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Containing the Cost of Third-Molar Extractions: A Dilemma for Health Insurance

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SYNOPSIS

No known scientific studies support the extraction of third molars (wisdom teeth) to prevent future disease. Yet, third-molar surgery for this purpose has become so common that in at least one major U.S. health insurance plan, the cumulative cost exceeds that for every other kind of major surgery. Many third molars that are developing normally in adolescents are classified as impacted and removed before they erupt, a practice that results in large expenditures for unnecessary surgery. In addition, the difficulty of the extractions is frequently exaggerated, so that patients and insurance plans are overcharged.

Third molar surgery is not without risk of iatrogenic injury. Fracture of the jaw, permanent numbness of the lip (paresthesia), and injury to other teeth may occur.

This paper presents a mechanism for containing the cost of third-molar surgery by elimination of payment for nonessential extractions and of the related overcharges. Adoption of this policy by administrators of dental insurance plans would save millions of dollars each year, money that could be better used in providing care for more people with real dental disease.

EXTRACTION OF THIRD MOLARS (wisdom teeth) is often based on the principle of prevention, although this principle is not ordinarily applied to surgical procedures.

Long before dental insurance became common, many medical-surgical insurance plans covered the removal of third molars when the surgery was performed in a hospital. With the advent of dental insurance, third-molar surgery also became a covered benefit when performed in a private dental office.

The most frequent reasons given for these extractions are that the teeth are impacted, or if not impacted, then they are likely to become impacted. The assumption is that an impacted wisdom tooth will cause serious pathological conditions in the future that could be damaging or even life-threatening. My objective is to demonstrate that this assumption is false and therefore that preventive third-molar sur-

'. . . The assumption is that an impacted wisdom tooth will cause serious pathological conditions in the future that could be damaging or even life-threatening. My objective is to demonstrate that this assumption is false . . .'

gery should not be a covered benefit in health insurance plans.

Definition of Impaction

The four third molars are the last teeth of the adult dentition to emerge in the oral cavity, usually erupting when the person is between 18 and 25 years of age, although eruption may occur a few years earlier or later. When these teeth are removed before eruption, they are labeled as impacted, whether or not there is any indication in the radiograph of an abnormal eruption pattern. Since some wisdom teeth, as well as other teeth, do become impacted, one might assume that an accurate method exists for predicting which third molars will fail to erupt into normal position or will otherwise cause significant health problems in the future. However, the National Institutes of Health Consensus Development Conference on Removal of Third Molars concluded that the present predictive techniques are not reliable (*1*). Therefore, the dental profession depends on clinical impressions.

The profession's clinical impressions are based largely on the sample of the population that experiences difficulties with third molars. The part of the population that does not experience such difficulties is excluded, since it requires no dental treatment in this instance. General dentists and oral surgeons are not trained in epidemiology and have difficulty distinguishing between disease incidence and disease prevalence. Therefore the profession is unduly influenced by those wisdom teeth that cause problems.

Few dentists are willing as yet to question the practice of removing those third molars in adolescents that are truly impacted or that are almost certain to become impacted, as revealed in radiographs, even though there is no evidence of disease. Even so, if third-molar extractions were limited to true impactions or to most-probable impactions, third-molar surgery would be significantly reduced.

Berger defined impaction as follows in 1923 (*2*): "Impacted teeth are those which, through an impediment in their eruption, fail to occupy their intended position in the alveolus and in the arch." This definition excludes those normally developing third molars in adolescents that have not yet penetrated alveolar bone and mucosa. It includes third molars that are in a normal developmental position which have not erupted and are unlikely to erupt because they are in the mouths of persons past the age for their normal eruption. It also includes teeth that have erupted partially but are prevented from full eruption by adjacent teeth or too small a jawbone.

Radiographic Interpretation

Once the decision is made to perform an extraction, the phrase "third molar impaction" is applied not only to true impactions but also to any unerupted third molar regardless of the patient's age or the position of the tooth depicted in the radiograph. Radiographs are not reliable indicators of impaction except for obvious conditions. Many developing third molars that appear to be impacting in early radiographs have been observed to erupt normally. For such teeth to be accurately labeled as impacted, the radiographs have to be age-related. Unless a patient is 25 years or older, a normally positioned, unerupted third molar that in the radiograph appears to be approaching eruption cannot be accurately diagnosed as impacted.

Radiographs are also used to gauge the proximity of an unerupted or impacted third molar to the adjacent second molar. At best, such assessment is only an approximation. Any dentist who has removed many truly impacted third molars, believing that these teeth impinged on the second molars, has observed that the impacted tooth seldom touches the second molar.

Radiographs are an essential tool for dental diagnosis, but they are not without limitations. One problem is overlapping imagery. Depending on the angulation of the X-rays, adjacent teeth may appear to be separate, touching, or overlapping. Distortions from improper angulation frequently result in diagnostic errors.

Based on 35 years of dental practice and the review of thousands of radiographs submitted for dental insurance payments, I can state unequivocally that more than half of the third molars classified as impacted are not impacted, but are rather the normally developing teeth of adolescents. Half of the third molars are in the upper or maxillary jaw. They will usually erupt with minimal or no difficulty. Many mandibular molars, also, if left alone, will erupt normally. Therefore, it is not unreasonable to question the beliefs frequently used to justify preventive third-molar extractions. Such beliefs, unsupported by scientific observations, may be classified as myths.

Myths About Third-Molar Extractions

Myth No. 1. "Love can make your ears ring, your heart sick, leave you breathless and wreck your health. So can wisdom teeth. . . . Because most wisdom teeth are like little time bombs. The question isn't *will* they go off, it's *when*."

This quotation from a full-page advertisement by the American Association of Oral and Maxillofacial Surgeons appeared in 1981 in Time, Newsweek, and other national magazines.

Perhaps the advertisement refers to pericoronitis, or inflammation of the gum tissue around the crown of a tooth, which is the most common pathological condition associated with erupting third molars. However, a distinction is seldom made between the pain of eruption (teething) and the pain due to infection. The prevalence of true infectious pericoronitis is not known. Nonetheless, it is generally agreed that extraction of third molars is indicated if pericoronitis recurs and is not responsive to other treatment such as curettage, surgical removal of the inflamed gum tissues, and antibiotics. Pericoronitis is not difficult to treat.

Myth No. 2. Removal of third molars before the roots are fully formed and the teeth erupt is less traumatic and painful than after eruption.

To document this claim, one would have to sum up all the pain induced by nonessential surgery and by the extraction of unerupted teeth—removal of unerupted teeth may be more traumatic than routine extractions—and then deduct the pain due to essential surgery. Since most of the third molars that are removed are symptomless at the time of surgery, the argument for early extraction to prevent later pain is specious at best. Yet, the prevention of future pain is often the excuse given for removing all four unerupted third molars simultaneously in the absence of symptoms or evidence of impaction. When third molars are extracted before eruption, they are classified as impacted, and higher fees are charged than for the extraction of erupted teeth.

Myth No. 3. The eruptive force of mandibular third molars causes crowding and overlapping of the anterior teeth.

Orthodontic researchers have repudiated this assertion (*3*). Third molars lack a solid base against which to push forward all the other teeth. Besides, the other teeth are all encased in their own bony sockets. Clearly, other factors such as jaws that are too small for the dentition are more likely to cause crooked anterior teeth than the eruption of third molars.

Myth No. 4. Impacted third molars should be removed to prevent future associated carcinomas.

Epidemiologic data do not support this contention. Bhaskar reported in 1964 on 15 adenoameloblastomas, none of which involved third molars. Most of these tumors were associated with impacted maxillary cuspids, and only 26 other cases had been reported before 1964 (*4*).

Ameloblastomas deriving from follicular sacs are similarly rare. After age 26, the epithelial cells that might cause the tumor are absent (*5*). In other words, the risk of ameloblastomas from third molars declines with age.

Before 1970, only four cases of squamous carcinoma associated with dentigerous cysts had been authenticated (*6*). A few cases have been reported since, but the incidence of carcinoma related to third molars is extremely rare.

Myth No. 5. Third molars are commonly associated with other types of disease, such as cysts, abscesses, and resorption of second-molar roots.

In one radiographic study of nearly 4,000 impacted teeth, maxillary cysts were associated with 2 percent and mandibular cysts, with 3.8 percent. The study was based not on microscopic confirmation but on an arbitrary definition of 2 mm or more of space between the crown of the tooth and the follicular lining as measured on the radiograph (*7*). This basis for diagnosis is presumptive. It does not meet the accepted standard for confirmation of disease, namely, microscopic examination of the suspect tissue that is removed in surgery. Even so, the number of cysts reported was very low.

M. R. Patwardhan (in an unpublished radiographic study at the University of California at Los Angeles in 1979 on the prevalence of disease associated with third molars) observed that only 64 of 1,028 third molars, or 6.2 percent, could be classified as diseased by any definition. In addition to the 2.4 percent of third-molar follicles rated radiographically, but not microscopically, as cysts, abscesses were identified with 3.1 percent, and root resorption of second molars was found in only 0.68 percent.

H. L. Clark reviewed radiographs of 350 patients over age 40 in his dental practice. He found 27 impacted third molars in 21 patients 52–90 years old. Only one of the radiographs showed a cyst, which appeared larger than when first observed 6 years earlier; the impacted tooth was then removed uneventfully (*8*).

Myth No. 6. Removal of third molars is safe and harmless.

Iatrogenic fractures of the jaws, damage to adjacent teeth, and occasional deaths attributed to general anesthesia for oral surgery are rarely reported

'Since prophylactic third-molar extractions cannot be supported for health reasons, it is appropriate to review the high cost of such surgery and methods for reducing it. As a nation, we cannot continue to squander scarce fiscal resources and expect to support a first-rate health care system.'

in the literature, but they have been known to occur. What is not rare is the incidence of mandibular paresthesia.

Iatrogenic Paresthesia

The major risk associated with third-molar extraction is paresthesia. In one study of 1,377 mandibular third-molar extractions, temporary paresthesia was associated with 4.4 percent and permanent paresthesia, with 1 percent (*9*). The authors stated that none of the paresthesias lasting more than 6 months resolved completely. In another study of 300 extractions of mandibular third molars, paresthesia was recorded for 16, or 5.5 percent (*10*). However, in those cases in which the radiographs showed that the mandibular nerve canal was superimposed on the roots of the third molars, the incidence of labial (lip) sensory impairment was 15 percent. Another study indicated an incidence of 2.2 percent labial and 1 percent lingual (tongue) paresthesia following third-molar extractions (*11*).

Paresthesia can occur following any mandibular extraction. It can even result from the anesthetic injection, although it rarely does. But the risk of it increases with the difficulty of the surgical procedure, and this risk is especially high for mesioangular impactions when the roots are close to the mandibular nerve canal. Howe and Poyton reported that temporary paresthesia occurs in 35.6 percent of the surgery involving mesioangular impactions (*12*). If all third-molar extractions produce 1 percent permanent paresthesia and 4.4 percent produce temporary paresthesia, as these authors report (*12*), then extrapolating to the 35.6 percent temporary paresthesia for surgery involving mesioangular impactions (frequently described as partial bone impactions) suggests that permanent paresthesia might occur in 6.8 percent of those cases. To be sure, 6.8 percent is not a large proportion, but neither is it trivial, considering the permanent psychological and physical discomfort associated with paresthesia. The patient, in addition to constantly drooling saliva and accidentally biting a numb lip, experiences a dimunition in the lips' sensory function, which is so important in speech and kissing.

Reappraisal of Third-Molar Surgery

These studies indicate, at least to me, that there is no documented need for the removal of any of the following:

1. Normally positioned, unerupted third molars.
2. Fully developed, truly impacted third molars in the absence of confirmed or suspected disease or symptoms of discomfort or infection.
3. Asymptomatic mesioangular impacted third molars whose roots are close to the mandibular canal. (If associated root resorption occurs, such alternatives as fillings or crowns to restore the root or the removal of the second molar should be considered.)
4. Asymptomatic third molars in young people with extensive dental disease who are at risk of losing second molars from dental caries. (The third molars should be retained in the event they are needed in the future for the support of removable or fixed bridges.)

The 1979 National Institutes of Health Consensus Development Conference on Removal of Third Molars came to some similar conclusions. For example, "it was agreed that there is little rationale, based on present evidence, for the extraction of third molars solely to minimize present or future crowding of lower teeth. . . ." The conferees did not recommend prophylactic third-molar extractions, stating rather "that fully impacted third molars should be removed when there is evidence of pathological changes, as should partially impacted ones when there is evidence of irreversible pathology (*1*)."

Since prophylactic third-molar extractions cannot be supported for health reasons, it is appropriate to review the high cost of such surgery and methods for reducing it. As a nation, we cannot continue to squander scarce fiscal resources and expect to support a first-rate health care system.

The High Cost of Extracting Third Molars

Data presented at the consensus development conference by Pennsylvania Blue Shield revealed that in

1978 the sum total of payments for removal of impacted teeth made this operation the second costliest surgical procedure for its covered population, exceeded only by the total paid for hysterectomies. Seventy-five percent of the dollars paid for all oral surgical procedures were for removal of impacted teeth.

By 1979, third-molar surgery had become number one in total surgical payments made by Pennsylvania Blue Shield, exceeding hysterectomies. In that year, approximately 600 oral surgeons received about $12,050,000 from Pennsylvania Blue Shield for all surgical procedures, 85 percent of which, or $10,-242,500, was paid for removal of impacted teeth (according to 1979 data from D. S. Mayes, Vice President, Dental Affairs, Pennsylvania Blue Shield). The oral surgeons classified 68 percent of these extractions as involving complete bone impactions, 31 percent as involving partial bone impactions, and 1 percent as involving soft tissue impactions (table 1).

In my 1977 study of treatment claims submitted by oral surgeons, I found that 62 percent contained overcharges from overclassifying a procedure, for example, listing surgery for a soft tissue impaction as surgery for a full or partial bone impaction (*13*). Only 51 percent of the procedures on the claims statements were considered to be classified correctly. It is likely that the listing of procedures for impactions in the Blue Shield data also represents similar overclassification and overcharging.

Before data are presented from other programs for comparison, some ambiguities in the classification of impactions need to be cleared up. The American Dental Association, in cooperation with the American Society of Oral and Maxillofacial Surgeons, has prepared the following descriptive classification (*14*):

Number of procedure	*Description*
07110	Extraction [routine, uncomplicated].
07210	Extraction of erupted teeth [surgical].
07220	Impaction that requires incision of overlying soft tissue and removal of the tooth.
07230	Impaction that requires incision of overlying soft tissue, elevation of a flap, removal of bone, and removal of the tooth.
07240	Impaction that requires incision of overlying soft tissue, elevation of a flap, removal of bone, and sectioning of the tooth for removal.

Procedures for tissue impaction remain essentially the same as in previous classification systems. However, extraction of teeth formerly classified as partial bone impactions and that require sectioning, in addition to bone removal, may now be classified as procedure 07240 even though they may not be fully covered by bone. Sectioning means chiseling or cutting the tooth into smaller pieces to facilitate removal.

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A review of data from two California dental plans administered by the Retail Clerks Unions and Food Employers Benefit Fund and by U.S. Administrators —which I have combined and called program B— reveals (tables 1 and 2) that of the benefits paid for removal of 6,751 teeth listed on the claims forms as impacted, 25 percent were classified as procedure 07220 (tissue impaction), 44 percent as procedure 07230 (partial bone impaction), and 31 percent as procedure 07240 (full bone impaction). The distribution of procedures reflects in part changes that were made in allowances by the dental consultants who reviewed the claim statements, using as a basis the radiographs that the oral surgeons had submitted for determination of benefits. For example, maxillary third-molar impactions classified as procedure 07240 were changed by the dental consultants to procedure 07230, because these teeth are rarely sectioned during removal. Without these corrections, the distribution of procedures as listed by the oral surgeons would overstate the difficulty of the procedures significantly and result in excessive costs to the health plans and their beneficiaries.

In a third program, the distribution of procedures was similar, namely, 21 percent for procedure 07220, 43 percent for procedure 07230, and 36 percent for procedure 07240 (table 1, program C). This sample covered extractions of 110 impacted teeth over a 6-month period.

These data further reinforce the conclusion that the Blue Shield figures reflect widespread overclassification of the difficulty of the extraction and the consequent higher fees. Sixty-eight percent of the impactions could not be correctly classified as procedure 07240—impactions requiring sectioning of

Table 1. Percentage of teeth listed on health insurance claim forms as impacted that oral consultants assigned to three oral surgical procedures

American Dental Association procedure No.[1]	Program A (N=100,664)	Program B (N=6,751)	Program C (N=110)
07220	1	25	21
07230	31	44	43
07240	68	31	36

[1] For description of procedures, see p. 380.
NOTE: Program A is Pennsylvania Blue Shield. For program B, data from 2 California dental plans administered by the Retail Clerks Unions and Food Employers Benefit Fund and U.S. Administrators were combined to provide a large and more representative sample. Program C is Los Angeles Hotel-Restaurant Employer-Union Welfare Fund Dental Center.

Table 2. Distribution of extractions among oral surgical procedures, based on claims paid by program B

American Dental Association procedure No.[1]	Number	Percent	
		All extractions (N=27.778)[2]	Impactions (N=6,751)
Extraction of erupted teeth	21,027	76	...
07110	18,625	67	...
07210	2,402	9	...
Extraction of impacted teeth	6,751	25	100
07220	1,718	6	25
07230	2,938	11	44
07240	2,095	8	31

[1] For description of procedures, see p. 380.
[2] Percentages do not add to 100 because of rounding.
NOTE: For program B, data from 2 California dental plans administered by the Retail Clerks Union and Food Employers Benefit Fund and U.S. Administrators were combined to provide a larger and more representative sample.

the teeth—unless maxillary third molars were excluded.

It is common practice, especially among oral surgeons, to remove all third molars at one appointment. Approximately half of these teeth would be maxillary third molars, which are usually extracted without removal of bone and almost never with sectioning. Therefore, the less costly procedure 07220, involving tissue impaction, would, if correctly applied, range from between 25 and 40 percent of the third-molar extractions, not just 1 percent as reported by Pennsylvania Blue Shield.

The cost implications of this analysis are significant. Based on 100,000 impactions (roughly the number recorded by Pennsylvania Blue Shield in 1979) and the 90th percentile fee—the maximum fee charged by 90 percent of oral surgeons as reported by the American Dental Association (*15*)—the cost of this surgery can be estimated at $11,675,000 (table 3). This figure excludes the usual charges for radiographs and general anesthesia. Extrapolating to the distribution of procedures in program B, cited previously, the cost would be $10,150,000 (table 3), or $1,525,000 less than program A (based on the Pennsylvania Blue Shield distribution)—a savings of 13 percent.

In my 1977 study, the actual savings in payments derived from the review of claims submitted by oral surgeons amounted to 54 percent of benefits that otherwise would have been paid for surgical extractions and impactions. Most of this saving came from reducing the overclassification of impactions of maxillary third molars from full bone impactions (07240) and partial bone impactions (07230) to tissue impactions (07220). But a large number of claims for extraction of impacted teeth—more than 20 percent—were disallowed because no evidence was presented of impaction, likely impaction, or any other pathological condition involving these teeth (*16*). In other words, the age of the patient and the appearance of the teeth in the radiographs indicated that the teeth were healthy, normally developing third molars, but as yet unerupted.

Let us now assume that 20 percent of the unerupted third molars extracted in program A did not require extraction. Of the remaining teeth, let us assume that half were mandibular teeth, most of which were impacted and causing trouble—an unlikely assumption, but one favorable to the claims of

Table 3. The cost of extracting 100,000 impacted teeth, based on the distribution of procedures in programs A and B and the maximum fee for each procedure charged in 1979 by 90 percent of U.S. oral surgeons

Program and American Dental Association procedure No.[1]	Impacted teeth extracted		Fee	Total charges
	Number	Percent		
Program A:				
07220	1,000	1	$ 75	$ 75,000
07230	31,000	31	100	3,100,000
07240	68,000	68	125	8,500,000
Total	100,000	100	...	$11,675,000
Program B:				
07220	25,000	25	$ 75	$ 1,875,000
07230	44,000	44	100	4,400,000
07240	31,000	31	125	3,875,000
Total	100,000	100	...	$10,150,000

[1] For description of procedures, see p. 380.
NOTE: Program A is Pennsylvania Blue Shield. For program B, data from 2 California dental plans administered by the Retail Clerks Unions and Food Employers Benefit Fund and U.S. Administrators were combined to provide a larger and more representative sample.

'If the costs of unnecessary radiographs, unnecessary general anesthesia, and unnecessary hospitalization for nonessential third-molar surgery were also deducted from the overall dental surgical benefits paid in just this one program, the savings would exceed 50 percent, or more than $6 million. If similar policies were adopted nationwide, the savings would exceed $200 million.'

oral surgeons. Let us assume that the maxillary third molars were asymptomatic and that nearly all were normally developing teeth that could be routinely extracted upon eruption—a likely assumption that does not favor oral surgeons. On this basis, the lower third molars would cost $125 each to remove. A few years later, the upper third molars would be removed for $30 each, as routine extractions. The combined cost of this surgery would be $6,200,000 (table 4), a savings of $5,457,000, or 47 percent (table 5).

If the costs of unnecessary radiographs, unnecessary general anesthesia, and unnecessary hospitalization for nonessential third-molar surgery were also deducted from the overall dental surgical benefits paid in just this one program, the savings would exceed 50 percent, or more than $6 million. If similar policies were adopted nationwide, the savings would exceed $200 million. This conservative estimate is based on an annual expenditure for dental care in the United States of more than $17 billion (*17*). About 5 percent, or $850 million of this total, can be attributed to all oral surgery. Of this sum, 50 percent, or an estimated $425 million, is spent for third-molar surgery, half of which could be saved, as I have demonstrated.

The money saved could be used to provide dental care for the 64 percent of children and adults in this country who have untreated dental needs (*18*).

The Perspective of the Administrator and Payer

Most large third- and fourth-party payers—insurance companies, administrators, and employer-union welfare trust funds—use reviewers and dental consultants primarily to determine if the services provided are covered benefits and only secondarily to contain costs. Cases of fraud in which services are charged but not provided have been well publicized, but there is virtually a conspiracy of silence about the kind of abuse described in this paper.

Third- and fourth-party payers are not opposed to saving money. However, as long as increased costs can be passed on to consumers in higher premiums and higher wage deductions, they have no strong incentive to provide more than token cost-containment.

In many programs, the worst abusers are rewarded by virtue of their claim to superiority. For example, oral surgeons are paid routinely for general anesthesia in conjunction with extractions without regard for its necessity, on the grounds that they possess superior skills in its administration. Their competency is not questioned, but rather the excessive frequency with which they use this modality. One way to reduce the frequency and the expense is to exclude the service. As an example, in the Los Angeles Hotel-Restaurant Employer-Union Dental Center, general anesthesia is not provided. The oral surgeons remove infected and impacted teeth and cysts with local anesthetics. The two or three patients

Table 4. Cost of extracting 100,000 third molars if no payment is made for extraction of normal teeth and all other mandibular third-molar extractions are charged as full-bone impactions (procedure 07240) and all maxillary third-molar extractions as routine extractions (procedure 07110)

American Dental Association procedure No.	Third molars		Fee [1]	Total charges
	Number	Percent		
None—normal teeth (extraction not paid for)	20,000	20	...	...
07110	40,000	40	$ 30	$1,200,000
07240	40,000	40	125	5,000,000
Total	100,000	100	...	$6,200,000

[1] Based on maximum charged by 90 percent of U.S. oral surgeons in 1979.

Table 5. Potential savings in two dental insurance programs for extraction of third molars if payment for extraction of normal teeth were eliminated and extraction of all maxillary third molars were paid for as routine extractions

Program	Charges		Savings	
	Unadjusted	Adjusted	Amount	Percent
A	$11,675,000	$6,200,000	$5,475,000	47
B	10,150,000	6,200,000	3,950,000	39

NOTE: Program A is Pennsylvania Blue Shield. For program B, data from 2 California dental plans administered by the Retail Clerks Unions and Food Employers Benefit Fund and U.S. Administrators were combined to provide a larger and more representative sample.

a year who require a general anesthetic are referred outside the clinic at the clinic's expense.

It is common practice for oral surgeons to take their own radiographs, frequently a panographic film, even though the referring dentists also have taken a full set, ofttimes including a panograph. In addition to double radiation, there is double expense. Parenthetically, many of the films are technically unsatisfactory, whether taken in the offices of the general dentists or the specialists (*19*).

Based on a review of 1,000 dental radiographs, Beiderman and associates reported that the majority of the full-mouth and partial-mouth radiograph series submitted to Pennsylvania Blue Shield were substandard (*20*). Yet, dentists are routinely rewarded by third- and fourth-party payers, as well as by patients without insurance, for these worthless films.

Laxity among insurance payers is by no means restricted to the dental industry. It exists in other types of insurance, such as those covering physicians' services, hospitalization, automobile repairs, and loss of personal property. If payers exercise tight control, they will offend not only providers but also consumers. Dentists will pressure administrators by demanding out-of-pocket payment in advance. Consumer-patients will complain to their union or employer representatives, who in turn will change administrators or insurance companies. Consultants who cause too much trouble will be fired.

Except in cases of absolute fraud when there is no injury or disease or no service is actually provided, insurance payments are not made for preventive purposes but are usually related to the actual services that it is assumed the beneficiary needs in relation to a specific diagnosis. A tooth may be crowned that might have been satisfactorily restored with a filling. A tooth that could have been saved by root canal treatment may have been extracted. These services are considered reimbursable because a condition exists that to some extent requires treatment. But neither health insurance programs nor private patients customarily pay for preventive surgery with the major exception of third-molar extractions.

Conclusion

Some third molars produce conditions that justify their extraction, but the assertion that third molars should be removed routinely to prevent serious disease is not supported by scientific evidence.

The term impaction is used more frequently to describe a surgical procedure than a diagnosis. As a procedure, it has been overused to the extent that the cumulative cost of third-molar surgery, at least in one insurance plan, exceeds the cost of any other surgical procedure.

Third-molar surgery also is not without risk of permanent injury, most commonly paresthesia. Other dangers include iatrogenic fractures of the jaws, injury to the temporomandibular joints, damage to the maxillary sinus, destruction of the maxillary tuberosities, injury to adjacent teeth, and occasional deaths attributed to general anesthesia. The indiscriminate removal of third molars eliminates teeth that might be of significant value in supporting prosthetic appliances in the event other molars are lost; the loss of third molars can consign such patients to less satisfactory full and partial dentures.

The removal of third molars should be restricted to patients with symptoms of chronic infection—as distinguished from the discomfort of the normal eruption of a tooth through the gum tissue—or to patients with other clinically diagnosed disease.

Administrators of dental insurance plans have a responsibility to restrict payments to necessary and essential treatment and to eliminate overcharges. Refusal to pay for nonessential third-molar surgery and the reduction of the overcharges would save hundreds of millions of dollars each year, money that would be better spent in providing care for people with real dental diseases.

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Routine EEG vs. Intensive Monitoring in the Evaluation of Intractable Epilepsy

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SYNOPSIS

Appropriate treatment of patients with intractable seizures requires precise identification of the type (or types) of seizure the patient experiences and correlation of this information with data from electroencephalography localizing the focus of the seizure in the brain. For such patients, the technique of "intensive monitoring" has gained rapid acceptance in the past several years as the investigative method of choice.

Intensive monitoring usually entails prolonged electroencephalographic recording with simultaneous videotaping of the patient. Another common technique is prolonged monitoring of the patient's electroencephalogram (EEG) by radiotelemetry, during which time the patient is closely observed by trained personnel for suspected seizures.

To compare the quality of information obtained from intensive monitoring with that from careful routine electroencephalography, the authors reviewed the medical records of 100 consecutive patients who had received both kinds of study after being referred for treatment in the special Epilepsy Treatment Unit of the University of Minnesota's Comprehensive Epilepsy Program (CEP).

Success of each method was defined by ability to record an actual seizure. The routine EEG examination recorded actual seizures in 7 percent of patients in the study. With video EEG, following careful withdrawal of anticonvulsant drugs, seizures were recorded in 70 percent of patients. Telemetered EEG recorded seizure activity in 50 percent of those patients for whom the other two methods had failed to detect seizures.

Intensive monitoring revealed that 60 percent of patients for whom the routine EEG study had recorded only one seizure type actually suffered from two or more types. Clinical diagnosis was changed in 84 percent of the patients. In this study, intensive monitoring was found to be far superior to the routine EEG examination as an aid to precise diagnosis of intractable seizure disorders.