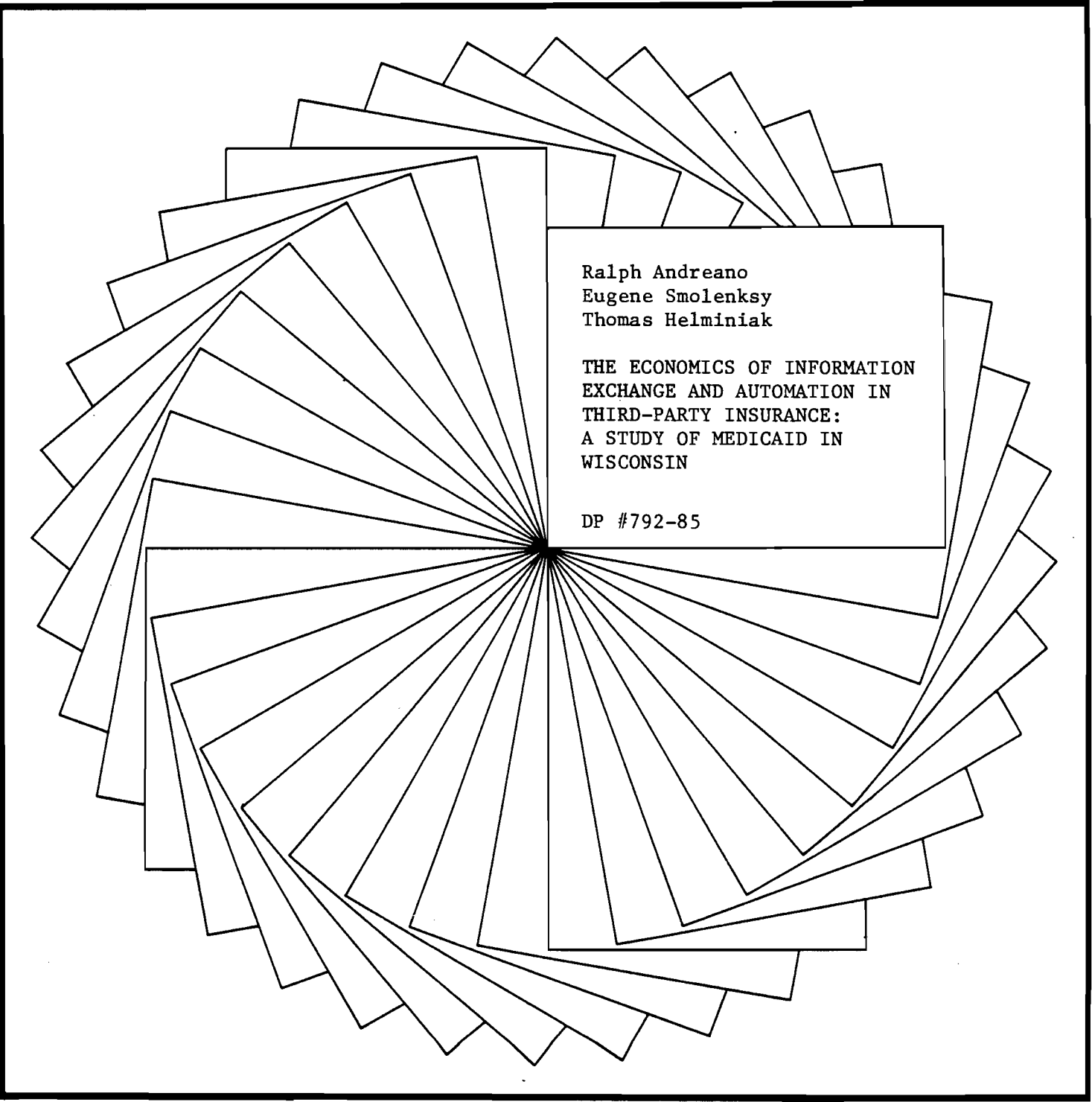


IRP Discussion Papers



Ralph Andreano
Eugene Smolenksy
Thomas Helminiak

THE ECONOMICS OF INFORMATION
EXCHANGE AND AUTOMATION IN
THIRD-PARTY INSURANCE:
A STUDY OF MEDICAID IN
WISCONSIN

DP #792-85

Institute for Research on Poverty
Discussion Paper no. 792-85

The Economics of Information Exchange and Automation
in Third-Party Insurance: A Study of Medicaid in Wisconsin

Ralph Andreano
Department of Economics
University of Wisconsin-Madison

Eugene Smolensky
Institute for Research on Poverty
and Department of Economics
University of Wisconsin-Madison

Thomas Helminiak
University of Wisconsin-Madison

October 1985

We wish to acknowledge the research support of IBM in making this study possible. We are also greatly appreciative of the assistance and suggestions offered by staff with the State of Wisconsin Bureau of Health Care Financing and the Wisconsin fiscal agent, EDS-Federal; staff with the Medicaid agencies of New York, Michigan, Arkansas and Florida; representatives of Metropolitan Insurance, Milwaukee, and Employers Insurance, De Pere, Wisconsin; as well as participants in workshops held at the University of Wisconsin-Madison. Diane Schlichting and Kris Stutz provided invaluable assistance throughout this study.

Abstract

In Medicaid--as well as in all third party insurance--there are significant costs of information exchange between providers of services and the State (or other insurer), which reimburses those providers. On the basis of a study of Medicaid in Wisconsin, this article indicates that appreciable costs are incurred owing to deficiencies in information transfer between these parties. It is proposed that the costs of automated interventions that could improve this area of information exchange be compared with the existing costs of present procedures of information transfer.

The Economics of Information Exchange and Automation
in Third-Party Insurance: A Study of Medicaid in Wisconsin

This study grew out of the long interest in, and experience with, administration of Wisconsin's Medicaid program on the part of one of the authors. It seemed that Medicaid, and to some greater extent all third-party health insurance, contained such discontinuities in information receipt and transmittal that the system must be generating costs to some and conferring benefits to others. We thought, as did others familiar with Medicaid, that because it had a floating pool of eligibles and a complex set of benefits and payment policies, the system was costly to administer. It was also paper-driven to a considerable extent. Our naive notion therefore was that further automating the Medicaid system would surely reduce administrative costs and smooth the discontinuities of information transfers among all the key actors. The costs of information exchange found in Medicaid could, we felt, also be indicative of what might be found in other insurance programs. Similarly, by focusing on Medicaid in Wisconsin (which we describe as a "best practice" state) we would be able to make some generalizations regarding the universe of Medicaid programs.

THE CLASS OF PROBLEM

The area of interest of this study concerns the benefits and costs of information exchange between providers of services and payors of services.

Although we initially considered a broad range of information exchange relating to Medicaid--including exchanges between various government agencies associated with Medicaid (the State legislature, administrative bureaus, and the fiscal agent) as well as State-recipient communications--we decided to focus on areas of information exchange between the State administrative entities and providers. Our early review suggested that the State-provider nexus constituted the area of greatest volume of information exchange, with perhaps the greatest national applicability. Because information exchange between services providers and payors is not perfect or simultaneous, costs and benefits are generated by the transfers. The counterfactual that guided this study was: What are the costs and benefits of deficient information, weighed against what those costs and benefits would be if information exchange were "perfect"? Of equal interest was: What automated interventions would displace what costs and push them close to what they would have been if information exchange were perfect?

Costs resulting from imperfect information may represent any of three situations: (1) some parties may bear unintended costs, while other parties obtain associated unintended benefits; (2) costs may be shifted from one party to another; or (3) there may be net costs to the system as a whole.

For example, because of information imperfections, providers may render services which they mistakenly expect will be reimbursed by Medicaid. Had a situation of perfect information existed, (a) would the

providers still have rendered the services? and (b) would the services then be reimbursed by Medicaid? Perfect information might either cause the provider to recognize the impossibility of receiving payment for a given service rendered to a given recipient, or it might allow him to understand how to obtain Medicaid reimbursement--by following certain procedures, or supplying certain information required for reimbursement. In the former case (reimbursement not possible), the provider must decide whether he or she is nevertheless willing to render the service without reimbursement. If the counterfactual of perfect information means that the service is not given, then under imperfect information we find the generation of an unintended benefit (to the services recipient) and an unintended cost (to the nonreimbursed provider). Alternatively, if the counterfactual of perfect information would allow the provider to render the service and to be reimbursed by Medicaid, then under imperfect information there is a cost transfer from the State (which avoids reimbursing the provider) to the provider (who loses reimbursement). Finally, we expect to find (regardless of which counterfactual applies, for our example) net system costs reflecting the administrative efforts of the provider in (unsuccessfully) attempting to obtain reimbursement and the administrative efforts of the State in processing the (ultimately rejected) provider reimbursement requests under imperfect information.

Thus automated system interventions, designed to produce more perfect information, may variously (1) reduce the incidence of unintended costs and benefits to parties receiving them; (2) alter the present pattern of cost-shifting; and (3) reduce the net deficient information costs in the system.

To assess the viability of a potential intervention that would improve information exchange, we need to know both the magnitudes of reduced imperfect information costs and the altered pattern of costs and benefits within the system. The decisions regarding the parties expected to assume the implementation and operating costs of a proposed intervention will undoubtedly involve perceptions of shifted costs and benefits.

In this study, we offer some estimates of the overall magnitude of these costs and tentatively explore the division of the costs among the separate categories and among the parties under the system.

THE COSTS OF INFORMATION TRANSFER IN MEDICAID

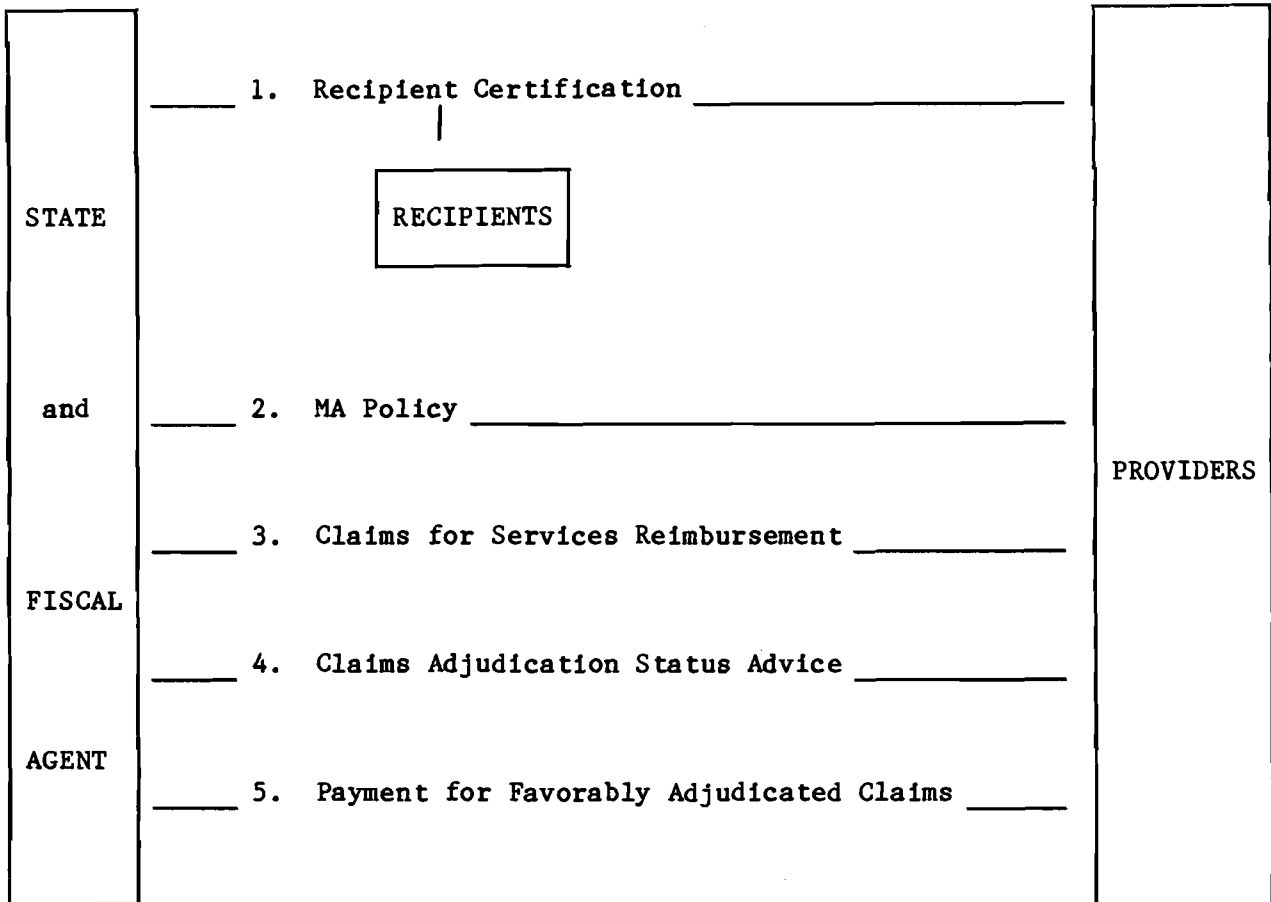
Within the State-provider information exchange set, we have designated five "information functions," illustrated on the attached figure. While our cost estimates are roughly organized according to these functions, rigid separation of empirically estimated costs among these functions has not been stressed.

Our organizational framework also includes a division between "operating costs" and "costs resulting from deficient information." While there is some arbitrariness in what is designated an "operating" versus a "deficient information" cost, the principle is that operating costs are those associated with the information transfer officially prescribed by Medicaid policy and deficient information costs are those incurred because the official information transfer is imperfect (or not ideal).

Throughout, we give cursory attention to the operating costs within the five functions, emphasizing the deficient information costs.

Medical Assistance (MA)

Information Exchange Functions between State and Providers



This emphasis is due to our presumption that potential intervention technologies will offer benefits by reducing the deficient information costs rather than by reducing the operating costs. (As will be seen, the operating costs are mostly quite small compared to the deficient information costs.)

1. Recipient Certification

This information function refers to transfer of the information that is relevant to services reimbursement from the recipient certification file (as maintained by the State or its fiscal agent) to providers of Medicaid services. This information includes whether or not there exists basic recipient eligibility for benefits at the time of services delivery, status of the recipient regarding the range of benefits that may be reimbursed, specific limitations on providers or services that may be utilized by a specific recipient, and existence of other insurance coverage that must be billed prior to billing Medicaid.

In Wisconsin, as well as in most other states, the primary process for transmitting this information involves the production by the State of a paper Medicaid identification card. In Wisconsin (also as in most other states), the paper ID cards are printed monthly and mailed, near the end of the previous month, to all recipients granted eligibility for the next month. Thus, all recipients with continuing Medicaid eligibility, as well as new recipients, receive a new card every month that extends eligibility only through the next month. Providers of services have the responsibility of checking the recipient ID cards on each visit to ascertain current eligibility as well as possible changes in other information on the recipient certification file which is conveyed by the card.

States differ somewhat in the amount of basic eligibility information which a provider is required to obtain from the card and enter on his claim for services reimbursement. Some states (including Wisconsin) require that the recipient name be accurately copied (with correct spelling), in addition to the correct ID number, and that the sex and date of birth of the recipient also be entered correctly. Some states only require that the correct ID number be entered on the claim.

Normal operating costs of this system include the costs of the monthly production and mailing of the ID cards.

Problems with this system mostly derive from the fact that providers often fail to check the recipient ID card when services are rendered (because the recipient isn't carrying the card, or the provider neglects to ask for it), or they fail to accurately transcribe required information from the card. When this happens, providers may suffer losses by having their claims for reimbursement denied. (Where the problem is one of correct transcription of information onto the claim, or a procedural problem such as other insurance billing, reimbursement may be obtained on a subsequent resubmission of the claim.) Providers may attempt to verify required recipient certification information by contacting the recipient (after providing the service) or by phoning or writing one of the agencies with access to the recipient certification file. This entails additional administrative costs to both the providers and the contacted agencies. The provider also experiences costs when payment on claims is delayed owing to problems related to recipient certification and when administrative resources are employed for the completion of claims that are rejected for problems in this area.

The State experiences losses related to the costs of processing these rejected claims. In addition, the State is likely to suffer some losses as a result of the guarantee to providers that eligibility of a recipient will be treated as valid through the end date (normally end of the month) indicated on an ID card. In some cases (apparently relatively few in Wisconsin but more in some other states) certifying agencies determine that eligibility should not be granted for the month, after the ID card granting eligibility for that month has already been sent to recipients. In these instances, according to what in Wisconsin is known as the "good faith" policy, providers continue to be reimbursed for services rendered during the eligibility period indicated on the card. The reimbursement of these services--rendered after the determination of terminated eligibility--represents an additional cost to the State.

2. Program Benefits Covered by Medicaid Policy

This function is defined as the transfer of information from the state to Medicaid providers concerning what services are reimbursable (including limitations and conditions for such reimbursement). The formal process for this information transfer involves printing and mailing provider handbooks (often differentiated for different groups of service providers), updated at various times by corrected handbook page inserts, provider bulletins and letters to providers. In addition to learning about benefits policy, providers need to understand required billing policy--the rules governing the completion and submission of claims for reimbursement of rendered services. While the information transfer process is rather similar for both benefits policy and billing policy, we

have felt it useful to divert discussion of the "problem costs" of billing policy into the third information function, providers' claims for reimbursement.¹ This division largely reflects a presumption that automated procedures for claims submission may edit somewhat more readily for errors in billing policy than in benefits policy.

Providers frequently provide services for which they anticipate Medicaid reimbursement but which are not covered under the program. When this occurs, providers may not receive reimbursement. Provider and State resources may also be expended when providers seek policy clarification by phoning or writing the State Medicaid agency. Further provider costs result from the delayed payment of claims because of benefits policy problems and from the administrative expense of completing and submitting claims rejected for reasons of benefits policy. The State also bears the cost of processing these rejected claims.

Potentially there might be costs related to delays in notification of policy change resulting from printing and mailing lags. We judged these costs inconsiderable, for Wisconsin at least.

3. Submission by Providers of Claims for Services Reimbursement

To obtain reimbursement for services rendered to Medicaid recipients, providers need to submit claims to the State Medicaid agency which processes the claims--commonly a private fiscal agent operating under contract with the State. The claims must be submitted in prescribed formats (differing among various groups of services) and must follow various billing policy regulations. In most states claims are predominantly submitted on paper, though most also accept claims on magnetic media. In a

few states, some claims are being electronically submitted by the providers. Another possibility, in limited operation now, is for claims submitted on paper forms to be read by optical character scanners, reducing the data entry efforts of the claims processing agent.

In the case of paper forms, operating costs of the present system include the production and mailing of the forms by the State, the completion and mailing of the forms by providers, and the entry of the claim form data into the claims processing system.² For magnetic media claims, operating costs are the claims completion and mailing costs.

Problem costs of the system, which we've defined to include adherence to claims filing policy, include provider losses of reimbursement for services when claims are rejected owing to filing policy problems.³ State and provider efforts related to attempts by providers to clarify filing policy via phone or written correspondence are another cost. Also (as for the two prior information functions), providers have costs owing to delayed reimbursement as a result of filing problems; and the providers have the administrative costs of filing claims rejected for these reasons. Again, the State faces the cost of processing these rejected claims.

Besides the delayed payment lags suffered by providers because of a provider error (related to either recipient certification, benefits policy, or claims filing policy), providers endure interest losses due to general submission lags (the time between the date of service, DOS, and the date the submitted claim is received by the fiscal agent) and processing lags (the time between claim receipt by the fiscal agent and

adjudication). Compared to an ideal world--for the provider--in which the provider receives payment immediately upon rendering services, these lags represent provider costs. (But they also represent comparable savings to the State.)

4. Claims Status Advice

Providers are issued statements describing the adjudication status of their submitted claims by the claims processing agent. Printed and mailed to providers, these statements generally identify whether provider claims have been paid (indicating reason for payment cutback, if any), denied (indicating the reason for denial), or are still pending in the system.

Normal operating costs include the printing and mailing costs of these claims status statements.

Problem costs of the present system include expenditure of State and provider resources related to provider correspondence with the State to query claims status. Another cost involves the submission of duplicate claims by providers when they ignore the fact that the claim either was previously paid or is still pending in the processing system. Duplicate claims submission entails both additional provider administrative cost (for submitting the duplicate claims) and additional State costs (for processing the duplicate claim submissions).

5. Provider Payment for Favorably Adjudicated Claims

Provider payment for claims which are favorably adjudicated is effected completely in Wisconsin (and predominantly in most other states)

by checks sent to providers through the mail. In Wisconsin, the lag between adjudication and payment involves the ordering and completion of the "checkwrite," the merging of the checks with the claims status advice statements, the mailing of checks to providers, and the deposit of the checks in their accounts by providers. (In some states there is also a delay while the State reviews the proposed payment amounts to providers and the comptroller decides to release funds to the account upon which the provider checks are drawn.)

The normal operating costs of this system are the printing and mailing costs of the provider checks. Compared to an ideal world where provider payment is effected immediately upon favorable adjudication (or comptroller authorization of funds), such as might be obtained from electronic funds transfer, providers lose the interest value of the payment delay.

ESTIMATES AND COST COMPUTATIONS FOR WISCONSIN MEDICAID

Many of our cost estimates required obtaining information on losses relative to claim rejections. The specific statistics we required were not available from routinely generated reports, nor could special reports be readily produced--within our time and expenditure limitations. Consequently, a major effort of our study involved the generation of these statistics from a sample of several hundred rejected claims. We particularly sought estimations of (1) the annual volume and dollar amount of unique (non-double-counted as a result of multiple submissions and multiple rejections) rejected claims; (2) the percentage of the unique claim rejections which are ultimately paid on resubmission

Table 1
Classification of Provider Rejection Messages

I. Denials

A. Recipient Certification

1. Missing/correctable information
2. Recipient ineligible
3. Primary provider violation
4. Bill other insurance carrier

B. Provider Certification

1. Missing/correctable information
2. Other/violation

C. Benefits Policy

1. No benefit
 - 1a. General
 - 1b. No benefit for medical status
 - 1c. Conditions not met
2. Limitations exceeded
3. Not medically necessary
4. Invalid criteria relationships
5. Requires PA (prior authorization) always
6. Requires PA beyond limit
7. PA conditions violated
8. Late billing
9. Not separately/additionally payable

D. Missing/Invalid Claim Data

1. General
2. PA number

E. Duplicate Claim

--table continues--

Table 1, continued

II. Returns

RA. Recipient Certification

1. Missing/correctable information

RB. Provider Certification

1. Missing/correctable information

RC. Missing/Invalid Claim Data

1. General
2. PA number
-

versus those which are never paid; (3) the appropriate valuation of the never-paid claims--in terms of the probable pricing cutback amounts of these claims had they been paid; (4) the mean payment delay days for claims rejected one or more times, but ultimately paid.

To obtain these estimates, we tracked a random selection of 371 claim rejections (337 full claim rejections--i.e., all of one or more service billings on a single claim submission--and 34 partial rejections of multiple detail claims) through resubmission and readjudication experience. These rejections include both what Wisconsin designates as claim "denials" and claim "returns." (The latter reflect detected claim errors or omissions at the entry stage of the adjudication process.)

Since Wisconsin has a one-year submission deadline, the rejection sample was tracked over a one-year period (actually 13 months) from date-of-service, during 1983-84, to identify possible resubmissions resulting in either further rejections or payment of the claims. For the tracking procedure, we employed on-line enquiry screens, microfiche records of claim adjudication advice statements supplied to providers, and computer-generated recipient claim histories. Claim rejection reasons (numbering about five hundred) were classified by us according to the categories and subcategories listed in Table 1. The estimated sample statistics were subsequently applied to the universe of all claim rejections (for calendar 1983), the total quantity and dollar volume of which were known from routinely produced Medicaid reports.

Our estimate of the costs of deficient information and operating costs are shown in Table 2. The following narrative provides some detail for each of the five areas.

Table 2
Cost Estimation for Wisconsin Medicaid
(estimated annual costs in 000's)

Information Function	Operating Costs ^a	Deficient Information Costs
1. Recipient certification	<p>a. ID card production \$77.5</p> <p>b. ID card mailing \$510.6</p>	<p>a. Reimbursement for services provided after eligibility termination</p> <p>State costs: \$871.8</p> <p>b. Provider requests for verification of recipient certification</p> <p>State costs: \$483.6 Provider costs: \$643.0^b</p> <p>c. Loss of reimbursement due to recipient certification error</p> <p>Provider costs: \$28,834.6</p> <p>d. Delayed payment due to recip. cert. error</p> <p>Provider costs: \$194.1</p> <p>e. Processing of claims rejected because of recipient certification error</p> <p>State costs: \$490.5</p> <p>f. Submission of claims rejected because of recipient certification error</p> <p>Provider costs: \$452.5</p>
2. MA Program benefits policy	<p>a. Provider handbooks \$43.4 (assuming three-year revision schedule)</p>	<p>a. Policy change notification delays</p> <p>No estimation</p>

Table 2, continued

Information Function	Operating Costs ^a	Deficient Information Costs
2. Program benefits policy, continued	b. Provider bulletins \$38.8	b. Provider requests for clarification of benefits policy State costs: \$45.8 Provider costs: \$49.1 c. Reimbursement lost because of rejected claims Provider costs: \$16,465.2 d. Delayed payment due to benefits policy error Provider costs: \$194.8 e. Processing of claims rejected owing to benefits policy error State costs: \$178.4 f. Submission of rejected claims Provider costs: \$154.2
3. Providers' claims for reimbursement	a. Forms production and mailing \$296.7 b. Data entry \$1,098.0 c. Postage for submitted claims State costs: \$3.6 Provider costs: \$407.3	a. Provider requests for clarification of filing policy State costs: \$198.5 Provider costs: \$128.1 b. Loss of reimbursement due to filing error Provider costs: \$12,852.6 c. Delayed payment due to filing error Provider costs: \$333.3

Table 2, continued

Information Function	Operating Costs ^a	Deficient Information Costs
3. Providers' claims for reimbursement, continued		d. Delayed payment due to general billing and processing lags Provider costs: Due to billing lag— \$8,267.7 Due to process. lag— \$2,589.0 e. Processing of filing error claim rejections State costs: \$206.8 f. Submission of rejected claims Provider costs: \$224.2
4. Claims status advice	a. Remittance advice printing \$43.8 b. Remittance advice mailing \$395.2	a. Provider requests for claims status clarification State costs: \$15.4 Provider costs: \$9.9 b. Processing of duplicate claim rejections State costs: \$138.3 c. Submission of claims rejected because of duplicate submission Provider costs: \$61.8
5. Payment to providers	a. Check printing \$8.2 b. Check mailing \$74.1	a. Delayed payment due to payment transmittal lag Provider costs: \$1,022.2

^aAll operating costs are State costs unless otherwise indicated.

^bThe estimate of provider costs for recipient certification verification excludes provider costs of contacting recipients, which are believed to be considerable.

1. Recipient Certification

A. Operating Costs

The production cost of about 230,000 recipient ID cards printed each month is \$77,500 per year. The annual mailing cost for these cards is \$510,600. These and other operating cost data given in later sections were predominantly supplied by State sources (including State administrative agencies and fiscal agent) with some interpretational adjustments by us.

B. Deficient Information Costs

a. Services reimbursement following eligibility termination. We seek to estimate here the cost of reimbursed services delivered to recipients after the fiscal agent (which maintains the recipient certification file in Wisconsin) has received advice from the certifying agency that eligibility should have been cancelled for that month. Provider reimbursement is made according to a "good faith" policy which acknowledges the full-month validity of the present paper MA cards. Based on very restricted sample information, we estimated a monthly average of 1,668 late terminations of eligibility, granting a mean additional 21.43 days of eligibility for recipients whose mean monthly Medicaid expenditure per eligible was \$61.83. Consequently, the cost of late terminations under the present system is an estimated \$871,845 per year. Thus a system giving providers daily updates on recipient certification might include such late eligibility termination costs among its benefits.

b. Provider requests for verification of recipient certification.

In Wisconsin, the possible sources of verification of recipient

certification information include the fiscal agent, which has a toll-free provider access number; the Bureau of Health Care Financing (BHCF); the Bureau of Economic Assistance (BEA), which has a toll-free number and which will provide eligibility information for SSI Medicaid recipients; the certifying agencies (primarily the 72 counties, plus a few other agencies); and the actual Medicaid recipient to whom services were rendered.

We interviewed (in person, or by phone) all of the relevant State agencies and a sample (reflecting responsibility for 59 percent of all Medicaid eligibles) of local agencies,⁴ regarding number of staff hours devoted to handling provider queries (phone and written) on recipient certification. We also interviewed a small sample of providers. Our estimated cost for all state/local Medicaid agencies, including staff time plus phone and other equipment cost, is \$483,600 annually. Our estimate of provider costs for making these recipient certification queries includes the time for expressing the query (on-phone time,⁵ or writing time--both estimated from state agency data on incoming phone calls and written correspondence) plus an estimated equal amount of time for the provider to recognize the problem, formulate the query and (particularly for toll-free numbers usage) complete phone connections. The total estimated provider cost of the recipient certification queries to the government agencies is \$643,000.⁶

This leaves the cost of provider attempts to obtain, after services were rendered, the required certification information from the recipient. Time constraints resulted in a very small, probably unrepresentative, sample of provider interviews regarding this cost. While this limited

sample suggested that provider staff time for contacting the recipients regarding their certification status is a considerable amount (possibly well exceeding all other correspondence costs in this area), we have not included any estimate of this cost in our cost tables.

c. Provider reimbursement loss due to recipient certification error.

We based our estimates of these losses on statistics derived from our sample of tracked rejected claims and the associated procedures described earlier. For this estimation, claim rejections in categories A1-A3 of Table 1 were considered. (Category A4, "Bill other insurance carrier," was not included on the assumption that all of these rejections would be ultimately paid, either by the other insurance carrier or by Medicaid.⁷)

Thus, we estimated the unique rejections, which are not paid on subsequent submissions, valued according to mean pricing cutback amounts, for the individual subcategories (A1-A3) of recipient certification error. The separate subcategories listed in Table 1 represent considerable variation both in resubmission rates for initially rejected claims and in the proportion of initially rejected claims which are ultimately paid on resubmission. These variations are believed to reflect differences in the extent to which rejected claims are potentially reimbursable, by supplying improved information on the claim form, or else are basically nonreimbursable due to ineligibility of a recipient to receive (under Medicaid payment) a given service from a given provider.⁸ For those services which are basically nonreimbursable to a provider--even given perfect information on service provision and claims filing procedures--the provider may, in some instances, nevertheless

decide to offer the services, out of ethical or charitable feelings, or with the hope that the recipient might personally make payment.

Since we wish to measure the losses that are avoidable via improved information exchange, the estimated provider reimbursement losses should be discounted for those losses which would not be reduced with improved information. For that portion of rejected claims that we estimate would remain nonreimbursable if there were perfect information, we need to estimate what amount of services providers would render even if they recognized the nonreimbursable status of the services. Our estimate of the ethics/charity discount factor is based mostly on assumptions, supplemented by limited information from a few providers. We estimate the ethics/charity factor to be 30 percent for outpatient hospital services; 15 percent for both inpatient hospital services and for provider services filed on the "professional" category claim type (physicians, osteopaths, labs, chiropractors, nurses, psychotherapists, et al.); and 5 percent for other providers (including nursing homes). Given the limited information that went into the formation of the ethics/charity estimates, we consider them as rather weak and subject to revision. We computed the aggregate discount for all providers by applying these estimates to a breakdown of rejection amounts according to these provider groupings.⁹ The net result of applying these adjustments is a reduction in the recipient certification loss amounts (categories A1-A3) from \$31,816,400 to the \$28,834,600 shown on Table 2.

d. Delayed payment costs to providers due to recipient certification error. These costs relate to the interest lost by providers due to denial of the initial claim for reimbursement, even though reimbursement

was obtained on resubmission. We estimated that the aggregate delayed payments (A1-A3 of Table 1) were \$17,710,300, and that the mean incremental delay is 50.3 days for these payments. At 8 percent simple interest, we obtain delayed payment costs of \$194,100.

e. Costs for processing claims rejected owing to recipient certification error. These are the State costs for processing such claims. In this case, we include rejection category A4, "Bill other insurance carrier," since if providers had (and acted on) perfect information on other insurance billing requirements, submitted claims would not be rejected for this reason. Multiplying rejected claims volumes for each rejection category by the estimated fiscal agent cost of processing and rejecting claims in these categories results in an estimated annual cost to the State (based on 1983 rejection volumes) of \$490,500.

f. Provider administrative costs for claims rejected owing to recipient certification error. Various situations contribute to this cost estimation: If the initial claim for services reimbursement by a provider is rejected and the provider does not resubmit the claim, the cost is that of the original submission. If the provider's original claim submission and all subsequent resubmissions (which frequently represent corrections to photocopies of original submissions) are all rejected, the cost is the sum of the cost of the original submission plus the cost of all resubmissions. However, if payment is effected by one of the resubmissions, the cost is only the (incremental) cost of the resubmissions.

We estimated that the mean provider staff labor time for all aspects of an original claim submission was 15 minutes for a manually prepared claim; we estimated zero staff labor time for the original submission of

a claim prepared by automatic data equipment; and we estimated that all resubmissions--regardless of whether the original was manually or automatically prepared--required 5 minutes of provider staff time.

The cost computations were performed utilizing the volume of rejections for recipient certification, statistics indicating proportion of original vs. resubmission claims and the percentage of resubmissions ultimately paid (both obtained from our sample of tracked rejected claims), and State estimates of the proportions of submitted claims that are machine-produced.¹⁰ Estimated staff hours were valued at \$8.10 per hour; postage per rejected claim was estimated at \$0.052 for paper claims and \$0.004 for tape claims (based on sampling of claims volume and applied postage per envelope/package in the mail room of the fiscal agent). These computations yield a total of \$452,500 for administrative costs of providers for submitting rejected claims.

2. Medicaid Program Benefits Policy

As stated earlier, "program benefits policy" refers to State policy governing which services are reimbursable. We have also chosen to include the deficient information costs of provider certification under this heading.

A. Operating Costs

Although we based our annual cost estimate for policy dissemination to providers on the costs of handbooks and bulletins, Wisconsin handbooks are not revised on a regular basis and bulletins vary in frequency, length, and number of copies distributed, depending on the extent of the policy change and the size of audience to whom the policy change

information is directed. Further, our review of cost data in this area was very limited. For both reasons, the following estimates should be regarded with considerable caution.

Based on per page production and mailing costs for two recently amended handbooks in which provider specialty sections were revised, the average cost of a complete (generic plus provider specialty section) provider handbook was estimated at \$9.59 per copy. For 28,000 enrolled providers the aggregate production and mailing cost would be \$268,500; however, the share of this cost for annual participating providers (13,582 in FY 1984) would only be about \$130,200.¹¹ Since we will later analyze our cost on a participating provider basis, the latter amount--further reduced to \$43,400 annually, assuming a three-year complete revision schedule--is relevant for our estimations. With regard to provider bulletins, extrapolating from the estimated production and mailing cost of a single (distributed to all providers) bulletin, we obtained the very tentative estimate of \$80,000 per year, or about \$38,800 as the share of participating providers only.

B. Deficient Information Costs

a. Delays in notification of benefits policy change. We did not make an estimation of this cost area for Wisconsin. BHCF staff expressed the belief that, in most instances, printing and mailing lags in provider notification of policy change overlapped other lags in the policy implementation process.

b. Provider requests for clarification of policy. In Wisconsin (as well as other states), the primary if not the sole source for clarification of program benefits policy (beyond the information in the provider handbooks and bulletins) is the State Medicaid administrative agency. (The fiscal agent is generally restricted to clarifying matters of filing policy and claims status.)

State costs for handling provider correspondence, phone and written, regarding benefits policy were computed by estimating the cost of BHCF staff time devoted to this correspondence, plus CRT and phone usage, and supplies. These computations resulted in an estimated \$45,800 per year.

Provider costs for queries concerning benefits policy were computed on the basis of the phone and written correspondence received by BHCF. Total provider staff time for organizing material relevant to the policy queries and making the calls was estimated by doubling the estimated total of actual phone time between BHCF and provider staff. Since providers must pay toll charges for calls to BHCF, phone toll costs, computed according to an estimated mean charge of \$0.46 per minute, were added. Written policy queries from providers to BHCF were assumed to require 20 minutes each--preparation and writing--of provider staff time.

Interviewed providers have indicated that when confused by policy issues, they seek to resolve their confusion (often unsuccessfully) by reviewing the handbooks and bulletins. The costs of this research time might also be relevant--to the extent that a more efficient process for communicating policy was feasible. We do not, however, have a reasonable estimate of the amount of this research time.

The total estimated provider costs for benefits policy queries are \$49,100.

c. Provider reimbursement loss due to violation of benefits policy.

These are losses to providers resulting from rejection of claims for services not covered by Medicaid. The estimation procedure was the same as that described above for loss of reimbursement due to recipient certification error. The losses to providers because of benefits policy error are described by rejection categories C1-C8 in Table 1 (Category C9 rejections were regarded as equivalent to pricing cutbacks, rather than real rejections). The reimbursement losses owing to provider certification error, which we have also included in this section, are given in categories B1-B2 in Table 1. The aggregate provider reimbursement losses resulting from noncoverage by Medicaid amount to \$12,056,200; losses resulting from provider certification error are \$5,191,800 (both annual, based on calendar 1983).

We again made computations, similar to those described above for the recipient certification error, to estimate the amount of these reimbursement losses that would not be reduced by improved information. The same ethics/charity factor estimates that were applied in the recipient certification estimates were multiplied by the amount of program policy rejections assumed nonreimbursable if the provider had perfect information.¹² The computations were made according to the same breakdown of rejection amounts and according to the provider groupings described above in the recipient certification section. The result of these computations is a reduction in the total for the provider certification and benefits policy rejection losses from \$17,249,000 to \$16,465,200.

d. Delayed payment costs to providers due to program policy error.

These costs relate to the interest lost to a provider when the initial claim for reimbursement was denied due to provider certification error or benefits policy error, but reimbursement was obtained on resubmission. According to our sample of tracked claim rejections, the estimated aggregate delayed payment amount due to provider certification error (B1-B2 in Table 1) is \$2,603,700 and the mean number of incremental payment delay days owing to the error is 68.6. At 8 percent simple interest, the delayed payment cost is \$39,100. Similarly, for benefits policy error (C1a-C8 in Table 1), the aggregate delayed payment amount is \$6,549,100 and the mean number of payment delay days owing to such error is 108.5 days. At 8 percent interest the delayed payment cost is \$155,700. The total for provider certification error and policy error is \$194,800.

e. Costs for processing claims rejected because of program policy error. These are the State costs for processing claims rejected due to provider certification or benefits policy error. Although denials for rejection category C9 ("not separately or additionally payable") were excluded from provider reimbursement loss estimates,¹³ the claim details counted in this category still determine avoidable processing costs and are therefore included in our computations. The estimated costs (computed as in the case of recipient certification) are \$23,500 for the provider certification category and \$154,900 for the benefits policy category, totaling \$178,400.

f. Provider administrative costs for submitting claims rejected for program policy error. These are the costs to providers of submitting claims that are rejected by the claims processing agent owing to provider

certification or benefits policy error. The same methods of computation were followed as for costs of submitting claims that were subsequently rejected because of recipient certification error, as described above. The cost computations were performed utilizing the volume of rejections owing to errors concerning provider certification and benefits policy. Other statistics are the same as those indicated in the recipient certification error cost computations. The estimated provider costs of submitting claims rejected for reasons of provider certification and benefits policy error is \$154,200.

3. Submission by Providers of Claims for Services Reimbursement

A. Operating Costs

The normal operating costs of the current process include the provision by the State of claims filing rules,¹⁴ the production and mailing of blank claim forms (and the return mailing to providers of submitted claim tapes), and the data entry and processing of claims for reimbursement, prior authorization requests, adjustment requests, second surgical opinion forms, and cash refund requests. Our study, focusing on the transfer of information related to provider claims for reimbursement, essentially sets aside the claims processing operation, as opposed to claims submission, from present consideration.¹⁵ However, since alternative means of submitting claims do offer the elimination of current procedures of data entry from paper media, data entry costs are relevant.

The current annual cost of producing paper claim forms in Wisconsin is \$268,400, and the cost of mailing the forms to providers is \$28,300,¹⁶ resulting in a total of \$296,700.

The current costs of data entry for all claims and claims-related paper media is about \$1,098,000.¹⁷

Provider staff time for filing claims represents a significant cost in the current system, but it is not clear what proportion, if any, of this time can be reduced by alternative filing processes--such as electronic claims submissions. In any case, we have not carefully estimated costs of provider claims completion. Mean costs of mailing claims to the fiscal agent are about 5.2 cents per paper claim (borne by the provider) and about 0.4 cents per tape claim (representing 0.2 cents of provider expense for mailing the tapes to the fiscal agent and 0.2 cents of State expense for returning the tapes to the provider).¹⁸ These per-claim estimated costs indicate aggregate annual costs to providers of \$403,700 for mailing paper claims and \$3,600 for mailing tape claims, for a total of \$407,300. The State cost of returning the submitted tapes is estimated at \$3,600.

B. Deficient Information Costs

a. Provider requests for clarification of claims filing policy. In Wisconsin, providers may attempt to resolve confusion about claims filing by phoning or writing the fiscal agent. As in the case of recipient certification queries, calls to the fiscal agent may be made over a toll-free number, though several attempts may sometimes be necessary to obtain a free line.

The State costs of these provider queries were computed by estimating costs of fiscal agent staff time allocated to receiving phone calls and

handling written correspondence in this area. We also included an estimated proportion of phone expenses allocated to these calls. We obtained an estimated total State expense of \$198,500 for handling queries from providers concerning claims filing.

The provider costs were estimated from State data regarding phone calls and letters received by the fiscal agent. The fiscal agent's staff time estimated for these phone queries was adjusted for the proportion of actual on-phone time, then doubled to account for additional provider time in preparing information for the call and completing the call. Staff time of providers for letters was estimated on the basis of 20 minutes per written query received by the fiscal agent. A postage estimate was added. Total estimated provider costs for lodging claims filing queries is \$128,100.

b. Provider reimbursement loss due to claims filing error. The reimbursement loss to providers as a result of having claims for services rejected owing to claims filing error was estimated according to the same procedures employed in estimating the reimbursement losses due to recipient certification and benefits policy error. The provider reimbursement losses for claims filing error are estimated for the Table 1 rejection categories D1-D2 (denials for missing or invalid claim entry data) and RA1-RC2 (all claim returns for missing or invalid claim entry data). The aggregate provider reimbursement loss represented by these claims rejection categories is estimated to be \$12,853,600. Almost all of the rejections due to claims filing error are assumed avoidable through improved provider information.¹⁹ As a result, the application of the provider ethics/charity factor, computed as in previous sections,

results in little change, merely reducing the estimated filing error loss to \$12,852,600.

c. Delayed payment costs to providers due to claims filing error.

These costs represent the interest lost when the initial claim was rejected (denied or returned) because of claims filing error, but reimbursement was obtained after resubmission. Our sample of tracked rejected claims indicates that for the denials due to missing or invalid claim data categories (D1-D2), the aggregate delayed payment amount for 1983 was \$7,852,600, the mean number of incremental payment delay days owing to the errors in these categories was 53.0, and the estimated delayed payment cost was \$91,200. Similarly, for the returned claims categories (RA1-RC2), the aggregate delayed payment amount was \$23,364,000, the mean number of incremental payment delay days was 47.3, and the estimated delayed payment cost was \$242,100. The total costs of delayed payment due to filing error are therefore \$333,300.

d. Delayed payment costs to providers due to general billing and processing lags. The lags described in the preceding section and other sections above involve only the incremental reimbursement lags--owing to initial rejections of ultimately paid claims--and constitute a subset of the total billing lag for submitted claims. Besides this lag component, accounted for by rejections due to various provider errors, submission lags are the result of several factors, including delayed allocation of provider staff time to the task²⁰ and the need to bill other insurance coverage prior to billing Medicaid. In a small percentage of claims submitted, there is an unavoidable billing lag as providers await the completion of retroactive recipient certification. To the extent that an

automated billing process could encourage or facilitate faster claims submissions by providers and/or reduce the other insurance billing lag, this general lag might be reduced. From routine state Medicaid reports we obtained mean overall provider billing lags, and provider net paid amounts, for July 1983-June 1984. The estimated interest cost (using an 8 percent simple interest rate) for the overall billing lag is \$9,072,857. Of this amount, a total of \$722,300 has already been counted in the estimate of delayed payment costs due to the various error categories. Of the remaining amount, we assume 1 percent might be the result of retroactive recipient certification, leaving \$8,267,700 as the potentially reducible general billing lag cost.

The processing lag is the result, in part, of State-determined "pending" (temporary suspension) of certain claims and the speed of the State or the fiscal agent in resolving those actions. It is also the result of the frequency of edit and audit cycles which are run by the fiscal agent. Some reduction in the processing lag might result from improvement in the quality of information on the claim form supplied by providers, but substantial reduction in the processing lag might require altered State guidelines on "pending" of claims and more frequent (or real time) edit and audit cycles.

From routine state Medicaid reports we also obtained the mean processing lags for the period July 1983-June 1984. Applying these lags to the net payment amounts (and again utilizing an 8 percent rate of interest), gives a processing lag cost (compared to an ideal of instantaneous processing) of \$2,589,000.

e. State costs for processing claims that are rejected due to claims filing error. The costs to the state for processing claims which are rejected due to claims filing error (as defined in section b, above) were estimated to be \$151,800 for the missing/invalid claim data denials and \$55,000 for the claim returns, for a total of \$206,800.

f. Provider administrative costs for submitting claims rejected for filing error. The same methods of computation were followed as for recipient certification error submission costs and for program policy error submission costs, described above. The estimated provider costs of submitting claims rejected for filing error (defined by the indicated rejection categories) is \$224,200.

4. Claims Status Advice

A. Operating Costs

The estimated printing costs for the remittance advice statements, which advise providers of the adjudication status of their submitted claims, is about \$43,800 annually. The mailing cost of these statements is about \$395,200 annually.²¹

B. Deficient Information Costs

a. Provider requests for clarification of claim status. Providers may query the status of their submitted claims by phoning or writing to the fiscal agent. Phone calls to the fiscal agent may be made on the fiscal agent's toll-free number.

The State costs of responding to queries regarding claims status were computed by estimating costs of fiscal agent staff time allocated to

receiving phone calls and written correspondence. An estimated proportion of phone calls at State expense was also included. The result was an estimated \$15,400 State expense for claims status queries from providers.

The provider costs for lodging the queries were estimated from State data concerning the queries, according to the methodology described previously. The result was an estimated provider cost of \$9,900 for claims status queries.

b. Costs for processing duplicate claim rejections. These are the State costs for processing claims that are duplicates of previously submitted claims. The estimated cost, based on aggregate duplicate claim rejections and estimated processing costs, is \$138,300.

c. Provider administrative costs for submitting claims rejected because of duplicate submission. The same methods of computation were followed as for other administrative costs because of submission error, described above. The estimated administrative costs to providers due to rejected duplicate claim submissions is \$61,800.

5. Payments to Providers

A. Operating Costs

The estimated printing cost for provider checks is \$8,200 annually, and the cost of mailing the checks to providers is about \$74,100 annually.²²

B. Deficient Information Costs

The single cost estimated under this heading is that of the payment transmittal lag--the period between final adjudication of a claim and the time the provider has payment in hand. This lag, conservatively

estimated at 5 days, was applied to the same net paid amounts used in the billing and processing lag cost computations, at the usual 8 percent interest rate. The total transmittal lag costs for the July 1983-June 1984 period were thus estimated at \$1,022,200.

Summary of All Costs and Types of Deficient Information Costs

Table 3 summarizes our cost estimates. Deficient information costs to the State total \$2.6 million; those of providers are much higher, at \$72.5 million. (On the other hand, estimated operating costs of the State are almost \$2.6 million but those of providers are only \$0.4 million.)

We noted earlier that our estimated deficient information costs may represent any of three categories: (1) unintended costs to some parties, accompanied by unintended benefits to others; (2) shifted costs from one party to another; or (3) net (deadweight) costs to the system. Table 4 presents our estimated deficient information costs (extracted from Table 2) according to these three categories.

Amounts in the unintended costs and benefits category reflect medical services to recipients that we estimate would not have occurred under perfect information exchange. Table 4 shows that the State incurs \$871,800 and providers \$33,909,200 of such costs. Given perfect information exchange, the State and providers might have these costs eliminated, and recipients would lose the services associated with the costs. (These estimates do not include the nonreimbursed services which we assumed providers might deliver anyway, out of ethical or charitable considerations.)

Table 3
Summary of Costs
(estimated annual costs in \$000's)

Information Function	Operating Costs	Deficient Information Costs
1. Recipient certification	State \$588.1	State \$1,845.9 Provider \$30,124.2
2. MA program benefits policy	State \$82.2	State \$224.4 Provider \$16,863.3
3. Claims for reimbursement	State \$1,398.3 Provider \$407.3	State \$405.3 Provider \$24,394.9
4. Claims status advice	State \$439.0	State \$153.7 Provider \$71.7
5. Payments to providers	State \$82.3	Provider \$1,022.2
Total	State \$2,589.9 Provider \$407.3	State \$2,629.1 Provider \$72,476.3

Table 4

Distribution of Deficient Information Costs Among Unintended
Costs and Benefits, Shifted Costs, and System Costs
(Estimated Annual Costs in 000's)

Information Function	Unintended Costs and Benefits			Shifted Costs			System Costs		
	Borne By	Amount	Benefit Conveyed To	Category ^a	Cost	Shifted From	Category ^a	Cost	Category ^a
1	State Providers	\$ 871.8 25,366.6	Recipients Recipients	1a 1c	1c 1d	State State	1c 1d	\$ 483.6 643.0 490.5 452.5	1b 1b 1e 1f
2	Providers	8,530.7	Recipients	2c	2c 2d	State State	2c 2d	45.8 49.1 178.4 154.2	2b 2b 2e 2f
3	Providers	11.9	Recipients	3b	3b 3c	State State	3b 3c	198.5 128.1 206.8 224.2	3a 3a 3e 3f
4								15.4 9.9 138.3 61.8	4a 4a 4b 4e
5						Providers	State	1,022.2	5a
Totals	State Providers	871.8 33,909.2	Recipients Recipients			Providers	State	36,844.3	State Providers
								1,757.3 1,722.8	

^aRefers to the individual cost items in Table 2.

"Shifted" costs are those transferred by the State to providers. They involve either (a) provider-rendered services which are not reimbursed by the State, but which could be reimbursed if providers had and acted upon perfect information regarding required procedures for rendering and filing for the services; or (b) time costs of delayed reimbursement for services due to billing, processing and payment lags. The total cost shifted to providers from the State is \$36,844,300.²³ Given perfect information exchange, these costs might not be incurred by providers, but only if they were shifted back to the State.

System costs include the numerous administrative costs to both providers and the State associated with their attempts to cope with imperfect information. The State bears an estimated \$1,757,300 and providers an estimated \$1,722,000 of net system costs.

COST ESTIMATES ON A PER PROVIDER BASIS

Our provider cost estimates have been presented on an aggregate basis for all Medicaid providers. An expression of these costs on a per provider basis would be much more meaningful, especially as an indication of what level of automated intervention might be worthwhile for individual providers. However, existing statistical reports are not geared toward providing the kind of synchronized data required to obtain those cost statistics. Our definitional choices concerning providers were counts which included either enrolled providers or participating providers; billing providers or performing providers; only regularly enrolled providers or regularly plus temporarily enrolled providers (usually from

out of state). The choices were complicated by the fact that some of the statistics are available only on a monthly basis, others annually.

We decided to focus on the number of participating billing providers, without attempting to sort out those who are temporarily enrolled. Some providers (perhaps around 5 percent) have more than one billing number and will therefore be multiple-counted.²⁴ We also wished to indicate the considerable per provider variation in anticipated costs among the different provider types.

The only feasible disaggregation of our cost estimates for both claims rejection and payment lag, utilizing existing reports, is based on the different claim types which providers use for billing. Excluding requests for claim adjustments, provider claims for services reimbursement are predominantly billed on eleven types of claim forms (and separate reporting is available for each claim type): drug, dental, professional, professional screen, professional Medicare crossover, inpatient, inpatient Medicare crossover, outpatient, outpatient Medicare crossover, nursing home, and medical vendor. The major difficulty with data disaggregated according to these claim types is that individual providers may bill among various claim types depending on the particular service for which they are claiming reimbursement²⁵ and will in those instances be multiple-counted among claim types (though single-counted within claim types). Nevertheless, we have attempted to use these data to obtain per provider estimates by grouping and adjusting some of the figures. Although the resulting statistics lack precision, they should provide useful indications of the relative magnitude of costs over different provider groupings.

Six types of provider groups were formed from the eleven claim types: pharmacy (includes drug claim type), dental, professional (includes professional, professional screen, and professional Medicare crossover),²⁶ hospital (includes inpatient, inpatient Medicare crossover, outpatient, outpatient Medicare crossover), nursing home, and other practitioner (includes medical vendor).²⁷

Because the counts of participating providers by claim type are only available on a monthly basis, they had to be adjusted upward to account for providers who participate in some months, but not in others, in addition to the downward adjustment required by the multiple counting of providers across claim types. In making these adjustments, sample sequences of participating provider numbers were taken from each claim type; and comparisons were made of numbers of individual participating providers both across different months within individual claim types, and between claim types for individual months. The statistics generated by these comparisons, assisted by some enrollment counts by provider specialty, were used to force the counts of monthly participating providers in our six provider/claim type groups into numbers consistent with an annual unduplicated count of all participating providers.

Table 5 presents our estimates of providers' reimbursement losses owing to rejected claims--for recipient certification, benefits policy and provider certification, and claims completion error--plus the billing, processing and payment transmittal lag costs, distributed among our six provider groups.²⁸ The number of providers in each of the six groups is a rough estimate, obtained by the procedures outlined above, of the number of annual participating billing providers in the group.²⁹ As

Table 5

Summary of All Estimated Costs, Aggregate and Per Provider^a
(annual costs in \$000's)

Provider Grouping (No. of Providers)	Claims Rejection Reimbursement Costs				Billing Processing, Payment Lag Costs				Other Costs				
	Recip. Cert.	Benefits Policy and Prov. Cert.	Claims Completion	Total Reimbursement Costs	Billing ^b Lag	Processing Lag	Payment Transmittal Lag	Total Lag Costs	Other Recip. Cert.	Other Prog. Benefits	Other Claims Submission	Claims Status Advice	Other Provider Payment
Pharmacy (1331)	646.1 (.485)	253.7 (.191)	565.6 (.425)	1465.4 (1.101)	318.6 (.239)	133.7 (.100)	55.3 (.042)	510.5 (.384)					
Dental (2390)	615.3 (.257)	676.5 (.283)	218.5 (.091)	1510.3 (.632)	84.3 (.035)	32.4 (.014)	13.4 (.006)	130.9 (.055)					
Professional (6693)	6121.1 (.914)	5245.8 (.784)	5912.2 (.883)	17279.1 (2.581)	1340.7 (.200)	328.5 (.049)	100.0 (.015)	1781.6 (.266)					
Hospital (296)	13667.9 (46.175)	4771.7 (16.121)	4601.0 (15.544)	23040.6 (77.839)	4154.9 (14.037)	817.6 (2.762)	240.5 (.813)	5251.3 (17.741)					
Nursing Home (475)	5507.4 (11.594)	4739.5 (9.978)	1028.3 (2.165)	11275.2 (23.737)	2504.7 (5.273)	1160.2 (2.443)	562.9 (1.185)	4250.9 (8.949)					
Other Practitioner (2397)	2276.8 (.950)	778.0 (.325)	527.0 (.220)	3581.8 (1.494)	586.8 (.245)	116.6 (.049)	50.1 (.021)	758.9 (.317)					
All Provider Groups (13,582)	28,834.6 (2.123)	16,465.2 (1.212)	12,852.6 (.946)	58,152.4 (4.282)	8,990.0 (.662)	2,589.0 (.191)	1,022.2 (.075)	12,601.2 (.928)	1095.5 (.081)	203.3 (.015)	759.6 ^c (.056)	71.7 (.005)	—
State Deficient Information									1,845.9 (.136)	224.2 (.017)	405.3 (.030)	153.7 (.011)	—
State Operating Costs									588.1	82.2 ^d	1398.3	439.0	82.3

- Notes on next page -

Notes to Table 5

^aMean, per provider cost estimates appear in parentheses beneath aggregate cost estimates. Per provider means are computed on the basis of the estimated number of participating providers.

^bThese billing lag costs include—in addition to general billing lag costs (3d in Table 2)—the delayed payment costs due to recipient certification error, benefits policy error, and filing error (1d, 2d, and 3c, respectively, in Table 2).

^cIncludes \$407.3 thousand for provider mailing costs, which were included in the "operating costs" section of Table 2.

described earlier, the disaggregated costs are somewhat inexact owing to imperfect adjustment for the multiple counting across claim types of some providers.

Other estimated provider and State costs given in Table 2 are also summarized in Table 5, but without disaggregation according to provider group.

The table's estimates of mean per provider costs reveal considerable variation among our provider groups. Whereas the annual mean per provider cost of all claim rejections is about \$4,300 for all provider groups when aggregated, the mean cost ranges from \$77,800 for hospitals through \$23,700 for nursing homes and \$2,600 for the professional group, down to \$600 for the dental group.

For most provider groups, recipient certification rejections are the major component of the rejections total. For the lag costs in billing, processing, and payment transmittal, only hospitals (\$17,700) and nursing homes (\$8,900) have annual mean costs totaling more than \$1,000. In each of the provider groups, the billing lag is the largest of the three lags.

For all other estimated cost areas--estimated only on the basis of all provider groups aggregated--"other recipient certification" costs constitute the dominant area. The estimated per provider mean cost in that area is slightly less than \$100 for the costs that were the provider's responsibility; for the costs that were the State's responsibility, the mean per provider amount is somewhat over \$100.

These mean per provider estimates undoubtedly conceal great variation among individual providers within each group.³⁰ It is likely that

many providers in a group will have cost levels considerably higher than the estimated means. Unfortunately, we were unable to investigate the distribution of costs among individual providers.

WHAT CAN WE SAY NATIONALLY, ON THE BASIS OF THE WISCONSIN DATA?

In 1982, the mean Medicaid program expenditure size in the other 48 states (Arizona excluded) and the District of Columbia was .795 of the Wisconsin expenditure size. Thus we might estimate the mean loss of these 49 other jurisdictions to be .795 times the Wisconsin losses; alternatively, the aggregate losses of all 50 jurisdictions including Wisconsin (excluding Arizona, Guam, Northern Marianas, Puerto Rico and the U.S. Virgin Islands) would be 40 times the Wisconsin losses.

The total deficient information costs, if extrapolated nationally according to our simple rule, would yield costs of about \$3 billion annually.

OTHER STATE MEDICAID PROGRAMS

In an attempt to learn whether the results of our study of Medicaid in Wisconsin might be roughly representative of Medicaid programs in other states--adjusted for the relative program sizes of the other states--Medicaid program staff in twelve states were queried by phone and brief visits were made to four of those states: New York, Michigan, Florida, and Arkansas. Compared to Wisconsin (1.0), the four initial states have the following proportionate Medicaid payment magnitudes: New York--7.4; Michigan--1.6; Florida--.67; Arkansas--.33.

It was not possible, during the phone survey, to obtain statistical data relevant to cost study comparisons. The phone survey mainly served to confirm that various procedures of program operation (which generate the identified costs) were roughly similar to Wisconsin. While the visits to the four states did enable us to collect some statistical data relevant to cost comparisons, such comparisons demand considerable caution. Since the brief time allocated to the visits did not allow detailed study of definitions and procedures used in the statistical reports obtained, we cannot be sure that apparent differences in statistical values accurately reflect real differences in the values of the variables.

Generally, however, information obtained regarding program procedures, as well as statistical information on claims rejections; billing, processing and payment lags; and volume of provider queries, strongly indicate that our cost estimates for the Wisconsin Medicaid program are not atypical with respect to Medicaid programs in other states.

We learned also, during our limited survey of other states, that some states have begun to seek, or have already implemented, automated procedures to reduce some of the information costs described in our Wisconsin study. Such automated procedures include on-line recipient certification verification systems for providers and electronic claims submission.

BEYOND MEDICAID TO OTHER THIRD-PARTY INSURANCE

Many of the cost areas that we are examining for Medicaid are also significant not only for the other major governmental personal health care program, Medicare (which has national expenditures 50 percent greater than Medicaid), but for all third-party coverage.

Generally, in other third-party coverage programs, providers may decide whether to bill the insuring agency directly or to allow the patient to bill and then attempt to collect from the patient. The decision often involves a tradeoff between obliging the patient to do the claims paperwork versus the hope of greater likelihood of payment by having the claim payment come directly to the provider from the insuring agency. In most cases the provider accepts the claims filing responsibility.

Thus, in Medicare and under private third-party coverage, providers will experience losses owing to noncovered services (based on eligibility and policy rejections), to payment delays (because of intermediate rejections and general billing and payment delays), and to administrative costs in submitting and resubmitting rejected claims and attempting to sort out the difficulties experienced in getting claims paid.

In Medicaid, the widespread existence of dual third-party coverage (usually Medicare in addition to Medicaid) contributes heavily to providers' administrative costs. An appreciable number of claims rejections are due to the requirement that providers submit claims to Medicare and to other insurance coverage before submitting to Medicaid. To the extent that an automated intervention could be comprehensive--including Medicare and, perhaps, commercial insurance as well--administrative savings within Medicaid alone would be enhanced.

A brief review of private insurance company claims adjudication and provider communication procedures indicates that, while recipient certification may be less of a problem and benefits policy perhaps less complex, the same issues we found in our Medicaid study generally apply to the private insurance area as well.

CONCLUSION

We stated at the outset that we based this study on our notion that appreciable costs are being generated as a result of various observed discontinuities in information transfers among Medicaid program parties. The results of this study, focusing on information transfers between the State and Medicaid providers, have confirmed that appreciable costs do exist as a result of imperfect information transfer in this area. Our study identifies a number of specific areas, within the State-provider nexus, where such costs occur, and it assigns estimates to many of these areas. The study also describes the distribution of the costs burden between State and providers, indicating who might gain and who might lose (among State, providers, or recipients) given automated interventions for improving information transfers. While the pattern and relative magnitude of costs may vary for Medicaid programs in other states, our limited review of programs in selected states suggests that our Wisconsin findings may be indicative of information transfers costs for Medicaid nationally.

It remains for individual states to carefully evaluate already developed, or proposed, automated interventions to deal with the various information transfer cost areas described here. The costs of these interventions need, in each instance, to be compared with the expected reduction in existing costs associated with information transfer under the current system, to see if that reduction (the automated intervention gross benefit) exceeds the intervention cost. The distribution of aggregate costs between program actors and the implications of terminating certain shifted costs (and unintended benefits) will also be relevant to

consideration of which parties should pay for implementing the intervention.

While this study was in progress, some states were experimenting with, were planning to implement, or even had already implemented automated interventions designed to deal with some of the information transfer problem areas studied here. The cost-benefit experience of these states, to the extent that it is carefully documented in the implementation of these interventions, will be most useful to states which have not yet embarked on such interventions.

Ideally, of course, we should select interventions which do not merely offer some positive benefit-cost advance relative to the current system, but rather those which offer the maximum benefit-cost advantage--by dealing not only with the broadest range of Medicaid information transfer costs, but with the range of information transfer for all third-party insurance programs.

Notes

¹There is some blurring of this division in our actual cost estimations, however. Provider handbooks contain rules for both benefits policy and billing policy; but we have not attempted to separate these two sets of rules. Both are included under the operating costs of the program benefits policy function.

²We intentionally excluded the operating costs of the claims processing system--between the points of completed data entry and claims adjudication. This part of the system is already highly automated and subject to competitive pressures for enhanced efficiency. Some processing costs are included as deficient information costs, when we assess the cost of processing rejected claims.

³In our cost computations, the rejected claim losses that are included under the filing policy cost heading are only those resulting from claim denials or claim returns due to missing or invalid claim data. Certain other filing policy losses are included in the benefits policy section.

⁴The contacted agencies included one major county agency (Brown), which has declined to take provider queries on recipient certification. Zero staff hours were counted for this agency.

⁵The average length of a recipient certification call to the fiscal agent was estimated to be three minutes.

⁶Provider staff hours were multiplied by an estimated mean provider billing staff cost (salary plus fringe) of \$8.10 per hour.

⁷Rejections in category A4 are taken into account in estimating provider administrative costs for claims completion (see subsection f, below). While most of the claims rejected for other insurance billing may ultimately be paid by the other insurance carrier and/or by Medicaid (upon later resubmission), some of these claims may be later denied by Medicaid (following the other insurance submission) for other rejection reasons. Thus, our failure to follow up these claims probably contributes to a downward bias in the cost estimates of our other rejection categories.

⁸In our sample of tracked rejected claims, we found, for example, that 71.3% of the initially denied claims in rejection category A1 (missing/correctable recipient certification information) were eventually paid upon resubmission; however, only 2.3% of the initially denied claims in rejection category A2 (recipient ineligible) were eventually paid after resubmission.

⁹We obtained the gross reported rejections for these provider groupings from fiscal agent reports. Adjustments of this data--for multiple counting of rejections, for percentage paid on resubmission, and payment cutback--were done according to aggregate statistics computed from our sample of tracked claims. Finally, we calculated the estimated percentage of the net rejection amount assumed probably nonreimbursable by Medicaid--given perfect information for the provider. For rejection category A1 (missing/correctable information) we assumed that only 50 percent of the net rejection amounts were nonreimbursable with perfect information; for rejection category A2 (ineligible recipient), 100 percent were assumed nonreimbursable; for rejection category A3 (primary provider violation), 70 percent were assumed nonreimbursable.

¹⁰For the following types of claims, the estimated percentages of automated submissions are as follows: drug--80%; professional--71%; dental--20%; hospital outpatient--50%; professional Medicare crossover--87%; hospital outpatient Medicare crossover--79%; inpatient--60%; nursing home--82%; inpatient Medicare crossover--68%; medical vendor--61%.

¹¹The number of enrolled providers at any one time during the year is presently about 22,000. The larger number of enrolled providers reflects the aggregate number of providers who are enrolled at some time during a year. Participating providers are enrolled providers who, during some period, submit Medicaid claims.

¹²The provider certification and benefits policy rejection amounts that were assumed nonreimbursable even with perfect provider information are as follows: B1 (provider certification, missing/correctable information)--0%; B2 (other violation)--100%; C1a (Benefits policy, no benefit--general)--100%; C1b (no benefit for medical status)--100%; C1c (no benefit--conditions not met)--50%; C2 (limitations exceeded)--100%; C3 (not medically necessary)--100%; C4 (invalid criteria relationships)--100%; C5 (requires PA always)--30%; C6 (required PA beyond limit)--30%; C7 (PA condition violated)--30%; C8 (late billing)--0%.

¹³As explained earlier, this rejection category is considered to be equivalent to a payment cutback, rather than a full denial.

¹⁴We did not attempt to separate the costs of printing and transmitting to providers the rules for claims filing from those of program benefits policy. The costs for both are included in the previous section on program benefits policy.

¹⁵We also chose not to include provider staff time for completing the Medicaid claim forms.

¹⁶Some forms are picked up by the providers directly from the fiscal agent, which distributes them.

¹⁷These cost estimates were obtained from State sources.

¹⁸The postage cost per paper claim was estimated from a sample of mailed claims envelopes and packages received in the mail room of the fiscal agent. The cost per tape claim was estimated from tape mailing costs supplied by State sources.

¹⁹It was assumed that for both rejection category D1 (denials due to missing or invalid claim data--general) and all of the claim return categories (RA1-RC2), all claims were reimbursable with improved information. For category D2 (denials due to missing or invalid PA number)--which constitutes a very small proportion of all the rejections for filing error--only 20 percent of the claims were assumed nonreimbursable with improved provider information.

²⁰Some interviewed providers indicated that they were prone to put off completion of Medicaid claim forms because of the detailed information required to be entered.

²¹These cost data were obtained from State sources. Remittance advice statements are mailed jointly with provider checks. The joint mailing expense was allocated between the remittance advice statements and the checks.

²²These cost data were obtained from State sources. Checks are mailed jointly with remittance advice statements. The joint mailing expense was allocated between the RA statements and the checks.

²³Provider costs owing to nonreimbursement of rejected claims were distributed between the unintended costs and benefits category and the shifted costs category according to assumptions regarding the proportions of nonreimbursed services that might be reimbursed under perfect information. These assumptions--drawn according to the individual claim rejection categories of Table 1--are described in notes 9, 12, and 19, above. While these assumptions seem plausible in terms of the rejection reason categories, the distribution of these costs over the two categories (unintended costs and benefits, and shifted costs) should be considered only approximate.

²⁴Assigning multiple numbers to those individual providers is the necessary result of certain system requirements. Individual providers who deliver services under multiple enrollment types and specialties may have multiple numbers, as may individual nursing homes delivering services under different reimbursement structures.

²⁵For example, a physician provider may bill for his professional services on the professional claim form, but for dispensed drugs on the drug claim form.

²⁶Providers who bill on the professional claim include, for example, physicians, osteopaths, independent labs, chiropractors, psychologists.

²⁷Providers billing on the medical vendor claim type include optometrists, opticians, physical therapists, occupational therapists, speech and hearing clinics, ambulances, sellers of medical equipment and supplies, and hearing aid suppliers.

²⁸The reimbursement losses from claims rejection were estimated for the eleven individual claim types in the six provider groups from aggregate claims rejection data reported for the individual claim types. The

aggregate (all provider claim types) statistics obtained from our tracked rejected claims sample estimations were applied in converting the gross rejection amounts for each claim type to projected cutback values of ultimately unpaid, single-counted rejections.

²⁹The provider counts relate to the 12-month period from July 1983 through June 1984. The claims rejection data are for calendar 1983. The billing, processing and payment transmittal lag costs are for July 1983 through June 1984. Other cost data in the table are mostly annual estimates for calendar 1984.

³⁰As noted previously, our participating provider counts include temporarily enrolled providers, who may have only submitted a single claim during the year.