

# RECORD, Volume 23, No. 1\*

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Palm Desert Spring Meeting  
May 21–23, 1997

## Session 101TS Incurred But Not Reported Liability Estimation

**Track:** Health  
**Key words:** Health Maintenance Organizations

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*Summary: This interactive teaching session uses a combination of lecture, case studies, and computer modeling to introduce various approaches to estimating Incurred But Not Reported (IBNR) liability. This session includes suggestions for:*

- *development of completion factors using multiple experience periods,*
- *adjustments for changes in claims processing backlog,*
- *reviewing claim lags for aberrations in payment patterns,*
- *adjusting for seasonality in incurral patterns,*
- *developing projections for recent months, and*
- *analyzing trends in incurral patterns.*

*This session discusses other liability items typically found in a medical coverage program including liability for administrative expense of adjudicating unpaid claims, premium deficiency liabilities, liabilities for anticipated losses on conversion policies, and provider incentive liabilities.*

**Mr. James P. Galasso:** I'm a health care actuarial partner in the Atlanta office of Ernst & Young. I'll be leading the beginning part of the discussion. This is meant to be an interactive session, so please feel free to interrupt with questions.

Also working with me will be Martin Shipp with Ernst & Young in Kansas

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**Note:** Tables 1-4 are not available online. Please contact Linda Blatchford at 847/706-3564 or by e-mail at Lblatchford@soa.org for a copy.

City. To that point, I just want to make the observation that what we are lacking in organizational diversity, we are making up in geographic diversity.

We're going to start out fairly basic, and then move into some of the more technical issues surrounding IBNR evaluation and estimation. We will review the actuarial formula that we use in developing IBNRs and some programmatic tools that help us in the evaluation. We're going to spend the closing part of the session with a case study that will show some real numbers. We will also discuss the impact that IBNR estimation has on the general financial statements of an organization.

IBNR is essentially of a misnomer because many of the "nonreported" claims have actually been reported and are sitting in a claim shop waiting to be processed. Another somewhat trickier area includes claims that are often referred to as open claims; that is, claims that have been reported and processed, or perhaps semireported or semiprocessed. The most obvious example of this is hospitalization. You might know that someone's in the hospital, so you know a claim has been reported. But how long the person will stay in the hospital is unknown and requires estimation.

You also have to be aware of how claims are coded. Generally, in the hospitalization example, the claim is coded back for all the incurrals to the admission date of the hospital. It's incumbent upon the one doing the evaluation to have a good understanding about how the coding process takes place, and how long it takes for the claim being paid to actually be processed. Conceptually, a piece of the IBNR that you're estimating is yet to be reported, and another piece is reported but has not yet been paid.

Quite often, a benchmark number such as two months worth of claim payments is used as an IBNR estimate. But we have seen "months in IBNR" to be as long as six months and as short as less than one month. Two months is getting to be somewhat of a benchmark; i.e., an indicator as to what you might expect for a typical IBNR value. There's a lot of back and forth in the claim-paying process that may not be thought of as lag. But when you look at the actual results, incurral dates get spread out over the period of time a claim may be contested or appealed.

**Mr. Charles T. Doe:** When talking about developing these, just for the sake of definition of a paid claim, were you referring to the process date or the date the claim clears the banking system? For the sake of reference in the course of the discussion, it's going to make a big difference.

**Mr. Galasso:** That's an excellent point. It's up to the one doing the valuation to understand how the claims are processed and accounted for. You have to make

sure that whatever is booked to the general ledger in the financial statements is reconciled back to your estimation. The time between the claim being processed and the check being drawn is something that needs to be considered.

**Mr. William Allan Gilmore:** One thing I have discovered is that too often claims processing departments talk about how quickly claims are paid. That is, they are looking at claim counts and we actuaries are typically looking at claim dollars. It's always the big claims that take the longest to pay.

**Mr. Galasso:** That's another excellent point. One of the data items we're going to be looking at is claims inventory. The more details you can get on inventory, the more accurate will be your estimate.

All this contributes to why the process is so complicated, and why you really need to have an ongoing dialogue with the rest of the organization in terms of how claims are processed. For example, the claims department would certainly view a claim paid as one that is processed. But this may not accurately capture the check-writing process.

An issue that generates a lot of debate is whether an actuary should look at a financial statement while estimating the IBNR liability. I've always taken the position that it's extremely important that one do so. The flip side of the argument is that it could taint one's judgment in terms of estimation process. Perhaps the first and foremost thing you don't want to do in a claim reserve estimation process is to have the appearance that you are adjusting your estimate to some desired financial result. That's a very real concern that you must consider.

The problem I have with not looking at the financial during the estimation process is that financial statements often give many clues as to whether what you're doing makes sense. They might also lead to the identification of liabilities that you otherwise might not even realize existed. On balance, I don't think you can do a good job of estimating reserves without looking at financial statements.

An issue that's starting to pop up more and more is cash-flow testing. As companies strain every bit of earnings power out of their organization, more health care companies are extending their asset base to longer-duration assets. It used to be a given that health care companies didn't need to worry about cash-flow testing. Companies generally kept all their cash well-matched in liquid assets consistent with the short duration of the liability. We are seeing assets getting extended and the envelope being pushed further, so cash-flow testing is not just a theoretical issue any longer. You need to determine whether there is a mismatch.

What you often hear from the management of a company is, "If not for the IBNR, wouldn't we have had a great year. Our whole problem is the IBNR. Fix the IBNR and our company will be in great shape." The proper, but probably not diplomatically correct, response is a good laugh. A properly evaluated IBNR is not what makes for a good or a bad company.

Most actuaries evaluate claims incurred by reviewing the claim payments by incurral date through whatever period of time that may be available for the lag analysis. But in terms of the income statement, the impact is seen in terms of paid claims plus the change in the reserve estimate from the beginning of the period to the end of the period.

We're getting into the laundry list of data requirements that we like to have at Ernst & Young when we evaluate the IBNRs for our clients: lag data, enrollment, claim inventory, medical management reports (referrals), large claims, claim coding, check runs, reinsurance, contract liabilities, provider risk arrangements, customer risk arrangements, product/enrollment/system changes, and nonlag medical liabilities. Most of the time we don't have everything we'd like to have, but that's not new to us, as actuaries. This is a fairly complete list of the things that we think enable one to make a good estimate. The basic things that are almost impossible to do without include the claim lag, membership data, and claim inventory.

Medical management reports are something that come along with managed care in particular. Many managed care companies, HMOs and companies that specialize in mental nervous disorders in particular, don't rely on lags at all. They don't even look at lags; we have a difficult time getting lags from many of them. They like to rely on their medical management reports.

They think that they are on top of the situation so well that they know the claim status of every single member in their book of business. Because they require authorizations or preauthorizations for virtually all the services that they are paying for, they believe there are no "unreported" claims. Such companies base their outstanding liabilities largely, or exclusively, on "known" authorizations.

I get very nervous with that approach. I like it as a check, but I don't like it as the method. No one should mind having to look at things in two or three different ways. It is a very helpful tool, but it should be used in tandem, versus in lieu of, a traditional claim lag analysis method.

We come across the nonlag medical liability often. In fact, this is getting to be a big issue with managed care. Many medical liabilities that don't appear in a typical lag report do appear on most companies' balance sheets. One of the biggest examples

is prescription drugs. Many companies are outsourcing the prescription drug process to external vendors, and they don't receive lag reports. They just know they received a bill this month to pay X dollars to these companies that pay their prescription drugs for them.

A larger issue is provider risk-sharing settlements, which do not appear on lag reports and generally involve an esoteric backroom calculation. It's very important to look at the number that actually gets booked versus the number that you're looking at in a lag report, and to understand the differences that are not appearing in lags.

**Mr. Robert M. Levitas:** I find it very helpful if you can get it to have earned premium. That way, you can compute loss ratios, and for the same contracts, you can potentially see benefit and product changes in the cell that you're putting together. If your cell is, for example, drug business, there can be many changes there, and that mix change won't be caught in quick succession if you don't pull in your premium.

**Mr. Galasso:** That's a great point.

**Mr. Levitas:** It's hard to get.

**Mr. Galasso:** Well, we're going to talk about that momentarily. We're pushing hard to get month-by-month premium numbers by the different lines of business for which we're estimating lags. It's extremely helpful to have that.

Also, in terms of the nonlag information, are capitation payments. Generally, some extra account-payable liability is out there for medical expense capitations that are paid, and that gets tricky in terms of enrollment also. If half your enrollment is being capitated and the other half is not being capitated, the capitated people don't appear in the lag at all. You don't want to put that enrollment in the base when evaluating the noncapitated piece.

**Mr. William T. Billard:** One thing that we like to look at—maybe it's not so much the case in medical—is seasonality in dental. For instance, August is usually a high-paid month, and the claims reserved at the end of August will usually be higher, all other things considered equal. That's one thing that is not quite taken into account in your list.

**Mr. Galasso:** Yes. I don't know if you can ask for a data request in terms of seasonality, but the model we use at Ernst & Young does look at seasonality. As a practical matter, however, seasonality is often masked by random monthly

fluctuations, and changes in business mix and administrative procedures. We do try to test for seasonality, especially when looking at per month per member (PMPM) and calendar-year deductibles.

Many managed care companies have established what they call risk pools. They take, for example, \$100 worth of premium, and they spread that \$100 across different risk pools. Usually there's a hospital pool, a physician pool, and some miscellaneous pool that is purely the HMO's or the managed care company's own risk. That's what we mean by the provider risk-sharing liabilities. Evaluating the liability tends to be very complicated because there are generally multiple hospitals and physician pools. If a company operates at multiple sites and writes business across different areas and different products, it's a very complex calculation. You have to look at each pool individually—even if in the aggregate it may appear that no liability has developed.

Martin Shipp will take over now and talk more about the technical issues and the formulas that drive an IBNR estimation process.

**Mr. J. Martin Shipp:** I will try not to bore you with formulas. Jim has laid out the conceptual basis of this discussion, and it's my task to shed some light on the technical issues associated with this analysis. I'm sure that the items I will talk about are familiar to all of you, but I hope that perhaps one or two of you will leave here with some new angle on one of these tools. By the way, as Jim said earlier, I will probably use IBNR and total outstanding claims liability interchangeably.

You may notice that most of the materials we have in the discussion concentrate on the traditional claims lag approach at the possible expense of talking about alternative approaches. I'm particularly thinking of these preauthorization methods that are becoming more prevalent in the HMOs and in some insurance companies. But I do think that the issues that we'll discuss here apply either directly or indirectly to those preauthorization issues, so I think we're not making them short shrift of them.

I'll try to note preauthorization angles in the course of my talk. First, as we all know, it's important to acknowledge that most of the IBNR comes from the most recent couple of months; yet we as actuaries have developed this complicated tool to calculate precisely the incurred estimate for 12 months ago. I justify that in my own mind as being needed to give us a basis to project something for the most recent months, so that's how I will talk about this.

The completion factor method really has been three things: the input, the tools to use when you're in there to manipulate the data, and the output. I think Jim

covered the basic input items. The output from the completion factor portion is really the base period; that is, the past three or four months that you can trust to form a basis to give you something to look at in the most recent months. However, I don't like looking at formulas anymore than most of you probably do, so I might go somewhat astray.

I want to talk about the claims lag data. The data need to be sorted by incurred-versus-paid date. You also need to have the exposure data. For a preauthorization approach, you typically have the number of services authorized and used, and what someone thinks the cost of the unused services will be per use. One can either multiply the unused services times that cost, or take the total services times those costs and subtract the paid claims, as Jim alluded to earlier. That process of collecting that data is as complicated and as prone to pitfalls, maybe even more so, than looking at the actual claims data.

When I try to think about the completion factor method and the data, I think of it as a pseudostatistical method. The reason I say "pseudo" is I don't think that it really meets the definition of being a statistical method because I'm not sure that the data are homogeneous, consistent, correct, or complete enough to call them true statistics. And, when you get down to it, the most important part of any IBNR estimation process is within the gray matter between our ears, which we use to interpret and come up with the conclusion.

I'd like to talk about the importance of looking at the data. Ernst & Young is known as an audit firm, even though we also do many other things. We give a lot of support to our auditors, so we get to do many reviews of other people's work, and there is the need to do independent evaluations quickly. I always start by looking at the triangle of data, visually looking at it to see if there's "goofiness" in there. Sometimes you can find some strange things. It's always interesting to call up a client and ask, "Can you explain why in September there were so many negative claims cells?" You can get two kinds of answers. One is: "Yes, we had \$5 million of receivables that we wanted to get on the books before the end of the year." And you say, OK, this company knows what it is doing. The other extreme is: "Gee, what are you talking about?" And that's a much more interesting engagement.

What do I mean by checking or auditing the data? Does the claim's ledger actually record the actual claims payments? Does the claim's lag triangle that you've been given match the claims ledger? If not, good luck.

If you discover that the lag data do not match the ledger, for example, what can you do about it? What if the Management Information Systems (MIS) department has its standard programs that it has always run, and you're forced to accept that as your

input? I think that's becoming less common because personal computers are becoming more powerful. But can you get the MIS department to fix the data that it has given to you before the tenth of the month, which is when you have to tell the chief financial officer (CFO) what the answer is so that he or she can then fiddle around with it?

Are the data consistent or complete? Did some portion of the claims become capitated during the period? Jim referenced where half the members are capitated. More typically, in recent years, we've seen situations where, let's say, in May, 20% of the members became capitated for 40% of their claims cost. Then in September another 20% became capitated for 70% of their claims cost. At least that's what the pricing actuaries and the client will think. When you look at the data and they look at the data, we thought we capitated 40% of the claims cost, but it looks like maybe only 5% of the claims went away. That can be kind of interesting.

I would also ask, for consistency, were there internal upheavals such as changes in management, especially in the claims department? Consider that holidays such as Christmas affect incurred patterns and also the payment pattern. Of course, I think we've all probably encountered the dreaded situation where the claims department, unbeknownst to anybody, decides to clear out the backlog. They'd do it by incenting all the claims people, so if somebody submitted a \$1,000 claim, the person receives \$1,000. But six months down the road, the claims department will try to get back the extra \$400 it shouldn't have paid. It destroys the consistency of your data.

Let's suppose you've addressed all those issues and you're convinced that the data are consistent and right. There may still be some minor or some significant aberrations in the data. Some of them you might know about because there is a list of large or one-shock claims (depending upon what you like to call them). If you know about a larger shock claim, sometimes it's still questionable what to do about it. I think we try to remove that claim from the triangle for purposes of estimating the completion factor. But obviously, you can't throw the money away for purposes of the financial analysis, so you have to hang onto those dollars and add them back in later.

For example, in your case study packet\*, one of the columns in the Valuation Model Shell is labeled Large Claims Adjustments. Basically, this model takes the large claims out of the triangle. So the column, Incurred Claims Paid to Date shows the results from the triangle after taking out these large claims. The Large Claims

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\*The case study packet is not available online. Please contact Linda Blatchford at [lblatchford@soa.org](mailto:lblatchford@soa.org) or call 847/706-3564 for a set.



Adjustment column simply adds back into the financial analysis the dollars previously removed.

I'm not sure this is a technical issue, but it seems to fit into this category. The other thing that comes with a large claim is defining what constitutes a large claim; i.e., when is a large claim a large claim? If you have a small line, a small population, \$50,000 might be a really large claim. If you have a line of business that has \$30 million in paid claims every month, you probably have a large number of \$50 thousand claims. The definition of a large claim may differ based on how old the claim is when paid. For example, \$100,000 in the 2nd month after incurral may hardly be noticeable, but \$1,000 in the 22nd month after incurral may be catastrophic to the analysis. You have to use your judgment to determine an appropriate definition of large claims.

Earlier, I mentioned that I visually look at the claims lag data. Those of you who have a stronger bent toward technical gadgets and statistical tools may prefer to write a subroutine or program that will go in and actually look at the data and hint to you where the problems are. I have colleagues who like to do that, but I don't understand their tools well enough to use them.

Jim suggested I take you through the case study\* pages just for format at this point. You'll find something called a Condensed Triangle (Table 1). Unfortunately, the area above the triangle is filled with zeroes rather than blanks. The exhibit shows the claims triangle from the last year. Across the top of the page are incurred dates and along the side is the paid date. A given cell represents the amount of money paid in a given month for claims incurred in a month at the top of the column.

I will digress a bit to mention another case study that points out the inconsistencies that can be encountered. Last week, I came across a client where the August numbers, if you can think of it in this way, essentially were equal to these numbers plus about half of the September numbers. The September numbers were cut to nearly zero. The October numbers were about the same as the September numbers. The November numbers showed almost no payments. Then in December, there were these huge payments.

The client hadn't told us what was going on. On September 1, the Company implemented a new claims system, and it worked hard in August to clear out the backlog. When that happens, it becomes very important to know about it. It also becomes difficult to determine, as of December 31, what you think an IBNR might be because the consistency of your data has been destroyed, not to mention you would probably be left wondering if the claims department actually figured out the new system and was paying appropriately, and not over or underpaying everything.

Going on, there's a page that is called Valuation Model Shell (Table 2). Across the top, you'll see some typical headings, and then on the side, you'll see month dates. The first column contains the claims paid in the month. That's the money that was paid in that month regardless of when it was incurred.

The second column contains the claims that are incurred in that given month that have been paid through, in this case, December 31, 1996. Any large claim adjustments wouldn't show up in that column. We would have taken the large claims out and shown them in the next column. But because there are zeroes in the large claims column, we know all the claims are in the regular column.

If you skip then to the next column full of zeroes, labeled Backlog Adjustment, that's the inventory thing Jim mentioned earlier, which we'll talk about later. Continuing to the column labeled Adjusted Incurred Paid to Date, that is really the incurred claims that have been paid to date, plus an adjustment that we make from the backlog.

The next column is Completion Factors. We like to use completion factors that are less than one. Some like to use completion factors that are more than one. If I have a client that doesn't like my numbers being less than one, fine, I'll use more than one. I get the same answer.

To the right of the completion factors is a column labeled Completion Factor Incurred Estimate. This is the adjusted, incurred, paid-to-date column divided by the indicated completion factors. That is your preliminary incurred estimate by month as of December 31.

The column next to that is called PMPM Incurred Estimate. You'll notice that the bottom three months have estimates. Prior to that, we trust the completion factors. In this model, we can vary the number of "trusted" months. So, for example, with prescription drug data, where apparently I have better luck getting data than Jim does, I can adjust so that I'm only making one PMPM estimate because by the second month 95% of the claims have been paid.

The next column, Weighted Incurred Estimate, is the completion factor incurred estimate weighted together with the PMPM incurred estimate (where you have PMPM estimates). The column after that is the IBNR for that given month. If we add up that column, we should get what we are estimating the IBNR to be as of this date. To the right of that are a couple of interesting columns. One is Exposure. The exposure is really necessary if you're going to be doing a PMPM estimate at the end. Like I said earlier, that's where most of the IBNR comes from. In this

particular example, you can see that out of \$22 million, about \$18 million of that is just from those last 3 months. To the right of that is PMPM. I like to track that to see if it looks reasonable. It may help identify strange occurrences. To the right of that is a column called Trends that measures the PMPM in that month versus the PMPM the year before. It's a useful number to know.

If you don't have membership but you have contracts, then think of it as per contract per month. If you don't have members and you don't have contracts, then all you have is premium. You can do this on a loss-ratio approach, but if there were significant rate increases in the middle of the analysis period, you need to somehow adjust that loss ratio to maintain a constant base.

Earlier we looked at the condensed triangle, which is the starting point. We've just looked at the detailed calculations. Now, please turn to the Summarized Reserve Projections (Table 3). This summarizes all of the various completion factors and methods that were run on this case study.

The left-hand column is labeled Completion Factor Method. It says 3, 6, 12, and 6 of 8. Three means that we developed completion factors on only the most recent three months of paid claims data. Six means the most recent six months. Twelve for 12, and 6 of 8 means essentially the middle six of eight. If you want a further description that talks about the middle six, contact me. I'll get tongue-tied trying to describe it.

The second column has four pieces of information. The first is a base period time for information that is taken from the end of the completion factor analysis. The PMPM from the base period regards two things. Typically, we calculate a PMPM as the sum of the claims divided by the sum of the exposures, and then we trend that forward. The "we" I'm referring to here is probably all actuaries when we're being careless, and all nonactuaries who are doing this. We trend it forward from the middle of the period that we started from to the middle of the period that we're going to. That projection method is only theoretically correct if you have the same exposure every month. If a block is growing rapidly, your exposure time is actually weighted near the end of the period, so if you actually go from the middle of the period or the base period to the middle of the projection period, you've actually overtrended. It's the opposite problem if the block is decreasing.

There are two ways of dealing with this problem. The first is to do a complicated time-equals-T calculation—which, while correct, may not be understood by your nonactuarial colleagues such as the CFO. The second one is to calculate each month's average PMPM and take the average of those. This will save your time series analysis, but it has other associated problems.

I'm going to skip to the trend column. Various estimates were done at 10%, 8%, 6%, and 4%. Then to the right of that are ten columns, the first five of which are the PMPM weights that were used. If it's blank, that means there was no PMPM estimate. If a number is there, that means the weight was put on the PMPM estimate, and one minus that was put on the completion factor estimate. Actuaries might refer to these as credibility factors, but your audience might not understand "credibility" as well as "weights." To the right of the weights we have Seasonality Factors. I think one gentleman from Delta Dental of Michigan commented upon that earlier.

This particular example was done assuming there was no seasonality. Seasonality factors can be fun because you can be convinced that there ought to be some seasonality. But when you look at your historical data and variability from year to year, it's greater than the ability of the tool, or any tool probably, to take the noise out of the estimate, so you get seasonality factors that make no sense. The best idea would be to ignore them.

We have the ability to graph and compare multiple years. Sometimes when you look at the graphs, you just have to say, "Well, the model didn't do well here, so I'm going to use my judgment, or find a better tool." Judgment should improve the more of these you do.

The three columns on the right record estimates for each of the completion factors. We must have really worked hard to find a case where the range of the estimates was this narrow: from \$ 21.5 million to about \$ 23.5 million. Most of the time, I would expect the estimates to diverge more than that.

Down at the bottom, you can see we have programmed the model to give the user some hints. I am referring to the Potential Evaluation Problems with messages about the amount of paid claims relative to previous months, and several others. You can probably think of hints you wish your own model would give you.

I'll just refer to one more exhibit labeled Recast Summary Sheet (Table 4). This takes some of the information from the detailed calculations—that is, the model valuation sheet discussed earlier and some of the data from the claims triangle—and puts them together to develop month by month what we now think should have been the estimate we made then for the IBNR at previous times. At Ernst & Young, every time we do an analysis, we like to look at how well we did previously. If we missed, we try to figure out why and determine if it's a systematic problem or just something we didn't understand. You probably do the same.

On the right-hand side of this exhibit, there are some adjustments one can make. If you look at the pattern of the IBNR per member, which are column's eight and nine, you may see a pattern there that doesn't fit with the calculation that you did earlier. My approach is: "What is there in the data that I didn't understand that's causing this?" I try to go back and see if I should have done something different earlier.

I think Jim does that, but he is more likely to use his judgment to overlay in the column ten near the bottom; that is, he uses subjective judgment on what he thinks the IBNR ought to be. But I know he has to be careful about that because he doesn't want to be accused of managing the earnings.

I'm going to leave the last sheet for Jim to discuss because he really is an expert on it, is the Report of Underwriting Results (ROUR) Sheet. We can talk about the case study in further detail if need be.

**Mr. Galasso:** The sheet that we call ROUR (Table 5) was what I was alluding to earlier in terms of the need to reconcile back all your work to the basic financial statements. Again, it's becoming more important because of the question that was raised earlier in terms of what we refer to as nonlag liabilities. There are so many "off-lag-sheet" kinds of liabilities that when you just look at the lag without looking at the whole financial statement, you're almost inevitably missing some material.

This is actually a summarized version of what we call our ROUR. Our basic sheet would have many more columns that take you from the claims paid that appear in the lag, and any other kind of medical liabilities that your particular plan might have, to the full medical cost. What we're trying to get at here is a mind-bending exercise. We're trying to figure out the impact on your financial when you miss an IBNR estimate. That's certainly what management wants to know.

The part that's always difficult to explain is that the impact of the income statement is largely independent of whether you over or underestimate the IBNR at any point in time. What's more important to the income statement is the change in how much you missed your estimate. If you have always been overestimating on a consistent basis, there is no impact on the financial. Again, I'm not sure that's intuitively obvious to everybody whom we communicate with.

To further twist our heads, the impact on medical cost will, of course, be the reverse of the impact on the bottom line of the income statement. We look at the original versus recast IBNR estimates in terms of the impact on a company's financial statement. Again, the real impact on medical cost is the difference between what you estimated in the prior month versus what you're currently estimating.

**Mr. Levitas:** Can you give some rules of thumb on what you do in the way of margins, both implicit and explicit to your calculations?

**Mr. Galasso:** I can tell you what we do at Ernst & Young and what most of our clients do, which is what you're more interested in. At Ernst & Young, we always try to do everything on a best-estimate basis. But having said that, we don't pick a number. We have the luxury of picking a range because we don't do the booking. Generally, we try to get our range within a 10% swing; that is, the low estimate is about 90% of the highest that we make. Then, when doing a review, as long as our client's estimate is within our range, we convince ourselves that we're comfortable with the number.

As a client, and because I spent most of my time on the other side of the fence in company-land, I usually looked at something in the neighborhood of a 5% margin, which generally translated into more like 8–10%, given my conservative nature. As actuaries, the main issue is adequacy, not necessarily that you picked the exact right number. But, of course we can't be too conservative, and we need to be extremely careful that we are not using the IBNR to "manage reported earnings."

**Mr. Robert M. Sackel:** I have several questions. First, I'd like to know, in your practice, how do you handle the IBNR for disabled lives? You alluded to it before in two contexts. One is where you have the disabled lives for a hospital stay, which is coded back to the incurral date. That's a no-brainer because that's already in your lags. Second, what happens if you have disabled lives for, let's say, an active participant? The person is disabled, but the claim adjudicator doesn't care that the person is disabled. The adjudicator says, "Is this covered for the benefits? Fine I'll pay it." The service date will probably be coded as the date of service rather than the date of termination.

**Mr. Galasso:** It's the incurral that you will have in your lags. But you will have the liability as of an earlier date.

**Mr. Sackel:** I'm just curious. What in practice do you do to handle that?

**Mr. Galasso:** Well, it depends on whether you want the theoretical or the real answer.

**Mr. Sackel:** The real answer.

**Mr. Galasso:** The real answer is that very few of our clients actually have studies. What I've done over on the company side, and what we try to get companies to do, is an actual run-out analysis for terminated cases. That's the only time you really

know what the actual liability is on disabled lives. It is a very complicated subject, especially when trying to communicate it to someone. I think you presented it very well. No matter how many times I try to explain it to people, they always think it comes through in the lags, but it does not come through in the lags because, as you pointed out, the lags are all date of service. But most contracts have a clause that says that for disabled lives, on contract termination, the plan is still liable to pay beyond the termination date.

The only way I know how to evaluate this liability is to do an actual study. Look at your terminated cases and your run-out liability and come up with a number. We've been using rules of thumb such as tack on 5% for extended benefit liability to the extent you don't have your own study.

**Mr. Sackel:** What is the disability extension amount?

**Mr. Galasso:** Five percent of the IBNR liability. Do your regular lag analysis and come up with your estimate. If you think your IBNR is \$1 million, make it \$1.05 million. Add on 5% to the \$1 million number.

**Mr. Sackel:** The second issue that I have is the backlog adjustment. One of the things that I like to do in the backlog adjustment—again, I have a large block of business—is take my inventory and put a value of mail per the inventory. Then I try to estimate, based on a pseudoincurred date, the incurred dates of that backlog and put those in my run-out. This way, I avoid the seasonality, let's say, during Christmas time when many people are on vacation. You may have a seasonal backlog when people submit the mail. You may have snow days and whatnot. I try to neutralize that by counting the mail in the house, attaching a value to that, and putting that in my run-out patterns.

**Mr. Galasso:** That's a great idea. If we think of best practices of companies, we do have several that actually lag their inventories. When claims come in, they code the service date even though they haven't completely adjudicated the claim. They actually lag the whole inventory with a separate lag report.

**From the Floor:** The final issue you touched upon before is adequacy. Basically, as you say, you try to make a best guess. I'm just curious as to your opinion. As far as the statutory statement goes, and considering the rules that we must have adequate reserves, if you have a best guess of reserves, do you think that in itself satisfies the reserve? Or is there an implied margin as far as the statutory statement is required?

**Mr. Galasso:** My opinion is that there is an implied margin because the emphasis of the statutory statement is adequacy. I think the whole industry is in a catch-22, or at

least is inconsistent in its actual practice. It's rare we ever see a statutory reserve set differently from a GAAP reserve. By definition, GAAP should be a best estimate and statutory should be worrying more about adequacy. I think the correct, theoretical answer is that statutory probably should be somewhat higher because it should contain some margin.

**Mr. Geoffrey L. Kischuk:** Most of the work that we do is setting IBNRs for self-funded clients. I have experience on the financial statement side as well. The methodology will really be the same even though the use is different.

I just want to comment on the model that you used. We've done quite a bit of work studying claim lag patterns to help us develop better IBNRs. When doing it for employers who are not usually working with as much data, you often have to be slightly more careful about how you do it.

One of the things that we've observed about the kind of weighting method that's used in the model is that there's an implicit assumption that the relationship with the claims that have been paid to the theoretical expected incurred will be similar to the relationship between the claims to be paid in the future related to the expected incurred. The studies never really showed very much correlation at all between what's already been paid and what has yet to be paid.

The approach that we use, rather than weighting, is to take one minus completion factor times the expected and add that to the claims that have already been paid rather than extrapolating off the claims that have already been paid. That introduces a lot of statistical noise, but that's a similar approach that you can use with the same information. We apply that going back more than three months. We run it back by using an expected incurred claim that's based on adjustments for seasonality, particularly for dental and vision. In our markets, dental does have a great deal of seasonality not only because you can take the kids to the dentist more easily during the summer, but also because in dental programs, often there are many school groups and employees off during the summer who get their care for vision and during the summer months as well. Because there is not the statistical noise in dental and vision, the seasonality patterns are very easy to detect and are very distinct. I'd be interested in knowing if you have any reaction to that method.

**Mr. Galasso:** I'm not sure I understood when you said you use expected incurred claims as opposed to using history to guess the future.

**Mr. Kischuk:** Essentially, you're taking an estimate of expected incurred claims to determine how many of the claims incurred in a given month have yet to be paid.



You multiply one minus completion factor times that expected incurred claim number.

**Mr. Galasso:** How do you get the expected incurred claim number?

**Mr. Kischuk:** You can start out with something that's based on analysis the same way that you would determine yours. But you can adjust that expected incurred claim number based on the IBNR estimate. Do it through an iterative approach in which you take your best shot first and plug in your estimated IBNR. That gives you your incurred claims, which you can match against your funneled incurred claims to see if you're right. You can adjust that so that you can develop IBNR that develops an incurred claim that's equal to the incurred claims you're using in the IBNR estimate. We find you can get very good estimates doing that.

**Mr. Levitas:** Can you touch on a couple things? You didn't talk about any methods for generating completion factors or about claims expense reserves.

**Mr. Galasso:** Claims expense reserves are the easier of the two. The cost of paying the claims is an important issue, and, actually, that's something, if you look at the standards for IBNR, you do have to set up as part of your IBNR estimate. I think the right answer is to look at your actual cost of paying claims. You can do it on a marginal cost basis by looking at actual claims cost processing. I don't think you want to load it up with a fully allocated cost basis.

Our general rule of thumb there is between 3–8%. I think 8% is getting somewhat high nowadays. We're very comfortable to the extent that the client has established that as its loss-adjustment expense for paying claims.

I think Martin was getting at the completion factor. Martin touched on it when he talked about a 3-month, 6-month, 12-month, and “6–8” approach. Those are the methodologies that we use.

**Mr. Shipp:** I had intended to say that I presume that everyone can refer to the published materials either in the *Transactions* or in the syllabus on completion factor development. I think I'm correct when I say that most of that material talks about taking the claims paid through a given duration  $n$  and rationing that to duration  $n$  plus one, and then multiplying those ratios together to get your completion factors.

In our model we modify that somewhat. One of the reasons we modify it is we don't want to have a method that's duplicative of a client's method because we're

trying to do independent evaluations when we're helping our audit friends in our firm. If we're just giving the same number back, that's not helpful.

But we take the claims paid to date by incurred month and by duration and we turn those numbers into a PMPM paid to date. We do that same PMPM through duration  $n$  compared with PMPM through duration  $n$  plus one. We also think that it helps minimize some of the membership change issues you're not really protected from if you just compare the claims dollars.

Because Jim alluded to it, sometimes the 6 of 8 produces what is clearly the most logical answer. But sometimes it knocks out too much fluctuation from the triangle and produces a biased estimate. Sometimes that happens with the 3 to 6 or the 12. If someone has picked up the claims processing, or slowed down the claims processing, or picked it up and then slowed it down all in the last 12 months, you can see some strange patterns happening between the 3, the 6, and the 12.

We've gotten comfortable enough with our model that we typically can tell, based upon the relationship of the three-month number to the six-month number, to the 12-month number something about what happened to claims processing. If we didn't pick that up from actually looking at the claims, we'll go back and verify that we think that's what's going on. In that case, we may actually conclude that one or two but, hopefully, not all three of the estimates may not be meaningful. There's considerable judgment there.

**Mr. Galasso:** We're in the process of writing up our methodology, which Martin just described, to make it available to others so at least some of us in the firm understand it. It should be coming out shortly. If anybody is interested in the details of the calculation, you can contact one of us.

**From the Floor:** Regarding PMPM estimates, we would possibly do seasonality factors as presented here, once with them all being 1.0, and once with them varying. Let's say we thought that it was a hospital inpatient kind of block, and nobody goes in the hospital around Christmas. Perhaps 0.92 is a reasonable seasonality factor for December.

**Mr. Galasso:** This is what I like to refer to as our playground in the recast summary sheet of our IBNR model. It lets us make manual and intuitive changes in the PMPM, trend, backlog, and other items that impact the IBNR. This is where the actuary in us comes out and where we must apply judgment. No matter what model anybody comes up with, that model will not spit out a right answer. Well, it might spit out a right answer, but it will be one of 88 other answers that it also spits out. Ultimately, you need to apply judgment in your final selections.

**Ms. Helen Hofmann:** As I understood it, the range that you basically used for your lag liability is just the difference in using three or six months, etc., in your lag factors; that is, how many months you rolled forward with. It seems that could be a problem if you had a lot of seasonality. I'm curious as to whether you or anyone else use other methodologies to come up with a range. How much of it is just implicit margins?

**Mr. Shipp:** We typically model several more variables changing than just the completion-factor methodology. One can look at the actual trends historically and pick a trend assumption. One can look at the credibility factors between how much weight you want to give toward the trended PMPM-developed IBNR versus a completion factor IBNR. Our model also has the capability of looking at and developing its own seasonality factors. If you have inventory, that's another input. Actually, we turn on and off a host of switches on a client-by-client, line-by-line, and product-by-product basis.

A key thing I meant to comment on during my talk, and your question seems a good time to mention it, is that when you develop seasonality factors, a key point to keep in mind is that the average seasonality factor of the base period against which you are going to apply any seasonality factors always needs to be 1.0.