



Cost of Waste and Inefficiency – A Health Care System Perspective

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Abstract: Governments in most countries are concerned with waste and inefficiency in their health care system. A significant share of health budgets is incurred on activities that do not contribute to improving health outcomes. Waste and inefficiency occurs at every level in health care system; categorizing them by types and sources will help to identify appropriate strategies to tackle the problem. International experiences suggest that strategies to reduce waste and inefficiency must integrate the administrative, operational, and clinical components of care. Policy makers, health administrators, health providers and service users should feel responsible for ensuring that scarce health resources are used efficiently. This paper focuses on identifying various sources of waste and inefficiency in health care systems. The paper also provides various policy implications and recommendations to address the problem.

Keywords: Waste, inefficiency, health care system, administrative, operational, and clinical waste

I. Introduction

Health care spending in most countries has increased significantly over the past few decades both in absolute terms and as a share of Gross Domestic Product (GDP). The United States of America spent almost 17% of its GDP on health in 2012, higher than other developed countries (World Bank, 2015). Despite highest spending, the United States lags behind other developed countries such as Australia, Canada and Germany on measures of health system performance in key areas of quality, efficiency, access to care, equity and the ability to lead long, healthy and productive lives (Cathie M, 2012). Wastes and inefficiencies account for a major source of increased health spending in many countries. World Health Organization estimated that 20-40% of healthcare spending globally is wasted (WHO, 2010). A recent report of Organization of Economic Cooperation and Development (OECD) has cautioned that about one-fifth of health expenditure makes no or minimal contribution to good health outcomes (OECD, 2017). Growing pressure on health care costs has generated an interest in addressing waste and inefficiency as means to control health care costs.

This paper focuses on identifying various sources and categories of waste and inefficiency in health care systems and challenges involved in estimating them in monetary terms. It also examines various policy implications of waste and inefficiency and gives recommendations to address the problem.

II. Waste and Inefficiency in Health Care

A number of studies, particularly in developed countries have attempted to address the issues of waste and inefficiency in health care. However, no agreement exists among authors on how waste and inefficiency are related to each other. In many studies these concepts are interchangeably used. In the early 1990's a study in the United States had highlighted "the excessive administrative costs, unnecessary procedures, inadequate consumer vigilance, unavailability of preventive care, and sky rocketing malpractices premia led an extraordinary wasteful allocation of enormous resources in medical care" (Jerry & Theodore, 1994). Waste can include spending on services that do not sufficiently contribute to improvement in health outcomes compared to less-expensive alternatives; inefficiencies in the provision of health care goods and services; and costs incurred while treating avoidable medical injuries, such as preventable infections in hospitals (Phillips, 2005). The report of OECD (2017) defines wastes as "services and processes that are either harmful or do not deliver benefits, and costs that could be avoided by substituting cheaper alternatives with identical or better benefits". Wastage occurs in every aspect of health care delivery, from administration to the treatment of patients. These wasteful activities involve different stakeholders in the health care system and they occur at various level for various reasons.

Conceptually, economists distinguish between two types of inefficiencies namely productive inefficiencies and allocative inefficiencies (Phillips, 2005). Productive inefficiencies create waste in the form of excess costs in producing a given output whereas allocative inefficiencies produce the wrong output. While these types of

inefficiencies differ in theory, they overlap significantly in reality. For example, additional imaging tests of low value to the patient could be considered a productive inefficiency, because the output (a diagnosis) could have been made with fewer tests and at lower cost. This case also represents an allocative inefficiency in that these imaging tests are of low value to the patient in question.

Inefficiency in health care may refer to a wasteful use of resources for no or little benefit, or a failure to use resources on beneficial activities. Inefficiency may arise because of apparently inappropriate, irrational, or misinformed decisions by individuals or organizations (Severens, 2003). WHO identifies ten leading sources of inefficiency in health care system namely (i) underuse of generic and higher prices for medicines, (ii) use of substandard and counterfeit medicines, (iii) inappropriate and ineffective use of medicines, (iv) overuse of equipment, investigations and procedure (v) inappropriate or costly use of staff mix (vi) inappropriate hospital admission and length of stay (vii) low use of infrastructure (viii) medical errors and suboptimal quality of care (ix) waste, corruption and fraud and (x) inappropriate level of strategies (WHO, 2010). According to OECD report, waste is a category of inefficiency, but not all inefficiencies contribute to waste (OECD, 2017). Like other economic sectors, health sector also aims at elimination of waste and inefficiency in production, so that cost per unit will be low as possible. However, unlike other sectors where competition and other economic incentives act to reduce the level of waste, none of the health system's players have strong incentives to economize (Bentley et al, 2008).

There are ample evidences that waste and inefficiency are common in health care delivery and mitigating them can produce significant cost saving (Ovretveit, 2004). According to the reports of Institute of Medicine (IOM), major causes of waste and inefficiency in health care are inefficiency delivered services, unnecessary services, missed prevention opportunities, excess administrative cost, high prices and fraud (IOM, 2010: IOM, 2012). Inefficiently delivered services, in the reports, mainly include medical errors and preventable complications. Preventable complications include all hospital acquired infections, and adverse drug events, due to administering wrong drug, administering wrong dose of the right drug and harmful drug interactions.

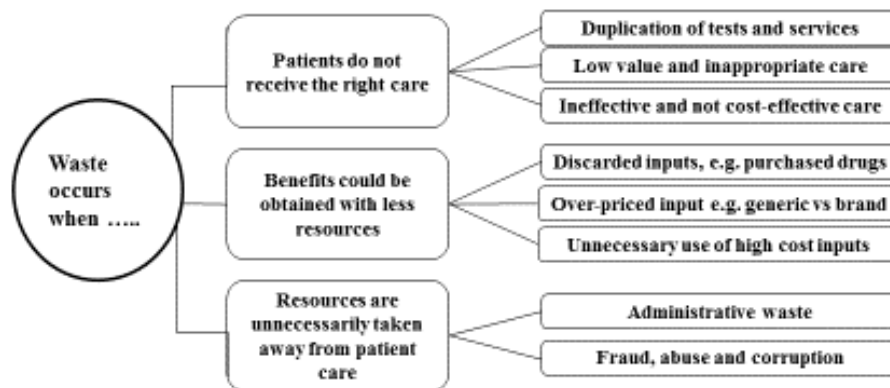
The IOM reports describe three categories of unnecessary services such as over use, discretionarily beyond benchmarks and poorly informed consumer choices (IOM, 2010: IOM, 2012). Overuse of services as that are deemed inappropriate because they are not based on evidence. Missed prevention services can be primary preventive services like immunization and nutrition counseling, preventing outbreak of a disease or condition in a population; secondary services such as blood pressure screening, cancer screening, identifying the occurrence of the disease with the intent of intervention. Tertiary prevention services are disease or chronic condition management services and are targeted to individuals with the objective of preventing additional morbidity. Inadequate provision of preventive activities may lead to extra medical care, low productivity, high disability, reduced lives etc.

III. Major Categories of Waste and Inefficiency

Even though many researchers have examined various types of waste and inefficiencies in health system, including public health programs in developed countries, yet an acceptable framework is not available to guide researchers and policymakers in categorizing and evolving specific policies to reduce these problems in developing countries. The framework developed by Bentley et al, (2008) discussed three types of waste namely administrative, operational, and clinical wastes. Administrative waste refers to any administrative spending that exceeds that necessary to achieve the overall goals of the organization or the system. The activities within a particular function vary depending on the nature of the organization and its outputs. Operational waste refers to the inefficient and unnecessary use of resources in the production and delivery of such services. Clinical waste as spending to produce services that provides marginal or no health benefit over less costly alternatives. Wasteful services include those that have detrimental health effects, or small positive health effects, compared with less costly alternatives. When the cost of a service exceeds its value, the less costly alternative may be to do nothing.

The report of OECD has identified three main categories of wasteful spending viz: wasteful clinical care, operational waste and governance related waste (OECD, 2017). Wasteful clinical care covers avoidable instances when patients do not receive the right care. This includes duplicate services, preventable clinical adverse events like wrong-site surgery and many infections acquired during treatment and low-value care such as medically unnecessary caesarean sections or imaging. Operational waste occurs when care could be provided using fewer resources within the system while maintaining the benefits. This includes situations where pharmaceuticals or medical devices are discarded unused or where lower prices could be obtained for the inputs purchased; costly inputs are used instead of less expensive ones, with no additional benefit to the patient. Governance-related waste relates to resources that do not directly contribute to patient care. This category comprises unneeded administrative procedures, as well as fraud, abuse and corruption, all of which divert resources from the pursuit of health care systems' goals (Fig:1).

Fig 1: Identifying Wasteful Spending in Health Care



Source: extracted from Mark Pearson, *Delivering high value health care*, presentation made at the King's Fund (London) conference on 10 January 2017, Paris.

Researchers tried to identify the causes for waste and inefficiency in the US health system (Anderson et al, 2003; Bentley et al, 2008; Classen D.C & Resar R.G, 2011; Morra et al, 2011; Berenson et al, 2012;). Based on these researches, Bewerick and Hackbarth (2012) summarized the following six categories of waste and inefficiency in the United States.

- (i) *Failures of health care delivery* - include poor delivery of health care or lack of adoption of best practices like effective preventive care practices or patient safety measures. Failures in delivery often result in patient injury, worse clinical outcomes and higher costs.
- (ii) *Failures of care coordination* - occur when patients experience care that is fragmented. For example, poor management and coordination when patients are referred from one health care setting to another health care setting. These situations often lead to unnecessary readmission, avoidable complications, weakening functional status, particularly for the chronically ill and old patients.
- (iii) *Overtreatment of patients* - hospitals are motivated by something other than provision of optimal care. This results in over-diagnosis, expensive services when less expensive alternatives are sufficient.
- (iv) *Administrative complexity* - consists of excess spending due to private health insurance companies, the government, or accreditation agencies create inefficient or flawed rules and overly bureaucratic procedures. A lack of standardized procedures can result in complex and time consuming billing work for physicians and their staff.
- (v) *Pricing failures* - occur when the price of a service exceeds that found in a well-functioning market, which is equal to the actual cost of production plus a reasonable profit.
- (vi) *Fraud and abuse* - includes submitting claims for services not provided, misrepresenting the frequency, description, or duration of services provided, falsifying eligibility, failing to maintain adequate financial or medical records and improper practices.

Based on the above review a typology of waste and inefficiency in health care system is given in Table-1.

Table 1: Typology of waste and inefficiency in health care

Type of waste & inefficiency	Examples of activities leading to wastage & inefficiency
Administrative waste & inefficiency	<ul style="list-style-type: none"> • Transaction related activities – billing, claim processing • Benefits management –design of insurance products, verification of benefits, quality assurance, management information system, tracking expenditure for reimbursement • Selling & Marketing – producing, selling, or purchasing competitive products in the market place, undertaking risks/premiums, advertising, strategic planning • Regulatory/compliance – comply with government and non- governmental regulations and accreditation.
Operational waste & inefficiency	<ul style="list-style-type: none"> • Duplication of services- tests or procedures done frequently than clinically necessary

	<ul style="list-style-type: none"> • Inefficient process- time spent waiting, unnecessary transport of material, multiple stock items due to lost /misplaced supplies • Expensive inputs – producing services with expensive equipment or health personnel: physicians providing services for which nurses are equally competitive, use of branded for patients who get equal benefit from generics • Delays in care, inefficient use of clinicians time, improper documentation and record keeping • Errors – quality defects, defective medical devices, rework of tests or procedures, health and cost consequences of medical errors
Clinical waste & inefficiency	<ul style="list-style-type: none"> • Excessive antibiotic use, avoidable emergency department use, avoidable hospitalizations, overuse of screening services, overuse of radiology services, unnecessary surgeries. • Clinical interpretations

IV. International Experiences

At international level, most of researches on waste and inefficiency in health care system have been conducted in developed countries, particularly in the United States. According to the report of the Institute of Medicine (2012), approximately 30% of health care spending in the United States, was wasted on unnecessary or poorly delivered services, excessive administrative costs, and fraudulent claims, and other needless costs in 2009 (IOM, 2012). Bewerick and Hackbarth estimated the magnitude of six major categories of wastes namely failures of health care delivery, failures of care coordination, over-treatment of patients, administrative complexity, pricing failures and fraud and abuse in the United States. The authors found that these categories of waste consumed about 21% to 47% of the approximately \$2.6 trillion annual total health spending in 2011 (Bewerick and Hackbarth, 2012). OECD report (2017) also reflects the fact that a significant share of health spending in OECD countries as ineffective and wasteful. One in ten patients is adversely affected during treatment by preventable errors and more than 10% of hospitalized spending is allocated to rectifying such events (OECD, 2017).

In many countries, hospital care absorbs more than half and up to two thirds of total public spending on health, with increasing number of inpatient admissions and length of stay (WHO, 2010). Studies have shown that hospitals that emphasize on better discharge planning can considerably reduce their readmission rates. OECD report indicated that 20% of the budget in Netherland for acute care could be saved by reducing overutilization (OECD, 2017).

Adverse events often threaten patient safety. Many studies have shown that the magnitude and costs of adverse events are significant. According to Makary and Daniel (2016), medical errors might be the third cause of death in the United States. Studies in various countries indicate that adverse events in hospitals add between 13% and 16% to hospital costs (Jackson, 2009). A study in Australian showed that hospital acquired infections accounted for between 12% and 16.5% of total costs and between 11.6% and 15.9% of costs across all hospitals for selected infections (Pearse J et al, 2015). Research studies related to waste and inefficiency in primary health care are rare. An earlier study had showed that approximately 80% of errors could be classified as process errors, and a majority of which are potentially remediable (Makeham et al., 2002).

The term wasteful clinical care refers to situations where patients receive health services that fail to maximize health outcomes, given the available resources, for reasons that could be avoided (Couffinhal & Dietrich, 2017). OECD report (2017) categorizes wasteful clinical care in to two elements namely preventable adverse events and low value care. While preventable adverse events can occur due to human factors and systemic failures such as poor care co-ordination, low value care can occur when the benefit of an intervention is considered to be too little, given its cost and risks. Adverse events are not only distressing for patients, but also causing wastes to health care systems which are often preventable. A recent study found that between 28% and 72% of adverse events are considered avoidable on the basis of expert examination (Rafter et al, 2016). Low value care may be caused due to poor decision making, poor organization and poorly designed incentives (Couffinhal & Dietrich, 2017). In a study of 435 emergency physicians in the United States, by Kanzaria et al (2015) showed that more than 85% believed too many diagnostic tests were ordered in their own emergency departments, and 97% felt that at least some of the advanced imaging they personally ordered was medically unnecessary. It was found that fear of missing a low probability diagnosis and litigation were the main contributory factors for such decisions.

Hospitals are complex organizations and their internal efficiency relies mainly on the effective coordination of processes between different departments and across various professions. If these processes are not correctly planned or if the right inputs are not in place, then substantial time and money will be wasted and patient will suffer. Similarly, delays in discharging patients from hospital is ineffective process leading to unnecessary costs. Operational waste in health care system occurs when using more costly than required inputs. At the

hospital level, this may include avoidable hospital attendances and ineffective processes within hospitals and delays in discharging patients (Dietrich & Couffinhal, 2017).

Many hospitals provide services to patients with health problems which can be delivered safely and effectively at the primary health care facilities. The World Health Report (2010) acknowledged that a significant proportion of emergency hospital admission could have been equally tackled or better treated in a primary care settings or even managed by patients themselves with appropriate education (WHO, 2010). A study in Canada showed that 57% of patients attending an emergency department stated they would have consulted their primary care physician if one had been available at the time (Wong et al., 2009). A study in England found that 26.5% of unplanned hospital emergency visits were made due to failure to obtain an appointment with general practitioner (Cowling et al, 2014). In a study in the United States, Gindi et al. (2012) found that about 80% of adults had visited an emergency department in the past twelve months due to lack of access to other health providers. Better targeting the use of hospital services is therefore fundamental for reducing operational waste (Dietrich & Couffinhal, 2017). However, inadequate quality of primary health care in many countries would also result in excessive hospital care leading to waste and inefficiency.

Cost of Medicines account for a significant share of overall health care spending in many countries. It accounts for 20 - 30% of global health spending, slightly more in low and middle-income countries (LuY.et al, 2010). Discard of unused, and often unexpired medicines and other medical supplies inflicts unnecessary extra costs on health care systems (Couffinhal & Dietrich, 2017). It is estimated that more than half of all medicines prescribed, dispensed or sold at the global level were inappropriate (WHO, 2009). Almost 50% of all patients fail to take their medicines as prescribed or dispensed (Newhouse et al, 2013). In England, survey-based estimates indicate that that approximately 50% of discarded medicines are likely to be preventable waste (Trueman et al, 2010). Overuse and misuse of antibiotics is also a severe global problem, with two thirds of all antibiotics being sold without prescription through unregulated private markets (WHO, 2010).

Unnecessary purchase and use of medical equipment can also lead to waste and inefficiency in health care system. An earlier estimate showed that at least 50% of medical equipment in developing countries was either partly usable or totally unusable (Issakov A, 1994). While the United States leads the world in diagnostic imaging referrals, the use of medical equipment showed that 91.2 MRI examinations per 1000 of population in the United States compared with an OECD average of 41.3 per 1000; and 227.8 CT scans per 1000 compared with an OECD average of 110 (OECD, 2009). It was also reported that a significant proportion of these tests were believed to be medically unnecessary.

Administrative tasks are indispensable at every level of the health care system, from ministries at both central and regional levels, insurers and health facilities. Many administrative tasks are vital to ensure access, equity and quality of health care provision (Muller et al, 2017). The report of Institute of Medicine in the United States showed that improvement in administrative efficiency contributed to significant administrative savings as much as 30% of health care costs like billing costs, collection cost, outcome of care, patient and physician satisfaction (IOM, 2012). Many times duplication of administrative services may be leading to wasteful spending. Wasteful administrative spending refers to administrative outputs that enhance little or no value and administrative processes that are inefficient and could be carried out at lower cost (OECD, 2017). Many times waste occurs when reasonably simple administrative activities are undertaken by highly qualified professionals like physicians whose time could be better used to treat patients.

Administrative costs are influenced by type of health financing system in any country. Financing systems based on social health insurance funds or some nature of compulsory insurance may have higher administrative spending than those managed by general governments (OECD, 2017). Muller et al, (2017) showed that in countries where social security spending constitutes less than 40% of public health spending, administrative costs accounted for less than 2% of public spending on health in 2014, whereas it was more than double in those countries where social security funds constituted the majority of public health spending. In Mexico, distinct health financing systems exist for different sections of the population, creating many administrative duplications (Muller et al, 2017).

V. Issues in Estimating Costs of Wastages & Inefficiency

In an economic perspective, it may be difficult to apply concept of costing in health care organizations due to many reasons (Ovretveit J, 2000). In services such as healthcare, quality related costing is more challenging due to the complexity of the processes and the fact that such processes encompass a wide range of costs, a lot of which are intangible and hidden, particularly in not-for-profit organizations (Rashidi, 2011). Different kinds of cost are termed in terms of resources used to deliver health care. However, no standard mechanism is available for categorizing areas of waste and capturing these costs in health care systems (James & Bayely, 2008). Many of the costs are hidden and difficult to identify by formal cost measurement systems. The focus of attention in managing resources should be primarily on the costs that are easily observed and the iceberg effect is often ignored (Phillips, 2005). Generally, decisions are taken on the basis of the costs that are visible, above water, while those that lie below the water, and are often of considerable magnitude, do not enter the

decision making process. As there are means for reducing costs which lie under the water, identifying and improving them will significantly reduce the costs of delivering health care.

Overuse of health care services may make patients susceptible to harmful side effects. Overuse refers to provision of healthcare services that do not benefit the patient and are not clearly indicated, or provided in excessive amounts or in unnecessary settings (Spath P, 2009). The patients also waste money and other resources that could be utilized for more efficient use. In poor countries, preventive care services like immunizations are not extensively provided to the population, and many treatable conditions, are often not diagnosed. In these countries health providers may provide inferior or inadequate care, and they do not explain key aspects of care to patients or cannot communicate well with their patients. As patients rely almost solely on physicians and other providers to decide which services are necessary, an average patient cannot recognize underuse of services –a situations in which beneficial services are not being provided (Spath P, 2009).

Costs of waste also includes the money spend on detecting outcome failures like inspection costs, because such cost would not be necessary if the process produced no failures. When a step in clinical process fails, some proportion of those failures will lead to outcome failures. According to James & Bayley (2006) dealing with outcome failures will raise costs in two ways. Firstly, the hospitals need to invest additional resources to repair the initial failures. For example, treating a medical complication consumes more health care inputs than if the complication had never occurred. Secondly, discarding the defective output and start again. For example, repeating an x-ray when the initial image is unreadable or making multiple attempts to track down a missing laboratory result are wasteful activities.

Costs of waste and inefficiency should be considered from different perspectives, including the provider, the payer, or the societal perceptive. From the perspective of providers, costs of care can be classified in different categories. The first category is accounting costs - which reflect the resources used to produce health care from the providers perspective. It is estimated by accounting systems by adjusting costs incurred by each facility or department. Second category is charges which reflect the amount that health providers billed to insurers or patients for services rendered. The third category is expenditure, which includes the payments for health care services by health plans, beneficiaries, or other payers. From the perspective of the payer who can be a patient or the third-party purchaser considers only financial costs associated with care. Non-financial costs are relevant when considering costs from the perspective of patients, which also include opportunity costs such as loss of earnings and indirect costs like travel costs, lodging costs etc., associated with treatment. In case of providers it may include administrative costs from interacting with insurers (Casalino et al, 2009), and from the society's point of view it may include the effects of health care costs on the economy (Sood N, Ghosh A, Escarse, 2007). Cost of waste and inefficiency should be considered in social perspectives. Most of studies have considered the costs incurred by the hospital or part of it, but they did not consider the cost to the society, families, and other organizations involved. Similarly, indirect costs to the patients who may have encountered failure in hospital services are not usually considered by studies. It also include travelling costs to the hospital, waiting time, cost for repeating investigations in other hospitals, etc. There are costs resulting from litigation and claims for damages following treatment and care, which have gone wrong. The issue of costs related to litigation is still very narrow and it focuses only on physical injuries, deaths and other technical quality related aspects, but it ignores functional quality related issues such as inadequate counselling and poor communications, which may prove to be very costly (Rashidi 2011).

Further, there are challenges associated with collecting data on many of these types of costs which limits their inclusion in measuring and managing health care costs. One of the key challenges in collection of cost information about healthcare activities is the heterogeneity in the nature of the cost objectives between and within health organizations, and problems of information quality and variations in costing practices such as allocation of indirect costs (Ramsey RH, 1994). Another challenge is the errors in measurement of hospital input prices, which will have considerable consequences for the results (Folland et al, 2010). Besides there are challenges related to the complication of the processes and the fact that such processes comprise a wide variety of costs, a lot of which are intangible and hidden. Therefore, for estimating costs from the providers perspective researchers may face the challenges of reliable measures of hospital input prices and define them adequately.

VI. Policy Implications & Recommendations

Health care systems in many countries inadvertently contributes to the problem of waste and inefficiency leading to high spending on health care. Although there is growing awareness of waste and inefficiency in health care system in most countries, but still there is dearth of policy initiatives and effective strategies to reduce these problems in many developing countries. At the health care system level, three major reasons may contribute to waste and inefficiency. Firstly, the fragmentation of the existing health care delivery system adds to a failure to provide patients with all essential health care services and these failures often lead to complications, particularly for the chronically ill, women, children and elderly population. Secondly, lack of coordination among health institutions and agencies at various levels contributes to duplication of services and

often overtreatment, which in turn exacerbates the cost of care. Thirdly, lack of adherence to established standard treatment protocols including preventive care and patient safety measures resulting in adverse events, poor clinical outcomes and higher rate of readmissions leading to wasteful spending.

Waste and inefficiency occur at every level in the health care system. There are many actors like physicians, patients, health managers, policy makers to key drivers of wasteful spending in health care. Based on different sources of waste prevailing in health care systems, it can be categorized in to administrative, clinical and operational wastes. Administrative tasks must be carried out at all levels of the health care system both at macro and micro level. At macro level, administrative activities are required for financing, governance and organization of the system, and at micro level, health care facilities and providers required to perform a number of administrative functions related to the organization and delivery of health care. In order to reduce waste and inefficiency in administration, it is crucial to identify wasteful administrative process at each level of health care system. Experiences suggest that electronic application and approval procedures, digitalization of records, adoption of internal quality management guidelines, simplifying administrative procedures, choosing right size of administrative bodies, adoption of international standards and risk assessment methods, automatic claim processing methods, introduction of tele-transmission system etc., can reduce administrative costs significantly. Encouraging online professional development courses for health care providers and reducing administrative burden of health care providers will be beneficial. Appointment of an oversight body will be valuable in monitoring and controlling administrative waste and inefficiency.

Reducing the wasteful clinical care is a real challenge as health care systems need to identify all wastes and inefficiencies more systematically. In order to reduce waste and inefficient spending in clinical care, it is imperative to reduce adverse events and quality of reporting of these events. Development and implementation of evidence-based clinical guidelines and benchmarking of best medical practices to promote appropriate treatment for specific diseases and clinical conditions will reduce the adverse events drastically. This should also be complimented by education and campaigns of both health providers and general population. Multimedia campaigns targeting the general population about the effects of inappropriate use of antibiotic can drastically reduce the use of antibiotics (Gonzales, R. et al, 2008). An effective patient reporting system is vital sources of information of health care system performance. Introducing check-lists and clinical guidelines can reduce the use of unnecessary interventions and save costs. The WHO uses checklists as part of its patient safety initiatives which includes a set of evidence-based safety standards that can be used in all health care systems (WHO, 2009).

Operational waste and inefficiency in health care systems contributes to a significant increase in health spending. Health care system uses resources such as health professionals, medicines and other supplies, medical technology and equipment and buildings. In many countries, healthcare facilities in the public sector continue to waste resources by duplicating efforts or by keeping productive staff at tasks that require lower-level of skills. Reducing waste and inefficiency requires a strong commitment by decision makers and health administrators to provide the focused and disciplined leadership with a strong team work that holds every person accountable in meeting the goal.

Operational waste and inefficiency in hospitals can be reduced by regulating emergency visits, hospital admissions for chronic diseases, avoidable hospital stays for minor surgeries and delays in discharging patients from hospital. A significant reduction in operational waste can be achieved by restricting the overuse of medicines and antibiotics, unnecessary prescription practices, substituting generic medicines and establishment of effective procurement and distribution system. Strengthening of enforcement of quality standards and better communication will also help to reduce operational waste. An effective provision of public health and preventive services making them available to entire population according to their needs, within budgetary constraints is necessary. It is also important to develop linkages and coordination between medical and community health services by improving the interface between medical education and community services both in urban and rural areas. Besides, efforts should also be made to identify services that can be safely shifted from hospitals to lower level health care facilities.

International experiences show that the design of payment systems to health care providers and health facilities strongly influences how care is delivered. Inappropriate payment system may contribute to fraud and wastages in spending. Traditional fee-for-service system which reimburses physicians for each service provided, creates incentives for overutilization. This type of system provides incentives for health care providers to deliver care based on volume, not outcomes. The prospective payment system (PPS), which is designed to control costs by paying hospitals a prospective amount per diagnostic-related group (DRG) episode, is immune to waste. Providers should be rewarded for results achieved or outcomes rather than for number of interventions. Many countries such as the United States, Sweden, Netherland and Portugal have moved towards population based payment system, with some promising results (OECD, 2017).

Improving efficiency and reducing waste require health systems to generate the right data on their activities, health impact, and costing, among others to quantify and analyze the problem (Chalkidou & Appleby, 2017). The governments should support more researches on these lines to produce quality data and information

about what works in reducing waste and inefficiency in respective health systems, and under what institutional arrangements and regulatory frameworks. There should be a continued commitment by health care providers, patients, health administrators and other stakeholders to reduce waste and inefficiency in health care system.

VII. Conclusion

Waste and inefficiency manifests itself in health care systems and contributes to unnecessary financial burden. It is emerged from international experiences that a significant share of health budgets can be released and put to better use by eliminating activities that do not contribute to improving outcomes and avoiding them by replacing with cheaper alternatives. Developing countries should acknowledge the fact that waste and inefficiency occurs at every level of health systems, and accord priority to develop and implement systematic and effective strategies to mitigate these problems in their health systems. All stakeholders in health care system such as providers, patients, managers and regulators need to play a key role in reducing waste and inefficiency in health care system.

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