RECORD, Volume 24, No. 1*

Maui I Spring Meeting
June 15–17, 1998

Session 20IF
Inside the Medical Information Bureau

Track: Product Development
Key words: Product Development, Statistics

Moderator: JOHN A. (JACK) LUFF
Panelists: JOHN R. AVERY†
JOHN DETWILER‡
STACY J. GILL§
Recorder: JOHN A. (JACK) LUFF

Summary: Representatives of the MIB share with the audience the history of this 75-year-old institution, how it came into being, technological highlights over the years that have led to a very active and data-rich source of medical information, and the services (many of which are little know to users) that the MIB offers to clients and other industry groups. The role that the Center for Medico-Actuarial Statistics plays in compiling, digesting, and producing mortality and morbidity studies is also discussed.

Mr. John A. (Jack) Luff: I think MIB had a fair bit of, perhaps, unwanted publicity over the past couple of years because of the movie *Men in Black*. There were some people in the industry that thought the MIB was similar to what was depicted in the movie. We do have three speakers from MIB.

The main thing that we will deal with is the variety of functions that the MIB has developed over the years. It has been relatively quiet about these functions and we feel that people in the insurance industry would be interested in knowing about them. There has been somewhat of a change in culture at MIB to, in fact, get

people to know about these things. That's going to be the main focus of the presentation. The Society of Actuaries has had a longstanding relationship with MIB in a couple of areas, and this longstanding relationship has centered on a unit within MIB called the Center for Medico-Actuarial Statistics. We're also going to hear a little bit about what that unit has done.

Our first speaker is going to be John Detwiler. John has the title of MIB marketing manager. He joined MIB in 1994 as the bureau's first full-time marketing person. This is consistent with the change in focus that I mentioned a few minutes ago. As marketing manager, John is working to keep MIB membership apprised of MIB products and services, and the solutions they provide to business underwriting claims and systems problems. He has broad experience gained during 20 years of work in the insurance industry, as an agent, sales manager, European marketing representative, and group insurance account manager. He has had direct exposure to sales and marketing processes, underwriting procedures and systems, contract development and filing, and many other home and field office functions. Prior to joining MIB, John worked for John Hancock's group insurance division for more than eight years, and he holds a bachelor of science degree from Penn State University. I'll ask John Detwiler to kick things off.

Mr. John Detwiler: As Jack indicated, we have gotten a fair bit of exposure here with the movie *Men in Black*. I must admit that some of the actuarial types of things that MIB has been involved with are somewhat of a mystery to me. In fact, a good bit of actuarial science is a mystery to me. I thought I'd tell you MIB's story.

I represent more of the business, day-to-day operational aspects of MIB, which many people are familiar with. MIB was formed by the medical directors of some 15 life insurance companies back in 1902. These medical directors were concerned because their companies had lost substantial sums where omission and fraud had gone undetected during the underwriting process. There was a precursor organization, and it had the very positive title of, The Rejection Bureau, and that was constituted back in 1897. It used one of the first commercial applications of the Dewey Decimal System, or a system similar to that. That gives you a little background as to how this organization was conceived and operated.

MIB is a not-for-profit industry association. We're owned by some 600 life insurance companies in the U.S. and Canada. Our headquarters are in Westwood, Massachusetts, and we also operate a satellite office in Toronto for our Canadian member companies. A key date in MIB history was back in the early 1970s, when the database was automated. Prior to that time, MIB existed on three by five cards that were strategically placed around the country. Clerical staff performed a manual

search by running up and down the aisles of these file cards to pull the records and ship the results back out to a company via the postal service. Where there was particularly high demand at some of the larger companies, they actually had their own file card system, and a central location would update the files on a periodic basis.

Another key date in MIB history was when, in 1972, the Center for Medico-Actuarial Statistics was formed at MIB. This arm of MIB has been involved in performing many of the statistical studies that are of value to the industry and to the medical profession.

MIB is a unique industry resource, and I say that from the standpoint that we're kind of a choke point for the industry. Very few applications are underwritten in the U.S. and Canada without a search of MIB. We process, on average, some 65,000 searches per day. This is a universal process within the industry. It is sort of a central choke point.

MIB is one of the pulses of the industry. As the industry has seen its application volume decline over the past couple of years, MIB traffic has declined as well. We went from a high of 100,000 searches per day, and we pretty much bottomed out around 65,000 searches per day. We're seeing some upswing in some of the current search activity that's coming into the MIB system.

What I'd like to do is give you an overview of many of MIB's services and give you an idea of how they come into play within an underwriting operation. MIB's primary business service to the life insurance industry is what we call the MIB checking service. It is nothing more than a shared database containing reports that are of significance to the underwriting process. Through this shared database, MIB facilitates the exchange of confidential underwriting information among its member companies, and it serves as an alert to applicants who may omit or attempt to conceal facts that are essential to the underwriting process. There is a risk classification process, and when a company uncovers something on an MIB report, through an MIB report alert, it can hopefully attempt to assign the proper risk classification to that individual. We have some 600 life insurance companies in the U.S. and Canada, and as part of their underwriting process, if they uncover something that is of significance to underwriting, something that affects mortality or morbidity, as part of their membership in MIB, they're required to make a report into the database. That information subsequently becomes available to other companies if they receive an application on the same individual. An individual can come to one of your companies and something might be uncovered in the individual's medical background that may cause you to rate differently or reject the

applicant. What's to prevent that individual from walking down the street to the next company, submitting an application, and not being totally honest on the application? MIB serves as an alert if individuals are not honest on the application for insurance. It's a simple system that has worked quite well. I have very few underwriters who would even consider doing without it. In fact, most underwriters that I talk to say that a company is crazy if they don't do a search on each and every one of their applicants for insurance.

There are approximately 220 codes that describe conditions that affect mortality and morbidity. There are also codes in the database for other underwriting considerations, such as results of medical tests, supplementary issues, such as an adverse driving record, criminal activity, or hazardous sports.

From the Floor: Do you update the driving records from the states?

Mr. Detwiler: No. It's solely reported by the company. In other words, if the company uncovers something that affects driving, they're obligated to put a code into the file. Participation in hazardous sports, overinsurance, and so forth are supplementary areas.

The coding system is broken into major bodily systems. If you have additional interest in some of this, I would suggest that you spend some time with one of your underwriters who could walk you through exactly what the coding list covers. MIB is one of the industry's largest cooperative efforts against fraud. Companies that participate in this thing agree that it is a good thing that they should be doing.

The next service that I'd like to talk a little bit about is an ancillary portion of the MIB checking service. We call it the Plan F follow-up service. It is designed to give a company a second chance at underwriting by giving them any new reports that come into the database during the two-year contestable period that is common to most insurance policies. It serves as an alert to cases where policy rescission might be an appropriate action. By setting a flag in the inquiry that a company submits to MIB, we spin it off into a separate file, and each night as the updates come into our database, we run that individual's name up against the new data that comes into the file. If we have a hit, we send it back out to the company that performed the initial inquiry on the individual. The Plan F follow-up only costs eight cents. What you get back from MIB is a copy of your original MIB checking service inquiry, any new coded reports that triggered that reply, and a copy of all other coded reports that exist on that individual at that time.

There is tremendous potential for savings. We recently got a report back from one of our member companies in Texas, where the Plan F reply that they got back from MIB triggered a follow-up investigation on the individual. They rescinded a $1.5 million policy, and within about three months, the individual was dead. That $1.5 million probably will pay for their MIB membership for the next 20 years. Plan F is probably the only source of data that's available to an underwriter after the case has been issued.

One of the things that we've uncovered as we've been traveling around the country and visiting with some of our member companies, as part of our marketing efforts, is that some of the larger companies had actually stopped using Plan F. One of the reasons that was given to us was that, quite frankly, they got so much volume back that they couldn't follow up on all of it. With all the cost cutbacks in some of the insurance companies, they just didn't have the staff to devote to this manual process of going out to a file to see if they issued a policy on the individual, and looking up the severity of the code that was reported back to them in the plan.

From the Floor: Where does this subsequent information come from? Did the insured reapply for insurance.

Mr. Detwiler: The insured reapplied for insurance at another insurance company. When an applicant figures that they have put something over on the first company, he or she just does it again. If the first company had requested Plan F as part of its initial inquiry, it would get a report back telling them that there's new information on this individual. Different companies will do different things. Some companies will mark a case for nonreinstatement should the policy lapse. Other companies will institute a whole new underwriting review of the case, depending upon the severity of the codes that they're getting back as part of a Plan F reply.

From the Floor: This information could come up daily for up to two years from the initial inquiry?

Mr. Detwiler: Yes. It corresponds mostly with the contestable period.

From the Floor: What percentage of the U.S. industry is not a member of MIB, and would not get information from their underwriters?

Mr. Detwiler: I think that one of the things that you have to look at along those lines is there might be as many as 1,200 carriers. As you look at some of those numbers and begin to scrutinize them, you'll see shell or inactive companies. Based upon the reinsurance activity that is out there, the direct company will do its

own search, and the reinsurer will also do a search. If the reinsurer is not an MIB member company, and if they're doing medically underwritten business, the reinsurer will do a search. So we figure that the percentage of medically underwritten business in the U.S. and Canada that gets searched against MIB is pretty high, and thus would be reportable into MIB. I would say the percentage of medically underwritten business in the U.S. and Canada that is run up against the MIB is somewhere in the low to mid 90s.

From the Floor: Does MIB follow up to see if the policy was taken or is this strictly medical?

Mr. Detwiler: It doesn't matter whether the policy was taken or not; if they've performed an underwriting investigation and uncovered something that was of significance to underwriting, they're required, as part of their membership in MIB, to put a report into the file.

From the Floor: Is there still a record of this person applying for insurance?

Mr. Detwiler: No. In fact, if you look at some of the statistics on MIB, you'd see that we probably have records on only 3% or 4% of the U.S. and Canadian population, yet we get a reply ratio of about 22%. It's up to the company to determine if that is the same individual for which it is getting an alert from the MIB. One of the things that is of significance here is that companies don't underwrite based only on MIB information. The MIB information is considered an alert. Consequently, a number of companies may go out and order additional underwriting requirements to validate the contents of the MIB report. As much as 8–10% of the underwriting requirements are ordered based upon the contents of an MIB report. The company is trying to go out and validate the contents of that report.

From the Floor: Can a company reject solely based on MIB?

Mr. Detwiler: No. In fact, we do have a process in place that if they can't validate the information contained in the MIB report by other means, we have what we call a Request for Detail procedure. In other words, the company comes back to us and says, we can't find any information on this individual. Could you go back to the reporting company and have them give us an update on where that information came from? Perhaps companies will share the contents of their underwriting file with the current company. Unfortunately, this is a voluntary procedure, and some companies respond very quickly, and other companies respond quite slowly. It's probably the number one complaint item that we get from the industry, but until

they make this a mandatory type of thing, where you're required to respond to a company that has requested detail on a report that you put into the MIB file, we're probably going to continue to hear some of the frustration. I guess one of our roles is to more or less play cheerleader in the process. If you request details on somebody, you should respond with the same urgency that the other company would like to have.

One of the things that we're trying to do at MIB is allow companies to establish a Plan F filter. It's designed to allow companies to establish tables whereby MIB would filter out insignificant codes. The company would only see information that was of significance where policy reinstatement or nonrenewal might be an appropriate action to take. We are in pilot stages with this, and we hope it will be active in the fall of 1998. Some companies stopped using the Plan F service. It represents a significant revenue stream to MIB, and we think we can add value to the process again by just providing what the companies feel that they can take action on.

The next subservice of the MIB checking service that I'd like to talk a little bit about is the insurance activity index. As Rick was asking, how many applications are searched against MIB? We really have no great gauge of that, but we suspect that it's in the 90s somewhere. If you consider that the vast majority of the insurance applications are searched against MIB, you'd see that we have a very good read on the new individual's application activity. Unusual application activity can be a good indicator of fraud. The Insurance Activity Index (IAI) is designed to give you a read on unusual application activity by providing you with a report of the number of times that an MIB checking service inquiry is made on your applicant. It helps to identify individuals who may be attempting to overinsure by acquiring multiple policies at multiple insurance companies. How does it work? In a one-step transaction, they can set up an inquiry that would go out and search the MIB checking service file to come back with any coded reports, and hit our IAI file to go back with any checking service inquiries that were made on that applicant within the last two years. It adds only five cents on to the cost of a company's inquiry.

What does it give you? It gives you basic identifying information on the applicant, the dates of the other checking service inquiries, and the type of company or line of business on which that individual is inquiring. What we've tried to do with our line of business codes is to allow an underwriter to develop, in the back of their mind, some sort of a scenario as to what might be going on with that particular applicant. Is it significant that the guy has applied for one life insurance policy, and you see a life direct search against MIB, and then a life reinsured search against MIB? That would happen if the direct writer has hit MIB, and then the reinsurer has hit MIB.

There might also be a disability application that might have been searched against MIB as well. What we've tried to do with the line of business (LOB) codes is to allow the underwriter to develop some sort of scenario as to what might be going on and try to explain some of the application activity.

I took a call last week from a company. It uncovered an agent down in Florida who was submitting applications on some older people. We did extended searches on the individual, and there probably were 22 small policies that were applied for on this older individual. We're not exactly sure what's going on, but it certainly smells fishy. It smelled fishy enough to the chief underwriter of this company that he gave me a call.

I'm not sure I understand everything we're seeing. It has been put to me that it's related to some of the demutualization of some of the insurance companies. We've seen applications applied for at many of the companies that have said that they are demutualizing. The only thing I can figure is that somehow they figure that they're going to be in some sort of superior position with respect to buying stock in that company at a time when they actually go through the demutualization process. Some of that activity is pretty significant, and we can certainly track it, by using certain names, in the MIB file. The Insurance Activity Index is designed to help companies detect applicants who might be circumventing the typical underwriting procedures or flying under the radar at a level where blood tests or some of the other testing isn't done. It alerts you to people who may be applying for multiple policies at multiple companies. It was recently enhanced to include additional LOB codes for long-term care, critical illness, policy maintenance, so that as a company is doing their MIB inquiries, they should be telling us why they're doing these inquiries.

One of the things that's currently on the drawing board is the MIB enhanced IAI service. It allows a company to set up filters at MIB so that only significant application activity would be shown. I get a report every month from our operations area that shows that there are probably a thousand people running around the country with what we would consider to be very unusual application activity. It's significant that many of the companies don't know when they're getting hit with some of this unusual activity. It's designed to allow them to set a threshold and apply a filter so that only if the activity is in a specific line of business, would they received the IAI alert and get an IAI follow-up report. One of the problems with IAI, quite frankly, is if you're the first one in, and the first one to do the search, you may not be notified.

The most significant case that we've run across with IAI occurred a few years back. One of our member companies contacted us and indicated that their computer system had stopped operating. It stopped operating because of the volume of IAI reports that they got back on the individual. The programmer hadn't allocated enough space within his catcher's mitt at the company to receive the volume of IAI reports that came back on this particular individual. We began tracking it. In September 1994, there were some 26 inquiries that had been instituted on this individual. The first one had hit the MIB. Between July and September, there were 26 applications submitted on the individual. Around Thanksgiving time, we were up around 75 applications. At Christmas, we were around 100, and it finally topped out in the spring of 1995 at over 150 inquiries (25% of the MIB membership had an application submitted on the individual). What was significant is that there were no coded reports in the database at that time, but there were a number of companies searching on the individual. They all hit MIB. As we tracked the case, there were over $7 million worth of insurance issued on the individual. If you added in the AD&D, there was over $11 million. It finally ended up in federal district court. We became aware early on that it was not the guy himself who was submitting all these applications, but an ex-spouse and her son. We had visions of this poor guy walking around with big concentric circles on his back. As we looked at the case in retrospect, the companies that ended up issuing were those that didn't use the IAI service. It's a nickel that probably provides great bang for the buck if you're willing to spend a few extra minutes looking at what the IAI report gives back to the underwriter.

The next service that I'd like to talk a little bit about is what we call the disability insurance records service (DIRS). It is specifically directed towards individual disability underwriting. Through this service, MIB acts as a clearinghouse for who has underwritten disability insurance on their applicant. It's nothing more than a shared database concept applied specifically to disability insurance. It's designed to alert companies to disability insurance (DI) applicants who may be attempting to overinsure themselves and commit fraud. We've built it into a combined search type of situation, where, for one inquiry, a company can hit both the MIB checking service database and the disability insurance record database. If there are coded reports in the database, they get them back. If there's a DIRS report in the file, they get a DIRS report back. An inquiry costs 38 cents. In addition to basic applicant information, they get back other inquiring companies' names, the benefits applied for, and the benefits that are admitted to being in-force on the applicant.

The next service that I'd like to talk a little bit about is what we call our Alpha Index Services, or ALPS. It is probably not significant to people on the actuarial side of the house, other than the fact that it is a core framework technology at MIB. It

utilizes our premiere name searching technology. If you're not familiar with MIB, we basically search a very large database, and we are able to come back with hits and tries with nothing more than the individual's name, their date of birth, and place of birth. We come back with a high probability of a match. So what we've done is taken that core technology and split it up to allow companies to apply it and outsource some of their Alpha search requirements to MIB. In fact, some of the largest companies in this industry maintain their Alpha files at MIB. In other words, they feed us a name, and we feed back the policy number to them. So essentially what they've done is given us the names of their policyholders, and associated a policy number with that individual, and we feed information back to them that they may decide to associate with that name.

It's a private database that typically contains a policyholder's name and is used to associate with the policyholder number. It's normally used to correlate a name with a policy number. It can contain other information that a company might want to associate with a name. One major company uses it as sort of their own private underwriting file. It has implications for use currently in a typical situation that we find in an insurance company today, which is when it has split things off and segregated its business. You have a life insurance administration system, a disability administration system, a property and casualty administration system, a mutual fund administration system, and the systems don't talk to one another. There is no way of cross-referencing these files with one another to come back with a policyholder profile at the companies.

Companies have fed all this information into an ALPS file at MIB, and by submitting a name to the search, they come back with all of the policyholder numbers that might be associated with that individual. Companies can then go back and search the various systems. We've put it into a combined search, where they can check the MIB file and also search the private ALPS file and come back with underwriting information that might be specific to a case that they have already underwritten on that individual. The primary reason that I mention ALPS is that it is a core technology at MIB, and it's flexible enough to provide a base where MIB can enter into new databases very quickly. It also can provide a framework for some of the Center for Medico-Actuarial Statistics (CMAS) statistical studies.

Everything that I've been talking about has been directed toward the underwriting side of the house. I'd like to give you a little background on MIB Claims Services. We have operated the Health Claims Index (HCI) since 1978. It's nothing more than a shared database containing claims. Today it is primarily used for disability claims, and it's designed to alert companies to unusual claim activity. If companies do not catch overinsurance situations in the disability arena at the time of entry,

they have the ability, through participation in HCI, to alert themselves at claim time to somebody who might have loaded up on disability insurance policies. What does it give a company? We give back to a company basic claimant information, such as the names of other companies, their policy or claim number, the type of coverage that was involved, individual disability, group disability, credit disability, and waiver of premium. They get the report date, the date that the report was made to the file, and the claim date of loss. What a claim manager might do with this information is try to line up the information that comes back in the HCI report with what they're getting on their claim form. If there is a match and the claim smells fishy, they've got the name of the other company right at hand so they can go out and begin talking with the people at the other companies to determine what an appropriate action might be.

The Health Claims Index is a quick and effective way to determine if a claimant has made claims against other companies. It helps to eliminate some of the calling around that claims managers find themselves doing from time to time. In a typical situation, you might get a claim in that smells fishy. You pick up the phone and start calling some of your buddies over at the next insurance company to see if they have a claim from an individual. It can help to overcome some of the time constraints on settlement. Some of the insurance jurisdictions require that you pay interest if you're not paying your claims in a timely fashion. Companies often report to us that they're able to share the costs of some of the investigative services that they get involved with. In other words, if there are five companies that have claims on the same individual, why institute five different claim investigations when one might do, as long as the companies agreed to share some of the costs of the investigation? HCI can help a company reduce some of its outside investigative needs. HCI also offers a free follow-up service for two years. If you search one day and there's no information in the file, or if something new comes into the file during the following two years, we automatically ship a report back out to the companies.

One of the new initiatives that we have underway is what we call a life claims index. MIB undertook a joint study with the international claims association to try to figure out if the industry felt that it was appropriate to establish a central life claims file. We did a fairly extensive study, and about 42% of the companies said yes. About 23% said they would do it if other companies do it. This is a typical situation that we run across at MIB. It's sort of marketing by consensus. If it's a shared file, you have to get as many players into it and as you can in order to go ahead with it. Many of the nay-sayers were basically some of the smaller companies that just didn't feel that it would be worth the effort for them to participate in it. We are proceeding with it.

Some of the benefits of a centralized life claims file would be fraud detection and deterrence. One of the primary areas might be some of the foreign death claims that companies have found themselves involved with. There's potential for cooperative industry action where fraud is detected. It may serve as a source for intercompany studies on some of the life claims information. I hope it will close some of the loop between underwriting and claims. MIB accumulates and provides some of the most widely used underwriting services at time of the inception of the policy. How do you tie that back into things at the time of claim? That's also on our radar screen as we proceed with this. There's a possibility of adding other value through inclusion of Social Security death file data. As we proceed with this, we are looking to other external sources of data and sort of melding it into this effort as well.

What I'd like to talk a little bit about is MIB communication services, our MIB-TRAN Communications Networking. It has some significance to the actuarial community and to our CMAS area in terms of what we are capable of doing in terms of studies. A funny thing happened on the way to automation of the MIB back in the early 1970s. There is a universal process that takes place at almost every insurance company in the U.S. and Canada. Early on, we began hooking into our companies' first terminals, and then later, through mainframe communications, and more recently, with LAN-level communications, into our member companies. One of the things that was happening was that a communications network was forming with MIB as a central hub. Back in the mid-1980s, MIB opened its network, which is its communications systems that it built in support of its own business processes, to be used with outside vendors and other communications that have significance to the underwriting process.

MIB currently has achieved one of the highest levels of Electronic Data Interchange (EDI) connectivity with its own services. About 75% of the data or the searches hitting MIB on a daily basis come in computer to computer. It's merely a byproduct of an application hitting a company's new business system. In other words, behind the scenes, what is happening with MIB—system, the date of birth, so forth, it's stripped off and written to a search file that winds its way into MIB. We do our search magic and return the replies directly into the company's new business system. There's all levels of things that are done with these search results. Some of them are just merely printed on underwriting worksheets. Other companies take them and feed them into expert systems, where they are evaluated by expert systems, and so forth. But MIB probably has achieved one of the highest levels of electronic data interchange for its own services.

Today, MIB-TRAN is a full-scale data communications service that allows companies to leverage their communications software that they already have in place, and run it in support of MIB transactions for communications with MIB database services, with information providers, and handling transactions between home and branch offices. The reinsurance industry is one of the heaviest users of the MIB-TRAN service and it offers acceptances. Ceding notices are one of the heaviest pieces of traffic flying back and forth across the MIB-TRAN network daily. The system allows companies to communicate with one another, and most recently, the system is being used to handle agent and broker traffic into MIB.

How does the MIB-TRAN network service operate? If the company is mainframe-based, they hook into us through a piece of software that we call MIB-COMM, and we have the ability to transact business with agents and agencies, reinsurers, laboratories, parameds, inspection companies, motor vehicle report vendors, FAX machines, other vendors, other members. If they're communicating from a LAN environment, we have communications software that's designed to hook right into a company's new business system running on the LAN level. At the lowest level of the spectrum, we have the MIB terminal system, which serves as a basis for some of the ad hoc inquiry traffic that we get from some of the member companies that fall outside of the normal business processing stream or for communications for transactions that are not easily automated or cost-effectively automated within a company's business systems. Most of the major laboratories are hooked into the MIB-TRAN service. We have several motor vehicle report vendors hooked in. Some of the inspection companies and paramed companies are hooked in. Most of the major reinsurers are hooked in. We probably offer the insurance industry one of the widest number of vendors that are hooked into any network anywhere. A benefit of MIB-TRAN is, through the industry's ownership of MIB, they probably have more control over the direction and scope of the MIB network than any other network that they may choose to do business with.

Where do we see the MIB-TRAN network fitting into the role that we have carved out for ourselves? It would be along the lines of some of the electronic future that is before us. Currently, we have a large volume of lab results flowing back to the member companies through the MIB-TRAN service. One of the things that they're doing as part of the preferred risk study is pulling some of the data, as they flow back through the network, and using MIB-TRAN as a source of data to feed some of the studies that we are actually doing for the industry.

I'd like to talk a little bit about some of the buyer studies that we would like to try to perform as we move into the electronic future in front of us all. In addition, one of the capabilities that we're looking to build into the system are agent studies. All of

this is being driven by things like alternative distribution channels that are being developed around the industry. MIB has been a central part of the business process. Companies have asked us to support some of their efforts to feed some of the point-of-sale types of markets. This would be banking, group work site marketing, and distribution channels. And it's all based upon the premise of what happens if you take and interject MIB into the flow. The typical communications stream has been an agent in the field and you have the home office. Somehow that application ends up in the home office. Then, the company spins off a search and transmits it to MIB, back out to the insurance company and if everything goes well, the policy will end up back in the agent's hands.

What happens if you take that model and interject MIB into the flow between the agent and the company? Many things become possible. In the fall, we hope to be in a pilot phase to receive an American National Standards Institute (ANSI) X12 insurance application from agencies. This application would flow through MIB. We'll then have the ability to configure ourselves as sort of a clearinghouse. If a company configures at MIB parameters for ordering underwriting data, the ability to transmit some of the requests for other underwriting requirements out to the vendors and hopefully receive that information back out at the insurance companies, can all flow through the MIB network. Things like agent studies and buyers' studies is configured in the ANSI X12 application.

What kinds of things is the actuarial community interested in trying to study? Much of it is currently flowing through the MIB network. We see more and more of it flowing through the MIB network as we move into our electronic future. I'd like to turn you over to John Avery who will discuss some of the role of MIB's statistical services from the CMAS.

Mr. Luff: I'll mention that John joined MIB in 1971 as a senior systems designer, and became the director of the MIB CMAS in 1981. Prior to joining MIB, John was staff programmer analyst at MIT's Lincoln Laboratory, and a systems programming manager at Key Data Corporation. He's a graduate of Northeastern University in Boston, with a B.S. in mathematics and a minor in physics. He also attended Northeastern University when pursuing his MBA. He's a member of the Association for Computing Machinery, the Home Office Life Underwriters Association, and is an honorary member of the American Academy of Insurance Medicine. I've worked with John for the ten years that I've been at the Society office, and a few years prior to that when I was on various Society committees. As you've heard, John's going to tell us about the activities of the CMAS.

Mr. John R. Avery: When I talk with people, they ask me what I do for a living, and I say, "I'm the director of the MIB Center for Medico-Actuarial Statistics." After they've absorbed that mouthful, they obviously come back to me with a few questions. First, they ask what is the purpose of this group? They want to know what and how I do this kind of work. I generally try to give them a basic statement of purpose about the CMAS, that it is a central bureau for the computerized processing, production, and publication of experience studies.

John gave you a broad picture of MIB and all its services, and what Stacy and I are going to do is give you some information about the CMAS. In many ways, probably the CMAS is less known than even MIB. That is probably with the exception of that small group of actuaries, underwriters, and medical directors who are actively involved in the production of experience studies. What Stacy and I hope to do is to heighten your awareness of CMAS as an information resource to help you do your jobs. In some ways, CMAS has had a very close relationship with the actuarial profession. It's the only group within MIB that has really has been associated with the actuarial profession. We are dealing with people like Jack Luff on an almost day-to-day basis.

I'm going to give you a brief history of the development of CMAS. I want to put that into context for you. I just want to briefly cover some of the past and current activities of CMAS. Stacy will focus on where we are going in the future with the CMAS. I'm going to just talk briefly about the joint industry and Society studies. I want to get into a little bit about the actual processing of studies because I think there are some questions that need to be answered there. This will lead us into what is known as the Impairment Study Capture System (ISCS), which is a system that we have at MIB for the collection of data for medical impairment studies. It represents the new methodology. I'm going to talk about sources of information and data.

There are a lot of questions about how MIB, and CMAS, in particular, touches your life as an actuary. Maybe you are an actuary in a company that is an experience study contributor. Maybe some of you are members of experience study committees. Then again, maybe you use CMAS information and you really don't realize where it came from or who actually produced it. And I think there are some real questions that you have to answer for yourself when you go back to your company. What I would like to suggest is that you ought to go back into your company and find out what studies your company does contribute to because there may be a surprising amount of information that is hidden in your company that really does not get distributed to you for your own professional use. There are many advantages to being a contributor. There are many advantages to being a

committee member. Some of this has to do with early access to industry results before they are officially published. If you're a committee member, in particular, you have some input into the actual design of the study. Maybe there are some special parameters that your company would specifically be interested in, and maybe that can be added to the base study that we run for the Society of Actuaries. As a committee member, you might be an author of a final report. Some people in the audience here have had that particular experience. MIB has encouraged committee meetings to be held at MIB. A number of people have been to the MIB facility in Westwood, Massachusetts. I think this has been an opportunity for them to learn more about us. Basically, CMAS represents 5% of the MIB operation.

CMAS was founded in 1972. At that time, there was a liaison committee of actuaries and medical directors, and they made a proposal to the MIB board, who, in turn, hired a consultant. The whole idea was to use the spare time on the MIB computers to process experience studies. At that time, most insurance companies who were acting as the compilers of studies no longer wanted to do those studies, so the actuarial profession and the Medical Directors' Association were looking for a way to continue to run those particular studies. They looked to MIB, and in 1971, CMAS was founded.

Our annual budget is approximately $1.2 million. That represents 5% of the MIB operation, which is somewhat over $20 million. Revenues come from two sources; the first is the 8% surcharge on the MIB basic charge, which basically funds the studies that we do for what is currently the mortality and morbidity liaison committee. This particular committee now includes three underwriters. We also do many of the Society of Actuaries' experience studies. We are estimating that our 1998 revenues from the Society are going to be about $375,000.

There are currently nine members of the CMAS staff, including myself. We have a four-person applications group, which actually processes the studies. I have a three-person graphic systems group, which deals with all of our publications and the books that we produce. This includes a lot of expertise in desktop publishing. Last October we formed a marketing consulting group, of which Stacy is the manager. We are right in tune with the new marketing and visibility philosophy of our MIB board. As of May 26, 1998, MIB has a new president. His name is James Cook. He has a marketing background and came from the banking industry. He has headed up one of the large units of TRWs Credit Bureau services, and he is also very interested in technology and has a great deal of expertise in that area. That ties in with expansion of a lot of the services that John was talking about earlier.

MIB operates two large mainframes. There are two DEC front-ends, which tie in with the one thousand IBM PCs that are out there with MIB software on them. And we have EMC RAID technology storage that we use. Next month, we'll be literally doubling the capacity of the mainframes, and the EMC RAID technology storage. Within our group, we have a mix of IBM and DEC PCs, and we use a DEC Ethernet LAN in-house. And MIB also has an uninterruptible power system, which basically has the capability of powering everything that's in the building. CMAS's primary software tool is the Statistical Analysis System, which many of you may be familiar with and use in your practice. That is a product that we've been using since 1983. Obviously, we use a lot of different systems at the mainframe level, the PC level, and the LAN level. But SAS is our main product.

If you went back in history, you'd remember that the very first project that CMAS did for the liaison committee later turned out to be the two books, the *1979 Build Study* and the *1979 Blood Pressure Study*. In the late 1970s, we also did a study of atrial fibrillation. Its significance is that it is the first study that actually used the MIB database to locate cases for an experience study. The significance of that also is the fact that we are currently doing an alcohol abuse and liver enzyme (AALE) study. Stacy is going to go into that in a little more detail. It is an updated methodology that we used way back in the atrial fibrillation study. Most of you are familiar with the *1983 Medical Impairment Study* from Harry Woodman and his committee. That book was published in 1986. In 1990, CMAS published *Medical Risks: Trends in Mortality by Age and Time Elapsed*, which are the two big blue volumes that I think most of you are familiar with. Most of that book was phototypeset right within our company in the late 1980s, and that was the start of our venture into desktop publishing. In 1991, I worked with two doctors to produce the *1991 Compend of Mortality and Morbidity*, which is a supplement to the 1990 medical risk book. That was the first book that was totally phototypeset within MIB by our graphics group.

In terms of Society studies, in the past, we have been involved with individual and group life studies and individual and group annuity studies. We did the Society's structured settlements study. The very first study we did, in 1977, when we first started with the Society, was the individual disability study. We've branched out into health studies. The 1993–94 *Transactions* contains the 1986–92 Long-Term-Care study. With Stacy's expertise, we have branched out to do financial studies of things like the private-placement bonds and commercial mortgages.

As I mentioned, these are the things that are in the pipeline. I want to specifically focus on two books for which MIB and CMAS are going to be the publishers. The first is the *Multiple Medical Impairment Study*. Many of you may already have

placed an order for that book. I hoped to have it out in December 1997, but it's a very complicated book. We're in the final stages of typesetting and approval. It looks like that book will be out about mid-August of 1998. *A Descriptive Index of Mortality Studies from Selected Sources* is an index that I'm putting together with two doctors. It is an index for all of the industry bibles. What that really does is ties all of the books up through the *1991 Compend of Mortality and Morbidity* together into one index. We are also considering, right now, another compend.

There is also the Impairment Study Capture System (ISCS). This is the first study using the ISCS database. We have done some preliminary processing on an elevated blood pressure study. I also mentioned an alcohol abuse and liver enzyme study. We also hope to try to fill the gap between where the *1983 Medical Impairment Study* left off, and the ISCS system picks up. We will be going out with a request some time in the fall to try to get issues going way back into the late 1970s, all the way up through 1990.

I did want to focus a little bit on the experience study methodology, because I am constantly asked why it takes so long to do these kinds of studies. If you look back in history, you'd see that some of these studies stretched over seven years, eight years or more. There are three phases and 14 steps that are involved in putting together any kind of an experience study. They are listed below:

Data Definition and Collection Phase
1.	Develop a set of instructions.
2.	Mail a set of instructions to potential contributors.
3.	Develop programming systems to validate, edit, correct, and summarize each contribution received.
4.	Validate each contribution received and produce Summary reports for committee and contributor review.

Processing and Analysis Phase
5.	Establish mathematical methodology (e.g. basic tables, weightings, etc.)
6.	Select parameters to be studied based on individual contributor Summary Reports.
7.	Design table formats.
8.	Develop programming systems to produce study tables.
9.	Produce study tables for committee review.
	- All companies combined tables
	- Individual company tables
10.	Committee writes final report for publication.

Publication and Distribution Phase
11.	Text and tables transferred to PC-based desktop publishing system for book design, formatting, and proofreading.
12.	Indexes: Subject and Author
13.	Phototypesetting, printing and binding
14.	Publicity and distribution

When you really analyze these individual steps, you find that this data definition collection phase can take two to four years or more. This is where the preferred underwriting study is right now. They've been involved in that phase for at least a couple of years now, and we're still defining specifications and working with pilot companies on that study. When people ask, why is there no current study of something, my answer is, there is no such thing as a current study; there's only a most recent study. That is the best you can do. Look at the various steps in the methodology, and everything that's involved, and how long it takes companies to put contributions together. If any of you have ever been involved with the publications process, you know what a nightmare that can be on occasion. This is why these projects stretch out over long periods of time.

The last three medical impairment studies that the industry did were done in 1929, 1951, and 1983. There's a big gap between them. Metropolitan was the compiler for the first two. The 1929 and 1951 studies were not computerized. So the 1983 medical impairment study is really the first computerized medical impairment study that we did. It was the first one that dealt with seriatim records. The trend was to study 150 impairments after you spent three or four or five years going back to the companies and collecting data. That is not the strategy that we're using in what is known as the Impairment Study Capture System. In the ISCS, we are collecting data on an annual basis. One of the main things that we've found in dealing with Society of Actuaries studies is that even though we might be running a group annuity study, for example, every two years, we would request an annual contribution. That same concept is being applied here. Hopefully, this will assist companies in being able to contribute to these studies. What we will probably be doing is studying five or ten impairments in great detail every year for this ongoing database. Right now, we have collected over a million records, starting back in 1989. Some of them have a short duration, but we have approximately 36 companies and about 80 MIB symbols for which we're actually collecting data, and we continue to expand on that.

One of the main purposes here is to use a standardized submission format. What we have done is piggyback off of the Society of Actuaries Supplemental Record Format, as we call it. That is the basic record that's used for all of the Society of Actuaries' individual life studies. What we have tried to do with future medical impairment studies is achieve a measure of compatibility with current Society individual life studies. We are piggybacking off of MIB reports. We are creating a separate file of MIB reports for those 36 companies and 80 symbols that I mentioned. One of the things we are saving is an application control or policy number that the company has to send in with the report. The reason why we create

the separate file is that this number does not go into the MIB database, and so we create the separate file. When we go back to the company, that is the number that the company uses to actually tie back into their own statistical files. In-house, we have a weekly and monthly cycle where we basically piggyback off of the ongoing MIB online operation and all of its back-up procedures. On an annual cycle, we go back to a company with two files. For instance, we will go back to you with your calendar year reports for the year 1997. What we are asking you to do is create a policy record for each MIB report where a policy was actually issued, and then send that policy back to us. There is a second file that represents the policy records that you established in prior years, and we simply ask you to provide any kind of updates. When we send these tapes back to you, particularly that first year, we are sending back a preformatted record, where we are simply asking you to fill in as many of the fields as you possibly can.

Now, there are many benefits to this. We have an annual, ongoing framework here for the production of these studies. As I mentioned, ISCS provides a lot of standardization of record formats. In what ways can we assist the insurance industry in justifying the existing risk classification system? Obviously, producing timely medical impairment studies is one of those ways. If you are a participant in this, your company's data obviously are included in the tables that are going to be reviewed by regulators and government agencies. In addition, your data will be going into any kind of future basic tables or valuation tables that may be developed. One of the most important things I want to emphasize to you is that you get your own study. You'll get the all-companies-combined tables, but if you are a participant, you will get those same tables that contain just your data. Essentially, you'll have a private study done for you as a by-product of the all-companies-combined study that is ultimately going to be published by the Society.

Tables 1 and 2 include various data sources at MIB. When you add them all up and back out records used for multiple studies, you get approximately 400 million records from about 140 companies. So there's an impressive amount of data at MIB that we have collected over the last 20 or 25 years or so. Now Stacy can talk a little bit about the future.

TABLE 1
CMAS DATA SOURCES
STUDIES—MORTALITY AND MORBIDITY LIASON COMMITTEE (MMLC)

STUDY	YEARS	RECORDS
1979 Build Study	1950–72	4,200,000
1979 Blood Pressure Study	1950–72	4,350,000
Atrial Fibrillation Study	1968–76	18,300
Framingham Study	1950–78	5,209
(26-Year Follow-up File, 14 Exams)		
St. Luke's Hospital, N.Y.C., Coronary Bypass Surgery Study	1970–73	748
1983 Medical Impairment Study	1952–77	1,387,500
(Volume I-Single Medical Impairment Study)		
Multiple Medical Impairment Study	1952–77	507,100
(Volume II of 1983 Medical Impairment Study)		
Impairment Study Capture Systems (ISCS)	1989–96	1,106,400
Elevated Blood Pressure Study	1989–96	180,600
(based on ISCS data)		
Alcohol Abuse and Liver Enzymes Study	1989–95	131,400
(AALE Study)		
New Medical Impairment Study	1977–90	-

TABLE 2
CMAS DATA SOURCES
STUDIES—SOA EXPERIENCE COMMITTEES

STUDY	YEARS	RECORDS
Annual Ordinary Individual Life Studies	1985–96	350,000,000
Company Comparative Mortality Study	1985–96	350,000,000
Cause of Death Study	1985–96	3,000,000
Auxiliary Individual Life Studies	1987–96	325,000,000
(Seriatim Record Contributions-Lapse, Large Amount, ADB, Waiver of Premium, etc.)		
Group Life Study	1985–89	2,934,000
Individual Annuity Study	1977–91	914,000
Group Annuity Study	1982–96	8,000,000
Structured Settlements Study	1986–95	115,000
Individual Disability (Loss-of-Time) Study	1974–91	10,000,000
Group Long-Term Disability Study	1979–82	642,000
Long-Term Care Study	1986–95	5,142,000
Asset Risk Private Placement Bond Study	1986–94	140,000
Asset Risk Commercial Mortgage Study	1986–92	80,000

Mr. Stacy J. Gill: I'd like to talk about some future directions for mortality and morbidity studies and so forth. John Avery just described the ISCS methodology, and the Alcohol Abuse Liver Enzyme (AALE) methodology, which are basically new ways to gather data. One of the problems that we have with experience studies is the timeliness factor. It's very difficult to get timely studies for everyone's satisfaction. A large contributing factor to that is the difficulty in gathering this type of data reliably, credibly, and with a broad enough base to put together something that will approximate industry experience.

We would like to try to simplify the data contribution, where we use alternative data sources. We don't have to send a big stack of paper to a contributing company and say, "Here's a data specification. Put this on the pile of things that your data processing people have to do, and get back to us as soon as you can with these data." We would like to piggyback data gathering on other business functions. We would like to do it in two ways for mortality studies. There's a lot of information up-front at the underwriting part of the process. We'd like to capture that. Much of that data goes away upon issue of the policy. So it's very hard to go back and recapture once the policy has been placed. The value of that underwriting data diminishes rapidly, for business purposes, within the company. We'd like to get our hands on it up front for study purposes. On an ongoing annual cycle basis, with this update element, we would follow up with policies in force. We would track terminations, and we would track deaths, and we would track changes in the characteristics of the policy that are relevant for the mortality study.

I'd like to talk about one of the data screens for the Alcohol Abuse Liver Enzyme study. This was a methodology where we give companies cases that pop up in the MIB database that John Detwiler was describing, that showed one of four impairment codes that have to do with markers for alcohol abuse or liver enzyme test abnormalities. We send the data file to a participating company, and we say, "Here are the cases that showed up in the last seven years on the MIB database. Would you please investigate these and give back the current information on the policies that were placed for these things." Most companies in this group had a relatively small number of records.

We designed a PC-based input process. It was manual, but it was not that onerous for the companies because there were a relatively small number of records. I want to go through this methodology as a way of illustrating what we're trying to do in the future with respect to simplifying data collection, where we make very defined requests for data, use existing data sources (the MIB database), pull off relevant records, and ask for some current policy information. The impairment data and the test data would show not only the MIB report codes that cause it to pop up as an

alcohol abuser or abnormal liver enzyme test record, but also whatever other medical impairments were showing up as that case was being underwritten. There is input by the contributing company, whether the case is still current, whether it terminated, and if it terminated, the date and the cause of the termination of the policy. When we communicate this to participating companies, they fill it out and return it back to us, which gives us a chance to define a methodology going forward where we can address medical impairments and other types of mortality studies that are topical, that are current, and that are of current interest.

I'd like to get a little more feedback to get some ideas about future directions for the type of work that we do, particularly in the CMAS. John Detwiler talked about MIB and our unique position as an industry-owned association. We're in a central hub position of data communication within the life insurance and disability insurance industries. We have a very robust set of database services, which are shared, which make them unique in many ways. We have this MIB-TRAN Communication service that is not on the Internet, and that's very important, because there are certain drawbacks to communicating over the Internet that people are becoming more and more aware of. The MIB-TRAN Communications is designed without having to rely on that framework.

John Avery spent some time talking about the mortality reference works that CMAS has produced or has had a hand in producing with the Society of Actuaries and with the medical directors.

Past, current, and future individual mortality refers to this new methodology and framework where we're using other databases and other data sources to try to simplify the process of creating these mortality studies. Mortality is a very long-tailed animal, and it's very difficult to produce things on a fast basis, but we try to use different approaches for different situations.

Finally, CMAS has been around for 25 years and we are a well-kept secret. We're trying to increase our visibility so we can let people know we exist and that we have the capability to do some of the types of work that we do for professional organizations and for the industry. We have resources and availability for individual company type studies. I don't know if you'd call it outsourcing; we call it a resource. This is one of the directions that we're moving in, and it's very exciting for us at this time.