Effect of National Essential Medicine System in China
—Empirical Study on Rural Primary Health Centers from Four Provinces

by

SONG Yan

Doctor of Philosophy in Biomedical Sciences

2013

Institute of Chinese Medical Sciences
University of Macau
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SUPERVISOR: Prof. BIAN Ying
CO-SUPERVISOR: Prof. WANG Yitao

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every one of them. So, thank you to Li Jing, Chao Fang, Yin Heng, Rong Yi-Ran, Chen Cong, and Tan Wen.

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Abstract

Although China came to embrace the concept of essential medicines in 1979, a comprehensive national policy is yet to be introduced. In the most recent healthcare reform (2009–2011), the Chinese government proposed the establishment of the National Essential Medicine System (NEMS, 國家基本藥物制度), with the goals to make essential medicine available, control drug prices and improve rational drug use. This study is aimed to assess whether and to what extent this NEMS has achieved its intended objectives and to explore what factors influenced its implementation.

Empirical data were obtained through questionnaire surveys, prescriptions and documents review conducted in rural primary health centers (PHCs) from four provinces (Shandong, Zhejiang, Anhui and Ningxia) of China during 2010-2011. Key informant interviews were also used.

Results showed a median decrease of 34.38% in medicine price between 2009 and 2010. The declines were also recorded in the mean number of drugs prescribed per patient (from 3.64 to 3.46) and the proportion of patients being prescribed antibiotics (from 60.26 to 58.48%). Increases in the utilization of essential medicines had occurred. The injection and hormone use were improved significantly. All these positive issues were also recorded in 2011. The availability of essential medicines had reached 66.83% at PHCs by 2011. The PHCs’ income structure had changed and the proportion of drug income decreased. 93.31% patients and 92.54% PHC staffs were satisfied with the NEMS. However, current medicine prices remained high compared to international reference prices. Medicines were often unaffordable for poor residents. The new shortages of some drugs occurred. Over-prescription of
antibiotics and injections as well as poly-pharmacy remained common compared to WHO standards. More importantly, most PHCs encountered substantial financial losses. The compensation of health-care providers for NEMS-related reductions was largely ineffective.

To conclude, NEMS is heading in the right direction and has its intended impact on access to and rational use of medicines. The remaining negative outcomes might be indicative of problems in policy design and implementation. China now needs to address gaps and challenges to bring about its stated reform goals. Policy implications were discussed.
Declaration

I declare that the thesis here submitted is original except for the source materials explicitly acknowledged and that this thesis as a whole, or any part of this thesis has not been previously submitted for the same degree or for a different degree.

I also acknowledge that I have read and understood the Rules on Handling Student Academic Dishonesty and the Regulations of the Student Discipline of the University of Macau.
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<th>Description</th>
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<tr>
<td>ADR</td>
<td>Adverse drug reaction</td>
</tr>
<tr>
<td>ALOS</td>
<td>Average length of stay</td>
</tr>
<tr>
<td>ANAPE</td>
<td>Average number of antibiotics prescribed per encounter</td>
</tr>
<tr>
<td>ANDPE</td>
<td>Average number of drugs prescribed per encounter</td>
</tr>
<tr>
<td>AR</td>
<td>Arrival rate of medicines</td>
</tr>
<tr>
<td>ATM</td>
<td>Access to medicines</td>
</tr>
<tr>
<td>CPA</td>
<td>Centralized Procurement Agency, India</td>
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<td>CPI</td>
<td>Consumer Price Index</td>
</tr>
<tr>
<td>DMC</td>
<td>Drug Management Cycle</td>
</tr>
<tr>
<td>DSPRUD</td>
<td>Delhi Society for the Promotion of Rational Use of Drugs, India</td>
</tr>
<tr>
<td>DSM</td>
<td>Dynamic Synthesis Methodology</td>
</tr>
<tr>
<td>EMs</td>
<td>Essential Medicines</td>
</tr>
<tr>
<td>EML</td>
<td>Essential Medicines List</td>
</tr>
<tr>
<td>EMLc</td>
<td>Essential Medicines List for Children</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>GMP</td>
<td>Good Manufacturing Practices</td>
</tr>
<tr>
<td>HAI</td>
<td>WHO Health Action Initiative on essential medicines</td>
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<tr>
<td>ICER</td>
<td>Incremental cost-effectiveness ratio</td>
</tr>
<tr>
<td>INRUD</td>
<td>International Network for the Rational Use of Drugs</td>
</tr>
<tr>
<td>IRMSF</td>
<td>Increase rate of medical service fee</td>
</tr>
<tr>
<td>IRP</td>
<td>International Reference Price</td>
</tr>
<tr>
<td>KAP</td>
<td>Knowledge-Attitude-Practice</td>
</tr>
<tr>
<td>LIP</td>
<td>Low-income population</td>
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<tr>
<td>MIP</td>
<td>Mid-income population</td>
</tr>
<tr>
<td>MoH</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>MOHRSS</td>
<td>Ministry of Human Resources and Social Security</td>
</tr>
<tr>
<td>MPR</td>
<td>Median Price Ratio</td>
</tr>
<tr>
<td>MSD</td>
<td>Medical stores department, Tanzania</td>
</tr>
<tr>
<td>MSH</td>
<td>Management Sciences for Health</td>
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<tr>
<td>NED</td>
<td>National Essential Drug</td>
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<tr>
<td>NEMS</td>
<td>National Essential Medicine System</td>
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<tr>
<td>NEML</td>
<td>National Essential Medicines List</td>
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<tr>
<td>NRDC</td>
<td>National Reform and Development Commission</td>
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<tr>
<td>OECD</td>
<td>Organization for Economic Cooperation and Development</td>
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<tr>
<td>PBAC</td>
<td>Pharmaceutical Benefits Advisory Committee</td>
</tr>
<tr>
<td>PBPA</td>
<td>Pharmaceutical Benefits Pricing Authority</td>
</tr>
<tr>
<td>PBS</td>
<td>Pharmaceutical Benefits Schedule</td>
</tr>
<tr>
<td>PEA</td>
<td>Percentage of encounters with an antibiotic prescribed</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Definition</td>
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<tr>
<td>PED</td>
<td>Provincial Supplement Essential Drug</td>
</tr>
<tr>
<td>PEH</td>
<td>Percentage of encounters with hormone prescribed</td>
</tr>
<tr>
<td>PEI</td>
<td>Percentage of encounters with an injection prescribed</td>
</tr>
<tr>
<td>PEM</td>
<td>Percentage of drugs prescribed from national essential medicines list</td>
</tr>
<tr>
<td>PEML</td>
<td>Provincial Supplemented Essential Medicines List</td>
</tr>
<tr>
<td>PHC</td>
<td>Rural primary health center</td>
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<tr>
<td>PHW</td>
<td>Primary health worker</td>
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<tr>
<td>PPP</td>
<td>Purchasing Power Parity</td>
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<tr>
<td>PSF</td>
<td>Pharmaceutical service fee</td>
</tr>
<tr>
<td>RDU</td>
<td>Rational Drug Use</td>
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<tr>
<td>RR</td>
<td>Response rate of medicine delivery</td>
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<td>SD</td>
<td>System Dynamics</td>
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<tr>
<td>SES</td>
<td>Socio-economic status</td>
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<tr>
<td>SFDA</td>
<td>State Food and Drug Administration</td>
</tr>
<tr>
<td>SR</td>
<td>Subsidy rate</td>
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<tr>
<td>STGs</td>
<td>Standard treatment guidelines</td>
</tr>
<tr>
<td>TCM</td>
<td>Traditional Chinese medicine</td>
</tr>
<tr>
<td>TFDA</td>
<td>Tanzania Food and Drug Authority</td>
</tr>
<tr>
<td>TMC</td>
<td>Total medical cost per patient visit</td>
</tr>
<tr>
<td>UNHCR</td>
<td>United Nations High Commissioner for Refugees</td>
</tr>
<tr>
<td>UNICEF</td>
<td>United Nations Children's Fund</td>
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<tr>
<td>WHA</td>
<td>World Health Assembly</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
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<tr>
<td>WMs</td>
<td>Western medicines</td>
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