

# Reusing Medicines - An Unexplored Concept in India

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## ABSTRACT

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Reuse and recycle has become a concept of everyday life. World is talking about recycling of paper, sodacans, glass, plastic but vast quantities of unused dispensed medicines are disposed in trash. At the same time, people who desperately need these medicines have no access due to rising cost. One of the major reason for this is the lack of awareness about reuse of previously dispensed but unused medicines. In the current economic situation, people should be educated and Govt policies/programmes should be initiated to donate dispensed but unused medicines.

## INTRODUCTION

17.5% of global population<sup>1</sup> resides in India and a sizeable population lives below poverty line. According to WHO, India accounts for 21% of the world's global burden of disease and 65% Indians lack access to essential medicines<sup>2</sup>. According to Welsh Assembly Government more than 250 tons of out of date, surplus and redundant medicines are returned to pharmacies.<sup>3</sup> In addition, there are medicines that are probably disposed off incorrectly through household waste. Current estimates suggest that £300-400 million prescribed medicines go to waste each year.<sup>4</sup>

Diverse classes of pharmaceuticals are going waste despite their ability to improve quality of life or serve lifeline for those who do not have access to treatment. The management of pharmaceuticals throughout their life cycle is a global issue. In the current economic climate, the government /NGO'S should search for ways to improve public health care. Reusing unused medication which is already dispensed is a solution that sacrifices neither quality nor finances.

## REASONS FOR GENERATION OF UNUSED MEDICINES

- Patients recover before consuming the complete course of dispensed medicines.
- Therapy being stopped or changed because of ineffectiveness or unwanted side effects.
- Patient non-compliance with prescribed instructions
- Supply of excessive medicines.
- Death of the patient.

World Health Organisation (WHO) document 'Guidelines for Drug Donations' state that "No drugs should be donated that have been issued to patients and returned to pharmacy or elsewhere, or samples given to health professionals as free samples". It is time to review and strengthened the issue of unused but usable medicines<sup>5</sup>.

## PREVALENCE OF DISEASES

Prevalence of chronic diseases and related risk factors adversely affect not only individuals but also the economy at large through cost of illness.

Chronic diseases like cardiovascular, mental health disorders, diabetes, cancer and injuries are the leading cause of death and disability worldwide. In India, these diseases account for 53% of deaths. It is also projected that there is going to be a profound increase of 18% in their contribution towards the burden of diseases during the next 25 years<sup>6</sup>.

As the Prevalence of chronic diseases is increasing, it is necessary to consider the need for rigorous cost effective programmes to reduce the burden of chronic diseases. Table 3 gives a rough projection of cases of chronic diseases by year 2015.

## The Indian perspective:

India is experiencing a rapid transition in chronic diseases, especially heart disease, stroke and diabetes. The load of communicable and non-communicable diseases (NCDs) is projected to get reversed in 2020 from its distribution in 1990 (Fig 1)<sup>7</sup>. These diseases will cost India \$237 billion by 2015. This is both a health threat and an economic threat.<sup>7</sup>

## Non – communicable Diseases

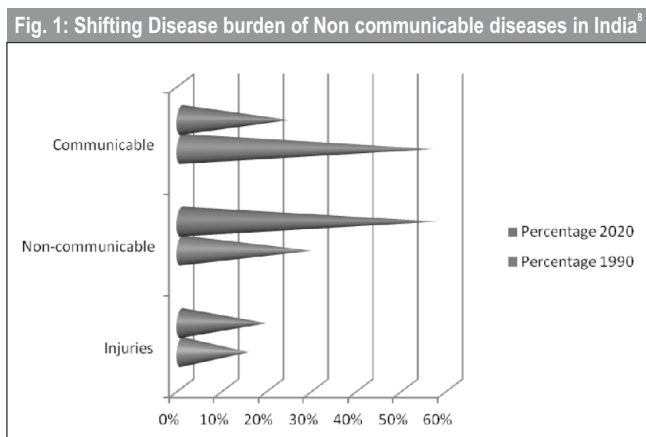
### Cancer Scenario in India:

Cancer is the second most common disease in India responsible for maximum mortality with about 0.3 million deaths per year and still a big threat to our country.<sup>9</sup> There are 24 lakh prevalent cases with 8 lakh new cases added per

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year. The challenges faced by developing countries in cancer control are poverty and limited government funds for health care expenditure.<sup>10</sup> Cancer is disturbing the growing economy of the country, which can be saved by proper handling of the disease. An average cancer patient bears an economic burden of INR. 36812 for the entire cancer therapy at an institution like All India Institute of Medical Sciences (AIIMS) that provides tertiary care to such patients.<sup>11</sup> Cancer control efforts have simply not kept up with the rising cancer burden and health systems in the developing countries.<sup>10</sup>

### Chronic Kidney Disease<sup>12</sup>

Chronic kidney disease (CKD) is an important chronic non-communicable disease epidemic that affects the world, including India. Two community based studies have shown a prevalence of chronic renal failure of 0.16% and 0.79%. The cost of maintenance of haemodialysis for a single session varies between INR 600-2400 in government and private hospitals. The cost of renal transplant (RT) procedure is approximately INR 42000 in government to INR 3,60,000 in private hospitals. The cost of immune-suppression with basic triple immuno-suppression drugs [cyclosporine, steroid and azithioprin] is INR 150000/month. There are hardly any state funded medical treatment and medical insurance facilities for CKD patients in India. The planning for prevention of CKD on a long term basis is the only practical solution in India; and availability of relevant medicine/treatment plays a crucial role.

### Cardiovascular Diseases [CVD]

India was bearing 60% of the world's heart disease burden in 2008-2010. It is projected that the annual number of deaths due to cardiovascular diseases will increase from 17 million in 2008 to 25 million in 2030.<sup>13</sup> Community survey suggests poor educational or economic status is associated with higher risk of CHD. Expensive interventions and costly drugs may not be available, accessible, or affordable, except for an elite minority.<sup>14</sup>

To combat the growing burden of CVD, appropriate strategies and plans should be made to implement policies and programmes to develop affordable and accessible health service and technology.

### Diabetes

Diabetes is rapidly emerging as a global health care problem that threatens to reach pandemic levels by 2030. The number of people with diabetes worldwide is projected to increase from 171 million in 2000 to 366 million by 2030. This increase will be most noticeable in developing countries, where the number of people with diabetes is expected to increase from 84 million to 228 million.<sup>15</sup> According to the WHO, Southeast Asia and the Western Pacific region are at the forefront of the current diabetes epidemic, with India and China facing the greatest challenges. In India, there are nearly 50 million diabetics, according to the statistics of the International Diabetes Federation.<sup>16</sup> and a forecast of 150% over the next two decades. This will put a significant strain on India's health system and economy as the total annual cost in treating the disease will be USD \$30 billion by 2025. The Top 3 countries in the world, in terms of the number of people with diabetes, for 2010 and 2030, are shown in Table 1.<sup>1</sup>

In India, diabetes has been calculated to drain 5 – 25 % of the average Indian family's income.<sup>18</sup>

Country	2010 (millions)	2030 (millions)
India	50.8	87.0
China	43.2	62.6
U.S	26.8	36.0

The health care budget for disease management is meagre and the healthcare outcome is far from the optimum.

### Communicable diseases

#### HIV/AIDS:

In India, about 2.4 million people are suffering from HIV with an adult prevalence of 0.31% and children below 15yrs are 3.5%. The spread of HIV in India is primarily restricted to the southern and north-eastern regions.<sup>19</sup> India spends about 5% of its health budget on HIV/AIDS.<sup>20</sup>

Name of state	No. of cases
Andhra Pradesh	0.90%
Maharashtra	0.55%
Karnataka	0.63%
Manipur	1.40%
Mizoram	0.81%
Nagaland	0.78%

## Treatment

Since 2004, first-line ART (antiretroviral therapy) is provided free of charge at government designated link centres as per National aids control organisation guidelines. People with HIV/AIDS can collect their medication at these centres and also undergo follow-up tests. However, the realities of the treatment are not up to the standard as per the report of PLHA (people living with HIV/AIDS. More than 1 million people in India have no access to ARTs. Part of the problem is that some virus-carriers feel too stigmatized to approach medical facilities, but a larger issue is cost. ART drug costs start at a minimum of 3,000 Rupees which is a significant amount of money for most Indians. This is either due to lack of government programmes or few distribution centres and scarcity of facilities.<sup>22</sup>

### Viral Hepatitis in India:

Viral hepatitis is another major public health problem in India. Based on the prevalence of HpB carrier, India is at intermediate endemic level of HpB, with prevalence between 2% and 10% among the population studied.<sup>23</sup> Although a wide range of cost-effective primary and secondary prevention strategies are available, their access is generally low, especially in poor and rural populations.<sup>24</sup>

Besides these prominent life-threatening diseases, other group of infections that are wide spread in India are:<sup>25</sup>

1. Infections carried in gastrointestinal tract: diarrhoea, typhoid, amoebiasis, worm infestations.
2. Infections carried in the air through coughing, sneezing, etc.: measles, TB, pneumonia, whooping cough. The burden of TB may increase further with the emergence of HIV epidemic.
3. Some difficult to deal with infections like malaria, filariasis and kala-azar.
4. Every third person in the world suffering from leprosy is an Indian.<sup>26</sup> Prevalence is still around 5/10,000 population.<sup>27</sup>
5. Viral diseases are major public health problem. Major diseases include Japanese encephalitis, polio virus, H<sub>p</sub> virus etc.

### Commercialisation of Health in India<sup>28</sup>:

Privatization and Globalization era has resulted in excluding a sizeable number of population and Poor from the coverage of health services provided by the organized sector. Low public sector spending on health services results in over-dependence on private sector for getting health services. In India the share of private sector on health care expenditure constitutes around 72%. At one end of the spectrum, high quality medical care is being provided to middle class Indians and medical tourists.

**Table 3: Prevalence of Diseases.<sup>8</sup>**

Condition	No. of cases in 2005	Projected cases by 2015
Cardiovascular diseases	38,041,090	64,071,981
Diabetes	31,039,932	45,809,149
Chronic Obstructive Pulmonary Disease (COPD)	17,020,000	22,210,000
Cancer	2,016,700	2,496,133
HIV/AIDS	31,00,000	22,000,000

On the other end, the majority of Indians receive only limited or no access to quality healthcare. In other words out-of-pocket expenditure comprises major share of expenditure on health care. Government spends only 23.8 per cent of the total expenditure on health services. NGO sector is almost non-existent (0.3%) in terms of spending on health services. The absence of an effective public-funded health system has been one of the major factors that have contributed to poor healthcare and the commercialisation of medicine in India. The prevalence of commercialised health care which is fee based, requiring out of pocket payment in all sectors, in the context of wide spread poverty raises issues concerning access for the poor to health care.

### Thrust areas to be taken care of:

- **Social and economic inequality:** Economic deprivation in a large segment of population results in poor access to healthcare<sup>29</sup>. Two recent all India surveys {NSSO (national sample survey organization) 46<sup>th</sup> round and NCAER (national council of applied economic research), New Delhi} have shown that medical treatment is the most important cause of rural indebtedness, next only to dowry.<sup>30</sup>
- **Prevailing political scenario in the country:** Healthcare structure in country is over-burdened which leads to poor implementation of public health. Most Indian politicians are hesitant to take harsh but healthy decisions as the politics of vote dominates the agenda. A strong political real sustaining over a period of time is need of the hour.
- **Government Policies and Programmes:** India remains among the five countries with the lowest public health spending levels in the world. Total expenditure on health is 4.2% of GDP. Of this, current public expenditure is only 1.1% of GDP. Over 70% expenditure is out of pocket expenditure.<sup>2</sup> Out-of-pocket payments have increased, with impoverishment of nearly 2.2% of population taking place annually due to catastrophic illness related expenditure. Hospitalization for major illnesses is the prime cause of indebtedness, especially for those living below the poverty line. Table 4 puts these figures in perspective.<sup>8</sup>

**Table 4: Comparative table for healthcare spending in India**

S.No.	Heads	India	United states	Global average
1	% GDP	4.1	15.7	9.7
2	Govt % GDP	26.2	45.4	59.6
3	Private as % GDP	73.8	54.5	40.4
4	2 as Govt as % of total govt spending	3.7	19.5	15.4
5	Out-of-pocket % of 3	89.9	22.6	43.9
6	Private insurance % of 3	2.1	63.5	45.0
7	Per capita USD	40	7,285	802

- Emergence of private health care: 9/10 doctors work in a private sector.<sup>30</sup> But the fact remains that for nearly 600 million rural and urban poor, the quality and affordable healthcare is beyond their reach.
- Ignorance/awareness about the usage and disposal of medicines:

A questionnaire based survey was conducted to find out the reasons for the generation of unused medicines and their ultimate disposal and with a hope to use the information in improving the way people use medicines and also to deal with the unwanted medicines properly. The results are as follows<sup>5</sup>:

**Table 5: Results of Questionnaire Total participation -100**

Criteria	Percentage (%)
Return to Pharmacy	6
Not aware of environmental hazards of wrong disposal of medicines	52
Not aware of any policy/plan for collection/redistribution of unused medication.	6
Government shall ban disposal of medicine in bins and make people return it to pharmacy.	85
Who should sought out the problem of wasted but usable medicines (government or NGOs)	90

## CARING FOR BILLIONS

Despite umpteen government policies and plans to provide health-care to all, 'buying' healthcare has gone beyond the reach of the rural poor. The availability of drugs is inadequate in all the primary healthcare centres (PHC), sub-centres (SC) and hospitals that have been set-up by government over the years.

The challenges seem endless, but we have to begin somewhere. Let us tackle the problems leading to inadequate availability of medicines to all the patients, especially the poor and rural.<sup>31</sup>

### Remedial Measures:

Unused medicines have considerable financial value, with many in a condition suitable for reuse. So it's the time to address this issue and debate should be reopened for potential reuse of medicines.

Following remedial measures can be taken:

**1. Medicine banks** should be created on the pattern of blood banks. People/NGOs can volunteer to participate in 'reuse of medicine programmes', collect unused medicines and submit to these banks. Technically qualified personnel should scrutinise and make the medicines ready to handover to the poor patients.

**A few points to be borne in mind by people who decide to donate to these medicine banks are:**

- Unused medicines in their original, unopened, sealed, and tamper-evident packaging with verified future expiry date if brought back to special pharmacies for donation can provide medication to the needy who cannot afford to purchase medicine.
- Healthcare professionals should be involved in reviewing and dispensing the medicines.
- Record should be maintained for identification and information of the returned medicine.

**2. Medicine Collection:** Door-to-door medicine collection can be done. Here is one such practical example of humanity.

Meet the poor man's Medicine Baba, crippled at the age of 10, the 75 year-old travels daily by bus and foot from a slum near the Palam airport to collect donations.<sup>32</sup>

Mr Omkar Nath lovingly called as MEDICINE BABA, through his efforts, collects medicines worth Rs.5-10 lakh per month from Delhi alone. He distributes these free of cost at 12 charitable clinics and two government hospitals. If a lower-income family spends roughly Rs.500 on healthcare, his efforts are benefiting at least 1,000 people. Nath's medicine bank, Raahat Hi Raahat, has been in operation for the past four years.

**3. Active participation by NGOs:** Healthcare professionals should be involved to create awareness regarding the disposal and collection of unused medicines. Workshops and awareness camps should be arranged. Drop-off facilities should be provided in housing societies.

**4. Voluntary organisations of likeminded people** can bring a progressive change. People can be mobilised to donate unused, unexpired medicines.



**5. Government Involvement:** Programmes/Plans should be designed with a focus on accepting and redistributing medicines. Like in developed countries, India must also either shift government health expenditures towards, or increase absolute spending on prevention, screening, early intervention, and new medical treatments thereby reducing the burden of diseases. These measures are essential for the health of Indian population as well as its economic progress.

**6. Legal Authorisation:** Drug manufacturers that are legally authorized under federal law to manufacture and sell pharmaceutical drugs should be allowed to donate excess, unused medicine.

## CONCLUSION

Most people dispose of any excess medicines at home in garbage bin. People are willing to come forward and donate their unused medicines to help poor people, but as they are not aware of any related collection banks/policies, they are unable to process the medicines in a better way. Government, NGOs, social society should join hands and design norms, plans/policies for donation, collection and to scrutinise unused medicines. Exploration of the potential for re-use of unused medicines can identify a number of factors that lead to their generation and can change the medicine handling practice that may limit this waste.

The introduction of repeat dispensing of medication is likely to be the role of healthcare professionals in future.

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