THE IMPLICATIONS OF TECHNOLOGY CHANGE FOR HEALTH CARE DELIVERY IN SRI LANKA

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Preface

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1. Historical background

Sri Lanka has a long tradition of health care, considered by historians as being sophisticated for the times, often based on herbal preparations and medicinal oils (1). The allopathic practices were introduced to the country by Portuguese and Dutch invaders between 1505 and 1805 (2). However, the rapid expansion of the allopathic system occurred after 1808 during the British period. In the past 3 to 4 decades, the number of institutions and personnel in the health sector has increased progressively. In the past decade, the growth of the private sector has shown the potential to take over some of the upper-end services that are now under the public sector. This will have significant implications for health technology.

As a result of these experiences, the development of health technology in the National Health Service has taken two somewhat separate paths. Sri Lanka was among the first countries to adopt "a primary health care" model in the mid fifties, long before the term entered the international health lexicon. Therefore, while the curative targets were being met, the government paid greater attention to (preventive) public health services. Successive governments focused on addressing the issues related to the provision of basic maternity and child health services, universal child immunization, malaria control, water and sanitation, and health education. The technology required for these purposes was the priority in the early years. When these targets were being met, the policy makers' attention was shifted to improving the technological base of the curative services. This is illustrated by the fact that the current Division of Biomedical Services of the Ministry of Health came into being in 1958, to meet the growing demand for a centralized maintenance service for clinical equipment, such as that being used at the patient/physician interface.

2. The Objectives

The objectives of this paper are:

1. To analyse the key issues facing the health system to function effectively and equitably in a changing epidemiological and demographic scenario;

2. to review the implications of technological advances for the delivery of health care in a low income setting, particularly in the current standard pattern of health centres, district hospitals, and tertiary hospitals; and,

3. to recommend ways of rationalizing the selection and adoption of health care technology in a low income country.

The following key issues will be covered:

- Current status, the main challenges being faced by the national health system of Sri Lanka, and the ways to strengthen the capacity of that system - improving quality of services, management and human resources, and R and D priorities.
- Constraints to the adoption of new technologies - appropriate technologies and how to encourage their use (e.g. day surgery), and the discouragement of inappropriate technologies.
- How to ensure that technologies are used for population groups and in settings where they are cost effective and not where they are NOT cost-effective?
- How the pattern of health care may change in the future, given technological change?

Definitions:

Health system – health system includes all actions whose primary purpose is to promote, restore and maintain health. This definition is linked to the concept of accountability for health.

Health technology - health technology**,** in the broadest sense, includes all the means and products when research and development in the field of health care is translated into drugs, procedures, devices, equipment etc. that benefit patients. This paper will adopt this broad concept in examining the relevant issues in health technology in Sri Lanka.

3. Current Health Situation in Sri Lanka

Sri Lanka's social indicators (Table 1) are impressive for a low-income country with a per capita income of around US$ 800 (the average for the last decade), as indicated by its infant mortality rate of 17 per 1000 live births, life expectancy of 73 years, and adult literacy of 87%, for example. To a large degree these successes can be readily attributed to the social welfare package, which was introduced in the early 1940s (3). The expansion of health and education

services was realized throughout the country during the early post-independence era. The Maternal Mortality Ratio of 2.3/10,000 live births in 2000 is an exceptional achievement for a developing country with a comparative income level. The level of these indicators is predominantly attributed to the Maternal and Child Care Programme implemented nationally as an integral component of the state health care system.

Similarly, the Infant Mortality Rate of 16.3 per 1,000 live births has been achieved by effective and widely accessible prevention strategies and treatment of minor infections. However, whilst post-neonatal mortality has declined significantly, peri-natal and neonatal mortality efforts have been less successful. A neonatal mortality rate of 12.9/1,000 live births suggests limited progress in improving the quality of labour and delivery, and in improving the relatively poor underlying health of mothers which results in premature deliveries and low birth weights.

In spite of these achievements, since the 1970s successive governments have found it increasingly difficult to maintain these services at an acceptable level of quality due to the adverse economic conditions faced by the country. Furthermore, the structural adjustment programmes in the 1980s reduced social expenditure increased the income disparities and widened the gaps in access to social services (4,5). With the rapid ageing of the population and success in combating the major communicable diseases, the disease burden has started to shift rapidly towards non-communicable diseases, including mental health, accidents and injuries.

Table 1: SUMMARY OF HEALTH STATUS AND SERVICE INDICATORS*

Indicator	Year	Data	Source
Total population (1000s)	2001	18,722	Demographic Unit
Population growth rate (%)	2001	1.1	Registrar General's Department
Crude birth rate (per 1000 pop.)	2001	18.9	Registrar General's Department
Crude death rate (per 1000 pop)	2001	5.9	Registrar General's Department
Sex ratio (males to 100 females)	2001	97.9	Department of Census and Statistics
Child pop. under 5 years (%)	1998	7.2	Demographic Survey 1998
Human development index	1998	0.716	UNDP Human Development Report

			1998
Adult literacy rate (%)	1994	90.1	Demographic Survey 1994
GNP Per capita (USD)	2001	820	Central Bank Annual Report 2001
Life expectancy at birth (yrs)	2001	73.0	Department of Census and Statistics
Infant mortality rate (per 1000 live births)	2001	12.2	Registrar General's Department
Maternal mortality ratio (per 10,000 l.b.)	1996	2.3	Registrar General's Department
Low birth weight (per 1000 l.b.)	2001	16.1	Medical Statistics Unit
Immunization coverage (% 6 antigens)	2001	88.4-97.6	Epidemiological Unit
Percentage of live births in Government hospitals	2001	92.0	Medical Statistics Unit
Government health expend as % of GNP	2001	1.6	National Health Accounts
No. of hospitals	2001	569	Department of Health Services
Physicians per 100,000 pop.	2001	44.8	Medical Statistics Unit
Nurses per 100 000 pop.	2001	84.4	Medical Statistics Unit

* Source: Ministry of Health, National Health Bulletin, 1999, 2000,2001 (6)

The leading causes of death (by percentage of total mortality for the year 2000) are: ischaemic heart disease (10.6%), diseases of the intestinal tract (9.3%), cerebro-vascular disease (9.0%), pulmonary heart disease and diseases of the pulmonary circulation (8.6%), and neoplasms (7.5%). Over time infectious and parasitic diseases have declined in importance, while cardiovascular diseases and homicide have increased in a proportionate manner. In 1996, violence (accidents, suicides and homicides) accounted for 22% of the deaths, while cardiovascular diseases and diabetes accounted for another 24%, which indicates that an epidemiological transition is rapidly in progress. Nutritional standards have improved but remain a serious problem among the poorer and vulnerable communities.

The major challenges of the disease burden in Sri Lanka are:

- Malnutrition – a significant problem

- Malaria still a public health problem
- Tuberculosis on the increase
- Morbidity from diarrhoea remains high
- Mental illnesses are on the rise
- High levels of tobacco and alcohol abuse
- A new range of diseases surfacing due to transitions.

People's Health Needs, Behaviours, Expectations, and Responsibilities

People's health needs are influenced by health services delivery and quality of care, but are more a reflection of the access to resources (sufficient and nutritionally balanced food, safe water, clean air, protective habitat) and the hazards to which they are exposed in society in general and in their occupations, as well as their own life skills and risks and health seeking behaviour.

Today there is a growing realisation that lifestyle factors should be considered, but for too many people in Sri Lanka "health activism" is limited to cleanliness, seeking medical care and special nutrition, and rest/exercise as dictated by a somewhat diffuse popular understanding of Ayurveda.

Health Services Network

In Sri Lanka, hospital networks, comprising of various types/categories of facilities from primary level to tertiary, are spread throughout the country and reach the majority of the community. Providing health care services in the public sector is the responsibility of the Central Ministry of Health (MoH) and eight Provincial Ministries of Health in the Provincial Councils. The Central MoH is responsible for managing national facilities and Teaching Hospitals, procuring drugs and supplies, while the Provincial MoHs are responsible for managing provincial/district health facilities. The services in the state sector are characterized by a very busy and overcrowded system of national, provincial and base (large town) hospitals and a wide-spread network of district hospitals and health care units, operating at lower levels of occupancy.

Sri Lanka experienced around 0.2 inpatient admissions per capita in 1997. This heavy demand may be due to a number of factors including: lower primary care and outpatient visits (estimated as 4 per capita in 1997) and patients being admitted when, with better primary care, they could have been treated on an ambulatory basis. Also, it is observed that patients bypass the lower level services, keeping occupancy rates low at peripheral hospitals, in favour of larger city and provincial hospitals, causing overcrowding. This is aggravated by an absence of clear admission and referral policies.

The fastest growing segment of private sector health care is out-patient or ambulatory care; over 36 million out-patient visits were estimated to have taken place in 1997, an increase of 2 million over the 1990 estimate. Of the total ambulatory care market, 46% is serviced by the private sector, 27% by government doctors both (specialist and non specialist), 12% by private general practitioners and 7% by traditional practitioners. Private hospitals played a minimal role in providing inpatient care until the early 1980s. Their reintroduction of private practice for government doctors, liberalization of drug imports and service provision deficiencies in government hospitals resulted in the growth of private hospitals in urban centres.

4. Resources for Health

Human resources for Health

In the area of human resources for health (HRH) the number of healthcare staff in most categories have increased over time. Even though the numbers of nurses and para-medical staff have increased steadily, the system continues to witness a considerable shortage of qualified nurses and para-medical staff in almost all medical institutions in all settings.

There are severe staff shortages, in some occupations particularly specialist doctors, medical teachers, nursing and para-medical tutors, nurses and paramedics. There are also major shortages in some regions, particularly in remote rural areas and in the conflict-affected areas of the country. At the same time there is an over production of doctors, which has resulted in a surplus. The government's commitment to absorbing all medical graduates up to 2010 into the state sector may prove difficult to fulfil and could lead to doctors moving into the private sector full time or seeking employment abroad.

Health Financing and Resource Allocation

In 1999, total expenditure on health was Rs. 39,177m in 1999 of which 13% was capital investment. This amounts to about 3.53% of GDP or Rs. 2,068 per capita (U$29 per capita).

There is a heavy reliance on taxation and out-of-pocket expenditure (approximately 50%) as a source of financing. Government revenue is primarily from central taxation. Private expenditure is predominantly out-of-pocket expenditure, with about 10% paid by employers and individuals for private insurance which is primarily spent on ambulatory care. Health expenditure has been increasing, albeit from a low base. Since 1990, total expenditure has been between 3 - 3.5% of GDP of which the Government share has fluctuated between 1.4% and 1.7% (7).

Table 2: Health care funding by administrative levels in Sri Lanka

	Central Government	Provincial Council	Local Government
Hospital	69%	31%	0%
Ambulatory	64%	33%	3%
Preventive	37%	56%	7%

State expenditure has over recent years become increasingly centralized with a large, and increasing, share of state funds being channelled through the Ministry of Health. Though spending on health by Provincial Councils increased by over 20% in real terms, their share of total state health spending declined significantly during the 1990s. The Central government predominantly funds institutional and ambulatory curative services, as well as preventive services; provincial and local government budgets predominantly fund the preventive services (Table 2).

Sri Lankan expenditure on health is less than most South East Asian countries, and is significantly less than developed countries (Table 3). In an age when technology is becoming increasingly important and available, this is posing serious constraints on service provision, particularly in the public sector.

Table 3: International comparison of investments in health

National health expenditure as % of GDP			
Selected Asian countries		Selected high income countries	
Sri Lanka	3.2%	UK	6.8%
Philippines	3.6%	Canada	9.2%
Thailand	3.7%	Australia	8.3%
Bangladesh	3.9%	Japan	7.5%

5. Unmet Challenges and their implications

Despite the numerous successes over years, the integrity of the Health System has been subjected to many challenges. Sri Lanka is already facing emerging challenges due to demographic, epidemiological, technological and social transitions. Issues such as morbidity due to certain communicable diseases and mortality due to certain non-communicable diseases are still widely prevalent, causing a double burden of disease. These challenges require significant changes in the ways in which health services are funded, resourced and managed so as to consolidate and build on these gains.

Responding to Changing Disease and Demographic Patterns

The morbidity and mortality trends are changing and new service delivery priorities need to be established. The population structure is also changing with an increasing proportion of the population being elderly. It is expected that this segment of the population will make increasing demands on the health service, particularly in the last decade of life (8).

Non-communicable diseases are increasing not only as a proportion of total ill health but also in incidence and prevalence. Among the more important of these are accidents, heart disease, mental illness, diabetes and cancers. Diagnostic and treatment technologies for many such diseases are expensive and the outcomes are often poor, but once new technologies are introduced and made freely available the demand for such would be enormous. Some of these technologies achieve relatively little in terms of health outcome but incur large costs, while some are effective. The new technologies introduced to the country first by the private sector

will quickly affect demand and supply in the state sector and will be a major factor in cost escalation.

The prevention of non-communicable diseases is generally a highly cost-effective use of state funding and can be achieved, to some extent, through accident prevention, injury limitation, healthy diets and lifestyle, a reduction in smoking etc. However, some conditions are chronic and require lifelong treatment or containment.

Whilst new problems are emerging, some old health problems persist. The maternal anaemia rate remains at 35%; childhood malnutrition, at a level which is still thought to be as high as 29% (weight for age) in under fives sits uncomfortably alongside Sri Lanka's significant reduction in infant mortality rates. Many interventions have not been delivered and further analysis is required to learn lessons from these experiences.

Malaria remains significant, and potentially serious, although more than half of cases are in the North East. With the restoration of services in the region there is likely to be a reduction in cases over the next few years. Dengue and Tuberculosis also pose significant risks. HIV/AIDS is a totally new challenge; prevalence is currently low and there is a window of opportunity to ensure that it remains so. There is a need to strengthen surveillance systems, undertake further research and evaluation, revisit the role of field staff and other sectors, and to review inter-sectoral experiences.

Service Delivery and Improving Management and Stewardship

At the turn of the 21st century the health system faces several major problems in its organization and management. One major issue is confusion and conflicts over roles, responsibilities and lines of accountability between central and provincial levels of the MoH which has been caused by devolution. In the past the state health service was well administered, but the modern environment now requires the services to be well managed. This requires greater delegation, clear accountability, flexibility and freedom for managers to manage, development and implementation of the concepts of good governance, the development of management and financial information systems that encourage and reward the achievement of results and a focus on outputs rather than inputs.

The private sector plays a significant role in the health sector. The Government encourages individuals to pay for their own health care where they are able to do so and the private health sector to meet these needs. However, the Government has an overall responsibility for ensuring that patients are protected and get value for money in both the state and private sectors. As such the Government needs to consider how to regulate the private health sector without stifling initiative and innovation. Consideration also needs to be given to how best to encourage partnerships between the state and private sectors to deliver quality services and contribute to the national health goals.

6. Issues related to health technology

There is a bias in the public mind towards "high technology". In Sri Lanka this goes all the way down to the periphery as a result of factors such as education and access to information. It is also in some cases instigated by doctors. "Good" medical care is equated to more expensive and sophisticated levels of technology e.g. injections, drips, ECGs, CTs etc, which are easy to sell to patients. Doctors find it difficult to explain that a simple technology may be preferable, and themselves serve as the entrepreneurs to service this demand. In Sri Lanka there are 3 recent positive examples of the assessment of technology on the basis of evidence and informed discussion**.**

1. The use of cost benefit analysis to introduce immunization against Hepatitis B.
2. The decision to undertake some studies prior to introducing anti-retrovirals, in spite of lobbying by pressure groups.
3. The project on injection safety being introduced now.

The rationale for these examples had 4 factors in common.

1. They were initiated by external agencies and advocacy groups – GAVI in the case of Hepatitis B and AIDS advocacy groups for anti-retrovirals.
2. The funding in the initial period was available from external sources and there was no competition for the MOH funds in these cases.
3. They received technical support that was not available in the country.
4. There was no immediate conflict with the existing government policies.

Having said that, there are a few examples in the past couple of years where the introduction of technology has not been rational and was not preceded by any type of serious assessment, with funds being made available. In these cases the projects were attractive both to the donor and the recipient, very visible and politically very advantageous. The most obvious example is the building of large hospitals, sometimes using grants from other countries, without taking consideration of the running costs, maintenance, the availability of the technical expertise, the utilization potential etc. This is quite common and seriously distorts the allocation of resources to the detriment of the preventive sector.

The other problem is that, unlike drugs, devices and equipment have no regulatory authority in Sri Lanka to authorize their use on the basis of cost effectiveness; companies can hard sell their products to doctors. Even the continuing medical education (CME) programmes do not take overall costs and acceptability into account. They only consider efficacy and effectiveness.

Appropriateness of the Technology

Budgetary constraints in countries such as Sri Lanka make it imperative that Government decisions to invest in technology are made on the basis that they address the broadest possible need and demand. This is bearing in mind that the health personnel that are required to optimize their application to patient care are available. Considering the spectrum of health institutions, equity reasons dictate that at least minimal facilities are available in all institutions delivering primary care (e.g. sterilizers, sphygmomanometers, vaccine refrigerators, suction units). As most of the primary care institutions are in rural areas, it is desirable that such equipment be robust and able to withstand electrical fluctuations etc. With regard to the knowledge based technologies, such as the services offered, and drug and test kits, there are some criteria that need to be assessed before decisions are taken to provide them at different levels of institutions. Essentially there are no standard packages of care, no treatment protocols, no standard equipment and supplies for different levels of health care.

For example, the leading cause of hospitalization today is traumatic injuries; it is the eleventh or twelfth cause of hospital mortality. Ischemic and pulmonary heart disease and circulatory diseases rank far higher in terms of hospital deaths, but they do not figure in the top ten causes of hospitalization. However, it is noteworthy that the basic equipment needed for the diagnosis and treatment of patients with such symptoms are not available except in a handful of hospitals

in the country. The question arises as to how a balance can be struck between the technology needed for morbidity reduction and mortality prevention. It is a challenging policy issue.

Technology Assessment

Assessing the cost-effectiveness and the benefits of new as well as old technologies is a major challenge to all health care policymakers and managers. Between 1965 and 1998 the average duration of hospital stay in Sri Lanka was reduced from 9.1 to 5.7 days. There are a number of day-care technologies that have also been introduced, both for diagnosis and treatment, in the past decade, for example, cataract surgery, caesarean sections, endoscopies of different types, lithotripsy, etc.

A specific difficulty in achieving a uniform assessment of health technology in the country has been the current decentralized administration of the health system with devolution of power to the Provincial Councils. Although some general guidelines exists on the choice of technology the Provincial Councils can make independent decisions, especially with regard to the technology offered in the larger hospitals.

The related problem is the fact that the technology inventory is situated only at the institutions where the particular technology is located. Consequently there is the problem of establishing a system of routine maintenance and planning a programme of replacement and renewal through continuing age and stock analysis. Equipment in an unserviceable condition and not in good repair is very common in many institutions.

Capacity Building

A physical infrastructure to house and facilitate the ever newer (and more expensive) technology, eg. physical space, protective radiation housing, and even a reliable electricity supply, etc, is not available. No capacity building is considered when planning and designing hospitals. Therefore the "new wine is put in old bottles" principle leads to suboptimal utilization, problems of maintenance, etc.

Secondly, in parallel to this, is the human resource constraint. The technicians who actually operate and use the newer technology are not trained in its use and maintenance. There is no continuing education for them, and there are few incentives provided to keep them motivated. This leads to an underutilization, and even the shunning of the automated sophisticated

equipment that is available today. To summarise, human resources issues in health technology that need to be addressed in Sri Lanka are:

- Expanded specialist services in the periphery (base hospitals), creating demand for services
- Increased competence of the medical officers and assistant medical officers in the peripheral units and district hospitals
- Pre-service training and continuing professional development for doctors in the periphery including general practitioners
- Modes of providing continuing education for them should be considered, eg:
  - Distance based education/telemedicine
  - Recertification systems.

Capacity building will remain a major problem unless urgently addressed.

The capacity for health sector research should be emphasized more in the area of active promotion of evidence-based decision making at all levels. The main areas in urgent need of research are: health system delivery, health promotion, non-communicable diseases, nutrition, indigenous medicine and health economics. The country has eminent academics and good potential research capacity. However, the capacity of health and health-related research institutions and researchers needs to be improved. The building of a national research institute to lead the development of appropriate evidence for decision-making will need to be emphasized.

7. Conclusions and the way forward

What then can we learn from the above information and analytical comments? What are the major strengths and the weaknesses of the Sri Lankan system at the current time which pose challenges to the adoption and use of health technology?

The key strengths of the Sri Lankan health sector revolve around the four fundamental values of equity, protection of the poor, cost-effectiveness and efficiency.

Equity

Sri Lanka has achieved some success in ensuring equity of access to health care. Central Bank surveys show that, consistently, the utilization of health services is equal across income groups, genders, urban and rural locations, and geographical regions. Also, in cases of catastrophic illness, the government ensures the accessibility and availability of care to all those in need, irrespective of any other considerations.

Protection of the poor

Protection of the poor is one of the most important objectives of Sri Lanka's health policy. This is reflected in in-patient resources. As many Sri Lankans pay for out-patient services and can ill afford the costs of hospitalization especially in the case of catastrophic illness, the government allocates more than 50% of its health budget to providing in-patient care. This acts as insurance against the effects of catastrophic illnesses.

Efficiency

There has some debate about this aspect, particularly in recent times. However in general, Sri Lanka has achieved high levels of access to modern medical care, not by rationalizing the services provided but by achieving efficiency gains in the public sector. (This was, however, questioned by the World Health Report 2000). Sri Lanka has achieved this by spending less than the cost of the World Bank and WHO recommended "minimum package" in the nineties, although costs have risen in the past five years.

Quality

Quality in the public sector has played a significant role in achieving positive indicators. The technical quality remains good but now the quality at the lower levels particularly is getting strained due to the resource crunch for drugs, equipment and for maintenance.

8. Priority issues to be addressed

Some of the priority issues that need to be addressed from this perspective are summarized below.

Organization of a Rationalized Health Network

Sri Lanka needs a detailed National Health Service plan for the medium term up to 2010, relating services to population needs for tertiary, secondary, and primary care. This should specify the optimum configuration of services for a given level of total annual health expenditure, show the implications for the state sector of assumptions about growth in private sector services, and identify priorities for capital investment. It should also take into account demography and epidemiology, current and future treatment methodologies, including a shift to ambulatory care for diagnostic and surgical procedures, and the potential of new technology e.g. laser and laparoscopic surgery, etc. to reduce in-patient stays.

In addition, an appropriate referral strategy, including admission and discharge policies, will need to be introduced to ensure that patients receive treatment at the most appropriate level. This should include provision for home-based care when and where appropriate. Support services will also need to be developed in a parallel manner.

Strategic Interventions for Priority Diseases/Conditions

Sri Lanka will need to continue to deal with existing communicable diseases while developing programmes for prevention and management of injuries, non-communicable diseases and new threats such as HIV/AIDS. Cost effective treatment protocols need to be developed for selected diseases such as cardiovascular disease, diabetes, arthritis and renal disease, and introduced into all relevant education, training and continued professional development activities. An example of this is the diagnosis, control and maintenance of diabetes through community level interventions with the objective of minimizing hospitalization and maximizing quality of life.

Pilot programmes

The use of Pilot programmes to introduce easy-to-use ambulatory technologies in the Sri Lankan context should be established. Clear protocols and accreditation processes need to be introduced to upgrade and sustain standards in both the state and private sectors. To ensure sustainability, professional organizations, medical faculties and service providers will have to be involved in the developmental process. The role of the Sri Lankan Medical Council in encouraging quality improvements will be very important.

Accessing New Technologies

New technologies and innovations need to be evaluated and, where they clearly demonstrate their value and impact, introduced into the state sector. In particular, the use of minimally invasive treatments and interventions, including day care surgery, should be encouraged if it has been demonstrated that they are beneficial in terms of quality of treatment of patients and result in significant productivity gains. Policies are needed to share investment in this area between the state and private sector where it is cost-effective.

Cost-benefit issues relating to health technology

In relation to the costs and benefits of new technologies, the following issues are key.

- A supply driven system has emerged for technology acquisition and use.
- The private sector is giving the lead to technology acquisition (the public sector follows).
- There is overuse of the top-end technology, e.g. CT and MRI, and abuses in the private sector.
- There is no evidence-based use of technology and medicines.
- A system of costing services is lacking – there are no unit costs of services.
- The out of pocket expenses for patients who go to the private sector as well as to paying services in public facilities (consultations and in-patient care) are of concern.
- There is no system for third party payment or prepayment except for the organised sector.
- An effective regulatory system is lacking.

Health care delivery issues

There is a need for a system of referral and counter-referral with more attention being given to non communicable diseases, in terms of prevention and treatment. The health facility structure needs to be reviewed and standardized with respect to the services to be delivered, staff mix and the equipment needed. There needs to be more integration of prevention, cure and rehabilitation for communicable and non communicable diseases. Human resources in the health sector needs a number of remedies in terms of production and management.

Health financing

The level of public sector spending is rising and will continue to increase due to an ageing population and other constraints. Other equitable options will need to be developed over time to address this issue. The perception of better health care at secondary and tertiary levels will increase the bypassing of some health facilities and create overcrowding and underutilization of other facilities. Sri Lanka needs to answer the questions: How should the priorities in terms of technology be determined for financing? What should be the policy mechanisms?

Assessment

The assessment and adoption of health care technology will become increasingly important in the future. There is a need to improve the current monitoring and evaluation systems, in general, and in particular those related to technology. In addition, there is a need for more timely data and their use for policy formulation eg.

- Better case definition using data from private providers
- Indicators for monitoring and evaluation which are not currently formalized
- The establishment of a feedback system.

Issues of safety, efficacy, efficiency and acceptability must also be considered.

Research and development priorities in strengthening health services and technology adoption

There are a number of issues on which empirical data need to be generated in Sri Lanka in its efforts to strengthen health services and meet the challenges in the adoption of health technology.

The following are some of the more urgent issues:

- How do we provide packages of care at different levels of facilities so that people will have the confidence to utilize them?
- How do we develop systematic “vertical” and “horizontal” referral systems in geographical areas?
- How do we encourage more decentralization and self-directed management of institutions in the public sector?
- How do we develop health financing systems that will encourage the wider use of the local health facilities with appropriate technologies?

- What are the requirements and needs of developing countries to successfully adopt Frameworks for Technology Assessment?
    - how do we get started?
    - who should be involved?
    - what is the best way to set the agenda?
    - what kind of advocacy is needed?
- What are the steps for developing countries to partner with other agencies (WHO etc.) to:
    - identify the priority needs to be addressed?
    - choose interventions that are cost-effective - for different levels of the health system, and different health problems?
    - ensure the feedback of assessment data into the system?
    - build the capacity in all areas of health technology?
- How do we establish technology assessment networks and how can developing countries get the maximum benefits from these networks?

Sri Lanka, like many other countries undergoing an epidemiological transition, will have to make hard choices in relation to the organization of the health service and its management, and in relation to accessing and adopting health technology. Sri Lanka in particular, due to the fact that the per capita expenditure on health is limited, will face the grim prospect of having to ration more and more of the expensive services in the future. How the policy decisions will be made on these issues will determine whether Sri Lanka can maintain the avowed goals of equity, quality and fair financing of the health services.

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