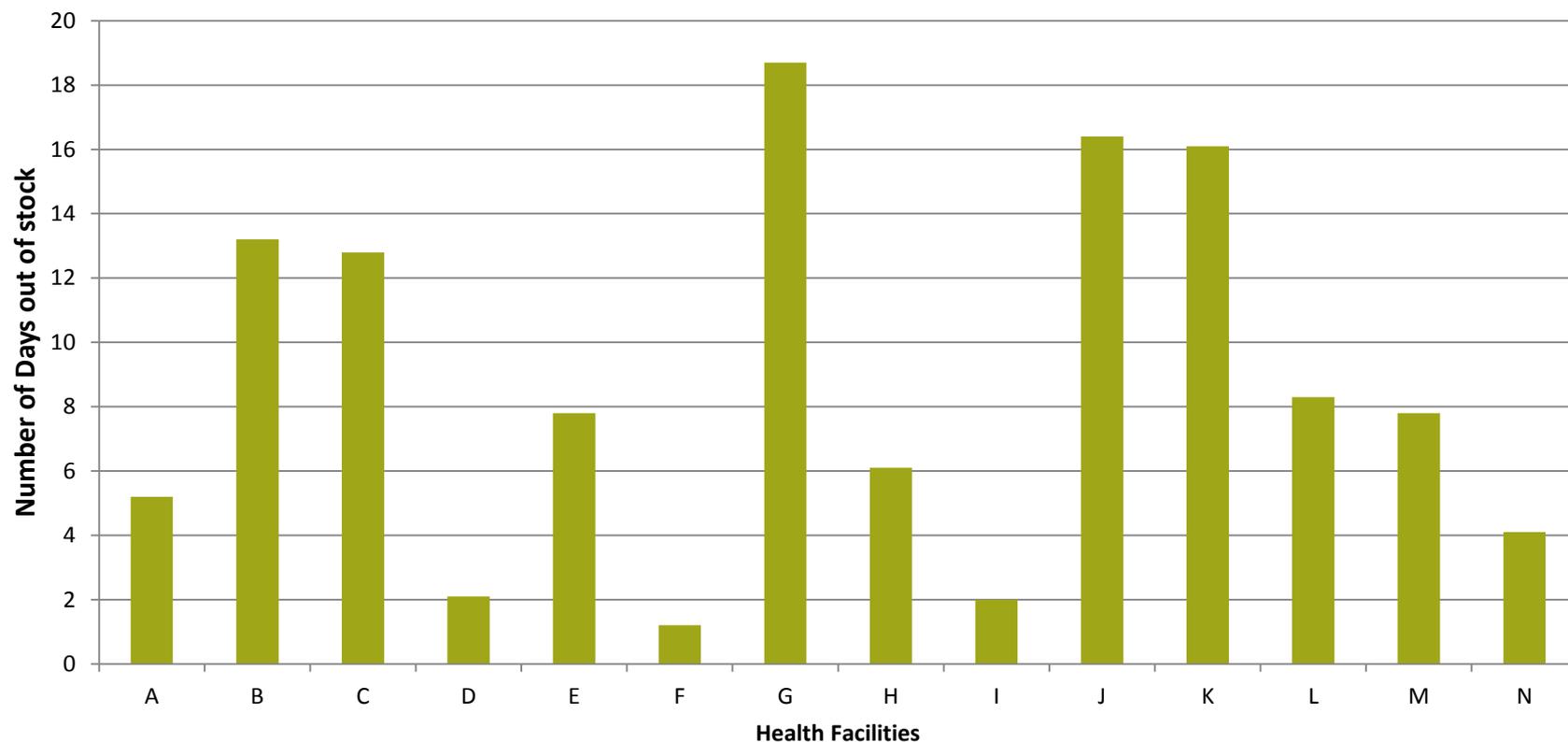
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Results of a Hospital Antimicrobial Indicator Study—Average Number of Days Out of Stock/Month



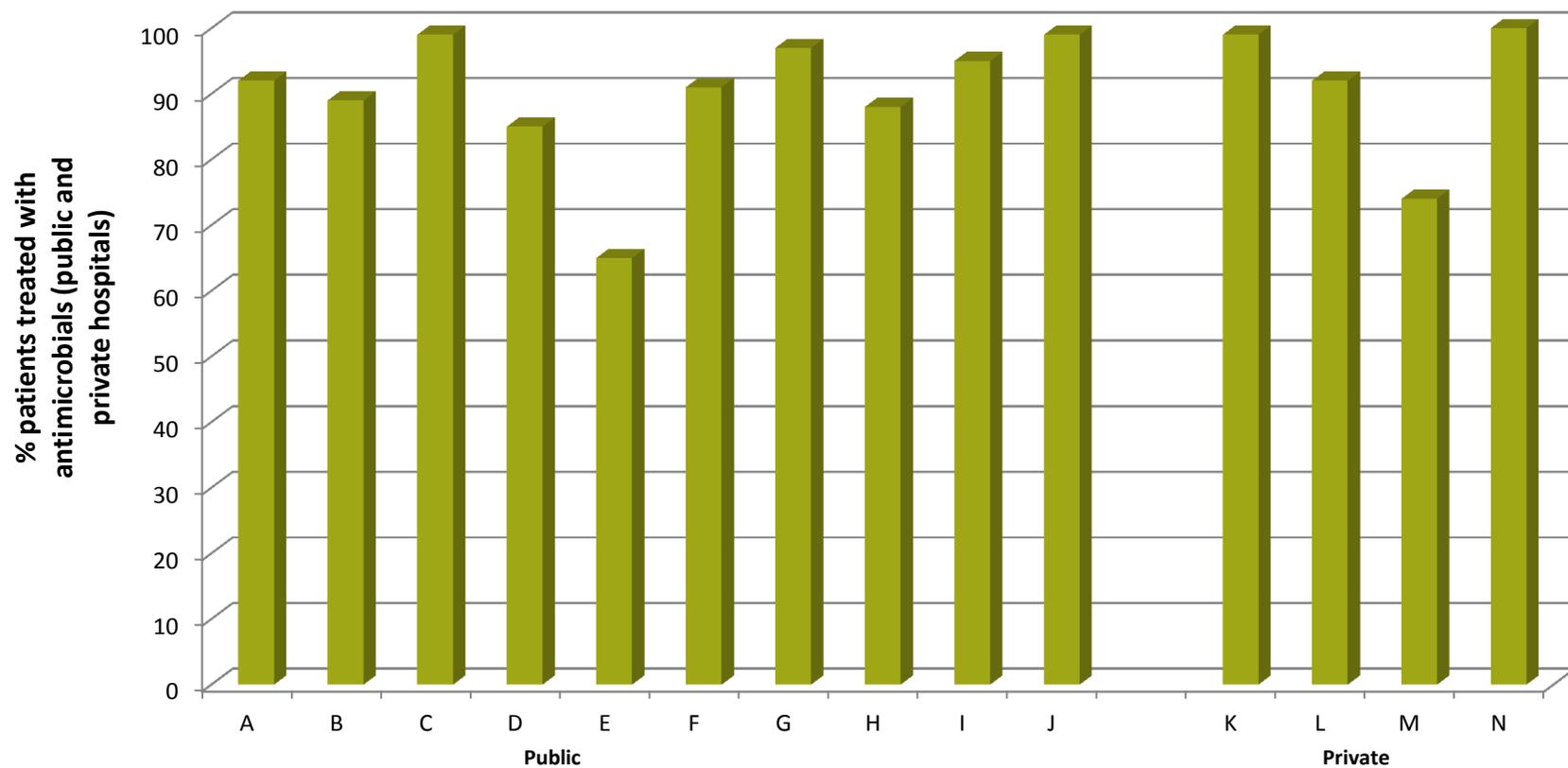
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Results of a Hospital Antimicrobial Indicator Study—Percentage of Patients Treated with an Antimicrobial



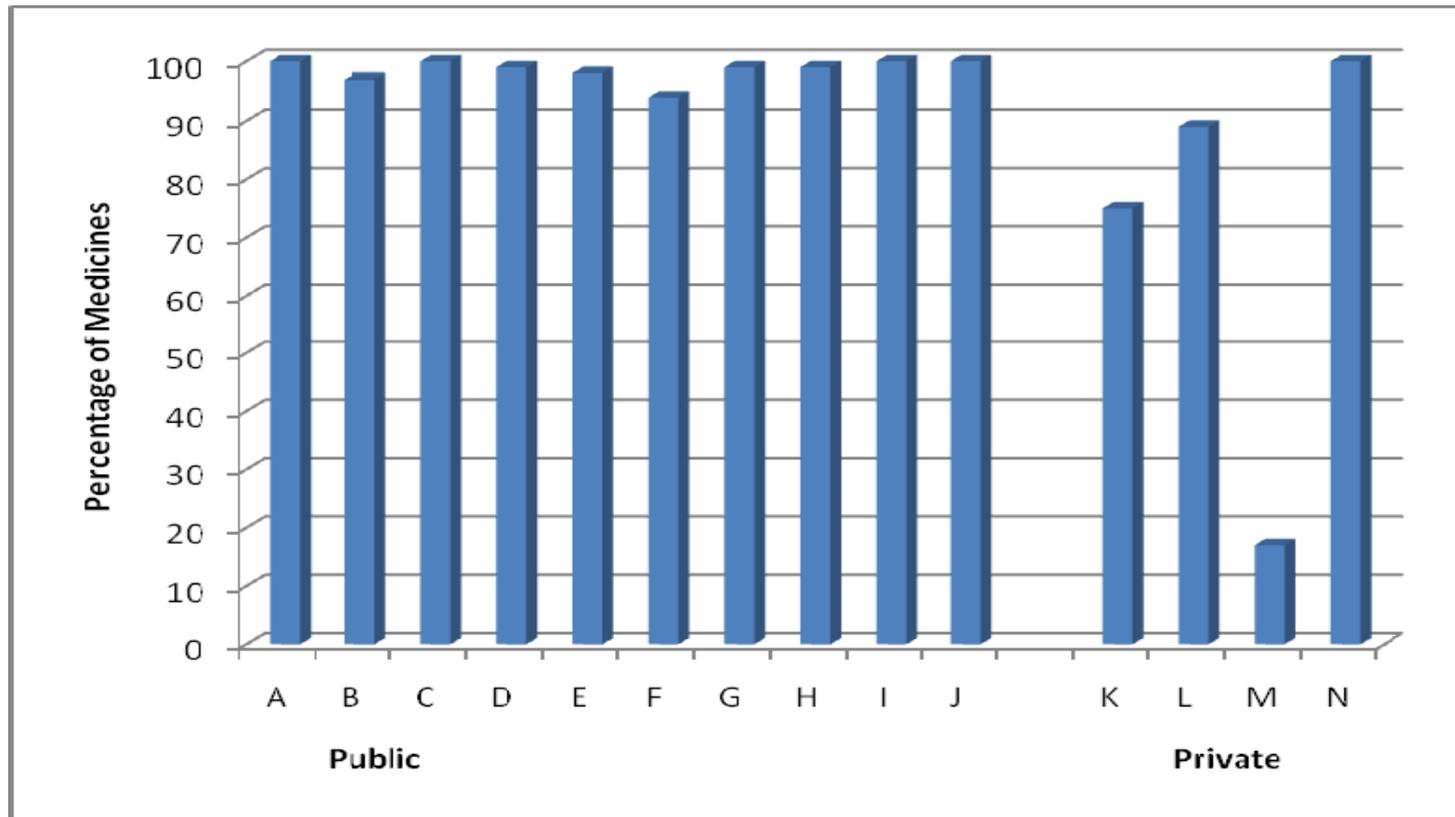
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Results of a Hospital Antimicrobial Indicator Study—Percentage of medicines Prescribed by Generic Name



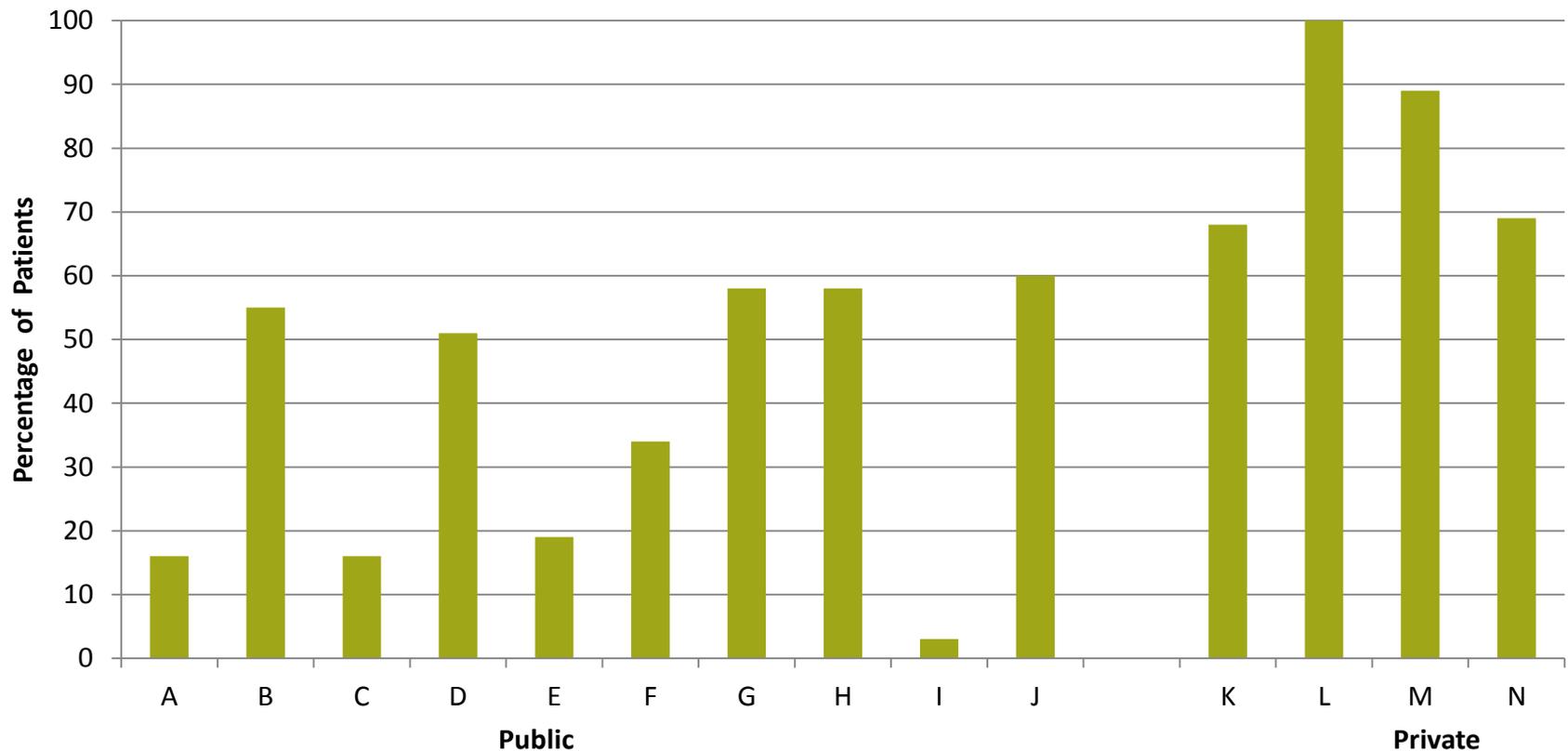
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Results of a Hospital Indicator Study— Percentage of Patients receiving a 3rd Generation Cephalosporin



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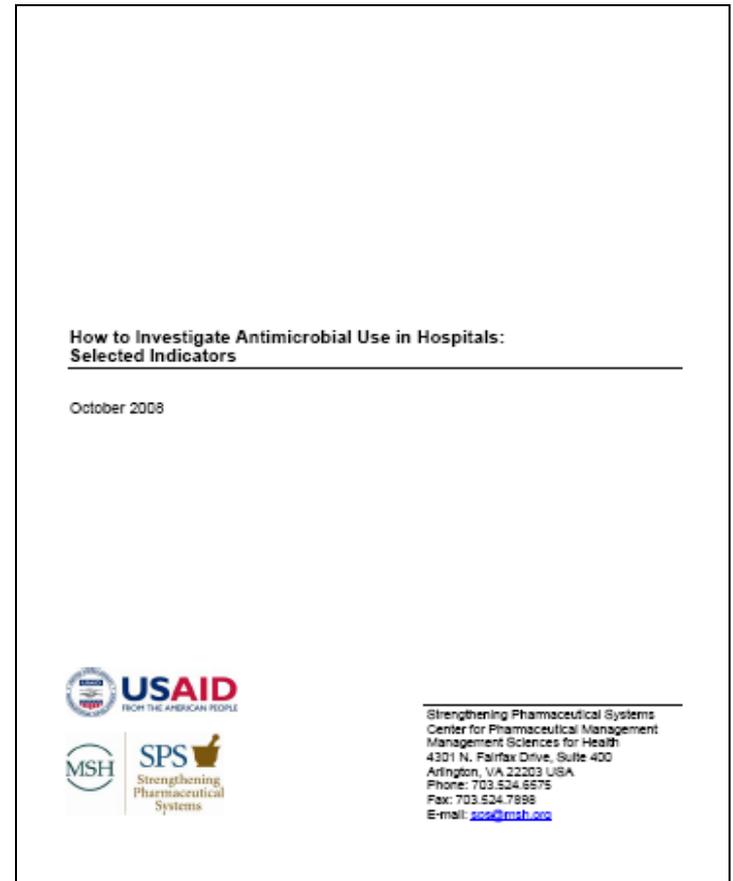


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SPS Activities to Develop Hospital Antimicrobial Use Indicators (1)

- SPS has developed a hospital antimicrobial Indicator manual
- This set of indicators and the detailed manual on how to conduct hospital studies using these indicators have helped to provide validated indicators specifically for hospital antimicrobial use.
- By using this indicator manual, DTCs, physicians, pharmacists, managers, and researchers can assess and monitor antimicrobial use in their hospitals. This objective information can then be used to make recommendations for policy changes and interventions to improve antimicrobial use and contain AMR



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SPS Activities in Developing Hospital Antimicrobial Use Indicators (2)

- The manual and indicators has been field tested in 3 public Ugandan hospitals in 2008
 - The field test in Ugandan hospitals validated the indicators which were then finalized. The resulting manual, *How to Investigate Antimicrobial Use in Hospitals: Selected Indicators*
- In 2009, applied validated indicators in 14 Afghanistan hospitals as part of a medicine use study in 5 provinces using retrospective data
 - This medicine use study identified specific problems of irrational use in both primary health facilities and hospitals. The application of the finalized hospital antimicrobials indicators revealed problems in the availability and use of antimicrobials in hospitals.

Source: Development and Application of Selected Indicators to Investigate Antimicrobial Use in Hospitals. SPS, International Conference on Improving Use of Medicines (ICIUM), Nov 2011



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Summary

- A major function of a health facility is to identify medicine use problems and to implement corrective measures
- Performing an indicator study is useful method to—
 - Identify medicine use problems at the individual patient level
 - Monitor medicine use by prescribers
 - Evaluate the impact of interventions



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