

## Policy level changes in availability of essential medicines: a descriptive study of selected PHCs from Maharashtra

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### Abstract

*In order to improve availability of essential medicines in public health system, the Maharashtra Government has taken some steps regarding medicine procurement and distribution (P & D) system. This descriptive study was conducted in three districts of the state to understand how policy level changes in medicine P & D system are being implemented and to understand situation of availability of essential medicines in the PHCs, in the view of implementation of these changes. The study reveals various shortfalls in implementation of policy level changes. Data regarding availability of medicines indicates, regular availability of essential medicines is still not at the level required. Given the findings of this study, it is important to expedite the implementation of state's crucial decision of establishing corporation for P & D system and ensure that the structure of this corporation- an independent body, retains the core positive features of Tamil Nadu and Kerala models.*

### Background

India ranks third in the World Health Organization's latest list of "countries with highest out of pocket expenditure on health" in the south-east Asia region[1] (World Health Statistics 2012). For millions of people in India, availability of essential medicines and access to affordable healthcare continue to be a challenge. 70% of healthcare expenses in India are incurred by people from their pockets, of which 70% is spent on medicines alone[2]. Recent surveys in the state indicate that even after a decade of launching the National Health Mission (NHM), the government has failed to keep its promise of ensuring availability of essential medicines in the rural Public health centers (PHCs)[3]. In Maharashtra, this issue is multifaceted and linked not only with inadequate budgetary allocation towards medicines but also with various missing linkages in medicine procurement-distribution system [4].

Over the last four-five years, Maharashtra government has taken some steps with regard to medicine procurement and distribution (henceforth referred as P & D) system with the aim of improving availability of essential medicines in PHCs. With this, the state claims to have improved supply in all public health facilities. In state mentoring committee meeting held in August 2012, it was promised by senior official from Directorate of Health Services (DHS) that 'we are improving the procurement system and after December 2012, Public health facilities will no longer face any shortage of medicines'. Given this context, the present study was conducted to understand how these policy level changes in medicine P & D system are being implemented at various levels and understand situation of availability of essential medicines in the PHCs, in the view of implementation of these changes.

### Methodology of the study

This descriptive, concurrent mixed method study was conducted in three districts of Maharashtra namely, Pune, Nandurbar and Gadchiroli. Pune is considered as one of the developed districts of state with relatively better situation of medicine availability while other two districts are tribal districts of the state, with poor availability of medicines as per data available on DHS website. Hence to capture the variation in demand-supply system in the state, these three districts were selected. From the cohort of 15 PHCs with Community Based Monitoring and Planning (CBMP) under NHM, two PHCs in each district were selected using simple random sampling. Out of the list of 116 essential medicines for PHCs prepared by the DHS, 20 essential medicines were selected considering their frequency of use (drawing upon experiences from CBMP) in the selected PHCs and different forms. Quantitative data regarding medicine availability in PHCs was gathered in six successive rounds (September 2015 to March 2016) on monthly basis. Tool was prepared to seek information on actual stock in storage, list of indent-supply, date and quantity of latest received stock from ZP and local purchases of medicine.

The methodology for assessing medicine availability, has largely been adopted from a study conducted by SATHI (Raut-Marathe et al, 2015)[5]. Qualitative data regarding P & D system was mainly gathered through discussions with pharmacist from PHCs, District Health Officer, pharmacist from Pune districts and state level health officials from DHS. Secondary data involved news, articles from newspapers, magazines related to modifications in the medicine P & D system.

### Challenges in data collection

Staff including medical officer in PHCs was quite reluctant to share data, especially regarding local purchase of medicines leading to non availability of that data for the study. Seeking data regarding P & D was equally challenging, as concerned state and district level officers seemed to be hesitant to share any gaps in the existing system.

### Data analysis

Data on medicines availability was analyzed in excel, using three-month medicine requirement as a benchmark as suggested in state Government guidelines. The categories of stock availability were provided in Table no. 1. For analysing overall availability of the medicines, instances (total number of observations) of medicine availability were taken as the base. Stock of a particular medicine in each PHC over the six rounds of data collection is counted as one instance of availability. Thus complete data regarding 20 medicines in two PHCs per district for six rounds yielded 240 (20x2x6) total instances of medicine availability for one district. While for

analysing situation of stock-outs and pattern of supply of medicines from district level, total numbers of medicines (n=20) have been taken as a base.

*Table no.1: Categorization of 'medicine availability' in terms of Stock level*

Categories of medicine availability	Parameter used in terms of Stock level
Deficient stock	Stock for less than 3 month's requirement
Good stock	Stock for 3-12 month's requirement
Excessive stock	Stock of more than 12 month's requirement

### Findings and discussion

A. How are the policy level changes regarding medicine P & D system being implemented?

a. E-tendering-

In July 2011, the state government has decided to employ e-tendering system to procure medicines. Apart from curbing corruption involved in the procurement; the government also claims that the e-tendering provides better quality and cheaper rate (Press trust of India, 2015) [6]. Decision of e-tendering is a step forward however is just a little modification in one of the steps of entire lengthy process of tendering. It has only enabled departments to reduce paper-based transactions and facilitated speedy exchange of information in the overall tendering process.

b. Implementation of e-aushadhi since year 2013-14-

As reported by district level officials, implementation of e-aushadhi has facilitated inter PHC exchange of medicines and helped monitoring medicine stock. However, range of challenges were also observed in its implementation. Due to absence of functional computers, erratic electricity supply and internet connectivity problems stock is not being updated regularly in most of the places which ultimately hampers stock monitoring at actual. Many times it is done when PHC pharmacist's visit to block or district level office. Though online system is implemented, paper work is still being continued. It was shared that, after sending indent to district, if there is no stock at district, then it takes minimum one to two months to actually get stock from empaneled company. In such situations, local purchases are made from PHCs using funds like RKS.

c. Quality Assurance (QA) of medicines-

According to the decision of provision of QA of medicines, after supply of medicines in the headquarter samples from each batch are sent for testing to the empaneled lab. Entries are made in e-aushadhi and only after receiving positive report from lab, medicines are distributed to PHCs. Prior to this decision, besides mandatory submission of the FDA certificate at the time of bid evaluation, there was no other system for QA. Hence, the decision is certainly positive. However to make it

more effective, following the system in TNMSC, samples should be tested in two different laboratories confidentially.

d. Modification in the list of essential medicine for PHCs-

List of 117 essential medicines for PHCs has been modified to 355 medicines. It's a positive decision however, it is crucial to ensure availability of essential medicines

e. Formation of warehouses in eight districts-

Till date construction of all eight warehouses have not been completed

f. Establishing corporation for medicine P & D system-

In July 2016, the Chief Minister of Maharashtra has taken a long awaited, important decision of establishing a corporation for the P & D of medicines for the public health system. As per information available in public domain, then after, government has not taken any move on this front.

B. What is the situation of availability of essential medicines in the Primary Health facilities, in the view of implementation of these changes?

a. Situation of availability of medicines in selected PHCs

Overall analysis of the medicines shows that, in Pune (46%) and Gadchiroli (58%), medicines were found to be deficient in stock in almost half of the studied instances respectively. Situation was quite worrisome in Nandurbar district with 64% instances of deficient stock, of which in 35% instances, there was a zero stock. The medicine availability was good on an average in only 29% instances in all three districts. Along with deficiency, a problem of excessive medicine also existed considerably. In the studied PHCs from Pune, in 23% instances and in remaining two districts in around 10% instances medicines were excessive. For example, In Gadchiroli, Albendazole was in excess by 22 times. In short, among the categories of analysis, the proportion of 'good' category seems to be lowest, with significant instances of 'deficient' category, which is indicative of a very poor inventory management.

Data from DHS[7] reveals even poor situation of medicine availability with stock-outs of on an average 60% medicines in all PHCs from Nandurbar, Gadchiroli and Pune. The same source indicates that stock-out figures for all the PHCs across Maharashtra, are also pegged at 60% (DHS, 2016)!

SMS survey conducted by SATHI showed that in 63% instances availability of medicines were not satisfactory (SATHI, 2012)[8] which clearly indicates that despite some improvements in the medicine P & D system, regular availability of essential medicines in PHCs has not improved as required.

b. Medicine stock outs

Out of 20 medicines, in Nandurbar 8-9 medicines were out of stock for almost five to six months,

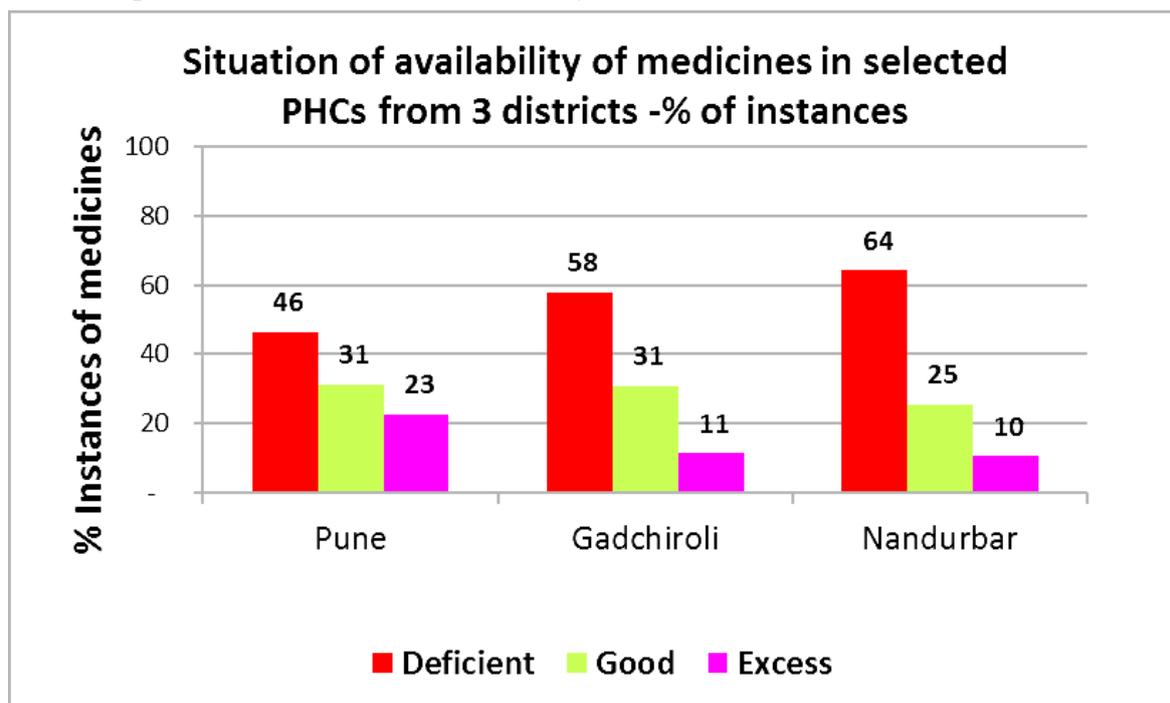
while in other two districts, on an average 3 medicines were out of stock for the same span. Essential medicines such as Metronidazole tablets, Injection Carboprost/Prostidine and Ringer lactate were out of stock for almost five to six months in studied PHCs across all three districts.

c. Pattern of supply of essential medicines-

Frequency of medicine's supply shows three broad patterns viz; medicines not supplied in six months, medicines supplied once in six months and regular supply of medicines. Out of 20, on an average 15 medicines were never supplied to studied PHCs from Nandurbar in last six months. On unpacking this data, it was noted that most of these medicines were also found in zero stock for all six months! And as a solution to this, local purchases have been done mostly using Rogi Kalyan Samiti funds. Further, in Pune and Gadchiroli, only three to four while in Nandurbar only one medicine was provided twice in six months, which is bare minimum, as per guidelines. Data from DHS, reveals that, in all three districts under study, only 40% of the medicines were supplied as against indented list (DHS, 2016) 9

shortfalls in its implementation. Data regarding medicine availability clearly shows that regular availability of essential medicines is still not at the required level. Despite implementing e-aushadhi, consistent deficient medicine stock suggests its limited role in improving inventory management as claimed by the government. Regarding e-tendering, the decision has only enabled a speedy exchange of information in the time consuming tendering process. While decisions of establishing eight warehouses and corporation for medicine procurement are still waiting for action. These policy level changes in the existing P & D system seem to be just a patchwork. Hence, to improve the P & D system and availability of medicines in PHCs in real terms, there is a critical need for complete overhaul of the system. In this regard, state's recent decision of establishing corporation for the medicine P & D system certainly stands crucial. Its pending implementation needs to be fast-tracked. Further, it's important to ensure that the structure of the corporation- an independent body, retains the core positive features of Tamil Nadu and Kerala models such as genuine autonomy of the corporation, transparency and demand driven supply etc., while making relevant innovations and considering specific conditions of the health system

Graph no. 1 Overall situation of availability of medicines in selected PHCs



**Limitation of the study**

Since data on availability of medicines is only from six selected PHCs, these findings cannot be generalized however, secondary data from DHS website for all 1800 PHCs in the state have been stated to address this limitation.

**Conclusion**

This study gives an overview of various policy level changes in the medicine P & D system and reveals

of state.

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## Ethics in allocating health care resources using cost effectiveness analysis

*Rajesh Kumar Sinha*

### Abstract

*For allocating resources in healthcare, there are competing criteria which are important to consider before making decisions. These are maximising general population health, reducing health inequity, ethics, appropriate response for acute care or curative care or preventive care, political priority etc. However presently, maximising general population health by choosing cost-effective interventions, has taken the centre stage for decision making in allocating resources in healthcare ignoring other criteria. While cost effectiveness analysis technique itself has too many unaddressed concerns, ignoring other criteria for decision making, particularly in the context of developing nations will further increase already existed inequity and is unethical. Relying on single criteria for allocating resources in the healthcare is inapt and there is a need to have a multi-criteria decision model, considering all the important criteria for decision making.*

### Introduction

In the context of developing nations, priority setting and resource allocation in healthcare is often done ad-hoc without following any systematic approach. This is because, taking decisions is complex due to various competing criteria which play a role. These criteria are, maximising general population health, reducing health inequity by giving high priority to interventions that cater the most vulnerable population like economically backward groups, women, children, elderly population etc., appropriate response for acute care or curative care over preventive care, budgetary

constraints, political priorities etc. For an effective decision making by encompassing all the above criteria, there is a need to develop a multi-criteria decision model by giving appropriate weightage to each of the criteria and developing a composite index.[1] Over the past few decades, in absence of having a context specific multi-criteria decision model and due to steep rise in the health intervention costs with countries having limited resources in health, cost effectiveness analysis has taken a centre stage for deciding how much resources should be allocated to which health intervention, keeping overall budgetary constraint in mind.

### Cost Effectiveness Analysis (CEA)

To manage healthcare with the limited resources, rationing is required to do through a systematic process to set priorities. To prioritize resources in healthcare, cost effectiveness analysis (CEA) is normally done to compare aggregate health benefits secured from a given amount of resources. The principle behind using CEA for resource allocation in healthcare is to maximise the benefits from the given limited resources.

Cost effectiveness analysis (CEA) is done to compare costs and outcomes of two or more interventions [2, 3] which primarily assists in allocating competing resources to gain maximum benefits. [4] Cost effectiveness ratio is expressed with incremental costs as numerator and incremental effects as denominator where effects are measured in terms of health gains like mortality averted, undernutrition prevented or disability adjusted life year (DALY) averted. [5, 6] DALYs are a standard metric for disease outcomes

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### End notes

Chokshi, MR, (2008) Tamil Nadu Public Drug Procurement Model, New Delhi: pp. 21.

Singh PV, et al, (2012) Replicating Tamil Nadu's Drug Procurement Model economic and political weekly, vol xlvii no 39

### References

1. World health statistics (2012), World health Organization Statistics, WHO Library Cataloguing-in-Publication Data
2. Golechha M (2015) Healthcare agenda for the Indian government. Indian J Med Res 141:151-153.
3. Update on Community based monitoring and planning process in Maharashtra (2015), SATHI, Pune

4. Raut-Marathe S., Yakkundi D., Sardeshpande N., (2015)What causes medicine shortages in Primary health Centers ?A case of availability and supply system of medicines in select PHCs from Maharashtra. Journal of health management,;17(1) 86-97
5. Raut-Marathe et al (ibid)
6. Press trust of India, business-standard.com. Decision on mandatory e-tendering to be reconsidered: Mahagovt, May 13, 2015, Available at [http://www.business-standard.com/article/pti-stories/decision-on-mandatory-e-tendering-to-be-reconsidered-mah-govt-115031301253\\_1.html](http://www.business-standard.com/article/pti-stories/decision-on-mandatory-e-tendering-to-be-reconsidered-mah-govt-115031301253_1.html)
7. Directorate of Health Services, Maharashtra, retrieved 24 Nov at 3.00pm at [http://dwhphd.dcservices.in/DWH\\_PHD\\_OPEN/startup/loginAction](http://dwhphd.dcservices.in/DWH_PHD_OPEN/startup/loginAction)
8. SATHI (2012) State level Community monitoring survey (based on SMS) regarding Availability of essential medicines in PHCs of Maharashtra.
9. Directorate of Health Services, Maharashtra, retrieved 24 Nov at 3.00pm at [http://dwhphd.dcservices.in/DWH\\_PHD\\_OPEN/startup/loginAction](http://dwhphd.dcservices.in/DWH_PHD_OPEN/startup/loginAction)