A Report on

Market Data for Private Sector Investments in Nepal

Healthcare Sector

Prepared By

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ABBREVIATIONS

API	Active Pharmaceutical Ingredient
ADB	Asian Development Bank
AusAID	Australian Agency for International Development
CAGR	Compound Annual Growth Rate
CRM	Customer Relationship Management
DALY	Disability Adjusted Life Years
DDA	Department of Drug Administration
DFI	Development Finance Institution
DFID	Ukaid’s Department for International Development
DoHS	Department of Health Services
EHS	Emergency Healthcare Services
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (German aid agency)
GDP	Gross Domestic Product
HIIS	Health Infrastructure Information System
IFC	International Finance Corporation
ICT	Information and Communication Technology
INGO	International Non-Governmental Organisation
MIS	Management Information System
MoHP	Ministry of Health and Population
NPHL	National Public Health Laboratory
PE	Private Equity
PPP	Public-Private Partnership
R&D	Research and Development
SAARC	South Asian Association of Regional Cooperation
SEZ	Special Economic Zones
SME	Small and Medium Enterprise
TB	Tuberculosis
VC	Venture Capital

WHO	World Health Organisation
USAID	United States Agency for International Development
YLL	Years of Life Lost

BACKGROUND OF THE STUDY

Healthcare is an important sector from a socio-economic perspective in Nepal. The quality of healthcare impacts life expectancy and overall health of workforce; and at the same time the cost of healthcare impacts household spending patterns and hence the economy. In Nepal, the sector ranks unfavourably against global averages on both health "inputs" as well as "outcomes"; largely because public infrastructure is inadequate to address the demand for healthcare. However, growing private sector activity in healthcare is making progress towards bridging this demand-supply gap. As elsewhere in the developing world, access to finance and technical know-how are the biggest constraint faced by healthcare entrepreneurs in Nepal. Private sector providers of risk capital such as venture capital funds, private equity funds, impact investors and venture debt funds can play a pioneering role in addressing the financing need as well as augment technical know-how with linkages to healthcare firms in emerging and developed economies. Early successes in investments can unlock further mainstream and domestic capital; and form the corner-stone of a strong and resilient private sector in Nepal, which will in turn drive inclusive growth.

One of the biggest challenges investors in Nepal face is a lack of clarity around market landscapes, business profiles, valuation benchmarks and exit opportunities. ***Market Data for Private Sector Investments in Nepal*** is a first of its kind attempt towards bridging this information divide. It seeks to act as a guide to foreign and domestic investors by providing insights into the landscape of private healthcare activity in Nepal. These insights include structure and state of the sector, identification of promising investment opportunities, and evaluating capital flow and valuations in the sector. The report has been compiled using data from several credible sources, including existing research literature and industry publications. The secondary data was validated and additional information was gathered by engaging with key stakeholders in the sectors such as industry players, experts, financial institutions, policy makers, development finance institutions and sector associations. The report is constrained by limited consistent availability of data. In absence of hard and consistent data in some cases, the report relies on data from the field and relevant, triangulated proxy data from secondary sources.

METHODOLOGY AND APPROACH

The report is based on (a) primary data from interviews and focus group discussions with enterprises, experts and policy-makers and (b) secondary data from Dolma Impact Fund and relevant government and policy publications in Nepal. The report draws on data derived from sources such as Nepal government publications, data from World Bank and Intellecap's proprietary knowledge base. The report has been compiled using data from several credible sources, including existing research literature and industry publications. The secondary data was validated and additional information was gathered by engaging with key stakeholders in the sectors such as industry players, experts, financial institutions, policy makers, development finance institutions and sector associations.

The report is constrained by limited consistent availability of data across all sectors. In absence of hard and consistent data in some sectors, the report relies on data from the field and relevant, triangulated proxy data from secondary sources. Specific data on healthcare business model metrics in Nepal were not available; and hence insights from India, Sri Lanka, Bangladesh and Pakistan have been presented as comparable proxies.

These countries are comparable because like Nepal, they have poorly developed public healthcare infrastructure and disproportionately high spend private out-of-pocket expenditure on healthcare. Additionally, these countries are also witnessing a rise in incidence of Non-Communicable Diseases leading to a double disease burden much like Nepal. It must also be noted that report does not extensively cover all the value chain elements in a sector - only promising, potentially high growth sectors are analysed. Users of this report should be cognisant of these data limitations.

CURRENCY EXCHANGE RATE

1 US$ = 94.19 Nepalese Rupee

Healthcare in Nepal

Huge demand-supply gap; only **0.36** doctors, **1.17** nurses and **0.9** hospital beds per 1000 people, compared to BRICS median of **1.8**, **4.9**, and **3.7** respectively

Over **55%** of healthcare expenditure consists of private out-of-pocket expenses; and **63%** population prefers private healthcare

Government is supportive of foreign investors; sector has seen over **US$ 18.34 million** in FDI since 2008

Most attractive investment opportunities include tertiary hospitals and pharmaceutical manufacturers; cumulative market opportunity of **US$ 170 to 200 million**

14% to 16% is the estimated hurdle rate for tertiary hospital investments

16% to 19% is the estimated hurdle rate for investments made in pharmaceutical manufacturers

1. Executive Summary

While the healthcare sector in Nepal is underdeveloped, it is showing signs of progress and considerable private sector activity has been seen

Indicators of health outcomes such as life expectancy, maternal care, and incidence rates of communicable diseases in Nepal compare unfavourably with global averages. However, health-related metrics are showing improvement in the past few years. Even though Nepal does compare unfavourable against global benchmarks in maternal healthcare and TB; the country has recorded a consistent success rate of 90% in TB treatment since 2009; higher than the 87% global rate of success. Maternal mortality during childbirth has fallen to 1/3rd of the deaths recorded in 1990[1].

Signs of progress are also visible in terms of growing private sector activity in the pharmaceuticals, diagnostics and hospitals segments. Nearly 3000 small, medium and large-sized commercial firms operate in these segments; and foreign investments of US$ 18.34 million have been channelled since 2009[2].

There is a significant demand-supply gap in the healthcare sector in Nepal; which presents an opportunity for greater private sector engagement

The changing demographic in Nepal has resulted in overall increase for healthcare services in Nepal. The population nearly doubling since 1980; and has been growing at a CAGR of 1.23% over the past decade[3]; while life expectancy at birth has increased to 68 from 64.2 in the same period[4]. Demand for high quality specialty healthcare in Nepal is also increasing due to the growing incidence of lifestyle diseases like diabetes and cardiac disease in Nepal. Such diseases require life-long care and medication; including both consultative care through primary clinics and in-patient (residential) care through secondary and tertiary hospitals. An outcome of the rising demand for healthcare in Nepal has been witnessed in rising out-of-pocket private expenditure. Nearly 55% of Nepal's healthcare expenditure is "out-of-pocket" private expenditure i.e. direct outlay by households when compared to the global average of only 18%[5]. Such a high rate of "out-of-pocket" expenditure is driven in-part by rising disposable incomes (as a result of remittances) as well as increased awareness about health and well-being.

On the other hand, the high out-of-pocket expenditure on healthcare is also a result of inadequate public healthcare facilities. Both public and private sector activity on the supply-side of healthcare is inadequate to address the demand in Nepal. There are only 0.36 doctors and 1.17 nurses per 1000; as compared to the BRICS medians of 1.8 and 4.9 respectively[6]. On the healthcare-infrastructure side, there are only 0.9 hospital beds per 1000 people[7]; as compared to BRICS median of 3.7[8]. As a result; 18% of Nepalese report healthcare as "inadequate", while 79% as "just adequate"[9]. The public sector healthcare facilities are far less developed than private facilities, and this tends to push over 63% of consumers towards higher quality private sector facilities[10]. While the private healthcare sector has witnessed growth, with over 350 private hospitals and 550 private primary clinics operating across Nepal[11]; it remains concentrated in larger cities like Kathmandu and Pokhara, and there is little or no penetration in rural and peri-urban areas.

[1] World Bank Development Indicators; accessed in March 2014
[2] Ministry of Industry, Annual Industrial Statistics Report – 2009 to 2013; and MoHP Annual Reports
[3] World Bank Development Indicators; accessed in March 2014
[4] World Bank Development Indicators; accessed in March 2014
[5] World Bank Development Indicators; accessed in March 2014
[6] MoHP and WHO, Nepal Pharmaceutical Profile, 2012; and World Bank Development Indicators database, accessed in May 2014
[7] Ratio calculated based on number of hospital beds reported in MoHP and WHO report on "Nepal Pharmaceutical Profile, 2012"
[8] World Bank Development Indicators; accessed in March 2014
[9] Nepal Living Standards Survey, Volume 2; Central Bureau of Statistics; 2011
[10] Nepal Living Standards Survey – Volume 1, Central Bureau of Statistics, 2012
[11] Government of Nepal, Department of Health Services, Annual Report 2011-12

The sector as a whole is also import-reliant to a high degree and this increases cost of healthcare for end-consumer. Nepal imported US$ 95.4 million worth of healthcare-related commodities like pharmaceuticals, devices, and medical supplies in 2013[12]; nearly as much as the total financial contribution the sector makes to the GDP.

Regulatory regime is positive, and includes some international best practices; but bringing in more facilitative policies for private healthcare segment would further benefit the sector

Nepal broadly follows a free markets approach to policy and regulation in healthcare. Policy-making and regulation are centralised and controlled by the Ministry of Health and Population. Most of the current regulatory structures applicable to healthcare companies are generic structures applicable to most businesses in Nepal. However, a new policy strategy – the "Nepal Health Sector Programme – 2; 2010-2015 (NHSP-2)" which outlines the importance of closer collaboration between public and private sector to deliver quality healthcare is expected to usher in a more private-sector friendly environment. Further, Nepal follows some international best practices such as guidelines for earthquake proofing of hospital buildings, mandatory free treatment for 10% of bed capacity, and environmental impact assessment norms.

However, currently there are few specific policies to facilitate private sector activity. Private tertiary hospitals and pharmaceutical manufacturers benefit specifically at the firm level through regulation allowing mergers of private hospitals; and a few subsidies and incentives that result in cost savings for private companies. Other benefits like tax holidays and access to subsidised land for hospitals that come up in under-served geographies would benefit private sector as well as improve healthcare outcomes.

The government is supportive of foreign investments in healthcare sector, and allows 100% FDI in all private healthcare companies

As a result of this positive environment, significant foreign investments have been observed in the past 2-3 years, especially in private tertiary hospitals. Over US$ 18.34 million in foreign investment has been channelled into healthcare from over 12 countries since 2009[13]. Aside from promoters' own equity, this is the single largest source of risk capital available to the private healthcare segment in Nepal today. FDI in this sector has been growing at a CAGR of 45%, and top contributors have been India, Turkey and China[14].

Private equity investors can play a catalytic role in growing the healthcare sector in Nepal

Healthcare companies in Nepal have moderate access to debt but low access to institutional equity. However, access to institutional equity is low in the country due to the less developed state of capital markets[15]. Foreign private equity investors can not only channelise this high-risk financial capital; but also build access to better technology, know-how and processes from developing and developed countries.

Analysing sector by 4 major categories of "Drugs, Diagnostics, Delivery and Data" shows that tertiary hospitals and domestic pharmaceutical manufacturers are most attractive investment opportunities

Comparing the relative state of organised private sector activity in drugs, diagnostics, delivery and data shows most commercial scale and institutional investment-ready business modes among tertiary hospitals and pharmaceutical manufacturers. The diagnostics and primary healthcare segments are fragmented with high degree of informality; while data segment shows very little activity.

Tertiary hospitals and pharmaceutical manufacturers have a combined market opportunity of US$ 170 to 200 million[16] and are reported to be growing at rates of 10 to 20%[17], largely driven by growing domestic demand as a result of shifting disease burden. Promoters and management teams in these segments have also

[12] Trade and Export Promotion Centre Nepal database, accessed in March 2014
[13] Ministry of Industries, Industrial Statistics Report, Nepal, 2012-13
[14] Ministry of Industries, Industrial Statistics Report, Nepal, 2012-13
[15] See Section 11.4 for details
[16] Intellecap analysis, see Section 3.3 for details
[17] From primary interviews conducted during the course of this study, see Annexure for details

demonstrated more market-savviness by investing in improving capacities and forging partnerships with foreign entities for technology and knowledge transfer.

Other opportunities for private equity investors may also emerge in medical consumables and equipment, diagnostic clinics chains, primary clinics chains, telemedicine and emergency healthcare services in the next few years

The private healthcare segment in Nepal is dynamic and changing rapidly. Given this, investors can also expect to see interesting opportunities in businesses operating in medical consumables and equipment, diagnostic clinics chains, primary clinics chains. Some early traction in these segments can already be seen. Aside from these, models that are thriving in other developing countries such as telemedicine and emergency healthcare services may also enter the Nepal healthcare market.

Valuation of healthcare companies in Nepal is challenging due to lack of historical data; however this also gives early entrants in the private equity space an opportunity to buy stakes at lucrative prices

There is very little public information available on past equity investments into healthcare companies in Nepal. The lack of data is primarily due to infancy of the investment value chain and support infrastructure such as research and ratings. Further, sparse research coverage of capital markets in Nepal has resulted in limited availability of historical data and limited access to updated industry benchmarks. However, the investment landscape is witnessing brisk activity, with 2-3 institutional investment funds setup over the last three years. This status of the investment landscape presents an opportunity for early private equity entrants to make investments at lucrative valuations.

In the absence of industry benchmarks for valuation; data from comparable SAARC countries and hurdle rates may be used as broad guides by investors

Valuation data from comparable countries like India, Sri Lanka, Bangladesh and Pakistan may be used as broad guides by investors. However, investors should be cognisant that countries like India have much higher market capitalisation and better investment value chains. Hence, even though some comparable valuation ratios can be used from other developing SAARC countries, they can at best be broad guides since the regulatory regimes, banking infrastructure, market capitalisation and other macro-economic indicators vary widely from country to country.

In the absence of consistent data on valuation ratios in the sector, hurdle rate can serve a good indicator of minimum expected return from investments in the sector. Based on the data from the healthcare sector in Nepal and comparable proxies, the Cost of Equity for investments in tertiary hospitals is estimated to vary from 17% to 19%; and Weighted Average Cost of Capital is estimated to be 14% to 16%. The Cost of Equity in pharmaceutical manufacturing is 32 to 37%; and the Weighted Average Cost of Capital is 16 to 19%.

Promoter buy-back likely to be most popular approach for equity exits in Nepal in the next 4-5 years; especially in tertiary hospitals

Re-purchase of private investor's shared by promoter(s) is likely to be the more prevalent approach for exits in Nepal; especially in tertiary hospitals which are higher margin businesses and comparatively higher market opportunities. While promoter ability to buy-back will be one driver; the other will probably be the prevailing promoter sentiment where existing promoters want to ultimately retain complete control of the firm. There seems to be a high degree of apprehension about loss of control that could result from diluting management stake[18].

Trade sale may be observed in smaller tertiary hospitals

Acquisition by a larger hospital or merger of two complementary smaller hospitals businesses is somewhat likely as well. This is expected to be driven by the expansion drive that most tertiary hospitals seem to

[18] From primary interviews conducted by Intellecap during the course of this study in May 2014

displaying to capture greater market share in underserved regions outside Kathmandu. Additionally, facilitative regulation put in place by MoHP will also act as a facilitator[19]. In addition to domestic mergers, acquisitions and JVs with foreign hospitals are also likely to pick up as a trend driven by the success of the Medanta-Norvic, Fortis-Vayodha, and Samitej-Grande partnerships[20].

Based on market landscape, business model, and valuation analysis, tertiary hospitals emerge as the most attractive investment opportunity for private equity investors in Nepal

Market assessment of private healthcare in Nepal shows that the business model of pharmaceutical manufacturers faces significant constraints to scale like complete import-reliance for raw materials (Active Pharmaceutical Ingredients) and tough competition from foreign pharmaceutical firms. As a result of these challenges, the cost of equity invested in pharmaceutical companies is high. On the other hand, due to growing demand and increasing improvements in technology, skills and overall business model robustness, cost of equity invested in tertiary healthcare is lower. Hence, while the systemic challenges plaguing the pharmaceutical manufacturing industry persist; investors are likely to find more attractive opportunities in tertiary hospitals.

However, given the limitation of market data in Nepal, this conclusion is at best a broad guide for private equity investors. It is likely pharmaceutical manufacturers using innovative and low-cost approaches to tackling these challenges also present attractive investment opportunities.

2. Introduction

Healthcare is an important sector from a socio-economic perspective in Nepal. The quality of healthcare impacts life expectancy and overall health of workforce; and at the same time the cost of healthcare impacts household spending patterns and hence the economy. In Nepal, the sector ranks unfavourably against global averages on both health "inputs" as well as "outcomes". The inputs-side of healthcare includes infrastructure, availability of skilled physicians, and availability as well as distribution of life saving vaccines and pharmaceuticals. On average, Nepal has 0.9 hospital beds per 1000 people[21]; and 0.36 physicians per 1000[22].

As a result of underdeveloped and insufficient inputs, health-outcomes in Nepal are poor

The indicators of health outcomes such as life expectancy, maternal care, and incidence rates of communicable diseases in Nepal compare unfavourably with global averages. The country ranks 139th in life expectancy, notes 58% coverage of medical prenatal care for women as compared to 80.6% seen globally, and incidence of Tuberculosis (TB) per 100,000 has remained nearly constant at about 160 over the past 8 years while the global incidence average fell by 15% in the same period[23].

While the sector is underdeveloped, it is showing signs of progress and considerable private sector activity has been seen

Such activity is particularly vibrant in pharmaceutical industry, diagnostic clinics and hospitals. As a result, health-related metrics are showing improvement in the past few years. Even though Nepal does compare unfavourable against global benchmarks in maternal healthcare and TB; the country has recorded a

[19] MoHP Nepal, Directives on Establishment, Operation and Upgrading of Health Institute 2013
[20] See Table 3 for details
[21] Ratio calculated based on number of hospital beds reported in WHO's publication – "Nepal Pharmaceutical Profile 2012"
[22] MoHP and WHO, Nepal Pharmaceutical Country Profile, 2012
[23] World Bank Development Indicators; accessed in March 2014

consistent success rate of 90% in TB treatment since 2009; higher than the 87% global rate of success. Maternal mortality during childbirth has fallen to 1/3rd of the deaths recorded in 1990[24].

As healthcare infrastructure and availability grows, the impetus will also need to move towards affordability and last mile reach

Ukaid's Department for International Development (DFID)'s Nepal office estimates that the poorest women in Nepal are "*five times as likely as the richest to cite distance from a health facility as the main reason for not accessing health care*" – an insight that illustrates the need more clearly. The private sector will play a key role in improving the state of healthcare over the next few decades; and it pace of growth can be accelerated by access to risk capital across various stages of business growth. Investments in healthcare can only generate positive financial returns as evidenced by examples in emerging economies like India[25]; but also create significant positive social impact.

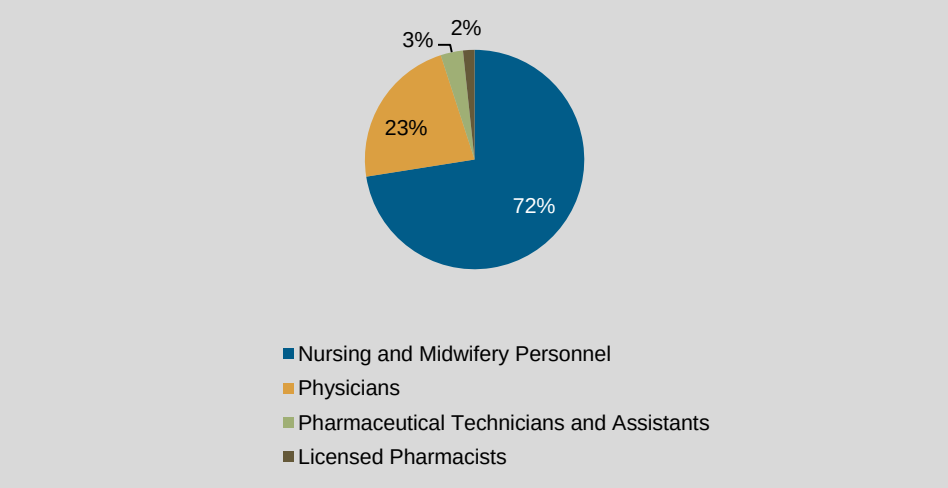
2.1 Healthcare's Role in Economic Development

While the healthcare industry makes a comparatively less direct contribution in terms of revenues and employment to the economy; its indirect impact by improving quality and longevity of life is very significant.

Healthcare in Nepal comprises about 5.5% of the GDP and is an important part of the services industry[26]. The sector employs approximately 45,000 to 50,000 people including skilled and semi-skilled personnel[27]. Healthcare is delivered by public and private sector and accounts for a total expenditure of over US$ 1 billion each year[28]. This comprises 5.4% of the Gross Domestic Product (GDP) and translates to a per capita expenditure of US$ 33. This is lower than the global average and also compares unfavourably with other emerging economies like South Africa and Brazil; but is higher than most South Asian Association of Regional Cooperation (SAARC) countries.

The sector employs 45,000 to 50,000 of the workforce, mostly in semi-skilled and skilled jobs as shown in Figure 1.

Figure 1: Distribution of jobs in the healthcare sector



Source: Nepal Pharmaceutical Country Profile; MoHP; 2011

[24] World Bank Development Indicators; accessed in March 2014
[25] Over US$ 3.9 billion have been invested in the healthcare sector in India over the past 5 years; and investors have seen 59 exits (source: Venture Intelligence)
[26] World Bank Development Indicators; accessed in March 2014 and Intellecap analysis; 2014
[27] Nepal Pharmaceutical Country Profile; MoHP; 2011
[28] World Bank Development Indicators; accessed in March 2014

2.2 Overall State of Demand and Supply in Healthcare

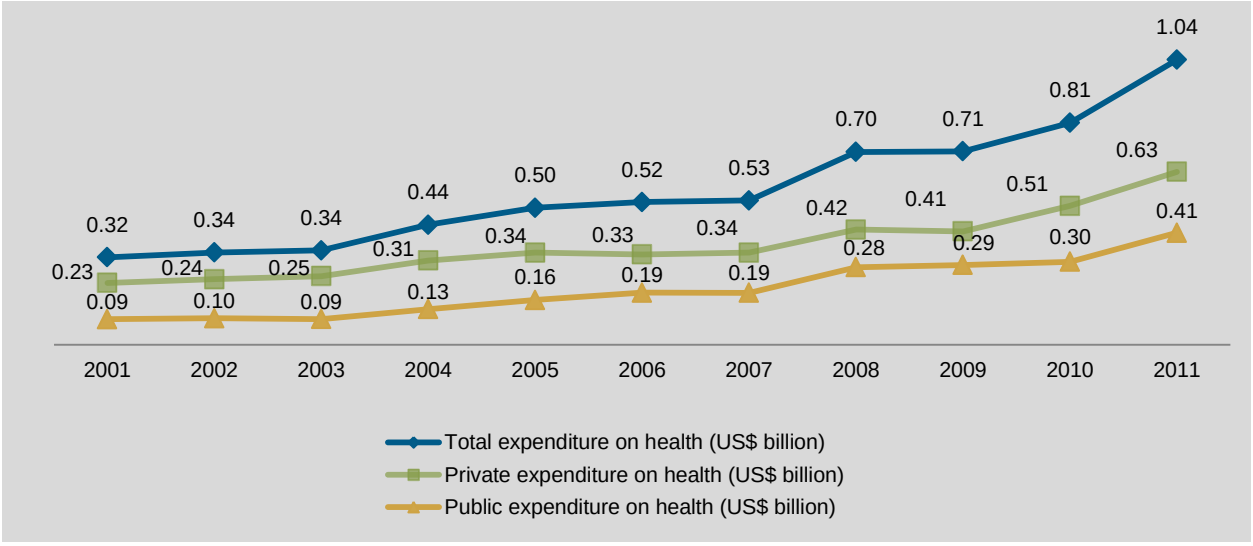
There is a significant demand-supply gap in the healthcare sector in Nepal; where the supply of high quality and accessible healthcare (both private and public) is inadequate to address the demand for healthcare. At the same time, the expenditure on healthcare is rising buoyed by growing GNI and remittances. As a result, there is an opportunity for private healthcare facilities to bridge this gap. One of the biggest growth hurdles promoters of such facilities face is the prohibitive entry cost due to "capital-heavy" nature of business, as well as lack of access to appropriate capital for operational expenditure. Private equity investors can help address this challenge and catalyse the growth of a vibrant private healthcare landscape.

2.2.1 Analysis of Demand-Side Dynamics

Healthcare demand in Nepal is rising as evidenced by growing expenditure

Nepal spends 5.4% of the total GDP on health-related public and private expenditures including fee for healthcare services (diagnosis, treatment), pharmaceuticals, and health-related insurance premiums. Although the expenditure has been growing steadily over the past decade as shown in Figure 2; it is still only half of the global average and so is expected to increase at a higher rate in the next few years.

Figure 2: Rising healthcare expenditure in Nepal



Source: World Bank Development Indicators; accessed in March 2014 (current US$)

A disproportionately high component of this expenditure consists of "out-of-pocket" private expenditure

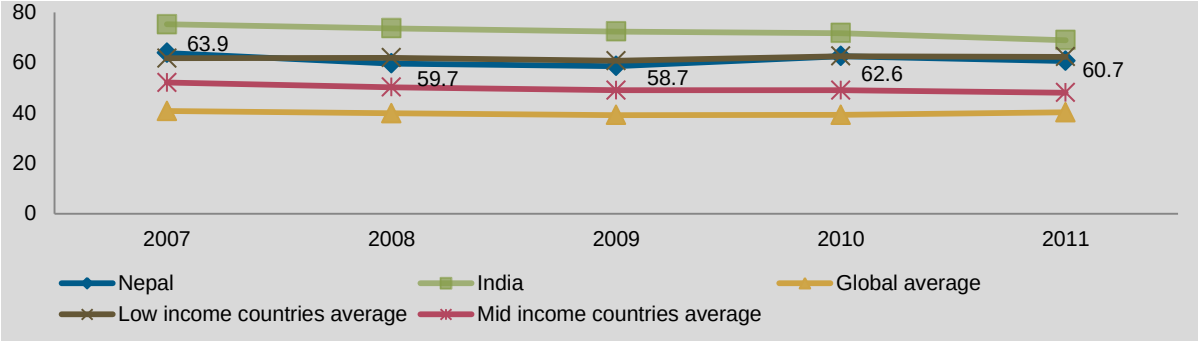
Nearly 55% of Nepal's healthcare expenditure is "out-of-pocket" private expenditure i.e. direct outlay by households when compared to the global average of only 18%[29]. Such a high rate of "out-of-pocket" expenditure is possible because of an increase in disposable income – driven in-part by growth in remittances. Nepal has a large percentage of its population working abroad in countries like India and Malaysia. In fact, over 30% of Nepalese working age males abroad. These non-residents annually remit over US$ 4 billion or

[29] World Bank Development Indicators; accessed in March 2014

the equivalent of 25% of Nepal's GDP in 2012[30]. As a result, households have more discretionary spending power and are investing in higher quality healthcare.

On the flipside, high private expenditure on healthcare eats into the disposable incomes of households and increases financial vulnerability, especially for low income populations. Better health systems need to be put in place including insurance and public spending on both preventive and curative healthcare must rise to combat this challenge. Nepal has a higher component of private expenditure in healthcare than the global average; but is comparable to average of low income countries as shown in Figure 3. This presents an opportunity for private sector interventions in healthcare – a trend that has been observed in South Asian countries like India as well as East African countries like Kenya and Tanzania.

Figure 3: Percentage of private spend in overall healthcare expenditure across different regions



Source: World Bank Development Indicators; accessed in March 2014

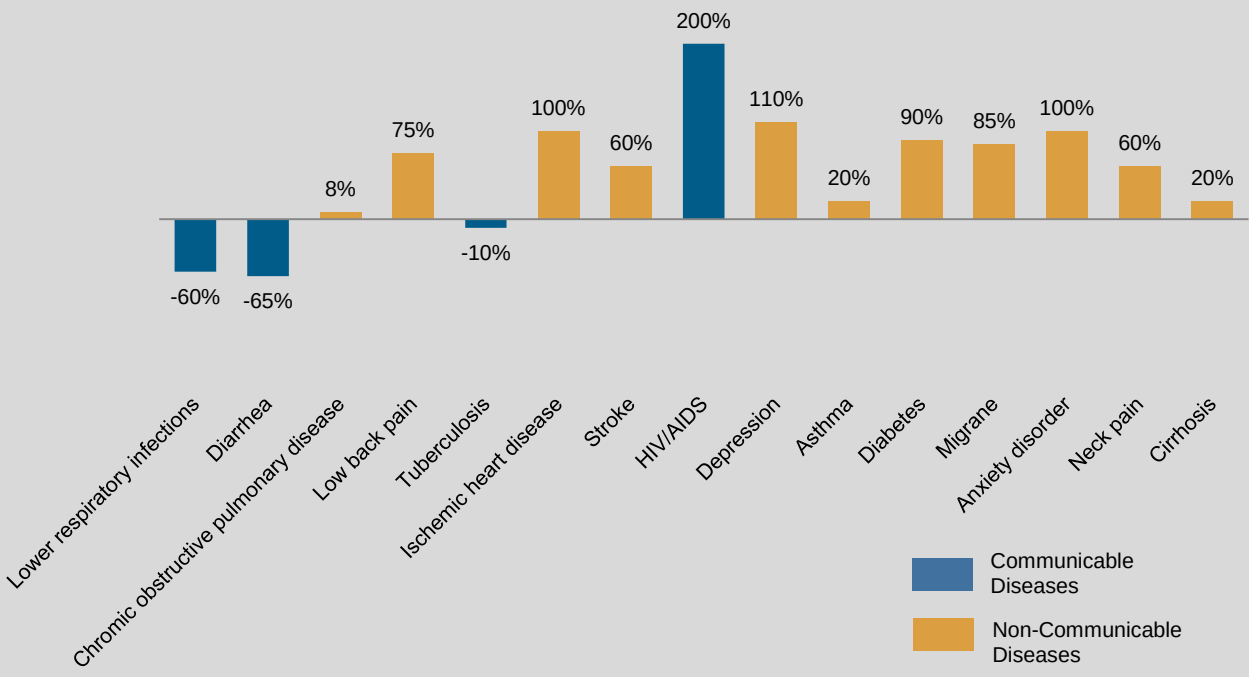
The emerging "double burden" of disease in Nepal is driving demand for chronic healthcare pharmaceuticals and facilities

As a result of increasing affluence and industrialisation, Nepal is also witnessing an uptick in chronic lifestyle-related diseases like diabetes and heart disease that are generally associated with more developed countries as shown in Figure 4[31]. This is causing the emergence of "double burden" of disease which is a critical socio-economic risk. "Double burden" of disease is dangerous for frontier markets like Nepal as it causes economic loss due to communicable diseases more prevalent in developing countries like diarrhoea and TB; as well as non-communicable diseases commonly seen in more developed countries such as diabetes and heart disease. As a result of this trend, there is a growing demand for quality secondary and tertiary healthcare; as well as pharmaceuticals to keep these diseases in check.

[30] World Bank Development Indicators, accessed in March 2014

[31] Shows the percentage change in Disability Adjusted Life Years (DALYs) from 1990 to 2010 due to communicable diseases and non-communicable diseases. DALY is an economic measure of the impact of disease, and quantifies both premature death and disability caused due to disease.

Figure 4: Shifting patterns of DALYs due to communicable and non-communicable diseases in Nepal



Source: Institute for Health Metrics and Evaluation, Global Burden of Disease Country Profiles, 2013

2.2.2 Analysis of Supply-Side Dynamics

Public sector healthcare facilities are inadequate, Consumers towards higher quality private sector facilities

Healthcare infrastructure in Nepal is inadequate and compares unfavourably against most global as well BRICS (Brazil, Russia, India, China, and South Africa) countries' averages as shown in Table 1.

Table 1: Comparison of Nepal's healthcare infrastructure with BRICS and Global Benchmarks

Metric	Nepal	BRICS median	Global average
Doctors per 1000	0.36	1.8	1.5
Nurses and midwives per 1000	1.17	4.9	3.3
Hospital beds per 1000	0.9[32]	3.7	2.9
% of births attended by skilled health staff	36%	77.07%	67.3%

Source: MoHP and WHO, Nepal Pharmaceutical Profile, 2012; and World Bank Development Indicators database, accessed in May 2014

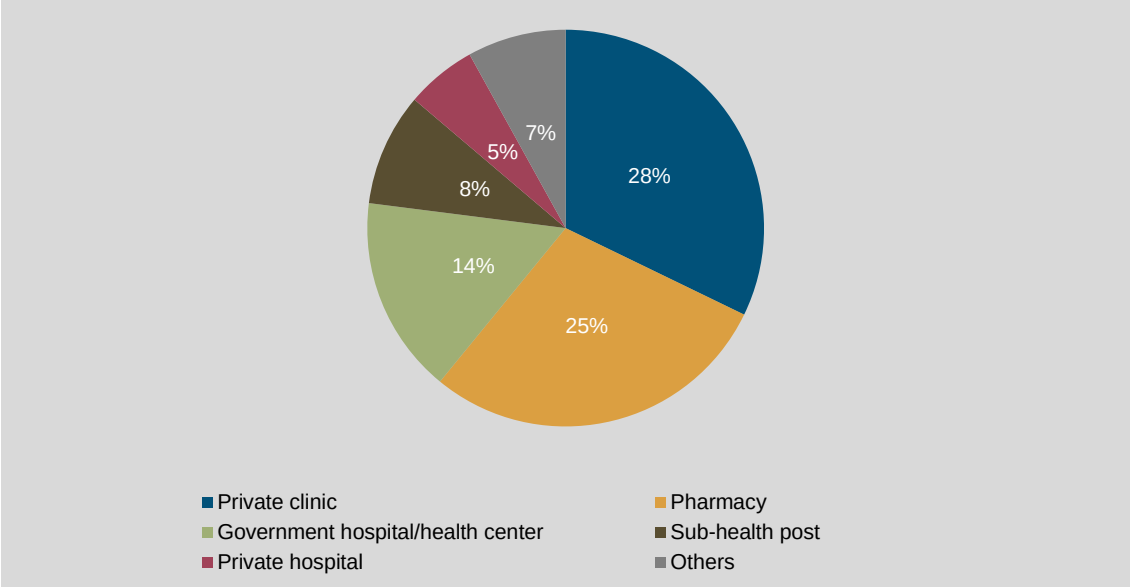
As a result of the poor state of healthcare infrastructure, 18% of Nepalese report healthcare as "inadequate", while 79% as "just adequate". These metrics are worse for rural areas of the mid and far Western Hills where up to 35% households report healthcare as "inadequate"[33]. As a result, 63% of people in Nepal generally

[32] This ratio was calculated using the number of hospital beds reported in WHO publication Nepal Pharmaceutical Profile 2012

[33] Nepal Living Standards Survey, Volume 2; Central Bureau of Statistics; 2011

prefer to visit private healthcare practitioners and facilities. Figure 5 shows the distribution of healthcare consultations in Nepal by facility type.

Figure 5: Distribution of healthcare consultations in Nepal by facility type



Source: Nepal Living Standards Survey – Volume 1, Central Bureau of Statistics, 2012

While private healthcare facilities have been growing over the past 5-7 years, they are still inadequate to address the demand for healthcare in Nepal

While the healthcare sector has witnessed growth of private hospitals and diagnostic centres, as well as growth in domestic pharmaceutical manufacturing; this growth remains inadequate to address demand. Most hospital and diagnostic infrastructure is concentrated in larger cities like Kathmandu and Pokhara, and there is little or no access in rural and peri-urban areas. Further, the hospital as well as pharmaceuticals industry remains import-reliant to a high degree and this increases cost of healthcare for end-consumer. Nepal imported US$ 95.4 million worth of healthcare-related commodities like pharmaceuticals, devices, and medical supplies in 2013[34]; nearly as much as the total financial contribution the sector makes to the GDP.

3. Sector Overview

3.1 Structure of Healthcare in Nepal

Structure of the healthcare sector in Nepal can be analysed across 4 dimensions – (a) examining public and private activity; (b) through 4 major sub-sectors – drugs or pharmaceuticals, diagnosis, delivery and data; (c) through comparing different medical approaches like modern allopathic and traditional ayurvedic/homeopathic; and (d) geographic trends in healthcare.

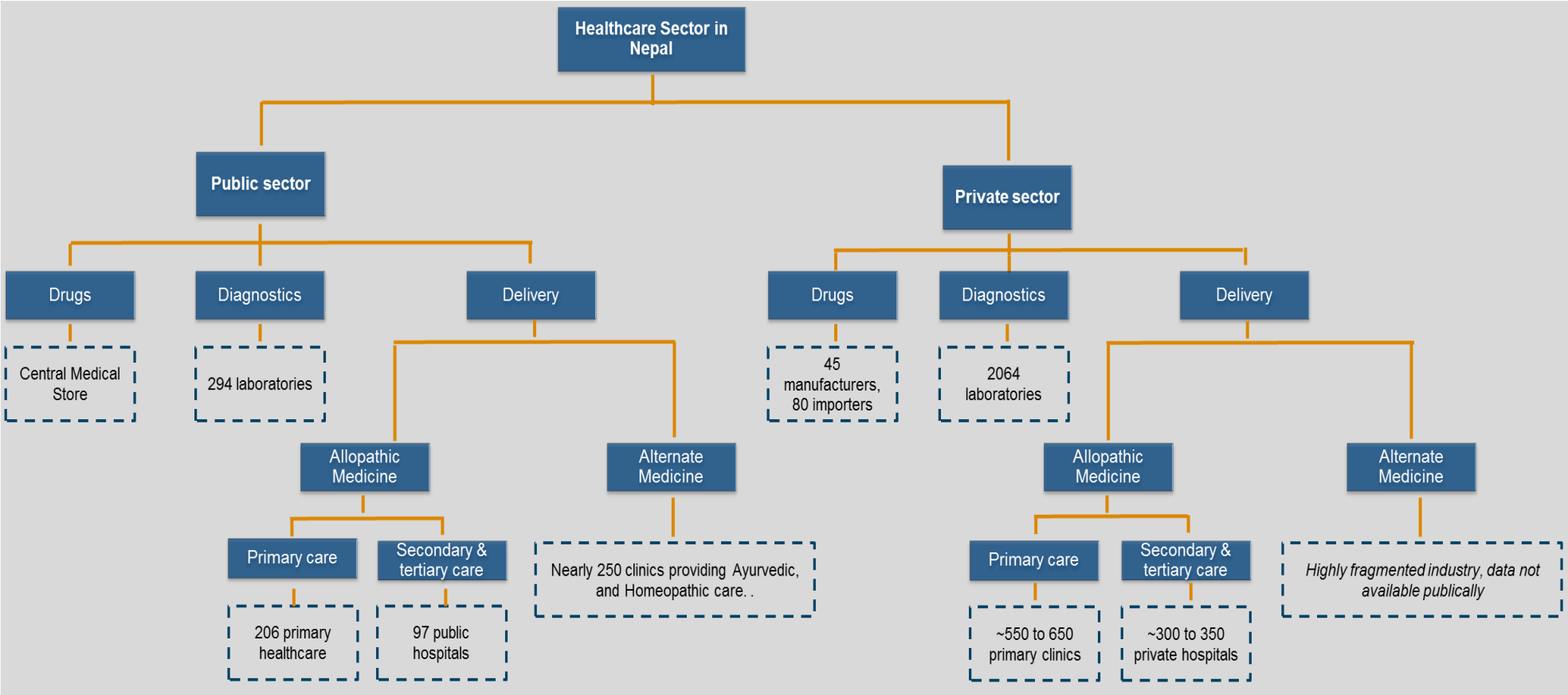
Analysing sector structure by public and private activity shows opportunity for greater private sector engagement

The private sector dominates the healthcare landscape in Nepal as shown in Figure 6. Since public sector data is more readily accessible, greater granularity can be seen but from the perspective of overall footprint

[34] Trade and Export Promotion Centre Nepal database, accessed in March 2014

the private sector is much larger. This is also evidenced by the high private component in annual healthcare expenditure – which is 64% of the annual spend on healthcare.

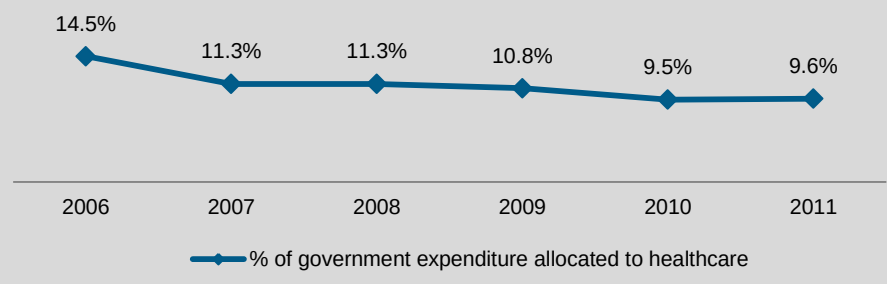
Figure 6: Broad landscape of public and private sector activity in Nepal



Source: Government of Nepal, Department of Health Services, Annual Report 2011-12 and Intellecap analysis; 2014

Government allocation to healthcare expenditure is low at 9.6%[35] as compared to the global average of 15.5%[36]; and has been falling steadily since 2006 as shown in Figure 7.

Figure 7: Falling government allocation to healthcare expenditure



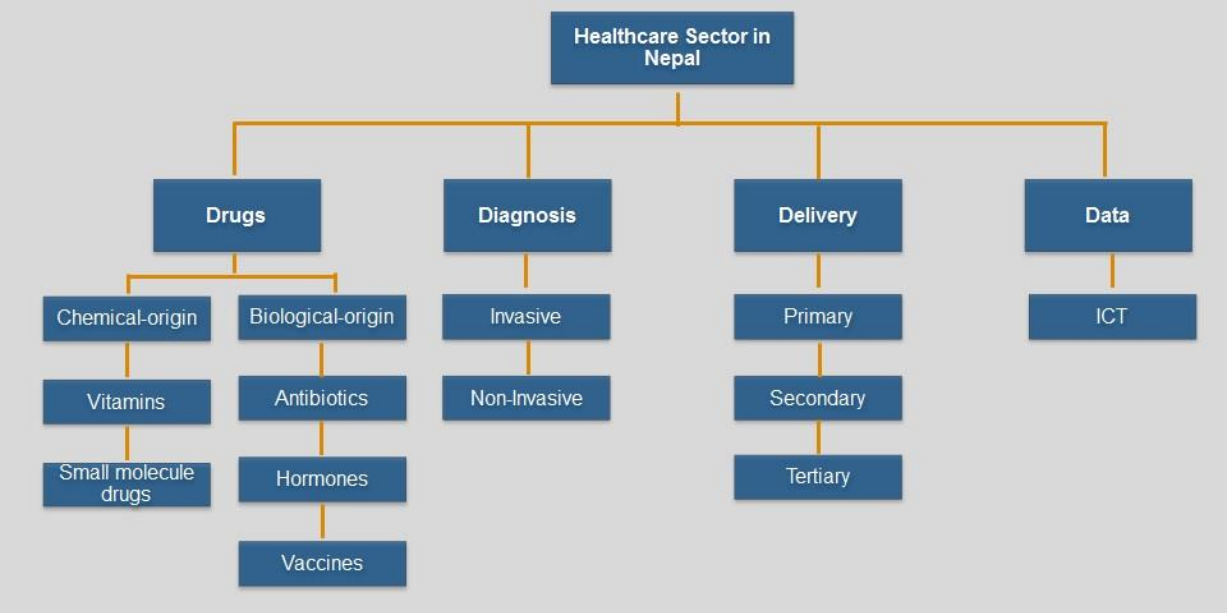
Source: World Bank Development Indicators; accessed in March 2014

While this presents a challenge for the country, it is also a great opportunity for the private sector to serve this unmet need. The government has also recognised this in the 2012 Annual Report of the Department of Health Services (DoHS), Nepal – where it has outlined need for greater private sector participation, building a robust regulatory environment to support this, and scaling infrastructure for data (like the Health Management Information System) and financing (like the recently unveiled National Health Insurance Scheme).

Analysing sector by 4 major sub-sectors shows significant private sector activity in drugs, diagnosis and delivery of tertiary healthcare

The healthcare sector can also be studied using a "4D framework" to identify sub-sectors of activity like Drugs, Diagnosis, Delivery and Data as shown in Figure 8.

Figure 8: Sub-sectors of healthcare in Nepal



Source: Intellecap analysis; 2014

[35] 2011 data from World Bank Development Indicators; accessed in March 2014
[36] 2004 data from World Bank Development Indicators; accessed in March 2014

Analysing the sector from this lens shows significant formal sector activity in drugs (both importers and local manufacturers), diagnosis and delivery; but very little in data. However with the growing footprint of hospitals and Government-led impetus on health data collection, it is expected that Information and Communications Technology (ICT) players seeking to service hospitals with Customer Relationship Management (CRM) and Management Information System (MIS) products will start entering the market as well.

Reviewing the sector by approaches to medicine shows that allopathic approaches are dominant but there is some amount of ayurvedic and homeopathic activity as well

Ayurveda and homeopathy are traditional South Asia systems of medical care based on herbs, minerals and animal products. The government recognises and supports these traditional approaches, and has a special unit called "Ayurveda and Alternative Medicine (AAM)" unit in the DoHS responsible for developing and overseeing ayurvedic and homeopathic infrastructure. The government infrastructure for traditional care shown in Figure 2 served nearly 160,000 people in 2012[37]. On the other hand, most ayurvedic activity in Nepal is unorganised and in the informal sector[38].

Finally, from a geographic lens, rural and mid-western hill areas are reported to have least access to healthcare while Terai districts have greater access

However, even in the Terai districts 82.4% people report receiving "just adequate" healthcare and only 1.9% report "more than adequate" healthcare. Quality of healthcare also differs significantly from urban to rural areas as shown in Table 2. This presents an opportunity for private sector entry into underserved regions. For example, models like "hub and spoke" health facilities and telemedicine have been seen in India that seek to extend the reach of existing city-based health facilities to per-urban and rural areas with comparatively low capital investments.

Table 2: Differences in rural and urban access to healthcare

Facility	Time taken to reach facility	
	Urban	Rural
Public hospitals	26 min	2 hrs. 28 min
Private hospitals/clinics	14 min	2 hrs. 6 min

Source: Nepal Living Standards Survey – Volume 1, Central Bureau of Statistics, 2012

Since the objective of this report is to consider investment opportunities in the private sector, the 4-D framework is most relevant for its purpose and is explored in more detail in the following pages.

3.1.1 Drugs or Pharmaceuticals

The pharmaceutical sub-sector includes import and production of chemical-origin and animal-origin drugs. Chemical-origin drugs include vitamins and small molecule drugs; while animal-origin drugs include vaccines, hormones and antibiotics. The import, production, sale and distribution of drugs are controlled by the Department of Drug Administration (DDA) which is part of the Ministry of Health and Population (MoHP).

[37] Annual Report 2011-12, Department of Health Services, Government of Nepal
[38] Intellecap analysis; 2014

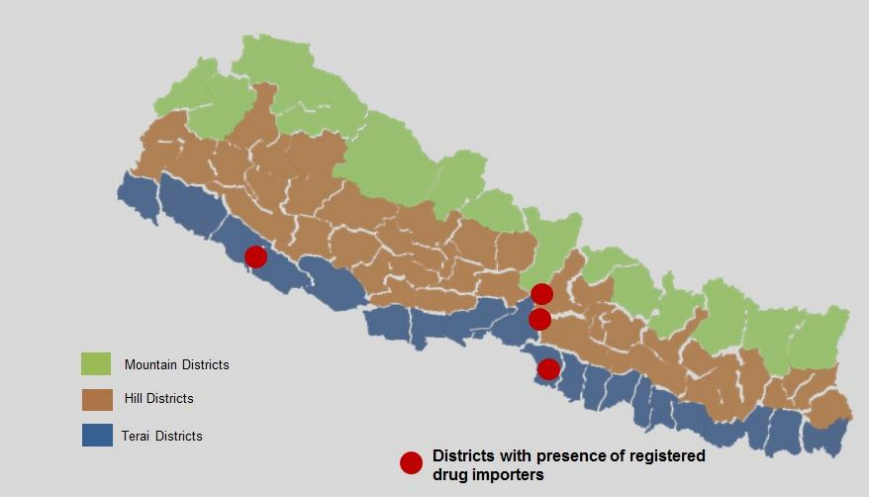
There are 3 major sources of drug supply in Nepal – (a) imported drugs which have a 55 to 60% market share[39] (b) drugs manufactured in Nepal; sometimes using imported Active Pharmaceutical Ingredients (APIs) which have a 40 to 45% market share and (c) drugs donated by development partners of the Nepalese government[40].

Drug importers cater to nearly half of the pharmaceutical market currently, but the market share is expected to decrease with rise in domestic manufacturing capabilities

There are 80 registered importers of drugs who channel in both processed drugs and semi-processed drugs or APIs for Nepalese pharmaceutical companies. Most of the imported drugs sold in Nepal originate from India, and these imported drugs are a significant source of competition for the domestic industry. Drug importers are offered attractive incentives by Indian pharmaceutical companies, which often also take up the cost of marketing in Nepal. While the business of drug import is lucrative in terms of assured revenues and good margins; there is little or no differentiation between businesses and as a result competition is high. With growth in domestic manufacturing capacities, and decrease of reliance on imports, drug importers may start to face more competition and margin pressures in the near future.

Drug importers are based out of Kathmandu and Birgunj, with very few in Nepalgunj as shown in Figure 5; and rely on surface transport through the Indian port city of Kolkata.

Figure 9: Geographic distribution of registered drug importers



Source: Department of Drug Administration, Nepal; accessed in March 2014

The domestic drug manufacturing industry is growing and as a result import-reliance on processed drugs is decreasing; however there is little or no domestic manufacturing of APIs which are completely import-reliant

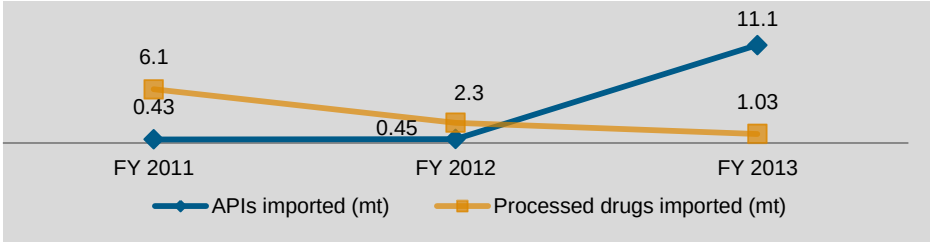
Nepal has 45 registered pharmaceutical companies that produce modern medicines. Most import APIs and then formulate, package and retail the drugs locally. The domestic manufacturing industry has been picking up momentum over the past 4-5 years, and it is estimated that Nepal-manufactured drugs have captured 40 to 45% of the domestic market[41].

Driven by the growth in domestic manufacturing, the import of processed drugs has seen a decline over the past 3 years as shown in Figure 6. Nepal imported over US$ 33.1 million worth of processed drugs

[39] Association of Pharmaceutical Producers Nepal, 2012 and Intellecap analysis from primary interviews conducted during the course of this study in February and May 2014
[40] Quantitative data on this was not available
[41] Association of Pharmaceutical Producers Nepal, 2012 and Intellecap analysis from primary interviews conducted during the course of this study in February and May 2014

and APIs in FY 2013[42]. In terms of sheer quantity, imports of APIs have been rising since FY 2011 while import of processed drugs has been falling.

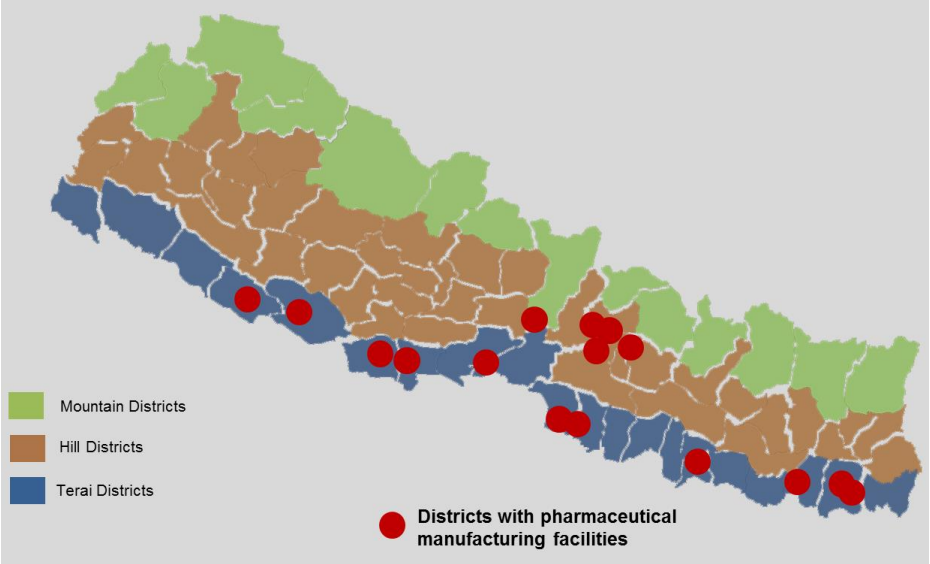
Figure 10: Changing import trends in drugs



Source: Trade and Export Promotion Centre Nepal, database accessed in March 2014

Pharmaceutical manufacturers are largely headquartered in Kathmandu and have factories on the outskirts of the city or in another city. Aside from Kathmandu, Bara and Bhaktapur have clusters of pharmaceutical manufacturing facilities. Figure 11 shows the geographic distribution of these facilities.

Figure 11: Geographic distribution of pharmaceutical factories in Nepal



Source: Department of Drug Administration, Nepal; accessed in March 2014

Ayurvedic drugs manufacturing is fragmented, though there has been some recent activity in organised, large-scale manufacturing

Ayurvedic drugs are manufactured from natural products like essential oils, roots and leaves; mixed in specific ratios. Individual ayurvedic clinics and treatment centres tend to follow different recipes and manufacture their own drugs[43]. As a result, this segment of the pharmaceutical industry is highly fragmented. However, there have been some recent attempts at organised, commercial-scale manufacturing of drugs. For instance, Grace Pharmaceuticals – a growing ayurvedic medicine manufacturer – has recently set up a factory in Rupandehi district and has been supplying medicines to neighbouring Terai and Hill districts. The factory was set up with an investment of US$ 1.56 million and has an annual capacity to produce drugs worth US$ 1.25 million.

[42] Data from July 2012 to June 2013 from Nepal's Export-Import Database; accessed in March 2014

[43] From primary interviews conducted during the course of this study in February and May 2014. See Annexure for list of interviewees.

Essential drugs are also donated by various philanthropic organisations and individuals

The import of these is regulated strictly by DDA and is only allowed when they meet specific quality criteria and have been sent in response to a specific demand. Overall, 27 categories of essential drugs consisting of over 135 different medications are allowed to be donated to Nepal from other countries. Most of these are channelled through to hill and mountain districts of the Far Mid-West which have the least access to healthcare. During the course of primary interviews done for this study, no reports were found of these donated medicines distorting the pharmaceutical market.

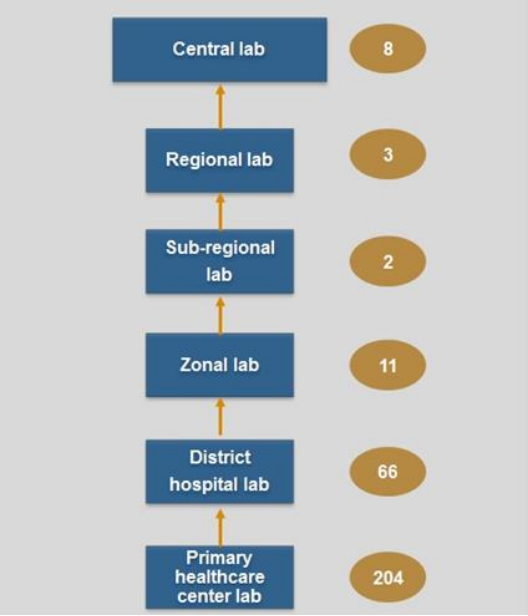
3.1.2 Diagnostics

Diagnostic facilities in Nepal are operated by the private and public sectors

Healthcare diagnostics includes the testing, analysis and reporting of disease incidence primarily based on organic samples like blood and saliva. In Nepal, diagnostic facilities are operated by both the public and private sectors. The overall regulation for both is managed by the National Public Health Laboratory (NPHL) including policies, guidelines, recommendations for improvement, and certification of private diagnostic facilities.

Public sector diagnostic facilities are organised as shown in Figure 12; and are more concentrated in the Central and Eastern Development Regions of Nepal.

Figure 12: Organisation of public sector diagnostic laboratories



Source: DoHS, Annual Report 2011-12

Landscape of private sector diagnostics is fragmented, and largely concentrated in urban areas

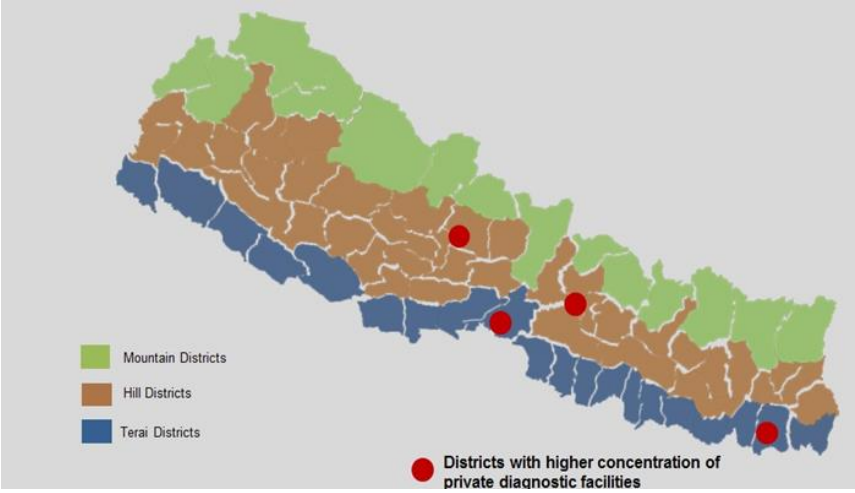
There are 2064 registered private diagnostic centres in Nepal. Nearly all of these are stand-alone facilities with little no formal linkage with treatment facilities or each other; and hence the landscape is very fragmented. Diagnostic centres that are part of a private hospital and these constitute a negligible section of the total industry.

Private diagnostic centres are predominantly “multi-specialty” in nature and offer a range of services like X-rays, ultrasounds, pathological testing, cardiac testing and endoscopy. Some centres are also

partnered with Indian diagnostic facilities for conducting more advanced tests. For instance, Super Religare Laboratories (SRL), one of India's leading diagnostic networks has entered into a JV with Life Care Sciences Ltd., a subsidiary company of the NE Group in 2010[44].

Private diagnostic centres are largely concentrated in Kathmandu and some of the larger towns and cities like Pokhara, Bharatpur and Biratnagar as shown in Figure 13.

Figure 13: Geographic distribution of private diagnostics facilities in Nepal



Source: Direct data for geographic distribution was unavailable; hence spread of private diagnostic facilities was estimated based on footprint of private hospitals and geographic spread of diagnostic clinics reported during primary interviews conducted during the course of this study in February and May 2014

Overall, there is still a heavy reliance on invasive diagnosis approaches that require skilled staff and significant laboratory infrastructure for processing

Most diagnostic clinics rely on outdated invasive technologies for collecting patient data, and as a result are heavily reliant on skilled staff and laboratory infrastructure. Further, often the test results are not available immediately and as a result there can be significant delay between a test and action taken to remedy disease. There is an opportunity for private sector innovation in building non-invasive diagnostic approaches[45] - which can be incentivised by increasing availability of funding for R&D; and building biases towards non-invasive rapid tests in public and private tendering.

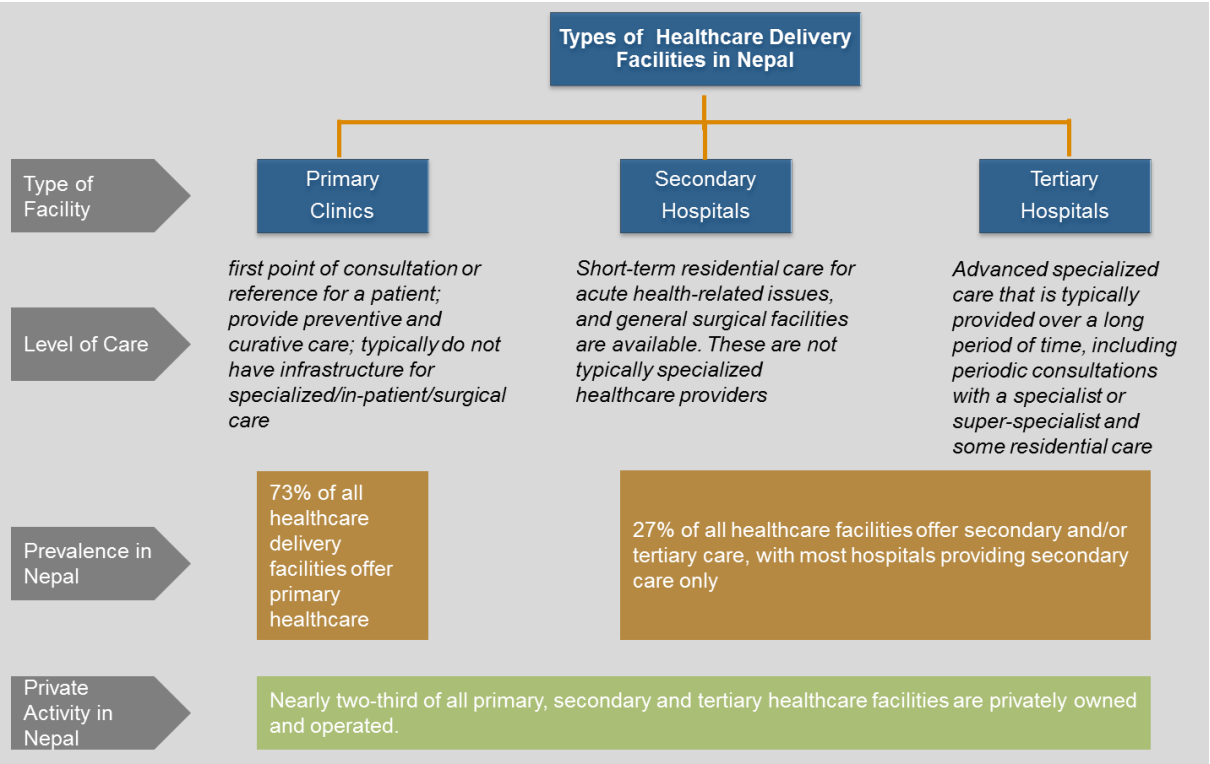
3.1.3 Delivery

Nearly two-thirds of all healthcare delivery facilities in Nepal are privately owned and operated[46]

Delivery of healthcare treatment in Nepal can be analysed under 3 different categories – primary, secondary and tertiary care as shown in Figure 14.

[44] See Case Box 4 in Section 6.3.2 for details
[45] No puncture or penetration of body is involved; instead data like pulse rate, imagery is used to diagnose health conditions
[46] Source: National Department of Health Sciences, Annual Report 2011-12; and Intellecap Analysis; 2014

Figure 14: Types of healthcare delivery facilities in Nepal



Source: National Department of Health Sciences, Annual Report 2011-12; and Intellecap Analysis; 2014

The MoHP regulates operations of private healthcare facilities in Nepal and also sources annual performance data which is can be used as a good indicator to estimate the landscape of private sector activity in healthcare delivery.

Private primary healthcare in Nepal is largely fragmented and small-scale

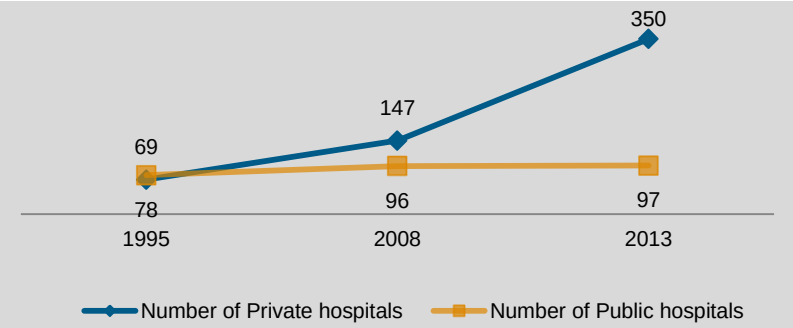
Primary healthcare in Nepal is largely provided by government primary healthcare centres and activity in the private sector in this space is largely fragmented and small-scale in nature. Most private primary clinics and facilities are structured as a one-person operation with a doctor in lead supported by 1-2 technical personnel. There are no significantly large chains of branded primary healthcare clinics; and from primary research done during the course of this study it was found that most private primary healthcare clinics depend on the promoter-doctor's brand equity to attract patients.

There are 74 registered private primary healthcare clinics in Nepal that report performance data to Health Infrastructure Information System (HIIS) operated by the DoHS, of which Kathmandu alone has 40; indicating that private primary clinics are not yet built a significant footprint outside of Kathmandu.

Private sector activity in secondary and tertiary healthcare is thriving and organised; and far outpaces services provided by the public sector

Secondary and tertiary healthcare has seen most private sector engagement and is currently the most organised sub-sector in healthcare. The prohibitive capital expenditure involved in acquiring land and setting up a hospital creates an entry-barrier that has limited activity in this sector mostly to medium and large businesses. Private secondary hospitals have emerged at an accelerated pace since 1995, and have multiplied 5-fold as shown in Figure 15. On the other hand; only 19 new public sector hospitals were launched in the same time-frame.

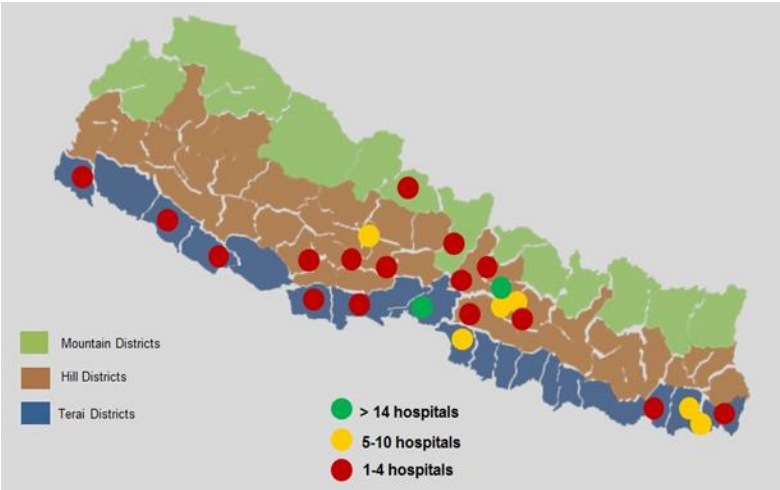
Figure 15: Growth of public and private hospitals (secondary and tertiary) in Nepal



Source: Hospital Survey, Ministry of Health and Population, 2008; Annual Report 2011-12, Department of Health Services, Government of Nepal; Primary data collected during the course of this study by Intellecap in 2014

Private secondary and tertiary hospitals are largely concentrated in Kathmandu and a few urban centres like Pokhara. 110 of these facilities report performance data to HIIS, and their geographic distribution is shown in Figure 16.

Figure 16: Geographic distribution of private hospitals that report performance data to DoHS



Source: MoHP geographical mapping of hospitals in Nepal

Tertiary healthcare facilities in Nepal are mostly "multi-specialty" in structure, with very few focusing solely on one specialty

Most tertiary hospitals are structured as multi-specialised facilities offering care across disciplines like cardiology, nephrology, trauma and emergency care, orthopaedics, obstetrics and gynaecology, and neurology and neurosurgery. The demand for tertiary care services is driven by the shifting pattern of disease burden in Nepal with increasing incidence of lifestyle diseases like diabetes and ischemic heart disease as shown in Figure 4.

There are very few tertiary healthcare facilities with single specialisation focus; and these tend to specialise in chronic healthcare issues like dental care and eye care.

Practice of alternate medicinal approaches is fragmented with high degree of informality

There are also some private clinics and hospitals that follow alternate systems of medicine like Ayurveda, Homeopathy and Unani approaches; but this market is highly fragmented and mostly in the informal sector. Hence, it has not been covered in detail in this study.

3.1.4 Data

Data sub-sector in healthcare has 4 major components – collection of patient and disease data, analysis of trends, application of insights for improving services, and ancillary IT-enabled support like Business Process Outsourcing (BPO). Nepal has very little activity in the data sub-sector.

On the public sector side, there is an open data collection initiative currently led by MoHP but the data is not yet reported to an extensive degree in the public domain.

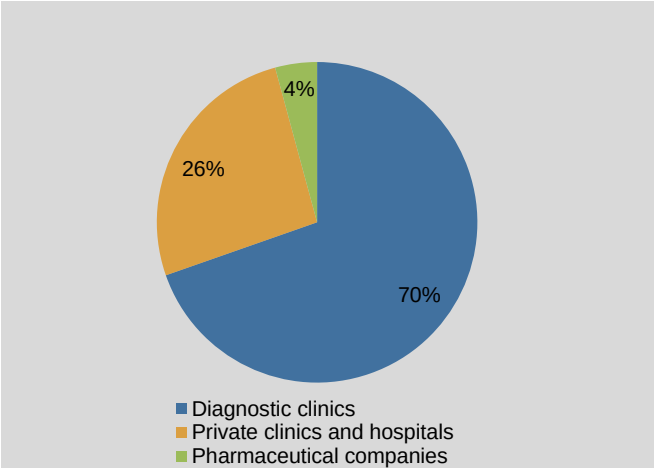
Private clinics and hospitals collect their own data, with newer facilities also using ICT tools like CRM platforms to manage patient data. Firms use international providers like SalesForce as well as products developed by Nepalese IT companies like GapsCo and MIDas Technologies. GapsCo has developed VitalCare, (hospital management software) which is used by Advanced Poly Clinic and B.P. Koirala Memorial Cancer Hospital[47]. MIDas provides Medical Practice Management Solution including Hospital Automation and Hospital Information Management Systems which are also used by several hospitals in Nepal including Nepal Medical Hospital, Tribhuvan University Teaching Hospital, and Kanti Children's Hospital[48].

3.2 Current State of Healthcare Sector in Nepal

Over two-thirds of the private healthcare segment consists of diagnostics clinics

There are nearly 3000 private healthcare enterprises in Nepal of which most are diagnostic clinics, followed by primary clinics, secondary and tertiary hospitals and pharmaceutical industry companies as shown in Figure 17.

Figure 17: Distribution of healthcare businesses in Nepal



Source: Annual Report 2011-12, Department of Health Services, Government of Nepal

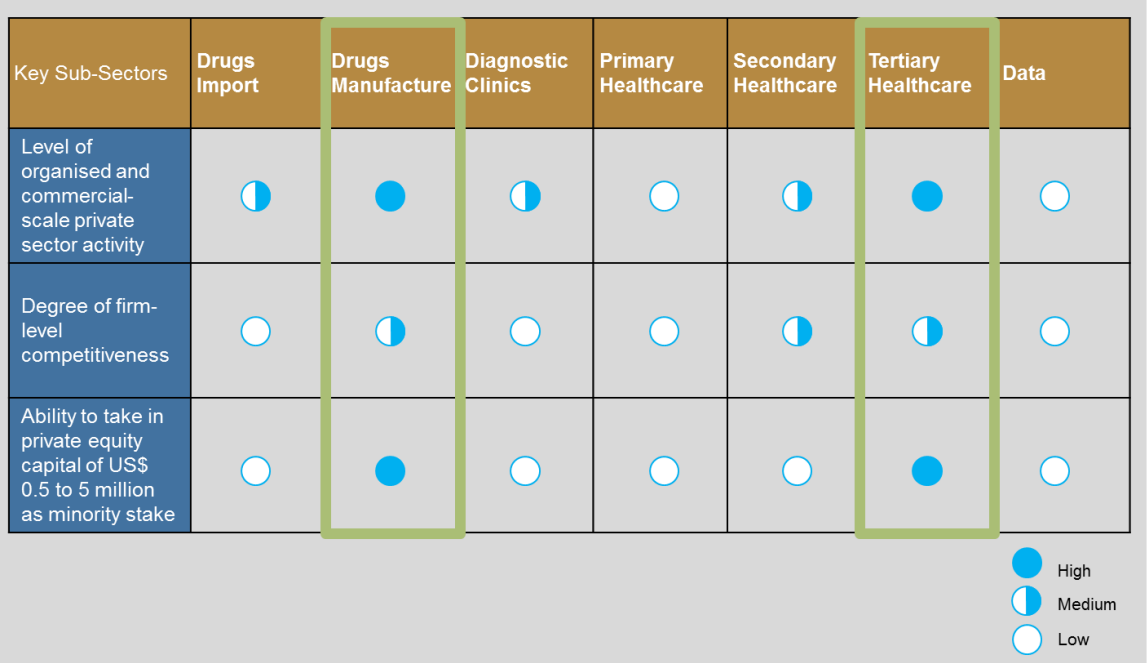
[47] GapsCo website
[48] MIDas website, primary interview conducted during the course of this study in May 2014

Of these, diagnostic clinics and primary healthcare clinics are fragmented businesses that are mostly registered as "sole proprietorships". Due to their fragmented nature, such businesses are inherently not scalable unless consolidation takes place. They are especially inappropriate for private equity investors since they do not have the ability to take in large amounts of equity capital as minority stake; and owing to their legal structure as "sole proprietorships' investments are not possible due to regulatory norms explain in Table 19. Pharmaceutical companies include both manufacturers and importers, where importers are essentially traders who supply to pharmaceutical manufacturers and retail chains, and are not scalable businesses.

The current state of the healthcare industry differs across sub-sectors, with some sub-sectors like tertiary healthcare and pharmaceuticals manufacturing being more advanced than others

These sectors show more organised and commercial scale activity, higher degree of firm-level competitiveness[49], and are better positioned to absorb private equity capital as shown in Figure 18.

Figure 18: Market-level competitiveness in the healthcare sector in Nepal



Source: Intellecap analysis, 2014

From Figure 18, it is evident that:

- Drugs manufacturing and tertiary healthcare are more advanced and organised sub-sectors and hence are most institutional investment-worthy than other sub-sectors
- Drugs import, diagnostic clinics, and secondary healthcare show some degree of organised and commercial scale activity but have low degree of competitiveness and low ability to take in private equity capital
- Primary healthcare and health data-related ventures show little or no organised activity

Since this report is focused on analysing the market for investments in private healthcare sector, only sub-sectors that show high to medium activity across all three criteria will be evaluated for a further deep-dive from this point onwards.

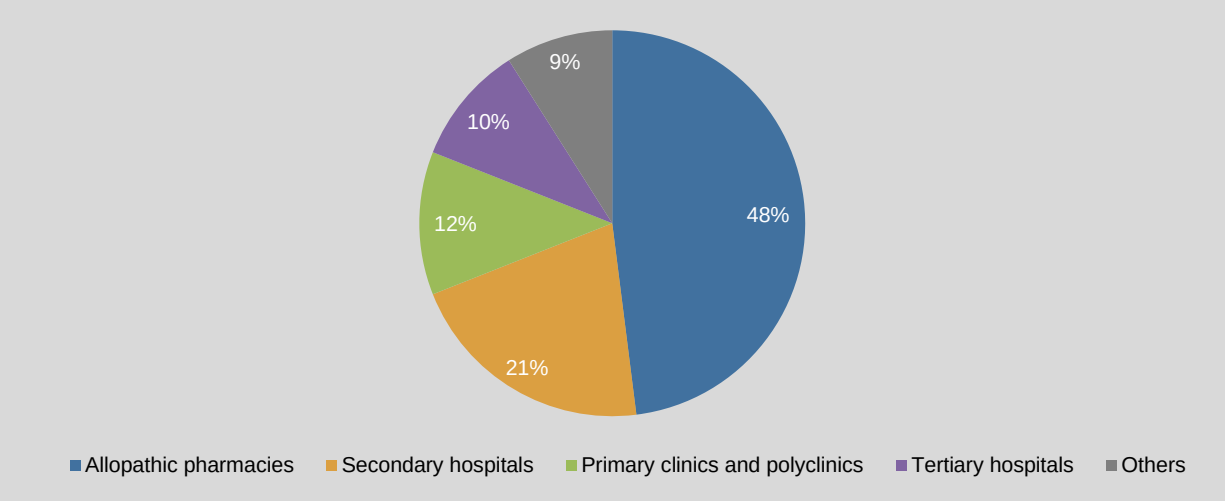
[49] Measured as a function of strength of the business model – including margins, brand value, use of technology and modern approaches, access to markets and financial health. Competitiveness is also a function of level of external competition that businesses in the sub-sector face; with overcrowded markets being less competitive.

3.3 Market Opportunity in the Healthcare Sector

Market opportunity in private healthcare in Nepal is largely driven by out-of-pocket private expenditure

The private healthcare sector in Nepal is primary driven by out-of-pocket private expenditure since health insurance coverage is low. As a result, 90.4% of private healthcare expenditure originates from out-of-pocket household spending, and this constituted a total of US$ 570 million in 2011[50]. The government estimates that 48% of this expenditure in incurred in purchasing medicines and other pharmaceutical products[51] as shown in Figure 19.

Figure 19: Distribution of out-of-pocket expenditure on healthcare in Nepal



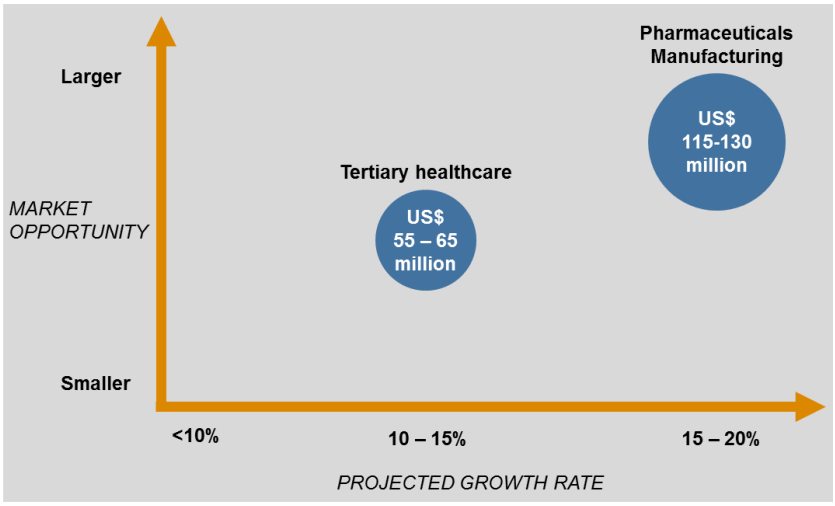
Source: Government of Nepal, Ministry of Finance, Nepal National Health Accounts 2003/04 to 2005/06

Tertiary healthcare and pharmaceutical manufacturing have a combined market opportunity of US$ 170 to 200 million in Nepal as shown in Figure 20.

Companies operating in tertiary healthcare and pharmaceutical manufacturing have significant market sizes and are reported to be growing at rates to 10 to 15% and 15 to 20% respectively, largely driven by growing domestic demand as a result of shifting disease burden. Promoters and management teams in these segments have also demonstrated more market-savviness by investing in improving capacities and forging partnerships with foreign entities for technology and knowledge transfer. Since these firms make comparatively larger investments in technology, infrastructure, and skilled talent; they are more likely to meet basic criteria for private equity investment-readiness.

[50] World Bank Development Indicators database, accessed in May 2014
[51] Government of Nepal, Ministry of Finance, Nepal National Health Accounts 2003/04 to 2005/06

Figure 20: Current market opportunity in private healthcare in Nepal

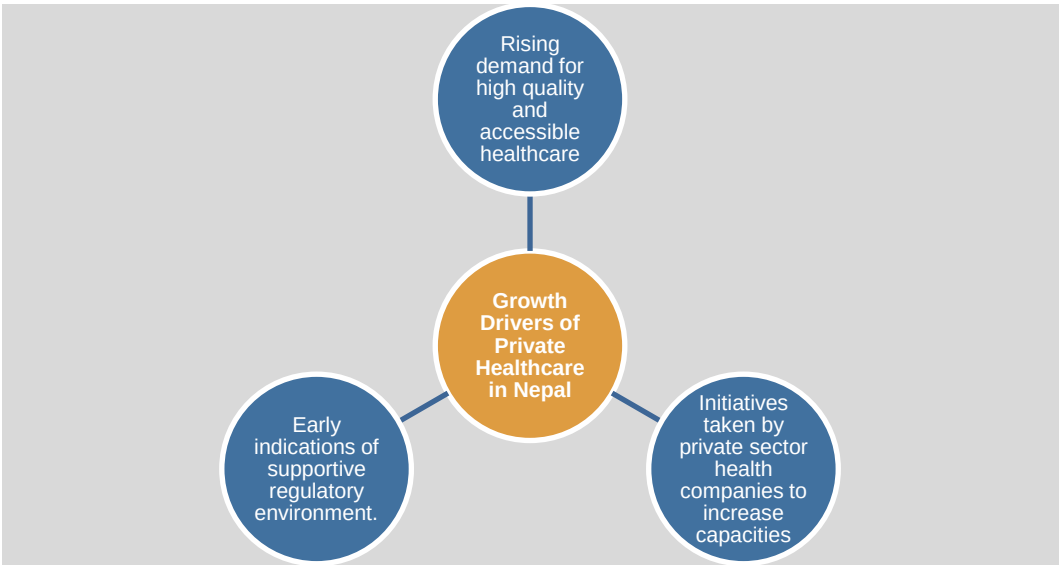


Source: Intellecap analysis, 2014. Please see Section 11.3 in the Annexure for details on methodology used.

3.4 Analysing Growth Drivers of Healthcare in Nepal

The key growth drivers of health sector businesses shown in Figure 21.

Figure 21: Key growth drivers of private healthcare in Nepal



Source: Intellecap analysis, 2014

Demand for high quality private healthcare is rising along with ability to pay for care

US$ 631 million was spent on private healthcare in Nepal in 2011; of which 90.4% was out-of-pocket expenditure[52]; and this spend has seen a year-on-year rise for the past decade as shown in Figure 2. This rise is driven by a growing population as well as growing incidence of Non-communicable diseases. Nepal's population has been growing at a rate of 1.4% over the past decade, and a similar

[52] World Bank Development Indicators; accessed in March 2014

growth rate is expected in the future as well[53]. Demand for high quality private healthcare is also driven by the rising incidence of chronic non-communicable diseases shown in Figure 3 like diabetes, asthma and migraine which require periodic purchase of medication and consultations with physicians.

The trend of increasing expenditure on private healthcare is also driven by increasing incomes as a result of socio-economic progress and rising remittances shown in Figure 15. The overall awareness of importance of preventive care is also increasing, and an uptick in patients seeking regular health check-ups has been reported during primary interviews conducted during the course of this study.

Private sector companies are investing in capacity improvement, technology and expertise

Secondary and tertiary hospitals like Om Hospital, Norvic Hospital and Grande International Hospital have made significant investments in infrastructure including building, technology and emergency transport arrangements as well as in expertise in specialised care and hospital management. These investments are expected to allow these hospitals to provide a higher standard of care and decrease the need for patients to travel to neighbouring countries like India, Malaysia and Singapore for treatment. One of the major trends observed is the rising incidence of partnerships between private hospitals in Nepal and foreign hospitals as shown in Table 3. Similar trends have been observed in diagnostic clinics and pharmaceutical manufacturers as well.

Several firms interviewed during the course of this study stated that they had undertaken specific programs to improve expertise of doctors, nursing and technical staff. While some conducted regular training and capacity building programs, others like Annapurna Neurological Institute and Allied Science were running scholarship programs to fund medical education of talent young people in foreign countries, with the caveat that they return to join the hospital as full-time staff members for at least 3 years.

Table 3: Partnerships between Nepalese and foreign hospitals

Nepalese Hospital	Foreign Hospital	Type of Partnership
Norvic Hospital, Kathmandu	Medanta Medicity, India	Technology and expertise transfer
Grande Hospital, Kathmandu	Samitivej Hospital, Thailand	Expertise transfer in hospital management
Vayodha Hospital, Kathmandu	Fortis Escorts Heart Institute, India	Expertise transfer in cardiac care

Source: Primary studies conducted by Intellecap in March, 2014

Early signs of the creation of a supportive regulatory environment are visible

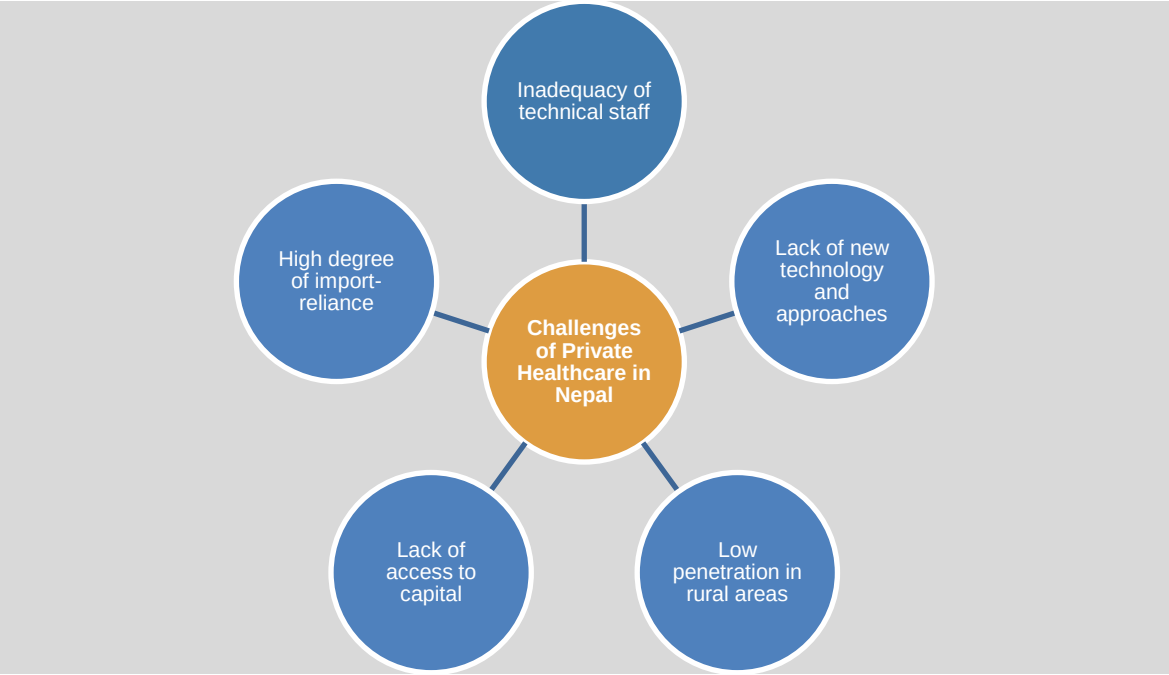
Some early signs of the creation of a supportive regulatory environment are visible. These include creation of universal healthcare insurance scheme which will increase ability of low income patients to pay for healthcare, and formation of policy framework around Public-Private Partnerships (PPP) between the state and private sector for healthcare delivery.

[53] World Bank Development Indicators; accessed in March 2014

3.5 Challenges Facing the Healthcare Sector in Nepal

The sector faces some major challenges as it seeks to scale and address the demand for healthcare as shown in Figure 22.

Figure 22: Challenges of private healthcare in Nepal



Source: Intellecap analysis, 2014

Nepal faces a serious crunch in supply of skilled healthcare professionals

The ratio of healthcare personnel to population is low across physicians and nursing staff when compared to global average as shown in Table 1. This is attributable to two reasons – insufficient schooling infrastructure as well as massive brain drain of trained healthcare staff.

The country has a little over 12,000 doctors registered and it is estimated that 20% to 30% of them practice abroad. A 2012 survey of graduates of one of Kathmandu's leading medical schools - Tribhuvan University's Institute of Medicine - found that 36% of the doctors who graduated between 1983 t0 2004 have migrated to other countries for better salaries, facilities and quality of life[54]. Many are driven by the load of student loans taken to study in private universities. As a result, over 1,500 doctors graduate from medical schools each year but only half remain in Nepal to practice medicine. Similar patterns have been observed across nursing and pharmaceutical graduates as well.

A multi-pronged approach is needed to combat this challenge – the infrastructure to educate and train healthcare professionals must be expanded, and at the same time greater incentives provided for practitioners to stay back in Nepal after they graduate, including subsidised financing for courses, tax breaks and better remuneration to salaried professionals. Finally, healthcare innovations that allow smaller number of doctors and nurses to serve larger populations must be encouraged – for example models like Aravind Eye Care in India which uses a combination of managerial, semi-skilled and skilled

[54] Nick Simons Institute; 2012

practitioners in a fine-tuned process that allows a single physician to conduct over 100 cataract surgeries a day and fund 70% of free of cost cataract surgeries through 30% of paid surgeries[55].

Adoption of newer technology and approaches in Nepal is slow, creates dependence on neighbouring countries for more advanced services

Diagnostic and healthcare delivery approaches are less advanced in most facilities except 4-5 newer and better financed hospitals in Kathmandu. This creates a dependence on neighbouring countries for more advanced treatment as well as diagnosis. During the course of primary study, several diagnostic clinics reported that they were shipping test samples to India for analysis since technology and expertise were not available in Nepal. On average, clinics that were offering this service in partnership with Indian diagnostic labs were incurring an additional expense of US$ 12,000 to 15,000 a year. Greater investments from public and private sector are needed to bring in these newer technologies and approaches; and the medical education curriculum must also be revised to increase familiarity with these.

High costs and low infrastructural readiness for private sector to grow to rural areas, mid and far western hills

Most of healthcare facilities are concentrated in a few cities like Kathmandu, Pokhara and Birgunj; with very little access to healthcare in rural areas and mountain districts. It is not commercially viable for the private sector to expand to these regions due to high upfront capital investments in land acquisition and building infrastructure; less developed road and power infrastructure in these areas; and lack of local talent. These challenges are "systemic" in nature and can be addressed by the government by creating Special Economic Zones (SEZ) with tax breaks, cheaper land and other incentives for private sector; improving infrastructure like roads and power; and investing in schools and colleges that can churn out local talent to work in these areas. The private sector can also use innovative delivery models for these regions through models like telemedicine, mobile health clinics, and hub-and-spoke models of healthcare delivery.

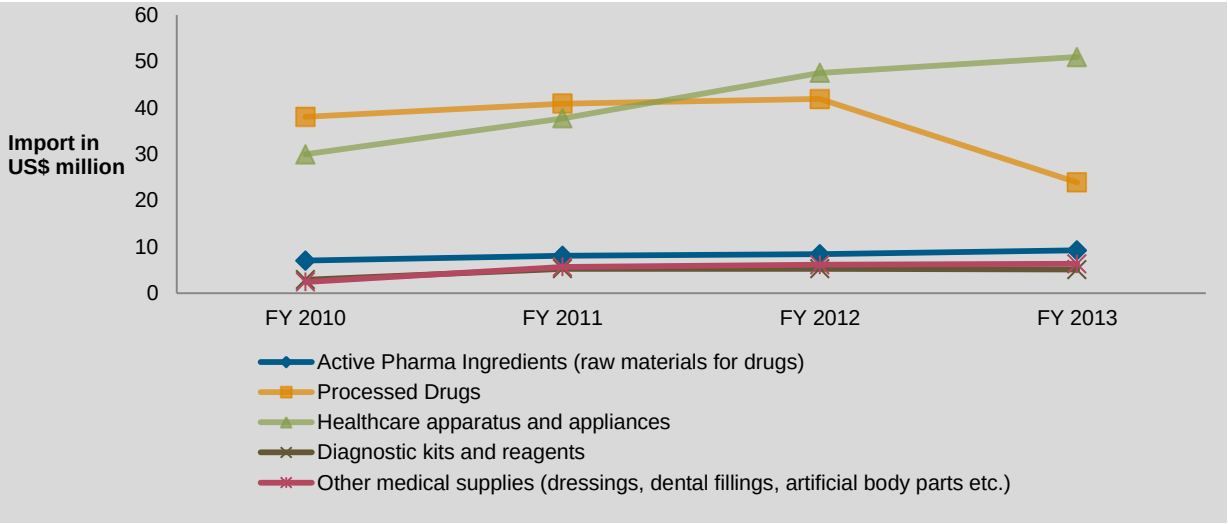
Nepal is import-reliant for a variety of pharmaceuticals and medical supplies which increases the overall cost of healthcare delivery

The healthcare industry in Nepal is import-reliant to a high degree as shown in Figure 23. In FY 2013, over US$ 95.42 million worth of healthcare commodities were imported into the country with India being the largest supplier[56]. The commodities imported include processed and semi-processed (API-form) pharmaceuticals, health equipment, diagnostic kits and reagents, and medical supplies like wound dressings, dental fillings, pacemakers and artificial body parts.

The demand for processed pharmaceuticals has seen a drop, largely driven by emergence of a domestic pharmaceuticals manufacturing industry which has decreased import-reliance. Similar opportunities also exist in other commodities as well. For instance Nepal imported over US$ 1 million worth or 0.4 metric tons of adhesive medical dressings in FY 2012 and exported 0.04 metric tons of cotton linters used in making dressings in the same year[57]. Domestic industries that use these cotton linters to make medical dressings would be able to supply hospitals at much lower prices.

[55] Aravind Eye Care website
[56] Export-Import Database Nepal; accessed in March 2014
[57] Export-Import Database Nepal; accessed in March 2014

Figure 23: Historical trends in import of healthcare commodities



Source: Export-Import Database Nepal; accessed in March 2014

4. Regulatory and Policy Landscape in the Sector

Healthcare enterprises fall under the purview of MoHP; with the DoHS being specifically responsible for policies and guidelines concerning hospitals, clinics and diagnostic laboratories; and DDA being responsible for overseeing policies and guidelines for the pharmaceutical industry.

Overall, the regulatory and policy landscape in the healthcare sector is positive. It incorporates some international best practices, and though direct support for private sector is currently low – this is expected to improve in the medium term as regulations evolve.

The regulatory regime in Nepal follows several international best case practices that aim to drive better healthcare outcomes for the general population, such as - (a) earthquake proofing regulations, (b) mandatory free treatment for 10% of the bed occupancy, and (c) environmental impact assessment of projects

Earthquake proofing of hospitals in Nepal is critical due to the high degree of seismic risk[58] that Nepal faces. In the event of an earthquake, these hospitals will not need to be resilient to protect patients and staff; but also remain functional to address disaster-related healthcare needs. Kathmandu city is especially a high risk zone since it is built on top of a fault line that could cause earthquakes ranging up to 8 and above on the Richter scale[59]. An earthquake of this intensity could kill over 100,000 and injure another 300,000 in a single instance. Hence, the government has recently passed regulation requiring that all hospitals be made earthquake proof. While this is a good measure, some hospitals interviewed during the course of this study reported that they currently lack access to capital to undertake earthquake proofing, the cost of which can be as high as 20 to 30% of the original building costs[60]. Since the long-term benefits of this regulation are clear, the government and its aid partners could hasten the process of earthquake proofing by creating access to subsidised and interest-free loans.

[58] National Society for Earthquake Technology-Nepal website, accessed in May 2014
[59] United Nations Office for the Coordination of Humanitarian Affairs, Preparing for an Earthquake in Kathmandu Valley, 2013
[60] From primary interviews conducted during the course of this study in February 2014

Private hospitals are also required to provide free in-patient treatment for at least 10% of bed occupancy. This regulation is part of the newly issued cabinet directive on "Establishment, Operation, and Upgradation Standards of Health Institutions – 2070". The regulation dictates that this free treatment be made available to underprivileged patients and includes consultative and surgical care, including mortuary arrangements in the event of death.

Environmental impact assessment and implementation of recommendations are needed at project inception stage, and may need to be repeated a regular frequency during project operations depending on the outcome of the inception study. This is a progressive measure since several concerns have been raised around the climate-impact of rapid infrastructural development in Nepal, and measuring the impact is a necessary first step towards reducing and mitigating it.

A new strategy roadmap for healthcare regulation being created under the "Nepal Health Sector Programme – 2" is expected to improve the business environment for private sector in healthcare

A new policy strategy – the "Nepal Health Sector Programme – 2: 2010-2015 (NHSP-2)" clearly outlines the importance of closer collaboration between public and private sector to deliver quality healthcare. The strategy states that regulatory frameworks will be designed for leveraging skills, expertise and capital of the private sector in developing healthcare. One of these specific regulatory frameworks will include development of a sectorial Public Private Partnership (PPP) policy.

However, progress on further building out and implementing these strategies have been slow due to deadlocks in decision-making by the government. With the conclusion of elections in 2013, the newly elected government is expected to focus its efforts on moving forward with building a better regulatory environment for the healthcare sector.

4.1 Licensing Requirements

75 to 90% of the licences needed by private healthcare companies constitute common licences needed by all private industries in Nepal; pharmaceutical manufacturers require 3 special licences and hospitals require 1 special licence

Due to the nascent nature of Nepal's healthcare regulatory system, private healthcare companies need only a few special licences in addition to those required by any private company as shown in Table 4. The cost of procuring a licence ranges from 10 cents (US$) for VAT registration to over US$ 2000 for incorporation of a business; and the validity ranges from a year until the licence holding entity ceases to exist. Different licences need to be procured from different ministries and departments, taking from 1 day to over a year in processing time.

In addition to these generic licences, pharmaceutical manufacturers need 3 special licences to import, manufacture and advertise pharmaceutical products. Procuring these licences can take from 20 to 25 days. On the other hand, private hospitals need only 1 additional licence to build and operate their facilities, and procuring this licence can take up to 90 days.

Table 4: Licences needed by private healthcare companies

Sub-sector/ Licences	Hospitals	Pharmaceutical companies
1. Licence for hospital and nursing home	✓	
2. Licence to have publicity and advertisement of pharmaceutical products		✓

Sub-sector/ Licences	Hospitals	Pharmaceutical companies
3. Licence to import pharmaceutical products		✓
4. Licence to manufacture pharmaceutical products		✓
5. Agency registration	✓	✓
6. Company registration	✓	✓
7. Design registration	✓	✓
8. Industry registration	✓	✓
9. Partnership Firm Registration	✓	✓
10. Patent Registration	✓	✓
11. Permanent Account Number (PAN) Registration	✓	✓
12. Permission for Foreign Investment & Technology Transfer	✓	✓
13. Registration of cooperatives	✓	✓
14. Registration of institutions	✓	✓
15. Trademark Registration	✓	✓
16. Value Added Tax (VAT) Registration	✓	✓

Source: Nepal Business Licence e-portal

4.2 Taxation and Royalties Framework in Healthcare

The private healthcare industry in Nepal has very few tax and subsidy incentives, and given the difficult nature of business, this can drive up prices for end consumers making healthcare services unaffordable

Nepal currently does not offer significant regulatory incentives for private sector to enter healthcare market. Other developing countries often have specific incentives for private healthcare companies such as tax breaks for a certain period of time, subsidised land, and relaxation on import duties. For instance in India, the government provides free land for 99 years to private hospitals in underserved areas, has relaxed import duties for several hospital projects, and does not tax revenues of hospitals with more than 100 beds for the first 5 years of their operations. The regulatory regime in Nepal could consider bringing in some strategic incentives that support the growth of private healthcare companies while at the same time do not distort the market.

Private tertiary hospitals and pharmaceutical manufacturers follow the same tax structure, and are not given any significant tax breaks

Private tertiary hospitals and pharmaceutical manufacturers follow a standard corporate tax structure as described in Table 5, and pay a statutory corporate income tax of 25% in addition to other taxes and duties.

Table 5: Taxation structure for healthcare business in Nepal

Element	Statutory Tax Rate	Comments
Corporate income tax	25%	Percentage of taxable profit
Employer – paid social security	10%	Percentage of gross salaries

Element	Statutory Tax Rate	Comments
contributions		
Taxes on vehicles	~ US$ 260	Fixed rate
Municipal business tax	~ US$ 100	Fixed rate
Tax on interest	15%	Percentage of interest income
Property tax	Various rates	Depends on land value
Capital gains tax	20%	Percentage of capital gains
Stamp duty on financial contracts	Various rates	
Health Service Tax[61]	5%	Percentage of taxable profit

Source: World Bank, Doing Business Report, 2013; and Inland Revenue Department, Nepal, 2014

4.3 Impact of Regulations on Enterprise Operations and Value

The regulatory regime for healthcare in Nepal is progressive and follows several international best practices to drive positive healthcare outcomes for the general population[62]; however there are few policies that also directly create a positive impact on enterprise value and operations.

Operations of private tertiary hospitals and pharmaceutical manufacturers are positively impacted by - (a) regulation allowing mergers of private hospitals, and (b) a few subsidies and incentives that result in cost savings for private companies

The government is encouraging consolidation in the healthcare space and has created guidelines to enable merger of private hospitals as part of the "Directives on Establishment, Operation and Upgrading of Health Institute 2013". The intended beneficiaries of this regulation include medium-sized tertiary hospitals that are seeking to upgrade and scale; and have complementary services. Secondary hospitals that seek to diversify into tertiary care but lack access to finance and know-how can also benefit from this scheme. While private sector hospitals can benefit from this regulation by increasing their value and driving efficiency in operations; there may be need for specialised M&A advisory services since the regulation is not clear on use of infrastructure like hospitals beds and human resource restructuring.

A few subsidy schemes are currently applicable to private hospitals and pharmaceutical manufacturers in Nepal. These subsidies may be leveraged to decrease operational expenses and reap tax breaks from diversification of manufacturing capacities as shown in Table 6. Some promoters of private healthcare companies interviewed during the course of this study indicated that the implementation of these policies has been weak, and even when implemented they do not result in significant decrease in operational expenditure or capital investments in setting up and scaling up a private healthcare company.

Table 6: Subsidies and incentives available to private healthcare companies in Nepal

S.No	Subsidy or Incentive	Applicability	
		Pharmaceutical manufacturers	Private tertiary hospitals
1	Private hospitals can claim import-duty relaxation (payment of only 1% of value of		✓

[61] Health service tax is relaxed for private healthcare companies that register for Value-Added Tax (VAT)
[62] As described in Section 4

S.No	Subsidy or Incentive	Applicability	
		Pharmaceutical manufacturers	Private tertiary hospitals
	commodity) for importing specialised vehicles like ambulances and mortuary transportation		
2	Private healthcare companies that register for VAT do not need to pay Health Service Tax of 5%		✓
3	VAT is exempted for raw material and packaging material used by pharmaceutical industries	✓	
4	Pharmaceutical manufacturers that diversify through reinvestment in the same or any other industry, or expand installed capacity by 25% or more, modernise technology or develop ancillary industries, shall be entitled to a deduction of 40% of new additional fixed assets from their taxable income	✓	
5	As National Priority Industries, pharmaceutical manufacturers and tertiary hospitals can claim income tax relaxation of up to 2 years	✓	✓
6	National Health Insurance Policy 2013 allows for private sector hospitals to be empanelled as healthcare providers under this scheme, and services they provide to low income people will be fully or partially paid for out of the National Health Insurance Fund. This will allow private hospitals and facilities to also serve lower income segments.		✓
7	Aama Suraksha Policy subsidises part or complete costs of healthcare provided for childbirth		✓

Source: Nepal Financial Budget 2013-14; Supreme Court of Nepal – Industrial Enterprises Act; and Intellecap Analysis 2014

5. Foreign Investment Policy in Healthcare in Nepal

The government is supportive of foreign investments in healthcare sector, and allows 100% FDI in all private healthcare companies

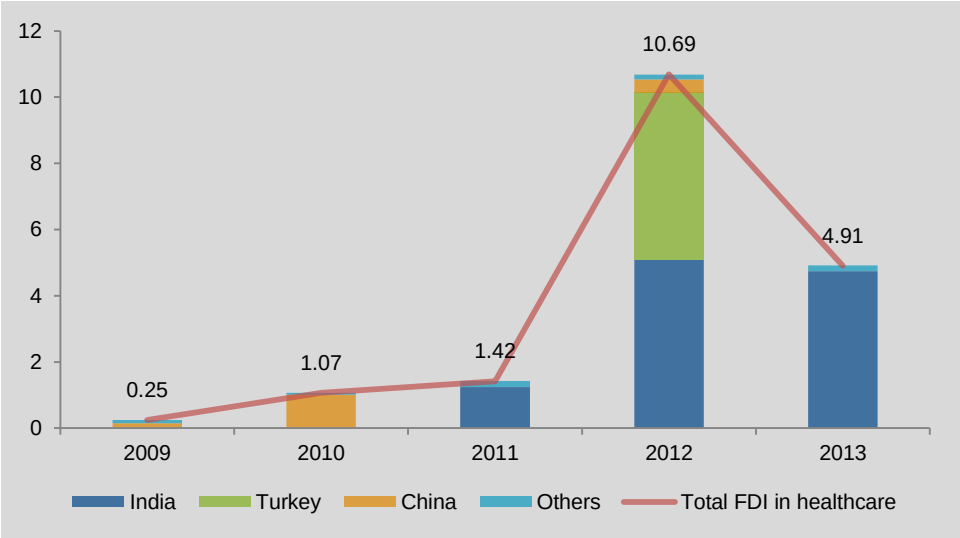
The government allows and encourages Foreign Direct Investments (FDI) with 100% ownership in all areas of healthcare in Nepal. As a result of this positive environment, significant foreign investments have been observed in the past 2-3 years, especially in private tertiary hospitals.

FDI in private healthcare companies has been growing at a CAGR of 45% since 2009

Over US$ 18.34 million in foreign investments have been channelled into healthcare from over 12 countries since 2009[63]. Aside from promoters' own equity, this is the single largest source of risk capital available to the private healthcare segment in Nepal today. FDI in this sector has been growing at a CAGR of 45%, and top contributors have been India, Turkey and China[64]. India has been the key source of FDI since 2011 as shown in Figure 24.

[63] Ministry of Industries, Industrial Statistics Report, Nepal, 2012-13
[64] Ministry of Industries, Industrial Statistics Report, Nepal, 2012-13

Figure 24: Growth of FDI in healthcare in Nepal



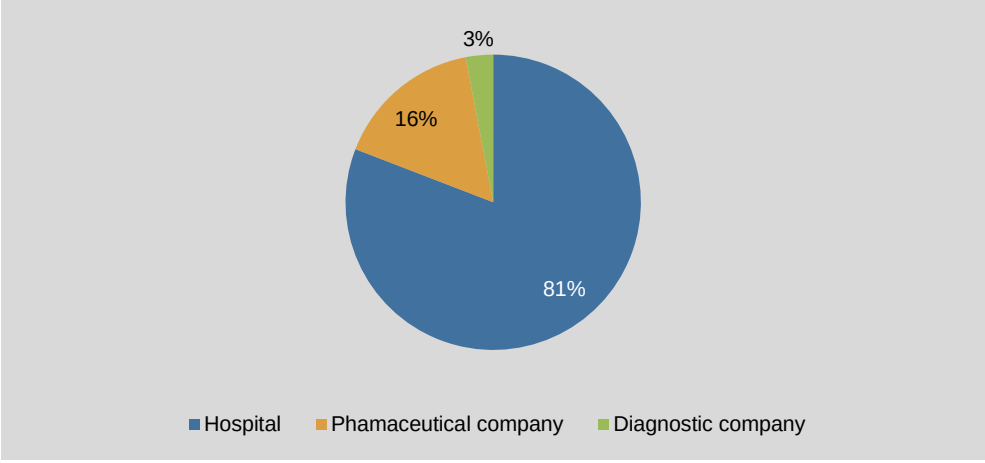
Source: Ministry of Industries, Industrial Statistics Report, Nepal, 2012-13

Over 81% of FDI in healthcare sector has been channelled into hospitals

Cumulative capital flows in healthcare since 2009 indicate a strong bias towards hospitals in Nepal as shown in Figure 25. The Department of Industries reported 16 foreign investments in Nepalese hospitals during this time; of which 7 are traditional medicine hospitals (Chinese and Ayurvedic) and 1 is a palliative care facility. 10 of 16 investments were structured as 100% holding by foreign investors[65]. While details of all hospitals like names and locations were not released in the reports, Chitwan Medical College was specifically mentioned as a Nepalese hospital that has raised investment from an Indian and a Nepalese individual for a 17.4% foreign equity stake.

US$ 2.9 million has also been channelled into 6 pharmaceutical companies, of which half produce traditional or herbal medications and products; and another US$ 0.54 million has been invested in diagnostic companies[66].

Figure 25: Distribution of healthcare FDI inflow across different sub-sectors



Source: Ministry of Industries, Industrial Statistics Report, Nepal, 2012-13

[65] Ministry of Industries, Industrial Statistics Report, Nepal, 2012-13
[66] Ministry of Industries, Industrial Statistics Report, Nepal, 2012-13

JVs with foreign healthcare companies can help domestic healthcare companies not only access financial but also technical assistance, and hence scale faster

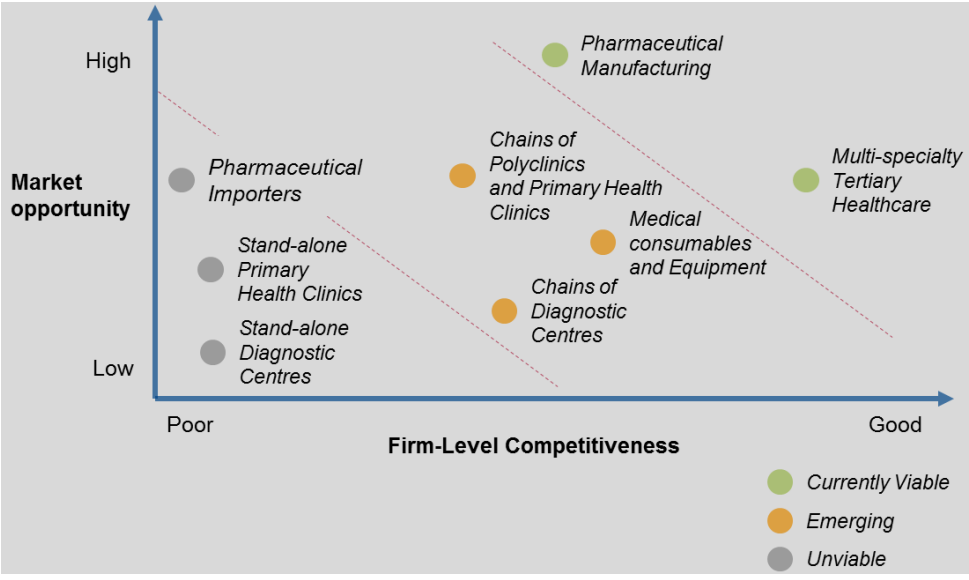
Increased inflows of foreign investments can serve to catalyse growth of the healthcare sector and help to provide state-of-the-art care in Nepal itself. This would bring down the incidence of people traveling to foreign countries for treatment, who represent an annual market opportunity of US$ 15 to 20 million in healthcare that is lost to foreign countries each year. This market can instead be captured by domestic hospitals if they tie-up with foreign hospitals and provide the same standard of treatment in Nepal.[67] Aside from financial contribution to firms, foreign firms that form JVs with domestic companies are beneficial in bringing in expertise in the form of technology and processes, management best-practices. They also serve to add to credibility of Nepalese hospitals since many people who travel abroad to countries like India and Thailand for care seek out these very same hospitals for treatment[68]. This strategy has been successfully implemented by leading private tertiary hospitals in Nepal as shown in Table 3.

6. Investment Opportunities

Based on the firm-level competitiveness demonstrated by various healthcare sector business models, and the market opportunity for their services in Nepal; investment opportunities in the sector can be divided into viable, emerging and unviable as shown in Figure 26.

Firm-level competitiveness can be measured as a function of strength of the healthcare business model – including margins, brand value, use of technology and modern approaches, access to markets and financial health. Competitiveness is also a function of level of external competition that businesses in the sub-sector face; with overcrowded markets being less competitive. On the other hand, the market opportunity for each business has been estimated based on insights from practitioners interviewed during the course of this study, and the distribution of out-of-pocket private expenditure on healthcare as shown in Figure 20.

Figure 26: Comparison of private equity investment opportunities in healthcare in Nepal



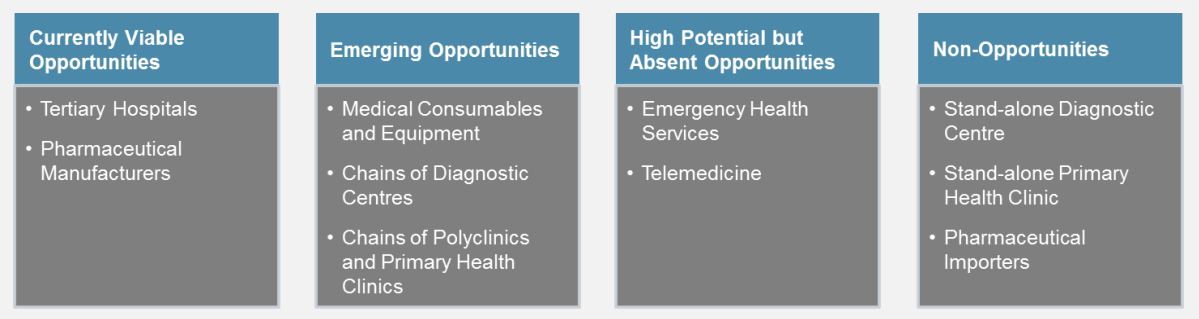
Source: Intellecap analysis, 2014

[67] 15,000 people travel abroad for medical care from Nepal each year as per Nepal Tourism Statistics 2012 (published by Ministry of Culture, Tourism & Civil Aviation); assuming that they undergo surgery at a cost of US$ 1000 and spend another US$ 350 to 500 on in-patient care for a week.

[68] See Table 3 for details

Based on the analysis in Figure 26, the investment opportunities for private equity investors in healthcare in Nepal can broadly be categorised on the basis of currently viable, emerging, and non-opportunities as shown in Figure 27. In addition to these, investors may also benefit from being cognisant of high potential healthcare models that have been successful in other developing countries of South Asia, but are not currently present in Nepal. Such models are bound to eventually make their way into Nepal by organic and inorganic means; and when they do they would also be considered emerging investment opportunities.

Figure 27: Categorisation of private equity investment opportunities in healthcare in Nepal



Source: Intellecap analysis, 2014

Currently viable investment opportunities exist in tertiary hospitals and pharmaceutical manufacturers as shown in Figure 26; with investments in tertiary care emerging as most attractive

These businesses demonstrate high level of organised and commercial-scale activity; high degree of competitiveness; and the ability to take in large sums of private equity capital with preference for minority stake investments as discussed in Section 3.2.

The different dimensions used to compare "attractiveness" of these businesses included current state of consumer demand; and degree of "competitiveness" demonstrated by these firms. Competitiveness was measured as a function of strength of the business model – including margins, brand value, use of technology and modern approaches, access to markets and financial health. Competitiveness is also a function of level of competition from foreign companies that businesses in each of these sub-sectors face.

Based on this analysis, Tertiary healthcare is found to be more attractive as it has good level of competitiveness and high consumer demand. With increasing out-of-pocket private expenditure, foreign travel for medical treatment purposes and emergence of chronic NCDs requiring frequent care – these hospitals are well set to provide an important service and continue their growth trajectory. Moreover this market is far from saturated especially in regions outside Kathmandu as indicated in primary research.

While the domestic pharmaceutical manufacturing industry is also attractive, it currently faces stiff competition from imported drugs which can retail at lower prices than domestically-manufactured drugs. Since the end consumer will prefer a cheaper and often better-known brand to a new and more expensive brand; pharmaceutical manufacturers are focusing on taking steps to address this challenge. Pharmaceutical companies interviewed during the course of this study reported that they were increasing production capacities and diversifying range to bring in higher revenues and economies of scale that allow them to compete effectively with foreign firms. In addition, domestic pharmaceutical companies are also investing in brand building and quality assurance programs to grow customer trust; and invest in building distributor networks for improved access to customers.

Emerging opportunities with future potential can be explored in medical consumables and tools companies, chains of diagnostic centres, and chains of polyclinics and primary health clinics

Nepal imports over US$ 50 million worth of medical consumables and tools each year. In the absence of a domestic manufacturing industry catering to this demand; hospitals and clinics are forced to import supplies. However, given the abundance of raw material cotton linters used in manufacture of bandages, and the relatively less advanced manufacturing infrastructure needed to manufacture many medical consumables and tools, it is likely that this industry will gain traction over the next few years in Nepal. With 3 oxygen cylinder manufacturing firms being set up in the past 2-3 years, early signs of this traction can already be seen[69].

Similarly, chains of diagnostic clinics and chains of polyclinics or primary healthcare centres are also emerging as attractive investment opportunities in Nepal. Unlike stand-alone centres, such chains can leverage economies of scale to overcome the challenges of operating in a fragmented market; and have enough asset base and revenue levels to be able to absorb significant private equity capital as minority stakes.

Stand-alone diagnostics centres, stand-alone primary health clinics, and pharmaceutical importers fall under "non-opportunities" for private equity investors due to inherent business model weaknesses

These businesses operate in fragmented nature of markets and have little or no differentiation in business models, as a result of which they compete based on prices and can have low margins. They are also not suitable for private equity investments structured as minority stakes due to low fixed capital investments.

High potential but currently absent opportunities exist in Emergency Healthcare Services (EHS) and telemedicine

While these business models in EHS and telemedicine currently do not exist in Nepal, it is expected they will emerge in the medium to long term due to high demand from the domestic market. Nepal has a high incidence of morbidity due to accidents (road injuries are the 11th highest cause of DALYs; with incidence increasing by nearly 20% since 1990[70]) and is also prone to natural disasters like earthquakes and landslides. Frequent Injuries during adventure sports also build upon the case for these services in the backdrop of Nepal being a popular adventure tourism destination.

As a result, there is a need for an EHS service which is dependable, easily accessible and affordable. Further, aside from road-transport based EHS, only few tertiary hospitals like Vayodha provide emergency airlifting services with helipad built in the hospital premises, however there could be need of organised and specialised emergency services in near future. In the absence of government intervention in this area; the country may turn to a PPP or private model for this service. Likewise, due to tough terrain and lack of physical healthcare infrastructure outside larger cities and towns; telemedicine delivered through PPP or private channels could create affordable and accessible healthcare in rural and far-flung areas.

6.1 Currently Viable Investment Opportunities

Tertiary hospitals and pharmaceutical manufacturing are currently viable and attractive opportunities for private equity investors in Nepal. A similar trend has been observed in the neighbouring country of India, where healthcare delivery and pharmaceutical segments account for 60% of total private healthcare sector revenues and make up more than 50% of private equity deals in healthcare[71].

[69] Ministry of Industries, Industrial Statistics Report, Nepal, 2012-13
[70] Institute for Health Metrics and Evaluation, Global Disease Burden Profile: Nepal, 2010
[71] Bain and Company Inc., India Private Equity Report, 2013

6.1.1 Tertiary Hospitals

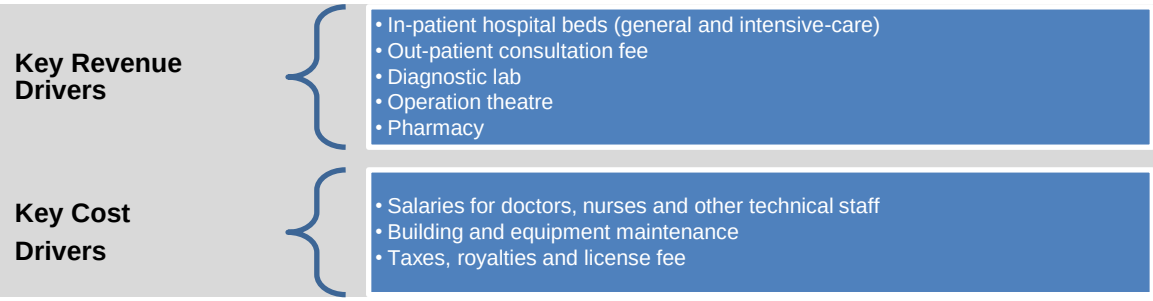
Tertiary hospitals in Nepal cater to growing demand for specialised healthcare

The market opportunity in tertiary care is estimated at US$ 55 to 65 million, and this market is projected to be growing at 10 to 15% per annum[72] as a result of the growing population and increasing incidence of NCDs; as well as improving ability to pay for high quality healthcare.

Of the 300-350 private sector hospitals in Nepal, which include secondary and tertiary hospitals, it is difficult to gauge no of tertiary hospitals in the absence of reliable data[73] . However, industry practitioners interviewed during the course of this study reported that there are over 15 tertiary hospitals in the country and of these only 4-5 would be considered as major private players in this segment. Some of the top tertiary hospitals by bed-size and turnover include Grande International, Norvic Hospital, Vayodha Hospital, Om Hospital, and Baidya and Banskota Hospital. Most private tertiary hospitals have an average of 50 beds; while the larger tertiary hospitals have over 100 beds. Aside from pure-play private tertiary hospitals; Nepal also has some large teaching hospitals like Chitwan Medical College which runs a recognised medical degree for batches of 140 MBBS students each year and also has a 700-bedded tertiary hospital facility[74].

For pure-play hospitals, the average revenue ranges from US$ 150,000 to 200,000 and profit margins from 20 to 30%. The key cost-drivers and revenue-drivers have been summarised in Figure 28.

Figure 28: Key revenue and cost drivers of tertiary hospitals in Nepal

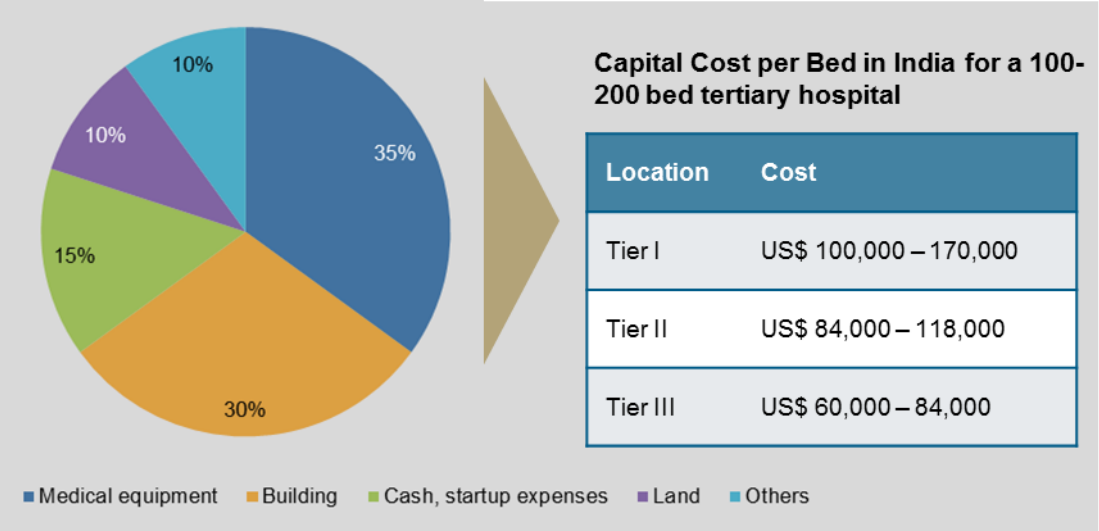


Source: Intellecap analysis, 2014

The capital investment needed to set-up a 50-bedded hospital range from US$ 4 to 7 million; while the cost of setting up a larger 200 to 300-bedded hospital range from US$ 15 to 20 million in Nepal. As observed in most infrastructure-related projects in the country; land is expensive and is a key cost centre along with building and equipment costs. Tertiary hospitals with sound business fundamentals are expected to break-even in 5 to 7 years[75]. While specific data on project cost structure and key metrics for a tertiary hospital business model from Nepal was not readily available, data from an emerging market like India shown in Figure 29 and Table 7 may be used as a broad indicator.

[72] Intellecap analysis, 2014. See Section 3.3 for details.
[73] Government and MoHP sources state that there 300 to 350 private hospitals in Nepal; but this figure includes secondary and tertiary hospitals
[74] Nepal Industrial Statistics, 2012-2013
[75] Intellecap analysis, 2014. Based upon primary data collected from Nepal in May 2014; see Annexure for list of interviewees.

Figure 29: Typical project cost-break up of a tertiary hospital in India



Capital Cost per Bed in India for a 100-200 bed tertiary hospital

Location	Cost
Tier I	US$ 100,000 – 170,000
Tier II	US$ 84,000 – 118,000
Tier III	US$ 60,000 – 84,000

Source: Spark Capital Research, 2013.
Note: Tier I cities are largest metropolitan cities in India including the capital Delhi and important commercial hubs like Mumbai and Bengaluru. Tier II cities include state capitals and regional hubs. Tier III cities are less than a million in population and just starting to show early signs of urbanisation. Tier II and III cities are better comparables for Nepal than Tier I cities.

Table 7: Typical tertiary hospital business metrics in India

Business Metric	Typical Benchmarks from India
Number of beds	300
Project cost per bed	~US$ 135,000
Occupancy rate (bed days billed/bed days available)	70% to 80%
Average length of stay per patient	3.5 to 4.8 days
Average operating revenue per bed per day	US$ 528
EBIDTA	US$ 13.9 million
EBIDTA margin	30%
PAT margin	13%

Source: Spark Capital Research, 2013. Assumes a 300-bed tertiary hospital in a tier-I city (defined as one of the 6 largest cities in India). Metrics are from year 6 of operations, assuming a steady-state has been reached. Exchange rate used was US$ 1 = 59.18 Indian Rupee.

Tertiary hospitals are largely concentrated in Kathmandu; with hardly any outreach to rural and far-flung areas

The four largest tertiary hospitals by bed size and turnover are located in Kathmandu, as are most of the smaller tertiary hospitals. A few private tertiary hospitals have come up in Pokhara as well, but the infrastructure outside these two cities is inadequate indicating an opportunity to extend existing tertiary hospitals and build new healthcare centres in these areas.

Several large tertiary hospitals in Nepal are entering into partnerships with foreign hospitals for technology and knowledge transfer

There has been a trend of tie-ups and partnerships with foreign hospitals as shown in Table 3. Such tie-ups are creating access to management best-practices; know-how in new technology and practices; and access to world-class equipment. At the moment, most of these tie-ups do not involve an

investment from the foreign hospital since promoters of private tertiary hospitals are still apprehensive about the comparative benefits of foreign equity capital and fear losing control of their business to a private investor. The top four hospitals Grande, Norvic, Vayodha, and Om are considered "trend-setters" in the tertiary hospital segment; with several existing and new players watching their partnerships with foreign hospitals including any potential JVs with interest[76]. Once a few cases of foreign hospital-Nepalese hospital JVs emerge and are documented in the public domain, the trend is expected to see an uptick.

While most tertiary hospitals are multi-specialty in nature, it is expected that single-specialty tertiary hospitals may begin to emerge in the medium to long term

At the current stage of the industry's growth cycle, most of the existing and new hospital projects are multi-specialty facilities offering a range of specialties like cardiology, emergency services and trauma care, orthopaedics, nephrology, obstetrics and gynaecology (including infertility), and neurology. However as the industry matures and the multi-specialty space becomes saturated over the medium to long term; it is expected that single-specialty hospitals focused on eye care, dental care, cosmetic surgery, oncology and cardiac care may begin to emerge[77].

The business models of tertiary hospitals show low degree of differentiation; indicating the need to bring in more innovation in service design and delivery

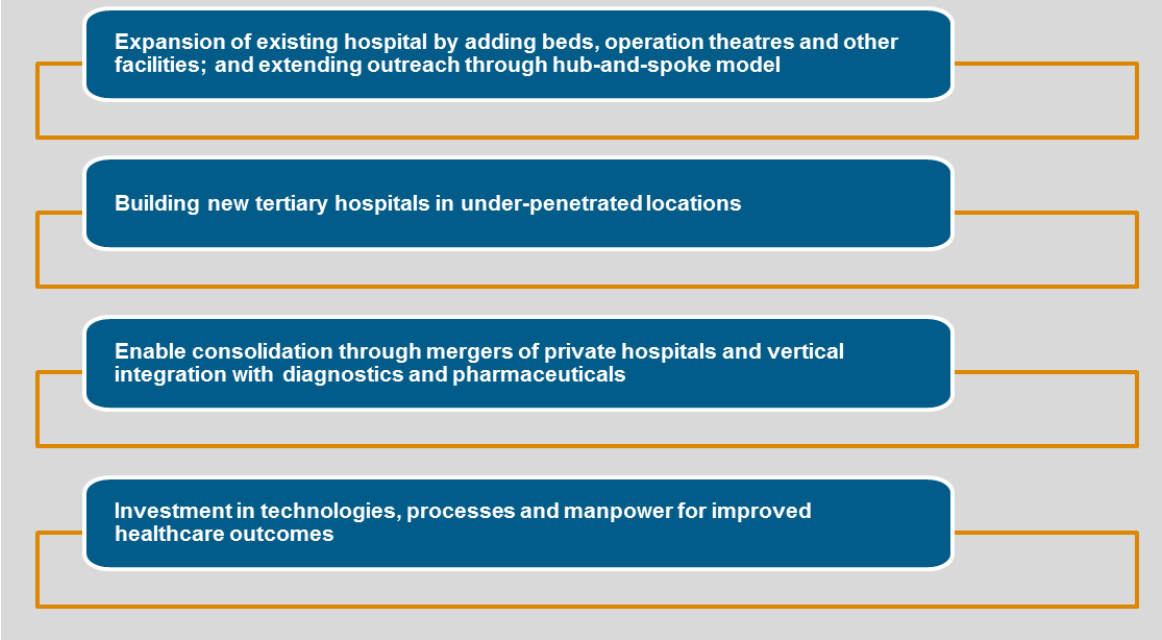
Currently, the business models of most tertiary hospitals show little or no differentiation. This could be a challenge as the segment grows and newer players enter the market. One of the key drivers behind this trend is the fact that most tertiary hospitals are founded by groups of doctors, who play dual-roles as the key medical and key management staff. This tends to limit availability of management bandwidth for focus on business strategies and goals. Norvic and Vayodha are among the few private tertiary hospitals with distinct senior leadership for management and medical services, a strategy that has been a key driver of their growth.

In the medium to long term, tertiary hospitals will benefit from differentiating their business models and building strong Unique Selling Propositions (USPs). From the growth of private healthcare industry in a comparable market like India, some ways to differentiate include extending infrastructure to smaller towns and cities through physical and mobile clinics (also called a hub-and-spoke model), and driving vertical integration to bring diagnostics and pharmaceutical services in-house[78]. Another key USP that private tertiary hospitals can bring in is internationally recognised quality certification[79]; which would go a long way towards building trust among end consumers.

[76] Intellecap analysis, 2014; derived from primary data collected in Nepal in May 2014. See annexure for list of interviewees.
[77] Intellecap analysis, 2014; derived from primary data collected in Nepal in May 2014. See annexure for list of interviewees.
[78] Intellecap analysis, 2014
[79] For instance, Indian private hospitals are accredited by the National Accreditation Board for Hospitals & Healthcare Providers (NABH), which is a constituent board of Quality Council of India, set up to establish and operate accreditation programme for healthcare organisations

The key investment opportunities in tertiary hospitals include improving quality of current facilities, vertical integration and expansion as summarised in Figure 30.

Figure 30: Private equity investment opportunities in tertiary healthcare



Source: Intellecap analysis, 2014

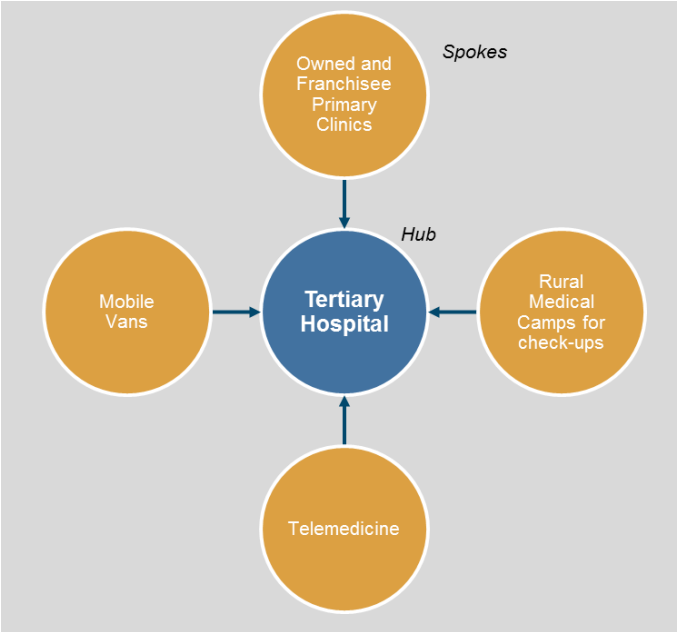
Equity investments to support expansion initiatives of existing tertiary healthcare players is an especially lucrative opportunity in the next 1-2 years

Driven by lucrative margins and high demand, several existing tertiary healthcare players are considering expansion by increasing capacity of their current facilities, as well as building new facilities in locations other than Kathmandu city[80]. Promoters of such tertiary hospitals can build upon past experiences, leverage relationships with suppliers and other partners, and have existing brand awareness. As a result these can be lucrative investment opportunities for private equity investors.

In addition to these, investments in increasing outreach of tertiary hospitals through hub-and-spoke expansion models can also be evaluated. In such a model, the main tertiary hospital infrastructure acts as the "hub"; and smaller asset-light primary clinics and mobile vans that can easily reach out to end consumers in smaller towns and villages and in remote locations act as "spokes". The "spokes" serve the purpose of early diagnosis and less-intensive consultations, and refer patients needing more advanced consultations, diagnosis, surgery or in-patient care to the "hub" as shown in Figure 31. This model has been effectively deployed by private healthcare companies in India including single-specialty tertiary hospitals (like Aravind Eye Care and L.V. Prasad Eye Hospital); as well as multi-specialty hospitals (like Apollo Hospital).

[80] From primary interviews conducted in February and May 2014. Please see Annexure for list of interviewees.

Figure 31: Hub-and-spoke model for expanding tertiary hospitals



Source: Intellecap analysis, 2014

Equity investors can also act as anchor funders in new and upcoming tertiary hospitals; thereby opening up channels to debt funding by increasing funder confidence

Aside from supporting growth of existing tertiary hospitals, private equity investors can also act as anchor funders in new and upcoming tertiary hospitals. This can increase the ease of access to bank loans for promoters. Some locations that are currently emerging as lucrative destinations include Pokhara, Bharatpur and Biratnagar[81].

Equity investors can enable consolidation through supporting mergers of private hospitals and vertical integration with diagnostics and pharmaceuticals

The Nepal government has recently brought in regulation to allow mergers of private hospitals[82] in a bid to improve operational and financial health of these; and thereby improve healthcare services. Private equity investors can invest in such mergers and help to drive consolidation in the healthcare space in Nepal.

Aside from expansion of core tertiary healthcare delivery; several existing players in this segment also reported a need for better vertical integration with diagnostics and pharmaceutical retail to ensure end-to-end customer servicing. Supporting this type of integration could be another lucrative investment opportunity. An example from the Indian healthcare market shown in Case Box 1 can be used to illustrate this opportunity.

Case Box 1: Opportunity for vertical integration in healthcare sector

Apollo Hospitals Group is one of the largest healthcare providers in Asia with 51 hospitals (owned and managed) and 8500 operational beds.

Apollo Hospitals have branched out into the pharmaceutical business for better vertical integration through ~ 1,450 stores; and their Price/Earnings (P/E) ratio is 39.25, which is significantly higher than the range of typical non-diversified tertiary hospitals which is 6 to 15[83].

Source: Apollo Hospital website, accessed in May 2014

[81] From primary interviews conducted in February and May 2014. Please see Annexure for list of interviewees.
[82] See Section 4.3 for details
[83] Bloomberg; accessed in May 2014

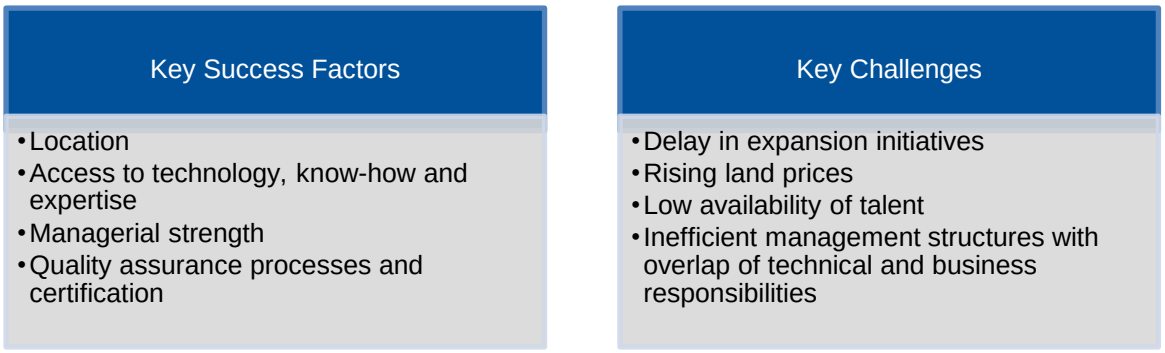
Investments made in improving technology, processes and manpower for improved healthcare outcomes can also be driven by private equity investors

Even though the tertiary healthcare segment has made strides in terms of usage of more advanced technology, modern processes and skilled manpower – the segment still has a long way to go in matching international standards. Such improvements would be especially useful in the smaller tertiary hospitals; and will serve to improve the overall healthcare outcomes for consumers served by private tertiary hospitals.

Investments in new technology can include machinery that provides more precise care to diseased organs/areas and reduces collateral impact; machinery for super-specialised diagnosis, monitoring and care; and machinery that decreases cost of healthcare delivery. Investments in processes can include Standard Operating Procedures to decrease emergency response time, rate of hospital-acquired (nosocomial[84]) infections, and increase overall quality of service for end consumers. While many hospitals focus on investments in training doctors, nurses and technical staff; investments in managerial talent and building strong second line of leadership are also needed to make private tertiary hospitals more sustainable in the long run.

Key success factors and challenges that investors in tertiary hospital segment in Nepal should be cognisant of are summarised in Figure 32.

Figure 32: Key success factors and challenges in tertiary hospitals in Nepal



Source: Intellecap analysis, 2014

Some key success factors that investors can use to evaluate the attractiveness of tertiary hospitals include:

- Right location of the hospital is a very important success factor: The key factors that determine location are (a) accessibility for a wide variety of end consumers, (b) does not face high degree of competition from other hospitals, and (c) presence of supporting services such as diagnostics and pharmacies in the vicinity. At the same time, promoters should display savviness in land acquisition since the high cost of land in prime locations can impact overall business viability
- Use of modern technology and processes; especially through tie-ups with foreign hospitals is another critical success factor that investors can use to evaluate attractiveness of tertiary hospitals
- Since only the larger tertiary hospitals have in-house diagnostics and pharmaceutical wings, it is also critical for hospitals that don't have these in-house services to have tie-ups in place to access such allied services
- Managerial strength is another key success factor; especially in terms of senior management skill set and strategies used to divide responsibilities between teams overseeing core medical services and teams overseeing business operations of the hospital

[84] An infection acquired during a hospital visit; commonly transmitted due to lack of staff and building hygiene protocols which results in transmission of infectious diseases – as defined by Centre of Disease Control and Prevention, U.S.A.

- Only a few hospitals have invested in infrastructure and processes for maintaining quality standards; and this is a key factor in keeping hospital-acquired infections low, increasing accuracy of care services, and building trust among end consumers

Some key risks and challenges that investors in tertiary hospitals in Nepal should be cognisant of include:

- Delays in expansion initiatives; especially those contingent upon land acquisition and building construction
- Rising land prices, especially in urban centres like Kathmandu and Pokhara which have a direct impact on project viability
- Low availability of talent, which causes difficulty in hiring and retaining technical staff like doctors and nurses
- Low distinction between hospital management and medical service delivery roles; leading to limited bandwidth of senior leaders for focus on strategic initiatives

6.1.2 Pharmaceutical Manufacturers

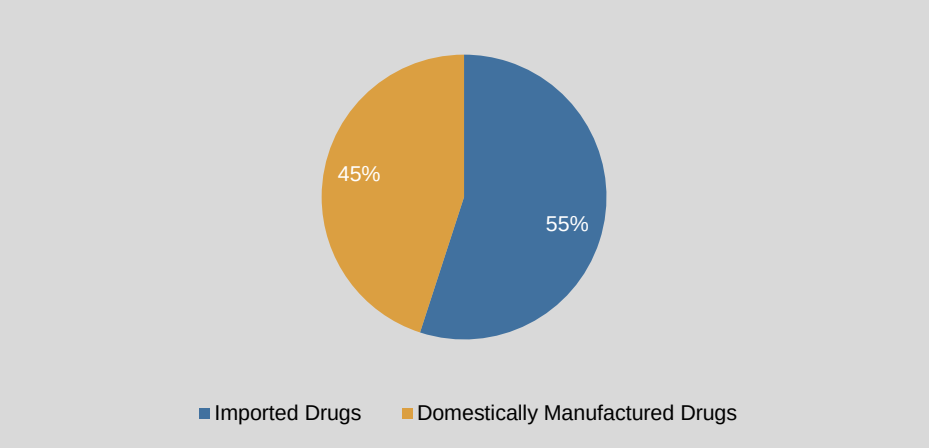
Domestic pharmaceutical manufacturers play a key role in preventive and curative healthcare; and are growing rapidly and decreasing Nepal's reliance on imported pharmaceuticals

The market opportunity in pharmaceuticals is estimated at US$ 115 to 130 million, and this market is projected to be growing at 15 to 20% per annum[85]. Similar to tertiary hospitals, this market is also driven by growing population and increasing incidence of NCDs; as well as improving ability to pay for high quality drugs.

There are 45 registered private pharmaceutical manufacturers in Nepal and together they hold 42% of the total market share by value[86] as shown in Figure 33. Another 4-5 manufacturers are expected to launch operations in the short term. These manufacturers import APIs from India and other countries, and follow formulation policies laid down by the DDA to manufacture pharmaceuticals locally. Top 10 manufacturers control over 60% to 70% of the market. The largest manufacturers by capacity and turnover are Nepal Pharmaceuticals Laboratory, National Healthcare, Asian Pharmaceuticals, and Lomus Pharmaceuticals[87].

[85] Intellecap analysis, 2014. See Section 3.3 for details.
[86] Nepal Pharmaceutical Profile; WHO and MoHP; 2011
[87] From primary interviews conducted in February and May 2014. Please see Annexure for list of interviewees.

Figure 33: Pharmaceutical market share of imported drugs and domestically manufactured drugs purchased by end consumers in Nepal



Source: Association of Pharmaceutical Producers Nepal, 2012 and Intellecap analysis from primary interviews conducted during the course of this study in February and May 2014. Does not include donated drugs distributed free-of-cost by government and philanthropic organisations.

Domestic pharmaceutical manufacturers are growing rapidly and consequently decreasing Nepal's dependence on imported pharmaceuticals as shown in Figure 10. Import of processed drugs has fallen by over 80% since 2009[88]. While sufficient data on the exact cost structure and margins of pharmaceutical manufacturers in Nepal was not available, comparable examples of listed pharmaceutical manufacturers from other developing countries like India, Bangladesh and Pakistan shown in Table 8 may be used as broad indicators.

Table 8: Revenues and margins of listed pharmaceutical manufacturers in comparable countries

Company	Revenue (US$ million)	EBIDTA (US$ million)	EBIDTA margin
India			
Ipca Labs	518.10	118.30	23%
Torrent Pharma	591.40	135.40	23%
Dr. Reddys	2,128.20	475.50	22%
Bangladesh			
Square Pharmaceuticals Ltd	258.50	77.60	30%
Beximco Pharma	116.60	33.90	29%
Pakistan			
Ferozsons Laboratories	28.90	6.41	22%
Highnoon Laboratories	25.40	2.87	11%

Source: Capital IQ, Bloomberg and MoneyControl databases, accessed in March 2014

Pharmaceutical manufacturers currently produce both "over-the-counter" and prescriptions drugs; and 80 to 90% of drugs retailed are branded drugs

Most manufacturers are operationally organised along two business verticals – manufacture of prescription drugs and over-the-counter drugs. These include ingestible, injectable, topical, and aerosol-based drugs. No pharmaceutical company has registered a patent in Nepal yet, due to the relatively nascent stage of the industry[89].

[88] Trade and Export Promotion Centre, Nepal, database accessed in February 2014
[89] Nepal Pharmaceutical Profile; WHO and MoHP; 2011

Two major types of drug testing are done in pharmaceutical manufacturing – in-vitro (lab-based) testing which can often require advanced technology; and in-vivo (human) testing which requires access to a pool of volunteers, stringent adherence to established practices, and remuneration of US$ 10,000 to 11,000 per volunteer[90] per drug. More and more pharmaceutical manufacturers are shifting to in-vivo testing in order to meet international standards, as well as build trust amongst the doctor community who are primary determinants of end consumer choice in drugs.

While accurate financial information was not readily available; margins and revenue predictability are higher for chronic prescription drugs. Such chronic drugs account for 40 to 50% of total production.

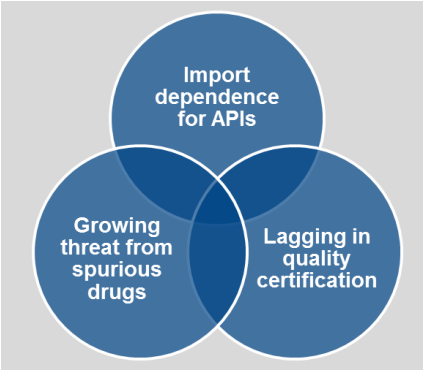
At the pharmaceutical-retail stage; over 80 to 90% of drugs sold are branded and the remainder are generic drugs[91]. This skew can be attributed to a bias towards branded drugs at the "prescription stage" and lower awareness about generic drugs at the end consumer level. Doctors tend to prescribe branded drugs to mitigate the risk of patient exposure to spurious drugs; though there are some unconfirmed reports that this bias could also be due to incentives from branded drug manufacturers and importers[92]. Further, substitution of generic equivalents at the point of dispensing is not allowed in public or private facilities in Nepal, and regulations dictate that doctors' prescription be followed completely to dispense drugs[93].

Shifting from branded drugs to generic drugs can bring down overall cost of healthcare in Nepal

Pharmaceutical expenditure accounts for 67% of the total healthcare expenditure in Nepal[94]. This component can be decreased by promoting production, prescription and retail of generic drugs in the country. The U.S. Food and Drug Administration defines a generic drug as "a drug product that is comparable to brand/reference listed drug product in dosage form, strength, route of administration, quality and performance characteristics, and intended use". Such drugs are typically manufactured once a branded drug patent expires. Since firms that manufacture generics do not take up the huge expenditure involved in R&D, testing and release of a drug; they are able to produce and retail generic drugs at cheaper prices than branded drugs. For instance, generic drugs in India tend to be 40 to 60% cheaper than branded drugs[95].

The pharmaceutical manufacturing sector faces 3 critical challenges to long term growth and sustainability as shown in Figure 34.

Figure 34: Challenges faced by pharmaceutical manufacturers in Nepal



Source: Intellecap analysis, 2014

[90] From primary interviews conducted in February and May 2014. Please see Annexure for list of interviewees.
[91] A prospective surveillance of drug prescribing and dispensing in a teaching hospital in Western Nepal, Ghimire et al., 2008
[92] From primary interviews conducted in February and May 2014. Please see Annexure for list of interviewees.
[93] Nepal Pharmaceutical Profile; WHO and MoHP; 2011
[94] Nepal Pharmaceutical Profile; WHO and MoHP; 2011
[95] Generic Drugs: Cost Effective Alternate To Branded Drugs, Dr. G Bakthavathsalam

The pharmaceutical sector is still dependent on imports for APIs which can often make drugs manufactured in Nepal more expensive than imported drugs

Even though the domestic pharmaceutical manufacturing sector is growing and import-reliance on processed drugs is decreasing; the sector is still import-reliant for inputs like APIs and packaging material[96]. The high import-reliance in APIs is especially a concern since this represents a significant and growing cost centre. API import has grown at a CAGR of 408% over the past 3 years; growing to nearly 29x its 2011 value in volume[97] as shown in Figure 10.

Over a third of the domestic pharmaceutical industry is lagging behind in quality certification

As per DDA guidelines issued in 2004, all domestic pharmaceutical manufacturers are expected to be registered under the WHO – Good Manufacturing Practices (GMP) framework, which certifies the quality of the pharmaceutical product, the manufacturers' infrastructure, and permits export of the product. However, 25 to 30% of the domestic firms in Nepal have still not procured this licence owing to the high cost of up to US$ 26,000 involved in procurement[98].

The industry also faces a growing threat from spurious drugs in the market

Fake or counterfeit drugs include preparations that have less than necessary or no APIs; or are expired and are not suitable for human consumption. WHO estimates that over US$ 100 billion worth of counterfeit medicines are sold globally each year; with 25% of the drugs sold in developing markets falling under this category. These drugs are not a critical threat to patient health outcomes, but also adversely impact the legitimate drug manufacturing industry in Nepal. While published data on the incidence and impact of counterfeit drugs in Nepal was unavailable, industry practitioners estimate that up to half of all drugs sold are sub-standard, expired or fake[99].

This challenge can be mitigated by collaboration of private sector companies with each other and public sector. Case Box 2 has details of some private sector companies in developing countries that are tackling this issue. Similar interventions can also be encouraged in Nepal by government and industry networks like Nepal Pharmaceutical Association to counter spurious drugs.

Case Box 2: Private sector innovations to tackle spurious drugs in developing countries

PharmaSecure
(www.pharmasecure.com)
For-profit company operating in India and Nigeria; provides SMS-based drug authentication service

PharmaSecure works with pharmaceutical companies to print unique, randomly generated codes on medicine packages. These identification codes serve two purposes: First, they allow manufacturers to print and place a security sticker on every medicine strip or package they produce. Each strip has a unique ID that allows manufacturers to track the drug from factory to user via a web-portal.

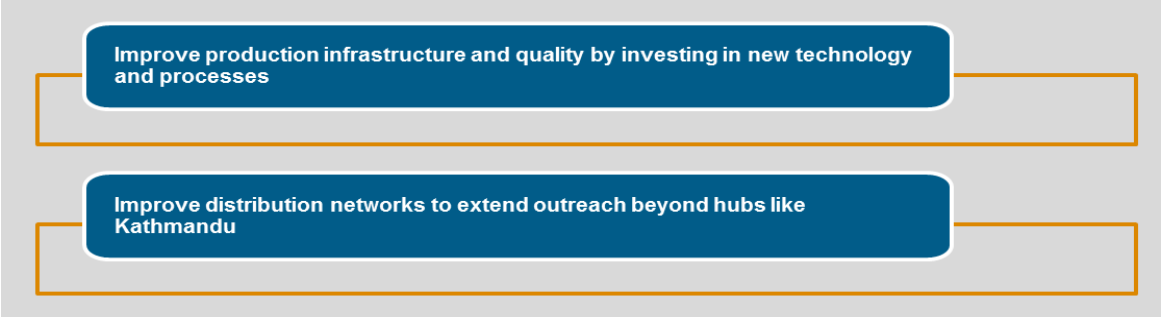
Second, patients can scratch-off text the identification code to a phone number also printed on the package and instantly verify that the medicine is genuine. In order to incentivise usage by patients and pharmaceutical companies, PharmaSecure also offers value-added mHealth services for user engagement that track and encourage optimal drug usage by end consumers.

Other companies that provide similar services in Asia and Africa include Sproxil (www.sproxil.com) and mpedigree (www.mpedigree.net).

[96] Nepal Pharmaceutical Profile; WHO and MoHP; 2011
[97] Trade and Export Promotion Centre, Nepal, database accessed in February 2014
[98] From primary interviews conducted in February and May 2014. Please see Annexure for list of interviewees.
[99] From primary interviews conducted in February and May 2014. Please see Annexure for list of interviewees.

Pharmaceutical manufacturers can use risk capital to improve production infrastructure and capacities; and improve their distribution networks. These measures will serve to improve revenues and profitability, and hence benefit private equity investors as well. The key investment opportunities are summarised in Figure 35.

Figure 35: Private equity investment opportunities in pharmaceutical manufacturing in Nepal



Source: Intellecap analysis, 2014

Pharmaceutical manufacturers can also utilise private equity capital effectively in improving production infrastructure and quality

Since one-third of pharmaceutical industries are still not WHO-GMP certified, there is a critical need for investments in improving production infrastructure and quality. These improvements can be achieved by specifically investing in better production machinery, heating and ventilation systems, water treatment systems, and drug sampling and testing facilities. Along with infrastructure, the presence of skilled personnel who can operate and maintain this infrastructure is also critical.

Finally, private equity capital can also be utilised in improving distribution networks to increase outreach beyond hubs like Kathmandu

Over half of the operational expenses of pharmaceutical manufacturers stem from marketing due to fragmented and inefficient distribution networks. Pharma-companies market drugs primarily through Business-to-Business (B2B) model in Nepal; with distributors and traders, pharmacies, hospitals, and philanthropic programs being the major purchasers. The current system places too much power in the hands of distributors and traders who often demand high commissions. There is also a trend reported of foreign pharmaceutical companies that export drugs to Nepal paying higher commissions to distributors than Nepalese firms, skewing the market in favour of foreign drugs[100].

Hence, pharmaceutical manufacturers can benefit from investments in building stronger partnerships directly with pharmacies and hospitals; as well as evaluating the costs and benefits of investments in their own retail chains.

Key success factors and challenges that investors in pharmaceutical manufacturing segment in Nepal should be cognisant of are summarised in Figure 32.

[100] From primary interviews conducted in February and May 2014. Please see Annexure for list of interviewees.

Figure 36: Key success factors and challenges in pharmaceutical manufacturing in Nepal

Key Success Factors	Key Challenges
• Partnerships with API manufacturers • Diversified portfolio that includes high value drugs • High quality infrastructure and manufacturing processes • Good distribution network • Direct sales to hospitals and pharmacies • Brand recognition	• Competition from foreign firms • Completely import-reliant for APIs • Low focus on quality assurance processes and certification • Spurious drugs in the market

Source: Intellecap analysis, 2014

Some key success factors that investors can use to evaluate the attractiveness of pharmaceutical manufacturers include:

- Strong relationships with API manufacturers in India and other countries to enable procurement at competitive rates
- Diversified portfolio of drugs with bias towards high value prescription drugs like antibiotics and those targeted at NCDs with high prevalence in Nepal
- High quality infrastructure and manufacturing processes that are either already WHO-GMP certified or would easily meet the certification criteria
- Good distribution network with strong on-ground sales team and diversified sales channels
- A specific component of sales originating from direct sales to larger consumers like pharmacies and hospitals; instead of over-reliance on distributors and traders
- Brand recognition amongst doctors and end-consumers

Some key risks and challenges that investors in pharmaceutical manufacturers in Nepal should be cognisant of include:

- Threat of competition from foreign firms and domestic manufacturers in the low-cost generic drugs segment
- Completely import-reliant for APIs and import-reliant to a high degree for packaging materials and machinery
- Low focus on quality certification and processes may lead to negative outcomes
- Presence of spurious drugs in the market which can often copy brand and design of established companies and create a reputation risk for them

6.2 Emerging Investment Opportunities

6.2.1 Medical Consumables and Equipment

Medical consumables include healthcare-related supplies that are generally disposable in nature; such as bandages, wound care products, dental fittings. The global demand for disposable medical supplies is projected to reach US$ 200 billion by 2016[101].

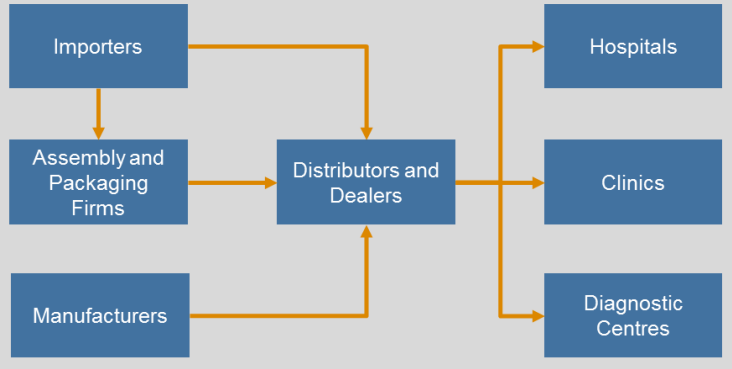
Medical equipment is designed to aid in the diagnosis, monitoring or treatment of medical conditions. Medical equipment encompasses a wide range of products like cardiovascular devices, dental

[101] World disposable medical supplies report, 2012

equipment, diagnostic devices, ophthalmic devices, orthopaedic devices, respiratory devices and surgical equipment. The global trade in such tools is expected to reach US$ 228 Billion by 2015[102].

Businesses involved in medical consumables and equipment typically operate through 3 business models – (a) manufacturing firms, (b) assembly and packaging-focused firms that import raw materials and components and assemble these, and (c) firms that import or procure locally and sell to hospitals, diagnostic centres, and pharmacies etc. A typical value chain in medical consumables and equipment is shown in Figure 37, and such value chains in emerging economies like India are organised around specific diseases. For e.g. manufacturers, assembly-firms, and distributors/dealers for cardiac-care specialise and deal only in cardiac-care related consumables and equipment[103].

Figure 37: Typical value chain in medical consumables and equipment segment



Source: Intellecap analysis, 2014

Growth in medical consumables and equipment is correlated with growth in the private healthcare market

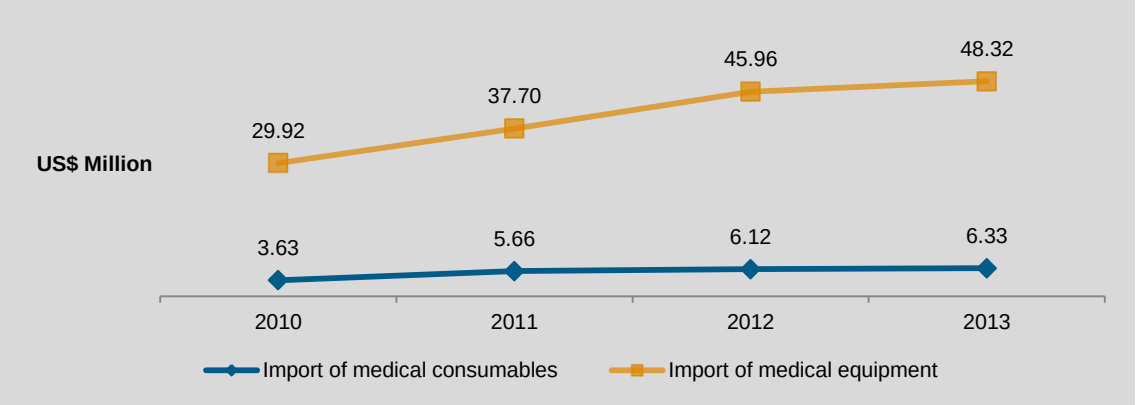
Medical supplies and devices are critical to the effective functioning of healthcare facilities, and form a significant part of set-up costs as well as on-going operational expenses. It is estimated that medical equipment account for approximately 40% of the cost for setting up a tertiary hospital in a developing country like India; and medical supplies and devices can contribute up to one-fourth of the average cost of treating each hospitalised patient.[104] As hospitals, clinics and diagnostic centres grow; a corresponding growth in demand for medical consumables and equipment can be expected. For instance in India, growth of 15% CAGR in private healthcare segment[105] since 2012 has seen corresponding growth of in 20.8% CAGR in medical consumables and equipment in the same period[106].

Nepal is import-reliant to meet demand for Medical Consumables and Tools

Healthcare facilities in Nepal procure almost all their medical consumables from other countries, with India, China and USA being the largest exporters of medical consumables and equipment from other countries. In 2013 over US$ 54.6 million worth of medical consumables and equipment were imported, and this import has been growing at a CAGR of 17.6% since 2010 as shown in Figure 38.

[102] Lucintel, Global Medical Device Industry 2012-2017: Trend, Profit, and Forecast Analysis
[103] Intellecap analysis, 2014
[104] Rising Cost of Inpatient Care Linked to Medical Devices and Supplies, Centre for advancing health, 2012
[105] PwC India, 2014
[106] BMI Espicom and KPMG Excellence in Diagnostic Care; and Intellecap analysis, 2014

Figure 38: Import of medical consumables and equipment in Nepal



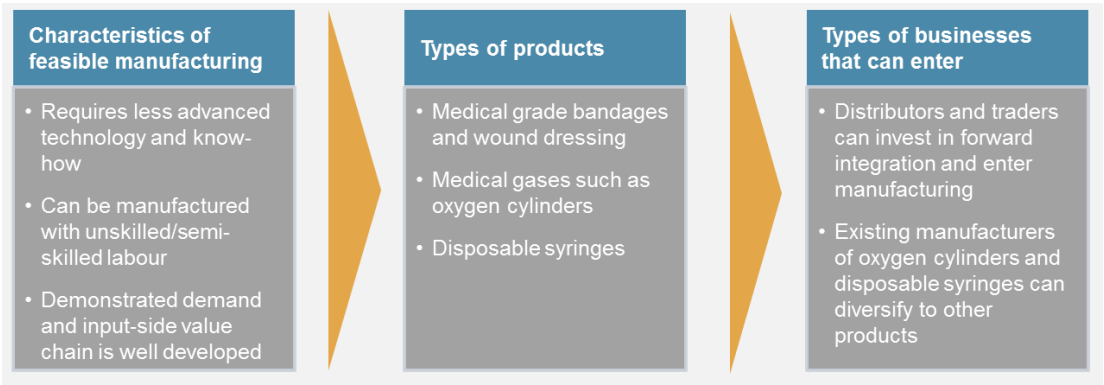
Source: Trade and export promotion centre database, Nepal, accessed in March 2014

Nepal is import-reliant for medical consumables and equipment since local manufacturing capacities are nascent; but some medical consumables can be manufactured locally with access to right capital and technical assistance

The manufacturing sector in Nepal is quite nascent and contributed only 7% to the GDP of Nepal on value add basis from 2009-2013, compared to manufacturing sector contributions of 14% in India and 18% in Bangladesh in the same period. There are several drivers of Nepal's underperforming manufacturing industry, including – (a) lack of supporting infrastructure such as roads and power, (b) lack of technology and know-how, and (c) lack of capital availability (given that manufacturing is a capital-intensive industry). Due to these challenges faced the manufacturing sector; most industries such as agriculture, automobiles, and electronics are heavily import-reliant for basic as well as advanced machinery and equipment.

Similarly, the healthcare sector in Nepal is also import-reliant for medical consumables and equipment. However, while it may be unviable for more technologically advanced medical consumables and equipment to be manufactured in Nepal; there is an opportunity to manufacture some common medical consumables, medical gases, and equipment require less advanced manufacturing capacities and technical know-how. Domestic manufacturing seems feasible and is likely to emerge as an investment opportunity in the medium term as shown in Figure 39.

Figure 39: Private sector opportunities in medical consumables and equipment



Source: Intellecap analysis, 2014

Some early traction can be seen amongst companies such as Himal Oxygen, Surya Shakti Oxygen, and Shree Maharaj that are producing oxygen cylinders and Everest Med which produces disposable

syringes in Nepal. Private equity capital can play a catalytic role in helping to set up and scale more such manufacturing plants dedicated to medical consumables and tools.

Another significant medical consumable that Nepal could scale domestic processing in is medical grade bandages and wound dressing. The country is already a significant manufacturer and exporter of cotton linters pulp which is the input material for manufacturing medical grade bandages and dressing material. Nepal exported 106,449 kgs of the pulp, worth US$ 203,487 in 2010[107]. To add further value to cotton-linters pulp needs semi-skilled labour and lower amount of capital when compared to manufacturing other medical consumables. Hence, this segment could become a viable investment opportunity with access to risk capital and business support. A few examples of large scale private sector firms operating in the medical consumables and equipment segment in India have been shown in Case Box 3.

Case Box 3: Indian private sector firms operating in the medical consumables and equipment segment

Sutures India Pvt. Ltd.
Surgical sutures manufacturer (www.suturesin.com)

Manufactures absorbable and non-absorbable sutures, surgical tape, surgical mesh, bone wax, skin stapler, surgical gloves and Foley catheter. Manufacturing facilities and processes confirm to ISO 9001/2008, ISO 13485/2012 standards, Schedule-M (GMP) and GLP standards. Sutures India sells in the domestic market and exports products to over 91 countries. Company distributes its products through 200 sales personal, 3 depots, 17 Consignee agents, 2 distributors and over 1500 stockists.

Tiger Surgical Disposable Pvt. Ltd.
Disposable syringe manufacturer (www.tigersurgical.com)

Manufactures disposable syringes in varying sizes in a 60,000 square feet manufacturing facility using machinery imported from Germany. Has a total capacity of 100 million syringes annually, and distributes products to domestic as well as international markets. The firm has stringent quality control processes (ISO 9001, G.M.P) in place that cover the entire life cycle of the products – from raw to packaged state.

nsp Hospitech India Pvt. Ltd
Medical gas pipeline management (nsphospitech.com)

Installs and manages medical gas pipeline systems in hospitals. The firm has done 500 installations thus far, and is ISO 9001 and CE certified. The company has also tied up with a U.S.A.-based firm Steris Corporation for diversification into medical equipment and surgical furniture; and is capitalising on existing relationships with hospitals to market these.

Source: company websites and literature

Private equity investment opportunities in medical consumables and tools segment include set-up of international-grade manufacturing plants, building market linkages and facilitating access to debt

Manufacturing companies in Nepal do not have easy access to capital. These companies could benefit from attracting private equity investments followed by debt funding. Improving their capital base can help the manufacturing units improve working capital, build capacity to leverage economies of scale, maintain international quality standards, conduct due diligence of manufacturing facilities and

[107] Trade and Export Promotion Centre Nepal database, accessed in February 2014

warehouses to match the quality of products from multinational companies, Companies would also benefit from establishing market linkages with leading hospitals in Nepal such as Norvik Hospital and Grande International for greater revenue predictability.

As economies of scale come in domestic companies may be able to price their products lower than foreign players as they would save on import duties and transportation costs. However, in the long term domestic companies need to bring in USPs other than price to remain competitive since many multinational companies have deep pockets and may be prepared to price products low and sustain losses for a certain time period to maintain market share.

6.2.2 Chains of Diagnostic Centres

Diagnostic centres conduct medical tests to establish the presence of disease. Diagnostic services can broadly be classified under 3 categories – (a) in-vitro diagnostics (IVD), (b) in-vivo diagnostics and (c) medical imaging. IVD entails to testing organic samples such as blood and tissue. In-vivo diagnostics refers to the testing samples of organs; and medical imaging includes tests such as x-rays, computerised axial tomography (CAT), mammograms and magnetic resonance imaging (MRI).

The diagnostic segment is critical to healthcare because up to 70% of all medical decisions are made based on diagnostic test results[108] of some form. Given that Nepal is seeing a growth in incidence of NCDs as shown in Figure 4; the country is expected to also see a corresponding rise in demand for periodic diagnostic checks for NCDs like blood tests and electrocardiogram.

The diagnostic sector in Nepal is highly fragmented

The diagnostics industry in Nepal is highly fragmented and concentrated largely around Kathmandu and some of the smaller towns and cities like Pokhara, Bharatpur and Biratnagar. These diagnostics centres are operated by the government as well as the private sector. Most diagnostic centres in Nepal focus on IVD testing, while there is a market gap on the in-vivo testing and medical imaging side.

On the private-sector side, Nepal has various local stand-alone diagnostic centres operating under the unorganised sector and providing basic diagnostic services out of one or two facilities. There are also some companies that only collect samples and do not conduct the tests themselves, but transfer samples to India for processing. This latter model results in higher lag-time of results, and due to limited cold chain infrastructure the samples are often spoilt.

Besides the stand alone players, significant part of the diagnosis is also conducted by in-house diagnostic centres of private hospitals. Such centres are better equipped with technology and trained staff to conduct advanced tests.

Nepal has been facing challenges of inaccurate medical lab test results

As most diagnostic centres operate at a very small scale, they do not have the resources to invest technologically advanced diagnostic equipment. This challenge is further compounded by the lack of skilled human resources to collect and process samples for accurate diagnosis. As a result it has been observed that the number of patients visiting hospitals with conflicting diagnosis based on inaccurate diagnostic test results have increased in the last few years[109].

On the regulatory-side, the National Public Health Laboratory (NPHL) has laid down policies and guidelines for the diagnostics industry. However due to lack of stringent monitoring and evaluation; the

[108] KPMG and CII, Excellence in Diagnostic Care
[109] Centre for Investigative Journalism, The Killing Clinics of Nepal-Government Mum on Illegal Operations , 2012

degree of compliance is fairly low. As per a study, 84% of the pathology labs in and around Kathmandu Valley do not meet core governmental standards[110].

Facilitative FDI policy has witnessed entry of foreign diagnostic companies; this trend could help to drive consolidation and higher quality services

The government is supportive of foreign investments in the diagnostics market, and allows 100% FDI in domestic firms. Encouraged by this, some stand-alone diagnostic centres in Nepal have attracted individual and institutional foreign investments in the last three years. For instance, companies such as Dr. Pathlabs from India have entered into agreements with existing stand-alone diagnostic centres to act as their collection centres in Nepal. SRL Diagnostics has also entered the market through a JV with NE Group as shown in Case Box 4.

Case Box 4: Examining a JV between Indian and Nepalese diagnostics company

Super Religare Laboratories (SRL), one of India's leading diagnostic networks has entered into a JV with Life Care Sciences Ltd., a subsidiary company of the NE Group in 2010. SRL has a 50% stake in the JV and has invested US$ 0.5 million.

The Life Care Sciences Lab is located in Maharajgunj, Kathmandu and has 12 collections centres across the country in cities such as Pokhara, Biratnagar, Nepalganj, Bhaiwara, Bharatpur, Dhangadi, Dharan and Janakpur.

SRL has started providing 150 tests in Nepal and aims at increasing them to 300. They have global accreditations; the lab in Kathmandu is equipped with the latest technology and has a team of 40 doctors and technicians.

Buoyed by access to good technology and skilled personnel; as well as in-country test processing infrastructure; this JV is now aiming at capturing 40% of the market share. As a Corporate Social Responsibility (CSR) gesture, the lab also provides discounts low income consumers referred by government hospitals.

Source: NE Group website

While stand-alone diagnostic clinics are not suitable for private equity investments; chains of such clinics are an emerging investment opportunity

FDI inflows into diagnostic clinics bring not only much needed financial capital, but also access to technology, processed, skilled talent and improved brand equity. In order to truly catalyse the emergence of high quality, professional and growing diagnostic segment; these foreign diagnostic companies can consider building domestic processing capacities and establishing chains of private diagnostic clinics in Nepal.

As more such JVs and partnerships emerge; intuitional private equity funds can help in financing the capital pool of newly formed JVs and drive consolidation. Access to risk capital can also help these diagnostics chains invest in building backward linkages with primary clinics and forward linkages with tertiary hospitals for end-to-end patient care.

[110] Nepal Association for Medical Laboratory Science (NAMLS) from August 2008 to January 2009 on the Status of Private Clinical Laboratory Medicine Service

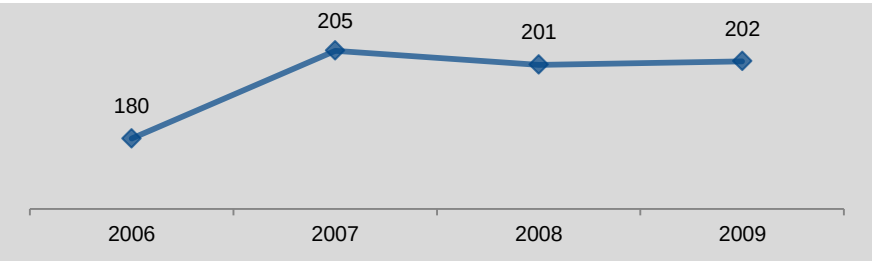
6.2.3 Chains of Polyclinics and Primary Health Clinics

Primary health care (PHC) consists of first-contact assessment of a patient and the provision of continuing consultative care for various health related issues. The scope of primary care includes prevention, diagnosis, treatment and management of health problem is the essential health care based on practical, scientifically sound and socially acceptable methods and technology, made universally accessible to individuals and families in the community. The two main elements of PHC are high quality essential services and ease of access.

Government PHC infrastructure is inadequate in Nepal, indicating an opportunity for private primary healthcare facilities

In 2009 there were 202 primary healthcare centres in Nepal; and the ratio of primary health centres to the population on Nepal was approximately 1:141402[111]. It is estimated that it can take 2 to 3 hours to reach a primary health centre from some of the rural and far flung villages in Nepal, whereas reaching a hospital could take close to 24 hours[112]. Various not-for-profit organisations are trying to provide basic healthcare services to the remote areas in Nepal, but since their models are inherently unsustainable such services cannot be provided at scale and hence are not able to completely bridge the demand-supply gap.

Figure 40: Number of government run primary healthcare centres



Source: Central Bureau of statistics, Nepal

This need gap has created an opportunity for high quality, accessible and affordable private primary healthcare clinics. While private clinics have mushroomed across hubs like Kathmandu and Pokhara, most are stand-alone clinics. They often rely on skills and brand value of a single doctor; supported by 1-2 nursing and administrative staff. They have neither the resources nor in some cases the inclination to scale and grow. As a result, the entire stand-alone private clinics segment is fragmented with high degree of informality and is not suitable for private equity investors.

However, a recent trend has been observed where high quality, professionally managed chains of primary care polyclinics are coming up. These provide both general and specialist examinations and treatments on an outpatient-basis. While accurate data on the number of such clinics was not available, one of the more popular ones is Advanced Polyclinic with operations in Kathmandu and Pokhara. It provides general and specialised consultative services, diagnostic services, and comprehensive health check-up plans that combine both diagnostics and consultation at attractive prices[113].

The demand for polyclinics such as Advanced Polyclinic is expected to increase with the growing incidence of “lifestyle” diseases such as blood pressure, diabetes and heart disease as shown in Figure 4. These diseases require periodic tests and consultations; and patients prefer to have easily

[111] MoHP Annual Report, 2013
[112] Nepal Living Standards Survey, 2010-11
[113] Advanced Polyclinic website, accessed in May 2014

accessible facilities close to their homes for such care. For instance, Nepal had 674,120 cases of diabetes in 2013 and the average healthcare expenditure due to diabetes per person was US$ 39[114].

Polyclinics and private healthcare centre chains are expected to emerge as a viable option for private equity investment in the medium term

Stand-alone primary clinics and polyclinics often do not have the financial resources and technical know-how to scale up their business models. However, such clinics can be consolidated with domestic JVs and foreign player-led JVs to create financially viable and professionally managed chains of clinics.

In addition to consolidation of existing clinics into chains, and establishment of new PHC chains; another emerging opportunity could be diversification of existing tertiary hospitals into PHC chains to improve their outreach. Case Box 5 shows a comparable example from India.

Case Box 5: Example of primary healthcare clinics chain in India

Apollo Healthcare has launched primary healthcare oriented "Apollo Clinics" through company-owned and franchisee facilities. These facilities provide patients care in their neighbourhood and are often more easily accessible than Apollo's tertiary hospitals; and also refer patients needing residential or surgical care to the hospitals. There are close to 100 Apollo primary clinics in India till date; and they create forward linkages for 43 secondary and tertiary hospitals run by the Apollo Group[115].

Source: Apollo Group website, accessed in May 2014

6.3 Currently "Missing" but High Potential Business Models

Since Nepal is a frontier market that has just started witnessing traction in private sector intervention and business innovation in healthcare; private equity investors should be cognisant of the dynamic manner in which the healthcare market could evolve.

As the domestic economy grows and commercial ties with other emerging nations like India strengthen, it is natural that successful healthcare models may transfer from these emerging economies to Nepal. Some early proof of this trend is already visible in the knowledge transfer partnerships set up between Indian and Thai private hospitals and Nepalese hospitals[116].

Based on this future potential and an analysis of critical need gaps in the healthcare market in Nepal, it is likely that business models based on telemedicine and emergency medical services may make an entry in the next few years.

6.3.1 Telemedicine

[114] World Health Organization, 2013
[115] Apollo Group website, accessed in May 2014
[116] See Table 3 for details

Telemedicine entails the use of telecommunication and information technologies to provide clinical health care at distant locations which may have limited physical infrastructure for healthcare. The core idea of this approach is to minimise the need for physical proximity to trained doctors for basic consultative care. Given Nepal's limited healthcare facility footprint and the huge capital investments needed in physically expanding this footprint; telemedicine could potentially come up as of the solutions to bridge the demand-supply gap in healthcare.

The global telemedicine industry was estimated to be at US$ 14.2 Billion in 2012, and is estimated to be growing at a CAGR of 18.5%[117]. Primary growth drivers for this industry are the ability to provide health care service to remote location without incurring an expenditure on physical infrastructure and the increasing penetration and usage of mobile phones, laptops and internet. Using techniques such as telemedicine help healthcare institutions to reach rural locations, save on operational costs and most importantly ensure efficient delivery of healthcare services.

Physical Accessibility, affordability and poor infrastructure are the biggest challenges faced by Nepal healthcare sector; makes a case for telemedicine based healthcare solutions

Nepal as a country has mountainous and hilly terrain with poor road and transport infrastructure. Road density of Nepal (km of road per 100 sq. km of land area) was reported at 14 in 2008 compared to 125 for India in the same period[118]. As a result people in remote locations often find it difficult to access healthcare facilities which are generally situated away from remote habitat clusters. Despite the increasing demand for health services from such regions, it is not feasible for stand-alone PHCs to service this segment due to smaller populations and high operational costs. Further, since the supply of doctors and nursing staff in Nepal is low, it is difficult and expensive to hire and retain staff even if such PHCs are built.

There is a demand for inexpensive primary healthcare provision in rural areas of Nepal which provides an opportunity for telemedicine-based healthcare sectors to emerge

There is an opportunity for telemedicine in Nepal, and it is encouraging to see early adoption by government and non-profit programs primarily for rural care. As these programs scale and demonstrate efficacy, for-profit businesses can be expected to also move into this segment.

The Government of Nepal launched its telemedicine project in 2011 under the SAARC telemedicine network project to boost health care in rural areas. The program has received financial and technical assistance from India. As of 2013 Government of Nepal had implemented the rural-telemedicine program in 30 rural-district hospitals[119].

On the private-sector side, the Nepal Research and Educational Network (NREN) is actively involved in promoting telemedicine. A non-profit group focused on ICT-led development initiatives in the region; NREN started working in the telemedicine segment in partnership with Kathmandu Model Hospital (KMH). An early pilot in 2006 was eventually scaled up into telemedicine connectivity in 10 rural healthcare centres. Driven by the early success, NREN tied up with the Trans-Eurasia Information Network (TEIN3) for access to high capacity internet connectivity and grew its telemedicine outreach to 6 hospitals in Nepal and leading medical universities and hospitals from US, Japan, Korea and Australia. Most of the current work is focused on improving patient care and promotion of evidence-based medical care in Nepal[120].

Aside from the government and non-profit interventions, a few software and IT development firms like HiTech Pioneer have run small-scale pilots to test the efficacy of telemedicine using low-cost, low-bandwidth computers with video streaming; bringing medical advice from doctors in Kathmandu to patients in remote regions of the Far West.

[117] Global Telemedicine Market Outlook to 2018, 2014
118 World Bank data
[119] MoHP, 2014
[120] NREN website, accessed in May 2014

Telemedicine models that emerge in Nepal will need to take into account the limited telecommunications network coverage and infrequency in access to power

Telemedicine services can be delivered through two major approaches – (a) real time consultations involving video conferencing which necessitate access to internet and power; and (b) non-real time consultations that rely on a combination of canned responses to frequent queries and email/SMS-based interactions with some time-lag. The former approach to telemedicine is more popular in developed countries where the underlying infrastructure needs are more readily addressed; while the latter is more suited for developing countries like Nepal.

Hence, in the short to medium term, telemedicine models that emerge in Nepal are more likely to be based on the non-real time consultation model.

With increasing mobile penetration, technology adoption levels in Nepal, telemedicine has the potential of becoming an attractive segment in the future

Mobile penetration was estimated to be at over 60% in Nepal in 2013[121]. With increasing technology adoption and improving telecom-power infrastructure; it seems likely that private tertiary hospitals and clinics will explore introduction of telemedicine in the near future. This could potentially help them expand their footprint with comparatively lower set up costs. Besides the cost advantage, patients treated using telemedicine infrastructure that need further care can also be converted into hospital patients through referrals.

Likely players to enter this market include – (a) Tertiary hospitals working on B2B and B2C model, and (b) independent service providers working on B2B model

A similar trend has been seen in India where several tertiary care hospitals have invested in telemedicine infrastructure, including Apollo Telemedicine Enterprise, Narayana Hrudayalaya, Asia Heart foundation, Escorts Heart Institute, and Aravind Eye Care. It is estimated that the market potential for telemedicine in India could extend to 40 million consultations per year in India alone[122].

Case Box 6 shows examples of Apollo Healthcare's foray into telemedicine in two models – (a) to strengthen its own infrastructure, and (b) to act as a turnkey service provider.

Case Box 6: Example of telemedicine initiatives in India

Apollo Healthcare

Model 1: Rural healthcare facilities and mobile vans powered by telemedicine (http://www.apollohospitals.com/initiatives-reach.php and http://www.apollohospitals.com/initiatives-disha.php)

Apollo Healthcare operates two initiatives powered by telemedicine technology – Reach Hospitals and DISHA. Reach Hospitals are located in peri-urban and rural areas, and have telemedicine infrastructure that allows doctors in urban cities to consult rural patients. Reach centres are also equipped with pharmacies and insurance services. The Distance Healthcare Advancement Project (DISHA) is also a novel telemedicine-based initiative run by Apollo in partnership with Philips, Indian Space Research Organisation, and Dhan Foundation. DISHA comprises of a fleet of mobile vans with an ultrasound machine, an X-ray, a defibrillator and an ECG machine along with dedicated doctors and other para-medical staff from Apollo Hospitals. Each van is also linked with Apollo tertiary care centres via telemedicine.

Model 2: Turnkey telemedicine services (http://www.apollotelehealth.com/)

Apollo Tele Health, a unit of Apollo Healthcare also provides turnkey telemedicine services, largely to governments in the form of PPP structures. These telemedicine services consist of teleconsultations, telediagnostics, teleopthamology, wellness and preventive care, chronic disease care, and

[121] Techinasia data, May 2013
[122] Apollo Telemedicine Networking Foundation, 2013

Case Box 6: Example of telemedicine initiatives in India

management consultancy. Some recent projects include building 30 telemedicine units for AfroIndia Medical services' in East and West Africa; and a Memorandum of Understanding with Common Services Centres (CSC) Scheme (CSC) of the Department of Electronics and Information Technology, Ministry of Communication and Information Technology, India for providing telemedicine through 100,000 CSCs.

Source: Apollo corporate website

For instance, since telemedicine can be a significant profit-driver for hospitals and clinics, independent service providers structured as a B2B telemedicine offering for hospitals are also likely to emerge. Tertiary hospitals could benefit from sub-contracting design, installation and maintenance of telemedicine facilities to these B2B providers; and focusing their own efforts on core areas concerning patient care.

6.3.2 Emergency Medical Services

Emergency Medical Services (EMS) are a type of emergency service dedicated to providing out-of-hospital acute medical care and specialised transportation of patients with illnesses and injuries which prevent the patient from transporting themselves to a hospital. High incidence of heart attacks, strokes, accidents, and natural disasters are driving the demand for this industry in Nepal; while on the other hand the supply-side is inadequate[123].

Nepal has weak EMS support when compared with developing countries like India

Currently Nepal has no centralised hotlines for the people to reach out in case of an emergency. On the other hand, even though India also has an underdeveloped healthcare sector; EMS hotlines have been launched and have gained popularity due to their quick turnaround time. These include numbers such as 108 - which is a state-driven service; and 1298 - which is a private service.

Further, Nepal also does not have adequate number of ambulances and trained paramedical staff. It is estimated that of critically ill patients arriving to emergency rooms of hospitals in Nepal; only 10% arrive by ambulance[124]. As a result most patients are brought to hospitals in personal vehicles and taxis, and receive no en-route medical care. This can lead to worsening of their health condition and may even result in loss of life in extreme cases.

Inadequate number of hospitals and high risk of natural disasters in Nepal make it essential to have a robust EMS in the country

EMS is an essential part of the overall healthcare system as it can save lives by providing immediate care. In addition to responding to cases individual health emergencies; a well-organised EMS can go a long way in decreasing the aftermath of large scale accidents, natural disasters and epidemics. Currently the ratio of paramedics in Nepal is 0.7 per 1 million people. There are only 21 trained paramedics[125] in the entire country. The Nepal Red Cross Society has 168 ambulances but none of them have trained paramedics and only 35% of the ambulance drivers have had first aid training.

[123] UN Office for the Coordination of Humanitarian Affairs, Nepal: Ambulance service "inadequate", 2012
[124] Nepal ambulance services website
[125] Nepal ambulance services website; accessed in May 2014

With the high risk of natural disasters such as earthquakes and landslides, threat of political unrest and violence, and rising incidence of cardiac issues; the country can benefit from strengthening the EMS infrastructure through public and private interventions. Further, since the number of specialised tertiary hospitals is limited and concentrated in hubs like Kathmandu and Pokhara, high quality EMS care is essential for patients from rural areas that are being transported to hospitals.

Public private partnerships and private equity investments can drive the growth of this segment

The government can build the emergency medical services through the public private partnership (PPP) model, which involves outsourcing EMS operations to a private firm. The PPP model is running successfully in India and helping the Indian government to reach out to the patients within the globally known "golden one hour" and the "platinum 10 minutes" time frame as explained in Case Box 7.

Case Box 7: Examining the PPP model being followed by the "108 service" in India

108 is a free telephone number for EMS care in India, which is operational across 17 states and union territories. The number provides integrated fire, police and medical care facilities and is run as a PPP between state governments and private EMS companies. Some of the private organisations that work in partnership with state government to deliver 108 services include GVK-EMRI (not-for-profit) and Ziqitza Healthcare (for-profit social enterprise).

The 108 services works on the paradigm of "Sense – Reach – Care" and are maintained by a trained team and technologically updated equipment and software with GPS tracking systems. Their services are provided for free and subsidised by government and advertising revenues. In some cases, a per user fee is also charged based on the nature of the PPP agreement.

Source: National Rural Health Mission, Government of India

Aside from PPP-models; another example of a private company providing in ambulance services in India is "Dial 1298" promoted by Zitqitza Healthcare Limited (ZHL). ZHL is an Indian company that provides ambulance services either through the PPP-model (where these ambulances operate under the 108 brand); or through its own private offering under the "Dial 1298" brand. ZHL raised US$ 1.5 million in private equity investment from Acumen Fund in 2007, and is operational across Mumbai, Bihar, Punjab, Rajasthan and Kerala.

As the awareness around need for EMS in Nepal grows, both PPP and private EMS models are likely to emerge, and the latter could be a potential investment opportunity for private equity players.

6.4 Non-Opportunities

Stand-alone diagnostics centres, stand-alone primary health clinics, and pharmaceutical importers are not attractive for equity investors

These businesses operate in fragmented nature of markets and have little or no differentiation in business models, as a result of which they compete based on prices and can have low margins. Stand-alone diagnostic centres and primary clinics are predominantly small-scale operations and hence are unable to absorb large amounts of equity capital structured as minority stakes. On the other hand, while pharmaceutical importers may control 60% of market share today[126]; their ability to compete in the market has been and will continue to diminish with growth of pharmaceutical manufacturing firms.

7. Exit Opportunities for Investors in Healthcare

The flow of private equity investments into healthcare in Nepal is a comparatively new phenomenon. The few investments made so far have largely involved domestic promoter equity or FDI capital as shown in Section 5.

This creates a challenge in predicting exit trends as there is a lack of historical data as well as financial industry infrastructure to facilitate exits

7.1 Spectrum of Exit Routes

A key role that private equity firms are expected to play in the healthcare sector Nepal is to help businesses invest in technology, processes and manpower to streamline and standardise their work, and thereby scale effectively. These are also expected to help drive greater focus on incorporating quality assurance processes and certifications.

With these investments; private tertiary hospitals and pharmaceutical manufacturers businesses are likely to grow faster, increasing their revenues and profitability and thereby increasing firm value. This in-turn results in making such businesses attractive to other investors – ranging from investment funds to larger healthcare businesses - that can buy-out stake of first investor at a higher valuation. It is also possible that enough value is created for the promoter or the management team to buy-out investors' stake. A broad overview of the various possibilities in exits are discussed here, followed by a hypothesis on which are likely to be popular exit routes in Nepal.

Generally speaking, the process of an equity investor selling stake to another investor at a higher valuation is termed an "exit", and the spectrum of possible exit opportunities includes – (a) Management / Promoter buyout, (b) Secondary Sale, (c) Trade Sale, (d) Initial Public Offering (IPO)[127].

- **Management / Promoter buyout:** Management / Promoter buyout involves the repurchase of the private equity investors' shares by the company and/or its management. The management buyout method is popular in several sectors in Nepal where profit margins and liquidity are on the higher side. In such situations, promoters may utilise the cash earnings for buying back the stake of PE / VC investor.
- **Secondary Sale:** Secondary sale is the purchase of the private equity investors' or others' shareholdings by another investment institution. Private equity investment activity in Nepal is still an emerging phenomenon; however development financial intuitions such as IFC have been active in making risk capital investments in Nepal in recent past. Secondary sale would be an attractive method to exit in Nepal once the investment eco-system develops and matures.
- **Trade Sale:** A trade sale involves selling the company's shares to another company (structured as a merger or an acquisition) usually in the same industry sector when the acquirer needs the

[126] From primary interviews conducted during the course of this study in February 2014
[127] Intellecap primary research

company to supplement its business areas[128]. The numbers of publicly available Merger and Acquisition (M&A) transactions in Nepal are on the lower side[129], but the activity is picking up in recent years after the political stability in the country. Many companies in Nepal have started to realise the benefits of economies of scale and scope, increased revenue and market share, cost reduction through consolidated operations. The trade sales therefore in general offer better opportunities for private equity funds for exits in Nepal, especially in private hospitals segment since a recent government guideline[130] encouraging mergers and consolidations among private hospitals to improve their facilities.

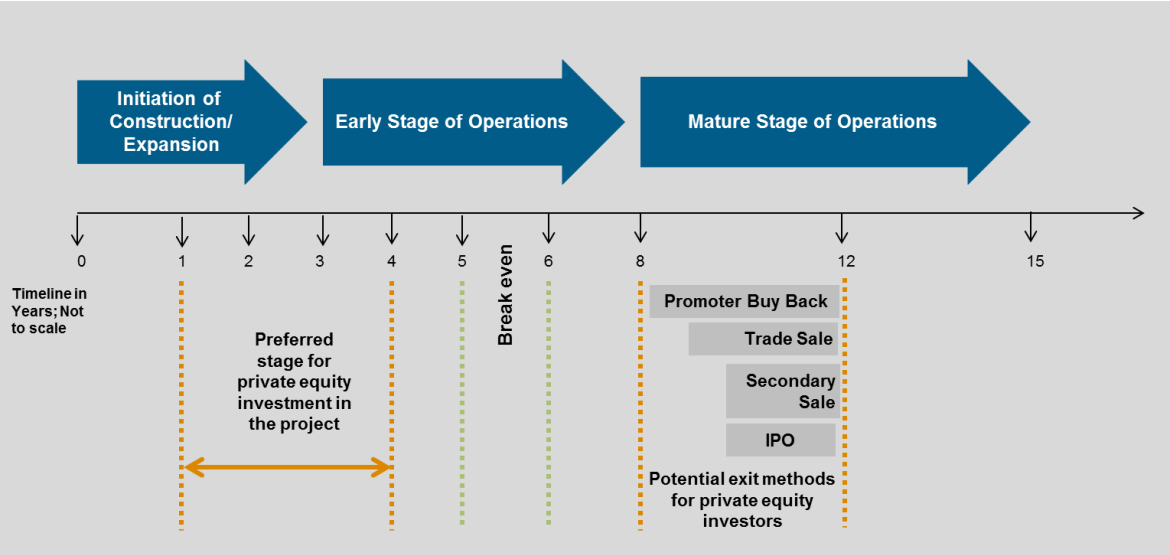
- **IPO:** IPO is used to publicly share the equity offering that is followed by the listing of shares on stock exchange. The capital markets in Nepal are in nascent stage and are dominated by banks and financial institutions where presence of real sector on the capital markets is very low (excluding the hydropower sector)[131]. IPO route in general may not be the best possible way for exit of healthcare private equity investors in Nepal.

7.2 Likely Exit Routes for Healthcare Firms in Nepal

Private equity firms investing in the healthcare segment in Nepal may need to stay invested for 6 to 8 years before finding a lucrative exit

Both tertiary hospitals and pharmaceutical manufacturers in Nepal generally take 5-6 years to breakeven and are expected to have higher trends in profitability thereafter[132]. Private equity investors should be cognisant of the projected break-even in specific opportunities to estimate lucrative entry and exit times. A successful exit will depend on the entry points of investments; which is the construction and/or expansion stage for both the aforementioned business models. The requirement of capital is highest at this stage and investments can be made at lucrative valuations. Based on insights from industry practitioners and Intellecap analysis, the capital value chain for possible exit options for private equity investors in tertiary hospitals and pharmaceutical manufacturers is shown in Figure 41.

Figure 41: Broad exit timelines for investments in tertiary hospitals and pharmaceutical manufacturers



[128] A trade sale is similar to 'strategic' sale
[129] Excluding Banking, Financial Services and Insurance sector
[130] The government is encouraging consolidation in the healthcare space and has created guidelines to enable merger of private hospitals as part of the "Directives on Establishment, Operation and Upgrading of Health Institute 2013"
[131] Refer Annexure 11.4.1 for detailed discussion in capital markets in Nepal
[132] From primary interviews conducted during the course of this study in May 2014

Source: From primary interviews conducted during the course of this study in May 2014, and Intellecap analysis, 2014

In order to manage risk of investing at an early stage in healthcare venture, investors can use the non-financial valuation metrics discussed in Section 10.3 to identify high potential opportunities. Additionally, investors may find it less risky to enter at construction stage in more well-established ventures; and just before or in early stage operations of green-field ventures.

Promoter buy-back likely to be most popular approach for equity exits in tertiary hospitals and pharmaceutical manufacturers in Nepal

Re-purchase of private investor's shared by promoter(s) is likely to be the more prevalent approach for exits in Nepal; especially in tertiary hospitals which are mostly promoted by established business groups or High Networth doctors. The tertiary hospital business model enjoys high margins and has a high market opportunity as well. While promoter ability to buy-back will be one driver; the other will probably be the prevailing promoter sentiment where existing promoters want to ultimately retain complete control of the firm. There seems to be a high degree of apprehension about loss of control that could result from diluting management stake[133].

The pharmaceutical manufacturing segment is also likely to see greater incidence of promoter or management-led buyout of private equity investor stakes; driven by promoter(s) ability to purchase stake, as well as the lack of a significant secondary sale market that restricts exit options.

Trade sale may be observed in smaller tertiary hospitals

Acquisition by a larger hospital or merger of two complementary smaller hospitals businesses is somewhat likely as well. This is expected to be driven by the expansion drive that most tertiary hospitals seem to displaying to capture greater market share in underserved regions outside Kathmandu. Additionally, facilitative regulation put in place by MoHP will also act as a facilitator[134].

In addition to domestic mergers, acquisitions and JVs with foreign hospitals are also likely to pick up as a trend driven by the success of the Medanta-Norvic, Fortis-Vayodha, and Samitej-Grande partnerships described in Table 3. Currently these are structured as tie-ups are for gaining technical and management expertise but in in future the possibility of capital investment driven partnerships cannot be denied.

Secondary-sale in the healthcare sector has low likelihood in the next 4-5 years

Secondary-sale requires the establishment of a value-chain of equity investors who have differing but complementary investment sizes, risk appetites and preferred stages of investment. Since the practice of equity investing in Nepal is very nascent, this value-chain will take time to emerge. Most investors are likely to prefer growth-stage investments with lower risk and shorter return timeframes and their investing activity is more likely to be competitive than complementary as was observed in the Indian context 7-8 years back.

Exit through IPO is highly unlikely for healthcare companies in the near future

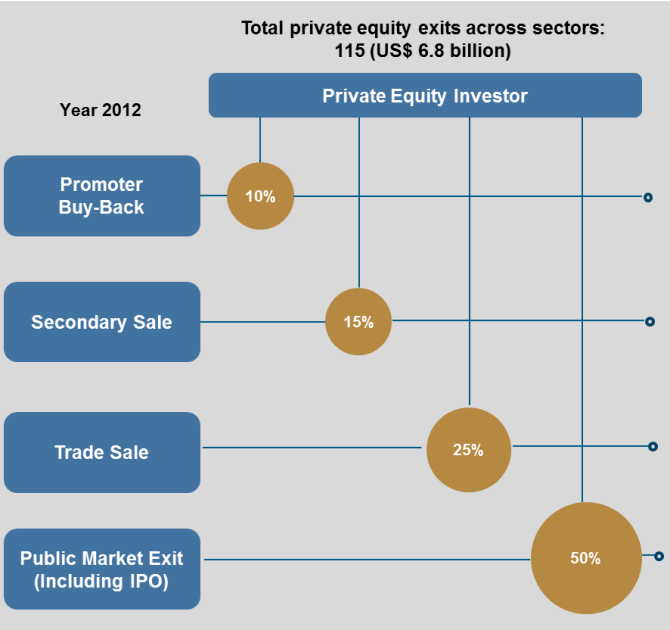
There are no listed healthcare companies in Nepal[135], and low inclination to list their companies was seen amongst promoters of the larger hospital and pharmaceutical manufacturing management teams interviewed during the course of this study. Hence, public listing is not likely to be a viable strategy for majority of the equity exits in the healthcare sector in Nepal.

[133] From primary interviews conducted by Intellecap during the course of this study in May 2014
[134] MoHP Nepal, Directives on Establishment, Operation and Upgrading of Health Institute 2013
[135] Nepal Stock Exchange Limited database, accessed in March 2014

7.2.1 Exit Trends Observed in Healthcare Firms in India

The capital markets in India are much more developed compared to Nepal[136] and the private equity investing activity is at a more advanced level. The most popular exit route for both venture capital and private equity investments in India is through public market sales, including IPOs. Out of the 115 equity exits reported in India 2012, more than 50% were through public market sales, including IPOs[137]. The trends in exits in India have been shown in Figure 42 below.

Figure 42: Distribution of private equity exits in India



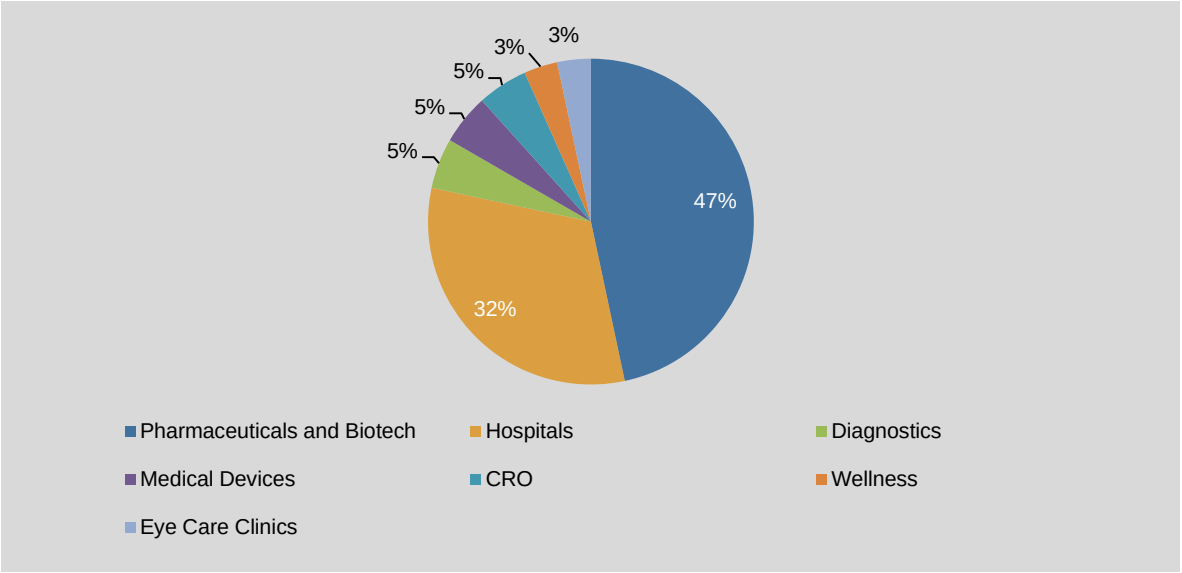
Source: IVCA; India Private Equity Report 2013, Bain and Company

Public market sale and secondary sale are popular modes of exits from healthcare companies in India

A total of 243 private equity investments cumulatively worth US$ 3.95 billion have been reported in the healthcare sector in India between 2009 and 2014[138]; and 60 exits have been reported thus far[139]. Public market sale and secondary sale have been the prevalent forms of exit; which can be attributed to the presence of a mature investment value chain. The distribution of exits across different healthcare segments is shown in Figure 43.

[136] Refer Annexure 9.4.3 for details
[137] IVCA; India Private Equity Report 2013, Bain and Company
[138] Until May 2014
[139] Venture Intelligence Database; does not include exit from Vetnex Animal Health

Figure 43: Distribution of healthcare exits across different sub-sectors in India (2009-2014)



Source: Venture Intelligence India database

Return multiples across hospital exits in India typically range from 1.24x to 4.31x; and pharmaceutical companies range from 1.26x to 3x[140]

Specific details of 11 exits observed in healthcare companies in the hospital and pharmaceutical segments in India are shown in Table 9.

Table 9: Selected healthcare exits observed in India

Company	Acquirer	Seller	Deal Size (US$ million)	Exit Status	Exit Procedure	Return Multiple
Sub-Sector: Tertiary Hospitals						
Apollo Hospitals	NA	Apax Partners	180	Partial	Public Market Sale	2.8x
Apollo Hospitals	NA	Apax Partners	23.3	Partial	Public Market Sale	3.11x
HealthCare Global	Temasek Holdings	Evolvence India Life Sciences Fund	10.95	Complete	Secondary Sale	2.14x
Medanta Medicity	Carlyle	Avenue Capital	155.9	Complete	Secondary Sale	4.31x
Medica Synergie	Quadria Capital, DEG, Swedfund	ICICI Venture	64.32	Complete	Secondary Sale	NA
Sterling Hospitals	Promoters	Actis	NA	Complete	Buyback	NA
Vikram Hospital & Heart Care	Multiples PE	ICICI Venture	15.06	Complete	Secondary Sale	1.24x
Sub-Sector: Pharmaceuticals						

[140] Venture Intelligence India database, accessed in April 2014

Company	Acquirer	Seller	Deal Size (US$ million)	Exit Status	Exit Procedure	Return Multiple
Emcure Pharmaceuticals	BC Investments IV Limited (unit of Bain Capital)	Blackstone	112.55	Complete	Secondary Sale	3x
Gland Pharma	KKR	Evolvence India Life Sciences Fund	NA	Complete	Secondary Sale	NA
Granules India	Promoters	Ridgeback Capital	1.96	Partial	Buyback	1.26x
Natco Pharma	Nil	Kotak PE	2.8	Partial	Public Market Sale	1.98x

Source: Venture Intelligence India database, accessed in April 2014

7.3 Challenges in Exit

The key challenges to private equity exits in Nepal fall under three broad categories as shown in Table 10; i.e. systemic, equity investor-related and healthcare sector promoter-related challenges.

Table 10: Challenges in exits in Nepal

Systemic Challenges
Nascent industry, so higher risk and longer return horizons are possible
Little or no regulatory oversight for private exit markets
Lack of investor-entrepreneur connection platforms and investment intermediaries
Over-reliance on foreign equity
Currency devaluation risk
Lack of exit platforms designed for secondary-sale
Lack of ecosystem enablers like incubators, angel networks, business plan competitions and grand challenges
Equity Investor-Related Challenges
Less experience of managing portfolio companies in economies like Nepal
Difficulty in building deal-flow
Lack of risk assessment frameworks customised for Nepal
Healthcare Promoter-Related Challenges

Lack of awareness about the comparative benefits of debt and equity
Apprehensions around working with external boards and fear of losing control of company[141]

Source: Intellecap analysis, 2014

In addition to these, some regulatory hurdles that could be challenges for healthcare investors are:

Promoter lock-in period of 3 years: This is a key challenge for exits of private equity companies in Nepal. The existing provision and law states that "the shares subscribed by the shareholders in the groups other than public (group of promoter and other) of the body corporate which is eligible for going public, shall not be qualified for sale unless a three years period after the allotment of such shares is complete"[142]. The three years lock in period for private equity investors is on the higher side in the SAARC when compared to one year in India[143] and Sri Lanka[144] and no lock in period in Bangladesh[145].

The repatriation of capital is a challenge for foreign equity investors in Nepal: at present the repatriation of capital to a foreign country (except India) requires approval from the different departments in the NRB and department of industries and is often discretionary[146]. Given the uncertainty in the policies and regulations of future governments due to political instability, this discretion could be major hurdle for foreign investors in exits.

7.4 Enablers Needed for Exit

The government and its aid partners, the regulatory regime, and private sector can work in a complementary fashion to build enablers needed for exit as shown in Figure 44. When these actors begin to harmonise their functions, an "ecosystem" for equity investments begins to emerge as has been observed in the case of Silicon Valley; and more recently in India and parts of East and South Africa.

[141] Especially in tertiary care hospitals which are largely family-run and can have a traditional approach to doing business (as per observations from primary interviews conducted during the course of this study in February and May 2014

[142] SEBON Annual report 2011-12

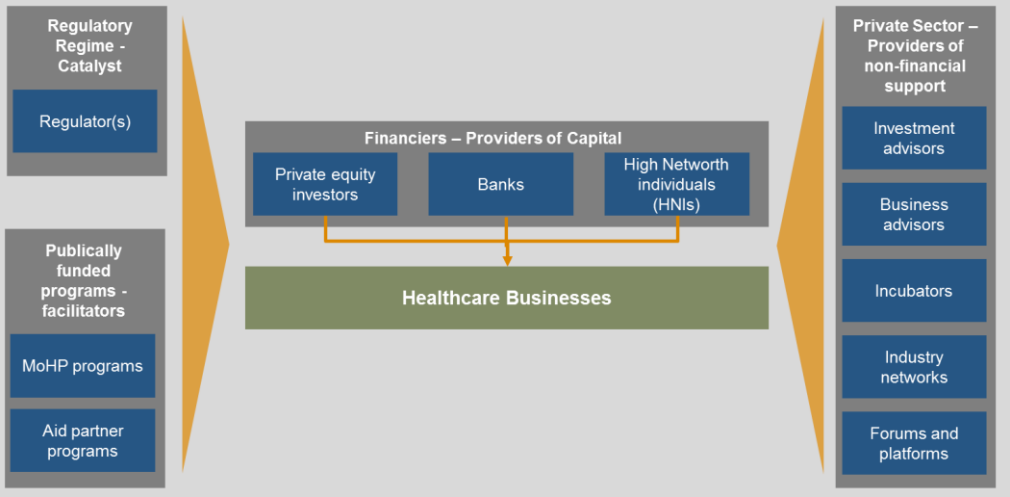
[143] SEBI annual report 2012-13

[144] CSE directive 2012

[145] SECBD website, 2013

[146] Intellecap primary research

Figure 44: Typical ecosystem for private equity investments in emerging economies



Source: Intellecap analysis, 2014

Government and aid partners can create more impact by playing a facilitative rather than direct role

Government and aid partners could potentially create most impact by helping to decrease risk of investments; acting as anchor investors in funds; and bring in facilitative regulation like tax breaks and other incentives for healthcare companies.

The creation of 'Guarantee funds' by public sector institutions can help to channel more debt and equity capital into healthcare companies

Creation of guarantee fund by Public sector institutions, both for debt and equity products could provide commercial banks and private equity funds with partial coverage of risk exposure against investment made in healthcare companies. This would ensure that the capital supply to such companies is not affected in the long term and this would facilitate further investments in the sector.

Building an ecosystem for the secondary markets to facilitate private equity investment exits through open offer would create more exit opportunities

More awareness about the nuances of equity investing would be beneficial for both entrepreneurs and investors. Industry networks, forums and conferences, incubators and investment intermediaries have a key role to play in building this awareness and creating a better ecosystem for equity investments. Historically given the low trading volumes in secondary markets in Nepal, an enabling environment for promoting secondary market transactions should be created[147]. The key drivers that would facilitate the trading volumes in the secondary markets in Nepal are a) introduction of reliable online trading system making trading affordable and b) settlement of transactions to be shortened to a few days from the present duration that could last for few weeks.

Regulatory regime can play a key role in putting in place regulatory structures to allow exit platforms to emerge

Recognising equity investments as a separate asset class creates more formal structures and higher degree of organisation in the private equity market, which helps investors to navigate the processes of incorporation, licensing and approvals. This recognition can also pave the way for special concessions to private equity investors as well as create the foundation for public and private exit platforms to emerge.

[147] Refer Annexure 9.4.3

Private sector actors like incubators, angel networks, and investment intermediaries can help to reduce duplication of efforts in deal sourcing and early stage capacity building; and highlight best case practices for the industry

Private sector actors like incubators, industry networks and forums like conferences and workshops are efficient aggregators of high potential businesses. By playing this role, they can decrease duplication of effort in pipeline discovery across different private equity funds and also ease the process of fundraising for entrepreneurs by helping them navigate through different choices. This trend has been observed in India, where industry networks like TiE, FICCI and NASSCOM; private and public incubators; and forums like TIECON and Sankalp Forum have played a key role in helping the venture capital and private equity spaces grow.

8. Access to Capital for Healthcare Businesses

8.1 Debt and Equity Funding in this sector

Healthcare companies in Nepal have moderate access to debt but low access to institutional equity

Larger tertiary hospitals and pharmaceutical manufacturers interviewed during the course of this study reported that access to debt is easier in healthcare than in other sectors; with a few firms even qualifying for low-interest rate loans at 8 to 9%. While tertiary hospitals have traditionally had easier access to low-interest debt, this is a comparatively new phenomenon for pharmaceutical manufacturing firm that until recently were accessing debt at up to 17% interest. With the recent liquidity in the market, interest rates for pharmaceutical companies have come down to 7 to 10% this year[148].

However, access to institutional equity is low in the country due to the less developed state of capital markets[149].

Difficult to estimate quantum of debt funding, but the larger healthcare companies seem to have easier access to debt funding and at better interest rates

In case of smaller healthcare firms, access to debt is difficult due collateralisation requirements, high interest rates, and capping of loan terms 8 to 10 years. Data with further granularity is not available, and hence it is difficult to accurately estimate flow of debt funding.

Overall, the supply of debt to businesses in Nepal appears to be inadequate since only 10% businesses report that they are well-served by the banking infrastructure, and only 1% have a commercial bank as source of financing[150]. Some common challenges associated with access to debt funding include:

- **Requirement of high collateralisation:** Banks tend to lend only to businesses in more established sub-sectors and often require up to 100% collateralisation.
- **Long lead times in loan approvals:** Since many banks lack the risk assessment and due diligence frameworks needed to evaluate healthcare companies for loans, the process of procuring a loan can take from 3 months to over a year with significant time investment from senior management[151].

[148] From primary interviews conducted during the course of this study in February and May 2014
[149] See Section 11.4 for details
[150] IFC Enterprise Finance Gap Database, accessed in March 2014
[151] From primary interviews conducted during the course of this study

Equity funding in healthcare companies primarily consists of FDI and promoter capital; very little organised private equity investing activity exists

Domestic promoter equity has been channelled by well-established business groups or pooled-together capital from High Networth doctors. Norvic International Hospital (promoted by Chaudhary Group) and Grande International Hospital (promoted by CE Group) are examples of the former; while Vayodha Hospital and Smile Dental Care are examples of the latter. Over US$ 18.21 million has also come in through FDI route from institutional as well as individual investors[152].

Healthcare companies face several challenges in accessing institutional equity capital which include:

- **Low supply of organised equity funding** which means that promoters with existing relationships/networks built with financiers are more likely to be evaluated for investments
- **Low awareness about the pros and cons of raising external equity** which leads many healthcare promoters to be apprehensive about losing control of their company to an external investor
- **Very little activity in "investment intermediation"** from incubators, angel networks, investment advisors and others who typically link investors and entrepreneurs in more mature markets
- **Lack of clarity in valuations** and nature of investment agreement
- **Lack of exit platforms**

8.2 Grants and Resources

There are several international financial and non- financial assistances available to businesses which Nepal can explore to bring in measurable operational efficiency and success within a company. Some of the relevant grants and resources along with their criteria have been listed below:

1. **Austrian Development Co-operation – Business Partnerships**

In cooperation with the Oesterreichische Entwicklungsbank (OeEB) the Austrian Development Agency (ADA) promotes Business Partnerships.

Activities that can be undertaken with the support of ADA:

- Improvement in initial training and vocational training
- Know-how transfer
- Use of renewable energies or increase in energy efficiency
- Improvement in water supply and waste water treatment
- Improvement in waste disposal and/or recycling
- Promotion of rural development and responsible management of natural resources
- Increase in production, competitiveness and quality
- Consolidation of supply chains
- Improvement in social standards and working conditions
- Improvement of the health of workers and their families, fostering gender equality

These measures can be supported as part of a business partnership with a non-repayable grant. Funding amounts to up to 50% of direct project costs (not exceeding EUR 200,000), which must total at least EUR 100,000. The term of a Business Partnership is limited to three years. The programme is open for applications all year round.

Criteria

ADA is interested in innovative and sustainable projects. To be eligible for funding, a project must meet the following conditions:

[152] See Section 5 for details

- Applicant is a European company in partnership with a company from a developing country.
- Generation of local added value, turnover and profits.
- Long-term commitment in developing country.
- Benefits for local population beyond the applicant's core business.
- Compliance with national laws and internationally recognised environmental and social standards.
- The project includes flanking measures that contribute both to improving the local social, ecological or economic environment and the success of the company.

Eligible costs

The application includes a budget according to ADA format. The following costs can be included:

- Time spending of project partners.
- Salaries of staff hired for the project.
- Local and international travelling and accommodation costs.
- Capital goods investments (only the annual depreciation costs are covered for the duration of the project).
- Costs of training, advisors, certificates, marketing, studies etc.

2. German Development Co-operation - DeveloPPP

The develoPPP.de programme provides up to 50% grant (maximum of Euro 200,000) to selected projects proposed by a European company or a company in a developing country in which European companies or nationals own at least a 25% share. The programme is funded by the German government and administered by its agencies DEG, GIZ and Sequa. These agencies hold ideas competitions four times a year for the develoPPP.de programme with the following closing dates: 31 March, 30 June, 30 September and 31 December.

Criteria

To qualify for develoPPP.de grant funding under the ideas competition, a project needs to have the following features:

- The applicant is a company registered in Europe or a company registered in a developing country with at least 25% European ownership.
- The applicant is at least 3 years active, has at least 10 employees and a turnover exceeding Euro 1 million.
- The applicant has a long-term entrepreneurial commitment in the target country and demonstrates a commercial interest in the project.
- The project should be completed within 3 years from contract signing.

Activities

DeveloPPP will co-finance exclusively projects that prepare or accompany long-term private sector commitments, like:

- Design and introduction of new products, technologies and services relevant to development; demonstration or pilot projects.
- Improvement of range of courses offered at training institutes.

- Improvement of energy and water supply.
- Improvement of healthcare.
- Job creation.
- Improvement of labour and social standards.
- Measures to boost environmental and climate protection.
- Supply chain management.
- Economically and socially responsible value chain management.

Eligible costs

The application includes a budget according to DeveloPPP format. The following costs are eligible:

- Time spending of project partners.
- Salaries of staff hired for the project.
- Local and international travelling and accommodation costs.
- Capital goods investments (only the annual depreciation costs are covered for the duration of the project).
- Costs of training, advisors, certificates, marketing, studies etc.

3. German Development Co-operation – Up-scaling

With the special programme "Up-Scaling", DEG finances pioneer investments of small and medium enterprises (SME) in developing and emerging countries that intend to scale up innovative business models. The programme addresses companies whose financing needs lie somewhere between micro financing and the traditional financing by commercial banks.

Target group

SMEs that are registered in the developing country- This may also be local subsidiaries of German or European companies. The applicant company has to provide the resources in terms of finance and manpower as well as the relevant know-how to implement the project and needs to be able to present at least one annual financial statement.

Funding

DEG finances a maximum of 50% of the total investment volume (max. EUR 500,000) under the condition that there are private sponsors who contribute a substantial share of equity (at least 25%). The DEG share must be repaid in the event of success of the project (depending on pre-defined financial criteria such as cash flow, revenue or profit).

Conditions of co-financing

- The project is based on an innovative business approach.
- A pilot phase has already been successfully completed with proof of concept as regards to technology and business model at local level.
- The project must generate profit (proof by means of business plan and financial projections).
- The project shows high growth potential owing to the size of the market and the target group.
- The project may generally be planned in all developing or emerging-market countries, with individual limitations owing to political or other risks. Projects in Africa and in LDCs (least developed countries) will be considered preferentially.

Interested companies may deliver their proposals for the co-financing to DEG at any time.

4. **Dutch Development Co-operation – Food security and private sector development programme (public-private partnership)**

The programme aims to stimulate public/private partnerships of Dutch and local partners within the sphere of food security and private sector development in developing countries. There is one tender round in 2014, closing on 1 December 2014.

Target group

Grants are available to public institutions, businesses, NGOs and knowledge institutions, within a cooperative partnership which encompasses at least one business. The public component in the partnership will, in every case, comprise the Dutch Ministry of Foreign Affairs. Participation by an NGO is mandatory. Preferably, other public institutions will also form part of the cooperative partnership.

Sub-themes

For food security:

- Improved local/regional availability of affordable and qualitative good food.
- Efficient markets and sustainable chain improvement in local/regional markets.
- Not eligible: projects exclusively aimed at non-food crops

For sustainable entrepreneurship:

- Inclusive business proposals with demonstrable impact on low income groups
- Improvement of female entrepreneurship
- Not eligible: proposals aimed at the financial sector (excluding insurance)

Grant

Maximum 50% of budget with project budget of minimum EURO 2 million. Minimum 25% of project budget must be financed by private enterprise.

5. **Norwegian Development Co-operation – Application-Based Support for Private Sector Actors**

Activities

The programme is primarily aimed at businesses / commercial companies seeking funding for:

- **Feasibility studies** (maximum 50% of budget with maximum grant of EURO 60,565). Norad primarily covers the costs made in the development country.
- **Preliminary studies** may include market, technology, legislation, etc.
- **Training** related to establishment (maximum 50% of project budget with maximum grant of EURO 60,565). Support can be given to training of local employees for a limited time in connection with establishment, in cases of major expansions or restructuring.
- **Pilot production/demonstration** in connection with private investment projects / business establishment (maximum 50% of total costs with maximum of EURO 121,000). In the starting phase

of production in a developing country, there may be doubt on whether the chosen technology is appropriate to the local conditions.

The purpose of the programme is to reduce the risks present before an investment decision is made and to secure the sustainability and feasibility of the investment project.

For companies seeking funding it is important to note the following:

- Some sectors are prioritised (renewable energy, climate and environment-related technology, agriculture, forestry, marine and maritime sector).
- Requirements of at least EURO 1.2 million in turnover for the last year.
- The applicant should normally have, or plan for, an ownership of at least 25% in the established/ planned company.
- The applicant must show a high development effect to be probable.
- Sales and representation offices will not be supported.

Applications can be submitted continuously.

6. **Swedish Development Co-operation – Innovation Against Poverty (IAP)**

Applicants can be based in any country, but their inclusive business must be in a low-income country (OECD/DAC list). The programme functions as a risk sharing mechanism for sustainable business ventures (commercial companies or market oriented organisations) which have a strong potential to reduce poverty. Companies can be active in all sectors where innovation leads to poverty reduction, from agriculture and infrastructure to health and education.

Grants: Innovations Against Poverty has two parallel application processes:

- **Small grants** (maximum 50% of project costs with maximum of EURO 20,000) for the purpose of exploring an innovation or a new market. The grant can be used for travel and pre-feasibility studies; stakeholder needs assessments, and networking with local organisations. This programme focuses on smaller organisations which have a wealth of good ideas with great potential, but need the support of their business strategy and resources to penetrate new markets.

- **Large grants** (maximum 50% of project costs, in the range of EURO 20,000 – EURO 200,000) for the purpose of undertaking a development project aimed at a product, service, system, business model or a concept ready to be put to market test, or adaptation of existing products to be affordable and accessible by the poor. IAP also seeks to work with larger companies, to help support the development of "inclusive business" models for these markets, which expands opportunities for the poor and disadvantaged in developing countries. Such business models can engage the poor as employees, suppliers, distributors and consumers.

Key criteria: development effects, commercial viability, innovation, cost sharing and additionality.

The process is of a competitive nature, where grants are awarded to the best business plans which meet the criteria of the programme. The programme works with 1-2 tender rounds per year. No tender round has been announced at present.

7. **USAID**

There are several programmes under USAID that are applicable for Nepal such as:

- Powering Agriculture
- Development Innovation Ventures
- Partnering for Impact
- Partnering to Accelerate Entrepreneurship
- Partnering for Innovation

9. Typical Capital Structure for Healthcare Businesses

Typical emerging market tertiary hospitals and pharmaceutical companies have debt-heavy capital structures during initial years of operations, with debt component steadily decreasing as the business grows

Tertiary hospitals and pharmaceutical manufacturing companies typically need access to debt for purchase of land and machinery, and facility construction in their initial stages. This debt is usually long term, and is paid back within a 5 to 10 year window depending on financial health of the business. During this period, the debt:equity ratio is typically 70:30 in emerging market economies like India[153].

[153] Venture Intelligence and Intellecap analysis, 2014

As the business grows and matures and long-term debt is paid off; the overall debt component decreases. However, businesses will continue to need short term debt from time to time for operational expenditure like machinery purchase and upkeep, building maintenance, and staff salaries. As a result, the steady-state debt:equity ratio can range from 60:40 to 50:50[154].

Capital structures of tertiary hospitals in Nepal show a high degree of variance from this emerging market trend; while those of pharmaceutical companies align with it

From primary interviews conducted during the course of this study, promoters of larger tertiary hospitals and pharmaceutical companies stated that they have moderate to easy access to debt at attractive interest rates. However, while promoters of pharmaceutical companies have accessed this debt, promoters of tertiary hospitals seem to prefer equity raised through promoters or the "friends and family mode" to debt. The typical capital structures used in both these business models have been shown in Table 11.

Small to medium-sized hospitals also seemed to prefer equity, but this was primarily because either they lacked access to debt or could not procure it at attractive interest rates. No clear trend or preference was seen among small and medium-sized pharmaceutical players due to limited data.

Table 11: Typical capital structure of healthcare companies in Nepal

	Capital Structure in Nepal	
	Debt	Equity
Tertiary Hospitals[155]	30 to 50%	50 to 70%
Pharmaceutical Manufacturers	60%	40%

Source: Pprimary interviews conducted during the course of this study in May 2014

While there is not enough market data at the moment to authoritatively analyse the drivers behind this trend, insights from industry practitioners seem to provide a few hypotheses. These can be analysed further once more market and financial data becomes available in Nepal; but are only suggested as broad possibilities in this report due to lack of sufficient data.

One of the key hypotheses proposed for this trend was that most tertiary hospitals are set up by corporate groups with existing and well established construction and manufacturing businesses, and promoters have preferred to channel profits from these existing operations into setting up healthcare businesses. It was suggested that due to low know-how around capital structuring and business valuation, it is possible that promoters do not fully understand the real cost of equity which is much higher than debt. Another hypothesis proposed was that procuring long term debt from a bank usually requires businesses to have a high degree of transparency and accountability which many tertiary hospitals may not already have in their organisational structures. For such businesses, debt procurement might seem like an unnecessary hassle when equity is easily available.

Healthcare company promoters who prefer institutional equity often do so for strategic reasons like accessing better technology, improving brand value and enhancing management capacities

As described above, among the larger healthcare players – tertiary hospitals seem to prefer equity-heavy structures and pharmaceutical companies tend to prefer debt-heavy structures. Not surprisingly, even amongst promoters who prefer equity seemed to do so for the "non-financial" value-add it created; and sought access to technology and enhanced brand value and management capacities as key contributions expected from an equity investor as shown in Figure 45.

[154] Venture Intelligence and Intellecap analysis, 2014
[155] Ranges have been used instead of median value due to the small size of the sample set

Figure 45: Typical healthcare business promoter preferences in capital structures

Sub-sectors	Tertiary Hospitals	Pharmaceutical Manufacturers
Preferences for type of external funding		
Debt	◑	●
Equity (Domestic or Foreign)*	●	◑
Key contributions expected from an equity investor		
Access to technology and know-how	●	●
Increased brand value	●	◑
Enhance management capacities	●	◑
Adding financial value only	○	◑
Help to unlock promoter capital by dilution	○	◑

*No specific preference was found between foreign and domestic equity

● High
◑ Moderate
○ Low

Source: Primary interviews conducted during the course of this study in May 2014

10. Valuation Trends in Healthcare Businesses

Enterprise valuation in Nepal can often be challenging because – (a) there is limited historical data; (b) there is a lack of adequate industry benchmarks, and (c) the use of comparable data from SAARC countries is only partially adequate.

There is little public information available on past equity investments into healthcare companies in Nepal. The lack of data is primarily due to infancy of the investment value chain and support infrastructure such as research and ratings. Further, sparse research coverage of capital markets in Nepal has resulted in limited availability of historical data and limited access to updated industry benchmarks.

However, the investment landscape is witnessing brisk activity, with 2-3 institutional investment funds setup over the last three years. The status of investment landscape presents an opportunity for early entrants into the venture capital space in Nepal to make investments at lucrative valuations.

In the absence of adequate industry benchmarks relevant proxy, comparable data and hurdle rate methods may be used to guide valuation

Since adequate industry benchmarks from Nepal are not easy to access; **valuation data from comparable** countries like India, Sri Lanka, Bangladesh and Pakistan may be used as broad guides by investors. These countries are comparable because like Nepal, they have poorly developed public healthcare infrastructure and disproportionately high spend private out-of-pocket expenditure on healthcare. Additionally, these countries are also witnessing a rise in incidence of NCDs leading to a double disease burden much like Nepal. At the same time, countries like India have much higher market capitalisation and better investment value chains, and have several publically listed and traded healthcare companies. Hence, even though some comparable valuation ratios can be used from these countries, they can at best be broad guides since the regulatory regimes, banking infrastructure, market capitalisation and other macro-economic indicators vary widely from country to country.

In absence of consistent data on valuation ratios in the sector, **hurdle rate** can also serve a good indicator of minimum returns expected from investments in the healthcare sector. The two benchmark

rates considered for the analysis include (a) Cost of Equity and (b) Weighted Average Cost of Capital (WACC) for a given financing mix of equity and debt.

10.1 Comparable Valuations in India and SAARC Countries

Valuation multiples from comparable countries like India, Bangladesh, Sri Lanka and Pakistan may be used as broad indicators by investors evaluating opportunities in healthcare companies as shown in Table 12. Data from comparable countries has been used due to inadequacy of public data on valuation trends in Nepal. Countries like India, Bangladesh, Sri Lanka, Indonesia and Pakistan are found to comparable because – (b) the public health infrastructure is adequate in these countries as in Nepal; (b) out-of-pocket private expenditure is high; and (c) patterns of disease burdens show similarities with rise of NCDs observed across all these countries.

Table 12: Median of valuation multiples of some listed healthcare companies from SAARC countries

Sub-Sector	ROE %	EV/ EBIDTA	EV/Sales	PBV
Tertiary hospitals	19.3%	7.1x	1.5x	1.9x
Pharmaceutical manufacturers	20.5%	9.7x	2.2x	3.1x

Source: Data for valuation multiples is based on financial statements of publically traded companies in India, Bangladesh, Sri Lanka, and Pakistan. The specific value represented here is the median of multiples of several companies – the details can be accessed in Section 11.5.3 in the Annexure. Information on financial statements was accessed from Capital IQ, Bloomberg and MoneyControl databases in March 2014.

Note: Due to limited size of sample set, this should only be taken as a broad guide to valuation multiple ranges. Specific valuation multiples may differ significantly from company to company.

10.2 Estimating Hurdle Rate for Healthcare Businesses in Nepal

Hurdle rate is proposed as an indicator of minimum expected return from investments in tertiary hospitals and pharmaceutical manufacturers

In absence of consistent data on valuation ratios in the sector, hurdle rate can serve a good indicator of minimum expected return from investments in the sector. The two benchmark rates considered for the analysis include (a) Cost of Equity and (b) Weighted Average Cost of Capital (WACC) for a given financing mix of equity and debt. Finance literature offers multiple methods of calculating the hurdle rates; the current report uses the Damodaran Model (refer to annexure). As Nepal's investment value chain is in early stages of its development, investors may seek premium for illiquidity and size of the investments.

Cost of Equity in tertiary hospitals is 17 to 19%; and in pharmaceutical companies is 32% to 37%

Based on the data from the healthcare sector in Nepal and comparable proxies, the Cost of Equity for investments in tertiary hospitals is estimated to vary from 17% to 19%; and Weighted Average Cost of Capital is estimated to be 14% to 16%. The Cost of Equity in pharmaceutical manufacturing is 32 to 37%; and the Weighted Average Cost of Capital is 16 to 19%. The key assumptions for the estimations are listed in Table 13 and ranges for Cost of Equity are presented in Table 14.

Table 13: Key assumptions taken to calculate WACC in healthcare companies in Nepal

Parameter	Assumptions
Market value of Debt (D)	The capital structure in the healthcare segment varies across tertiary hospitals and pharmaceutical manufacturers, and the data for debt component presented in Table 11 has been used.
Market Value of Equity (E)	The capital structure in the healthcare segment varies across tertiary hospitals and pharmaceutical manufacturers, and the data for equity component presented in Table 11 has been used.
Tax rate	Corporate tax rate of 25% has been taken[156]
Cost of debt in Nepal	The data from major banks in Nepal such as SBI Nepal and Bank of Kathmandu has been utilised to obtain the cost of debt. The range of cost of debt has been taken at 9% to 13% for tertiary hospitals; and at 7 to 10% for pharmaceutical manufacturers as per information gathered during primary interviews conducted in the course of this study
Risk Free Rate	Taken at 9% based on the bond rates reported by Nepal Rastra Bank
Beta estimation	• Beta for tertiary hospitals in frontier markets has been estimated to be 0.48; and beta for pharmaceutical manufacturers has been estimated to be 0.83 based on data analysed from comparable geographies • The beta has been levered using Debt equity ratio for healthcare companies in Nepal as shown in Table 11. The levered beta for tertiary hospitals is in the range of 0.64 to 0.73; while that of pharmaceutical manufacturers is 2.28
Market Risk Premium (Rm)	The market risk premium ranges from 13.66% to 16.25%[157]

Table 14: Cost of Equity across healthcare companies

	Tertiary Hospital	Pharmaceutical Manufacturer
Cost of Equity (min)	17%	32%
Cost of Equity (max)	21%	37%

Source: Intellecap analysis, 2014

Two clear trends in cost of equity stand out – (a) Pharmaceutical manufacturers trade at a higher premium due to business model challenges like high import-reliance for raw materials and high competition from imported drugs; and (b) Tertiary hospitals trade at a lower premium due to lesser degree of business model and systemic challenges coupled with high unmet demand for their services and low competition

Cost of Equity and leverage are considered together to estimate the Weighted Average Cost of Capital (WACC)[158] using the formulae shown in Table 15.

[156] Inland Revenue Department, Nepal statistics
[157] See calculations in annexure

Table 15: Estimated hurdle rate for healthcare companies in Nepal

	Tertiary Hospitals	Pharmaceutical Manufacturers
D/E	0.42 to 0.66	1.5
Beta Unlevered (min)	0.48	0.83
Beta Unlevered (max)	0.48	0.83
Beta Levered (min)	0.64	1.76
Beta Levered (max)	0.73	1.76
Total Equity Risk Premium	13 to 16%	13 to 16%
Risk Free Rate (min)	9%	9%
Risk Free Rate (max)	9%	9%
Cost of Equity (min)	17%	32%
Cost of Equity (max)	21%	37%
Cost of Debt (min)	9%	7%
Cost of Debt (max)	13%	10%
Tax Rate	25%	25%
Weighted Average Cost of Capital (min)	14%	16%
Weighted Average Cost of Capital (max)	16%	19%

Source: Intellecap analysis, 2014

10.3 Non-Financial Metrics used in Valuation

The most important non-financial metrics for valuation of healthcare companies are strength of management and technical teams, robustness of operational model, brand recognition and B2B market linkages for access to technology and expertise

Valuation of healthcare firms especially in frontier markets must take into account both quantitative and qualitative indicators of firm value. These include “healthcare firm-level” criteria and “macro-economic and market-level” criteria.

A small group of early stage equity investors from India were asked to evaluate the relative importance of these valuation drivers to understand investor sentiment on this issue. Not surprisingly, investors rated strength of management and technical teams, robustness of operational model, brand recognition

[158] See Section 7.2 for details on calculation of hurdle rate

and use of modern technology and approaches as the most critical aspects of a healthcare business and favourable metrics against these were likely to drive up valuation. More "systemic issues" like regulation issues, exit opportunities, and inflation were not considered very critical and investors were likely to make more concessions here unless there was a direct impact on revenues and profitability. Table 16 shows a "high", "moderate", and "low" sorting of these criteria.

Table 16: Investor sentiment on non-financial valuation drivers in healthcare firms

Valuation Drivers	Investor Sentiment on Relative Importance		
	High	Moderate	Low
Firm-Level Drivers: Internal			
Management and technical team (Governance and capacities)	✓		
Strength of operational model – margins, scalability	✓		
USP		✓	
Brand recognition	✓		
Technology, know-how and quality assurance processes	✓		
Market linkages with domestic and international firms for access to technology, expertise	✓		
Collateral and securities		✓	
SME-Level Drivers: External			
Regulation – sector-level policies, legal structures, taxation		✓	
Exit opportunities – like secondary sale, promoter buy back and IPO		✓	
Macro-Economic and Market-Level Drivers			
Political stability		✓	
FDI policies		✓	
Inflation			✓

Source: Primary interviews and Intellecap analysis; 2014.
Note: A rating of "high" indicates that investors do not compromise on these drivers, of "moderate" indicates that they sometimes compromise if all other critical drivers seem favourable, and "low" indicates that investors compromise almost always because they expect these drivers to improve in the short-to-mid-term.

1. Management and technical teams

Quality and experience of the management and technical teams is the most critical aspect for private equity investors since they are mostly betting on the team's ability to turn a business plan into a profitable venture. This is especially true in Nepal where the larger supporting environment for businesses is missing; and the ingenuity, networks and skills of founding team members are called upon to bridge this gap. Presence of a strong management and separate technical team with diverse skillsets and clearly established roles and responsibilities will help to drive up valuation.

Governance and accountability practices of the management team are critical as well; especially in cases where hospitals are run by groups of promoter-doctors who divide their time between medical care and day-to-day management. Good governance practices like maintaining audited financials, good book-keeping, and presence of a few external and well-reputed individuals on the Board of Director or Advisors help to drive up valuation.

2. Strength of operational model

The strength of operating level cash flows help to determine financial state of a healthcare company, and investors analyse these to estimate the predictability of revenue. Key metrics to measure operational efficiency for tertiary hospitals have been presented in Table 7 and include metrics such as number of beds and bed occupancy rates. Key metrics for pharmaceutical manufacturers include healthy cash flows and optimal account receivable days.

Such healthy metrics indicate predictability in revenue; such that it sufficiently covers operational costs and services debt. An operationally efficient business that shows healthy metrics as in Table 7 is likely to have a higher valuation.

3. Unique Selling Proposition (USP)

The key customer segments for investible healthcare companies include out-patients and in-patients that are walk-ins on referrals; and the key customer segment for pharmaceutical manufacturers includes traders, distributors, retailers and hospitals. A well-defined USP is needed in both businesses since customers make health-outcome related choices carefully based on trust, word-of-mouth and past track record. While tertiary hospitals face a lower degree of competition, this is especially true for pharmaceutical manufacturers which often compete with foreign drugs in the market that can be perceived as higher quality. A well-defined USP such as affordable prices or tie-up with a reputed foreign firm for best in class products/services can help to drive up valuations.

4. Brand Recognition

Brand building in the healthcare market is complex because end consumers often make purchase decisions based on influence of either a third-party like a doctor or driven by more nebulous influences like word-of-mouth. Hence, both tertiary hospitals and pharmaceutical manufacturers that invest in multi-pronged brand building efforts are more likely to have higher valuations. Tertiary hospitals especially must be careful to avoid basing brand-building exercises entirely on individual doctors since this strategy is not sustainable in the long term.

5. Technology, know-how and quality assurance processes

The use of modern technology, know-how and quality assurance processes (like ISO 9001 certification for instance) are critical to attracting consumers as well as building a recognised and trusted brand in the market. Unlike other sectors, operational errors resulting from poor technology and ill-trained staff have high repercussions in the healthcare sector, and even a single incident resulting from these can render a business unviable. Hence, tertiary hospitals and pharmaceutical manufacturers that invest in these areas are likely to have higher valuations since private equity investors are able to have greater confidence in their ability to deliver consistent high-quality services.

6. Market linkages with domestic and international firms for access to technology and expertise

Since use of modern technologies and processes is critical for long term growth of healthcare businesses, B2B linkages that enable dependable and attractively-priced access to these are also likely to drive up valuations. This is especially important when it comes to technology since most equipment is imported from foreign companies, and predictability in maintenance and supply of spare parts is a pre-requisite. Additionally, these foreign companies must also be willing to train domestic staff in handling and care of machinery.

Aside from technology, tertiary hospitals can also benefit from linkages with foreign hospitals for access to know-how and expertise. Not only do these increase quality of service delivery, but the brand value of the domestic hospital increases as a result of tie-ups as shown in Table 3.

Finally, tertiary hospitals and domestic pharmaceutical manufacturers will also benefit from establishing strong buyer-supplier partnerships; and also from working with health-IT firms for access to software technology like Hospital Management System (HMS) that automates and standardises day-to-day managerial functions.

7. Collateral and securities

The availability of collateral and securities with a healthcare company helps to gauge financial health, and also services to mitigate risks for an equity investor. Securities like debt funding and owner's equity can contribute to driving up a firm's valuation; while collateral in addition to this direct influence is also a signal to the equity investor that the healthcare firm can raise debt financing to grow. This is especially critical for tertiary hospitals that are almost entirely financed by equity and can bring in greater debt component for better valuation.

8. Regulation – sector-level policies, legal structures, taxation

Facilitative government policies like encouraging FDI and ease of doing business increase healthcare valuation, while inhibitory policies decrease valuation. Section 4.3 explains the current impact of different government regulations on enterprise value and operations. The current regulatory regime is likely to either drive up valuations or have minimal impact; but negative impact does not seem likely.

9. Exit opportunities – like secondary sale, promoter buy back and IPO

Clarity on potential exit opportunities is important as well. The secondary sale value-chain in Nepal is underdeveloped[159] so the only two strong possibilities that investors have are promoter buy-back and trade sales. Thus far, no track-record of secondary exits or public listing is available, and early entrants in the private equity field in Nepal may have to plan for longer investment time-period than in more mature markets. This could drive down valuations due to higher risk perceptions.

10. Political stability

Confidence in the macroeconomic environment and political stability drives up firm valuations as it gives financiers confidence that the business environment for their portfolio will remain reasonably conducive, and at the same time their investment will be protected. Since Nepal has only regained political stability over the past 6-7 years, investors are likely to attach greater risk premium to opportunities they evaluate as shown in Table 15.

13. FDI policies

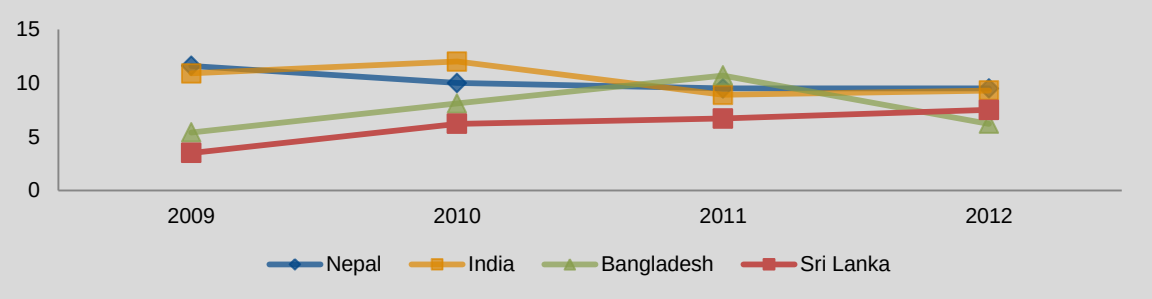
Long-term regulatory stability around FDI policies is likely to drive investments at greater valuation since investors can be confident that they will have the freedom to exit a business when it is most lucrative for them to do so. The recent decision by NRB to disallow FDI in commercial banking could potentially drive investors to attaching a higher risk premium. However, on the flipside the government and regulator have stated their intention to support greater FDI inflows, and in a March 2014 address, NRB Governor indicated that domestic banks and financial institutions are able to provide supplementary capital to foreign investors. Approaches like this would give more confidence to investors and drive up valuations.

14. Inflation

[159] See Section 7 for details

Nepal reported an inflation rate of 9.72% in January 2014, and both the current rate of inflation as well as historic trends compare unfavourably to other SAARC countries as shown in Figure 46. This degree of inflation could potentially decrease value of earnings for investors and in turn reduce the P/E ratio. In order to build a cushion against this, investor may consider addition risk premium and this may in turn drive down valuations.

Figure 46: Comparison of inflation rate (%) in Nepal with selected SAARC countries



Source: World Bank Development Indicators database, accessed in March 2014

11. Annexure

11.1 Demand and Supply Assessment Methodology

- In the hospital sub segment the demand was calculated on the basis of number of hospital beds per 1000 people. This metric was further compared with countries like India, Bangladesh, Sri Lanka and Pakistan to analyse the need gap. The primary source of data for the analysis was health indicators published by World Bank, WHO, IFC.
- For sub segments such as pharmaceuticals and diagnostic centres the primary sources of information were industry reports and primary interviews.
- Supply of services and drugs were estimated based on information from government data, industry reports and indicators published by World Bank and WHO.

11.2 Calculation of Hurdle Rate

Cost of Equity and leverage are considered together to estimate the Weighted Average Cost of Capital (WACC) using the formulae shown in Figure 47 and Figure 48.

Figure 47: Formula for calculating WACC

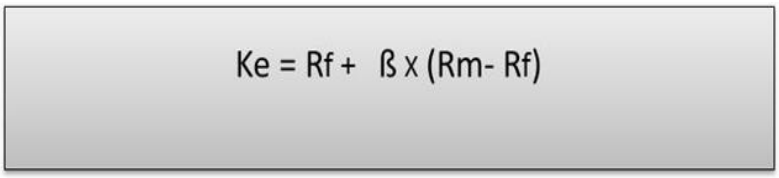
$$WACC = \frac{D}{D+E} \times (1\text{-tax rate}) \times Kd + Ke \times \frac{E}{D+E}$$

Where -

D: Market value of Debt, **E:** Market Value of Equity, **Tax rate:** corporate tax rate in Nepal,

Kd: Cost of debt in Nepal, **Ke:** Cost of equity calculated by the formula:

Figure 48: Formula for calculating cost of equity



Where –

Rf: Risk free rate (treasury bond rate), **ß:** Predicted equity beta, **Rm:** Market risk premium

Cost of preferred stock has not been included while calculating WACC as the capital market information on the same was not available in Nepal. The key assumptions made while calculating WACC for healthcare businesses in Nepal are shown in Table 15.

The following methodology has been used to assess Market Risk Premium and Hurdle rate:

- Current risk premium was taken for a mature equity market at 5%
- No shadow rating is given by Moody's or S&P for Nepal. Based on ratings given by IFC at CCC+ (CAA1 in Moody's) the default spread is 7.5%. This has been multiplied by volatility factor of 1.5 for frontier markets to reach country risk premium of 11.25 % for Nepal. This is done because equity markets are about 1.5 times more volatile than bond markets.
- Alternately we can calculate country risk premium using volatility of stock markets.
  *Default Spread= US bond rate * (σ Nepal Stock/ σ US Stock)*
- US bond rate is taken as 5% and 5 years standard deviation of Nepal Stock was calculated using stock market data and comes out to be 219. The corresponding 5 years standard deviation of US Stock market comes out to be 190. Utilising this data default spread has been estimated is 5.77%. This has been multiplied by volatility factor of 1.5 for frontier markets to reach country risk premium of 8.66 % for Nepal.
- We take minimum and maximum values obtained from both methods to get a range of Total Equity risk premium to be 13.66% to 16.75%.
- Through our primary research, we found that the average D/E ratio for healthcare businesses varies from sub-sector to sub-sector in the range of 0.4 to 2.3. The values were also benchmarked against comparable countries like India, Bangladesh, Pakistan and Sri Lanka.
- Unlevered Beta for healthcare sector varied from 0.4 to 0.8 across different sub-sectors in comparable countries like India, Bangladesh, Pakistan and Sri Lanka. Hence a conservative estimate assumption of 0.4 to 0.8 across sub-sectors was taken, and further levered using the aforementioned D/E ratio and following formula -
  *β levered = β unlevered * (1 + (1- tax rate) * D/E)*
- The levered beta comes out to be in the range of 0.6 to 2.2 across sub-sectors
- The risk free rate can be obtained from major banks in Nepal such as SBI Nepal Rastra Bank and Bank of Kathmandu and comes out to be around 9-10% as yielded by most of the banks on bonds issued.
- Cost of equity can be calculated by using following method-
  Ke = Rf + β (mature market equity risk premium + country risk premium)
- Ke comes out to be in the range of 17 to 46% across different sub-sectors
- Through our primary research in Nepal we found out that most healthcare businesses access debt in range of 9-13% interest
- WACC or the hurdle rate can then be calculated using the following formula-
  *WACC = E/(D+E) * Ke + D/(E+D) * (1 – tax rate) * Kd*
- WACC comes out to be in the range of 14% to 21%

11.3 Market Opportunity Assessment Methodology

Table 17 shows the inputs used to arrive at the market opportunity for private healthcare industry in Nepal.

Table 17: Inputs used to calculate market opportunity in healthcare sector

Sub-sector	Inputs to market sizing[160]	Estimated market size
Pharmaceuticals	• 48% of out-of-pocket private expenditure on healthcare in Nepal constitutes of spending on medicines and other pharmaceutical products[161]	US$ 115 to 130 million
Delivery of tertiary care	• 10% of total private out-of-pocket private expenditure at household level is spent on tertiary hospitals[162]	US$ 55 to 65 million

11.4 Investment Markets in Nepal and Impact on SME Valuation

11.4.1 Overview of Capital/Investment Market in Nepal

Role of capital in economic growth for any country is universally accepted and the fluctuations in the index of capital market could be seen as the barometer of economic performance. The capital markets in Nepal are sustained by the shares of banks, financial institutions and insurance companies that contribute to over 75% of the market capitalisation[163]. There is minimum presence of real sector in the capital market in Nepal but off-late there is an increasing presence of hydropower companies on the stock exchange.

The Nepal stock market or NEPSE since its establishment in 1992-93 has seen the number of companies listed in 1994 at 66 to 230 companies in 2013[164]. Despite the increase in the number of listed companies, it is estimated that only 10% of the companies registered on Office of the Company Register are listed on NEPSE[165]. This in turn could indicate that firms in Nepal tend to avoid stock market as an alternative source of long-term capital[166].

Primary capital market in Nepal is quite diversified and securities such as Debentures, Ordinary Share and Right Share are used for training the market place. Out of the total approvals for public issues in 2013 as shown in Table 18; 30 companies got approvals for initial public offering (IPO) of NRs. 3113.49 million a substantial increase of over 130% on the amount when compared with the previous year. Political stability and institutional support was considered as the key reason for the spurt of activity in the primary capital markets in Nepal.

[160] Only private sector spending has been taken into account for market sizing
[161] Government of Nepal, Ministry of Finance, Nepal National Health Accounts, 2003/04 to 2005/06
[162] Government of Nepal, Ministry of Finance, Nepal National Health Accounts, 2003/04 to 2005/06
[163] Nepal stock exchange website
[164] Nepal stock exchange website
[165] Department of industry, Industrial statistics 2012-13
[166] Stock Market Development and Economic Growth report, Dr. Udaya Raj Regmi, 2012

Table 18: Primary approval issued by SEBON for the FY 2012/13

S. No	Types of Securities	FY 2012-13		FY 2011-12	
		No of Issues	NRs In Million	No of Issues	NRs In Million
1	Debenture	7	3550	3	1200
2	Ordinary Share	30	3114	15	1298
3	Right Share	5	3939	7	452
	Total	**42**	**10602**	**25**	**2950**

Source: NEPSE Annual report 2012-13

The general investors in Nepal are still are attracted only toward primary shares. The fact that initial public offering (IPO) is listed many times more than that invited by the companies making IPO in the primary markets but the transactions in the secondary market is very low. This in turn shows the lack of awareness about capital market and trading in general in Nepal.

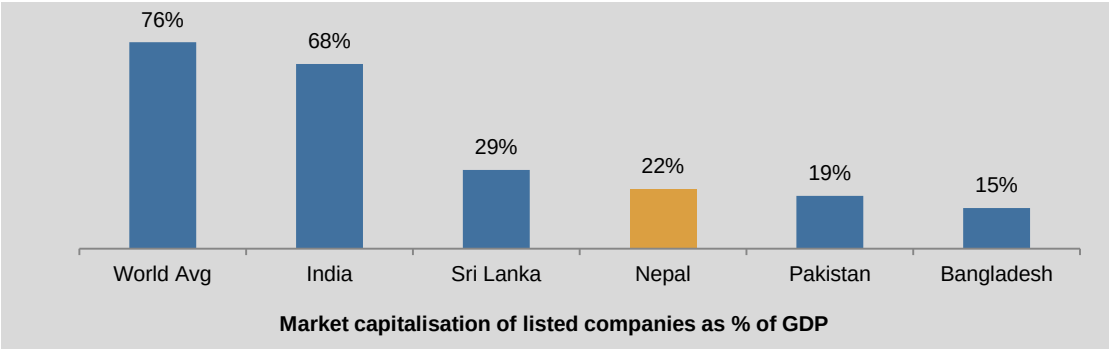
Trading in secondary markets in Nepal is a major challenge due to high trading and transaction costs, long duration of settlements and lack of reliability in the transactions.

11.4.2 Nepal Investment Market Valuation and Key Drivers

The three key parameters to measure the capital market development for Nepal have been discussed briefly below. They are a) Market Capitalisation Ratio (MCR), b) Total Value Traded Ratio (TVTR) and c) Turnover Ratio (TR)

In terms of Market Capitalisation Ratio (MCR), Nepal ranks the third best in the SAARC region after India and Sri Lanka. However the MCR in Nepal is very low in comparison to the world average and India as shown in Figure 49. A lower MCR in Nepal indicates that the stock market is yet to show its impact on the economic activities of the country.

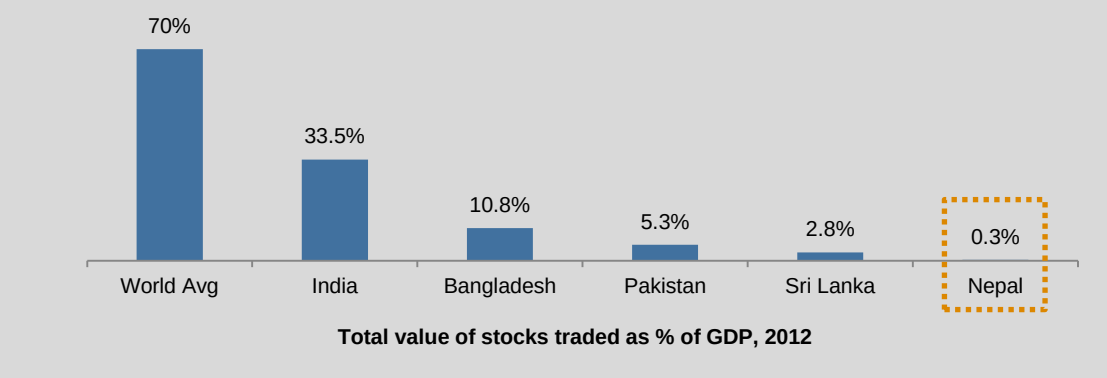
Figure 49: Market Capitalisation Ratio (MCR) for SAARC countries



Data Source: World Bank Development Indicators database, accessed in March 2014

Total Value Traded Ratio, as a market liquidity indicator, shows that Nepal has one of the lowest values of shares traded in the world when compared to its GDP as shown in Figure 50. This indicates the illiquidity in secondary markets in Nepal and that trading is very costly and difficult. One of the key reasons for increased cost of trading is the reliance on legacy based data systems for trading and absence of an online platform for trading.

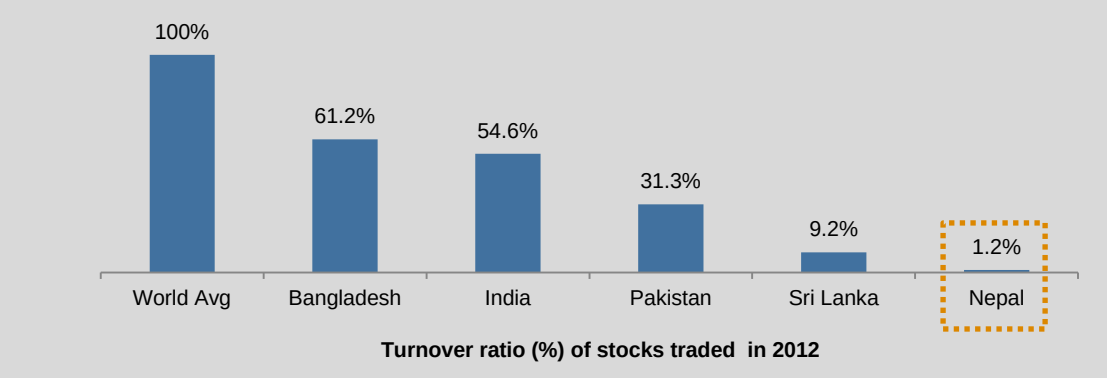
Figure 50: Total Value Traded Ratio (as % of GDP) in SAARC countries



Data Source: World Bank Development Indicators database, accessed in March 2014

The next measure of stock market development Turnover Ratio shows that Nepal has one of the lowest total values of shares traded to the average market capitalisation as shown in Figure 51. This indicates that trading and transaction costs are high in Nepal and buying and selling of shares in secondary markets is very difficult. Of all the three parameters, there are ample opportunities for Nepal to develop its capital markets fast by increasing turnover ratio even though market capitalisation is very low.

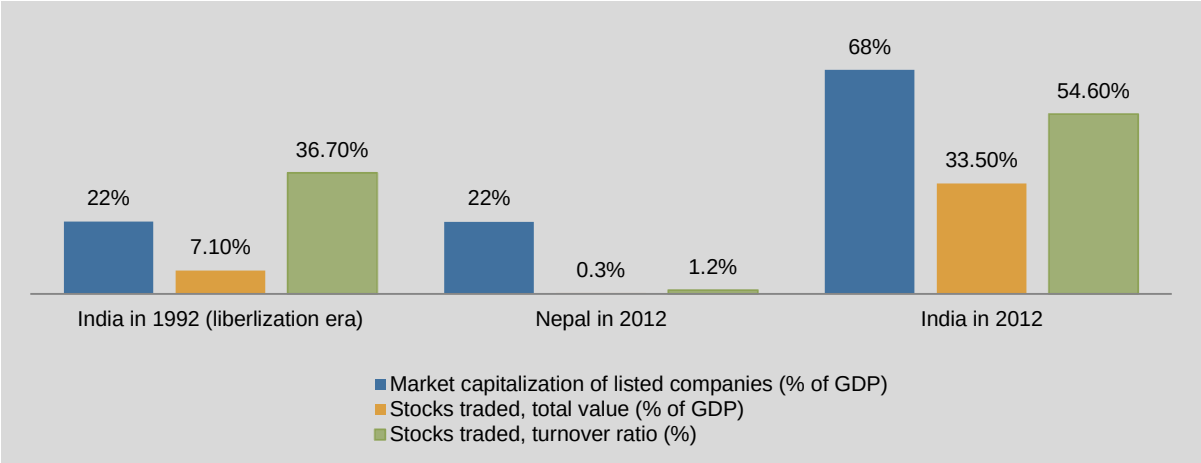
Figure 51: Turnover Ratio in SAARC countries



Data Source: World Bank Development Indicators database, accessed in March 2014

A comparison with the present stock market development indicators in Nepal with the Indian stock markets just after the liberalisation era in 1991-92 shows some similarity in the two stock markets. India has come a long way on secondary capital markets in the last two decades as shown in Figure 52. Nepal could witness the same pace of growth given the requisite institutional framework and investor friendly eco-system is put in place. Allowing foreign institutional investors to trade in secondary markets in Nepal could put the country on fast track development in capital markets.

Figure 52: Comparison of capital market development in Nepal with India



Data Source: World Bank Development Indicators database, accessed in March 2014

The key drivers that would facilitate the trading volumes in the secondary markets in Nepal are - a) introduction of reliable online trading system making trading affordable b) settlement of transactions to be shortened to a few days from the present duration that could last for few weeks and c) with higher GNIs per capita and increasing literacy levels emergence of a social class that is aware of the benefits of wealth creation through the secondary markets d) an expected long-term political stability would boost the confidence of investors to invest in the capital markets.

11.5 Miscellaneous

11.5.1 Legal Structures for Businesses in Nepal

Table 19: Legal Structures available to Businesses in Nepal

Structure	Description	Implications for financing
Sole Proprietorship	Only 1 shareholder allowed, registered with the Department of Cottage and Small-Scale Industry	Cannot issue shares or debentures and hence cannot take in equity investments
Private Limited (Pvt. Ltd.)	1 to 50 shareholders can register a Pvt. Ltd. company with the Office of the Company Registrar under the Companies Act. A company that intends to trade also needs to register with the Department of Commerce.	Can issue different types of shares and debentures with limited liability to shareholder; and hence is an appropriate structure for equity investments
Public Limited (Ltd.)	At the time of incorporation 7 shareholders can register a Ltd. company, but the actual number of shareholders should exceed 51. Also registered with the Office of the Company Registrar under the Companies Act. A company that intends to trade also needs to register with the Department of Commerce.	Can issue different types of shares and debentures with limited liability to shareholder; and hence is an appropriate structure for equity investments, and can also raise capital from public markets.
Cooperative	Minimum of 25 members can register a	Can issue shares and debentures and

Structure	Description	Implications for financing
	Cooperative under the Cooperative Act.	net profits are distributed to members after retaining 25%; however dividend cannot exceed 15% of the paid up capital per share. This is a less appropriate legal structure for equity investors expecting a market rate of return.

11.5.2 Glossary of Terms

Disability Adjusted Life Years	Measure of overall disease burden, expressed as the number of years lost due to ill-health, disability or early death
Double burden of disease	This is when a defined geographic area needs to deal with old communicable disease issues as well as modern non-communicable diseases
Invasive diagnostics	Involves puncture of skin or tissue; or insertion of an instrument or foreign material into the body to collect organic sample for analysis. Typically requires laboratory and trained staff
Non-invasive diagnostics	No puncture or penetration of body is involved; instead data like pulse rate, imagery is used to diagnose health conditions
Primary healthcare	Essential health care based on practical, scientifically sound, and socially acceptable method and technology which is universally accessible to all in the community at an affordable cost
Secondary healthcare	Consultative clinical and preventative healthcare facilities having in patient care provisions along with general surgery, consultations, diagnostics services
Tertiary healthcare	Specialised care is provided usually on referral from primary or secondary medical care personnel. Tertiary health facilities can be single or multi-specialty with inpatient provisions and include services like super specialty consultations, treatments using advance healthcare amenities
Years of life lost	Estimate of the average years a person would have lived if he or she had not died prematurely

11.5.3 Comparable Valuation Multiples from SAARC Countries

Table 20: Long list of comparable valuation multiples from SAARC countries

Sub-Sector: Tertiary Hospitals				
Company	ROE %	EV/EBIDTA	EV/Sales	PBV
India				
Indraprastha Medical Corporation	16.16%	0.51	3.96	1.76

Kovai Medical Centre and Hospital	77.05%	2.11	0.51	-
Fortis Malar Hospitals	138.10%	3.42	0.40	-
Dr. Agarwals Eye Care	24.76%	3.40	0.42	1.86
Lotus Eye Care Hospital	0.33%	2.61	0.41	0.33
Regency Hospitals	16.16%	0.51	3.96	1.76
KMC Speciality Hospitals	77.05%	2.11	0.51	-
Bangladesh				
Samorita Hospital	-	-	-	1.17
Sri Lanka				
Asiri Hospital holdings	19.34%	9.79	3.21	2.18
Lanka hospital corporation	15.77%	13.41	2.33	2.29
Nawaloka Hospitals	9.89%	7.66	1.59	1.10
Indonesia				
PT Siloam International Hospitals	-	40.75	4.85	-
Pakistan				
Shifa International Hospitals Limited	21.09%	7.56	1.38	2.89
Sub-Sector: Pharmaceutical Manufacturers				
Company	ROE %	EV/EBIDTA	EV/Sales	PBV
India				
Ipca Labs	-	12.44	2.84	-
Torrent Pharma	28.45%	9.70	2.22	5.41
Dr. Reddys	26.75%	15.94	3.56	5.58
Bangladesh				
Square Pharmaceuticals Ltd	23.55%	15.44	4.63	3.84
Beximco Pharma	7.94%	7.34	2.14	0.85
Reneta Pharma	-	-	-	-
Activefine Chemicals (API)	-	-	-	4.65
Beacon Pharma	-	-	-	1.10
Pakistan				
Ferozsons Laboratories	16.78%	7.10	1.58	1.64
Highnoon Laboratories	17.40%	7.47	0.84	2.39

Source: Data for valuation multiples is based on financial statements of publically traded companies in India, Bangladesh, Sri Lanka, and Pakistan. Information on financial statements was accessed from Capital IQ, Bloomberg and MoneyControl databases in March 2014.

Note: Due to limited size of sample set, this should only be taken as a broad guide to valuation multiple ranges. Specific valuation multiples may differ significantly from company to company.

11.6 References and Field Research Data

The organisations interviewed during the course of this study have been listed in Table 21.

Table 21: List of primary interviews

Organisation	Sector
Healthcare associations	
Nepal Medical association	Healthcare
Private Sector Organisations	
Rhododendron Biotech Pvt. Ltd	Pharmaceuticals
Quest Pharma	Pharmaceuticals
Vayodha Hospital	Hospital
Advanced Polyclinic	Polyclinic chain
Annapurna Hospital	Hospital
Grande International hospital	Hospital
Norvik Hospital	Hospital
Health at Home	Hospital
Sidhi Poly Path Lab	Diagnostic centre
MIDas Technologies	Healthcare IT services provider

The references used in this study are as follows:

1. Annual Report, Department of Health Services, Government of Nepal; 2012
2. World Bank Development Indicators; accessed in March 2014
3. Nepal Pharmaceutical Country Profile; MoHP; 2011
4. World Bank Development Indicators; accessed in March 2014
5. Nepal Living Standards Survey, Volume 2; Central Bureau of Statistics; 2011
6. Trade and Export Promotion Centre Nepal database, accessed in March 2014
7. Annual Report 2011-12, Department of Health Services, Government of Nepal
8. Nepal's Export-Import Database; accessed in March 2014
9. GapsCo website
10. Export-Import Database Nepal; accessed in March 2014
11. National Society for Earthquake Technology-Nepal website, accessed in May 2014
12. United Nations Office for the Coordination of Humanitarian Affairs, Preparing for an Earthquake in Kathmandu Valley, 2013
13. Ministry of Industries, Industrial Statistics Report, Nepal, 2012-13
14. Institute for Health Metrics and Evaluation, Global Disease Burden Profile: Nepal, 2010
15. Bain and Company Inc., India Private Equity Report, 2013
16. World disposable medical supplies report, 2012

The survey questionnaires used in this study are as follows:

Section A. Understanding landscape of healthcare industry

1. Please mention the approximate distribution of patients across the following facilities:

Facilities	% patients who prefer government facilities	% patients who prefer private (for-profit) facilities	% patients who prefer NGO facilities
Primary healthcare			
Secondary healthcare			
Tertiary healthcare			
Diagnostic industry			

2. Rate the following industries in Nepal as "high", "medium", "low" for each of the following parameters

Sub-Sectors	**Rank for Growth Potential (High/ medium/low)**	**Rank for profit margins (High/ medium/low)**	**Rank for organised activity (High/ medium/low)**	**Rank for competition (High/ medium/low)**
Primary healthcare				
Secondary healthcare				
Tertiary healthcare				
Diagnostic industry				
Pharmaceutical industry				

3. Please select the approximate range of profit margins for various sub sectors as per different sizes and specialisations:

Range of profit margin	**Less than 5%**	**5 to 10%**	**10 to 15%**	**15% to 20%**	**More than 20%**
Primary clinics	☐	☐	☐	☐	☐
Chain of primary clinics	☐	☐	☐	☐	☐
Secondary hospitals	☐	☐	☐	☐	☐
Tertiary hospitals with single speciality	☐	☐	☐	☐	☐
Tertiary hospitals with multi specialities	☐	☐	☐	☐	☐
Diagnostic centres	☐	☐	☐	☐	☐
Pharmaceutical companies	☐	☐	☐	☐	☐

4. Please mention the approximate annual turnover, capacity, and utilisation of capacity for the various sub sectors in Nepal

Sub-Sectors	**~Annual turnover**	**Capacity-description**	**Capacity**	**% utilisation of capacity**
Primary healthcare		# of patients that can be treated in a day		
Secondary healthcare		# of hospital beds		

Tertiary healthcare		# of hospital beds		
Diagnostic industry		# of patients that can be tested in a day		
Pharmaceutical industry		Production capacity		

5. How is the overall policy and regulatory environment? In what ways does it support growth of businesses and in what ways does it negatively impact growth. Please select any of the following that apply.

Impact of regulation/policy	**Applies to healthcare businesses in Nepal (select all that apply)**
a) High upfront setup costs due to licences	☐
b) Difficulty in acquiring land	☐
c) Competition with government subsidised healthcare	☐
d) Building rules and regulations	☐
Any others? – Please explain	

Section B. Understanding barriers to growth of private hospitals in Nepal

6. Rate the following challenges as "high", "medium" or "low" based on the degree to which they act as barriers to growth (with "high" ranking indicating a critical growth barrier and "low" a less important growth barrier).

Challenges	**High**	**Medium**	**Low**
Access to Finance	☐	☐	☐
Access to markets	☐	☐	☐
Access to technology	☐	☐	☐
Access to skilled doctors/trained paramedic staff	☐	☐	☐
Taxation	☐	☐	☐
Regulation	☐	☐	☐
Infrastructure: road, electricity, transport	☐	☐	☐
Corruption	☐	☐	☐
Any other challenges you would like to mention?			

Section C. Understanding access and use of capital

7. Which type of capital do healthcare companies prefer and why? Please rate "high", "medium", and "low" (with "high" ranking indicating most preferred and "low" least preferred).

Capital Type	**High**	**Medium**	**Low**
Debt (bank loans, NBFC loans, venture debt)	☐	☐	☐
Domestic Equity (raising money from local investors by selling a stake in your company)	☐	☐	☐
Foreign Equity (raising money from international investors by selling a stake in	☐	☐	☐

your company)			

Why?

(Please explain your preference for debt/ domestic equity/ foreign equity briefly)

8. Which of the following do you see as the most important contribution by an equity investor? Please rate "high", "medium", and "low" (with "high" ranking indicating most important and "low" least important).

Contribution by equity investor	**High**	**Medium**	**Low**
Access to new technology, new approaches to healthcare	☐	☐	☐
Management expertise	☐	☐	☐
Add financial value only	☐	☐	☐
Help to unlock capital for you by divesting or diluting company	☐	☐	☐
Help in accessing international growth opportunities	☐	☐	☐

9. Which of these following financing needs do hospitals prefer to use debt for and which do they prefer to use equity for? Please tick in the appropriate column

Financing need	**Prefer debt**	**Prefer equity**	**No Preference**
Purchase fixed assets (land, building, equipment , patient beds)	☐	☐	☐
Extend to new geographies new markets	☐	☐	☐
Enter new market segments like diagnostics and super-specialisation	☐	☐	☐
Short term operational expenses (salaries, rent etc.)	☐	☐	☐

10. What is the typical debt-to-equity ratio in healthcare industry across sub segments?

Scale of activity	**% Debt**	**% Equity**
Primary clinics		
Secondary hospitals		
Tertiary hospitals		
Diagnostic centres		
Pharmaceutical companies		