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**Government Intervention and Prices of Medicines:
Lessons from Tamil Nadu**

N. Lalitha



Gota, Ahmedabad 380 060

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Abstract

Drugs are the single most important component of health care costs of individuals. Evidences show that where governments are engaged in the services of health care, the adoption of a list of essential drugs results in rationalization of limited resources. This paper looks at the approach adopted by the government of Tamil Nadu where drug procurement and supply is done through an autonomous agency. This agency has formulated detailed procedures for the procurement of quality essential drugs that are supplied to the government health care providers according to their needs. The analysis shows that such a system has been effective in terms of rational utilization of the limited resources on select drugs while keeping the prices lower. The paper emphasises the need for such government intervention in other states as well which would be helpful for the needy and poor since price increases are evident even in the case of drugs under regulation.

Key Words : *Essential drugs; drug prices; drug regulation*

JEL Classification : *H42; H51; I118*

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Government Intervention and Prices of Medicines: Lessons from Tamil Nadu

1 Introduction

In India, health is a state subject. Therefore allocation of funds for health and targeting the same for better health outcomes essentially depends on the government policies, monitoring and implementation programmes. Hence, it is likely that the states which have been traditionally spending more on social sectors have better targeted programmes and achievements compared to states which do not have such orientation. Therefore, with the exception of a few states, the government health care delivery system suffers from various deficiencies such as lack of physical infrastructure, inadequate manpower and non-availability of essential medicines.

Specifically focusing on the issue of access to medicines, a recent report on Access to Medicines observes that one third of the world's population does not have access to basic and essential drugs and this figure rises to one half if the poorest parts of Africa and Asia are considered (Dukes and Paula, 2004). Access to medicines is increasingly debated in the context of: (a) structural adjustment programmes introduced by various governments that resulted in restructuring government spending on social sectors; (b) growing globalisation of trade; (c) exclusive rights provided to the inventors of medicines and (d) the growing inequity in health between the developed and developing countries. Primarily, access to medicines in developing countries is restricted due to factors such as the cost of the drug, purchasing power of the people, non-availability of the medicine in the market and health care facilities etc. Drugs are the single most important component of health care costs as evident from Table 1. At the all India level, expenses on drugs accounted for 67 per cent of the total expenditure of the individuals. In the case of Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh (BIMARU), drug expenditure by the individuals has been more than 80 per cent. This necessitates that the governments step in to provide access to medicines especially to benefit poor people, through their health care facilities.

Where government is involved in providing the medicines, accessibility can be impeded by lack of funding, inappropriate procurement and selection and lack of prioritization due to lack of information regarding the demand for the right medicines. Public policy in health is successful if it leads to increased welfare through better health outcomes, equity, access and lower expenditure. Thus delivery of health services in developing countries has twin objectives viz: (a) to-improve access to essential clinical services particularly medicines for poor and (b) increase the efficiency in the delivery of services. Invariably, governments manage drug selection, procurement and distribution for publicly provided health services by adopting an appropriate list of drugs or what is popularly known as 'essential drugs'. Essential drugs refer to those drugs that satisfy the health care needs of majority of the population and therefore need to be made available in adequate quantity and at a price that individuals and the community can afford. The first list of essential drugs brought out by the WHO consisted of 224 drugs and many countries drew their list of formulary from this template. This list is also frequently modified reviewing the health scenario of different countries. Presently the 15th list of essential drugs is available with the WHO.

Shiva and Rane (2004) observe that there are medical, economic, social and administrative advantages of adopting an essential drug list. The medical advantages are that: besides ensuring efficacy and safety of drugs, such a list reduces the risks of drugs and doctor induced (iatrogenesis) problems. It also improves the possibility of better monitoring. The economic advantages are that: it reduces wastage of scarce resources on non-essential drugs and reduces the need for aggressive marketing of non-essential formulations. It is most economical for patients as it reduces the costs. The social advantages of essential drugs are that: it represents the real health needs of the people; it makes it compulsory to draw up 'priorities' to meet the urgent needs of the people. The administrative advantages are that: since the list contains a fixed number of drugs, it is easy to maintain the quality and also easy to streamline production, distribution and storage processes. However, researchers warn that just listing of essential drugs alone is insufficient unless it is integrated as an essential drug policy. In India, besides a national drug list, different states have their own list of state formulary. For instance, Tamil Nadu, Delhi, Maharashtra, Andhra Pradesh, Himachal Pradesh, Karnataka, Punjab, Rajasthan, Uttar Pradesh, Madhya Pradesh, Orissa and West Bengal are some of the states that have taken initiatives towards adopting a rational drug approach as well. Irrespective of the fact, whether the government follows a rational drug approach

or not, states' spending on drugs and materials supply has ranged from 1.4 per cent of the health expenditure in the case of Punjab to 17 per cent in the case of Kerala (Table 2). It is evident that Kerala, Tamil Nadu, Maharashtra, Madhya Pradesh and Chattisgarh have spent more than 10 per cent of their health budget on drugs, while, West Bengal, Gujarat, Punjab, Assam and Bihar have spent less than 5 per cent. However, to understand the adequacy of such expenditure, we need to have some estimates on the number of people dependent on government health care system.

Given this backdrop, this paper focuses on the measures taken by the Tamil Nadu government to provide access to essential drugs in the government healthcare facilities. In doing so, the Second section and its sub sections focus on the measures to streamline the procurement and distribution procedures of essential drugs. Section 3 discusses the impact of such interventions on prices of essential drugs. The last section presents the conclusion.

2 Systems in Procurement and Distribution of Medicines

The WHO recommends that any governmental effort to provide access to medicines has to take care of the following four crucial factors. These are: (1) sustainable finance; (2) affordable prices; (3) Rational selection of drugs and use; and (4) reliable system of medicine supply (quoted in Dukes and Paula, 2004). In other words, when the government is involved in the supply of drugs, it has to ensure that it does not suffer from (a) inadequate buying practices; (b) improper estimation of demand for drug; (c) inefficient procurement and distribution of drugs; (d) and irrational prescription. All these flaws lead to improper utilisation of the budget allocation with the net result being less value received for the amount spent by the government/consumer. Hence, different countries have adopted different methods to supply drugs¹. These are: (1) central medical stores, (2) autonomous supply agency, (3) direct delivery system, (4) primary distributor system, and (5) fully private supply. A simple drug supply model can not be prescribed for a particular country since it depends on factors like the role of the government in providing health, available health infrastructure etc. In India models of central medical stores and autonomous supply agencies are prevalent

¹ The details of the drug supply models discussed here have been drawn from Essential Drugs Monitor, Issue no. 25 & 26, 1998.

among a few states. The central medical stores (CMS) approach is followed by some of the states in India like Gujarat, in Tamil Nadu till 1995 and countries like Ghana, Oman and Zimbabwe. In this, drugs are financed, procured and distributed by the government, which is the owner, funder and manager of the entire system. Selection, procurement and distribution are all handled by an unit within the health ministry/department. It had been a logical approach if the medicines were all imported through one channel. However, CMS's have experienced problems with financial management, quantification of requirements, management of tenders, warehouse management, transport and security of drugs. These problems have been exacerbated by political or administrative influences and weak financial discipline.

Autonomous supply agencies are constituted as parastatals, either under the ministry of health or as independent organisation with a board of directors including representation from other (than health) government ministries. Their primary and priority client is government health services and they may or may not operate on a non-profit basis. Examples of countries that have adopted this are Benin, Haiti, Sudan, Tanzania, Uganda and Zambia. The board is autonomous in running the agency but reports to a higher official from the ministry of health who may be involved in the appointment of the chairman of the board or the executive officer. The purpose of establishing an autonomous supply agency is to achieve the efficiency and flexibility associated with private management and private sector employment conditions. At the same time, presence of public sector is also maintained to ensure that the autonomous services provide a range of essential drugs at reasonable prices with adequate control of quality. The basic concept is that under the right conditions, a well constituted management board or board of directors will have the freedom to appoint qualified senior managers who will in turn ensure an efficient and credible supply agency. Features that will ensure success of autonomous service models are: (1) supervision by an independent management board; (2) professional pharmaceutical supply managers; (3) adequate financing; (4) public accountability and sound financial management; (5) focus on essential drugs; (6) focus on quality assurance, both in terms of products and of services provided.

In the following paragraphs, a model designed on the autonomous service agency framework is discussed.

2.1 The Autonomous Service Agency

At present, the agency set up by the Tamil Nadu government, namely the Tamil Nadu Medical Services Corporation (TNMSC) is one autonomous service agency that is responsible for procuring medicines for the government health utilities in Tamil Nadu. TNMSC was set up in 1995 in response to the total chaos that prevailed in the early 1990s in drug procurement and distribution procedures meant for government health care.

TNMSC is responsible for all the aspects that are associated with the drug purchase. These range from identifying the (a) list of essential drugs that are to be bought, (b) suppliers who can supply the required quantity at appropriate quality and prices, (c) ensuring that the medicines reach the warehouses meant for drug storage, and (d) to monitoring their appropriate storage from where different health services draw their requirement of drugs. TNMSC's services are availed by all the agencies that provide health services in Tamil Nadu (Chart 1) and also to other departments such as juvenile homes, ESI hospitals, all prisons and police department hospitals, co-operative sugar factories and tea plantations, government dispensaries, veterinary hospitals, road transport corporation hospitals and all local body hospitals, etc.

TNMSC does not have a financial budget of its own. The various health directorates of the state in charge of providing health services at various levels transfer 90 per cent of their drug budget to TNMSC. The remaining 10 per cent is retained with the directorates to purchase any drug outside the list but considered essential. The budget allocation made to these directorates in the past few years is shown in Table 3. This table indicates that Directorate of Public Health (DPH), Directorate of Rural Medical Services (DMS) and Directorate of Medical Education (DME) account for larger share of the total budget compared to the Directorates of family welfare, Indian medicine and homeopathy and reproductive and child health project. Comparison of drug expenditure among DPH, DMS and DME alone point out that the drug expenditure has increased from 62.5 crores in 1995-96 to 114.8 crores in 2005-06 (Table 4). Among the three directorates, DMS and DME get almost equal share of the budget, while DPH that is in charge of primary health services get the least. This is because as compared to DPH, DME and DMS provide inpatient hospitalization services as well as outpatient services.

A drug committee consisting of professors of medicine, pharmacology, and therapeutics, a representative from World Health Organization, health secretary and the managing director of TNMSC identifies the list of essential drugs that are to be selected. After the selection of drugs is done, the next stage is the selection of suppliers for which TNMSC has laid strict and elaborate procedures to ensure uninterrupted and quality supply since making quality medicines available at the government health institutions is the primary purpose of setting up of this organization.

TNMSC invites tender by advertising in various dailies, pharmaceutical newspapers and in its own website. Tender document consists of cover A and cover B. Cover A stipulates that: (a) the manufacturer should have license for the product quoted and should be manufacturing the same in his/her own premises: (loan licensees are not allowed to bid); (b) the said company should have a minimum turnover of Rs.35 lakhs and the manufacturer should have market standing for the drug issued for a minimum period of three years; c) the company should have the 'Good Manufacturing Practice' certificate issued by the state government authorities and should not have suffered any legal conviction cases. If the tender committee is satisfied with details provided in cover A, then a technical team visits the unit (without prior notice to the unit) to ascertain the facts stated in the tender as regards the company's production capacity. On the basis of recommendation from the team, the samples of drugs are obtained from the unit and sent for quality checks. On the positive recommendation from the quality control department, those manufacturers who satisfy the entire criteria mentioned in cover A are invited for opening of cover B. These manufacturers are asked to bring sufficient number of photocopies of their price quotations and a floppy containing the prices of the products tendered by them. While photocopies are distributed to all those who are present in the tender process, the quoted prices are simultaneously displayed on a huge screen. This method apparently helps in keeping the system transparent since every bidder gets to know the price bid by the other. Obviously the one who has quoted the lowest price (called as L1) gets the tender. But if there is more than one manufacturer whose prices are close to the L1 rates, they are asked to match the price of L1. And the entire purchase order is distributed accordingly. Price fixed during the tender process holds good for the whole year and cannot be changed. In the whole process, there is neither price preference nor special preference for SSIs. More interestingly, suppliers in the current year do not automatically become eligible to supply in the next year. They will have to go through the same

procedures but for the inspection of units, which again helps in maintaining transparency.

The other interesting feature is that, once the order is placed with the selected supplier, he/she should start supplying within 30 days of the contract and complete within/on 60th day. A late delivery fee of 1.5 per cent of the entire purchase order is levied if the supplies are delayed even by a day. Because of this huge levy, suppliers stick to the delivery schedule. The supplier will have to send the supplies directly to the designated warehouses. On receipt of the drugs, the drug warehouse issues a material received certificate to the TNMSC office. A certain quantity of drugs from each batch is sent for quality control (QC) to the designated laboratories located in different parts of country, again selected through the tender process. This is done in spite of the fact that suppliers send their goods with QC certificate, a testimony that the products were checked before they were sent. Quality control takes about two weeks to test tablets and capsules and three weeks to test the injections. Surgical and sutures are selected based on the recommendation of experts. Drug distribution takes place only after the receipt of report from the QC. If negative reports are received on a particular product, then that product is sent for QC to another laboratory. If it fails in the second time also, then the entire batch is sent back to the supplier, who will have to supply fresh stocks. If this happens twice, then the supplier is blacklisted. From May 2003, warehouses have been advised not to send samples of the same batch for testing, if samples of a particular batch have already been sent for QC. Similarly, if the QC passes a drug of a particular batch, then other warehouses can also start distributing. TNMSC makes payment to the supplier only after the report from quality control is received. An automated cheque clearance system of payment to the suppliers further helps in maintaining the transparency of the system. Thus the foregoing analysis clearly demonstrates that detailed procedures have been set by the government of Tamil Nadu to ensure purchase of only quality drugs.

2.2 Storage and Distribution of Drugs

In order to store the drugs, 24 warehouses have been built in 23 districts of the total 29 districts. All the warehouses are of uniform design and structure. Since these are situated in different districts health institutions in a particular district can draw their stock from the warehouse in that district. Taking into account factors like the stock in hand, demand from various institutions and the stock that is to

arrive, TNMSC places the purchase order worth a few months stock with the suppliers who supply directly to the warehouses.

On arrival, appropriate entries are made in the computer about the stock that has arrived on that day, pending stock, quantity received until then, drugs distributed to different institutions, expiry date of the drugs of different batches, stock at the warehouse and drugs that are sent for QC checks, etc. This helps the Chennai office in updating the stock position and also transfers the drugs from one place to another in case of need. To make the system foolproof, TNMSC has stipulated the system of receiving the information by courier everyday. The warehouses are required to maintain a three-month stock and a safety limit of one-month stock.

All the health institutions are provided with two passbooks valid for one accounting year of which one book is retained with the institution and the other with the warehouse wherein the budget for that institution is mentioned. Budget for each institution is arrived at by looking at the flow of inpatients and outpatients in a particular year, diseases pattern and drugs consumed. All the institutions in a particular district draw their drug stock from the warehouse of that district on their designated day. Appropriate entries are made in the passbooks and in the computer, which helps the TNMSC in tracking the movement of the drugs and in monitoring over the under utilization of budget allocation (if any) by the different district health authorities. While the hospitals can indent any drug from the list, the list of drugs meant for PHCs is limited to 54 essential drugs.

The complete list of essential drugs is printed in a book form and is made available to the pharmacists and doctors in each government health care institution, for them to select and prescribe the required drugs. A government order to the effect that the drugs should be prescribed within the list that is available ensures that the patients do not have to purchase any medicine from the market. Another interesting feature is that the drug selection committee also decided that it would do away with the earlier system of dispensing the drugs in loose, which reduces the quality of the medicines. Hence, the committee decided that while the tablets and capsules will be supplied in aluminium foils and blister packs, syrups will be supplied in 60 or 40 ml packs and ointments in small five or 10 gram tubes. This has been planned to avoid wastages and also to prevent the reduction in the shelf life of the drugs in the store. Further to avoid pilferages, it has been stipulated that all the tablets and capsules carry the logo 'TG' meaning Tamil Nadu government. All the foils and packs and iv fluid bottles carry the

message that the said drug is meant for the supplies of Tamil Nadu government and not meant for sale.

Obviously, this elaborate system has vastly ensured that quality drugs are made available for the government health care institutions.

3 *Prices of Drugs*

In India, prices of drugs are regulated under the Drug Price Control Order (DPCO), announced by the Government of India from time to time. DPCO first came into existence in 1979 when the prices of the drugs were much higher than any other country and nearly 347 drugs covering 90 per cent of the drugs were brought under control. Presently 74 drugs covering 36 per cent of the drugs are under price control. It has also been pointed out that Indian companies try to avoid producing drugs that are under price control and introduce drugs in the non-controlled segment (Lalitha, 2001, Sampath, 2005). Still some more companies adopt the technique of introducing a new combination to the existing drug by which the new drug falls outside the purview of price control. Such practices of the companies increase the number of irrational combinations and also increase the price of the drugs. But, the existing regulatory framework is simply not sufficient to regulate and monitor the drug prices. The National Pharmaceutical Pricing authority does not have any infrastructure at the state level. Therefore, monitoring of drug prices becomes an additional duty handled by the state drug control authorities, which in most states is under-staffed.

Though, India produces majority of the essential drugs that come under the category of either 'not under patent' or where the patent term is over, yet they are inaccessible to poor because of the price factor. However, it is not clear the methodology by which a drug is added or removed from price control. As Table 5 shows there are a few drugs which are under the National list of essential drugs and treat diseases like HIV viral infections or for instance cardiac diseases. But as the Table reports, not only these drugs are not under price control, but there is also variation in the prices among different manufacturers for a single drug. It is in such situations that government delivery of health services becomes helpful for the poor. Therefore, it is of interest to see, whether the services of an autonomous agency like TNMSC helped in procuring drugs at competitive prices. There are about 270 drugs in TNMSC's list. Some drugs have been added and

some have been deleted over the years for various reasons such as those that were not in demand or if they were provided directly by central government under any of its schemes.

3.1 Impact of TNMSC's Intervention on Prices

In order to examine the price impact of TNMSC's intervention, the following methodology has been adopted. In order to compare the prices of the drugs, we use data for the period 2002 to 2007 pertaining to 258 drugs that were common through these years. In the first step, percentage changes in the prices of individual drugs were calculated for different points of time according to the availability of L1 prices for 2002-03 to 2006-07. In the second step, these were grouped according to the major drug category as presented in the TNMSC's list of essential drugs. In the third and final step, the percentage change of the individual drugs were added to arrive at the cumulative percentage change of that category which was further divided by the number of drugs in that particular drug category. Table 6 provides this information.

As evident from the Table 6, TNMSC's intervention has resulted in overall reduction in the prices of several drugs over the period 2002—2007. Basically, the price reduction has been in the range of one percent to more than fifty per cent. The first group, where the reduction in the price has been within the range of 1-10 per cent, consists of analgesics, (including antipyretics and anti-inflammatory drugs), dermatological drugs, gastrointestinal drugs, muscle relaxants and drugs acting on the respiratory tract. In the second and third group where the price reduction has been in the range of 10-20 and 20-30 per cent respectively, there were 8 drug groups each. Prices of anti allergic and drugs used in anaphylaxis, antidotes, antiepileptic drugs, disinfectants and antiseptics, diuretics, immunologicals, oxytocics, psychotropic drugs, solutions, correcting water, electrolyte and acid base disturbances have declined in the range of 10-20 per cent.

Anaesthetics, antibacterials, antiparkinsonism, drugs affecting the blood, cardiovascular drugs, reagents and diagnostic agents, hormones, other endocrine drugs and miscellaneous drugs (comprising of items like water for injection, sodium bicarbonate, ECG Gel, ultra sonogram gel etc) come under the third category of 20-30 per cent. The fourth category of drugs include anti neo

plastic and immune suppressant drugs and ophthalmological preparations. There are no drugs where the price reduction has been in the range of 40-50 per cent.

Anti infective drugs comprising anthelmintics, antiparasitics, antibacterials, antifungal, anti malarial and anti viral drugs have experienced the highest price reduction between 2002 and 2007. In order to show this effect in the table, we have presented the price changes for the anti infective groups as a whole and anti bacterials separately, where the reduction has been by -51.4 and -23.4 per cent respectively.

Though TNMSC's intervention resulted in price reduction in several drug categories as discussed above, there were three drug categories, which had witnessed positive price increase. These are drugs affecting the blood (20.05%), disinfectants and antiseptics (18.07%) and the relatively least increase was in drugs acting on the respiratory tract system (4.14%).

In order to understand the behaviour of the price controlled drugs within the TNMSC's list of essential drugs, we matched the names of the drugs that are under Drug Price Control Order 1995 (DPCO,1995) with the TNMSC's list. Thus we have a total of 35 drugs coming under price control. The same methodology as described above has been used here to understand the price variation.

Table 7 provides the details of the changes in the prices of TNMSC's drugs that also come under DPCO over a period 2002-2007. We find that while majority of the drugs' prices have declined over the five years, yet a few of them did register an increase. Of the drugs where the prices declined belong to the groups of anti arrhythmic, analgesic, anti allergics, anti bacterials (within this anti malaria), diuretics, drugs acting on the respiratory tract, vitamins and minerals, anti fungal, anti hypertensives, anti epileptic, and hormones. However, the price reductions within the group vary. For instance, anti bacterials which has 10 drugs coming under DPCO, the price reduction range from -6.7 to -47 per cent. One drug in this group has exceptionally registered an increase in price by 12.5 per cent.

Within the anti-allergic drugs, price of one of the drugs (pheniramine) increased by 43.2 per cent. Both the price controlled anti-amoebics which belongs to the group of anti-bacterials have shown an increase in the price. Similarly of three drugs under DPCO in the ophthalmological preparation prices of two have

increased. As compared to this, of the four price controlled respiratory tract drugs, price increase was observed in the case of one drug (by 13.6 per cent).

Table 8 in nutshell presents a comparison of prices before and after 1995, the year in which TNMSC had started its operations. It reports that, there has been a steep fall in the prices of the drugs, even after providing for the costs involved in undertaking the elaborate procedures laid for testing the quality of the drugs.

Thus the foregoing discussions show that: (a) drugs under the essential drugs category may or may not be under price control; (b) within the price controlled drugs, there is variation in the reduction as well as increase in the time period under consideration; and (c) TNMSC's intervention in procurement and supply has resulted in perceptible reduction in the prices of the drugs. This discussion emphasises that government intervention in providing essential drugs is very much required for the reasons that: (a) majority lack health cover; (b) prices of the drugs are the most important component in health expenditure; (c) ability to pay for the drugs is very limited for a sizeable share of population and hence for the section of the population dependent on government health care, the government has to ensure that medicines are always available.

A question that emerges is while even the price of controlled drugs shows an increase in prices, what could be the situation with the decontrolled drugs? Recently, in July 2007 the government of India fixed prices of 9 commonly used drugs, where it was noticed that prices have shot up for no valid reason. The National Pharmaceutical Pricing Authority (NPPA) has asked major companies including Novartis, Ranbaxy, Nicholas Piramal and USV Ltd to revise drug prices downwards to the levels fixed by the body. The drugs for which prices have been fixed, include all major therapeutic areas such as diabetes, cardio-vascular, ulcers, joint pains, allergies and infections. The move is significant as the government is now cracking its whip on decontrolled drugs, which are outside the ambit of price control and in cases, where the prices have gone up beyond the threshold limit of 20 per cent in a year. Under Section 10 (b) of the Drug Prices Control Order 1995, NPPA can take action directly against the company and control or fix price of drugs which have mass consumption and where there is an unjustified price rise and does not need to refer the matter to government.

This price control order by the NPPA has serious implications as the company will have to seek approval of the NPPA for all price increases in future. Further if

the company fails to revise the prices within 15 days, a case of over charging will be booked against it for recovery of overcharged amount along with other appropriate action under the provisions of DPCO, 1995 read with the Essential Commodities Act, 1965' (Mukherjee Rupali, 2007). Such actions could bring the decontrolled prices under control.

4 Conclusion

Lack of organized health cover makes people to fend for themselves at the time of illness. Yet for reasons that are well known, only relatively small sections of the people depend on government health care. In India, each state government spends 3 to 5 per cent of their budget on health. Therefore government has to ensure that these resources are appropriately spent and meets the needs of at least that section of the society. This paper focusing on the government interventions in the provision of essential drugs in Tamil Nadu shows that the limited resources earmarked for drugs can be rationally spent if the state adopts a list of essential drugs that are selected with due consideration for their therapeutical use. In this context, setting up of TNMSC has helped the government to streamline the entire drug procurement and supply in a logical manner. More importantly the processes are carried out in a methodical manner with certain principles of private enterprise embedded with the welfare objective. The price analysis detailed here also shows that the intervention by TNMSC has resulted in procuring quality drugs continuously at a lower price, which can help the government in reaching out to more people or in strengthening the technology in government health care. The findings as discussed here should not be treated as mere reflections of the outcomes of local reform measures yielding results only in a certain environment in Tamil Nadu. These can be replicated to other states as well, as these are administrative reform measures without any external help or private sector co-operation. It shows that autonomous service agencies such as TNMSC would deliver results if they are backed by strong political will and commitment to support such reform measures. In the absence of health cover for majority of people, such targeted interventions would go a long way in reducing the morbidity level among the population.

Table 1: Per Capita Annual Drugs and Other Medical Expenditure by States (in Rs)

State	Inpatient		Outpatient		Aggregate		
	Drugs	Total	Drugs	Total	Total Drugs	OOP	Drugs (%)
Andhra Pradesh	83.61	178.85	507.28	643.38	590.89	822.23	71.9
Assam	73.09	160.97	328.5	421.17	401.6	582.14	69.0
Bihar	36.31	54.93	366.06	416.42	402.37	471.35	85.4
Delhi	181.39	301.42	578.06	821.89	759.45	1123.31	67.6
Goa	236.48	405.81	776.58	928.43	1013.06	1334.24	75.9
Gujarat	133.04	280.04	451.34	589.44	584.39	869.48	67.2
Haryana	196.23	436.68	895.44	990.22	1091.68	1426.91	76.5
Himachal Pradesh	214.71	284.67	717.77	872.45	932.49	1157.12	80.6
Jammu and Kashmir	87.69	133.74	500.03	560.73	587.73	694.47	84.6
Karnataka	107.47	252.03	394.17	576.66	501.64	828.68	60.5
Kerala	276.9	619.93	892.93	1110.1	1169.83	1730.03	67.6
Madhya Pradesh	109.73	173.71	533.35	636.3	643.07	810.01	79.4
Maharashtra	187.5	376.23	629.33	926.53	816.83	1302.76	62.7
Orissa	98.67	120.66	476.69	515.69	575.36	636.36	90.4
Punjab	149.2	349.81	923.04	1046.62	1072.24	1396.44	76.8
Rajasthan	109.01	165.48	635.99	700.01	745	865.49	86.1
Tamil Nadu	104.86	276.08	475.43	668.59	580.29	944.67	61.4
Uttar Pradesh	100.97	157.78	774.37	884.4	875.33	1042.17	84.0
West Bengal	78.13	175.68	501.69	659.16	579.82	834.85	69.5
All India	118.67	235.61	574.8	721.99	693.46	957.59	72.4

Note: OOP denote out of pocket expenditure

Sources: 1. Extracted from the Unit-level Records of Consumer Expenditure Survey, 55th Round of NSS, 1999-2000

2. Sakthivel (2005), Access to Essential Drugs, National commission on Macroeconomics and Health, Financing and Delivery of Health Care Services in India, Page No. 189

Table 2: Drug and Health Expenditure of States in 2001-02

States	Expenditure (Rs. Lakhs) on				Drugs expenditure as % of health expenditure
	Drugs	Materials Supplies	Total	Health expenditure (revenue)	
Punjab	N.A.	916.32	916.32 (16)	61826.45 (12)	1.48 (16)
Assam	0	1530.1	1530.1 (15)	32690.82 (14)	4.68 (12)
Orissa	1768.98	361.3	2130.28 (14)	42135.78 (13)	5.06 (11)
Bihar	1996.9	206.29	2203.19 (13)	71348.49 (10)	3.09 (15)
Chhatisgarh	1822.47	680.22	2502.69 (12)	22587.1 (16)	11.08 (5)
Gujarat	1253.76	1440.06	2693.82 (11)	71547.95 (9)	3.77 (14)
Haryana	N.A.	3096.12	3096.12 (10)	31470.98 (15)	9.84 (6)
West Bengal	5005.25	793.23	5798.48 (9)	131948.35 (3)	4.39 (13)
Uttar Pradesh	5938.25	1166.04	7104.29 (8)	135578.81 (2)	5.24 (10)
Karnataka	6927.17	856.82	7783.99 (7)	98633.19 (6)	7.89 (9)
Madhya Pradesh	3965.86	3956.04	7921.9 (6)	66689.3 (11)	11.88 (3)
Rajasthan	3952.8	5092.25	9045.05 (5)	97311.61 (7)	9.29 (8)
Kerala	N.A.	12420.68	12420.68 (4)	72931.59 (8)	17.03 (1)
Andhra Pradesh	7923.09	4781.45	12704.54 (3)	131424.08 (4)	9.67 (7)
Tamil Nadu	16428.68	1668.57	18097.25 (2)	118432.85 (5)	15.28 (2)
Maharashtra	10	20295.91	20305.91 (1)	178379.51 (1)	11.38 (4)
Central Govt. *		72649.23	72649.23	597700	12.15
All India *	56993.21	131910.63	188903.84	1962636.86	9.63

Notes: * Includes only 16 states total as reported in the table, which account for around 85 %.

Figures in parentheses indicate the ranks

Source: Sakthivel (2005), Access to Essential Drugs and Medicine, National commission on Macroeconomics and Health, Financing and Delivery of Health Care Services in India, Page No. 189

Table 3: Budget for Health in Tamil Nadu, 2002-06

Particulars	Estimates (Rs. Crores)			
	2002-03 (RE)	2003-04 (BE)	2004-05 (BE)	2005-06 (BE)
Secretariat	3.24 (0.3)	3.37 (0.2)	3.35 (0.2)	3.23 (0.2)
DM&RHS	254.23 (20.1)	267.96 (19.4)	267.55 (19.4)	256.07 (15.5)
DME	389.04 (30.8)	461.99 (33.4)	453.46 (32.6)	550.90 (33.3)
DPH	420.45 (33.3)	500.59 (36.3)	510.6 (36.8)	487.92 (29.5)
Directorate of Family welfare	114.45 (9.0)	67.28 (4.8)	70.76 (5.9)	66.97 (4.1)
Directorate of drug control	4.59 (0.4)	5.16 (0.4)	5.13 (0.4)	4.99 (0.3)
Directorate of Indian medicine and homeopathy	46.60 (3.7)	52.29 (3.8)	51.36 (3.7)	80.74 (4.9)
Directorate of TN state health transport	8.17 (0.6)	8.54 (0.6)	10.32 (0.7)	8.57 (0.5)
DANIDA	6.39 (0.5)	1.06 (0.1)	-	
Reproductive child health	16.85 (1.3)	11.99 (0.9)	15.00 (1.1)	73.96 (4.5)
Total	1264.05	1380.28	1387.58	1652.04

Note: Figures within parentheses indicate the percentage to the total

- indicates the percentage of funds allocated for drugs by the directorates. RE and BE refer to the revised and budget estimates respectively.

Source: Demand for grant, Demand No.18, Health and family welfare department, 2003-04, Tamil Nadu government, Budget publication No.18, figures for the year 2005-06 available at www.tnhealth.org

Table 4: Value of Drugs Procured by TNMSC for Different Directorates (Rs. crores)

Year	DME	% to total	DMS	% to total	DPH	% to total	Total
1995-96	25.29	40.5	26.83	42.9	10.36	16.6	62.48
1996-97	28.74	40.2	29.64	41.5	13.05	18.3	71.43
1997-98	31.19	40.6	31.92	41.5	13.75	17.9	76.86
1998-99	32.36	39.1	34.15	41.2	16.26	19.6	82.77
1999-00	33.89	40.4	32.32	38.5	17.70	21.9	83.91
2000-01	35.34	39.2	34.00	37.7	20.76	23.0	90.10
2001-02	36.28	41.3	34.32	39.0	17.30	19.7	87.90
2002-03	37.03	40.8	33.21	36.6	20.52	22.6	90.76
2003-04	38.12	39.3	35.80	36.8	23.13	23.8	97.05
2004-05	40.53	40.1	36.80	36.4	23.72	23.5	101.05
2005-06	44.13	38.5	44.10	38.4	26.33	23.0	114.56
Total	382.90	(39.93)	373.09	38.90	202.88	21.16	958.87

Source: TNMSC

Table 5: Variations in Prices of Selected Drugs

Drug and use	Under Price Control	In national List of Essential Medicines	Retail price per tablet of less priced brand manufacturer	Retail price per tablet of Higher priced brand manufacturer	Difference (%) between the higher priced and lower priced drug
*Azithromycin 250 mg 1 tab	No	Yes	8.50 zathrin/fdc	39.14 vicon/pfizer	460
*Ciprofloxacin 500mg 1tab	Yes	Yes	2.90 zoxan/fdc	8.96 cifran/ran baxy	309
** ziduvudine 100mg 1tab	No	Yes	7.70 zidovir/cipla	20.40 retrovir/burroughs welcome	264
***Atenolol 50 mg 1tab	No	Yes	0.40 zybloc/fdc	2.29 tenormin/ICI	573
Amlodipine 5mg 1 tab	No	Yes	1.38 amlodac zydys	4.81 amlogard/pfizer	348
****Paclitaxel 100mg Tab	No	Yes	3400 oncotaxel Sun	5994 Betaxel/Biological evans	176
*****Diclofenac Sodium 50 mg tab	No	Yes	0.31 tromagesic/themis chemicals	1.61 voveran novartis	519

Note: * , ** , *** , **** , ***** Refer to drugs for antibiotics, HIV viral infections, and cardiac diseases, anti hypertensives, cancer and pain/fever respectively

Source: Locost (2004), Table 1, Chapter 2, Anarchy in Retail Drug Prices in India, Impoverishing the poor, P.42-43.

Table 6: Changes in the Prices of Drugs Procured by TNMSC - 2002-03 to 2006-07

	Drug Category	% Change between 2002-03 and 2006-07	Percentile group*
1	Anaesthetics	-23.74	3
2	Analgesics, Antipyretics & Anti Inflammatory Drugs	-7.98	1
3	Anti Allergics & Drugs Used in Anaphylaxis	-11.44	2
4	Anti Dotes & Other Substances Used in Poisoning	-14.76	2
5	Anti Epileptic Drugs	-18.46	2
6	Anti Infective Drugs	-51.40	6
6.3	Anti Bacterials	-23.40	3
7	Anti Neoplastic and Immuno Suppressant Drugs	-33.47	4
8	Anti Parkinsonism Drugs	-22.98	3
9	Drugs Affecting the Blood	20.05	3
10	Cardio Vascular Drugs	-22.18	3
11	Dermatological Drugs	-7.72	1
12	Reagents & Diagnostic Agents	-29.15	3
13	Disinfectants & Antiseptics	18.07	2
14	Diuretics	-16.45	2
15	Gastro Intestinal Drugs	-7.18	1
16	Hormones, Other Endocrine Drugs	-29.91	3
17	Immunologicals	-16.95	2
18	Muscle Relaxants & Cholinestrace Inhibitors	-4.12	1
19	Ophthalmological Preparations	-35.27	4
20	Oxytocics	-20.24	2
21	Psychothropic Drugs	-10.05	2
22	Drugs Acting on the Respiratory Tract	4.14	1
23	Solutions, Correcting water, Electrolyte & Acid Base Disturbances	-21.65	2
24	Vitamins & Minerals	-1.29	1
25	Miscellaneous Drugs	-29.49	3

Note: * Percentile group 1 to 6 denote percentages in the range of 1-10; 10-20; 20-30; 30-40; 40-50 and 50-60 respectively.

Source: Lalitha (2006).

Table 7: Changes in the Prices of TNMSC's Drugs Under DPCO 1995

Drugs	% change in prices between 2002 and 2007
Anti arrhythmic	
Verapamil Tab. I.P	2.8
Analgesics, Antipyretics & Anti Inflammatory Drugs	
Ibuprofen Tab. I.P	-5.2
Ibuprofen Tab I.P.	-2.9
Anti Allergics & Drugs Used in Anaphylaxis	
Pheniramine Maleate Syrup USP	43.2
Betamethasone Tab. I.P	-17.7
Prednisolone Tab. I.P	-31.0
Anti Bacterials	
Benzyl Penicillin Inj. I.P	-6.7
Benzathine Penicillin Inj. I.P	-14.1
Ciprofloxacin Inj. I.P	-22.6
Cloxacillin Inj. I.P	12.5
Gentamycin Inj. I.P	-14.8
Cloxacillin Cap. I.P	-22.0
Erythromycin Stearate Tab. I.P	-47.0
Erythromycin Sterate Oral Suspension	-21.0
Cefotaxime Sodium Inj. I.P	-36.3
Phenoxyethyl Penicillin Potassium	-32.1
Anti Amoebic	
Metronidazole Tab. I.P	12.5
Metronidazole Benzoate Oral Suspen	23.6
Anti Malaria	
Choloroquine Phosphate Tab I.P.	-6.7
Diuretics	
Frusemide Tab. I.P	-14.8
Frusemide Inj. I.P	-7.9
Ophthalmological Preprations	
Gentamycin Eye and Ear Drops B.P	-19.9
Ciprofloxacin Eye Drops USP	5.9
Ciprofloxacin eye Ointment	14.8

Drugs Acting on the Respiratory Tract	
Ephedrine Hcl. Inj. NFI (IM&SC)	13.6
Theophylline and Etofilline Inj.	-5.3
Salbutamol Sulphate Tab. I.P	-15.4
Salbutamol Respiratory Solution	-11.6
Vitamins & Minerals	
Vitamin A Cap. USP	-3.4
Analgesics, Antipyretics & Anti Inflammatory Drugs	
Aspirin Tab. I.P	4.4
Antifungal	
Griseofulvin Tab. I.P	-18.3
Anti Hypertensive	
MethyldopaTab. I.P	-31.9
Anti epileptic	
Carbamazepine Tab. I.P	-27.7
Hormones and other endocrine drugs	
Human Insulin (Short Acting) Inj	-41.3
Human Insulin (Intermediate Acting)	-41.3
Dermatological drugs	
Silver Sulphadiazine Cream USP	31.3

Source: Extracted from the TNMSC's Drug List for the various years.

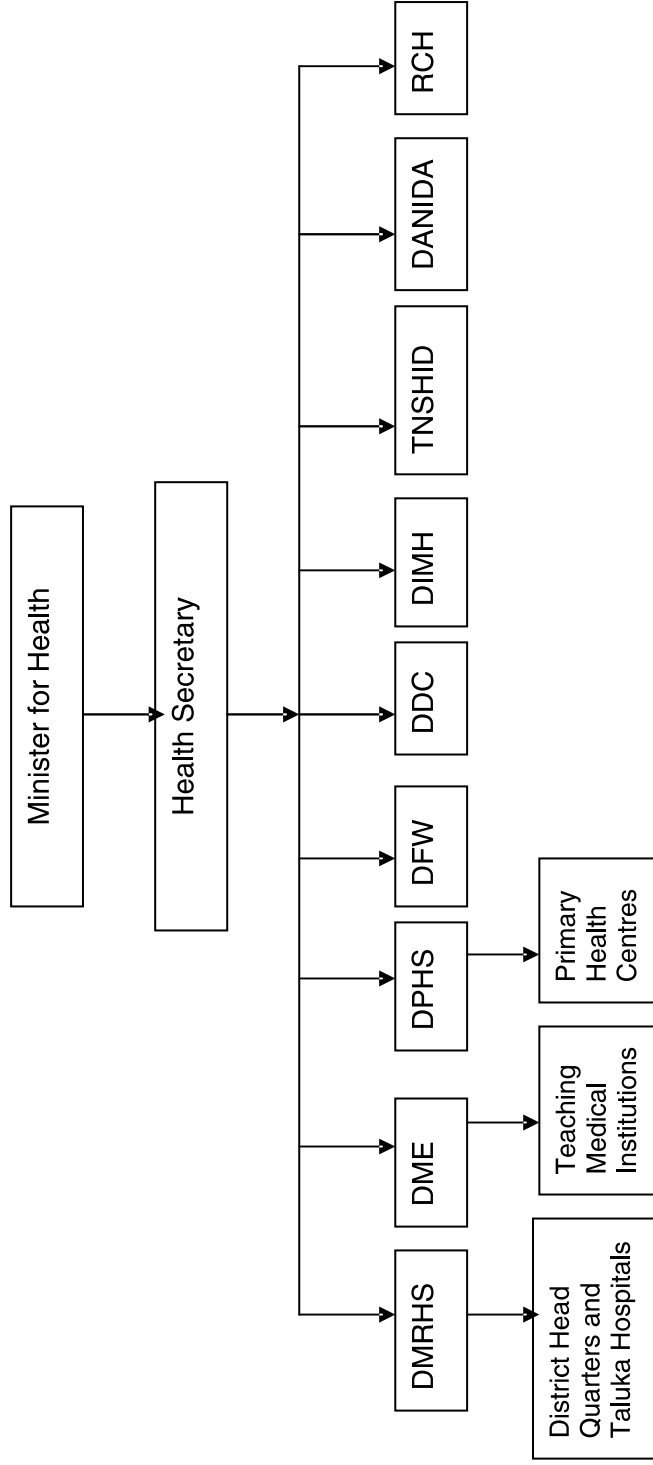
Table 8: Comparison of Prices Before and After Setting up of TNMSC (Rs.)

Year/Drug	Pyrazinamide Tablet 10x10	Cloxacillin Capsule 10x10	Norfloxacin Tablet 10x10	Atenolol Tablet 14x10	Ciprofloxacin in Tablet 10x10
1992-94 (pre-TNMSC)	135	158.25	290	117.12	525
2003-05 (post-TNMSC)	51.88	58.48	54.55	12.00	82.00
2006-07 (post-TNMSC)		56.60	49.50	11.44	70.00

Note: Period before 1995 and thereafter, is considered as before and after setting up TNMSC respectively

Source: TNMSC

Chart 1.1: Organisational Chart of Health Administration



- DMRHS Directorate of Medical and Rural Health Services
- DME Directorate of Medical Education
- DPH Directorate of Public Health and Preventive Medicines
- DFW Directorate of Family Welfare
- DDC Directorate of Drugs Control
- DIMH Directorate of Indian medicine and Homeopathy
- TNSHTD Tamil Nadu State Health Transport Department
- DANIDA DANIDA Health Camp Project
- RCH Reproductive and Child Health Project

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