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**RAHI JAIN**

Indian Institute of Technology Bombay (IITB), India

**BAKUL RAO**

Indian Institute of Technology Bombay (IITB), India

## **INDIA'S FOCUS ON MEDICAL DIAGNOSTIC LABORATORIES: INDIAN PLANNING AND PROGRAMMES**

### **Abstract:**

Healthy lives and well being for all is one of the goals in Sustainable Development Goals 2030 (SDG) that is strongly dependent on a nation's healthcare system. In any modern healthcare system, laboratory diagnostics play a crucial role for effective system's functioning as it helps in evidence based decision-making but the focus on laboratory diagnostics system is inadequate especially nationally. However, globally and nationally problems in laboratory diagnostic systems have been raised, but more focus is demanded. This study focuses on understanding the government past Five-year health plans and current national health programmes to understand the focus given to the laboratory systems both historically and in present. This will allow in filling the gap of linking the current status of laboratory systems with the historical approaches of India. This linkage will enable a more comprehensive understanding of the India's current state of laboratory diagnostic system and will help current and future planners and decision makers like Niti Aayog in better decision-making. The study performed two phases of inductive approach based content analysis. The first phase is involved in the analysis of the Five-Year health plans for understanding the focus areas in health sector over the years. Second Phase is involved in the analysis of major health programmes for understanding the current focus areas of medical diagnostic laboratory system in the health sector. The study has found that laboratory diagnostics was given focus in the various health plans but the scope and the depth of discussion was very limited. Further, the focus on laboratory diagnostic systems and its various components is found to be variable among all major national health programmes and very limited. The study concludes that the India's focus on the laboratory diagnostic system is very limited and inadequate.

### **Keywords:**

India Health Sector, India health plans, India health programmes

## 1.0 Introduction

Health is the integral part of any human being and plays the most important role in any area, which makes use of the humans. Historically, India used five year health plans as the major roadmap to make all decisions and health sector had been consistently given focus since the first five year plan itself (Planning Commission of India 1951). Programmes, initiatives, project or mission based approaches have been employed to achieve various planned health sector objectives, which has resulted in certain improvement in various health indicators of India over the years (Central Statistical Organization 2011; Gangolli 2005; Mallya 2012). However, Indian health sector has been marred with various challenges like shortage of health resources, manpower and financing, changing disease profile, health inequalities (Gangolli 2005; George 2011) and have been occasionally unsuccessful in meeting set targets in timely manner (Mallya 2012). According to World Health Organization (WHO), any successful health system/sector must focus on the four functions stewardship, financing, resources and services to achieve health, responsiveness and fairness financing for the population (World Health Organization 2000).

Health services are the main interface between any health system and its users. Laboratory diagnosis is an important health service affecting healthcare quality as it contributes around 70% to medical decision making (Kanashiro-cussiol et al. 2010). Economically, global market presence of diagnostic laboratories sector is 23,000 Billion rupees (2012) (Health Research International 2012). In India, it has a formidable market size of 117 Billion rupees (2013) (RNCOS Industry Research Solutions 2013).

Globally, the neglect towards laboratory diagnostic services had been acknowledged by nations and more focus on laboratory diagnosis had been demanded and initiated at the policy level (Plebani 2009; Plebani & Lippi 2010; Abimiku 2009; Elbireer et al. 2011; Massambu & Mwangi 2009; Nkengasong et al. 2009; Nkengasong et al. 2010). In India, very limited number of studies have focused on Indian diagnostic laboratories like resources (George 2011), regulation and medical technology needs (Chakravarthi 2013b; Chakravarthi 2013a). All these studies have raised the issues with medical diagnostic laboratory system, but the studies regarding the Indian policies, plans or programmes to understand the overall focus/neglect of India towards medical diagnostic laboratory services is not known. This hinders the comprehensive picture regarding the causes behind the medical diagnostic laboratory services status.

In addition, our structural analysis of Indian medical diagnostic laboratory system indicated a diverse and complex structure (Jain & Rao 2015b). Accordingly, the functioning of such a complex structure would require national level focus for its sustenance that necessitates the need to understand the current Indian health system behavior towards the medical diagnostic laboratory system. Further, the lack of knowledge of the India's historical attitude towards laboratory services prevents the

adequate use of 'learning from the past' practice for the current and future planners and decision makers. This study analyzes the focus of planners and decision makers regarding the medical diagnostic laboratories in India's.

The study contribution is multifold. The study contributes theoretically by filling the knowledge gap regarding the behavior of the Indian health planners and decision-makers in the past and its change. Further, it provides a methodical contribution by providing an approach to perform planning behavior based studies using content analysis. Thirdly, it makes a practical contribution by providing an understanding of the behavior of the planners.

## **2.0 Methodology**

Conventional qualitative content analysis(Zhang & Wildemuth 2009; Mayring 2004)is performed on health documents. Content analysis tool has been used by many researchers for health and allied policy analysis (Bail et al. 2009; Lemiengre et al. 2008; Iannantuono & Eyles 1997; Mygind et al. 2011; Khan & Heuvel n.d.; Jain & Rao 2015a). In this study, the health related documents namely five-year health plans and health programmes available in public domain in 2012 are used as data set. In total 11 five-year health plan documents are obtained. Since, the documents used in this study did not contain any personnel information, hence no ethical clearance is sought for the study. In this study, the content analysis of the Five Year health plans is performed for understanding the focus areas in health sector over the years and understanding the focus on Medical Diagnostic Laboratory Services (MDLS). Five Year plans are selected because they are the major roadmap used by the government to make all decisions for the planned five years and then implemented through annual plans. India has not made five year plan twice till the 11<sup>th</sup> five-year plan. First is the three-year break between third and fourth plan owing to the India-Pakistan conflict followed by price rise and resource erosion. Second is the two-year break between seventh and eighth plan owing to central political instability in India.

A general inductive approach is used which has four steps namely reading, coding, collation and interpretation(Thomas 2006). In this study, all the steps are performed by the authors and the "interpretation" step lead to the identification of focus areas for medical diagnostic laboratory system. Content analysis based studies are performed with a perspective and create the risk of personnel bias. The biases are normally negated by analyzing large set of data and using multiple analysts to achieve better consistency and consensus in the results. In case of content analysis of health programmes documents, codes are defined and software based text retrieval was performed to minimize the personnel bias. However, the limited availability of document restricted the number of documents that could be obtained.

### 3.0 Results and Discussion

#### 3.1 Overall Health Sector

The health sector financial allocation is low compared to overall budgetary allocation (Table 1). The study has identified that information covered by all the plans can be categorized into five major themes namely governance, financing, resources, services and research (R&D). Further, these themes have one or two levels of categorization as shown in Table 2. The study finds that not all aspects of health sector are focused in all the plans.

**Table 1: Financial Outlays for health sector based on 1969 Values.**

Plan #	1	2	3	4	5	6	7	8	9	10	11
Year	1951-1956	1956-1961	1961-1966	1969-1974	1974-1979	1980-1985	1985-1990	1992-1997	1997-2002	2002-2007	2007-2012
Plan Budget (Billion USD)	0.35	1.01	1.56	3.39	5.89	14.63	27.00	119.70	128.88	228.84	546.71
Health Budget (Billion USD)	0.02	0.03	0.05	0.11	0.18	0.42	1.00	2.11	5.17	5.57	18.59
% of total budget	5.9	3.3	3.3	3.3	3.0	2.9	3.7	1.8	4.0	2.4	3.4

(Source: Own)

**Table 2: Focus on different themes in Five Year Health Plans for overall health sector (O) and Medical Diagnostic Laboratory Services (D)(1 means focus by that plan )**

#	Themes	Five-Year Health Plan Number																				Total Score				
		1		2		3		4		5		6		7		8		9		10				11		
		O	D	O	D	O	D	O	D	O	D	O	D	O	D	O	D	O	D	O	D	O	D	O	D	
1	<b>Governance</b>	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	11	8
1.1	Planning	1	1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	1	1	1	1	11	3
1.1.1	Organization/Structure	1	0	1	0	1	0	1	0	0	0	1	0	1	0	1	0	1	0	1	1	1	1	0	10	1
1.1.2	Functioning	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	1	1	1	1	11	2
1.1.3	Implementation	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	3	2	
1.2	Coordination	1	1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	1	1	1	1	1	0	11	3
1.2.1	Internally	1	0	1	0	1	0	1	0	0	0	1	0	1	0	1	0	1	0	1	0	1	0	10	0	
1.2.2	Externally	1	1	0	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	1	1	0	10	2	

1.2.3	Vertical	1	0	1	0	1	0	0	0	0	0	1	0	1	0	1	0	1	1	1	0	1	0	9	1	
1.2.4	Horizontal	0	0	1	0	1	0	0	0	0	0	1	0	0	0	1	0	1	1	1	0	1	0	7	1	
1.3	Distribution	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	11	8	
1.3.1	Funds	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	11	0	
1.3.2	Resources	1	1	1	0	1	1	1	0	1	0	1	0	1	0	1	0	1	1	1	1	1	1	11	5	
1.3.3	Services	1	1	1	0	1	1	0	1	1	0	1	1	1	1	1	0	1	1	1	0	1	1	10	7	
1.4	Access	1	1	1	0	1	1	1	0	0	0	0	1	1	1	1	0	1	1	1	1	1	1	9	7	
1.4.1	Funds	0	1	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	3	3
1.4.2	Resources	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	1	1	0	1	1	6	2	
1.4.3	Services	1	1	1	0	1	0	1	0	0	0	0	1	1	1	1	0	1	1	1	1	1	1	9	6	
1.5	Accountability	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	1	0	1	0	5	0	
1.5.1	Funds	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	3	0	
1.5.2	Resources	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	4	0	
1.5.3	Services	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	1	0	1	0	5	0	
1.6	Regulation and Monitoring	1	1	1	0	1	0	0	0	1	0	1	0	1	0	1	0	1	1	1	1	1	1	10	4	
1.6.1	Intellectual Property Rights (IPR)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	2	0	
2	<b>Financing</b>	1	1	1	0	1	1	1	0	1	0	1	0	1	0	1	0	1	1	1	1	1	1	0	11	4
2.1	Source	1	1	0	0	1	0	0	0	0	0	1	0	1	0	1	0	1	1	1	1	1	1	0	8	3
2.2	Amount	1	1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	1	1	1	1	1	0	11	3
2.3	Cost	1	1	1	0	1	1	1	0	0	0	1	0	1	0	1	0	1	1	1	1	1	1	0	10	4
2.4	Time	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	3	0	
3	<b>Health Services</b>	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	11	10	
3.1	Medical Services Type	1		1		1		1		1		1		1		1		1		1		1		11		
3.1.1	Treatment	1		1		1		0		1		1		1		1		1		1		1		10		
3.1.2	Diagnosis	1		1		1		0		1		1		1		1		1		1		1		10		
3.1.3	Prevention	1		1		1		1		1		1		1		1		1		1		1		11		
3.2	Other Activities	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	1	1	1	1	1	11	3	
3.2.1	Family Planning	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	1	1	0	1	0	11	1	
3.2.2	IEC	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	11	0	
3.2.3	Water, Sanitation and Hygiene	1	0	1	0	1	0	1	0	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	10	0
3.2.4	Drug Abuse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.2.5	Accidents/others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	0	4	0	

3.2.6	Livelihood	0	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0		
3.2.7	Pregnancy and related activity	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1	1	1	1	5	3	
3.2.8	Other	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	1	1	0	2	
3.3	Diseases	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1	1	1	10	10	
3.3.1	Communicable	1	1	1	1	1	1	1	1	1	0	1	0	0	1	1	1	1	1	1	1	1	10	9	
3.3.2	Non-communicable	1	1	1	0	1	1	0	0	1	0	1	1	0	1	1	1	1	1	1	1	1	9	8	
4	<b>Resources</b>	1	1	1	0	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	11	8	
4.1	Manpower	1	1	1	0	1	0	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	10	6	
4.1.1	Quantity	1	0	1	0	1	0	1	0	0	0	1	0	1	1	1	0	1	1	1	1	1	10	4	
4.1.2	Quality	1	1	1	0	1	0	0	0	0	0	1	0	1	0	1	0	1	1	1	1	1	0	3	
4.2	Non-Manpower	1	1	1	0	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	11	8	
4.2.1	Quantity	1	1	1	0	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	11	8	
4.2.2	Quality	1	0	1	0	1	0	0	0	0	0	1	0	1	0	1	0	1	1	1	1	1	9	3	
4.3	Report/Information	1	0	1	0	1	0	1	0	0	0	1	0	1	0	1	1	1	1	1	1	1	10	4	
4.3.1	Collection	1	0	1	0	1	0	1	0	0	0	1	0	1	0	1	1	1	1	1	1	1	10	4	
4.3.2	Analysis/Evaluation	1	0	1	0	1	0	0	0	0	0	1	0	1	0	1	1	1	1	1	0	1	9	3	
4.3.3	Reporting	0	0	1	0	0	0	0	0	0	0	1	0	1	0	1	1	1	1	1	1	0	6	4	
5	<b>R&amp;D</b>	1	1	1	0	1	0	1	0	1	0	1	0	1	1	1	0	1	1	1	1	1	11	5	
5.1	Economic	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	1	0	0	
5.2	Social	1	1	0	0	1	0	0	0	0	0	1	0	1	0	1	0	1	0	1	0	1	0	8	1
5.3	Management	0	0	1	0	0	0	0	0	0	0	1	0	1	0	1	0	1	0	1	1	1	7	1	
5.4	Medical	1	1	1	0	1	0	1	0	0	0	1	0	1	1	1	0	1	1	1	1	1	10	5	
5.5	Epidemiology	1	0	1	0	1	0	0	0	0	0	1	0	1	0	1	0	1	1	1	1	0	9	1	

(Source: Own)

### 3.1.1 Governance

The plan focus on the theme 'governance' is categorized based on the type of activities, solutions or concerns raised in the plans into planning, coordination, regulation, distribution, access and accountability. Among the various themes under governance, planning, coordination and distribution have been focused by all the plans. Further, almost all the plans have considered the themes of access (82%) and regulation (91%) except accountability theme (45%). The accountability theme is absent in the early plans and started gaining focus only from the sixth plan onwards. The reason for focus on accountability in later plans could be due to inability to meet the previous plans target. The Fourth Five year plan proposed to increase the primary health centers from 4631 to

5427 but 5400 PHCs could be setup by the start of sixth plan (Planning Commission of India 1980; Planning Commission of India 1969).

The planning theme is further sub-categorized into organization/structure, functioning and implementation. The organization/structure (91%) and functioning (100%) are the most focused aspect of the planning theme among the plans, while the implementation theme (27%) is hardly focused in plans. The coordination theme is further sub-categorized into internal coordination, external coordination, vertical coordination and horizontal coordination. While, internal (91%), external (91%) and vertical (82%) coordination has been focused in almost all plans, horizontal coordination started getting focus in later plans as can be observed that in first five plans only twice it has been considered.

The themes of distribution, access and accountability are further sub-categorized into funds, resources and services. Overall, the sub categories of funds, resources and services are more focused for distribution, followed by access and least for the accountability. While, focus is similar for all three sub-categories in the distribution theme, the variation is observed for other two themes. 'Funds' is the least focused sub-category in both themes (27%), 'resources' and 'services' are more focused for access (55% and 82%) rather than accountability (36% and 45%). Further, the 'services' is the most focused sub-category in both the themes. The regulation theme is given a sub-category of Intellectual Property Rights (IPR). Though, regulation and monitoring theme is regularly focused in the plans but its sub-category of IPR is only focused in the later part of the plans (18%).

### **3.1.2 Financing**

The plan focus on the theme 'financing' is categorized based on the components of the finance into source, amount, cost and time. Among the various themes under financing, amount (100%) and cost (91%) have been focused by most of the plans. However, source of funds is not always focused in the plans (73%), especially in the first five plans (40%). The later plans have been focused on the consolidation of various programmes and activities that require pooling of the funds and could potentially trigger the need to consider the funding sources. Among the all themes, time of providing funds (27%) is least focused and only came into existence in the later plans only.

### **3.1.3 Resources**

The plan focus on the theme 'resources' is categorized based on the type of resources into manpower, non-manpower and report/information that are all focused in most of the plans. The themes of manpower and non-manpower resources are further sub-categorized into quantity and quality that are also focused in almost all the plans. Report/information based resources theme is sub-categorized into collection of information, analysis of information and reporting of the information. While, collection of information (91%) and analysis of information (82%) is focused in almost all the plans, reporting is focused only in the latter plans (55%) with focus in only one plan out of first

five plans. This indicates the potential risk of missing the vital information regarding the performance and functioning of the various programmes and decisions.

### **3.1.4 Services**

The plan focus on the theme 'services' is categorized based on the services type into medical services, non-medical services and diseases that are all focused in most of the plans. Medical services theme is categorized into prevention services, diagnostic services and treatment services that are all also focused in most of the plans. Similarly, disease theme sub-categorized components communicable and non-communicable diseases is also focused in most of the plans.

However, in case of the non-medical services theme with sub-categories family planning, information, education and communication (IEC), hygiene, drug abuse, accidents, livelihood, pregnancy and other have variation in the focus. At one end of the spectrum, family planning, IEC and hygiene are getting focused in almost all the plans. At other end of the spectrum, no focus has been given to drug abuse. Some focus is given to other sub-categories accidents (36%), livelihood (27%), pregnancy (45%) and other services (36%) with livelihood getting focus in early plans and accidents, pregnancy and other services getting focus in later plans. Further, the India has poor performance in controlling maternal mortality rate (Planning Commission of India 2002).

### **3.1.5 Research and Development**

The plan focus on the theme 'research and development (R&D)' is categorized based on the type of the R&D into economic, social, technology, management, medical and epidemiology. Among the various themes under research and development, medical (91%) and epidemiology (82%) related R&D is most focused among the plans. The sub-categories namely economic (36%), social (73%) and management (64%) are not consistently focused. They are needed for the implementation of medical and epidemiology the R&D outputs indicating the poor implementation of the medical R&D.

## **3.2 Medical Diagnostic Laboratory Services (MDLS)**

MDLS as compared to the overall health sector is given relatively lesser focus in the plans as indicated in the Table 2. Almost the main themes namely governance (73%), financing (36%), resources (73%), and research and development (R&D) (45%), have been focused in lesser number of plans as compared to overall health sector focus (100%). Further, in depth analysis of each major theme also indicates lesser focus in MDLS as compared to overall health sector. The most focused aspects of governance have been only distribution (64%) and access (55%) of services that are still less focused as compared to distribution (91%) and access (82%) of services in general.

In case of the financing theme, the most focused sub-theme in the plans has been cost (36%) while no focus is given on the time of providing the funds to the labs. In health services theme, MDLS has been focused for diseases (91%) but for various other



important services like family planning (9%), accidents (0%), pregnancy (27%) and livelihood opportunity (0%) none to very low focus is given. Further, in case of diseases, communicable (nine out of 10 plans) and non-communicable diseases (eight out of 10 plans) are not focused in all the 10 five year health plans in which MDLS is given focus.

The health resources theme is one of the most focused themes in MDLS but most of its sub-themes are poorly focused. Most of the plans have only focused on only the quantity of the non-manpower resources (73%) with little focus on manpower and report/information based resources sub-themes that could potentially hinder in achieving the desirable output. Finally, the various sub-themes of Research and development (R&D) theme are also getting differential focus in the plans. The sub-theme of medical (45%) is most focused with no to little focus to other sub-themes.

Among the various major programmes mentioned in different five year plans (Table 19), it is found that the programmes which have been in focus since first five year health plan have not given MDLS focus in all the plans. Further, an exploratory field survey in Manchar Taluka, Pune District, Maharashtra, India was performed of people coming to the agriculture fair organized in Manchar, Pune District, Maharashtra, India in Jan 2014 to get preliminary insights into the people's perception towards public and private MDLS. The study tried to determine the people's perception by asking six questions regarding the presence of the lab type in their vicinity, preference for lab type, lab type nearest from home, lab type with better services, lab type with more number of tests and lab type with higher cost. The study found (Table 20) that both public and private facilities is present in their area but felt the private services to be better than public services. This also reinforces the concerns that focus on non-manpower resource with poor focus on manpower resources, information based resources, governance, and R&D may lead to poor services. The study also showed that good private facilities come at a price and hence not all would like to go those facilities. This further raises the concerns regarding the focus of government on the financing and governance themes as accessibility of potentially good facilities are not completely accessible to the people.

**Table 20: Focus of MDLS in different national programmes as mentioned in Five Year Health Plans (1 means focus by that plan )**

Type of Programme	Name of Programme *	Five Year Health Plan Number										
		1	2	3	4	5	6	7	8	9	10	11
Communicable Disease (CD)	National Vector Borne Diseases Control Programme (NVBDCP)								1	1	1	
(CD)	Revised National Tuberculosis Control Programme (RNTCP)	1		1				1		1	1	
(CD)	Venereal Disease** / National AIDS Control Programme	1	1	1					1	1		

(CD)	National Leprosy Eradication Programme (NLEP)	1	1			1	1
Non Communicable Disease (NCD)	National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS)	1	1	1	1	1	1
NCD	National Mental Health Programme (NMHP)	1					
NCD	Pulse Polio Programme***					1	
NCD	National Iodine Deficiency Disorders Control Programme***						
NCD	National Programme for Control of Blindness (NPCB)***						1
NCD	National programme for prevention and control of deafness (NPPCD)***						1
NCD	National Oral Health Programme***						
Other	Reproductive and Child Health (RCH) Programme	1	1	1	1	1	
Other	National Programme for the health care of the elderly (NPHCE)***						1
Other	Guinea Worm Eradication Programme***					1	

\*: They are the current name of the programmes and can be different from the names mentioned in the Plans since many programmes are merged or segregated over the period of time as well as many programmes have been closed or new programmes have added

\*\* : Previously AIDS is under Venereal Disease control itself.

\*\*\*: These Programmes were not found during the first five-year health plan.

(Source: Own)

**Table 21: People's Perception towards Public and Private Lab Facilities**

Facility Preference	Type of Lab Present in the area	Type of lab preferred for visiting	Type of lab nearest from home	Type of lab with better services	Type of lab with more number of tests	Type of lab that is costly
Public	1	4	4	3	2	0
Private	2	3	10	6	8	10
Any / Both Facility	7	5	1	2	0	0
Number of Respondents*	10	12	15	11	10	10

\* Not all respondents answered all the questions. Total 21 respondents were asked questions.

(Source: Own)

## 5.0 Conclusion

The study evaluated the five year health plans of India and found that MDLS is getting lesser and limited focus. Further, the focus in the programmes has not been consistent and has been changing over time. This limited focus seems to affect the quality and the utilization of the laboratory services.

## Reference

- Abimiku, A.G., 2009. Building Laboratory Infrastructure to Support Scale-Up of HIV/AIDS Treatment, Care, and Prevention: In-Country Experience. *American Journal of Clinical Pathology*, 131(6), pp.875–886.
- Bail, K. et al., 2009. Writing ourselves into a web of obedience: a nursing policy analysis. *International Journal of Nursing Studies*, 46, pp.1457–66.
- Central Statistical Organization, 2011. *Millenium Development Goals India Country Report 2011*, New Delhi.
- Chakravarthi, I., 2013a. Medical equipment industry in India: Production, procurement and utilization. *Indian Journal of Public Health*, 57(4), pp.203–207.
- Chakravarthi, I., 2013b. Medical technology in India: Tracing policy approaches. *Indian Journal of Public Health*, 57(4), pp.197–202.
- Elbireer, A.M. et al., 2011. Strengthening Public Laboratory Service in Sub-Saharan Africa : Uganda Case Study. *Labmedicine*, 42(12), pp.719–725.
- Gangolli, L. V., 2005. *Review of Healthcare in India* L. V Gangolli, R. Duggal, & A. Shukla, eds., Mumbai: Centre for Enquiry into Health and Allied Themes.
- George, M., 2011. The role of basic laboratory services in strengthening primary health centres. *Indian Journal of Medical Ethics*, 8(3), pp.161–163.
- Health Research International, 2012. *Opportunities in Global medical devices and diagnostics*,
- Iannantuono, A. & Eyles, J., 1997. Meanings in policy: A textual analysis of Canada's "Achieving Health For All" document. *Soc. Sci. Med.*, 44(96), pp.1611–1621.
- Jain, R. & Rao, B., 2015a. Critical analysis of India's National Mission on Medicinal Plants (NMMP) in providing access to quality botanical drugs to improve public health. *Journal of Ayurveda and Integrative Medicine*, 6(3), p.198.
- Jain, R. & Rao, B., 2015b. Medical diagnostic laboratories provisioning of services in India. *CHRISMED Journal of Health and Research*, 2(1), pp.19–31.
- Kanashiro-cussiol, A. et al., 2010. Changes in costs over time at a medium-sized clinical laboratory. *Labmedicine*, 41(3), pp.145–146.
- Khan, M.M. & Heuvel, W. Van Den, Description and Content Analysis of the National Health Policy of Pakistan. (*Accepted Pending Revisions*) *Asia Pacific Journal of Public Health*, pp.33–52.
- Lemiengre, J. et al., 2008. How do hospitals deal with euthanasia requests in Flanders (Belgium)? A content analysis of policy documents. *Patient Education and Counseling*, 71, pp.293–301.
- Mallya, P.D., 2012. Health in India: Need for a paradigm shift. *Procedia - Social and Behavioral Sciences*, 37, pp.111–122.
- Massambu, C. & Mwangi, C., 2009. The Tanzania experience: clinical laboratory testing harmonization and equipment standardization at different levels of a tiered health laboratory system. *American journal of clinical pathology*, 131(6), pp.861–6.
- Mayring, P., 2004. Qualitative Content Analysis. In *A Companion to Qualitative Research*. SAGE Publications, pp. 266–269. Available at:

- <http://books.google.com/books?hl=en&lr=&id=IRSL1KJjEPoC&pgis=1> [Accessed August 13, 2014].
- Mygind, A. et al., 2011. The ambiguity of ethnicity as risk factor of vitamin D deficiency--a case study of Danish vitamin D policy documents. *Health policy*, 102, pp.56–63.
- Nkengasong, J.N. et al., 2009. Critical Role of Developing National Strategic Plans as a Guide to Strengthen Laboratory Health Systems in Resource-Poor Settings. *American Journal of Clinical Pathology*, 131, pp.852–857.
- Nkengasong, J.N. et al., 2010. Laboratory systems and services are critical in global health: Time to end the neglect? *American Journal of Clinical Pathology*, 134(3), pp.368–373.
- Planning Commission of India, 2002. *10th Five year Plan*, New Delhi.
- Planning Commission of India, 1969. 4th Five Year Plan.
- Planning Commission of India, 1980. 6th Five Year Plan.
- Planning Commission of India, 1951. Health. In *1st Five Year Plan*. New Delhi.
- Plebani, M., 2009. Exploring the iceberg of errors in laboratory medicine. *Clinica chimica acta*, 404(1), pp.16–23.
- Plebani, M. & Lippi, G., 2010. Is laboratory medicine a dying profession? Blessed are those who have not seen and yet have believed. *Clinical Biochemistry*, 43(12), pp.939–941.
- RNCOS Industry Research Solutions, 2013. *Indian Diagnostic Services Market Outlook 2017*,
- Thomas, D.R., 2006. A General Inductive Approach for Analyzing Qualitative Evaluation Data. *American Journal of Evaluation*, 27(2), pp.237–246.
- World Health Organization, 2000. *The World Health Report 2000*, Geneva.
- Zhang, Y. & Wildemuth, B.M., 2009. Qualitative Analysis of Content. In B. Wildemuth, ed. *Applications of Social Research Methods to Questions in Information and Library Science*. Portland: Book News, pp. 308–319.