WHITE PAPER

WHERE CAN $700 BILLION IN WASTE BE CUT ANNUALLY FROM THE U.S. HEALTHCARE SYSTEM?

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INTRODUCTION

How America will pay for healthcare is a subject on the mind of virtually every American today. As Congress determines who will pick up the tab for this important and growing expense, it is worthwhile to take a close look at the cost of healthcare itself. Are there areas where expenses can be cut without undermining the quality of care provided? How prevalent are misuse, overuse, and fraud? This paper tackles the tangled issue of healthcare waste and arrives at some interesting, and perhaps even surprising, conclusions: America's healthcare system is, indeed, hemorrhaging billions of dollars, and the opportunities to slow the fiscal bleeding are substantial.

- "Estimates suggest that as much as $700 billion a year in healthcare costs do not improve health outcomes. They occur because we pay for more care rather than better care. We need to be moving towards a system in which doctors and hospitals have incentives to provide the care that makes you better, rather than the care that just results in more tests and more days in [the] hospital." — Peter Orszag, director of the White House Office of Management and Budget, May 2009 interview with NPR.

- Jack Wennberg of Dartmouth's Center for the Evaluative Clinical Sciences is often quoted as having said: " ... up to one-third of the over $2 trillion that we now spend annually on healthcare is squandered on unnecessary hospitalizations; unneeded and often redundant tests; unproven treatments; over-priced, cutting-edge drugs; devices no better than the less-expensive products they replaced; and end-of-life care that brings neither comfort care nor cure."[1]

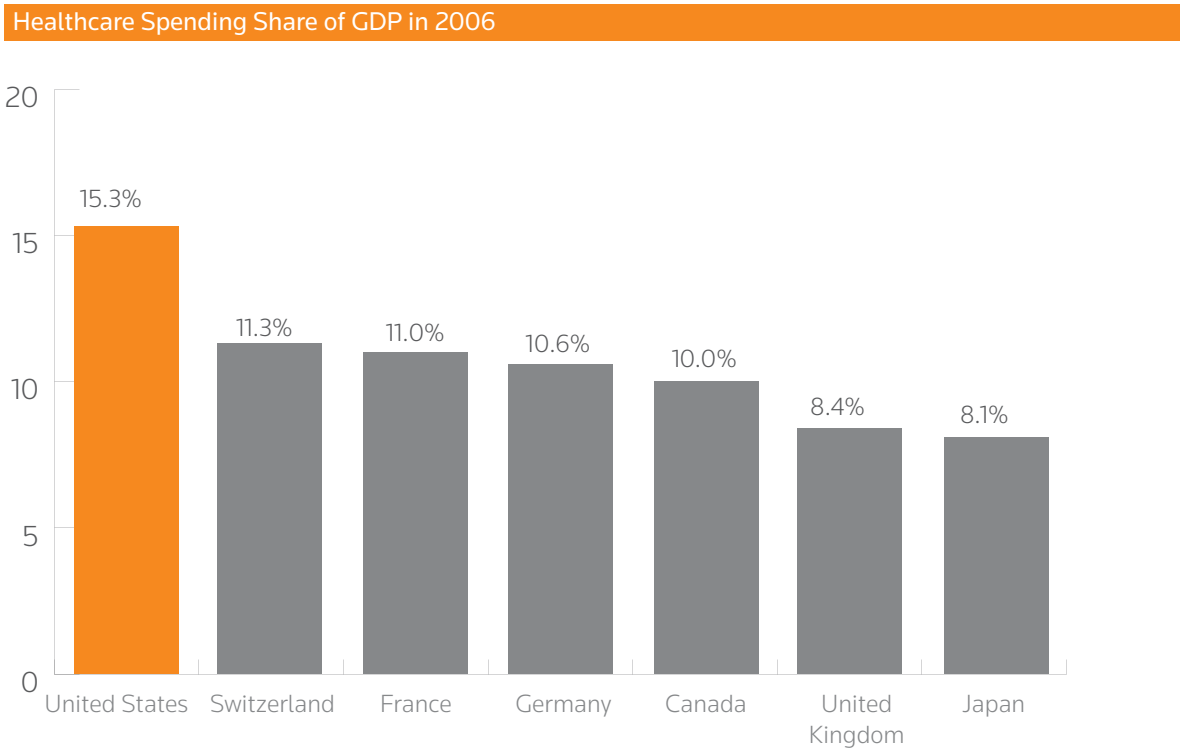
- The McKinsey Global Institute, in a 2006 study, compared United States (U.S.) healthcare costs to those of other peer Organization for Economic Cooperation and Development (OECD) countries and found that the U.S. spent nearly $650 billion more on healthcare.[11]

In this white paper, we present evidence that supports the reasonableness of these claims. This evidence has been gathered from published research studies, expert opinion, and findings from our own Thomson Reuters analyses of our large healthcare databases. We describe the types of waste that are recognized by most experts along with estimates of the magnitude of that waste. In most cases, each referenced research study focuses on a specific type or instance of waste. We suggest that differentiating and characterizing the types of waste facilitates the search for and the elimination of specific waste by healthcare providers and those organizations that are responsible for paying for these services. The efforts to measure waste are based on the premise that it may be premature to describe a highly efficient healthcare system, but the evidence for waste is abundant.

WHY IDENTIFY "WASTE" IN THE U.S. HEALTHCARE SYSTEM?

It is a common perception that healthcare costs in the United States are "too high." When compared to healthcare spending by other developed countries, it's easy to see what is driving this perception. The U.S. spends more per capita, and the highest percentage of GDP, on healthcare than any other OECD country as reported in the March 2009, "Trends in Healthcare Costs and Spending" by Kaiser Family Foundation:[3] They also reported that:

> "The United States devotes considerably more of its economy to healthcare than other developed countries."



Source: Kaiser Family Foundation, Trends in Healthcare Costs and Spending, March 2009.

The Foundation further reported, "(U.S.) healthcare spending has risen about 2.4 percentage points faster than GDP since 1970."

Not only does current spending on healthcare consume a high percentage of GDP, but the percentage is expected to continue rising. Continuing growth in government spending for healthcare is expected to lead to program costs, such as the cost to run Medicare, that exceed the nation's capacity to pay.

The government is not the only entity dealing with the high cost of healthcare. It costs U.S. employers substantially more to provide healthcare for employees, their families, and retirees than their foreign competitors. General Motors, for example, spent $5.2 billion in 2004 on healthcare. This is significantly more than they spent for steel and accounted for $1,525 of the price of each new car it produced.[4] To remain competitive, employers are passing a share of the burden to employees, making consumers also feel a direct impact of the increasing cost of healthcare — a trend that is expected to continue.

So, what is a reasonable cost for healthcare?

Unlike consumer markets for goods such as automobiles or personal electronics, where market supply and demand determine the "right" price, the complicated market for healthcare doesn't fit nicely within these natural market regulators. In addition to the unusual relationships in healthcare between consumers, payers, and providers, the ethical implications involved in healthcare decisions make it nearly impossible to define the "right" amount to spend on healthcare.

As the government, employers, and individual citizens debate what is an appropriate amount to spend on healthcare, there is much that can be done to reduce healthcare costs by eliminating waste and unnecessary expenditures caused by:

- Medical errors
- Fraud and abuse
- Payments for services with no evidence that they contribute to better health outcomes
- Inefficiencies in the production of healthcare goods and services, including the cost of excessive errors

The New England Healthcare Institute (NEHI) has defined waste in healthcare as "Healthcare spending that can be eliminated without reducing the quality of care."

HEALTHCARE WASTE DEFINED

Before undertaking a discussion of healthcare costs and the opportunities to control them better, it is important to understand a few terms in the context of the discussion:

- **Cost containment:** This term typically refers to efforts to control the high rate of increase in total costs or "bending the curve." Although most of the efforts are consistent with a goal of eliminating waste, a simple objective to cut or contain costs could result in constraining patient access to valuable services. It is this concern that leads some people to link cost containment with the more controversial term "rationing."

- **Rationing:** When the need for healthcare services exceeds a fixed level of available resources, decisions must be made on the relative merit of specific patient need. The result is that some patients will not receive some services. The concept of rationing raises significant concerns that a fixed level of resources will be arbitrarily determined at a level well below what is truly needed for high quality, accessible healthcare. A more extreme concern is that determinations of relative need will be made based on specific patient characteristics, such as age.

- **Misuse, Overuse, and Underuse:** These terms refer to patterns of medical practice and services use that directly or indirectly add to healthcare costs. The cost of a service used inappropriately (misuse) and use of a service where, though appropriate in some situations is not expected to provide value for a specific patient (overuse), add both direct costs and potential costs associated with a complication of the procedure. The failure to diagnose a condition in an early stage or to prevent an existing condition from becoming more severe or developing complications can result from a failure to provide preventive and maintenance care (underuse). In this case, providing the services would add to the short-term costs but could prevent the significant long-term costs of treating a more severe condition. Underuse has been observed in underserved areas where lack of access to care results in unnecessary complications or poor outcomes.

- **Unwarranted or unexplained variation in care:** This term refers to the observed variation across geographic regions in the use of specific procedures that result in no discernible differences in health outcomes. Although it is not possible to determine an appropriate rate for these procedures, it is inferred that because the evidence on the actual effectiveness of these procedures is ambiguous, those regions with high use rates are "over-utilizing" the procedure and adding unnecessary costs.

- **Fraud and abuse:** A situation in which healthcare is paid for, but not provided, or a situation in which reimbursement claims are made to third party insurance companies or federal programs such as Medicare or Medicaid, and no such services were rendered. Fraud and abuse are also defined as healthcare providers receiving kickbacks, patients seeking treatments that are potentially harmful to them (such as seeking drugs to satisfy addictions), and the prescription of services known to be unnecessary.

The definition we use for this paper is from The New England Healthcare Institute (NEHI) which has defined waste in healthcare as **"Healthcare spending that can be eliminated without reducing the quality of care."**[5] It is important to note that most of the waste not only represents an unnecessary cost, but can also result in an increased risk of physical suffering or harm (e.g., unnecessary surgical procedure, with risk of complications or death).

This definition includes waste defined as misuse, overuse, and underuse and waste resulting from unwarranted variation. Waste defined in this way provides a target for cost containment efforts but does not involve any level of rationing, since it only addresses services that are not considered necessary for quality patient care and do not contribute to overall outcomes of care.

Therefore, an expenditure classified as waste according to this definition does not contribute to:
- The quality of healthcare services
- The outcomes of care
- The health status of the population

HOW MUCH WASTE IS THERE IN HEALTHCARE?

To organize the evidence supporting claims for the magnitude of waste in the healthcare system, we first suggest a set of categories of waste. For each category, there is a simple definition, a brief description of the examples, and references that allow us to make a reasonable assessment of total annual waste for each category. Category results are then aggregated to estimate a reasonable range for total annual healthcare system waste.

CATEGORIES OF HEALTHCARE WASTE

Bentley, et al[17] discuss three types of waste: administrative, operational, and clinical. They also consider specific examples of waste in each category and the estimated value of that waste. Based on our own research, in addition to a review of other published literature, we feel it is more useful to review waste in six categories.

For each of our categories of waste — Administrative System Inefficiencies, Provider Inefficiency and Errors, Lack of Care Coordination, Unwarranted Use, Preventable Conditions and Avoidable Care, and Fraud and Abuse — we reviewed findings from our own analyses of our proprietary healthcare databases, and synthesized the results of recent published studies and expert opinion. The result is an estimated range for the total value of possible waste in that category. An understanding of the general magnitude of the various types of waste should help to prioritize and focus efforts to improve system efficiency.

We would like to acknowledge the work of the New England Healthcare Institute, presented in "Waste and Efficiency in the U.S. Healthcare System"[5] as providing valuable insight on several of the categories. Citations for all quoted references, including this document, are included in the references.

ADMINISTRATIVE SYSTEM INEFFICIENCIES
Reasonable Range For Annual Waste: $100–$150 Billion

All organizations, across all industries, have inefficient administrative processes. However, in healthcare, the serious fragmentation of providers, the large number of payers, and resulting disparate systems and procedures significantly add to provider and payer administrative costs. Healthcare providers must deal with dozens of health and benefit plans to bill successfully for services rendered. Health plans must support systems for underwriting, claims administration, provider network contracting, and broker network management. According to a position paper by the Medical Group Management Association, "Simplifying our healthcare system's administration could reduce annual healthcare costs by almost $300 billion."[2]

Evidence supporting the existence of administrative system inefficiencies is extensive:

- "The average U.S. hospital spends one-quarter of its budget on billing and administration, nearly twice the average in Canada. American physicians spend nearly eight hours per week on paperwork and employ 1.66 clerical workers per doctor, far more than in Canada."[7]

- "In 1999, health administration costs totaled at least $294.3 billion in the United States, or $1,059 per capita, as compared with $307 per capita in Canada. After exclusions, administration accounted for 31 percent of healthcare expenditures in the United States and 16.7 percent of healthcare expenditures in Canada."[7]
  Note: A reduction from 31 to 25 percent would save **$126 billion** annually.

- "This issue brief examines the sources of administrative costs and describes how a private-public approach to healthcare reform — with the central feature of a national insurance exchange (largely replacing the present individual and small-group markets) — could substantially lower such costs. In three variations on that approach, estimated administrative costs would fall from 12.7 percent of claims to an average of 9.4 percent. Savings — as much as **$265 billion over 2010–2020** — would be realized through less marketing and underwriting, reduced costs of claims administration, less time spent negotiating provider payment rates, and fewer or standardized commissions to insurance brokers."[8]

- The PricewaterhouseCoopers' Health Research Institute estimated operation waste to be **$126 to $315 billion** per year, with waste in the claims processing alone at $21 to $210 billion.[9]

- "When time is converted to dollars, we estimate that the national time cost to practices of interactions with plans is at least **$23 billion to $31 billion** each year."[10]

- "Health administration costs represent **$91 billion**, or 14 percent of total spending above expected, due partly to the system structure, but also on account of inefficiencies and redundancies that exist within the system."[11]

PROVIDER INEFFICIENCY AND ERRORS
Reasonable Range for Annual Waste: $75–$100 Billion

Inefficiencies in the care delivery processes of individual providers result in significant waste. Many provider process inefficiencies are similar to those experienced in other types of organizations, such as resource scheduling; appropriate mix of general lower-cost and specialized higher-cost resources; facility or equipment utilization or throughput; and timing and coordination of multiple procedures for a single patient to minimize downtime. Documented examples of these types of inefficiencies include:

- Inefficient use of professional staff extenders such as nurse practitioners and physician assistants
- Inefficient use of facilities and equipment, such as low utilization of expensive imaging equipment and inefficient scheduling of operating rooms and teams
- Unnecessary one-day hospital admissions (e.g., for observation or routine testing) and extended stays
- Over-utilization of testing (e.g., lab, imaging) for hospitalized patients
- Over-utilization of intensive care units

A September 2009 Thomson Reuters Research Brief reports, "There are enormous differences between the benchmark and the worst hospitals on operational efficiency measures."[12] The report compares hospitals on measures of both operational efficiency and clinical quality and concludes that achieving benchmark operational performance does not threaten clinical quality. Efforts to improve operational efficiency involve improving processes, not merely cost cutting. The report offers that "Efficiently designed workflow, hand-offs, and other procedures can enhance operations while simultaneously improving clinical quality."

A special type of provider inefficiency is avoidable errors. Most organizations recognize avoidable errors as waste and attempt to minimize them. In healthcare, the impact of errors goes far beyond financial implications, with errors resulting in complications, readmissions, additional painful procedures, disability — or even death. For this reason, the convincing evidence for unacceptably high rates of error presented in the literature is a major concern. In addition to recognizing the human costs of these errors, the literature also attempts to describe and estimate the financial cost of related excess medical services. Several types of documented costs include:

- Extended hospital stay to treat avoidable complications or procedure-related injuries
- Readmission to the hospital shortly following discharge to respond to an avoidable escalation of a condition or complication
- Acute care required to treat a complication resulting from errors made during an outpatient procedure
- Treatment for adverse drug effects, including drug-drug interactions and avoidable reactions

Considerable evidence supports the extent of waste from provider inefficiency and errors in healthcare, including the following:

- Thomson Reuters has completed two studies estimating the potential savings from improvement in hospital operating efficiency. Both studies compared national hospital performance to a set of high performing hospital benchmarks available in our ACTION O-I® and 100 Top Hospitals® data.
  - In the first study, if all hospitals experienced the lower rate of expense inflation experienced by the **Thomson Reuters 100 Top Hospitals**, national hospital operating expenses would be reduced by **$32 billion** per year after three years.
  - In the second study, if all hospitals reduced their average cost to the average cost of the most efficient 10 percent of hospitals, operating expenses would be reduced by **$73 billion** per year.

  These two studies provide a consistent estimate of the magnitude of this waste due to operational inefficiency.
- An analysis of the cost associated with 20 adverse safety events in the Thomson Reuters Projected Inpatient Database (PIDB) suggests that the total national cost for these events is $5.4 billion.

- "The implementation of a laboratory tests and chest radiographs prescription protocol within our ICU induced an important cost saving."
  - "...reduction of routine laboratory tests performance was observed per patient-ICU-day, ranging from 38 to 71.5 percent depending on the type of test."
  - "For chest radiographs, a 41 percent relative reduction was observed..."[8]

- All the following quotations taken from "Waste and Inefficiency in the U.S. Healthcare System, Clinical Care: A Comprehensive Analysis in Support of System-wide Improvements," New England Healthcare Institute, February 2008:[9]
  - "Taken together, avoidable adverse treatment events and hospital acquired infections conservatively result in a minimum of **$52.2 billion** that are wasted each year, not to mention the human toll of these avoidable events."
  - "Adverse treatment events are well documented sources of waste. Studies from Harvard Medical School suggest that adverse events conservatively account for 5 percent of total healthcare spending, or **$100 billion** per year (2006 dollars), and that **almost half of all adverse events (46.5 percent) are avoidable.**"
  - "Between five and ten percent of all patients admitted to acute care hospitals acquire one or more infections, resulting in an estimated 90,000 deaths each year and annual waste totaling an estimated **$4.5 to $5.7 billion per year**."
  - "In 2004, hospitals in Pennsylvania reported 11,668 hospital acquired infections; of these, 15.4 percent of the patients who acquired the infection died. The direct medical cost associated with those infections in Pennsylvania was **$2 billion**."

- "Beyond their cost in human lives, preventable medical errors exact other significant tolls. They have been estimated to result in total costs (including the expense of additional care necessitated by the errors, lost income, and household productivity, and disability) of between **$17 billion and $29 billion** per year in hospitals nationwide."[10]

- "One study found that each preventable ADE that took place in a hospital added about $8,750 to the cost of the hospital stay. Assuming 400,000 of these events each year — a conservative estimate — the total annual cost would be **$3.5 billion** in this one group."[11]
- "Potentially inappropriate medication (PIM) utilization is a significant predictor for higher healthcare expenditures. A conservative estimate of the incremental healthcare expenditures related to PIM use in the community-dwelling elderly population would be **$7.2 billion** in the United States in 2001."[12]
- "For example, medical errors — which can indicate inefficient processes — are estimated to cost between **$17 billion and $29 billion** annually in the United States..."[52]

LACK OF CARE COORDINATION
Reasonable Range for Annual Waste: $25–$50 Billion

When care providers do not coordinate the services they provide, several types of inefficiencies occur that are both costly and potentially harmful to patients. For instance, it is waste when caregivers duplicate tests because results recorded in a patient's record with one provider are not available to another or when medical staff provides inappropriate treatment because relevant history of previous treatment cannot be accessed. It is also wasteful when patients are forced to use the emergency room for non-emergent conditions because primary care services are unavailable. Just as unnecessary is ordering avoidable hospitalizations for nursing home patients. Finally, both wasteful and potentially dangerous are adverse drug reactions that occur when a record of a patient's current medications is unavailable.

How prevalent is lack of care coordination? The evidence reveals extensive waste:

- Roughly 530,000 medication errors occur among Medicare recipients in outpatient clinics. ... >500k preventable ADE injuries and deaths in outpatient/year."[13]
- "Our estimates suggest that eliminating avoidable ED [Emergency Department] use could save at least **$21.4 billion** per year on a national basis; it could also free up emergency departments to take care of true emergencies..."[9]
- Cost for "avoidable hospitalizations of nursing-home patients" is **$7.5 billion** annually.[52]

UNWARRANTED USE
Reasonable Range For Annual Waste: $250–$325 Billion

Nearly all experts agree that a significant amount of direct care provides no or only marginal value to either the diagnosis of a patient's condition or effective treatment of a diagnosed condition. Such costs are unnecessary to high quality, effective clinical care. Dartmouth's Center for the Evaluative Clinical Sciences defines two specific categories of unnecessary care: "preference-sensitive" care and "supply-sensitive" care. The prevalence and magnitude of each of these categories of unnecessary care is demonstrated by measuring the significant variation in the use of specific procedures with Medicare patients in different geographic regions and hospital areas. The differences in use are not explained by differences in the demographics or risk profiles of the populations served and do not result in any measurable differences in clinical outcomes.[19] Other investigators attempt to measure the impact of excessive exposure to medical liability claims as a cause of overuse of services. This practice is referred to as "defensive medicine."

Examples of this unwarranted use of services include:

- Diagnostic lab or imaging tests performed to protect against malpractice exposure
- A surgical procedure with a patient-preferred medical treatment alternative (Dartmouth's "preference-sensitive care")
- A high-cost diagnostic procedure used for patients at low risk for the condition
- A diagnostic test with no expected impact on the course of treatment
- The inappropriate use of an antibiotic for an upper respiratory viral infection
- Intensive non-palliative end-of-life treatment (Dartmouth's "supply-sensitive care")
- Brand name drug prescribed when generic or therapeutic alternatives are available
- Failure to follow conservative treatment protocol or follow a recommended course of successive treatment escalation

The Thomson Reuters MarketScan Database provides significant evidence in this category of healthcare waste.

The Thomson Reuters 2008 MarketScan commercial database includes claims data for almost 18 million people. The data is particularly representative of the healthcare experiences of employees of the largest U.S. employers. Thomson Reuters calculated the costs of providing 12 surgical procedures that are frequently included in lists of potentially overused procedures including: coronary artery bypass graft , percutaneous coronary intervention, hip and knee replacement, Cesarean section, hysterectomy, transurethral resection of the prostate, disk surgery and spinal fusion, and implantable defibrillators. We then applied this result to estimate the cost for these procedures for the entire commercially insured population. Using this approach, we estimate that approximately $30 billion is spent annually by commercial health plans for these procedures. If even a third of these procedures is unnecessary, this would suggest waste of **$10 billion**.

A similar analysis of several classes of potentially over-used prescription drugs suggested a total U.S. cost of $13 billion, a third of which would indicate waste of over **$4 billion**.

The evidence of waste from unwarranted use of healthcare services comes from a number of sources:

- "...costs of variation between high and low utilizing regions approaches 30 percent of total healthcare spending."[9]

- "More than 95 million high-tech scans are done each year, and medical imaging, including CT, MRI, and PET scans, has ballooned into a $100 billion a year industry in the United States, with Medicare paying for $14 billion of that. But recent studies show that as many as 20 percent to 50 percent of the procedures should never have been done because their results did not help diagnose ailments or treat patients."[15]

- "A total of 824 physicians (65 percent) completed the survey. Nearly all (93 percent) reported practicing defensive medicine. 'Assurance behavior' such as ordering tests, performing diagnostic procedures, and referring patients for consultation, was very common (92 percent). Among practitioners of defensive medicine who detailed their most recent defensive act, 43 percent reported using imaging technology in clinically unnecessary circumstances."[16]

- "Our analysis of peer-reviewed literature showed that there is strong evidence that most of the antibiotics prescribed for the treatment of these infections (ear infections, sore throat, upper respiratory infections) are unnecessary, as these common infections are largely due to viruses that are not susceptible to antibiotics. The data suggests that up to 55 percent of antibiotic prescriptions are medically unnecessary and could be avoided, resulting in annual savings of **$1.1 billion.**"[5]

- "Taken together, their reports (Dartmouth Medical School) regarding variation in the intensity of a broad range of clinical services lead us to believe that the cost of potentially avoidable clinical care approximates 30 percent of total healthcare spending. If this estimate is correct, **$600 billion** (2006 dollars) could be saved each year by understanding and preventing unexplained variations in care patterns." [9]

- "According to a recent study by the McKinsey Global Institute, diagnostic imaging from computed tomography (CT) and magnetic resonance imaging (MRI) scans contribute **$26.5 billion** in unnecessary use of health services."[55]

- "Many hypertensive patients could be treated with inexpensive generic medications, such as diuretics and first generation beta-blockers, rather than more expensive branded antihypertensives that are typically prescribed." Our analyses of the evidence suggest that at least **$3 billion** could be saved each year by simply making less expensive but equally effective and safe medication choices."[9]

- "Laboratory tests and procedures not recommended (D ranking) included urinalysis (UAs); interventions not recommended included electrocardiograms (EKGs) and X-rays. RESULTS: The frequency of ordering any of the three diagnostic interventions ranged from 5 percent to 37 percent, and at least one of the interventions was ordered 43 percent of the time. Annual direct costs for the three interventions range from **$47 million to $194 million**."[17]

- "A 2005 survey in the ***Journal of the American Medical Association*** related that 93 percent of high-risk specialists in Pennsylvania admitted to the practice, and 83 percent of Massachusetts physicians did the same in a 2008 survey. The same Massachusetts survey showed that 25 percent of all imaging tests were ordered for defensive purposes, and 28 percent and 38 percent, respectively, of those surveyed admitted reducing the number of high-risk patients they saw and limiting the number of high-risk procedures or services they performed. Defensive medicine is notoriously hard to quantify, but some estimates place the annual cost at **$100 billion to $200 billion** or more."[18]

- "They found that liability reforms could reduce defensive medicine practices, leading to a 5 percent to 9 percent reduction in medical expenditures without any effect on mortality or medical complications. If the Kessler and McClellan estimates were applied to total U.S. healthcare spending in 2005, the defensive medicine costs would total between **$100 billion and $178 billion** per year."[19]

- "Estimates from these models suggest that laws limiting malpractice payments lower state healthcare expenditures by between **3 percent and 4 percent**."[20]

- "Our recent study of the 226 largest California hospitals (those with sufficient numbers of patients to allow accurate measurement of resource use) showed that Medicare spending per patient in the last two years of life ranged from $24,722 to $106,254. The potential savings are enormous. For example, over the five-year period of this study (1999-2003), Medicare could have saved **$1.7 billion in the Los Angeles market** alone if care patterns in Los Angeles mirrored those of Sacramento."[21]

PREVENTABLE CONDITIONS AND AVOIDABLE CARE
Reasonable Range For Annual Waste: $25–$50 Billion

Timely access to quality outpatient care can prevent the need for hospitalization or other acute care (e.g., emergency room care). In an effort to reduce waste in this area, the Agency for Healthcare Research and Quality (AHRQ) has defined a set of measures of preventable utilization based on identifying "Ambulatory Care Sensitive Conditions" (ACSC).[28] This guideline is a good place to begin an exploration of preventable conditions and avoidable care aimed at reducing waste.

How widespread is waste from preventable conditions and avoidable care? The evidence reveals some interesting statistics:

- "For example, research shows that 7.2 hospital admissions per every 10,000 people aged 18 to 64 in the United States are for uncontrolled diabetes. A goal of Healthy People 2010, the Department of Health and Human Services' (HHS) roadmap for improving Americans' health, is to reduce hospitalization rates for uncontrolled diabetes for persons in this age bracket to 5.4 per 10,000 people, which health experts agree can be accomplished by improving the quality of outpatient diabetes care and access to such services."[22]
- "The number of hospitalizations for potentially avoidable conditions increased from 3.1 million in 1990 to 3.6 million in 1997. This was 13 percent of all hospitalizations in 1990 (excluding women with deliveries, newborn infants, and psychiatric admissions), but 15 percent in 1997."[23]
- "Total national costs associated with potentially avoidable hospitalizations, 2005 value of $**29.6 billion**."[24]
- "In 2006, hospital costs for potential preventable conditions totaled nearly **$30.8 billion** — one in every 10 dollars of total hospital expenditure. One in five (18 percent) Medicare admissions was for a potentially preventable condition."[25]
- "An average hospital stay costs $5,300 per admission, and even a five percent decrease in hospitalizations for ACSCs would save more than **$1.3 billion** in annual inpatient costs."[26]
- "For example, if the number of preventable hospitalizations for the conditions studied were to decrease by just 10 percent, the savings in hospital charges would be more than **$280 million**."[27]
- "...inappropriate management of hypertension contributes substantially to healthcare resource utilization and associated costs in the United States. The overall prevalence of hypertension was estimated at 19.7 percent, with 36 percent of identified patients treated inappropriately. The per-person cost for inappropriate treatment was $234.60, and the total national cost was approximately **$13 billion**."[28]

- "Regular use of inhaled steroids would reduce hospitalizations by 25 percent and could avoid direct medical costs totaling **$2.5 billion** each year."[9]
- "An estimated **$9.5 billion** in charges incurred in rural hospitals nationwide in 2002 was found to be associated with hospitalizations due to ACSCs. Our findings suggest that the smaller a rural hospital, the greater the portion of its financial resources used to treat patients with ACSC."[29]
- "The proportion of AHCs assessed as **avoidable varies from 13 percent to 46 percent**, depending on the source. Adolescents, children with asthma, children from working-poor families, and uninsured children are at greatest risk for avoidable hospitalizations. Many pediatric hospitalizations might be avoided if parents and children were better educated about the child's condition, medications, the need for follow-up care, and the importance of avoiding known disease triggers."[30]
- "The economic burden associated with avoidable hospitalizations due to dehydration in elderly patients was substantial. In 1999, the potential national saving from avoidable hospitalizations in these patients could have been as much as **$1.14 billion**."[31]
- "...we found that inflation-adjusted spending on nursing home hospitalizations increased 29 percent from 1999 through 2004. By 2004, aggregate spending totaled roughly **$972 million**, of which 23 percent was attributable to ambulatory care-sensitive conditions."[32]
- "Efforts to reduce the number of Medicare beneficiaries who experience a preventable hospitalization may be cost-effective as these beneficiaries may account for up to **17.4 percent of Medicare's reimbursement** for inpatient, outpatient, and physician services in our data set."[33]
- "The total estimated cost of diabetes in 2007 is $174 billion, including $116 billion in excess medical expenditures and $58 billion in reduced national productivity. Medical costs attributed to diabetes include $27 billion for care to directly treat diabetes, $58 billion to treat the portion of diabetes-related chronic complications that are attributed to diabetes, and **$31 billon** in excess general medical costs."[34]
- "...total estimated nationwide costs for 2004 short-term complications and uncontrolled diabetes hospitalizations totaled over **$1.3 billion**."[35]

Timely access to quality outpatient care can prevent the need for hospitalization or other acute care.

FRAUD AND ABUSE
Reasonable Range for Annual Waste: $125–$175 Billion

"The Federal Bureau of Investigation (FBI) estimates that fraudulent billings to public and private healthcare programs are 3-10 percent of total health spending, or $75–$250 billion in fiscal year 2009."[43] "Fraud and abuse" occupies the extreme end of the continuum of appropriateness of use and potential waste. While arguments can be made about the appropriateness of some of the care described in the previous section, and, therefore, its classification as waste, no reasonable argument can be made for the contribution of fraud and abuse to quality of care or outcomes. They are cases of intentional misrepresentation resulting in excess payment, including billing for services never rendered and the knowing provision of unnecessary care. Most fraudulent and abusive practices simply add cost with no value, but others actually expose patients to the risk associated with unnecessary procedures.
Practices leading to waste include:

- The intentional provision of unnecessary or inappropriate services
- Billing for services never provided, often with patients' participation in the fraud, often for deceased patients
- Misrepresentation of the cost of care by insurers to group plan sponsors
- Kickbacks for referrals for unnecessary services
- Misbranding of a drug by a pharmaceutical company
- Abuse of the healthcare system by patients to receive harmful services, such as Medicaid recipients with drug addictions enrolling in multiple states

Most fraudulent and abusive practices simply add cost with no value, but others actually expose patients to the risk associated with unnecessary procedures.

Evidence of fraud and abuse reveals an area where waste could definitely be reduced, saving money and ultimately providing better care and service to patients:

- "...in 2007, when the U.S. spent nearly $2.3 trillion on healthcare and both public and private insurers processed more than 4 billion health insurance claims, fraud was estimated to reach as much as 10 percent of annual healthcare spending. With this rate, the losses in 2007 would have been more than **$220 billion** — or enough to cover the uninsured — if estimates from government and law enforcement are used."[36]

- "The National Healthcare Anti-Fraud Association, an organization of about 100 private insurers and public agencies, estimates that some **$60 billion** (about 3 percent of total annual healthcare spending) is lost to fraud every year, but that figure is considered conservative. In 2008, government-wide "improper payments" cost the U.S. Treasury **$72 billion**, or about 4 percent, of total outlays for the related programs."[37]

SHOULD THESE BE CONSIDERED WASTE?

Although representing significant costs, two categories of potential excess healthcare expense have been treated differently in most discussions about healthcare system waste. Both are often considered as opportunities to reduce healthcare spending without having a negative impact on our population's health. Neither, however, represents an opportunity immediately to reduce costs by either applying resources more efficiently or discontinuing unnecessary services and payments. Both have significant cultural characteristics or precedents.

First, the literature reports extensive evidence that several behaviors, common in the population, add significant cost to healthcare. These include alcoholism, substance abuse, use of tobacco, and lack of exercise and overeating, with resulting obesity.

Second, for many years, economists have suggested that the most significant difference in expenditures on healthcare between the U.S. and other developed countries is the relatively high price of services in the U.S. . Some even argue that use of services is actually lower in the U.S. and price alone is the cause.

INCREASED DISEASE DUE TO MODIFIABLE BEHAVIORS

It seems reasonable to consider the costs of treating a preventable condition as waste. Experts agree that many conditions could be avoided by engaging in a healthier lifestyle. However, most estimates of healthcare system waste do not include this category, since the impact of these behaviors is considered outside of the direct control and responsibility of the healthcare system. The literature does demonstrate the higher lifetime costs of healthcare for persons who maintain unhealthy lifestyles. Many health plans and plan sponsors have recognized the opportunity to reduce their costs, both in medical care and in employment-related costs such as absenteeism and disability, by encouraging and supporting member lifestyle changes.

It is difficult to treat such costs separately from expenses described in the other categories, since simply reducing the prevalence of these conditions would eliminate much of that waste. For example, the existing waste in treating coronary artery disease (e.g., inefficient providers, unnecessary procedures, avoidable complications) would be reduced simply by reducing the incidence of the condition through better lifestyle.

If this paper were identifying and quantifying opportunities to reduce healthcare system costs rather than the level of system waste in treating existing health conditions, this cost would be included in the estimate. However, we will satisfy ourselves here by simply identifying this as a significant opportunity for reducing costs by reducing the real need for healthcare. Though this area of waste is not included among our six categories, it presents an opportunity for annual **avoidable costs of between $150-$200 billion.**

Increased disease due to modifiable behaviors take a toll on health in the United States. The evidence confirms the high cost of poor choices:

- Obesity and Physical Inactivity

  "We estimate that permanent 100-kcal reductions in daily intake would eliminate approximately 71.2 million cases of overweight/obesity and save $58 billion annually. Modest to aggressive changes in diet can improve health and reduce annual national medical expenditures by **$60 billion to $120 billion**."[38]

  "We found that the increased prevalence of obesity is responsible for almost $40 billion of increased medical spending through 2006, including **$7 billion** in Medicare prescription drug costs. We estimate that the medical costs of obesity could have risen to **$147 billion per year by 2008**."[39]

  "Physical inactivity, overweight, and obesity were associated with 23 percent (95-percent confidence interval [CI], 10 percent–34 percent) of health plan healthcare charges and **27 percent** (95–percent CI, 10 percent–37 percent) of national healthcare charges."[43]

  The direct costs of lack of physical activity, defined conservatively as absence of leisure-time physical activity, are approximately 24 billion dollars or 2.4 percent of the U.S. healthcare expenditures. Direct costs for obesity defined as body mass index greater than 30, in 1995 dollars, total **70 billion dollars**. These costs are independent of those resulting from lack of activity."[45]

  "The total medical expenditure of persons with cardiovascular disease was U.S. 41.3 billion dollars, of which U.S. **5.4 billion dollars** (13.1 percent) was associated with inactivity."[46]

- Smoking

  "Smoking costs the nation $150 billion each year in health costs and lost productivity. Economic costs during the same period were $81.9 billion in productivity losses from deaths (average for 1995–1999) and **$75.5 billion** in excess medical expenditures in 1998, for a total of more than $150 billion, according to the report. The reported medical and productivity losses were larger than previous estimates of $53 billion and $43 billion, respectively."[40]

  "The smoking-attributable fraction for all states was 11 percent (95-percent confidence interval, 0.4 percent–17 percent). Medicaid smoking-attributable expenditures ranged from $40 million (Wyoming) to $3.3 billion (New York) in 2004 and totaled **$22 billion** nationwide."[41]

- Alcohol Consumption
  "Alcohol consumption in California led to an estimated 9,439 deaths and 921,929 alcohol-related problems, such as crime and injury, in 2005. The economic cost of these problems is estimated at between $35.4 billion and $42.2 billion. Our main estimate is $38.5 billion, of which **$5.4 billion** was for medical and mental health spending, $25.3 billion in work losses, and $7.8 billion in criminal justice spending, property damage, and public program costs."[42]

- Lack of Excercise
  "Nearly 12 percent of depression and anxiety and 31 percent of colon cancer, heart disease, osteoporosis, and stroke cases were attributable to physical inactivity. Heart disease was the most expensive outcome of physical inactivity within the health plan population (1.5 million health plan members), costing U.S. dollar 35.3 million in 2000. Total health plan expenditures attributable to physical inactivity were U.S. dollar **83.6 million**, or U.S. dollar 56 per member."[44]

HIGH PRICE OF MEDICAL SERVICES

Many experts believe one of the primary reasons healthcare costs more in the U.S. than in other countries is that medical services are simply priced higher in the U.S. They argue that the public's lack of market power — the ability to drive price based on supply and demand, as with most other products and services — is the cause of high prices in physician services, hospital services, and prescription drugs.

Many experts compare the inflated prices for specialist-performed procedures to the undervalued cognitive services of primary care physicians and suggest that not only do these prices add cost, but they encourage overuse of these services as described in a previous waste category.

Some of the high prices may be due to system inefficiencies discussed in a previous category (e.g., hospital operational inefficiencies, administrative inefficiencies). Many experts focus on the high prices of prescription drugs in the U.S. compared to other countries. Some counter that higher prices encourage and fund important research and development of new, valuable drugs. Others, however, claim that much development simply results in new "me too" brand-name drugs that add little clinical advantage over existing drugs, but increase pharmaceutical profits through aggressive marketing to physicians and the public.

A **Thomson Reuters study** of the effects of competition on hospital prices, published by the Healthcare Financial Management Association, found that hospital services show wide ranges in price within a specific geography. "It is not unusual for the variation in hospital prices to reach 100 percent or more. For example, the prices of brain MRIs in Atlanta vary 107 percent around a median of $1,856. If gasoline prices showed a similar amount of variation, prices would range from $2 to $5 when the median is at $3 per gallon!".[54]

Using the **Thomson Reuters MarketScan** database, a simple comparison across geographic regions of the difference in average price for the same service between hospital outpatient departments and freestanding facilities suggests that the hospital price advantage increases with a rise in the market dominance of hospitals. This finding may be an example of the lack of effective price competition resulting from structural characteristics of healthcare markets.

The following evidence indicates that medical services and pharmaceuticals are overpriced in the United States

- "The ratio of the average income of U.S. physicians to average employee compensation for the United States as a whole was about 5.5. Germany's was the next highest, at only 3.4; Canada, 3.2; Australia, 2.2; Switzerland, 2.1; France, 1.9; Sweden, 1.5; and the United Kingdom, 1.4."[47]

- "The data show that the United States spends more on healthcare than any other country. However, on most measures of health services use, the United States is below the OECD median. These facts suggest that the difference in spending is caused mostly by higher prices for healthcare goods and services in the United States."[48]

- "The researchers estimated that Americans paid 40 percent more per capita than Germans did but received 15 percent fewer real healthcare resources. A similar comparison revealed that the U.S. system used about 30 percent more inputs per capita than was used in the British system and spent about 75 percent more per capita on higher prices."[48]

- "...Fuchs and Hahn found that "U.S. fees for procedures are more than three times as high as Canadian fees [and] the difference in fees for evaluation and management services is about 80 percent."[48]

- "By these most comprehensive indexes, Japan's drug prices are highest, followed by U.S. prices. Canada's prices are lowest: 33 percent lower than U.S. prices net of discounts, and 40 percent lower ignoring discounts. Prices in Germany, Italy, and the United Kingdom are less than 15 percent lower than U.S. prices, net of discounts, whereas prices in France are 30 percent lower."[49]

CONCLUSIONS

Our objective was to combine Thomson Reuters research with evidence from published research and expert opinion to support a meaningful and credible estimate for the amount of waste in the healthcare system. We feel that an estimate of **$700 billion** is well supported by the available facts and research. The first step was to break down total waste into independent component categories. These categories can be clearly described and differentiated, and research and other evidence provide a reasonable range of related waste. The level or precision needs only be sufficient to support the purpose of testing the reasonableness of the total estimated figure. Therefore, reasonable ranges can be relatively large. We have assumed that the categories are independent and have, therefore, simply added the components to calculate the reasonable range for total waste. This assumption is appropriate to the level of precision required by the objective.

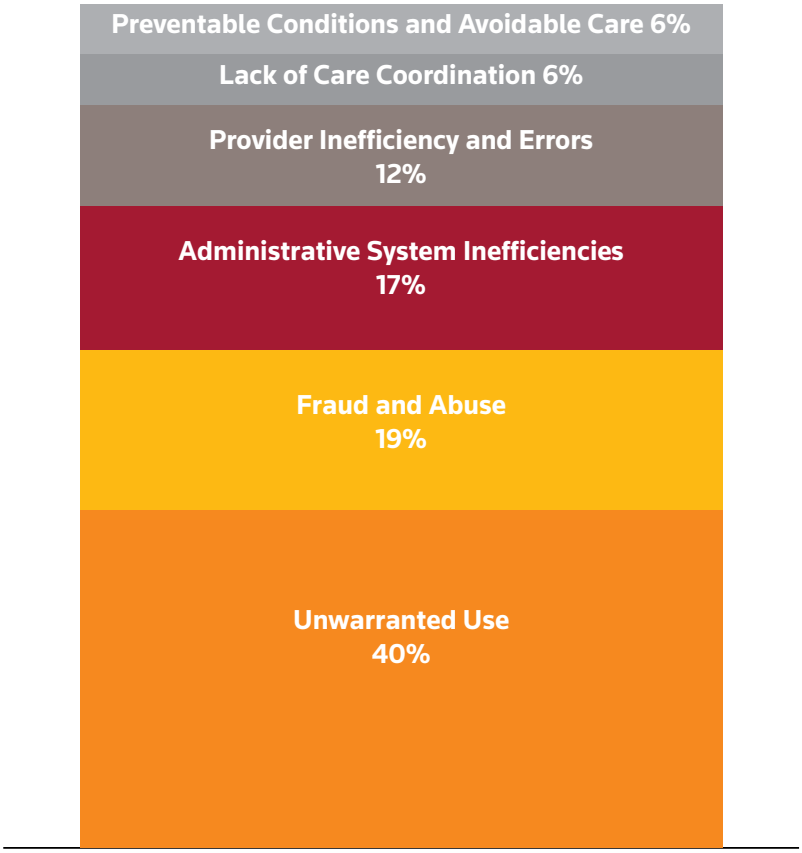
Component Ranges

The six component ranges (in billions of dollars) included in the total are:

1. Administrative System Inefficiencies	$100-150
2. Provider Inefficiency and Errors	$75-100
3. Lack of Care Coordination	$25-50
4. Unwarranted Use	$250-325
5. Preventable Conditions and Avoidable Care	$25-50
6. Fraud and Abuse	$125-175

The resulting reasonable range for total healthcare system waste is **$600-$850 billion annually**. Therefore, we conclude that designating an estimated $700 billion or one-third of annual healthcare expenditures as waste is reasonable and maybe even conservative.

Percentage of Healthcare Waste by Category Totaling $700 Billion



We recognize that the figure of $700 billion has often been quoted without specific reference to the types of waste included. For example, some have probably not intended to include waste from administrative system inefficiencies, and others have not intended to include fraud and abuse. Some have only intended waste to include unwarranted use, avoidable care and medical errors in their estimates of waste.

Our consideration of the evidence suggests that, regardless of the components included in a definition of waste, the total cost of waste is indeed a very large figure. It is certainly large enough to merit a significant investment in an ongoing effort to search for specific waste, to design and implement programs to reduce waste, and to evaluate and report on the success of these programs. At 40%, unwarranted use represents the largest share of waste, but opportunities exist to reduce waste in each category. It is even possible that some strategies to reduce waste could succeed in reductions in more than one category.

It is also important to note that, although not included in our estimate of a total range, the waste associated with treating a level of disease prevalence that could be significantly reduced through modified individual behavior, is significant. Although the responsibility for pursuing a healthier lifestyle is ultimately a personal one, the healthcare system has an opportunity to encourage better individual choices.

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