International Comparisons of Administrative Costs in Health Care

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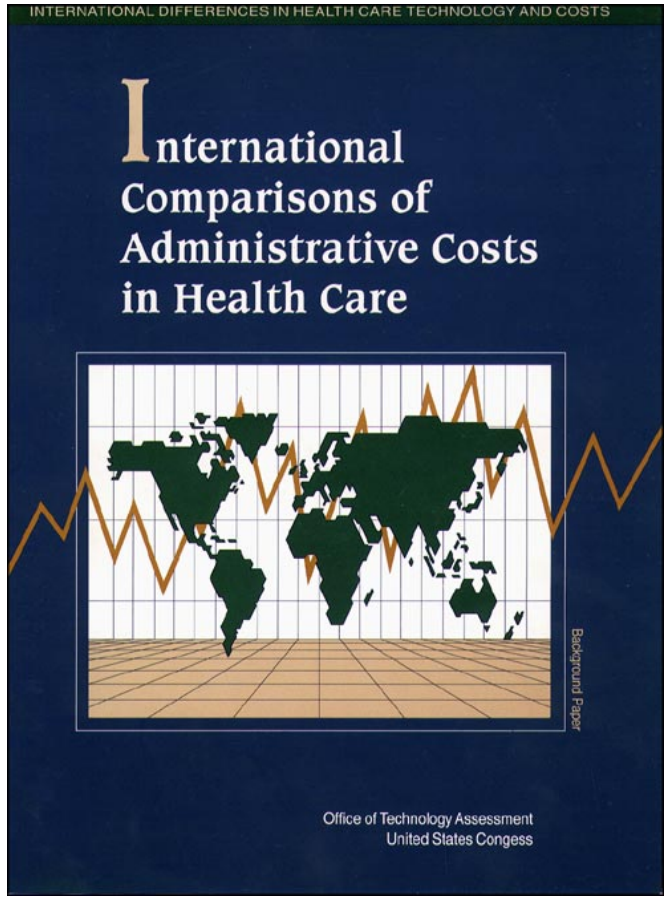

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Foreword

The complexity of the U.S. health care system has become an issue in the debate over health care reform. In recent years, researchers have published studies examining whether the adoption of a Canadian-style, single-payer system in the United States would substantially reduce the administrative expenses. At the heart of these studies are international comparisons of administrative spending.

This background paper examines what is known about administrative costs in the health care systems of the United States and several other countries. In addition to exploring the types of activities that constitute health care administration, it reviews studies that measure and compare these activities in different countries, and it explores the potential usefulness of such comparisons. Although a Canadian-style system in the United States might indeed result in significant administrative savings, international comparisons of administration in countries other than Canada may also be helpful under a multiple-payer system by identifying how to achieve more modest savings or efficiencies in the way we administer our health care system.

The background paper is part of a larger project, International Differences in Health Care Technology and Costs. One other background paper, *International Health Statistics: What the Number.v Mean for the United States,* was published in November 1993. The remaining background papers in the series will examine international differences in spending for physician and hospital services, and health care technology and its assessment in eight countries. The House Committee on Ways and Means, under Chairman Dan Rostenkowski, asked OTA to undertake this assessment.

Preparation of this background paper was greatly assisted by an advisory panel, chaired by Rosemary Stevens of the University of Pennsylvania. In addition, many other individuals provided information and reviewed drafts of the paper. OTA gratefully acknowledges the contribution of each of these individuals. As with all OTA documents, the final responsibility for the content of the assessment rests with OTA.

ROGER C. HERDMAN
Director

Advisory Panel

Note: OTA appreciates and is grateful for the valuable assistance and thoughtful critiques provided by the advisory panel members. The panel does not, however, necessarily approve, disapprove, or endorse this is background paper. OTA assumes full responsibility for the background paper and the accuracy of its contents.

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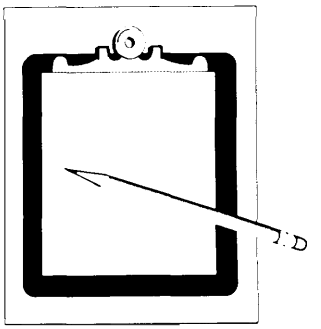

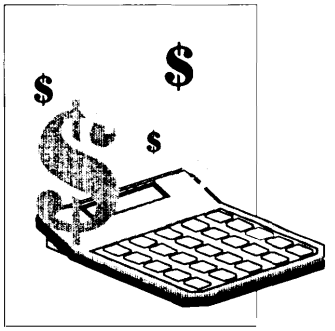

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Summary and Policy Implications 1

International comparisons of administrative costs are one result of the debate over health care reform in the United States. Advocates of a single-payer health care system (in which a single organization reimburses health care providers for all health services provided to patients) have compared the administrative costs of the United States with those of countries like Canada to support their contention that the administrative simplicity of a single-payer approach would yield savings that could offset the cost of universal coverage.

This background paper examines administrative costs in the health care systems of the United States and other countries. In addition to exploring the types of activities that constitute administration in the health care systems of several developed countries, it reviews attempts to measure and compare these activities, and it explores the potential usefulness of such comparisons.

IMPLICATIONS FOR POLICY

OTA's analysis suggests several conclusions for public policy:

- Most of the empirical literature on administrative costs compare the U.S. and Canadian health care systems. These studies indicate that administering the Canadian system consumes a substantially smaller proportion of health care spending than does the U.S. system. Imposition of a Canadian-style system in the United States would substantially reduce administrative costs, although estimates of those savings range widely (from $47 billion to $98 billion in 1991 U.S. dollars).
- Analyses of the administrative costs in countries other than Canada suggest that health care systems with more than a single payer, entailing a choice of insurance plans along with decentralized cost control measures and payment of providers,

involve higher administrative expenditures than does a single-payer system.

- International comparisons of specific administrative activities may suggest ways in which the United States can achieve worthwhile but more modest savings or greater efficiency in the way it manages its health care system without moving to a single-payer system. For example, as electronic technologies are used more extensively to administer the health care system, the experience of other countries may help the United States manage those technologies more appropriately or cost-effectively. Unlike the U.S.-Canadian comparisons that have dominated the empirical literature to date, this approach to international comparisons would focus on how well administrative investments achieve their goals, rather than just tallying the costs.
- Qualitative and quantitative evidence indicates that among developed countries with pluralistic, multiple-payer health care systems. the United States invests a greater proportion of its health care expenditures in administration. Little information exists on which to judge whether any extra benefits accrue in the U.S. system from these additional expenditures.
- International comparisons of administration can be useful in understanding the detailed management of other countries' health care systems, how individual patients and providers interact with that system on a day-to-day basis, and differences in the numbers and types of workers who administer different countries' health care systems.
- The experience of U.S.-Canadian comparisons underscores the robustness of overall estimates of administrative costs using imperfect data gathered for other purposes, especially when comparing single-payer and multiple-payer health care systems. While primary data collection to study administrative costs might yield more accurate estimates, the added confidence in the results is probably not worth the added cost and logistical difficulties of carrying out such efforts. For detailed looks at specific components of health care administration, however, a bottom-up approach may be necessary to understand why costs differ among systems that are more similar, and to identify potential modest administrative cost-savings or efficiencies for the U.S. health care system.

WHAT IS HEALTH CARE ADMINISTRATION?

Although most people understand administration to include the paperwork necessary to run a health care system, more comprehensive and precise definitions are needed to measure and compare administration internationally. Thorpe (38) has suggested for the United States a classification of administrative costs according to the functions they serve and the type of individual or organizat ion performing these functions. This scheme considers administrative expenses as investments that help deliver medical services more efficiently or equitably.

However, for the purposes of international comparisons, this typology alone is not sufficient. It does not include the many functions found in health care systems outside the United States, such as the setting of budgets, the negotiation of reimbursement rates with providers, and the process for deciding whether to purchase expensive medical equipment. It also does not take into account that different countries might use different types of staff or technology or face different prices in carrying out the same administrative functions. Finally, it is not detailed enough to guide researchers in the direct measurement of administrative expenses.

Glaser (15) has developed a detailed protocol for a bottom up measurement of administrative expenses in any country's health care system. As a practical matter, however, gathering data from different countries following this approach would entail enormous expense, time, and logistical difficulties (if, indeed, it is even possible). To date, it has not been done. Furthermore, development of a consensus about the precise definition of administration may be only of academic interest at this time. More useful analyses might look at specific administrative functions in different countries to

identify aspects that might be adopted in the United States to improve efficiency in the health care system.

AGGREGATE NATIONAL ESTIMATES OF ADMINISTRATIVE COSTS

Glaser (15) has applied his general protocol for measuring administrative costs to make qualitative, descriptive estimates of the nature and magnitude of expected administrative expenses in the health care systems of the United States, and of three countries often pointed to by proponents of U.S. health care rcform: Canada, the United Kingdom, and Germany. Even without numbers, his analysis suggests that the U.S. health care system requires a more complicated administrative apparatus than do other systems. However, the magnitude of many specific administrative activities can vary from country to country. For example, the German system relies heavily on negotiations among payers and providers to allocate health care resources, while U.S. payers increasingly attempt to control costs by scrutinizing the appropriateness of medical services prescribed. Nevertheless, Glaser's analysis provides useful insights into the day-to-day management of these countries' health care systems.

The Organization for Economic Cooperation and Development (OECD) annually publishes data on health expenditures and outcomes, including administrative spending, collected from its member countries. Relying on a definition developed by the U.S. Health Care Financing Administration (HCFA), the OECD includes only the administrative cost of public and private insurance, leaving out the administrative costs of hospitals, other providers, expenses borne by consumers, health services research, and the share of general governmental administration or tax collection devoted to health. In addition, not every OECD country has provided data on health administration, and the comparability of data from reporting countries varies,

Even with these limitations, the OECD data do provide some insights into the administrative burdens of member countries' health care systems. Administrative expenditures vary substantially, between 1 and 7 percent of total health expenditures. Countries like the United States, Germany. and the Netherlands with multiple. segmented sources of health insurance tend to spend more of their health budgets on administration. And trends in administrative costs tend to reflect changes in nations' health care systems. All else being equal, the per-unit administrative costs have tended. on average, to decline over time due to economies of scale and technological changes. Data from the 1980s on the entire health care systems of Sweden and Australia and the public sector insurance programs of Canada, the United Kingdom, and the United States are consistent with this trend. On the other hand, new insurance benefits, increased patient coinsurance payments. and other cost-containment measures tend to raise administrative burdens, as evidenced in France in recent years.

COMPARISONS BETWEEN THE UNITED STATES AND CANADA

In recent years a literature has emerged comparing the magnitude of health administration in the United States and Canada. All use various existing data sources to estimate the administrative costs of the insurance, hospital, and physician sectors of the U.S. and Canadian systems. These studies extrapolate their estimates of Canadian administrative costs to estimate the potential administrative savings of adopting a Canadian style system in the United States.

Himmelstein and Wool handler offered the first quantitative comparison using 1983 data (20) and updated their analysis using 1987 data (54). The U.S. General Accounting Office (GAO) (43,44) and Sheils and Young (36,37) have offered their own studies, using similar approaches, but differing in some data sources and assumptions. Taken together, these comparisons suggest that a Canadian-style system in the United States could have reduced administrative costs by between $47 billion (36,37) and $98 billion (54) in 1991. an amount equal to between 6 and 13 percent of total health expenditures in the United States that year. Although this range is wide. the conclusion that,

all else being equal, adoption of a Canadian-style system in the United States could yield substantial administrative savings is robust.[1]

Although the data used in all of these studies are imperfect, they remain a reasonable approximation of reality. Furthermore, the estimated differences between Canada and the United States are large enough to conclude that substantial differences in administrative costs exist between the two nations. It is less clear whether the Canadian experience is predictive of administrative costs in the United States under a single-payer plan. For example, there could be a general cultural tendency in the United States towards more complex administrative structures leading to higher administrative costs, even if the United States adopted a Canadian-style system.

In a more general critique of these U.S.-Canadian comparisons, Danzon (6) argues that the insurance overhead figures for the United States include significant expenses such as premium taxes, investors' return on capital, and investment income that are not really administrative, making the U.S. data not comparable to the administrative data for Canada's public insurance programs. In addition, she suggests that the Canadian system has unmeasured costs associated with excessive patient waiting time and the loss in overall economic productivity as employers and consumers change their behavior to avoid activities that are taxed to finance the country's health care system. Furthermore, she points out that strict comparisons of administrative cost data do not capture the benefits of the U.S. system associated with consumers' ability to choose providers and insurers.

Critics of Danzon's approach suggest that she does not measure costs in the U.S. system associated with consumers trying to understand and evaluate the benefits, costs, and complex reimbursement rules of alternative health insurance plans, workers locked into jobs for fear of losing health insurance, and employers who must manage their employees' insurance benefits and who may avoid hiring employees they believe may be costly users of health services. Other critics have also questioned whether medically significant queues actually exist for health services in Canada.

PERSONNEL AS A MEASURE OF ADMINISTRATION

A significant component of a country's health care expenditures are personnel costs, including the salaries of people who carry out administrative duties. In work commissioned by the Office of Technology Assessment (OTA), Himmelstein and colleagues have attempted to use occupational data from national censuses and surveys to investigate trends and differences in the U.S. and Canadian health care systems. For the United States they calculated "full-time equivalents" (FTEs) employed in the health care sector between 1968 and 1992 using the U.S. Census Bureau's Current Population Survey (CPS), an annual survey of 60,000 households representative of the civilian, noninstitutionalized population. Data on Canadian health care workers come from the 1971 and 1986 Canadian censuses.

Between 1968 and 1991, the number of health care workers in the United States grew from 3.98 million to 9.79 million (about one and one-half times), although the number of administrative workers grew at a much faster rate—from 718,000 to 2.60 million (more than two and one-half times).

Comparisons with Canada show significant divergences over time. In 1971 the United States employed 22,000 FTEs per million population, while Canada employed 26,565. By 1986, the total number of U.S. health FTEs had grown 53 percent, while Canada's had grown only 19 percent. Nearly all of the U.S. excess in health personnel as compared to Canada is attributable to the greater number of managers and support personnel in the

[1] These estimates Of U.S. savings do not take into account the cost of increased utilization by insured consumers who would use more health services as their out-of-pocket expenses decreased under a Canadian-style system, a complex issue beyond the scope of this paper.

United States. In 1971 the two countries were almost identicail in the number of administrative personnel per capita, but in 1986 the United States employed 8.226 administrative health personnel per million population, versus Canada's 5,807—that is, the United States had 42 percent more administrative personnel per capita in 1986 than did Canada. Among other categories of health workers in 1986, the United States had more technologists and technicians (2,423 vs. 1,988), and more licensed practical nurses (1,333 vs. 1,002), but fewer registered nurses per million population (5.41 9 vs. 6.948).

This analysis provides policy makers with a useful means of examining trends in the Canadian and U.S. health care systems. Its results are consistent with other studies finding that the United States spends more on measurable health care administration than does Canada. However, labor force analyses such as this one do have limitations. They do not offer a solution to the problem of the potential] y unmeasured costs of public] y financed systems suggested by Danzon. In addition, the CPS data used by Himmelstein and colleagues cannot be used to identify non-medical personnel in the United States who perform health care duties in nonhealth care settings, such as administrative personnel in private firms who administer their employees' health insurance benefits and management consultants. Inclusion of these workers would only increase the disparity in the number of administrative workers between the United States and Canada. The analysis also excludes private insurance employees in the United States and government employees in both countries because of the difficulty in distinguishing those workers who administer health insurance from those who perform other functions in these organizations.

TECHNOLOGY TO SIMPLIFY ADMINISTRATION

Standardization of insurance claims forms, electronic submission and payment of insurance claims, and the use of card technology to store administrative and medical information are three technological innovations that may have the potential to reduce administrative costs in the U.S. health care system. Estimates of potential savings from standardization and computerization of insurance claims vary widely, but in the case of card technology, it is possible to examine the experience of other countries to help understand their potential implications for the United States.

Health cards can take several forms, including simple paper or plastic cards, cards with magnetic strips (like automated bank teller cards in the United States), or smart cards, which embed a silicon microchip within a plastic, wallet-sized card.[2] These cards can have several uses: **health insurance cards** that include information about patients' health insurance coverage to simplify claims and reimbursement procedures or hospital admittance; **medical cards** to store limited patient

Technologies with the potential to simplify the administration of health care include smart cards that can store and process administrative and rnedical infromation

[2]Severalless commonly used card technologies also exist including optical cards similar to compact disks, cards with embedded holograms, and cards designed to fit into standardized slots on personal computers. Several of these technologies can be combined in a single card.

medical records: **emergency cards** that include essential medical information for medical emergencies; and **health professional cards** that limit access to confidential, computerized records to authorized personnel only.

OTA commissioned a study of several health card systems used in France. This analysis pointed out that health cards are only one piece of an overall system for administering health care and maintaining records. The decision to use cards, or to choose a specific type of card technology, is dependent on the intended application, the intended users, and the cost. In France, implementation of card systems was hindered by concerns over the confidentiality of medical information and difficulties in getting physicians, administrators, and patients to keep information on cards or other computerized medical records. These issues are likely to arise in the United States should a card system be implemented.[3] However, concerns arising from French physicians' tradition of not sharing diagnostic or therapeutic information with other health professionals or payers should not cause problems in the United States. The French experience suggests that protection of such privacy has less to do with the choice of magnetic strip or smart card technology than the privacy safeguards built into the overall computer system. Any kind of system has the potential to limit the amount of information in the system and access to it (29).

Although recent estimates suggest that standardization and automation of the insurance claims process would lead to cost savings after initial investments, no estimates exist for the cost implications of health card applications by themselves in the United States. The French experience indicates that health card systems involve significant start-up costs, but that standardization of the technologies used for different health care applications offer opportunities for economies of scale since several applications can use much of the same infrastructure.

CONCLUSION

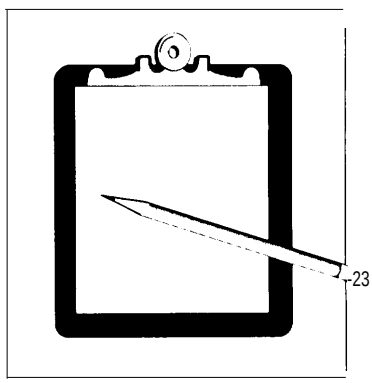
The recent debate over health care reform has revolved, in part, around the desire to control costs and to find resources to cover the uninsured. If a reformed system were cheaper to run, money would be freed for other purposes. It appears that only by a dramatic change to a single-payer system can great savings be realized. But even in the absence of a single-payer approach, it may be possible to achieve modest, yet worthwhile savings and more efficient means of providing health coverage and services. The search for these savings and efficiencies may be aided by the study of administration in other countries.

[3]The Clinton Administration's proposed Health Security Act (S.1757) would issue every American citizen and legal resident a Health Security Card, although the Administration has not suggested that use of such a card would necessarily reduce administrative costs.

Defining Administrative costs 2

As potential reform of the U.S. health care system has garnered more attention, so too has the perceived complexity of the current system compared with that of other countries (12). Analysts have associated that complexity with the administrative apparatus employed to manage the health care system, making estimates of administrative costs relevant to the debate over health care reform. At issue is whether or not a reformed U.S. system can realize administrative savings that can be used to pay for extended coverage, new benefits, or overall spending reductions.

In the literature, administrative costs often are equated with wasted resources that could be turned to more productive use. Many advocates of single-payer health care systems and analysts who measure health care costs for national accounting purposes (20,31,54,55) believe this is so. Other analysts, with a view towards macroeconomic theory and health care management, focus on administrative expenditures as inputs to the production of health (4,5, 18,38). Seen in this light, administrative expenditures are an investment in people and services that have (often unmeasured) benefits such as making the health care system more equitable, less costly, or more cost-effective. Because such investment tends to be greater and easier to identify in a multipayer system, the notion of administration as an investment is commonly supported by advocates of managed competition or other reform plans that preserve multiple payers (6).



This background paper explores administrative costs in the United States and other countries and conceptual issues such as the one described above. It reviews actual attempts to measure and compare the administrative burdens of different countries' health care systems, and it examines whether international com-

parisons offer any insights into how various approaches to health care reform may alter administrative spending in the United States.

The word "administration" conjures up images of paperwork, clerks, and managers. One political scientist has suggested a more formal definition: those activities that regulate or control the behavior of individuals in an organization, enabling them to implement policy decisions and achieve goals (15). In health care, administration is generally understood to include nonclinical activities, however, this simple definition may not be descriptive enough to allow one to measure administration in the United States and compare it with that in other countries. For example, biomedical research, classroom medical education, and hospital food services are nonclinical but not administrative. The sections that follow review more detailed attempts to define and classify administrative activities in health care and consider their usefulness in trying to measure the magnitude of health care administration.

A TYPOLOGY OF ADMINISTRATIVE COSTS BY FUNCTION

Thorpe (38) classifies administrative activities and their associated costs according to the function they serve and the type of individual or organization performing them. He shares the view that these cost are "inputs" to the production of administrative services that help insure against illness and deliver medical care. In his scheme, total administrative spending equals the sum of 1) "transaction-related" costs, 2) benefits management costs, 3) the costs of marketing and selling of insurance, and 4) the costs of regulation and compliance. Health insurers, hospitals, nursing homes, physicians, employers, and individuals and other consumers are the various actors performing each of these activities (see table 2-1).

Thorpe stresses the fact that administrative costs produce outputs, and that in comparing costs, one must control for the type and level of services produced. In addition, Thorpe points out that in the case of health insurers in the United States, not only does administrative spending vary across insurers, the insurance product itself differs among plans, making straight comparisons of their administrative costs meaningless. Hence, it is fallacious to conclude that the health plan or the country spending the most on administration must be the most wasteful.

Because Thorpe developed his classification to describe the U.S. health care system, its usefulness in comparing administrative costs across countries is limited. In one critique, Hahn sug-

TABLE 2-1: Administrative Costs, by Function and Sector of the U.S. Health Care System

function/ component	Health insurance	Hospitals	Nursing homes	Physicians	Firms	Consumers/ individuals
Transaction - related	Claims processing	Admiting, billing	Admiting, billing	Billing	Tracking employee hires/terminations	Submitting claims
Benefits management	Statistical analysis, quality assurance, plan design	Management information systems	Management information systems	Management Information systems	Internal analyses	Tracking expenses eliglble for reimbursement
Selling and marketing	Underwriting, risk premiums, advertising	Strategic planning, advertising	Strategic planning	Advertising	Flexible benefit programs	Search costs
Regulatory/ compliance	Premium taxes, reserve requirements	Waste management	Discharge planning	Licensing requirements	Filing summary plan descriptions, COBRA obligations[a]	Mandated benefit laws

[a] COBRA is the Consolidated Omnibus Budget Reconciliation Act of 1985, which Includes provisions for continuation of coverage when an employee leaves a firm

SOURCE K E Thorpe, " Inside the Black Box of Administrative Costs, *Health Affairs* 11:2 (summer 1992) 41-55

gests two modifications of Thorpe's scheme tomake it applicable to other countries (1 8). He would add a fifth administrative function called "oversight" that includes services associated with calculating and setting global budgets and rate increases, evaluating capital expenditures, and negotiating rates with providers. For example, he points to Canada and Germany as countries in which marketing to attract patients is relatively insignificant since all patients have some coverage. In its place is a bargaining component in which physicians or the associations to which they belong negotiate with the government or insurers for their fees.

Hahn also suggests supplementing Thorpe's scheme with a consideration of the differences in countries' "production functions" for medical services. For example, one country may use clinical staff, such as physicians and nurses, to perform a given administrative function while another country may use clerical staff instead. Furthermore. even if two countries use the same type of staff and technology to perform a given administrative function, the salaries and prices of other inputs to producing that function may differ between the two countries' leading to different levels of total administrative costs. Hence, a true comparison must take account of differences in both input prices and means of carrying out administrative functions.

AN ENUMERATION OF ADMINISTRATIVE ACTIVITIES

Although Thorpe's scheme may be used to conceptualize different types of administrative activi - ties in health care, it is still not detailed enough to serve as a protocol for accurately and comprehensively measuring the amount of administration in a nation's health care system. Recent work by Glaser, commissioned by OTA as part of this project (15) and based. in part on earlier research (1 3,1 4). would be the first step in a bottom-up approach to actually comparing the magnitude of administrative expenditures among nations.

Glaser distinguishes his definitions from attempts to group administrative activities according to their functions (e.g.. transaction-related costs, regulatory compliance, coordination). He argues that while the classifications are useful in aggregating and analyzing administrative data, his definitions are designed to help researchers collect original data at the grass-roots level. Glaser does not measure the outputs of administrative activities—i.e., the extent to which such activities accomplish their goals: attempts only to provide an exhaustive enumeration of the inputs of administration.

Differences in the organization and financing of health care imply that some of the activities identified by Glaser will not exist in every country and that the relative magnitude of other administrative activities will also vary. For each activity identified, Glaser suggests that researchers collect data on the total number of full-time equivalent employees (FTEs) and total expenditures devoted to that activity. However. difficulties in gathering data, discussed later in this background paper, may inhibit researchers' ability to measure and compare the administrative apparatus of health care across national borders.

I Specific Administrative Activities

Table 2-21 lists all of the activities related to heath care that Glaser identities as administrative in nature, primarily classified according to the organizations in which they occur. Unless otherwise noted, none of the substance of the work in these organizations counts as administrative-only the expenditures for activities necessary to support that work. In legislatures and other government agencies responsible for health policy. resources expended in making policy decisions would not be considered administrative. The major exceptions to this generalization are:

- **Ministries and other public agencies that implement health policies** (table 2-2, item 3). To the extent that such agencies are devoted to health, the entire budget can be counted as administrative except for expenditures for direct clinical and public health services and policy-making.
- **Insurers who pay providers** (table 2-2, item 9). All of their activities, except for the value of

TABLE 2-2: Administrative Activities in Health Care by the Type of Organization in Which They Occur

Organization	Administrative activities
1 Public and private organizations that collect vital statistics health-related lifestyles, health care financing data, health personnel, and related Information for private organizations, the public, and policy makers	Management of operations and financing of the agencies, not including actual data collection and processing. Communication between management and oversight or supplying agencies; requests for resources, assignments, guidance. Acquisition, distribution, and storage of resources. Here and elsewhere, only the administration of acquisition, distribution, and storage—not the full payment for the resources themselves. Recruitment, screening, instruction, assignment, supervision, terminations, retirements, promotions, and record-keeping for personnel. Administration of publications and other methods of communicating substantive results to the public and policy makers. Operations of the agency infrastructure: buildings and grounds, cafeteria, security, motor pool, computing, library.
2. Legislatures and other organizations that make health policy—prorated share of total administrative costs devoted to health	Management of legislative affairs. Communications between the legislature and the public; between the legislature and agencies charged with implementing health policy. Operations of organizational infrastructure.
3. Ministries and other public agencies that Implement health policies (Does not Include government agencies to reimburse providers for health care sevices) To the extent agency is devoted to health, entire staffing and budget minus expenditures for direct clinical services, direct public health work, and policy making	Management, internal financial work, clerical work, communications with individuals and organizations outside the agency, acquisition, distribution, and storage of resources, personnel management, administration of publications, infrastructural operations. Resolution of disputes between the agency and providers, between the agency and the public, and among providers and users outside the agency.
4 Organizations that deliver health care (hospitals, nursing homes, community health centers, home health care agencies, etc.). For clinicians within such organizations, Includes prorated share of their time devoted to administrative functions	All costs of "parent" organizations for those health care delivery organizations that belong to private chains or government associations that coordinate and manage them. Organizational management (as distinct from clinical direction), internal financial work, clerical work, communications, regulatory compliance, acquisition, distribution, and storage of resources for the facility and clinical operations, personnel management, infrastructural operations. Calculating bills for patient care, billing payers, collections. Medical records: the work of clinicians, clerks, and central office; transmitting them to patients' outside providers, payers, utilization review monitors, etc. Communication with liability insurers. Litigation of disputes.

(continued)

TABLE 2-2: Administrative Activities in Health Care by the Type of Organization in Which They Occur (Cont'd.)

Organization	Administrative activities
5 Individuals who provide care doctors, dentists, midwives, self-employed home visitors, dispensers of alternate medicine, etc.	Organizational management (as distinct from clinical direction), internal financial work, clerical work communications, regulatory compliance, acquisition distribution and storage of resources for the facility and clinical operations, personnel management, infrastructural operations
	Calculating bills for patient care, billing payers, collections
	Medical records the work of clinicians and office staff, transmitting them to other providers, payers, utilization review monitors, etc.
	Communication with liability Insurers
	Litigation of disputes
6 Associations of providers national, provincial, and local offices	Management, Internal financial work, clerical work
	Communication with payers in negotiation over reimbursement and work rules, communications with regulators, and communications with members explaining reimbursement, regulations, work rules, and clinical Innovations publications and public relations
7 Organizations that supply health care providers with pharmaceuticals, equipment, construction, and other materials	Organizational management, internal financial work, clerical work, personnel management
	Communications with health care providers and others, marketing and public relations
	Negotiating orders, calculating bills, collections
	Record-keeping required by price and quality regulators, communications with regulators
	Communications with insurers, litigation
8 Government agencies that pay all or some providers Such agencies can be national, provincial, local, a special fund that distributes government grants, or two or more of these together	Management of operations, financing, and personnel in the several public agencies that write budgets, process grants, and pay providers Shares attributed to health administration must be prorated, since some of these agencies deal with sectors outside health
	Communications within government--for example, between the Cabinet and the legislature, between the Ministry of Health and the Ministry of Budget--over past costs and future needs
	Management of the flow of money from tax collectors to the payment agencies
	Communications between the payment agencies and the providers Making the payments themselves Collect Ion and audits about costs and performance
	Reports to the Ministry's and the paying agencies superiors in government concerning how the money was spent Reports to the legislature Preparation for special audits
	Work of the auditing agency inl health

(Continued)

TABLE 2-2: Administrative Activities in Health Care by the Type of Organization in Which They Occur

Organization	Administrative activities
9 Insurers who pay some or all providers Payers can be public corporations, mutual aid associations, union-affiliated funds, mutual Insurance companies, or for-profit Insurance companies Nearly everything they do (minus the value of paid claims) constitutes administration.	Organizational management, Internal financial work, clerical work, personnel management Communications with subscribers and their payers, marketing, underwriting, negotiating and writing contracts. Communicating with regulators who set rules for paying providers Negotiating with providers and provider associations over practice and reimbursement rules Receiving, reviewing, and paying claims Utilization review Auditing annual expenditure and utilization review reports submitted by individual providers and provider associations. Communicating with regulatory agencies that review each insurer's financial accounts, Reports to government and to associations of insurers concerning the agency's share of health work and health finance Aggregation of these reports by government and the associations of insurers Publication Administrative activities imposed on outside organizations (such as the subscriber's employer or trade union) in the administration of enrollments and disenrollments, admln-istration of benefits and claims, payment of providers
10. Organizations that conduct research on the organization, management, and financing of the health care system All such work within these organizations may be counted in a county's administrative costs	
11. Organizations that provide education about the organization, operation, and financing of the country's health care system	University and specialty-school training of managers, finance officers, and clerks In-house training Conferences and workshops
12. Organizations that conduct management consulting in the health care sector	

SOURCE Off Ice of Technology Assessment 1994 Based on W. A. Glaser. "Administration in Health Care A Plan for Cross-National Comparisons contractor paper prepared for the Office of Technology Assessment, revised edition, 1993

claims paid to providers, can be considered administrative.

- **Organizations that provide education, conduct research, or consult on health care management, organization, and financing** (table 2-2, items 10-12). All such work in these organizations can be counted as administrative.

According to Glaser's scheme, specific expenditures in some organizations must be prorated. In the case of government agencies and other organizations that do some work outside the health sector, the value of their administrative expenditures must be prorated by the proportion of their effort devoted to health. For example, in the United States, the Department of Health and Human Services (DHHS) has responsibility for Social Security and other programs that are not directly part of the health care system. One would not attribute the administration of such programs to health care. In the case of individuals who provide direct health care services, one would want to count on] y that portion of their time devoted to administrative functions, and not time spent on clinical activities.

This distinction between clinical and administrative activities suggests at least one ambiguity not addressed by Glaser. He identifies all work by health care providers related to medical record-keeping as administrative in nature, including time spent by clinicians in preparing these records. However, since accurate medical records are part of the way in which physicians and others ensure that they provide appropriate care for patients, one could argue that the preparation of these records (at least the parts related (o patient care) is actually a clinical, not administrative, activity.[4]

Glaser's scheme also draws a distinction between government payment and insurance payment. A line agency of government makes payments to providers from its general budget and tax revenues collected for all purposes, thus making the administrative burden of paying providers a prorated share of all government financial administration. Insurance payment, on the other hand, is made by autonomous public agencies or corporations, nonprofit carriers, for-profit insurance companies, or self-insuring third parties (e.g., employers) from earmarked sources such as subscriber premiums or social security taxes. Using this distinction, Canadian health finance is government payment, while the United States finances private health insurance and Medicare through insurance payment.

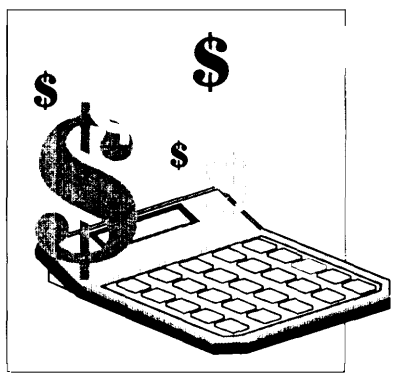
As described in chapter 3, Glaser has applied his definitions to the health care systems of four nations, making qualitative estimates of the administrative costs associated with each. However, as mentioned at the outset, the real purpose of his enumeration is to serve as a protocol for a bottom-up measurement of administrative costs. No researcher has yet engaged in this endeavor.

[4] In some instances it may be difficult to distinguish between medical records kept for patient care and those used for truly administrative purposes. For example, providers can record diagnostic information both to facilitate proper patient care and to allow insurance reimbursement.

Measuring Administration 3

Once one has defined the scope of administrative activities, one must also find data with which to measure the magnitude of each activity identified. The data most often used come from accounting and present significant difficulties for measuring the true economic costs of administrate ion. The economic costs of administration refer to the incremental value of resources used to produce an administrative function as measured according to the next most valuable alternative use of those resources (38). The most common problem with accounting data is that they do not always fully allocate fixed costs to appropriate administrative activities, leading to an underestimate of administrative costs. Thorpe offers several examples from the United States:

- Medicare, a federal government program that provides health insurance to elderly and disabled individuals, has very low administrative costs relative to private insurance. However. Medicare contracts with private insurance firms to administer the program. Because these private insurers already have the infrastructure in place to process claims and perform other services, the additional cost of administering Medicare is minimal, and official estimates of Medicare administrative costs do not include a prorated portion of the cost of acquiring the insurer's administrative infrastructure.
- A firm that sells insurance policies for health and other types of insurance such as life and property may not include an appropriately prorated portion of its chief executive officer's (CEO's) salary as an administrative expense of its health insurance business.
- Hospitals may not necessarily prorate their data-processing costs appropriately among billing and strategic planning/con-



trol (administrative functions), and clinical research recordkeeping.

Another issue of particular importance in international comparisons is the accuracy and reliability of data collected for comparison. Differences in accounting standards, data collection methods, and language can create differences both within and across countries or over time. These differences, which must be understood to interpret the data appropriately, may not be adequately documented.

These limitations in using data gathered without close attention to the intended purpose of comparing administrative costs across countries leads Glaser to advocate bottom-up, primary data collection (15). Doing so would entail enormous expense, time, and logistical difficulties. (An obvious question is whether it is worth doing). Almost all work measuring and comparing administrative expenses of health care within and across nations has used data already available for some other purpose.

ESTIMATES OF ADMINISTRATIVE COSTS AND INTERNATIONAL COMPARISONS

| Qualitative Estimates of Administrative Costs in Four Countries

Glaser describes the administrative structures of four countries: Canada, England. Germany, and the United States (15). Although Glaser's purpose was not to gather any data with which to measure the magnitude of each administrative activity outlined, these brief qualitative analyses:

- help to illustrate the relationship between the overall structure of a country's health care system and the expected types and magnitude of its administrative costs,
- suggest reasonable hypotheses about how countries compare in the relative magnitude of different administrative activities, and
- help to serve as a roadmap for future data collection efforts.

United States

The U.S. health care system has multiple public and private payers for health care, each with its own rules, procedures, and administrative apparatus. Public programs pay for health care for specific segments of the population: elderly, disabled, and indigent citizens; some veterans; and active military personnel and their families. A large portion of private insurance is administered through the workplace under contracts with private insurance firms or self-insured employers. Most providers are autonomous and must interact with multiple payers. However, a growing number of practitioners are employed by capitated health insurance plans or are part of one or more networks of providers associated with a third-party payer that establishes various cost containment measures.

Glaser proposes that the United States significantly exceeds the other three countries examined in administrative expenses. In general, his critique of the American system rests on its relative complexity (15). The existence of multiple, decentralized payers whose coverage guidelines and reimbursement procedures must be understood by physicians' offices, hospitals, and other provider organizations results in a substantial admnistrative burden. In addition, he emphasizes the resources required to study the health care system, the specialized training of individuals charged with administering it, and consultants employed by providers and other health care organizations to maximize their revenue.

Canada

The Canadian health care system is characterized by full government funding of basic health care decentralized to the provincial level. Hospitals, physicians, and other providers are autonomous, but they follow provincial standards for financial accounting. Hospitals and physicians are represented by provider associations. Hospitals operate under prospective budgets, while physicians bill provincial public corporations for fee-for-service reimbursement. Private health insurance is

Hospitals in Canada, such as Montreal General Hospital pictured above operate under prospective budgeting which helps minimize their admlnistrative expenses

minimal and limited to services and amenities not covered by the provincial health plans.

Glaser suggests that administrative expenses fall mainly to the provincial agencies in charge of implementing the health system, the providers, and their associations. Some administrative activities found in the United States do not occur or are found in relatively small amounts in the Canadian system. For example, the costs associated with marketing and underwriting insurance are limited to the small market for private insurance. Employer costs associated with finding an insurance firm to provide primary coverage for employees do not exist. Glaser also proposes that management consulting is largely limited to the use of computer methodology because of the relative simplicity of the health care system (compared with the United States) and the availability of hospital management manuals developed directly by the hospital associations.

Hospital billing of patients is limited to amenities not covered by the provincial system. Physicians' offices bill provincial public corporations for reimbursement, but standardized reimbursement rules and electronic claims-filing may help to minimize these administrative expenses. Government incurs the administrative costs of setting standards, budgeting, revenue collection, disbursement of funds, capital planning, negotiations with provider organizations, and oversight. Provider associations have the administrative expenses associated with representing the interests of their members at the provincial and national levels and in the courts. including the preparation of data and analyses to support their efforts.

England[1]

The National Health Service (NHS) owns and manages most hospitals, employs specialist physicians, and contracts with general practitioners. The NHS allocates its budget to 200 District Health Authorities (DHA). Family Practice Committees (FPCs) contract with physicians and dentists; they reimburse physicians mainly on a capitated basis and dentists by fee-for-service.

Glaser suggests that of the four countries he describes, England has traditionally been administratively simplest. Under this system, the bulk of administrative expenses fall to the NHS and its local components. These activities include budgeting, provider payment, preparation of expenditure reports, tracking patients. labor relations. and reimbursement. The traditional reliance on capitated payments to reimburse for a large portion also contributes to relative administrative simplicity. Unions and other associations of providers have a significant role in negotiating on behalf of their members, thus requiring their own administrative staffs.

Recent innovations, however, may increase somewhat the resources needed to administer some parts of the English health system. Some hospitals have become autonomous. leading to growing local variation in administrative procedures. These hospitals also face the cost of marketing to patients, developing clinical emphases, setting prices, and balancing a budget. Because a small number of hospitals and all nursing homes are private, they face these same administrative expenses. Some general practitioners have be-

[1] Among the other countries of the United Kingdom. Wales has a system almost identical to that of England. Scotland and Northern Ireland also have similar health care systems although with greater autonomy.

come "fund-holders" for their patients; they receive increased cavitation payments to cover patients' tests, pharmaceuticals, and specialist and hospital care and must track patients' utilization and pay other providers. General practitioners are also now receiving some reimbursements on a fee-for-service basis, thus requiring them to bill their FPCs. Dentists require the office staff to seek approval from the FPC for extensive procedures and to seek fee-for-service reimbursement for all services.

Glaser notes that although England performs a substantial amount of health services and health economics research in government, universities, and other organizations (particularly concerning potential or enacted reforms), the country has traditionally relied only minimally on independent management consultants or specially trained health care administrators. However, he suggests that the use of such specialists is on the increase with the increase in autonomy afforded providers and local jurisdictions.

Germany

Largely administered on a provincial level, the German health care system is characterized by multiple payers called sickness funds, financed through payroll deductions. Hospitals can be for-profit, nonprofit, or public. The main role of government (at both the national and provincial levels) is to enact overall guidelines for the system, monitor its operation, provide some financing. and settle disputes. All providers belong to regional associations that negotiate payment levels with associations of sickness funds. The provider associations also reimburse their members with the money given by the funds for the care they provide.

According to Glaser's analysis, most administrative costs in Germany are found within the sickness funds, provider associations, and physicians' offices. Hospitals are autonomous but operate on a prospective budget and, according to Glaser, maintain relatively few administrative staff. The government's role is also limited. It makes, oversees, and reforms the rules of the system, operates teaching and municipal hospitals and local public health services, licenses hospitals, and provides grants for capital improvements to hospitals.

Sickness funds, like insurance companies in the United States, must have the administrative apparatus to calculate and collect premiums. They also collect employee contributions for the national social security pension system. Employees pay both contributions by payroll deduction. In addition, the funds bear the administrative costs associated with provider negotiations and compliance with provincial and national oversight. Recent innovations to allow patients greater freedom in the sickness fund they join will likely create marketing costs for the funds. In addition, the funds have had to undertake the provision of coverage in the former German Democratic Republic.

The physician associations (known as the *Kassenartzliche Vereinigung* or KV) also must support reimbursement negotiations, as well as track, process, and pay claims made by their members and reduce physicians' fees if necessary to balance their budgets. Physicians and dentists must maintain office staffs to track services provided to patients and submit claims to the KV for reimbursement. Because German physicians perform many procedures in their offices that in other countries take place in hospitals or clinics, some require additional administrative effort to acquire necessary equipment and supplies.

In summary, Glaser's analysis suggests a few generalizations:

- Any organization with health care responsibilities will incur some administrative costs for its personnel functions, internal financing, budgeting and accounting, and facility overhead.
- Some health functions occur in similar fashion in all countries and are unlikely to change or disappear through reform of health care financing or organization. Prime among these functions is the collection, analysis, and dissemination of vital statistics and, to a lesser extent, morbidity data. The comparability of these data across countries may vary significantly (46), but one would expect the relative magnitude of

the administrative activities associated with their collection to be roughly similar. However, true comparisons of this form of administrative expense would require actual measurement.

- The relative magnitude of administrative expense associated with any organization with health care responsibilities appears to approximate the organization's role in the health care system. Larger responsibilities usually require larger organizations, which usually require more administration.
- A number of countries have adopted various promarket reforms during recent years in their health care systems in which providers, payers, and consumers have greater autonomy in carrying out their obligations. These tend to lead to greater decentralization of the health care system and for the most part would be expected to increase administrative burdens at the margin.

Quantitative Estimates from the Organisation for Economic Co-operation and Development

The Organisation for Economic Co-operation and Development (OECD) has undertaken the only attempt to collect data on health administration from many countries over time. However, the usefulness of these data for comparing the administrative burden associated with different health care systems is limited.

The OECD, comprising the most industrialized countries of the world, publishes data on health expenditures and outcomes gathered from its member nations (27,28). Health expenditure data requested from each country are based on the system of national health accounts (NHA) maintained for the United States by the Health Care Financing Administration (HCFA).

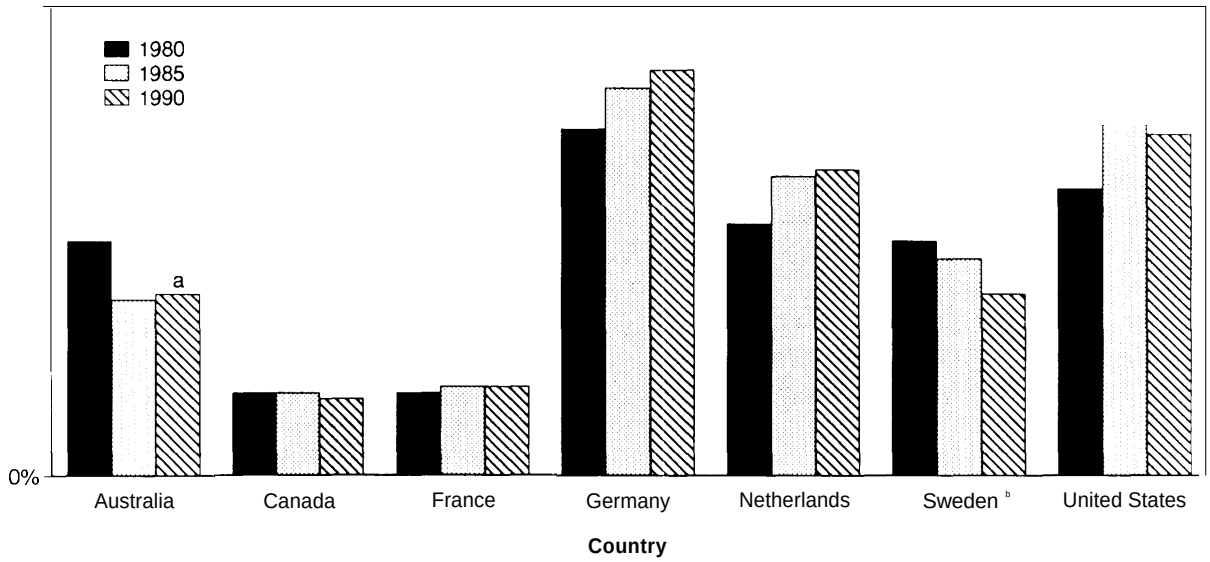
The U.S. NHA definition of health administration employed by the OECD is significantly narrower than any of those definitions of administration presented above. It refers only to the administration of public and private insurance, leaving out the administrative costs of hospitals and other health care providers and the costs in time or other resources borne by consumers in obtaining insurance, health care services. or reimbursement. It also does not include the cost of public and private health services research or the share of administrative costs for general governmental operations or tax collection devoted to health.

This limited definition may be more important in some countries than in others. For example, countries like the United States, with a large private health insurance system and multiple payers. would be expected to realize higher administrative expenses for consumers and providers than would countries with single payers, relatively comprehensive benefits, and little out-of-pocket expenses for consumers. Health service providers in the United States would 1ikely require more time and resources to understand the system and its benefits and to receive reimbursement than their counterparts in countries with a single payer. Hence, the OECD's underestimation of costs in the United States may be greater than in countries with a small private insurance market and a smaller number of payers.

In addition to starting with a narrow definition of administration, not every OECD country has provided data on health administration, and the comparability y of data from those countries that do report varies. Although the OECD and its member countries have attempted to refine the comparability of international health accounting data. to date they have worked with categories of health expenditures larger than administration. Administrate ion has received less attention, in large part. because it represents a relatively small portion of most countries' reported expenditures (31). Figures 3-1 and 3-2 present estimates of health administration outlays for recent years standardized as a percentage of total recorded health expenditures in each country.

Poullier's 1992 analysis of the OECD data on administrative costs does not provide a comprehensive explanation of each data point in the

FIGURE 3-1: Percent of Recorded Public and Private Health Outlays Spent on Administration, 1980-1990

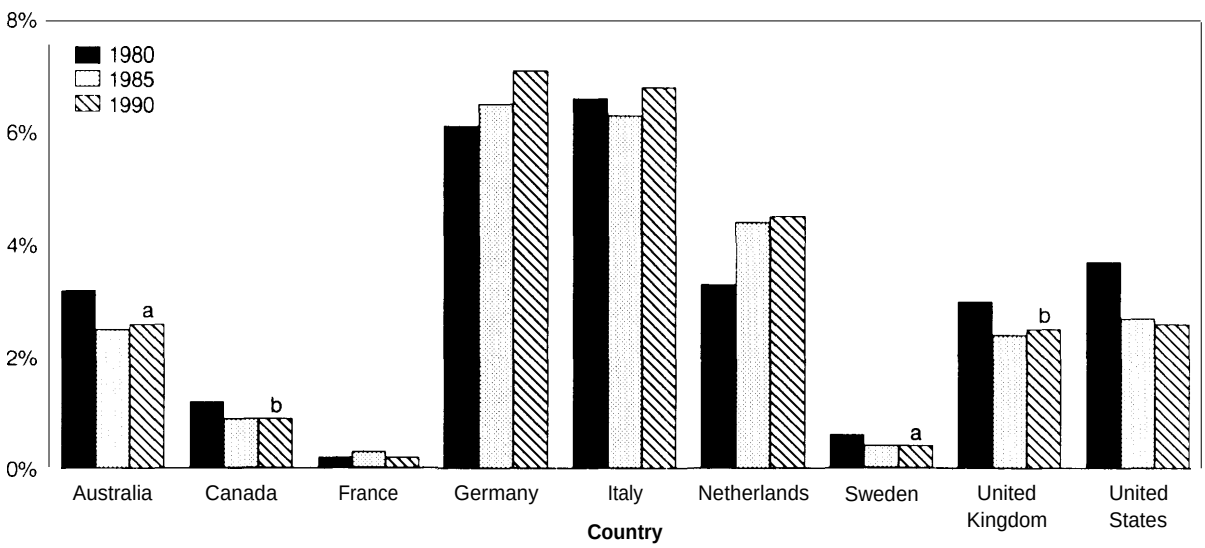


[a] Based on 1989 data

[b] Estimates by J P Poullier, OECD

SOURCE Off Ice of Technology Assessment, 1994 Based on data from J. P. Poullier, "Admistrative Costs on Selected Industrialized Countries, ' Health *Care Financing Review* 13 (summer 1992) 4167-172

FIGURE 3-2: Percent of Recorded Public Health Outlays Spent on Administration, 1980-1990



[a] Based on 1989 data

[b] Based on 1987 data

SOURCE Off Ice of Technology Assessment, 1994 Based on data from J P Poullier, "Administrative Costs on Selected Industrialized Countries *Healfh* Care *Financing Review* 13summer 1992)4 167-172

OECD series on administrative costs.[2] However, Poullier is able to point out some of the important limitations in interpreting the data. The major issues concern public sector expenditures.

- France, New Zealand, and Portugal include administrative costs for the central government only, leaving out the costs of administering local or provincial health boards or social insurance programs. In the case of France, data from the social security system, which provides health insurance to the bulk of the population, is excluded because the government cannot separate its administrative expenses for health from that of its pension and other forms of income support. According to Poullier, France, New Zealand, and Portugal may therefore underestimate administrative expenses by 80 percent.
- Many health-related functions take place in ministries and agencies whose activities are not primarily in health care and that are often excluded from the data reported to the OECD. Examples of such functions include education, consumer protection, agricultural inspection, environmental protection, public safety, and housing. The documentation for the OECD data and Poullier's analysis do not provide a comprehensive discussion of how each country treats the administration of these public sector activities.

Even with the limited definition of administration employed by the OECD and countries' varying (and in some cases, unknown) ability to provide data according to the OECD'S guidelines, Poullier does make some generalizations:

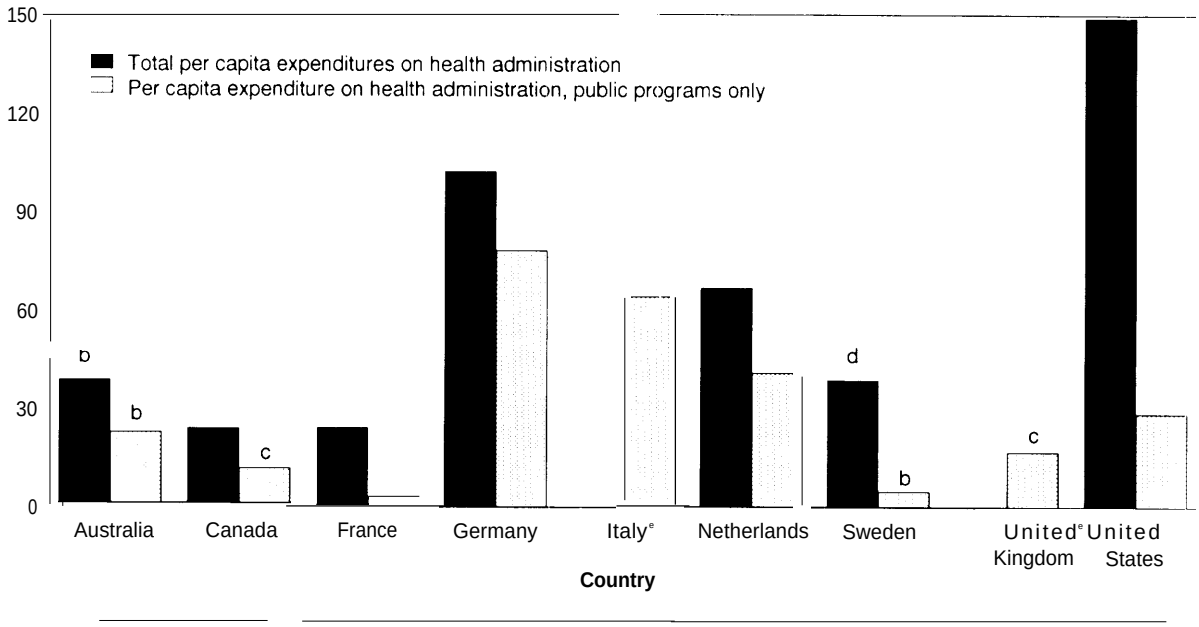
- OECD countries appear to devote between 1 and 7 percent of their health expenditures to administration. Poullier concludes that this range is too large to be attributable only to the vagaries of data described above (although the rationale for this conclusion is not made explicit).
- Those countries that have multiple, segmented sources of health insurance tend to spend a higher percentage of their health monies on administration. These countries include the United States, Germany, and the Netherlands (see figures **3-1** and 3-2).
- Time trends in administrative costs tend to reflect changes in a nation's health care system. Poullier contends that, all else being equal, the relative share of health expenditures devoted to administration will tend to decrease over time; as the number and value of health services go up, the per-unit transaction costs decrease due to economies of scale. Technological changes including standardization of claim forms and procedures and computerization of existing administrative activities can further reduce per-unit administrative costs. Sweden and Australia appear to have followed this decreasing trend during the 1980s for both public and private expenditures, as have Canada, Sweden, the United Kingdom, and the United States for their public sector programs. Poullier indicates that France would have also demonstrated this trend if its data were more representative of its entire health care system. The increase in relative resources devoted to administration in France is the result of added insurance benefits, increases in patient coinsurance payments, and the imposition of cost containment measures, all of which work against the general tendency for administrative burdens to lessen overt time.[3]

Because expressing administrative costs as a percentage of total health expenditures can mask significant differences between countries in their spending on health, Poullier also presents per capita estimates of administrative health cxpendi-

[2] OECD has not yet had the resources to investigate in detail the extent to which each country's administrative data matches or diverges from the definition OECD has asked them to employ (30).

[3] In tact, Poullier suggests that, all else being equal, added new benefits, increased patient cost-sharing, and adoption of other cost containment measures wi II result in increased paperwork and mon itoring—i .e., new administrative costs.

FIGURE 3-3a: Expenditures for All Health Care and Health Care Administration in Selected Countries, 1990[a]



[a] All figures in GDP purchasing power parity U S dollars
[b] Based on 1989 data
[c] Based on 1987 data
[d] Estimates by J P Poullier OECD
[e] Estimates of health expenditures per capita for Itality and the United Kingdom mlsslng from the OECD database for 1990

SOURCE Off Ice of Technology Assessment, 1994 Based on data from J P Pouliler, Administrative Costs on Selected Industrlailzed Countries ' *Health Care Financing Review* 13(summer 1992)4 167-172

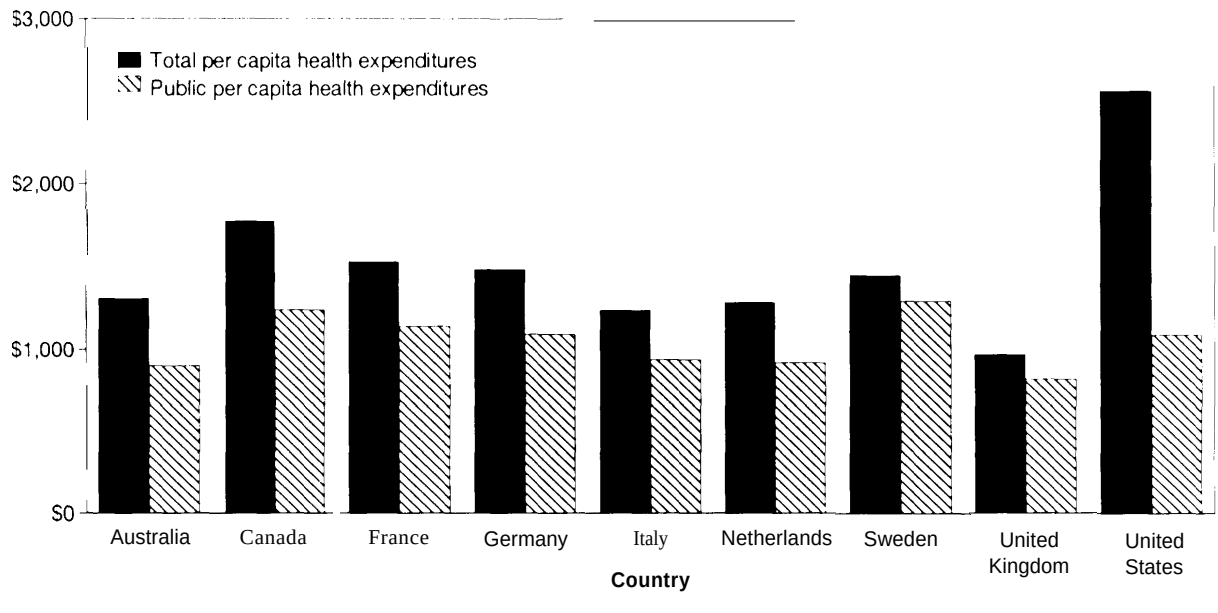
turcs in Gross Domestic Product (GDP) purchasing power parity (PPP) U.S. dollars (figure 3-3a and 3-3b, above).[4] This comparison reinforces the finding that the United States, Germany, and the Netherlands spend more on administration than most of the other countries. In addition, the United States shows a major discrepancy between public and private expenditures for administration. There are at least two potential, nonmutually exclusive reasons for this discrepancy:

- The cost of administering public sector programs is actually less than the cost of administering private insurance programs.
- The data do not capture all costs of public sector programs. In particular, the federal government contracts with private insurance companies to administer Medicare. Because these firms already have much of the infrastructure in place to carry out their Medicare functions, they only report the *added* cost of administering Medicare claims, not the fully allocated cost of that infrastructure.

The OECD data thus provide some very general insights into resources devoted to administering some countries' health care systems and some changes in administrative costs over time. However, use of these data are limited and reflect a "narrow definition of administrative costs when compared with fuller enumerations of administrative costs such as that of Glaser, summarized

[4] GDP purchasing power parities compare the cost of purchasing a precise set of goods across countries; strict currency conversion rates can obscure d] fferences in the relative prices of different items between two countries.

FIGURE 3-3b: Expenditures for All Health Care and Health Care Administration in Selected Countries, 1990[a]



[a]All figures in GDP purchasing power parity U S dollars

SOURCE Office of Technology Assessment 1994 Based on data from J P Poullier Admmistrative Costs on Selected Industriailzed Countries *Health Care Financing Review* 13(summer 1992)4 167-172

above. Furthermore, interpretation of the OECD's data also requires understanding of the structure of each country's health care system and the vagaries in data collection and reporting by each country.

Comparisons Between the United States and Canada

In recent years a literature has emerged comparing the magnitude of administrative costs in the health care systems of the United States and Canada. Underlying most of this work is a debate about the costs and benefits of adopting a Canadian-style single-payer health care system in the United States. Proponents argue that such a system would require fewer resources for administration, thus allowing universal coverage without spending more money in aggregate (16,19,20,54). Researchers have attempted to measure the extent of administration in Canada, extrapolate the results to the United States, and estimate the cost of increased coverage and utilization that a Canadian-style system would bring about. Such research is driven largely by the availability of data gathered for other purposes, rather than beginning with a detailed typology like that of Glaser and then attempting to gather new data to fit the ideal categories.

This section focuses on the major attempts to compare administrative costs in the current U.S. health care system with the Canadian system or with a hypothetical Canadian system implemented in the United States. Some of the studies reviewed attempt to predict health care costs under a reformed, Canadian-style health plan for the United States, including estimates of the costs associated with extending coverage to the uninsured, expanding insurance benfits, and increased utilization of services due to the elimina-

(ion of patient deductibles and copayments.[5] Assumptions about the effects of a change in the U.S. system are not critiqued in this paper, which focuses only on the assumptions and methods used to derive administrative costs.

Methods and Results

The most thorough comparisons of U.S. and Canadian health care administration are contained in work by Himmelstein and Woolhandler, by the U.S. General Accounting Office (GAO), and by Sheils and his colleagues at Lewin/VHI, a health policy consulting firm. Several other authors have either critiqued these approaches or commented on the role of administration in explaining differences in health care spending between the two countries. Table 3-1 summarizes the methods and estimates of each of the major cormparisons.

Estimates by Himmelstein, Wool handler, and Colleagues

Himmelstein and Woolhandler entered this area of inquiry with a 1986 comparison of administrative costs in the current U.S. system and under a Canadian-style system (20). Their approach, which has served as the basis for subsequent comparisons by these and other authors, proceeds according this logic:

- Divide the health care system among component sectors: health insurance organizations, physicians, hospitals, and nursing homes.
- For each, estimate the percentage of total expenditures attributable to administration in the United States and in Canada using various available data.
- Estimate potential gross administrative savings of adopting a Canadian-style system in the United States by assuming that the reformed American system would devote the same percentages of spending to administration as does the Canadian system.

Himmelstein and Woolhandler chose 1983 as the year for their comparison and then estimated administrative costs in each of the four major sectors of health care. For private health insurance in the United States, they measured administrative costs as the difference between premiums collected and benefits paid, using the national health expenditure accounting data collected by HCFA. Hence, their implicit definition of administration includes items such as taxes paid by insurance firms and profits. However, this definition excludes insurers' return on the investment of the premiums they collect. They used the same HCFA data for estimates of the administrative costs of running Medicare, Medicaid, and other public programs.

For physicians, Himmelstein and Woolhandler relied on data collected annually by the American Medical Association (AMA) on the socioeconomic characteristics of a random sample of all nonfederal, patient care physicians practicing in the United States (excluding trainees). They defined administration for physicians as all of their professional expenses—a broad category that includes items such as malpractice insurance premiums.

For hospitals and nursing homes, no national database routinely estimates administrative costs. Because some individual states do make such estimates, Himmelstein and Wool handler drew on reports from the California Health Facilities Commission (CHFC), which stated that in 1983 for hospitals and nursing homes, 18.3 and 14.4 percent of total costs, respectively, went for administration. As evidence of the national representativeness of the California data, the authors note that Florida and Texas report similar percentages and assume that the same proportions applied to the rest of the country.

In the case of Canada, the authors drew on data collected by Health and Welfare Canada and Statistics Canada for estimates of the percentage of

[5] Another recent OTA report examines the cost implications of major approaches to health care reform considered by the 103d Congress. This analysis includes an examination of the estimated costs of expanded coverage and utilization under single-payer and other types of systems (47).

TABLE 3-1: Comparisons of Administrative Costs in the United States and Cana

Study	Year of estimates	Category of costs	Year of estimates	Category of costs	Methods/ Data source	Estimates: United States: Percent administrative	Estimates: United States: $ per capita for administration	Estimates: United States: Total administration ($ billions)	Canada/Canadian System Imp in the United States: Percent administrative	Canada/Canadian System Imp in the United States: $ per capita for administration	a
Himmelstein and Woolhandler 1986a	1983	Insurance	1983	Insurance	National health expenditure data United and	—[b]	—	15.6	2.5% of program costs.	—	
		Physicians		Physicians	Total empl phys profe expe U.S. AMA Can. from and Can	31 1	36% of gross income		24 9	62	
		Hospitals		Hospitals	Can from cost colle Hea Wel da, data late Cal pita rep	269	8% Of hospital expenditures		11 7	152	
		Nursing homes		Nursing homes	Car fror sur der cilit tist Am ext fro ho: rep	[illegible] 41 ing home expenditures.	10 % Of nursing home spending		30 nursing home spending.	1.1	

TABLE 3-1 continued: Comparisons of Administrative Costs in the United States and Canada

				Estimates						
				United States			Canada/Canadian System Implemented in the United States			
Study	Year of estimates	Category of costs	Methods/ Data source	Percent administrative	$ per capita for administration	Total administration ($ billions)	Percent administrative	$ per capita for administration	Total administration ($ billions)	Difference ($ billions)
Himmelstein and Woolhandler, 1986[a]	983	Insurance	National health expenditure data for both United States and Canada.	—[b]	—	15.6	2.5% of program costs.	—	11.1	6.7
		Physicians	Total self-employed physician professional expenses. U.S. data from AMA survey: Canadian data from Health and Welfare Canada.	45% of gross income.	—	31.1	36% of gross income.	—	24.9	6.2
		Hospitals	Canadian data from hospital cost reports collected by Health and Welfare Canada; American data extrapolated from California hospital cost reports.	18.3% of hospital expenditures.	—	26.9	8% of hospital expenditures.		.7	5.2
		Nursing homes	Canadian data from annual survey of residential care facilities by Statistics Canada; American data extrapolated from California hospital cost reports.	14.4% of nursing home expenditures.		4.1	10.5% of nursing home spending.		3.0	

TABLE 3-1 continued: Comparisons of Administrative Costs in the United States

						Estimates			
				United States		Canada/Canadian System Implemented in the United States			
Study	Year of estimates	Category of costs	Methods/ Data source	Percent administrative	$ per capita for administration	**Total administration ($ billions)**	**Percent administrative**	**$ per capita for administration**	**Total administration ($ billions)**	**Difference ($ billions)**
Woolhandler and Himmelstein, 1991[c]	1987	Insurance	National health expenditure data for both United States and Canada, all Canadian dollars converted to U S dollars at exchange of $133 (Canadian) = $100 (us)	51 % of total health care expenditures	106		1. 2% of total health care spending	17		---
		Physicians	Method 1 Physician office expenses plus physicians' own time on admministration U S data from AMA survey, Canadian data based on adjusted tax returns		*106-203*			41-80		
			Method 2 Cost of physiclan office personnel devoted to administration PIUS physicians own time U S data from CPS, Canadian extrapolated from Ontario Medical Association survey.							

(continued)

TABLE 3-1 continued: Comparisons of Administrative Costs in the United States and Canada

				Estimates						
				United States			Canada/Canadian System Implemented in the United States			
Study	Year of estimates	Category of costs	Methods/ Data source	Percent administrative	$ per capita for administration	Total administration ($ billions)	Percent administrative	$ per capita for administration	Total administration ($ billions)	Difference ($ billions)
		Hospitals	Canadian data from hospital cost reports collected by Health and Welfare Canada; American data extrapolated from California hospital cost reports.	20.2% of hospital expenditures.	62		9% of hospital expenditures.	50		—
		Nursing homes	Canadian data from annual survey of residential care facilities by Statistics Canada; American data extrapolated from California hospital reports.	15.8% of total nursing home revenues.	26	—	13.7% of total nursing home expenditures.	9		
Woolhandler and Himmelstein, 1993[d]		Hospitals	Cost reports from the 6,400 hospitals participating in Medicare in the United States.	24.8% of national hospital spending; range among States = 20.5% to 30.6%.	—			—		
GAO, 1991-2[e,f]	1991		National health expenditure data for United States; Ontario provincial health expenditures for Canada.	5.8% of national health expenditures.	—	—	1.2% of provincial health expenditures.	—	—	33.9

(continued)

TABLE 3-1 continued: Comparisons of Administrative Costs in the United States and Canada

					Estimates					
					United States	Canada/Canadian System Implemented in the United States				
Study	Year of estimates	Category of costs	Methods/ Data source	Percent administrative	$ per capita for administration	Total administration ($ billions)	Percent administrative	$ per capita for administration	Total administration ($ billions)	Difference ($ billions)
		Physicians	U.S.: Nonphysician personnel costs plus contract billing services plus physicians' own time on administration; data from AMA survey. Canada: Nonphysician personnel costs plus physicians' own time on administration.			Nonphysician personnel = $42,500/M.D., 4.4% of physicians' time; Contract billing = $3,224/M.D.	—	—	Nonphysician personnel = $28,033/M.D.; assumed 1% of physicians' time.	14.8
		Hospitals	U.S.: Sum of administrative cost accounting categories from 1987 AHA Monitrend data analysis prepared for ProPAC, Canada Unpublished 1988 data from Health and Welfare Canada for all of Canada	15.4% of total hospital spending.		—	9% of total hospital spending.	—	—	18.2

(continued)

				Estimates						
				United States			Canada/Canadian System Implemented in the United States			
Study	Year of estimates	Category of costs	Methods/ Data source	Percent administrative	$ per capita for administration	Total administration ($ billions)	Percent administrative	$ per capita for administration	Total administration ($ billions)	Difference ($ billions)
Sheils and Young, 1992[9]	99	Insurance	U.S.: National health expenditure data; average administrative overhead for public and private insurance, 1983-1989. Canadian system in U.S.: U.S. Medicare administration adjusted for lower utilization by nonelderly and elimination of patient cost-sharing.	13.7% of claims for private insurance; 3.6% of claims for public insurance.		38.2	—	$80 per over-65 beneficiary; $48 per under-65 beneficiary.	15.7	
		Physicians	U.S.: All nonpatient care costs reported in survey of multispecialty physician offices by Medical Group Management Assoc. Canadian system in U.S.: Interviews with industry experts about how current administrative cost categories would change.	—		43.3		—	32.2	11

(continued)

TABLE 3-1 continued: Comparisons of Administrative Costs in the United States and Canada

				Estimates					
				United States			Canada/Canadian Sys in the Unite		
Study	Year of estimates	Category of costs	Methods/ Data source	Percent administrative	$ per capita for administration	Total administration ($ billions)	Percent administrative	$ per cap for administra	Difference ($ billions)
		Hospitals	U.S.: Administrative data from California State hospital cost reports. Canadian system in U.S.: Interviews with industry experts about how current administrative cost categories would change.	—	—	90.9	—	—	134

[a] D.U. Himmelstein and S. Woolhandler, "The Deteriorating Administrative Efficiency of the U.S. Health Care System," *NEJM* 324(18), 1253-1258, May 2,
[b] Results not reported for this category. Same holds for all blank cells in table 3-1.
[c] D.U. Himmelstein and S. Woolhandler, "Cost Without Benefit: Administrative Waste in U.S. Health Care," *NEJM* 311(7), 441-445, Feb. 13, 1986.
[d] S. Woolhandler, D.U. Himmelstein, J.P. Lewontin, "Administrative Costs in U.S. Hospitals," *NEJM* 329 (Aug. 5, 1993) 400-403.
[e] U.S. GAO, *Canadian Health Insurance: Lessons for the United States*, U.S. GAO, #HRD-91-90, June 1991.
[f] U.S. GAO, *Canadian Health Insurance: Estimating Costs and Savings for the United States*, U.S. GAO, #HRD-92-83, April 1992.
[g] J.F. Sheils and G.J. Young, "National Health Spending Under A Single Payer System: The Canadian Approach," staff working paper for Lewin/ICF, Ja

KEY: AHA = American Hospital Association, AMA = American Medical Association, ProPAC = U.S. Prospective Payment Assessment Com

SOURCE: Office of Technology Assessment, 1994.

hospital, nursing home, and overall insurance program spending devoted to administration (8, 10.5, and 2.5 percent respectively). For self-employed physicians, they use an estimate that professional expenses in the province of Ontario average 36 percent of gross income. Applying these percentages to 1983 spending in the United States, they conclude that a Canadian-style system could have saved $29.2 billion in administrative costs, an amount equal to 8.2 percent of actual spending.

Himmelstein and Woolhandler also prepared similar estimates for Great Britain using data from published sources. According to the NHS, central administration of the system costs 2.6 percent of total expenditures, while hospital administration was 5.7 percent of total hospital spending. Because long-term care is more integrated into the NHS system, the authors assumed that the administrative rate for hospitals also applied to nursing homes. For physicians, they used a published estimate of an average of 29 percent of gross income for professional expenses. Applying these percentages to 1983 U.S. health expenditures, the authors conclude that a British-style system would have saved $39.3 billion.

Himmelstein and Woolhandler concede that they may have underestimated the administrative savings possible had the United States implemented the Canadian or British system prior to 1983. In particular, they cite the lower wages paid to physicians in those two countries as leading to a $25 billion to $30 billion underestimate in potential savings.[6]

A Second Comparison

In 1991 Woolhandler and Himmelstein revisited the topic of U.S. and Canadian administrative expenditures, this time for 1987 (54). In addition to using more recent data, the authors also refined their methods, especially for estimating the administrative costs associated with physicians in private practice. The units used to compare the United States and Canada also differ from those in the first study. Instead of estimating the savings that could be realized if the United States faced the same percentages of expenditures devoted to administrative costs that Canada faces, they estimated administrative costs in both countries in 1987 U.S. dollars *per capita (see* table 3-1).

The authors estimate the cost of providing insurance in the same manner as before, drawing on HCFA's national accounting expenditure data for private and public insurance and unpublished data from Health and Welfare Canada and Statistics Canada. For hospitals and nursing homes in the United States, they again extrapolate from data collected by the CHFC. However, this time they provide details of the specific cost categories counted as administrative.[7] For Canadian hospitals and nursing homes, the administrative esti-

[6] Himmelstein and Woolhandler do not provide the methods underlying this estimate. They also suggest that some nonadministrative savings would result, as the imposition of a national health system would decrease financial incentives to provide "excessive medical intervention. superfluous medical services and products, and the duplication of health institutions. . ." (20), although they provide no quantitative estimates of these behavioral changes.

[7] Included in their estimate of administration are general accounting, patient accounting, credit and collection, admitting, other fiscal services, hospital administration, public relations, personnel department, auxiliary groups, data processing, communications, purchasing, medical library, medical records, medical staff administration, nursing administration, in-service education, and other administrative services. Excluded are research administration, administration of educational programs, printing and duplicating, depreciation, amortization, leases and rentals, insurance, licenses, taxes, central services and supply, other ancillary services, and unassigned costs.

mates came from unpublished federal data drawn from provincial reports, which were verified by examining data directly from the provinces.[8]

Rather than relying solely on physicians' reports of their entire practice expenses as a proxy for their administrative costs, Himmelstein and Woolhandler also attempted to estimate costs based on the number of personnel devoted to administration in physician's offices. They suggest that the expense method overestimates the difference between Canadian and U.S. administrative costs, while the personnel method underestimates, thus providing a reasonable range around the likely truth.

Professional expense data for the United States came from the AMA's socioeconomic survey of physicians practicing in the United States, while Canadian data came from a sample of physicians' tax returns corrected for distortions in groups practice reporting. Data on physician office personnel in the United States came from the Current Population Survey, a representative survey done annually by the Census Bureau.

Canadian estimates of physicians' administrative expenses were based on a study of physician office staffing patterns in Ontario done in 1977.9 They valued each full-time employee at $35,000 (U. S.) in both countries and then added the value of outside billing services in the United States according to an AMA survey. For both methods and countries, the authors added in estimates of the value of physicians' own time spent on billing.

When the authors recalculated 1987 administrative costs in a manner exactly comparable to their 1983 estimates, the numbers show that during this four-year period administrative costs in the United States rose from 21.9 to 23.9 percent of total health expenditures. while in Canada they declined from 13.7 to 11.0 percent.

National Estimates of U.S. Hospital Costs

One of the criticisms leveled against both studies by Woolhandler and Himmelstein is that they generalize from the experience of California to make national estimates of hospital administration (2,25). Although they found the California estimates to be comparable to seven other states, the authors did re-estimate hospital administrative costs for 1990 using national Medicare cost reports drawn from 6,400 hospitals that participated in Medicare that year, close to the universe of all hospitals in the United States (55). [10] They allocated each reported hospital expense category as either administrative, clinical, both, or neither. The "both" category comprises the cost of the physical plant and employee benetits. [11]

This analysis showed that administration was 24.8 percent of national hospital expenditures in 1990, with a range of 20.5 to 30.6 percent among the states. This estimate is higher than those used

[8] They estimate total hospital administrative costs bv adding together the categories of "other" hospital administration, advertising, association-membership fees, business machines, collection fees, postage, auditing and accounting, other nonmedical professional fees, service-bureau fees, telephone and telegraph. board members' indemnity, travel and convention expenses, medical records, hospital library, and nursing administration. Excluded are educational and research administration, insurance, interest, printing, stationery and office supplies, material management, and central supply. For nursing homes, administration constituted only a single category.

In August 1994 Woolhandler and Himmelstein issued a correction to their 1991 study indicating that an error in their raw data had caused them to underestimate the cost of hospital nursing administration in Canada. The correct data would have raised hospital Canadian *per capita* administration from $50-S58 (Canadian) and the range of total per capita administration from $ I I7- S 156 (Canadian), to $ 125-S 164 (Canadian) (56). Because of the late date of this correction, this background paper's discussion of their work and the associated tables do not incorporate this change.

[9] Woolhandler and Himmelstein report that staffing in the 1977 surv ey appeared to be somewhat higher than informal 199 l estimates provided by the Ontario Medical Association.

[10] According t. the American Hospital Association, there were *6,720* hospitals in the United States in 1989 (1).

[11] The proportion of physical plant attributable t. administration was assumed to be the same as the proportion Of all other costs attributable to administration in the hospital. For employee benefits, all salaries of employees who administer the benefits were assumed to be administrative. All remaining costs were allocated between administrative and c1 inical in the same manner as physical plant costs.

in the 1983 and 1987 U.S.-Canadian comparisons based on data from California hospitals alone (18.3 and 20.2 percent, respectively). The 1990 estimate for California only was even higher: 27.7 percent.

The authors do not attempt to explain the difference between this and their earlier estimates, stating only that their method of allocating expenses for physical plant and related capital and interest may somewhat overestimate administrative costs. If one assumes that no part of these expenses is attributable to administration, the overall estimate is reduced to 20.8 percent. Schwartz and Mendelson (34) have suggested other ways in which Woolhandler and colleagues' Medicare estimates may overstate the cost of hospital administration in the United States:

- In their Medicare cost reports, hospitals tend to shift expenses from clinical to administrative categories to increase reimbursement.
- The authors do not exclude the portion of general administration attributable to research and education in the hospital; they exclude only the directly itemized costs for these programs.[12]

U.S. General Accounting Office (GAO) Estimates

In 1991 GAO issued its own analysis of the economic costs and benefits of implementing a Canadian-style system in the United States, including a comparison of administrative costs in the two countries (43).[13] Using data from various sources from the late 1980s, GAO projected administrative cost estimates to 1991 for both countries (see table 3-1). Although GAO followed the same general procedure of breaking administrative costs down among its component parts and even used some of the same data sources as Woolhandler and Himmelstein, there are significant differences in methods and results. GAO did not include estimates of nursing home administrative costs for either country. For the United States, GAO:

- broke physician administrative expenses into three components using data from the AMA's 1988 socioeconomic survey: proportion of physicians' time spent on insurance (4.4 percent), nonphysician payroll ($42,500 per physician), *[4] and the cost of contract billing services (14 percent at a cost of $8 per claim, or $3,224 per physician); 15
- estimated hospital administrative costs using data from the American Hospital Association 1988 Monitrend, prepared under contract to the U.S. Prospective Payment Assessment Commission (15.4 percent of total hospital expenses) (23,48); [16] and
- used the 1988 HCFA national accounting data for health expenditures to calculate the proportion of insurance expenditures devoted to overhead defined as "administration and the net cost of private health insurance" or the difference between premiums and benefits paid (5.8 per-

12 Schwartz and Mendelson also point out that the category of general administration contains expenses such as utilization review, which might not be able to be eliminated under a Canadian-style system without some decrease in quality or increase in overall costs and, as discussed later in this background paper, that Himmelstein and Woolhandler's approach to comparing costs in the United States and Canada may underestimate administrative costs inherent in the Canadian system (34). Furthermore, utilization review may be difficult to categorize as either an administrative or clinical expense since it affects both.

13 GAO detailed the methods used in this analysis in a separate publication published in 1992 (44).

14 Implicit in GAO's methods is the assumption that the whole difference in the nonphysician wage bill between Canada and the United States is attributable to administration and not other factors such as differentials in wages and intensity of clinical services, This latter factor could be especially important since nonphysician personnel include nurses and technicians.

15 Data on total number of physicians and physician expenditures include physicians employed by HMOs. However, GAO suggests that this could not distort their estimates in any significant way since physicians employed by HMOs represented only 2 percent of all practicing physicians (44).

16 Using data provided t. ProPAC, GAO calculated administrative expenses as a proportion of the cost per hospital discharge. In this database, administration comprises the categories of general accounting, patient accounts and admitting, medical records, purchasing and stores, and data processing (23,44).

cent), which is the same definition used by Woolhandler and Himmelstein. [17]

For Canada, GAO:

- used unpublished data from the Ontario Medical Association to estimate the nonphysician wage bill for that province (an average of $28,033 per physician). Because the same data indicated that physicians spend little time on billing and insurance, GAO assumed that they spent 1 percent of their time on these matters. It was also assumed that there are no contract billing services in Canada and that the experience of Ontario is representative of the entire country;
- used unpublished data from Health and Welfare Canada that administrative costs were 9 percent of total hospital expenditures in 1987; 18 and
- used a 1987 Canadian national health accounting data category called "prepayment administration" as the measure of the administrative cost of providing public and private insurance (1.2 percent of total health expenditures).

GAO concludes from its estimates that a Canadian-style system implemented in the United States in 1991 would lead to $67 billion less in administrative costs than were spent under the current system. This difference breaks down to $34 billion in insurance overhead, $15 billion in physicians' administrative costs, and $18 billion in hospital administration.

Comparison by Sheils and Young

In January 1992 Sheils and Young, analysts at the private consulting firm Lewin/ICF,[19] released their own comparison of U.S. and Canadian administrative costs (36,37). In proposing their analysis, they offered several critiques of the work by Himmelstein and Woolhandler (36). mostly concerning the suggestion that implementation of a Canadian-style system in the United States would lower administrative costs. A specific criticism concerned the accuracy of Himmelstein and Woolhandler's measurement of administrative costs in either of the two countries. In particular, Sheils and Young suggest that many indirect costs of running the Canadian provincial health programs, including those associated with facilities and equipment, were left out.[20]

Their other critiques focus on the nature of or potential explanation for the differences they find. They observe that a significant portion of providers' administrative costs in the United States would not necessarily change with a new reimbursement system. These include costs associated with malpractice, supplies, security, grounds, and wage differentials. These authors also suggest that higher administrative costs in the United States reflect, in part, higher capitalization (i.e., more medical equipment and facilities) and higher Constitutional standards for legal due process. which raises the costs of claims adjudication. Higher capitalization can change only in the longer run, while there is no reason to believe that standards for due process would necessarily change at all (37).

Like GAO, Sheils and Young summed the administrative costs for insurance, physicians, and hospitals to arrive at an overall figure. However, their methods and some of their data (see table 3-1) vary from those used by either GAO or Woolhandler and Himmelstein. Most significantly. their analysis is not actually a comparison of U.S. and Canadian administrative costs. To correct for

17 This category comprises the accounting categories of administrative costs, net additions to reserves, rate credits and dividends, premium taxes, and profits or losses. Both GAO and Himmelstein et al. calculated the administrative costs of insurance using HCFA data estimates of the net cost of private health insurance as a percentage of total expenditures on health services and supplies (44,51).

18 GAO attempted to include expense categories Comparable to those measured for the United States: genera) administration (minus liability insurance, interest payments. and utilities), material management, central supply, medical records, and hospital library (44).

19 This firm is now known as Lewin-VHI.

20 However, they provide no reference or detail for this, only alternative methods of measuring administrative costs.

the problems they find in the work by Woolhandler and Himmelstein, they base their estimates for a hypothetical Canadian-style system implemented in the United States on assumptions about how current U.S. costs would change under a reformed system. They do not use any data from actual Canadian experience to make their estimates.

For the United States, Sheils and Young calculated insurance overhead using HCFA's national accounting health expenditure data. They based their extrapolation on the average administrative overhead rate for the period 1983 to 1989 to avoid year-to-year fluctuations, and calculated administrative overhead as a percentage of claims paid separately for private health insurance (13.7 percent) and public programs (3.6 percent).

To estimate administrative costs under a Canadian-style system in the United States, Sheils and Young extrapolated from Medicare administrative costs (with some adjustments). They argue that this approach compensates for characteristics of the U.S. health care system not found in Canada that influence administrative costs and are not necessarily subject to change under a single-payer system. This approach also corrects for the fact that data on Canadian insurance administration does not include overhead for buildings, equipment, fringe benefits, and personnel services (37).[21] The authors estimate that total insurance administration would be $10.5 billion for the nonelderly population and $2.5 billion for the elderly. To this, they add an estimated $1.6 billion in the administration of private health insurance and $1.1 billion for public programs that cover services not included under the national program, for an estimated total of $15.7 billion in insurance administration under a Canadian-style system.

To estimate physician costs not directly related to patient care, Sheils and Young used data from a 1990 survey of multispeciality medical groups by the Medical Group Management Association that included data on expenditures for different types of nonclinical activities. To this, they added an estimate of the value of physicians' own time spent on insurance issues based on the AMA's 1988 socioeconomic survey data. These methods yield estimates of $17.4 billion in nonphysician salaries, $6.64 billion in physician time spent on administration, and $19.54 billion in other administrative costs for a total of $43.58 billion in 1991.

To estimate hospital administrative costs under the current U.S. system, which they define as everything except direct patient care, Sheils and Young drew on the same detailed cost accounting data collected for California used by Woolhandler and Himmelstein.[22] Summing all nonclinical cost categories and extrapolating to the country as a whole, they estimate hospital administrative costs in 1991 to be $93.9 billion (or 33.3 percent of total hospital spending), which includes $9.4 billion in net hospital revenues extrapolated from the national net revenue rate reported in 1989 Medicare cost reports.

For hospital and physician administrative costs of a Canadian-style system implemented in the United States, Sheils and Young examined each category of administrative costs under the current system, On the basis of interviews with unidentified industry experts, they made assumptions about how each category of costs would change

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21 They estimate that while Medicare has administrative costs of $85 per enrollee per year, a Canadian-style system would have costs of $80 per elderly enrollee and S48 per nonelderly enrollee. These projected differences between the current Medicare program and a Canadian program would be the net result of the elimination of individual hospital claims, increased utilization due to the lack of copayments, and the fact that nonelderly beneficiaries would have lower utilization than do the elderly and disabled beneficiaries of Medicare. They assume utilization review programs would remain.

22 Sheils and Young note that extrapolation from California to the rest of the country maybe problematic because California has a 14-percent lower average length-of-stay, a 50-percent higher average cost per day, a 5.5-percent higher staff-to-bed ratio than the nation as a whole and recent legislation that may have increased administrative costs associated with contracting for negotiated discounts. However, they do not comment on or attempt to replicate Wool handler and Himmelstein's analysis that shows hospital administrative costs in California to be comparable to those in other states.

under a Canadian-style system. Summing these components, they estimate that hospital administration would cost $80.65 billion and physician administration $32.23 bill ion.

Summary of Estimated Administrative Savings

For the four major analyses summarized above, table 3-2 presents the estimated impact on administrative costs of implementing a Canadian-style system in the United States. All estimates are in 1991 U.S. dollars. OTA has converted the per capita results from the 1991 Himmelstein and Woolhandler study (54) to total expenditures.

Leaving out the earlier of the two Himmelstein and Woolhandler studies, the range of potential savings is $47 billion to $98 billion. Although this range is large, the findings do suggest that. all else being equal, imposition of a Canadian system could lead to a reduction in administrative costs.

Other Approaches

Other authors have discussed differences in administrative costs in the course of comparing the U.S. and Canadian health care systems, but none has attempted any quantitative estimates independent of those discussed above. In their proposal for health care reform in the United States, the Physicians for a National Health Program rely on estimates by Himmelstein and Woolhandler (20) as evidence of administrative savings that could be realized under a single-payer system (16). Another reform proposal by the Economic and Social Research Institute with support from the Robert Wood Johnson Foundation uses Himmelstein and Woolhandler's 1991 study as the basis for estimating administrative savings from adopting a Canadian-style system.

Fuchs and his colleagues discuss differences in administration as part of two studies comparing health care costs in the United States and Canada (10,11). However, they do not attempt to measure

TABLE 3-2: Estimated Administrative Savings of a Canadian Style Health Care System in the United States in Billions of 1991 U.S. Dollars[a]

	Himmelstein and Woolhandler, 1986[b]	Woolhandler and Himmelstein, 1991[c]	GAO, 1991-92[d]	Sheik and Young, 1992e
Year of estimates	1983	1987	1991	1991
Administrative savings in				
Insurance	9	26	34	23
Physicians	8	19-35f	15	11
Hospitals	20	32	18	13
Nursing homes	1	5	—9	—9
Total estimated administrative savings	39	81-98	67	47

[a] Data from Himmelsteln and Wool han dl er 1986 and Woolhandler and H ımmelstein 1991 inflated to 1991 U S dollars using the Gross Domestic Product (GDP) Implicit Price Deflator
[b] D U Himmelstein and S Woolhandler 'Cost Without Benefit Administrative Waste in U S Health Care "*NEJM 311* (7), 441-445 Feb 13, 1986
[c] S Wool handler and D U Himmelstein The Deter orating Administrative Efficiency of the U S Health Care System, " *NEJM 324(* 18) 1253-1258 May 2 1991
[d] U S GAO Canadian *Health Insurance Estimating Costs and Savings for the United States*. U S GAO, #HRD-92-83 April 1992; U S GAO *Canadian Health Insurance Lessons for the United States* U S GAO, #HRD-91-90 June 1991
[e] J F Sheı Is, and G J Young Nat ıona Hea t h Spending U rider A Single Payer System The Can adian Approach, " staff working paper for Lewin/ ICF Jan 8 1992
[f] The range represents Wool handler and Himmelstein's two methods of estimating physicians administrative expenses The text summarizes these methods in greater detail
[g] These studies d d not estimate nursing home administrative costs

SOURCE Off Ice of Technology Assessment 1994

administrative activities directly, In an analysis of physician services, Fuchs and Hahn speculate that higher administrative costs are a prime source of the higher physician fees that they observe in the United States. As evidence of higher administrative costs, they cite Himmelstein and Woolhandler's 1986 study as well as some of these authors' data sources (10,1 1). Similarly, they suggest higher administrative costs and intensity of service in the United States as "the most likely explanations" for the higher overall hospital costs but they offer no independent evidence to support this explanation (32).

Evans and his colleagues also have examined and commented on differences in health care expenditures in the United States and Canada, suggesting administration as one of the sources of the higher expenditures observed in the United States (3,8,9). However, they too do not try to measure administration directly.

A Debate Over U.S.-Canadian Comparisons

Danzon's Critique of U.S.-Canadian Comparisons

Danzon (6) has offered an economic critique of the entire approach of using existing data to compare administrative expenditures in different health care systems. Her analysis, which has proved controversial, goes to the heart of the definitional issues considered in the first section of this paper. She first suggests that the national accounting data measuring insurance overhead in the United States is not comparable to the estimated overhead of Canada's provincial insurance program. She suggests that premium taxes, investors' return on capital, and investment income should be removed from the American estimates.[23] By her calculations, this adjustment would reduce Woolhandler and Himmelstein's estimate of insurance overhead for 1987 (54) from 11.7 percent of benefits to 7.6 percent.[24]

The more significant part of Danzon's critique is that analyses using accounting data (like those of Himmelstein and Woolhandler, GAO, and Sheils and Young) ignore important hidden or indirect costs of administering publicly based health care systems like that of Canada. She includes among the hidden costs of the Canadian system:

- excessive patient time resulting from physicians' tendencies to compensate for fixed fees by scheduling multiple, short office visits:
- diminished productivity, lost income, and lower quality of life due to waits caused by rationing of hospital services; and
- "dead-weight loss" in productivity and consumption as employers and consumers change their behavior to avoid activities that are taxed by the state to finance the health care system in lieu of private insurance premiums.

In addition to unmeasured overhead costs in the Canadian system, Danzon argues, there are unmeasured benefits in the administrative apparatus of the U.S. system. She views claims processing, a large component of administrative expenditures in the United States, as a check against "moral hazard," or the tendency of consumers to overuse health care services because they are insured against all or much of their costs. In addition, she sees the diversity of insurance plans as a means of accommodating the variety of consumer preferences, although she concedes that employer tax subsidies for health insurance and the structure of insurance regulation in the United States may lead to more options in the current system than is efficient.

Although they are not directly related to overhead or administration, Danzon also cites the substantial amount of health-related research and the

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23 Danzon argues that these components should be removed because premium taxes are a transfer from employers and consumers to state governments, not an actual cost; because investment income is a return to insured individuals and groups for the use of the premiums that they pay in advance; and because it is not clear what cost in a public insurance program would be comparable to the return on capital found in private insurance.

24 This figure is compared with 0.9 percent for Canada.

diversity of nonphysician medical personnel as additional benefits of the U.S. system of financing health care.

Critiques of Danzon's Analysis

Other analysts have taken issue with several of Danzon major points. Schlesinger (35) believes that Danzon subjects Canada to a double standard by counting patient time from multiple or lengthy medical visits as a cost in Canada, but ignoring patient time lost attempting to understand the details of insurance benefits, copayment requirements, and claims forms in the United States, Her argument that Canadian rationing through patient waiting leads to a lower quality of life is not weighed against the fear many Americans may have that they might lose their health insurance. And the "dead-weight loss" associated with tax-based financing in Canada is not balanced against the "dead-weight loss" of workers who cannot not move to optimal jobs for fear of losing health insurance on a temporary or permanent basis.

Schlesinger also criticizes Danzon for ignoriin certain costs in the United States:

1. the cost of evaluating and deciding among insurance plans and provider systems,
2. the costs to firms of trying to avoid hiring employees believed likely to use substantial health care services,
3. the cost of employee benefits personnel in firms, and
4. the cost of capital for private insurance over and above the comparable cost for public programs since private firms must compensate investors for risk of bankruptcy.

On the subject of Canadian queues for services, Barer and Evans (3) argue that both the U.S. and Canadian systems ration, and that the Canadian means of rationing through queues is preferable since it is based on information (physicians' judgments of medical necessity) rather than on ability to pay. Woolhandler questions whether there are medically significant waiting times in Canada at all, noting that there has been little empirical research on the subject(53). One recent study of randomly chosen breast cancer patients in British Columbia (Canada) and Washington State (United States) actually found 13.4 percent of women in Washington experienced a delay of three months or more[25] from time of first symptom to diagnosis, while only 4.6 percent experienced such a delay in British Columbia (a statistically significant difference).[2b]

PERSONNEL AS A MEASURE OF ADMINISTRATION

A significant component of a country's health care expenditures are personnel costs, including individuals charged with carrying out administrative duties. Through censuses and other population-based surveys, countries gather information on their labor forces on a regular basis. Analysis of the health care labor force may serve as a useful proxy for expenditures devoted to administration and patient care, especially when trying to assess the relative investment in administration across countries or to assess trends over time.

To investigate the usefulness of this approach and to understand better the health care labor forces of the United States and Canada, OTA commissioned an analysis of national occupational data for these two countries by David Himmelstein, Steffie Woolhandler, James Lewontin, and Donna Pound at the Center for National Health Program Studies, Harvard Medical School *(2* 1 *).*[27]

[25] Observational studies have found an association between delay of three to six months in diagnosis and mortality (24).

[26] Median times from symptom to diagnosis for the overall sample were relativ ely short and similar between the two regions (*4).

[27] Himmelstein and colleagues also investigated occupational trends in the German health cares) stem. How ever, because of serious discrepancies between Germany and the other two countries in defining various occupational categories (22), OTA omits the results of their preliminary> analyses of Germany in this document.

Summary of Methods[28]

For each country, Himmelstein and colleagues grouped into one of 17 occupational categories all individuals whose principal place of employment, whether part time or full time, was the office of a physician or other health practitioner, a hospital, a nursing or personal care facility, or other health service facility.[29] Using data on numbers of employed individuals and hours worked, the authors calculated "full-time equivalents" (FTEs) for each job category in total and per capita for the whole U.S. population.[30] With these data they analyzed trends in the size and composition of the health care workforces in each country and compared the workforces of 1971 and 1986.[31] In addition to focusing on relative numbers of administrative personnel in each country, the analysis also examines each country's reliance on technicians and technologists as a possible proxy for the intensity of services and use of technology in Canada and the United States.

Employment information for the United States came from the U.S. Census Bureau Current Population Survey (CPS) from 1968 to 1992, an annual survey of 60,000 households representative of the civilian noninstitutionalized population. The survey records information on occupation and place of employment and includes about 6,000 individuals working in the health care sector. Data on health care workers in Canada comes from the 1971 and 1986 Canadian censuses; the first of these censuses just preceded the full implementation of single-payer health insurance in Canada.

Although Himmelstein and colleagues were able to identify clearly individuals with health-related occupations (e.g., physicians, nurses, therapists) in nonhealth care workplaces, a major limitation of their analysis is that the CPS data do not allow identification of administrative and clerical personnel who perform health care-related functions in such workplaces. Hence, their data do not include personnel in private firms who administer health insurance benefits for their employees, leading to underestimates of administrative personnel in the United States, or health care management consultants who do not work in health care workplaces.

Results

Health Care Personnel in the United States

Between 1968 and 1991, the number of FTEs for all U.S. health care occupations grew from 3.98 million to 9.79 million (146 percent), as shown in figure 3-4. However, the number of administrative personnel grew much more than the average: managers and related personnel from 128,000 to 907,000 (608 percent); administrative support personnel except financial from 520,000 to 1.42 million (183 percent); administrative support, financial from 70,000 to 269,000 (285 percent); social service from 32,000 to 293,000(818 percent); therapists from 33,000 to 239,000 (606 percent); and technologists and technicians from 230,000 to 802,000 (249 percent). The number of FTE clinical personnel (physicians and nurses) grew slightly less than the average increase, while there was little change in food service, laundry, cleaning, and maintenance personnel.

The change over time is also striking when comparing the composition of the health care workforce in 1968 and 1991 (figure 3-5). Man-

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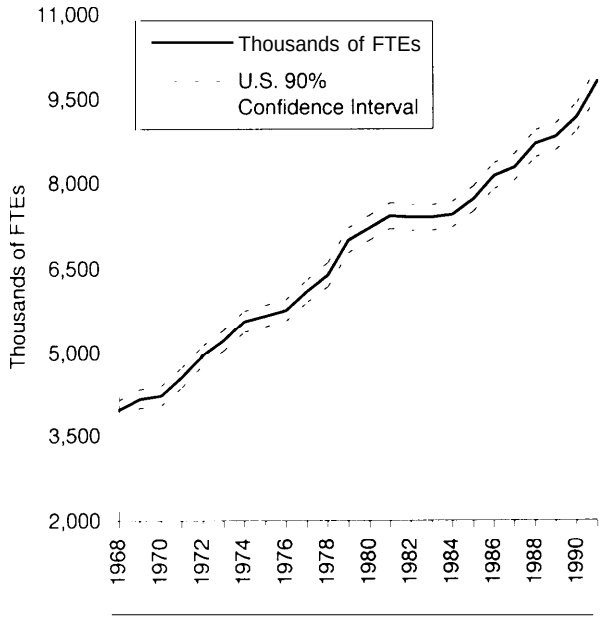
28 Appendix C gives a complete, detailed description of the methods used by Himmelstein and colleagues.

29 For years 1968-71, the Current Population Survey (U.S. Census Bureau) only allows classification into two health care workplaces: hospitals and "other."

30 Himmelstein and colleagues also adjusted for the possible lack of comparability in certain job categories between the two countries and tested the sensitivities of their results to changes in the Census Bureau's job classification schemes over time in the United States.

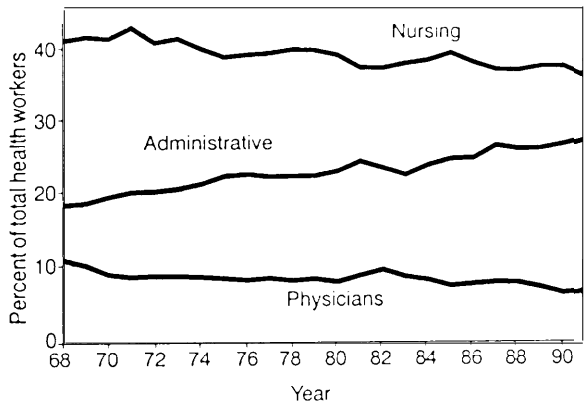
31 Because the Current population Survey is a sample survey, estimates made for the entire U.S. population using CPS data carry potential sampling error. These standard errors are taken into account in the 90 percent confidence intervals presented for the U.S. estimates in figure 3-4, and figures 3-6 through 3-11. Because the Canadian census is a 20-percent sample, the random standard errors of estimates from its data are negligible (5 I).

FIGURE 3-4: Total U.S. Health Employment, 1968-1991 Full Time Equivalents (FTE)



SOURCE Office of Technology Assessment, 1994. Based on D.U. Himmelsteln, S Woolhandler, J P Lewontin, D J Pound "Health Care Labor Force U S , Canada and West Germany, " contractor paper prepared for the Office of Technology Assessment Cambridge, MA Center for National Health Program Studies, Harvard Medical School/The Cambridge Hospital Mar 19 1993

FIGURE 3-5: Physicians, Nursing, and Administrative Personnel as Percent of Total U.S. Health Workforce, 1968-1991



SOURCE D U Himmelstein, S Woolhandler, J P Lewontin D J Pound "Health Care Labor Force U S Canada and West Germany contract paper prepared for the Off Ice of Technology Assessment Cambridge MA Center for National Health Program Studies, Harvard Medical School/The Cambridge Hospital Mar 19, 1993

agement and administrative support personnel grew from 18.1 percent of all FTEs in 1968 to 27.1 percent in 1991. Nursing personnel[32] declined from 40.6 percent of FTEs in 1968 to 35.6 percent in 1991. Other declines occurred among physicians (10.8 to 7.5 percent of FTEs) and food service, cleaning, laundry, and maintenance personnel (14.9 to 8.2 percent). All other clinical personnel combined increased from 10.7 to 14.8 percent of all FE health workers.

Comparisons With Canada

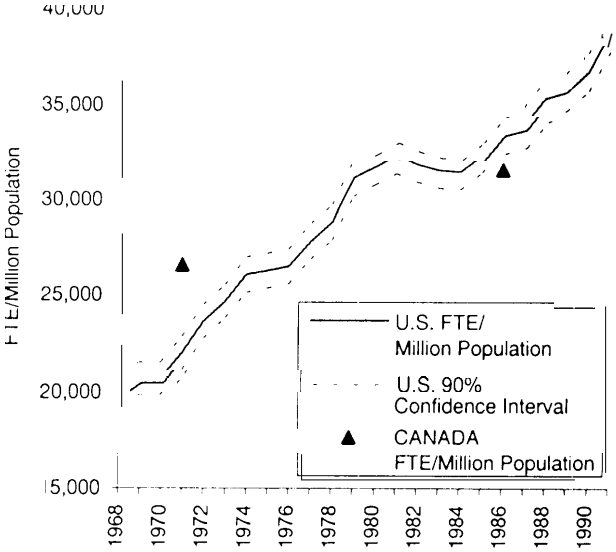
In 1971 the United States employed 22,000 personnel per million population; Canada employed 26,565 (see figure 3-6). In terms of the number of administrative personnel per capita, the two countries were almost identical (see figure 3-7). However, between 1971 and 1986 the health workforce of the two countries diverged. U.S. health FTEs per million rose 53 percent, while Canada's rose 19 percent. resulting in 7 percent more FTEs per million in the United States than in Canada (33,666 vs. 31,529) (figure 3-6).

All the U.S. excess in health personnel as compared to Canada in 1986 is attributable to the greater numbers of managers and support personnel in the United States (figure 3-7). In 1986 the United States employed 85 percent more health managers per million population than did Canada (2,634 vs. 1,425), 22 percent more nonfinancial administrative support (4.593 vs. 3,778), and 65 percent more financial administrative support (999 vs. 604).

Excluding administrative personnel, the two countries employed roughly the same number of FTEs per million in 1986 (25,440 in the United

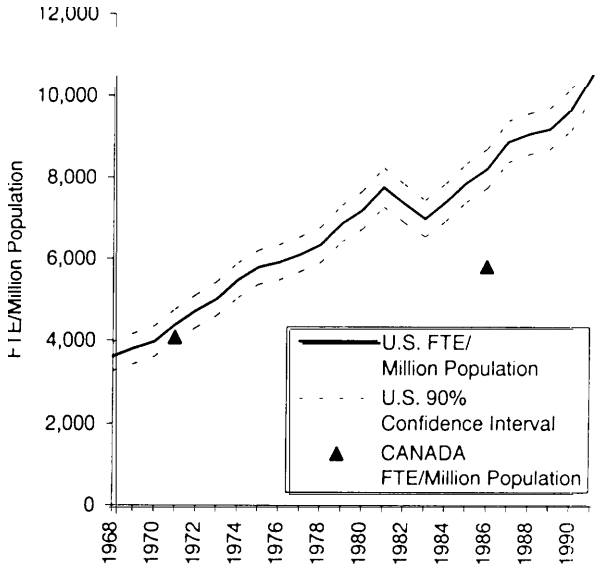
[32] Nursing personnel include registered nurses (RNs), licensed practical nurses (LPNs), and nursing /health care aides.

FIGURE 3-6: Total Health Employment Per Million Population, U.S. vs. Canada, 1968-1991



SOURCE Officeof Technology Assessment, 1994 Based on Himmelstein, D U Woolhandler, S Lewontin, J P, Pound, D J , "Health Care Labor Force U S , Canada, and West Germany" contract paper prepared for the Off Ice of Technology Assessment Cambridge, MA Center for National Health Program Studies Harvard Medical School/The Cambridge Hospital Mar 19, 1993

FIGURE 3-7: Managers and Administrative Support Personnel, U.S. vs. Canada, 1968-1991



SOURCE Office of Technology Assessment, 1994 Based on D U Hirnmelstein, S Woolhandler, J.P. Lewontin, D J Pound, "Health Care Labor Force U S , Canada, and West Germany," contract paper prepared for the Office of Technology Assessment Cambridge, MA Center for National Health Program Studies, Harvard Medical School/The Carnridge Hospital Mar 19, 1993

States vs. 25,722 in Canada). The United States had fewer registered nurses (5,419 vs. 6,948), more licensed practical nurses (1,333 vs. 1,002), and more technologists and technicians (2,423 vs. 1,988) (see figures 3-8 and 3-9).[33]

The divergence in the number of FTE technicians and technologists is particularly interesting. While this group grew 37 percent in Canada between 1971 and 1986, the comparable increase in the United States was 80 percent.

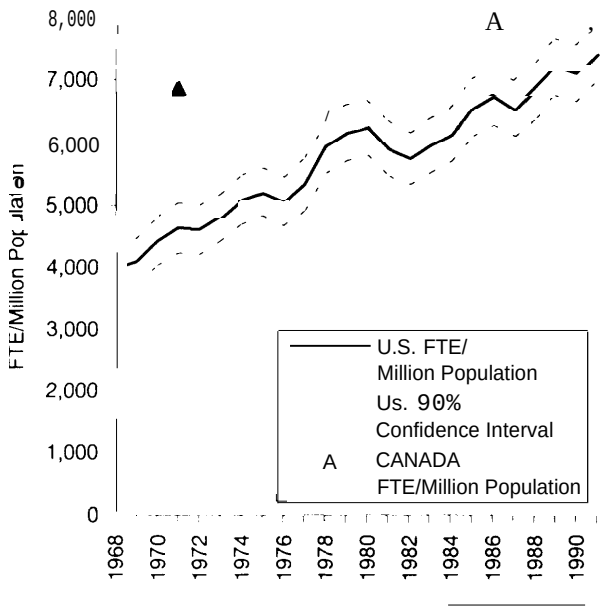
In 1986 Canada employed 18 percent fewer FTE technicians and technologists than did the United States. This finding supports other observations that Canada uses less technology in medical care than does the United States (33). Alternatively, this finding could bean indication that Canada regionalizes its technology to a greater extent than the United States—that is, it offers expensive, high-technology services in a limited number of regional centers that specialize in the service or procedure rather than diffusing them broadly throughout the country (52).

Comparisons of the Labor Force in Practitioners' Offices

Himmelstein and colleagues also examined the composition of the labor force specifically employed in practitioners' offices. Practitioners'

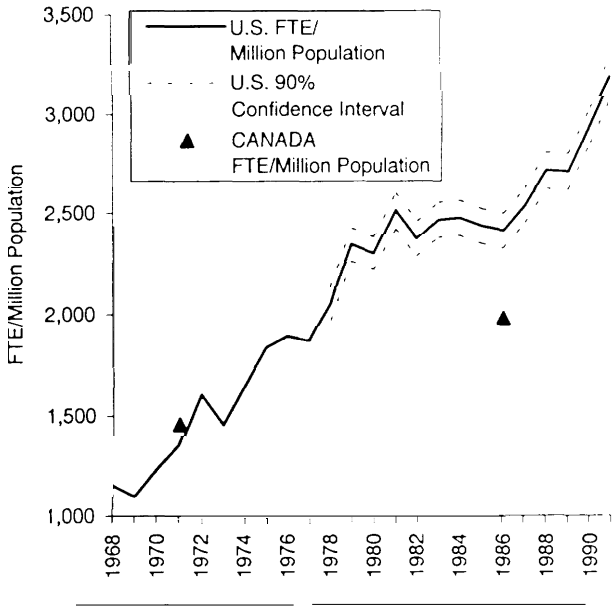
[33] While the United States had more workers per million classified as "aides or other health service personnel," it had fewer in the category "not elsewhere classified" (n.e.c.), probably reflecting a difference in occupational coding procedures in the two nations. Classifications such as "aides" and "orderlies" appear to be more narrowly defined in Canada than in the United States. In addition, a single Canadian occupational code comprises therapists and nursing aides n.e.c. and was assigned to the "therapists" group for the purposes of this analysis (21).

FIGURE 3-8: Registered Nurses and Licensed Practical Nurses, U.S. vs. Canada, 1968-1991



SOURCE Off Ice of Technology Assessment, 1994 Based on D U Himmelstein, S Woolhandler, J. P. Lewontin, D J Pound, "Health Care Labor Force U S , Canada, and West Germany, " contract paper prepared for the Office of Technology Assessment Cambridge, MA Center for National Health Program Studies, Harvard Medical School/The Cambridge Hospital Mar 19, 1993

FIGURE 3-9: Health Technologists and Technicians, U.S. vs. Canada, 1968-1991



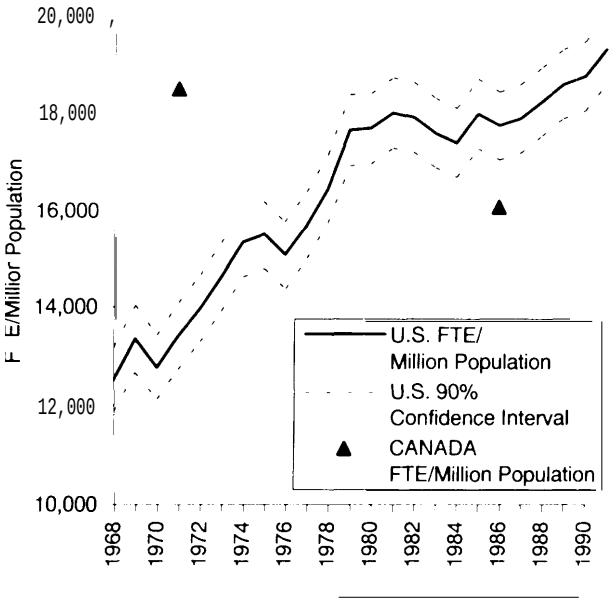
[a]Confidence Intervals are not calculated before 1978 because the Census Bureau, which gathers CPS, does not consider the CPS estimates of less than a certain magnitude to be precise enough to warrant calculation of standard errors

SOURCE Office of Technology Assessment, 1994 Based on D U Himmelstein, S Woolhandler, J P Lewontin D J Pound, ' Health Care Labor Force U S , Canada, and West Germany, ' contract paper for the Off Ice of Technology Assessment Cambridge, MA Center for National Health Program Studies, Harvard Medical School/The Cambridge Hospital Mar 19, 1993

Over the past 20 years the number *of technicians required to operate high technology diagnostic equipment like the CT scanner pictured above have increased much more in the United States than in Canada*

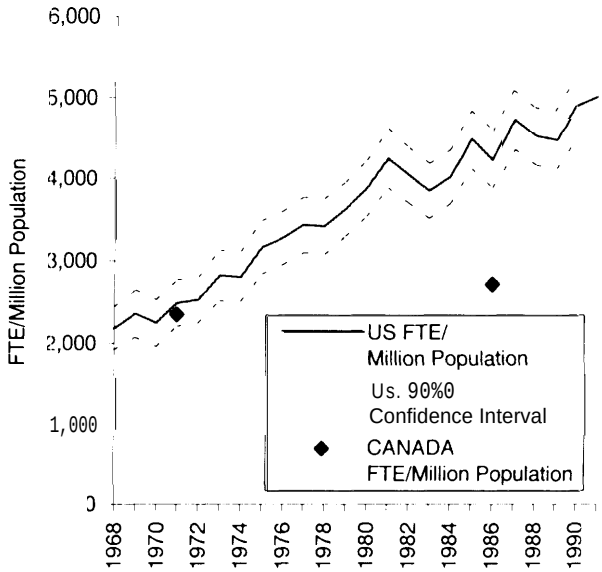
offices in the United States employed about twice as many FTEs per million population as did those in Canada in both 1971 (4,325 vs. 2,219) and 1986 (6,716 vs. 2,718). However, the value of such comparisons is not clear as some employees of dentists' offices in Canada are classified under "health services, n.e.c.," but as working in practitioners' offices in the United States. Disaggregating the 1986 data as reported, striking differences appear in the composition of office staffs between Canada and the United States. In particular, the United States has more managers (646 vs. 29), nonfinancial administrativc support workers (1148 **vs. 816),** financial administrative support workers **(282 vs. 89).** social service personnel (138 vs. 4), other diagnosing professions (954 vs. 32), technicians (506 vs. 51), and aides (963 vs. 5).

FIGURE 3-10: Total Hospital Employment, U.S. vs. Canada, 1968-1991



SOURCE Officeof Technology Assessment, 1994 Based on D U Himmelsteln, S Woolhandler, J P Lewontin, D J Pound, "Health Care Latin Force U S , Canada, and West Germany, ' contract paper prepared for the Off Ice of Technology Assessment Cambridge, MA Center for Natlonal Health Program Studies, Harvard Medical School/The Cambridge Hospital Mar 19, 1993

FIGURE 3-11: Hospital Managers and Administrative Support Personnel, U.S. vs. Canada, 1968-1991



SOURCE Officeof Technology Assessment, 1994 Based on D U Himmelstein, S Woolhandler, J P Lewontin, D J Pound, "Health Care Labo' Force U S Canada, and West Germany, " contract paper prepared for the Office of Technology Assessment Cambridge, MA Center for Na - tlonal Health Program Studies, Harvard Medical School/The Cam bridge Hospital March 19, 1993

Comparisons of the Hospital Labor Force

The U.S. hospital labor force went from smaller per capita than Canada's in 1971 (13,405 vs. 18,446) to slightly larger in 1986 (17,690 vs. 16,034) (figure 3-10). While the two countries had comparable numbers of managers and administrative personnel in hospitals in 1971, by 1986 the United States had substantially more of all three categories of administrative workers (managers: 1,191 vs. 607; administrative support personnel: 3,035 vs. 2,108) (figure 3-11). In 1986 U.S. hospitals also employed more social service personnel, technologists and technicians, and aides, while engaging fewer registered nurses, food service workers, and "other" personnel.

Comparisons of the Nursing Home Labor Force

In contrast to other health care workplaces, the United States had many fewer workers per capita in nursing homes than did Canada in 1971 (2,720 vs. 4,113), a difference that widened even further by 1986 (5,236 vs. 8,850). The difference in 1986 is explained by fewer managers and administrators (506 vs. 1,1 81), nonhealth professional andl technical workers (16 vs. 1,477), social service personnel (168 vs. 953), registered nurses (408 vs. 904), therapists (47 vs. 387), food service workers (313 vs. 617), and other workers (101 vs. 1,398), Although the United States had more aides (2,609 vs. 1, 121) and cleaning personnel (566 vs. 467) per capita, this discrepancy may in part reflect differences in classifying workers; many people classified as aides in the United States probably appear as "other" in the Canadian data (21).

Implications of Labor Force Analyses

What do these results say about the relative amount of health care administration in Canada and the United States? What do they tell policy-

makers about the two countries' overall health care systems and the usefulness and limitations of health care labor force analyses more generally?

The results of Himmelstein and colleagues' analysis is consistent with studies finding that the United States spends more on measurable health care administration than does Canada. In addition, their analysis shows that the growth in administrative personnel is the largest contribution to the increasing divergence in the per capita sizes of the American and Canadian health care labor forces during the 1970s and 1980s.

As a proxy for total spending on administration, labor data are limited as they provide no insights into the relative wages in Canada and the United States that could explain at least part of any difference in spending, although recent analyses indicate that the two countries have similar wages in the health care sector (7,17,49). Another limitation is that personnel data do not offer a solution to the problem of potentially unmeasured costs in a publicly financed system.

Although Himmelstein and colleagues' work demonstrates that analysis of census data and population-based surveys are particularly useful in understanding trends in the use of labor resources within given countries, there are limitations in using the data to make international comparisons. As suggested earlier, one major limitation in this analysis is the inability to identify nonmedical personnel in the United States who perform health care duties in nonhealth care settings, particularly, administrative personnel in private firms who administer their employees' health insurance benefits. Insurance companies in the United States write policies for more than just health care expenses, and it is not possible to determine from the CPS data what proportion of all these administrative personnel is devoted to health insurance. Even though it was not possible to count these workers, the United States had more administrative personnel than Canada in 1986. The effect on this U.S./Canadian comparison of including all personnel who administer insurance outside of hospitals or providers' offices is unclear, since data from neither country separately identify government workers at the national or state/provincial levels who administer insurance programs. Inclusion of insurance company administrators would only broaden the gap between the two countries.

In examining the United States and Canada, Himmelstein and colleagues appear to have chosen two countries that employ largely comparable occupational classifications. Where discrepancies exist, they occur either in relatively small occupational categories (e.g., the n.e.c. categories) or are known and taken into account by the authors in their analysis and interpretation (e.g., exclusion of dentists from the practitioners' offices categories in Canada). However, extension of this analysis to other countries can prove problematic. Himmelstein and colleagues' attempts to explore the health care workforce of the former federal Republic of Germany using census data foundered on difficulties in interpreting some German occupational categories and differences in classification conventions. Their experience suggests that while international labor force comparisons may offer important insights into structural differences in the health care systems of different countries and some of the implications of potential changes in our own country, the analysis becomes more difficult to interpret and requires greater resources as the culture and language become more foreign.

Technology To Simplify Administration

4

The international comparisons examined thus far rest on the premise that aspects of other countries' systems might be less administration-intensive than the U.S. system. Adoption of some other system, or aspects of it, might then be a way to reduce administrative Costs here. However, aspects of health care administration that are essentially independent of the reimbursement system and changes in them also hold the potential for savings. Some of these are:

- standardization of insurance claims forms,
- electronic submission and payment of insurance claims (which would require standardizing claim forms), and
- the use of card and other technology to keep administrative and/or medical information in electronic format.

Although some health care reform proposals in the United States contain some or all of these changes, [1] consideration of such technological changes predates proposals currently before Congress to change the U.S. health care system.[2] Few of these efforts have relied on analyses of similar uses of technology to streamline administration in other countries. In large part (but not entirely), this is because there are few examples on which to draw.

[1] Another recent OTA report examines the assumptions and methods underlying estimates of national health expenditures under major health care reform proposals in the United States, including estimates of administrative costs (47). This report briefly reviews assumptions made about administrative savings expected from standardization and automation. but points out that such projected savings are relatively minor compared with other categories of health expenditures.

[2] Hearings held before the House Subcommittee on Health of the Committee on Ways and Means rev iew ed such efforts through Apri l of 1992 (45).

STANDARDIZATION AND AUTOMATION OF INSURANCE CLAIMS

The multiplicity of payers in the U.S. health care system results in no standard form or set of procedures through which providers or patients can be reimbursed for services. By definition, such mechanisms exist in countries that have single-payer systems. To the extent that these countries reimburse on a fee-for-service basis, this includes a standardized claim form and, in some countries, electronic claims filing and payment. Analysts suggest that a standard form in the United States would save money by reducing the amount of t i me providers and patients spend trying to understand and complete them **(37).** They claim that electronic submission and payment would reduce personnel and paperwork costs involved in preparing, processing, and paying claims. Estimates of the magnitude of these savings vary considerably, however (58).

In November 1991, then Department of Health and Human Services Secretary Louis Sullivan formed the public-private Workgroup for Electronic Data Interchange (WEDI) to standardize electronic communications in the health care industry. Through a steering committee and advisory groups, WEDI has issued two reports to the Secretary with recommendations and cost projections (57,58). The 1993 report suggests that the use of electronic communications to administer the current U.S. health care system could save $13 billion to $26 billion annually, not counting the initial implementation costs of $5 billion to $17 billion.[3]

Among the international comparisons reviewed earlier in this paper, only Sheils and Young specifically address the impact of automation on administrative costs (37).[4] They estimate more modest savings from these changes than does WEDI. They also suggest that standardization of claims forms in and of itself is likely to result in only very small savings because most public and private insurers already accept HCFA's claim form in lieu of their own, and for those who do not, software exists for the easy creation of claim forms according to insurance companies' standards. Finally, Sheils and Young state that using a standardized format to process claims electronically would save about $0.50 per claim (according to unspecified industry data), resulting in $400 million in total annual savings.[5]

HEALTH CARDS

The use of card systems represents another potential change in the administration of health care in the United States. Health card systems comprise several underlying technologies and multiple applications designed to reduce costs, improve quality of care, or both (26). Card systems usually consist of the card itself and "readers' '-computer terminals or other devices that can read, translate, and in some cases, record and update data on the cards. The cards themselves can be of the following types (29):

- **Simple paper or plastic cards.** Most health insurance programs already use these to identify the card-holder and the type of insurance he or she carries. The issuer of the card prints or emlbosses the information directly on the surface of the card so that it can be read directly by another person. Some hospitals also use this type of card system to identify their patients. This is the least expensive of the card technolo-

[3]WEDI breaks these estimates down into their component parts and indicates that they were prepared by a technical advisory group (58).

[4]Among the other major quantitative attempts to compare administrative costs in the United States and Canada (20,43,44,54), standardization and automation mayor may not be subsumed among the bundle of changes assumed to take place if a Canadian-style single-payer system is implemented in the United States.

[5]Sheils and colleagues als, assume that adoption of a Canadian-style system would reduce physician office administrative expenses for claims tiling and patient billing by 50 percent, but they do not indicate how much (if any) of this reduction is attributable to standardization and automation as opposed to the simplified reimbursement rules of a single payer (37).

gies and holds no more than the visible information.

- **Magnetic strip cards.** This technology is most familiar to Americans in the form of automated bank teller (ATM) and many credit cards. The magnetic strip on the back of the card can hold a limited amount of information such as the card-holder's identity and that person's insurance coverage. Information on these cards can be changed. The manufacturing costs of the cards range from $0.20 to S1.00. Readers cost between $300 and $800" (U.S.). Newer, more sophisticated magnetic strip cards can hold significantly more data. These cards cost two to four times more than conventional cards, and the readers are up to three times more expensive.
- **Smart cards.** This term refers (o a family of' related technologies in which a silicon microchip is embedded within a plastic, wallet-sized card. Some cards are made only for storing data, but true smart cards are able to process data as a computer would. The microprocessor's central processing unit (CPU) controls access to the card's memory (i.e., data storage) as well as communications with the smart card reader via metal contacts on the face of the card. Cards vary in the size of their memory and their ability to update data stored in their memory. The cards' manufacturing cost ranges from $1 to $50, depending on their capabilities, manufacturer, and quanitity produced. Readers for smart cards are cheaper than those for magnetic strip cards, ranging from $50 to $250. (Combined magnetic strip and smart card readers run between $700 *and $800.)*
- **Optical cards.** Like compact disks, these cards can record large amounts of in format ion in digital format, making them potentially useful for extended medical records. However, once information is recorded on the card, it cannot be changed. This technology is also expensive. with cards costing between $5 and $20 and readers from $3,000 to $4,000.
- **Holographic cards.** This technology. in which data is recorded in a hologram embossed on the surface of a plastic card, has been used mainly as payment for public telephone calls. Its relatively large potential for fraud, its lack of flexibility, and the cost of its readers ($1 ,000) have limited interest in this technology for health care applications.
- PCMCIA/JEIDA **cards.** This technology refers to a standardized format defined by the Personal Computer Memory Card International Association (PCMCIA) and the Japan Electronics Industry Development Association (JEIDA). Such cards can store large amounts of information and are designed to fit into slots on the back of personal computers, terminals that are part of a larger computer network, or other electronic devices. Two manufacturers have developed smart cards that can be read in a PCMCIA, allowing any computer with such a slot and the necessary software to become a smart card reader. Although precise cost data on these cards are not available, they are more expensive than conventional smart cards, making this technology most cost-effective for applications involving the storage of large amounts of information.

Uses of card systems in health care to date can be divided into four categories that describe their functions. Some specific card systems currently in use have more than one function (See box 4-1.):

- **Health insurance card systems.** Designed to reduce administrative costs by simplifying insurance claims and reimbursement procedures and facilitating admission to hospitals or other medical institutions, these cards can contain information identifying the card-holder, his or her insurance policy, and information about covered services and the extent of payment. Such cards can be components of electronic data interchange systems that electronically reimburse providers without the use of paper claim forms.
- **Medical card systems.** These systems use cards to store patient medical information or to serve as a key to a larger computer database that contains such information. Their purposes are to 1) improve the quality of care by reducing the duplication of medical tests, preventing the use

BOX 4-1: Smart Cards in the French Health Care System

Smart card technology is largely a French Innovation, and France has begun to use smart cards in many sectors of its economy, including health care The French experience offers inslghts into the potential contributions and limitations of health card systems for other countries

The Uses of Smart Cards in the French Health Care System

French experiments with health cards Include examples of all four types of systems discussed in the text Insurance cards, medical cards, emergency cards, and health professional cards. These Include projects sponsored by the national government and the primary insurers in France as well as by commercial isurers and mutual aid societies that offer complementary private insurance, and projects designed for limited populations

Projects Sponsored by the National Government and Primary Insurers

Vitale/SESAM Card. Begun in 1989 by CNAM-TS (the National Health Insurance Administration, which administers the primary health insurance for 80 percent of the French population as part of the country's social security system), this experiment seeks to replace paper insurance claims forms with smart cards The experiment currently includes about 140,000 residents of Boulongne sur Mer (a city in northern France) who are insured by the social security system. Three-quarters of the city's medical professionals participate Encoded on the smart card is the card-holder's name, social security number, birth date, and information about the extent of coverage and payment under the beneficiary's insurance. To protect the security of Information contained on the card, it also contains a confidential code that the card-holder must enter into the reader at each medical visit The second stage of this experiment WiII expand the cards to additional cities with hopes of including the entire nation by the year 2000 The major criticisms of Vitale/SESAM have come from physicians who complain that they are usually the ones to update Information on the cards, requiring time and resources. They also have complained that inclusion of a diagnostic code on the claim form, a novel concept in France, could jeopardize doctors' professional autonomy

Santal Card. This card, first used **in** 1987, holds both admministrative Insurance and medical information for patients treated in any one of eight hospitals in Saint-Nazaire, a region of western France In addition, 300 medical professionals outside the hospital including 11 medical laboratories accept the card In addition to reducing administrative costs within the hospital and simplifying admission procedures, the designers of this card hope it WiII improve the flow of information among hospitals, laboratories, and other medical providers The medical information contained on the card is limited to recent tests and treatment and basic information needed in an emergency, although the administrative identifiers on the card could be used as a key to more complete data files By October 1992 about 35,000 cards and 160 card readers were in use In addition to expanding the number of card holders, administrators of this card system plan to use more sophisticated smart card technology as it is made available Cards with greater storage capabilities will allow for additonal Information, including drug prescriptions and nursing records

The Health Professional Card. Already in existence for some local projects like the Santal card described above, the Ministry of Social Affairs and Integration is working with all parties in France using health card systems to develop a standard format for Health Professional cards As described in the text, physicians and other health professionals will use these cards to gain access to information on patients' cards or in other computerized databases, they serve as a means of preventing unauthorized access to confidential patient records.

(continued)

BOX 4-1: continued: Smart Cards in the French Health Care System

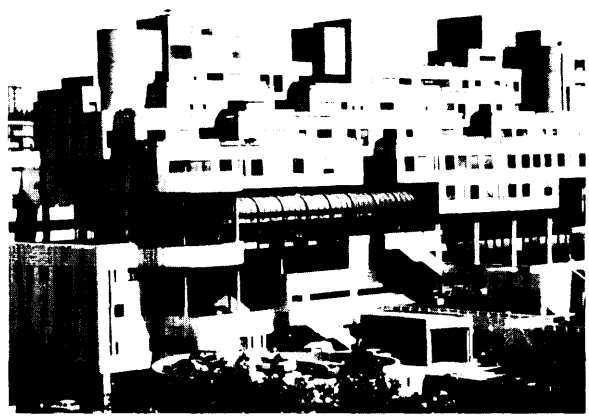
Projects Sponsored by Complementary Insurers

Carte Sante. This project uses smart cards to create portable adminlitrative and medical files for patients and to initate payment to medical professionals With this card, patients do not have to pay physicians out-of-pocket and then seek reimbursement from their Insurer Since 1989 the Federation of Mutual Insurance Companies of France (FMF) has issued 250,000 cards and 1,000 card readers to beneficiaries and providers in the regions of Provence-Alpes-Cote d'Azur, Rhone Alpes, Languedoc Roussillon and Burgundy FMF provides complementary Insurance coverage for services and copayments not reimbursed by social security or other primary health Insurers The administrative file contains patient identifying data and information about the patient's "reimbursement rights" under his or her Insurance policy and other Information needed to pay the provider The medical file contains emergency medical Information and records of preventive health services received

Sante-Pharma Card. This card eliminates the need for patients to pay pharmacists in advance for their prescription drugs Launched in 1986 it is the result of an agreement among insurers (both primary and complementary) and the national pharmaceutical syndicate The card, which contains informaton about the patients complementary insurer and pharmaceutical coverage, is used along with the paper social security card indicating the patents primary health Insurer and an optically read paper claim form Two milllon cards are in use in 76 administrative zones (called departments) representing 77 percent of French pharmacies. Pharmacies file about 800,000 Insurance claims each month

Projects Designed for Specific Populations

French Army Health Card. This smart card contains administrative Information on patients treated in French army hospitals Since 1988 the Army has implemented this project on an experimental basis in two hospitals with the potential to expand to 20 others The card which holds no medical Information and is not used as a means of paying providers, has two forms The "personal" card is provided to patients who are treated at Army hospitals on a long-term or recurring basis and gives them direct access to all hospital services A "shuttle" card is provided to patents who are expected to have a short one-time hospital stay The cards are designed to eliminate paper records by recordng patient identlfying information data on Insurance coverage and the number of previous hospital stays. As of November 1992 60000 personal cards and 30000 shuttle cards were in use A total of 270 hospital employees were authorized to use the system on 55 card readers



The Robert Debre' Hospital in Paris is part of the French health care system, which is characterrzed by universa/ coverage, mu/t/p/e insurance schemes financed through payroll taxes, and public and private providers

Paris Sante Card. This is one of several card systems developed by local health authorities to improve access to health services for poor jobless, or homeless indviduals Available since 1989, it is the result of an agreement among the city of Paris and 6,800 health providers The local health authority

(continued)

BOX 4-1: continued: Smart Cards in the French Health Care System

administers health Insurance through the national social security system for unemployed individuals and their familles. The card IS made of embossed plastic This system could use smart card technology in the future, although there currently are no specific plans to do so The card allows beneficiaries free choice of any participating provoder and providers file paper claims for which they receive payment within 10 days (a process that took as long as six months)

Dialybre Card. This smart card contains both administrative and medical information for kidney dialysls patients receiving care at any of three French hospitals Begun in 1989, it is designed to provoie dilaysis patients greater freedom to receive treatment at a location other than where they usually go It avoids duplication of medical records, reduces the time necessary for admissions, and offers greater communicatoin among facilities providing care to an individual patient In addition to patient identifiers and Insurance Information, the card contains emergency medical data and the patient's dialysis history As of 1992 about 1,100 of France's 15,000 dialysis patients had cards, Financed by Insurance companies, private foundations, and drug firms, the system IS currently expanding to at least 50 dialysis centers with the long-term goal of revolving all 600 such facilities.

Issues Raised by the Use of Smart Cards in France

The experiments with smart cards in France have given rise to a number of general or cross-cutting issues that must be considered in their expansion to involve larger numbers of people and institutions or to their transfer to other countries Among the most significant are 1) standardization of technology and format, 2) patient confidentiality, 3) professional autonomy, and 4) costs

Standardization. Gwen the large number of different health card experiments under way on a relatively small scale m France, standardization of the technology and design of the system IS likely to be necessary if any of these projects are to be Integrated into one or two cards that uses a single type of reader Such Integration may be a means of achieving economies of scale in establishing and running card systems, although they could run counter to the concerns over confidentiality and professional autonomy outlined below.[1] Standardization of card systems is not just a concern in France, but throughout the European Community, which has established standards for data to be included on emergency medical cards Furthermore, Germany has already begun to provide smart cards with administrative health Insurance Information to its citizens Other European nations are conducting their own smart card experiments The problem of standardization of technologies is complicated by the multiple choices available to policy makers and the rapidly growing capabilities of smart cards and other new technologies One strategy for standardization in France would be the full Implementation of a card system in a program that Involves all or most French citizens. The natural candidate would be the Vitale/SESAM card being developed by the CNAM-TS that covers 80 percent of the French population. The final design of that card could take the needs of smaller systems into account Once Vitale/SESAM is in place, smaller systems might feel an economic Incentive to adapt their design to the larger system To date, the government has not begun to provide the Vitale/SESAM card to all social security beneficiaries

Patient Confidentiality. As in the United States, confidentiality of patient medical records **is** a major public concern. To develop appropriate poilcies for the use and protection of all prviate records in France, the Parliament established a commission (Commssion Nationale de l'Informatique et des Libertes, or CNIL) that enforces a 1978 law governing Information systems and Individual rights, CNIL must approve all government programs that establish information systems on French cittzens, including smart card projects The health professional card and security codes that patients must enter to gain

[1] Standardization could Increase the amount of patient Information to which an individual could potentially gain unauthorized access, although It does not affect the probability of overall unauthorizec access

(continued)

BOX 4-1: continued: Smart Cards in the French Health Care System

access to these records are two measures designed to protect computerized medical records. However even with these safeguards, there IS not yet a consensus or even a proposal to establish a full medical record in any electronic form in France

Professional Autonomy. An issue in France that has not been a major concern to date in the United States concerns the autonomy of medical professionals In particular, they worry that the inclusion of detailed medical records on health cards or other computerized systems will make them vulnerable to questioning of their medical Judgment by other physicians, insurers, or the government This concern has contributed to the limited amount of medical records included in computerized systems and has even kept diagnostic information off Insurance claim forms

Costs. Setting up a card system involves slgnificant costs in choosing the appropriate technology decidnig what information IS to be placed on the cards, having the cards manufactured and distributed and educating patients, providers, and administrators in their use Although standardization of card systems would offer opportunities for economies of scale, some organization must bear these initial start-up costs The ongoing costs and risks of using a card system must also be weighed against its benefits

The French Health Care System

The French health care system is characterized by universal coverage of the population through one of several programs financed through payroll taxes (comprising contributions from both employers and employees), a mixture of public and private hospitals, ambulatory care offered mainly through private-practice physicians, patient choice of providers, and professional autonomy for physicians

Patients usually pay their physicians directly on a fee-for-service basis and are reimbursed by insurers. Physician fees are set through negotiations among the government, insurers, and providers, although physicians are free to charge patients more than these fees. Public and most private nonprofit hospitals receive fixed budgets A small number of private, for-profit hospitals handle most surgical and obstetric cases, receiving revenues on per-diem or fee-for-service basis Eighty-four percent of the population has private health insurance to cover services not paid for by their primary Insurance

In 1990 France spent 91 percent of its gross domestic product on health care Payroll taxes cover 74 percent of personal health expenditures, with another 16 percent being paid out-of-pocket by patients and their families The remainder is financed through public subsidies and complementary private health Insurance

SOURCES : VG Rodwin, S Sandier, "Health Care Under French National Health Insurance, " *Health Affairs* fall 1993 pp 110-131, E M Monod, A Tour d Hor[zon of Health Cards In Europe, *Srnarf Card Techno/ogy/nfernaf/ona/* (January 1994), E M Monod Ministry of Social Affairs and Health, International Relations Republic of France Personal communications Mar 30, 1994 June 13 1994 N Paquel C Frizzole *S* Glaziou *Smart Cards in the French Health Care System* Final Report Unpublished OTA Contract Paper Paris France 1993

of therapies or procedures incompatible with the patient's overall medical condition, and helping to ensure that patients with chronic or special medical conditions receive needed services; 2) facilitate communication between institutions, such as hospitals and patients' personal health professionals; 3) simplify hospital admissions; and (4) help in the collection of health statistics. Technological limitations and concern over the privacy of medical records have limited the extent of card systems designed to hold extensive amounts of information.

- **Emergency card systems.** These systems contain only essential information identifying the card-holder and medical information—such as

Smart card systems, which have played an increasing/y significant role in health care systems of France and other European countries, consist of smart cards (left) and readers (right) used to read and update information contained on the cards

chronic illnesses, blood type, and allergies—important in case of medical emergency. If available over wide geographic regions, such systems could make travel safer, especially for those with existing medical conditions.

- **Health professional card systems. These systems** are designed to help protect the security of patient medical information and are used in conjunction with other card systems or larger computerized databases. Issued to individual health professionals, they serve as access keys to patient information. They can be designed to limit the health professional's access to only those data needed to perform his or her job.

Understanding the potential for card systems in this country comes, in large part, from experiences with them in other countries. While experience in other countries may be instructive when considering potential applications and problems of card systems, analysis of their cost implications offer minimal lessons for the United States for several reasons:

- The underlying technologies and their costs are changing rapidly;
- The level of costs associated with card systems in many countries depends heavily on those countries' reimbursement systems, which may differ fundamentally from that of the United States; and
- Most experience with card systems in other countries so far has been limited to demonstration projects among very specific populations or geographic areas; applications among larger groups for extended periods may realize economies or diseconomies of scale not found in initial experiments.

In an attempt to understand more about another country's experience with cards, OTA commissioned an analysis of France efforts to use so-called smart cards in their health care system. Smart cards, which are usually the size of credit cards, have an embedded silicon microprocessing chip that can store and process information. Usually issued to patients or health providers, they can store administrative or medical information or serve as a key to gain access to a larger medical computer system. In addition to describing the various applications of this technology in France, the OTA-commissioned analysis also examines some of the difficulties experienced in implementing smart card projects. (See box 4-1 for a summary of this analysis.)

Health cards are just one piece of an overall system for administering health care and maintaining medical records. The decision to use cards or to choose a specific type of card technology is dependent on the intended application, the system's users, and the cost.

In France implementation of card systems was hindered by concerns over the confidentiality of card systems and difficulties in getting physicians, administrators, and patients to keep information on cards or other computerized medical records. These issues are likely to arise in the United States should a card system be implemented. However. concerns arising from French physicians' tradition of not sharing diagnostic or therapeutic information with other health professionals or payers should not cause problems in the United States.

The Clinton Administration's proposed Health Security Act (S. 1757) would issue every American citizen and legal resident a Health Security Card. Some Administration documents have indicated that this card would employ *a* magnetic strip rather than smart card technology. reflecting an attempt to reassure patients that these cards will protect their privacy by containing only basic identification information similar to that contained on a bank automated teller machine card rather than encoding any sensitive medical records (50).[6]

In reality, the experience from France, where patient privacy also has been a major issue, suggests that protection of such privacy has less to do with the choice of magnetic strip or smart card technology than with the privacy safeguards built into the overall computer system. Any kind of system has the potential to limit the amount of information in the system and access to it (29).

The Administration has given no assurance that the adoption of Health Security Cards will result in administrative savings apart from the adoption of standardized claim forms (50).

[6]Another recent OTA study examines privacy issues in computerized medical records in greater detail (46).

Appendix A: Acknowledgments

A

OTA wishcs to thank the individuls and organizations listed below for their assistance with this background paper. These individuals and organizations do not necessarily) approve, disapprove, or endorse this report. OTA assumes full responsibility for the report and the accuracy of its content.

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Appendix B: Comparison of Health Care Administration Found In Four Countries

B

Bused on W.A. Glaser, "Administration in Health Care: A Plan for Cross-National Comparison s," contract paper prepared for the Office of Technology Assessment, revised edition, 1993.

TABLE B-1: Health Care Administration in the United S

Health care system	Information and publication	Policymaking	Implementing Agencies of Government	Provider Organizations	Individual Practitioners
Multiple pubilc and private payers. Public programs pay for health care for elderly, disabled, and indigen! citizens; some veterans, active military personnel and their families, Most providers are autonomous, with a growing number of practitioners employed by capitated health in-insurance plans or part of one or more networks of providers associated with a third-party payer that establishes various cost-containment measures (managed care).	Federal government collects vital statistics and morbidity data from state and local governments and publishes them, collects and disseminates data on Medicare program for elderly citizens and Medicaid program for indigent citizens. Other federal agencies and private organizations collect and disseminate data on health care facilities, personnel, practice, organization, financing, and the effectiveness or cost-effectiveness of particular interventions.	Multifaceted and occurs at all levels of government through the executive, legislative, and judicial branches with support from their staffs and agencies, commissions, private-sector foundations, and interest groups. Federal government makes policy for programs in funds and drug and device regulation. State governments with primary responsibility for insurance regulation and licensing of health facilities and personnel, admmistration of Medicaid program within the state, and shared responsibilty with local governments for public health programs,	Government development and updating of regulations to implement legislation and programs (especially at federal level) Administration of public clinics and hospitals at all levels of government.	In addition to usual internal administration, hospitals, nursing homes, and home health agencies require significant administrative personnel and infrastructure to understand reimbursement rules and procedures for multiple payers (including managed care organizations) and bill those payers and/or patients. Hospital administration also includes image and marketing, Iitlgation, regulation and accreditation, and management of admittlng privileges. Some private proivder organizations are part of chains that centralize marketing, supplies, and financial management activities.	Move from billing of patients to direct billing of insurers has increased administrative costs for individual practitioners because of varying reimbursement rules and managed-care procedures. A fee schedule exists for only Medicare, hence, practitioners or their staff often check with Insurers on acceptable charges before doing procedure. Fear of Iiability may add to administrative costs by increasing volume of records kept and need to shop among Iiability insurers. Growth in group practices and group and staff model HMOS alleviates some administrative burdens for associated physicians.

(continued)

TABLE B-1 continued: Health Care Administration in the United States[a]

Provider associations	Suppliers	Insurers	Education	Research	Management consulting
Numerous provider associations at national, state, and local levels requiring significant admmistrative support. They lobby for their members interests, interact with the mass media, publish professional journals, operate professional committees, conferences, and workshops, provide members for governmental and other advisory commissions, and collect and publish statistics about their membership.	Drug and device suppliers face administrative costs related to marketing to physicians and other customers, patenting and related activities, licensing by the Food and Drug Admmistration, and lobbying Growing administrative effort devoted to interaction with third-party payers about coverage and reimbursement levels. Medicaid drug reimbursements indirectly regulated through rebate scheme requiring administrative activity by manufacturers.	**Government:** States reimburse providers for services provided under Medicaid with state-by-state variation in rules and benefits and shared Federal and State costs, nonstandardization may raise administrative costs Medicare contracts with private insurers to process claims and reimburse providers within defined geographic areas Existing infrastructure within these private contractors helps minimize Medicare's administrative costs Federal government bears Medicare administrative costs of developing regulations, resolving disputes, and contracting. **Private:** Prviate insurers have slgnificant administrative costs associated with marketing in a highly competitive environment, underwriting and rate negotiation with employers, benefit design, application processing, determination of provider eligibility, claims processing and reimbursement, reserves management, and financial reports Self-insured employers face all of these costs except marketing and application processing. Managed care procedures introduced to contain costs and insure quality raise administrative costs.	Very large number of specialized education programs (degree and continuing education) for hospital and health care admministration	Siginifcant volume of health services and related research done in academia, government, and private sector, all resulting in its own administrative expenses	Significant amount of management consulting and supplementary conferences within health care organizations covering finance, government standards regulations, reimbursement rules, and labor standards

[a] Office of Technology Assessment, 1994. Based on Glaser, W.A., "Administration in Health Care: A Plan for Cross-National Comparisons," contractor paper prepared for the Office of Technology Assessment, revised edition, 1993.

TABLE B-2: Health Care Administration in Canada[a]

Health care system	Information and publication	Policymaking	implementing Agencies of Government	Provider Organizations	Individual Practitioners
Full government funding of health care decentralized to provincial level. Autonomous providers that follow provincial standards for financial accounting. Provider associations represent interests of doctors and hospitals. Little private health insurance	Usual vital statistics. Provincial collection of data from hospitals and other provider organizations about services, utilization, personnel, and spending, aggregated by national health ministry. Provider associations collect and aggregate data about their members for reimbursement negotiations.	Decisions about changes in system made by provincial government (ministries, cabinet, legislature, and ad hoc commissions). National responsibilities for drug licensing and pricing, vital statistic reporting guidelines	Incur large portion of Canada's administrative costs. Provincial ministries (or delegated district councils) scrutinize hospital reports, negotiate total budget with treasury, allocate annual increases among hospitals, distribute grants for construction, inspect hospitals for compliance with safety, personnel, and quality regulations. Some provinces also reimburse for nursing homes and home health care agencies using same procedures as for hospitals. Provincial public corporations negotiate with physician associations for fee schedule and process claims and arbitrate disputes.	Usual organizational management (personnel, physical plant, supplies, inventory, medical records, patient communication, and marketing), Hospitals' prospective budgets, retrospective cost reports, and special requests for grants from provincial ministries for capital Improvements constitute relatively simple form of administration, individual patient billing for amenities. Limited number of teaching hospitals minimize administrative costs associated with residents and research.	Usual expenses of running a medical or dental office with some sharing of offices, especially in urban and rural areas. Practitioners complete fee-for-service forms by mail or Computer and send to public corporation; paid by electronic transfer or periodic lump sums, Billing of patients or Private Insurers for dentistry, extra services, and treatment of foreign patients.

Provider associations	Suppliers	Insurers	Education	Research	Management consulting
Provincial associations with staff to collect and analyze clinical and economic trends, publish professional journals, communicate with/ lobby ministries, legislature, media, members, and provide data to national associations. National associations publish national data and are party to lawsuits over issues affecting professions	Drug and device manufacturers with administrative work to support pateninng, licensing, and pricing regulation by national government	Limited portion of total national administrative expenditures because of small size of private insurance market. Administration includes underwrlting, marketing, application processing, general overhead, claims processing, and reimbursements Employers that offer private insurance to employees may have some administrative expenses.	Admminstration of one or more university health care administration programs in each province, minimal compared to United States, where many Canadian health care managers receive their education.	Health services research limited to university teams supported by provincial governments to perform policy-oriented research on health economics, services, and technologies.	Minimal. Limited to management information system development, computer training, and consulting, Hospitals use management manuals developed by their provincial and national associations.

[a] Off Ice of Technology Assessment, 1994 Based on Glaser, W A , "Administration in Health Care A Plan for Cross-National Comparisons, " contractor paper prepared for the Off Ice of Technology Assessment, revised edition, 1993

TABLE B-3: Health Care Administration in the United Kingdom[a,b]

Health care system	Information and publication	Policymaking	Implementing agencies of government	Provider organizations	Individual practitioners
National Health Service (NHS) owns and manages hospitals employs specialist physicians and contracts with general practitioners Minimal, growing local variatior in administrative procedures as some hospitals become autonomous Reimbursement system provides little administrative information Physician associations play a role in negotiating work rules and other policy Limited private hospitals and private insurance	Government produces vital statistics and data **on NHS services** utiliza. tion, personnel, and spending No data on patient or other private health care spending	Health ministry assimilates analyses and recommendations from NHS, public, other interest groups, and mass media to produce staff reports on budget, legislation, potential reforms Supplemented by work of Royal Commissions and Working Parties Fourteen regional boards supported by staff make recommendations to national government Parliament, Cabinet, and Prime Minister and their staffs also Involved m budget and reforms	Health ministry with staff support competes withln Cabinet for health budget NHS allocates to 200 District Health Authorities (DHAs) for reimbursement of services Newly autonomous hospitals with administrative functions of marketing, pricing, and billing patients and DHAs Family Practice Committees (FPCS), Independent of DHAs, contract with general practitioners and dentists FPCS track fee-for-service for dentistry and Increasing number of medical procedures, capitation payment for all other general practice services Ministry negotiates with unions and professional organzations over employee pay NHS prepares periodic expenditure reports from DHAs and other organizational units	Increasing number of autonomous hospitals leads to increasing administrative expenditures (marketing to patients and general practitioners, development of clinlial emphases setting prices, budget balancing) All nursing homes are private and face these same administrative expenses There are a small number of private hospitals Chains own some private hospitals and nursing homes and perform some of their administration	General practitioners (GPs) and dentists with usual administrative expenses of running an office GPs must track patient enrollment and send fee- for-service bills to FPCs for some services 1980s Innovation of GP "fund-holding for patients provides Increased capitation payments to cover patients' tests, pharmaceuticals, specialist referrals and hospital cares results in increased administrative burden Dentists bill FPCs for all services and must seek approval for all extensive treatments

Provider associations	Suppliers	Insurers	Education	Research	Management consulting
Unions and associations with strong role in negotiating for health professionals Including NHS and hospital administrators, thus requirng their own administrative staffs	Drug and equipment companies require administrative staff to apply patents and licenses to sell theirr products Drug companies also have administrative costs associated with price regulation and NHS formulary approval	Private health insurance limlted to accident, private hospitalization, specialist and other appointments without a wait, and amenities Carriers negotiate rates with prviate hospitals and reimburse patients a fixed rate for each private physician service performed	Litle specialized education in health care admmistration due to relative simplicity and austerity of system Health care administrators tended to be gifted amateurs and accountants Specialized continuing education and workshops have become more common since the 1980s	Slgnificant tradition of re search in uiversties, government, and independent institutes about health care and health economics with particular emphasis on analyses of potential NHS reforms and evaluations after implementation Specialized research has been necessary to learn about usually overlooked pvivate sector	NHS has traditonally relied on own staff and researchers from universities and independent Institutes Rise in autonomous hospitals and DHAs may give new opportunities to Private management consultants in the future

[a] Office of Technology Assessment, 1994. Based on Glaser, W.A., "Administration in Health Care: A Plan for Cross-National Comparisons," contractor paper prepared for the Office of Technology Assessment, revised edition, 1993.

[b] Description applies to England. Wales has almost identical system. Some variations in Scotland and Northern Ireland, which have some greater autonomy.

TABLE B-4: Health Care Administration in Germany[a]

Health care system	Information and publication	Policymaking	Implementing agencies of government	Provider organizations	Individual practitioners
Many insurers (sickness funds) in each province all associated with national organization Hospitals are for-profit, nonprofit, and public Government (at both the national and provincial levels) enacts rules for the system, provides some financing, monitors, and settles disputes Provider associations perform significant functions in negotiating for and paying members	National and provincial ministries collect and publish vital statistics and data on some health facilities and personnel Relevant provincial provider organizations collect data on hospital operations, spending, physicians' and dentists' work, and revenue on annual or quarterly basis indvidual provider data come from claim forms. Provider data are aggregated and published by research centers associated with national provider associations. Provincial sickness fund associations collect and publish data about their members National Ministriles of Health and Labor audit summaries of these data and publish their own reports	Government role in administration of health system relatively small. Reforms of system crafted at national level among political parties and Interest groups within Parliament, Cabinet, and ministries Recent reforms aimed at cost containment and some expansion of benefits. Public health functions administered by provinces within national guidelines developed in Ministry of Health and its secretariat.	Government role in administering and paying for health care limited to provincial teaching hospitals, municipal hospitals, and local public health services Provincial health ministries license and Inspect private hospitals and provide grants to hospitals for capital improvements Ministry staff evaluate need for such grants. Public health services supported from general revenue	Hospitals are mainly private nonprofit and for-profit, but public, municipal hospitals also operate autonomously, German hospitals have relatively few staff, including for admministrative purposes Administrative activtis include usual i internal administration, preparation of annual prospective budget, and budget negotiations with committee of local sickness funds Negotiations have been tradditionally quick and simple, but have become more stringent in the 1990s	German physicians use their offices to perform many ambulatory procedures performed m hospital and outpatient clinics in other countries, thus requiring additional adminirstration to acquire equipment and supplies Physiclans and dentists send out fee-for-service bills Physiclans who work in private clnics have hospital privileges and rely on the clinic to bill payers for them.

(continued)

TABLE B-4 continued: Health Care Administration in Germany[a]

Provider associations	Suppliers	Insurers	Education	Research	Management consulting
All office physicians belong to provincial *Kassenartzliche Ver einigung* (KV) that negotiates with provincial committee of sickness funds for a lump sum and then pays all claims Physiclans do not bill patients for any additional payments Provincial KVS with significant administrative apparatus to negotiate with funds, track members' utilization, process and pay claims, and reduce fees if necessary to avoid deficits. National association of KVS negotiates with national associations of sickness funds over work rules, reimbursable procedures, fee schedules, and approximate payment levels Provincial arbitration committees settle disputes and deadlocked negotiations. Provincial hospital associations perform parallel functions for their members	Administrative work for manufacturers for patents, marketing licenses, and recently Introduced drug price regulation	Sickness funds enroll members, calculate and collect premiums and social security pension contributions, negotiate with hospitals and KVS, scrutinize KV statistical reports, communicate with and pay proincial association of KVS and hospitals, cooperate with national and provincial financial audits Marketing Will likely increase due to recent reform increasing citizens' choices in fund enrollment National associations of sickness funds have relatively large administrative burden strategic planning, lobbying for reforms, negotiating at the national level, organization of health insurance in former East Germany, preparing reports, and publishing journals for members and the public Private health Insurance provides primary coverage for 10 percent of population and has administrative functions parallel to sickness funds. Private insurers also have administrative costs associated with policies for long-term care and other extra benefits Employers' admministratvee work limited to payroll deductions and payments to sickness funds	Educational programs for health care managers traditionally limited to general business and financial management courses Some new curricula in medical schools and in-house training by some sickness funds	Significant tradition of health services research in universities and private Institutes in Germany, often commissioned by government ministries	Significant number of management conferences and workshops Some consulting is done for new cost accounting methods or Introduction of computing technologies in hospitals, but it is Iimlted since all players work within a single set of national accounting standards' and necessary training is usually done by national ministries or the contract consultants

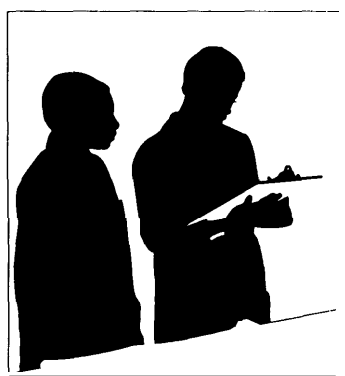
[a]Office of Technology Assessment, 1994Based on Glaser, W A "Administrationin Health Care A Plan for Cross-NationalComparisons," contractor paper prepared for the Off Ice ofTechnology Assessment, revised edition, 1993

C Appendix C: Methods Used in Himmelstein and Colleagues? Analysis of U.S. and Canadian Health Care Labor Forces

U.S. DATA

Himmelstein and colleagues' principal source of data for the United States is the Current Population Survey (CPS) Annual Demographic File collected annually by the U.S. Bureau of the Census and available in machine readable form since 1968. Himmelstein and colleagues analyzed the CPS file for each year from 1968 to 1992. For several years they analyzed two different versions of the CPS data, one prepared according to revised coding and/or weighting procedures and the other reflecting the procedures used in the prior year, in order to establish reliable time series.

The CPS is a Census Bureau survey of approximately 60,000 households representative of the civilian noninstitutionalized population. About 6,000 individuals employed in the health care sector fall into the CPS sample each year. The part of the survey conducted in March of each year collects demographic information and data on employment and income for the previous week and for the previous calendar year. Himmelstein and colleagues chose to use the CPS rather than the Bureau of Labor Statistics' establishment survey (whose larger sample size allows estimates with narrower confidence intervals) because the CPS spans a longer time period and the data are more closely comparable to available Canadian data. All estimates of numbers of health personnel in the United States as a whole were derived from the CPS sample using the March CPS Final Weight, a multiplier assigned by the Census Bureau to each individual in the sample to allow accurate extrapolation to the U.S. population as a whole, adjusting for thi sample design and the failure to obtain interviews with



some households. OTA calculated 90 percent confidence intervals for all relevant estimates based on standard errors provided by the Census Bureau (39). These confidence intervals are presented on appropriate figures in the text of this OTA background paper.

For 1971 and subsequent years Himmelstein and colleagues defined health care workers as those persons with any work experience in the reference year and whose principal place of employment, whether part time or full time, was the office of a physician or other health practitioner, a hospital, a nursing or personal care facility, or other health service facility (U.S. Census Bureau industry classification codes 812 through 840). Prior to 1971, the CPS file classified health care workplaces dichotomously: hospitals or other health care workplaces. Himmelstein and colleagues considered anyone employed in either of these a health care worker for 1968 through 1970.

Himmelstein and colleagues also included in this analysis people employed in nonhealth care workplaces who listed their occupation as: physician; nurse; inhalation, occupational, physical, speech, or other therapist; clinical laboratory, radiologic, dental laboratory/medical appliance, or other health technician/technologist; or other clearly identifiable health-related occupation.

Unfortunately, Census Bureau data do not allow identification of administrative and clerical personnel who perform health care-related duties in nonhealth care workplaces (e.g., insurance company employees). Similarly, it was not possible to identify workers in the manufacturing and construction industries who produce health care-related goods or services (although their relevance to this analysis is minimal since they would never likely be considered administrative personnel).

Occupational classifications were based on the Census Bureau's Occupational Classification Codes for Detailed Occupational Categories. Himmelstein and colleagues grouped all health care occupations into the following 17 categories:

- physicians;
- registered nurses;
- licensed practical nurses;
- management and related;
- administrative support, except financial;
- administrative support, financial;
- professional and technical except health;
- social service;
- other health diagnosing;
- therapists;
- other health assessment and treating;
- health technologists and technicians;
- aides and other health service;
- food preparation and food service;
- cleaning, building service and laundry;
- building construction and maintenance; and
- all occupations not elsewhere classified (n.e.c.).

In the Census Bureau's classification, physicians, registered nurses, and licensed practical nurses are each identified by a single code. Each of Himmelstein and colleagues' 14 other groups included several individual occupations.

Defining Hours of Work and Full Time Equivalents (FTEs)

Himmelstein and colleagues defined one FTE as 2,000 hours of work per year (40 hours/week x 50 weeks/year). For years since 1976 the authors constructed this variable from responses to the CPS questions about place and occupation of employment, and hours and weeks worked during the previous calendar year. They calculated FTEs by multiplying each respondent self-reported usual hours of work by weeks of work and dividing by 2,000. However, prior to 1976 the CPS did not collect comprehensive data on hours of employment during the previous calendar year. For these earlier years Himmelstein and colleagues analyzed employment and hours of work based on data for the week preceding the survey (which always takes place in March), on the assumption that this single week's data were representative of employment for the full, concurrent calendar year. Each respondent's "actual hours of employment" in the reference week was multiplied by 52 and divided by 2,000 to arrive at an FTE figure.

Himmelstein and colleagues assessed the effects of this methodologic change by calculating

health employment for 1975 using both the "last week" data from the 1975 CPS and the "last year" data from the 1976 CPS. Both 1975 estimates are given in each of the tables derived from the CPS data. As expected, the number of people indicating that they had worked in health care at any time "last year" exceeded the number saying that they had worked in health care "last week." However, this discrepancy vanished after extrapolation to FTES during 1975. Thus, continuity of time series data is somewhat better for FTEs than for numbers of persons employed.

Himmelstein and colleagues inspected graphs of time trend data on the number of persons and FI'Es employed in each occupation group. A discontinuity was evident in the data by number of people in 1976, while the FTE curve showed no such discontinuity. The gap between the lines for number of persons and FTEs was an indicator of the average work schedule for members of the occupational group; for groups whose work year exceeds 2,000 hours (i.e., physicians), FTEs exceed persons. Conversely, part-time employment is common in many predominantly female occupations in which the number of persons employed exceeds the number of FTEs.

Himmelstein and colleagues calculated FTEs per million population by dividing the number of FTE health workers by the U.S. resident population as reported in the *Statistical Abstract of the United States.*

Reconciliation of Different Coding Schemes, Sample Designs, and Weighting Procedures

Occupation Codes

Between 1968 and 1991 the Census Bureau undertook two major reclassifications of occupations following the 1970 and 1980 censuses (40,41,42), as well as several minor reclassifications. The second of the major revisions involved a change in the philosophy of occupation classification, relying less on job titles and more on the content of work.

Himmelstein and colleagues dealt with these classification changes by preparing a comprehensive list of every occupational code represented in the health sector between 1968 and 1991. For each job title Himmelstein and colleagues reconciled the three systems of classification by comparing occupation titles (and, when necessary, the occupational definitions) in each of the classification schemes. Where there was not a clear identity between occupational titles or descriptions in the different systems, they allowed the codes to stand as distinct occupations.

Sample Design

The Bureau of the Census updated the recoding, imputation procedures for dealing with missing data, and/or the weights used to extrapolate the CPS to the population in 1975, 1983, and 1987. For each of these three years, Himmelstein and colleagues analyzed CPS data processed using both the old and new procedures, and report both sets of values.

CANADIAN DATA

Detailed data on health care workers in Canada come from the 1971 and 1986 Canadian censuses. Statistics Canada provided Himmelstein and colleagues with data tapes including all individuals employed in health sector industries, based on industry classifications similar to those used by the U.S. Census Bureau since 1971. However, inspection of the data revealed that more nonphysician practitioners' offices appear to be classified under "Health and Medical Services, n.e.c." rather than under the rubric "Offices of Practitioners," compared with the U.S. data. This means (hat comparisons of the labor force employed in practitioners' offices in the United States and Canada are subject to error.

The occupational classification of Canadian health care employees was based on Statistics Canada's 1971 Standard Occupational Codes (S. O. C.) codes. In most cases these codes closely correspond to the U.S. occupational coding system. Where discrepancies or uncertainties arose, Himmelstein and colleagues consulted with offi-

cials at Statistics Canada as well as the International Labor Organization's *International Standard Classification of Occupations.* Canadian health occupations were grouped into the same 17 categories as those used for the United States. In a few cases the Canadian classification conventions appear to differ from those used in the United States. This is most evident in the assignment of personnel to the occupational group "aides and other health service." The Canadian census appears to define these occupations more narrowly than does the United States. Hence, many individuals classified under the rubric "all occupations, n.e.c. " in the Canadian data would probably be classified as "aides and other health service" under U.S. conventions.

Statistics Canada's data classified the number of hours worked as a range (e.g., 20-30 hours). To calculate FTEs, Himmelstein and colleagues assigned each employee to the midpoint of the specified range of hours (for the category >50 hours/week Himmelstein and colleagues assigned the employee to 52.5 hours), multiplied by the number of weeks worked during the year, and divided by 2,000.

Himmelstein and colleagues calculated employees and FTEs per million population using the Canadian resident population for each year as the denominator.

D Appendix D: Acronyms and Abbreviations

AMA	American Medical Association
CEO	Chief executive officer
CHFC	California Health Facilities Commission
CNAM-TS	Caisse Nationale d'Assurance Maladie des Travailleurs Salaries (National Insurance Association For Salaried Employees, France)
CNIL	Commission Nationale de L'Informatique et des Libertes (France)
COBRA	Consolidated Omnibus Budget Reconciliation Act of 1985
CPS	Current Population Survey (Census Bureau)
CPU	Central processing unit (microprocessor)
DHA	District Health Authorities (England)
DHHS	U.S. Department of Health and Human Services
FMF	Federation of Mutual Insurance Companies of France
FPC	Family Practice Committees (England)
FTE	Full–time Equivalent
GAO	General Accounting Office (U.S. Congress)
GDP	Gross domestic product
GP	General practitioner
HCFA	Health Care Financing Administration (DHHS)
HMO	Health maintenance organization
JAMA	Journal of the American Medical Association
JEIDA	Japan Electronics Industry Development Association
KV	Kassenartzliche Vereinigung (Germany)
LPN	Licensed practical nurse
NEC (n.e.c.)	Not elsewhere classified
NEJM	New England Journal of Medicine
NHA	National health accounts
NHS	National Health Service (England)
OECD	Organization for Economic Cooperation and Development
OTA	Office of Technology Assessment (U.S. Congress)
PCMCIA	Personal Computer Memory Card International Association
PPP	Purchasing power parity
ProPAC	Prospective Payment Assessment Commission (U.S. Congress)
R&D	Research and development
RN	Registered nurse
SOC	Standard Occupational Code
WEDI	Workgroup for Electronic Data Interchange

References

1. American Hospital Association, *Hospital Statistics: 1990-91 Edition* (Chicago, IL: 199 1).
2. Archer, B., "Administrative Efficiency of the U.S. Health Care System" (letter), New *England Journal of Medicine 325(18):1316-*1317, Oct. 31, 1991.
3. Barer, M.L. and Evans, R. G., "Interpreting Canada: Models Mind-Sets and Myths," *Health Affairs* 11(1):44-61, spring 1992.
4. Blumenthal, D., "Administrative Costs and Health Care Reform" (letter in reply), New *England Journal of Medicine 329(22): 1656-1657.* Nov. 25, 1993.
5. Blumenthal, D., "Administrative Issues in Health Care Reform" (editorial), New *England Journal of Medicine 329(6):428-429,* Aug. 5, 1993.
6. Danzon, P., "Hidden Overhead Costs: Is Canada's System Really Less Expensive?," *Health Affairs* 11(1): 21-43, spring 1992.
7. Detsky, A. S., Stacey, S. R., and Bombardier, C., "The Effectiveness of a Regulatory Strategy in Containing Hospital Costs: the Ontario Experience, 1967-81 ," New *England Journal of Medicine 309(3):151* -159, July 21, 1983.
8. Evans, R. G., Barer, M. L., and Hertzman, C., "The 20 Year Experiment: Accounting for, Explaining and Evaluating Health Care Cost Containment in Canada," *Annual Review of Public Health* 12:481-5 18, 1991.
9. Evans. R. G., et al., "Controlling Health Expenditures—The Canadian Reality," New *England Journal of Medicine 320(9):571-577,* Mar. 2, 1989.
10. Fuchs, V. R., and Hahn, J. S., "How Does Canada Do It? A Comparison of Expenditures for Physicians' Services in the United States and Canada," New *England Journal of Medicine* 323:884-890. Sept. 27, 1990.
11. Fuchs, V. R.. and Hahn, J. S., "Technical Appendix to 'How Does Canada Do It?.'" unpublished manuscript, Stanford. CA, National Bureau of Economic Research, September 1990.
12. Gauthier, A. K., et al., "Administrative Costs in the U.S. Health Care System: The Problem or the Solution," *Inquiry* 29:208-320, fall 1992.
13. Glaser, W. A., *Paying the Hospital* (San Francisco, CA: Jossey-Boss, 1987).
14. Glaser, W. A., *Health Insurance in Practice* (San Francisco, CA: Jossey-Boss, 1991).
15. Glaser, W. A., Professor, Graduate School of Management and Urban Policy, New School For Social Research, New York. NY. "Administration in Health Care: A Plan for Cross-National Comparisons," unpublished contractor report prepared for the Office of Technology Assessment. U.S. Congress. Washington, DC, December 1993.
16. Grumbach, K.. et al., "Liberal Benefits, Conservative Spending: The Physicians for a National Health Program Proposal." *Journal of the American Medical Association* 265(19): 2549-2554, May 15.1991.
17. Haber, S. G., et al., "Hospital expenditures in the United States and Canada: Do Hospital Worker Wages Explain the Difference?." *Journal of Health Economics 11:453-465, 1992.*

18. Hahn, J. S., Assistant Professor, School of Public Health, University of North Carolina at Chapel Hill, Chapel Hill, NC, "Administrative Costs in the Health Care Systems of the United States, Canada, Germany, and the United Kingdom: A Framework for Comparative Analysis," unpublished contractor report prepared for the Office of Technology Assessment, U.S. Congress, Washington, DC, June 1993.
19. Hellander, I., et al., *Administrative Waste in the U.S. Health Care System in 1991: The Costs to the Nation, the States, and the District of Columbia* (Washington, DC: Public Citizen Health Research Group, 1991).
20. Himmelstein, D. U., and Woolhandler, S., "Cost Without Benefit: Administrative waste in U.S. Health Care," New *England Journal of Medicine 3* 11(7):441-445, Feb. 13, 1986.
21. Himmelstein, D. U., et al., Center for national Health Program Studies, Harvard Medical School/The Cambridge Hospital, Cambridge, MA, "The Health Care Labor Force: U. S., Canada, and Western Germany," unpublished contractor report prepared for the Office of Technology Assessment, U.S. Congress, Washington, DC, Mar. 19, 1993.
22. Hoffmann, E., Chief, Statistics of Employment and Unemployment Section, International Labor Office, Geneva, Switzerland, personal communication, Apr. 21, 1993.
23. Katz, R., Assistant Director, Human Resources Division, U.S. General Accounting Office, personal communication, Apr. 21, 1994.
24. Katz, S.J., Hislop, T. G., Thomas, D. B., Larson, E. B., "Delay From Symptom to Diagnosis and Treatment of Breast Cancer in Washington State and British Columbia," *Medical Care 3 1:3* (March 1993) 264-268.
25. Lauve, R., and Long, H. W., "Administrative Efficiency of the U.S. Health Care System" (letter), New *England Journal of Medicine 325(18):1317,* Oct. 31, 1991.
26. Monod, E. M., "A Tour d'Horizon of Health Care Cards in Europe," *Smart Card Technology International* (London: Global Projects Group, 1994).
27. Organisation for Economic Co-operation and Development, *OECD Health Systems—Volume 1: Facts and Trends, 1960-1991,* Health Policy Studies No. 3. (Paris, France, OECD, 1993).
28. Organisation for Economic Co-operation and Development, *OECD Health Systems—Volume 2: The Socio-economic Environment, Statistical References,* Health Policy Studies No. 3. (Paris, France, OECD, 1993).
29. Paquel, N., Frizzole, C., and Glaziou, S., CANOPE Consulting, Paris, France, "Smart Cards in the French Health Care System," unpublished contractor report prepared for the Office of Technology Assessment, U.S. Congress, Washington, DC, 1993.
30. Poullier, J. P., Director, Education, Employment and Social Affairs, Organisation for Economic Co-operation and Development, Paris, France, personal communication, Aug. 31, 1992.
31. Poullier, J. P., "Administrative Costs in Selected Industrialized Countries," *Health Care Financing Review 13(4): 167-172,* summer 1992.
32. Redelmeier, D. A., and Fuchs, V. R., "Hospital Expenditures in the United States and Canada," New *England Journal of Medicine 328:772-778,* Mar. 18, 1993.
33. Rublee, D. A., "Medical Technology in Canada, Germany, and the United States," *Health Affairs 8(3):178-181,* fall 1989.
34. Schwartz, W. B., Mendelson, D. N., "Eliminating Waste and Inefficiency Can Do Little to Contain Costs," *Health Affairs* 13(1):224-238, spring 1994.

35. Schlesinger, M., Associate Professor, Yale School of Medicine, New Haven, CT, personal communication, Aug. 15, 1994.
36. Sheils, J. F., Young, G. J., and Rubin, R. J.,"0 Canada: Do we expect Too Much From its Health System?," *Health Affairs* 11(1):7-20, spring 1992.
37. Sheils, J. F., and Young, G.J., '"National Health Spending Under A Single Payer System: The Canadian Approach—staff paper for Lewin/ICF, Jan. 8, 1992.
38. Thorpe, K. E., "Inside the Black Box of Administrative Costs," *Health Affairs* 11 (2):41 - 55, summer 1992.
39. U.S. Department of Commerce, Bureau of the Census, Data User Services Division, Data Access and Use Staff, "Current Population Survey, March 1992 Technical Documentation," unpublished report, Washington, DC, 1992.
40. U.S. Department of Commerce, Bureau of the Census, Demographic Surveys Division and Population Division, 1970-1980 *Occupation Classification: CPS-Based 1970 Sort* (Washington, DC: 1984).
41. U.S. Department of Commerce, Bureau of the Census, 1970 *Occupation and Industry Classification Systems in Terms of Their 1960 Occupation and Industry Elements, Technical Paper No. 26,* prepared by J.A. Priebe, J. Heinkel, and S. Greene (Washington, DC: 1972).
42. U.S. Department of Commerce, Bureau of the Census, *The Relationship Between the 1970 and 1980 Industry and Occupation Classification Systems, Technical Paper No. 59,* prepared by J.A. Priebe, and P.L. Vines (Washington, DC: 1989).
43. U.S. Congress, General Accounting Office, *Canadian Health Insurance: Lessons for the United States, GAO/HRD-91* -90 (Washington, DC: June 1991).
44. U.S. Congress, General Accounting Office, *Canadian Health Insurance: Estimating Costs and Savings for the United States, GAO/HRD-92-83* (Washington, DC: April 1992).
45. U.S. Congress, House of Representatives, Committee on Ways and Means, Subcommittee on Health, *Options for Health Insurance: Administrate\'e Simplification in Health Care,* hearing. Apr. 2, 1992, Serial No. 102-90 (Washington, DC: U.S. Government printing Office, 1992).
46. U.S. Congress, Office of Technology Assessment. *Protecting Privacy in Computerized Medical Records, OTA-TCT-576* (Washington. DC: U.S. Government Printing Office, September 1993).
47. U.S. Congress, Office of Technology Assessment, *Understanding Estimates of National Health Expenditures Under Health Care Reform, OTA-94-594* (Washington, DC: U.S. Government Printing Office, 1994).
48. U.S. Prospective Payment Assessment Commission, *Medicare Prospective Payment and the American Health Care System: Report to the Congress* (Washington, DC: U.S. Government Printing Office, June 1990).
49. Weil, T. P., and Miller, W. H., *An Alternative in Health Care Reform: The Facts on the Canadian Health System,* manuscript **(Phoenix** AZ: Silver & Cherner, 1993).
50. White House Domestic Policy Council, *Health Security: The President's Report to the American People* (Washington, DC: U.S. Government Printing Office, October 1993).
51. Woolhandler, S., Director, Center for National Health Program Studies, Cambridge, MA, personal communication, June 8, 1994.
52. Woolhandler, S., Director, Center for National Health Program Studies, Cambridge, MA, personal communication, July 5, 1994.
53. Woolhandler, S., Director, Center for National Health Program Studies, Cambridge, MA, personal communication, Aug. 8, 1994.
54. Woolhandler, *S.,* and Himmelstein, D. U., "The Deteriorating Administrative Efficiency

of the U.S. Health Care System," New *England Journal of Medicine 324(18):1253-1258,* May *2, 1991.*

55. Woolhandler, S., Himmelstein, D. U., and Lewontin, J. P., "Administrative Costs in U.S. Hospitals," New *England Journal of Medicine 329(6):400-403,* Aug. 5, 1993.
56. Woolhandler, S., Himmelstein, D. U., "Correction: The Deteriorating Administrative Efficiency of the U.S. Health Care System," letter, New *England Journal of Medicine 331(6):336,* Aug. 4, 1994.
57. Workgroup for Electronic Data Interchange, *WEDI 1992 Report* (Washington, DC: 1992).
58. Workgroup for Electronic Data Interchange, *WEDI 1993 Report* (Washington, DC: 1993).

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