

Personal Health Information, Health Plans, and Consumers

An Assessment of the Benefit to Consumers of Health Plan Information
Flows Containing Personal Health Information and the Costs of Complying
with Conflicting State Confidentiality Laws

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August 2001

EXECUTIVE SUMMARY

This report explains the benefits to consumers of the use of personal health information (PHI) by health insurers and health plans, as well as the real and potential costs that arise from non-uniform state laws that regulate use of such data.

To develop our findings, we interviewed ten health plans and insurers. In addition, we relied upon health economics literature and other studies. The dollar value of the benefits to consumers of health plan use of PHI, and the costs of state regulations, were estimated using projections from the Health Care Financing Administration (HCFA) on national health expenditures. Among our findings are:

Health plans and insurers are fully aware of the necessity of protecting PHI for the effective delivery of health care and voluntarily have adopted a number of measures to protect the confidentiality and integrity of such data. This is not surprising since insurers and plans have strong incentives to protect PHI. These include the fact that plans that do not protect PHI can lose employers and enrollees to plans that do; the expense involved in gathering PHI; and the possibility that concerns about PHI could lead enrollees to delay or forego treatments that ultimately may reduce costs.

Plans and insurers use PHI to achieve both health benefits and financial benefits for consumers. Practices enabled by the use of PHI include utilization review and management, the negotiation of provider discounts, fighting fraud and abuse, and “disease management” programs for diabetes, asthma, congestive heart failure, and other conditions.

Great concern exists among plans and insurers about the impact of future non-uniform state legislation on PHI. Such concerns arise because enforcement of some recent federal requirements regarding the treatment of PHI is left to the states. Further, the Health Insurance Portability and Accountability Act (HIPAA) does not preempt any state-level regulation that is “more stringent” than HIPAA requirements.

Nevertheless, while existing state regulation of PHI is far from uniform, most insurers and plans indicate that the current situation is manageable, although the future is uncertain because much of the legislation has yet to be implemented or fully defined. At present, however, the confidentiality restrictions that many plans have voluntarily enacted largely put them in compliance with the various state laws. Additionally, many plans and insurers utilize a “highest common denominator” approach with respect to these laws—that is, plans adopt measures that comply with the most stringent state laws to avoid duplicate effort.

Our findings suggest that the use of PHI not only improves our system of health care financing and delivery, but benefits the entire economy as well. Using conservative assumptions, we estimate the health and financial benefits from use of PHI by health plans and

insurers range from \$195 to \$430 billion from 2002-2006 time frame, or approximately 2.5 to 5.5% of projected personal health care expenditures. This may well understate the total benefit to the economy for at least two reasons: first, we were not able to quantify many of the uses of such data because information is incomplete, and because some uses are under development; second, we do not quantify secondary effects such as the decrease in the number of uninsured individuals made possible because such uses of data make insurance less costly and more accessible. Nor do these estimates include the benefits to consumers of the use of PHI by other players, such as medical providers and researchers.

Our estimate of the potential costs of non-uniform state legislation regarding PHI ranges from \$717 million to close to \$4 billion over the 2002-2006. First-year costs associated with such legislation could exceed 5% of total private health insurance administrative expenses. Nevertheless, out-of-pocket costs are low relative to the benefits that flow from the use of PHI suggesting that the real costs in overly burdensome confidentiality legislation result from “chilling” effects such legislation might have on the use of such data.

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I. INTRODUCTION

The use of personal health information (PHI)¹ by insurers, health plans, providers, and others has grown in recent years. Advances in information technology have made the collection and use of such data simpler and more cost-effective; further, as society has moved toward managed health care, such information has become critical to containing costs² and improving outcomes. Finally, reform efforts to improve individual and community health also rely on access to personal health information.

Nevertheless, despite the need for access to PHI for the cost-effective delivery and development of health care, the myriad “flows” and uses of such information are bewildering to the public. This, coupled with a societal concern with privacy, especially medical privacy, has led to a backlash against the collection and use of PHI by participants in the health care marketplace.³ Rules regarding the collection and use of PHI were announced at the end of 2000 by the Clinton administration.⁴ Further, a number of states have also passed or are considering laws that protect the confidentiality of personal health information.⁵ Finally, the Gramm-Leach-

¹ The National Association of Insurance Commissioners (NAIC) has adopted the following definition for PHI which appears reasonably representative of the definition used by other players in the health care marketplace:

“...health information: (1) that identifies an individual who is the subject of the information; (2) with respect to which there is a reasonable basis to believe that the information could be used to identify an individual.”

“Health information” is defined as:

“...any information or data, except age or gender, whether oral or recorded in any form or medium, created by or derived from a health care provider or consumer that relates to: (1) the past, present or future medical condition of an individual; (2) the provision of health care to the individual; or (3) a payment for the provision of health care to an individual.

(NAIC, “Privacy of Consumer Financial and Health Information Model Regulation,” Section 4.P.)

² As explained more fully below, cost containment is generally achieved by ensuring that only appropriate care is provided and by negotiating with providers over charges.

³ This backlash is replete with “horror stories” similar in nature to those stories that accompanied the more general backlash against managed care of the past few years. (See, for example, Amitai Etzioni, The Limits of Privacy (New York: Basic Books, 1999), pp. 140-141).

⁴ See Juliet Eilperin, “U.S. Moves to Cloak Medical Records,” The Washington Post, December 20, 2000, pp. A1.

⁵ According to the National Conference of State Legislators, more than 37 privacy proposals had become law and another 5 were awaiting governors’ signatures as of May 24, 2000 (<http://www.privacysecuritynetwork.com/healthnews/case/state%20update052400.htm>; visited December 26, 2000).

Bliley Act (GLBA), which regulates the use of “nonpublic personal financial information,” will also affect health plans.⁶

This report explains the benefits to consumers of the use by health insurers and health plans of information flows containing PHI, as well as the real and potential costs that arise from non-uniform state laws that regulate the use of such data.

To develop this report, Charles River Associates (CRA) conducted interviews with ten health plans and insurers throughout the country. (See Appendix A.) In addition to the interviews, we relied upon health economics literature and other pertinent studies. Finally, we estimated the dollar value of the benefits to consumers of health plan use of information flows containing PHI, and the costs of state regulations from Health Care Financing Administration (HCFA) projections of national health expenditures.

We first study the benefit to the public of several uses of data flows containing personal information for the period 2002-2006.⁷ Overall, using conservative assumptions,⁸ we find that the benefit to the public of health plan and insurer use of such data is large, ranging from approximately \$195 to \$430 billion over the time period considered or approximately 2.5 to 5.5% of projected personal health care expenditures. These estimates may well understate the total benefit of uses of such data to the economy for at least two reasons. First, we were not able to quantify many of the uses of such data due to incomplete information, and because some uses of such data are only now under development. Second, we do not quantify secondary effects, such as the decrease in the number of uninsured individuals made possible because such uses of data make insurance less expensive and more accessible.

We next look at the potential costs to health plans and insurers of non-uniform state confidentiality legislation. Our estimate for 2002 through 2006 ranges from \$717 million to close to \$4 billion. While these expenditures may appear small relative to our findings regarding the benefit of using data containing PHI, first-year costs associated with such legislation could

⁶ The GLBA was signed into law in November 1999. The specific goal of the act is the repeal of the Depression-era separation of banking, securities, and insurance activities. However, the act does not repeal other regulations that specifically leave the regulation of insurance companies and related entities to the states. Thus, enforcement of GLBA with respect to third-party payors will be left to individual states. Furthermore, the federal government has the ability to use a “carrot and stick” approach to encourage states to implement the act within their borders. If a state does not adopt regulations to implement GLBA, it cannot override certain other federal insurance customer protection regulations.

⁷ Our estimates are thus comparable to those of other studies on the costs of various pieces of legislation in the health care area, for example, Barents Group, Impacts of Four Legislative Provisions on Managed Care Consumers: 1999-2003 (1998); H.E. Frech and James Langenfeld, The Impact of Managed Health Care on Medical Care and Access to Health Insurance (2000); Robert E. Nolan Company, Inc., Common Components of Confidentiality Legislation (1999); Department of Health and Human Services, HIPAA Privacy Rule Regulatory Impact Analysis (2000); and First Consulting Group, The Impact of the Proposed HIPAA Privacy Rule on the Hospital Industry (2000).

⁸ We use the term “conservative” to mean that to the extent there are errors in our calculations due to incomplete information, a lower-bound estimate of the economic benefit of these practices will result.

exceed 5% of total private health insurance administrative expenses. Nevertheless, the low out-of-pocket costs relative to the benefits that flow from the use of PHI suggests that the real costs in overly burdensome confidentiality legislation could result from the “chilling” effects such legislation might have on the use of such data.

In Section II of our report we examine the ways in which data containing PHI flow to and from health plans and insurers and we discuss the safeguards health plans and insurers have in place to protect the integrity of such data. We note that insurers have strong economic incentives to protect the integrity of such data even in the absence of laws. Section III discusses the benefits of using data containing PHI. Section IV considers the possible costs of non-uniform state legislation regulating the use of data containing PHI. Section V summarizes our findings and conclusions.

II. THE FLOWS OF PHI AND VOLUNTARY ACTIVITIES REGARDING HEALTH PRIVACY

A. Flows of Health Information

What are the sources of data containing PHI used by insurers and plans? And, to the extent such data flow outside these organizations, what is the nature of the information transferred?

Claims data are the primary source of PHI, i.e., the data submitted by providers and patients when seeking reimbursement for services. Health plans retain and compile the information contained in claims data for use in the various programs discussed below.

Another important source of PHI is application forms, generally filled out at the time of enrollment in a health plan, or updated because of reenrollment or changes in coverage status. These forms list age, gender, occupation, and medical history and may also include information about family health background. In addition, some insurers obtain PHI directly from enrollee surveys.

When health information flows from a health plan or insurer to another entity, most commonly the recipient is a vendor that provides cost-reducing or health-improving services.⁹

⁹ Many firms provide these services internally; thus, information flows within the firm. Other firms choose to contract for these services externally. In these cases, the information must flow to another entity that works for the original firm under contract. There is an enormous literature in economics on why some firms choose to perform certain functions internally while others will externally contract for such services. For a comprehensive review of this literature, see Martin K. Perry, “Vertical Integration: Determinants and Effects,” in Handbook of Industrial Organization, Volume 1, eds. Richard Schmalensee and Robert Willig, eds. (New York: Elsevier, 1989) pp. 183-255.

Generally, cost is a deciding factor. Many confidentiality restrictions will increase the cost of dealing with outside contractors, thus leading to inefficiencies in this “make or buy” decision.

Nine of the ten insurers interviewed indicated that PHI does not flow outside the orbit of providers, patients, insurers, and vendors to employers and/or marketers.¹⁰ PHI will, however, flow to various government entities as part of regulatory compliance or reporting or in response to court subpoenas.

B. Voluntary Activities to Assure Health Privacy

Institutional respect for individual privacy concerns is necessary to a well functioning health care system. For example, without privacy safeguards, many individuals could unnecessarily delay or even forego treatments because of embarrassment, fear of job loss, or other reprisals.

The insurers and plans surveyed are fully aware of the need to protect PHI for the effective delivery of health care. Indeed, we discovered that the vast majority of insurers and plans already do a great deal to ensure patient confidentiality.¹¹ As explained more fully below, this finding should not be surprising, since insurers and plans have strong incentives to protect the confidentiality of PHI.

Insurers and plans indicated that for a number of years they have been following the guidelines of the National Association of Insurance Commissioners (NAIC). The NAIC first established model guidelines for dealing with PHI over 20 years ago with the “Insurance Information and Privacy Protection Model Act.” This act generally required insurers to receive explicit authorizations (an “opt-in”) from individuals to disclose PHI beyond the disclosure necessary to carry out insurance functions.^{12,13}

Insurers and plans indicate considerable concern with possible future non-uniform state regulations on PHI. However, insurers and plans indicate that, for the most part, their own internal practices already put them in compliance with legislation on disclosure and access. Further, insurers and plans have adopted a “highest common denominator” approach to

¹⁰ One insurer indicated that to the extent PHI flows to entities that will transmit unsolicited marketing materials; explicit consent on the part of enrollees is required before PHI is disclosed for such purposes.

¹¹ As noted previously, much of the backlash against the use of personal information is based on anecdotal evidence. Some of the insurers and plans we spoke with gave us what might be termed “counter-anecdotes” documenting some of the unintended consequences of various privacy statutes. For example, one insurer told us that clergymen in some states had difficulty gaining access to patients in a hospital because privacy requirements prevented the hospital from revealing the location of the patients. It is also noteworthy that most examples of medical records being disclosed represent breaches of the policies and ethical codes of the institutions involved; in some instances, existing laws were violated. (See Etzioni, *The Limits of Privacy*, pp. 140-141.)

¹² In September 1998, the NAIC adopted the “Health Information Privacy Model Act,” which implements an “opt-in” standard and establishes exceptions that allow insurers to carry on business functions. No state has thus far adopted this model and it is opposed by the industry because it is considered overly prescriptive and burdensome.

¹³ Further, the American Association of Health Plans publishes a code of conduct that includes principles for maintaining the integrity of data containing PHI. (<http://www.aahp.org>). Many other participants in the health care marketplace also have ethical codes encompassing patient privacy.

complying with confidentiality statutes. That is, insurers try to be in compliance with the most restrictive state confidentiality laws so that they are in compliance with all such laws. Health plans and insurers have generally adopted such practices even in states where there are no confidentiality statutes. This is partly to achieve administrative simplicity (i.e., it is cheaper to enforce a uniform standard across all areas in which the insurer operates) and partly because health plans and insurers want to promulgate such internal practices regarding privacy.

Plans and insurers have more recently stepped up efforts to ensure the confidentiality of data containing PHI in response to recent concerns. These include such activities as using ICD diagnosis codes rather than stating patient conditions on records; interacting more directly with enrollees rather than with employers; limiting access to certain facilities to authorized personnel; using technical tools to protect electronically stored data; greater centralization of billing; more vigorous monitoring of complaints; and greater standardization of communications with enrollees.

As noted previously, plans and insurers have strong economic and reputational incentives to protect health privacy. In the words of one interviewee: “[G]athering personal health information is generally expensive and time-consuming.” For this reason insurers seek only to obtain the minimum amount of information for the required purpose. Further, competition among insurers and plans provides an additional incentive to protect PHI. If a plan or insurer gains a reputation as an organization that does not protect confidential health information, it will lose employers and enrollees to competitors.¹⁴ Finally, as noted previously, concerns about health privacy could compel individuals to delay or forego treatments for certain conditions. Such delays could, of course, increase the severity of the condition and render ultimate treatment more expensive.

Insurers and plans are concerned that the privacy regulations of the Health Insurance Portability and Accountability Act (HIPAA) and other privacy statutes will only increase organizational costs without producing significant consumer benefits. Further, they fear that HIPAA and other regulations may provoke further unwarranted privacy concerns among the public. This could result in increased litigation as well as increased state legislative activity, ultimately increasing costs to health plans and premiums to policyholders. For example, some commentators are arguing that the current and proposed regulations do not go far enough in regulating data flows containing PHI.¹⁵ Plans and insurers fear that such concerns might lead to further regulation by the states.

In sum, our initial finding is that insurers are greatly concerned about the future. Since, with respect to insurers, the GLBA will be enforced by the states, enforcement may not be uniform. Further, there is concern that HIPAA will result in a misunderstanding of privacy

¹⁴ For a discussion of competition among health plans, see Charles River Associates, Antitrust Waivers for Physicians: Costs and Consequences (June 1999), pp. 14-20.

¹⁵ See, for example, Robert Gellman, “Analysis of the Marketing Provisions of the HIPAA Privacy Rules,” (<http://www.medscape.com/Medscape/GeneralMedicine/journal/2001/v03.n01/mgm0209>; visited 2/13/2001).

issues that also could lead to further regulation by the states. However, to date, the burden of complying with existing state statutes has been manageable for health plans and insurers, given that many plans are already in compliance with such laws largely as a result of their own confidentiality procedures.

III. BENEFITS OF THE USE OF PERSONAL HEALTH CARE INFORMATION

A. Introduction

Potential benefits of PHI fall into two general categories: “health benefits” and “financial benefits.”¹⁶ While recently enacted or proposed privacy statutes do not explicitly preclude many uses of PHI, given the misperceptions that appear to be forming, an elucidation of the actual benefits of using PHI appears vital. Additionally, even if certain practices are not explicitly banned by existing privacy statutes, such laws may have a detrimental effect, which, given the benefit of the use of PHI, can have a significant impact on the economy.¹⁷ Finally, many of the uses of PHI may be curtailed by future legislation unless a greater understanding of the benefits flowing from the uses of such data is obtained.

B. Utilization Review and Utilization Management

Managed care entities engage in a number of practices that reduce the cost of providing health care while maintaining overall quality. One such practice is to reduce redundant or unnecessary services. Managed care entities are able to achieve such reductions for a number of reasons. First, they have “scale economies,” and second, their accumulated expertise allows them to engage in more efficient monitoring of resource use than individual patients are able to do on their own. Moreover, individual patients may have a dulled incentive to engage in efficient monitoring, since they generally bear only a fraction of the cost of the medical services they obtain.

“Utilization review” (UR) and “utilization management” (UM) refer to activities that reduce the inappropriate use of resources and inappropriate care. According to Barents, UR refers to attempts to determine the “medical necessity, appropriateness and efficiency of a member’s prescribed course of treatment. Examples include concurrent and retrospective review, prospective review, second surgical opinions, and requirements for pre-certification.”¹⁸

¹⁶ Of course, the breakdown is not entirely clear-cut as programs that improve health care outcomes obviously save money as well.

¹⁷ Thus, the elimination of the use of PHI would be similar, in principle, to the oil price shock of 1973. Predicting the exact macroeconomic effects is beyond the scope of this report, but decreases in employment could result.

¹⁸ Barents Group, *supra*, pp. 5.

UM refers to another, closely related, set of activities engaged in by managed care entities. According to Barents, utilization management consists of “the incentives and measures used in managed organizations to provide a framework for providers to enhance efficiency while maintaining and improving quality of care. These include activities such as physician profiling, education, payment incentives, and practice guidelines as elements of utilization review.”¹⁹

Insurers and plans indicate that data containing PHI play an essential role in the functioning of UR and UM programs. For example, individual medical records and histories provide the context necessary for utilization review experts to identify proposed treatments that are questionable. Claims data are also used in catastrophic cases to find more effective courses of treatment as care is ongoing. Insurers and plans indicate that, without the use of claims data containing PHI, there is no way to identify patients with particular conditions, and without such information, the UR and UM programs would cease to operate.

UR and UM reduce costs in a variety of ways. For example, they help to determine if a patient can be treated as an outpatient rather than an inpatient. UR and UM activities can also help direct physicians toward more cost-effective, higher quality facilities. One insurer indicated that UR and UM for organ transplants has directed physicians and patients toward “centers of excellence,” reducing costs for such procedures by up to 40%. These activities save money for both insurers and patients—with the latter facing lower copayments and premiums. Moreover, numerous clinical studies have established a relationship between cost-effective high-volume facilities and quality.

Insurers and plans indicate that most UR and UM programs could simply not operate without the use of data containing PHI. Thus, without access to a patient’s health history and the ability to link treatment with outcomes, there is no feasible way that utilization review and management experts can help determine appropriate courses of treatment. Knowledge of a patient’s personal identity allows facts to be contributed to the various analyses that may not be reflected in written records. Indeed, many plans are concerned that such programs could be imperiled by the “minimum necessary” standard of the HIPAA regulation, which requires plans and insurers to make every reasonable effort not to use or disclose more patient information than is necessary to accomplish an intended purpose. Given the unstructured nature of the interplay between providers and UR and UM experts, gauging the minimum necessary information to achieve intended outcomes is very difficult. Any restrictions on the flow of information in this context could prevent health plans from getting enough of a picture to analyze a situation successfully. Moreover, not having access to a patient’s complete health history may hinder current treatment decisions by a provider, as well as review of alternative approaches by UM experts.

With respect to other programs that fall under the UR and UM categorizations (e.g., physician profiling, practice guidelines), it is possible to argue that only the diagnosis and the nature of the services provided are necessary and that such programs can operate without any

¹⁹ Ibid.

associated individual patient information. However, claims data appear to offer the only comprehensive source of such information. Since such information can be matched to a particular customer, it is considered PHI and thus comes under the purview of many regulations.²⁰ Furthermore, patients who have undergone what appears to be the same procedure in fact may require different resources, in terms of quantity, materials, and provider time, depending on a number of such concomitant factors as age and secondary conditions. Which of these factors may be important to determining appropriate variation in utilization is difficult to predict before actually observing the patients and their use of health care services. Otherwise it may be impossible to distinguish systematic inappropriate high service provision from appropriate care to a high-risk, sick population. Thus, there would appear to be efficiencies and benefit to patients in allowing access to greater information.

In sum, our discussions with health plans and insurers suggest that the vast majority, if not all, of the savings achieved through UR and UM activities rely on the use of data containing PHI. However, to be conservative, we use three scenarios to quantify the benefits of such information flows, assuming that 50%, 75%, and 100% of the benefits that flow from such activities would not be derived without data including PHI.²¹

The data and methodology used to approximate savings from UR and UM activities appear in Appendix B. The actual calculations of total savings from UR and UM are presented in Appendices C and D. Based on our estimates for the period 2002-2006, the total cost savings attributable to the use of PHI in UR activities range from \$69 billion to \$139 billion. Based on our estimates for the period 2002-2006, the total cost savings attributable to the use of PHI in UM activities range from \$125 billion to \$250 billion.

C. Provider Discounts

Managed care entities also reduce the cost of delivering health care through negotiated provider fees. Health plans and insurers have created networks of providers. Enrollees in a health plan are provided with certain incentives to use network providers (e.g., lower co-payments or deductibles). The incentives to use network providers enable plans and insurers to enter into selective contracts with providers that generally include reduced fees (as well as other terms related to cost-control) in return for higher patient volumes. Nevertheless, despite the existence of networks, many patients may continue using non-network providers. Further, many companies offered “managed indemnity” plans that do not have a significant number of providers under contract. However, in the case of particularly high-priced providers, the insurers we interviewed had used PHI to establish contracts in order to reduce fees.

²⁰ See the definition of PHI taken from the NAIC model regulation, *supra*.

²¹ There also may be some overlap in the benefits obtained from UR and UM programs. Our scenarios where we assume less than 100% of the benefits that flow from such activities are the result of PHI should also eliminate any such double counting.

Interviewees informed us that claims data and other information flows containing PHI enable insurers to profile providers and, where appropriate, contact them for contract negotiation. While this activity may not rely on PHI per se, claims data are the only comprehensive source of charges information. Since such data can be linked to a particular customer, they constitute PHI and thus come under the purview of many regulations. Secondly, patients who have undergone what appears superficially to be the same procedure may require a very different quantity of resources, in terms of materials and provider time, depending on a number of concomitant factors such as patient age and secondary conditions. As a result, patient specific fee information is necessary to assess fee variation.

We used the same baseline and market share assumptions in calculating the amount of provider discounting attributable to the use of PHI as we did with the UR and UM calculations. These are described in Appendix B. The actual provider discounting calculations appear in Appendices E-1 through E-4. PHI likely plays a smaller role in this method of obtaining cost savings than was the case with UR and UM. Thus, providers would have incentives to offer discounts to enter networks even without targeting by insurers using data containing PHI. We assume 10% of the overall savings are attributable to the use of PHI by plans and insurers.²² As seen in Appendix E-4, we estimate savings in provider prices attributable to the use of PHI to be \$35 billion over our 2002-2006 time frame.

D. Fraud and Abuse

Fraud and abuse are significant problems in the health care sector.²³ According to the National Health Care Anti-Fraud Association, health care fraud costs consumers more than \$30 billion annually.²⁴ The GAO estimated that fraud could account for up to 10% of annual health care spending, or close to \$100 billion based on current spending. Based on a survey of plans that constitute some 40% of the private insurance market, the Health Insurance Association of America (HIAA) found that, in 1998, health care anti-fraud programs yielded a savings of \$230 million.²⁵ Indeed, HIAA notes that this figure may be conservative since many of the survey respondents did not track all of the requested information; many did not have data available; and many had only just initiated anti-fraud programs. Further, these anti-fraud figures do not include

²² This number is based on the increase in the percentage of physician income deriving from managed care contracts during the 1994-1999 time frame. Thus, in 1994, 34% of physician income was from managed care contracts (American Medical Association, Socioeconomic Characteristics of Medical Practice 1996, p. 7). By 1996 this percentage was 44% (Ibid, 1997 ed., pp. 12). In 1999, this percentage had risen to 48% (American Medical Association, Physician Socioeconomic Statistics 2000-2002, pp. 96).

²³ Health Insurance Association of America, Health Insurers' Anti-Fraud Programs: Research Findings 1999, pp. 2.

²⁴ http://www.nhcaa.org/factsheet_impact_loss.htm; visited 2/28/2001.

²⁵ Ibid.

savings derived from deterrence. Extrapolating from these findings to the health insurance market as a whole, at least \$500 million a year is saved by private insurers' anti-fraud efforts.²⁶

Fraud against insurers and plans is perpetrated by providers, consumers, and others in the medical marketplace (e.g., laboratories, pharmacies, billing agencies, medical suppliers, etc.). Provider fraud includes upcoding, billing for services not rendered, and fraudulent diagnoses or dates. Consumer fraud includes falsifying eligibility records, falsifying claims, and falsifying prescriptions. In the HIAA survey, within each area of suspected fraud (provider, consumer, and other), for all cases of suspected fraud, companies were asked to identify the percent of cases of particular types of fraud. (See Tables 1 and 2.)

Table 1	
Suspected Provider Fraud by Type	
Upcoding	25%
Billing for Services not rendered	34%
Fraudulent diagnoses or dates	18%
Fee Splitting	4%
Waiving copays and deductibles	8%
Pharmacy provider fraud	10%
Other	35% ²⁷

²⁶The plans and insurers involved in the HIAA survey represented approximately 40% of the private insurance industry. Assuming the level of fraud prevention activities engaged in by these companies is representative of the remaining 60% of the industry, the \$230 million saved by the surveyed companies represents 40% of all the savings obtained by private health insurers through fraud prevention activities. This implies that the total savings is \$575 million (\$230 million divided by .4). We choose a figure of \$500 million to be conservative.

²⁷ Where more than one type of fraud was detected in specific cases, companies could indicate cases for more than one category of fraud. Therefore, the sum of the percentages for each category could total more than 100%.

False records of employment/eligibility	13%
Falsifying claims	36%
Misrepresentation on applications	14%
Sales of health insurance coverage information	3%
Consumer fraud related to pharmacy	12%
Other	26%

Only a small percentage of fraudulent activities could be prevented without access to, and use of, PHI.²⁸ Further, interviewees indicated to us that the sharing of health information and ease of access to such information is vital in preventing fraud, especially given that plans are generally required to respond to claims within a specified period of time. Once claims have been paid it is often difficult to recoup payments.²⁹

In quantifying the benefits from the use of PHI in detecting and preventing fraud and abuse, we assumed \$500 million in annual savings from such activities from 2002-2006. We then assumed that 50%, 75%, or 100% of these savings are attributable to the use of data containing PHI. The estimated savings range from approximately \$1 billion to \$2 billion. (See Appendix F-1.)

E. Disease Management

1. INTRODUCTION

One important use of PHI is to improve health outcomes and reduce costs through “disease management” (DM), the systematic management of patients with chronic illnesses. DM strives to coordinate patient education with physician, pharmaceutical, and institutional care,³⁰ with a focus on quality and cost-effectiveness. Most of the growth in disease management

²⁸ This is not to say that PHI would be the only source for identifying or corroborating health care fraud and abuse. Thus, while claims audits would appear to be a significant means of identifying fraud (indeed 91% of the firms in the HIAA survey indicated they undertook such surveys as part of their fraud detection activities), tips from providers or patients also appear to be useful. However, some type of PHI would appear to be absolutely essential to documenting actual fraud and subsequently retrieving lost monies.

²⁹ According to the HIAA study, about 28% of the savings identified from anti-fraud programs involved monies not yet paid out.

³⁰ National Pharmaceutical Council, Disease Management: Balancing Cost and Quality.

programs has occurred in the last four to five years.³¹ In such programs, insurers seek to control the progression of certain chronic illnesses such as asthma, congestive heart failure, and diabetes through ongoing prevention, monitoring, and treatment. Such conditions, if undetected or untreated, can result in enormous future costs. But, when such diseases are diagnosed and treated early, substantial expenditures can be foregone, and patients enjoy fewer lost work-days and an overall higher quality of life. However, for DM to work, plans and insurers note that they must be able to identify potential candidates and, if they subcontract for their disease management programs, be able to share PHI with third-party vendors.

2. DIABETES

An estimated 15.7 million Americans have diabetes.³² Health complications from diabetes include blindness, kidney failure, amputation, and death. According to Novartis, in 1997, 75% of HMOs had a diabetes disease management program in place.³³

Disease management programs yield “direct savings,” reductions in medical expenses resulting from earlier intervention, and more systematic management of the condition. Based on a number of studies of DM for diabetes, we estimate cost reductions of \$25 million to \$335 million per year. The methodology used to develop these savings estimates is further described in the Appendix B. (These savings estimates only reflect DM participants in HMOs and not in other types of insurance plans.)

Of course, the benefits derived from the reduced severity of diabetes are not limited to avoided medical costs. Also important are the increased quality of life and increased productivity of individuals—“indirect savings.” Most studies of this aspect of disease reduction focus on the *economic* losses of the persons suffering from the disease, such as lost workdays and lost productivity while at work. These studies do not capture other important aspects of the burden of illness, such as pain and suffering and the psychological impacts on families, friends, and co-workers. Based on data from the National Institutes of Health, we estimate that indirect savings from disease management programs in diabetes range from \$120 million to \$300 million. The approach used to develop these estimates is further described in Appendix B.

3. ASTHMA AND CONGESTIVE HEART FAILURE (CHF)

Disease management programs for asthma have the highest prevalence among HMOs, with 95% indicating the existence of such a program.³⁴ We estimate that the cost savings

³¹ Chris Rauber, “Disease Management Can Be Good for What Ails Patients and Insurers,” Modern Health Care, March 29, 1999, pp. 48-54.

³² Center for Disease Control, Diabetes: A Serious Public Health Problem: At-A-Glance 2000.

³³ Novartis, Pharmacy Benefit Report, 1998 Edition.

³⁴ Novartis, Pharmacy Benefits Review: Trends and Forecasts, 1998.

attributable to uses of data flows containing PHI in DM programs for asthma range from \$27 to \$40 million per year. For DM for congestive heart failure (CHF), we obtain net cost savings of \$25 million to \$75 million per year. The savings estimates for both asthma and CHF only reflect avoided medical costs and do not include benefits from increased productivity or quality of life. (See Appendix B.)

4. SUMMARY OF DISEASE MANAGEMENT COST SAVINGS

Thus, for these three DM scenarios, at the low end, we estimate savings of approximately \$460 million over our 2002-2006 time-period; at the high end, we estimate savings of approximately \$2.2 billion. (See Appendix G-1.) On the one hand, our estimates could be very conservative. First, we include only estimates of savings to HMOs in our calculations due to a lack of data, but clearly DM programs exist in other contexts. Secondly, we ignore other disease management programs (e.g., GI disorders, hypertension, neonates) that currently have very low penetration rates. To the extent that these programs can be expected to grow over the 2002-2006 time frame, our results are understated. On the other hand, many participants in the medical marketplace have indicated skepticism regarding the ability of DM programs to achieve substantial savings.³⁵ Given this uncertainty, our estimates probably represent a reasonable approximation of the expected value of such programs. Nevertheless, given the current uncertainty regarding the benefit of disease management programs, at the low end, we include zero benefits for disease management in our summation of benefits presented below.

F. Other Benefits

Pure research, which uncovers newer and less invasive ways of achieving given health outcomes, indirectly benefits insurers and consumers by making health care less costly to deliver. A recent study suggests that privacy legislation could have a significant impact on the costs and efficacy of research.³⁶ This study considered the effect of legislation in Minnesota that required “informed patient consent” prior to the use of medical records by external researchers. Of 140 Minnesota health plan members asked to participate in a study, only 19% signed a consent form authorizing access to their medical records, and many of these signed up only after persistent letters and phone calls. For 132 study subjects enrolled in five other health plans in states where study-specific consent was not required, health care providers were granted access to patient records for 93% of the members.

Access to PHI can also foster coordination of care across providers by permitting integrated access to a common patient’s health history. This integration should reduce health care costs, which in turn should enable insurers to minimize increases in health care premiums

³⁵ See John Carroll, “Health Plans Demand Proof that DM Saves them Money,” *Managed Care*, November 2000; http://www.managedcaremag.com/archives/0011/0011.dm_roi.html; visited 02/20/2001.

³⁶ Douglas B. McCarthy et al., “Medical Records and Privacy: Empirical Effects of Legislation,” *Health Services Research*, No. 1, Vol. 34 (April 1999): 417-425.

and other costs. Finally, the use of PHI can reduce costs in various other ways such as by facilitating the consolidation of record and billing procedures. It can also foster faster communications and claims processing among payers, providers, and patients.

While actuarial studies appear to use data in more aggregated form, their ultimate source is individual claims data. Thus, such studies would clearly appear to fall under the definition of data flows containing PHI. Actuarial studies are used by insurers in a number of ways to make changes in the way they do business. For example, insurers use such studies to determine where to increase or reduce benefits, where to recommend different procedures, and where best to target resources to improve outcomes or reduce costs.

G. Cost Savings Estimates

In this section we present three scenarios summarizing our estimate of savings attributable to uses of PHI, based on most conservative to least conservative assumptions. As stated at the outset, even our least conservative estimates are likely to understate the benefit of uses of data containing PHI, since we have not quantified benefits in many areas.

Table 3			
Cost Savings Assumptions			
Area of Cost Savings	Low	Medium	High
Utilization Review	50% of savings attributable to PHI	75% of savings attributable to PHI	100% of savings attributable to PHI
Utilization Management	50% of savings attributable to PHI	75% of savings attributable to PHI	100% of savings attributable to PHI
Provider Discounts	0% of savings attributable to PHI	10% of savings attributable to PHI	10% of savings attributable to PHI
Fraud and Abuse	50% of savings estimate	75% of savings estimate	100% of savings estimate
Disease Management	0% of savings attributable to PHI	Low-end estimates of savings attributable to PHI	High-end estimates of savings attributable to PHI

Table 4
Cost Savings Due to Use of Personal Health Information Under Three Scenarios
2002-2006 (Year 2001 Dollars)
(\$ Millions)

Area of Cost Savings	Low	Medium	High
Utilization Review	69,560	104,341	139,121
Utilization Management	125,173	187,760	250,347
Provider Discounts	–	35,172	35,172
Fraud and Abuse	1,069	1,603	2,138
Disease Management	–	462	2,224
Totals	195,802	329,338	429,002

We estimate that the overall benefit of uses of data containing PHI ranges from approximately \$195 billion to over \$430 billion over the period 2002-2006, discounted back to 2001, or approximately 2.5% to 5.5% of all personal health care expenditures predicted over this period. As noted above, our estimates of the total economic benefit associated with the use of data flows containing PHI do not include the benefits from such activities as actuarial analysis, provider integration, and pure research. Further, there are numerous other ways in which the cost reductions that stem from the use of PHI benefit individuals and the economy in aggregate. For example, lower costs for insurers translate into lower health care premiums. That results in a reduction in the number of uninsured individuals. Further, cost savings of this magnitude likely have a significant impact on the overall economy, allowing resources to be directed to other endeavors.

IV. THE COSTS OF STATE CONFIDENTIALITY LAWS

A. Current Status of State Regulation of Health Privacy

There are numerous state statutes and regulations that address the confidentiality of health information. The most common are those that impose restrictions on disclosures of medical information and medical records. According to the Health Privacy Project, 37 states had restrictions on disclosures relating to HMOs and MCOs, and 18 had disclosure laws that applied to insurance companies in mid-1999.³⁷ Constituting another major category of confidentiality regulation at the state level are the so-called “access” statutes. These are laws that grant patients certain rights to review and copy their own medical records. According to the Health Privacy

³⁷ See Joy Pritts, et al., The State of Health Privacy: An Uneven Terrain (1999).

Project, as of mid-1999, 13 states granted patients access to such records held by HMOs, and 17 states granted access to such records held by insurance companies.

In addition to laws that directly address the use and disclosure of health information in the context of providing and paying for health care, there is legislation dealing with the confidentiality of health information in the context of specific diseases and conditions, such as HIV, as well as legislation affecting workers compensation, adoption records, birth and death records, and motor vehicles.³⁸ According to the Health Privacy Project, Florida has more than 60 statutes that address health privacy, and such coverage is not unique.³⁹ Moreover, one potential area of new regulation is the Gramm-Leach-Bliley act (GLBA). While GLBA is a federal statute, implementation and enforcement with respect to insurance companies rests with the states. Further, HIPAA does not preempt any state-level regulations that are “more stringent” than its requirements.

There is considerable variety across states as to the specific requirements of confidentiality laws. Consider “patient access” statutes. Some states, for example, specify the actual charges that can be imposed on patients for gaining access to and/or copying medical records, while other states merely apply a “reasonable” standard or grant access free of charge. These statutes also differ with respect to the deadline by which medical records must be supplied to a patient; the extent to which patients can amend their records; the conditions under which access can be denied; the types of information that must be supplied; and remedies.

There is also wide variation in disclosure laws. Thus, while some states specify both the format and content of the authorization form, others do not. Among states where content of the authorization is specified, that too differs from state to state, as do the circumstances under which the patient may revise or alter the authorization form, as well as the types of disclosures that are exempt from authorization requirements.

Nevertheless, despite the considerable variety in state regulations, most insurers and plans indicate that the current situation with respect to state privacy regulations is manageable. First, many plans and insurers already have confidentiality restrictions that put them in compliance with the various state laws. Additionally, many plans and insurers utilize a “highest common denominator” approach with respect to these laws. Finally, model regulations promulgated by the NAIC also allow plans and insurers to follow differing state laws by adopting uniform policies and procedures across their organizations.

On the other hand, although health plans are now coping with the lack of uniformity in state privacy laws, there is great concern about non-uniform and inconsistent state privacy standards that may arise in the future. Many plans indicate that since compliance with the GLBA is left to the states, enforcement might not be uniform. Moreover, the adoption of the HIPAA privacy regulation adds a new level of complexity, since health plans and other entities

³⁸ See Joy Pritts, et al., The State of Health Privacy: An Uneven Terrain (1999).

³⁹ Id.

must perform a detailed, state-by-state legal review to determine whether state privacy requirements are “more stringent” than the new federal standards. Furthermore, there is concern that many policymakers will view the HIPAA regulations as insufficient, and that this will also lead to increased legislative activity by the states.

B. Costs

Health plans and insurers incur costs to comply with state confidentiality laws. “Upfront costs” are generated by activities that must be undertaken when a new state statute on privacy is enacted. These activities include legal analysis; management time; staff/analyst time; document revisions; issue of notices; various system changes; and training. “Operational costs” stem from ongoing activities that take place even after the initial steps to ensure compliance are complete. When state laws are non-uniform, the upfront costs may be generated again and again for each new statute. Further, these costs grow along with the number of competing non-uniform laws since additional steps must be taken to ensure that procedures are not in conflict.

Conflicting state laws multiply the expenses of compliance. Thus, to the extent confidentiality statutes require document changes or notices, plans and insurers must create and maintain numerous sets. Moreover, depending on the states in which they do business, they must determine which regulations apply to which entities. Further, numerous system changes can be required. Finally, training becomes increasingly complex as more laws must be considered

In an attempt to quantify these expenses, we have taken five key areas (legal analysis, management/staff/analyst time, mailings, system changes, and training) and tried to estimate costs across insurers. (Estimates were derived from interviews and cost data from other studies on the costs of regulatory compliance. Given the limited data, we have restricted ourselves to conservative estimates.)

1. LEGAL REVIEW

A number of legal review activities must be undertaken each time a state passes a new confidentiality statute. These include general legal review of the legislation, development of new contract language, and new language and criteria for enrollee notification.

Thus, each new confidentiality statute must be reviewed and interpreted by the plan or insurer. This task may fall either to dedicated internal legal staff, an outside law firm, or a

combination of both.⁴⁰ Further, the insurer must monitor state legislative developments because laws may be repealed or re-interpreted by the courts. Laws may also be applied differently, while changes in state regulations may affect the meaning and application of laws.

Complicating the issue is that federal privacy rules overlay the current patchwork of state privacy laws. Some state laws are saved under the privacy statute while others are preempted. Companies will have to determine, through an often expensive legal process, which provisions of state law supercede the federal law and which are preempted.

To the extent new contract language is required, the relevant contracting partners must be identified and language must be developed. A potentially resource-intensive activity is determining which laws apply to which contractors, given that many plan sponsors and contracting entities operate in many states, resulting in transactions that occur across state lines. Determining which laws apply can be extremely burdensome.

Our estimates of the legal review costs associated with state legislation range from over \$40 million to close to \$500 million over the 2002-2006 time frame. (See Appendix B for methods and Appendices H-1 and H-2 for calculations.)

Many of our estimates are based on studies done regarding the HIPAA regulations. This is a conservative approach, since developing new language for state laws may actually be more complicated because there are more costs involved in determining non-overlapping language. Furthermore, there will be fewer “centralized” analyses of such laws conducted by trade associations and the like.

2. MANAGEMENT/STAFF TIME AND CONSULTANT FEES

Strategies for complying with new regulations also require significant management and staff resources, and may include steering committee meetings, departmental review, IT needs assessments, software selection, partner identification, and development of monitoring systems. Many plans also acknowledge that they have made significant investments in outside consultants to help them understand how to comply with regulations and how to update policies and procedures. Our estimates of the costs of management/staff time and consultant fees range from \$350 million to over \$2 billion over the 2002-2006 time frame. (See Appendices I-1 and I-2.)

⁴⁰ It may be possible to argue that industry groups such as the HIAA and the NAIC can help reduce costs by providing a centralized clearing-house for studying these laws and dispensing advice on compliance. While such efforts appear likely at the national level it appears far less likely that such organizations will have sufficient resources to undertake such studies each time a new state-level statute that does not conform to other statutes is passed.

3. MAILINGS

Every insurance policyholder in the country is assumed to receive at least one mailing associated with state health confidentiality statutes. Our estimates of mailing costs are \$39 million to over \$44 million over the 2002-2006 time frame. (See Appendices J-1 and J-2.)

4. TRAINING COSTS

Many legislative changes will require significant staff training. Employees must learn new software and be alerted to contract requirements, as well as to disclosure restrictions and requirements. In addition, they must be taught how to handle confidential information internally, and educated for those situations in which enrollees can be granted access to data containing PHI and/or can amend or challenge such information.

Our estimates of the training costs involved in compliance with state statutes are from \$43 million to \$49 million over the 2002-2006 time frame. (See Appendices K-1 and K-2.)

5. SYSTEM CHANGES

Confidentiality procedures necessitate a number of changes in internal systems. When state laws are non-uniform, system costs are increased. Confidentiality procedures require many system adjustments. They may have to be amended to determine which partners and customers receive which contracts and notification; when contracts or notifications need to be updated; and how to handle disclosures of information containing PHI to patients, providers, partners, or for internal use, and how to keep track of such disclosures. Further, new data elements must be added to claims and enrollment systems.

Our estimates of the system costs involved in compliance with state statutes range from \$240 million to over \$965 million over the 2002-2006 time frame. (See Appendices L-1 and L-2.)

6. ADDITIONAL COSTS

In addition to direct out-of-pocket costs, health plans and insurers will also clearly face increased potential liability from uses of PHI that fall outside the scope of the myriad statutes. As a result, many plans will need to increase their current liability insurance, thereby incurring costs. They may also have to change other cost-reducing and health-increasing activities in ways that will reduce their potential legal exposure. Furthermore, many interviewees indicated that, while they already are respectful of PHI, they are concerned that the recent flurry of legislation and increased press attention will spur customer concerns, resulting in an increase in inquiries.

Similar concerns arise from the “border-crossing” nature of the transactions. In particular, sending PHI to another state that differs in its privacy protections may increase exposure to risks.

Table 5 Cost Summary 2002-2006 (Year 2001 Dollars) (\$ Millions) Low End			
	Initial (2002)	Ongoing (2003-2006)	Total (2002-2006)
Legal Review Costs	17.3	25.3	42.6
Staff/Consultant Costs	285.9	64.2	350.1
Mailings/Notification	29.0	10.2	39.2
Training	32.2	11.3	43.5
Systems	237.1	4.5	241.6
Total	601.5	115.5	717.1

Table 6 Cost Summary 2002-2006 (Year 2001 Dollars) (\$ Millions) High End			
	Initial (2002)	Ongoing (2003-2006)	Total (2002-2006)
Legal Review Costs	214.8	266.7	481.6
Staff/Consultant Costs	1,344.4	1,017.2	2,361.6
Mailings/Notification	32.8	11.5	44.3
Training	34.7	14.9	49.7
Systems	948.2	18.0	966.2
Total	2,574.9	1,328.4	3,903.4

Our estimate of the total potential costs accruing from health plan and insurer compliance with non-uniform state confidentiality statutes ranges from \$717 million to close to \$4 billion over the 2002-2006 time frame. While these expenditures may appear small relative to our findings regarding the overall benefit of using data containing PHI, these expenditures are large in the context of overall administrative expenditures on health care spending. For example, in

1999, HCFA estimated that program administration costs for private insurance totaled \$45.9 billion.⁴¹ Our high-end estimate of the initial costs associated with potential state legislation compliance is equal to over 5% of this amount. Nevertheless, the low out-of-pocket costs relative to the benefits that flow from the use of PHI suggest that the real costs in burdensome confidentiality legislation result from the chilling effects such legislation may well have on the use of such data.

V. CONCLUDING REMARKS

The economic benefit flowing from the uses of data containing PHI by health plans and insurers totals between \$195 and \$430 billion for the years 2002-2006. However, these estimates reflect only a subset of all the benefits flowing from the use of PHI by health plans and insurers. Furthermore, these estimates do not include benefits yielded by the use of such information by others, particularly providers and researchers. Moreover, as our estimates should make clear, the use of PHI not only yields substantial benefits for our system of financing and delivering health care, but benefits the entire economy as well.

Two other important findings have resulted from our research. The first is that health plans and insurers already do a great deal to protect the integrity of PHI. This is largely because competition among insurers and plans provides an incentive to protect PHI. The second is that there is a great deal of concern among health plans and insurers centered on non-uniform state legislation regarding PHI. Overall, we have found that from a consumer's perspective, the true harm caused by such legislation would not be in the direct "out-of-pocket" costs associated with legislative compliance, but rather with the potentially chilling effect such legislation might have on the beneficial uses of PHI.

⁴¹ <http://www.hcfa.gov/stat/nhe-oact/tables/>, visited March 13, 2001.

APPENDIX A: HEALTH INSURERS AND PLANS INTERVIEWED

1. The Guardian Life Insurance Company
February 1, 2001
2. Northwestern Mutual
February 2, 2001
3. Mutual of Omaha
February 2, 2001
4. Physicians Mutual Insurance Company
February 7, 2001
5. Pacific Life Insurance Company
February 14, 2001
6. Trustmark
February 26, 2001
7. Principal Financial Group
March 2, 2001
8. Anthem
March 6, 2001
9. USAA Life Insurance Co.
March 12, 2001
10. Aetna U.S. Healthcare
April 26, 2001

APPENDIX B: METHODS

I. UTILIZATION REVIEW AND UTILIZATION MANAGEMENT

This section describes the methodology we used to estimate the cost savings from the use of data flows containing PHI in the areas of UR and UM. The actual calculations for UR savings appear in Appendices C-1 through C-4. The calculations for UM appear in Appendices D-1 through D-4.

In making our calculations, we used the Health Care Finance Administration's (HCFA) National Health Care Expenditures Projections as a baseline.⁴² HCFA makes these projections through 2010. In our analysis, we consider the five-year period from 2002-2006 and discount our calculations back to the end of 2001. Only expenditures on personal health care were included in the base numbers for our calculations; expenditures on research, construction, administration, and government public health activities were excluded.

We calculated savings for both private and public expenditures. Private expenditures used in the base number calculations include only private insurance expenditures.⁴³ Expenditures in the "out-of-pocket" and "other" categories were excluded to focus explicitly on the savings earned by insurers and plans.

The economic literature on the savings from different types of managed care activities indicates that the magnitude of the savings differs across type of plan (e.g., HMO, PPO, etc.) for certain activities. Thus, an estimate of the market share of the different types of health plans was made. First, it was assumed that aggregate managed care penetration amounts to 92% of employment-based plans.⁴⁴ We then used figures from Frech and Langenfeld on the penetration of various managed care organizations among managed care.⁴⁵ Further, even a number of the so-called indemnity plans engage in utilization review, and hence are characterized as "managed indemnity" plans. According to a Lewin study, 85% of indemnity plans employ some form of utilization review.⁴⁶ We utilize this assumption in our estimates. These managed care breakdowns are applied to all private insurance personal health care expenditures except dental service expenditures. Finally, we assumed that the percentage of enrollees in each type of health plan (PPO/POS, IPA HMO, group/staff (G/S) model HMO, managed indemnity, traditional indemnity) remains constant across all years of our calculations. The managed care breakdowns for private health expenditures excluding dental appear in Appendices C-1 and D-1.

⁴² See HCFA, National Health Care Expenditures Projections, (<http://www.hcfa.gov/stats/NHE-Proj/>).

⁴³ The private expenditures also include dollar amounts for government health care expenditures other than Medicaid and Medicare. We assume these expenditures break down along plan lines in the same way as private insurance expenditures. This was done since these expenditures are primarily worker's compensation and military programs, both of which are commonly covered by private managed care.

⁴⁴ Kaiser/Health Research Trust (HRET), Survey of Employer Sponsored Benefits: 2000.

⁴⁵ See Frech and Langenfeld, *supra*.

⁴⁶ Lewin Group (J.F. Sheils and R.A. Haught), Managed Care Savings for Employers and Households: 1990 through 2000 (1997).

UR and UM savings for dental services were separately addressed since dental insurance tends to be purchased separately from health services, and the penetration of the various types of managed care entities in this area is different from medical services. For dental services, the National Association of Dental Plans (NADP) publishes enrollment by type of dental health plan.⁴⁷ The NADP divides managed care dental plans into HMO, PPO, and “referral network” categories. Referral networks consist of enrollees who pay a small monthly fee in exchange for having access to a list of dentists who agree to accept certain negotiated rates. Initially offered by dental HMOs and PPOs, many dental companies are converting these referral businesses into PPOs.⁴⁸ Therefore, “referral networks” were included in our calculations of PPO market share. In addition, dental HMOs were not broken down along IPA and G/S model lines. It is assumed dental HMOs break down along IPA and G/S model lines in the same percentage as medical HMOs. The breakdowns for dental plans appear in Appendices C-2 and D-2.

To estimate Medicaid IPA and G/S HMO enrollment percentages, we first calculated the size of total HCFA Medicaid managed care enrollment using HCFA figures for June 30, 1999.⁴⁹ We then divided these total enrollments into IPA and G/S HMOs using data from Hoechst Marion Roussel.⁵⁰ For Medicare, we used overall HCFA figures on the percentage of enrollees in managed care.⁵¹ The plan breakdowns for Medicare/Medicaid are shown in Appendices C-3 and D-3.

Utilization review savings are assumed to be 4% of total costs for all entities that manage care, including managed indemnity plans. This figure is based on comprehensive reviews of the literature by Frech and Langenfeld (2000) and Barents (1998) on the savings from such activities.⁵² For utilization management activities, the savings are assumed to be 4% for PPO/POS plans, 8% for IPA-type HMOs, and 18% for G/S HMOs, also based on Frech and Langenfeld (2000) and Barents (1998). Managed indemnity plans are assumed not to engage in such activities. Since we do not have a breakdown on Medicare managed care by type of plan, we used an average of savings across HMO plan types, weighted by enrollment in private managed care health plans. As discussed above, we then assumed that from 50 to 100% of these savings could not be realized without the use of data flows containing PHI. Since the value of dollars spent in the future is less than the value of dollars spent today, we discount the savings in each year by 5.45%, the rate on 30-year treasury bonds as of December 2000.

⁴⁷ NADP, 2000 Dental Benefits Report.

⁴⁸ NADP, 1998 Dental HMO/PPO Industry Profile.

⁴⁹ HCFA, National Summary of Medicaid Managed Care Programs and Enrollment (<http://www.hcfa.gov/medicaid/trends99.htm>; visited 2/21/2001).

⁵⁰ Hoechst Marion Roussel, Managed Care Digest Series, 1999.

⁵¹ HCFA, Medicare Managed Care Contract Report, Feb. 1, 2001. (<http://www.hcfa.gov/stats/mmCC0201.txt>; visited 2/21/01).

⁵² The papers reviewed in these surveys found savings ranging from 4 percent to 12 percent directly attributable to UR.

II. PROVIDER DISCOUNTS

We used the same baseline and market share assumptions in calculating the amount of provider discounting attributable to the use of PHI as we did with the UR and UM calculations described above. These baseline calculations appear in Appendices E-1 through E-4. Based on Frech/Langenfeld and Barents, we assumed provider discounts are 8% for group/staff model HMOs, 15% for IPA HMOs, and 8% for PPO/POS plans.

III. DISEASE MANAGEMENT

A. Diabetes

1. DIRECT SAVINGS

According to Novartis, 75% of HMOs had a diabetes disease management program in place in 1997.⁵³ The following table summarizes several studies on the cost savings attributable to disease management programs in controlling diabetes:

Studies of the Cost Savings from DM Programs for Diabetes	
Lisa Ketner, "Population Management Takes Disease Management to the Next Level," <u>Health Care Financial Management</u> , August 1999, pp. 36-39.	\$.04 net savings per member per month (PM/PM) over all HMO members.
Robert J. Rubin, Kimberly A. Dietrich, and Anne Hawk, "Clinical and Economic Impact of Implementing a Comprehensive Diabetes Management Program in Managed Care," <u>Journal of Clinical Endocrinology and Metabolism</u> , 83, No. 8 (1998), pp. 2635-2642.	Found diabetic members in a DM program had decreased hospital utilization and bed days. Admissions decreased 18%, bed days fell 21%, costs decreased by \$44-\$50 per participating member/per month.
American Healthways, "American Healthways' Diabetes Disease Management Program Improves Health Status for Medicare Recipients and Reduces Health Care Costs by 17.1 Percent," <u>unpublished mimeo</u> .	Found that comprehensive diabetes DM program for Medicare beneficiaries leads to a 17.1% or \$114 per diabetic member per month savings in health care costs in the first year. For patients who continuously participated in the program, costs declined 21.25% or \$125 per participating member.
Disease Management Purchasing Consortium & Advisory Council LLC, "Medical Management Prioritization Matrix," <u>unpublished mimeo</u> .	7% of medical loss ratio (MLR) in commercial (HMO) health population; ⁵⁴ savings as a percent of all claims in the area: 4% year one; 6% year two; 8% year three.

⁵³ Novartis, Pharmacy Benefit Report, 1998 Edition.

⁵⁴ The "MLR" refers to the amount of revenues from health insurance premiums that are spent to pay for the medical services covered by the plan. Thus, a ratio such as 0.06 means that 6% of premiums were spent on purchasing medical services in a particular area.

Based on these studies, we made several estimates of the cost savings attributable to uses of data flows containing PHI in disease management programs for diabetes. The Ketner study indicates that per member/per month (PM/PM) savings for HMOs are \$.04 over all HMO members. As of January 2000, 80.9 million persons were enrolled in HMOs.⁵⁵ Based on these figures, the Ketner article implies that savings for Diabetes DM programs total approximately \$29 million per year.⁵⁶ This figure is clearly conservative since it is calculated only for the HMO population, although a significant number of other managed care entities have disease management programs for diabetes.

Based on the other studies listed above, we obtain higher cost savings from disease management programs in diabetes. According to the CDC, there are 15.7 million persons with diabetes in the U.S. If diabetics are in HMOs in the same proportion as the general population, there are approximately 4.7 million diabetics in HMOs.⁵⁷ Using the lower end of the Rubin et al. analysis of \$44 per-program participant figure (the lowest dollar figure of the studies that put a dollar figure on such savings), we obtain savings from diabetic DM programs of approximately \$93 million per year.⁵⁸

Finally, we use the figures from the Disease Management Purchasing Consortium. According to this organization, 7% of HMO Medical Loss Ratios (MLR) are due to diabetes. In 1996, HMO private health insurance premiums totaled \$106.6 billion.⁵⁹ Thus, the MLR due to diabetes was approximately \$7.4 billion. If we assume 75% of HMOs had a diabetes DM program and use the year-2 6% savings figure, annual savings of over \$335 million result.

2. INDIRECT SAVINGS

The National Institutes of Health estimates that the overall indirect cost of mortality and morbidity associated with diabetes was \$54.1 billion in 1997⁶⁰ or approximately \$3,400 per diabetes patient.⁶¹ We assume that patients who enter a disease management program obtain a

⁵⁵ Interstudy Edge, HMO Industry Report 10.2.

⁵⁶ Thus, 80.9 million persons in HMOs times \$.04 PM/PM times 12 times 75% of HMOs with a diabetes management program.

⁵⁷ Thus, if there were 80.9 million persons in HMOs in 2000, and the population was 274 million, then approximately 30% of the total population were in HMOs.

⁵⁸ Thus, we estimate approximately 4.7 million diabetics were in HMOs, and that 75% of HMOs had diabetes management programs. We also estimate that about 5% of diabetics in HMOs with disease management programs are actually enrolled in such programs (Ketner, Nolan). Using the \$44 savings figure, we obtain our overall annual savings figure by multiplying 4.7 million by 75% by 5% by \$44 by 12.

⁵⁹ HIAA, Sourcebook of Health Insurance Data, 1999-2000, pp. 44.

⁶⁰ Department of Health and Human Services, National Institutes of Health, Office of the Director, Disease-Specific Estimates of Direct and Indirect Costs of Illness and NIH Support: Fiscal Year 2000 Update, February 2000.

⁶¹ We estimate lost wages due to mortality and morbidity per diabetes sufferer by dividing total lost wages (\$54.1 billion) by the number of patients (15.7 million), which rounds to \$3,400. These estimates include only economic costs and do not include quality of life measures.

20% to 50% reduction in mortality and morbidity due to such programs.⁶² Indirect savings thus total between \$120 million to \$300 million.⁶³

B. Asthma

The following table summarizes several studies on the cost savings attributable to DM programs for asthma:

⁶² The 20% figure is based on the Rubin et al. and American Healthways studies, which show this is approximately the reduction in hospitalization costs due to DM programs. Other studies show that diabetes patients can expect very large reductions in adverse health effects from early treatment of the disease. For example, according to the CDC, early detection can prevent up to 90% of diabetes-related blindness, half of diabetes-related kidney failures and over half of diabetes-related amputations. Based on these statistics, we derived our 50% mortality/morbidity reduction estimate.

⁶³ Thus, as estimated above, there are approximately 4.7 million diabetes sufferers in HMOs and about 75% of HMOs have diabetes DM programs. If 5% of sufferers enter such programs and achieve a 50% reduction in mortality and morbidity, the savings would be \$3,400 times 4.7 million by 75% by 5% by 50%, or approximately \$300 million.

Studies of the Cost Savings from DM Programs for Asthma	
Lisa Ketner, "Population Management Takes Disease Management to the Next Level," <u>Health Care Financial Management</u> , August 1999, pp. 36-39.	\$.03 net savings PM/PM over all HMO members.
DA Buchner, Butt LT, DeStefano A, Edgren B, Suarez A, Evans RM., "Effects of an Asthma management program on the asthmatic member: patient center results of a 2-year study in a MCO," <u>American Journal of Managed Care</u> , 4, No. 9 (1998), pp. 1288-1297.	Study found an 18% reduction in the number of patients hospitalized and a 39% decrease in percentage of patients with multiple hospitalizations. ER visits remained unchanged.
TR Pauley, Magee MJ, Cury JD, "Pharmacist-managed, physician-directed asthma management program reduces emergency department visits," <u>Annals of Pharmacotherapy</u> , 29 (1995), pp. 5-9.	A joint program with pharmacists and physicians each meeting with patients for education sessions. Results show that reduction in the number of ER visits during the study period from 92 during the 6-month period before program to six during the six-month study period.
MT Rupp, McCallian DJ, Sheth KK, "Developing and marketing a community pharmacy-based asthma management program," <u>Journal of the American Pharmaceutical Association</u> , NS 37, (1997), pp. 694-699.	Analysis of a small sample. Data showed a 77% decrease in hospitalizations, 78% decrease in ER visits, and a 25% decrease in urgent care visits.
Louis Rossiter, Michelle Whitehurst-Cook, Ralph Small, Charles Shasky, Viktor Bovbjerg, Lynne Penberthy, Ahmad Okaska, Jennifer Green, Ibrahim Ibrahim, Steven Yang, Kwangsoo Lee, "The Impact of Disease Management on Outcomes and Cost of Care: A Study of Low-Income Asthma Patients," <u>unpublished mimeo</u> .	Rate of ER visits dropped an average of 23.2% for patients of physicians who are trained for the program. Dispensing of reliever drugs recommended for asthma increased 25%. A cost-effectiveness study found direct savings to Medicaid of \$3 to \$4 for every incremental dollar spent.
Disease Management Purchasing Consortium & Advisory Council LLC, "Medical Management Prioritization Matrix," <u>unpublished mimeo</u> .	0.8% of medical loss ratio (MLR) in commercial (HMO) health population; savings 0% year one; 5% year two; 10% year three.

Based on these studies, we make several estimates of the cost savings attributable to uses of data flows containing PHI in DM programs for asthma. Based on the Ketner study indicating savings over all HMO members per month of \$.03 per month, and replicating the methodology discussed above for diabetes, we estimate net savings of \$27 million per year from DM programs for asthma. From the Disease Management Purchasing Consortium figures, we estimate net savings of \$40 million per year from DM programs for asthma. These savings measure only avoided medical costs and do not include benefits from increased productivity or quality of life measures.

C. Congestive Heart Failure (CHF)

The Ketner study indicates savings of \$.13 PM/PM in the area of CHF. Based on the methodology discussed above, this suggests net cost savings of \$75 million annually from such

programs.⁶⁴ Using figures from the Disease Management Purchasing Consortium, we estimate savings of \$25 million per year from DM programs for CHF.⁶⁵

IV. COSTS OF STATE CONFIDENTIALITY LAWS

A. Legal Review

Each time a new confidentiality statute is passed, the law must be reviewed and interpreted within the plan's or insurer's organization. Depending on the organization, this can involve either dedicated internal legal staff, consultation with an outside law firm, or a combination of both.⁶⁶ Further, state legislative developments must be constantly monitored because laws may be repealed or re-interpreted by the courts. Laws may also take on a different meaning in their applications, while changes in state regulations may affect the meaning and application of laws.

Based on interviews and other studies, we have estimated that each time a new state-level statute on confidentiality is passed, a range of from one day (eight hours) to a week (40 hours) of legal review time is required to determine the implications of the statute.⁶⁷ Ongoing legal review time is assumed to take about one-third of initial review time, or from three to 15 hours per statute.

To the extent new contracting language is required, the relevant contracting partners must be identified and language must be developed. A potentially resource-intensive activity is determining which laws apply to which contractors, given that many plan sponsors and contracting entities are multi-state in nature and the "border-crossing" nature of many transactions. Determining which laws apply can be extremely burdensome. Requirements for new contract language could also be costly in that any changes in contracting language could mean the entire contract becomes open for renegotiation. Our low-end estimate is based on the Department of Health & Human Services (HHS) estimates for HIPAA, which assume that two hours of legal time are required for reviewing business contracts under that statute.⁶⁸ At the high

⁶⁴ This assumes 60% of HMOs had such programs in place based on Novartis.

⁶⁵ This estimate uses the above methodology, assuming .5% of MLR is due to CHF and savings of 8%.

⁶⁶ It may be possible to argue that industry groups such as the HIAA and the NAIC can help reduce costs by providing a centralized clearinghouse for studying these laws and dispensing advice on compliance. While such efforts appear likely at the national level it appears far less likely that such organizations will have sufficient resources to undertake such studies each time a new state-level statute that does not conform to other statutes is passed.

⁶⁷ These assumptions appear conservative. For example, First Consulting Group found that for hospitals, depending on the nature of the organization (e.g., single stand-alone hospital, multi-hospital system, etc.) researching overlaps of the HIPAA regulations and state confidentiality statutes would consume from 20 to 80 hours of legal staff time. (First Consulting Group, The Impact of the Proposed HIPAA Privacy Rule on the Hospital Industry, December 2000.) Most of the hospitals considered in that study appear to have been less complex organizations than are health insurers and plans.

⁶⁸ HHS, Final Regulatory Impact Analysis; <http://www.hhs.gov/ocr/part4.html>; visited 1/22/2001.

end, we estimate that contract revision would require 24 hours.⁶⁹ Ongoing legal review time is assumed to take approximately one-third of initial review time, or from one to eight hours.

Further, new language and criteria must be developed for circumstances when new notices have to be sent out. We estimate that developing new notification language would take from one-half to one hour of legal time. The former estimate is based on HHS estimates for developing notification requirements regarding HIPAA. The latter is based on Nolan Company estimates for legal review time for developing new contracts under HIPAA.⁷⁰

With respect to legal review time, we assume that three-quarters of the time required will involve internal legal staff and one-quarter will involve outside law firms. For internal review time, we used the mean wage estimate for the legal population as a whole of \$44.60 (from the Bureau of Labor Statistics, “Occupational Employment Statistics”⁷¹). For outside legal review, the average billing rate of an associate lawyer of \$145 per hour (from Altman Weil’s 1998 Survey of Law Firm Economics) was used.

It is particularly difficult to determine the number of insurance companies and health plans that have to comply with these regulations. For example, HHS indicates that there are 12,200 health plans nationwide. However, the term “plan” is not the same as the term “company.” Many health insurance companies offer numerous distinct plans. We assume that most legal review activity takes place at the company rather than plan level. However, some companies may not be fully integrated resulting in some duplicative activity. Nolan, using data from AM Best, estimated that there are approximately 1,000 insurance companies offering health care products. However, these data appear to omit many organizations, such as small self-administered plans. The Census Bureau indicates that there are over 3,000 “health care establishments.”⁷² In our estimates, at the low end we assume there are 1,000 companies that must accrue these costs; at the high end, 2,000 such companies are assumed. We further assume that the average insurance company or health plan will have to deal with 25 state statutes. Our overall estimates of the legal review costs involved in compliance with state statutes are presented in Appendices H-1 and H-2. These estimates range from over \$40 million to close to \$500 million over the 2002-2006 time frame.

B. Management/Staff Time and Consultant Fees

Based on interviews and cost estimates for the HIPAA regulations, we estimate that from eight to 24 hours of management time are required for each new state regulation imposed.

⁶⁹ Again, these assumptions appear conservative. First Consulting Group found that at hospitals, the legal review time that would be devoted to contract revisions under HIPAA would range from 24 to 72 hours, depending on the nature of the organization.

⁷⁰ Robert E. Nolan Company, Inc. Common Components of Confidentiality Legislation, Fall 1999.

⁷¹ Following the convention used in the HHS cost estimates for HIPAA, all wage rates assume a 39% load for benefits, the standard Bureau of Labor Statistics assumption.

⁷² U.S. Census Bureau, 1997 Economic Census: Finance & Insurance Subject Series, November 16, 2000.

Ongoing review costs are assumed to be approximately one-third of initial costs, and would thus range from three to eight hours for work in this classification.

Some plans interviewed told us that as many as a dozen full-time personnel are devoted to HIPAA regulations; at no plan we interviewed was there less than the equivalent of at least one full-time person devoted to such issues. We estimate that each state statute will require one-fiftieth of the total staff time currently devoted to HIPAA. Thus, at the low end, we assume that each new state confidentiality regulation will require 40 hours of staff time (one full-time work year of 2,000 hours divided by 50). At the high end, we assume that each new state confidentiality regulation will require 480 hours of staff time (12 full-time staff work-years of 2000 hours divided by 50). As before, ongoing staff review cost is assumed to be approximately one-third of initial costs.

Many plans also acknowledged that they have made significant investments in outside consultants to help them understand how to comply with regulations and how to update policies and procedures. Many of the plans we spoke with have already paid consultants fees of \$1 million for studies regarding how to comply with HIPAA privacy regulations. We assume that consultants fees for each new state statute would average \$10,000. We arrived at this figure by dividing the \$1 million consultant fee described by plans for HIPAA, cut that in half because less complex organizations would likely have simpler needs, and divided by 50.

HHS assumed an hourly wage of \$88.42 for top health plan executives based on the wage for top claims executives. We adopt the same wage assumptions. For staff we also adopt the HHS assumptions, assuming an hourly wage of \$33.82. Our estimates of the costs of management/staff time and consultant fees involved in compliance with state statutes are presented in Appendices I-1 and I-2. These costs are estimated to range from \$350 million to over \$2 billion over the 2002-2006 time frame.

C. Mailings

We used two sources to estimate the cost of mailings. The first is Nolan & Company. The Nolan study assumes the following processing times per piece of mail: running labels—12.5 seconds; process outgoing mailing—four seconds; process return mail (6% of mail)—3.33 seconds. For our wage assumptions here, we use the Nolan assumptions of \$17.24 an hour. Nolan developed this estimate from a salary survey; and it represents a blended rate for claims analysts/customer service representatives. Our second source of evidence on the costs of mailings is an interviewee who indicated to us that each mailing would cost \$.33 for labor time in addition to postage and printing costs.

We assume that only policyholders, as opposed to other insured individuals, receive a mailing. An estimate of the number of policies was based on HIAA data.⁷³ This assumption may be conservative, since it is possible that all covered lives may have to receive a mailing under some statutes. In addition, we do not assume any costs associated with follow-up inquiries. We assume that 10% of all insureds receive follow-up mailings due to changes in employment status or other changes that require an additional mailing. Our estimates of mailing costs involved in compliance with state statutes are presented in Appendices J-1 and J-2. These estimates range from \$39 million to over \$44 million over the 2002-2006 time frame.

D. Training Costs

Increases in training costs due to non-uniform state confidentiality statutes were estimated as follows. It was assumed that all workers in the health insurance industry would require one hour of training to comply with all state confidentiality statutes. The opportunity cost of this is measured as the average wage. The number of workers in the health care industry was obtained using HIAA data.⁷⁴ The average wage is based on the HHS assumptions described above.

Two alternatives relating to the cost of training materials are used: a low estimate, based on HHS assumptions regarding these costs, and a high one based on the Nolan study.⁷⁵ Instructor training costs assume a class size of 20 and per-hour costs of \$75 based on Nolan estimates regarding HIPAA training expenses. Training costs are partially a function of worker turnover—thus, each time a new worker is hired, there is more training involved. HHS assumed a 10% worker turnover rate.⁷⁶ We do the same. Our estimates of the training costs involved in compliance with state statutes are presented in Appendices K-1 and K-2 and range from \$43 million to \$49 million over the 2002-2006 time frame.

E. System Changes

Cost estimates associated with systems changes for HIPAA are extremely high. For example, Nolan estimated that, for HMOs and related insurers, system costs per organization ranged from \$500,000 to \$800,000. First Health Consulting estimates that system costs associated with the “minimum necessary use” components of HIPAA alone will cost from

⁷³ HIAA, *Sourcebook of Health Insurance Data, 1999-2000*. Table 2.7 in this source indicates that 167.5 million individuals are covered by private health insurance. With regard to employer insurance, there were 151.7 million covered lives, of whom 77.4 million were policyholders and 74.3 million were dependents. The ratio of policyholders to total covered lives in employer provided policies (77.4/151.7) was multiplied by the total number of individuals covered by private insurance to obtain an estimate of the total number of policies among holders of private insurance.

⁷⁴ See HIAA, pp. 12. We count direct employees only.

⁷⁵ HHS assumed training materials would cost \$2 per student; Nolan assumed these costs were \$5 per student.

⁷⁶ Nolan assumed ongoing training costs were 20% of initial costs.

\$142,000 to \$3 million per hospital. One interviewee for this report estimated that the costs associated with the modification of systems for the opt-out procedures under HIPAA alone would range from \$1.5 million to \$1.9 million. Another insurer informed us that about 10% of its system costs were related to state regulations generally. Another indicated that compliance with “electronic data interchange” standards of HIPAA cost them \$1 million in system costs. That organization felt that the \$1 million figure was relatively low because it is a relatively technologically advanced firm. It appears likely that for national changes there will be more “off-the-shelf” software available than will be the case for local changes.

Based on this information, we make some modest assumptions regarding system costs associated with non-uniform state regulations. Our system cost estimates for HIPAA range from \$500,000 to \$1 million. We assume the system costs associated with each non-uniform state law with which a health plan must comply would be one-fiftieth of this range, or from \$10,000 to \$20,000. As noted above, since more in-house programming work relative to off-the-shelf software will likely be required, this assumption appears conservative. We also assume that 40 to 80 hours of work annually will be required for system upgrades and maintenance.⁷⁷ Our estimates of the system costs involved in compliance with state statutes are presented in Appendices L-1 and L-2 and range from \$240 million to over \$965 million over the 2002-2006 time frame.

⁷⁷ We use the same wage assumptions as HHS used in projecting HIPAA costs. HHS used data from the Census Bureau’s Current Population Survey (CPS). HHS used a wage for health plans of \$33.82, based on average wages in the insurance industry including a 39% load for benefits, which is the “standard Bureau of Labor Statistics assumption.”

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*The authors also wish to acknowledge the assistance of Karen Marlo who contributed substantially to the development of this report.