

# RECORD OF SOCIETY OF ACTUARIES 1993 VOL. 19 NO. 1B

## HEALTH DATABASES AND NEEDS

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Panelists: CATHI M. CALLAHAN  
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Recorder: FLOYD R. MARTIN

- Outcomes research
- Treatment protocol development
- Ambulatory utilization
- SOA Experience Committee activities
- Responding to employer demands for data

MR. FLOYD R. MARTIN: The panelists are going to be speaking on a range of topics. We have Cathi Callahan from Actuarial Research Corporation. Sam Gutterman is with Price Waterhouse, and Bruce Hutchinson is with Blue Cross/Blue Cross Shield of Minnesota.

Health databases and needs is a broad topic to cover at a meeting. Some of the questions that come to mind with health data are: From where can we get information? What are possible resources? How can our companies use our databases in a more effective way? The speakers will try to answer these questions.

Cathi Callahan is going to be talking about using national databases to enhance current data in regular work.

MS. CATHI M. CALLAHAN: The databases that I'm going to be talking about are national data sets that are readily available. Most of these are federal government survey data and such. I'll then discuss how they can be used to enhance other experience and how to model some of these sets for national reform, since a lot of them are nationally representative surveys.

The three main areas I'll discuss give a brief introduction to both enhancing the existing data and modeling reform. I will go into some of the specific uses and limitations of the data sets. Finally, I'll go beyond the actual use and discuss what can be done with the data by merging different data sets together or using data sets with proprietary data to fill in some of the gaps.

In terms of enhancing the existing data, we've done work with claims data that oftentimes is missing demographic information. Some of the national surveys have information on prevalence in secondary employment and secondary insurance coverage. With reform proposals, both types of information are of interest to employers and to insurers who can see who else might be covering the people that

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they are covering. The other use is in comparing to national norms. Examples are how the age/sex mixes compare, employment participation, and accepted ideas of morbidity on a national level.

For specific uses, I'm going to run down some ideas of things that can be obtained from the Current Population Survey, the National Medical Expenditure Survey, the Bureau of Labor Statistics, and the Employee Benefit Survey. These cover a lot of areas specifically related to the health side, the plan design, and beyond direct use. They augment claims data with databases based on some national and proprietary data.

The Current Population Survey is an annual survey with monthly supplements. The March supplement for the Current Population Survey has questions on health insurance coverage, Medicare, and Medicaid. It has work force questions for the prior year; therefore the March 1992 survey covers 1991 data. It's a question of what the dates for data are for the March 1992 survey. They're asking for calendar year 1991, but I get the sense that people tend to answer based upon their current coverage. The questions on insurance have a drawback being near the end of the survey. People get a little tired when they get to these questions.

Hierarchically, Chart 1 shows the noninstitutionalized population by their type of insurance coverage. The first group is the smallest (0.5%). It reflects people covered by employer-sponsored insurance (ESI) and Medicare. So, those are either active over 65 workers or some retired workers. The second group is the largest (50.0%) and reflects people covered under employer-sponsored insurance. This includes active and retired employees and their dependents. Next are those people covered under the Medicare program (12.6%), then Medicaid (8.3%). Fifth is other insurance (14.6%), which includes other types of private insurance, such as Champus and VA coverage. The final group is the uninsured at 14.1% of the population. These people did not report any type of insurance coverage.

People who are not covered by employer-sponsored insurance and not covered by Medicare are considered to be a target population. These include the Medicaid, the non-ESI private insured and other insured. Individual coverage and the uninsured make up 37% of the population. They are seen as the target of a lot of the health reform. We are trying to get people who are buying individual coverage to get coverage under an employer plan. Medicaid may be finding a better way by folding Medicaid in and then getting some type of coverage to the uninsured.

The work force attachment for that target population is then broken down (17.6%) (Chart 2). Here work force attachment is defined as somebody in the immediate family, under 65, and working enough to be considered within the scope of an employer mandate. So, when I was looking at this I assumed somebody in the family had to be under 65, working at least a half year, and working full-time. I think they must work 25 hours a week or more. Also, they must be stably employed and likely to be pulled in under a mandate. It includes their dependents as well. So it's not just pulling in some Medicaid people; it's pulling in some uninsured. There's a bunch of people in there that do have coverage currently under private insurance, even through an employer.

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CHART 1  
Population by Primary Insurance  
March 1992 Current Population Survey  
Uninsured (14.1%)

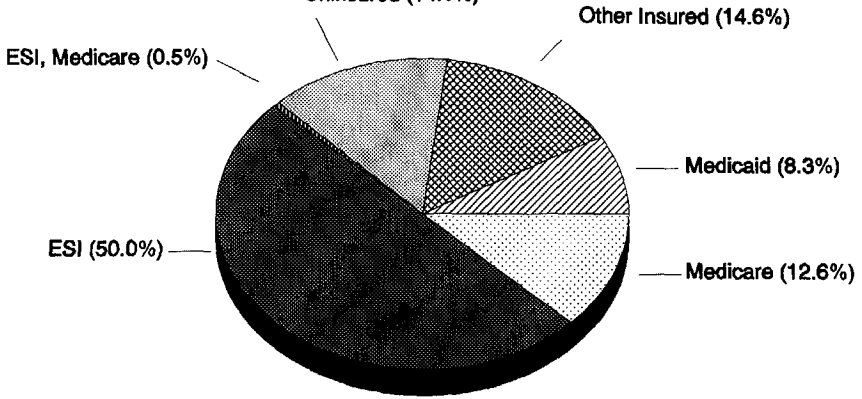
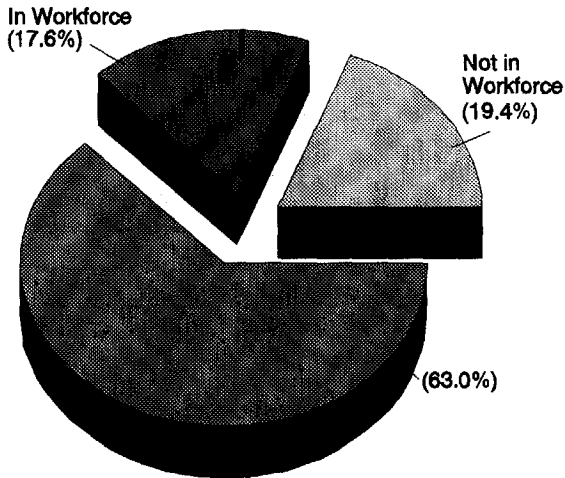


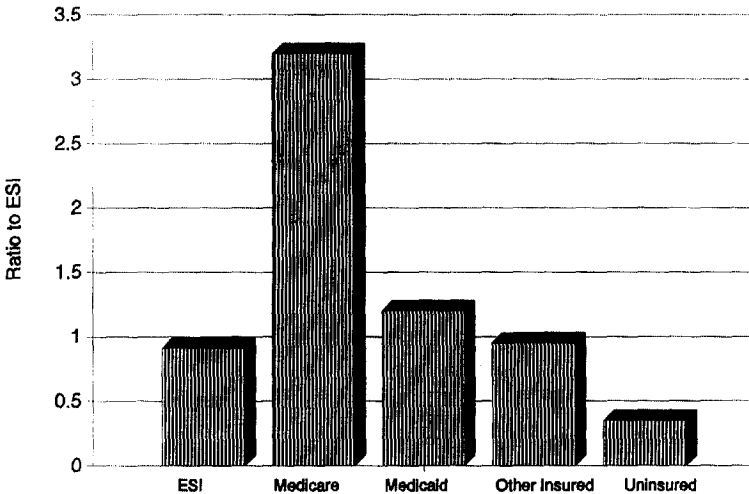
CHART 2  
Target Population by Workforce Attachment  
March 1992 Current Population Survey



Here are some rules I use for family. I didn't use the census definition of family; it was a more restrictive definition than just an employee, spouse, and dependent children. It didn't bring in extended family members in the more limited definition. This description is just to give an idea of the demographics. The Current Population Survey is a very detailed survey. There are over 155,000 records on file, and a lot of work-force and other information is available.

Another survey that, unfortunately, is not done as often as the Current Population Survey (CPS) is the National Medical Expenditure Survey (NMES). The current one is a 1987 survey (Chart 3). There's a 1977 survey called NMES which is being referred to as NMES I and the 1987 survey is NMES II with the hope of a 1997 survey being NMES III. The 1987 survey is providing a lot of data right now. But there will be a little bit of a lag with getting the 1997 survey out. NMES is a smaller survey than the Current Population Survey. There is just under 40,000 records on it. Also, it is weighted up to the national noninstitutionalized population. In addition to a person level component, there's an employer survey which asks about plan design. There's also an institutionalized component to try to get a picture of residents of ICS and other facilities. This gives a snapshot of the institutionalized population. Most surveys don't really look at that as well.

CHART 3  
Relative Morbidity by Type of Coverage  
1987 NMES



NMES is useful for looking at morbidity of groups not currently covered under traditional insurance. The big emphasis of it was looking at the Medicaid and other populations. It also is compared to work force characteristics, such as employment and group size. Limitations of it are: its small size; the fact that it's a 1987 survey, and demographically it's calibrated to census data, but not on the expenditure or the utilization side. So, there could be a need for calibration to one's idea of the correct level of either 1987 or of aging it forward.

I will discuss the relative morbidity by primary insurance coverage. Here relative morbidity is just total spending on health services by all payers. So, it's spending on hospital, physician, other health professionals, prescription drugs, dental, vision, and equipment. It's a somewhat broad spectrum of services, and it's all payer channels. Calculating relative morbidity compared to an employer-sponsored insurance avoids the argument of what NMES said was the level in 1987, and it gets away from what

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it said the aggregate spending was. It looks at the per capita values; it isn't surprising that the Medicare population is at 3.3. They're a lot older, and they're a lot more expensive. The Medicaid population is more expensive than the employee population. Other insurance is about equal to ESI. These are the people who bother to buy something or are covered under a Champus or a VA system. The uninsureds are lower at 0.45. This doesn't take into account any type of behavioral affects if mandated to them. If all of a sudden they had wider access to medical services, they would start spending more. So, this is just given that they are uninsured. This is the level they were at, so it's low. Medicaid members are running 1.2 of ESI.

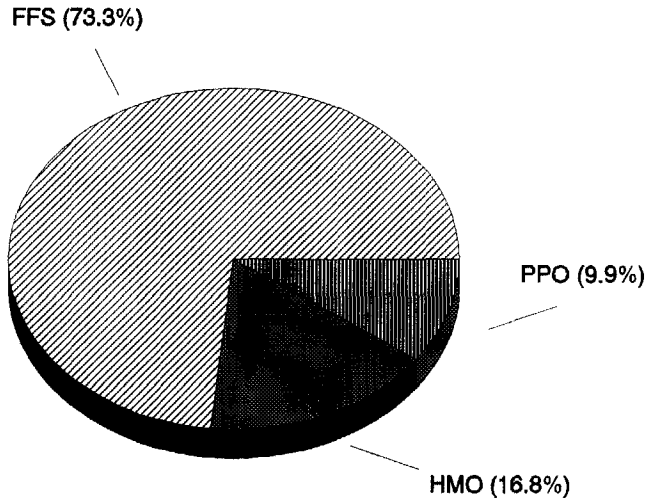
This isn't quite a direct tabulation from the NMES survey. It's from a data set that we put together looking at the current population survey in NMES. We were trying to get what we considered appropriate cost put onto a larger survey so that we could look at some of the issues that NMES alone doesn't address very well because of its small sample size. One of these is work force attachment and trying to look at it in the sense of the earlier CPS distribution where the target population is broken between those with work force attachment and those without a work force attachment. The target population, again, being Medicaid, nonemployer sponsored private insurance, and uninsured. Those people in that target population who have a work force attachment are a little cheaper than those persons that don't - 0.7 of ESI. A lot of the Medicaid population is in the nonworkers side. Again, this is just a straight per capita look at the survey, so it doesn't take into account what would happen to their spending if they were given better coverage by a federal mandate.

There's a lot of published data in the 1980 Census of Institutionalized Persons. The 1990 census is coming out now. It, along with the NMES institutionalized survey, gives some idea of what the institutionalized population looked like, but they haven't had a large focus. There are surveys, like the National Nursing Home Survey, that try to look at their patterns. Most surveys are demographic in nature only, so unfortunately, all the good data seem to be on the noninstitutionalized. They make up most of the people and most of the spending, but as far as national data go, the information is a little weak on the institutionalized side.

The Bureau of Labor Statistics (BLS) Employee Benefit Survey is a completely different type of survey. The few people that have worked with the tape have given it some interesting nicknames. The publications come out annually and provide a lot of detail on benefit design for medium, large and small employers in alternate years. If you buy the data tape to try to get detailed information on what employers are offering, you'll find they're coded from booklets. People have gone through plan booklets, summary plan descriptions (SPDs), for the information. It is very awkward to do any type of analysis on the tape because you find yourself using a very strange format that is very different from most other published surveys that are available. Everything is very annoying, putting it together is a little awkward. But, it is an interesting survey. Because it is coded from plan booklets, it gets into a lot of detail on plan provisions currently being offered by employers. One of the things asked in the employee benefit survey are payment arrangements. The 1989 survey was for medium and large employers. The 1991 survey is also medium and large, but the publication has not come out yet and the database has not been released.

According to the survey the traditional fee-for-service payments made up almost three-quarters of the plans out there (73.3%) with HMOs at 17% and PPOs at 10% (Chart 4). Small employers in the 1990 survey looked very similar to the fee-for-service side, but have a little bit more PPO (13%) and a little bit less HMO (14%) arrangements (Chart 5).

CHART 4  
Payment Arrangements for Health  
1989 EBS: Medium & Large ERs



When they get into questions on PPOs and benefit plans that have an in-network versus out-of-network arrangement with fairly good benefits if you stay in the provider network and a lot worse benefits if you go out, the survey only provides ways to code for one. So it's always been assumed that they code the richer or the in-network benefits. So, the survey probably provides a little more generous information on those plans.

One of the other things available from the employee benefit survey is the type of insurance coverage. Is it a major medical plan, a basic plan, or a basic major medical plan? The major medical plan was taken if there were external limitations on coverage including any limitation that spans services and overall deductible or cost-sharing arrangements where a basic only plan had service-specific limitations. Because of the nature of the survey, a lot of the HMOs that have co-payments that differ on specific services fall into basic because they had some overall cost-sharing. However, most of them don't. So, the publications don't let you split out HMO characteristics versus non-HMO characteristics that easily. But the data does allow it, and it's quite a different picture when you look at the HMO characteristics versus the non-HMO. For medium and large employers 43% have Major Medical, 22% have Basic, and 35% have Base plus Major Medical (Chart 6).

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CHART 5  
Payment Arrangements for Health  
1990 EBS: Small Employers

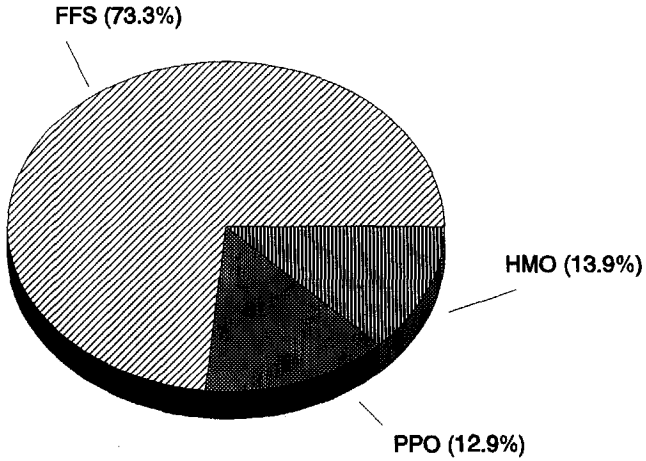
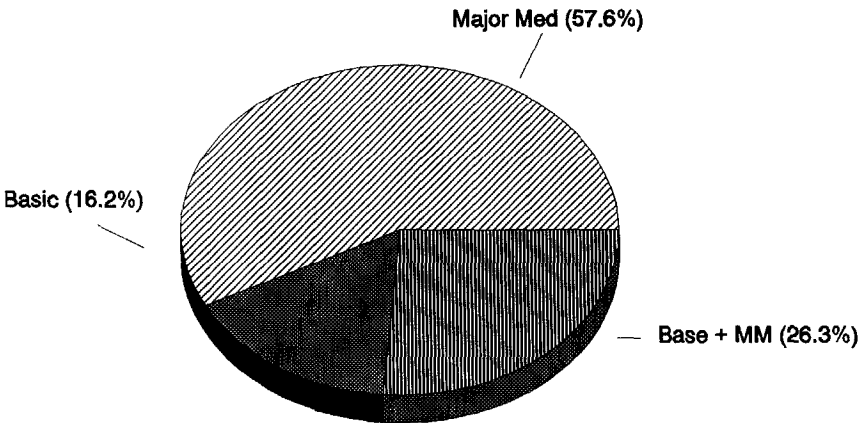


CHART 6  
Type of Coverage for Health Insurance  
1989 EBS: Medium & Large ERs



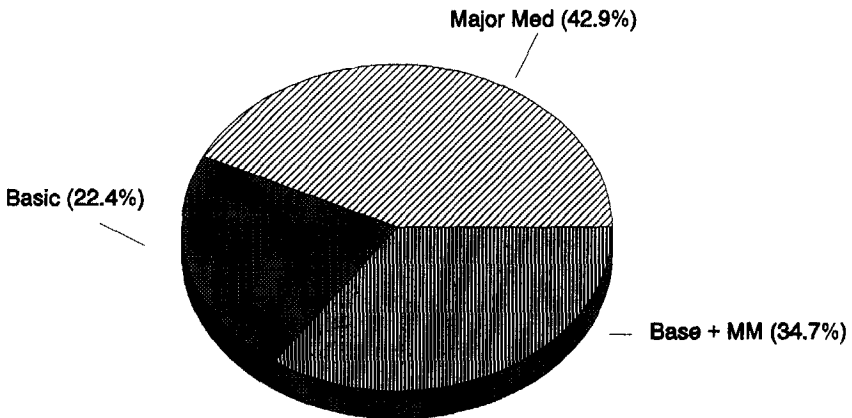
The small employers in the 1990 survey look a little bit different (Chart 7). The break was at about 250 for what was medium and large and under 250 fell into the small category. I think they have a lot more major medical coverage (58%) and a lot less basic coverage (16%). Some of this also is attributable to having less HMO coverage. The small employers are buying more traditional health insurance.

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I will review the major surveys out there. One of the other surveys also include the Health Interview Survey which is the utilization based survey. It's a person-level survey. One of the unique things about these surveys is that they get into information that normal claims data doesn't have, such as why people buy certain types of insurance.

We've gone beyond just direct tables of the data set. We've done some work starting with claims data. It could be spending by service or maybe type of provider. This enhances the claims data set with other characteristics that were not in there. One was trying to add nonclaimant information. Maybe the insurer or the employer know their total population. Also, you can use something like the Current Population Survey for national norm, then try to get the demographic characteristics onto the people, whether they're employees, spouses, or dependent children, to obtain the age/sex mix. This can be found in the proprietary data, or from something like a Current Population Survey which is a national norm. Current Population Surveys also can be broken down to being industry norm or region of the country. Secondary work force and secondary coverage categories are of special interest with two-worker families, in terms of how a two-worker family would be affected by any type of reform.

CHART 7  
Type of Coverage for Health Insurance  
1990 EBS: Small ERs



Would one worker in the family cover the entire family and, if so, which worker? Would both of them take coverage in their own name? If there are children present, who will cover the kids? Different pieces of legislation have either suggested options or have left it completely open.

Usually dependent children are not required to take coverage in their own name if they can get it from the parent. So an employer of a 17-year-old would not be required to provide coverage if they could get it from the parent. But it's interesting



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to see how spouses can get carved out from an employer's perspective and made to get coverage from their own employer. Also, there is an attempt to use coordination of benefit rules with secondary coverage so that, after reform, employers, don't end up with more risk than they anticipated. They can farm a lot out to somebody else.

In the context of national or regional industry norms, we try to get beyond the basic data set. One of the other things that my company does a lot of is micro-simulation models with all of these data sets to modeling insurance reform as pay or play and tax models for funding them. Those tend to be based on employer level of data because a lot of those issues address the employer as opposed to the employee or the covered person. Work force mandates and low-income plans affect the person a little more directly.

This is just a brief outline of creating a synthetic employer data set from a survey like the Current Population Survey and grouping similar employees together. That could be employees who have in common the size of their employer, their industry, and whether or not it appeared that they worked for an employer that offered health insurance. Once the employees are grouped together, payroll can be simulated by looking at their earnings. It's not exact because earnings on the CPS reflect a whole calendar year. So, you don't know what a person's specific job earnings are, but full year calculations can be made to try to refine payroll. Payroll is useful for some of the proposals that have suggested funding part-time employees with an 8% payroll tax or something like that. Once completed, expenditure data can be added from the National Medical Expenditure Survey from the personal level survey.

Premium data can be added from the Health Insurance Premium Survey which is the component of NMES. It's an employers' survey and certain characteristics such as size of employer or industry can be merged back on for some employees. Also, a lot of consultant surveys have premium information such as what is the likely premium paid for the largest plan. You can and even look at benefit design from the Bureau of Labor surveys to find out what the plan characteristics are. That becomes important in terms of proposed minimum benefit packages to see how many people have the right combination. Would they be made to get richer coverage? Poorer coverage?

Data sets can be merged using statistical matches. A lot of this lets some really big data sets generate some decent national estimates for a lot of the reform proposals, even on a smaller level, for specific employers and specific industries. Then you are able to compare the level of claims cost to national norms. You might compare a believed level to something like the national health account for a given year, such as projections from consultants.

MR. MARTIN: Moving from national databases, we will go to the current work that the Society of Actuaries is doing on experience studies. Sam Gutterman is director and casualty actuary with Price Waterhouse. He's a vice president of the Society of Actuaries and has been extensively involved in the research committee in the last few years.

MR. SAM GUTTERMAN: Historically, the Society of Actuaries has been relatively weak in the area of providing data for practicing health actuaries. It has provided data

in the disability income area. Recently, we provided data on long-term care through analysis of a governmental survey, the 1985 survey.

In the research areas, we've studied durational experience for small groups and developed a software package for the valuation of Continuing Care Retirement Communities (CCRCs). But clearly this isn't enough for the wide variety of health actuaries that we have. One of the results of the reorganization of the Society of Actuaries is to try to emphasize practice research that can be utilized by the practicing actuary. I'm referring to current activities and not things that you can refer to in the literature. We're going to be blending experience studies and research projects in terms of issues analysis. We're going to try to resuscitate previous studies and develop new ones. The ideas have been around for a couple of years, but we're looking for new areas that you believe the profession should be investigating. All the current data efforts need additional contributors. So, if you're involved in an area for which you may have data to contribute, we would appreciate hearing from you.

The first area for which we've developed data is individual disability income. The unfortunate part is that it hasn't been compared to an industry data table such as the 1985 Disability Table Study (DTS) table. We set out a few years ago to capture additional data that would compare to such an industry table, as well as provide data on the current disability product. The result is being analyzed by the individual health experience committee whose chairman is Dave Scarlett. The output will be a study of 1986-89, and possibly 1990 experience studies from both the U.S. and Canada. This is an initial effort in trying to study experience for a comparable base on both sides of the border. We're currently in a data-quality verification stage, and if you've ever done a study of your company, you know that this requires the most significant amount of time and creates many problems. We are hoping to be able to have a study of the U.S. data available in the summer of 1993, and the Canadian data, including 1990, will be available at the end of 1993. We'll also be requesting the 1991 data shortly. So, this gives you a chance to provide additional data that has not been contributed.

The next is group long-term disability. Those in the area knew that the Society of Actuaries hasn't done a report or published an experience study in this area since 1981. In the meantime, we've had a new valuation table. The 1987 long-term disability table has come out. We are in the process of staffing the committee and asking for companies to contribute. We're hoping that those in the field can contribute to this data, and, if successful, we will be getting a group LTD study out next year.

Similarly, there has not been an effort for group life since the 1970s. We had an effort over the last two years to get data from a wide variety of insurance companies. That effort was given impetus by the inclusion in the IRS Regulation 79 that the basis of any change in Section 79 group term insurance rates used for imputed income was the Society of Actuaries. As a result, we obtained additional contributors, and we also are in the data quality verification phase. As everyone knows, the exposure side gives us significant problems in getting accurate data. We are hoping that we will be getting a group life study of the 1985-89 period by the end of this year.

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We've been a little more active in long-term care. This committee is chaired by Gary Corliss. One of the efforts is an intercompany insurance experience study. Obviously, long-term care insurance has not been offered for a very long time, and products have turned over, changing generations several times during the course of this study. Because experience is very select and ultimate, we have relatively sparse claim experience. However, we are planning on publishing the 1984-89 insurance study during the summer of 1993. We might initially provide some basic data, that was available at that time, and then provide more follow-up statistics shortly thereafter.

The other area of effort has been analysis of any other public information in this area that we can get our hands on. A year-and-a-half ago, we published data regarding the 1985 Nursing Home Study. We hope to be refining that study in the upcoming year in terms of analysis of activities of daily living (ADLs). We also are waiting for reports from Duke University which has done the compilation of the 1982/1984-1989 long-term care survey that was in the press recently. It covers nursing home durations and continuance. We hope to be able to publish that data. We have \$7,500 in funding from the Society to produce reports. If successful, we will have some follow-up analysis in development of model approaches which also will be published later on. In addition to these efforts, we're looking at the experience of various states and we will compare it with the previously published 1985 study.

The next study is one that was started by the health section a while ago. We received a number of very high-quality proposals for conducting this study. The winning proposal came from Cornell University that will be the principal researcher, and actuarial assistance will come from Coopers and Lybrand. John Bertko is chairing the task force that's overseeing this study. We already have 30 companies committed to contribute data and we encourage additional companies to contribute whether they be insurance companies, Blue Cross/Blue Shield organizations, HMOs or even self-insureds; although these may be difficult to use because we're also looking at overall health plan data. This study should be completed in ten or twelve months. We're very optimistic about getting some valuable information and benefiting from the different backgrounds of the researchers in the academic community. I hope it will supplement the typical actuarial approaches for developing intercompany insurance experience.

There are several potential projects that we may be undertaking under *FAS 106*. Our current objective is to identify needed research that may be useful for the practicing benefits actuary who is dealing with *FAS 106* spending for the purpose of complying with the National Accounting Standards Board Statement Number 106 on retiree health. The responsibility for this project lies with the retiree health task force chaired by Chris Bone and the *FAS 106* task force which is chaired by representatives of both the health and the pension areas (Jean Wodarczyk and Ethan Kra). The output will be one or more studies or papers reflecting current experience that's available from current studies.

We currently are staffing the task force for managed care. The chairperson of that task force is David Wille. We will attempt to analyze the cost savings of managed care. That's a very difficult project to accomplish. We'll attempt to do that over the next several months by gathering data that's available from various sources and

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working with some consulting firms to provide additional data in our analysis. We are shooting for an October 1993 completion date.

Again in long-term care we have a task force chaired by Bart Munson that is studying valuation methods and valuation issues. The task force might develop a valuation table if it is deemed possible or practical to put together. It will most likely be based on the results of the 1985 survey study that we did a-year-and-a-half-ago. It will be utilized for check points and references for the intercompany study that I mentioned earlier. We are, simultaneously, going to be looking at valuation issues that affect the appointed actuaries in their everyday work in terms of reserving issues for non-long-term care. That task force is going to be chaired by Burt Jay.

The area of Continuing Care Retirement Communities affects relatively few actuaries, but we started to put forth an effort to develop experience in standard tables for CCRCs. We received some very high-quality proposals. We decided on a proposal; unfortunately, we are still in search for funding of this effort. The objectives are to develop experience tables, which can be utilized for the valuation of CCRCs. This is a jointly sponsored project with The American Association of Homes for the Aging. And, by the way, we also are interested in developing other joint relationships with other bodies interested in experience data. The reason for the funding is that there is a very hands-on, manually intensive effort going out to CCRCs which don't have any sophisticated databases and are probably gathering data from manual, paper files experience of transfer probabilities between health care and living facilities as well as mortality. The Society of Actuaries and the Health Section have committed \$50,000. If we can get matching funds for it, we'll be going ahead with this project. If we do get the go ahead and get the additional funding, I hope we'll achieve the objectives by the end of 1993.

This leads me to our future plans. We are looking into areas for which we can provide additional services and sources of information on an intercompany or other basis. We need analysis of additional databases to supplement the work of some consulting firms who are also in the business of analyzing such data. We try not to compete, but to supplement that type of work in doing and providing the analysis job for the profession. Some of the examples are: the support for the valuation for the appointed actuary as well as looking at issues that may be related to upcoming dynamic solvency testing standards in the next couple of years. We're looking at potential health care costing models. There are several around; we may attempt to develop or get a request for proposal for one of them for use of continuing education efforts.

The academy has put together, and will issue in April, a draft report on risk adjusters. They have, in turn, just listed several areas that need further research, and we will be looking to see the practicality of conducting further research in that area of national health care reform. Also, an area that we'll be looking at with the Casualty Actuarial Society is the value of 24-hour coverage. In summary, we're always looking for valuable research needs and ideas, volunteers to work on those efforts, and contributors once we've formulated the plans.

MR. MARTIN: Moving from a national database perspective, we're going to go to an individual company's use of data. Bruce Hutchinson is manager of institutional

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contracting and payment of Blue Cross/Blue Shield of Minnesota. He's going to talk about what Blue Cross/Blue Shield of Minnesota is doing to integrate hospital payments and clinical outcomes.

MR. BRUCE W. HUTCHINSON: I'm going to be talking to you about data from a different perspective than our first two speakers. I'm going to be talking to you about the evolution of our efforts to compile a clinical database on our enrolled population in Minnesota and how we're using that clinical data to begin to leverage some of our managed-care activities to begin to demonstrate value to the purchaser community in Minnesota of the products that we market and sell. Also, I will talk about how ultimately we have integrated the clinical data into our hospital contracting and hospital payment arrangements which resulted in a hospital payment program, the first of its kind in the nation.

Before I do that, I want to set the context within which we're operating in the state of Minnesota. The health care of Minnesota is a hot bed of activity at the state level, the health plan level, the provider level, and the purchaser level. On the statewide level, we are currently in the process of passing major health care reform legislation in Minnesota which is going to include major components governing the collection and use of health care data, both aggregate plan-wide data and individual patient-oriented clinical data. It is going to be used to differentiate plans from one another and to demonstrate values, ultimately, to our larger purchasing cooperatives defined in the legislation.

From a health plan perspective, you're going to hear a lot about what we're doing at Blue Cross/Blue Shield of Minnesota. This is our data. But I wanted to make sure that you understand that there are numerous other initiatives underway in Minnesota. You may be aware of the fact that United Health Care just published its report card. In fact, its director of research, Sher Weatherman, was in Washington D.C. not too long ago for a press conference on that very issue. That is going to begin to form the basis for health plan comparisons in Minnesota and possibly nationally. Virtually every provider in the state of Minnesota is involved in outcomes-related research, whether it be clinics, large multi-specialty group practices or institutions. Everybody sees the handwriting on the wall. Everybody sees the fact that those who are paying the escalating bills are demanding accountability and are demanding the ability of both the health plans and the providers to demonstrate value. So, there's a lot of activity going on at both the hospital and the physician level.

Finally, there are two major initiatives that I wanted to describe briefly on the purchasers' end. The Business Health Care Action Group is a consortium of, about 17 large employers localized in the Twin Cities metropolitan area that banded together to form a purchasing cooperative. It issued a request for proposal and has contracted with an organization known as Group Care. Group Care is an amalgamation of the Mayo Foundation; the Med Center, which is an HMO; Park Medical Center, which is a large multi-specialty group, practicing in the Twin Cities; and, Group Health, which is a staff model HMO. That organization bid on and got the contract with this large employer consortium. The employer consortium's requirements were definitely oriented toward the demonstration of value, the collection of data, and quality improvement, all of those wonderful buzz words we hear about when we're talking about health care.

Second, the idea that purchasers are driving a lot of the health care reform activity in Minnesota is certainly true. There are consortiums right now that are involved in defining data requirements and comparable data sets that are certainly going to have an impact on Blue Cross/Blue Shield of Minnesota and anybody who does business in the health care industry in Minnesota.

Blue Cross/Blue Shield of Minnesota is the largest health plan in Minnesota. It has 1.2 million members. We have the only statewide provider networks. We offer a full range of products including an HMO, a point-of-service product, a PPO, and a managed-care indemnity. We have state-of-the-art claims processing, sophisticated data analysis capabilities, which I'm going to get into in greater detail later, and last, but not least, innovative provider-contracting arrangements with leveraged managed-care arrangements. These arrangements also have fairly extensive requirements for the collection and submission of clinical data.

In a nutshell, from our perspective, we are in the business of insuring that our members receive appropriate, medically necessary, and effective care and that the outcomes are optimal and efficient. That forms the framework within which we engage in our managed care and contract the activities in Minnesota.

There are databases that we, as a health plan, have developed and heavily invested in over the years. First and foremost, we have an extensive claims database. With over 1.2 million enrollees, you can well imagine that is a voluminous and very rich source of utilization and outcome data. We have enrolled group databases, and a provider database, which gives us a great deal of information on all of our participating providers as hospitals, clinics, and individual physicians.

The system that I'm going to be talking about most is called MedisGroups. It is the Medical Illness Severity Grouping System. It is a hospital-focused clinical database collection system that we currently operate in 36 hospitals throughout the state of Minnesota. We invested in a common research group product that many of you may be familiar with called Small Area Analysis. It is an epidemiologic system that looks for and identifies significant geographic variation provisions of health care services to an enrolled population. We do extensive patient satisfaction surveys. We have a prescription drug database. Interestingly, we just put the prescription drug database up on small area analysis software which yielded surprising variations in the rates of prescribing practices by our participating providers throughout Minnesota, most notably in the prescription of anti-depressants, antihistamines, and antibiotics. We're using that data to begin to develop some very focused and specific managed-care activities with those providers who have been identified as overutilizers for certain types of therapeutic drugs. We also maintain managed-care program databases that yield valuable information on the results of our managed-care programs. We also tap into external data sources, such as mortality records from the State Health Department and others.

I hope our investment in all of these data over the last several years has paid off in our ability to begin to look at data in a more macro fashion and get out of the business of micro-managing health care, which I think, is a significant cost addition to the provision of health care services in Minnesota and elsewhere. So we want to begin to use these databases so we can get out of the inspection-control mode.

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That's when you have a room full of nurses taking calls from angry hospitals and physicians saying, "Is this particular admission justified?" You can understand that this will build up a lot of goodwill in the provider community. When you define ways to get out of that inspection-control paradigm, you move onto a statistical quality-control paradigm. We think that our investment in the databases that I mentioned are leading us in that direction.

I want to talk about MedisGroups because that is a system that really drives our clinical database creation and also has been used to modify our hospital payment program. MedisGroups is a software system that is sublicensed to hospitals for use on our subscribers only. Remember, we have that system operating right now in 36 hospitals throughout the state. We pay the licensing and the maintenance fee from an organization called MediQual located in Westborough, Massachusetts. They are the developers and the distributors of that software product. We provide all the hardware that's necessary to run the system at the hospital, which means we provide a PC and all the peripherals to the hospital. The hospital provides data collection and data entry personnel ranging anywhere from one-half to one full-time employee depending upon volume. We carefully monitor the data quality that is collected and submitted to us electronically by these 36 hospitals. I have a full-time staff of three people who do nothing but monitor the quality of data extracted from the medical records. This is a medical record extraction system. And we hold all of our data collectors in our system to a 95% accuracy level. We also have access to MediQual's national clinical comparative database which currently numbers over eight million hospital discharges from over 500 hospital clients nationally. They have a very powerful clinical comparative database from a representative sample of hospitals that we use to compare our experience. We also have developed over 250,000 hospital discharges on this system since it was implemented in 1986, and we use that to develop our own corporate norms. We then feed that information back to our providers for quality improvement, utilization management, and network development.

Very briefly, MedisGroups is the Medical Illness Severity Grouping System. It is a severity of illness measurement tool which allows us to assess variability and hospital illness burdens from the acute care hospitalized population. I have measures of severity of illness defined as the potential for organ failure. I have measures of two points in the hospital stay so we can begin to look at the patient's response to treatment. We measure severity at time one, which is the first 48 hours of the stay and then at day seven or day eight depending upon the length of the patient's stay in the hospital. So, we have measures at two times. From our perspective the value in this is not necessarily the severity of illness score, which is very controversial, but rather the large relational clinical database that we can use to begin to do some of the things I'm going to describe for you now.

The nuts and bolts of the system are called key clinical findings (KCFs). KCFs are the clinical facts that physicians use in the hospital to drive their decision making in terms of how to manage care for a particular patient. We collect abnormal findings called key clinical findings from the results of laboratory tests, pathology findings, radiology, physical exam, operative procedures, cardiac procedures, unusual occurrences and maternity neonatology. We amass a tremendous volume of detailed clinical information on each one of our enrollees who is admitted to a hospital. The purpose of clinical or any outcome data is to identify and promote excellence. Our specific

purpose is to improve the equity of payments to our largest volume hospitals that are providing us with this clinical data and to align the payment incentives with our health care management objectives of appropriate, effective, and efficient care. Oftentimes, when you're looking at literature on prospective payment, you'll see that the consensus seems to be the prospective payment systems create some very perverse incentives in terms of quality and outcome. We want to make sure that our payment system promotes high-quality, efficient, and appropriate care.

Table 1 shows how we use our clinical data to look at and screen for appropriate utilization. We collect data, for example, on whether there was a finding in the pathology record of acute appendicitis, benign tumor, cancer in situ, internal damage, internal infarction, rupture, and malignant tumor. If one of those findings is present in the pathology report that appendix is considered to be abnormal and it should have come out.

TABLE 1  
 Appendectomy  
 MedisGroups KCF Screens

KCF	Source
Acute Appendicitis	Pathology
Benign Tumor	Pathology
Ca in Situ	Pathology
Internal Damage	Operative or Radiology
Internal Infarction	Pathology
Internal Rupture	Radiology
Malignant Tumor	Pathology

When we look at our data from more than 30 hospitals, we find a great deal of variability in the rates of normal appendices removed from one hospital that has a rate of normal appendices four times greater than expected versus one hospital that had zero normal appendices removed. What is the proper rate? The literature suggests a deviation of somewhere between 10% and 20% from normal. Then you can make sure you aren't compromising patient safety. We're all over the map. Basically, you have two choices. You can take what we call a sword-and-shoot approach. You can find those that are doing the worst job, and you can play around at the margins on either end and regress toward the mean. I hope you can find an opportunity for continuous quality improvement that makes some sense to the provider community and makes some sense to you. You engage as partners around an issue that allows you to affect the overall delivery system.

When we looked at our data by gender and by age, we found that the primary contributor to that normal appendiceal rate is females between the ages of 14 and 50 – roughly females of child-bearing age. The reason is that there's a real challenge in terms of differential diagnosis. When that woman comes to the emergency room with acute lower-right-quadrant abdominal pain, you have a number of possible scenarios that you need to look at. Our feeling is that the hospitals aren't necessarily doing as good a job as they need to be doing and looking for alternative sources of abdominal pain. For example, gynecological problems would make a lot of sense.

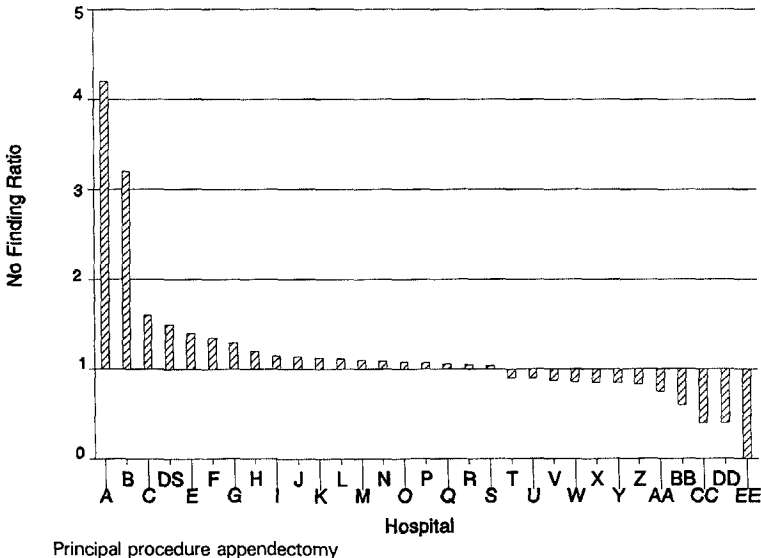


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We're trying to engage the hospitals, with some success, in looking at alternative ways of managing patients presenting to the emergency room with acute abdominal pain. We expect to see that normal female appendiceal rate drop because we're going to be providing incentives to hospitals to approach the management of these particular types of cases in different ways. We're going to find out what works and attempt to implement that system-wide.

Coincidentally, when we look at our data, and we have a 20-25% market share in Minnesota, we're always concerned about small numbers, so we wanted to make sure that this finding was replicated over a fairly long stretch of time. We found from our data that it was replicated over a six-year period from 1986 to 1991 (Chart 8). It gave us some confidence that this is a real phenomenon, and we shared this information with the hospitals. They looked at their entire book of business and noted that our data mirrors reality. They wanted to work with us to look at ways of lowering that abnormal appendiceal rate. This works a lot better than if you went out to the hospitals at the margin and said, "We're going to shoot you because we don't like the way you're doing business." There can be all types of reasons for that variability. This allows us to gather around a common issue and address it systematically.

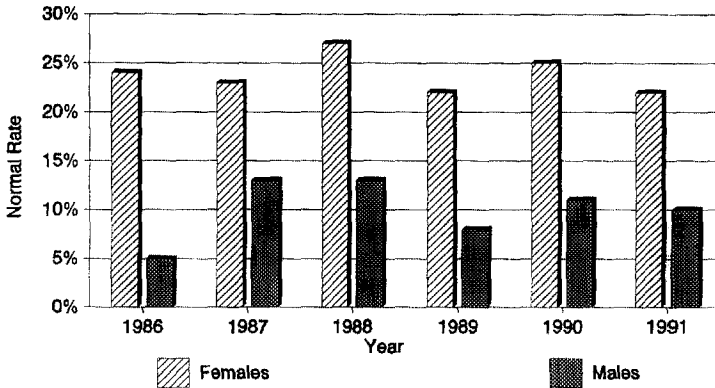
CHART 8  
Appendectomy No Finding Ratios  
MedisGroups Hospitals  
1986-91 Admissions



The female ratio to the normal appendiceal rate is higher (Chart 9). Women's appendices are taken out with no pathologic findings approximately 25% of the time. The literature suggests that you want to error on the safe side maybe 10% of the time. So, if you have a ratio above the normal appendiceal rate of 30-40% for that population, then I think the consensus is that you may be playing a little too far away

from the margin. In 1986, for example, there were 127 females and 173 males in all hospitals in that age group that had their appendices out in our system.

CHART 9  
Normal Appendiceal Rates by Year\*  
Males & Females Age 14-50  
1986-91 BCBSM Admissions



Year	Females	Males
1986	127	173
1987	152	179
1988	149	203
1989	153	208

\*MedisGroups Key Clinical Findings

The responses from the hospitals have been very encouraging. We have one hospital that is engaging in a clinical trial to determine how well an ultrasound technology can do in visualizing abnormal appendices. Based on the results of that study, we expect to see that above normal appendiceal ratio drop. Some hospitals are developing critical pathways for systematic management of patients presenting with acute abdominal pain in the emergency room. Other hospitals are incorporating routine gynecological consults as part of the routine workup for acute abdominal pain in the emergency room. So, we have a number of very interesting initiatives going on. Hopefully, this is going to lower that rate, lower costs, and improve quality.

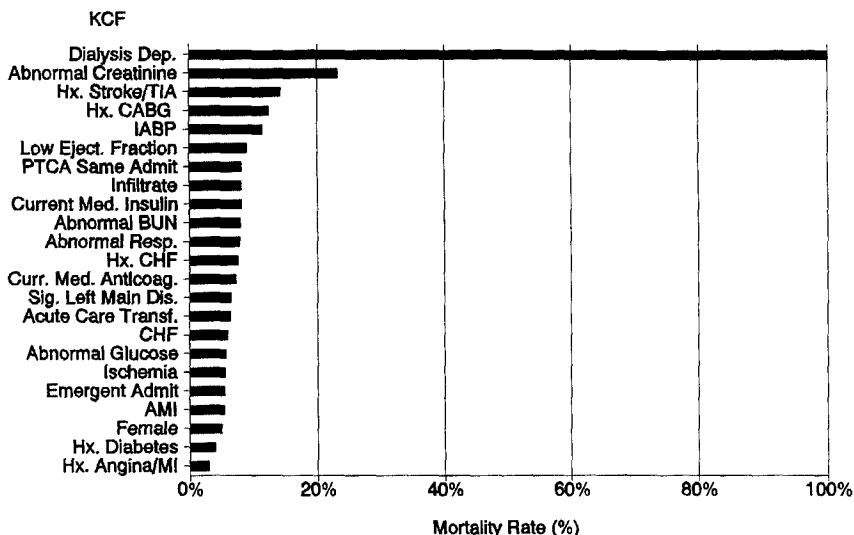
There is the need for clinical data to risk-adjust outcomes. If you're going to be comparing hospitals, physicians, or clinics on the basis of their outcomes, you are not going to be well-received unless you're able to demonstrate that you have adequately controlled for what the patient brings to the table.

Having this clinical database in hand, let's look at coronary artery bypass graft (CABG) surgery. We were able to identify risk factors that had a significant contribution to in-house mortality (Chart 10). Some of these patients are dialysis dependent with end-stage renal disease, or have had a history of a stroke or a trans-ischemic attack, or have undergone previous bypass grafting, or had an intra-aortic balloon pump inserted

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prior to the surgery. All of those clinical data are not elements of what you're going to find on any claim system that I'm aware of in any administrative database. Yet they're extremely crucial if you're going to be able to compare interhospital variability and rates versus outcomes (in this case, in-hospital mortality). The literature is very unequivocal on that point.

CHART 10  
KCF Contributors to CABG Mortality  
BCBSM MedisGroups Database  
1986-91 Admissions



There is variability in outcomes for our select cardiology network that we put together based on clinical data compared to our nonnetwork hospitals that also contributed the same data. The hospitals in our network, when adjusted for these risk factors, had an adjusted mortality rate of 14.7 per thousand whereas the nonnetwork hospitals, I believe, had a ratio of more than 50 per 1,000. So, this is evidence to us that we're able to control for these risk factors, and we made the right choices when we put our networks together.

We found the same thing when we looked at the rates of postoperative heart attacks. We adjusted our population for risk because our network hospitals outperformed the nonnetwork hospitals significantly.

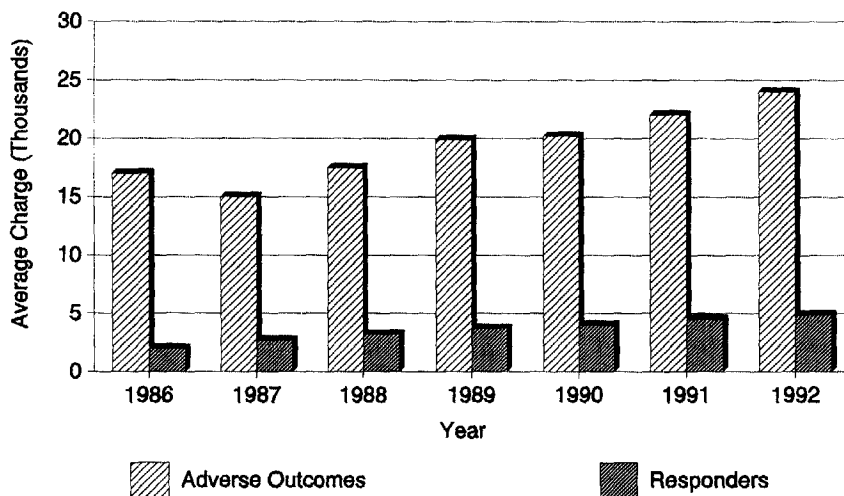
I want to briefly run through how we have begun to integrate our clinical outcomes data into our hospital payment system. I'm going to give you a brief overview of where we've come since we implemented our prospective payment system in 1983. Basically, in 1983, Blue Cross/Blue Shield of Minnesota was hemorrhaging financially because of the prospective payment system implemented by Medicare and the high degree of HMO penetration in the Twin Cities marketplace. We were not competitively well-positioned, so we developed our own prospective payment system in 1983

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to control the rising spiral of inpatient hospital costs. This new system involved negotiated inpatient and outpatient payment rates with length-of-stay incentives, risk-sharing, and very broad payment categories within which we negotiated per diems, length of stay targets, and per-case maximums. We controlled the annual trends in our negotiations, which were annual at the time. We allowed our costs to go up by the hit-for-market basket plus 1%, for example. The payment is based on hospital experience up to a community-wide maximum. We began adjusting our payment rates for severity and case mix in 1988.

However, given the interest in the community to integrate outcomes and quality into payment initiatives, we began to look around for alternative ways of classifying our patients and grouping them into categories that would allow us to negotiate smarter. We began to work with our clinical data that we had collected since 1986 to begin to demonstrate both internally and externally that when you're able to look at outcomes, you can see a tremendous cost differential. Since 1986, that differential has grown to the point where in 1992, based on ten months data, we have a greater than \$20,000 difference between a patient who responds to treatment versus a patient who experiences an adverse outcome (Chart 11). Clearly there's an incentive for us to begin to control those adverse outcome costs and to provide incentives to lower those adverse outcome rates.

CHART 11  
Differential Cost of Adverse Outcomes  
1986-92



BCBSM MedisGroups Database

We settled upon a case-mix classification system called Illness Outcome Groups (IOGs). This is a system that was developed by MediQual Systems, Inc. out of Westborough, Massachusetts, which is the same company that produces the MedisGroup's severity of illness software. Basically, this system places patients into

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one of four risk categories based on their risk of adverse outcome. That risk is calibrated against the MediQual large national comparative database. Minimal risk patients are those patients who have an aggregate risk of less than 1% of in-hospital mortality versus a high-risk patient where the risk of adverse outcome is greater than or equal to 15%. This is how the payment category is based on risk and how outcomes were developed.

The MediQual national database looked at each diagnosis related group (DRG). There were 477 in 1987. There are now 492. MediQual looks at those DRGs and maps them into the illness outcome group based on the aggregate risk of adverse outcome. Then we take that data and decide if a surgical procedure was performed and what body system was involved. From that division, we developed payment categories which are homogeneous with respect to the risk of adverse outcome and to resource needs and possibly to body system. The goal was to maximize clinical reasonableness of these categories, and to avoid compromising category size because we need to negotiate price based on the volume in these categories.

Table 2 shows an example of one of our categories and the clinical homogeneity we are able to maintain. This is an example of medical admissions for circulatory system disorders. This would include people who show up at the emergency room with chest pain for whom the physician rules out a heart attack as the cause of the admission. We were able to successfully classify 74% of all admissions in this category based on ten International Classification of Diseases -- 9th Revision -- Clinical Modification (ICD-9) diagnoses. That is remarkable clinical homogeneity. And so when we go out to negotiate price with hospitals, based on this classification, they know what we're talking about. They know what types of patients we're talking about. They can better estimate what their costs are going to be and negotiate on an equal footing with us.

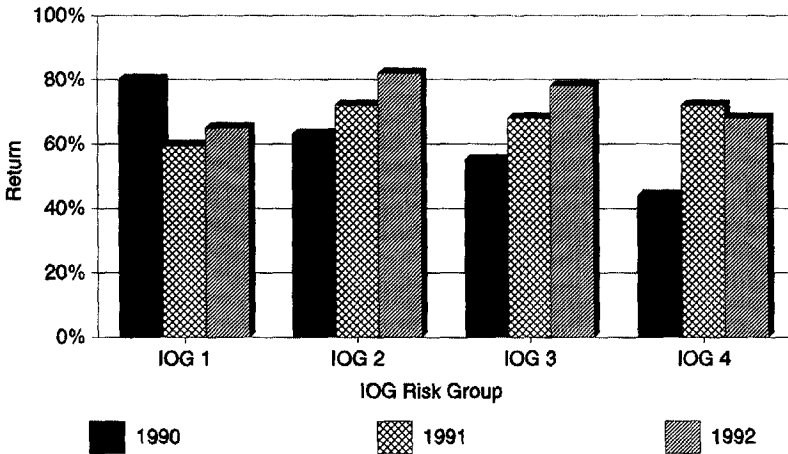
TABLE 2  
Clinical Homogeneity of IOG Categories  
1 M-Circulatory Example

Top Ten Diagnoses Account For 74% Of Admissions		
● 786.50	Chest Pain NOS	231
● 411.10	Intermediate Coronary Syndrome	73
● 780.20	Syncope and Collapse	56
● 413.90	Angina Pectoris NEC/NOS	48
● 427.31	Atrial Fibrillation	37
● 427.89	Cardiac Dysrhythmias NEC	20
● 453.80	Venous Thrombosis NEC	18
● 451.19	Deep Phlebitis -- Leg NEC	17
● 786.59	Chest Pain NEC	14
● 427.32	Atrial Flutter	11
	TOTAL (Top Ten Diagnoses)	525
	GRAND TOTAL	705

I mentioned earlier that we wanted our payment system to support our health care management activities, and we feel that this new arrangement definitely takes us a long way toward meeting that goal with respect to appropriate utilization. When we go out to negotiate with hospitals in this new case-mix classification system, our minimal risk categories (those patients who have an aggregate risk of less than 1% that are going to have adverse outcome), are the categories we negotiate most aggressively. We negotiate much higher risk in those categories where the patients have a higher risk of adverse outcome and where the discretion in terms of how that patient is managed in the hospital is a lot less. We feel this leads to a much more equitable distribution of resources based on patient needs and physician discretion.

How do we know that? We can look at preimplementation data from 1990 and then postimplementation data in 1991-92 (Chart 12). If you plot the hospitals return on charges, or our discount by IOG risk category, you see in 1990, for example, we were paying close to 90 cents on the dollar for our minimal risk admissions patients. Conversely, for the higher-risk patients, we were paying less than 60% of charge. After implementation of the system in 1991-92, that relationship has been significantly modified, and we are directing higher rates of payment to those patients in the higher risk categories where the resource needs are higher and the discretion in terms of how the patient is managed is a lot higher as well.

CHART 12  
Return on Charges By IOG Risk Group  
Medical Admissions Only



1990, 1991 & 1992 (First ten months)

We also have seen a decline in the rate of minimal risk admissions for medical causes. The rate was approximately 70% in 1990 and 67% in 1991 and 65% in the first ten months of 1992. So, things are moving as we had expected and anticipated. More care that is marginal for hospitalization is being provided either in the physician's office or in the hospital outpatient department. At the same time, given the case-mix shift

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that we're seeing in our participating hospitals, we also are seeing an increase in the rates of adverse outcomes, which is not unexpected given the case mix shift. When you look at patient severity, and as we move more of these minimal risk patients out of the hospital and lower our payment rates for those cases, we are seeing a proportionate increase in the severity of the patients that are being admitted.

Surgical admissions show the same findings that we saw for medical admissions. We also feel that our hospital payment program promotes efficient utilization of resources because our fixed payments definitely reward efficient practice. We still engage in community-based pricing, and we still maintain length-of-stay incentives for our hospitals with a proportionate risk-sharing based on performance. We have been able to maintain our current savings ratio. In 1992, the results were sometimes better than expected. We also believe that the changes we made to our payment system in incorporating adverse outcomes and quality measurement into that payment system also served to promote effective utilization. Each category includes the expected rate of adverse outcomes. That category within which we negotiate a price has a fixed and predictable rate of adverse outcomes. Since we know that the adverse outcomes cost more than the patients who respond to care, the hospital is at risk for cost associated with excess adverse outcomes. From our perspective, it's a win-win-win situation for patients, hospitals and for Blue Cross/Blue Shield of Minnesota.

We're going to look at performance data, and we're going to look at the top 10% or the outliers. Our philosophy is to begin to look for system-wide systemic improvements. And to that end, we have a very aggressive program of feeding this information back to the provider community. Hospital management reports will look at risk-adjusted comparative outcomes, and appropriateness ratios. We also have detailed clinical patient-specific information that we feed back to the hospitals and physicians on every adverse outcome that they have experienced at their facility over the past year. So, we can provide them with detailed clinical information on these outcomes that they have not had access to previously. They had to go to the chart and extract those data from individual patient records. We can summarize it for them systematically and provide it to them so that they can begin to look for patterns and ways of improving the system of delivery of care.

An example of one of the reports for a particular hospital showed the observed versus expected adverse outcomes, the differences by our payment categories and then we attached an estimate of cost savings that could have been attained by that hospital had they performed at standard. In this particular case, the hospital left about \$200,000 on the table by our estimates because their adverse outcomes were higher than expected.

We can provide clinical data to the hospital on each individual patient. The data give the patient's medical record number and whether he or she was admitted through the emergency room or not. It tells the date and hour of the admission, whether he or she came in at night or in on the weekend? What relationship does that have to cost and outcome? It tells you who paid and the financial class of the payer, what the ancillary and total charges were, the billing number, and why the person was admitted.

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A 37 year old female was admitted for an elective procedure. The MedisGroup data allows you to look at time one and time two data. At time one, that patient had an admission severity score of one, which means that there was minimal risk of an adverse outcome. There was an operative finding of atresia, and we know who the surgeon was. We collect that individual physician identifying information. We know what the principal procedure was. We know that at that second review, on chest x-ray, that the patient was found to have had an internal rupture.

There are diagnosis codes. We collect up to 30 ICD-9 diagnosis codes and 20 procedure codes in our system. So, we can really take an in-depth look at what was wrong with this patient and what was done to this patient. What we found was that this patient had an abnormal reaction to a surgical procedure. She experienced an internal rupture. Does that have an impact on cost? You bet it does. It has impacted length of stay and charges, and that hospital had a greater-than-expected adverse outcome rate in this particular category. Obtaining this type of clinical data allows them to take a look at their process of care and allows them to make some judgments as to what needs to be changed in the way services are provided in that hospital.

We have some planned enhancements. I think five years from now we're probably going to be looking at episode pricing where we're going to begin to bundle together inpatient and outpatient care around management strategies for particular diseases. For the shorter term, we continue to refine our ICG payment categories working in concert with MediQual in Westborough, Massachusetts. We're looking at expanding our outcome measures and incorporating these expanded measures by explicitly factoring them into our payment program. For example, we want to begin to look at unplanned readmissions, in-hospital acquired infection rates, patient satisfaction, and patient functional status. Can the patient get up and down the stairs? Has the pain diminished? We need to begin to ask the purchasers what they value and how they would like us to begin to measure that? We also want to begin to publicly demonstrate the effectiveness of our networks using our clinical data.

An example of how we might go about doing that is the RG-127, heart failure and shock. What we found was in our largest open access product, or old product, we had adverse outcome rates and severity that differentiated that network from the national data. But when we looked at our HMO, we found that the managed-care network delivered better results. We want to begin to look at this data systematically and report it to our purchasers.

Ultimately, if we keep trying and keep moving ahead and keep being innovative and try to be creative, we're going to get it right.

MR. CRAIG S. KALMAN: This is for Sam. We sell predominant individually underwritten major medical products. Does the Society have any plans to do a new study of that type.

MR. GUTTERMAN: The last study of that product was, I believe, done in the early 1980s. Right now, I don't foresee a potential study primarily because of the heterogeneity of the benefits that are provided by the various carriers involved in that market. If you see a need and it looks practical to do it, we'd be interested in talking



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with you. What we've seen over the years is that it's very difficult to develop good comparative data that companies are willing to contribute on a timely basis.

MR. HUTCHINSON: When we put our cardiac network together, it was very interesting. One of the hospitals that we considered to be a superior performer met our quality standards. When we began to negotiate price they said, "Wait a minute. If we have to go back in within one year of the operation, we'll do it for free." That was music to our ears. We want to encourage that type of behavior because we want to pay, and our purchasers want us to pay, for what they value. Clearly, unplanned readmissions or rework is not something that we value, and the hospital was right in sync with us all the way down the line. They said, "If we have to open the chest again, it's on us." We took them up on it. But we are beginning to develop ways of differentiating hospitals' risk populations to see whether their risk distribution is higher or lower than expected, correlating that with their performance, and redirecting payment on this basis. That's definitely going to be something we're going to see happen in late 1993 in our select cardiovascular network. So, I think the answer to your question is an unqualified yes. We are moving in that direction.

FROM THE FLOOR: Two things. First, I think Ms. Callahan gave a very useful summary of some of the national databases that are available. Second, for Mr. Hutchinson, you indicated on that one record that apparently there is an operative problem and the individual had a catastrophic financial result for an otherwise simple operation. It looks like under your reimbursement scheme that the hospital loses out essentially because the surgeon slipped. Could you comment on that?

MR. HUTCHINSON: The hospital only loses out insofar as in aggregate their performance is worse than expected. In that particular situation, their performance was not in conformance with our expected norms. So you're absolutely right. They're going to lose out because their input costs were not covered by our prospective reimbursement scheme. We have heard the argument about physicians and hospitals and who does what to whom countless times as we negotiate price with both physicians and hospitals. Who is responsible? From our perspective, the hospital is not a hotel. The hotel is an organized institutional system for providing high-quality care to its constituents. The hospital and the physician are a team, and we hold both accountable for performance.

FROM THE FLOOR: How much does the hospital charge increase by having someone in the hospital input the data into MediQual system?

MR. HUTCHINSON: Let me see if I'm interpreting this question correctly. The administrative costs of the system at most hospitals is between one half-time and one full-time employee. So, you're probably looking at \$15,000-30,000 per year to collect this type of information.

From our perspective, this is a system that has tremendous implications for quality utilization management and the hospitals' perspectives as well. So, we don't consider it to be an unnecessary expense on the hospital side. I think it's the cost of doing business in Minnesota. You need to collect good severity and risk-adjusted outcomes data. If you don't, that light at the end of tunnel is going to be a train coming 70

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miles an hour right at you. So we don't consider that to be an excessive cost for supporting good outcomes management.

MR. JEFFREY L. JOHNSON\*: That new way of looking at reimbursement of hospital costs is quite interesting. On the appendectomy you mentioned the females. It also appeared to me that the males over 50 had a higher than normal rate. Would you care to comment on that result?

MR. HUTCHINSON: I'm going to fall back on the fact that we have only a 20-25% market share because all of the feedback that I got back from the hospitals indicated that the relationship did not hold when they looked at their total book of business. When they looked at the age 50 and over population, they didn't see the same types of findings we did, which I think is a risk that you run when you look at a single-payers' database with a 25% market share. You have to be very cognizant of that fact and willing to entertain alternative explanations. I think this is one of those cases where that finding is not going to be borne out. Right now, we're interested in studying the normal female appendiceal rate for the child-bearing age. There's no reason why we wouldn't want to take a look at the over-age 50 population also. It's just not at the top of the list right now.

MR. RICHARD E. SWIFT: I have two questions for Mr. Hutchinson. Is this program voluntary for the hospitals or are they required to provide that information and have that person there? Also, is there any thought about trying to roll something like that out to the physician community or to expand that kind of morbidity adjustment arrangement that you have with the hospitals to the physicians directly?

MR. HUTCHINSON: First of all, it is part of our contract with the hospitals that they do provide this clinical data on each and every Blue Cross/Blue Shield claim. Hostility has waned because we've demonstrated value. Also longevity may have something to do with it. If we're still there, and still doing it, they do it habitually. I think it's been supported by the activities of the state legislature which is coming out with significant health care reform legislation. So, it is mandated.

We began this system in 1986 and, as is the case with virtually every mandated system in existence, there was a lot of resistance, resentment, and hostility. As we have begun to demonstrate the value of clinical data and clinical databases, that hostility has waned. It's happening, it's going to continue happening, and it's going to get bigger. It's too early to tell whether this particular approach is going to be the dominant approach in the marketplace. I'm not in favor of state-mandated systems. I think there's a lot of room out there for innovation, and I think mandates tend to stifle innovation, but it's definitely going to get exported in some way, shape, or form.

\* Mr. Johnson, not a member of the sponsoring organizations, is Manager of Reimbursement and Policy at Aetna Health Plans in Hartford, Connecticut.