REVIEW OF CONTRIBUTORY HEALTH SERVICE SCHEME OF DEPARTMENT OF ATOMIC ENERGY

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PREFACE

Access to health service is a challenge at the national and organizational level. But Department of Atomic Energy (DAE) is one such organization that gives extreme importance to the health of not only its employees but also their dependants. Contributory Health Service Scheme or CHSS is the most generous health service scheme among all the health schemes of government. Started in the sixties to provide health service for a small number of employees based in Mumbai (Trombay), has developed into a large organization of several units spread all over the country. Naturally, the beneficiaries have increased and the scheme is also meant for their lifetime and hence the retired employees and their dependants are also added to the number of CHSS beneficiaries. CHSS has expanded in different locations differently adding to the complexity of the scheme. While the cost of the scheme has escalated, the question arises whether the value for money in terms of good quality health care is available for the beneficiaries. Therefore, it is the right time to review the scheme to ensure that good quality of health care is accessible to beneficiaries at a cost that would be sustainable for DAE. This review focusses on the services made available in different units of DAE to see the areas of rationalization of services and to recommend a more uniform scheme that would be rational and relevant to meet the health needs of the beneficiaries.

The review is undertaken by using the data and information available with the DAE unit all over the country and also a few site visits to understand current complex CHSS scheme operating in DAE. We hope that this report brings out findings that answers the concerns of CHSS administration and the recommendations that shows future direction to make CHSS effective and sustainable.

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INTRODUCTION

The Contributory Health Service Scheme (CHSS) was introduced in the year 1962 by Late Dr. H. J. Bhabha, the founder of the Nuclear Research Programme in the country. Although all other Central Government employees were covered either under the CGHS or CS (MA) Rules, there was an imperative need with a legal obligation for a unique and distinctly different medical care having regard to the functional intricacies of the organization and hence a separate scheme i.e. CHSS was set up exclusively in the Department. This was especially taking into account the fact that the nature of occupation of scientists and other employees demanded evolving a high level medical care system involving not only a routine treatment facility but a sort of medical auditing supported with a research input as a matter of abundant caution in the area of nuclear radiation. In the initial stage, Mumbai (Trombay) being the first unit of DAE, the scheme had covered only Mumbai based units. However, as the activities of the Department expanded and laboratories and plants were set up at different locations, the scheme was extended mutatis mutandis to many other places covering Mumbai, Tarapur, Kota, Talcher, Chennai, Kalpakkam, Vadodara, Hyderabad, Indore, Manuguru, Tuticorin, Kolkata and Mysore. In addition to DAE employees, the scheme covers the staff of NPCIL, TIFR, TMC, SINP, IMSc and AEES. The Scheme covers both the serving and retired employees and their family members.

Under the Scheme, a beneficiary is entitled to medical treatment both as an out-patient and inpatient in the Departmental hospitals, private base hospitals and referral hospitals recognized under the Scheme. Treatment under the Scheme includes ordinary ailments and also specialized treatment for acute and chronic diseases with no ceiling limits for any treatment. The Scheme also provides for pathological and radiological investigations, maternity facilities, and reimbursement of expenses incurred in medical emergencies.

RATIONALE FOR THE REVIEW

Though CHSS is termed as “contributory scheme”, the contribution of the employee is nominal, 1% of the basic salary. The overall contribution of the employees for the scheme is
less than 10% of the total expenditure. It is predominantly government funded scheme for
the welfare of its employees. The scheme is operated in different format in different
locations of DAE. DAE has its own hospitals in Mumbai, Kalpakkam and Tarapur. In other
locations, they are operated through private providers. In some locations, there are
dispensaries of DAE but hospital services are outsourced to private sector. In Kolkata, there
is a private base hospital and referrals are made from this hospital. In Hyderabad, there are
AMAs and zonal hospitals and referrals are made by both. Even the reimbursement pattern
varies from one location to another.

While the CHSS is very comprehensive and benefiting the employees, the scheme has grown
several times since 1962 in terms of number of beneficiaries and cost. There are several
factors that contribute to the high growth of CHSS. First of all, the number of units of DAE
has multiplied over a period of time. Second, the number of employees in each unit has
increased tremendously. Third, since the scheme is extended rightly to the retired employees,
it has added further to the growth of beneficiaries, especially in locations like Mumbai,
where the unit was started long back. Fourth, the increase in longevity of retired employees
has contributed to serving each beneficiary for longer period than before. Finally, as more
and more aged beneficiaries are added to the scheme, the beneficiary population needs
continuous health care and often high end health care of high cost. All these factors have
contributed to the continuous escalation of cost of meeting the health needs of the
employees, retirees and their family members.

Apart from the above factors, the overall cost of providing quality health care has multiplied
over a period. Salaries and the cost of maintenance of infrastructure in its own hospitals and
dispensaries have gone up over a period of time. Further, the cost of treating patients in the
referral hospitals has sky rocketed in the recent times. For example, in Mumbai the cost of
referral is more than rupees 50 crores in 2012, though DAE has its own 390 bedded hospital
with all general speciality departments to take care of most of the ailments of the target
population.

In the light of the above scenario, the DAE has the challenge to meet the increasing needs
without sacrificing the quality of medical care for its employees. At the same time, it is also
important to ensure that the scheme is sustainable in the light of increasing number of
beneficiaries and increasing complexities of their health problems as well as the increasing
cost of meeting these health needs. Therefore, the purpose of this review is to critically
analyse the operation of the CHSS and look for options that would enable access to quality
health care for all the beneficiaries at a cost that would sustain the CHSS for the years to
come.

Methodology

The review is based on secondary data analysis and field visits. The data on out-patient and
in-patient attendance per year, referrals and their cost and per beneficiary cost were collected
from each unit of the DAE. The consultants have selected a sample of DAE units for site
visit based on the way CHSS is implemented. Thus the consultants could get an overview of
the way CHSS is implemented in different units. The site visits included the DAE units in
Mumbai, Kolkata, Kalpakkam, and Hyderabad. During the visits, the consultants visited the
dispensary/hospital and evaluated the infrastructure and interacted with the doctors and the
scientist or engineer of the unit who was taking care of CHSS. The consultants had the
opportunity to interact with some of the beneficiaries who have utilized medical services
recently and find out their perception of functioning of CHSS in their units.

In Mumbai, the consultants made several visits to the BARC hospital. Initially, a detailed
visit to each and every department of the hospital was made. The consultants had
discussions with the clinical heads and the administrative officer of the hospital. The
consultants also scrutinized some of the bills paid to the referral hospitals.

Since Mumbai and Kalpakkam have base hospital and dispensaries of their own, the issues
are different from other DAE units. Here the focus would be critically looking at the
functioning of the hospital and the high cost of referrals and looking for options to reduce
cost of delivering health care. The second part of the report will focus on other units of
DAE, where CHSS is implemented through multiple mechanisms. Here the focus would be
to prevent the escalation of cost and streamline and standardize the delivery of health care.
In addition, the report also discusses setting-up infrastructure and programmes to prevent
disease and promote health in order to develop a healthy workforce that will also decrease the cost of providing health services.

C.H.S.S. IN MUMBAI

Mumbai has the largest number of beneficiaries of CHSS. It has 86,266 beneficiaries in the year 2012 – 2013, which is nearly half of the total CHSS beneficiaries. Most of the beneficiaries in Mumbai belonged to the Bhabha Atomic Research Centre (BARC). Others included TMH, TIFR and NPCIL. A large majority of the BARC employees stay in Anushakti Nagar. CHSS services are offered by 12 dispensaries located in different parts of Mumbai and Navi Mumbai and a large 390 bedded referral hospital. In addition, patients are referred to private facilities for consultation, investigation and in-patient treatment.

B.A.R.C. HOSPITAL

The infrastructure of BARC hospital is enviable and the hospital has the most beautiful campus among public and private hospitals in Mumbai. The building is very well designed with open corridors on both sides of wards and has excellent ventilation. The total number of beds available is 390, which is the optimum size of a hospital from management point of view.

Bed Occupancy Analysis

According to the hospital data for the month of February 2014, the bed occupancy rate was 67%. However it was learnt that a number of beds are kept vacant every day as emergency beds and the occupancy of 67% does not take into account these vacant emergency beds. The actual occupancy on the basis of available beds is only 46%. This means that 54% of the hospital beds were vacant.

Further, the hospitalization rate of the Mumbai beneficiary population is 17%, which is very high. It should be around 8%. Even if we accept 10% as normal rate of hospitalization, and there is no unnecessary admission through referrals in empanelled hospitals, there are more than 1000 patients (1019) admitted in BARC hospital, who could have been treated in the
dispensaries and the OPD of the hospital. In that case, the official occupancy rate of 67% will come down to 61%. If we keep the expected bed occupancy of 55% and deduct the unnecessary hospitalization cases of 1019, the bed occupancy rate will come down to 50%.

Assuming all the 390 beds are functional all through the year, then the total bed days would be 390 X 365 = 142350 bed days. In the year 2012, there were 11803 in-patients in the hospital. In this case, if the hospital has 100% occupancy then the average length of stay (ALOS) would be 12 days (142350/11803). Considering the case mix of the hospital, the hospital ALOS should be around 6 days. In that case, the bed occupancy rate would be 50%. According to the hospital data, the bed occupancy rate was 67%. In that case, ALOS is 8 days, which means that there is overstay of patients in the hospital.

The analysis shows that there is overstay of patients and unnecessary admission of patients who could have been treated in the dispensary or OPD of the hospital. Considering these two factors, the occupancy of the hospital comes down considerably. This shows that the in-patient capacity of the hospital is underutilized and there is ample scope for expanding in-patient services to fully utilize the hospital capacity.

The ICU beds are grossly under-utilized because the hospital does not handle serious cases due to the facilities in the ICU and the hospital does not have an intensive care specialist. Paediatric beds are also grossly under-utilized, may be due to less need for paediatric beds.

**Hospital Referral**

Referrals are made from the BARC Hospital for the purpose of investigations, consultations and treatment (in-patient). In the year 2012, the referrals include 2,754 in-patient referrals, 8,673 referred for consultations and 24,979 referrals were made for investigations (laboratory and radiology investigations), in all 36,406 referrals were made from the BARC Hospital.

The referrals made for in-patient treatment for the year 2012 formed almost a quarter of the patients treated in the hospital (23.33%). The major hospitals where referrals were made include Jaslok Hospital, Nanavati Hospital, Fortis Hospital in Mulund, and Tata Memorial Hospital. It is surprising to note that apart from referring to these major hospitals, many
patients were referred to smaller facilities near the BARC Hospital in the Chembur area. On an average, 11 hospital admissions are made every day outside the BARC Hospital through referrals.

For OPD consultation also, a large number of referrals were made to hospitals like Jaslok Hospital, Nanavati Hospital, Fortis Hospital in Mulund and Tata Memorial Hospital. Apart from these facilities, Vimla Neurological Centre had 522 referrals from the BARC Hospital. We do not know the value of such referrals to this centre. On an average, 35 patients are referred everyday to outside consultants for consultation. Some of the referrals are made to those consultants, who also visit the BARC Hospital. There exists a conflict of interest in such referrals.

The number of referrals made for laboratory and radiological investigations are very large. Per day referrals for investigations are 100 (99.92). If we consider 60% of the referrals are for laboratory investigations, about 15,000 referrals are made for laboratory investigations. If we presume on an average 4 tests in each referral, 60,000 laboratory tests were done outside the BARC Hospital in the year 2012.

As per the CHSS data, in the year 2012–2013, the average referral for Mumbai was 0.42, whereas the same figure for Kolkata was 0.14. In Kolkata, the base hospital is a not-for-profit private hospital, which is much smaller than BARC Hospital in terms of bed strength and facilities. Still the hospital in Kolkata tries to treat each and every case thereby minimising referral because any referral means loss of income for the hospital.

**Financial Implication**

In the year 2013, the amount spent on referrals costs more than 50 crores rupees to CHSS, of which 30 crores of rupees were paid to Jaslok Hospital and Nanavati Hospital. In the year 2012, the total cost of referrals was about 45 crore rupees (Rs. 44,74,01,261) and the total referrals were 36,406 (IPD, consultations and investigations). Therefore, every referral costs Rs. 12,289 to CHSS. Thus CHSS expenditure on referral is huge and hospitals like Jaslok and Nanavati earn 10% to 12% of their revenue from the referrals of BARC Hospital.
Apart from referral cost, per beneficiary cost is also high in Mumbai. CHSS spends Rs.17000 per beneficiary per year in Mumbai. This is higher than other units in the country, where per beneficiary cost is less than Rs. 15,000. It is not clear whether the hospital cost of BARC Hospital is properly accounted in the calculation of per patient cost in Mumbai. On an average a family will have four beneficiaries. This means that CHSS in Mumbai spends a minimum of Rs. 68,000 for each employee and the dependants per year. Of the total expenditure, 92% comes from CHSS and the employee contribution is only 8%. On the whole, it is a very expensive scheme.

Though CHSS has negotiated rates for different categories of employees for high end procedures like cardiac procedure (what we call cardiac package), most of the inpatient referrals were not for these negotiated packages.

Study of a few patients referred to outside hospitals reveals that many patients who were referred outside could have been managed at BARC hospital as no additional resources were used by the referred hospitals to treat these patients. It was also observed that many unnecessary medicines and diagnostic tests were prescribed to these patients. Errors in patient management were also observed that increased the billed amounts significantly.

CHSS cleared the bills of almost all such cases using the discretionary power of the higher authorities. Such a practice inflated the amount spent on referrals.

**Hospital Facility Audit**

Out-patient departments are located in the first floor. There is patient waiting area and doctors cabin are located properly. The medical OPD is over-crowded and the waiting area is small. The medical OPD needs additional space. Laboratories have adequate space for equipments and workspace for technicians and doctors. However, equipments are aging and more modern high end technology equipment needs to be inducted in laboratories. This is all the more important considering the large number investigations that are outsourced and which could easily be performed at BARC hospital. There is a need for appointing a microbiologist with M.D. qualification. Radiology department is located in a spacious area and this department has only basic radiology facilities of X-ray and ultra-sonography
There are vacant spaces in this department and it is time to modernize this department to reduce referrals.

There are two major operation theatres that are spacious but are not modernized for a long time. About 10 surgeries are carried out every day. There is scope for expanding surgical facilities, provided there is a well-equipped ICU in the hospital. The present, ICCU is on the ground floor with 7 beds and is managed by resident doctors. The ICU facilities should be expanded, strengthened and should have an intensive care specialist to manage it.

In-patient facilities are spacious and well ventilated with corridors on both the sides of the hospital. Normally, each room has 4 beds and there are around 30 beds in each wing of the hospital. The main drawback of the ward is that toilets and bathrooms are located in one corner of the in-patient wing. In a hospital like this, there should have been a separate bathroom and toilet for each room of 4 beds.

Doctors, nurses, technicians and administrative staff of the hospital are adequately qualified. The main strength of the hospital is the stability of its workforce. Attrition of doctors and other staff is least in this hospital compared to any other hospital in the city of Mumbai. The hospital is recognized for DNB programme for different medical specialties. Therefore, it could attract young doctors to provide support to the senior doctors.

The hospital lacks proper hospital administrative structure and function. The Medical Director of the hospital is always the senior doctor of the hospital. All of them may not have the administrative skills and interest except the top position of the hospital. Further, there is a post of Hospital Administrator, which has very little administrative authority and responsibilities. The Hospital Administrator takes care of mundane day to day activities of the hospital. There is a post of Administrative Officer post to take care of the non-medical administration of the hospital and to liaise with the main administration of BARC.

CHSS is administered from the central office in BARC. It is part of the general administration and accounts of BARC. As a result, CHSS administration suffers. For example, it takes several months for the CHSS to settle the bills of empanelled hospitals.
This is cited as the main reason for referral hospitals not willing to negotiate for lower tariff for CHSS patients.

To summarize all the issues, there is over utilization of CHSS and underutilization of BARC Hospital. The task is to reverse this trend, i.e. rationalize the use of CHSS and optimize the utilization of BARC Hospital.

RECOMMENDATIONS

The above analysis of CHSS in Mumbai revealed that (1) low occupancy of BARC Hospital, (2) very high cost for referrals to private hospitals, (3) inadequate infrastructure, equipment and facilities in BARC Hospital, (4) need for human resource development and (5) need to improve systems and administration of CHSS in Mumbai in general and BARC Hospital in particular. All these issues are interrelated and hence they are discussed together.

Hospital Infrastructure

1. To increase the surgical cases from the current 11 surgeries to 25 surgeries per day and to increase the hospital bed occupancy rate, three more operation theatres to be created and the current old two theatres should be renovated to have at least 5 state of the art OT. The ideal location for the additional theatres would be above the present theatres. These can then be easily supplied by sterile supplies as well as oxygen, suction from their current locations. The laboratory located here can be shifted anywhere as the laboratory does not need proximity to inpatient or outpatient areas. There must be a sample collection room in the OPD.

2. This will substantially increase the bed occupancy rate and bring down the referral rate.

3. To support the above mentioned OT facilities, the hospital needs an ICU facility of 25 beds, where 2 beds will be kept vacant for emergencies. Any ward can be converted into a 20 bed ICU. ICU should not be on the ground floor. This ICU will manage both medical and surgical ICU cases.
4. By creating a separate ICU facility, the current ICCU space on the ground floor will be released. The current administrative wing in the first floor occupied by the Medical Director, Administrative Officer and the Nursing Superintendent can move to the ground floor and occupy the ICCU space vacated. This will provide addition OPD space on the first floor where OPDs are located. This space can be allocated to the overcrowded medical OPD. The medical OPD should be designed like the surgical OPD where the patients wait in the corridor next to the consulting rooms.

5. The 4 bedded wards should be re-designed to have separate bathroom and toilets for each of the 4 bedded ward. This may bring down the bed strength of the hospital to 300 beds, which is ideal for the hospital. There is no need to keep emergency beds in every ward.

6. The laboratory needs upgrading of equipment to machines with better quality, wider menu of tests, automation and throughput. This will not incur any additional cost as any equipment manufacturer will be happy to place the equipment, the reagent price can also be negotiated to the same as if you had bought the equipment. This will mean that almost 97% of laboratory work can be done in-house and very few tests will be required to be sent to other laboratories. A full time M.D. in Clinical Microbiology is an essential requirement for a good laboratory. No other staff requirement is anticipated. A web based laboratory software will facilitate test ordering and collection of samples at all the dispensaries. The system of appointments for laboratory tests should be abolished with immediate effect. Such appointment system does not exist in any other hospital. The sample collection room should also be moved somewhere to the ground floor or near OPD to minimise the traffic of patients going to the laboratory. The current system is staff friendly and not patient friendly.

7. Laboratory samples can be collected at all dispensaries or a home collection service can be engaged and all samples brought to BARC hospital.
8. A CT scan machine is an essential requirement for a 300 bed hospital. Radiology department needs modernization with all the investigation results should be made available online to the clinicians.

9. The OPD appointment system must be improved. Appointments should be made for time slots of doctors rather than calling all patients at the same time. Web based appointment management systems are available. Medical OPD needs better space. Appointment management also covers operation theatre, dialysis, radiology and other resource based appointments.

The above recommendations not only improve the bed occupancy of the hospital but also will bring down the referrals to private hospitals in the city and will bring down the cost of referrals substantially. The above improvements will cost the hospital about 15 crores of rupees which is just 30% of referral expenditure by CHSS every year.

Hospital Referral

1. The current empanelled large hospitals are for-profit private hospitals. Today there are not-for-profit hospitals that have developed services comparable to these large for-profit private hospitals. Hospitals like Holy Family Hospital, Shushrusha Hospital, Sarvodya Hospital and Holy Spirit Hospital have comparable services and they offer super-speciality services like cardiac packages. CHSS should explore these hospitals for making referrals.

2. All Oncology referrals should be made strictly to Tata Memorial Centre only. Chemotherapies can be administered at BARC hospital.

3. It is recommended that a referral audit system should be put in place to audit all the referrals (investigations, consultations and hospitalization). A referral audit committee may be formed with the following internal and external members: Medical Director (Chairperson), head of medicine, surgery, pathology, radiology, one professor of surgery, medicine, pathology and radiology from the municipal/government medical colleges, who do not have any conflict of interest with BARC Hospital and the Administrative Officer of BARC Hospital (Convenor).
This committee shall meet every month and go through a sample of referrals and comment on them. It should not be an administrative process but a good professional practice of peer review and learning.

4. CHSS should stick to its negotiated packages of these hospitals for reimbursement. Anything above should be first paid by the beneficiary and he/she may later approach CHSS for reimbursement of extra-amount paid for exceeding the package. This pre-payment will surely reduce the extra-use of the referral hospital.

5. Any patient who is referred to the empanelled hospital reached a stage of terminally ill should be brought back to BARC Hospital for palliative care.

6. CHSS should improve the efficiency of reimbursement to the referral hospitals. Reimbursement should be done in one month. If such efficiency is achieved, CHSS will be able to negotiate lower tariff for different treatment procedures.

**Human Resource Development**

1. Once the hospital infrastructure is updated, doctors, nurses and technical staff need to be trained to undertake more complicated procedures, which are not referred to empanelled hospitals. Especially surgeons need to be trained to conduct more supra-major surgeries. For this they may be sent to either AIIMS or CMC, Vellore (top two teaching hospitals in the country) for 2 months. This may be negotiated with these hospitals.

2. Once the internal doctors are trained, most of the medical procedures can be done by the internal doctors. For the few very complicated procedures, leading consultants in the city may be empanelled to do the procedures in the BARC Hospital. They should not be allowed to refer patients to other hospitals. Such empanelment may be needed for a few surgical procedures.

3. The postgraduate training programme of DNB may be shifted to postgraduate degree programme (M.D. and M.S.) of the Homi Bhabha University located within BARC. The guides may be recognized as teachers of the University as Professors, Associate
Professors and Assistant Professors. This can also attract good young doctors to the hospital.

4. The head of departments need good administrative skills, which is not part of their hospital administration.

5. The hospital needs a well qualified hospital administrator, who should take care of the day to day administration of the hospital. The person should have a postgraduate degree in hospital administration with at least 5 years administrative experience in hospital.

Administration and System Improvement

1. CHSS needs a separate administrative set-up for all the DAE units based in Mumbai. This should be headed by a doctor administrator. This administrative unit will process empanellment for all the units in the country and also process bills for reimbursement.

2. All the dispensaries and all the departments of the BARC hospital should be networked online to share medical records, investigations and consultations. This will optimize the expertise of the clinical staff and facilitate follow-up at the dispensary level.

All the above recommendations will cost less than half the amount of referrals made in a year. The expected outcome of the recommendations is,

1. State of the art technology of 300 bedded hospital

2. An occupancy rate of 85%

3. Near zero referral
C.H.S.S. IN KALPAKKAM

Kalpakkam has a beneficiary population of 26,800. Kalpakkam is relatively isolated from Chennai the travel time being about 2 hours. There is one dispensary in the housing colony to provide primary care. At the secondary care level, there is a hospital of 96 beds. It has all the general speciality departments.

**Bed Occupancy Analysis**

The hospital authorities have not given any data on the occupancy rate of the hospital. Hence we make the calculation of occupancy based on the available data. In the year 2012 – 2013, there were 3933 in-patients were treated. With 96 beds, the hospital has 35040 hospital days in a year (96X365 = 35040). If we presume the hospital has 100% occupancy, then the average length of stay (ALOS) would be 9 days (35040/3933 = 8.9). From the case mix of the patients in the hospital, the ALOS can be 4 to 5 days. In that scenario, the bed occupancy would be 44% if ALOS is 4 days and the occupancy would be 56%, if the ALOS is 5 days. Thus the in-patient services are under-utilized in the hospital.

For the 26,800 beneficiaries in Kalpakkam, there were 3933 hospitalizations in the CHSS hospital itself. In the year 2012 -2013, there were 11883 referrals made and these include hospitalization, investigation, and consultation, of which 22% are for hospitalization. This means 2,614 cases were referred to empanelled hospitals for admissions. If we add this with Kalpakkam hospital admissions, the total in-patient census would be 6,547 in-patients. If we work out the hospitalization rate for 6547 in-patients for 26,800 beneficiaries, the hospitalization rate would be 25% (24.42%). This is extremely very high rate of hospitalization. The hospitalization rate should be between 6% and 8% only. With most of the beneficiary population living in and around the hospital and the dispensary, the hospitalization rate can be even 4%. Surely there is unnecessary utilisation of in-patient services in the Kalpakkam hospital as well as in the empanelled hospitals. If the in-patient facility is properly used, the occupancy would be 50% only.

**Hospital Referral**
In the year 2013 -2014, there were 14,100 referrals to other hospitals and laboratories. These referrals are meant for investigations, consultations and hospitalizations. Of these referrals, 43% for consultation, 35% for investigations and 22% for in-patient admissions. There is a 15% increase of referrals as compared to the previous year. Admissions to empanelled hospital constitute two-third (66.46%) of Kalpakkam hospital admissions. In the year 2011 – 2012, there were 1,0823 referrals and the expenditure on these referrals was 14.16 crores rupees. This amounts to half of (49.6%) of CHSS expenditure of Kalpakkam. Per referral cost works out to Rs. 13,757.6 irrespective of the category of referrals. It is interesting to note that the hospital has 3 dental surgeons and 3 dental chairs and other facilities for them to treat dental cases. However, in the year 2012, there were 999 dental referrals to a Chennai based private dental college incurring an expenditure of 2.3 lakhs rupees. Similarly, though there is an ophthalmic surgeon and facility for ophthalmic surgeries, there were 864 ophthalmic referrals to three eye hospitals costing Rs. 46.1 lakhs to CHSS. The radiology services are adequate. The laboratory is poorly equipped. The laboratory should have a MD pathologist. The equipment can be upgraded at very little cost which will enable almost 95% of the laboratory tests to be carried out in-house.

The number of referrals for the year 2013 - 2014 of 14,100 for a population of 26,800 is a very high number of referrals in view of the high fixed costs already incurred at the hospital. The hospital seems to be admitting patients only for minor ailments and referring most of those requiring hospitalization. If the present investment in secondary services is to be continued, then one needs to see how the referrals can be reduced to a minimum of super-speciality services only.

There is a steady drop in the OPD attendance both in the hospital and dispensary over a period of 4 years. The drop in OPD attendance from the year 2009 – 2010 to 2012 – 2013 in the hospital is 17.3% and for the dispensary in the same period, the drop in OPD attendance was 18.7%. This indicates that a large number of referrals are made for OPD treatment (consultations) to hospitals in Chennai.
A detailed analysis could not be done in the absence of disaggregate data for referrals. But from the limited available data, one can concur that there are too many referrals costing huge expenditure for CHSS.

**Hospital Facility Audit**

First of all the hospital design itself is faulty. The hospital is located on the sea-face. But neither patients nor staff cabins are facing the sea-face. The hospital has general wards like a public hospital. The hospital looks like a government rural hospital.

The in-patient facilities at the hospital were very poor. CHSS beneficiaries definitely deserve facilities better than those at any public hospital. All the in-patients were not using hospital linen. The area allotted to inpatient facilities is much less in proportion to area allotted to outpatient services. The wing which houses the inpatient beds has no ventilation.

Operation theatre facility is poorly utilized in the hospital. In the year 2012 – 2013, only 513 surgical procedures were conducted. This includes 42 normal deliveries. While surgeons are available for general surgery, ENT, orthopaedic, ophthalmic and OBG procedures, less than 2 surgeries are conducted in a day and these are minor procedures.

The hospital has 36 medical positions, of which 20 are specialists. Currently 4 posts are vacant. With 36 doctors and 26,800 beneficiaries, the doctor – population ratio is 1:744. WHO standard of doctor – population ratio is 1:1000 and in India, the proportion is 1:2000. There are 220 employees in the hospital and the staff salary is 12.85 crores rupees in 2012 – 2013. Thus salary expenditure alone is 4,800 per beneficiary. With such superior doctor – population ratio (1:744), and such high salary expenditure, the beneficiaries deserve far superior medical care in Kalpakkam. Our observation is that there is no serious work for the doctors working at Kalpakkam.

**Financial Implications**

The hospital expenditure in the year 2012 – 2013 was 28.65 crores of rupees. We do not know whether this includes the salary expenditure of 12.85 crores of rupees. Per capita beneficiary was 17,000 rupees, which works out to around 70,000 rupees per family. This amount is same as the Mumbai CHSS. But the quantum and quality of the service is no
where near Mumbai CHSS services. Apart from the inefficiencies, this hospital is also too big for 26,800 beneficiaries. But the justification for such a facility is the remoteness of Kalpakkam – 2 hour drive from Chennai and the likelihood of Kalpakkam expanding into a much larger DAE facility. But the price to be paid for this is very high.

**To summarize all the issues, it is a high cost low facility and low quality of service hospital. There is high rate of referrals for consultation, investigation and hospitalization.**

**RECOMMENDATION**

Since it is a bigger hospital for a beneficiary population of 26,800, it is difficult to bring down the cost to optimal level. But the utilisation of this high cost facility can be well utilized for the benefit of beneficiaries, thereby lower the cost. In-short, the hospital should be developed into a first-class secondary hospital. For this the recommendations are as follows:

1. All the surgeries except the super-speciality surgeries should be conducted by the in-house doctors of the hospital. The number of surgeries should be increased over a period of time to 7 and later to 10 surgeries.

2. The hospital is closer to the Christian Medical College, Vellore, which is 4 to 5 hours drive from Kalpakkam. This hospital is rated best next to AIIMS in the country. Being a charitable hospital, the rates are cheaper than the corporate and other private hospitals in Chennai. Therefore, all the elective super-speciality surgeries should be referred to CMC, Vellore only. CGHS rates may be paid for services. Only emergencies should be referred to Chennai hospitals, which are closer than CMC, Vellore.

3. The hospital may procure a well-quipped cardiac ambulance and a general purpose ambulance for transferring patients to Vellore or Chennai.

4. CHSS shall enter into a MOU with CMC, Vellore to train its doctors to treat most of the cases in Kalpakkam. The specialists may be sent to CMC for 2 months to treat all the cases requiring secondary level care including surgical care. The general medical officers may be trained for 2 months in family medicine in CMC. CMC is famous for family
medicine training. It is a big opportunity for being closer to CMC and CHSS, Kalpakkam should take advantage of this opportunity. Such a measure will increase the OPD attendance as well as the utilization of hospital beds in the hospital.

5. There is a need to set-up a referral audit committee in the hospital with external experts. This committee should look into the samples of referrals of each doctor every month and pass its remarks on referrals. This will regulate unnecessary referrals.

6. The decreasing OPD attendance should be reversed. If the general medical officers are trained in family medicine, they should be able to treat 90% of the cases in the OPD only. Of the remaining OPD patients 6% may become in-patients of the Kalpakkam hospital and only 4% of the OPD patients may get referred to empanelled hospitals for consultation, investigation or hospitalization.

REVIEW OF NON-HOSPITAL C.H.S.S.

Of the 15 locations where DAE units are functional, 3 of them have hospital based CHSS services. These 3 hospitals are located in Mumbai, Tarapur and Kalpakkam. In the remaining locations, health services are offered using different mechanisms of health care delivery. The number of beneficiaries also varied widely among these units. They ranged from 20,690 beneficiaries in Hyderabad to as small as 770 beneficiaries in Talchar. It is necessary to streamline the multiplicity of mechanisms of delivery of health services keeping in mind the health needs of the beneficiaries. It is important to look for different options that will ensure that DAE employees and their dependants get good quality of health care that will meet all their health needs and at the same time, the delivery system is optimal and sustainable. This includes the scope of exploring whether in-house dispensaries and hospitals are needed in any of these locations.

For the above mentioned purpose, secondary data was collected from all the locations by means of email and letter correspondence by IR&W/DAE. Two locations were selected for site visit keeping in mind the beneficiary population size (one big and one small) and two different kinds of delivery of health services. Based on these criteria, Hyderabad and
Kolkata were selected. The consultants visited both the sites. During the visits, the consultants visited the health facilities like dispensaries of CHSS as well as the private health care facilities that were providing health services to the beneficiaries. The consultants also held discussions with the scientist or engineer in-charge of CHSS, doctors of CHSS in these units and a few beneficiaries who utilized the services recently. The observations and the discussions of the consultants are given below separately for Hyderabad and Kolkata.

**Nuclear Fuel Complex in Hyderabad**

It has 2 dispensaries of CHSS – one inside the Nuclear Fuel Complex and another in the housing area of the Nuclear Fuel Complex. The dispensary in the housing area is the main dispensary for all the beneficiaries. It is a large building with consulting rooms, laboratory and X-ray facilities. It also has a few beds for observation which were not occupied at the time of visit. There were very few patients compared to the large OPD facility. It has a small pharmacy for some medicines. Otherwise, the main pharmacy is outsourced to a local chemist who offers a rebate of 29% from the MRP. Though it seems very innovative and benefiting CHSS, it does not seem to be a viable scheme. The private chemist would like to sell general stores items like soaps and tooth pastes to offset his reduction in profit in medicine. This proposition is rightly rejected by the authorities. Therefore, the private chemist would like to wind-up the pharmacy soon.

The dispensary inside the complex is the occupational health centre and is well equipped to meet any kind of work related health problems and emergencies. It has 5 beds with all the necessary equipment for dealing with emergencies. There is a duplication of facilities between these two dispensaries and both are grossly underutilised.

Apart from these internal facilities, CHSS mainly operates through zonal hospitals and accredited medical attendants (AMA). One of the zonal hospitals visited at Annupuram is a small secondary facility. The beneficiary can go to the zonal hospital and get either treated or referred to higher facility. On the other hand, AMAs are authorized to refer patients to facilities approved by CHSS. As per the data provided by the CHSS of Hyderabad, 76% of the total patients are referred to other facilities. Of these 76%, 66% of them are OPD referrals. This shows that the large dispensary in the housing area of the complex is not able
to handle even minor ailments. Secondly, the AMA system has encouraged the beneficiaries to go to them and get a referral to any of the empanelled private clinic or hospital for treating minor ailments. The AMA system is not monitored and regulated leading to unnecessary OPD referrals. The AMAs are paid a paltry sum of 400 per month for their work and hence there is no incentive to treat the patients of CHSS.

Hospitalization rate was 10%. Though it is higher than the expected rate of hospitalization of 6% to 8%, it is lower than other CHSS locations. It may be due to higher proportion of OPD referrals to private providers, who may not unnecessarily admit the patient to a hospital.

**Variable Energy Cyclotron Centre (VECC) in Kolkata**

CHSS operates very differently from the Hyderabad unit. There are 3,230 beneficiaries attached to VECC. VECC has one base hospital and it is a charitable hospital in the business district of the city (Park Street). It is a not-for-profit private hospital of 150 beds with an occupancy of about 100 beds (66%). The beneficiaries are allowed seek OPD treatment including investigations in any centres and clinics in Kolkata and they are reimbursed as per the norms of CGHS. Discussion with those who benefited from the scheme reveals that they are quite satisfied with the CGHS rate of reimbursement. There is a one room dispensary in the campus of VECC and this caters mainly to the employees in their work place and the 2 doctors also authorize in-patient referral recommended by the base hospital and process the OPD and investigation claims of the beneficiaries.

The 150 bedded base hospital recommends for hospitalization. Data show that in-patient referral is very low. The base hospital must be treating most of the cases because increasing referral means loss of revenue for the base hospital. In the year 2013, 223 in-patients were treated against the total 3,032 beneficiaries. Thus hospitalization rate is just 6.9% only. Since hospitalization is well regulated by the base hospital and the dispensary doctors in the VECC campus as well as the CGHS rates are strictly adhered to, the hospitalization rate is low in Kolkata.
Comparison

Both Hyderabad and Kolkata units do not have their own hospital. The higher referral in Hyderabad is due to its AMA system, where it is easy to get referral. On the other hand, in Kolkata, the base hospital may try to treat as many cases as possible to maximize their revenue. But the per beneficiary cost in Kolkata is Rs. 15,000, which is high. The hospitalization rate in Kolkata (6.9%) is the expected rate of hospitalization of the beneficiaries. Another salient feature of VECC in Kolkata is its ability to provide medical care within the reimbursable rate of CGHS.

RECOMMENDATIONS

Of the 16 DAE units, 3 of them have hospitals. Of the remaining 13 units, only Hyderabad has more than 20,000 beneficiaries. All other units have less than 10,000 beneficiaries. Four of them have less than 5,000 beneficiaries. Some of these beneficiaries might have retired and moved out of station but still the beneficiaries of CHSS. It will not be feasible to establish a viable dispensary for a beneficiary population of less than 5,000. It will not be a cost benefit proposal. On the other hand, the large dispensary in Hyderabad shows that the dispensary is mainly referring patients to other hospitals even for OPD treatment. Considering these factors, it is better not to establish any dispensaries in these locations for beneficiaries. But each unit needs a well-equipped occupational health centre inside the units to handle any work site medical emergencies.

Under these circumstances, one of the options is to follow VECC model of Kolkata. For this, each unit has to identify a base private hospital that can handle 90% of all the OPD and IPD cases. Only those patients who need super-speciality treatment may be referred to empanelled tertiary hospitals. It is better to have a not-for-profit charitable secondary hospital to contain cost and regulate referrals on unnecessary investigations and consultations. Further, CHSS should stick to the financial norms of CGHS for reimbursements as practised by VECC in Kolkata.
The second option would be to go for group medical insurance. Currently, CHSS costs Rs. 15,000 to Rs. 17,000 per beneficiary per annum. This means, DAE spends between Rs. 60,000 to Rs. 70,000 per employee (employee+spouse+2 children = 4 beneficiaries per employee). This is high cost on health care. An average group medical insurance premium of Rs. 15,000 will cover all the cost of health needs of the employees and their dependants. For this amount, the employee and their dependants can be covered for OPD, and IPD services as well as for personal accident expenses. This insurance will cover all the pre-existing illnesses. It also covers maternity care including normal delivery and caesarian section.

CHSS may go for the following 3 categories of medical insurance coverage for its employees:

**Category – A**

1. Hospitalization = 700,000
2. Out-patient services = 70,000
3. Personal accident = 500,000

**Category – B**

1. Hospitalization = 500,000
2. Out-patient services = 50,000
3. Personal accident = 300,000

**Category – C**

1. Hospitalization = 300,000
2. Out-patient services = 30,000
3. Personal accident = 200,000
The categories of benefits will go to the employees and their dependants as per their cadre level in the organization. Within this premium level, CHSS will be able to buy additionally a generous “buffer policy” to cover those genuine claims that exceeded the benefit limit. The main advantage of this group medical insurance scheme is that the beneficiaries will be able to access health care from a large number of hospitals from all over the country. It will be a pre-authorized cashless hospitalization service.

**Barring Mumbai, Tarapur and Kalpakkam, where CHSS dispensaries and hospitals are operating, other units of DAE should opt for either the VECC model where the reimbursement is as per the CGHS norm or group medical insurance scheme.**

**WELLNESS CENTRE**

DAE is interested to study the need for Annual Medical check-up and the amount to be restricted for the same on par with recently issued order vide O.M. dated 01/02/2012 for CGHS/CS (MA) beneficiaries for Group A officers of the age 40 years and above. It is an opportunity to use the amount to operationalize the concept of wellness rather than health (absence of disease) for the beneficiaries in general and employees in particular.

The goal of periodic health examinations of asymptomatic adults is to prevent morbidity and mortality by identifying modifiable risk factors and early signs of treatable disease.

Annual Medical check-up should be replaced by preventive health services and should cover the entire CHSS beneficiary population. The objective should be to have a healthy population of CHSS beneficiaries.

Today lifestyle related diseases – particularly obesity, heart disease, stroke, cancer, diabetes and depression – have emerged as the major causes of death, disability and rising health care costs. There is growing evidence that Lifestyle Management interventions to increase physical activity, improve nutrition, decrease tobacco use and exposure, decrease hazardous
and harmful drinking/alcohol, and adopt positive mental strategies will reduce the burden of
disease, disability and premature death.

Preventive Services help identify and quantify risk factors present in an individual.

Having decided on these preventive measures the next step is to identify and elaborate on the
life style measures required to be adopted to mitigate the influence of the risk factors. Life
style management form the mainstay of almost all the preventive services recommended
below.

Preventive services cannot be reliably delivered by individual clinicians at routine "check-
ups" or "annual physicals," in the setting of the traditional one-on-one office visit, relying
only on memory and good intentions.

To reliably deliver preventive services, health care organizations must incorporate new
systems of care; nearly every patient contact for any reason should be considered as an
opportunity for prevention. Decision support tools, preferably integrated into the medical
record, should generate alerts and reminders when services are due.

In order to operationalize the wellness concept, CHSS may establish Wellness Centres in the
housing colonies of DAE as well as in the work sites. The present dispensaries in places like
Hyderabad and Kolkata can be converted into Wellness Centre. This Wellness Centre would
provide comprehensive preventive and promotive health care. The Wellness Centre will
provide preventive health services and lifestyle management services. This Centre will be
headed by a physician specialized in public health or community medicine (M.D. Or MPH).
The staff of the Centre include a public health nurse, nutritionist, counsellor, social worker
and physical instructor. The infrastructure includes lecture hall, doctor, counsellor and social
worker cabins, and a room for collecting blood samples.

The following preventive services are recommended in order of priority:

1. Prevention and Management of Obesity
Obesity is a chronic, multi-factorial disease with complex psychological, environmental (social and cultural), genetic, physiologic, metabolic and behavioural causes and consequences.

Obesity is the second leading cause of preventable deaths first being tobacco use.

Several of the co-morbidities associated with obesity include type 2 diabetes, heart disease, hypertension, dyslipidaemia and certain cancers.

It is essential to measure Body Mass Index (BMI) and waist circumference of every beneficiary every year. BMI is calculated based on inexpensive measurement of weight and height and is calculated as Weight in kilograms/square of height in meters.

<table>
<thead>
<tr>
<th>BMI</th>
<th>CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 18.5</td>
<td>Underweight</td>
</tr>
<tr>
<td>18.5-24.9</td>
<td>Normal weight</td>
</tr>
<tr>
<td>25-29.9</td>
<td>Overweight</td>
</tr>
<tr>
<td>30-34.9</td>
<td>Obese – class I</td>
</tr>
<tr>
<td>35-39.9</td>
<td>Obese – class II</td>
</tr>
<tr>
<td>40 or more</td>
<td>Extreme obesity – class III</td>
</tr>
</tbody>
</table>

All health care workers should educate the beneficiaries about their BMI and counsel them on the measures to improve BMI score. BMI scores can be improved by regular exercise starting with 150 minutes of moderate exercise per week to be increased to 280 minutes per week, reducing calories intake by around 500 kcals/day and stress management.

II.  Hypertension Screening: To detect and monitor hypertension, blood pressure must be measured at least every two years for adults with blood pressure less than 120/80 and every year if blood pressure is 120-139/80-89 Hg. Higher blood pressures should be confirmed and managed per protocol.

III.  Lipid Screening: A fasting estimation of total cholesterol, calculated LDL cholesterol, HDL cholesterol and triglyceride is essential for men over age 34 and
women over age 44 every five years. Individuals with total cholesterol greater than or equal to 200, LDL greater than or equal to 130, triglyceride greater than or equal to 200, and HDL less than 40 may be at higher risk of vascular disease, and these patients should follow treatment recommendations as per the guidelines. Main recommendations again pertain to lifestyle management.

IV. Hazardous and Harmful Drinking Screening and Brief Counselling: Clinicians and health care systems must consistently try to identify adults, particularly young adults and pregnant women, with hazardous or harmful drinking patterns, and provide appropriate counselling. Hazardous and harmful drinking patterns are: More than seven drinks per week or more than three drinks at any one time, for women and healthy men over 65 years or more than 14 drinks per week or more than four drinks at any one time for healthy men less than 65 years. A standard drink is defined as 12 oz. of beer, 1 glass of wine, or 1 oz. of spirits in a mixed drink.

V. Diagnostic Testing for Diabetes: Type 2 diabetes is frequently not diagnosed until complications appear. Fasting blood sugar and Glycated haemoglobin if Fasting sugar is more than 100 mg/dl should be performed after the age of 50 on annual basis.

VI. Osteoporosis Screening: Osteoporosis screening with dual-energy x-ray absorptiometry (DXA) of the hip and lumbar spine or with quantitative ultrasonography of the calcaneus should be offered to women over 65 every 10 years.

VII. Cervical Cancer Screening: Women older than 30, must be screened with a combination of Pap smear and human papillomavirus (HPV) testing every five years.

VIII. Breast Cancer Screening: Screening mammograms are recommended every one two years for women ages 50-75 years.
IX. Assessment of Cardiovascular risk and Aspirin Chemoprophylaxis Counselling: Cardiovascular risk can be assessed on Framingham scale based on age, gender, total cholesterol, HDL, systolic blood pressure and smoking status. Aspirin prophylaxis may be considered for those individuals in whom the potential benefits outweigh the potential harms. Aspirin prophylaxis is not recommended in men under 45 years or women under 55 years.

X. Tobacco Use Screening and Intervention: Tobacco use is the single most preventable cause of death and disease. There is good evidence that clinical-based interventions are effective.

XI. Depression Screening: PHQ-9, is an easy to use nine-question survey that is used in primary care settings to estimate the severity and provide monitoring over time, as well as for initial screening.

Besides the above 11 most cost effective services, additional preventive services may be included from the following list of Preventive Services recommendations based on level of evidence:

Level I Services: Preventive services that clinicians and care systems must assess the need for and recommend to each patient. These have the highest priority value.

1. Alcohol Abuse, Hazardous and Harmful Drinking Screening and Brief Counseling
2. Aspirin Chemoprophylaxis Counselling
3. Breast Cancer Screening
4. Cervical Cancer Screening
5. Chlamydia Screening
6. Colorectal Cancer Screening
7. Hypertension Screening
8. Influenza Immunization
9. Lipid Screening
10. Pneumococcal Immunization
11. Tobacco Use Screening and Brief Intervention

Level II Services: Preventive services that clinicians and care systems should assess the need for and recommend to each patient.

12. Abdominal Aortic Aneurysm Screening
13. Depression Screening
14. Folic Acid Chemoprophylaxis Counselling
15. Hearing Screening
16. Hepatitis B Immunization
17. Hepatitis C Virus (HCV) Infection Screening
18. Herpes Zoster/Shingles Immunization
19. Human Immunodeficiency Virus (HIV) Screening
20. Human Papillomavirus (HPV) Immunization
21. Intimate Partner Violence Screening
22. Inactivated Polio Vaccine (IPV) Immunization
23. Measles, Mumps, Rubella (MMR) Immunization
24. Obesity Screening
25. Osteoporosis Screening
26. Tetanus-Diphtheria Immunization
27. Varicella Immunization
28. Vision Screening
Level III Services: Preventive services for which the evidence is currently incomplete and/or high burden of disease and low cost of delivering care. Providing these services is left to the judgment of individual medical groups, clinicians and their patients.

29. Advance Directives Counselling
30. Bimanual Pelvic Exam for Screening
31. Calcium and Vitamin D Chemoprophylaxis Counselling
32. Clinical Breast Exam Screening
33. Dementia Routine Screening
34. Drug Abuse Screening and Counselling
35. Elderly and Vulnerable Adult Abuse Screening
36. Injury Prevention Screening and Counselling
37. Preconception Counselling
38. Pregnancy Prevention Counselling
39. Prostate Cancer Screening
40. Sexually Transmitted Infection Counselling
41. Sexually Transmitted Infection Screening (Other than HIV and Chlamydia)
42. Skin Cancer Screening and Counselling
43. Thyroid Dysfunction Screening

Level IV Services: Preventive services that are not supported by evidence and not recommended

44. Coronary Heart Disease Routine Screening
45. Diabetes Routine Screening
46. Other Lab Testing (Routine)
Apart from screening the Centre should organize programme for the recommended 11 concerns of well-being. Some of the programmes may be individual focused and others may be group activities.

The amount meant for health check-up can be used judiciously, if each employee's vulnerability to the above 11 conditions are identified and screening is done only for those conditions where the employee is vulnerable. This will bring down the cost of screening.

**A successful wellness programme will bring down the OPD attendance and hospitalization rate will come down to 6% or less, which is currently much higher than the standard hospitalization rate.**

**OTHER GOVERNMENT HEALTH SCHEMES**

Apart from CHSS, there are other government health schemes operated by different government agencies. They are,

1. Post & Telegraph Dispensary Scheme
2. Ex-Servicemen Contributory Health Scheme
3. Central Government Health Scheme
4. Employees State Insurance Scheme

**Employee State Insurance Scheme (ESIS)**

**Beneficiaries:** Workers in the organized sector working in following factories are covered along with their dependants:

1. Non-Seasonal factories using power and employing ten (10) or more persons.
2. Non-Seasonal and non-power using factories and establishments employing twenty (20) or more persons.

The ESIS is managed by the Employees State Insurance Corporation (ESIC), a wholly government owned enterprise.

**Facilities and Services:** Full Medical facilities for self and dependants are admissible from day one of entering insurable employment. Whereas the primary, out-patient, in patient and specialist services are provided through a network of Panel clinics, ESI Dispensaries and Hospitals, Super Speciality services are provided through empanelled medical institutions on referral basis.

Cash Benefit include Sickness Benefit, Maternity Benefit, Disablement Benefit, Dependents Benefit and Funeral Expenses. As these benefits are basically intended to compensate for any loss of wages or earning capacity in times of physical distress rather than health care, these are excluded from our analysis.

**Contributions:** The ESI Scheme is mainly financed by contributions raised from employees covered under the scheme and their employers covered under the scheme and their employers, at a fixed percentage of wages. Employees contribute 1.75 percent of wages and employers contribute 4.75 percent of wages. Employees earning upto Rs. 40/- a day as wages are exempted from payment of their part of contribution. Retired insured persons, who have been in insurable employment for at least 5 years before superannuation and disabled insured persons are entitled for medical care for self and spouse only on payment of Rs. 120/- as annual contribution. ESIC also earns revenue through rents, rates, fees, fines, forfeitures etc.

ESIS is a well conceived scheme of more than health insurance scheme. It is a social insurance scheme. Unfortunately, it is not implemented the way it is conceived. Now there is concerted effort to improve the services. This includes upgrading the major hospitals into medical colleges. This is the only government health scheme where there is surplus of funds to the extent of more than 1,000 crores rupees.
Central Government Health Scheme (CGHS)

**Beneficiaries:** The Central Government Health Scheme, introduced in 1954 provides comprehensive medical care facilities to central government employees, members of their families and pensioners. The scheme also covers Members and ex-Members of Parliament; Judges of Supreme Court and High Courts; Employees of some semi-government and autonomous organizations; accredited journalists; and Ex-Governors and Ex-Vice Presidents.

**Facilities and Services:** The facilities under the scheme include outpatients care provided through a network of allopathic ayurvedic, homeopathic and unani dispensaries; supply of medicines; laboratory and x-ray investigations; domiciliary visits; emergency treatment, ante-natal care, confinement and post natal care, advice on family welfare, specialist consultations, and hospitalization facilities, in government hospitals as well as in certain private hospitals recognized under CGHS.

**Contributions:** Contributions are deducted from the salary based on the grade pay and may vary from 50 to 500 rupees per month. This contribution is much less than 1% of the basic pay of the employee. CGHS empanelled hospitals are NABH accredited hospitals to ensure the quality of the health services for the beneficiaries. CGHS has worked out the rate for each and every procedure and reimbursement is made to the hospitals accordingly.

Ex-Servicemen Contributory Health Scheme (ECHS)

**Beneficiaries:** The ECHS is a publicly funded Medicare scheme for ex-servicemen (ESM) pensioners and their eligible dependants, which came into force from April 2003.

**Facilities and Services:** Under the scheme out-patient treatment will be provided at 227 Polyclinics all over India (104 alongside service hospitals and 123 at non-military stations).

In-patient hospitalization and treatment is provided through out-sourced civil hospitals and diagnostic centres at all these 227 locations, empanelled for the purpose. Emergency treatment in any hospital will be reimbursed by the ECHS. Treatment/hospitalization in Service Hospitals are also be available to ECHS members, subject to availability of speciality, medical staff and bed space.
Contributions: To enrol in the scheme, a one-time contribution based on the basic monthly pension (excluding DA), is required. Enrolment is voluntary for those who retired prior to 1st April 2003. Those retiring after this date compulsorily become members of Health Insurance and ECHS and their subscription will be directly deducted from their terminal benefits.

P& T Dispensary Scheme

Beneficiaries: The scheme of P&T dispensaries was started in 1951 in offices having concentration of 5000 or more beneficiaries to provide medical care, laboratory facilities for routine testing, family welfare services etc. Beneficiaries of the scheme include employees of Department of Posts and Department of Telecommunications, their dependants and pensioners of these departments.

Facilities and Services: The P&T dispensaries are administered by Department of Posts through the respective heads of circles. The scheme essentially provides outpatient treatment. Government facilities are utilized for inpatient treatment and drugs are supplied by the dispensary.

Comparison with CHSS

Compared to all the above mentioned government health schemes, CHSS is the most liberal scheme. Compared to CHSS, other government schemes are highly streamlined. In CHSS, the mode of operation of the scheme differs from one unit to another. In other government schemes, the mode of operation is same in all the locations. In CHSS, reimbursement to empanelled hospitals is negotiated with each hospital. As a result, CHSS pays different rate of reimbursement for the same procedure in different hospitals. On the other hand, other schemes have fixed the reimbursement rate for each procedure. Irrespective of the hospital, the fixed amount for the procedure is paid to all the hospitals. Further, CHSS is the scheme where the discretionary power is used liberally to sanction expenditure over and above the fixed amount for the hospital. Other schemes are quite rigid in this matter.
REFORMING C.H.S.S.

While the above sections critically looked at issues related to specific location and context and made recommendations, it is important to view the larger picture of CHSS and its problems and challenges to re-organize CHSS to ensure that the health needs of DAE employees and their dependants are met at a cost that would sustain CHSS for the years to come. The whole analysis reveal that the CHSS in-house facilities are not delivering to the optimum. Hence the health care needs are met with large number of referrals to expensive private hospitals. While CHSS spends huge amounts on their own facilities, a large number of beneficiaries are referred outside leading to two-way expenditure. With the number of beneficiaries increasing because of new units, new recruits and addition of increasing retired employees, CHSS is becoming a highly unsustainable system delivering health care. The reform should address the challenge of making CHSS viable and at the same time meets its commitment to provide quality health care to its beneficiaries.

Streamlining CHSS Delivery

The first challenge is to address the issue of multiplicity of vehicles of health care delivery in CHSS. No other government health care scheme has this pattern of delivery of health care. The first reform is to standardize the delivery of CHSS health care. In the current situation, it is not possible to achieve one uniform system of delivery due to historical reasons. CHSS has set-up 3 hospitals in 3 major locations of DAE. It is not possible to wind-up these hospitals. But it is possible to make these hospitals viable within the CHSS system. Other units that do not have hospitals have worked out their own way of delivering health services. These units should be streamlined in a uniform delivery pattern. Looking at the multiplicity of the delivery mechanisms, one can recommend three models for CHSS which the different locations can fit in. They are,

Model – 1: In-house hospital based model

Model – 2: Outsourced hospital based model

Model – 3: Group medical insurance model
Model – 1 is meant for Mumbai, Tarapur and Kalpakkam, where CHSS hospitals are already existing. It is a capital intensive model and CHSS may not replicate this model any more. But the challenge is to increase the efficiency and improve the quality of health services delivered by these hospitals. For this, these hospitals should be modernized and the technical capacity of the doctors and other key personnel should be enhanced. The ultimate goal is to reduce the referrals to the barest minimum.

Model – 2 involves identifying a good secondary hospital capable of handling all the cases except those who need super-speciality treatment. It is better to find out a not-for-profit charitable hospital, where the rates are reasonable. Referrals will be made by this hospital. Being a private hospital, we can be assured that there will not be any unnecessary referrals. The reimbursement in this model should be based on CGHS norms. This norm should be strictly adhered to. CHSS of VECC in Kolkata is an example for this model.

Model – 3 is a new model never tried in CHSS. Administratively, this model will be useful for smaller units. It will be very useful to those retirees who have moved out of the locations of DAE units. They will be able to access health care wherever they are. Since it is a new model, it may be pilot tested in one or two units to understand the intricacies of dealing with medical insurance before up-scaling to other units.

Model – 1 is fixed for Mumbai, Tarapur and Kalpakkam and will not available to other locations. Model – 2 is already in vogue in VECC in Kolkata and they may continue with the model. Other locations should be streamlined within Model – 2 or 3. The choice may be given to the beneficiaries and administrators of the units in different locations. This will streamline CHSS delivery of health care to just three modalities and will be easier to administer the delivery system.

Reforming CHSS Administration

Currently the administration of CHSS is fragmented and is part of the general administration of DAE. Once the delivery of CHSS is streamlined to the above 3 models, there is a need to set-up a secretariat for CHSS. It should be headed by a medical administrator (person with a medical degree and hospital administration qualification) with adequate experience to handle
health schemes and medical insurance. The initial task of CHSS Secretariat is to streamline the delivery system and helps the DAE units to opt for Model – 2 or Model – 3. The Secretariat will play the key role in negotiating with private base hospitals and the insurance companies to ensure the best possible health care for the beneficiaries. The Secretariat will have small offices in different locations to process bills for early settlement.

**Preventing Disease and Promoting Health**

This important component of health is currently missing in CHSS. For a beneficiary population of 5,000, a Wellness Centre may be set-up to prevent disease and promote health. The structure and function of the Wellness Centre is already mentioned in the earlier section. CHSS should take advantage of the government circular to screen those who are above 40 years to find out their vulnerability to non-communicable diseases and take preventive measures. Further, the Wellness Centre will play a major role in lifestyle change to lead a healthy living. An active Wellness Centre will reduce OPD attendance and in-patient care, thereby bring down the cost of CHSS services.

Apart from the Wellness Centres in the housing colonies of the DAE units, there should be a well equipped Occupational Health Centre in the work site. This Centre takes care health risks related to work and provide health education to avoid health risks in the work site. This centre should also be well-equipped to first response to work related emergencies.

Thus all the DAE units will have Wellness Centres in the housing colony and Occupational Health Centre in the work site. There is no need to invest in dispensaries and hospitals in DAE units.

**Health Management Information System (HMIS)**

Currently the data generation and utilisation is very poor in CHSS. This has led to less transparency and accountability of the services delivered to the beneficiaries. There is no uniform format for data collection. There is hardly any information available about referrals, for which a large amount is spent by CHSS. Therefore, there is no monitoring of referrals. There is a need to capture all important clinical and administrative data and analysed
centrally to monitor the performance of CHSS services in different units of DAE across the country. This will help to identify areas of inefficiencies and to take remedial measures.