Asian Resonance

Current Health Status in Rural India

Abstract

India is a nation, where one-sixth of the world's population are living and less than 2per cent of total world's geographical area are in its credit. Since last 10 years, health sector has improved in which services; quality and patient care in being improve. According to Census of India 2011, rural population consists with approximately 5.97 lakh villages and with 83.37 million populations, total rural population is 68.9 per cent out of the total population. In the lieu of these fact a minimum amount of health programmes are needed, Government has started developing the rural health infrastructure and services. But still there is need of Government intervention for better health care facility for the rural population. In this paper, I have tried to discuss about rural health facilities with health care facility and services, particularly to the rural population.

Keywords: National Rural Health Mission, Rural Health Infrastructure, Reproductive and Child Health (RCH), National Family Health Survey (NFHS), Maternal Mortality Rate, Infant Mortality Rate,

Introduction

India is a largest populous country in the world after china. India, accounting for nearly 18 percent of the world population has been experiencing slow but steady demographic transition since the second half of the last century. India's age structure is undergoing rapid change; it will have definite implications for the economy and societal development.

Demographic dividend refers to a change in the age distribution of population from child ages to adult ages. It leads to larger proportion of population in the working age group compared to younger and old age groups. Although not immediate, change in the age structure from young to old are also accompanied by several social changes with considerable implications on nation.(T.Mckeown.1976) Health is a major instrument of social and economic development for any society, state and country also. It can play very important role in the creation of a new better or healthy world. The overall (social, economic, political, and personal) higher level of development ached by the society is often determined on the basis of the level of health and the system of health prevalent in the society.

The health status of the people in the country is an important flagpost to evaluate the success of the state policy. Health of the individual impacts the growth of the nation in a very material sense. It has been estimated that the differences in the growth performance of many countries can be attributed to the health status of the people. Health standards in India have improved significantly over the years since independence. Better socioeconomic conditions, along with concerted efforts in expanding the health infrastructure have given us result we can fell proud of it. Life expectancy has doubled from 32 to 66 in 1947 and, Infant Mortality Rate has fallen by 70 per cent between year 1947 -1990. We have managed to eradicate small pox and chicken guinea worm and bring down leprosy cases to less than 1/10,000 population. Polio is hopefully on its way out. Malaria incidence has been contained at 20 lakh cases and TB related death have also come down drastically. We have made deeper in roads into rural areas with focused schemes like the National Rural Health Mission (NRHM) and have even started a scheme for health insurance for the poor population.

According to the Universal Declaration of Human Rights 2008, "Everyone has the right to a standard of living, adequate for the well being of himself and his family". In the Indian context beauty of Indian democracy is that while in ancient India it was a free gift of its rulers to the people, in modern times it is the people themselves who have resolved to constitute India into Sovereign, Socialist, Secular, Democratic Republic and to secure for all its citizens social, economic and political justice; liberty of thought

Sarita Verma

Research Scholar Deptt.of Sociology, Lucknow University, Lucknow

Nidhi Prakash

Research Scholar, Deptt.of Sociology, Delhi School of Economics, Delhi University, Delhi

Pramod Kumar Gupta

Assistant Professor (Senior), Deptt.of Sociology, Lucknow University, Lucknow

expression, belief, faith and worship, equality of status and of opportunity; and to promote among them all fraternity assuring the dignity of the individual and the unity and integrity of the nation. It's also reproduce "Right of Health" for all.

"Article 47" of the Constitution of India also states that "the State shall regard raising the level of nutrition and standard of living of its people and improvement in public health among its primary duties." This was to be achieved through improving the access to and utilization of Health, Family Welfare and Nutrition services with special focus on underserved and under privileged segments of population. Successive Five-Year Plans laid down the policies and strategies for achieving these goals and provided the funds needed. Over the last five decades, India had built up vast health infrastructure and manpower at primary level, secondary level and tertiary level care in Government sector, voluntary sector and private sectors.

According to census 2011, in rural India consists of approximately 5.97 lakh villages, where nearly 83.37 million people are living. Total rural population is 68.9per cent out of the total population. After 54 years of independence, a number of urban and growth-orientated developmental programs like National Rural Health Mission, National Programme of Health Care for the Elderly, National Urban Health Mission and Pradhan Mantri Swasthya Suraksha yojana etc. have been implemented, but nearly half of rural population are below to the poverty line (BPL) and continue to fight a hopeless and constantly losing battle for survival and health. A network of government-owned and -operated sub-centers, primary health centers (PHCs) and community health centers (CHCs) is designed to deliver primary health care to rural folks. (MHFW.2005)

Current norms require one sub-centre per 5,000 persons, one PHC per 30,000 people and one CHC per 120,000 people in the plains. Smaller populations qualify for each of these centers in the tribal and hilly areas. Each PHC serves as a referral unit to six sub-centers and each CHC to four PHCs. A PHC has four to six beds and performs curative, preventive and family welfare services.

Table- 1
Health Infrastructure in India

nealth infrastructure in india								
Centre	Norms	Present	Number of Sub-					
			Centers, PHCs &					
		March 2012	CHCs Functioning					
Sub-Centre	3000-5000	5615	148366					
PHC	20000-30000	34641	24049					
CHC	80000-120000	172375	4833					

(Data based on provisional figures of rural population from 2011 population Census)

Data revels that during the last 67 years of independence; the rural primary public health infrastructure has recorded an impressive increase, but according to the norms network consists more than present scenario. According to norms all over India the network consists of 1,45,000 Sub-Centers, 22,700 Primary Health Centers and 3222 Community

Asian Resonance

Health Centers for providing better health care facility to all. Major inequity have found within different state, village to village, or rural areas of several parts of states. The inequity among regions is due to a lack of healthcare resources and infrastructure in the rural region.

Table- 2
Classification According to Average Rural
Population Covered by Sub- Center, PHCs, CHCs
As on March 2003

S. No.	Population Cover Range	Sub- Centre	All India
1	Less than 3000	7	
2	3000-5000	15	35-States
3	5000-7000	9	5,615
4	7000 and above	4	
		PHCs	
1	Less than 10000	2	All India
2	10000-20000	7	
3	20000-30000	11	
4	30000-40000	8	_
5	40000-50000	3	34-States
6	Above 50000	3	34,641
		CHCs	
1	Less than 1 Lakh	13	All India
2	1-3 Lakh	19	
3	3-5 Lakh	1	34 -States
4	5 Lakh and	1	172,375
	above		

Source-NHP, 2003

Table present that according to the norms (3000-5000) completed only 22 states another 13 states as Orissa, Maharashtra, Punjab, Assam, Madhya Pradesh, Meghalaya, West Bengal. Jharkhand, Harvana, Uttar Pradesh, Bihar. Pondicherry and Delhi cover more than 5000-to 7000 population. PHCs and CHCs distribution in several state presents inequity, only 20 states out of 34 states completed norms. Significant increase is observed in the number of PHCs in the states of Andhra Pradesh, Assam, Bihar, Chhattisgarh, Gujarat, Haryana, Kashmir, Karnataka, Maharashtra, Nagaland, Uttarakhand and Uttar Pradesh. At the national level, there is an increase of 813 PHCs in 2012 as compared to the number of PHCs existed in 2005. Significant increase is observed in the number of CHCs in the states of Andhra Pradesh, Arunachal Pradesh, Chhattisgarh, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Kerala, Madhya Pradesh, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttarakhand, Uttar Pradesh and West Bengal. But other state need more consist network of subcenter, PHCs and CHCs.

The rural regions have less access to modern medical treatment and depend more on traditional treatment such as Unani and Acupuncture. The rural population has significantly less financial capital and relies heavily on government funded medical facilities.

Methodology

This study is based on secondary data. The

main reason is to compile the secondary data is that I want to compare World Health Organization standard in respect to health issues to the data provided by the Governmental and Non-Governmental Indian agencies. Thus, the data has been taken from World Health Organization, World Bank, NFHS, Indian Rural Health Statistics and Indian Medical Association (IMA). WHO and World Bank provided data for all over world and NFHS-3 covered all 29 states in India, which comprise more than 99 per cent of India's population. A comparative research design has been adopted to compare health status, infrastructure. services and patient care. So far, various statistical methods, graphs, diagram and chart has also been used to analyze the data.

Need of Planning

The rural populations are the main sufferers of the public policies. Most of the rural people work in the most hazardous atmosphere and also live in terrible living conditions. Rural people have practices unsafe and unhygienic birth, drink unclean water, poor nutrition diet, subhuman habitats, and degraded and unsanitary environments are challenges to the public health system. The majority of the rural population is smallholders, artisans and laborers. They have limited resources that they spend maximum part of their resources on food and other necessities such as clothing and shelter. They have not sufficient money left to spend on their health. The rural peasant worker, who strives hard under adverse weather conditions to produce food for others, they are financially weak because of don't get desirable rate for crop. Some other reason for financially weakness is small land area, traditional pattern apply in agriculture, and dependency upon monsoon etc. So the rural population is often the first victim of any type of epidemic.

Asian Resonance

Table- 3 Health Status of India

Crude Birth Rate (2011)	21.8 Per 1000 Population
Crude Birth Rate (Rural)	23.3 Per 1000 Population
Crude Birth Rate (Urban)	17.6 Per 1000 Population
Crude Death Rate (2011)	7.1 Per 1000 Population
Crude Death Rate (Rural)	7.6 Per 1000 Population
Crude Death Rate (Urban)	5.7 Per 1000 Population
Infant Mortality Rate (2011)	44 Per 1000 Live Birth
Infant Mortality Rate (Rural)	29 Per 1000 Live Birth
Infant Mortality Rate (Urban)	48 Per 1000 Live Birth
Total Fertility Rate (NFHS-3)	2.4
Life Expectancy at Birth (1996-	61.64 years
2001)	
Maternal Mortality Rate (2004-	358 Per 1,00,000 Live
SRS)	Birth
Perinatal Mortality Rate (1997-	65.3 per 1000 live & still
SRS)	birth

Source-NFHS-3

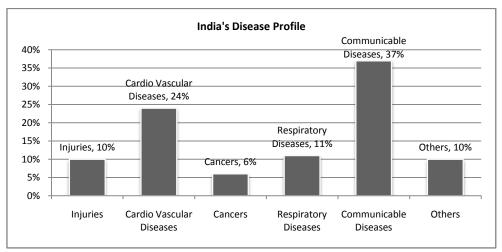
Health Issues or Problems in Rural India

India is a developing country, and here 29.5 per cent (according to Rangrajan committee's report, 2014) of people are living below to poverty line and they can't afford their food twice in a day, In India when a man has a serious problem about health he become afraid about the money. Here poverty is a big problem. Not only disease is caused by germs rather than many other factors play very important role like education, gender, poverty, living condition, water sanitation, hygiene, accessibility of health care facility, availability of health care facility, quality human resource etc. In India there is less number of doctors according to the population. These doctors are going to privet sector for money and better infrastructure. In government hospital patient are treated like an animal. The facilities like sanitation, drinking water, beds etc. are not available in government hospitals, and patients are helpless.

In India, the tobacco-attributable death range from 800000 to 900000/year, leading to huge social and economic losses. Mental, neurological and substance use disorders also cause a large burden of disease and disability. The rising toll of road deaths and injuries (2-5 million hospitalizations, over 100,000 deaths in 2005) makes it next in the list of silent epidemics, behind these stark figures lays human suffering. (NSSO Report no. 507)

Asian Resonance

Figure - 1 India's Disease Profile



Source- WHO Communicable and Non Communicable Diseases Country Profiles 2011

Problem of Health Practice in Rural India

India has a serious problem with focus and allocation of health resources, we are quite urban centric. A survey by Indian medical society had found that 75 per cent of the qualified doctors are practicing in urban centers, 23per cent in semi urban areas and only 2per cent in rural urban areas (where the major proportion of population lives).

The problem of not adopting a preventive health care is that aging population requires more health care treatments with lower earning and paying capacity. Earning is reduces with age but health care problems increases and this will put young nations of today into serious economic and developmental crisis in the next 20 years.

After 62 years of independence essential expertise such as handling medical emergencies complications of pregnancy and childbirth, treatment of acute and severe infection in children and In aged patients, injuries and acute surgery, are sometimes compromised because in India, a basic medical degree without a specialization is of not much use and there are so few graduate specialization seats that competition is fierce. In addition, the problem is getting worse day by day, expertise in India are leaving medical schools for better-paying jobs in hospitals and in the biotech pharmaceutical industry, forcing the medical schools to cut the size of their programs. And students who would have studied medicine a generation ago are pursuing more lucrative careers in the technical sector. Hospital infection control procedures require strengthening and even Work place wellness (Occupational health) is not established in India.

Demand for Basic Primary Healthcare and Infrastructure

Today, India has the highest number of medical colleges in the world. In India rural healthcare facilities have revealed poor infrastructure, nonavailability of medicines, equipment and even the basics. Some doctor argued that a doctor, who has specialized in any particular medical field like orthopedic, cardiac or neurology, cannot be expected to treat normal medical cases as a physician. Causes behind is that doctor is best left for MBBS doctors, want to good infrastructure in hospital for better practice or learning. Doctors are not saying we won't serve in rural areas, but before asking us to serve there, government should ensure there is necessary infrastructure in place.

Not only need of better basic infrastructure of hospital, PHCs and CHCs in rural areas, even these places must be attached with road like National Highway and State Highway. It's important in same manner because accidental patient or other serious problems patient need immediate attention and some time needs surgery, which facility is not available in PHCs or CHCs, so it's important sift patient to nearest hospital as soon as possible. According to health survey, the 108 emergency ambulance service takes nearly 75 minutes to reach the village (spot of accident), allege villagers. In the absence of basic healthcare facilities, people travel at least 20 km. to reach the nearest PHC or District Hospital. According to villagers, many lives could have been saved had there been minimum healthcare facilities available in the panchayat. Even basic drug like paracetamol, crocin and combiflam are not available there.

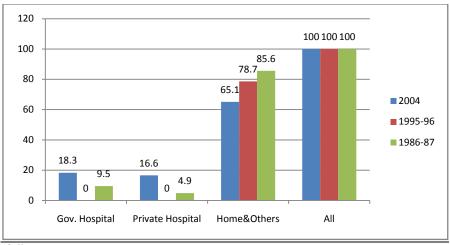
Table - 4 Place of Delivery

Place of Delivery	Rural area			
	2004	1995-96	1986-87	
Gov. Hospitals	18.3	-	9.5	
Private Hospitals	16.6	-	4.9	
Home & Others	65.1	78.7	85.6	
All	100	100	100	

Source- NSSO-2004

Asian Resonance

Figure -2 Place of Delivery



Manpower Shortfall

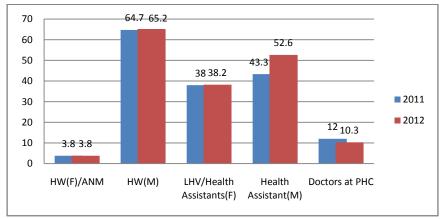
The shortage of doctors and nurses is another problem of India. There is only one doctor per 1700 citizens in India. But according to World Health Organization (WHO) stipulates a doctors and population minimum ratio of 1:1,000. While the Union Health Ministry figures claim that in India have nearly about 6 to 6.5 lakh doctors available, after that according to the population India would need about 4 lakh more doctors by 2020 to maintain the required ratio of 1:1000. 50,000 doctors for PHCs, 0.8 lakh doctors for community health centers (CHCs), 1.1 lakh doctors for 5,642 sub-centers and another 0.5 doctors for medical college and hospitals. This estimate, reflects a tall order, admits Union Health Minister of India.

Despite all the efforts of the government and incentives offered, medical students or doctors are not showing interest in working in rural areas. Some other argued that absent occurs for various reasons, many of them legitimate or necessary. For example, rural health workers often need to travel to larger towns to receive their paycheck, fetch supplies or drugs or are delayed by poor infrastructure or weather. All lead to absences but are necessitated by inadequate management or other shortcoming of the country context. On the other hand, some staff have other commitments or preference and don't show up. In effect they receive a salary but provide minimal if any services. This is effectively theft, a form of "Public office for Private gain".

Table - 5
Health Worker [Female]/ANM at Sub- Centers &PHCs

	Health Worker[Female]/ANM				Health Worker[Female]/ANM					
	Requi-red	Sanctio-ned	Inposit-ion	Vacant	Shortf-all	Requir-ed	Sanctio-ned	Inpositi-on	Vacant	Short-fall
India	169262	139798	133194	6640	19311	172415	185961	207578	14084	6630

Source-RHSI, 2012
Figure-3
Percentage of Shortfall as Compared to Requirement Based on Existing Infrastructure



Source-RHS, 2012

Rural Versus Urban Divide

A large gap found in the healthcare system between urban and rural areas. This gap is due to unequal healthcare resources and infrastructure in the rural region as well as other regions of state. Major part of the population resides in rural area of the country (68.8 per cent, 2011 census). Only 3/4 of the Indian population has access to allopathic medicine. The majority of the hospitals are privately owned and located in cities due to the people awareness of the health related issues and financial viability. Minimum health facilities are not available to rural and tribal people. Some rural area, wherever health services are provided, they are inferior.

Asian Resonance

The causes of inequalities in health sector are due to various factor lie- social, political, economic mechanism leads to social stratification. (J. Kishore.66) Lack of social determinants as age of marriage age, birth order and birth interval between two child, illiteracy, less knowledge of health facilities with provide by government and adequate progress of primary health sector is causes of failure of public health. There is no healthy comparison of this with the hospital (public and private) beds available in the urban areas, which are greatly uneven. While the rural poor are underserved, at least they can access the limited number of government- support medical facilities that are available to them.

Table- 6
Health Infrastructure: Rural versus Urban Divide (Included CHCs)

(
	Rural	Urban	Total	Year			
Hospitals	15398	4419	19817	2014			
Beds	196182	432526	628708	2014			
Dispensaries	12284 (40%)	15710 (60%)	27403	1993			
Doctors	44000	660000	1100000	1994			
Percent	25%	75%	38%	1994			

Source-RHS, 2012

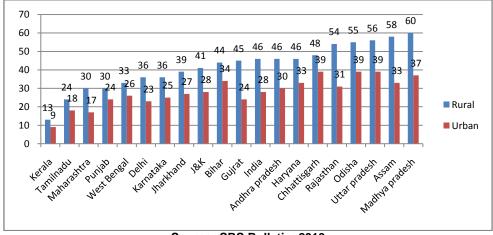
While the National Urban Health Mission has had some success, it does not address India's biggest healthcare. The rural regions have less access to modern medical treatments and depend more on traditional treatment such as Unani and Acupuncture. The rural population has significantly less financial capital and relies heavily on government funded medical facilities.

Maternal and Infant Mortality

Maternal and Infant mortality is depend upon the health of the mother. The extent of maternal and infant mortality is an indicator of disparity and inequity in access to appropriate health care and nutrition services throughout a life time, and particularly during pregnancy and childbirth. The northern states of India more than 60 per cent of the girls and boys are married before the legal ages of (18 and 21) due to lack of knowledge or some social causes. After getting marriage within first year their first child

arrives, when girls are teenager, physically they are malnourished, anemic and poorly educated or illiterate. The teenager mother is herself growing and there is a competition between two children for nutrients which are scarce in the diet. They have no right to planned spacing between the next births, another child is born in a short time duration before the mother has rebuilt her strength or given enough nutrition and mother care to the first born. These are some main causes of high deaths of women during pregnancy or delivery and infants also. Reduction this gaps poses one of the biggest health issue. We found regional variations in the Mortality rate of mothers, as in the states of Uttar Pradesh, Bihar, Jharkhand, Madhy Pradesh, Chattisgarh, Odisha, Rajasthan and Assam show the 6 time higher percentage of maternal deaths is than the other states of India.(P.Mitra and R.Roy.2013:50-58)

Figure - 4
State wise Infant Mortality Rate, 2012



Source:-SRS Bulletin, 2013

Need for Effective Payment Mechanisms

India's healthcare landscape is the high outof -pocket expenditure (around 70 per cent). This means that most of Indian patients pay for their hospital visits, doctors' appointments with straight up cash after care with no payment arrangements. The major driver of high costs of health care is the rapid technological advancement in the health sector, including off the shelf imports of expensive diagnostics and treatments. We all know that health care cost have overwhelming effect particularly on low income people or rural people. According to the World and National Commission's report on Macroeconomics, only 5 per cent of Indians are covered by health insurance policies. Such a low figure has resulted in a emerging health insurance market which is only available for the urban, middle and high income populations. It has been one of the fastest-growing segments of business in India insurance provide a cover to high unnecessary health expenditure.

Only 11per cent of the population has any form of health insurance coverage. The Employees State Insurance initiative Act (1948), Janrogya Yojana (1996-97), Yashaswini Insurance scheme (2002) a micro insurance, in the state of Karnataka by a public-private partnership for the farmers who previously had no access to insurance. Recently launched government- sponsored health insurance schemes, such as Arogya Sree Scheme and Rashtriya Swasthya Bima Yojana (RSBY), target poor Indians, offering cashless cover while allowing beneficiaries to choose among empanelled public and private providers.(MHFW. 2005)

"The things we experienced or we read in news paper rapidly that the life expectancy of a person depends on the financial background of the person." In fact a labor woman does not get proper care in hospital due to financial weakness. We have lots of example loop hole in health care system like some time a person is die due to late arrival of ambulance, negligence of doctors, irresponsible behavior of health care service providers etc.

Private Hospitals and Government Hospital

At present, India has the highest number of medical colleges in the world. This unprecedented growth has occurred in the past two decades in response to increasing health needs of population as well as increasing concern towards population health.

There are 387 medical colleges-181 in government and 206 in private sector. India produces 30,000 doctors, 18,000 specialists, 30,000 Ayush graduates, 54,000 nurses, 15,000 ANMs and 36000 pharmacists annually. According to Medical Council of India (MCI) data, 31,866 new MBBS doctors were registered during the year 2009-2010 and 34,595 students were admitted in 300 colleges for the academic year 2009-2010.(NHP,2013)

According to Union Health Ministry of India's data represent doctor population ratio is 0.5 per 1000 and the target by 2025 is 0.8 per 1,000. In the current scenario of doctor population ratio, the number of

Asian Resonance

doctors required in the rural areas was enormous and target of one-doctor for 1000 population cannot be met before 2020. After detailed input from various working groups, the MCI came to a consensus that the targeted doctor-population ratio of 1:1000 would be achievable by the year 2031. According to the 12th Plan document 6,91,633 physicians are available during the 11th Plan and expected availability for the 12th plan by 2017 is 8,48,616 at annual capacity of 42,570 doctors.

Peoples are realizing that private sectors or private hospitals are more caring for their patient in comparison to the public sector or hospitals.

Funds for Healthcare in India

India has long been a low spender on health care, as India has spend 4763.98 caror in 2014-15 on health sector. It is approx less than 1per cent of GDP. The Budget allocation for 2013-14 is 0.32 per cent of India's estimated gross domestic product (GDP), which is higher than the 0.25 per cent of GDP in the current financial year's revised estimates. The previous year's budget estimate was Rs. 30,477 crore. There is increase in total health expenditure in the 2013-14 Union Budget is 49per cent over the revised estimates for the financial year 2012-13 and 32per cent over the budget estimates for financial year 2013. But given the health requirements of the country, this is only a marginal rise in the health expenditure. Despite rapid economic growth over the past two decades, successive government has kept a tight rein on healthcare expenditure. India spends about 1per cent of its gross domestic product (GDP) on public health, compared to 3percent in China and 8,3per cent in the United States. The United Nations estimates about one third of the world's 1.2 billion poorest people live in India. The health Ministry Officials said the cut could crime efforts to control the spread of diseases. More newborns die in India than in poorer neighbor such as Bangladesh and preventable illnesses such as diarrhea kill more than a million children every year. In terms of India's share in global health expenditure, the country with over 17 per cent of the world's population manages with less than 1 per cent of the world's total health expenditure.

Conclusion

This is not to deny now universally accepted parameters of health but to underline the complexity of this concept which has a bearing on the way individual, society and the state respond to the challenges of disease and demands of health. Public health system in India suffers from many problems, which includes insufficient funding, shortage of facilities leading to overcrowding and severs shortage of trained health personal. There is also lack of accountability in the public health delivery mechanism. These are some of the reasons which have placed India at the lowest rank (135th position hold out of 187 countries rating) in the Human Development Index 2014. In India, Center and State allocation for the health sector is taken together.

The high level expert group on Universal Health Care constituted by the Planning Commission

has recommended that public expenditure on health should be increased form the current level of 1.1per cent of GDP to at least 2.5 percent by the universal entitlement to comprehensive health security; ensuring availability of free medicines by increasing public spending on drug procurement, emphasis on public health investment and addressing the problem of human resources and establishment of more medical colleges and nursing school. But many health policy experts think that this is a wrong way to look at this issue. The whole notion of initially deciding the percentage of the GDP that should be spend on health care is highly flawed. They suggested that, "the government first has to see the most efficient way of achieving a particular outcome, and based on it, it has to decide the amount of money to be spent. This is an agenda (financial flow according to the GDP) driven by the World Bank, and was accepted by the Indian Experts."

State- sponsored or community health insurance plans provide coverage for in patient primary care. However, secondary/tertiary and outpatient care is very underdeveloped and is need of improvement. The insurance payment structure is almost exclusively retroactive.

Beneficiaries need a plan which can cover medical costs up front instead of paying out-of-pocket and waiting long periods of time to get reimbursed. Lastly, the lack of clarity in the government's insurance and health care regulatory policies has had a limiting effect on the growth of private health insurance in India.

Asian Resonance

References

- Census of India .2011. 'India at a Glance: Rural Urban Distribution'. available on website
- 2. Evaluation Study of National Rural Health Mission (NRHM). In 7 states.
- 3. Programme Evaluation Organisation. Planning Commission New Delhi: Government of India.
- 4. Kishor, J. 2009. *National health Programms of India*, New Delhi: Century Publication.
- 5. Mc keown, T. 1976. *The Modern Rise of Population*. New York: Academic Press.
- Ministry of Health and Family Welfare Report. 2005. 'Rural Health Care System in India'. New Delhi: Government of India. available on website
- Maitra P. and R.Ray. 2013. 'Child Health in West Bengal: Comparison with Other regions in India', Economic and Political Weekly, Vol. VLVIII (49): 50-58.
- NSSO 60th Round, report No. 507(60/25.01/1). National Sample Survey Organisation. New Delhi: Ministry of Statistics and Programme Implementation. available on website
- National Health Profile Report. 2013 Available on website
- Rural Health Statistic in India. 2012. Statistics Division: Ministry of Health and family Welfare. Government of India. available on website
- World Bank Report. 2006. India: Inclusive Growth & Service Delivery: Building on India's Success. Washington D.C. available on website
- WHO 2008. Report of the Commission on Social Determinants of Health. Geneva: World Health Organisation.