

Research Article

Tamil Nadu Medical Services Corporation – A Critical Study on its Functioning During the Period 1995- 2012

Revikumar KG¹, Veena R^{2*}, Lekshmi S³, Manna PK³ and Mohantha GP³

¹Alshifa College of Pharmacy, Kerala University of Health Sciences, Perintalmanna, Kerala, India.

²College of Pharmaceutical Sciences, M.G University, Ettumanoor, Kottayam, Kerala, India.

³Department of Pharmacy, Annamalai University, Chidambaram, Tamil Nadu, India.

ABSTRACT

The Tamil Nadu Medical Services Corporation Limited, (TNMSC), is the first Government Corporation established by an Indian state to look after the procurement and supply of medicines for the public health facilities of the state. TNMSC was established on 1st July 1994 and started functioning in January 1995. At the time of establishment of TNMSC, other than the Delhi Drug Policy started in 1994, there was no other state policy on medicines in India. In the beginning there was a strong, but healthy competition between the Delhi and TNMSC Policies. Delhi Policy was started by a politician and TNMSC by a bureaucrat. After 2000, TNMSC became the role model for other Indian states, and Delhi Policy collapsed with the change of ministry in Delhi. Many other Indian states adopted the TNMSC model with necessary modifications and changes in their states. The Kerala Policy started in 2008 could overshoot the TNMSC in certain professional innovations. The present study analyses the functioning of TNMSC from 1995 to 2012 period and critically evaluates the strengths and weaknesses of the TNMSC policy and compares the same with other Indian Drug Policies from the view points of Pharmacy professionals and researchers.

Keywords: Critical study on TNMSC, Tamil Nadu Medicine Policy, TNMSC.

Background

Tamil Nadu with an area of 130058 sq. km (50,216 sq. miles), population of 7,21,38,958 and a population density of 555 ranks 6th in population and 11th in area among Indian states. It is one of the educationally advanced states in the country and has a literacy rate of 80.33% which is above the national average of 74.04 per cent. Tamil Nadu's Gender Ratio stands out at 995 females per 1000 males¹. It is the most urbanized state in India with about 43 per cent of the population living in urban areas. In terms of human development index, Tamil Nadu stands fourth with 51.11 points as against the national level of 42.79². It has 32 districts, 832 towns and 15400 villages.

When compared with All India statistics, health care indicators of Tamil Nadu is above average and there has been significant improvement in most of the parameters during the last two or three decades. Infant mortality rate of the state has declined from 80/1000 live births in 1982 to 44/1000 in 2002 which is considerably less than the all India rate of 63/1000. The crude death rate in the state is 7.7 as against the national rate of 8.5. Tamil Nadu has achieved 90% institutional

deliveries and according to the latest national health survey, 99% of births are preceded by antenatal check ups and 89 per cent of children are fully vaccinated. The health service in the state is made available to the public through the offices of five directors: Director of Medical and Rural Health Services, Director of Public Health, Director of Indian Medicine, Director of Homeopathy and Director of Family Welfare. The Directorate of Family Welfare is basically a central government sponsored agency and only some minor provision is made under the state plan. Apart from these directorates, there are certain health related schemes and projects out of which some are sponsored by foreign agencies like Danish Development Authority (DANDIA) and the state budgetary provision is high for such schemes³.

Tamil Nadu is one among the few Indian states having comparatively good infrastructure in health care, both urban and rural. The health infrastructure likes Sub-Centers, Primary Health Centers (PHCs) and Community Health Centers (CHCs) are available at the rural level while the dispensaries and hospitals at the urban centers. As a result of the national health

policy in the 1980s a number of rural health centers were established in Tamil Nadu and today there are 1413 PHCs and 59 CHCs functioning in the state. There are 41 medical colleges (19 Govt. and 22 private), 27 district hospitals, and 100 referral hospitals. Public sector is dominant in health care and owns above 70 per cent of the hospitals in the state. The assessment of utilization pattern of public and private health care services in Tamil Nadu shows that the public are availing the health facilities much more than any other Indian state people except Kerala. Around 60% of the health care spending is met by individuals. The state government caters to the health care needs of about 30 % of its population through government hospitals⁴.

Due to various health campaign efforts of the government, people of Tamil Nadu became vocal regarding their basic rights and do not shy away in bringing the lapses to the notice of the authorities who are thereby forced to take action. The decision to revamp the medicine procurement system in the state was a result of public outcry about the non-availability and shortage of medicines in government hospitals⁵. Today Tamil Nadu has one of the best public health care systems in country. About 9 per cent of the state health budget is being spent on drugs⁴.

Pre-Reform Scenario

Prior to 1994, the drug purchase, storage and supply to various hospitals of the state government were under the control of district health officers. Over 1000 drug items were purchased, many of them in bulk in large containers like jars and stored in unhygienic conditions. People were not having much faith in the public health system. There were several discrepancies in the cost of purchase, quantity and quality of drugs leading to leading to inefficient control of health expenditure. The Centralized Purchasing Committee, popularly known as CPC, was looking after the procurement and supply of medicines to the government health care institutions.

In Tamil Nadu, the CPC was in existence only up to the end of 1994 and was functioning under the chairmanship of the State Health Secretary. The Director of Medical Service, Director of Public Health and the Director of Medical Education were members of the CPC. The annual requirement of medicines was arrived based on the consolidation of the requirements of all the institutions. For PHCs and taluk hospitals the drug indents were consolidated and orders placed at the district level. Public sector firms were given preference at the time of finalising the rates

and only such items which were not taken up by public sector firms were given to private manufacturers. Quite often the public sector firms managed to obtain bulk orders but were unable to supply the items when orders were given to them. In such cases, when the public sector firms fail to supply, private manufacturers were approached. This obviously created delay in the supply of medicines.

The CPC switched over from the direct purchase to the open tender system in the early 1990s which helped to reduce the rates. However, supply continued to be irregular as the orders were given as in the previous case, without considering the production capacity of the firms. Complaints regarding the quality of medicines increased considerably. Consequently medicine shortages became a common phenomenon in government health services. In order to meet the emergencies, medicines were purchased from the open market at higher and varying prices. This arrangement caused the buying and stocking of a number of irrational, unwarranted and non-priority items of disputed quality medicines and more than 1000 drugs were in use in Tamil Nadu Government hospitals. Orders were placed both in generic and brand names. A good share of the CPC medicines used to be supplied by dealers and stockists and quite often certain small firms who were not in a position to supply big orders on a timely basis were getting huge bulk orders. The concept of budget provision and budgetary control was not known to the hospital administration. They used to give indents for items without considering the budgetary allocation.

The overall annual allocation for the institution or the department was exhausted in the early months of the year by procuring large quantities of drugs which were not required immediately or by paying the arrears of payments of previous years. For the subsequent period of the year non-availability of funds was cited as the reason for the shortage of drugs. The stock position of various items of medicine was not known to the district or state level officers. Certain items were overstocked in some hospitals, but may not be available in the nearby hospitals and there was no mechanism to transfer excess items to needy centers. Due to the intrinsic problems of procedures and formalities, it became common incidents that some drugs become time barred and wasted. If somebody wanted to collect the information, he had to collect it from all the centers and by the time

the information obtained, that would have been out dated⁶.

Genesis of Tamil Nadu Medical Services Corporation Limited (TNMSC).

In the early 1990s, the issue of shortage of essential drugs in government hospitals became common and widespread in Tamil Nadu. News papers used to publish stories on irregularities of the medicine procurement system on a regular basis highlighting the shortage of medicines in government hospitals. This forced the government to initiate new strategies with dismantling the old system. A team of bureaucrats and technocrats who had a vision to meticulously plan and implement the activities under the leadership of R. Poornalingam, a senior IAS officer (then Health Secretary to Government of Tamil Nadu), worked hard to make significant changes in the existing system and paved way for setting up of the Tamil Nadu Medical Services Corporation (TNMSC) Limited, the first of its kind in the country on 1st July 1994. TNMSC could start functioning (purchasing, storing and distributing medicines) in January 1995. The state government was very much supportive and willing to introduce reform measures. They managed to get the help of Danish International Development Assistance (DANIDA). The TNMSC was incorporated under the Companies Act 1956 with the objective of looking after all the activities related to the procurement of medicines for the entire government hospitals and public health set ups in the state.

AIM AND OBJECTIVES

The aim of the study was to conduct a critical analysis of the working of TNMSC during the period 1995- 2012 with the following objectives:

1. To study and evaluate the medicine policy of the state of Tamil Nadu and compare the same with that of other Indian states having such policies.
2. To study the medicine procurement and distribution system of the state of Tamil Nadu and compare with other states having such established Corporations.
3. To study the medicine storage and ware housing system of the TNMSC and analyse the same with the situation in other Indian states.

METHODOLOGY

It was carried out as a prospective evaluation study extending over a period of

four years (from April 2008- March 2012) and retrospective analytical from 1995 to 2008 period. Observation and discussion method along with inspection and interviews were followed to study the process of working. The collection of data process was conducted utilising all the available resources, including, official communications like orders, circulars and notifications, published literature both in scientific and non-scientific publications including newspapers, journals, magazines etc. and by conducting interviews and discussions with the various stake holders and the public and patients.

The data were also collected from the officers and professionals associated with the activities. Professionals including pharmacists, doctors, nurses, journalists and writers were interviewed through phones, emails and in person. The stake holders were selected to cover various aspects like policy framing, implementing, analysing and evaluating activities. Experts and professionals were interviewed to collect their opinions, observations and viewpoints. Representatives of various professional organisations, political parties, journalists and other media persons were also included for the interview. Apart from the organised interviews, a number of pharmacists and pharmacy store keepers were also consulted for the study. The people were identified based on their works, writings, expressed opinion and willingness to share their views.

The persons interviewed belonged to the following groups

- Persons supporting the policy/ policies based on their findings and viewpoints.
- Critics opposing the policies for specific reasons.
- Persons who have studied the policies scientifically at micro levels with professional/ academic or research interests.

A number of hospitals covering primary health centers (PHCs) to tertiary care hospitals and other institutions were visited to study the outcomes of the policies, actual medicine situations and obtaining the view points of stake holders, professionals and patients and their care- takers. It also helped to test certain findings and observations related to the drug policies gathered from the published documents and other sources. The study was conducted without any funding from external agencies.

RESULTS AND DISCUSSION

There have been practices of centralized and autonomous procurement agencies in the world countries. Countries like Tanzania, Sudan, Haiti, Benin, Zambia, Uganda etc. have autonomous supply agencies with board of directors to look after responsibilities procurement of medicines and surgical items for government health services. These autonomous agencies are established with the objective of achieving efficiency and flexibility generally associated with private sector organisations. They may operate either on profit or non-profit basis, but ensure reasonable price and adequate assurance of quality. The basic concept is that under right conditions a well constituted management board will have the freedom to appoint managers who will ensure an efficient and transparent procurement system⁵. Even in India, there were cases like Central Drug Marketing Unit of West Bengal Voluntary Health Association with the acronym CDMU was engaged in procurement and distribution of medicines. CDMU was started in 1984 as an subsidiary of West Bengal Voluntary Health Association but it became an independent and separate institution in 1986 retaining the same acronym, though known as Community Development Medicinal Unit. CDMU has expanded to other states and continues to procure medicines and supply to many health institutions. In a way CDMU can be treated as a precursor to TNMSC or Delhi model of procurement and supply.

The basic characteristics of an autonomous procurement agency include the following:

- i) Supervision by an independent management board,
- ii) Professionally qualified and competent pharmacy managers,
- iii) Availability of adequate finance,
- iv) Following the principles of essential drugs list (EDL),
- v) Focus on quality assurance both in terms of products and service, and
- vi) Public accountability and scientific management.

Most of the above mentioned characteristics including clause No (ii) were incorporated reasonably well in the TNMSC. The TNMSC is governed by a 9 member board of directors. The day to day administration of the Corporation is looked after by the Managing Director, who is an IAS officer. He is vested with substantial powers and duties of management and is one of the Directors of the Board of TNMSC. Efficient professionals from various faculties are drawn on deputation to work in the TNMSC and assist the Managing

Director. The Health Secretary of the Government of Tamil Nadu is the Ex-officio Chairman. Mr. R. Poornalingam, IAS, Commissioner & Secretary, Health & Family Welfare, Govt. of TN, was the brain behind the establishment of TNMSC and was also first Chairman. Mrs. Smitha Nagraj, another IAS officer of the state government, was the first Managing Director. The subsequent successors: The senior IAS officers - Mr Jacob and Mrs Leena Nair contributed further for the growth and development of TNMSC in their capacities as Managing Director of TNMSCL. While serving as the managing director, Mr. Jacob managed to bring persons like Mr. Suresh Jerad, qualified in pharmacy with pharmaceutical expertise, to the scheme. Mr. Jerald was associated with Stanley Medical College in those days and now works as the Principal of College of Pharmacy attached to Madras Medical College. He was appointed as the quality control manager of KMSCL in the initial years. The services of experts from the drugs control department and medical education were also utilised⁷.

The political will, high priority for transparency, team spirit, calibre of the team leader and the honesty, dedication and commitment of the team members made the TNMSC a great success. It is interesting to note that Mr. R. Poornalingam, founder Chairman, himself found enough time to visit various centers of the TNMSC at regular intervals to monitor the scheme and motivate the personnel from bottom to the top⁸. Mr. R Poornalingam was responsible for launching of TNMSC. His educational background and experience helped piloting the project to a greater height.



Fig. 1: Mr. R. Poornalingam

The TNMSC was set up with the primary objective of ensuring uninterrupted availability of essential and life saving medicines and

other items in government medical institutions in the state of Tamil Nadu at reasonable cost. It was planned to adopt a scientifically organised streamlined set up for the pooled procurement, storage and distribution system for medicines. In addition to medicines and surgical items for human care, veterinary medicines required for animal husbandry were also planned to be procured by TNMSC. The TNMSC was also mandated to purchase, installation and maintenance of equipment and instruments for the use of the government medical institutions. They have also planned to take up construction and other related works for hospitals and other health care facilities. Mr. R Poornalingam, founding Chairman, described the goal of TNMSC as "to ensure availability of quality drugs to everyone at affordable cost"⁹.

Innovations and Renovations made by TNMSC

Right from January 1995, TNMSC had taken purchase of quality medicines at competitive prices in a transparent manner as a challenge. For that purpose it had adopted a well designed, thoroughly planned and scientifically streamlined procedure for procurement, storage and distribution of medicines. It helped to ensure availability of medicines in hospitals throughout the year. In the beginning itself, TNMSC managed to take many bold decisions deviating from the traditional pathway of precedence and general procedure. The strong political will and courageous administration helped TNMSC to revolutionize the medicine procurement system in the country and getting acceptance as trend setters in the country.

Unlike the Delhi model, TNMSC was totally governed by the government officials, both bureaucrats and technocrats. The services of pharmaceutical experts in the management

are relatively poor. There are two middle level officers (Managers) at the TNMSC head office and two pharmacists in each warehouse. Manager (Purchase) is appointed on deputation from Directorate of Medical Education and is responsible for monitoring of inventory levels of medicines in the warehouses and placement of purchase orders with approved suppliers. The Manager (Quality Control) is appointed on deputation from the drugs control / government analyst office and is vested with the responsibility of drawing samples and forwarding them to the empanelled laboratories aiming to ensure the quality of medicines.

Right from the beginning the TNMSC decided to purchase drugs directly from manufacturers and not through their agents. The manufacturers were required to have good manufacturing practice (GMP) certificate and market standing for at least three years. The TNMSC stopped the previous practice of giving preference to certain suppliers like public sector and Small Scale Industries (SSI) units in the beginning and followed that for many years. Payments are comparatively quick compared to other states. Though the corporation claims that they will give payment within 15 days of the supply or earlier that is found to be exceptions rather than normal practice.

The TNMSC managed to introduce changes in the concept of packing for hospital supply of medicines and directed the manufacturers to use only strip/ blister packing for all tablets and capsules with inner and outer packing bearing Government logo to avoid their misuse. Bottom up approach was implemented in indenting process and took earnest steps to prevent overstocking and wastage due to expiry. The system is in practice even after 18 years .

Box. 1: TNMSC Innovations as a procurement agency (Veena *et al*,2010)

1. Procurement of cost effective medicines in right quantities at right time.
2. Extent maximum possible benefit to the poor sections of the society with available budget.
3. Introduction of an ideal mechanism for the selection of reliable manufacturers to ensure prompt supply of quality medicines.
4. Establishment of a paperless transparent procurement and distribution system that ensures timely deliveries.
5. Development of a system that ensure lowest possible total costs without making any compromise for quality.
6. Solving the issue of counterfeit and substandard medicines in government hospitals through the process of avoiding intermediaries in the supply chain.
7. Helps to educate the public and the health administration regarding exorbitant trade margins in marketing and sky high profits in pharmaceutical industry India.
8. Introduction of many innovations in the procurement process.
9. Publication of a number of small, pocket size books like pharmacists hand book, Essential drugs list etc. aimed at promoting rational use of essential medicines.

TNMSC introduced the 'first expiry first out' (FEFO) practice for picking and dispensing process of medicines in their warehouses. This in turn helped to introduce FEFO as an inventory control technique throughout the government hospitals in Tamil Nadu. All transactions including generation of material receipt certificate and inward goods register were maintained through a paperless Information Technology (IT). It enabled proper logistical management information system (MIS) which was supported by periodical physical verifications. Every day, MIS generates various reports including brief executive summary to enable officers for stock monitoring, forecasting, procurement and distribution.

The vendors were directed to supply the ordered items within 30 – 60 days of the order to the designated warehouses. Liquidated damages at the rate of 0.5% per day subject to a maximum of 15% were levied to the vendors for non-compliance. TNMSC introduced separate technical and financial documents for the bid and vendors are rated based on their performance¹⁰.

In 1994 itself, TNMSC introduced the essential drug concept for the procurement of medicines and thereby managed to reduce the number of items. The essential drugs list (EDL) was published and made available to all public hospitals in the state. It was the result of a well thought and properly designed plan that the essential drugs list was prepared before starting the logistics management by the Corporation. Since 1995, the EDL is published every year and made available to all the stakeholders in the state.

A Committee consisting of Professors of various clinical disciplines including medicine, pharmacology, an expert from World Health Organization (WHO), health secretary and the managing director of TNMSC was constituted to finalise the essential drug list. Later the state drugs controller was also included in the in the Committee. The WHO essential drugs list is taken as the model for the preparation of the EDL of TNMSC. After detailed discussions and deliberations, based on the morbidity pattern and the prevailing diseases calendar in different parts of the state, the Committee finalized an essential drug list consisting of 240 generic medicines. They have also conducted a 'VED' analysis (a well accepted inventory control technique used in medicine

management) and listed the items into three categories - Vital, Essential and Desirable. Only very few combination drugs were included in the list and the concept of single drug ingredient was adopted by the Committee at the time of finalising the list⁵.

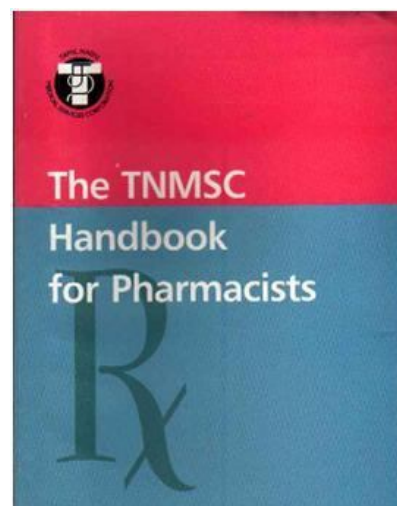


Fig. 2 : TNMSC- Handbook for Pharmacists

However, the TNMSC could not or rather it did not try to convert the essential drug list in the form of a scientific Hospital or State Formulary. But development of handbook for pharmacists and regular publication of newsletter for healthcare professionals helped promoting the concept of rational drug use. On certain occasions, the TNMSC even entrusted the responsibility of editing and publication of the hand book for pharmacists to private pharmacy college in the state and made it professional in outlook.

Taking into consideration of the fact that medicines other than those specified in the list may also be required in certain cases at certain centers in small quantities, the Agency took a decision to use only 90 per cent of the medicine budget for their purchase. The balance of 10 per cent is divided among the various health care centers with the condition that funds cannot be used to purchase drugs which are on the TNMSC list. After discussion at various levels the TNMSC also finalized a list of drugs which can be procured locally and the list was circulated to all hospitals. The system of distributing 10 per cent of the annual budget to hospitals has helped the Corporation to counter the criticism that the drug list is inadequate⁶.

The passbook system introduced by the TNMSC was a real innovation. The passbook system is already in practice in banking

system. The Pass Book system helped to make the hospitals aware of their budget utilization at any point of time. Every year all institutions like hospitals, clinics, polyclinics and other health centers in government set up are given two pass books showing the budget allotment for the year. One pass book is retained with the institution and the other with the warehouse. The name and value of the drug issues are entered in the pass book which forms the backbone of the information system. Appropriate entries are also made in the computer system. It helps the authorities to easily find the stock and movement of the items and monitor the proper utilisation of the budget allocation.

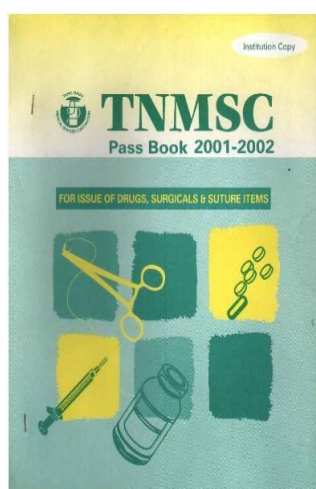


Fig. 3: Pass book for issue of medicines

Another innovative concept introduced by the TNMSC was finding the reasonable cost of the individual items included in the essential drugs list. Till 1994, no other agency in the country introduced this concept for the procurement of medicines or other hospital requisites. The TNMSC with the support of pharmacy expertise from the drugs control and medical education departments worked out the cost of

each medicine taking into consideration the cost of raw material, manufacturing cost, packing expenses, duties and taxes and a minimum profit. This exercise helped the TNMSC Officers strong enough to deal with the firms taking part in the tender process. They could question such firms which were quoting very less price compared to open market rates. It also helped to identify firms buying raw materials from centers of dubious quality and then offer low rates. This exercise helped to contain the cost of the items and maintain quality of medicines procured and also to create a sense of phobia and caution in the mind of suppliers.

The TNMSC created a chain of warehouses with all required facilities to provide reasonably good storage conditions including 'cold place' for the storage of items. Warehouses were established in 23 districts in the beginning which could increase about 30% efficiency of storage system. At present, the TNMSC has 25 warehouses in the state and they cover the 32 districts. All the warehouses are of uniform design and structure. Two warehouses were constructed with DANDIA's assistance, 11 with World Bank loan and the remaining with state fund. Interestingly they have more than 50 CT scan centers and about 10 MRI scan centers in the state.

Each warehouse is staffed with two pharmacists, one data entry operator and two helpers who help in loading and unloading operations. On receipt of new stock, appropriate entries are made in the computer about the stock arrived on that day, existing stock, pending quantity to receive, drugs distributed to various centers, expiry dates of different batches, total stock in the warehouse, and drugs with batch number sent for quality control (QC) checks. Distribution schedules were given to the hospitals to enable them timely deliveries.



Fig. 4: TNMSC Warehouse at Sivagangai

The TNMSC in 1995 itself stopped the existing practice of procuring and dispensing medicines in loose packs without original labels and started procuring tablets and capsules in aluminium foils and blister packs. Liquid items for oral and external use were purchased only in 60 ml or 40 ml bottles and ointments in 5 g or 10 g packs. It helped to ensure quality, avoid wastage and prevent loss of potency during the shelf life period. It also helped to improve the image of public health

care system among the people as they were getting medicines in the same form and appearance as obtained from the community pharmacies or medical stores in the neighbourhood. The supplying firms were instructed to print the logo and the message that the said drug is meant for the supplies of Tamil Nadu Government and not for sale. By 2000, it was found that 20 per cent of the 50 best selling drugs in the Tamil Nadu open market were in the TNMSC list¹¹.



Fig. 5:TNMSC Warehouse- Inside view

Right from the beginning the TNMSC made strict conditions to guarantee that the suppliers would ensure uninterrupted and quality supply of ordered items. Only manufacturers and direct importers of medicines are empowered to participate in the tender process. Tenders are notified in various national dailies, pharmaceutical news papers and on the website www.tnmsc.com. Like the Delhi Policy, TNMSC also introduced the double envelop system for tenders and documents were asked to submit in separate covers - Cover 'A' and Cover 'B'. The Cover 'A' shall have the technical details regarding the firm. The manufacturer shall have the manufacturing license for the item quoted and should be manufacturing in own premises. Loan license will not be considered. In 1994 it was stipulated that the firm shall have a minimum turnover of Rs 10 lakhs which was subsequently increased and fixed at Rs 35 lakhs.

The manufacturer was supposed to have a market standing for the quoted items for a minimum period of 3 years. They should also have 'Good Manufacturing Practice' certificate

issued by the state drugs controller and should not have suffered from any legal conviction or cases. If the Committee is satisfied with the details provided in the envelop A, then a technical team will visit the firm, without giving any prior notice, to confirm the details given in the tender and to estimate their production capacity of the quoted items.

Based on the recommendations of the inspection team, the samples are obtained and then sent for quality checks. If the quality control department recommends the item/s, the firm is invited for the opening of Cover B. The copies of the quoted rates are distributed to all the participating firms. The rates of all participating firms are displayed on a huge screen so that every bidder can know the rates of others. One who has quoted the lowest rate is called L1 and is eligible to get the order. If there are some firms who are close to the L1 rate, they are given the opportunity to match the L1 rate and the purchase order is distributed among them.

The preference given to the SSI units in Tamil Nadu and other public sector units were taken away with the establishment of TNMSC. (It

was re-introduced after 15 years in a modified form). The suppliers of one year will not automatically become eligible to supply in the next year and have to go through the same procedure, but for the inspection. The firm getting order have to start supply immediately and at least 20 per cent of the ordered quantity has to be supplied within 30 days and complete a minimum of 70 per cent of ordered supply within 60 days. If the firm makes default in supply, orders are given to the matched supplier or with next higher tender firm and price difference is deducted from the original party. Along with the item, the manufacturer has to submit their quality control test reports. The supply has to be effected directly to the designated warehouses. A late delivery fee of 1.5 per cent of the total purchase order value is levied even if the supply is delayed by a single day.

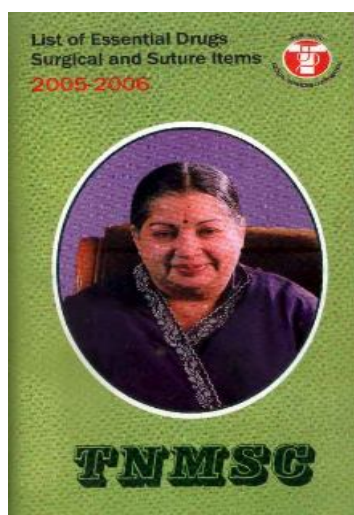


Fig. 6: EDL of TNMSC

On receipt of the ordered items, the warehouse issues a material received certificate (MRC) to the TNMSC office. Each and every batch of medicine supplied to the warehouses is subjected to quality tests by the laboratories empanelled through open tender process. Three random samples are taken from each batch, after eliminating the common batch, decoded and sent to the laboratories for test reports. If the samples pass quality tests in all respects, TNMSC gives instruction to its warehouses for issuing the items to the hospitals. In order to ensure the quality during the storage period, samples are also taken from warehouses every six months of their storage for quality tests. Normally it takes two weeks for tablets and capsules and three weeks for injections to get the test reports from the empanelled laboratories. If the sample is declared as 'Not of Standard Quality' by the empanelled laboratories, one more sample is

drawn from the same batch and sent to government laboratory for quality test and confirmation. If the sample passes that will be issued and if fails the drug of that batch is declared as not suitable for supply and the firm is instructed to take back the items. In cases where two batches of an item of a particular manufacturer fail in the test for percentage of active ingredient (assay) during the tender period, that particular item will be blacklisted after observing the procedure. In case any item sample supplied is found as spurious or adulterated or misbranded by the government analyst, the manufacturing firm is black listed. During the period April 2009 to March 2013 about 60 products were blacklisted and from April 2010 to April 2013 twelve firms were blacklisted by TNMSC.

TNMSC is currently supplying medicines to all government teaching medical colleges and hospitals attached to them, district hospitals, taluk hospitals, primary health centers (PHCs) and through them the health sub centers, juvenile homes, ESI hospitals, prisons and police hospitals, co-operative sugar factories and tea plantations, government dispensaries, veterinary hospitals, road transport corporation hospitals and all local body hospitals. The sustainability of the TNMSC was evaluated as very good and the scheme is completely self financing. TNMSC is charging a handling fee of 1.5 % for all its transactions. Being an organisation registered under the Company's Act which does not permit profit orientation, TNMSC finances new initiatives and projects with the revenues it generates¹².

Every year, in the month of November, TNMSC finalises the essential drugs list including the surgical and suture items through its Drug Committee. The Drug Committee consist of the following members

- i) Director of Medical Education
- ii) Director of Medical and Rural Health Services
- iii) Director of Public Health and Preventive Medicine
- iv) Director of Medical and Rural Health Services (ESI)
- v) Director of Drugs Control
- vi) Director of Family Welfare
- vii) Chief Physician
- viii) Specialists and Surgeons

Though the committee has the participation of pharmaceutical expertise, the services of some practice oriented qualified pharmacist is lacking at higher levels in the set-up. This is very much reflecting in the functioning of TNMSC. They could not introduce no new schemes or innovations in the medicine

related aspects after its establishment or once Poornalingam left the organisation. In 1996, TNMSC was bestowed with Rajiv Gandhi National Quality Award and in 2004 it received the World Bank's appreciation in beating inefficiencies in medicines procurement and improving rural health services. No doubt TNMSC became a role model for all other states in India by 1997 itself.

Analysis of the working of TNMSC

The TNMSC of Tamil Nadu, established in 1994, could prove even in its early years that it is a well designed and scientifically planned agency capable of addressing most of the issues related to drugs and its logistics. No other Corporation started in India in the subsequent years including the Kerala Medical Services Corporation Ltd (KMSCL) that was started in 2007 November could not have a take- off as smooth and effective as TNMSC. TNMSC proved and taught other states that that 'smart buying' and effective system of distribution of medicines can be introduced in public health care set up in India, if there is a will and necessary home-works are done at different levels.

It was the strong political will and administrative commitment that helped TNMSC to be effective in solving the medicine related issues of the state to a greater extent. The transparency helped to manage opposition from vested interests group and even the threats of legal action from those who fail to get orders in the tenders. The analysis of the genesis, growth and development of TNMSC shows that that the success of such public sector procurement agencies greatly depends on the people behind the scheme. If the team captains fail to take timely remedial measures, the establishment can go to dogs, as proved by the Delhi Drug Policy, the first State policy introduced in India in 1994⁸. The same thing happened with KMSCL. In the first two years of its starting KMSCL failed to make the system perfect. Only when Mr. Biju Prabhakar IAS took over the charge of KMSCL, it could make changes in the system and introduce certain innovations of their own. Still in transparency, MIS and certain other aspects KMSCL is not up to the mark of TNMSC. The system of transparency adopted and accepted by TNMSC is worth emulating for other Indian states including Kerala.

It is interesting to note that the five year old KMSCL could overshoot TNMSC in professionalism, pharmaceutical expertise and certain innovative service activities like

the Karunya Community Pharmacy Services and starting of a wing for Policy research studies by 2013. The Karunya Community Pharmacy Services of KMSCL is worth emulating by all other Indian states. The KMSCL Institute for Drug Studies- KIDS - started in 2013 April is really another wonderful innovation of KMSCL and its team leaders. Both the schemes were the started because of the capability of its Managing Director Mr Biju Prabhakar. The People having practical knowledge, professional expertise and quest for research are needed to introduce newer activities and innovations in a system. Of course, they have to be bold and have a clear track free from corruption.

If it was Mr Poornalingam who could take TNMSC to about 80 per cent or more transparency in the medicine procurement and related process and introduce innovations in the policy, it was Mr Biju Prabhakar an IAS officer with engineering background who managed to introduce professional and service innovations and transparency to about 60 per cent in KMSCL for which he has to face difficult situations. More over Mr. Biju Prabhakar did not get the opportunity like Mr Poornalingam to be the captain the Corporation right from its beginning and lead the team for a reasonable period of stability like four or five years period. Interestingly Mr. Biju Prabhakar left the post of Managing Director of KMSCL in May 2013 after a period of about two years service .

The organisational structure of TNMSC is shown in Fig. No 7. Most of the TNMSC staff with the exception of a very few like company secretary are working on deputation basis from other government departments. It was possible for TNMSC to attract hard working and sincere people to its set up as they have proper norms and guidelines for most of the functional activities. The absence of proper SOPs and Working Manuals are the reasons for not getting competent and capable professionals into the Corporations in many other Indian states that have started similar set ups for procurement of medicines. Such arrangements helped TNMSC to make minimum overheads and administrative expenditure.

The firm that established the computer network for TNMSC utilize their own staff for electronic data processing works. The IT wing of TNMSC helped to make the organisation efficient and effective in many aspects by providing convincing supports. In the case of KMSCL it was the IT activities that created confusions and complications in the procurement, storage and distribution process

and KMSCL is yet to have proper SOPs and norms/guidelines for many of their key activities.

One has to visualise that at a later stage many internal problems can originate in the establishment if it depends heavily on deputed staff. At the time of promotion people may go back to their parent institution as they may not get promotion posts in the organisation. Good and hard working persons

may or may not like to take up certain types of jobs having high components of job risks and chances of false allegations or fake complaints. Delegation of powers can also become an issue if the staff are from different departments. After 18 years of its existence, TNMSC attained many achievements, but having a number of problems and issues to be attended.

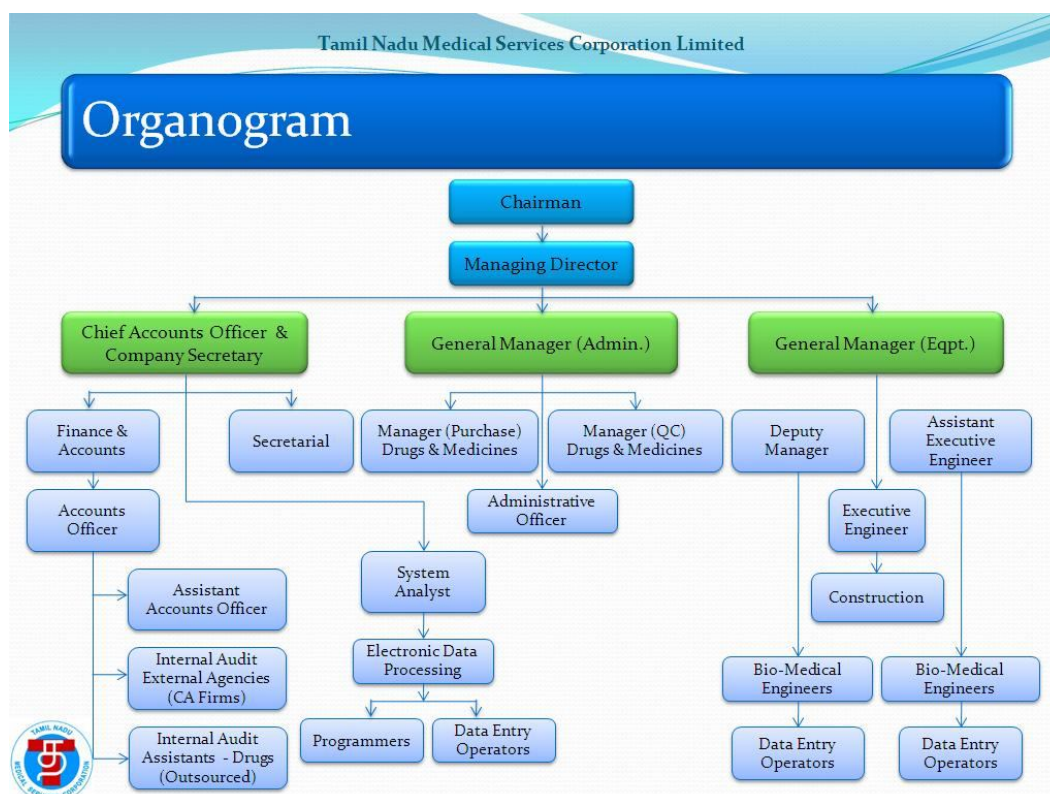


Fig. 7: Organisational structure of TNMSC

The utilization of pharmaceutical expertise in the process of procurement and distribution of medicines in TNMSC is just OK while it is much better in KMSCL. A minimum of two pharmacists are available in all the warehouses of TNMSC and are looking after the overall supervision and management of the warehouses. These pharmacists are also working as Information Officers under Right to Information Act. At the head office, there are two managers - Manager Purchase (Medicines) and Manager (Quality Control) with pharmaceutical background and qualifications. However, there is no pharmacy expert in the TNMSC at the General Manager level and that is reflecting on the working of TNMSC on certain occasions. There is a senior person from the pharmaceutical sciences area is in the drug purchase

committee - the drugs controller of the state. However, there is no hospital or clinical pharmacist in the team.

An analysis of the growth, development and the various activities taken up by the TNMSC during 1994 - 2012 period shows that it needs changes in the organisational set up including bifurcation into two or more wings. The diversification of TNMSC has become essential due to its entry into activities like procurement, service and maintenance of major and other instruments and equipment and other related service activities that are totally different from the procurement, storage and distribution of medicines. The TNMSC is also procuring and distributing the drugs, Chemicals and Liquid Nitrogen to the Government Hospitals under the Directorate of Veterinary Services, throughout the State by

adopting a streamlined procedure for their procurement, storage and distribution.

Now a separate system for biomedical and engineering department is necessitated as the TNMSC is maintaining over 60 CT Scan machines and over 10 MRI scan centres. The new wing can take up activities like purchase and maintenance of instruments and equipment and also finalisation of specifications and other related matters of such items. Increase in volumes naturally put pressure on quality assurance related issues and TNMSC started facing such problems. Currently manpower is a serious issue for TNMSC and is affecting all the departments of the functioning of TNMSC including its warehouses.

The TNMSC warehouses are comparatively scientific and well designed. They are provided with facilities for 'cold place' that is 2 to 8°C by providing refrigerators and walk-in coolers. Though about 60 per cent of the items procured by TNMSC do need storage in a 'cool place', the TNMSC is yet to take up that issue seriously. The 'cool place' is an area where the temperature has to be maintained at

8 to 25°C and is provided by air conditioning the premises. It is yet to be adopted as a policy by the TNMSC to keep all cool place items in air conditioned premises, though KMSCL took it as a policy within five years of establishment. The Tamil Nadu Drugs Control department is insisting of cool place facilities for the hospital pharmacies for issuance / renewal of licence for storage and sale of medicines.

The EDL of TNMSC is periodically revised and published, but it has not initiated the development of the list in the form of a formulary. The component of Research activities within the system is very less in TNMSC and there has been decrease of publication and study reports after the time of Mr. R Poornalingam. However some external agencies, organisations and individuals manage to conduct studies and analysis of TNMSC and its activities with the support of certain funding agencies.

The price comparison of certain medicines before and after the establishment of TNMSC is shown in Table No.1.

Table 1: Price difference of medicines in Tamil Nadu

| Comparison of Prices before and After TNMSC in rupees | | | | | |
|---|-----------------------------|-----------------------------|----------------------------|-------------------------|------------------------------|
| Year / Drug | Pyrazinamide tablet 10 x 10 | Cloxacillin capsule 10 x 10 | Norfloxacin tablet 10 x 10 | Atenolol tablet 14 x 10 | Ciprofloxacin tablet 10 x 10 |
| 1992 - 94 (Pre TNMSC) | 135 | 158.25 | 290 | 117.12 | 525 |
| 2002-03 Post TNMSC | 62.8 | 72.6 | 51.3 | 14.68 | 88 |

Source: Veena *et al.*, 2010.

TNMSC also succeeded in maintaining the prices of a number of drugs for years. They also managed to purchase certain categories of drugs for years without price increase or at even reduced prices.

Table 2: TNMSC prices of selected items over the period: 1998-2003

| Prices of drugs purchased by TNMSC, 1998-2003 (in rupees) | | | | | | |
|---|-----------------------------|---------------------------------|------------------------------|---------------------------------|-------------------------------|----------------------------|
| Year / Drug | Paracetamol Tablets 10 x 10 | Co. Trimoxazole Tablets 10 x 10 | Cefotaxime Sodium Injections | Ciprofloxacin Injections 100 ml | Ciprofloxacin tablets 10 x 10 | Ranitidine Tablets 10 x 10 |
| 1998 - 99 | 13.14 | 31 | 8.31 | 8 | 168 | 31.2 |
| 1999 - 00 | 11.95 | 27.85 | 5.67 | 7.5 | 129.6 | 28 |
| 2000 - 01 | 11.5 | 27.3 | 5.24 | 7.2 | 99.9 | 26 |
| 2001 - 02 | 11.42 | 27.82 | 5.08 | 6.75 | 93.03 | 23.9 |
| 2002 - 03 | 11.24 | 27.82 | 4.94 | 6.74 | 88 | 22.34 |

The success of TNMSC was due to the home work done by the team captain during its formation. There was an effective leader to spearhead the establishment. The centralised procurement is not a remedy to reduce or avoid the issue of corruption, drug availability

or affordability. Such issues can percolate into the establishment unless some checks and balances are in place to avoid them. The services like IT, quality testing, supply chain management etc. were outsourced and dedicated vehicles were allotted for ware-

house facility transfers. Prompt payments to suppliers were ensured and effective pre-qualification criteria were developed to promote competition and assurance of quality and managed to get the services of trained, technically qualified personnel on contract basis. The minimum turn over pre-qualification criteria for TNMSC is Rs 35.00 lakhs while it varies up to 10 or 30 crores in some other states.

Impact of TNMSC model in the country

During the period 1995- 1999, there was a healthy competition between Delhi Drug Policy and TNMSC. The Delhi Drug Policy was the first state Drug Policy in an Indian state established in March 1994. Dr. Harsh Vardhan, who became the Health Minister of Delhi in 1993 was responsible for starting the Delhi Policy one year before the TNMSC. Being a medical graduate, Harsh Vardhan found it easy to understand the medicine situation in Delhi hospitals. He utilised the services of Prof. Ranjit Roy Chaudhury, former Dean of PGI, Chandigarh, who was having close association with the WHO and its policies on medicines, for the establishment of the Delhi Policy. TNMSC was started because of Mr Poornalingam, a senior bureaucrat belonging to the Indian Administrative Service who was the then Health Secretary of Tamil Nadu. Though the take off of Delhi Policy could establish good impact at national and international levels in the early years, they could not maintain the tempo later, particularly after 2009. Today Delhi Policy is in a very bad shape and position. Unlike the Delhi Policy which was focussed on the person, the TNMSC could make norms and guidelines for its functioning and developed to the level of an independent establishment.

Impressed by the success story of the TNMSC, many other states in the country started adopting the system either as such or with necessary modifications and changes for their health care sectors. The Andhra Pradesh in 1998 has notified the A.P Health and Medical Housing and Infrastructure Development Corporation (APMHIDC) as the nodal agency for undertaking centralised drug procurement. The APMHIDC has established a central procurement system for the entire hospitals in the state under the control of i) director of medical education, ii) director of health and iii) commissioner of A .P Vaidya Vidhana Parishad (APVVP). APMHIDC has emulated many components of the TNMSC like central drug stores in all districts (warehouses), pass book, quality control and

computerization. The budget of medicines for each hospital is allotted every year by the concerned head of the department.

Since 2004, TNMSC emerged as the role model for all Indian states and the attempt of replication of TNMSC model with necessary modification has increased. A number of Indian states like Assam, Andhra Pradesh, Karnataka, Kerala, Rajasthan, Orissa, Bengal, Chattisgarh, Gujarat and Punjab started adopting the basic features of TNMSC model. Other states like Maharashtra, Madhya Pradesh, Bihar etc. are in the process of adopting the TNMSC model. Madhya Pradesh which promoted Rogi Kalyan Samitis at the hospitals in 1973 revised the scheme in 1999 aiming to solve some of their drug related issues.

For certain states, the TNMSC acted either as consultant or a nodal agency for establishing a procurement system. Some states like Rajasthan which sought the help of TNMSC could not introduce a true pooled procurement system till 2011 in spite of creating autonomous medical relief Societies in 1995 to find fund for hospital needs including medicines. In Rajasthan a number items are procured directly from the public sector manufacturers like the Rajasthan Drugs and Pharmaceuticals Ltd¹³. In October 2011, Rajasthan Medical Services Corporation was established with a full time IAS officer as Managing Director.

The Government of Karnataka has formed a separate entity known as 'Karnataka State Drugs Logistics and Warehousing Society (KSDLWS)' with head office at KHB Colony, Magadi Road, Bangalore in 2003. It is under the direct control of state Principal Secretary for Health and Family Welfare. It is a typical government set up and the Health Minister acts as its chairman. In Karnataka about 60% of the drugs requirement is managed by the zila panchayats at the district level and the remaining 40% by the government medical stores.

The state of Kerala, which had taken certain progressive steps in its drug procurement in 1994 waited for years studying and analysing the TNMSC model and finally formed a corporation styled as Kerala Medical Services Corporation Ltd (KMSCL) in November 2007. In spite of its improvements in various aspects of the policy, there are certain limitations for the TNMSC and such issues often reflect in the functioning of TNMSC. The TNMSC could not introduce any innovation in the area of medicine procurement and distribution activities after 2000 AD. In 2009, there was a controversy regarding the functioning of

TNMSC after media reports revealed that some batches of povidone iodine supplied by an Indore based firm M/s Endolabs Ltd. was found spurious by the Government Analyst. Povidone iodine is iodine based disinfectant solution used in surgical procedures and to clean wounds and if not of standard quality, can cause increased rates of hospital infections. Six batches of the items were certified as standard quality by the empanelled laboratories: Chennai based 'Mical Lab' and Bangalore based 'Test House', but were later found to be soapy solutions without iodine content. The supplier and the laboratory which tested the sample were blacklisted in December 2009⁹.

The value based pass book system introduced by TNMSC works allotting a fixed amount to each facility and can request and obtain any quantity of drugs in the EDL list of TNMSC within that amount. The pass book system is very much transparent and logical and relies extensively on use of information technology(IT). TNMSC permits 10 % of the allotted fund to be used at the district/ local level and only 90% is used for centralised purchases. The allotment of 10% at the local level helps to meet the emergencies and other contingencies^{14,15}.

The population of Kerala is just half of Tamil Nadu, but the annual budget allocation for medicines in the two states are almost similar (about 200 crores in 2012). Tamil Nadu spends a per capita amount of Rs 25 for medicines while Kerala spends above Rs. 50 for medicines. It is mainly because of the Pass Book system that TNMSC managed to ensure the rational and scientific use of medicines in Tamil Nadu. TNMSC model worked well in the context of the state of Tamil Nadu, but it is not sensible to just engineer the same model in other states like Kerala or Orissa where the local context and the needs are different.

The TNMSC list of EDL is the best one among all Indian states. It consists of about 260- 270 items of medicines and pharmaceuticals, about 65 surgical items and about 85 items of sutures. The items are classified as fast moving and slow moving based on the FSN technique of inventory control. The purchase orders for fast moving items are placed once in two months and for slow moving items it is done twice in a year. Apart from the process of preparation of the EDL, the addition and deletion process of TNMSC are also scientific. The main success of the EDL is its practical implementation in the state. TNMSC has successfully implemented the generic prescription and dispensing practice in the entire public health

care facilities, from primary to tertiary levels. It also maintains an effective accounting and checking facilities for the implementation of EDL.

CONCLUSION

A team of committed and dedicated officials of TNMSC could introduce many innovations in the system that helped to revolutionize drug procurement in the country. Indian states are encouraged to adopt the TNMSC model, but with necessary modifications, amendments and own innovations. The state of Kerala adopted TNMSC model in 2008 after serious discussions and analysis of the issues. The Kerala Medical Services Corporation Ltd (KMSCL) could introduce certain innovations within a period of five years of its establishment that are worth emulating by other Indian states. The Community Pharmacy Services and the Institute of Drug Studies are role models for other Indian States. The sorry state of TNMSC is that it failed to introduce any new concept/s in matters related to medicine procurement, storage, distribution and dispensing after 2000. It is mainly due to the lack of expertise in Pharmacy Practice area and the failure to establish a research wing like KIDS in TNMSC. If the positive aspects of the TNMSC and KMSCL are clubbed together, India can project the TNMSC as a national role model and other nations, particularly the developing countries in the world can adopt the same with necessary alterations and modifications.

REFERENCES

1. Census. Office of the Registrar General and Census Commissioner, Govt. of India April 2011.
2. Varatharajan D. Public sector and efficiency: Are they mutually exclusive. An alternative policy framework to improve the efficiency of public health care system in Tamil Nadu, India Journal of Health and Population in Developing countries, North Carolina 2003.
3. Health Programme Initiatives in Tamil Nadu- A Review, Rural Women's Social Education Centre, Tamil Nadu. 2008.
4. Dinesh Narayanan. Tamil Nadu Medical Services Corporation: A Success Story. Forbes India Magazine. 30 July 2010.
5. Lalitha N. Essential Drugs in Government Health care: Emerging model of procurement and supply.

- Working Paper No 161. Gota, Ahmedabad. 2005.
6. Poornalingam R. Drug Management in Government Sector : The Tamil Nadu Model. Essential Drugs Monitor. WHO. 1996;21:10-11.
 7. Revikumar KG and Miglani BD. Text Book on Pharmacy Practice, Career Publications, Pune, India. 2008.
 8. Veena. R. Emerging trends in medicine procurement in government sector in India - A critical study , Int. J Res Pharm Sci. 2010;1(3):372-381.
 9. Narayanan D. Tamil Nadu Medical Services Corporation: A Success Story. Forbes India Magazine. 2010.
 10. Poornalingam R. Drug Management in Government Sector; The Tamil Nadu Model. International Experience in Rational Use of Drugs . College of Public Health, Chulalongkorn University, Bangkok, Thailand. 1998; 3:97-120.
 11. Access to Medicines. Initiatives in Policy Making and Delivery of Drugs – A case study of Tamil Nadu. Gujarat Institute of Development Research. Report submitted to World Bank. 2003.
 12. Indrajit Pal. Streamlining drug procurement at appropriate levels of the health system, Tamil Nadu, Central Bureau of Health Intelligence, Health Sector Policy Reform Options Database- Govt of India. 2004.
 13. Sakthivel S. Access to Essential Drugs and Medicine; Financing and Delivery of Health Care Services in India. SIII. New Delhi. 2006;185- 212.
 14. Prabal Vkram Singh. Replicating Tamil Nadu's Drug Procurement Model. Economic and Political Weekly. 2012;18(39):26-29.
 15. Working Paper No 161. Emerging model of procurement and supply. Gujarat Institute of Development Research. September 2005.