

Quality of care review: Recent experience in Arizona

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The Arizona Health Care Cost Containment System (AHCCCS) is an HMO-oriented Medicaid demonstration project serving approximately 170,000 persons throughout the State of Arizona. To assure that its members are receiving high quality care and because of the potentially adverse incentives of capitation, AHCCCS places particular emphasis on

quality-of-care review. A key component of that review is the development of annual, statewide medical audits. In this article, we describe the nature and organization of medical care delivery under AHCCCS, outline the evolution of the annual medical audits, describe the most recent of these audits, and present and discuss the results.

Introduction

The provision of medical care by health maintenance organizations (HMO's) creates cost-saving incentives that theoretically could have adverse effects on the quality of care. For this reason, quality-of-care review has taken on special significance in the HMO setting. Such review procedures have become a major activity of the Arizona Health Care Cost Containment System (AHCCCS), the Arizona HMO-oriented Medicaid demonstration project.

The nature and organization of medical care delivery in AHCCCS are described in this article, and the most recent of these AHCCCS reviews, the Year III Medical Audit, is discussed. During 1985, a total of 3,525 medical records were reviewed for the audit, using both implicit and explicit auditing techniques. Separate audit instruments were focused on general quality of care criteria, on the quantity and periodicity of early and periodic screening, diagnosis, and treatment services, and on the care provided with respect to two diagnosis-specific paradigms. In addition, physical facilities were evaluated at 85 individual provider sites. In this article, the audit design, methodologies, and corrective actions that were prompted by the findings are described; various problems that arose are discussed; and statistical results are presented.

Background

The Arizona Health Care Cost Containment System (AHCCCS) began operation October 1, 1982. It was, and still is, the Nation's first program to use prepaid health plans, such as health maintenance organizations (HMO's) and individual practice associations (IPA's), to provide health care to Medicaid-eligible people and to others on a statewide basis. AHCCCS is a Government and private-sector partnership that utilizes competitively bid, risk-sharing, prepaid, capitated contracts to provide services. Through statutory and regulatory guidelines, AHCCCS provides a framework within which private-sector contractors render services to eligible individuals.

AHCCCS was developed to provide quality, mainstream medical care to eligible persons; to contain costs; and to provide a stabilized annual base from which the State, county, and Federal governments can predict the amount of funding that will be required for services rendered. An indirect objective of AHCCCS is to serve as a prototype for States that want to convert their fee-for-service indigent health care programs to prepaid, capitated programs.

AHCCCS is a Medicaid demonstration project that differs from fee-for-service Medicaid programs because of its mandatory use of prepaid health plans and its exclusion of certain services, most notably long-term care. Although AHCCCS provides medical care to eligible people in long-term care settings, the room and board component remains the responsibility of the 15 counties in the State. The counties had been responsible for all indigent health care services from 1864 until AHCCCS was created.

AHCCCS serves primarily two groups of people: the categorically eligible, those recipients in the Aid to Families with Dependent Children (AFDC) program and in the Supplemental Security Income (SSI) program, and a State-defined medically needy-medically indigent (MN-MI) population. MN-MI applicants must meet income and asset criteria established by State law.

As of August 31, there were 120,934 categorical members and 48,746 MN-MI members.

Covered services are provided through health plans that are asked to bid on providing services on a per member, per month basis. Bids are submitted by county and by eligibility category (AFDC; SSI Disabled with Medicare; SSI Disabled without Medicare; SSI Aged and Blind with Medicare; SSI Aged and Blind without Medicare; MN-MI with Medicare, and MN-MI without Medicare).

Although the plans are paid a fixed capitation amount for each enrolled member, those payments are meant to cover the costs of providing covered services to all plan members within a given rate code category. Thus, although the cost of providing services to any one member may exceed the capitation payment, that loss would be recovered from capitation payments made on behalf of other members in the same rate code category.

Acceptance of capitation as payment for providing medical services to a group implies that a plan is at

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financial risk for the care of its members. That risk spawned an elaborate set of incentives to control costs and utilization.

There are five AHCCCS contracted health plans in each of the State's largest counties, Maricopa (Phoenix) and Pima (Tucson), and at least two in all of the remaining counties, except Yavapai where there is one.

When they are initially determined eligible, categorical members have the right to select a health plan, but MN-MI members are assigned to a plan on the basis of a mathematical formula. All members have the right to select a primary care physician within a plan, and once each year, in late summer, all members have a right to switch plans.

The use of primary care physicians (PCP's) is one of the mechanisms used to control utilization and costs. PCP's manage the patients' care and act as gatekeepers in that they must approve all specialty care and referrals.

Nominal copayments, which are waived if the member is unable to pay, are also used in the attempt to contain costs and overutilization.

In a traditional fee-for-service Medicaid system, there are inherent incentives for overbilling, billing for nonprovided services, and, on the recipient side, "doctor shopping" because of unlimited freedom to choose. Over the years, Medicaid has developed a number of procedures to monitor these abuses, such as Medicaid Management Information Systems and claims audits. Rarely is the quality of care an element of concern or investigation.

In a prepaid system such as AHCCCS, however, capitation eliminates the incentives for excessive utilization of health care services that are found in fee-for-service systems, but capitation may provide incentives for a plan to underprovide, to deny services, or to increase barriers to care, each of which may result in poor quality of care. Regulators must therefore develop an entirely new set of concerns, skills, and programs to maintain the integrity of the provider-patient encounter system. The heart of that program is a strong quality assurance program and a system of medical audits.

The phrase "quality of care" must be clearly defined in this context. An appropriate measure of the science of medicine and the art of care has not yet been precisely agreed upon by the patients, the professionals, or the payers. At AHCCCS, it is believed that the definition reflects a combination of accessibility, acceptability, continuity, comprehensiveness, documentation, reasonable cost, and an assessment of the therapy as measured against the outcome of care.

With traditional fee-for-service medicine, a concern for quality of medical care tended to be secondary to such matters as access to care and charges. Regulators and medical professionals believed the patient—with absolute freedom to choose medical providers—was the best arbiter of quality. But as physician fees and hospital charges rose, as managed systems mandated limitations on freedom of choice of providers, and as

prior-authorization and utilization-management techniques were developed, traditional practices and procedures had to change.

The AHCCCS program uses several techniques believed to be effective in controlling medical care costs: Services are provided under capitation by prepaid health plans; plans are selected on the basis of competitive bidding; freedom of choice in the selection of providers by members is limited; the "gatekeeper" concept using primary care physicians is employed; and copayments are levied for some medical services.

As more States adopt similar programs, the issue of quality of care being provided under the AHCCCS demonstration project takes on broad, national implications. A number of States are presently considering, or already have begun to implement, changes in their Medicaid programs that incorporate one or more of the cost-containment elements now being tested in Arizona. Because such cost-containment measures may adversely affect the quality of care, the AHCCCS findings and experience in that respect will provide a valuable benchmark.

Systems for monitoring care

AHCCCS has developed multiple systems to monitor the utilization of care, access to care, and quality of care for its members. These systems include the following:

- Grievance and appeals processes at both the plan and State levels to assure timely and impartial resolution of all complaints whether by contractors, subcontractors, or members. Plan members are encouraged to resolve disputes with their physicians, and, if unsuccessful, to file a grievance with the plan. If the member is dissatisfied with the response or lack of response, the member has the right to file a grievance with the AHCCCS administration.
- Client advocacy at the State level to assure timely response to member concerns or questions that can be resolved without a formal grievance. AHCCCS client advocates work with members to resolve disputes informally and try to resolve issues expeditiously before they reach the formal grievance level.
- Encounter data processing, by both plan and provider, class grouped according to urban and rural settings, member category, and service type. Encounters are examined for averages per member, such as length of stay, ratios of prescriptions to visits, diagnostic tests per visit, and average length of hospital stay. By comparing these averages, norms are established, and the system is programmed to search for "lower limit exceptions." After lower limit exceptions are identified, claim detail is examined for each, and cases in need of further investigation are sent to quality assurance reviewers. Statistical calculation of lower limit exceptions on a per patient basis must be carefully evaluated because low utilization

by a particular patient is more often simply a lack of a need for care rather than a denial of care by a physician or a plan.

- Medical audits that systematically and objectively review the quality of medical services provided by the plans and their subcontractors to AHCCCS members.

Evolution of audits

The 1985 audit is the third quality assessment since the inception of AHCCCS. The first audit was done in late 1983, and the second was completed in October 1984. The scope and depth of these reviews have been in a process of evolution, and both the validity and usefulness of the results have been improving over time.

Year I audit

The first AHCCCS audit was carried out in 1983 under contract by the Accreditation Association for Ambulatory Health Care, Inc. (AAAHC), a nonprofit corporation based in Skokie, Ill. AAAHC members include the American College Health Association, American Group Practice Association, Free Standing Ambulatory Surgical Association, Medical Group Management Association, National Association of Community Health Centers, Inc., and the Outpatient Ophthalmic Surgery Society. AAAHC was created to continue the development and operation of a voluntary peer-based ambulatory accreditation program.

All of the 19 health plans under contract with AHCCCS in 1983 and a judgmentally selected sample of the individual providers in each plan were site visited by AAAHC teams and AHCCCS personnel and were subjected to peer review on the basis of AAAHC standards. These audits were based on the established AAAHC standards, which use implicit rather than explicit criteria, and no quantifiable conclusions or summary results were sought. The audit teams reported their general, subjective impressions of provider compliance with AAAHC standards, and they advised each plan of observed deficiencies, but there was no documentation that could be used for subsequent quantitative analysis or summarization.

Year II audit

The contract relationship with the private-sector firm that had been administering the AHCCCS program was ended during the second year of the program. A new State agency was created to administer the program, and it initiated audit preparations for the Year II audit. Physician-surveyor teams from the AAAHC were used again, but a number of significant improvements over the initial review were introduced in 1984. Each plan's quality assurance plan was reviewed by an AAAHC

physician-surveyor, who met with the plan's medical director or designee; joint educational workshops were held to provide the contracting plans with consultation, education, and direct assistance in quality assurance procedures; and interviews and medical record reviews were conducted at 63 individual provider sites.

A major improvement in this audit was the prior preparation by AHCCCS and AAAHC staff of standardized forms for use in the medical record reviews. Consequently, the results of the medical record reviews were documented systematically and were accordingly available for subsequent analysis. Also, the sample size for the second audit was enlarged to cover a total of 1,223 records at 63 sites. Other improvements included the elimination of problems involving notification and lead time, which had hampered the first audit, and the provision of written instructions to all reviewers.

The results of the Year II audit were presented in the Annual Medical Audit Report from AHCCCS, and the audit design was discussed and the findings were summarized in a subsequent article by Bostrom and Rafferty (1985). For example, the auditors found satisfactory documentation of physical examinations on 65 percent of the charts, adequate histories on 70 percent, appropriate blood pressure documentation on 82 percent, and complete blood counts on 59 percent. Generally, the auditors reported that the providers of care in the AHCCCS program render care similar to that provided to their private, non-AHCCCS patients.

Shortcomings of second audit

In order to draw general conclusions about a given population on the basis of a sample drawn from that population, the sample should be demonstrably representative of the population. In particular, the size of the sample and the size of any subsets (strata) of the sample must be adequate. There are well-known statistical procedures for making such determinations, but they require the identification of specific parameters, along with information on the variability of those parameters, across the individuals in the population.

One problem that arises in designing such an audit, therefore, is the absence of any single, generally accepted parameter for measuring the quality of care. Although such characteristics of medical care as charges and manpower inputs are readily quantified, quality is a more complex and multifaceted phenomenon: It reflects a wide variety of characteristics of both the provider and the setting, and there is no single measure by which quality can be quantified and compared. Therefore, there was no single, key parameter to be estimated by the audit, and there were no data available on the variability of quality across the various AHCCCS providers. For these reasons, the findings from the Year II audit sample cannot be generalized to the entire AHCCCS population with any specified degree of precision.

Finally, some of the original data recorded by the AAAHC physician-surveyors at provider sites proved to be unusable by AHCCCS staff. The summaries of the record reviews for each plan were clear and legible, but there were inconsistencies in how the original tally sheets were completed by the various auditors. It was possible to produce estimates of the variability in quality across plans, but not across the individual providers within a plan. This placed limits on assessing the appropriateness of sample size for the first and second audits and on determining appropriate sample size for the audit for Year III.

Year III audit

Improvements

The Year III audit was an improvement over previous audits in a number of ways. AAAHC physician surveyors again provided peer-review assessment of the quality of care by auditing medical records, but the audits were more sharply focused than in prior years. The physician-surveyor teams again used established AAAHC quality assessment worksheets for reviewing patient records and evaluating each provider site, but they also completed worksheets based on two diagnosis-specific paradigms that had been prepared by the Office of the Medical Director, AHCCCS, and agreed upon by the AHCCCS Medical Directors Association. Such a focused approach is consistent with current developments in ambulatory care quality assessment, and it was specifically suggested by representatives of the Health Care Financing Administration in discussions following the Year II audit.

Second, AHCCCS staff members audited records to evaluate the frequency and timing of early and periodic screening, diagnosis, and treatment (EPSDT) services performed. This special emphasis was made because of Federal interest and concern, and because child-related issues have been given special priority by the Arizona State government.

Third, random sampling procedures were carefully observed, and sample size was given more explicit consideration than was possible during the preparation of the prior audits. Although standard deviations for specific, estimated parameters could not be obtained from second year data for this purpose, a rough estimation of the general range of the required sample size was made by constructing a proxy measure of the variability of quality across the 18 participating plans, and that was used to estimate the required sample size. The data collected during the Year III audit allowed after-the-fact determination of the precision level of individual parameters at the 95-percent level of confidence for the sample size employed.

During April through July 1985, AHCCCS carried out the third medical audit. It was again conducted by AHCCCS staff and physician-surveyors from AAAHC, and a total of 3,525 randomly selected

patient medical records were reviewed at 85 randomly selected provider sites around the State.

In addition, this audit produced empirical data on quality of care that is potentially usable for comparisons with other Medicaid systems. Extensive quantitative results were established in the audit report (Schaller and Bostrom, 1985), and wider distribution was attained by summarizing the findings in an article published in the medical literature (Bostrom and Rafferty, 1985). These findings, therefore, may be used as benchmarks by other systems.

Audit components

The audit consisted of the following six distinct components.

- AAAHC checklist. The physician-surveyors used an eight-element worksheet to review 1,836 randomly selected medical records at 85 randomly selected provider sites with respect to established criteria of medical care quality as outlined in the AAAHC Accreditation Handbook (1985). The worksheet was used to determine whether the following items had been properly documented: legibility to the auditor; the presence of an adequate history and physical exam; recorded allergies; appropriate patient diagnostic summary and problem list; appropriate use of consultants; diagnostic workup; and treatment plan consistent with the recorded diagnoses. These were reviewed as an indication of a good primary care patient-physician relationship.
- Provider site evaluations. AHCCCS staff members completed an 11-element worksheet to evaluate the physical facilities and environment at each of 85 randomly selected primary-care-physician sites at which medical records were reviewed. Elements evaluated included provider accommodations, the patient appointment system, and the appropriate handling of office medications (such as narcotics and outdated and refrigerated pharmaceuticals), and emergency medications and equipment.
- EPSDT component. AHCCCS staff members reviewed a sample of 1,689 randomly selected medical records for patients under 21 years of age at 83 provider sites, using a 23-element worksheet to document the frequency and timing of EPSDT services with respect to the recommended EPSDT periodicity schedule.
- Low back pain paradigm. Physician-surveyors reviewed 239 patient records at 75 provider sites for the care of low back pain, using a seven-element worksheet based on medical criteria developed by the Office of the Medical Director, AHCCCS, and approved by the AHCCCS Medical Directors Association. The sample was drawn randomly from computerized encounter data that showed the patients of each physician who have recorded a problem of low back pain.
- Hypertension paradigm. Physician-surveyors reviewed 436 randomly selected medical records at 83 provider sites for the care of hypertension, using

a 25-element worksheet based on medical criteria developed by the Office of the Medical Director, AHCCCS, and approved by the AHCCCS Medical Directors Association.

- Standards review. At each provider site, physician-surveyors provided by the AAAHC applied the customary standards used by that accrediting body and reviewed professional credentials, medical recordkeeping practices, observance of patient rights, quality-of-care related characteristics, and the physical condition of the facilities in which the physician practiced. These AAAHC evaluations were presented in a separate AAAHC report.

Results of year III audit

Qualifications

A number of characteristics must be kept in mind when interpreting audit findings.

First, each audit instrument was made up of a series of elements, or questions, and the overall score for a given plan on a given audit component was computed by giving each element equal weight in that score. In computing a plan's score on the AAAHC checklist, for example, the same weight was given for presence of a treatment plan in the record (TRT) as for adequacy of the diagnosis or assessment (DIA). No attempt was made to weight the elements differentially on the basis of possible differences in their relative importance.

Second, audit results were based on a review of medical records, and the data specifically reflect the presence or absence of documentation in those patient records. For example, the recording of a "No" for any documentation of therapy (DOC) on the low back pain audit instrument would mean the auditor found no therapy documented in the record, whether or not any therapy was actually provided to the patient.

Third, it is important to note that there is presently no basis for comparing any of these AHCCCS results with the performance of non-AHCCCS physicians. Thus, scores are used for making interplan and intraplan comparisons within the AHCCCS system and for identifying areas in need of improvement at both the plan and statewide levels. There are presently no means for determining how the scores would compare with scores that might be received on the same criteria by non-AHCCCS providers, either within the State of Arizona or in the Nation at large. It is the relative scores, therefore, that are the most meaningful and useful at this time. The absolute score levels, whether they appear to be high or low, cannot really be interpreted in a meaningful way.

Results for the AAAHC checklist

Plan and statewide scores on each element of the AAAHC audit instrument are given in Table 1. The AHCCCS plan names and their abbreviations are listed in Table 2.

Interpretation

The first two columns of Table 1 identify the plan and indicate the number of patient records audited by AAAHC physician-surveyors at that plan's provider sites.

The next eight columns give the scores of each audit element for each health plan. Each element score is the percent of patient records audited for that plan on which the auditors gave a positive (good quality) response. A plan's score of 83 on LEG, for example, means that the auditors found 83 percent of the records audited for that plan to be acceptably legible.

The next-to-last column indicates the plan's overall score on all eight elements for all records that were audited. An overall score of 55, for example, means that 55 percent of the responses to all the audit elements for that plan were positive (good quality) responses.

The last column gives the confidence intervals (precision level) of the overall score at the 95-percent level of confidence, rounded to the nearest whole number. For example, a precision level of + or - 5 associated with a plan's overall score of 83 means that, given the number of records audited for that plan, there is a 95-percent probability that its true overall score lies between 78 and 88 percent. The precision (+ or -) levels were calculated using the squared differences between plan scores and scores on individual patient records, and, thus, reflect variability in scores from one patient record to another.

The total line gives the results of the statewide level, based on all records audited using the AAAHC checklist. Interpretation is analogous to that for the plan results.

Summary

Overall scores for the prepaid health plans on the AAAHC checklist varied from 38 to 92. Precision ranges were relatively narrow in most cases, indicating an adequate sample size for both plan-level results and statewide results at the 95-percent level of confidence.

Relatively high scores were recorded at the statewide level on legibility of records (LEG, 95 percent), presence of a treatment plan (TRT, 87 percent), and appropriateness of diagnosis or assessment (DIA, 84 percent). Relatively low statewide scores were recorded on presence of diagnostic summary or problem list (DSU, 52 percent) and appropriate use of diagnostic summary or problem list (USE, 36 percent).

Illegible records had a particularly severe impact on scores received on this audit component: If a "no" was received on LEG (for legibility of the record to clinical personnel), no credit was given on any of the other audit elements, resulting in a score of zero on that particular patient record.

Table 1
Statewide scores on each element of the AAHC audit instrument, by prepaid health plan

Health plan	Number of records	Audit element								Overall score	Precision level + or -
		LEG	HIS	DIA	TRT	CON	DSU	USE	ALL		
Total	1,836	95	70	84	87	73	52	36	72	71	1
APCI	174	83	50	60	75	57	32	20	64	55	5
APIPA	672	97	69	84	83	65	30	19	70	65	2
CAP	45	100	87	93	98	62	7	4	89	68	4
DHP	48	100	63	90	98	77	67	0	98	74	4
DYNAMIC	45	62	11	47	49	18	53	9	53	38	10
EL RIO	75	99	99	97	97	97	81	21	83	84	3
FHP NE	46	100	78	91	100	93	30	28	91	77	5
GMS	45	91	76	62	84	31	80	16	58	62	7
MCHP	273	97	88	96	94	93	97	88	81	92	2
SJM	44	100	95	100	100	95	64	55	70	85	4
NAFHP	45	100	71	69	98	98	31	11	67	68	5
PxHP	46	98	76	91	91	91	65	43	46	75	7
PINAL	44	93	61	89	89	61	89	50	73	76	8
PIMA	119	96	59	80	92	90	69	59	61	76	4
SHS	46	96	50	96	96	24	0	0	63	53	5
UFC	69	100	70	91	96	99	100	97	84	92	3

NOTES: AAHC is Accreditation Association for Ambulatory Health Care, Inc. Complete titles of prepaid health plans are given in Table 2. Audit elements used in boxheads are defined as follows:
 LEG is record legible to clinical personnel.
 HIS is history and physical adequate.
 DIA is diagnosis and assessment adequate.
 TRT is treatment plan present.
 CON is consultation and referral adequate.
 DSU is diagnosis summary or problem list present.
 USE is diagnosis summary or problem list used appropriately.
 ALL is allergies recorded.

Table 2
Abbreviations used for AHCCCS prepaid health plans

Abbreviations	Health plan
APCI	ACCESS Patient's Choice
APIPA	Arizona Physicians IPA
CAP	Comprehensive ACCESS
DHP	Doctors Health Plan
DYNAMIC	Dynamic Health Services
EL RIO	El Rio Santa Cruz
FHP NE	Family Health Plan of NE. Arizona
GMS	Gila Medical Services
MCHP	Maricopa Health Plan
NAFHP	Northern Arizona Family Health Plan
PxHP	Phoenix Health Plan
PIMA	Pima Health Plan
PINAL	Pinal General
SHS	SHS Medical Care Systems
SJM	Mercy Care Plan
UFC	University Famli-Care Plan

NOTE: AHCCCS is Arizona Health Care Cost Containment System.

Results for provider-site evaluations

Plan and statewide scores on each element of the provider-site evaluations are given in Table 3. Note that, for this audit component, the unit of observation is the provider site rather than the individual patient record.

Interpretation

The first two columns of Table 3 indicate the plan and the number of provider sites that were audited for each.

The next 11 columns give the plan scores for each audit element. Each element score is the percent of audited provider sites for which auditors gave a positive (good quality) response on that element. A score of 100 for SUR for a given plan, for example, means that surroundings were orderly and professional at 100 percent of the provider sites audited for that plan.

The next-to-last column gives the plan's overall score on the 11 elements. An overall score of 64, for example, means that 64 percent of the individual audit responses were positive (good quality) responses.

The last column reports the precision level of the overall score at the 95-percent level of confidence, rounded to the nearest whole number. A precision level of + or - 8 in conjunction with an overall score of 77, for example, means that there is a 95-percent probability that the plan's true score lies between 69 and 85 percent.

The total line gives the results on a statewide basis.

Summary

Overall scores for the plans on the provider-site evaluations component varied from 70 to 100. For most of the plans, the precision ranges were relatively narrow at the 95-percent level of confidence.

On a statewide basis, relatively high scores were recorded for storage of temperature-sensitive drugs (PHA, 99 percent), availability of appointments (APP, 96 percent), storage of light-sensitive drugs (SEN, 96 percent), orderly and professional surroundings (SUR, 95 percent), and examination room privacy (EXA, 91 percent). Relatively low scores were recorded for existence of an office policy on broken appointments (OFF, 49 percent) and routine waiting time (ROU, 65 percent).

Fire-safety code compliance

As a separate subcomponent of the provider-site evaluations, AHCCCS arranged to have the State Fire Marshal's Office review provider sites for fire safety code compliance. Accordingly, 78 provider sites throughout the State were visited by inspectors from that office; 33 sites were found to have no violations, and one or more violations were found at the remaining 45. Violations included a lack of emergency exits and exit signs, improper storage of flammable materials, lack of fire extinguishers, and structural defects in some physician offices, such as narrow hallways. Correction of such violations was required within 90 days.

Results for the EPSDT component

The statewide EPSDT results are given in Figure 1. The bars indicate the compliance ratios for each of the audit elements, where the ratios are expressed as percents.

Table 3
Statewide scores on each element of the provider-site evaluations, by prepaid health plan

Health plan	Number of sites	Audit element											Overall score	Precision level + or -
		SUR	EXA	APP	ROU	OFF	NAR	CUR	SEN	PHA	EME	OXY		
Total	85	95	91	96	65	49	71	79	96	99	71	85	81	3
APCI	12	100	92	100	50	58	58	58	100	100	58	75	77	8
APIPA	40	93	83	95	60	45	70	78	93	98	68	85	79	5
CAP	3	100	100	100	33	33	67	67	100	100	100	100	82	8
DHP	2	100	100	100	0	100	100	50	100	100	100	100	86	6
DYNAMIC	1	0	100	100	0	0	100	100	100	100	100	100	73	0
EL RIO	1	100	100	100	100	100	100	100	100	100	100	100	100	0
FHP NE	3	100	100	100	100	33	67	100	100	100	33	67	82	8
GMS	1	100	100	100	100	0	0	0	100	100	100	100	73	0
MCHP	7	100	100	86	86	86	100	100	100	100	100	100	96	5
SJM	3	100	100	100	100	0	100	67	100	100	67	67	82	14
NAFHP	3	100	100	100	100	100	0	100	100	100	67	100	88	5
PxHP	3	100	100	100	100	0	33	100	100	100	0	33	70	10
PINAL	2	100	100	100	50	0	100	100	100	100	100	100	86	6
PIMA	1	100	100	100	100	100	100	100	100	100	100	100	100	0
SHS	1	100	100	100	0	0	100	100	100	100	100	100	82	0
UFC	2	100	100	100	100	100	100	100	100	100	100	100	100	0

NOTES: Complete titles of prepaid health plans are given in Table 2. Audit elements used in boxheads are as follows:

- SUR is surroundings orderly and professional.
- EXA is exam rooms private.
- APP is a appointments available within 2 weeks.
- ROU is routine wait 45 minutes or less.
- OFF is office policy on broken appointments.
- NAR is narcotics locked and counted weekly.
- CUR is drugs current.
- SEN is light-sensitive drugs stored properly.
- PHA is temperature-sensitive drugs refrigerated.
- EME is emergency cart available.
- OXY is oxygen available.

Interpretation

The compliance ratios are calculated on the basis of the recommended EPSDT periodicity schedule. The periodicity schedule, which was developed by a committee of medical, dental, and health professionals in cooperation with AHCCCS staff utilizing Federal guidelines, indicates the specific EPSDT services to be provided to patients under 21 years of age at specified intervals according to patient age.

The compliance ratio on any given audit element is the quotient of the number of times the service was actually provided divided by the recommended number of times. (The recommended number is derived from the periodicity schedule in conjunction with the age of each patient on the date of the audit and the date of the patient's first visit to the provider.) The quotient is expressed as a percent rounded to the nearest whole number.

Thus, for example, a compliance ratio of 53 on initial history would indicate that the providers who were audited had documented 53 percent of the initial histories that would be recommended on the basis of the patients' ages and first-visit dates.

EPSDT periodicity recommendations were new to Arizona, and the procedures for selecting patient

records and for extracting EPSDT data from those records had not been tried previously. Accordingly, the EPSDT component of the audit was viewed as exploratory, and interplan comparisons were not made. However, the results are still useful at the statewide level because they draw attention to specific EPSDT service categories needing improvement, and they suggest service categories to be emphasized in designing future audits.

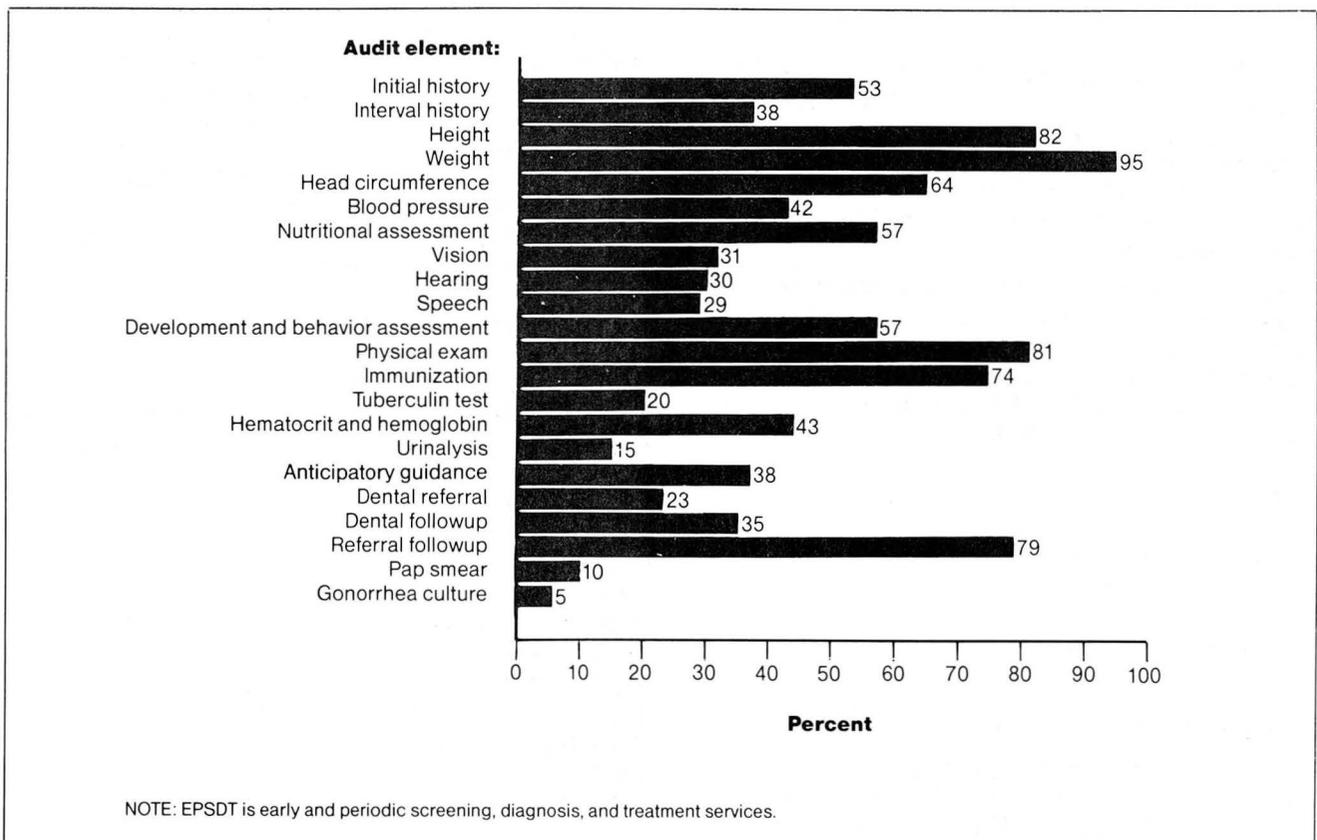
Summary

The statewide element scores on the EPSDT audit ranged from 5 to 95 percent. A total of 1,689 medical records were reviewed by AHCCCS staff at 83 provider sites for EPSDT services. The statewide overall compliance ratio was 58 percent, with a precision level of + or - 2 percentage points at the 95-percent level of confidence.

Results: Low back pain paradigm

The low back pain paradigm worksheet contains seven elements. The first three elements pertain to history and are recorded as a single element, so that only five element scores are reported. Each element pertains to the presence or absence of documentation

Figure 1
Statewide compliance scores on each element of the EPSDT audit, by audit element



in the record that the service was provided. The elements are as follows:

- History. Documentation of presence or absence of two of the following: trauma, pain radiation to lower extremities, bladder or bowel dysfunction.
- Exam. Examination of back for local tenderness, mobility, muscle spasms.
- Sensory motor exam. Sensory motor exam in lower extremities.
- Lumbar. Lumbar-sacral X-ray films if neurologic deficit.
- Documentation. Any documentation of therapy.

The use of this paradigm in the Year III audit was viewed as exploratory, because AHCCCS had no prior experience in drawing a sample of patient records for specific diagnoses from a predetermined sample of providers. Consequently, the sample of records was not large enough to justify interplan comparisons, though it was adequate for identifying apparent strengths and weaknesses of care on a statewide basis.

The element scores on the low back pain paradigm ranged from a low of 41 to a high of 89. The lower scores were for history (41 percent), lumbar-sacral X-ray where indicated (49 percent), and sensory motor exam (54 percent). Scores of 81 and 89 were recorded for general examination of back and documentation of therapy.

A total of 239 medical records were reviewed at 75 provider sites with respect to low back pain. The overall statewide score was 63, with a precision level of + or - 4 percentage points.

Results: Hypertension paradigm

The hypertension paradigm worksheet contains 25 elements. Elements 4 through 14 pertain to history, and they are recorded as a single element so that only 12 element scores are reported. Each element pertains to the presence or absence of documentation in the record that the specific service was provided. The elements are as follows:

- History. Documentation for the assessment of end-organ damage—indication of any one of the following: chest pain, hematuria, tinnitus, dyspnea, flank pain, syncope, palpitations, muscle weakness, any visual disturbance, edema, headache.
- Blood pressure (both arms).
- Pulse.
- Weight (current).
- Height.
- Cardiovascular exam.
- Funduscopic exam.
- Electrolytes.
- Blood urea nitrogen.
- Creatine.
- Urinalysis.
- Any documentation of therapy.

As with the low back pain paradigm, the hypertension paradigm was viewed as exploratory in this Year III audit. In all, 436 patient records were

reviewed; this was not a large enough sample to justify interplan comparisons, but was adequate for the statewide analysis.

The element scores on the hypertension paradigm ranged from 24 to 92 percent. The lower scores were for measurement of patient height (24 percent), funduscopic exam (32 percent), blood pressure, both arms (43 percent), and documentation of assessment of end-organ damage (49 percent). At the high end, scores of 89 percent and 92 percent were recorded for measurement of patient weight and documentation of therapy, respectively. The remaining six elements had scores ranging from 58 percent to 74 percent.

A total of 436 records were reviewed at 83 provider sites with regard to hypertension. The overall statewide score was 61, for which the precision was + or - 2 percentage points at the 95-percent level of confidence.

Post-audit activities

Analysis

The results of the Year III audit are being used as a basis for further improving the quality of care that is provided to AHCCCS members.

For example, the audit findings suggest a possible association between audit scores and such factors as whether the plan is hospital based or whether it uses an IPA or a staff-model type of organizational structure. Staff-model plans accounted for the four highest scores on the AAAHC checklist, and the five hospital-based plans received higher scores than most of the nonhospital-based plans.

A number of other plan characteristics also merit further study; for example, AHCCCS is interested in the degree to which audit scores are associated with plan size, changes in plan enrollment, the amount of voluntary disenrollment during open enrollment periods, and rural versus urban location. Accordingly, further analysis of the audit data, using more sophisticated statistical techniques, including multiple regression, are being pursued.

Quality assurance and followup

All prepaid health plans under contract to AHCCCS are required to have formal, written quality assurance programs in place. Each plan's medical director or a physician designee must participate actively in all phases of the review system, and a multidisciplinary quality assurance committee must meet at least quarterly and must maintain minutes of those meetings with regard to the identification, evaluation, and resolution of actual and potential quality-of-care problems. Additional AHCCCS requirements pertain to methodologies for identifying problems for review; establishment of quality standards; documentation of activities and relevant communications; objective measurement techniques; and provisions for feedback to the plan medical

director, plan administrator, and the AHCCCS Administration.

In addition to these more broadly based procedures for enhancing the quality of care, AHCCCS uses the results of the annual medical audits as a basis for specific corrective actions where such actions appear to be warranted. Each plan has received a narrative report from AAAHC indicating findings with respect to AAAHC standards, and each has also received a detailed report from AHCCCS on the results of the five quantitative components of the audit. Each plan has been required to submit to the AHCCCS medical director's office a corrective action plan detailing actions to correct deficiencies noted by the reviewers. The medical director must approve each corrective action plan, and the office conducts random, unannounced followup site visits to confirm that the corrective actions are being implemented.

Development of year IV audit

Evolution of the medical audit processes and methodologies occurs on a yearly basis. The ultimate goal is the objective measurement of the quality of medical care provided to AHCCCS members, utilizing criteria that can be extrapolated to the total universe rather than to a specific population.

This evolutionary process has resulted in a number of changes in the Year IV audit. Reassessment of the audit tools led to the development of a generic quality assessment worksheet that could be utilized with any physician-surveyor team.

The diagnosis-specific paradigms, with input and consensus from the AHCCCS Medical Director's Association, have been expanded to include information on whether the treatment improved or controlled the course of the disease or condition; in short, it is an evaluation of the outcome of care.

EPSDT services will be reviewed for completeness of the appropriate age-specific screenings performed by a selected group of primary care physicians. A second phase scheduled for the Year IV audit will develop an evaluation methodology to measure the success of the prepaid health plans' outreach efforts.

Finally, sample size selection for Year IV has been based on the Year III results. A maximum of 106 primary care physicians representing 15 plans will be reviewed statewide. Onsite medical record reviews began in April and will be completed by August 29, 1986. The summary report will be published in the fall of 1986.

Conclusion

The AHCCCS medical audits represent the first statewide attempt in Arizona to accomplish a statistically valid evaluation of primary care physicians in an outpatient setting. Medical records, facilities, and elements of the patient-physician relationship have been evaluated; they will be subject to continuing evaluation, and the results are being used to correct deficiencies in the quality of care wherever they may be found. However, these audits are merely a beginning in a rapidly expanding quality assurance process. At this stage, the data are proving to be more a fertile source of questions, than a source of answers, about quality of care, and much remains to be done.

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