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The Health Sector of Sri Lanka

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Scope and process

Scope of work	Our engagement involved a market study on the Healthcare Sector of Sri Lanka. Our overall work has primarily been to obtain an in-depth understanding of current market of the Healthcare Sector as well as the impact of recent developments. Such findings were primarily based on desktop research carried out based on publicly available information and discussions with key stakeholders as well as an informed interpretation of the results of such information.
Sources of information	During the course of our work, we have relied on data and information publicly available, as well as discussions with key stakeholders in the public and private sectors. It should be noted that during our study, we have reviewed data and information from multiple sources which at times lacked consistency. Where possible, we have attempted to confirm or clarify such inconsistencies, however, in general we have observed a level of inconsistency in the views and information provided by various parties and Government ministries

Scope and process (cont'd)

Limiting conditions

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Glossary

Term	Definition/Meaning
AHH	Asiri Hospital Holdings
AMLT	Association of Medical Laboratory Technologists
BMI	Business Monitor International
BoP	Balance of Payments
CAGR	Compound Average Growth Rate
CBSL	Central Bank of Sri Lanka
CDDA	Cosmetics Devices and Drug Act
CSE	Colombo Stock Exchange
DDG	Deputy Director General
DG	Director General
EIU	Economic Intelligence Unit
EMG	Electromyography
ENT	Ear Nose Throat
ERCP	Endoscopic Retrograde Cholangio Pancreatography
GDP	Gross Domestic Product
GEF	Global Environment Facility
GMP	Good Manufacturing Practices
GoSL	Government of Sri Lanka
GRP	Good Refurbishment Practice
GSK	GlaxoSmith Kline
HEI	Higher Educational Institutions
HIM	Health Identification Number
IFC	International Finance Cooperation
IGRT	Image-guided radiation therapy
IHP	Institute of Health Policy
IIM	Institute of Indigenous Medicine
ISO	International Standards Organization
KDU	Kotelawala Defense University
MED	Medical Equipment and Devices
MoH	Ministry of Health
MoFP	Ministry of Finance and Planning
MT&S	Medical Technology and Supplies
NCD	Non Communicable Diseases
NQDAL	National Drug Quality Assurance Laboratory
NMDP	National Medicinal Drug Policy

Glossary

Term	Definition/Meaning
OECD	Organization for Economic Co-operation and Development
OOPE	Out of pocket expenditure
OPA	Organisation of Professional Association
OPBDIT	Operating Profit Before Depreciation Interest and Tax
OPD	Outpatient Department
PET	Positron Emission Tomography
PGIM	Post Graduate Institute of Medicine
PHSRC	Private Health Service Regulatory Commission
PIHDS	Public Inpatient Hospital Discharge Survey
SBL	Swiss Biogenics Limited
SLAB	Sri Lanka Accreditation Board
SLATL	Sri Lanka Association of Testing Laboratories
SLCPI	Sri Lanka Chamber of the Pharmaceutical Industry
SLMC	Sri Lanka Medical Council
SPC	State Pharmaceutical Cooperation
SPMC	State Pharmaceutical Manufacturing Cooperation
TAC	Technical Advisory Committee
UGC	University Grants Commission
USAID	United States Agency for International Development
WHO	World Health Organisation

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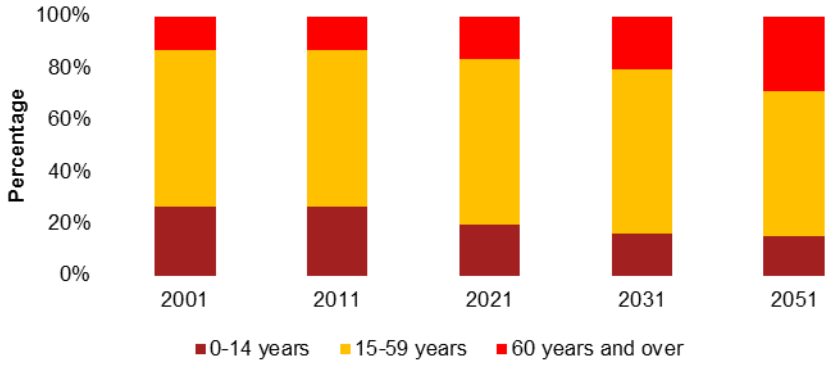
Section 1

Executive summary

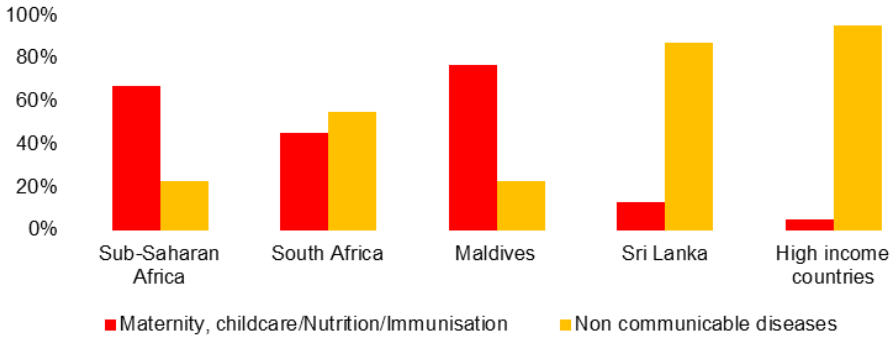
Sri Lanka healthcare profile: ageing population contributing to increase in prevalence of NCDs

Population ageing profile



The proportion of population of over 60 years has been increasing steadily …

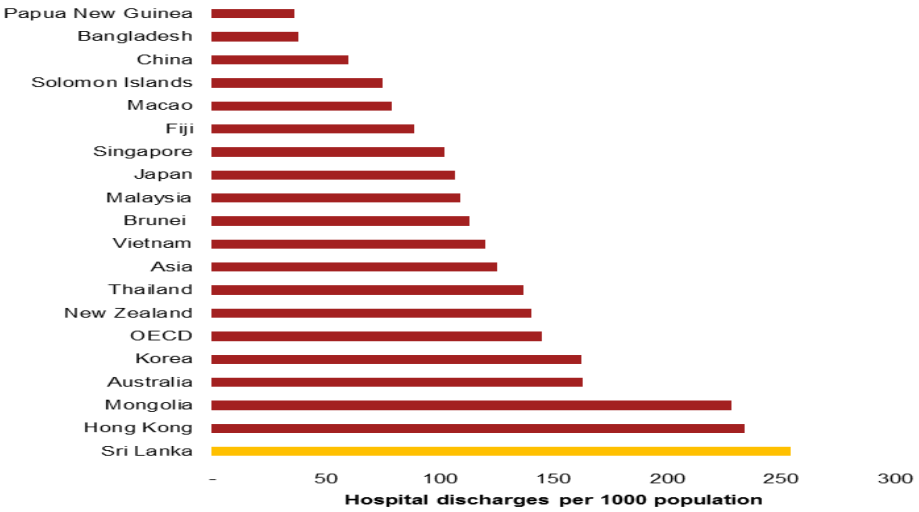
Burden of NCD's in Sri Lanka is higher than selected regions



…contributing to increase in prevalence of non communicable diseases

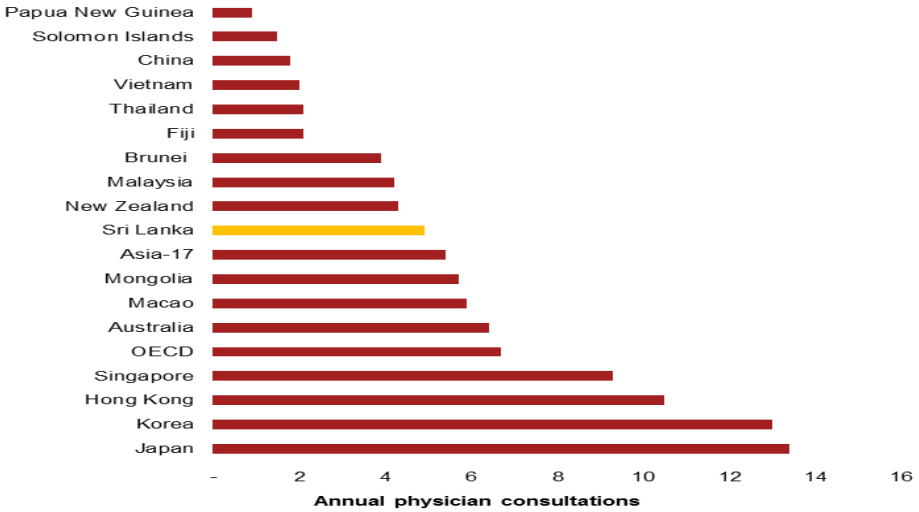
Sri Lanka healthcare profile: high utilisation of healthcare

Sri Lanka has high levels of inpatient utilisation



Sri Lanka ranks mid tier for number of physician consultations…

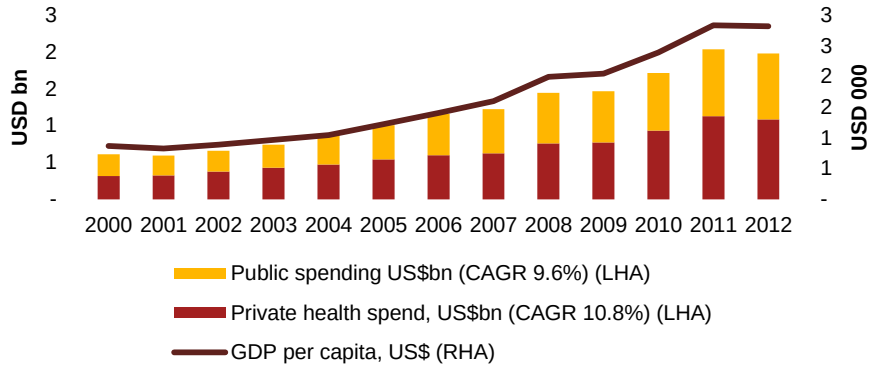
Number of physician consultation



….However subsequent utilisation of inpatient care is significantly higher than OECD countries

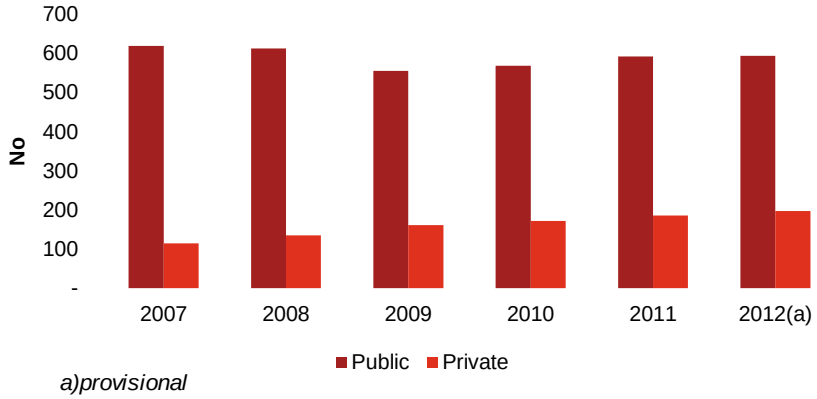
Sri Lanka health profile: private expenditure growth has been matched by public sector expenditure however the public sector bears the majority of the burden for inpatient care

Expenditure on healthcare vs per capita income



Historically expenditure on healthcare has tracked GDP per capita with an approx. even split between private and public sectors…

Number of hospitals in Sri Lanka



a)provisional

… however the state sector operates the largest number of hospitals in Sri Lanka

Key trends influencing demand and main sources of financing

Key demand trends

The key themes affecting demand for healthcare are expected to be ageing population, lifestyle factors and increase in purchasing power.

The growth in the proportion of the aged population of Sri Lanka is expected to alter the overall disease profile of the country and consequently affect the volume and type of services required.

In addition to the ageing population, prosperity related changes in lifestyle including comparatively regionally high levels of exposure to alcohol, tobacco and sedentary behaviour have exacerbated the incidence of non communicable diseases (NCD) to 65% of mortality and 80% morbidity.

In addition to demographic and epidemiological shifts, increasing prosperity, education and awareness levels have contributed to elevated healthcare seeking behaviour.

The improvement in purchasing power of the population in Sri Lanka coupled with actual and perceived gaps in quality and availability of public health services has contributed to increased demand for health services delivered by the private sector.

65%

of mortality is a result of non communicable diseases

>30%

Of the population will be elderly by year 2030

3.3%

of GDP is related to healthcare expenditure

86%

of private expenditure is accounted for by out of pocket expenditure

Healthcare payers

Healthcare expenditure in Sri Lanka was equivalent to 3.3% of GDP in 2012 (BMI).

Historically, expenditure on healthcare has tracked GDP per capita with an approx. even split between private and public sectors with private expenditure reaching LKR 141 bn (USD 1,084 mn) and public sector reaching LKR116 bn (USD 891 mn) in year 2012 (BMI).

Government expenditure on healthcare is funded through taxation and other Government receipts and channelled through the Ministry of Health.

Private expenditure on healthcare is dominated by out of pocket expenditure (c.86%) with the remainder relatively evenly split between private insurance, employer provision of private insurance and benevolent funds.

It is noteworthy that private expenditure on healthcare is disproportionately weighted to the comparatively prosperous western province.

Provision of healthcare

Public healthcare sector

The state sector under the Ministry of Health operates the largest number of hospitals (593) in Sri Lanka. Consequently the public sector dominates the inpatient segment.

Although the public sector operates the largest network of hospitals, there are considerable disparities in perceived quality and availability of public healthcare provision.

Consequently, patients tend to bypass their nearest primary and secondary public facilities in preference for tertiary public institutions and in some cases private hospitals. The resulting imbalance of utilisation has led to long waiting lists and overcrowding in tertiary institutions.

Private healthcare sector

While the public sector operates almost 3 times as many hospitals in the private sector, healthcare expenditure directed towards the private sector accounted for almost 55% of total healthcare expenditure in 2012 (BMI).

Total estimated private expenditure recorded a CAGR of 10.8% over the last 12 years reaching LKR 141 bn (USD 1,084 mn) for year 2012 .

The private sector caters to the majority of outpatients (c.60%) and currently only addresses one tenth of inpatient numbers in the country.

There are approximately 197 private hospitals distributed islandwide of which the “big 4” including Asiri Hospital Holdings, Durdans PLC, Nawaloka Hospitals PLC and Lanka Hospitals PLC dominate the marketplace. It is noteworthy that all 4 have a significant concentration of facilities in Colombo with a regional presence.

The private healthcare sector is characterised by the propensity of healthcare seekers to purchase services commensurate with increasing disposable income.

The state sector under the Ministry of Health operates and manages the most number of hospitals (593) in Sri Lanka

Patients tend to bypass their nearest primary and secondary public facilities in preference for tertiary public institutions and in some cases private hospitals

55%
of total healthcare expenditure was accounted for by the private sector

60%
of the outpatients and one tenth of the inpatients are catered to by the private sector

Provision of healthcare

Diagnostics

Provision of diagnostics is a key component of healthcare delivery in Sri Lanka. The market for diagnostic services has grown in the last 5 years at a CAGR of 19.2% to an estimated LKR 6 bn (USD 49.6 mn).

Two private sector players, Asiri Hospital Holdings and Durdans PLC, dominate the industry with a market share of 45% of total revenue. Asiri PLC holds 60% of market share in terms of test volumes.

Despite high operating margins (c.25%-30%), pricing of diagnostics services is such that it is affordable by the vast majority of the population.

Most tests are in relation to microbiology, biochemistry, haematology, histopathology, immunology, molecular biology (DNA testing) and clinical pathology.

Delivery of diagnostics typically occurs via hospital-lab combinations which use a series of reference labs, satellite labs and collection centres to expand their coverage of services.

Alternative healthcare services

Indigenous medicine has a rich history of over 3,000 years with 4 specialisations including Ayurveda, Unani, Siddha and Paramparika.

Ayurveda is the most commonly used alternative medicine medium in Sri Lanka with 6 categories of specialists totalling 17,503 in number.

Over 3 mn patients are treated annually at 438 Ayurvedic hospitals and dispensaries islandwide. It is noted that 60%-70% of rural population prefer Ayurvedic medicine treatment.

Sri Lanka has been designated as a World Bank Global Environment Facility (GEF) zone as a biological hotspot, with 1,500 species of plants of the 8,000 known medicinal plants in the world.

Lack of funding and domestic technical expertise has limited research and development in the fields of herbal drugs, nutraceuticals and beauty products.

19%

compound annual growth rate has been witnessed in the market for diagnostic services over the last 5 years

25-30%

operating margins have been witnessed for players operating within the diagnostic market

60-70%

of the rural population relies on Ayurvedic medicine for treatment

Pharmaceuticals market

Pharmaceuticals

The pharmaceutical sector is a key component of the healthcare services industry in Sri Lanka. The market is estimated to be worth LKR 61bn (USD 469 mn) having grown by a CAGR of 14% over the last five years.

Pharmaceutical sales within Sri Lanka have grown exponentially over the last decade with bulk of pharmaceutical needs being met by India (c.52% by sales) followed by Switzerland, Pakistan and United Kingdom.

Pharmaceutical manufacturing in Sri Lanka is currently at its nascent stages with only 25-28 active pharmaceutical manufacturers producing close to 200 types of generic drugs.

Whilst generic drugs dominate the market by quantity, branded drugs hold a larger market share by value.

Uptake of branded drugs is significantly influenced by medical practitioners and the presence of substandard drugs in the market. However the industry expects the Government to implement strict regulations to ensure quality of drugs sold in the market.

Furthermore, the Government of Sri Lanka has introduced a new price control formula for pharmaceuticals in March 2014 to prevent wide variations in drug prices. The mechanism was put in place by the Health Ministry and the Internal Trade Ministry.

In year 2011 the Government established a 48 acre pharmaceutical industrial zone to stimulate local manufacturing of drugs by local and foreign players.

Opportunities in the preventive healthcare market remains untapped, whilst demand for safe, affordable, quality medication for NCDs are on the rise.

14%

compound annual growth rate has been witnessed in the market for pharmaceuticals over the last 5 years

>90%

of the pharmaceutical needs in the country are met by imports in to Sri Lanka

Medical equipment and devices

Medical equipment and devices (MED)

MED accounts for a quarter of Sri Lanka's total healthcare expenditure. The GoSL accounts for a major share of inpatient care and consequently accounts for the bulk of the expenditure on medical equipment.

The MED market in Sri Lanka has increased steadily (CAGR 17%) over the past five years. This has been largely driven by the increase in number of private hospitals (115 to 197).

Furthermore, GoSL has stated a policy of increasing timely accessibility of health equipment in public hospitals. In particular, the Government has identified the need to procure X-ray and related equipment, gastro viewing and high energy radiotherapy treatment machines for selected hospitals.

A major share of medical device requirements of the country are met by imports. Local manufacturing typically occupies low value healthcare consumables such as cotton wool, beds etc.

High technology equipment requirements are met by imports from China, Singapore and Japan.

17%

compound annual growth rate has been witnessed in the market for medical equipment and devices over the last 5 years

GoSL has identified the need to procure X-ray and related equipment, gastro viewing and high energy radiotherapy treatment machines for selected state hospitals

Healthcare education and human resources for healthcare

Healthcare education and research

The GoSL via the University Grants Commission(UGC) undertakes the responsibility to fund and deliver medical education in Sri Lanka.

Currently there are 8 UGC approved universities conducting medical and related programs. In addition to this, there is also a UGC approved private medical college conferring degrees from Nizhny Novgorod State Medical Academy in the Russian Federation.

Despite the 9 institutions offering medical education, the programs are currently over subscribed with only 35% of applicants winning places for most medical programs.

However, there are private institutions affiliated with international universities offering foundation modules with the opportunities to complete medical training abroad.

In terms of research, Sri Lanka spends 5.7% of the expenditure on research and development for medical related disciplines. The GoSL allocates funds via the National Health Development Master Plan and the Mahinda Chintanaya to improve research capability in Sri Lanka.

Although research is done locally, foreign collaborations play a pivotal role in research. The UGC also undertakes responsibility to arrange collaborations between domestic and foreign research led universities.

Human Resources for Healthcare

The burden of diseases and changing demographic patterns have added pressure to the healthcare system resulting in disparities in numbers, types, functions, distribution, and quality of health workers.

Although the pool of human resources for healthcare in Sri Lanka has increased over the last decade, the skill mix remains imbalanced with a lack of specialists.

The increase in demand for healthcare is expected to result in a significant shortfall in qualified medical practitioners. This shortage is likely to become increasingly acute as both public and private sectors largely depend on resource constrained public sector funded and delivered programs.

The shortage is likely to be exacerbated by a “brain drain” where qualified staff seek more lucrative opportunities abroad.

>65%

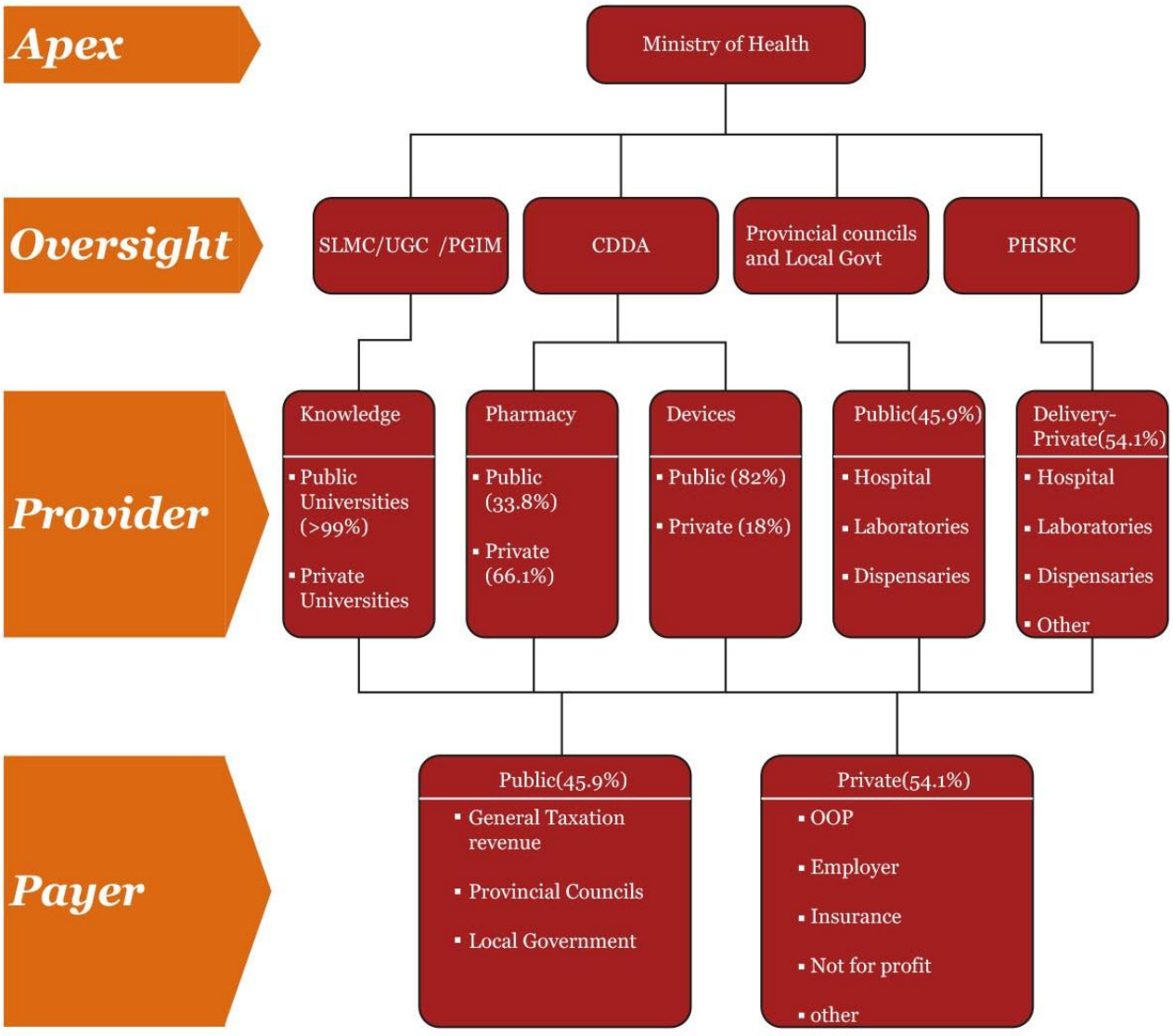
of students who are eligible to enter university are unable to join medical programs due to inadequate space within the university system in Sri Lanka

Although the pool of human resources for healthcare in Sri Lanka has increased over the last decade, the skill mix remains imbalanced with a lack of specialists

Section 1.1

Sector organisation and structure

Healthcare system



MOH	*-Ministry of Health*	*PGIM*	*-Post Graduate Institute of Medicine*
SLMC	*-Sri Lanka Medical Council*	*CDDA*	*-Cosmetic Devices and Drugs Association*
UGC	*-Universities Grants Commission*	*PHSRC*	*-Private Health Services Regulatory Commission*

* All percentages refer to proportion of expenditure

Healthcare sector oversight

Apex Body

Ministry of Health (MoH)

The Ministry of Health is the centralised apex body under the GoSL and will carry forward the objectives as listed in the health master plan.

The MoH is responsible for the provision of comprehensive health services which include services for preventive, curative and rehabilitative care.

The MoH is headed by the Minister of Health and Deputy Minister of Health followed by Director of Health Services. The Director General (DG) of Health Services is the officer responsible for providing guidance to policy makers at a political level, policy making, programme planning, and implementation for all health services in the country. There are several Deputy Directors General (DDG) who serve under DGHS. However it is the DDG Public Health Services who is directly responsible for the delivery of all health care services to the public

The MoH - a central government function - is responsible for the provision of comprehensive health services which include services for preventive, curative and rehabilitative care

The SLMC is the statutory body established for the purpose of protecting healthcare seekers by ensuring the maintenance of academic and professional standards, discipline and ethical practice by health professionals who are registered with it

Oversight

The Sri Lanka Medical Council (SLMC)

The SLMC is a statutory body established for the purpose of protecting healthcare seekers by ensuring the maintenance of academic and professional standards, discipline, and ethical practice by health professionals who are registered with it.

The Council has representation from medical faculties of the state universities as well as from professionals in the state and private sector.

The Medical (Amendment) Act No. 30 of 1987 makes provision for the Council to enter and make inquiries at recognized universities and institutions to ascertain whether the courses of study, the degree of proficiency at examinations conducted for conferment of qualifications and staff, equipment and facilities provided at such universities and institutions conform to prescribed standards. If they fail to conform to prescribed standards, the council may recommend to the Minister to withdraw such recognition.

Healthcare sector oversight

Post Graduate Institute of Medicine (PGIM)

The Post Graduate Institute of Medicine (PGIM) is the only institute in Sri Lanka that is responsible for the post graduate specialist training of medical doctors and is affiliated with University of Colombo. It is internationally recognised and several of its training programmes have 'equivalence' recognition by the Royal Colleges of the UK. The PGIM works in close collaboration with the Ministry of Higher Education, the MoH and Faculties of Medicine of universities and professional colleges. The Secretaries Ministry of Health , Ministry of Higher Education, the Director General Medical Services, deans of all faculties of medicine and eight nominees by the University Grants Commission from among distinguished professionals in the country sit on the Board of Management.

Cosmetic Devices and Drugs Act (CDDA)

The Cosmetic, Devices and Drugs Act (CDDA) No. 27 of.1980 (as amended by Act No. 38 of 1984, No. 25 of 1987 and No 12. of 1993) provides the legislative framework to control the use of cosmetics, medical devices and medicinal drugs in the country. The Act is based on Canadian legislation and covers registration, manufacture, importation, transportation, sale (retail and wholesale), labelling, advertising, distribution of drug samples, testing and disposal of outdated or spoilt drugs.

The main provisions of the CDDA with regard to the drugs are:

(i) Only drugs which are registered with the Authority can be manufactured, imported, offered for sale or used in the country

(ii)Licenses are required for importation, manufacture, wholesale trade/ retail trade, and transportation of drugs

(iii)All drugs registered with the CDDA should conform to specified standard

(iv)Labelling on the packs and advertisements regarding drugs should conform to the relevant regulations

The PGIM is the only institute in Sri Lanka that is responsible for the post graduate specialist training of medical doctors

CDDA is based on Canadian legislation and covers registration, manufacture, importation, transportation, Sale (retail and wholesale), labelling, advertising, distribution of drug samples, testing and disposal of outdated or spoilt drugs

Healthcare sector oversight

Provincial and district councils

In addition to MoH, the structure is further broken down to 9 provincial ministries with an equal number of Provincial Directors of Health Services responsible for planning, implementation and monitoring of all health programs including public health programs within the provinces.

25 district level ministries operate under the leadership of the Deputy Provincial Directors of Health Services including the management of all hospitals (excluding teaching and specialised hospitals).

The district levels will liaise with the provincial level ministries while the latter liaises with the ministries in the central government.

Private Health Services Regulatory Council (PHSRC)

The private sector health care institutions are expected to register with the Private Health Services Regulatory Council (PHSRC).

PHSRC is a council established to exercise, perform and discharge its powers, duties and functions under the Private Medical Institutions (Registration) Act No 21 of 2006 which was certified on 14th July 2006 by the Parliament of the Democratic Socialist Republic of Sri Lanka. The council is represented by the professional bodies such as SLMC, Independent Medical Practitioners Association and Dental Association and is headed by the Director General of Health Services.

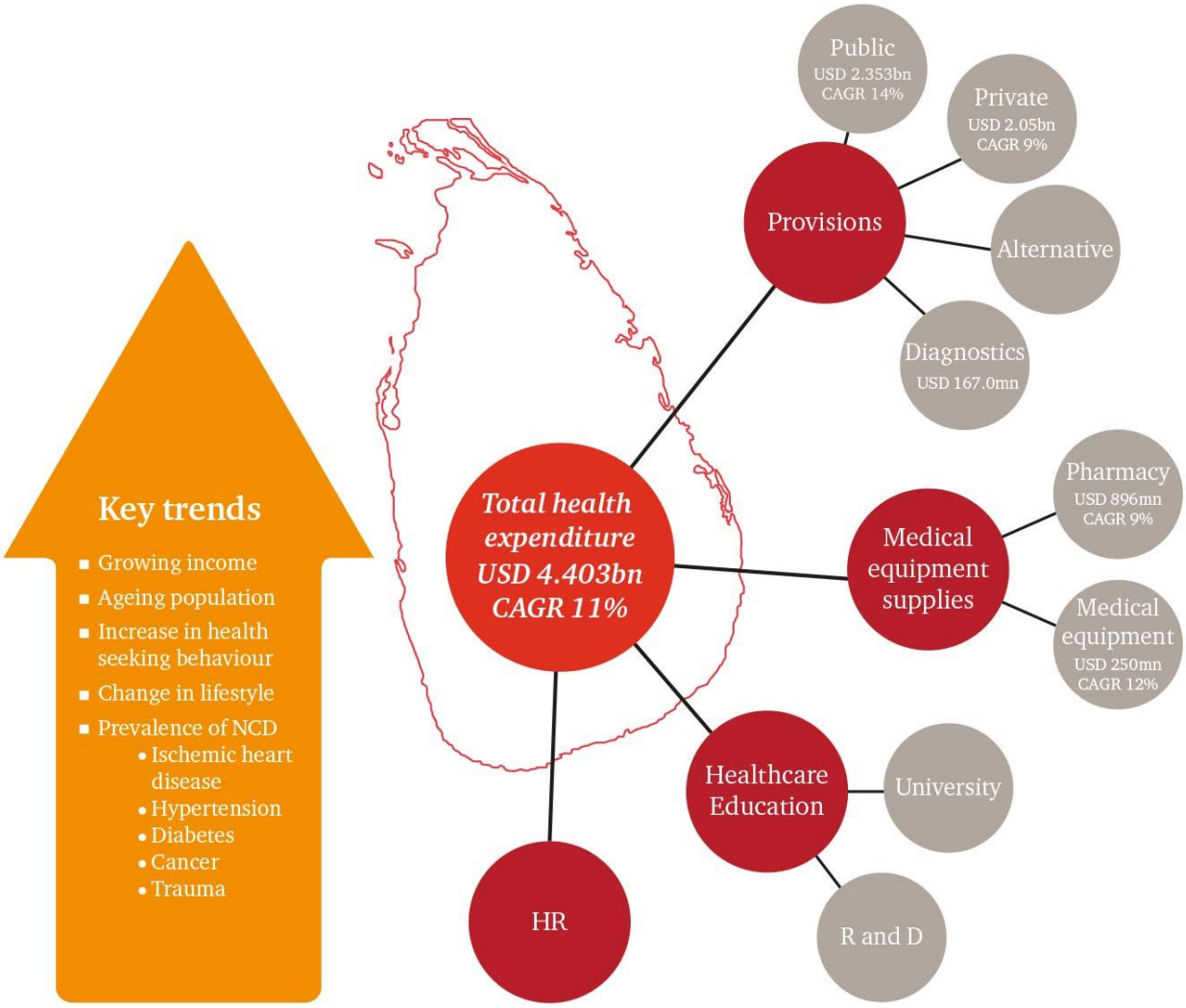
Provincial Directors of Health Services responsible for planning, implementation and monitoring of all health programs including public health programs, within the provinces

The private sector health care institutions are expected to register with the Private Health Services Regulatory Council (PHSRC).

Section 1.2

Summary of key opportunities and risks

Expected development of the healthcare sector by 2020



Total healthcare spending is expected to double from USD 2.0 bn (2012) to USD4.4 bn (2020) with the private sector set to account for USD 2.1 bn (47%) of expenditure

Expected real growth in healthcare expenditure

Overall expenditure across public and private sectors is expected to grow by c.11% pa on a nominal basis from USD2.0 bn in 2012 to USD3.2 bn in 2017.

Over the same period USD inflation is expected to range between 1.5-2.3% pa indicating real growth in healthcare expenditure of c. 8% pa to 2017.

GoSL's commitment to public healthcare

Over the period 2012 –2020, nominal expenditure by the public sector is expected to significantly outpace the private sector, resulting in the public sector reaching 53% of total healthcare expenditure by 2020.

Furthermore, expected public sector real expenditure exceeds average expected real GDP growth of 6.7% by over 4 percentage points.

8.3%

Private healthcare sector sales are expected to experience a CAGR of 8.2% over a period 2012-2020

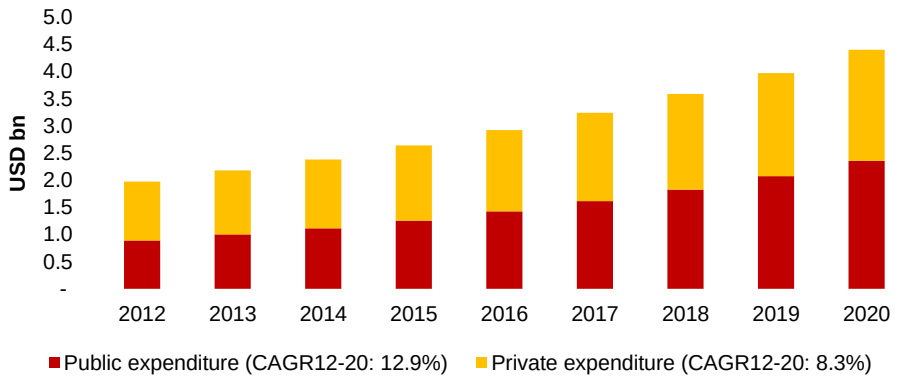
Key consideration 1:

Although expenditure on private sector healthcare is expected to increase due to improvements in per capita income, it is noted that there is a significant disparity in levels of income in the country. (According to World Bank 20% of the population hold 44% of income share in Sri Lanka). Therefore only a smaller share of the population is able to afford private healthcare.

Key consideration 2:

Only 29% of the population live in the Western Province, yet the province is home to a major share of facilities causing significant competition among healthcare providers.

Expected growth in healthcare expenditure (nominal USD terms)



Source: BMI

In the medium term (2020), cardiovascular diseases and diabetes are expected to account for significant increases in expenditures. In the long term (by 2050) the expenditure disparity between diseases is expected to narrow

Disease	2010	2015	2020	2025	2030	2035	2040	2045	2050
Cardiovascular	9.0%	9.8%	9.7%	7.0%	4.9%	6.2%	6.0%	6.8%	5.7%
Diabetes mellitus	6.3%	8.9%	9.6%	5.5%	3.0%	4.3%	4.8%	6.6%	5.4%
Musculoskeletal	7.0%	8.3%	7.7%	5.2%	4.0%	4.8%	4.9%	7.1%	6.1%
Nervous system disorders	4.9%	7.1%	6.4%	4.3%	3.5%	3.3%	3.2%	7.0%	6.5%
Endocrine and metabolic	7.9%	4.4%	3.8%	2.0%	1.2%	5.2%	5.6%	1.7%	(0.7%)
Neoplasm	5.4%	4.3%	3.8%	4.0%	4.1%	2.9%	1.8%	3.4%	3.0%
Genitourinary	3.2%	3.0%	2.7%	1.3%	0.8%	2.3%	2.7%	3.8%	2.7%
Nutritional deficiencies	8.8%	3.8%	2.7%	1.0%	0.9%	7.6%	10.3%	4.0%	(0.4%)
Chronic respiratory disease	3.9%	3.0%	2.7%	3.1%	3.4%	3.6%	3.3%	4.2%	3.4%
Skin diseases	0.6%	1.7%	2.4%	2.6%	1.5%	1.3%	1.1%	3.5%	3.6%
Benign neoplasm	2.0%	0.4%	2.2%	1.6%	(0.3%)	1.4%	1.4%	1.4%	0.7%
Digestive system	1.2%	2.3%	2.2%	1.0%	0.8%	0.8%	0.9%	3.8%	3.5%
Injuries	1.8%	2.0%	2.1%	2.1%	2.3%	2.2%	2.0%	4.1%	3.8%
Mental disorders	2.7%	1.9%	1.6%	0.3%	(0.3%)	1.1%	1.2%	1.7%	0.9%

Cardiovascular disease, Diabetes Mellitus and Musculoskeletal diseases to witness an average growth 7.2%, 6.0%, 6.1% respectively during the period between 2010-2050

Source: IHP

Key consideration:

Although the pool of human resources for healthcare in Sri Lanka has increased over the last decade, the skill mix remains imbalanced with a lack of specialists.

Key consideration contd.

According to Post Graduate Institute of Medicine there is a 30% shortage in cardiology related specialists (i.e. cardiologist, cardiac physiologists and cardio thoracic surgeons) and 40% shortage in general medical specialists as at 2011.

Key consideration contd.

The increase in demand for healthcare is expected to result in a significant shortfall in qualified medical practitioners. This shortage is likely to become increasingly acute as both public and private sectors largely depend on resource constrained public sector funded and delivered programs.

The private healthcare market is forecasted to grow by a 8.3% CAGR (2012-2020)

Private healthcare revenues to double by 2020

The domestic private healthcare market is forecasted to reach USD 2.05 bn and experience a CAGR of 8.3% from 2013 to 2020.

Key consideration 1:

Although the public sector presently lacks in service delivery due to various inefficiencies, the GoSL has taken several efforts to improve public healthcare by increasing investment to upgrade public healthcare facilities. Therefore demand for paid healthcare is expected to be impacted by the availability of a modern network of public hospitals in the future.

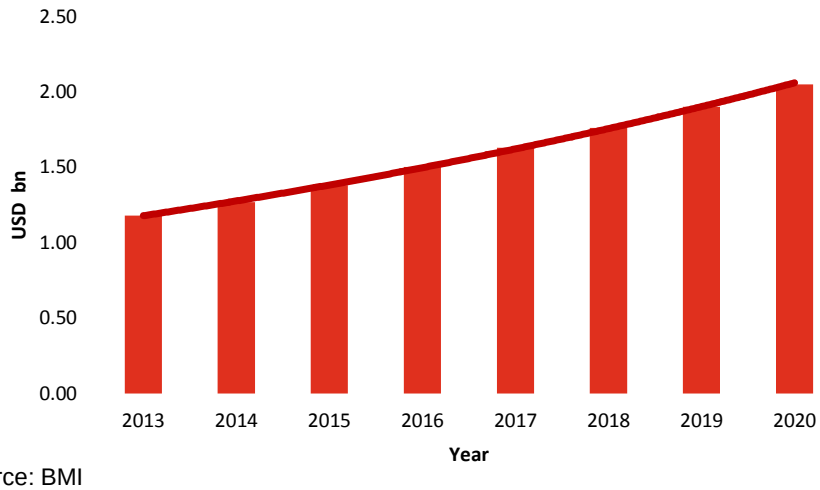
Prospects for medical tourism

Medical tourism witnessed a significant growth of 20% growth from 2012-2013. Private healthcare in Sri Lanka offers high quality services for a variety of specialized procedures at a fraction of the cost in comparison to other countries.

Key consideration 2:

Sri Lanka's presence as a location for medical tourism is yet to be established in comparison to other regional players such as India, Thailand etc.

Forecasted private healthcare sector sales



Source: BMI

Price comparison of selected medical procedures

Surgery	Sri Lanka	India	Thailand	Malaysia	USA
Heart bypass	6,220	5,200	15,121	11,430	144,000
Angioplasty	3,110	3,300	3,788	5,430	57,000
Heart valve replacement	6,220	5,500	21,212	10,580	170,000
Hip replacement	4,440	7,000	7,879	7,500	50,000
Hip resurfacing	4,440	7,000	15,152	12,550	50,000
Knee replacement	3,550	6,200	12,297	7,000	50,000
Spinal fusion	2,665	6,500	9,091	6,000	100,000
Dental implant	1,330	1,000	3,636	354	2,800
Gastric sleeve		5,000	13,636		28,700
Gastric bypass		5,000	16,667	9,540	32,927
Lap Band		3,000	11,515		30,000
Liposuction	2,220	2,800	2,303	2,299	9,000
Tummy tuck		3,000	5,000		9,750
Breast implants	2,220	3,500	2,727		10,000
Rhinoplast		4,000	3,091	1,293	8,000
Face lift		4,000	3,697	3,440	15,000
Hysterectomy	1,155	2,500	2,727	5,250	15,000
Lasik	1,155	500	1,818	477	4,400
Cornea	530		1,800		
Retina	530	850	4,242	3,000	
IVF treatment	3,550	3,250	9,091	3,819	14,500
Kidney transplant	17,500				

* All figures are in USD terms

Source: Industry research

Sri Lanka is becoming a popular destination for inbound medical tourism due its quality of care, facilities and low cost of services provided

Sri Lanka is emerging as a popular destination for medical tourism due to the country's well educated, English speaking medical staff, state-of-the art private hospitals and diagnostic facilities, and relatively low cost of services in comparison to global and regional players.

Furthermore as per the CBSL annual report , the GoSL is taking a variety of steps to improve the medical tourism standard in Sri Lanka, including the amendment of the Private Medical Institutions Registration Act.

Steps are being taken to streamline the procedure related to temporary registration of foreign qualified specialists to be employed in private hospitals for curative care.

Based on the National Health Development Master Plan the GoSL will allocate funds for the establishment of a medical tourist management information system to improve information available to foreigners.

In addition in order GoSL will also coordinate identified sections for development in private and Government hospitals and create dedicated specialised centres for care of foreigners in pursuit of better quality centres.

Furthermore a system will also be in place for an accreditation standard for such hospitals.

Sri Lanka is also expected to be a destination for indigenous medical treatment by 2020. (Please see the section on alternative medicine for more details).

Key consideration 1:

In terms of outbound medical tourism Sri Lankan patients seek treatment in foreign countries such as India. Approximately 4,000-5,000 tourists travel to Chennai of which the majority are Sri Lankans seeking special treatments in neurology, ophthalmology and cardiology and organ transplants due to a lack of facilities in Sri Lanka.

Key consideration cont..

To address the issue of outbound medical tourism, GoSL expects to construct three fully fledged centres of excellence in cardiology in Anuradhapura, Ratnapura and Jaffna by 2020. In addition 2 new centres for cancer treatment have been planned to operate in full capacity in Kurunegala and Batticaloa.

Russia, Eastern European Countries, Japan, China, South Korea and India *are the main markets fore medical tourism according to The Sri Lanka Tourism Bureau.*

The domestic pharmaceutical market is forecasted to double in 2020 to USD 896 mn from USD 469 mn recorded in 2012

Sri Lanka's Risk Reward Rating score stands at 37 out of 100, making the country the 17th most attractive pharmaceutical market in the Asia Pacific Region.

Government introduction of "Guarantee Buy Back" agreements in a Public-Private Partnership and the setting up of a manufacturing zone in Kurunegala is expected to promote local manufacturing.

However, according to industry research, pharmaceutical manufacturing for consumption in Sri Lanka alone may not be sufficient to justify investment. Therefore manufacturing to meet both local and regional demand is considered to be the more viable option.

Demand for preventive medications such as vaccines and treatment for risk factors is expected to increase significantly, with the GoSL increasing focus on prevention over curative treatment with consumers increasingly electing to avoid expenditure on expensive treatments.

With the predicted increase in prevalence of NCDs, demand for pharmaceutical products related to NCDs such as heart disease, hypertension, diabetes and cancer is expected to increase.

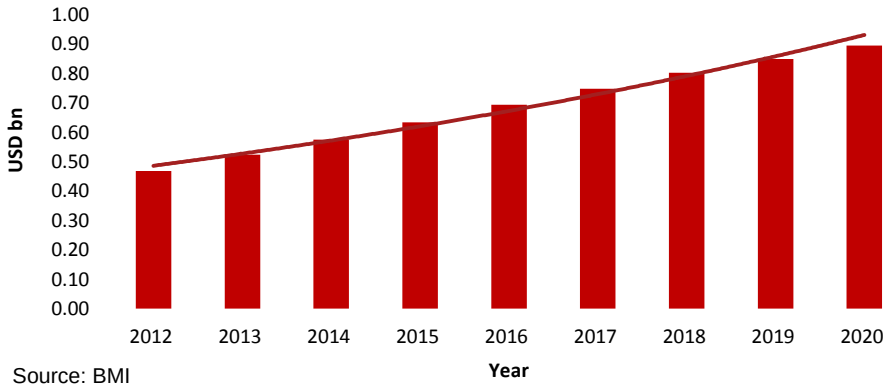
Sri Lanka is also an attractive destination to conduct multi central clinical trails in participation with international research and development agencies in drug development.

According to the Department of National Planning, the clinical trials industry is expected to reach USD 1 bn.

8%

compound annual growth rate will be experienced for pharmaceutical sales between 2012-2020

Forecasted Pharmaceutical Sales



Source: BMI

Key consideration 1:

The Government of Sri Lanka introduced a new price control formula for pharmaceuticals in March 2014 to prevent wide variations in drug prices - this is expected to impact profit margins of pharmaceutical suppliers.

Key consideration 2:

Sri Lanka currently has a detailed National Medicinal Drug Policy (NMDP) formulated. Although its approval has been pending over the last few years, industry sources expect the formal approval of the policy this year, resulting in strict regulatory control over pharmaceutical manufacturers and importers.

Total MED sales are expected to increase significantly at a forecast CAGR of 11% from USD 111 mn recorded in 2012 to USD 250 mn in 2020

With the rise in NCDs in Sri Lanka, the number of patients seeking care for cardiovascular diseases, cancer, diabetes, kidney and respiratory diseases are increasing, resulting in the growth in demand for diagnostic equipment and advanced treatments.

Furthermore, with the growth in proportion of aged population, demand for medical consumables and equipment related to aged care is expected to increase.

According to the Ministry of Finance and Planning although a substantial amount of funds have been allocated for procurement of equipment for hospitals, bulk of the hospitals in Sri Lanka are yet to be adequately equipped.

Furthermore, many of the hospitals in Sri Lanka are yet to be supplied with high tech equipment such as CT/MRI scanners.

Government policy to promote Sri Lanka as a destination for medical tourism is expected to result in the set up of large scale private and public multi specialty healthcare centres of excellence. This in turn is expected to drive demand for high tech medical devices and other general consumables.

GoSL has been investing in hospital development and rehabilitation over the last few years. Therefore with the expansion of the hospital network in Sri Lanka the demand for medical equipment is expected to increase.

Key consideration:

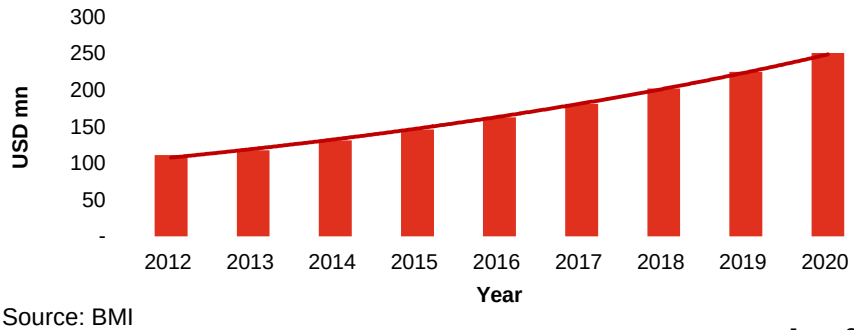
A major challenge identified by medical device importers in Sri Lanka is the rigorous regulatory procedure in registering equipment with the CDDA. Importers are required to register equipment of all types and sizes irrespective of the number of times similar/identical equipment has been previously registered.

Furthermore, the lack of transparency in the registration procedures has resulted in importers having to wait for approval with no indication of status of the registration process.

Key consideration cont..

Barriers to entry in importing equipment exist as CDDA mandates 1 agent per type of product imported. Therefore new players who wish to import the same equipment as other agents are required to submit a no objections letter from the registered agent to the MoH.

Forecasted medical equipment devices sales



Source: BMI

Section 1.3

Challenges in Sri Lanka's health sector

The issues important to achieving your vision

Expected real growth in healthcare expenditure

Key issues facing healthcare providers include addressing the epidemiological shift primarily driven by demographic and socioeconomic factors, the role of the state and the nature of its evolving partnership with the private sector, human capital constraints, improving access to specialised care and the promotion of appropriate, affordable health insurance across all segments of society.

Navigating these complex and dyamic challenges will be key to establishing and sustaining a sucessful engagement with the Sri Lankan healthcare sector.

However, irrespective of these considerations, one fact is certain:

Sri Lankans are increasingly demanding more and better healthcare and are willing to direct their growing disposable income towards it.

Public healthcare
universal access, free at point of use and accounting for 48% of total sector expenditure

Regulation
multiple regulatory bodies with often complex compliance procedures

Epidemiological shift
Incidence of non-communicable-diseases is rising rapidly with ageing and lifestyle factors

Healthcare seeking
rising incomes and awareness is leading Sri Lankans to be increasingly proactive in seeking and discriminating in procuring healthcare services

Access
Only 29% of the population live in the western province, yet the province is home to the lion's share of facilities

Health capacity planning and cooperation between the private enterprise and the state

Ensuring that the healthcare system is structured and aligned with current and future demands of the population is a particularly relevant challenge for Sri Lanka.

Currently private sector healthcare delivery is heavily concentrated in the diagnostic and outpatient space and receives c.54% of total national healthcare expenditure.

However, rapid population ageing, increased incidence of non-communicable diseases and related morbidity, increasingly high patient expectations and constrained public resources are factors that are likely to transform in the coming years, particularly in relation to the provision of inpatient and specialised care.

Ultimately however, we expect that the nature and intensity of cooperation and competition within and between the private and public sectors will be critical in addressing the healthcare needs of a market which we expect to more than double to USD 4.5bn by 2020.

46%

Public healthcare universal access, free at point of use and accounting for 46% of total sector expenditure

USD 4.5 bn

Healthcare needs of a market which we expect to more than double to USD 4.5bn by 2020.

Operating within an evolving policy and regulatory environment

The Government of Sri Lanka (GoSL) has, in broad strokes, laid out healthcare priorities for 2020 articulating key objectives including improving access-to and quality-of healthcare service delivery particularly though the application of technology and increased private sector participation.

However, increased regulation of the private sector is very much a focus of the GoSL's healthcare roadmap. Consequently, while we expect the private sector market opportunity to top $2.1bn by 2020 , we also believe there to be substantial risks and costs of compliance.

Navigating the complex landscape of agencies and regulations whilst planning for the future adoption of global best practice regulations and standards can be challenging.

USD 2.1 bn

private-sector market opportunity to top $2.1bn by 2020

Regulation

multiple regulatory bodies with often complex compliance procedures

Healthcare provider operations will need to adapt to transitioning nature of demand

Ironically, thanks to the historical success of universal healthcare delivery and steadily increasing prosperity, Sri Lankans are living longer, albeit with more sedentary and unhealthy lives. Illness related to alcohol, tobacco, obesity, diabetes etc. are all on the rise: 80% of morbidity and 65% of all mortality is related to non-communicable disease.

Simultaneously, increasing levels of disposable income and education are forcing providers to serve a higher and more informed demand with high quality and value for money healthcare products and services.

Competing on price alone is an increasingly difficult proposition; competition has driven service commoditisation with oftentimes sub-par healthcare outcomes. To succeed in the long-run, providers will increasingly have to make strategic decisions with respect to how to deliver quality services with acceptable returns based on optimisation of operating performance, establishing the right geographic footprint, rationalising services all with respect to the overall patient care pathway.

Health seeking

rising incomes and awareness is leading Sri Lankans to be increasingly discerning and proactive in seeking healthcare services

Access

Only 29% of the population live in the Western Province, yet the province is home to the lion's share of facilities

Section 2

Key demand factors

Sri Lanka's rapidly ageing population is expected to change the profile of healthcare services required

According to IHP, Sri Lanka is one of the first developing countries to achieve below replacement level fertility. Therefore a rapid increase in aged population in Sri Lanka is expected.

Furthermore, with the reduction in death rates and stabilisation of population growth, the proportion of Sri Lanka's aged population is expected to increase over the next decade.

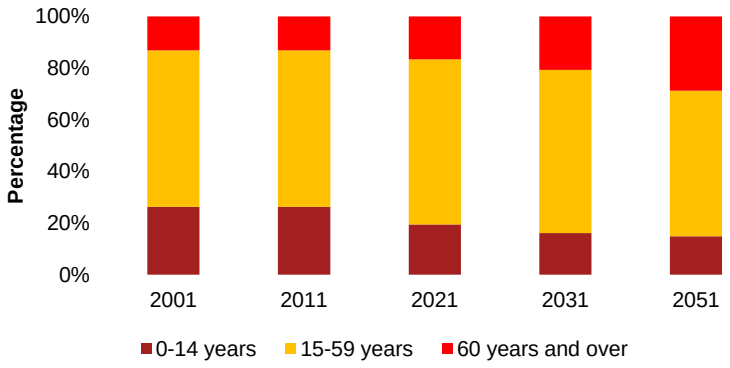
Going forward 30% of population is expected to be elderly by the end of 2030.

The proportion of elderly population with disability is increasing with 99.1 per 10,000 in 1981 to 199.1 per 10,000 by 2001.

30%

of the population is expected to be elderly by 2030. Accordingly the profile of health services demanded is expected to transition over time to meet the needs of age related illness and care.

Population ageing profile



Source: IHP

Age limit	specification	Importance to health market
> 65	Elderly	Elderly care, eye and ENT issues Orthopaedic and Rheumatic issues, basic medical care and home based care
55-65	Post retirement	Elderly care, Non communicable diseases
45-55	Female: Post menopausal Male: prostate	Post menopausal disease, screening for disease, renal disease,Genitourinary, cosmetic and skin issues
25-45	Reproductive age (females) males	Reproductive health (infertility, family Planning, counselling, maternal child care & nutrition, occupational hazards/trauma, addiction, stress related diseases)
15-25	Adolescence	Trauma sports injuries, nutrition, psychological-counselling,diseases-HIV Aids
5-15	School children	Education, sports,nutrition problems-menarche
<5 yrs	Preschool	Child care immunization,nutritional assessment & correction, identification of defects-eye, ear & others

Source: PwC Analysis

With the increase in prevalence of non communicable diseases (NCD) in Sri Lanka, the need for related NCD based medical care is likely to increase significantly

According to The Department of National Planning NCD account for 65% of all deaths in Sri Lanka.

The increasing prevalence of non communicable disease (NCD) in Sri Lanka has reshaped demand for healthcare in the country.

Rapid changes in consumer lifestyles, alcohol consumption, unhealthy diets, obesity and urbanization has impacted prevalence of NCDs.

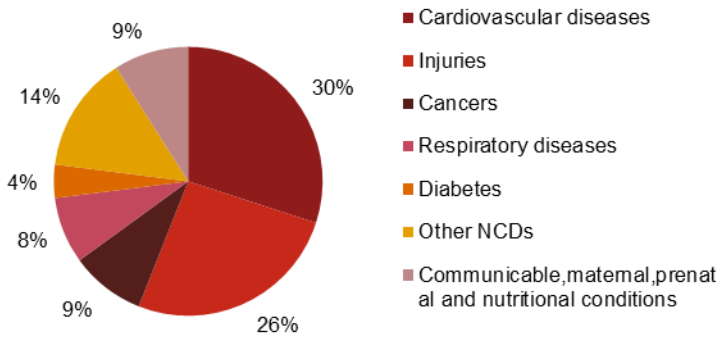
According to the World Health Organization 85% of Sri Lanka's health problems have been caused by cardiovascular disease, asthma, cancer and diabetes.

According to the Department of Census and Statistics out of the total number of admissions in year 2009 the highest number of admissions (c.6.4%) were due to viral diseases. Asthma was recorded as the second highest cause for hospitalization. The other causes of admissions include respiratory diseases, injuries and complications in pregnancy and delivery.

According to the WHO adult risk factors such as high blood pressure, obesity among women and tobacco use are common and above regional averages in Sri Lanka.

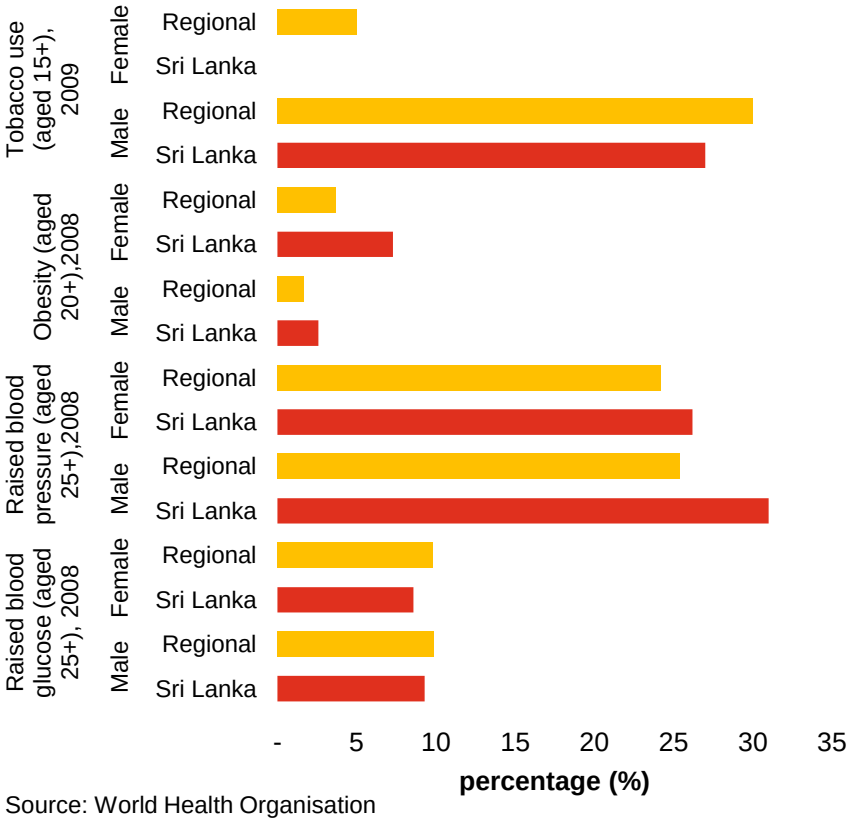
NCDs typically require specialized treatments that result in longer hospital stays. Demand for provision of NCD care to provide appropriate curative, preventive, rehabilitative and palliative service is expected to increase.

Proportional mortality



Source: Medical Statistics Unit, MoH

Adult risk factors



Source: World Health Organisation

In addition to demographic and epidemiological shifts, changes in health seeking behaviour, lifestyles, increased purchasing power and weather patterns have increased utilisation of health care

Health seeking behaviour

In addition to age structure and epidemiological transitions , demand for healthcare will be impacted by changes in health seeking behaviour in Sri Lanka.

Increase in health consciousness can be attributed to the level of education which has increased utilization of healthcare. The provision of universal free education and Sri Lanka's policies on health education, have contributed to the increase in knowledge and awareness of diseases, treatments and benefits of treatments available.

This in turn has resulted in the increase of utilisation rates in private and public hospitals. As seen in the chart below the utilisation levels of the state sector, has more than doubled from year 2006.

Increase in health consciousness and growing disposable income has resulted in the increase in utilisation levels of public and private

USD 4,994

Per capita of USD 2,816 in 2012 is expected to increase to USD 4,994 in 2017

Environmental issues

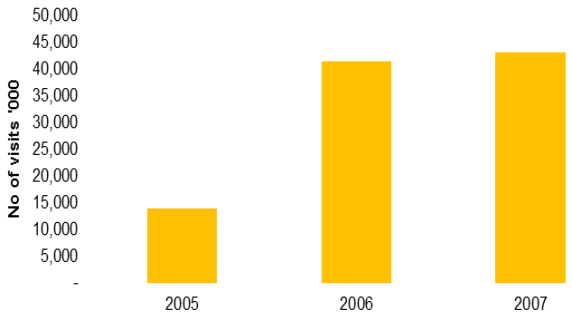
The increased urbanisation has led to unhealthy diets, reduced physical activity and stress, resulting in the increase in prevalence of life style related diseases such as heart ailments, diabetes, cancer and asthma.

Weather/ geographical disease patterns

Healthcare needs will also be driven by weather patterns. Diseases such as viral fever, dengue fever, malaria and other mosquito borne infections generally increase during the rainy seasons.

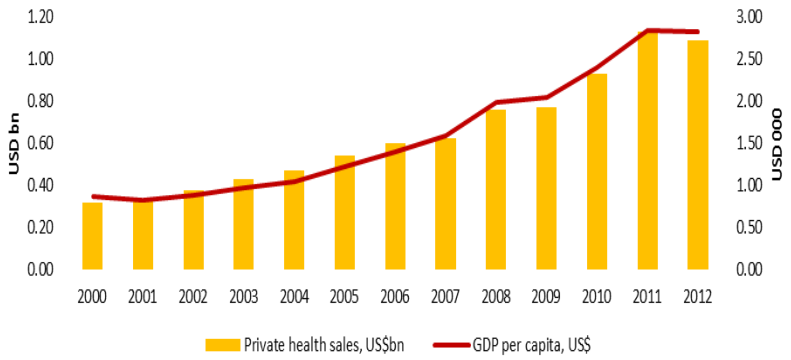
Healthcare needs in the country will also differ between districts.
(i.e. - Anuradhapura and Polonnaruwa have been identified for prevalence of Chronic Kidney Disease compared to other districts).

Out patient visits to state hospitals



Source: Annual Health Bulletin

Expenditure on private healthcare vs per capita income 2000-2012



Source :BMI

Child birth, injuries, asthma, ischaemic heart disease and viral fever were leading causes of admissions in Sri Lanka

Length of stay

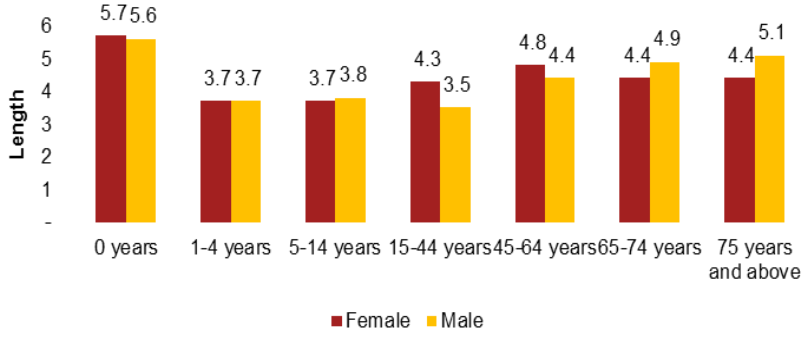
The average estimated length of stay for hospital admissions as per a survey conducted by the IHP was 4.2 days. According to the Survey, most discharges (c.61%) take place on the day of admission or within 2 days.

Among the most common diagnosis in Sri Lanka the highest average lengths of stay were for schizophrenia (20.5 days), fractures (7.3), renal failure (6.6) and bronchitis and emphysema (5.9).

4.2 days

The estimated average length of stay in Sri Lankan state sector hospitals was 4.2 days

Average length of stay for patient discharges from public hospitals by age and sex, 2005 estimates



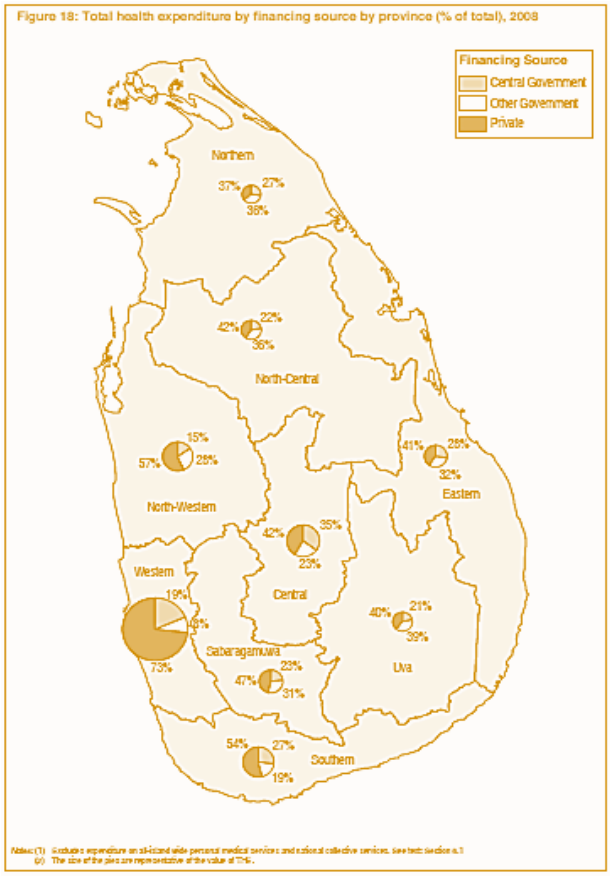
Source: IHP

Key inpatient diagnosis characteristics

According to the Public Hospital Inpatient Discharge Survey (PIHDS) 2005, the following key inpatient characteristics were identified:

- *Most common cause of admission was child birth which accounted for 5.5% of all admissions.*
- *Injuries were the second most common cause of admission, and was predominantly seen in male patients.*
- *Asthma and viral fevers were the third and fourth most common causes of admission.*
- *Rates of admission for injuries, fractures, alcoholic liver disease, myocardial infarction and other ischaemic heart disease were higher in males than females.*
- *Rate of admission for urogenital conditions were highest in females than males*
- *The leading causes of admission by infants and young children were diarrhoea and gastroenteritis due to infection, followed by respiratory tract infections viral and other infections*
- *Adults aged over 65 years were*

On a national level, patterns of private expenditure on healthcare varies widely. However, the source of private expenditure is consistently and predominately funded through out of pocket expenditure



Source: National Health Accounts 2008

Viewed on a national basis health care expenditure has been approximately evenly spread between the private and public sectors. The private sector accounts for 55% in 2012.

However, this aggregate statistic masks large regional variations in the expenditure patterns within Sri Lanka. For example in the same year, the prosperous Western Province recorded private sector healthcare expenditure of c.73% whereas conflict areas (in 2008) recorded private sector spending of c.37%.

According to the World Bank, out of pocket spending accounted for bulk of the private sector expenditure on healthcare (c.86%) in year 2013.

The second largest source of private spending was from insurance providing healthcare and medical benefits (c.6%) typically in the form of private medical insurance.

73%

of the industrial value in the health sector is concentrated in the Western Province in Sri Lanka

Uptake of medical insurance remains low in Sri Lanka with only c.6% of the population covered and usually through employer sponsored schemes.

Low uptake of insurance

Global experience shows the availability and uptake of medical insurance has a played a key role in improving national healthcare services and treatment outcomes.

However, the penetration of medical insurance products in Sri Lanka remains low. The World Bank estimated coverage to amount to c. 900,000 people in 2011 or c.6% of the population.

Furthermore independent uptake of private medical cover remains particularly low as typically medical coverage is provided as part of a package of general insurance policies purchased by consumers.

In contrast standalone medical insurance products are typically purchased by corporates on behalf of employees as required by legislation (Shop and Office Act).

However, with over 80% of the population living rural areas, provision of employer funded medical coverage is limited.

Furthermore, medical insurance uptake, particularly in rural areas, is further limited by the lack of confidence in the industry from the bottom of the pyramid (BoP) - the perception is that the process of having expenses reimbursed is overly complex and biased towards rejection

6%

of medical expenditure in Sri Lanka has been a result of medical insurance, rising from 1% recorded in the 1990's

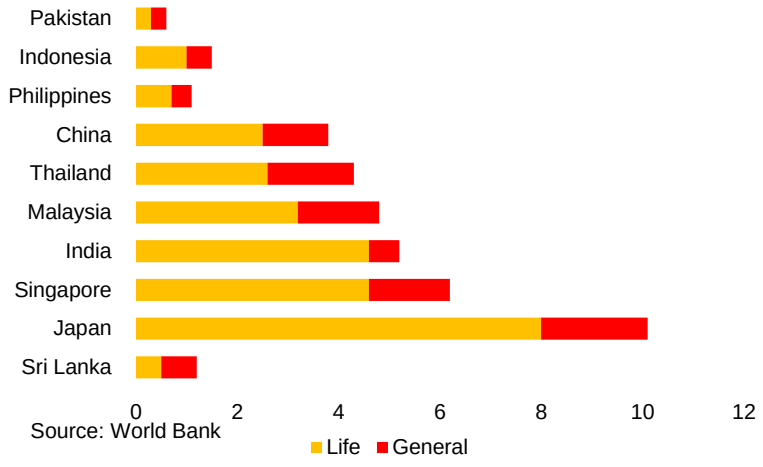
The overall effect of the low insurance uptake is due to the fact that the least affluent segments of society:

- typically face significant out-of-pockets expenses when accessing private medical services
- entire exclusion from the private medical sector for economic reasons.

Limited interest in supplying micro-insurance

In 2012 ,The IFC conducted a detailed study to assess the potential for private micro-insurance products targeting the BoP in Sri Lanka. However, the study indicated that there was little private sector appetite to develop and distribute micro-insurance products in Sri Lanka due to limited profitability and scalability (low consumer confidence in the industry).

Regional Insurance penetration levels as a % of population



Source: World Bank

Section 2.1

Public healthcare

In terms of capacity the public sector dominates inpatient care through its network of primary, secondary and tertiary facilities

Provision of healthcare services in the public sector is the responsibility of the central Ministry of Health and 9 provincial councils.

Facilities provided by the state sector ranges from preventive, curative and rehabilitative healthcare services.

Public healthcare is provided through three tiers, and is organised as primary, secondary and tertiary level hospitals on the basis of size and facilities offered.

Facilities that offer non specialist inpatient and out patient care such as maternity homes, central dispensaries, rural hospitals, peripheral units and divisional hospitals are categorised as primary level hospitals.

Secondary care institutions include base hospitals, district general hospitals and provincial hospitals. These hospitals have general surgical and medical units in addition to providing out patient care.

Tertiary care institutions are teaching hospitals and provincial general hospitals. These hospitals have all facilities in secondary care institutions as well as other specialities.

Together these categories of facilities constitute to 75% of all hospital available nationwide.

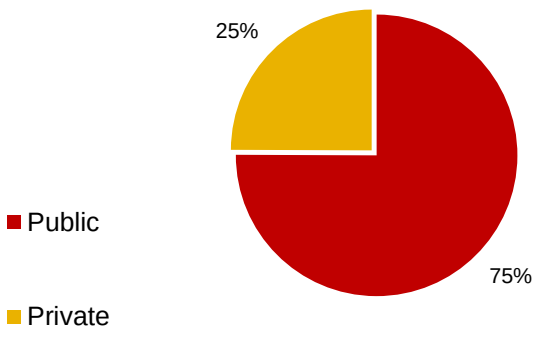
According to the Ministry of Health, utilisation of inpatient healthcare services is dominated by the public sector, whilst outpatient care is dominated by the private sector.

Types of public sector hospitals

Type of institute	Number of hospitals	Bed strength
Teaching hospitals	16	18,451
Provincial/ general hospitals	12	7,799
Base or district base hospitals	44	12,391
District hospitals	161	14,417
Peripheral units	95	5,127
Rural or estate hospitals	182	5,180
Cen disp. & mat. homes	59	596
Other health institutes	46	4,733

Source: Annual Health Bulletin

Share of public and private hospitals in Sri Lanka



Source: MoFP

Health service provided by public and private sectors (%)

Types of care	Private providers	Public providers
Preventive care	Minimal	Nearly 100%
Curative care - out patient care	50-60%	50-40%
Curative care - in patient care	5-10%	90-95%

Source: World Bank

The public sector dominated expenditure on capital formation , medicine for in-patient care and outpatient care

The public sector is expected to have accounted for 45% of total expenditure in 2012(BMI).

Total GoSL spending on health has witnessed a significant growth over the last three years (2009-2012) recording a CAGR of 9%.

The largest portion of health expenditure in Sri Lanka was for a combination of inpatient and outpatient curative care (52% of total health expenditure).

Of the total expenditure on curative care we understand that inpatient spending accounted for a larger share (c.32 percentage points), whilst outpatient spending accounted for 20 percentage points in year 2008.

According to National Health Accounts, inpatient care is mainly funded by the state sector accounting for 76% of total national expenditure.

The public sector also dominated health expenditure for capital formation of health care provider institutions accounting for 81% of total spending in year 2008.

According to National Health Accounts, the public sector dominates financing of medicines used for inpatient care. Expenditure on supplying medicines for outpatient care in public sector exceeds amounts for inpatient care by private sector.

Hospitals account for largest amount of health spending (c.46%), where public hospitals accounted for 79% in 2008.

45%

of the total healthcare expenditure is funded by the state

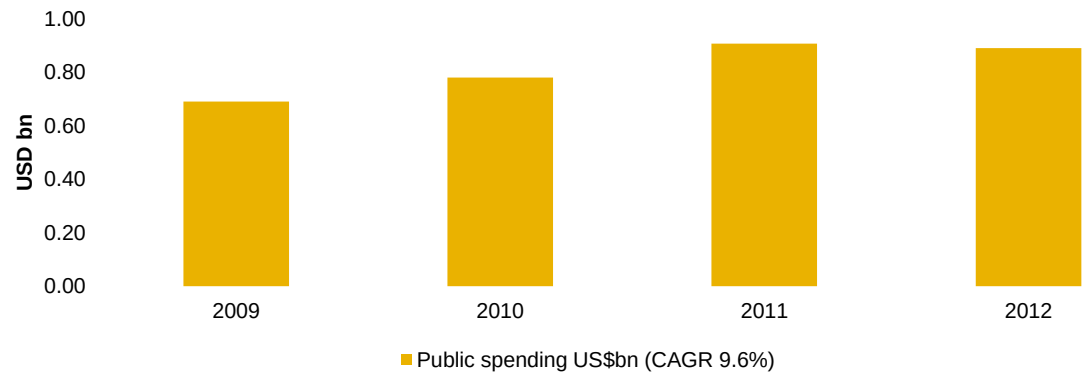
9%

CAGR in state expenditure was witnessed during the period between 2009-2012

76%

of inpatient care is funded by the state sector

Public expenditure on healthcare



Source: BMI

Considerable disparities in availability of healthcare has incentivised the public to bypass the nearest public hospitals to obtain care from private sector and tertiary public hospitals

In analysing the distribution of Government beds by district in year 2000, the Colombo district has the highest beds per 1,000 population, whilst most other districts have significantly lower beds per population.

The widening gap between private and public healthcare facilities in terms of availability and quality of health facilities has resulted in low income earners also seeking private healthcare for outpatient treatment and routine medical tests.

As Sri Lanka does not have a systematic referral system in place, most patients go directly to specialists in tertiary healthcare facilities leading to long waiting lines for consultations.

Public healthcare infrastructure has not kept pace with the growth in demand for healthcare services in the country. Physical infrastructure, particularly in most rural areas are inadequate to meet today's healthcare demands. This has resulted in long waiting times for treatment, poor quality service and unsatisfactory attitudes of some healthcare workers in the public healthcare system.

Government hospitals and beds by district, December 2000

District	Institutions	Beds	Beds per 1000 population
Colombo	26	10,768	4.8
Gampaha	33	4,744	2.9
Kalutara	21	2,383	2.3
Kandy	53	5,207	3.6
Matale	18	1,346	2.7
Nuwaraeliya	26	1,575	2.7
Galle	29	3,063	3.0
Mullativu	4	283	2.5
Baticaloa	12	1,186	2.3
Ampara	24	1,615	2.6
Trincomalee	12	807	2.4
Kurunegala	43	3,983	2.5
Puttalam	21	1,519	2.3
Anuradhapura	38	2,660	3.3
Matara	23	1,986	2.3
Hambantota	22	1,385	2.3
Jaffna	23	2,020	2.0
Killinochchi	5	252	1.9
Mannar	4	320	2.4
Vavuniya	3	260	2.0
Polonnaruwa	11	1,187	3.0
Badulla	33	2,500	2.8
Monaragala	18	1,202	2.7
Ratnapura	32	2,814	2.4
Kegalle	24	1,962	2.3

Source: JICA/MoH

Healthcare consumers shifting preference to the private sector

Although the public sector operates the largest network of hospitals in Sri Lanka, there is a level of dissatisfaction with regard to care offered by public hospitals, leading people to bypass the nearest Government health institutions to obtain care from private healthcare sector hospitals.

Section 2.2

Private healthcare

Over the last three years, revenues from the private healthcare sector have grown by CAGR 12% driven by increased healthcare seeking behaviour and substitution from the public sector

The private healthcare industry has grown at a compound annual growth rate (CAGR) of 12% between 2009-2012, with key operators enjoying operating profit before depreciation, interest & tax (OPBDIT) margins between 10%-34%.

Majority of private healthcare providers have invested in infrastructure to increase capacity to cater to the sustained growth in demand expected as result of the following key trends;

Increasing healthcare seeking behaviour

Improving consumer knowledge, access to education and awareness about diseases has made Sri Lankans increasingly proactive about their healthcare.

The level of inpatient care and outpatient utilisation of private healthcare facilities has increased significantly over the recent decades and is expected to continue to increase in the near future as the population ages, the incidence of NCDs grows and disposable income increases.

Demographic transition

It is estimated that by 2020, 18% of the population will be above the age of 60 and expected to reach 30% by next century.

Lifestyle changes and NCD

Lifestyle patterns such as sedentary behaviour, obesity, alcoholism, smoking, urbanisation and pollution have contributed toward the rise in NCDs. NCDs are expected to increase at a faster rate than communicable diseases resulting in forecasted rapid rises in traumatic injuries, ischemic heart disease, hypertensive disease and diabetes mellitus. According to WHO, NCDs such as heart disease, asthma, cancer and diabetes account for nearly 85% of all ill health in Sri Lanka while 65% of all mortality was also in relation to NCDs.

Increased expenditure on private healthcare

Expenditure on out-patient care has driven the sector and is growing rapidly. Out-of-pocket expenditure in relation to private healthcare recorded a CAGR of 14% between 2000-2011.

Global experience indicates a positive correlation between per-capita income of a country and healthcare utilisation rates.

In addition, the contribution of insurance and employer related expenditure on healthcare has seen a steady rise in recent years.

The balance of quality and timely availability of healthcare services has created an opportunity for private healthcare to grow significantly

Limited resources in the public healthcare system has created difficulties in provision of timely access to quality healthcare, resulting in an overall shift in confidence to the private sector

5.3 per 10 patients

prefer to get outpatient treatment in private hospitals despite access to universal and free healthcare provided by the state

Patient demand has shifted toward private healthcare, as a result of the inefficiencies in the public health system due to issues such as inadequate capacity, staff, service delivery and facilities

Lack of confidence in consumer attitudes towards the state sector

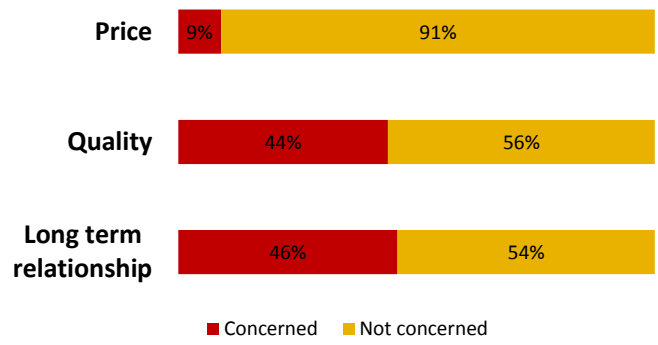
According to a survey conducted by the World Bank on consumer attitudes towards public healthcare, the lack of public sector confidence and an attitude shift to the private sector hospitals was attributed to the following reasons;

- Lack of choice in terms of the doctor they wish to get treatment from and time for consultation as a result of a lack of referral system
- Impolite staff and lack of personalised service
- Long waiting times and improperly maintained facilities
- Lack of essential facilities in certain hospitals such as drugs and diagnostics
- Disruptions due to various trade union actions
- Lack of capacity and extended waiting periods particularly for surgeries. The table opposite depicts the shortage of specialty beds per 1,000 people where neurology and cardiology, surgery, cancer and eye were seen to have low coverage islandwide.
- Consumer attitudes especially in relation to outpatient care has shifted to the private sector which dominates market volumes and expenditure in recent times.

Going forward, private healthcare is likely to see rising demand as the public sector continues to face funding and capacity constraints.

Based on a survey conducted by World Bank, customer responses in relation to perceived hospital services are depicted below:

Perception of services by clients



Source: World Bank

Specialty beds per 1,000 people

District	Surgery	Cardiology	Neurology	Cancer	Eye
Colombo	1.00	0.10	0.15	0.20	0.22
Gampaha	0.41	-	-	-	0.11
Kandy	0.46	0.06	0.14	0.09	0.16
Anuradhapura	0.46	-	-	-	0.05
Polonnaruwa	0.42	-	-	-	0.12
Trincomalee	0.42	-	-	-	0.06
Manar	0.56	-	-	-	-

Source: MoH Annual Health Bulletin

The private sector accounts for c.55% of all healthcare expenditure and is currently focused on the provision of outpatient services

Service coverage of healthcare

Based on the OPA, the private sector provided 60% of outpatient care services and only 10% of the inpatient care services nationally. The chart below depicts the inpatient-outpatient composition mix as of 2006.

Private healthcare plays a substantial role in the delivery of the healthcare in Sri Lanka, by playing a key role in alleviating pressure from the substantially overburdened public hospital infrastructure in the country. This trend has continued to increase in present times.

National expenditure on healthcare

Based on BMI, total spending on health accounted for USD 2.1 bn where as of 2013, the private sector accounted for 55% of all healthcare expenditure.

Based on the OPA, when analysing share of health expenditure by function, private health expenditure is concentrated on medical goods dispensed for outpatients and for general outpatient care.

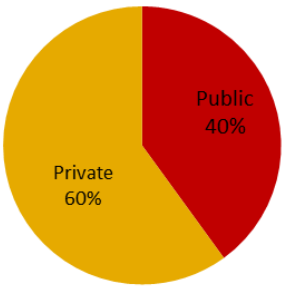
60%

Of outpatient care services were provided by the private healthcare sector in Sri Lanka

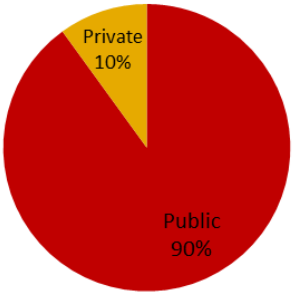
55%

of expenditure for healthcare in 2013 was accounted for by the private sector

Out-patient care

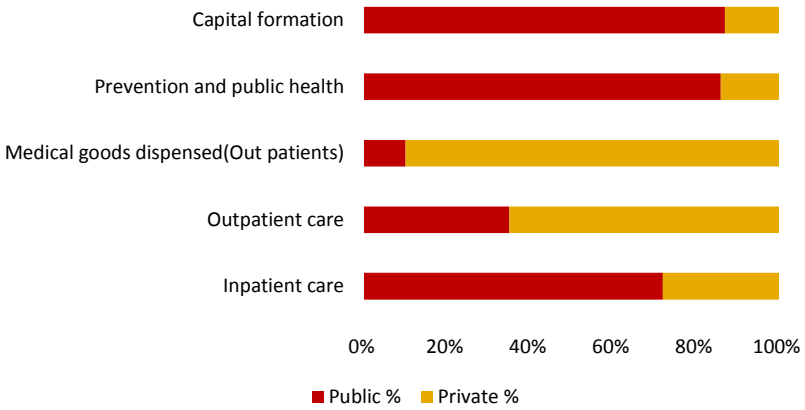


In-patient care



Source: OPA

Expenditure on healthcare by function and source



Source: OPA

Out of pocket payments account for 86% of private sector revenues, while insurance only contributes 6%

Sources of expenditure

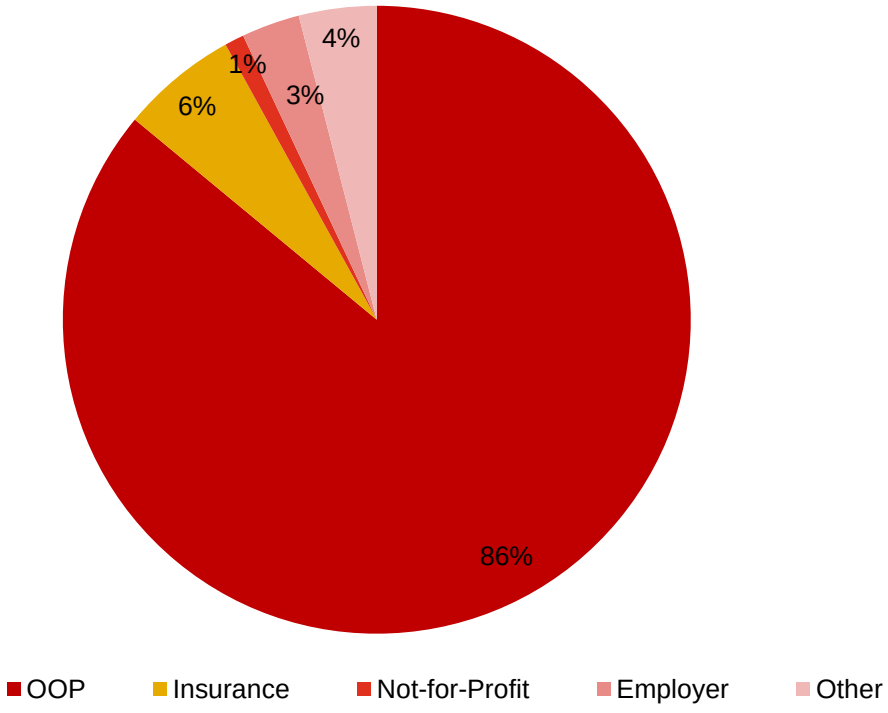
Private sector expenditure stems from several sources including out of pocket ("OOP"), health insurance, not-for-profit organisations and employer arrangements.

OOP expenditure dominates (86%) private sector expenditure on healthcare, depicting low insurance penetration in the Sri Lanka.

86%

of the private sector expenditure is funded by out of pocket

Sources of private sector expenditure



Source: IHP

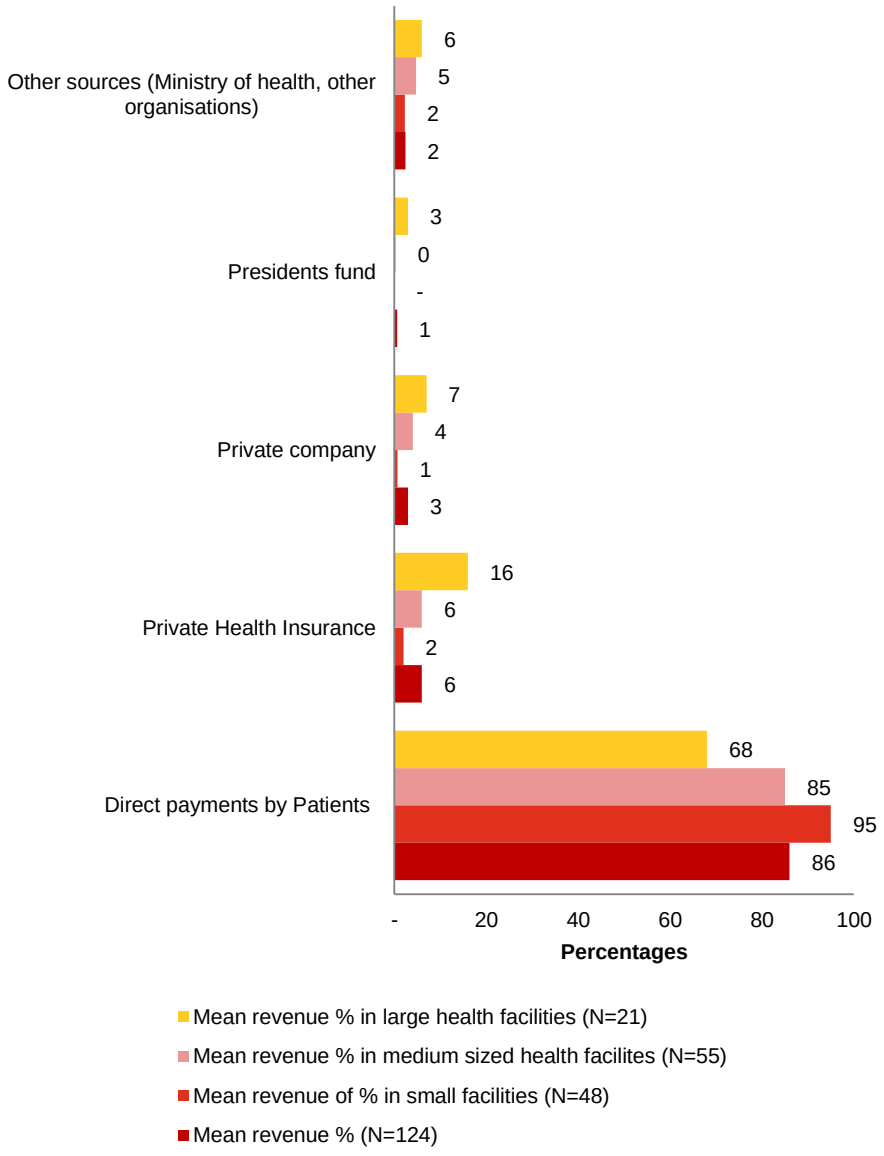
Based on a World Bank survey (N=124), revenues derived from insurance remain low at a national level, and was particularly concentrated in large health facilities (c.16% of revenues)

Based on a survey conducted in 2013 by the World Bank on 124 private hospitals, it was established that OOP generated the most amount of revenue as depicted in the diagram below.

Below are some findings from the survey:

- In 81% of the facilities, 75-100% of the revenue was from out of pocket expenditure
- Revenue from private health insurance played a minor role, with 49% and 69% of the facilities not receiving payments from private insurance and employer paid insurance schemes respectively
- The President's Fund had financed less than a fifth of the total revenue in 10% of the health facilities surveyed.
- On average, 86% of the total revenue to private health facilities comes from direct payments by patients.

Sources of revenue for private healthcare facilities surveyed (N=124)



Source: World Bank

The expenditure incurred per patient for both inpatient and outpatient care in private facilities was 3-4 times higher than cost incurred by public healthcare facilities

It is noted that private hospitals generally charge significantly high rates for health services. Regardless of the higher rates charged, the demand for private health care has continued to increase in line with growing household income, improvement in standards of private healthcare and availability of private health insurance.

According to the OPA, average inpatient expenditure per person was LKR 22,504 (USD 172) for 496,000 inpatients treated in 2006. However, average inpatients expenditure per person in the public sector was LKR 6,431 (USD 50) for 4,463,000 inpatients treated in 2006.

Outpatient expenditure per person was approximately LKR 817 (USD 6) for 48,574,000 reported cases in the private sector. Contrastingly ,outpatient expenditure per person was approximately LKR 273 (USD 1.5) for 41,429,000 reported cases in the public sector.

Therefore, it is noted that that the expenditure per person for healthcare in the private sector was significantly higher (3-4 times) than in the public sector.

Key reasons for the high cost of delivery in private health care:

- Scale of operations:
  - 19% of the health facilities have less than 10 full time staff
  - Only 15% of the health facilities have over 100 staff
  - There is a shortage in doctors, nurses and staff
- Limited access to finance
- Competitive market
- Costly real estate
- Complex registration process
- Crime, theft and disorder

Private sector healthcare services include outpatient care, inpatient care and laboratory testing

Based on a World Bank survey of 124 private hospitals.:

Private sector organisation and ownership

The majority of private health facilities fall within three categories:

- hospitals (specialised or general),
- clinics (specialised or general)
- laboratories.

Nearly 98% of the private health sector facilities (all categories and all sizes of facilities) are owned and operated by private domestic individuals, companies or organisations.

None of the above are in partnership with the Government; however 3.5% of the medium sized (more than 20 but less than 99 staff strength) facilities are in partnership with foreign entities.

Outpatient department (OPD) services:

About 2/3 (65%) treated more than 5,000 outpatients in 2010. 46% of the health facilities provide comprehensive (24 hours x 7 days a week) outpatient services, while 29% provide OPD services for 12 hours daily.

Convenient access is noted to be a primary reason for increased utilization of OPD services through the private sector.

Inpatient bed occupancy rates:

In 2010, 70% of the hospitals reported an increase of more than 50% in bed occupancy, while 37% of hospitals had more than 1,000 in-patient admissions on average.

During 2007-2010, 43% reported an increase in bed occupancy rates, 26% reported a reduction in bed occupancy, while the balance reported no change in occupancy levels.

Laboratory testing facilities:

Of the 125 private healthcare facilities assessed, the majority (88%) provided laboratory services. This includes 91% of the hospitals and 82% of the clinics surveyed.

However, none of the facilities were providing the total spectrum laboratory tests identified in this survey. Tests identified include enzyme tests for heart diseases, total cholesterol tests, total iron binding tests, glycosylated haemoglobin tests, PCR, blood culture and cytology and molecular biology tests.

Government Support

As depicted below, of the 124 hospitals surveyed, the GoSL provided minimal support for primary care and technical assistance for private hospitals.

71%

The mean bed occupancy rate was 71%

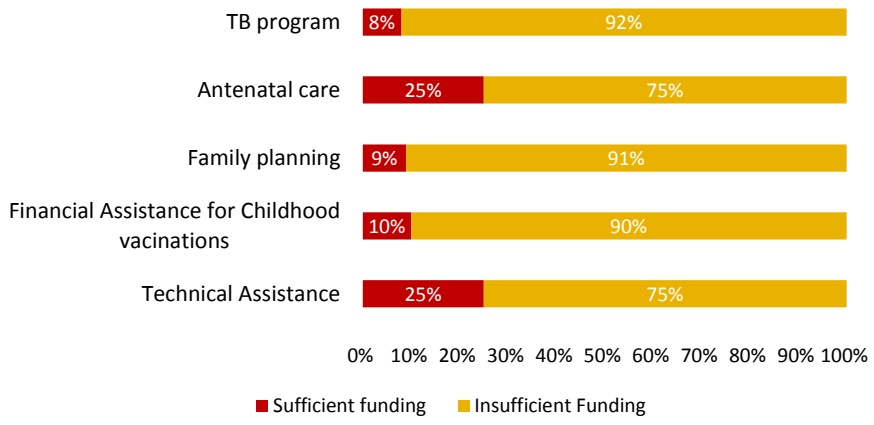
74%

Medium sized health facilities recorded a occupancy rate of 74%, while larger facilities reported a 72% bed occupancy rate

61%

Smaller facilities reported a 61% bed occupancy rate

Government support for private hospitals for:



Source: World Bank

The private healthcare segment in Sri Lanka is highly fragmented with over 3,000 establishments competing to capture market share from the public sector

Types of medical facilities

There are numerous tertiary care private hospitals which range from highly sophisticated multi speciality hospitals to small-scale medical centres.

It is identified that as of 2011, there were 3,183 medical establishments in operation and its composition has been depicted in table across.

Apart from hospitals, there are many other centres in operation offering associated services such as clinical laboratories, X-ray diagnostics services, physiotherapy & rehabilitation services, ambulance services, home nursing services and disabled care.

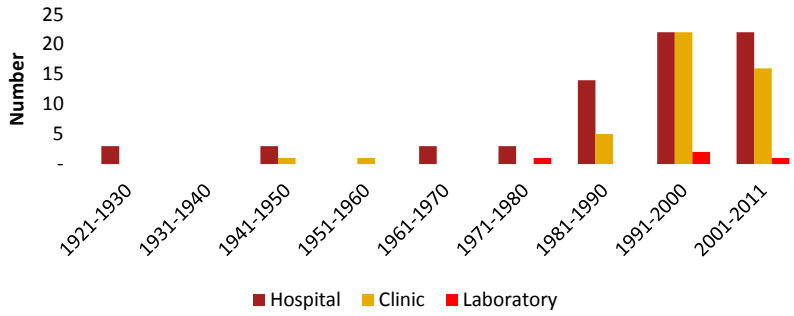
Additionally a major share of pharmacies in operation are also private ventures.

Private hospitals and other private medical establishments in Sri Lanka

Catergory	Total no of registered
Private hospitals and nursing Homes	186
Medical laboratories	529
Medical centers/screening centers/day care medical centers/channeling	291
Full time general practices/dispensaries/medical clinics	452
Part time general practices/dispensaries/medical clinics	1,236
Full time dental surgeries	124
Part time dental surgeries	122
Full time medical specialist practices	23
Part time medical specialist practices	25
Private ambulance services	15
Other private medical Institutions	180
	3,183

Source: MoFP

Year of establishment of private hospitals surveyed (N=124)



Source: World Bank

The figure above does not represent the entire composition of private medical establishments but is an indicator of the growth in healthcare facilities from 1980 to 2011 as surveyed,

Trends in the establishment and distribution of private facilities

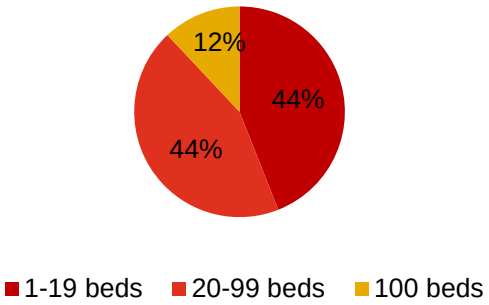
According to a World Bank Survey on 124 hospitals, private health sector facilities in Sri Lanka saw rapid growth during the period of 1981 to 2011. However, although the growth has continued in recent years, growth in relation to smaller clinics and laboratories have slowed down.

Many private health facilities lack sufficient human resources, beds, facilities (including facilities for ICU), surgery, gynaecology and obstetrics and cardiology

Lack of facilities in private hospitals/clinics

Based on a survey of 124 private hospitals it was found that 88% of facilities had less than 100 beds. The composition of beds is depicted below:

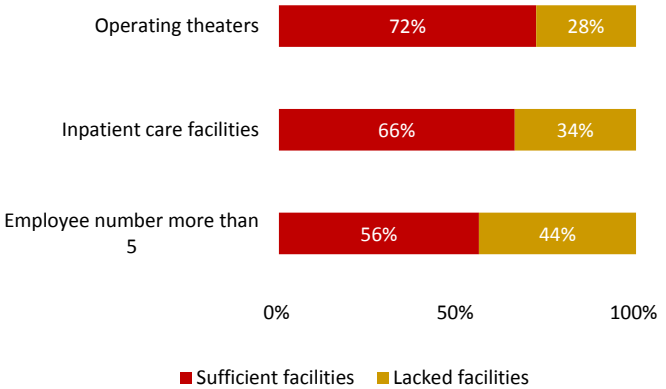
Private hospital bed distribution of the survey (N=124)



Source: World Bank

The survey also indicated a shortage of human resources and facilities as depicted below:

Selected private hospital indicators surveyed (N=124)



Source: World Bank

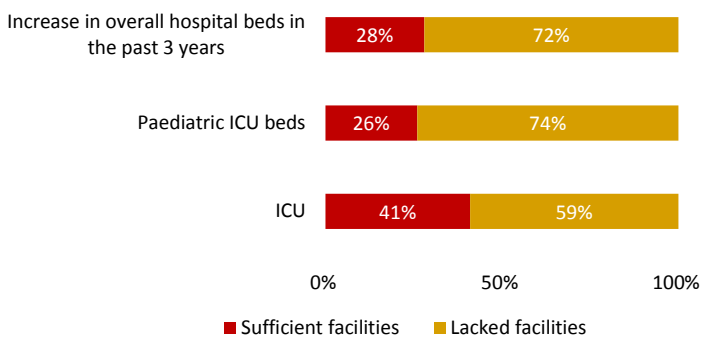
The survey also depicted a shortage of bed capacity in relation to speciality beds.

Types of specialist hospital beds	Percentage(%) of hospitals with at least 3 specialist beds	Number(#) of hospitals with at least three specialist beds
Internal medicine	72	88
Pediatrics	55	67
Surgery	61	74
Gynecology and Obstetrics	52	63
ICU adults	34	47
ICU pediatrics	21	26
Cardiology	19	23

Source: World Bank

The survey identified that 82 hospitals provided inpatient facilities while indicating low bed growth and lacking facilities in relation to ICU and paediatric ICUs.

Selected inpatient facility indicators surveyed (N=82)



Source: World Bank

The distribution of private hospitals and its related expenditure are concentrated in the Western province

Geography

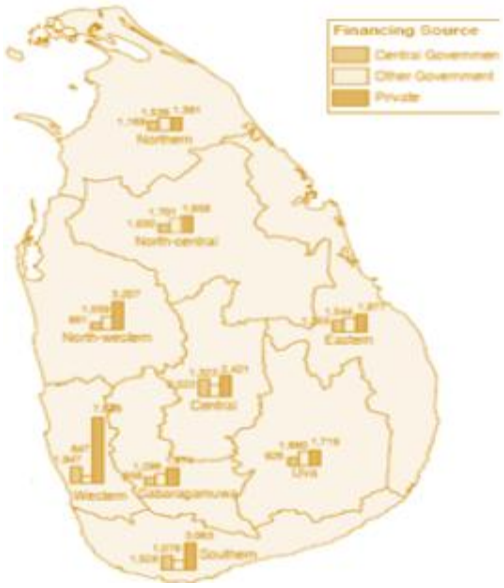
Distribution of private sector hospitals in Sri Lanka is depicted in the figure below.

Source: IHP research

As seen above, most of the hospitals are concentrated in the Western Province of Sri Lanka. The Province accounts for more than 73% of industrial value in the health sector, up from 43% in 1983.

This industry bias is a reflection of an uneven distribution of employment income in Sri Lanka.

The majority of private sector expenditure is based in the Western Province followed by North Western and Southern Provinces in Sri Lanka. The figure below depicts the expenditure composition by province.



Source: IHP research

73%

of the industrial value of the health sector is driven by the Western Province in Sri Lanka

The distribution of bed capacity in private hospitals is concentrated in the Western province

Bed capacity

Private hospitals offer the largest number of hospital beds outside of the state, and the ownership of beds is mixed between large hospital groups and regional hospitals which have a relatively lower number of beds.

As at 2011, the total bed capacity in the country was 69,311 of which 4,210 beds were provided by the private sector . The total number of private hospital beds have increased by 70% in the last 7 years.

More than 50% of private sector beds are concentrated in the Western Province followed by Central Province and Southern Province.

>50%

of private bed capacity is concentrated in the Western Province

4,210

beds of the total 69,311 bed capacity available in the country was provided by the private sector

Distribution of bed capacity is inefficient

Based on the health master plan, the original requirement of 60,000 beds (public and private sector) has been achieved resulting in no additional requirement for beds.

However, the uneven distribution of beds have resulted in a lack of hospitals/ bed capacity for speciality disciplines.

The lack of bed capacity for specialty disciplines

Speciality	Beds	Morbidity	Beds per patient
Cardiology	272	85,016	0.003
Cancer	870	51,895	0.017
Eye	891	70,544	0.013
Genitourinary	220	223,771	0.001
Skin	355	112,771	0.003
Obsetrics/Gynaecology	7,233	497,523	0.015

Source: MoH

All private medical institutions are regulated by the PHSRC. The success of hospital operations are highly dependent on location and ability to attract key medical practioners

Bargaining power of doctors/specialists

Patients are highly doctor centric, making doctors indirect sellers of hospital services.

The current structure of the private healthcare sector in Sri Lanka reflects characteristics of a doctor centric operating model.

The shortage of doctors and specialised consultants has significantly enhanced their bargaining power particularly in the Sri Lankan context where patients seek treatment from specific doctors.

As a result, hospitals struggle to retain doctors on a permanent/resident basis and suffer from having to cede pricing power and profitability to doctors

Location

Location is another key factor of success. By being strategically located in close proximity to general hospitals or mass transportation hubs, it is easy to transfer patients between hospitals in case of emergency.

However, finding suitable property within Colombo is becoming increasingly difficult and expensive as supply is severely constrained.

Legislation

The regulation related to private hospitals is governed by the PHSRC. It is mandatory for every private hospital to register with the PHSRC and have to meet minimum regulations prior to setting up operation.

As per the regulations, registered staff, equipment, rooms, waiting areas, laboratory x-ray, operating theatres and other facilities have to be registered prior to start-up.

Subsequently an application directed to the Provincial Director of Healthcare Services will be required in order to obtain approval to start the operation. PHSRC will continually monitor the hospital after operations commence to ensure stipulated conditions are met.

Patients are highly doctor centric, making them indirect sellers of hospital services/ As a result hospitals struggle to retain doctors on a permanent/resident basis

Current developments and recent news

Heart and lung transplants and minimal invasive heart surgeries are now available at Lanka Hospitals PLC. The hospital is capable of performing heart and lung transplant surgeries and minimally invasive (keyhole) cardiac surgeries, and is the only hospital offering these surgeries to patients in Sri Lanka. The centre is also complete with all the latest state-of-the-art instruments to perform surgeries.

Hemas Hospitals is an internationally accredited hospital chain in Sri Lanka. The hospital recently launched a fully-fledged gastrointestinal diagnostic and surgical facility and acquired Pentax EPK i 7000 endoscopy system with a high definition ERCP (Endoscopic Retrograde Cholangio Pancreatography) scope for the first time in Sri Lanka.

Dr. Dinesh Sivaratnam made the single largest donation towards the completion of the Trail Cancer Hospital in Tellippalai, Jaffna. An entire hospital ward of 15,000 sqft comprising of sixty beds and accommodation for medical and nursing staff will be part of the larger Trail Cancer Hospital complex.

LKR 135 mn (USD 1.0mn) multi speciality 70 bed facility hospital has been set up by Browns Group in Ragama.

Ceylinco Healthcare hospital chain has adopted the latest technology for precise and highly flexible radiation treatment for types of cancer. Sri Lanka's first TomoTherapy Centre was formally inaugurated in October 2013, offering one of the world's most advanced and precise radiation techniques for the treatment of many forms of cancer.

The Ministry of Health has commenced construction of a state-of-the-art general hospital in the southern port city of Hambantota. The 650 bed hospital will be built at a cost of LKR 7 bn (USD 53.43 mn) with the financial assistance from the Government of The Netherlands.

The hospital will have an outpatients department, an emergency treatment unit, surgical theatres, intensive care units, a judicial medical unit, a pharmacy, drug storage facilities and laboratory facilities.

The Defence Ministry signed a supplementary agreement with a Chinese company to construct a locally funded teaching hospital for the General Sir John Kotelawala Defence University (KDU) for a 704 bed, fully fledged hospital complex. The Chinese state owned company is presently carrying out construction work on the USD 202 mn, locally funded project.

Sri Lanka is becoming a popular destination for inbound medical tourism due to its quality of care, facilities and low cost of services provided

Sri Lanka is emerging as a popular destination for medical tourism due to the country's well educated, English speaking medical staff, state-of-the art private hospitals and diagnostic facilities, and relatively low cost of services in comparison to global and regional players.

Furthermore as per the CBSL annual report, the GoSL is taking a variety of steps to improve the medical tourism standards in Sri Lanka, including the amendment of the Private Medical Institutions Registration Act.

Steps are being taken to streamline the procedure related to temporary registration of foreign qualified specialists to be employed in private hospitals for curative care.

Based on the National Health Development Master Plan the GoSL will allocate funds for the establishment of a medical tourist management information system to improve information available to foreigners.

In addition, GoSL will also coordinate identified sections for development in private and Government hospitals and create dedicated specialised centres for care for foreigners, in pursuit of developing better quality centres to promote medical tourism.

Furthermore a system will also be in place to provide accreditation standards for such hospitals.

In addition, Sri Lanka is expected to be a destination for indigenous medical treatment by 2020. (Please see the section on alternative medicine for more details.)

GoSL also expects to promote Sri Lanka as regional medical hub in the SAARC region.

In terms of outbound medical tourism, Sri Lankan patients seek treatment in foreign countries such as India. Approximately 4,000-5,000 tourists (of which the majority are Sri Lankans) travel to Chennai seeking special treatments in neurology, ophthalmology and cardiology and organ transplants.

To address the issue of outbound medical tourism, Sri Lanka expects to construct three fully fledged centres of excellence in cardiology in in Anuradhapura, Ratnapura and Jaffna by 2020. Furthermore, two new centres of excellence for cancer treatment have been planned to operate in full capacity in Batticaloa and Kurunegala.

***Russia, Eastern European Countries, Japan, China, South Korea and India** are the main markets for medical tourism according to The Sri Lanka Tourism Bureau.*

The big 4 players in the market include Nawaloka Hospitals PLC, Durdans PLC, Lanka Hospitals and Asiri Hospital Holdings (1 of 2)

Competitive landscape

The hospital sector is highly fragmented and therefore is competitive. However in the Western Province the 4 main players in the market are Nawaloka Hospitals PLC, Durdans Hospital PLC, Asiri Hospital Holdings Group and Lanka Hospitals PLC.

The main players compete with each other on quality of care, technology and customer value. It is also noted that the market is doctor centric, however consultant doctors generally visit more than one hospital and typically cannot be tied down to a single institute.

Nawaloka Hospitals Plc

Nawaloka Hospitals Plc is one of the largest and long standing private hospitals in Sri Lanka. The hospital commenced operations in 1982 with 100 beds and has grown rapidly over time introducing many new technologies to the healthcare market in Sri Lanka.

Nawaloka Hospitals is an ISO accredited hospital and presently has a capacity of 400 beds. It is the largest private hospital in Sri Lanka.

The hospital functions as a multi-specialty general hospital and offers care in approximately 17 specialities. It is reported that Nawaloka's operations are supported by 2,044 personnel (which includes 52 medical officers). The hospital is also the largest consulting practice with more than visiting 300 specialists.

Durdans Hospitals Group

The Durdans Hospital Group comprises of Ceylon Hospitals and the Durdans Heart Surgical Centre. The group has a total bed capacity of 300 and is reported to attract 174 visiting consultants. The hospital's primary focus with respect to service delivery lies in the areas of paediatrics, obstetrics, gynaecology and diagnostics.

Durdans is a dominant player in the diagnostics market for the provision of cardiac services.

According to independent analyst reports, the hospital holds an approximate market share of 25% in the diagnostics market and currently holds 3 hospital lab combinations together with 225 affiliated labs all around the country. The labs and collection centres have ISO 15189:2007 certification.

Lanka Hospitals Plc

Lanka Hospitals Plc commenced operations in 2002 and is relatively the most recent entrant to the private health care industry in Sri Lanka. The hospital provides care via the main facility located in Colombo and eight off site clinics located around the country. Lanka Hospitals Plc is the only hospital operating on a resident specialist model and is the first consumer-centric hospital in the country. It operates as a multi speciality hospital and has an installed bed capacity of 350.

.

The main players in the private hospital sector compete on quality of care, technology and customer value

There is heavy investment on equipment by hospitals which results in limited alternative purpose for the specialised equipment. This creates high exit barriers that may cause intense competition

The big 4 players in the market include Nawaloka Hospitals PLC, Durdans PLC, Lanka Hospitals and Asiri Hospital Holdings (2 of 2)

Asiri Hospital Holdings

Asiri Hospital Holdings PLC (AHH), the first of the Asiri Group of Hospitals, commenced operations in 1980 and was subsequently listed on the Colombo Stock Exchange (CSE) in 1986.

AHH consist of 7 companies most of which are hospital-lab combinations with reference laboratories, except for Asiri Diagnostic Services (Pvt) Ltd which is a pure play laboratory which has 2 reference laboratories. AHH is known to be one of the leaders in diagnostic services in Sri Lanka with state of the art laboratories, diagnostic equipment and skilled staff. The holding company has 9 satellite centres regionally and 500 ISO accredited collection centres island-wide.

The labs consist of state of the art facilities with high quality equipment generally in areas related to bio-chemistry, chemical pathology, haematology, microbiology, histology, and immunology tests.

Key facilities include:

- A neurology unit with sophisticated equipment for neurological investigations
- Oncology unit with Sri Lanka's only Positron Emission Tomography (PET) and CT scanner
- A fully equipped diagnostic centre for paediatric and neonatal care

Other diagnostic facilities available are;

- Cardiology centre
- ENT
- Eye unit
- Dental care

AHH is known for its oncology unit with Sri Lanka's only Positron Emission Tomography (PET) and CT scanner and has the best laboratory network in the country with 500 ISO accredited collection centres island wide

Competitor analysis snapshot

Stakeholder	Revenue (USD)	GP margin	NP margin	NPAT	Share Price	EPS
Nawaloka Hospital	15,897,194	52%	11%	3,467,628	0.22	0.00
Asiri Holdings PLC	458,779	100%	3%	14,881	1.90	0.00
Durdans PLC	29,236,641	60%	4%	1,290,076	0.80	0.05
Lanka Hospitals PLC	26,000,000	55%	11%	2,946,995	0.29	0.01

Source: PwC Analysis

Section 2.3

Diagnostic services

Access and affordability factors have pivoted the diagnostics market towards the highly efficient private sector, operating collaboratively to share scarce resources

Private sector diagnostic service providers dominate market

Diagnostic services in Sri Lanka are delivered both by the public and private sectors. Services in the public sector are delivered by captive units within major hospitals. However, the private sector operates both hospital based units as well as stand-alone facilities.

The public sector suffers from significant human, material and capital resources constraints resulting in switching to private sectors.

The market is dominated by the private sector with 60% of test volumes undertaken by a single private sector player (Asisri Hospitals). Furthermore 45% of the market share by value has been dominated by two private sector players (Asiri Hospitals and Durdans Hospitals).

By 2013 the market for private sector diagnostic services was estimated to be currently worth c.LKR6.5 bn (USD 49.6 mn) per annum having achieved a five year CAGR of 19.2%.

Cost pressures have defined market organisation

The private sector diagnostics market has adopted the 'hub and spoke' model of service delivery.

The model allows highly efficient sector-wide access to capital investments and technical expertise resulting in widely affordable services.

The formal and ad-hoc cooperation between often entirely independent service providers operates as follows:

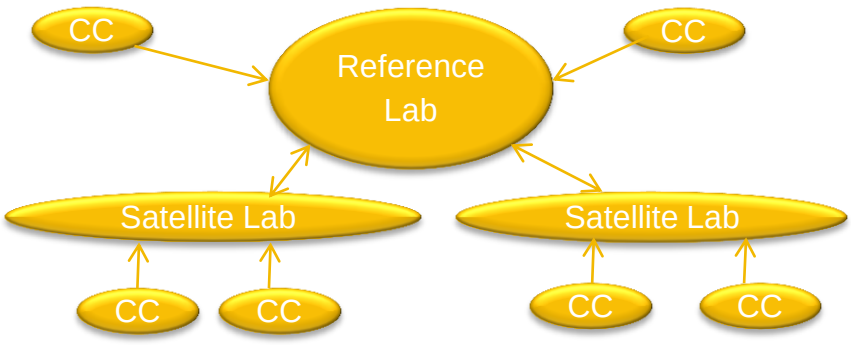
1. Reference Labs, which act as regional hubs, are set up in large metropolitan areas. They offer comprehensive and specialized testing capabilities.
2. Satellite Labs feed reference labs, and offer a limited test menu.
3. Collection Centres are located in hospitals, nursing homes, pathology labs, doctors' clinics, mobile operations etc. Here samples are collected and forwarded to either a satellite/reference lab.

60%

of the test volume is undertaken by a single private sector player

45%

of the market value is dominated by Asiri Hospital Holdings and Durdans Hospital PLC



Source: PwC Analysis

Operations of private sector diagnostics laboratories involve obtaining registration or approval from three bodies and are subject to on-going monitoring

Regulation

As mentioned in section 1.1 of the report private laboratories are regulated by the PHSRC.

Under the PHSRC medical laboratories are classified as private medical institutions and are required to employ an SLMC registered pathologist, microbiologist and chemical pathologist. If radiology facilities are to be installed, additional registration with the Atomic Energy Authority is required.

Finally, prior to commencing operations, the approval of the Provincial Director of Healthcare Services is required.

The PHSRC is tasked with the responsibility of on going monitoring of the lab to ensure stipulated conditions are met following the commencement of laboratory operations.

The private sector healthcare institutions are regulated to register with the Private Health Services Regulatory Council (PHSRC)

The PHSRC is tasked with the responsibility of on going monitoring of the lab to ensure stipulated conditions are met following the commencement of laboratory operations.

Key stakeholders (1 of 2)

Asiri Hospital Holdings

Asiri Hospital Holdings PLC (AHH), the first of the Asiri Group of Hospitals, commenced operations in 1980 and was subsequently listed on the Colombo Stock Exchange (CSE) in 1986. AHH consists of 7 companies most of which are hospital-lab combinations with reference laboratories except for Asiri Diagnostic Services (Pvt) Ltd which is a pure play laboratory with 2 reference laboratories. AHH is known to be one of the leaders in diagnostic services in Sri Lanka with state of the art laboratories, diagnostic equipment and skilled staff. Overall the holding company has 9 satellite centres regionally and 500 ISO accredited collection centres island wide.

The labs consist of state of the art facilities with high quality equipment generally in the areas related to bio-chemistry, chemical pathology, haematology, microbiology, histology, and immunology tests

Durdans Hospital PLC

Durdans Hospital PLC (established in 1945, listed on the CSE in 2003) is a respected tertiary healthcare provider in Sri Lanka, focusing on patient care for Sri Lankan and foreign patients. It is a modern, multi-specialty private hospital with state-of-the-art medical facilities. The organisation operates hospital-lab combinations and nationwide satellite centres and collection centres.

Currently there are 3 hospital lab combinations together with 225 affiliated labs. The labs and collection centres have ISO 15189:2007 accreditation given by the Sri Lanka Accreditation Board

The labs consist of state of the art facilities with high quality equipment generally in areas related to microbiology, biochemistry, haematology, histopathology, immunology, molecular biology (DNA testing), nuclear testing and clinical pathology which are bar coded from collection to issuing. Key facilities include:

- A pathology laboratory equipped with fully automatic clinical analysers.
- Cardiac catheterization laboratory
- The company has recently invested in a 46% stake in Ceygen Biotech (Pvt) Ltd which is involved in the production and supply of molecular biology, biochemical, biotechnology for molecular diagnostics and research programs.

AHH is known to be one of the leaders in diagnostic services in Sri Lanka with state of the art laboratories, diagnostic equipment and skilled staff. Overall the holding company has 9 satellite centres regionally and 500 ISO accredited collection centres island wide.

Durdans has 3 hospital lab combinations together with 225 affiliated labs. The labs and collection centres have ISO 15189:2007 accreditation given by the Sri Lanka Accreditation Board

Key stakeholders (2 of 2)

Nawaloka Hospitals

Nawaloka Hospital PLC was established in September 1985 (listed on the CSE in 2004) and is a centre of excellence in high technology diagnostic and curative facilities. The company is another key hospital-lab combination in the Western Province. The company is mainly involved in paediatric diagnostics in Sri Lanka. Key facilities include diagnostic services for everything from routine tests for blood sugar and cholesterol, lipid profiles, CT scans and angiograms, to the more complex tests associated with dengue, liver and renal function, nuclear medicine, etc.

In addition, depending on the requirement of each individual, examinations such as electro-myography (EMG), endoscopy, DEXA bone scans and MRI scans, ultra sound and echo scans available a 24-hours-a-day.

Ceymed Healthcare Services

Ceymed Healthcare Services established in 2001 is the third largest medical diagnostics service provider in the country. The company has 1 reference centre located in Colombo and many collection centres around the country.

The labs are accredited by ISO 9002 QC program in the United Kingdom. Laboratory tests are undertaken for the fields related to haematology, pathology and microbiology using state of the art medical diagnostic equipment . The labs undertake operations in relation to issuing medical fitness certificates to seafarers and for revalidation of current certificates for the Ministry of Ports and aviation. Ceymed is also one of the few clinics nominated by leading insurance companies for the issuance of insurance medical certificates in Sri Lanka.

Nawaloka Hospitals PLC conducts diagnostic services from routine tests for blood sugar and cholesterol, lipid profiles, CT scans and angiograms, to more complex tests associated with dengue, liver and renal function, nuclear medicine, etc.

Ceymed Healthcare services is the third largest medical diagnostics service provider in the country..

Current and expected developments in the diagnostic services market

Lanka Hospitals PLC, a part government owned public company, is to build a 10,000 square foot laboratory valued at LKR 850 Mn (USD 6.48 mn), that will be able to test 500 diseases including certain tests for cancer that are currently unavailable in Sri Lanka. Some other diagnostic capabilities including molecular biology, HLA Typing, Cytogeneses and new born screening tests will be available at the new laboratory. The lab will be located on the 7th floor of the existing hospital complex in Colombo.

Nawaloka Hospitals PLC is expected to upgrade its diagnostic capabilities to include methods related to laboratory investigation, biochemistry, genetics, molecular biology and drug assays testing amongst others. New procedures being offered included such as Doppler-guided haemorrhoid artery ligation and rectal anal repair and live donor liver transplants. Aside from this, there have also been recent radiology upgrades which include the addition of full digital imaging functionality via digital X-ray units and four-dimensional (4D) digital ultrasound scanners.

Credence Genomics has introduced Sri Lanka's first commercial next generation sequencing facility primarily for the field of genomic research which has the ability to sequence DNA and RNA at unprecedented speed, accuracy and scalability.

The quickly evolving technology is used worldwide and has the potential to advance diagnostic and treatment capabilities of many diseases including cancer in Sri Lanka. The technology can rapidly diagnose the genetic make up of the disease and advise on the most effacious drugs depending on the genetic make up of each patient. The technology also helps to identify genetic basis of most inherited diseases accurately discriminating between normal and faulty gene copies of humans. Credence Genomics has already launched Its first commercial next generation DNA sequencing product 'BactFast'; a single test that allows the identification of the entire population of most bacteria in one go. This test can replace the entire cohort of conventional microbial and biochemical test methods and all of its drawbacks.

The Ministry of Justice together with the GoSL and US embassy support have set up a new forensics laboratory in Gampaha district which was commenced in November 2013.

Furthermore in 2012,the Government proposed the National Medical Laboratory Act, to facilitate improvement in the quality of laboratory services in Sri Lanka. This was in response to a considerable number of complaints from the public, particularly with respect to the accuracy of medical reports, unqualified persons working in these laboratories, exorbitant charges and the use of sub standard medical equipment.

The Ministry of Justice together with the GoSL and US embassy support have set up a new forensics laboratory in Gampaha district which was commenced in November 2013.

Section 2.4

Alternative medicine

Although the medical practice in Sri Lanka has been dominated by western medicine, Ayurveda is a popular form of treatment among the population located in rural areas

Traditional medicine in Sri Lanka

According to WHO, traditional medicine is typically defined as knowledge and practices used in diagnosis, prevention and treatment passed on from generation to generation. These treatments rely mainly on practical ancestral experience and observation, handed down verbally or in writing.

Sri Lanka's medical practice has been dominated by the western allopathic system of medicine. However traditional medical practices have been followed in Sri Lanka for over 3,000 years and remain a popular choice of treatment among the rural population.

Approximately 60 to 70% of the rural population relies on traditional and natural medicine for their primary health care.

It is noteworthy that Sri Lanka is identified as one of the most biologically diverse countries in Asia with 20% of the land area covered with forests where a wide variety of plants with medicinal properties are available.

Furthermore, traditional medical methods are generally not only confined to cure disease but are related to religion, culture, rituals etc. and therefore unique to Sri Lanka.

Ayurvedic medicine in Sri Lanka has a rich history of over 3,000 years

60-70%

of the rural population relies on Ayurvedic medicine for treatment Sri Lanka

Ayurvedic medicine is a popular form of treatment within the rural population of Sri Lanka and the GoSL has allocated funding to make this form of medicine available globally

Favourable Government policy

The Ayurveda Act, No.31 of 1961, was a landmark development to govern the Indigenous medical systems in Sri Lanka.

The GoSL expects to promote traditional medicine in Sri Lanka by taking initiative to make Sri Lanka an international destination for indigenous medicine system.

The GoSL also expects to extend support to local entrepreneurs through the construction of Ayurvedic healthcare centres.

The Government has already taken steps to facilitate indigenous medicine in Sri Lanka by allocating LKR 3,087 mn (USD 23.56 mn) in 2012 to invest in traditional medicine projects.

Supply of Ayurvedic medical care

Initially (1977) there were only 10 hospitals and central dispensaries offering Ayurvedic treatment in the island. With the growing popularity of Ayurvedic treatment, there are now 441 Ayurvedic institutions of which 3 are fully fledged Ayurveda hospitals located in Borella, Jaffna and Navinna under the purview of the Department of Ayurveda.

With close to 3 mn patients seeking Ayurvedic treatment annually, there is significant need for formally qualified Ayurvedic physicians.

Currently there are 17,503 qualified Ayurvedic physicians and more than 8000 unregistered traditional medical practitioners in the country.

USD 23.56 mn

has been allocated for indigenous medicine in 2012 by the GoSL to strategically place Sri Lanka as indigenous medical hub

17,503

qualified Ayurvedic physicians and more than 8,000 unregistered traditional medical practitioners are currently practicing Ayurveda in Sri Lanka

Government expenditure on Ayurvedic medical facilities

Project name	Output	Total estimated cost
Construction of a ward Complex at Borella Ayurveda Teaching Hospital	8 storied building	905 Mn
Research Hospital Nawinna, Maharagama	5 storied building	401 Mn
Traditional research hospital, Mihintale	New traditional research hospitalincluding an OPD, Ward complex, herbal garden etc.	586 Mn
Stored Complex at Ayurveda Drugs Corporation	New drug stores	100 Mn
Community health development through Indigenous System of Medicine (Annual Program)	Conduct awareness programmes on preventive healthcare in DS divisions of Kurunegala, Polonnaruwa and Gampaha Districts	95 Mn

Source: MoFP

Key stakeholders in the alternative medicine segment

Institute of Indigenous Medicine-University of Colombo

The IIM is the premier Higher Educational Institute in Sri Lanka that provides instructions in Ayurveda, Unani and Indigenous systems of medicine at undergraduate and postgraduate levels. The college of Ayurveda was the first in the island and subsequently was affiliated to the University of Colombo as the Institute of Indigenous Medicine

Ayurvedic Teaching Hospital Colombo

Founded in 1929 this is the oldest and largest government Ayurvedic hospital in the country treating c.2,000 patients daily. Situated in Cotta road, Borella, the hospital has 271 beds of which 247 beds are in non paying wards.

The institution is the main Ayurvedic teaching hospital in the country where facilities are provided for the students of the Institute of Indigenous Medicine to receive their practical training.

In addition to the regular cadre of Ayurveda physicians, the hospital employs specialists for the treatment of snake bite, boils, fractures and dislocation, burns, mental diseases, and children diseases. It is also the only medical institution that provides a full course of "panchakarma" treatment.

Ayurvedic Hospital Jaffna

Jaffna- Kaithady Ayurveda Hospital was established in 1978, with five wards, a laboratory, a pharmacy and out patients unit.

In 1990, up to six wards including a maternity ward and surgery unit were re-established at the out patient dispensary.

Following the destruction of the ward during the period of war, the hospital is currently functioning with one ward and out patient unit and 36 staff including six Ayurveda Medical Officers.

Siddhalepa private medical hospital

The Siddhalepa Ayurveda Hospital is the largest private sector player in the Ayurveda segment with 30 bed facilities and OPD.

The facility employs a variety of specialists offering medical care in internal medicine, paediatric, psychology, oto-rhino-laryngology, surgery; toxicology, sexology and rejuvenation.

Furthermore the hospital also undertakes treatment for rheumatic ailments, skin diseases, dislocated bones and fractures, eye problems, gynaecological problems, urinary problems, kidney problems, cataract, asthma, high blood pressure and diabetes.

All medicines used at the Siddhalepa Ayurveda Hospital are scientifically prepared at a pharmaceutical factory owned by Siddhalepa.

The Siddhalepa Ayurveda Hospital is the largest private sector player in the Ayurveda market with 30 bed hospital facility.

Section 3
Medical equipment and supplies

Section 3.1

Pharmaceutical industry

The pharmaceutical market in Sri Lanka is estimated to be worth USD 469 mn (2012) having sustained growth over the last five years

The pharmaceutical industry in Sri Lanka includes manufacturing, importing and marketing of licensed drugs for medication.

According to Business Monitor International (BMI) the pharmaceutical market in Sri Lanka was estimated to be worth LKR 61 bn (USD 469 mn) in 2012.

Pharmaceutical sales witnessed a steady growth recording a CAGR of 14% over the last 10 years.

According to industry reports pharmaceuticals for chronic care, cardiovascular, and anti-diabetics segments are believed to have experienced the most significant growth.

The Government of Sri Lanka (GoSL) a key stakeholder in the local pharmaceutical industry imports drugs for the general public and accounts for a significant portion of generic drugs imported to Sri Lanka.

According to the Manual on Management of Drugs issued by the Ministry of Healthcare and Nutrition in year 2008, 11% of the total health expenditure have been allocated for pharmaceuticals.

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14%

Pharmaceutical sales witnessed a steady growth recording a CAGR of 14% over the last 10 years

>60%

of pharmaceutical sales are dominated by the private sector in Sri Lanka

Pharmaceuticals are widely distributed as either branded or generics products in Sri Lanka.

According to a leading pharmaceutical retailer in Sri Lanka, the industry is dominated by the private retail market which accounts for over 60% of sales; government hospital purchases account for c.28%, private hospitals account for approximately 10% and dispensing family physicians account for approximately 2% of the total pharmaceutical business.

The Sri Lanka pharmaceutical market is regulated under the Cosmetics, Devices and Drugs Act

An integral part of the health policy in Sri Lanka is to ensure the adequate supply of safe and effective quality drugs.

Therefore appropriate legislation and regulations have been introduced to implement the healthcare policy of the country.

The Sri Lanka pharmaceutical market is regulated under the Cosmetics, Devices and Drugs Act (CDDA) No. 27 of.1980 (as amended by Act No. 38 of 1984, No. 25 of 1987 and No 12. of 1993) and it is implemented through the Drug Regulatory Authority.

The CDDA acts under the purview of the Director General of Health Services (DGHS).

A Technical Advisory Committee (TAC) has been set-up under the Act to advise the Hon. Minister of Health on matters pertaining to the implementation of the Act.

The CDDA provides the legislative framework to control the use of cosmetics, medical devices and medicinal drugs in the country, the Act is based on Canadian legislation and covers registration, manufacture, importation, transportation, sale (retail and wholesale), labelling, advertising, distribution of drug samples, testing, disposal of outdated or spoilt drugs

Service	Respective authority
Registration of drugs	The Cosmetics Devices and Drugs Authority (office of Director Medical Technology and Supplies)
Estimation, storage, distribution and monitoring of drugs.	Medical Supplies Division
Procurement of drugs	State Pharmaceuticals Corporation (SPC)
Quality assurance of drugs	National Drug Quality Assurance Laboratory
Storage and distribution for provincial council institutions	Regional Medical Supplies Divisions (RMSD) at regional level (26 in number)
Review and make recommendations on drugs submitted for registration	Drugs Evaluation Sub-Committee(DESC)
Screen advertisements of drugs and to make recommendations on the information given in the advertisements	Advertisements Sub-Committee
Matters relating to Homoeopathic drugs	The Sri Lanka Homeopathic Council
Matter relating to Ayurvedic drugs	The Department of Ayurveda.

Source: PwC Analysis

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Registration of new drugs

Registration of new drugs is one of the key functions carried out by the CDDA.

The drug registration process in Sri Lanka commences with the appraisal of the manufacturer for compliance of the Good Manufacturing Practices (GMP) standards.

Foreign manufactures are evaluated based on their company profiles, while local manufactures are inspected by a team of officers attached to the office of Medical Technology and Supplies (MT&S) and the National Drug Quality Assurance Laboratory (NDQAL) for GMP compliance.

Every foreign manufacturer has to appoint an agent in Sri Lanka who is responsible for registration and other activities related to their products in Sri Lanka.

The manufacturer should thereafter submit registration applications to the director of MT&S through the local agent along with samples for quality testing.

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The DESC uses the World Health Organisation GMP certification scheme to assess quality of global pharmaceutical products imported to Sri Lanka

The Drug Evaluation Sub Committee (DESC) comprising of specialists in medical and pharmaceutical fields and the administrative sector of the Ministry of Health makes recommendations on registration of new drugs. The main criteria for registration are quality, safety and efficacy.

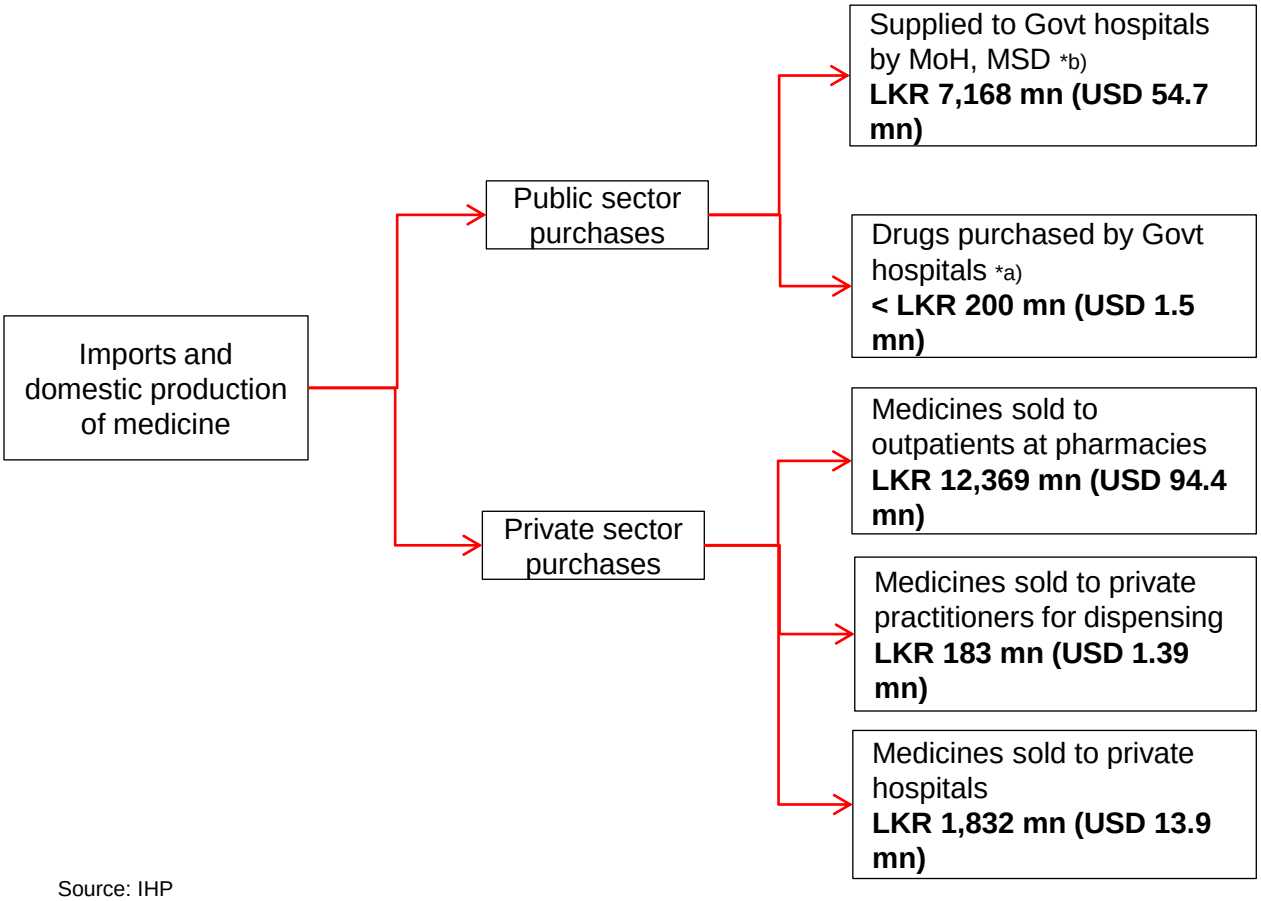
The DESC uses the World Health Organisation GMP certification scheme to assess quality of global pharmaceutical products imported to Sri Lanka, to assess GMP standards and registration status of the product in the country of manufacture.

Approval of the product for registration or refusal of the same by the Director MT&S is based on the recommendations of the DESC.

The registered drugs are entered in a register and maintained at the Director MT&S office and periodically published through government gazette notifications.

Work pertaining to drug registration is carried out at the office of the Director MT&S with the assistance of the NDQAL.

Both the private and public sectors import pharmaceuticals in Sri Lanka, however the value of purchases by the private sector is significantly larger than the state sector (2008)



Source: IHP

a) Public sector purchases are mostly made by the Ministry of Health, Medical supplies Division and then distributed to government health institutions
b) Government hospitals are permitted to self purchase small quantities of medicine from their own budgets
c) Although the public sector accounts for a considerable share of pharmaceutical imports, the private sector imports the bulk of the pharmaceutical products into to the country.

Pharmaceutical sales in Sri Lanka have grown exponentially over the last decade with bulk of needs being met by India (c.52%) followed by Switzerland, Pakistan and United Kingdom

According to BMI, pharmaceutical sales have grown exponentially over the last decade exceeding LKR 50 billion (USD 459 million) in 2011, to LKR 61 billion in 2012(USD 469 million).

The bulk of pharmaceutical needs in Sri Lanka are met through imports.

According to industry research, the bulk of the total imports to Sri Lanka were from India which accounted for more than 50% of pharmaceutical imports in Sri Lanka over the last 5 years.

Switzerland, Pakistan and United Kingdom were other key suppliers of pharmaceutical products to Sri Lanka contributing 11%, 5% and 3% of pharmaceutical imports respectively.

We understand the share of imports from India has gradually declined to 52% in year 2012, compared to the highest recorded share of 58% in year 2010.

Consequently the share of imports from Switzerland witnessed a significant increase over the last 2 years accounting for 11% of imports in year 2012, compared to 3% share recorded in 2010.

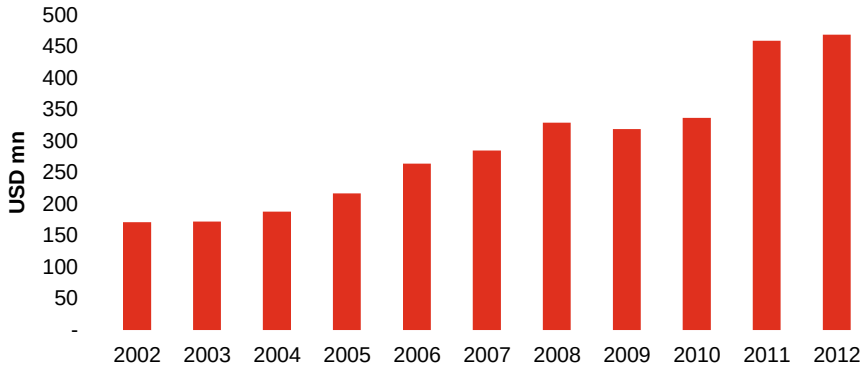
Netherlands was the 13th largest supplier of pharmaceutical products to Sri Lanka. The Dutch market share has declined marginally to 1% from the 2% share held in year 2009.

According to trade map Sri Lanka pharmaceutical imports to Sri Lanka consisted mostly of medicaments in dosage, antibiotics, vitamins and their derivatives, Penicillin, Hormones etc.

India accounted for more than 50% of pharmaceutical imports in Sri Lanka over the last 5 years.

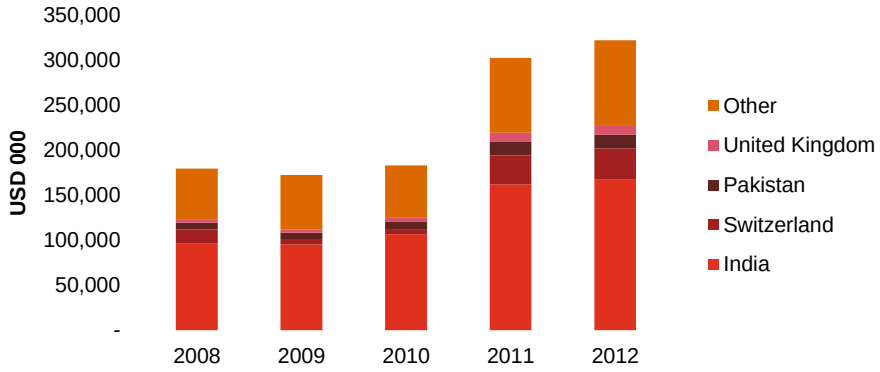
Switzerland, Pakistan and United Kingdom were other key suppliers of pharmaceutical products to Sri Lanka

Pharmaceutical sales



Source: BMI

Total pharmaceutical imports to Sri Lanka



Source: Trade map

The demand for branded drugs is expected to be driven significantly by the influence of medical practitioners and the presence of substandard drugs in the market

Generic drugs vs. branded drugs

According to the Ministry of Industry and Commerce, the market share for generic drugs has steadily increased over the last few years and accounts for approximately two thirds of the market.

Moreover, with patents expiring for branded drugs in developed markets, the share of generic drugs in the market is expected to increase.

We understand the share of generic drugs and branded drugs in the market differs in terms of value and quantity.

Although the quantity of generic drugs distributed islandwide is significantly larger than branded drugs, its market share in terms of value is comparatively lower than branded drugs.

Although debate on the superiority of branded drugs continue, the significance of generics drugs in the market is not expected to reduce in the future.

Issues of substandard drugs

A majority of the of drugs imported to Sri Lanka are from India and the country mostly exports generic drugs to Sri Lanka. According to market reports, Indian companies have been exporting substandard drugs to Sri Lanka. As a result a number of Indian firms were banned from distributing generics in 2009. However, we note the ban has been temporarily lifted pending further investigations.

However, patients continue to demand for branded products due to fear of low quality and low efficacy of generics.

There are also issues of violations in regulations where medicines are illegally imported and sold to pharmacies – the availability of such products in the market pose a health risk to patients as they are not registered products.

Presently there are only 2 institutions responsible for carrying out checks on quality of medicines when samples are sent, the Medical Technology and Supplies Division and the National Quality Drug Assurance Laboratory.

Thus, according to an industry expert, there is a need for pharmaceutical product testing laboratories within Sri Lanka. The laboratories currently carrying out checks are unable to meet testing requirements, resulting in State Pharmaceutical Corporation (SPC) having to enlist the help of laboratories in Australia and Singapore for drug testing.

Although the quantity of generic drugs distributed islandwide is significantly larger than branded drugs, its market share in terms of value is comparatively lower than branded drugs

According to an industry expert, there is a need for pharmaceutical product testing laboratories within Sri Lanka as the laboratories currently carrying out checks are unable to meet testing requirements

Pharmaceutical manufacturing in Sri Lanka is currently at a nascent stage with only 25-28 active pharmaceutical manufacturers producing close to 200 types of capsules and tablets

According to the president of Sri Lanka Pharmaceutical Traders Association (SLPTA). In terms of manufacturers, the top companies in the private retail pharmacy market in Sri Lanka are Cipla, GlaxoSmithKline and Zydus Cadila.

Local pharmaceutical manufacturing is largely attributed to the State Pharmaceutical Manufacturing Company and GlaxoSmithKline.

The pharmaceutical import market in Sri Lanka is fragmented among several local suppliers. State Pharmaceutical Corporation is one of the largest importers of generic pharmaceutical products to Sri Lanka.

Key importers of branded drugs to Sri Lanka are Swiss Biogenics Limited, Hemas Pharmaceuticals, Akbar Pharmaceutical Pvt Ltd, Harcourts, A Baur and Co. and City Health.

Apart from the above key players there are smaller suppliers specialising in providing pharmaceutical products for various segments in the healthcare market.

Currently close to 80% of Sri Lanka's pharmaceutical requirements are met by imports. Therefore pharmaceutical manufacturing in Sri Lanka is still at a nascent stage.

According to a leading pharmaceutical retailer, there are currently 25-28 pharmaceutical manufacturers active in Sri Lanka whilst the shortfall in supply is met by products imported by more than 300 international manufacturers.

Please see appendix 8 for major brands imported, appendix 4 for a list of pharmaceutical market sector participants and appendix 3 for a list of local drug manufacturers.

20%

of the pharmaceutical requirements are met by local manufacturers

25-28

active pharmaceutical manufacturers in Sri Lanka

Availability of drugs in the OPD facilities at private hospitals:

A World Bank survey of 82 hospitals attempted to assess the availability of selected NCD related drugs such as anti-asthmatic (salbutamol inhalers) drugs, anti-diabetic drugs (Glibenclamide and soluble insulin), heart diseases related drugs (streptokinase, atenolol, captopril, enlapril and simvastin) and mental health related drugs (amitriptaline). It was identified that 26% of the facilities surveyed did not hold above drugs in their premises.

Manufacturing in Sri Lanka

Local manufacturers in Sri Lanka currently produce close to 200 types of drugs which are mainly generic tablets and capsules. Antibiotics and Paracetamol continue to be the most commonly consumed and produced drugs in Sri Lanka. Drugs related to NCDs such as hypertension and diabetes also continue to be in demand.

Key stakeholders of the pharmaceutical industry in Sri Lanka

Government of Sri Lanka

The Government of Sri Lanka (GoSL),a key stakeholder in the local pharmaceutical market strives to ensure the adequate supply of safe and effective drugs to all citizens and spends approximately USD 140 mn annually for medicines alone.

According to the Ministry of Finance and Planning, the total expenditure on medical supplies has increased from LKR 10.8 bn (USD 82.6 mn)in 2007 to LKR 16.8 bn (USD 128.49) in 2012.

The State Pharmaceutical Corporation (SPC) acting under the purview of the Ministry of Health, is a major importer of generic pharmaceutical products for the state hospitals.

In 2012, financial facility of LKR 5 bn (USD 38.16 mn) was provided through state banks to the SPC in order to ensure the adequate supply of drugs to all hospitals.

The State Pharmaceutical Manufacturing Corporation also acting under the purview of the Ministry of Health manufactures a significant portion of capsules and tablets for requirements of the Medical Supplies Division.

GoSL Investment in SPC

The GoSL initiated the rehabilitation and expansion of production capacity of the SPMC in order to increase production capacity up to 4,000 mn units for an estimated cost of LKR 1,777 mn(USD13.59 mn).

State Pharmaceutical Corporation

The State Pharmaceutical Corporation acts as the procuring agent for the Medical Supplies Division of the Ministry of Health.

The Medical Supplies Division forecasts the types of items required and the number of items to be purchased by the SPC. The SPC thereafter floats tenders worldwide where any supplier may submit quotes for tenders upon registration with the CDDA.

The SPC is considered to be one of the largest pharmaceutical product distributors in the local market. In terms of value, SPC holds 10%-12% of pharmaceutical market share, whilst in terms of quantity SPC holds 35% of market share.

As an institution established to meet needs of the general public the SPC also imports certain slow moving, less profitable products that the private sector do not supply.

10-12%

of the pharmaceutical market share is held by the State Pharmaceutical Corporation

Key stakeholders of the pharmaceutical industry in Sri Lanka

Sri Lankan State Pharmaceutical Manufacturing Corporation (SPMC)

The state owned pharmaceutical manufacturing facility is one of the leading pharmaceutical manufacturers in Sri Lanka.

The SPMC manufacturing facility spans over 50,000 square feet in Ratmalana and is equipped with modern Japanese and German machines.

The SPMC manufacturing plant has a capacity of 550 mn units of tablets/capsules and 60,000 litres of dry syrup.

The corporation mostly manufacturers "branded generics", where their tablets and capsules carry the letters SPMC.

According to the SPMC there are 59 items that are presently manufactured where SPMC supplies 20 of these to the Medical Supplies Division of the Health Ministry.

We understand that the annual requirement by the Medical Supplies Division is around 1,862 mn tablets/ capsules and the SPMC is currently unable to meet the requirement due to insufficient capacity.

The SPMC is presently looking to raise investment capital to replace machines and expand capacity.

GlaxoSmithKline Pharmaceuticals Ltd (GSK)

GSK is a leading global pharmaceutical manufacturer operating in Sri Lanka.

The company commenced the country's first ever pharmaceutical manufacturing plant by a multinational in year 2012. This is expected to boost the manufacturing sector and help stabilise prices.

GSK is expected to be producing close to 2.5 bn Panadol brand tablets in its new facility in Moratuwa.

According to the CEO of GSK the company is expected to invest further USD 11.2 mn to expand operations in Sri Lanka.

* A list of pharmaceutical market sector participants in the Sri Lanka has been depicted in appendix 4 of this report.

2.5 bn

Panadol capsules are produced by GSK per annum while the company has invested 112 mn to expand operations in Sri Lanka

The SPMC manufacturing plant has a capacity of 550 million units of tablets/capsules and 60,000 litres of dry syrup

Key stakeholders of the pharmaceutical industry in Sri Lanka

Swiss Biogenics Limited (SBL)

Swiss Biogenics is a subsidiary of Sunshine Holding sand is a leading pharmaceutical distributer in Sri Lanka holding 20% share in the private healthcare market.

The company markets 1000 pharmaceuticals, neutraceuticals, medical diagnostics equipment and surgical products to 2,000 pharmacies and 3,000 doctors.

Swiss Biogenics markets pharmaceuticals by leading suppliers such as Abbott Laboratories, Zydus Cadila Healthcare, Novo Nordisk A/S etc.

SBL is the only company in the healthcare sector that owns and manages 9 major in house regional distribution centres.

Hemas Pharmaceuticals

Hemas Pharmaceuticals is a fully owned subsidiary of Hemas Holdings, a leading public quoted conglomerate.

Hemas has been a front runner in the healthcare industry for over 60 years and is recognised as a key distributor of pharmaceutical products in Sri Lanka. The company holds an estimated market share of 20%.

According to the State Pharmaceutical Corporation most of their branded drug requirements are procured from Hemas.

The company's key competitive advantage is their strong sales and distribution network that ensures availability of drugs islandwide.

Hemas recently acquired a leading consumer and wellness company J.L. Morison Son & Jones. In addition to holding a portfolio of well established consumer brands the company is also involved in manufacturing and distributing pharmaceutical products islandwide.

Hemas pharmaceutical expects to capitalise on J.L. Morison's pharmaceutical manufacturing and distribution arm to expand its market presence.

According to market reports ,the company also expects to move into over the counter (OTC) pharmaceuticals (healthcare and wellness products).

Sri Lanka Chamber of the pharmaceutical industry (SLCPI)

The SLCPI represents over 85% of the pharmaceutical industry. The chamber is the largest body representing the pharmaceutical industry of Sri Lanka and is an important stakeholder in the country's healthcare system. The SLCPI is a key supporter of the implementation of the National Medicinal Drug Policy.

1000

SBL markets 1000 pharmaceuticals, neutraceuticals, medical diagnostics equipment and surgical products

Hemas has been a front runner in the healthcare industry for over 60 years and is recognised as a key distributor of pharmaceutical products in Sri Lanka

Current developments shaping the local pharmaceutical market

The government of Sri Lanka has introduced a new price control formula for pharmaceuticals in early 2014 to prevent irregularities in drug prices. The mechanism is expected to be put in place jointly by the Health Ministry and the Internal Trade Ministry.

The Health Ministry's initiative to create uniformity in prices is an attempt to prevent importers from overpricing their products.

As part of the Government initiative to develop the pharmaceutical manufacturing sector in Sri Lanka and to strategically replace imports, the Government has granted tax holidays for investments in the sector.

The GoSL has also made plans to set up a 48 acre pharmaceutical manufacturing industrial zone in year 2011. The pharmaceutical manufacturing hub is located in close proximity to the Kurunegala city. The industrial zone is expected to help meet local drug requirements by sourcing more drugs from local manufacturers.

The industrial zone has been made available to companies making large investments. Furthermore the land will be leased under 50 year agreements.

The Government initiative to introduce 'Guaranteed Buy Back' agreements in a public private partnership scheme is expected to incentivise local pharmaceutical manufacturing.

International investors have expressed interest in investing in pharmaceutical manufacturing in Sri Lanka in order to cater to domestic and regional demand. Countries such as Pakistan have cited lower cost of power and labour as key factors driving investment in Sri Lanka

International investors have expressed interest in investing in pharmaceutical manufacturing in Sri Lanka in order to cater to domestic and regional demand. Countries such as Pakistan have cited lower cost of power and labour as key factors driving investment in Sri Lanka

Sri Lanka currently has a detailed National Medicinal Drug Policy (NMDP) formulated. Although its approval has been pending over the last few years, industry sources expect the formal approval of the policy this year, resulting in strict regulatory control over healthcare stakeholders

Section 3.2

Medical devices

MED sector accounts for a quarter of Sri Lanka's total healthcare expenditure, with the GoSL bearing the bulk of the expenditure on medical equipment

The medical devices industry covers a variety of products and technologies which range from traditional products such as bandages and syringes to more complex devices using nanotechnology.

Medical equipment and supplies is estimated to account for a quarter of Sri Lanka's total healthcare expenditure.

According to BMI, total sales on medical devices amount to LKR 14 bn (USD 111 mn) recording a CAGR of 13% over the last six years.

As a significant portion of the healthcare needs of the population are met by the state, the public sector is considered to be the largest end user of healthcare consumables and devices in Sri Lanka.

It is estimated that the investment in medical equipment and machinery by GoSL accounted for 17% of total capital expenditure on curative care in Sri Lanka in 2012.

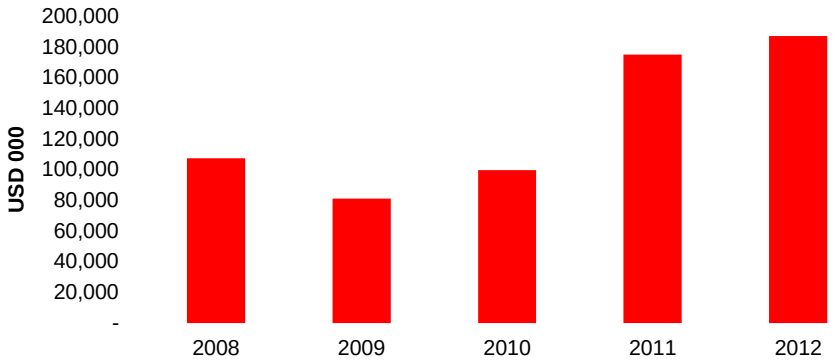
However, according to IHP, capital investment on healthcare by private sector has been growing faster than public spending. Private spending on capital formation and MED increased from 16% in 2007 to 19% in 2008, whilst public spending declined from 84% in 2007 to 81% in 2008.

The demand for MED from private sector institutions is expected to increase further with the expansion of private healthcare in Sri Lanka.

13%

The MED sector recorded a CAGR of 13% over the last six years

Medical device total sales



Source: BMI

The demand for MED in Sri Lanka is expected to increase with favourable Government policy and initiatives to ensure availability and timely accessibility of health equipment in all hospitals in Sri Lanka

The medical devices consumer base in Sri Lanka has been increasing steadily over the past few years with the increase in number of private hospitals, public hospitals, laboratories and medical centres.

Availability and timely accessibility of health equipment in all hospitals is a key priority of the GoSL, therefore an increase in demand for diagnostic equipment is expected.

In particular, the Government has identified the need to procure X-rays and related equipment, gastro viewing and high energy radiotherapy treatment machines for selected hospitals.

The GoSL has identified 605 hospitals to be provided with necessary medical equipment between year 2014-2017.

Therefore demand for equipment to meet requirements of the 605 hospitals can be expected in the future

The GoSL has proposed the establishment of centres of excellence in cardiology, oncology, accident and trauma sectors. Therefore an increase in demand for medical equipment related to the above sectors can also be expected.

According to the Department of National Planning neo-natal mortality (deaths within 28 days after birth) is still high (6.4 per 1000 live births) resulting in the need for equipment for maternal and childcare. As per the Ministry of Health the total equipment requirement for maternal and childcare by hospital category is as follows.

Based on the Department of National Planning the GoSL expects to provide more sophisticated treatment/ investigative machines such as MRI,CT,UT scanners, CR systems, PET machines, Linear Accelerators, Dosimeter system and accessories, Big Core CT Simulators and Brachytherapy units to hospitals by 2017

605

State sector hospitals have been identified to be equipped with required medical equipment

Total equipment requirment in hospitals by category

Equipment	Total requirment
Digital Multipurpose Angiography	15
Dedicated Angiography	7
CR system	6
PET CT	2
Gamma Camera	5
Digital Fluoroscopy	37
C Arm X-ray	11
CT Scanner 128 Slice with Cardiac package	3
CT Scanner 16&64 slice	32
Mammography	18
MRI scanner	9
MRI scanner	8
Ultrasound scanner (portable)	84
Ultrasound scanner	119
Digital, ceiling mounted X Ray machines	50

Source: MoH

Total equipment requirement for maternal and childcare healthcare

Equipment	Total requirment
Infant incubator	140
Phototherapy Unit	109
ICU ventilator Neonatal	42
Infant warmer	7
Baby resuscitator	17

Source: MoH

A major share of MED requirements of the country are met by imports. Local manufacturing of MED are limited to consumables as consumers demand established brands to meet high tech equipment requirements

As per discussions with leading importers of medical devices, a major portion of local demand for medical devices are met by importers (c.95%).

Therefore minimal manufacturing of medical devices is currently carried out locally (c.5%). We understand that local manufacturers are mostly involved in producing healthcare consumables such as trollies, cotton wool, patient tables, sideboards and steel beds.

High tech medical devices are largely imported to Sri Lanka. There are presently no local manufacturers of high tech medical devices resulting in reputed healthcare institutions deploying foreign manufactured equipment for surgery, diagnosis and imaging.

While medical consumables are widely available and distributed islandwide, we understand that local demand for high tech equipment is generally fairly specific and consumers opt to purchase well established brands such as Siemens, Olympus, Phillips and Johnson and Johnson to meet medical equipment requirements.

However as an initiative to encourage and safeguard local manufacturers of medical devices, the GoSL charges higher duties on imports of "selected" devices.

However as local manufacturers are unable to meet the requirements and prescribed standards of quality, this policy often results in a hike in prices of high quality low cost medical device imports.

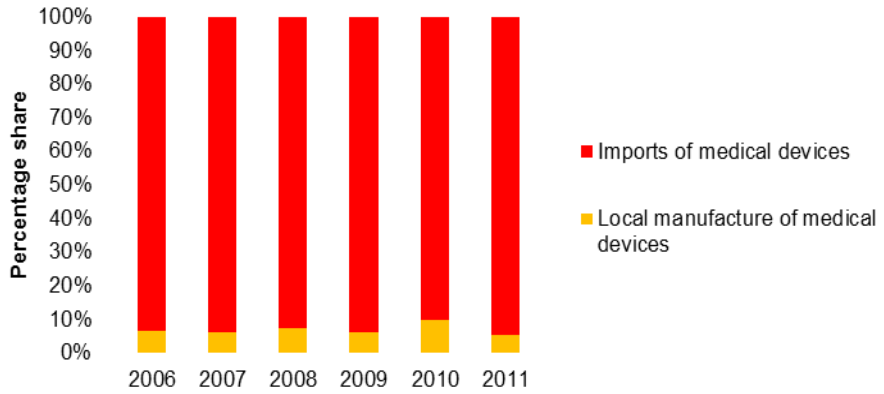
According to discussions with importers who have explored the local manufacturing space in Sri Lanka, the feasibility of operating a small scale manufacturing plant catering to local demand alone is low due to the relatively small domestic market.

The GoSL currently provides duty concessions to medical device importers and manufacturers charging nil to nominal duty rates.

95%

of MED demand are met by importers

Share of imports for medical devices



Source: BMI

Growing price sensitivity, time consuming and costly registration process and challenges in understanding customer needs are key issues identified by local importers

Medical device manufacturers and importers are battling with price pressures which in turn impact customer value.

Device manufacturing and distribution has globally been challenging due to rapid changes in technology, tough quality standards and regulatory impacts in Sri Lanka.

Price sensitivity is a significant issue for local manufacturers and importers of branded products.

Therefore device manufacturers are increasingly under pressure to maintain competitiveness by improving design and reducing cost.

Furthermore as customers become increasingly sophisticated, local importers face increasing pressure with respect to fully understanding customer requirements.

Most of the public healthcare institutions lack funds to upgrade equipment and expand existing services. With virtually no local manufacturers involved in manufacturing high technology equipment, state healthcare institutions are unable to economically source the required number of medical devices due to budget constraints.

A major challenge identified by medical device importers in Sri Lanka is the rigorous regulatory procedure in registering equipment with the CDDA. Importers are required to register equipment of all types and sizes irrespective of the number of times similar/identical equipment has been previously registered.

All medical equipment imported are expected to be registered annually at an estimated annual cost of USD 150 per unit. Therefore in addition to the time consuming registration process (approx. 1 year per equipment), the requirement results in significant financial burden on importers.

Furthermore, the lack of transparency in the registration procedure has resulted in importers having to wait for approval with no indication of status of the registration process.

Although there is significant demand for equipment from the public sector it is noted that in order to win tenders for equipment supply, importers will benefit from established relationships with the state, as tenders generally list out specifications which are only matched by a specific brand that a specific agent maybe importing.

When importing equipment the CDDA mandates 1 agent per type of product imported. Therefore new players who wish to import the same equipment as other agents are required to submit a no objections letter from the registered agent to the MoH.

Substitution of new equipment with refurbished medical devices can be expected due to economic considerations

The refurbished medical device industry includes the refurbishment of a device to its original specification. Refurbishment can range from replacement of basic parts to complete remanufacturing.

According to European Coordination Committee of the Radiological, Electro-medical and Healthcare IT Industry (COCIR), Japan Industries Association of Radiological Systems (JIRA), and Medical Imaging and Technology Alliance (MITA), refurbishment will generally consist of equipment selection, disassembly, packing, and shipment, cleaning and disinfection, refurbishment planning, cosmetic refurbishment, mechanical and electrical refurbishment, system testing, good refurbishment practice (GRP) declaration, and finally packing, shipment, and reinstallation.

The refurbished market is considered to be a threat to suppliers of new equipment.

However, challenges such as negative perception by public procurement agencies and lack of awareness by users hinder development of the refurbished medical device market.

Moreover, issues in lack of standardisation of policies and approval pathways have impacted industry growth for refurbished medical devices.

Although the refurbished market is still at a nascent stage it is expected to become a strategically important sector due to significant price competitiveness and opportunities for higher return on investment.

Refurbished medical equipment can be imported duty free in Sri Lanka. However it is noted that public institutions are prohibited from buying used or refurbished equipment, and the state sector is required to purchase brand new medical equipment.

However, small hospitals, medical and dental clinics may benefit from refurbished dental equipment and medical equipment such as ECG, ultrasound scanner etc.

However, demand for refurbished equipment would mainly be for established manufacturers as opposed to third party importers due to warranty and after-sales issues.

Specific restrictions by the CDDA

Public health institutions cannot procure refurbished medical equipment, if procured the medical equipment are expected to be of the most recent technology. Furthermore, the standard tender procedure in Sri Lanka are to be followed when procuring equipment.

Syringes and needles cannot be procured for re-use.

Only the registered local agents are allowed to import or advertise used or refurbished medical equipment. No third party can procure, import or receive on donation medical equipment with the same brand name as the local agent.

However no restrictions exist on single use devices.

Private health institutions who require refurbished medical equipment or an upgrade to existing equipment with new parameters, are required to present the certificate and literature to the CDDA for registration prior to importation or purchase of the medical equipment

Section 4

e-health, m-health and telemedicine

e-health, m-health and telemedicine are still at a nascent stage in Sri Lanka, however, the GoSL has taken several initiatives to promote each of these sectors through legislation and investment

Adoption of e-health, m-health and telemedicine in Sri Lanka

Although the adoption of e-health, m-health and telemedicine in the provision of healthcare is still at a nascent stage, Sri Lanka has taken initiative to improve infrastructure to develop e-health service delivery in Sri Lanka.

GoSL through the MoH has created a National e-health Steering Committee and the National e-health Technical Committee in 2010.

The committee is expected to have developed a set of national e-health based documents: National e-health Policy, National e-health Standards and Guidelines and National e-health Strategy. These documents are said to be in its final stages of official endorsement.

Guidelines for e-health in Sri Lanka is expected to be included in the e-health policy documents. The policy is expected to focus on improving the quality, efficiency, patient safety and cost effectiveness of healthcare.

The policy also expects to adopt an Uniform Health Identification Number (HIN) across the healthcare services industry to identify patients.

Human resource requirements

The policy is also expected to meet human resource needs for e-health through the implementation of biomedical informatics courses together with a NOMA grant by NORAD and the Norwegian Centre for International Corporation.

Additionally an electronic health record system for children in 5,000 schools is expected to be implemented by 2015.

Therefore the MoH has signed a memorandum of understanding with Intel to deploy the proposed platform.

Furthermore the GoSL has made commitment to the United Nations stating it will meet education, training and assessment needs of 100,000 members of the work force using a royalty-free open source based technology platform by 2015.

5000

schools are expected to adopt an electronic health record system by 2015

The government via the Mahinda Chintanaya has proposed the development of e-health, telemedicine and mobile healthcare services in Sri Lanka

E-health initiatives

The Mahinda Chintanaya has proposed 3 initiatives to improve e-health services in Sri Lanka.

The GoSL expects to shift the healthcare system from the medical centre concept to a virtual community, where access to physicians and community health centres is provided through the internet and two way multimedia connections.

Furthermore, physicians and technicians are expected to be able to execute repetitive tests and physicals at the patients home or office via linked electro-cardiographers (EKGs, EEGs) and portable tele-health units, which will include diagnosis via helmets or hats, and gloves with tactile ability.

Expert systems and artificial intelligence is expected to be adopted by care givers with best practice options to the delivery of care.

Electronic health records

The government plans to establish electronic health records that are easily accessible and linked to other records such as NIC records at national, provincial and divisional levels.

The government under the Health Master Plan has allocated close to LKR 1 bn (USD 7.63 mn) for strengthening the health information system for better management of health services with modern e-Health solutions.

It is noted that the bulk of the above allocation were directed to establishing a resource centre under the health information unit and for strengthening medical record rooms in divisional and base hospitals.

Improving mobile healthcare service

Mobile health clinics are expected to be conducted with the involvement of well-trained physicians, nurses, dentists etc. and with the support of volunteers.

The GoSL under the Health Master Plan expects to deploy mobile x-ray machines, mobile clinics for malaria, cancer prevention, NCD and chronic kidney disease units and mobile care for cancer patients between year 2013-2017.

The GoSL expects to shift the healthcare system from the medical centre concept to one of a virtual community

Government expects to establish electronic health records that are easily accessible and linked to other records such as NIC records at national, provincial and divisional levels

Mobile health clinics are expected to be conducted with the involvement of well-trained physicians, nurses, dentists etc. and with the support of volunteers

Key stakeholders

Health Informatics Society of Sri Lanka (HISL)

HISL is the professional association in the field of e-health in Sri Lanka. The association is involved in the promotion, the use of ICT for teaching, learning, R&D and delivery of health while improving the literacy of ICT & development of healthcare professionals in Sri Lanka.

The association is also involved in collaborations with national, regional and international medical, informatics and professional associations.

HISL is the professional association in the field of e-Health in Sri Lanka

National Foundation for Open Source Heath Software of Sri Lanka (NFOSHS-SL)

A foundation in collaboration with the MoH and Information and Communication Technology Agency of Sri Lanka (ICTA) aims to promote and facilitate free and open source software in healthcare solutions for adoption by the MoH in Sri Lanka.

The foundation also assists the steering committee and provides technical support for e-health initiatives directed through the steering committee.

The NFOSHS-SL together with MoH and provincial health departments have already commenced projects using WHO standards.

MoH and ICTA aims to promote and facilitate free and open source software in healthcare solutions for adoption of the MoH in Sri Lanka

Section 5

Healthcare education and medical research

Overall expenditure on tertiary education by the state was low compared to expenditure on primary education, however, bulk of the capital expenditure incurred was for university education

Tertiary education in Sri Lanka

Due to the free education policy, Sri Lanka has the highest recorded literacy rate (92%) in South Asia. Sri Lanka's literacy rate was also comparatively higher than the global average of 84.1%.

GoSL spends approximately 9.06% of total expenditure on education, of which capital investment expenditure accounted for approximately 32.76%. However, it is noted that the bulk of state spending is on primary and secondary education.

Consequently, bulk of the government capital expenditure incurred was for tertiary education.

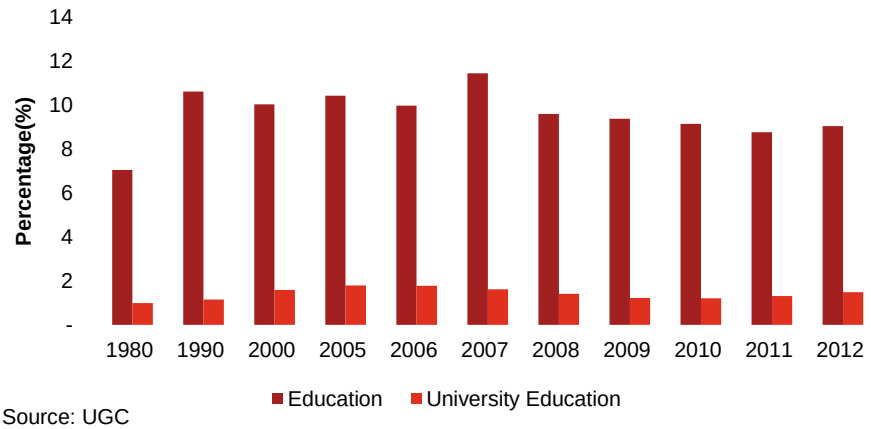
92%

Sri Lanka's literacy rate of 92% is the highest recorded in south Asia.

2%<

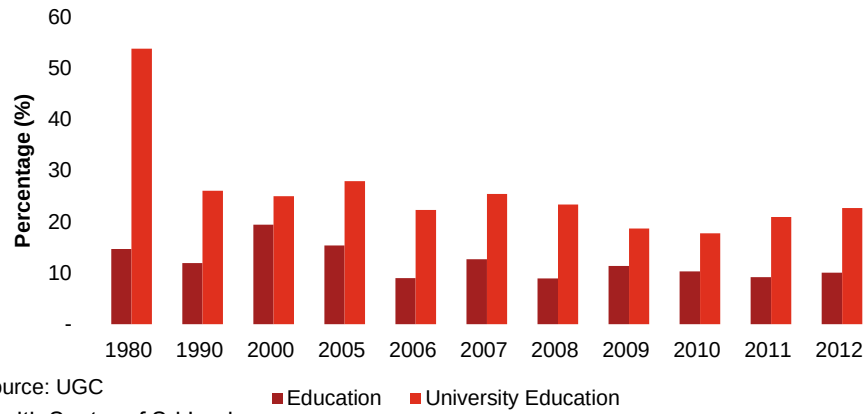
Was spent on tertiary education from the total expenditure of 9.06%

Share of Government expenditure on education



Source: UGC

Share of Government capital expenditure on education



Source: UGC

Bulk of university education is catered to by UGC affiliated universities, and medical programs carried out by these 9 institutions currently over subscribed

Supply of tertiary education

It is noted that majority of university education is catered to by UGC affiliated universities.

Currently, out of the 17 UGC affiliated Universities, only 8 universities provide medical education, paramedical and indigenous medical education namely:

1. University of Colombo
2. University of Peradeniya
3. University Sri Jayawardenapura
4. University of Kelaniya
5. Jaffna University
6. Ruhuna University
7. Eastern University
8. Rajarata University

Additionally, there is a UGC approved private medical college conferring degrees from Nizhny Novgorod State Medical Academy in the Russian Federation.

However, there are also private institutions affiliated with international universities offering foundation modules with the opportunity to complete medical training abroad.

As of 2012 there were currently 8,739 students enrolled in undergraduate programs in Sri Lanka for medicine, paramedical studies and indigenous medicine.

Studies related to medicine recorded the highest number of undergraduates admitted, enrolled or graduated followed by paramedical studies and indigenous medicine.

In terms of postgraduate qualifications, as of 2012 there were a total of 2,229 postgraduate students enrolled.

Post graduate programs related to medicine also recorded the highest number of students enrolled and graduated.

It is noted that, despite the 9 institutions offering medical education, the programs are currently over-subscribed with only 35% of applicants winning places for most medical programs.

>65%

of students who are eligible to enter university are unable to follow medical programs due to a scarcity of places within the university system in Sri Lanka

Although, the pool of human resources for healthcare in Sri Lanka has increased over the last decade, the skill mix remains imbalanced with a lack of specialists.

	Postgraduate student enrolment			Postgraduate student output		
Program	Medicine	Indigenous Medicine	Total enrolment	Medicine	Indigenous Medicine	Total enrolment
PG diploma	311	13	324	152	12	164
Masters	199	48	247	68	-	68
Mphil	52	-	52	4	-	4
Phd	1,588	20	1,606	229	-	229
Total	2,148	81	2,229	453	12	465

Source: UGC

Sri Lanka spends 5.7% of total national expenditure on research and development for healthcare

Domestic medical research has had little prominence over the last decade in Sri Lanka.

Research conducted in Sri Lanka has generally been through private enterprises or collaboration with foreign universities and other entities.

The majority of research conducted in Sri Lanka were in collaboration with foreign universities. According to the National Science Foundation, of 86 journals published in year 2010, 72% were with foreign co-authorship.

According to the National Science Foundation total national R&D expenditure was LKR 8,778 mn (USD 67 mn) in year 2010 of which 5.7% was related to medical sciences.

It is noted that 3.87% of the research carried out by business enterprises (comprises of 40% of total national R&D expenditure) were on medical and healthcare electronics.

Of the 5,162 R&D scientists in Sri Lanka 844 were related to medical sciences.

5.7%

of the total national R&D expenditure (USD 67 mn) in year 2010 was related to medical sciences

Local University	Foreign collaboration	Area of Research
Colombo University	Latrobe University Australia	Academic staff and student exchange; the development of double –degree proposals agreed by parties; development of capacity building projects in academic areas and providing for staff development programs at LTU; productive collaboration in fields such as Health Science
	University of OSLO, Norway	Human Genome project
	University of Nottingham and University of Adelaide	Genetics of Pre-eclampsia and Genetics of Recurrent Pregnancy Loss Projec
	University of OSLO	Genetics of Leshamania
	University of Chicago, USA	Regenerative medicine project
	University of OSLO, Norway	Bioinformatics Research
	University of Geneva Switzerland	Clinical ethics project
	University of Edinbaorug, UK and Tuffs University USA	Bio Medical health experimentation
Peradeniya University	Hokkaido University Japan	Veterinary medicine
	Osaka Prefecture University Japan	Veterniary medicine
Sri Jayawardenepura	Oxford University, UK	Dengue research
	Nationla University Singapore	Dengue research
	University of Illinois	Dengue research
	George Washington University, School of Medicine and Health Sciences (USA); University College London (UK); Centre for DNA Fingerprinting and Diagnostics (India); National Institute of Mental Health and Neurosciences (India) and Imperial College London (UK).	Genetics and brain tissue research
Ruhuna University	Aichi Medical University, Japan	Filariasis Research

Source: PwC Analysis

The GoSL has allocated funds and taken several initiatives to improve medical research in Sri Lanka

According to the Mahinda Chintanaya, GoSL expects to promote universities and research institutions to improve the quality and quantity of research, promote innovation, increase the acquisition and diffusion of technology and expand the economic and commercial potential of intellectual capital.

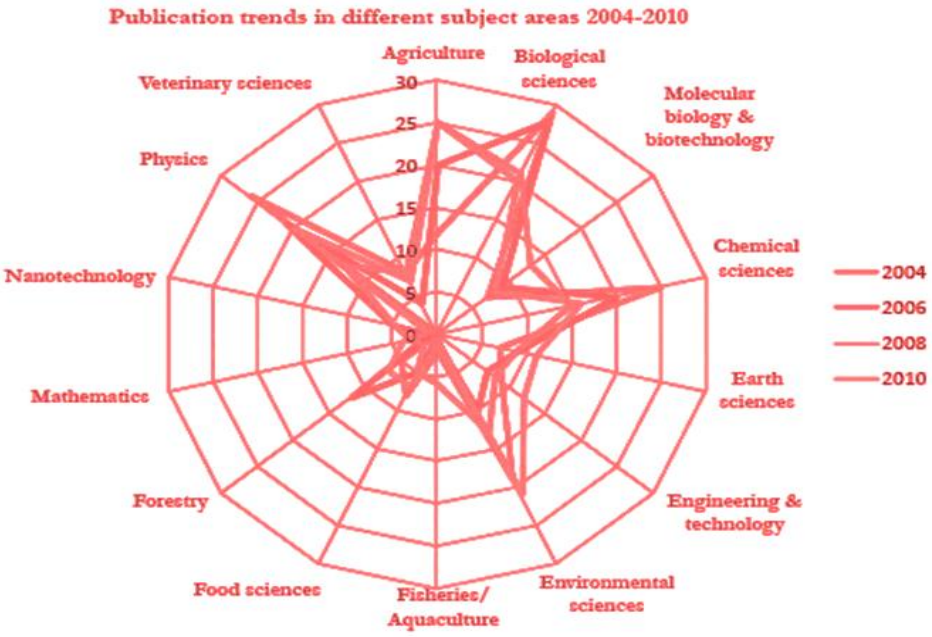
Additionally the National Health Development Plan (NHDP) expects to allocate approximately LKR 430 mn(USD 3.28 mn) for improvement in research and development in healthcare.

Allocations were largely directed to the Medical Research Institute where approx. LKR 100 mn (USD 0.76 mn) will be directed for improvement in research and collaboration with international universities.

Publication of medical journals in Sri Lanka have maintained continued growth indicating an increased prominence for medical research in Sri Lanka.

USD 0.76 mn

will be directed by the GoSL for the improvement in research and collaboration with international universities, and bulk of the expenditure was directed to the medical research institute



Source: NSF

Medical Research Institute, National Science Foundation and IHP are key stakeholders involved in carrying out research and development for healthcare in Sri Lanka

Medical Research Institute of Sri Lanka (MRI)

The Medical Research Institute (MRI) is the premier centre in the country for bio-medical and applied health research.

MRI conducts research in diversified areas in the fields of virology, bacteriology, parasitology, rabies, nutrition, biochemistry, histo-pathology, haematology, immunology, entomology, molecular biology, pharmacology, mycology and animal studies.

Since its inception the MRI has conducted more than 400 research projects in relation to medical sciences.

National Science Foundation (NSF)

The National Science Foundation of Sri Lanka was established in 1998 as the successor to the Natural Resources Energy & Science Authority of Sri Lanka established in 1981 and the National Science Council set up in 1968. The foundation currently conducts research in disciplines such as molecular biology, biotechnology, biological sciences and chemical sciences.

Institute of Health Policy (IHP)

The Institute for Health Policy is an independent research institution, and a regional centre for excellence for health policy research.

The IHP works in partnerships with sponsors to improve health and social systems in Sri Lanka and the wider region, by supporting, encouraging and informing policy changes through quality research, analysis and training.

MRI conducts research in diversified areas in the fields of virology, bacteriology, parasitology, rabies, nutrition, biochemistry, histo-pathology, hematology, immunology, entomology, molecular biology, pharmacology, mycology and animal studies.

NSF conducts research in areas such as molecular biology, biotechnology, biological sciences and chemical sciences.

Appendix 1

Country summary

Sri Lanka is a growing economic and social hub situated on the main trade routes between Asia and the Middle East

- Sri Lanka is an island nation situated at the crossroads of major shipping routes connecting South Asia, Far East and the Pacific with Europe and the Americas. The location of the country is of strategic importance, as a part of the fast growing Indian sub-continent with the Colombo port ranked no. 32 amongst the Top 50 Container Ports in the world.
- The government of Sri Lanka (GoSL) has planned to transform Sri Lanka into a dynamic global economic centre by developing six strategic hubs; a knowledge hub, a commercial hub, a naval & maritime hub, an aviation hub, a tourism hub and an energy hub.

Key country facts

Name	Democratic Socialist Republic of Sri Lanka
Location	880 km north of the equator, off the South-East coast of India
Total area	65,610 sq. km (width – 226 km, length – 433 km)
Administrative capital	Sri Jayawardenapura Kotte
Commercial capital	Colombo
Population	20.3 mn (48.5% - male, 51.5% - female)
Time zone	GMT + 5.30
Ethnic groups	Sinhalese (74.9%), Tamil (15.4%), Muslim (9.2%), Other (0.5%)
Religions	Buddhist (70.2%), Hindu (12.6%), Islam (9.7%), Christian (7.4%), Other (0.1%)
Languages	Sinhala, Tamil, English
Currency	Sri Lankan rupee (LKR)

Sri Lanka economy at a glance

Liberal investment policies, attractive tax concessions and investment incentives

Universal healthcare and one of the best healthcare systems in the region (76 of 190 countries – WHO)

One of the highest HDIs (.715) in the region

Forecast GDP growth of over 7% for 2014.
Current GDP per capita of 3,282 (2012) is expected to reach USD 8,397 in 2022.

Leading institutions such as Bloomberg ranked Sri Lanka as one of the fastest growing economies and City Group identifying Sri Lanka as one of the 3G economies (Global, Growth, Generators).

Relaxation of strict foreign exchange control and reforms of the BOI is set to further reduce red tape

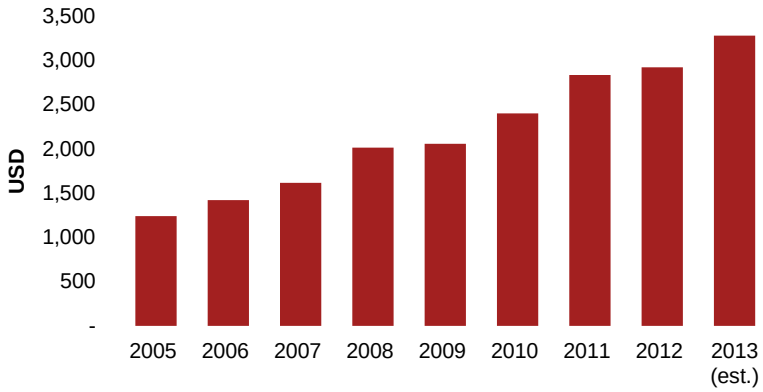
Ranked 85th out of 183 countries in the ease of doing business rankings by World Bank

Infrastructure projects worth USD3.6 bn have been budgeted by the Government for year 2013.

With the end of the civil war, Sri Lanka has experienced rapid economic growth driven by the expansion of infrastructure, domestic demand and improved investor confidence

- Sri Lanka has witnessed a steady upswing in economic growth due to greater focus in rebuilding and developing the domestic economy with the end of the civil conflict.
- Average GDP growth between 2006 and 2013 was 6.7% with 7.5% GDP growth recorded in the past 4 years. According to the Economic Intelligence Unit, real GDP growth in 2013 is expected to be c.7% with a growth of 6.9% targeted for 2014.
- The stable economic performance of the country was also supported by growing expansion of infrastructure, improved investor confidence and domestic consumption

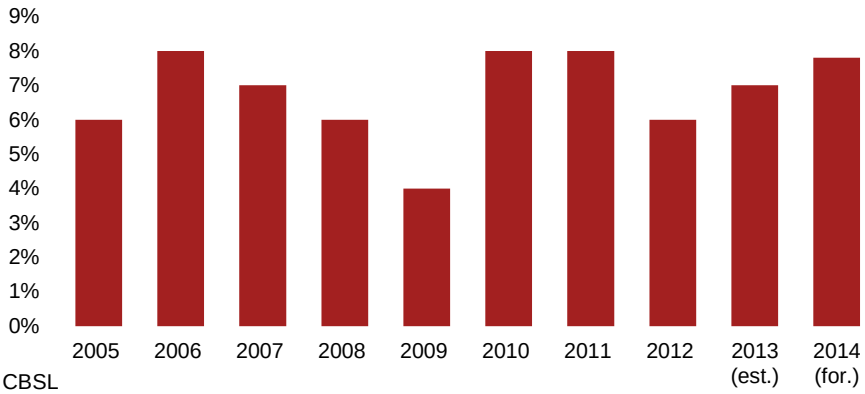
GDP per capita (USD)



Source: CBSL

- As the economy stabilizes following the end of the civil conflict, long term growth for Sri Lanka is expected to be bullish, driven by high levels of capital inflows, the possibility of developing its trans shipment hub and a shift in labour from agriculture to higher value industries within the manufacturing and service sectors affording an increase in purchasing power.
- Inflation has also continued on a moderate path with inflation declining in 2013 due to supply improvements and prudent monetary management. Y-o-Y CPI inflation as at end 2013 was estimated to be 6.9% and expected to decline to 5.1% in 2014.
- The country's GDP per capita of USD 3,282 in 2013 is expected to reach USD 8,397 by 2022 (Business Monitor International) indicating an improvement in living standards in the future.

GDP growth (in real terms) %



Source: CBSL

Sri Lanka's social indicators remain superior to other regional countries. However changes in demographic trends are likely to have an impact on more segments of the economy

Social indicators: regional countries

	Sri Lanka	India	Banglade	Nepal	Pakistan	Bhutan	Maldives
Human development index	0.715	0.554	0.515	0.463	0.515	0.538	0.688
Population below poverty line %	15	28	40	31	22	23	n/a
Unemployment rate %	4.2%	2.5%	4.5%	2.7%	5.9%	3.1%	11.7%
Expectation of life at birth, years	75	66	69	69	66	68	77

- As the economy grows, unemployment and poverty indicators have also improved. Employment generation continued to increase with expanding economic activities and unemployment falling to 4.5% of labour force (H1 – 2013)
- Sri Lanka was also ranked 92nd in the world in the Human Development Index – the highest ranked country the South Asian region – advancing to the high human development category from the medium human development category.
- Thus, the country is on target to meet most of the Millennium Development Goals with the UNDP identifying Sri Lanka as an early achiever on 10 of the 21 indicators.
-

Demographic trends

- The 2011 Census of Population and Housing indicated a 0.7% decline in the annual growth rate of the population between 2001 and 2012. This is primarily attributed to a declining birth rate, low death rate and increasing outward migration.
- The population under 15 years has decreased from 35.2% in 1981 to 25.8% in 2011. Conversely, the population above 60 years has almost doubled by 2011 to 12.2%
- Thus, the dependency ratio has declined, with c.1.6 working persons for 1 dependant person. The WHO estimates that by 2020, more than 30% of the population will be over 60 with c. 61 dependents per 100 adults.
- The country's demographic transition will have a significant impact on key aspects of the economy including education, health and social security amongst others.

Fast growing rural urban migration is evident within the country, making sustainable urban development linking sectorial and regional development a necessity

Urbanisation and township

- Based on the 2011 Census, only 15.1% of the population live in urban areas with the urban landscape primarily consisting of small urban settlements along the coast. Business Monitor International (BMI) estimates 30% of the population to be living in urban areas by 2050.
- Albeit the smallest district in terms of size, the Colombo district remains the most populous and most urbanized. Colombo is the centre of the economic activity and as such, has attracted a large proportion of internal migration.
- Sri Lanka's Urban Vision is to develop a countrywide system of competitive and well-linked cities in five metro regions (Colombo, North-Central, Southern, Eastern, and Northern) and nine metro cities (Ampara, Anuradhapura, Batticaloa, Colombo, Dambulla, Hambantota, Jaffna, Polonnaruwa, and Trincomalee).
- GoSL initiatives, particularly in relation to infrastructure development and the Colombo development plan, has done much to encourage further urbanisation of the city.
- The Colombo City development conceptual framework includes construction of housing, waterfront development and flood mitigation, improvement of basic urban infrastructure and city beautification. Other cities have also been earmarked for urban development to ensure balance to regional development throughout the island.
- Improving connectivity across the island is of paramount importance with the construction of several expressways, rehabilitation of the Northern railway and the opening of a second international airport. Thus, several secondary cities are emerging as a new urban centres e.g.. Hambantota.

GoSL has articulated a 5-hub concept (now 5+1 concept) to drive economic growth through the development strategically important economic zones: aviation, commerce, shipping, energy and tourism

Naval hub
•Colombo port – a container mega hub
•Develop Hambantota port as a service and industrial port
•Trincomalee – bulk cargo and port related industrial activates
•Commercial harbour and fishing in Oluvil
•Regional ports in Kankasanthurai and Point Pedro

Aviation hub
•Major development of Bandaranaike International Airport (BIA)
•Second international airport in Mattala
•Development and upgrading of domestic airports

Commercial hub
•Establish Sri Lanka as economic centre for commercial services
•Redefined Colombo city and port city in Galle Face
•Development of Hambantota as an economic centre
•Jaffna revival – Atchcuvely Industrial Zone, rebuilding of Northern Railway line and bridge between the South and Jaffna peninsula

Energy hub
•3 stage oil exploration project off the Southern Coast
•Sri Lanka's biggest wind power project in Uppudalawa
•Develop renewable energy sources

Tourism hub
•Tourism earning to increase to USD 3.1 bn and tourist arrivals to increase by 2.5 mn by 2016
•Several up coming hotel projects in Colombo and the south coast
•Sustainable tourism development the key focus
•Restoration of old colonial buildings for commercial purposes

Knowledge hub
•75% ICT literacy by 2016 and IT sector as a key export earner
• Plans for international universities to set up in Sri Lanka
•Designated knowledge cities (Gampaha, Jaffna etc.)
•Provision of necessary infrastructure and cutting edge technology

Increasing inward foreign direct investment flows (FDI) signal growing investor confidence in the country

- Sri Lanka has an open market economy and was the first country in South Asia to liberalize its economy. Although economic growth has been uneven due to domestic and global challenges, unburdened by the end of a civil war, Sri Lanka is expected to realize its economic potential over the coming years. Government policy is largely supportive of foreign investment, employing investment policies conducive for foreign investment.
- The post war boom and the subsequent opening up of the economy has led to increased investor confidence and improvements in Sri Lanka's business rankings on global stage. According to the Doing Business 2014 report published by the World Bank and the IFC, Sri Lanka was ranked at no.85 of 189 countries in terms of ease of doing business. It is also ranked no.90 in the World Economic Freedom Index, higher than its regional comparators while the country's credit rankings also remain higher than India and Pakistan.

Supportive investment policies

Investors are accorded investment incentives including:

- tax holidays,
- constitutional guarantees on investment,
- exemptions from exchange control and custom duty
- 100% repatriation of profits
- total foreign ownership provided on almost all economic segments
- bilateral investment protection agreements with 28 countries
- double taxation avoidance agreements with 38 countries.
- In 2013, Sri Lanka FDI surpassed US$ 1 bn for the third consecutive year recording FDI's worth USD 1.5bn. The first three quarters of 2013 saw FDI of USD 870 mn via 55 projects across the country. The majority of investments were received for the manufacturing sector with China ranking as the biggest investor in the country.
- As such, the country's Investment Promotions ministry is targeting USD 2.5 bn in 2014.

Sri Lanka's 2014 budget highlights Government commitment to developing the healthcare sector as part of accelerating economic growth

- Sri Lanka's 2014 budget which was passed in December 2013 indicated the Government objectives of accelerating economic development in order to be able to address the emerging aspirations and goals particularly of the low and middle income groups with better health and education, better standards in housing and healthy living, and focus on agriculture for food security.
- Through the budget, the Government proposes to promote Sri Lanka as a Regional Medical Hub as well as a Professional Services Hub with major budgetary allocations aimed at achieving the Medical Hub status and fiscal concessions and other initiatives directed at promoting the Professional Services Hub.
- As such, the budget offers several proposals to promote the health sector.

Budget proposals 2014 - Healthcare sector

- Radioiodine treatment and radiotherapy units to be set up at Jaffna, Kandy, Kurunegala, Badulla, Anuradhapura and Galle hospitals to reduce three-and a-half year waiting list to less than six months of the Maharagama Cancer Hospital;
- National Stroke Centre to be setup to manage stroke related Medicare;
- LKR 2 bn (USD 15 mn) allocated for development of cost effective infrastructure to deal with NCDs
- Two national children's hospitals to be developed as centres of excellence at a cost of LKR 1 bn (USD 8mn);
- Kidney ailments, malnutrition and similar contemporary challenges in the society to be given priority in increasing numbers of medical professionals;
- LKR 2.5 bn (USD 19mn) earmarked for development of a state-of-the-art Post Graduate Institute of Medicine over next three years and connecting neighbouring teaching hospitals;

Appendix 2

Contact information of key stakeholders

Key stakeholders (1 of 9)

Body/ Institution/ Company	Contact Details
Ministry of Health	MINISTRY OF HEALTH "SUWASIRIPAYA" No. 385, Rev. Baddegama Wimalawansa Thero Mawatha, Colombo 10. Telephone: 011 2694033, 2675011, 2675449, 2693493, Email: postmaster@health.gov.lk Website: www.health.gov.lk
The Sri Lanka Medical Council	SLMC Office, 31, Norris Canal Road , Colombo 10. Tel:- 2691848 Fax :- 2674787 E-mail: slmc@lankabellnet.com Website: www.srilankamedicalcouncil.org/contactus.php
Universities Grants Commission	UGC, Ward Place, Colombo 07, Tel:- 011 2 695301 Email:- icd@ugc.ac.lk Website: www.ugc.ac.lk

Key stakeholders (2 of 9)

Body/ Institution/ Company	Contact Details
Private Health Regulatory Service Commission	No 2A, CBM House, 4th Floor, Lake Drive, Colombo 08, Sri Lanka. Tel: +94112672911, +94112672912,+94113083360 Fax : +94112672913 Website: www..phsrc.lk
Nawaloka Hospital PLC	23, Deshamanya H. K Dharmadasa Mawatha, Colombo 2, Sri Lanka. Tel: +94 (0) 11 2544444-7, +94 (0) 11 2304444-56 Fax +94 (0) 11 2430393 Email: nawaloka@slt.lk Website: www.nawaloka.com
Lanka Hospitals PLC	578, Elvitigala Mawatha, Narahenpita, Colombo, 00500 Tel: 011 5 430000 Fax: +94 (011) 451 1199 Email: info@lankahospitals.com Website: www.lankahospital.com

Key stakeholders (3 of 9)

Body/ Institution/ Company	Contact Details
Durdans Hospital PLC	Durdans Hospital 3 Alfred Place , Colombo 3, Sri Lanka Tel:+94 (0)11 5410 000 Fax: +94 (0)11 2575302 Email: contactus@durdans.com Website:-www.durdans.com
Asiri Hospital Holdings PLC	Asiri Hospital Holdings PLC No.181, Kirula Road, Colombo 05, Sri Lanka. Tel: +94 11 452 3300 / +94 11 250 0608 email:- info@asiri.lk Website:- www.asirihospitals.com
Post Graduate Institute of Medicine	PGIM, University of Colombo, 160, Norris Canal Road Colombo 07, Sri Lanka. Email:- info@ucsc.cmb.ac.lk. Telephones General Office – (9411) 2581245 Website:- www.cmb.ac.lk
Ceymed Healthcare Services (Pvt) Ltd	Ceymed Healthcare Services (Pvt) Ltd No. 132, S.De.S. Jayasinghe Mawatha, Nugegoda. Tel: +94-11-4308877 Fax: +94-11-4400414 E-mail: ceymed@sltnet.lk Website: www.ceymed.lk

Key stakeholders (4 of 9)

Body/ Institution/ Company	Contact Details
Sri Lanka Association of Testing Laboratories	Sri Lanka Association of Testing Laboratories Vidya Mandiraya 120/10,Wijerama Mawatha Colombo 7 SRI LANKA Email:- info@slatl.com Website:- www.slatl.com
Sri Lanka Accreditation Board	Sri Lanka Accreditation Board No. 546/4, Galle Road Colombo 03 Telephone: (+94) 011 2372638 (General) (+94) 011 2372639 (General) Email:slabmail@slab.lk Fax: (+94) 011 2372629 Website: www.slab.lk
Department of Indigenous Medicine-University of Colombo	Institute of Indigenous Medicine-University of Colombo, Rajagiriya. Telephone No: General: 0094 112 692 385 Website: www.iim.cmb.ac.lk

Key stakeholders (5 of 9)

Body/ Institution/ Company	Contact Details
Ministry of Indigenous Medicine	Department of Ayurveda, Nawinna, Maharagama, Sri Lanka Tel: +94 11 2896911 / +94 11 2896912 email :- departmentofayurveda@gmail.com Website: www.ayurveda.gov.lk
Ayurvedic Hospital Colombo	No. 325, Dr. N.M.Perera Mawatha, Colombo 8 (Borella), Sri Lanka. Tel : +94-11-269-5855/ +94-11-269-5856 www.list.lk/ayurvedic-hospital.htmb
Ayurvedic Hospital Jaffna	Ayurveda Department-National Institute of Traditional Medicine, Ayurvedic Hospital Kaithadi , Jaffna Tel:- +94-60-2213463
Sidhalepa Private Medical Hospital	Siddhalepa Ayurveda Hospital Mt. Lavinia, Sri Lanka Tel : +94-11-2738622/3 Fax : +94-11-2735465 Website: siddhalepa.com
Cosmetics Devices and Drugs Authority	120, Norris Canal Road, Colombo 10, Sri Lanka. Phone : +94 11 2698896/7 Fax : +94 11 2689704 Email : cdda@health.gov.lk Website: www.cdda.gov.lk

Key stakeholders (6 of 9)

Body/ Institution/ Company	Contact Details
Medical supplies division	A division under the CDDA Please refer to the CDDA for contact details
State Pharmaceutical Corporation	State Pharmaceuticals Corporation of Sri Lanka (Head Office), No.75, Sir Baron Jayathilake Mawatha, Colombo 01, Sri Lanka. Telephone :+94 (0)11 2320356-9 Fax :+94 (0)11 2447118 Website :www.spc.lk E-mail :chairman@spc.lk / spcmd@spc.lk
National Drug Quality Assurance Laboratory	Address: Norris Canal Rd, Colombo Phone:: +9411687744
Sri Lankan State Pharmaceutical Manufacturing Corporation	SPMC, 11, Sir John Kotelawala Mawatha, Kandawala Estate, Ratmalana, Sri Lanka. Telephones: +94 11 2635353, 2637574 Fax: +94 11 2634771/ 2626621 E-mail: info@spmclanka.com /chairmanspmc@sltnet.lk Website: www.spmclanka.com

Key stakeholders (7 of 9)

Body/ Institution/ Company	Contact Details
GlaxoSmithKline Pharmaceuticals Ltd (GSK)	GlaxoSmithKline Pharmaceuticals Ltd 121 Galle Road, Kaldemulla Moratuwa, Sri Lanka Tel: +94 11 2636341 / 2 Fax: +94 11 2635000 Website: www.gsk.com/worldwide/sri-lanka.html
Swiss Biogenics Ltd	27-5/1, York Arcade Building, York Arcade Road, Colombo-01, Sri Lanka. Tel:- +94114702500 Email: Marketing@sbl.lk Website: www.swissbiogenics.com/
Hemas Pharmaceuticals	Hemas Pharmaceuticals (Pvt) Ltd Hemas Surgicals & Diagnostics (Pvt) Ltd 439, Galle Road, Colombo 3, Sri Lanka. Phone (General):+94 11 4766666 E-mail : info_hemas.pharma@hemas.com Web : www.hemashealthcare.com
Akbar Pharmaceutical Pvt Ltd	Akbar Pharmaceuticals Pvt Ltd # 334, T. B Jayah Mawatha; Colombo; Western Province; 01000 Tel: (00 94 11) 269 7151 Website: www.akbar.lk

Key stakeholders (8 of 9)

Body/ Institution/ Company	Contact Details
Harcourts Pvt Ltd	"Harcourts Plaza" 14,Station Road, Dehiwala, Sri Lanka Tel:+94 11 2740500, Fax:+94 11 5432190, 5432111 Website: www.harcourts.lk
A Baur and Co	A. Baur & Co. (Pvt.) Ltd P.O. Box 115, Upper Chatham Street Colombo 1, Sri Lanka Telephone :+94-11-4728718 / +94-11-4728729 Email: healthcare@baurs.com /pharma@baurs.com Website: www.baurs.com
Sri Lanka Chamber of the Pharmaceutical Industry (SLCPI)	Sri Lanka Chamber of the Pharmaceutical Industry No. 50, Nawam Mawatha, Colombo 2, Sri Lanka Tel : 94 11 5588800 (Ext: 317) Fax No. 94 11 2449352. 2437477 Email :slcpi@chamber.lk Website : www.slcpi.org
Health Informatics Society of Sri Lanka	A division under the PGIM. Please refer PGIM address details. Phone: +94 (0)112 689268, Fax: +94 (0)112 689268, Email:info@hissl.org website.: www.hisl.info

Key stakeholders (9 of 9)

Body/ Institution/ Company	Contact Details
Sri Lanka Institute of Medical Research	P.O. Box 527 Colombo 08 Sri Lanka Tel:0094 2 693532-34 Fax:0094 2 691495 Email: director@mri.gov.lk Website: www.MRI.gov.lk
Institute of Health Policy	Institute for Health Policy 72 Park Street Colombo 2 Sri Lanka +94 (11) 231-4041 Email: info@ihp.lk Website: www.ihp.lk
National Science Foundation	47/5 Maitland Place, Colombo 07 Sri Lanka info@nsf.ac.lk +94 011 2696771 +94 011 2694754 Website: www.nsf.ac.lk

Appendix 3

Local drug manufacturers

Local drug manufacturers (1 of 3)

Name	Contact information
Akbar Pharmaceuticals(Pvt) Ltd	No: 334, T B. Jayah Mawatha Colombo 10. Tel:- +94112697151 E mail:- akbar@akbar.com Website:- akbar.lk/health_care/index.php
Al Falah Trading Company	Jayabima Vldg, Kahagolla, Diyathalawa, Badulla Email: alfalah@sltnet.lk Tel: 0572225303
Astron Ltd	No: 688, Galle Rd, Ratmalana Tel:- +94112636741 Website:- www.astron.lk
Aucus Private Ltd	No: 81/1 Station Road, Kelaniya Tel:- +94112905575
Beam Chemicals (Pvt) Ltd	No: 1141, Kottawa, Pannipitiya Tel:- +94362233422 E mail:- info@beamchemicals.lk Website: www.beamchemicals.lk/index.php
Ceylinco Pharmaceuticals Ltd	No: 01, Spathodea Ave, Colombo 5 Tel:- +94011 2 485 757 / 011 2 485 758 / 011 2 485 759 (Ceylinco house)
Eastern Pharmaceuticals Ltd	Kirinda, Puhulewella Tel: +94412286796
Gamma Pharmaceuticals (Pvt) Ltd	No 476, Union Place, Colombo 02 Tel: +94112696427 Email: gamma@eureka.lk
Glaxo Wellcome (Ceylon) Ltd.	No: 121, Galle Road, Kaldemulla, Moratuwa Tel: +94112636341 Website: www.gsk.com/

Local drug manufacturers (2 of 3)

Name	Contact information
Hemas Health Care	439, Galle Road, Colombo 3 Tel: +94114766666 Email : info_hemas.pharma@hemas.com Website: www.hemashealthcare.com
Holychems Pvt Ltd	No: 530/17B Negombo Rd, Mabole, Wattala Tel: +94112948995
M.S.J. Industries (Ceylon) Pvt Ltd	No: 126, Aluth Mawatha Rd, Colombo 15 Tel: +94112434503 E mail: info@jlmorisons.com Website: www.jlmorisons.com/healthcare/pharmaceutical-manufacturing/
M.W.L.De Silva & Co	No. 30, Maitland Crescent, Colombo 07
N.S.K.Manufactures Ltd	No: 38/1, Seibel Ave Tel / Fax : +94112 458464 (Group head office) Email: nskgroup@yahoo.com
Panacea Medicals Ltd	No: 822 New Land Kithulawa Rd,Palatora, Kalutara. Tel: +94011 3 108212
Pharma Agencies Ltd	No: 40/B, Pagoda Road
Rine Pharmaceuticals	Ratmalana Tel: +94112624993
Royal Marketing & Distributors Ltd	No: 54/A Siddamilla, Piliyandala.

Local drug manufacturers (3 of 3)

Name	Contact information
Sanrin Pharma (Pvt) Ltd.	No:13A, Tissa Lane, Kalutara North Tel : +94343302747
Smithkline Beecham (Pvt) Ltd. (M)	World Trade Centre Level 34, West Tower, Colombo 01. Tel: +94112445182
State Pharmaceuticals Corporation	No 75, Sir Baron Jayathilake Mawatha Colombo 1 Tel: +9411 2320356-9 E mail: spcmd@spc.lk Website: www.spc.lk/index.html
State Pharmaceuticals Manufacturing Corporation	11 Sir John Kotelawela Mawatha, Kandawala estate Ratmalana <please refer above for State Pharmaceuticals Corporation>
Unical (Cey) Ltd.	Unical (Ceylon) Ltd Lady Catherine Estate Ratmalana, Sri Lanka. Tel: +94112635971 Website: www.unical.lk/pages/aboutunical1.htm
Vances Pharmaceuticals	No: 42/3/E, Gangarama Road, Werahera, Borleshamuwa
Vendol Lanka Co. (PVT.) Ltd	Vendol Lanka Pvt Ltd Colombo - Kandy Rd, Weweldeniya Tel: +9433 2 286804 Email: gherbals@sltnet.lk Website : vendol.lks

Appendix 4

Pharmaceutical sector market participants

Pharmaceutical market sector participants (1 of 3)

A & D Pharmaceuticals	Ceylinco Pharmaceuticals Ltd	Evo Pharma (Pvt) Ltd
ABC Pharmaceuticals	Ceyline Pharmaceuticals (Pvt) Ltd	Evolve Technologies (Pvt) Ltd
A.Baur & Co (Pvt) Ltd	Ceynergy Dynamic Holdings (Pvt) Ltd	Farnell Ceylon (Pvt) Ltd
A.J. Medichem International Ltd	Ceynola (Pvt) Ltd	Forte Pharmaceuticals (Pvt) Ltd
ABC Pharma Services	Chamee Chemist	Galancia (Pvt) Ltd
Access International (Pvt) Ltd	Chemical Industries Col. Ltd.	Gamma Pharmaceuticals (Pvt) Ltd
Act Enterpriese (Pvt) Ltd	Chemical Industries Colombo PLC	Gaula International (Pvt) Ltd
Akbar Pharmaceuticals	CIC Holdings PLC	George Steuart Health (Pvt) Ltd
Akmed Pharma Pvt Ltd	CIC Life sciences Ltd	Glaxo New Zealand Ltd
Alaris Lanka (Pvt) Ltd	Citihealth Imports (Pvt) Ltd	Glaxo Smithkline Beecham (Pvt) Ltd
Amedco (Pvt) Ltd	Commercial Syndicate Medical Ltd	Glaxo Welcome (Cey) Ltd
Andrews Pharmaceuticals	Curea Pharmaceuticals	Glenford Corporation (Pvt) Ltd
Apothecas Pvt Ltd	D P J Holdings (Pvt) Ltd	GMIC Healthcare (Pvt) Ltd
Astron Ltd	Darley Butler & Co Ltd	Gpristine (Pvt) Ltd
Atlantic Laboratories	Curea Pharmaceuticals	Harcourts (Pvt) Ltd
Aucus Private LTD	D P J Holdings (Pvt) Ltd	Harrison Pharma (Pvt) Ltd
AV Global Impex (Pvt) Ltd	Darley Butler & Co Ltd	Hayleys Consume Products Ltd
Avenier Pharma (Pvt) Ltd	Delmage Forsyth & Co Ltd	Health Care 3M Ltd.
Aventis Pharma Ltd	Delta Pharma Ltd	Hemas Pharmaceuticals Pvt Ltd
Axa Lanka Pharmaceuticals Pvt Ltd	Diligence Healthcare (Pvt) Ltd	Henry's Pharmaceuticals (Pvt) Ltd
B Braun Lanka (Pvt) Ltd	Diyata Pharmaceuticals & Healthcare Pvt Ltd	Hero Healthcare
Baur Life Sciences (Pvt) Ltd	Dowell International (Pvt) Ltd	Himan Group (Pvt) Ltd
Beam Chemicals (pvt) Ltd	E I & M (Pvt) Ltd	Holychems
Bio Tech Pharma Pvt Ltd	Eastern Pharmaceuticals	Indoscan (Pvt) Ltd
British Biogenics (Pvt) Ltd	Edna Medicals (Pvt) Ltd	Infinitas Healthcare (Pvt) Ltd
Burhani Enterprises	Emar Pharma (Pvt) Ltd	Inter Pharm (Pvt) Ltd
CCL Pharmaceuticals Lanka (Pvt) Ltd	EMEC International (Pvt) Ltd	J.L Morison Son & Jones (Cey) Ltd
CDDEF Manufactures & Merchants to Rekitt Benkiser	Emerchemie NB Ceylon Ltd	Jupiter Pharma (Pvt) Ltd
CeeGeez Assocaites	Emergen Life Sciences (Pvt) Ltd	Kalpentyn Syndications (Pvt) Ltd
CEY-MEG Pharma Pvt Ltd	Euro Asian Pharma (Pvt) Ltd	kamazu (Pvt) Ltd

Pharmaceutical market sector participants (2 of 3)

Kandana Food & Drugs (Pvt) Ltd	Mitter International (Pvt) Ltd	RS Life Science (Pvt) Ltd
Kay Pharma (Pvt) Ltd	N.S.K. Manufactures	SJ Enterprises V
Kish Pharma (Pvt) Ltd	Nawakrama (Pvt) Ltd	Salvevo Pharma (Pvt) Ltd
KK Pharma (Pvt) Ltd	Negolec Lifesciences (Pvt) Ltd	Sanofi India Ltd
Kintas (Pvt) Ltd	Neo Phamrma (Pvt) Ltd	Sanofi lanka Ltd
L.S. Group (Pvt) Ltd	Neon Antibiotics (Pvt) Ltd	Sanrin Pharma Pvt Ltd
Lanka Svin (Pvt) Ltd	Neon Pharmaceuticals	SAP Enterprise (Pvt) Ltd
Lanmed (Pvt) Ltd	New Arumed (Pvt) Ltd	Scientia Healthcare (Pvt) Ltd
Leader Pharma Agency (Pvt) Ltd	New Central Pharmacy	Sedate Pharmaceuticals (Pvt) Ltd
Lenstech Innovations (Pvt) Ltd	NML Holdin (Pvt) Ltd	Sethman International
Lewis Brown Pharmaceuticals (Pvt) Ltd	NNL Pharmaceuticals (Pvt) Ltd	Shield Medical (Pvt) Ltd
Lifeline Pharmaceuticals (Pvt) Ltd	NPA Hemis Pharmaceuticals Ltd	Shrooq Pharmaceutical (Pvt) Ltd
Lifeserv (Pvt) Ltd	Opella (Pvt) Ltd	Siba Healthcare (Pvt) Ltd
Lina Manufacturing (Pvt) Ltd	Orchid Healthcare	Shrooq Pharmaceutical (Pvt) Ltd
Lina Manufacturing (Pvt) Ltd For Akbar Pharmaceuticals (Pvt) Ltd	Orchid Pharma Ltd	Siba Healthcare (Pvt) Ltd
Lotus Pharmaceuticals (Pvt) Ltd	Orchid Pharmaceuticals Ltd	Simendra Pharmaceutical (Pvt) Ltd
MSJ Industires (Pvt) Ltd	P J Pharma Care (Ceylon) Ltd	Singhe Holdings (Pvt) Ltd
MWL De silva & co	P. Jayanetti & Sons (Pvt) Ltd	Simendra Pharmaceutical (Pvt) Ltd
Mackwoods Ltd	Pan Pharma International (Pvt) Ltd	Singhe Holdings (Pvt) Ltd
Makers Laboratories Ltd	Panacea Medicals	Slim Pharmaceuticals (Pvt) Ltd
Malachi Holdings (Pvt) Ltd	PC pahrma Ltd	SM Pharmaceutical (Pvt) Ltd
Malaysia Chemist	Pelican Pharma (Pvt) Ltd	Smithkline Beeham International
Mamro (Pvt) Ltd	Pettah Pharmacy Pharma Agencies Ltd	Simthkline Beecham (Pvt) Ltd
Mansel Ceylon (Pvt) Ltd	Pharma Agencies Ltd	SMM Halcyon
Marksons Pharma Ltd	Pharma Associates	Somerfield Pharmaceuticals (Pvt) Ltd
Markss HLC (Pvt) Ltd	Pharmacare Ltd	Sonali & sudesh
Medcon (Pvt) Ltd	PharmAce (Pvt) Ltd	Southern Pharmaceuticals Ltd
Medeireps (Pvt) Ltd	Pharma Research	SPMC
Medicare Pharma Lanka (Pvt) Ltd	Phamaserv	State Pharmaceutical corporation
Mediccon Pharmaceuticals Ltd	Population Services Lanka	Sterling Pharmaceutical (Pvt) Ltd
Medicon (Pvt) Ltd	Premier Healthcare Pvt aLtd	SURI trading Co. Ltd
Medeireps (Pvt) Ltd	Prince Marketing Service	Swedish Trading Co Ltd
Medicare Pharma Lanka (Pvt) Ltd	Prolifeccare (Pvt) Ltd	Swift Pharmaceuticals (Pvt) Ltd
Meddicon Pharmaceuticals Ltd	WVC Enterprise	Swiss Biogenics
Medicom (Pvt) Ltd	QVC Enterprise	Swiss Pharmaceuticals (Pvt) Ltd
Medicopharma NB Ceylon Ltd	R & D Intertrades (Pvt) Ltd	Swiss Biogenics Ltd
Medinex Pvt Ltd	Radiant Healthcare (Pvt) Ltd	Swiss Pharma (Pvt) Ltd
Medipool (Pvt) Ltd	Ravilax Co. Ltd	Synergos Life sciences (Pvt) Ltd
MedpHarm Asia (Pvt) Ltd	Reckitt Benckiser Lanka Ltd	Tablets India Ltd
Mega Lifesciences (Pvt) Ltd	Rine Pharmaceuticals	Tabrane Pharmaceutical (Pvt) Ltd
Mega Pharma (Pvt) Ltd	Robert Hall & Co. Ltd	Teastar Ceylon (Pvt) Ltd

Pharmaceutical market sector participants (3 of 3)

The Esses Pharmacy (Pvt) Ltd
The Family Planning Assication
Thirn Group (Pvt) Ltd
Thorn Pharmaceuticals (Pvt) Ltd
Trivopharma Services (Pvt) Ltd
Unical Cey Ltd
Union Lankan Imports (Pvt) Ltd
Unical Cey Ltd
Union Lanka Imports (Pvt) Ltd
vances Pharmaceuticals
YSP Lanka (Pvt) Ltd
Yaden International

Appendix 5

Medical device sector market participants

Medical device market sector participants (1 of 4)

3 M Lanka (pvt) Ltd	Biomedica (Pvt) Ltd	Darley Butler & Co Ltd
ABC Pharma Services (pvt)Ltd	Biomex (Pvt) Ltd	Daytona Ltd
A R S Healthcare (Pvt) Ltd	Bios Medical (Pvt) Ltd	Decron Medical Systems
A Y M Healthcare (Pvt) Ltd	Bioserve (Pvt) Ltd	Delmege Forsyth & Co Ltd
A. Baur & co (Pvt) Ltd	Bright babies (Pvt) Ltd	Denmed (Pvt) Ltd
A. Baur & co Ltd	Burhani Enterprises	Denme Medical (Pvt) Ltd
A. J. Medichem International (pvt) Ltd	Business Management Associates	Densu Ceramic Dental Laboratory
A. J. Medichem International Ltd	C & T Worldwide (Pvt) Ltd	Diagnomed International
Acess international (Pvt) Ltd	**C I C Holdings pLC**	Diligence Healthcare (Pvt) Ltd
Acess Medical (Pvt) Ltd	CMW Research Centre- Sri Lanka	Dimo Ltd
Akbar Pharmaceuticals (pvt) Ltd	C. A. B. Enterprises	Dowell Medico (Pvt) Ltd
Albert Edirisinghe Electronics Ltd	Cadmark (Pvt) Ltd	Dream Pharma (Pvt) Ltd
Alpha Medical & Dental Suppliers	Ceyoka (Pvt) Ltd	Durdans Hospital Ltd- Ceylon Hospital Ltd
Analytical Instruments (Pvt) Ltd	Chamee Chemist	Eden Pharmaceutical (Pvt) Ltd
Andrews Pharamceuticals	Chatham House Ltd	Emar Pharama (Pvt) Ltd
Ansell Lanka (pvt) Ltd	Chemical Industries Colombo Ltd	Emerchemie N B (Ceylon) Ktd
Apcot Marketing (pvt) Ltd	City Health (Pvt) Ltd	Emergen Life Science (Pvt) Ltd
Apollo Surgical Company Pvt Ltd	City Orthopedic Services	Emerging Ecologics Pharma (Pvt) Ltd
Aravinds Ltd	Cogent (Pvt) Ltd	Emso Ltd
Asia Vision International (pvt) Ltd	Colombo Medical Company	Espee Marketing
Astrons Ltd	Comfyo Health Care Product (Pvt) Ltd	Euro Asian Phama (Pvt) Ltd
Avon Pharmo Chem (Pvt) Ltd	Commercial Sydicate Medical (Pvt) Ltd	Euro Associate Lanaka (Pvt) Ltd
B. Braun Lanka (Pvt) Ltd	Cosmed International (Pvt) Ltd	Everseen Electro Medical
B. J. International (Pvt) Ltd	Cosmetic Dentistry (Pvt) Ltd	Excel Agency
Baby Carre (pvt) Ltd	Crossmark International (Pvt) Ltd	Eye-Equip
Bella Global (Pvt) Ltd	D & W Enterprises	F R Enterprise
Best Quality Brands (Pvt) Ltd	D P L Dental Supply (pvt) Ltd	Family Planning Association
Bewitch International	D S L Enterprises (Pvt) ltd	Farnell Ceylon (Pvt) Ltd
Bio Medics Enterprises	D. S. Jayasinghe Opticians (Pvt) Ltd	Fern Enterprises (Pvt) Ltd
Biomed International (Pvt) Ltd	Hexacath International Technologies (Pvt) Ltd	Flamingo Pharma (Pvt) Ltd
D. N. Medical Corporation (Pvt) Ltd	Highchem R Ceylon Company (Pvt) Ltd	Gamma Pharmaceuticals (Pvt) Ltd

Medical device market sector participants (2 of 4)

Gas World (Pvt) Ltd	Whiteline Industries Colombo (Pvt) Ltd	Laxaphana Batteries PLC
Gebs Med (Pvt) Ltd	Y F Enterprises	Lenstech Innovations (Pvt) Ltd
Geekay (Pvt) Ltd	I C L Marketing (Pvt) Ltd	Life Plus (Pvt) Ltd
Gene Diagnostics & General Medical (Pvt) Ltd	I M S Holding (Pvt) Ltd	Life Scientific (Pvt) Ltd
General Sales Co.-Ltd	I S D Associates (Pvt) Ltd	Lifecell Interventions (Pvt) Ltd
George Steurt Health (Pvt) Ltd	Iatro Skop (Pvt) Ltd	Lifeline Pharmaceuticals
Goston Lanka (Pvt) Ltd	Impressal International (Pvt) Ltd	Lifeserv (Pvt) Ltd
Getwell Medical	Indoscan(Pvt) Ltd	Lizzy B Canada (Pvt) Ltd
Gi Med	IniFinex Solutions (Pvt) Ltd	Lloyds Automart (Pvt) Ltd
Gift Enterprises	Innotech Medical (Pvt) Ltd	Lucky Opticals
Glaxo Welcome Ceylon Ltd	Integrated Bio- Medica and Technology (Pvt) Ltd	Lucre (Pvt) Ltd
Global Commodity Solutions (Pvt) Ltd	International Cosmetics (Pvt) Ltd	M E P Engineering and Trading Company (Pvt) Ltd
Global Healthcare	International Medical Equipment & Drugs	M. G. Medicals (Pvt) Ltd
Global Trade Link	J. B. Holdings	M T & Company
Global Vision Lankan	J L Morrison Holdings	M D Centimos
Globel Med	J. M. Wickramarachchi & CO	M.M. Medical
Globel Med (Pvt) Ltd	Jayasuriya Associates	Mackwoods Ltd
Gpristine (Pvt) Ltd	Jayawera & Co	Malachi Holdings (Pvt) Ltd
Great Lakes (Pvt) Ltd	Johnson & Johnson Ltd	Mancell Ceylon (Pvt) Ltd
H & M Medical Suppliers	Jordon Lanka (Pvt) Ltd	Markass H L C (Pvt) Ltd
H M Cholar (Pvt) Ltd	Kamazu (Pvt) Ltd	Med Pharm Asia (Pvt) Ltd
Harcourts (Pvt) Ltd	Kanmed (Pvt) Ltd	Med Solutions
Hayleys Consumer Products	Kapra Lanka	Medcon (Pvt) Ltd
Hayleys Life Sciences	Kayak Surgi Pharma (Pvt) Ltd	Medeireps (Pvt) Ltd
Health Care International (Pvt) Ltd	Kish Internaitonal	Medex Holdings (Pvt) Ltd
Health Line	Koila Holdings	Medi Dents
Heath line Associates	La Solve (Pvt) Ltd	Medi Smart Technologues (Pvt) Ltd
Heams Manufacturing (Pvt) Ltd	Lanka Agriventure (Pvt) Ltd	Medi Textile (Pvt) Ltd
Hemas Pharmaceuticals (Pvt) Ltd	Lanka I V T (Pvt) Ltd	Medicare Pharma Lanka (Pvt) Ltd
Hemas Surgical Diagnostic Products (Pvt)	Lanka Laboratories Ltd	Mediccon Healthcare (Pvt) Ltd
Hemson International (pte) Ltd	Lanmed (Pvt) Ltd	Medidiag (Pvt) Ltd

Medical device market sector participants (3 of 4)

Medilon Equipment (Pvt) Ltd	North Manufucturing (Pvt) LtdNova Biomedical Systems (Pvt) Ltd	Premier Enterprises
Medipool (Pvt) Ltd	Ogaki & Company	Premier Healthcare (Pvt) Ltd
Mediquipment Ltd	Ominro Medical (Pvt) Ltd	Premier Pharmaceuticals (Pvt) Ltd
Medisence International (Pvt) Ltd	Onitro Company (Pvt) Ltd	Premium International (Pvt) Ltd
Medisurg International	Opella (Pvt) Ltd	Prime Lanka Associate
Meditechnology Holdings (Pvt) Ltd	Optiquip Surgical	Pro Care Holdings (Pvt) Ltd
Medtek Devices (Pvt) Ltd	Oral Aural (Pvt) Ltd	Pro Health (Pvt) Ltd
Mediwizor Healthplus (Pvt) Ltd	Organon Medicare (Pvt) Ltd	R & D Intertrades PTE Ltd
Medrac (Pvt) Ltd	Oriental Optical Service Ltd	Radiant Healthcare (Pvt) Ltd
Mega Meditech (Pvt) Ltd	Oriental Optical Service (Pvt) Ltd	Radiant Pence
Menavid Pharmaceuticals	Orthocare Pvt Ltd	Real Care International
Mervynsons (Pvt) Ltd	Oska Pharmaceutical (Pvt) Ltd	Reckitt Benckiser (Lanka) Ltd
Metropolitian Engineering (Pvt) Ltd	Osvik Internaitonal (Pvt) Ltd	Remed (Pvt) Ltd
Micromed (Pvt) Ltd	Ovieen Marketing International (Pvt) Ltd	Renal Care (Pvt) Ltd
Mihikatha Trade	P & T Trading (Pvt) Ltd	Renal Pharma Services (Pvt) Ltd
Millers Ltd	P C L Solutions (Pvt) Ltd	Rovican International (Pvt) Ltd
Mitko Trading (Pvt) Ltd	P C Pharma (Pvt) Ltd	Rustic (Pvt) Ltd
Monarch Pharmaceuticals Lanka (Pvt) Ltd	P C Pharma PLC	S Q Marketing
Mircromed (Pvt) Ltd	P J Pharma Care (Ceylon) Ltd	S S Dento Pharma
Mihikatha Trade	P. Jayanetti & Sons (Pvt) Ltd	S S Importers and Trading
Millers Ltd	Pan Phama (Pvt) Ltd	S G L Traders
Mikito Trading (Pvt) Ltd	Pan Pharma International (Pvt) Ltd	S J Enterprises (Pvt) Ltd
Monarch Pharmaceuticals Lanka (Pvt) Ltd	Pham Ace (Pvt) Ltd	S J Enterprises Ltd
Montereo Enterprises	Pharama Agencies	Safa Organisation (Pvt) Ltd
Multimax International (Pvt) Ltd	Pharma Associates	Sahabandu Traders
Mully Light Traders	Phamatec (Pvt) Ltd	Samanala Trade Internationa (Pvt) Ltd
Natures Beauty Creations Ltd	Philobiotics (Pvt) Ltd	Sabgfrinko (Pvt) Ltd
Nawakrama Pvt Ltd	Phoneix Industries Ltd	Sawy International (Pvt) Ltd
Naegh Trading	Photon Technologies (Pvt) Ltd	Scarlet Asia (Pvt) Ltd
New Armed (Pvt) Ltd	Population Service Lanka	Sethma International
Nimaru Lanka (Pvt) Ltd	Precision Tech Services (Pvt) Ltd	Sethmedi Internaional

Medical device market sector participants (4 of 4)

Sethmedi International (Pvt) Ltd	Synergy Life Solutions (Pvt) Ltd	Yu and Company (Pvt) Ltd
Shan Enterprises Importers	T M I Solutions (Pvt) Ltd	Zenith Impex (Pvt) Ltd
Shan Trading	Tanyo Medical (Pvt) Ltd	Zodiac Medicals (Pvt) Ltd
Shani enterprises	Tas Medical Suppliers & Co (Pvt) Ltd	
Shield Medical (Pvt) Ltd	Tas Medical Suppliers & Co (Pvt) Ltd- Sri Lanka	
Shigrady With Earth Company (Pvt) Ltd	Technomedical International (Pvt) Ltd	
Shimmers	Thames Johve D* Niel Centre	
Siba Healthcare (Pvt) Ltd	The Colombo Traders (Pvt) Ltd	
Silan Pharmaceutical Company	The Family Planning Association of Sri Lanka	
Sisili Projects Consortium (Pvt) Ltd	The National Council for the Deaf	
Siyol International (Pvt) Ltd	Thread Works (Pvt) Ltd	
Skyline Global Trading Company	Tissamaharama Export Production Village People Co. Ltd	
Smith Kline & Beecham (Pvt) Ltd	Top Mark International	
Sonali and Sudresh	Trans Med International (Pvt) Ltd	
Spamed (Pvt) Ltd	Trivitron Nawakrama Medical Technologies (Pvt) Ltd	
Speed Mart (Pvt) Ltd	U & I Ceylon	
Spine Care	Unicel (Pvt) Ltd	
Sri Chin Holdings (Pvt) Ltd	Unicorn International (Pvt) Ltd	
Sri Chin Holdings	Unilever Lipton Ceylon Ltd	
Sriyani Industries	Union Chemists	
Subendra & Co	Union Commercial Equipment (Pvt) Ltd	
Sun Industries (Pvt) Ltd	V-Care u (Pvt) Ltd	
Sunshine Hygience Products	Vimana (Pvt) Ltd	
Sunway Holdings (Pte) Ltd	Vinol Ceylon Internaitional (Pvt) Ltd	
Sypreme Med (Pvt) Ltd	Vision 2000 (Pvt) Ltd	
Surgi Pharma (Pvt) Ltd	Vision 2020 Techno	
Surgi Vision Ltd	Vision Care Optical Services (Pvt) Ltd	
Surgicare (Pvt) Ltd	Vision Solutionis	
Surgitech	Vista International	
Surtex Industries (Pvt) Ltd	W.P. Healthcare	
Suwajeewa Company	Walk Rite Ltd	
Swedish Trading Co. Ltd	Wasantha Product Industries	
Swiss Biogenics Ltd	Wesrone (Pvt) Ltd	

Appendix 6

Projects in the health sector

Public Healthcare sector projects

No.	Name of Project	Districts	Total Estimated Cost (Rs. Mn)	Duration	Outputs	Benefits	Funding Agency
New Projects							
1	Development of Ambulatory care centre (OPD) of National Hospital of Sri Lanka (NHSL)	Colombo	27,979	2012-2015	Outpatient facilities for OPD, Admission unit, ETU, Chest Pain Unit, Surgical causality ward, 03 Operation theatres, 06 ICU , administration are and Car park	Improved and modified the healthcare services provided by the National Hospital through developing its Ambulatory Care Centre to a fully fledged centre.	Consolidated Fund China
2	Construction and Upgrading of Peripheral Blood Banks Coming under the National Blood Transfusion Services	All Island	560	2013-2015	Develop infrastructure facilities of cluster centres, 20 level II blood banks and 05 level III Blood banks. Supply equipments and mobile vehicles and freezer trucks for 80 blood banks	Strengthened the blood transfusion network and ensure the quality of the blood products supplied to patients.	Consolidated Fund Netherland
3	Development of DGH Hambantota and DGH Nuwara Eliya	Hambantota and Nuwara Eliya	12,614	2012-2015	New District Hospital at Gonnoruwa and Improved DGH at Nuwara -Eliya	Improved and modify the healthcare services	Consolidated Fund Netherland
4	Construction of Epilepsy Unit at National Hospital	Colombo	2,918	2008-2014	06 storied ward complex for epilepsy treatment	Improved treatment facilities for epilepsy	Consolidated Fund Saudi Arabia
5	Establishment of 150 Bedded DGH In Dikoya, Hatton	Nuwara Eliya	1,402	2011-2014	150- bedded District General Hospital	Improved and modify the healthcare services	Consolidated Fund- India
6	Construction of Helmut Kohl Maternity Hospital, Karapitiya Galle	Galle	4,503	2011-2015	850- bedded Maternity hospital with modern facilities	Improved maternal and child health care and reduce maternal mortality	Consolidated Fund KFW Germany

Source: Extracts from the Mahinda Chinthanaya

Public Healthcare sector projects

No.	Name of Project	Districts	Total Estimated Cost (Rs. Mn)	Duration	Outputs	Benefits	Funding Agency
7	Improvement of Basic Social Services Targeting Emerging Regions (BH Warakapola, BH Galigamuwa, BH Teldeniya and BH Kalawanchikudy)	Kegalle, Kandy, Batticaloa	2,453	2012-2015	Improved 04 Base hospitals (Warakapola, Galigamuwa, Theldeniya & Kalawanchikudy)	Enhanced facilities in the hospitals and improve the quality of care	Consolidated Fund JICA
8	Second Health Sector Development Programme	Island wide	26,000	2013-2017	fully-functioning quality management units (QMUs) in MOH, Comprehensive Emergency Maternal and Obstetric Care (CEMOC) facilities, Electronic Indoor Morbidity Mortality Register (e-IMMR), Fully functioning -Emergency treatment Units (ETUs) and healthy lifestyle centers	Improved service delivery and addressing the remaining challenge of under-nutrition and maternal and child health (MCH) and communicable diseases	WB
9	Upgrading the National Blood Transfusion Service (NBTS) of Sri Lanka with State of Art Technology giving Special Emphasis to North & East	Jaffna, Killinochchi, Mulaitivu, Vavuniya, Mannar, Batticaloa, Ampara, Trincomalee	3,257	2013-2015	Improve infrastructure facilities and provide equipments to selected 14 hospitals	Helps to assure the availability and safety of blood products in the all hospitals	Consolidated Fund Netherland
10	Construction of 200 Bedded Ward Complex DGH Vavuniya	Vavuniya	209	2012-2015	200 bedded ward complex	Improved the inward facilities and treatment capacity	Consolidated Fund India
11	Rehabilitation and Expansion of Production Capacity at State Pharmaceutical Manufacturing Corporation	Colombo	1,777	2012-2017	Production capacity increased up to 4000 mn units		Consolidated Fund JICA

Source: Extracts from the Mahinda Chinthanaya

Public Healthcare sector projects

No.	Name of Project	Districts	Total Estimated Cost (Rs. Mn)	Duration	Outputs	Benefits	Funding Agency
12	Construction of Ward Complex and Quarters for Consultants and Medical Officers at DGH Mullaitivu	Colombo	120	2012--2014	02 storied surgical ward complex, 03 storied building with 06 no. of units for consultant quarters and 02 storied building with 18 no. of units for Mos	Enhanced inward facilities and accommodation facilities	Consolidated Fund Amaricares
13	Construction of the State of the Art Cancer Ward Complex at National Institute of Cancer Maharagama	Colombo	1,250	2011-2015	07 storied ward complex for cancer treatment	Enhanced inward facilities for cancer patients	Consolidated Fund Razavi
14	Development of DGH Polonnaruwa	Polonnaruwa	650	2011-2013	03 wards, Theater and ICU, 03 quarters, New Blood bank and lab facilities	Enhanced the capacity of DGH Polonnaruwa to cater the demand	Consolidated Fund
15	Construction of Accident Services Unit at DGH Ratnapura	Ratnapura	798	2012-2014	Improved Accident Ward	Improved the facilities of curative health care services	Consolidated Fund
16	Construction of Maternity Ward Complex and Cardiology Unit at TH Kurunegala	Kurunegala	362	2011-2015	Maternity ward complex and Cardiology Unit	Improved cardiology treatment facilities and cardiology treatment facilities	Consolidated Fund
17	Construction of Theatre Complex at GH Kegalle	Kegalle	325	2011-2014	Theatre complex	Improved curative health care facilities	Consolidated Fund
18	Development of Dental Institute Colombo	Colombo	800	2011-2014	10 storied building	benefits all the patients in the western province	Consolidated Fund
19	Thousand Hospital Development Programme	All Island	1,000	2012-2014	Improved facilities in 1000 provincial hospitals	Enhanced the treatment capacity of the hospitals	Consolidated Fund
20	Reconstruction of Four Hospitals in Kilinochchi and Mulaitivu District (DH Oddusuddan, Poonakary, Palai and BH Mullankavil)	Kilinochchi, Mulaitivu	213	2012-2015	Each hospital provided - single storied OPD complex with rear block, Maternity Ward, Paediatric ward and Female Ward with 10 beds	Newly resettled population in Northern Province will be directly benefited by this project.	Consolidated Fund USAID

Source: Extracts from the Mahinda Chinthanaya

Public Healthcare sector projects

No.	Name of Project	Districts	Total Estimated Cost (Rs. Mn)	Duration	Outputs	Benefits	Funding Agency
4	Establish a Cardiology and Cardiothoracic Unit at the Teaching Hospital Jaffna	Jaffna	725	2014-2016	05 storey building with cardiology and cardiothoracic unit	Benefit around 400 adult cardiac patients and around 100 children who need special treatment and surgeries annually	Consolidated Fund Swiss - Sri Lanka Business Council" (Sslbc)
5	Supply and Install of High Quality Radiotherapy Machines for Cancer Patients in Sri Lanka	Colombo, Galle, Kandy, Jaffna, Batticaloa, Kurunegala, Anuradhapura, Ragama, Badulla, Hambantota	7,014	2014-2015	Installs 14 Nos. of Linear Accelerators, Dosimetry System and accessories, 08 Nos. of Big Bore CT Simulators, 09 Nos. Brachytherapy units and accessories including bunkers selected 10 hospitals including National cancer hospital Maharagama.	Provided quality and safety radiotherapy treatment facility for cancer patients	Consolidated Fund Austria, Israel
6	Construction of Emergency and Accident Centre Project (BEAP) At TH Batticaloa	Batticaloa	760	2014-2016	04 storey emergency and accident Trauma Complex with 100 beds and 04 operation theatres	Enhanced the capacity of TH Batticaloa to cater the demand	Consolidated Fund Australia
7	Establish a Kidney Unit at DGH Polonnaruwa	Polonnaruwa	825	2014-2016	Establish a full-fledge Nephrology unit with 32 Nos. of Haemodialysis Machines and Dialysis beds, peritoneal dialysis unit with 06 beds and Renal ICU with 04 beds	Enhanced dialysis treatment facility for kidney patients	Consolidated Fund "Swiss - Sri Lanka Business Council" (SSLBC)
8	Construction of Accident Ward, OT and ICU at BH Gampola	Kandy	308	2014-2016	Three storied building with floor area of 3414 square meters to accommodate an Accidents Ward, Operating Theater and Intensive Care Unit (ICU)	Improved the facilities of curative health care services	Consolidated Fund

Source: Extracts from the Mahinda Chinthanaya

Public Healthcare sector projects

No.	Name of Project	Districts	Total Estimated Cost (Rs. Mn)	Duration	Outputs	Benefits	Funding Agency
9	Construction of Cardiology, Catheter Lab and Laboratory complex at TH Batticaloa	Batticaloa	627	2014-2016	Five storied building with 02 wards (female and male 40 beds each, CCU – with 10 beds, Imaging room for 2D ECHO cardiograph, 03 clinic, ECG and Exercise ECG room	Developed infrastructure facilities for better service.	Consolidated Fund
10	Development of State Hospitals	Badulla, Kandy, Matale, N'Eliya, Rathnapura, Kegalle, Kalutara	323	2014-2016	02 new hospitals in Ragama and Froster state, renovate 37 hospitals, 12 quarters to Mos and 09 quarters to other staff	Improved quality of curative and public health service provided to the estate population	Consolidated Fund
11	Provision of ICU and OT equipments	All Island	2,574	2015-2017	Provide ICU and OT equipments	Improved curative health care facilities	To Be Identified
12	Provision of x-ray machines and x-ray related equipments	All Island	5,000	2015-2017	Provide x-ray and x-ray related equipments such as MRI, CT, UT scanners, CR systems	Improved high quality diagnostic care	To Be Identified
13	Provision of Maternal and Child Care equipments	All Island	300	2014-2016	Provide maternal and child care equipments	Reduced maternal mortality and child mortality	Consolidated Fund
14	Construction of National Stroke Centre at BH Mullerlyawa	Colombo	543	2014-2016	Four Storied building with 02 wards (44 beds each), Stroke pain ward, Stake ICU , CT room, and ETU	Improved stroke care facilities	Consolidated Fund
15	Supply of Two Cardiac Catheterization Systems and Two Echo Cardiograph Machines for Cardiology Unit of National Hospital	Colombo	500	2014-2015	provides 02 Cardiac Catheterization system and 02 Echo Cardiology machines.	Enhanced diagnostic facilities in the cardiology unit	Consolidated Fund Austria

Source: Extracts from the Mahinda Chinthanaya

Public Healthcare sector projects (1 of 2)

Ongoing projects	Output
Development of District General Hospitals at Hambantota and Nuwara- Eliya	New District Hospital at Gonnoruwa and Improved DGH at Nuwara -Eliya
Epilepsy unit at National Hospital Colombo	06 storied ward complex for epilepsy treatment
Development of Polonnaruwa General Hospital	03 wards, Theater and ICU, 03 quarters, New Blood bank and lab facilities
Accident Service at District General Hospital Ratnapura	Improved Accident Ward
Maternity Ward Complex and Cardiology Unit at Teaching Hospital Kurunegala	Maternity Ward Complex and Cardiology Unit
Theatre Complex at General Hospital Kegalle	Theatre complex
Development of Dental Institute Colombo	10 storied building

Public Healthcare sector projects (2 of 2)

Projects completed	Output
Improvement of Central Functions at Teaching Hospital Jaffna	Operation Theatre Complex, Central Supply and Sterilizing Department, ICUs, Central Laboratory Complex
Construction of Sirimavo Bandaranayake Children's Hospital – Stage 1 &11	09 storied building with all modern facilities to treat children. Capacity increased (OPD patient- 450, Clinical patients- 500)
Development of Health Facilities in Colombo National Hospital- Establishment of Neuro Trauma Unit Project	09 storied building with all modern equipment for neuro trauma
Korea – Sri Lanka Friendship Hospital at Godagama construction of a Pediatric Ward	Pediatric ward, Drug Store, water Supply tank, Sewerage treatment plant, Maternity treatment complex with 04 wadts
Theater Complex at Kandy Teaching Hospital	08 Theaters, Endoscopy examination unit, etc.

Appendix 7

Health Sector medical equipment requirement

Government sector equipment requirement

Total equipment requirment in Hospitals by category

Equipment	Total requirment
Digital Multipurpose Angiography	15
Dedicated Angiography	7
CR system	6
PET CT	2
Gamma Camera	5
Digital Fluoroscopy	37
C Arm X-ray	11
CT Scanner 128 Slice with Cardiac package	3
CT Scanner 16&64 slice	32
Mammography	18
MRI scanner	9
MRI scanner	8
Ultrasound scanner (portable)	84
Ultrasound scanner	119
Digital, ceiling mounted X Ray machines	50

Total equipment requirement for maternal and childcare healthcare

Equipment	Total requirment
Infant incubator	140
Phototherapy Unit	109
ICU ventilator Neonatal	42
Infant warmer	7
Baby resuscitator	17

Appendix 8

Major Pharmaceutical import brands and suppliers

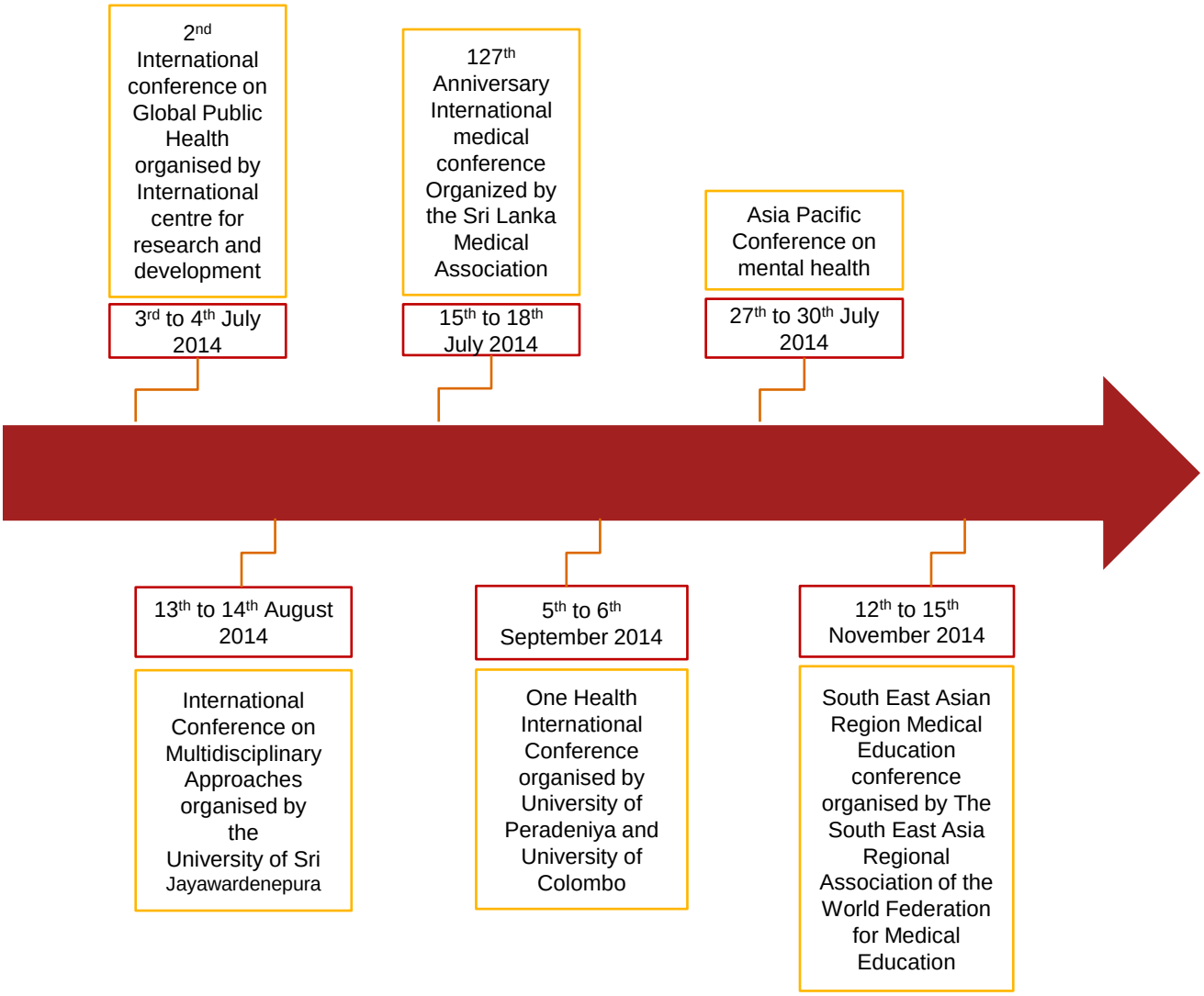
Major imported pharmaceutical brands

Major Suppliers parent country	Selected Major Brand supply
India	Abott Laboratories India
	AMN Life Sciences
	Zydus Cadila Healthcare
	Themis Medicare
	Fourtts Labs
	Cassel Research Labs
	Orchid Healtcare
	Cadila Pharmaceuticals
	Glenmark Pharmaceuticals
	Natco Pharmaceuticals
	IPCA laboratories
	Panacea Biotech
	Piramal Healthcare
	Ranbaxy Laboratories
Switzerland	Astra Zanice
	Helsinn
	Hoffman La roche
	Novartis
Pakistan	Hilton Pharmaceuticals
	Getz Pharma Pakistan (Pvt) Ltd
	Sante (Pvt) Ltd
	Nabiqasim Industries (Pvt) Ltd
United Kingdom	Astra Zeneca
	GSK
	Reckitt Benckiser
	Molecular Products
	Seven seas
Netherlands	Novo Nordick A/S
	A/S Lundbeck Overseas
	Leo Pharmaceutical products

Appendix 9

Recent events in the healthcare space

Key events in the healthcare sphere



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