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INDICATIONS A LA LAMINECTOMIE

Adéquation et nécessité

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- Chirurgie orthopédique
- Médecine générale
- Médecine interne
- Neurochirurgie
- Neurologie
- Rhumatologie.

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1 INTRODUCTION

La qualité et le coût des soins médicaux dépendent de l'utilisation appropriée des interventions, que celles-ci soient préventives, diagnostiques ou thérapeutiques. La meilleure façon de déterminer le caractère approprié (l'adéquation) des actes en médecine est de se baser sur des études cliniques randomisées. Cependant, pour bon nombre de situations spécifiques rencontrées en clinique, il n'existe malheureusement pas d'études randomisées démontrant l'efficacité de l'approche chirurgicale sur le devenir de patients souffrant de hernie discale ou de sténose du canal lombaire. Pour pallier à ce manque, une méthode combinant une étude détaillée de la littérature et une synthèse méthodique de l'opinion d'experts a été proposée pour définir l'adéquation des indications à l'opération pour hernie discale¹.

Les opérations pour hernie discale ont un impact important sur la santé publique en raison de leur fréquence élevée et des variations inter-régionales de leur fréquence (un taux d'opération variant jusqu'à 15 fois entre régions²). Un élément important dans l'explication de l'existence de ces variations est l'absence de critères pour sélectionner les candidats à cette opération. En fait, des critères explicites, détaillés et acceptés, susceptibles d'aider une telle sélection font actuellement défaut.

Lorsque nous avons utilisé expérimentalement des critères développés aux USA par cette méthode, nous avons remarqué que les cliniciens suisses n'étaient pas à l'aise avec des critères "importés", suggérant la nécessité de développer des critères qui correspondent à la pratique acceptée et reconnue en Suisse³. En plus, le temps écoulé depuis l'établissement des critères américains et l'étude suisse de 1993 imposait l'émission de réserves sur la validité des résultats obtenus avec ces critères³. L'objectif du présent projet était donc de développer de tels critères, actualisés et adaptés à la pratique suisse.

2 OBJECTIFS DU PROJET

L'objectif de ce projet fut de développer des critères d'adéquation et de nécessité d'une opération pour hernie discale lombaire, avec l'aide d'un groupe de spécialistes impliqués dans la prise en charge de patient(e)s souffrant de lombosciatique.

3 DEFINITIONS

La définition suivante de *l'adéquation* a été utilisée dans ce projet pour déterminer quelles indications à l'opération de la hernie discale sont appropriées ou inappropriées.

ADEQUATION

Une intervention est adéquate (appropriée) si les bénéfices attendus dépassent les risques potentiels dans une mesure suffisante à justifier l'intervention.

Plus stricte que la définition de l'adéquation de l'indication se trouve la notion de la *nécessité* (ou le caractère absolu) d'une indication opératoire. En fait, une intervention en médecine peut être appropriée, mais il peut être tout aussi approprié de procéder à une intervention alternative, voire à aucune intervention. Pour préciser le caractère nécessaire d'une indication opératoire, une extension de la définition d'adéquation a été développée:

NECESSITE

Pour être nécessaire (cruciale), l'indication à une intervention doit répondre à l'ensemble des critères suivants :

- 1. l'indication est appropriée*
- 2. ce serait une faute professionnelle de ne pas proposer l'opération dans une telle situation*
- 3. le bénéfice pour le patient doit être important*
- 4. la probabilité de ce bénéfice est grande*

Les troisième et quatrième points permettent d'exclure de la définition de nécessité une intervention pour laquelle les risques seraient minimales, mais avec une probabilité de bénéfice faible, ainsi que les procédures dont les bénéfices seraient mineurs pour le patient. Dans ces cas, l'indication peut être appropriée, mais pas nécessaire.

4 METHODE

Un panel d'experts, multidisciplinaires, a siégé en octobre 1995, afin de déterminer le caractère approprié des indications à l'opération pour hernie discale lombaire et autres pathologies de la colonne lombaire. Sa composition (annexe I) représentait les spécialités médicales et chirurgicales impliquées dans la prise en charge des patients souffrant de douleurs lombo-sciatiques : trois neurochirurgiens, deux orthopédistes, un rhumatologue, un interniste, un médecin généraliste et un neurologue. Le panel a suivi une procédure standardisée^{1,4}, développée par RAND/UCLA¹ pour l'élaboration de critères d'adéquation (appropriateness). Cette procédure est décrite brièvement ci-après.

Sur la base d'une revue détaillée de la littérature et d'entente avec les experts du panel, une liste d'indications potentielles à l'opération a été établie. Le tableau 1 montre les principales catégories d'indications utilisées.

Tableau I Principales catégories d'indications

Lombo-sciatique (aiguë, sub-aiguë, chronique)
Douleur lombaire seule
Symptômes de sténose lombaire (centrale, latérale)
Spondylolisthesis
Reprise de laminectomie
Indications diverses

D'autres éléments ont été incorporés dans les indications (scénarios) pour les rendre cliniquement spécifiques, à savoir : la nature des symptômes, la nature et la durée des traitements conservateurs déjà entrepris, la réponse à ces traitements, les résultats d'examens radiologiques déjà effectués, la gravité des signes neurologiques, le degré de handicap, ainsi que l'existence ou non d'une requête en cours auprès d'une assurance au sujet de douleurs lombo-sciatiques. Les définitions de ces éléments figurent dans l'annexe III.

De l'ensemble de ces éléments, il est résulté un total de 1 000 scénarios cliniquement spécifiques qui ont été évalués par le panel. L'ensemble des 1 000 scénarios ainsi que l'évaluation de l'adéquation de chacun d'eux, se trouve dans l'annexe V. Un exemple d'une indication spécifique (scénario clinique) est donné ci-après:

¹ RAND Corporation est une entreprise de recherche et de développement à but non-lucratif. Elle collabore depuis de nombreuses années avec l'University of California, Los Angeles (UCLA) sur un programme d'amélioration de la qualité de soins médicaux.

EXEMPLE D'UN SENARIO SPECIFIQUE

Patient souffrant d'une douleur sciatique depuis 2 mois. L'imagerie radiologique met en évidence une hernie discale. L'examen neurologique révèle des troubles neurologiques mineurs sous forme d'asymétrie des réflexes achilléens. Ce patient a déjà bénéficié, sans succès, de traitements conservateurs sous forme d'antalgiques et de repos forcé. Il est actuellement totalement incapable de travailler.

L'adéquation de l'opération dans le contexte de chaque situation cliniquement spécifique a été d'abord évaluée de manière individuelle par les neuf experts, à l'aide d'une échelle de 1 à 9.

- 1 = extrêmement inappropriée
- 5 = équivoque/incertaine
- 9 = extrêmement appropriée

Ensuite, lors d'une réunion de deux jours, les indications ont été discutées, en particulier lorsqu'il y avait désaccord entre les experts. Au terme de ces discussions, les experts ont, à nouveau, attribué un score d'adéquation à chaque "indication" (scénario) spécifique.

Le score des indications a été réparti en trois catégories :

- 1-3 = inapproprié
- 4-6 = équivoque/incertain
- 7-9 = approprié

selon la valeur médiane du score des experts et en fonction du degré de consensus (accord) entre les experts (toutes les indications qui affichaient un désaccord ont été classées équivoques, quel que soit le score médian)⁵.

L'accord entre panélistes était considéré comme présent si, après avoir éliminé le vote le plus haut et le vote le plus bas, les sept évaluations restantes se situaient toutes dans un écart de trois points.

Le **désaccord** était présent si, après avoir éliminé une valeur à chaque extrémité des votes, au moins un vote restant se trouvait dans la région 1-3 **et** au moins un dans la région 7-9. Une situation intermédiaire existait quand il n'y avait ni accord, ni désaccord.

Après l'évaluation de l'adéquation, les indications jugées appropriées ont été à nouveau soumises aux experts lors d'une deuxième réunion pour évaluer le caractère nécessaire (absolu, crucial) des indications appropriées. En appliquant la définition décrite plus haut de nécessité, une indication était considérée comme nécessaire si, lors du vote du panel sur la nécessité, la médiane du panel était entre 7 et 9, sans désaccord.

5 RESULTATS ET REALISATION

REVUE DE LA LITTERATURE MEDICALE

Une revue de la littérature sur l'efficacité de la chirurgie de la hernie a été rédigée avec la collaboration de nos partenaires américains dans ce projet. Ce document (annexe II) a été publié en janvier 1998 dans la revue Médecine sociale et préventive⁶.

EVALUATION DE L'ADEQUATION

Le résultat des évaluations de l'adéquation, sous forme de tableaux, est reproduit dans l'annexe V. Le tableau suivant indique quelques résultats globaux concernant le processus de développement des indications.

Tableau 2 **Statistiques concernant les évaluations initiales et définitives de l'adéquation**

	Evaluation initiale	Evaluation définitive
Nombre d'indications	1 002	1 000
Médiane du panel	3.20	2.97
Déviaton absolue moyenne de la médiane	1.18	0.86
Pourcentage d'accord	39	64
Pourcentage de désaccord	20	6

D'un intérêt particulier est l'importante augmentation de l'accord entre l'évaluation initiale et l'évaluation définitive issue de la réunion du panel, passant de 39% à 64%. Ce résultat fut obtenu en dépit du fait qu'aucun effort particulier n'est fait pour forcer un consensus, si ce n'est une discussion franche de points de divergences dans un esprit courtois et critique. Les évaluations restent confidentielles et anonymes.

Le tableau suivant indique le nombre et le pourcentage des 1 000 indications théoriques évaluées qui sont considérées comme appropriées, incertaines ou inappropriées.

Tableau 3 Résultats sommaires des 1 000 indications évaluées

Indication	Nombre	Pourcentage
Appropriée	106	11
Incertaine	261	26
Inappropriée	633	63
Total	1000	100

ÉVALUATION DE LA NECESSITE

Les 106 indications jugées appropriées par le panel lui ont été soumises une nouvelle fois pour une évaluation de leur caractère nécessaire ou absolu. Les résultats sommaires concernant la médiane des votes et la présence de l'accord ou du désaccord parmi les experts pour cette évaluation se trouve dans le tableau 4. Les résultats individuels pour chaque indication se trouvent dans le tableau contenu dans l'annexe VII.

Tableau 4 Résultats sommaires de l'évaluation de la nécessité pour les 106 indications appropriées.
Nombre d'indications selon la médiane et l'accord

Médiane	Accord	Incertain	Désaccord	Total
1-3	1	9	8	18
4-6	3	15	39	57
7-9	5*	15*	11	31
Total	9	39	58	106

* Selon la définition que nous avons employée, 20 des 106 indications appropriées revêtent également un caractère nécessaire (chiffres gras). Ne pas proposer l'intervention dans de telles situations serait contraire à l'éthique médicale.

ETUDE PILOTE

Dans le but de tester les critères ainsi développés, les panélistes ayant participé à l'élaboration des critères étaient disposés à mettre à notre disposition, sous une forme confidentielle, des dossiers d'une cinquantaine de leurs patients déjà opérés. Or, malgré l'approbation du protocole par toutes les commissions d'éthique concernées, ce projet n'a pas reçu le feu vert de la Commission fédérale d'experts en matière de secret médical, qui exigeait l'obtention de l'accord explicite de chacun des 250 patients concernés. Cette exigence nous paraissait disproportionnée, compte tenu du fait qu'il s'agissait d'une étude pilote et de faisabilité, que des précautions strictes de préservation de la confidentialité des données avaient été prévues, qu'il était délicat de solliciter l'accord d'un patient pour une étude sur le caractère approprié d'une intervention qu'il avait déjà subie. En outre, cette demande engendrait des coûts non budgétés.

Nous avons dès lors choisi une autre approche pour examiner la possibilité (faisabilité) d'utiliser les critères développés de manière rétrospective à l'aide du dossier médical. Une étude pilote fut entreprise sur une centaine de cas déjà opérés du site CHUV et qui avaient préalablement donné leur accord pour participer à une étude de l'adéquation de leur indication opératoire.

Le tableau 5 indique le pourcentage de dossiers qui contenaient de manière suffisamment précise les divers éléments indispensables à l'évaluation de l'adéquation de l'indication opératoire.

Tableau 5 **Présence et précision des éléments du dossier médical qui sont nécessaires à l'évaluation de l'adéquation de l'indication opératoire pour la hernie discale**

	Présent et précis (%)	Présent et imprécis (%)	Absent (%)
Durée des symptômes	82	16	2
Degré de handicap	20	34	46
Examen neurologique	65	32	3
Examen radiologique	90	6	4
Traitements non chirurgicaux	9	79	12

Cette étude sera prochainement publiée dans le *European Journal of Surgery*. Elle a mis en évidence l'impossibilité d'utiliser le dossier médical de manière rétrospective pour évaluer la qualité du **processus** des soins, dont l'adéquation de l'indication opératoire fait partie. Ce constat nous amène à deux conclusions :

1. l'importance de mettre sur pied une étude **prospective** de l'utilisation des critères,
2. la nécessité de **développer un outil** pour permettre au médecin d'évaluer de manière prospective l'adéquation de son indication opératoire.

En réponse à la première conclusion, une requête a été déposée au Fonds national de la recherche scientifique pour une étude prospective de l'utilisation de ces critères et de l'impact que cette utilisation pourrait avoir sur le devenir des patients ainsi que sur le coût relatif des traitements appropriés et inappropriés.

Le 1er requérant est le Dr F. Porchet (annexe VIII). Ce projet de recherche a été approuvé et sera financé par le FNRS.

En ce qui concerne la deuxième conclusion, une collaboration a été entreprise avec l'Ecole polytechnique fédérale de Lausanne pour intégrer les critères d'adéquation dans un prototype de logiciel fonctionnant sur le World Wide Web (voir extraits de ce site Web en annexe XI). Ce logiciel permet d'évaluer l'adéquation des interventions proposées ou pratiquées et pourra fonctionner comme instrument de dépistage pour identifier des indications potentiellement inappropriées et/ou pour confirmer des indications clairement appropriées, évitant ainsi, à l'opérateur et au patient, le recours à une "seconde opinion" dans ces cas. Le protocole d'une étude de la faisabilité d'utilisation de ce site par les médecins praticiens et opérateurs du canton de Vaud dans des situations cliniques réelles a été soumis au Fonds national de la recherche scientifique.

Le 1er requérant est le Dr J.P. Vader (annexe IX). Cette requête a été approuvée par le FNRS.

6 EVALUATION

EVALUATION PAR LES EXPERTS

Le processus de développement de critères d'adéquation selon la méthode RAND/UCLA a été évalué, par les experts qui y ont participé. Cette évaluation a fourni d'importantes informations sur l'acceptation par le corps médical de cette méthode ainsi que sur la validité des critères qui en résultent. L'annexe X donne les résultats de cette évaluation. Avec un score médian de 4, sur une échelle de 5, les experts ont jugé les critères valides et aptes à être utilisés pour formuler les recommandations pour la pratique clinique.

ACCUEIL PAR DIVERS MILIEUX INTERESSES

Divers aspects et résultats de ce projet ont été présentés dans des réunions des milieux politiques, professionnels et scientifiques :

- Groupe de concertation intercantonal en matière de politique sanitaire, Berne, mars 1996
- Société suisse d'orthopédie, Berne, juin 1996
- Sociétés suisse, belge et grecque de neurochirurgie, Athènes, mai 1996
- International Society for Quality in Health Care, Jerusalem, mai 1996
- European Public Health Association, Londres, décembre 1996
- Sociétés suisse et australienne de neurochirurgie, St. Luc, juillet 1997
- Société suisse d'orthopédie, Montreux, septembre 1997
- Union Suisse des Sociétés chirurgicales, Davos, juin 1997
- American Public Health Association, Indianapolis, novembre 1997
- International Society for Quality in Health Care, Chicago, novembre 1997.

Ces présentations ont été chaque fois accueillies avec intérêt, voire avec enthousiasme.

ACCEPTABILITE PAR LES SOCIETES DE SPECIALISTES

La Société suisse de neurochirurgie, dans sa séance de juillet 1997, a pris connaissance avec grand intérêt du projet de prototype de logiciel WWW intégrant les critères d'adéquation de la laminectomie et a décidé de l'adopter comme projet pilote de la qualité pour sa discipline.

Le comité de la Société professionnelle des gastroentérologues à qui a été présenté le prototype du site WWW de critères laminectomie s'est montré très intéressé à disposer d'un outil semblable pour la détermination de l'adéquation des endoscopies digestives. Il paraît donc important - et c'est une des conclusions de notre projet - de profiter de l'élan du présent projet et de l'intérêt qu'il a suscité pour étendre cette méthode à d'autres domaines de la médecine.

FAISABILITE DE REDACTION DE RECOMMANDATIONS ECRITES POUR LA PRATIQUE CLINIQUE (GUIDELINES)

Dans le but de simplifier l'utilisation des critères et de pouvoir mettre à la disposition des médecins un guide écrit de l'adéquation des indications pour la chirurgie de la lombosciatique (comme initialement prévu dans ce projet) nous avons procédé à des analyses multivariées des différents éléments entrant dans la définition des critères spécifiques. Le but était de voir dans quelle mesure les 1 000 scénarios (indications) pouvaient être réduits et les critères exprimés de manière plus simple que les 38 pages de tableaux, tels que présentés dans l'annexe V. Cette analyse a échoué dans le sens qu'à part deux des variables (existence d'un traitement préalable de physiothérapie sous forme d'exercices surveillés en présence de sciatique chronique et existence ou non d'une requête auprès d'une assurance pour le problème du dos), tous les autres éléments utilisés dans la définition des indications contribuaient de manière significative à la détermination de l'adéquation et ne pouvaient, de ce fait, être simplifiés ou éliminés lors de la rédaction de recommandations de pratique clinique.

Malgré cette impossibilité à exprimer de manière simple les critères d'adéquation, ce constat confirme le bien-fondé de l'inclusion de tous les éléments contenus dans la définition des scénarios, les rendant cliniquement spécifiques et, de ce fait, probablement plus acceptables pour le clinicien.

7

UTILISATIONS POSSIBLES ET MISE EN GARDE

Ce projet nous a permis de développer un certain nombre de propositions quant à l'application et à l'utilisation possibles des critères développés.

- Ils pourraient servir en premier lieu de *seconde opinion* experte, à condition d'être mis à disposition sous une forme plus conviviale que celle présentée dans l'annexe V. Ce genre d'utilisation pourrait permettre de dépister des indications qui méritent d'être réexaminées, c'est-à-dire susceptibles d'être inappropriées. D'autre part, cette utilisation des critères favorise le choix de traitements appropriés.
- Ces critères peuvent aussi servir d'outil de recherche sur *la qualité des soins*, par exemple, en recensant le pourcentage d'indications appropriées et en suivant son évolution dans le temps et en présence de programmes pour améliorer la qualité des soins.
- Ils peuvent servir de support pour la formation, notamment au niveau post-grade et continu.
- Et si on en arrivait là, le degré d'adéquation pourrait éventuellement servir à *décider des priorités* sur une liste d'attente.

Comme tout bon outil, cette méthode peut aussi être utilisée de manière contre-productive et abusive et quelques mises en garde s'imposent également :

- Il faudrait éviter que cet outil soit utilisé de manière rigide, soit pour refuser l'opération, sur la seule base de l'évaluation par le collègue d'experts d'un cas *théorique* similaire, soit pour chercher à forcer la main d'un chirurgien réticent, pour qu'il opère à tout prix un patient, simplement parce que l'indication *théorique* était appropriée.
- La médecine étant en marche constante, il serait faux de figer les critères dans leur état actuel. Même si aujourd'hui ils représentent le meilleur jugement collectif sur l'adéquation d'une intervention, ils doivent être actualisés en fonction des progrès de la médecine, et en fonction de l'apparition de nouvelles connaissances.
- Un autre abus possible serait d'utiliser ces critères pour éliminer la sur-utilisation de l'opération, sans réfléchir à la possibilité qu'une telle approche peut éventuellement avoir pour effet secondaire la création d'une sous-utilisation.

8

CONCLUSIONS ET RECOMMANDATIONS

Au terme de ce projet, les conclusions suivantes peuvent être articulées :

Le processus employé dans ce projet permet la formulation de critères de qualité de l'indication opératoire qui sont précis, cliniquement spécifiques et qui jouissent d'une grande acceptabilité auprès des experts cliniques quant à leur développement. Le développement de tels critères est un prélude indispensable à leur mise en oeuvre, par le chirurgien, pour évaluer et améliorer la qualité des soins prodigués.

A défaut d'études randomisées concernant des interventions bien établies, cette méthode, combinant une étude détaillée de la littérature et une synthèse méthodique de l'opinion d'experts, représente une alternative acceptable pour définir l'adéquation des indications à l'opération pour hernie discale.

Ce projet a démontré l'acceptabilité de ce processus formel de formulation de critères en Suisse.

Par l'entremise de ce projet, les chercheurs et cliniciens suisses ont acquis une précieuse expérience dans la méthodologie de développement de critères, leur permettant dorénavant de répéter l'expérience pour d'autres actes médicaux, sans aide extérieure, comme c'était le cas pour ce projet.

Les progrès techniques de traitement de l'information et des télécommunications, en particulier le World Wide Web (WWW), permettent aujourd'hui de mettre à disposition et de diffuser les critères ainsi développés afin de les utiliser prospectivement pour améliorer la qualité des soins à prodiguer, plutôt que rétrospectivement pour juger la qualité des soins déjà effectués. En fait toutes les études faites à ce jour avec critères ainsi développés ont évalué de manière exclusivement rétrospective l'adéquation des indications, ce qui est de moindre utilité, tant pour le médecin que pour le patient. Le prototype de site WWW d'aide à la décision médicale, mis au point au cours de ce projet, est considéré par les développeurs internationaux de cette méthode comme très prometteur pour la mise en oeuvre prospective d'un tel programme d'amélioration de la qualité des soins.

Compte tenu du grand nombre d'opérations effectuées en Suisse (à peu près une personne sur mille parmi la population active suisse est opérée d'une hernie discale chaque année) le développement de critères explicites, détaillés et acceptés revêt toute son importance. L'intérêt de ce projet réside également dans le fait que l'approche testée pourra être étendue à d'autres interventions - diagnostiques, thérapeutiques et préventives - dans le but d'améliorer constamment la qualité des soins et de mieux cibler l'emploi de ressources financières.

Sur la base de ces conclusions, et de l'avis des responsables du projet, les développements suivants doivent être entrepris :

1. L'application prospective des critères développés afin de confirmer que leur utilisation influence dans le sens souhaité le devenir des patients et les coûts des soins.
2. La poursuite du raffinement et du développement de l'outil convivial WWW et sa diffusion, afin de permettre au médecin de pouvoir consulter les critères d'adéquation pour une indication opératoire de manière prospective, c'est-à-dire *avant* de poser de manière définitive son indication et surtout avant l'opération elle-même. Une étude de faisabilité d'une telle approche devrait précéder sa diffusion à plus large échelle.
3. Cette méthode devrait être utilisée plus largement afin de développer et mettre à disposition des médecins des critères pour l'adéquation de différentes procédures en médecine.
4. Un projet concret de surveillance de la littérature médicale devrait être établi afin de guetter l'apparition de nouvelles connaissances (nouvelles études) qui pourraient rendre indispensable la convocation d'un nouveau panel d'experts pour actualiser les critères d'adéquation.
5. Des projets plus méthodologiques devraient viser à mieux étayer la validité de la méthode de développement de critères d'adéquation.

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I SWISS BACK SURGERY PANEL 1995

MEMBRES DU PANEL D'EXPERTS

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Dr. François Porchet ¹	Neurochirurgie
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Dr. Philippe Vuadens	Neurologie

MODÉRATEURS DU PANEL:

Dr Robert W. Dubois, Value Health Sciences (USA)

Dr John-Paul Vader, Institut de médecine sociale et préventive, Lausanne

¹ Le Professeur R. Renella, qui a participé à l'évaluation initiale des indications, a dû être remplacé par le Dr Porchet lors du panel en raison de maladie.

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Efficacy of lumbar discectomy and percutaneous treatments for lumbar disc herniation

Summary

The changing health care environment necessitates careful re-evaluation of all costly elective procedures. Low back surgery is a typical example. This article reviews the current literature addressing the efficacy of surgery and invasive percutaneous treatments for discogenic sciatica. It also discusses the prospects for the continuation of reimbursement for these procedures under a system of managed health care. Relevant articles were identified using the MEDLINE and Current Contents databases, from bibliographies of articles identified from these databases, from recommendations of experts in the field, and from the Canadian Cochrane Collaboration. The review includes randomized clinical trials, meta-analyses, published practice guidelines and large case series. The literature is classified and discussed in these quality strata. The review includes 9 randomized trials, 6 meta-analyses or review articles, one evidence-based practice guideline, 38 surgical case series and 35 additional references. Though incomplete, the existing evidence indicates that open discectomy shortens the duration of discogenic sciatica in selected patients. Neurologic outcomes are similar in operated and unoperated patients. Predominant leg pain, evidence of nerve root tension and concordant symptoms and imaging findings, are associated with favorable surgical results. Chemonucleolysis is also associated with more rapid pain relief than conservative treatment, but provides less certain benefit than standard discectomy. Available data on other percutaneous disc treatments do not currently support a statement on efficacy. Various percutaneous techniques are available but there is no solid scientific evidence of efficacy. The benefits of open discectomy, principally reduced duration of pain, appear to justify its use in carefully selected patients when discogenic sciatica fails to improve with conservative measures. Though elective, the procedure will probably continue to be available under managed care, but with increasing scrutiny of operative indications.

Like most matters relating to low back disorders, lumbar spine surgery remains one of the most thoroughly reviewed but least well studied areas in clinical medicine. A recent MEDLINE search identified more than 100 review articles on low back surgery published between 1980 and 1996, but found only 14 randomized trials. Despite the abundance of past reviews, several recent developments lend new urgency to a critical re-appraisal of the risks and benefits of these procedures.

The first of these is that, in an increasingly cost-conscious health care system, the low back disorders compel attention by virtue of their magnitude alone. Annual direct cost estimates for treating acute low back disorders range from \$8 billion to \$13 billion in the US¹. In 1988, 556'000 non-surgical back-related hospital admissions occurred, accounting for nearly three million in-patient days². Surgeons in the United States currently perform approximately 200'000 lumbar disc procedures annually, and the overall rate of lumbar spine surgery rose by 53% between 1980 and 1985, despite a narrowing spectrum of generally accepted indications³. A recent study from Canada identified musculoskeletal disorders as the

leading cause of chronic health problems, long-term disability and physician visits, with back and neck disorders accounting for a large fraction of this disease burden⁴. Thus, the scope of low back disorders as a public health problem demands careful ongoing assessment of their treatment.

A second factor arguing for a careful re-appraisal of low back surgery is the rapid movement toward managed health care in several countries, and the changing role of costly elective procedures. Lumbar spine surgery represents a prototypic elective procedure. First, the vast majority of surgical operations are performed for conditions that are not life-threatening. Second, for most low back conditions, surgery is only one of a broad spectrum of treatment options, and is only rarely the unequivocal treatment of choice³. Indeed, the existing evidence suggests that long-term outcomes of operative and non-operative management differ little for most low back disorders, including those involving mechanical compression of neural elements^{5–8}. In managed care settings, costly elective procedures like back surgery have come under intense scrutiny, initially by third-party payers, but increasingly also by provider groups who share the risk under capitated reimbursement arrangements. Under managed care, elective procedures may need to satisfy the criterion of *proven* benefit rather than that of *potential* benefit which served to justify reimbursement in the past⁹.

Moreover, the membership of managed care plans has increased rapidly over the past several years. In certain regions of the US, more than 50% of patients are cared for by health maintenance organizations (HMOs). It is therefore a matter of concern that the existing literature may not present proof of the benefit for many types of back surgery. Data demonstrating marked geographic variation in

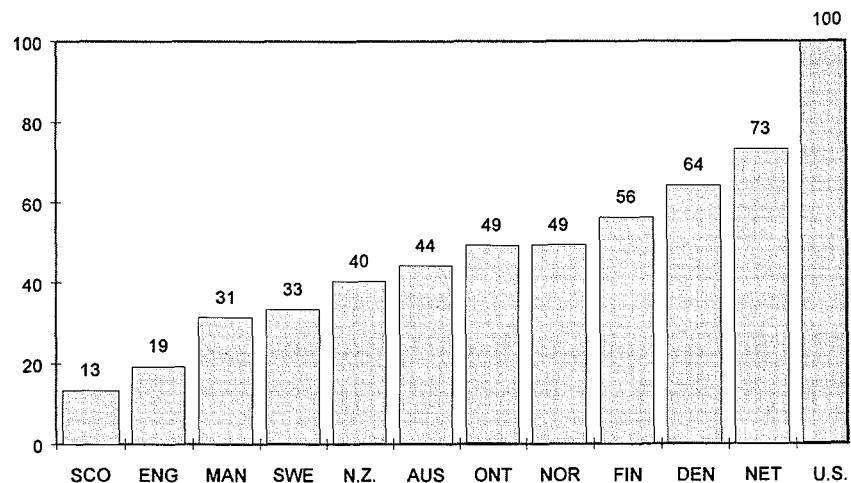


Figure 1. Ratios of Lumbar spine surgery rates in international comparison. AUS = Australia, DEN = Denmark, ENG = England, FIN = Finland, MAN = Manitoba, NET = Netherland, N.Z. = New Zealand, NOR = Norway, ONT = Ontario, SCO = Scotland, SWE = Sweden, U.S. = United States. Reprinted with permission from: Cherkin DC, Deyo RA, Loeser JD, Bush T, Waddell G. An international comparison of back surgery rates. *Spine* 1994; 19: 1201–1206, © 1997 Lippincott-Raven Publishers, Philadelphia.

low back surgery rates, especially the strikingly higher incidence in the United States than in other industrialized countries, cast doubt on the medical necessity of some of these procedures^{10,11} (see Figure 1). The extraordinary failure of clinical researchers to evaluate even routine procedures like lumbar fusion with formal controlled trials may increasingly compromise access to these procedures in the managed care environment¹². A re-appraisal of the literature may help to clarify these issues and to define the place of low back surgery under managed care.

A final reason for taking a fresh look at the back surgery literature is the powerful conceptual and methodological framework that has recently emerged for evaluating the published evidence^{10,13}. Although high quality primary studies of spine surgery remain rare, our capacity to analyze the existing evidence has taken a quantum leap forward as health services researchers and national guideline panels have focused their attention on low back disorders. As a result,

we now have formal meta-analyses of the three principal lumbar spine procedures (discectomy, fusion, and surgery for spinal stenosis)^{3,14,15} and an evidence-based guideline for the treatment of acute low back pain from a multidisciplinary national consensus panel¹⁶. Meta-analysis allows a quantitative and objective synthesis of the clinical research addressing specific questions, such as the risks and benefits of surgical procedures. Although the conclusions drawn from recently published meta-analyses were sharply limited by the quality of the primary literature, even if based on studies with controlled trial design¹⁷, they comprise a far more systematic assessment of the back surgery literature than has appeared previously. In this review, we have summarized the results of these recently published studies but have not undertaken further meta-analyses for two reasons. First, the spine surgery literature has changed little since these analyses appeared, and additional meta-analyses covering the same literature would be likely to yield similar

conclusions. Second, in offering a broad-based overview of the current status and future prospects of low back surgery, the review discusses both clinical and health policy issues not directly addressed by the quantitative literature syntheses. Below we review the current literature on the benefits and risks of lumbar discectomy and invasive percutaneous treatments for lumbar disc herniation. The review begins with an overview followed by a discussion of the quality of the existing evidence. We then present results of controlled trials, followed by a discussion of published meta-analyses. Next, we present a focused, rather than an exhaustive review of the case series literature, concentrating on factors that receive little attention in the meta-analyses, like patient selection criteria. The review closes with a discussion of complications and a summary statement on the current status of the procedures, including a discussion of how they are likely to fare under managed care.

Literature search methods

Relevant articles were identified by searching the MEDLINE database for the period from 1966 through July, 1996. The principal search strategies used the medical subject headings *lumbar vertebrae*, *lumbosacral region* and *intervertebral disc* cross-references by a number of terms including *surgery*, *laminectomy*, *discectomy* and *outcome*. Additional searches were carried out for certain subtopics including *percutaneous discectomy*, *chemonucleolysis* and *discography*. In choosing articles to retrieve and include in the review, we gave preference to prospective clinical trials, observational studies comparing results of surgery to other treatment, and formal meta-analyses and literature syntheses. We also retrieved clinical case series reporting results of surgery in

more than 100 patients, and some smaller studies that addressed specific clinical variables, such as physical findings, that might affect the outcomes of low back surgery. We have also searched the *Current Contents* database monthly since 1989 using the search terms *low back pain*, *sciatica*, *lumbar or neurogenic claudication*, *disc*, *discectomy*, *laminectomy*, and *spinal fusion*. From this database we retrieved all articles describing surgical and nonoperative treatments for herniated lumbar disc, spinal stenosis, spinal instability and low back pain, excluding case reports. Aware that MEDLINE searching cannot collect all relevant studies¹⁸, we identified additional articles from the reference lists of papers located using MEDLINE and *Current Contents*, from the bibliographies of textbook chapters and from the recommendations of clinicians with expertise in spinal disorders. We complemented our search with information received from the Back Disorders Group of the Canadian Cochrane Collaboration Center, and also included articles encountered in non-indexed journals. Using the selection criteria outlined above, we selected nine randomized trials, six meta-analyses or review articles, one evidence-based practice guideline, thirty-eight surgical case series and thirty-five additional articles for inclusion in the current review.

Lumbar discectomy

Overview

Procedures to relieve compression of lumbar nerve roots by herniated lumbar disc material represent by far the most common type of back surgery, with nearly 200'000 cases annually in the United States³. An analysis of national hospital discharge data found that herniated discs accounted for 73% of low back surgical operations perform-

ed in the United States during 1988–1990¹⁹. This contrasts with outpatient care, where lumbar disc herniation accounted for only 11% of visits, for low back problems, with the remainder of visits being for non-specific back problems, stenosis and suspected instability²⁰. Since inpatient care generated more than a third of the total medical costs associated with spinal disorders in 1990²¹, lumbar disc herniation accounts for a disproportionate share of overall spending on low back pain. We found no detailed data partitioning the total direct costs of caring for lower back disorders into discrete syndromal categories (e.g., radiculopathy, stenosis, mechanical back pain).

Although the terms laminectomy, laminotomy and discectomy are routinely used to identify these procedures, the surgery in fact targets neither the lamina nor the intervertebral disc itself, but rather the extruded fragments of nucleus pulposus which produce symptoms through radicular compression and inflammation¹. With the advent of the operating microscope, the trend has been toward removing herniated disc fragments through smaller exposures, involving minimal disruption of vertebral and soft tissue elements. This trend toward minimally invasive surgery has now led to the development of a variety of percutaneous and endoscopic disc treatments (discussed below). Despite advances in surgical technique and preoperative imaging, neither the indications nor the reported success rates for lumbar disc surgery have changed appreciably in the past two decades (Table 1). Although patients who undergo discectomy frequently manifest radicular neurologic deficits²², intractable sciatic pain remains the principal indication for surgery³. The likelihood of resolution of radicular neurologic deficits is similar regardless of whether the patient is treated surgically or with nonoperative measures^{5,23}.

Author	Sample size	Type	Outcome %			Factors associated with good outcome
			Good	Fair	Poor	
Spangfort ²² 1972	2504	retrospective	77	18	5	degree of disc herniation (intraoperative)
Finneson ³⁹ 1979	280	retrospective	79	8	13	predictive score card with positive factors: single root syndrome with corroborating radiology positive straight leg raising crossed straight leg raising sciatica more severe than LBP psychology
Strefling ⁴⁰ 1984	228	prospective	78	17	15	non workers' compensation
Herron ⁴¹ 1985	106	prospective	75	13	12	positive straight leg raising crossed straight leg raising sensory defect non workers' compensation psychology
Lewis ⁴² 1987	100	prospective	62	24	14	positive straight leg raising
Spengler ⁴³ 1990	84	prospective	77	7	16	imaging psychology
Abramovitz ⁴⁴ 1991	450	prospective	79	16	5	leg pain absent back pain positive straight leg raising free fragment on imaging non workers' compensation
Pappas ⁴⁵ 1992	654	retrospective	78	18	4	non workers' compensation
Davis ⁴⁶ 1994	984	retrospective	89	8	3	non workers' compensation psychology

Table 1. Lumbar discectomy: Surgical results and factors from nine uncontrolled case series reported over the past two decades.

Quality of published evidence

Evaluation of a treatment's efficacy requires data that support an accurate comparison of its benefits and risks in the clinical situations where it is generally used. Although clinical case series can provide information on a procedure's risks, generally only randomized controlled trials (RCTs) can "demonstrate specific benefit incurred by the therapeutic intervention over and above the natural course of illness, random fluctuations and the non-specific benefits of the treatment setting"²⁴. For this reason, schemes for classifying the

quality of published evidence typically place RCTs alone in the first rank, followed by cohort and case-control studies, then non-randomized studies with comparison groups and finally clinical case series²⁵. Systematic reviews of the spine surgery literature, including that on lumbar discectomy, consistently find an abundance of clinical case series, but a striking shortage of controlled studies that allow direct estimates of the procedures' benefits^{3,10,14,15,25,26}. Although more controlled studies of discectomy have appeared than for any other low back surgical procedure, evidence on efficacy remains ex-

ceedingly sparse. To date, only six randomized controlled trials of discectomy have appeared. Four of these compared surgery to chemonucleolysis using chymopapain²⁷⁻³⁰. A single study compared surgery to non-operative treatment⁵ and another compared automated percutaneous lumbar discectomy to microdiscectomy³¹. A recent synthesis of the discectomy literature found the overall quality quite low: of 81 studies that met inclusion criteria for review, only 23% used any kind of comparison group, 17% had a prospective design, 27% employed statistical analysis, and only

6% used independent observers to collect outcomes data³.

The surgical literature indicates that lumbar discectomy is performed for indications ranging from simple sciatica without neurologic deficit to acute cauda equina syndrome. Published case series generally include patients with a broad range of symptom severities and durations. Some reports have described an association between individual historical or physical findings and surgical outcomes^{5,22} (Table 1). However, the literature does not support separate description of surgical outcomes for patients with and without objective evidence of radiculopathy. First, the clinical syndromes of radiculopathy and referred pain from other spinal structures overlap significantly³². Second, neurologic findings (including motor, sensory and reflex deficits) have no greater than 50% sensitivity and 70% specificity in identifying a disc herniation in patients with sciatica³³. Finally, although electrodiagnostic studies aid diagnosis in selected cases³⁴, a minority of discectomy series have reported clinical outcomes in relation to preoperative electrodiagnostic results. Thus, while recent practice guidelines recommend confirmation of root injury by either physical examination or electrodiagnostic studies prior to surgery¹⁶, the evidence supporting this approach is not conclusive. In summary, published evidence does not support separate reporting of discectomy results for patients with and without objective preoperative evidence of nerve root injury.

Results of randomized controlled trials

Weber's classic study comparing discectomy to physical therapy in patients with discogenic sciatica remains the only randomized trial comparing lower back surgery to any non-invasive treatment⁵. This

study, carried out more than two decades ago in Oslo, was of 126 patients with myelographically proven disc herniations, strong clinical evidence of radiculopathy and failure to improve after two weeks of bed rest and physical therapy. They were randomly selected to receive either standard discectomy or continued conservative care. The results showed a clear advantage for surgery at one year follow-up; approximately two thirds of surgically treated patients were restored to baseline function as compared to one third in the conservatively treated group. However, the differences between groups were no longer statistically significant at four year follow-up, and at ten years results of surgery and non-operative treatment were essentially equal. Interestingly, neurologic outcomes including motor and sensory deficits were equivalent in the two groups (though patients who presented initially with major motor deficits received early surgery and were not randomized). Weber's data⁵, along with descriptive reports comparing long-term outcomes in operated and non-operated patients with sciatica²³ underlie the current thinking that the principal benefit of discectomy is a reduction in the duration of sciatic pain from lumbar disc herniation. A recent review of Weber's article points out several critical flaws in the study including a large number of crossovers, the small sample size and insensitive outcome measurements³⁵. However this is still the only RCT comparing surgical versus conservative treatment. The four randomized trials comparing open surgery to chemonucleolysis^{27–30} support the surgical approach: each found superior symptomatic and functional recovery in the group undergoing surgical discectomy compared to patients who received chymopapain injections. However, none included untreated controls.

Results of meta-analyses and reviews

Hoffman and colleagues recently conducted a formal literature synthesis on surgery for herniated lumbar discs³. Despite the poor overall quality of the literature, the authors concluded that in selected patients discectomy does in fact offer superior short-term relief from sciatica compared with conservative treatment. Surgery appears to have little effect on long-term results. However, their conclusions were based principally on the small number of controlled studies mentioned above and thus re-state rather than create new evidence. The authors also stress the importance of balancing faster pain relief against the risks and expense of surgery when choosing among therapeutic options.

Three less formal approaches were also recently published. The first is a state-of-the-art article which points to the need for randomized, controlled and double-blind studies³⁶. The second compares the results of surgery with conservative treatment: the indication for surgery is always relative except in very rare cases (caudal equine syndrome, intractable pain, severe motor deficits) and the only advantage of microdiscectomy is during the first months³⁷. The third is a recent review of literature assessing the effectiveness of current medical care, focusing on type and timing of conservative treatment, usefulness of imaging and other investigate procedures and type of intervention³⁸. It concludes that minimally invasive surgery should be preferred to laminectomy, but that percutaneous discectomy is only suitable for patients with contained prolapsed disc.

Findings from case series

In contrast to the paucity of controlled studies, a vast number of uncontrolled case series on lumbar

disc surgery have appeared in the literature during the six decades of the procedure's existence^{22,39–50}. Eddy⁹ points out that uncontrolled clinical series supply useful information on a treatment's efficacy only when three conditions hold: "the outcomes are obvious, the outcomes are immediate, and the treatment causes dramatic changes in the outcomes, so dramatic that the changes cannot be explained by any other factors". Despite the dramatic relief some patients experience immediately following discectomy, recovery from discogenic sciatic is highly variable regardless of the treatment modality used^{6,22,23}. Thus none of Eddy's conditions truly holds for low back surgery, and uncontrolled case series probably contribute little to our understanding of efficacy. Given the striking uniformity of reported success rates from series carried out at different times, in different populations and using markedly differing imaging technologies (see Table 1), the contribution to the knowledge base of the additional uncontrolled surgical series which continue to appear^{46,49} seems likely to be marginal.

Despite this limitation, the surgical case series do provide useful insights unavailable in the small number of published controlled trials. Most importantly, among the patient populations who undergo surgery these studies help to identify specific clinical factors predictive of a favorable result. These factors include predominance of unilateral lower extremity pain over low back pain^{44,49,51}, signs of nerve root tension as evidenced by sciatic pain on straight leg raising^{41,44,52–54}, of monoradiculopathy evidenced by sensory, reflex and in some cases motor deficits^{22,44}, the absence of psychological characteristics that inhibit recovery^{41,43,55}, and the duration of preoperative working disability^{56–58}. The clinical case series also shed useful light on the role of pre-operative imaging studies.

Despite a growing literature documenting a high prevalence of lumbar disc abnormalities in asymptomatic subjects^{59–63}, surgical case series generally report an important correlation between the demonstration of a true disc herniation concordant in location with the patient's symptoms on pre-operative imaging, and favorable post-operative results^{41,43,44}. In other words, patients with imaging findings that do not correlate with the clinical history and examination generally fare poorly with surgery^{64,65}.

A final issue not conclusively addressed in the literature is the comparative effectiveness of disc surgery for acute and chronic sciatica. The practice guideline recently released by the US Agency for Health Care Policy and Research¹⁶ defines acute low back problems as those which produce three months or less of activity limitation. Problems lasting more than three months are defined as chronic. The published literature describing discectomy does not clearly identify different surgical outcomes in the acute and chronic groups.

Hurme and Alaranta^{48,54} reported that the results of discectomy were best in patients with two months or less of sciatica at the time of surgery. This result, along with Weber's finding of a less favorable outcome of surgery in patients with more than three months of sciatica, has raised the question of a "surgical window" that is, an optimal time interval for performing disc surgery, after an adequate trial of conservative management has failed but before irreversible nerve root injury has occurred. Most of the published surgical series include patients who have had radicular symptoms for periods varying from a few weeks to several months at the time of discectomy, and most fail to describe the effect, if any, of preoperative symptom duration on outcome. However there is some evidence to suggest that if such a window exists, it may extend signifi-

cantly beyond the two or three months indicated by Weber and Hurmes' results^{5,54}. In the study by Saal and Saal⁶ most of the 64 patients with radiculopathy due to herniated lumbar discs achieved good or excellent clinical outcomes with nonoperative management, but several went on to have surgery after 16 weeks or more of conservative care. All of these patients achieved a good or excellent clinical result. The authors point out that many of the patients who did well without surgery in their series required twelve weeks of conservative treatment to achieve their maximal functional outcome.

In Lewis'⁴² series, patients underwent surgery after having had sciatica for an average of 16 months, and 73% achieved complete relief of leg pain at one year follow-up. Patients with more than 17 months of preoperative sciatica did only slightly worse, with 63% reporting complete relief at one year, and long term outcomes were the same as for patients with shorter preoperative symptom duration. Spangfort's²² patients had a mean duration of sciatica of more than three years at the time of surgery, and 60% achieved complete relief of pain postoperatively.

In summary, the literature fails to demonstrate conclusively a difference in surgical outcomes between patients with acute sciatic and those with more prolonged symptoms. A trial of nonoperative treatment lasting several months is not clearly associated with less favorable surgical results.

Complications

Serious complications from lumbar disc surgery occur uncommonly. Spangfort found three postoperative deaths in his series of 2,504 patients (0.1%), and noted a mortality rate of 0.3% in more than 22,000 cases described in the literature²². The wound infection rate was 3.2%, and 4.4% required intra-

operative transfusion. Three patients developed cauda equina syndrome postoperatively.

A recent prospective study of 481 primary and repeat discectomies found no deaths⁶⁶. Intraoperative complications including dural perforations and nerve root injuries occurred in 8% of patients who had microdiscectomies, 14% of those treated with standard discectomy and in 28% of patients having a repeat operation. Postoperative complications were less than 4% overall, and arose more frequently in older patients.

A population based study of more than 28,000 discectomies found a mortality rate of 0.06%, all deaths resulting from pulmonary embolism, myocardial infarction or septicemia⁶⁷. The overall rate of pulmonary embolism was 0.1% and 0.3% of patients had infections requiring intravenous antibiotics; 0.3% of patients had a second operation during the index hospitalization, either for repeat discectomy or to treat a complication.

A more recent population based study from the State of Washington found that surgery for herniated disc was associated with fewer complications than other lumbar spine procedures⁶⁸. There were three deaths among patients being operated on for herniated discs, all in patients older than 55. The overall in-hospital complication rate was 4.7% higher for patients who underwent laminectomy and discectomy compared to those who had discectomy alone. Hoffman's recent meta-analysis of 81 studies also found relatively low complication rates, with overall mortality less than 0.15% and other serious complications such as permanent nerve injury and deep wound infection in fewer than one percent of cases³.

In summary, the rate of serious complications for patients undergoing lumbar disc excision appears to be low, especially in younger patients who have simple discectomies performed. The most frequent com-

plication is failure of the surgery to relieve symptoms, which occurs in 10 to 20% of cases (see Table 1).

Percutaneous treatment for herniated lumbar disc

In the past several years, several techniques have been developed to excise or ablate portions of lumbar discs without performing an open surgical procedure. These include chemonucleolysis, automated percutaneous discectomy, laser discectomy and endoscopic techniques. Chemonucleolysis by injection of chymopapain into the nucleus pulposus was described more than three decades ago and remains in active use in Europe⁶⁹. Its popularity in the United States has waned largely due to occasional severe complications including fatal anaphylaxis⁷⁰. Mechanical percutaneous discectomy, first described in 1975, has increased greatly in popularity since the introduction of an automated nucleotome probe in 1985⁷¹. By 1992, more than 50,000 patients had undergone automated percutaneous discectomy worldwide⁶⁹. Laser and endoscopic discectomy represent very recent innovations^{72–76}, as does laparoscopic lumbar discectomy with an anterior surgical approach^{77,78}. In Table 2 the randomized trials concerning these percutaneous techniques and the results are summarized.

Percutaneous disc treatments all attempt to decrease the volume of a disc herniation by reducing the amount of material contained within the nucleus pulposus. While some authors have reported that the size of the residual disc defect on post-treatment imaging correlates with clinical response to intradiscal treatments⁷⁹, larger series have failed to confirm this relationship⁸⁰. None of the percutaneous treatments directly removes nuclear material that has extruded through an annular defect as occurs in a frank disc herniation, the lesion

most closely linked to lumbar radiculopathy⁸¹. Thus, the rationale for performing percutaneous disc procedures does not conform closely to current thinking on the pathophysiology of discogenic sciatica.

Chemonucleolysis

The literature on chemonucleolysis consists of a large number of clinical case series and a few controlled studies. Three randomized trials which compared intradiscal chymopapain to placebo injection reported significantly greater symptoms relief in the group that received the active drug^{82–84}. In one trial, the advantage of chymopapain over placebo was sustained over a ten-year follow-up period⁸⁵. Two articles claim that in selected patients the use of chymopapain and chemonucleolysis "is effective for the treatment of lumbar intervertebral disc herniation" even though the procedure is "somewhat less effective than open discectomy"^{86,87}. Thus, chemonucleolysis does appear to offer symptom relief superior to placebo injection. However, studies which have directly compared chemonucleolysis to surgical discectomy have uniformly reported superior results with conventional open techniques^{27–30}. Three randomized trials comparing chemonucleolysis to conventional disc surgery reported significantly superior short-term results with open discectomy, but no significant long-term differences in outcomes^{27,29,30}. A fourth study reported a sustained advantage for surgery over chemonucleolysis, and also found poor results among patients who underwent conventional discectomy after unsuccessful chymopapain injection²⁸. Rates of failed chemonucleolysis leading to subsequent open surgery ranged from 20% to 56% in these studies, far higher than the re-operation rate following conventional disc surgery. To summarize, although chymopapain injection may speed

Author	Sample size	Type	Techniques involved	Result
Chatterjee ³¹ 1995	71	randomized, controlled	ALPD vs lumbar microdiscectomy	ALPD ineffective in the treatment of the contained lumbar disc herniation
Crawshaw ²⁸ 1984	52	randomized, controlled	surgery vs chemonucleolysis	failure 48% for chemonucleolysis vs 39 % for surgery. Poor results for surgery following unsuccessful chymopapain injection
Ejeskar ²⁷ 1983	29	randomized	chemonucleolysis vs surgery	short-term results favorable to surgery. No difference at 5 months
Feldman ⁸⁴ 1986	39	double-bind randomized	chymopapain vs placebo	55% effective in treatment group vs 26 % in control group
Fraser ⁸² 1984	60	double-bind randomized	chymopapain vs placebo	two-years follow-up favored treatment group 77 % vs 47 %
Gogan ⁸⁵ 1992	60	double-bind randomized	chymopapain nucleolysis vs placebo (discographie and H ₂ O injection)	therapeutic effect of chymopapain sustained at 10 years. 77% improvement vs 38 % for placebo
Javid ⁸³ 1983	108	double-bind randomized	chymopapain nucleolysis vs placebo (saline injection)	chymopapain more effective than placebo, 71 % vs 45% at 6 weeks follow-up
Mayer ⁷⁴ 1993	40	prospective, randomized	percutaneous endoscopic discectomy vs microdiscectomy	success rate 95 % for endoscopic discectomy vs 72 % for microdiscectomy
Muralikuttan ³⁰ 1992	92	randomized	chemonucleolysis vs disc surgery	chemonucleolysis has inferior short-terms results using multiple outcomes
Revel ⁶⁹ 1993	141	randomized	ALPD vs chemonucleolysis	one-year success rate 66% for chemonucleolysis and 37 % for ALPD
Van Alphen ²⁹ 1989	151	randomized	chemonucleolysis vs discectomy	efficacy of discectomy appeared to be definitely superior

Table 2. Randomized trials of percutaneous techniques for the treatment of compressive lumbar disc herniation. (ALPD = Automated percutaneous lumbar discectomy).

the resolution of discogenic sciatica in some patients, open procedures appear to provide both more rapid and more certain relief.

Percutaneous discectomy

Despite its rapidly rising popularity, until recently the literature on percutaneous discectomy has consisted almost entirely of clinical case series, most describing small numbers of patients. The largest series have reported success rates ranging from 55% to 87%^{71,88,89}. There are only two randomized controlled trials published comparing percutaneous procedures to open surgery. The first one compared automated percutaneous lumbar discectomy (ALPD) with microdiscectomy³¹, concluding that ALPD is less effective. Because of the specificity of this procedure this result is not applicable to other percutaneous techniques. The second one compared automated percutaneous discectomy to chemonucleolysis and found substantially inferior results with the percutaneous procedure⁶⁹. In this study, chemonucleolysis was considered successful in 61% of cases, compared to 44% in the percutaneous discectomy group. During the six months following initial treatment, seven percent of the chemonucleolysis group and 37% of the percutaneous discectomy group underwent open surgical discectomy. However, the largest series have reported success rates ranging from 55% to 87%^{71,88,89}.

Results of one uncontrolled study may provide some insight into the variable success rates reported to date with the percutaneous procedure⁹⁰. The authors performed contrast discography on all patients prior to automated discectomy, and classified disc herniations as either broad-based or narrow-based from the pattern of the injected contrast medium. Percutaneous discectomy had a success rate of 80% in the group with broad-based herniations, compared with only 57% in

those with narrow-based lesions. These data support the view that intradiscal procedures may be less effective in cases where nuclear material has extruded through a narrow annular defect. At present, the evidence suggests that, while some patients may benefit from percutaneous discectomy, this procedure is less effective than chemonucleolysis which in turn yields inferior results to those obtained with conventional disc surgery. In choosing among treatment options, patients should be aware that these less invasive procedures have a lower certainty of success.

Newer percutaneous techniques

Recently, reports have appeared in the literature describing percutaneous laser discectomy^{72–74}, arthroscopic microdiscectomy⁹¹ and endoscopic discectomy^{74,92}.

Published data on the laser procedure remain preliminary and do not support a comparison with the other techniques. Whereas some claim an advantage of this technique in terms of cost-effectiveness and efficiency⁷⁵ others conclude that its usefulness is minimal⁷⁶. A small randomized study comparing endoscopic to conventional discectomy from a single center found superior results with the endoscopic procedure⁷⁴. However, the reported success rate of 69% for open discectomy in this study fell far below that described in other recent series^{44,45}, calling into question the authors' conclusions. Laparoscopic lumbar discectomy has been assessed in several cases series. These do not provide any solid proof of its efficacy^{77,78}. In summary, while rapid technologic innovation in this area continues, insufficient data exist to evaluate the efficacy of these newest procedures.

Conclusion

Methodologic limitations of the literature notwithstanding, the exist-

ing evidence suggests that lumbar discectomy decreases the duration of sciatica in carefully selected patients, providing superior short-term outcomes to nonoperative measures. Serious complications occur rarely. The potential benefits of surgery seem to exceed the risks sufficiently to justify offering the procedure to patients who fail to achieve adequate symptom relief with nonoperative measures and with the passage of time beyond the point where the natural course of the illness might lead to clinical improvement. Outcomes following open discectomy have been superior to those from invasive percutaneous procedures in published series. There is a trend from open discectomy to less invasive surgery using various endoscopic surgical techniques, but rigorous studies supporting the efficacy, effectiveness or efficiency of these techniques are lacking. Nevertheless, lumbar discectomy remains an elective procedure without proven long-term advantage over conservative treatments. While proof of efficacy appears adequate to justify inclusion of lumbar disc surgery in a standard minimum benefit package, payers may well seek to restrict use of these procedures to patients who have unequivocal clinical and imaging findings of nerve root impingement and who fail a credible trial of nonoperative therapy and observation. Adoption of a standardized preoperative assessment database and routine documentation of outcomes with validated instruments might help to reduce the geographic variation in surgery rates, and help to ensure that these procedures remain available to the small subset of patients with herniated discs who actually require them. Tightly managed health care organizations may feel that surgical intervention in the more uncertain cases is not warranted^{93,94}.

Zusammenfassung**Wirksamkeit der lumbalen Discectomie und perkutaner Behandlungsmethoden von lumbalen Diskushernien**

Die sich ändernden Bedingungen im Gesundheitswesen verlangen nach sorgfältiger Reevaluation von ausgewählten teuren Behandlungsmethoden wie die lumbale Diskushernieoperation. Dieser Artikel fasst die derzeit verfügbare Literatur zur Wirksamkeit der chirurgischen Behandlung und der invasiven perkutanen Therapien der diskusbedingten Kreuzschmerzen zusammen. Die relevanten Arbeiten wurden aus den Datenbanken MEDLINE und Current Contents ausgewählt, später auch aus den Literaturangaben dieser Arbeiten, sowie gemäss den Empfehlungen von Experten in diesem Gebiet und den Angaben der Canadian Cochrane Collaboration. Berücksichtigt wurden 9 randomisierte Studien, 6 Metaanalysen und andere Übersichtsarbeiten, eine „evidence based“ Behandlungsrichtlinie, 38 Fallserien und 35 weitere Referenzen. Die Auswirkungen der offenen Discectomie, es handelt sich vor allem um eine Verkürzung der Schmerzdauer, berechtigen diese Methode bei sorgfältig ausgewählten Patienten, wenn die konservativen Massnahmen keine Besserung gebracht haben. Dieser chirurgische Eingriff wird wahrscheinlich auch im Rahmen einer „managed care“ verfügbar sein, wobei die Indikation enger gestellt werden wird.

Résumé**Efficacité de la discectomie lombaire et des traitements percutanés pour la hernie discale lombaire**

Les changements qui interviennent dans les systèmes de soins nécessitent une réévaluation soigneuse des procédures électives coûteuses comme l'est la chirurgie lombaire. Cet article présente une revue de la littérature actuelle sur l'utilité de la chirurgie et des traitements percutanés invasifs dans le cas des sciatiques d'origine discale. Les articles concernés ont été identifiés par le biais des bases de données MEDLINE et Current Contents, des listes bibliographiques, des recommandations des experts et de la collaboration canadienne Cochrane. Elle comprend 9 essais randomisés, 6 méta-analyses ou articles de revue, 1 recommandation pour la pratique clinique basée sur les preuves, 38 grandes séries chirurgicales de cas et 35 références additionnelles. Les bénéfices de la discectomie par voie chirurgicale, principalement pour la réduction de la durée de la douleur, justifient son utilisation chez des patients soigneusement sélectionnés, souffrant de la sciatique d'origine discale, après échec d'un traitement conservateur. Bien qu'élective cette procédure continuera probablement à être disponible dans un système de soins type HMO mais avec une surveillance croissante des indications opératoires.

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III DEFINITIONS

"SWISS BACK SURGERY PANEL 1995"

INTERVENTIONS

"Laminectomy"

Includes unilateral and bilateral laminectomy, laminotomy with discectomy and open microdiscectomy; does not include percutaneous procedures, nor spinal fusion.

Note : A laminectomy proposed three months or more since a previous laminectomy uses the indications in chapters 1-9.

The laminectomy indications also apply to patients with recurrent sciatica.

SYMPTOMS

1. Sciatica or cruralgia

Pain in the posterior or lateral aspect of one lower extremity distal to the knee (**sciatica**) or anterior portion of one thigh (**cruralgia**).

In patients with both back and leg pain, the leg pain must predominate. If the magnitude of the leg pain is similar to the magnitude of the back pain, it is considered sciatica if the pain is in a dermatomal pattern.

- Acute: Symptoms present for less than 6 weeks.
- Subacute: Symptoms present for 6 weeks to 6 months.
- Chronic: Symptoms present for more than 6 months

2. Symptoms of Central Spinal Stenosis

Neurogenic claudication (unilateral or bilateral lower limb pain, weakness or paresthesia made worse by walking and relieved by sitting or bending forward).

3. Symptoms of Lateral Spinal Stenosis

Unilateral lower extremity pain in a radicular distribution; or numbness, paresthesia or weakness corresponding to a radicular distribution; includes sciatica.

IMAGING

CT SCAN, MRI, MYELOGRAM OR DISCOGRAPHY

Disc Herniation

- A focal extension of the disc margin, with nuclear material extending through a defect in the annulus. Does not include discs described as bulging or markedly bulging. Does not include discs described as showing degenerative changes, unless herniation is also described.

Disc Herniation with Free Fragment

- Herniated disc with extruded nuclear material which is no longer connected to the disc space of origin.

Central Stenosis

- Reduced dimension of the portion of the spinal canal that surrounds the dural sac, at the level of the planned procedure.

Lateral Stenosis

- A bony or soft tissue lesion that compresses or impinges on a lumbar nerve root as it exits the spinal canal.

No Herniated Disc or Stenosis

- Imaging findings that do not meet criteria for disc herniation, central or lateral stenosis.

No Abnormal Disc

- No report of a degenerated intervertebral disc by CT scan, myelogram, MRI or discography.

Degenerated Disc

- Degenerative changes in disc at level of planned surgical procedure seen on CT scan, myelogram or MRI. Includes discs with gross evidence of degeneration (loss of disc space height, herniation) and discs with normal contour and abnormal signal intensity on MRI.

Positive Discography

- Discogram showed degeneration (with or without herniation) and injection of contrast material reproduced the patient's usual back or sciatic pain.

NEUROLOGIC EXAM

Root Tension Sign

- Pain distal to the knee at 60 degrees or less of passive hip flexion; includes crossed and/or seated straight leg raising (\equiv sitting knee extension test) ; or positive femoral stretch test.

Minor Neurologic Abnormality

One of the following findings on physical examination:

- reflex asymmetry at knee or ankle
- unilateral dermatomal sensory loss in a lower extremity
- nonprogressive unilateral muscle weakness which does not meet criteria for major weakness.

Major Weakness

- Unilateral weakness in foot dorsiflexion, plantar flexion or knee extension, with strength rated 3 out of 5 or less, where 3/5 = ability to maintain position against gravity but not against resistance; includes foot drop.

Cauda Equina Syndrome

- Acute neurogenic sphincter dysfunction, paraparesis or saddle anesthesia.

Progression of Motor Weakness (chapter 10)

- Unilateral lower extremity weakness which is documented on two examinations, and is shown to have progressed either from minor to major weakness or to have progressed one grade within the major weakness category (e.g., from 3/5 to 2/5).

No Neurologic Findings

- No neurologic abnormality.

Abnormal Neurologic Exam

- At least one of the following: minor neurologic abnormality or major weakness.

NONOPERATIVE TREATMENT

Note: Nonoperative treatment for the patient with chronic sciatica will include only epidural steroids, physical therapy or back school, and manipulation. For patients proposed for laminectomy to treat chronic sciatica or back pain only, nonoperative treatments must have occurred within the past two months. Therapies may occur concurrently or consecutively.

Epidural Steroids

- One or more injections of steroids into the lumbar epidural space followed by three additional weeks of observation since the first injection.

Physical Therapy or Back School

- Patient has complied with a program of prescribed exercises at least once per week for three consecutive weeks.

Manipulation

- Patient has undergone spinal manipulation at least once per week for three consecutive weeks.

Activity Restriction

- Patient has stayed at home and avoided doing usual daily activities (work, housework, child care, driving, sports) for a period of at least two weeks and three weeks have elapsed since the activity restriction began.

Oral Steroids

- Daily, for 10 days or longer and three weeks have elapsed since the oral steroids were instituted.
Note: The use of oral and epidural steroids constitutes only one nonoperative modality.

NONINVASIVE TREATMENT (Appears in Chapter 8 only)

Physical Therapy or Back School

- Patient has complied with a program of prescribed exercises at least once per week for three consecutive weeks.

Activity Restriction

- Patient has stayed at home and avoided doing usual daily activities (work, housework, child care, driving, sports) for a period of at least two weeks and three weeks have elapsed since the activity restriction began.

Supervised Exercise

- The patient has complied with a prescribed regimen of exercises under supervision.

DEGREE OF DISABILITY

- Mild: Able to work full-time; symptoms limit participation in sports or other recreational activities
- Moderate: Symptoms prevent patient from working *full* time at usual job; or prevent *full* participation in other usual activity: school, housework, or child care.
- Severe: Unable to work, or to perform other usual activity: school, housework or child care due to symptoms.
- Bedbound: Confined to bed or hospitalized due to symptoms.

For central stenosis, severe disability corresponds to impaired activities of daily living due to back or leg symptoms. Moderate disability corresponds to impaired independent activities of daily living.

INSURANCE CLAIM

Includes any of the following:

- patient has filed a claim for loss of earnings, disability or other benefits with accident insurance (CNA/SUVA or other),
- patient has filed a claim for disability or other benefits with disability insurance (AI/IV), or
- patient has indicated his intention to do so.
-

PRIOR LUMBAR DISC SURGERY

Prior open surgical procedure on the lumbar spine to treat a herniated disc.

IV NOTES SUR LA LECTURE DES TABLEAUX D'ADEQUATION (APPROPRIATENESS)

Le tableau ci-après présente une partie de la première page de l'évaluation de l'adéquation des opérations pour hernie discale. Le titre du chapitre et les indications spécifiques se trouvent sur les têtes de colonnes et la marge de gauche. A chaque indication correspond une distribution des votes des panélistes, ainsi que quelques statistiques sommaires pour cette indication-là. Par exemple, les quatre indications de la dernière ligne (section A.4.c) concernent des patients qui souffrent d'une sciatique aiguë (chapitre 1), qui n'ont pas d'évidence de hernie discale à l'examen radiodiagnostic (section A), qui présentent des troubles neurologiques mineurs, y compris un signe d'irritation de la racine du nerf sciatique (section 4), et qui ont déjà bénéficié d'au moins deux types de traitements conservateurs sans succès (section c). Les indications sont alors stratifiées en colonnes selon le degré de handicap des patients, allant d'un handicap léger (limitant l'activité sportive du patient), jusqu'à l'alitement ou l'hospitalisation du patient.

Tableau 1 Exemple d'un tableau de l'évaluation de l'adéquation

Chapter 1 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH ACUTE SCIATICA/CRURALGIA (LESS THAN 6 WEEKS DURATION), AND:	DEGREE OF DISABILITY			
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work	BEDBOUND or Hospitalized
A. NO HERNIATED DISC ON IMAGING:				
1. No neurologic findings, and:				
a. No nonoperative treatments	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)
b. Treatment with one nonoperative modality	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)
c. Treatment with two or more nonoperative modalities	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)
2. Root tension sign only, and:				
a. No nonoperative treatments	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)
b. Treatment with one nonoperative modality	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)
c. Treatment with two or more nonoperative modalities	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)
3. Minor neurologic abnormality without root tension sign, and:				
a. No nonoperative treatments	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)
b. Treatment with one nonoperative modality	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)
c. Treatment with two or more nonoperative modalities	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	6 1 1 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)
4. Minor neurologic abnormality with root tension sign, and:				
a. No nonoperative treatments	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)
b. Treatment with one nonoperative modality	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)
c. Treatment with two or more nonoperative modalities	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .4, A)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

L'échelle des appréciations des experts de l'adéquation va de 1 à 9. Les chiffres au-dessus de l'échelle indiquent comment les neuf panélistes ont voté pour l'adéquation de l'opération pour cette indication particulière. Pour la dernière colonne de la section A.4.c (exemple repris ci-dessous), sept panélistes ont voté 1 et deux ont voté 3. Les statistiques en dessous de l'échelle indiquent le score médian des panélistes (1 dans cet exemple) et la déviation moyenne absolue des votes par rapport à la médiane (0.4). Le "A" indique accord, "I" indéterminé (ni accord, ni désaccord), et "D" désaccord. Les définitions de ces derniers termes sont décrites dans la section méthode du texte. Pour l'exemple en question, le panel trouvait que l'indication opératoire était inappropriée (score médian entre 1 et 3), avec accord entre les panélistes.

Tableau 2 Détails des appréciations pour une indication particulière

Vote des panélistes											
Echelle des votes											
		7	2								(45-48)
		1	2	3	4	5	6	7	8	9	
Statistiques, accord/désaccord				(1.0,	.4,	A)					
Numéros des indications											

Les chiffres entre parenthèses tout à droite de la page se réfèrent aux numéros des indications, pour le chapitre en question et situées sur cette ligne-là. L'exemple ci-dessus se réfère à l'indication numéro 48 du chapitre 1.

Chapter 1 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH ACUTE SCIATICA/CRURALGIA (LESS THAN 6 WEEKS DURATION), AND:	DEGREE OF DISABILITY				
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work	BEDBOUND or Hospitalized	
A. NO HERNIATED DISC ON IMAGING:					
1. No neurologic findings, and:	9	9	9	8 1	
a. No nonoperative treatments	1 2 3 4 5 6 7 8 9 (1.0, .0, A)	1 2 3 4 5 6 7 8 9 (1.0, .0, A)	1 2 3 4 5 6 7 8 9 (1.0, .0, A)	1 2 3 4 5 6 7 8 9 (1.0, .1, A)	(1- 4)
b. Treatment with one nonoperative modality	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	(5- 8)
c. Treatment with two or more nonoperative modalities	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	(9- 12)
2. Root tension sign only, and:					
a. No nonoperative treatments	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	(13- 16)
b. Treatment with one nonoperative modality	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	(17- 20)
c. Treatment with two or more nonoperative modalities	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	(21- 24)
3. Minor neurologic abnormality without root tension sign, and:					
a. No nonoperative treatments	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	(25- 28)
b. Treatment with one nonoperative modality	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	(29- 32)
c. Treatment with two or more nonoperative modalities	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	6 1 1 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	(33- 36)
4. Minor neurologic abnormality with root tension sign, and:					
a. No nonoperative treatments	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	(37- 40)
b. Treatment with one nonoperative modality	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	(41- 44)
c. Treatment with two or more nonoperative modalities	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	(45- 48)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 1 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH ACUTE SCIATICA/CRURALGIA (LESS THAN 6 WEEKS DURATION), AND:	DEGREE OF DISABILITY				
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work	BEDBOUND or Hospitalized	
5. Major weakness, and:					
a. No nonoperative treatments	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	6 2 1 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	(49- 52)
b. Treatment with one nonoperative modality	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	6 1 1 1 1 2 3 4 5 6 7 8 9 (1.0, .8, A)	(53- 56)
c. Treatment with two or more nonoperative modalities	8 1 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	6 1 2 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	5 1 1 2 1 2 3 4 5 6 7 8 9 (1.0, 1.0, I)	5 1 1 2 1 2 3 4 5 6 7 8 9 (1.0, 1.2, I)	(57- 60)
B. DISC HERNIATION ON IMAGING:					
1. No neurologic findings, and:					
a. No nonoperative treatments	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	5 4 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	4 2 2 1 1 2 3 4 5 6 7 8 9 (2.0, 1.0, A)	4 1 3 1 1 2 3 4 5 6 7 8 9 (2.0, 1.0, A)	(61- 64)
b. Treatment with one nonoperative modality	6 3 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	4 3 1 1 1 2 3 4 5 6 7 8 9 (2.0, .8, A)	2 3 2 1 1 1 2 3 4 5 6 7 8 9 (2.0, 1.0, I)	2 1 1 2 2 1 1 2 3 4 5 6 7 8 9 (4.0, 1.4, I)	(65- 68)
c. Treatment with two or more nonoperative modalities	6 1 2 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	4 2 1 2 1 2 3 4 5 6 7 8 9 (2.0, 1.0, I)	2 1 1 3 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.3, I)	2 1 1 1 3 1 1 2 3 4 5 6 7 8 9 (4.0, 1.6, I)	(69- 72)
2. Root tension sign only, and:					
a. No nonoperative treatments	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	5 3 1 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	4 2 3 1 2 3 4 5 6 7 8 9 (2.0, 1.1, I)	4 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (2.0, 1.6, I)	(73- 76)
b. Treatment with one nonoperative modality	5 3 1 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	3 3 3 1 2 3 4 5 6 7 8 9 (2.0, .7, A)	2 1 2 3 1 1 2 3 4 5 6 7 8 9 (3.0, 1.1, I)	2 1 1 1 1 3 1 2 3 4 5 6 7 8 9 (4.0, 1.8, I)	(77- 80)
c. Treatment with two or more nonoperative modalities	4 2 2 1 1 2 3 4 5 6 7 8 9 (2.0, 1.4, A)	2 2 2 2 1 1 2 3 4 5 6 7 8 9 (3.0, 1.6, I)	1 3 1 1 2 1 1 2 3 4 5 6 7 8 9 (4.0, 1.7, I)	1 1 2 3 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.4, D)	(81- 84)
3. Minor neurologic abnormality without root tension sign, and:					
a. No nonoperative treatments	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	5 3 1 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	3 4 1 1 1 2 3 4 5 6 7 8 9 (2.0, .7, A)	3 2 2 1 1 1 2 3 4 5 6 7 8 9 (2.0, 1.1, I)	(85- 88)
b. Treatment with one nonoperative modality	5 3 1 1 2 3 4 5 6 7 8 9 (1.0, .7, A)	4 3 1 1 1 2 3 4 5 6 7 8 9 (2.0, .8, A)	2 1 1 4 1 1 2 3 4 5 6 7 8 9 (4.0, 1.1, I)	2 1 1 1 2 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.9, I)	(89- 92)
c. Treatment with two or more nonoperative modalities	5 2 1 1 1 2 3 4 5 6 7 8 9 (1.0, .8, A)	3 2 1 3 1 2 3 4 5 6 7 8 9 (2.0, 1.1, I)	1 2 3 2 1 1 2 3 4 5 6 7 8 9 (4.0, .9, A)	1 1 1 4 2 1 2 3 4 5 6 7 8 9 (6.0, 1.4, I)	(93- 96)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 1
 "LAMINECTOMY" IS INDICATED IN A
 PATIENT WITH ACUTE
 SCIATICA/CRURALGIA (LESS THAN
 6 WEEKS DURATION), AND:

	DEGREE OF DISABILITY				
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work	BEDBOUND or Hospitalized	
4. Minor neurologic abnormality with root tension sign, and:					
a. No nonoperative treatments	8 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	4 1 3 1 1 2 3 4 5 6 7 8 9 (2.0, 1.1, A)	3 1 4 1 1 2 3 4 5 6 7 8 9 (4.0, 1.4, I)	3 1 1 3 1 1 2 3 4 5 6 7 8 9 (4.0, 1.8, I)	(97-100)
b. Treatment with one nonoperative modality	6 2 1 1 2 3 4 5 6 7 8 9 (1.0, .7, A)	3 4 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.0, I)	2 1 1 3 2 1 2 3 4 5 6 7 8 9 (5.0, 1.6, I)	1 1 3 4 1 2 3 4 5 6 7 8 9 (5.0, 1.2, I)	(101-104)
c. Treatment with two or more nonoperative modalities	2 1 3 1 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.7, I)	1 1 3 3 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.3, A)	1 1 5 2 1 1 2 3 4 5 6 7 8 9 (6.0, 1.0, A)	1 1 5 1 2 1 2 3 4 5 6 7 8 9 (7.0, 1.1, A)	(105-108)
5. Major weakness, and:					
a. No nonoperative treatments	2 3 1 1 2 1 2 3 4 5 6 7 8 9 (3.0, 1.4, I)	2 2 2 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.7, I)	2 2 3 1 1 1 2 3 4 5 6 7 8 9 (7.0, 1.0, I)	1 1 1 3 3 1 2 3 4 5 6 7 8 9 (8.0, 1.0, I)	(109-112)
b. Treatment with one nonoperative modality	1 1 3 2 2 1 2 3 4 5 6 7 8 9 (4.0, 1.1, I)	4 2 2 1 1 2 3 4 5 6 7 8 9 (6.0, .9, A)	1 1 3 3 1 1 2 3 4 5 6 7 8 9 (7.0, .9, A)	1 4 4 1 2 3 4 5 6 7 8 9 (8.0, .8, A)	(113-116)
c. Treatment with two or more nonoperative modalities	1 1 4 3 1 2 3 4 5 6 7 8 9 (5.0, 1.0, I)	2 2 2 3 1 2 3 4 5 6 7 8 9 (7.0, 1.0, I)	1 1 5 2 1 2 3 4 5 6 7 8 9 (8.0, .7, A)	1 1 7 1 2 3 4 5 6 7 8 9 (9.0, .6, A)	(117-120)
C. DISC HERNIATION WITH FREE FRAGMENT ON IMAGING:					
1. No neurologic findings, and:					
a. No nonoperative treatments	5 1 2 1 1 2 3 4 5 6 7 8 9 (1.0, .9, A)	3 2 2 2 1 2 3 4 5 6 7 8 9 (2.0, 1.0, I)	3 2 1 2 1 1 2 3 4 5 6 7 8 9 (3.0, 1.6, I)	3 1 1 1 2 1 1 2 3 4 5 6 7 8 9 (4.0, 2.0, I)	(121-124)
b. Treatment with one nonoperative modality	4 2 2 1 1 2 3 4 5 6 7 8 9 (2.0, .9, A)	2 1 4 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.1, I)	2 1 1 2 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.8, I)	2 1 2 3 1 1 2 3 4 5 6 7 8 9 (5.0, 2.0, D)	(125-128)
c. Treatment with two or more nonoperative modalities	3 5 1 1 2 3 4 5 6 7 8 9 (3.0, .8, A)	2 3 2 2 1 2 3 4 5 6 7 8 9 (3.0, 1.6, D)	2 1 3 1 1 1 2 1 2 3 4 5 6 7 8 9 (5.0, 2.0, D)	3 1 2 1 1 2 3 4 5 6 7 8 9 (5.0, 2.2, D)	(129-132)
2. Root tension sign only, and:					
a. No nonoperative treatments	5 3 1 1 2 3 4 5 6 7 8 9 (1.0, 1.0, A)	3 1 3 2 1 2 3 4 5 6 7 8 9 (3.0, 1.0, I)	3 3 1 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.7, I)	3 1 1 2 2 1 2 3 4 5 6 7 8 9 (5.0, 2.3, D)	(133-136)
b. Treatment with one nonoperative modality	3 2 3 1 1 2 3 4 5 6 7 8 9 (2.0, .9, A)	1 1 5 1 1 1 2 3 4 5 6 7 8 9 (3.0, .8, A)	1 1 1 4 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.4, D)	1 1 2 1 1 1 2 1 2 3 4 5 6 7 8 9 (6.0, 2.2, D)	(137-140)
c. Treatment with two or more nonoperative modalities	2 2 4 1 1 2 3 4 5 6 7 8 9 (3.0, .8, A)	1 3 3 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.0, A)	1 4 1 1 2 1 2 3 4 5 6 7 8 9 (5.0, 1.3, I)	1 3 1 1 3 1 2 3 4 5 6 7 8 9 (7.0, 1.3, I)	(141-144)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 1 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH ACUTE SCIATICA/CRURALGIA (LESS THAN 6 WEEKS DURATION), AND:	DEGREE OF DISABILITY				
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work	BEDBOUND or Hospitalized	
3. Minor neurologic abnormality without root tension sign, and:					
a. No nonoperative treatments	4 2 3 1 2 3 4 5 6 7 8 9 (2.0, .8, A)	3 1 1 4 1 2 3 4 5 6 7 8 9 (3.0, 1.2, I)	3 1 1 4 1 2 3 4 5 6 7 8 9 (4.0, 1.6, I)	3 1 1 3 1 1 2 3 4 5 6 7 8 9 (5.0, 2.0, I)	(145-148)
b. Treatment with one nonoperative modality	3 1 2 3 1 2 3 4 5 6 7 8 9 (3.0, 1.1, I)	1 3 4 1 1 2 3 4 5 6 7 8 9 (4.0, .8, A)	1 1 4 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.0, A)	1 3 2 3 1 2 3 4 5 6 7 8 9 (6.0, 1.6, I)	(149-152)
c. Treatment with two or more nonoperative modalities	2 2 5 1 2 3 4 5 6 7 8 9 (4.0, .9, I)	1 4 2 1 1 1 2 3 4 5 6 7 8 9 (4.0, .9, A)	1 2 2 1 2 1 1 2 3 4 5 6 7 8 9 (6.0, 1.3, I)	4 1 2 2 1 2 3 4 5 6 7 8 9 (7.0, 1.1, I)	(153-156)
4. Minor neurologic abnormality with root tension sign, and:					
a. No nonoperative treatments	4 1 3 1 1 2 3 4 5 6 7 8 9 (3.0, 1.4, I)	2 1 1 2 3 1 2 3 4 5 6 7 8 9 (4.0, 1.3, I)	2 2 2 3 1 2 3 4 5 6 7 8 9 (5.0, 1.4, I)	2 2 3 2 1 2 3 4 5 6 7 8 9 (6.0, 1.8, D)	(157-160)
b. Treatment with one nonoperative modality	1 2 1 1 4 1 2 3 4 5 6 7 8 9 (4.0, 1.3, I)	1 1 2 4 1 1 2 3 4 5 6 7 8 9 (5.0, 1.1, A)	1 2 3 2 1 1 2 3 4 5 6 7 8 9 (6.0, 1.2, A)	1 3 2 1 2 1 2 3 4 5 6 7 8 9 (7.0, 1.6, I)	(161-164)
c. Treatment with two or more nonoperative modalities	1 2 1 3 2 1 2 3 4 5 6 7 8 9 (5.0, 1.2, I)	1 2 2 2 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.4, I)	1 3 3 2 1 2 3 4 5 6 7 8 9 (8.0, 1.2, I)	1 3 1 4 1 2 3 4 5 6 7 8 9 (8.0, 1.0, A)	(165-168)
5. Major weakness, and:					
a. No nonoperative treatments	2 3 2 2 1 2 3 4 5 6 7 8 9 (5.0, .9, I)	1 3 2 3 1 2 3 4 5 6 7 8 9 (7.0, .9, A)	1 1 5 2 1 2 3 4 5 6 7 8 9 (8.0, .7, A)	1 5 3 1 2 3 4 5 6 7 8 9 (8.0, .7, A)	(169-172)
b. Treatment with one nonoperative modality	1 5 3 1 2 3 4 5 6 7 8 9 (6.0, .4, A)	1 4 3 1 1 2 3 4 5 6 7 8 9 (7.0, .8, A)	1 4 4 1 2 3 4 5 6 7 8 9 (8.0, .8, A)	1 1 7 1 2 3 4 5 6 7 8 9 (9.0, .6, A)	(173-176)
c. Treatment with two or more nonoperative modalities	1 4 2 2 1 2 3 4 5 6 7 8 9 (6.0, .8, A)	1 3 2 3 1 2 3 4 5 6 7 8 9 (8.0, 1.0, A)	1 2 6 1 2 3 4 5 6 7 8 9 (9.0, .7, A)	1 8 1 2 3 4 5 6 7 8 9 (9.0, .4, A)	(177-180)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 2
 "LAMINECTOMY" IS INDICATED IN A PATIENT
 WITH SUBACUTE
 SCIATICA/CRURALGIA (6 WEEKS TO
 6 MONTHS DURATION) NO INSURANCE
 CLAIM, AND:

	MILD Limits		MODERATE Limits		SEVERE Limits	
	Sports	Work	Sports	Work	Unable to Work	Work
A. NO HERNIATED DISC ON IMAGING:						
1. No neurologic findings, and:						
a. No nonoperative treatments	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	(1- 3)
b. Treatment with one nonoperative modality	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	(4- 6)
c. Treatment with two or more nonoperative modalities	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	(7- 9)
2. Root tension sign only, and:						
a. No nonoperative treatments	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	(10- 12)
b. Treatment with one nonoperative modality	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	(13- 15)
c. Treatment with two or more nonoperative modalities	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	6 1 2 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	6 1 2 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	6 1 2 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	(16- 18)
3. Minor neurologic abnormality without root tension sign, and:						
a. No nonoperative treatments	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	(19- 21)
b. Treatment with one nonoperative modality	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	(22- 24)
c. Treatment with two or more nonoperative modalities	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	6 1 1 1 1 2 3 4 5 6 7 8 9 (1.0, .7, A)	6 1 1 1 1 2 3 4 5 6 7 8 9 (1.0, .7, A)	6 1 1 1 1 2 3 4 5 6 7 8 9 (1.0, .7, A)	(25- 27)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 2 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH SUBACUTE SCIATICA/CRURALGIA (6 WEEKS TO 6 MONTHS DURATION) NO INSURANCE CLAIM, AND:	DEGREE OF DISABILITY			
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work	
4. Minor neurologic abnormality with root tension sign, and:				
a. No nonoperative treatments	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	(28- 30)
b. Treatment with one nonoperative modality	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	(31- 33)
c. Treatment with two or more nonoperative modalities	7 2 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	6 1 2 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	(34- 36)
5. Major weakness, and:				
a. No nonoperative treatments	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	(37- 39)
b. Treatment with one nonoperative modality	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	6 1 2 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	6 2 1 1 2 3 4 5 6 7 8 9 (1.0, .8, A)	(40- 42)
c. Treatment with two or more nonoperative modalities	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	6 2 1 1 2 3 4 5 6 7 8 9 (1.0, .8, A)	5 1 2 1 1 2 3 4 5 6 7 8 9 (1.0, 1.0, A)	(43- 45)
B. DISC HERNIATION ON IMAGING:				
1. No neurologic findings, and:				
a. No nonoperative treatments	6 1 2 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	6 1 1 1 2 3 4 5 6 7 8 9 (1.0, 1.1, I)	6 1 1 1 1 2 3 4 5 6 7 8 9 (1.0, 1.2, I)	(46- 48)
b. Treatment with one nonoperative modality	6 1 2 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	2 3 1 2 1 1 2 3 4 5 6 7 8 9 (2.0, 1.4, I)	2 1 2 1 1 2 1 2 3 4 5 6 7 8 9 (3.0, 2.0, D)	(49- 51)
c. Treatment with two or more nonoperative modalities	5 1 3 1 2 3 4 5 6 7 8 9 (1.0, .8, A)	4 1 2 2 1 2 3 4 5 6 7 8 9 (4.0, 1.1, I)	1 1 3 2 2 1 2 3 4 5 6 7 8 9 (5.0, 1.0, I)	(52- 54)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 2
 "LAMINECTOMY" IS INDICATED IN A PATIENT
 WITH SUBACUTE
 SCIATICA/CRURALGIA (6 WEEKS TO
 6 MONTHS DURATION) NO INSURANCE
 CLAIM, AND:

	DEGREE OF DISABILITY																				
	MILD Limits Sports			MODERATE Limits Work			SEVERE Limits Work			SEVERE Unable to Work											
2. Root tension sign only, and:	6	3		5	1	1	1	1	4	1	3	1	(55- 57)								
a. No nonoperative treatments	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	(1.0, .7, A)	(1.0, 1.3, I)	(4.0, 1.9, I)
b. Treatment with one nonoperative modality	6	3		2	1	1	2	1	1	1	1	3	2	1	1			(1.0, .7, A)	(4.0, 1.8, I)	(5.0, 1.3, I)	
c. Treatment with two or more nonoperative modalities	3	2	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	(2.0, .8, A)	(6.0, 1.1, A)	(7.0, 1.1, I)	
3. Minor neurologic abnormality without root tension sign, and:	6	2	1		4	1	2	1	1	3	1	3	1	1			(1.0, .9, A)	(2.0, 1.8, I)	(5.0, 2.0, I)		
a. No nonoperative treatments	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	(1.0, .9, A)	(2.0, 1.8, I)	(5.0, 2.0, I)
b. Treatment with one nonoperative modality	6	2	1		2	1	3	1	1	1	3	1	1	1			(1.0, .9, A)	(4.0, 1.6, I)	(6.0, 1.3, A)		
c. Treatment with two or more nonoperative modalities	4	1	2		2	3	2	1	1	1	4	3	1			(2.0, 1.3, I)	(5.0, 1.1, I)	(7.0, .7, A)			
4. Minor neurologic abnormality with root tension sign, and:	6	2	1		4	1	1	1	1	3	1	3	2	1			(1.0, .9, A)	(3.0, 2.0, I)	(5.0, 2.1, D)		
a. No nonoperative treatments	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	(1.0, .9, A)	(3.0, 2.0, I)	(5.0, 2.1, D)
b. Treatment with one nonoperative modality	5	1	2		1	4	2	1	1	2	3	1			(1.0, 1.1, A)	(5.0, 1.0, A)	(7.0, 1.4, A)				
c. Treatment with two or more nonoperative modalities	2	1	2	2	1		1	4	3	1	2	5	2			(3.0, 1.3, I)	(6.0, .8, A)	(8.0, .4, A)			
5. Major weakness, and:	1	1	3	3	1		1	2	4	1	1	3	3	1			(3.0, 1.3, I)	(6.0, 1.2, A)	(7.0, 1.3, A)		
a. No nonoperative treatments	1	1	3	3	1		1	3	2	2	1	3	3	2			(3.0, 1.3, I)	(6.0, 1.3, I)	(8.0, 1.3, A)		
b. Treatment with one nonoperative modality	1	1	2	2	2		1	3	2	2	1	3	3	2			(4.0, 1.4, I)	(7.0, 1.0, I)	(9.0, .9, A)		
c. Treatment with two or more nonoperative modalities	1	1	2	1	2	2		1	3	2	2	1	1	2	5		(4.0, 1.4, I)	(7.0, 1.0, I)	(9.0, .9, A)		

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Chapter 2 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH SUBACUTE SCIATICA/CRURALGIA (6 WEEKS TO 6 MONTHS DURATION) NO INSURANCE CLAIM, AND:		DEGREE OF DISABILITY		
		MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work
C. DISC HERNIATION WITH FREE FRAGMENT ON IMAGING:				
1. No neurologic findings, and:				
a. No nonoperative treatments	6 2 1 1 2 3 4 5 6 7 8 9 (1.0, .9, A)	3 1 2 3 1 2 3 4 5 6 7 8 9 (5.0, 2.0, I)	3 1 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 2.7, D)	(91- 93)
b. Treatment with one nonoperative modality	4 2 2 1 1 2 3 4 5 6 7 8 9 (2.0, 1.0, A)	1 2 1 1 3 1 1 2 3 4 5 6 7 8 9 (5.0, 1.6, I)	1 1 1 3 1 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.7, D)	(94- 96)
c. Treatment with two or more nonoperative modalities	4 1 3 1 1 2 3 4 5 6 7 8 9 (2.0, 1.1, A)	1 3 3 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.0, A)	1 1 2 3 1 1 1 2 3 4 5 6 7 8 9 (7.0, 1.1, I)	(97- 99)
2. Root tension sign only, and:				
a. No nonoperative treatments	4 4 1 1 2 3 4 5 6 7 8 9 (3.0, 1.1, A)	3 1 1 2 1 1 1 2 3 4 5 6 7 8 9 (5.0, 2.2, D)	3 2 3 1 1 2 3 4 5 6 7 8 9 (5.0, 2.8, D)	(100-102)
b. Treatment with one nonoperative modality	1 3 4 1 1 2 3 4 5 6 7 8 9 (3.0, .8, A)	1 1 2 2 2 1 1 2 3 4 5 6 7 8 9 (6.0, 1.6, I)	1 2 2 3 1 1 2 3 4 5 6 7 8 9 (7.0, 1.4, A)	(103-105)
c. Treatment with two or more nonoperative modalities	1 2 5 1 1 2 3 4 5 6 7 8 9 (3.0, .7, A)	1 2 4 2 1 2 3 4 5 6 7 8 9 (7.0, .9, I)	1 2 3 3 1 2 3 4 5 6 7 8 9 (8.0, .8, A)	(106-108)
3. Minor neurologic abnormality without root tension sign, and:				
a. No nonoperative treatments	3 1 3 2 1 2 3 4 5 6 7 8 9 (3.0, 1.2, I)	3 1 2 2 1 1 2 3 4 5 6 7 8 9 (5.0, 2.2, D)	2 1 2 2 1 1 1 2 3 4 5 6 7 8 9 (6.0, 2.0, D)	(109-111)
b. Treatment with one nonoperative modality	2 2 3 2 1 2 3 4 5 6 7 8 9 (3.0, 1.1, I)	1 1 2 1 2 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.8, I)	1 1 3 2 2 1 2 3 4 5 6 7 8 9 (7.0, 1.6, I)	(112-114)
c. Treatment with two or more nonoperative modalities	2 1 4 2 1 2 3 4 5 6 7 8 9 (3.0, 1.0, I)	1 3 2 1 2 1 2 3 4 5 6 7 8 9 (7.0, 1.1, I)	2 4 3 1 2 3 4 5 6 7 8 9 (8.0, .6, A)	(115-117)

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Chapter 2
 "LAMINECTOMY" IS INDICATED IN A PATIENT
 WITH SUBACUTE
 SCIATICA/CRURALGIA (6 WEEKS TO
 6 MONTHS DURATION) NO INSURANCE
 CLAIM, AND:

	DEGREE OF DISABILITY			
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work	
4. Minor neurologic abnormality with root tension sign only, and:				
a. No nonoperative treatments	3 1 3 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.3, I)	2 1 2 1 2 1 2 1 2 3 4 5 6 7 8 9 (5.0, 2.2, D)	2 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 2.0, D)	(118-120)
b. Treatment with one nonoperative modality	2 1 3 1 2 1 2 3 4 5 6 7 8 9 (3.0, 1.3, I)	1 1 2 3 1 1 1 1 2 3 4 5 6 7 8 9 (7.0, 1.4, I)	2 4 2 1 2 3 4 5 6 7 8 9 (8.0, 1.2, A)	(121-123)
c. Treatment with two or more nonoperative modalities	2 3 2 2 1 2 3 4 5 6 7 8 9 (3.0, 1.3, I)	1 4 2 2 1 2 3 4 5 6 7 8 9 (7.0, .8, A)	6 3 1 2 3 4 5 6 7 8 9 (8.0, .3, A)	(124-126)
5. Major weakness, and:				
a. No nonoperative treatments	1 3 1 4 1 2 3 4 5 6 7 8 9 (4.0, 1.1, A)	1 2 1 4 1 1 1 2 3 4 5 6 7 8 9 (7.0, 1.4, A)	4 2 2 1 2 3 4 5 6 7 8 9 (7.0, 1.3, A)	(127-129)
b. Treatment with one nonoperative modality	1 3 1 3 1 1 2 3 4 5 6 7 8 9 (4.0, 1.2, A)	1 3 2 2 1 1 1 2 3 4 5 6 7 8 9 (7.0, 1.4, A)	1 5 2 1 2 3 4 5 6 7 8 9 (8.0, 1.1, A)	(130-132)
c. Treatment with two or more nonoperative modalities	1 2 1 3 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.3, I)	1 2 1 4 1 1 2 3 4 5 6 7 8 9 (8.0, 1.0, A)	1 1 2 5 1 2 3 4 5 6 7 8 9 (9.0, .9, A)	(133-135)

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Chapter 3
 "LAMINECTOMY" IS INDICATED IN A
 PATIENT WITH SUBACUTE
 SCIATICA/CRURALGIA (6 WEEKS TO
 6 MONTHS DURATION) INSURANCE CLAIM,
 AND:

DEGREE OF DISABILITY

	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work	
A. NO HERNIATED DISC ON IMAGING:				
1. No neurologic findings, and:				
a. No nonoperative treatments	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	(1- 3)
b. Treatment with one nonoperative modality	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	(4- 6)
c. Treatment with two or more nonoperative modalities	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	(7- 9)
2. Root tension sign only, and:				
a. No nonoperative treatments	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	(10- 12)
b. Treatment with one nonoperative modality	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	(13- 15)
c. Treatment with two or more nonoperative modalities	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	(16- 18)
3. Minor neurologic abnormality without root tension sign, and:				
a. No nonoperative treatments	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	(19- 21)
b. Treatment with one nonoperative modality	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	(22- 24)
c. Treatment with two or more nonoperative modalities	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	(25- 27)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

	DEGREE OF DISABILITY		
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work
4. Minor neurologic abnormality with root tension sign, and:			
a. No nonoperative treatments	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)
b. Treatment with one nonoperative modality	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)
c. Treatment with two or more nonoperative modalities	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .4, A)
5. Major weakness, and:			
a. No nonoperative treatments	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)
b. Treatment with one nonoperative modality	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)
c. Treatment with two or more nonoperative modalities	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .4, A)
B. DISC HERNIATION ON IMAGING:			
1. No neurologic findings, and:			
a. No nonoperative treatments	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	6 2 1 1 2 3 4 5 6 7 8 9 (1.0, .7, A)
b. Treatment with one nonoperative modality	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	5 3 1 1 2 3 4 5 6 7 8 9 (1.0, .8, A)	4 1 1 1 2 1 2 3 4 5 6 7 8 9 (2.0, 1.7, I)
c. Treatment with two or more nonoperative modalities	6 2 1 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	4 3 1 1 1 2 3 4 5 6 7 8 9 (2.0, 1.2, I)	3 2 1 2 1 1 2 3 4 5 6 7 8 9 (3.0, 2.0, I)
2. Root tension sign only, and:			
a. No nonoperative treatments	6 3 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	5 1 1 1 1 2 3 4 5 6 7 8 9 (1.0, 1.2, I)	5 2 1 1 1 2 3 4 5 6 7 8 9 (1.0, 1.7, I)
b. Treatment with one nonoperative modality	6 2 1 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	1 2 2 2 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.2, I)	1 1 1 2 1 1 2 1 2 3 4 5 6 7 8 9 (4.0, 1.7, D)
c. Treatment with two or more nonoperative modalities	3 3 3 1 2 3 4 5 6 7 8 9 (2.0, .7, A)	1 1 4 2 1 1 2 3 4 5 6 7 8 9 (4.0, 1.1, I)	3 2 4 1 2 3 4 5 6 7 8 9 (5.0, 1.2, I)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 3 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH SUBACUTE SCIATICA/CRURALGIA (6 WEEKS TO 6 MONTHS DURATION) INSURANCE CLAIM, AND:	DEGREE OF DISABILITY			
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work	
3. Minor neurologic abnormality without root tension sign, and:				
a. No nonoperative treatments	6 1 2 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	4 1 2 1 1 1 2 3 4 5 6 7 8 9 (2.0, 1.3, I)	4 1 3 1 1 2 3 4 5 6 7 8 9 (2.0, 1.9, I)	(64- 66)
b. Treatment with one nonoperative modality	5 2 1 1 1 2 3 4 5 6 7 8 9 (1.0, .8, A)	1 3 1 1 2 1 1 2 3 4 5 6 7 8 9 (3.0, 1.4, I)	1 1 3 2 2 1 2 3 4 5 6 7 8 9 (5.0, 1.4, D)	(67- 69)
c. Treatment with two or more nonoperative modalities	4 2 2 1 1 2 3 4 5 6 7 8 9 (2.0, .9, A)	2 1 3 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.2, I)	1 2 5 1 1 2 3 4 5 6 7 8 9 (7.0, 1.2, A)	(70- 72)
4. Minor neurologic abnormality with root tension sign, and:				
a. No nonoperative treatments	5 1 1 1 1 1 2 3 4 5 6 7 8 9 (1.0, 1.1, I)	3 1 2 2 1 1 2 3 4 5 6 7 8 9 (4.0, 1.7, I)	3 1 3 2 1 2 3 4 5 6 7 8 9 (5.0, 1.9, I)	(73- 75)
b. Treatment with one nonoperative modality	5 1 1 2 1 2 3 4 5 6 7 8 9 (1.0, 1.2, I)	1 3 3 2 1 2 3 4 5 6 7 8 9 (5.0, 1.0, A)	1 2 2 4 1 2 3 4 5 6 7 8 9 (6.0, 1.2, A)	(76- 78)
c. Treatment with two or more nonoperative modalities	4 2 1 1 1 1 2 3 4 5 6 7 8 9 (2.0, 1.4, I)	1 3 3 2 1 2 3 4 5 6 7 8 9 (6.0, .8, A)	2 1 4 1 1 1 2 3 4 5 6 7 8 9 (7.0, .9, I)	(79- 81)
5. Major weakness, and:				
a. No nonoperative treatments	4 1 2 2 1 2 3 4 5 6 7 8 9 (2.0, 1.3, I)	1 1 1 3 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.2, I)	1 1 4 1 2 1 2 3 4 5 6 7 8 9 (6.0, 1.2, I)	(82- 84)
b. Treatment with one nonoperative modality	2 3 2 2 1 2 3 4 5 6 7 8 9 (2.0, 1.1, I)	1 1 2 4 1 1 2 3 4 5 6 7 8 9 (6.0, 1.1, A)	1 2 4 1 1 1 2 3 4 5 6 7 8 9 (7.0, 1.2, A)	(85- 87)
c. Treatment with two or more nonoperative modalities	2 3 1 3 1 2 3 4 5 6 7 8 9 (2.0, 1.3, I)	3 2 4 1 2 3 4 5 6 7 8 9 (6.0, .8, A)	1 1 2 3 2 1 2 3 4 5 6 7 8 9 (8.0, 1.0, I)	(88- 90)

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Chapter 3
 "LAMINECTOMY" IS INDICATED IN A
 PATIENT WITH SUBACUTE
 SCIATICA/CRURALGIA (6 WEEKS TO
 6 MONTHS DURATION) INSURANCE CLAIM,
 AND:

DEGREE OF DISABILITY

	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work	
C. DISC HERNIATION WITH FREE FRAGMENT ON IMAGING:				
1. No neurologic findings, and:				
a. No nonoperative treatments	5 4 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	5 1 1 2 1 2 3 4 5 6 7 8 9 (1.0, 1.2, I)	5 1 1 1 1 1 2 3 4 5 6 7 8 9 (1.0, 1.8, I)	(91- 93)
b. Treatment with one nonoperative modality	4 3 1 1 1 2 3 4 5 6 7 8 9 (2.0, .9, A)	2 1 3 1 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.3, I)	1 3 2 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.6, I)	(94- 96)
c. Treatment with two or more nonoperative modalities	4 3 1 1 1 2 3 4 5 6 7 8 9 (2.0, 1.0, I)	2 1 2 1 2 1 1 2 3 4 5 6 7 8 9 (3.0, 1.7, I)	3 1 3 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.2, I)	(97- 99)
2. Root tension sign only, and:				
a. No nonoperative treatments	5 3 1 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	4 1 1 2 1 1 2 3 4 5 6 7 8 9 (2.0, 1.4, I)	4 1 1 3 1 2 3 4 5 6 7 8 9 (4.0, 2.1, I)	(100-102)
b. Treatment with one nonoperative modality	2 4 1 2 1 2 3 4 5 6 7 8 9 (2.0, 1.1, I)	1 2 2 1 3 1 2 3 4 5 6 7 8 9 (4.0, 1.3, I)	1 2 1 5 1 2 3 4 5 6 7 8 9 (7.0, 1.2, A)	(103-105)
c. Treatment with two or more nonoperative modalities	1 3 2 1 2 1 2 3 4 5 6 7 8 9 (3.0, 1.4, I)	1 1 2 2 3 1 2 3 4 5 6 7 8 9 (6.0, 1.1, I)	1 1 4 2 1 1 2 3 4 5 6 7 8 9 (7.0, .8, A)	(106-108)
3. Minor neurologic abnormality without root tension sign, and:				
a. No nonoperative treatments	5 1 3 1 2 3 4 5 6 7 8 9 (1.0, .8, A)	4 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (2.0, 1.8, I)	3 1 3 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.9, I)	(109-111)
b. Treatment with one nonoperative modality	2 3 3 1 1 2 3 4 5 6 7 8 9 (2.0, .8, A)	1 4 2 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.2, A)	1 3 2 2 1 1 2 3 4 5 6 7 8 9 (6.0, 1.4, A)	(112-114)
c. Treatment with two or more nonoperative modalities	1 3 2 2 1 1 2 3 4 5 6 7 8 9 (3.0, 1.0, A)	1 3 2 1 2 1 2 3 4 5 6 7 8 9 (6.0, 1.1, I)	2 1 3 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.0, I)	(115-117)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 3 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH SUBACUTE SCIATICA/CRURALGIA (6 WEEKS TO 6 MONTHS DURATION) INSURANCE CLAIM, AND:	DEGREE OF DISABILITY			
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work	
4. Minor neurologic abnormality with root tension sign, and:				
a. No nonoperative treatments	5 1 1 2 1 2 3 4 5 6 7 8 9 (1.0, 1.0, I)	4 1 2 1 1 1 2 3 4 5 6 7 8 9 (3.0, 2.1, I)	3 2 3 1 1 2 3 4 5 6 7 8 9 (5.0, 2.0, I)	(118-120)
b. Treatment with one nonoperative modality	2 3 1 3 1 2 3 4 5 6 7 8 9 (2.0, 1.4, I)	1 5 2 1 1 2 3 4 5 6 7 8 9 (5.0, .9, A)	1 1 2 4 1 1 2 3 4 5 6 7 8 9 (7.0, 1.3, A)	(121-123)
c. Treatment with two or more nonoperative modalities	1 3 1 1 2 1 1 2 3 4 5 6 7 8 9 (4.0, 1.9, I)	1 3 3 2 1 2 3 4 5 6 7 8 9 (7.0, .8, A)	1 3 4 1 1 2 3 4 5 6 7 8 9 (8.0, .7, A)	(124-126)
5. Major weakness, and:				
a. No nonoperative treatments	2 2 4 1 1 2 3 4 5 6 7 8 9 (5.0, 1.8, I)	1 1 3 2 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.4, D)	1 2 5 1 1 2 3 4 5 6 7 8 9 (7.0, 1.1, A)	(127-129)
b. Treatment with one nonoperative modality	1 3 3 2 1 2 3 4 5 6 7 8 9 (5.0, 1.9, D)	1 5 1 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.2, A)	1 1 4 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.2, A)	(130-132)
c. Treatment with two or more nonoperative modalities	1 2 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 2.0, D)	2 4 2 1 1 2 3 4 5 6 7 8 9 (7.0, .7, A)	3 3 3 1 2 3 4 5 6 7 8 9 (8.0, .7, A)	(133-135)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 4
 "LAMINECTOMY" IS INDICATED IN A
 PATIENT WITH CHRONIC
 SCIATICA/CRURALGIA (MORE THAN 6
 MONTHS DURATION), NO INSURANCE
 CLAIM, WITH:

	DEGREE OF DISABILITY																														
	MILD Limits Sports									MODERATE Limits Work									SEVERE Unable to Work												
A. NO HERNIATED DISC ON IMAGING:																															
1. No neurologic findings, and:																															
a. No nonoperative treatments	9	1	2	3	4	5	6	7	8	9	9	1	2	3	4	5	6	7	8	9	9	1	2	3	4	5	6	7	8	9	(1- 3)
b. Treatment with one nonoperative modality,:																															
1) Supervised exercise not included	9	1	2	3	4	5	6	7	8	9	9	1	2	3	4	5	6	7	8	9	8 1	1	2	3	4	5	6	7	8	9	(4- 6)
2) Supervised exercise included	9	1	2	3	4	5	6	7	8	9	9	1	2	3	4	5	6	7	8	9	8 1	1	2	3	4	5	6	7	8	9	(7- 9)
c. Treatment with two or more nonoperative modalities,:																															
1) Supervised exercise not included	9	1	2	3	4	5	6	7	8	9	9	1	2	3	4	5	6	7	8	9	8 1	1	2	3	4	5	6	7	8	9	(10- 12)
2) Supervised exercise included	9	1	2	3	4	5	6	7	8	9	9	1	2	3	4	5	6	7	8	9	8 1	1	2	3	4	5	6	7	8	9	(13- 15)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 4 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH CHRONIC SCIATICA/CRURALGIA (MORE THAN 6 MONTHS DURATION), NO INSURANCE CLAIM, WITH:	DEGREE OF DISABILITY			
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work	
2. Minor neurologic abnormality with or without root tension sign, and:				
a. No nonoperative treatments	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	(16- 18)
b. Treatment with one nonoperative modality				
1) Supervised exercise not included	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	(19- 21)
2) Supervised exercise included	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	(22- 24)
c. Treatment with two or more nonoperative modalities,:				
1) Supervised exercise not included	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	6 3 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	6 2 1 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	(25- 27)
2) Supervised exercise included	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	6 3 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	6 1 2 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	(28- 30)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 4 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH CHRONIC SCIATICA/CRURALGIA (MORE THAN 6 MONTHS DURATION), NO INSURANCE CLAIM, WITH:	DEGREE OF DISABILITY			
	MILD Limits Sports	Moderate Limits Work	Severe Limits Work	SEVERE Unable to Work
3. Major weakness, and:				
a. No nonoperative treatments	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	6 2 1 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	(31- 33)
b. Treatment with one nonoperative modality, :				
1) Supervised exercise not included	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	6 2 1 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	(34- 36)
2) Supervised exercise included	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	6 1 1 1 1 2 3 4 5 6 7 8 9 (1.0, .7, A)	(37- 39)
c. Treatment with two or more nonoperative modalities, :				
1) Supervised exercise not included	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	6 1 1 1 1 2 3 4 5 6 7 8 9 (1.0, .7, A)	(40- 42)
2) Supervised exercise included	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	6 1 2 1 2 3 4 5 6 7 8 9 (1.0, .8, I)	(43- 45)
B. DISC HERNIATION ON IMAGING:				
1. No neurologic findings, and:				
a. No nonoperative treatments	6 2 1 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	4 1 3 1 1 2 3 4 5 6 7 8 9 (2.0, 1.1, A)	4 1 1 2 1 1 2 3 4 5 6 7 8 9 (2.0, 1.4, I)	(46- 48)
b. Treatment with one nonoperative modality, :				
1) Supervised exercise not included	3 4 2 1 2 3 4 5 6 7 8 9 (2.0, .6, A)	1 2 2 2 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.2, I)	1 2 2 1 2 1 1 2 3 4 5 6 7 8 9 (4.0, 1.4, I)	(49- 51)
2) Supervised exercise included	2 3 3 1 1 2 3 4 5 6 7 8 9 (2.0, .8, A)	1 1 3 1 1 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.4, I)	1 2 2 2 2 1 2 3 4 5 6 7 8 9 (5.0, 1.6, D)	(52- 54)
c. Treatment with two or more nonoperative modalities, :				
1) Supervised exercise not included	3 1 3 2 1 2 3 4 5 6 7 8 9 (3.0, 1.0, I)	1 1 2 1 3 1 1 2 3 4 5 6 7 8 9 (4.0, 1.3, I)	1 2 2 3 1 1 2 3 4 5 6 7 8 9 (5.0, 1.6, I)	(55- 57)
2) Supervised exercise included	2 1 4 1 1 1 2 3 4 5 6 7 8 9 (3.0, .9, I)	1 2 2 3 1 1 2 3 4 5 6 7 8 9 (5.0, 1.3, I)	2 3 3 1 1 2 3 4 5 6 7 8 9 (6.0, 1.2, D)	(58- 60)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 4 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH CHRONIC SCIATICA/CRURALGIA (MORE THAN 6 MONTHS DURATION), NO INSURANCE CLAIM, WITH:	DEGREE OF DISABILITY			
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work	
2. Minor neurologic abnormality with or without root tension sign, and:				
a. No nonoperative treatments	5 3 1 2 3 4 5 6 7 8 9 (1.0, .8, A)	2 5 2 1 2 3 4 5 6 7 8 9 (3.0, 1.1, I)	2 1 3 1 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.4, I)	(61- 63)
b. Treatment with one nonoperative modality, :				
1) Supervised exercise not included	3 3 2 1 1 2 3 4 5 6 7 8 9 (2.0, .9, A)	1 1 3 2 2 1 2 3 4 5 6 7 8 9 (4.0, 1.2, I)	1 1 3 3 1 1 2 3 4 5 6 7 8 9 (5.0, 1.1, A)	(64- 66)
2) Supervised exercise included	2 2 4 1 1 2 3 4 5 6 7 8 9 (3.0, .9, A)	1 1 3 3 1 1 2 3 4 5 6 7 8 9 (4.0, 1.4, I)	1 3 2 2 1 1 2 3 4 5 6 7 8 9 (6.0, 1.3, A)	(67- 69)
c. Treatment with two or more nonoperative modalities, :				
1) Supervised exercise not included	1 2 3 1 2 1 2 3 4 5 6 7 8 9 (3.0, 1.0, I)	1 2 2 3 1 1 2 3 4 5 6 7 8 9 (5.0, 1.0, A)	3 2 4 1 2 3 4 5 6 7 8 9 (6.0, .8, A)	(70- 72)
2) Supervised exercise included	1 4 1 3 1 2 3 4 5 6 7 8 9 (3.0, 1.0, A)	1 1 3 2 2 1 2 3 4 5 6 7 8 9 (5.0, 1.0, I)	1 3 3 2 1 2 3 4 5 6 7 8 9 (7.0, .8, A)	(73- 75)
3. Major weakness, and:				
a. No nonoperative treatments	3 2 2 2 1 2 3 4 5 6 7 8 9 (2.0, 1.4, I)	1 1 6 1 1 2 3 4 5 6 7 8 9 (5.0, .8, A)	1 3 4 1 1 2 3 4 5 6 7 8 9 (6.0, 1.2, A)	(76- 78)
b. Treatment with one nonoperative modality, :				
1) Supervised exercise not included	3 2 2 2 1 2 3 4 5 6 7 8 9 (2.0, 1.4, I)	1 4 4 1 2 3 4 5 6 7 8 9 (5.0, .9, A)	1 4 3 1 1 2 3 4 5 6 7 8 9 (6.0, 1.2, A)	(79- 81)
2) Supervised exercise included	2 2 1 3 1 1 2 3 4 5 6 7 8 9 (4.0, 1.4, I)	1 3 2 2 1 1 2 3 4 5 6 7 8 9 (6.0, 1.3, A)	1 4 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.2, A)	(82- 84)
c. Treatment with two or more nonoperative modalities, :				
1) Supervised exercise not included	1 1 1 2 2 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.4, I)	1 6 1 1 1 2 3 4 5 6 7 8 9 (6.0, .6, A)	3 5 1 1 2 3 4 5 6 7 8 9 (7.0, .6, A)	(85- 87)
2) Supervised exercise included	1 2 1 2 3 1 2 3 4 5 6 7 8 9 (5.0, 1.7, D)	1 4 3 1 1 2 3 4 5 6 7 8 9 (6.0, .8, A)	1 5 2 1 1 2 3 4 5 6 7 8 9 (7.0, .6, A)	(88- 90)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 4
 "LAMINECTOMY" IS INDICATED IN A
 PATIENT WITH CHRONIC
 SCIATICA/CRURALGIA (MORE THAN 6
 MONTHS DURATION), NO INSURANCE
 CLAIM, WITH:

C. DISC HERNIATION WITH FREE FRAGMENT
 ON IMAGING:

1. No neurologic findings, and:

a. No nonoperative treatments

			MILD Limits Sports			MODERATE Limits Work			SEVERE Unable to Work									
5	3	1	4	1	2	2	4	1	2	2		(91- 93)						
1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	
			(1.0, .6, A)			(2.0, 1.3, I)			(2.0, 1.6, I)									

b. Treatment with one nonoperative modality, :

1) Supervised exercise not included

3	4	1	1	1	1	3	2	1	1	1	2	1	2	1	1	1		
1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	(94- 96)
			(2.0, .7, A)			(3.0, 1.3, I)			(5.0, 1.8, D)									

2) Supervised exercise included

2	2	4	1	1	3	1	1	2	1	1	1	1	2	2	1			
1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	(97- 99)
			(3.0, .8, A)			(4.0, 1.7, I)			(6.0, 1.8, D)									

c. Treatment with two or more nonoperative modalities, :

1) Supervised exercise not included

3	2	3	1	1	3	1	3	1	1	1	3	2	1					
1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	(100-102)
			(2.0, 1.0, A)			(4.0, 1.4, A)			(5.0, 1.5, I)									

2) Supervised exercise included

2	2	3	1	1	3	2	2	1	1	1	1	2	4	1				
1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	(103-105)
			(3.0, 1.0, I)			(5.0, 1.4, D)			(7.0, 1.1, A)									

2. Minor neurologic abnormality with or without root tension sign, and:

a. No nonoperative treatments

4	2	1	2	2	3	1	3	2	1	1	1	2	2					
1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	(106-108)
			(2.0, 1.2, I)			(3.0, 1.7, I)			(5.0, 1.9, D)									

b. Treatment with one nonoperative modality, :

1) Supervised exercise not included

2	4	1	2	1	1	2	1	4	1	1	1	4	1	1				
1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	(109-111)
			(2.0, 1.0, I)			(5.0, 1.4, I)			(6.0, 1.3, I)									

2) Supervised exercise included

1	2	3	1	2	1	1	1	1	4	1	1	2	1	3	1	1		
1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	(112-114)
			(3.0, 1.0, I)			(6.0, 1.3, I)			(7.0, 1.6, I)									

c. Treatment with two or more nonoperative modalities, :

1) Supervised exercise not included

1	5	3	1	2	5	1	1	2	5	1								
1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	(115-117)
			(3.0, .8, A)			(6.0, .9, A)			(7.0, .7, A)									

2) Supervised exercise included

4	1	4	2	3	3	1	2	3	3	1								
1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	(118-120)
			(4.0, .9, A)			(6.0, .8, A)			(7.0, .8, A)									

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 4 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH CHRONIC SCIATICA/CRURALGIA (MORE THAN 6 MONTHS DURATION), NO INSURANCE CLAIM, WITH:	DEGREE OF DISABILITY			
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work	
3. Major weakness, and:				
a. No nonoperative treatments	1 2 2 2 2 1 2 3 4 5 6 7 8 9 (3.0, 1.1, I)	1 6 1 1 2 3 4 5 6 7 8 9 (5.0, 1.0, A)	1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.3, A)	(121-123)
b. Treatment with one nonoperative modality, :				
1) Supervised exercise not included	1 2 2 2 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.2, I)	1 5 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.1, A)	1 4 2 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.3, A)	(124-126)
2) Supervised exercise included	1 3 2 2 1 1 2 3 4 5 6 7 8 9 (4.0, 1.1, A)	1 2 2 2 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.6, I)	1 2 2 3 1 1 2 3 4 5 6 7 8 9 (7.0, 1.4, A)	(127-129)
c. Treatment with two or more nonoperative modalities, :				
1) Supervised exercise not included	1 2 1 3 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.2, I)	2 4 2 1 2 3 4 5 6 7 8 9 (6.0, .8, A)	1 4 2 2 1 2 3 4 5 6 7 8 9 (7.0, .8, A)	(130-132)
2) Supervised exercise included	3 1 2 1 2 1 2 3 4 5 6 7 8 9 (5.0, 1.3, D)	1 3 3 1 1 1 2 3 4 5 6 7 8 9 (7.0, .9, A)	1 2 4 2 1 2 3 4 5 6 7 8 9 (8.0, .7, A)	(133-135)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 5
 "LAMINECTOMY" IS INDICATED IN A
 PATIENT WITH CHRONIC
 SCIATICA/CRURALGIA (MORE THAN 6
 MONTHS DURATION), INSURANCE CLAIM,
 WITH:

	DEGREE OF DISABILITY			
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work	
A. NO HERNIATED DISC ON IMAGING:				
1. No neurologic findings, and:				
a. No nonoperative treatments	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	(1- 3)
b. Treatment with one nonoperative modality,:				
1) Supervised exercise not included	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	(4- 6)
2) Supervised exercise included	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	7 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	(7- 9)
c. Treatment with two or more nonoperative modalities,:				
1) Supervised exercise not included	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	(10- 12)
2) Supervised exercise included	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	(13- 15)
2. Minor neurologic abnormality with or without root tension sign, and:				
a. No nonoperative treatments	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	(16- 18)
b. Treatment with one nonoperative modality				
1) Supervised exercise not included	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	(19- 21)
2) Supervised exercise included	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	(22- 24)
c. Treatment with two or more nonoperative modalities,:				
1) Supervised exercise not included	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	6 1 2 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	(25- 27)
2) Supervised exercise included	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	6 3 1 2 3 4 5 6 7 8 9 (1.0, .7, A)	(28- 30)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 5 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH CHRONIC SCIATICA/CRURALGIA (MORE THAN 6 MONTHS DURATION), INSURANCE CLAIM, WITH:	DEGREE OF DISABILITY			
	MILD Limits Sports	MILD Limits Work	MODERATE Limits Work	SEVERE Unable to Work
3. Major weakness, and:				
a. No nonoperative treatments	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	6 2 1 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	(31- 33)
b. Treatment with one nonoperative modality,:				
1) Supervised exercise not included	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	6 2 1 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	(34- 36)
2) Supervised exercise included	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	6 1 1 1 1 2 3 4 5 6 7 8 9 (1.0, .7, A)	(37- 39)
c. Treatment with two or more nonoperative modalities,:				
1) Supervised exercise not included	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	6 1 1 1 1 2 3 4 5 6 7 8 9 (1.0, .7, A)	(40- 42)
2) Supervised exercise included	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	6 1 2 1 2 3 4 5 6 7 8 9 (1.0, .8, I)	(43- 45)
B. DISC HERNIATION ON IMAGING:				
i. No neurologic findings, and:				
a. No nonoperative treatments	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	4 2 2 1 1 2 3 4 5 6 7 8 9 (2.0, .9, A)	4 2 2 1 1 2 3 4 5 6 7 8 9 (3.0, 1.3, I)	(46- 48)
b. Treatment with one nonoperative modality,:				
1) Supervised exercise not included	6 2 1 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	1 2 3 2 1 1 2 3 4 5 6 7 8 9 (3.0, .9, A)	1 1 4 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.0, I)	(49- 51)
2) Supervised exercise included	3 3 3 1 2 3 4 5 6 7 8 9 (2.0, .7, A)	1 1 4 2 1 1 2 3 4 5 6 7 8 9 (3.0, 1.1, I)	1 1 1 2 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.6, I)	(52- 54)
c. Treatment with two or more nonoperative modalities,:				
1) Supervised exercise not included	4 5 1 2 3 4 5 6 7 8 9 (3.0, .9, A)	1 1 3 4 1 2 3 4 5 6 7 8 9 (3.0, .8, A)	1 1 1 1 5 1 2 3 4 5 6 7 8 9 (5.0, 1.1, I)	(55- 57)
2) Supervised exercise included	2 2 4 1 1 2 3 4 5 6 7 8 9 (3.0, .8, A)	1 1 3 4 1 2 3 4 5 6 7 8 9 (3.0, 1.2, I)	1 1 1 1 5 1 2 3 4 5 6 7 8 9 (6.0, 1.1, I)	(58- 60)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 5 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH CHRONIC SCIATICA/CRURALGIA (MORE THAN 6 MONTHS DURATION), INSURANCE CLAIM, WITH:	DEGREE OF DISABILITY			
	MILD Limits Sports	MODERATE Limits Work	SEVERE Limits Work	SEVERE Unable to Work
2. Minor neurologic abnormality with or without root tension sign, and:				
a. No nonoperative treatments	7 1 1 1 3 3 2 1 3 1 1 2 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (1.0, .7, A)	(3.0, 1.2, I)	(4.0, 1.8, I)	(61- 63)
b. Treatment with one nonoperative modality,:				
1) Supervised exercise not included	4 3 1 1 2 5 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (2.0, .9, A)	(4.0, 1.0, A)	(5.0, 1.1, I)	(64- 66)
2) Supervised exercise included	2 3 3 1 1 1 3 2 1 1 2 3 4 5 6 7 8 9 1 2 3 2 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (2.0, .9, A)	(4.0, 1.1, I)	(5.0, 1.1, A)	(67- 69)
c. Treatment with two or more nonoperative modalities,:				
1) Supervised exercise not included	3 2 3 1 1 2 1 3 1 1 2 3 4 5 6 7 8 9 1 2 2 3 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (2.0, 1.0, A)	(4.0, 1.3, I)	(5.0, 1.2, A)	(70- 72)
2) Supervised exercise included	2 2 4 1 2 5 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (3.0, .9, A)	(5.0, .9, A)	(6.0, .9, I)	(73- 75)
3. Major weakness, and:				
a. No nonoperative treatments	4 1 3 1 1 3 5 1 2 5 1 1 2 5 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (2.0, 1.4, I)	(5.0, .8, A)	(6.0, 1.0, A)	(76- 78)
b. Treatment with one nonoperative modality,:				
1) Supervised exercise not included	4 1 3 1 2 5 1 2 5 1 2 5 1 2 5 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (2.0, 1.4, I)	(5.0, .8, A)	(6.0, .6, A)	(79- 81)
2) Supervised exercise included	2 1 1 2 3 1 4 3 1 1 2 3 4 5 6 7 8 9 1 2 3 4 3 4 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (4.0, 1.3, I)	(5.0, 1.2, A)	(7.0, 1.2, A)	(82- 84)
c. Treatment with two or more nonoperative modalities,:				
1) Supervised exercise not included	3 1 1 4 1 3 3 1 1 1 3 3 1 1 1 3 3 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (4.0, 1.7, I)	(5.0, 1.2, A)	(6.0, 1.3, A)	(85- 87)
2) Supervised exercise included	2 1 1 1 3 1 5 2 1 1 1 2 3 4 5 6 7 8 9 1 2 3 2 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (4.0, 1.6, I)	(5.0, .9, A)	(7.0, .9, A)	(88- 90)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 5 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH CHRONIC SCIATICA/CHURALGIA (MORE THAN 6 MONTHS DURATION), INSURANCE CLAIM, WITH:	DEGREE OF DISABILITY			
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work	
C. DISC HERNIATION WITH FREE FRAGMENT ON IMAGING:				
1. No neurologic findings, and:				
a. No nonoperative treatments	6 2 1 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	4 3 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.2, I)	4 3 2 1 2 3 4 5 6 7 8 9 (3.0, 1.3, I)	(91- 93)
b. Treatment with one nonoperative modality,:				
1) Supervised exercise not included	5 3 1 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	1 2 2 2 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.2, I)	1 1 2 1 2 2 1 2 3 4 5 6 7 8 9 (4.0, 1.4, I)	(94- 96)
2) Supervised exercise included	2 4 2 1 1 2 3 4 5 6 7 8 9 (2.0, .7, A)	1 1 2 3 2 1 2 3 4 5 6 7 8 9 (5.0, 1.4, I)	1 2 1 4 1 1 2 3 4 5 6 7 8 9 (6.0, 1.6, I)	(97- 99)
c. Treatment with two or more nonoperative modalities,:				
1) Supervised exercise not included	4 2 2 1 1 2 3 4 5 6 7 8 9 (2.0, .9, A)	1 1 2 3 2 1 2 3 4 5 6 7 8 9 (4.0, 1.0, I)	1 1 1 4 2 1 2 3 4 5 6 7 8 9 (5.0, 1.0, I)	(100-102)
2) Supervised exercise included	2 4 2 1 1 2 3 4 5 6 7 8 9 (2.0, .8, A)	1 1 2 5 1 2 3 4 5 6 7 8 9 (5.0, 1.2, I)	1 1 1 5 1 1 2 3 4 5 6 7 8 9 (6.0, .8, A)	(103-105)
2. Minor neurologic abnormality with or without root tension sign, and:				
a. No nonoperative treatments	6 1 1 1 1 2 3 4 5 6 7 8 9 (1.0, .8, A)	2 1 2 1 1 2 1 2 3 4 5 6 7 8 9 (3.0, 1.6, I)	2 1 1 2 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.8, I)	(106-108)
b. Treatment with one nonoperative modality,:				
1) Supervised exercise not included	4 2 2 1 1 2 3 4 5 6 7 8 9 (2.0, 1.0, A)	1 1 1 2 2 2 1 2 3 4 5 6 7 8 9 (4.0, 1.3, I)	1 3 1 3 1 1 2 3 4 5 6 7 8 9 (5.0, 1.4, A)	(109-111)
2) Supervised exercise included	2 2 3 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.0, I)	1 2 1 1 4 1 2 3 4 5 6 7 8 9 (5.0, 1.4, I)	1 1 2 2 2 1 1 2 3 4 5 6 7 8 9 (6.0, 1.4, I)	(112-114)
c. Treatment with two or more nonoperative modalities,:				
1) Supervised exercise not included	3 1 2 2 1 1 2 3 4 5 6 7 8 9 (3.0, 1.2, I)	1 2 2 1 2 1 1 2 3 4 5 6 7 8 9 (4.0, 1.4, I)	1 2 4 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.1, A)	(115-117)
2) Supervised exercise included	2 1 2 1 3 1 2 3 4 5 6 7 8 9 (3.0, 1.3, I)	1 3 4 1 1 2 3 4 5 6 7 8 9 (6.0, .9, A)	2 3 3 1 1 2 3 4 5 6 7 8 9 (6.0, .9, A)	(118-120)

Appropriateness scale: 1 = extremely inappropriate, 5 = extremely appropriate.

Chapter 5

"LAMINECTOMY" IS INDICATED IN A PATIENT WITH CHRONIC SCIATICA/CRURALGIA (MORE THAN 6 MONTHS DURATION), INSURANCE CLAIM, WITH:

	DEGREE OF DISABILITY																													
	MILD Limits Sports									MODERATE Limits Work									SEVERE Unable to Work											
3. Major weakness, and:																														
a. No nonoperative treatments	4	1	3	1						1	1	1	5	1						1	1	1	4	1	1					(121-123)
	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	(2.0, 1.4, I)	(5.0, 1.0, A)	(6.0, 1.4, D)
b. Treatment with one nonoperative modality,:																														
1) Supervised exercise not included	3	2	3	1						1	1	1	5	1					1		1	5	1	1					(124-126)	
	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	(2.0, 1.3, I)	(5.0, 1.0, A)	(6.0, 1.1, I)
2) Supervised exercise included	2	1	2	1	2	1				1		1	4	2	1				1		1	2	3	1	1				(127-129)	
	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	(3.0, 1.4, I)	(5.0, 1.1, A)	(7.0, 1.4, I)
c. Treatment with two or more nonoperative modalities,:																														
1) Supervised exercise not included	3	1	1	2	2					1	1	1	3	2	1				1		1	3	2	1	1				(130-132)	
	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	(3.0, 1.4, I)	(5.0, 1.3, I)	(6.0, 1.4, I)
2) Supervised exercise included	2	1	2	1	3							5	2	1	1						1	2	3	2	1				(133-135)	
	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	(3.0, 1.3, I)	(5.0, .8, A)	(7.0, .9, A)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 6
 "LAMINECTOMY" IS INDICATED IN A
 PATIENT WITH BACK PAIN ONLY, AND:

	DEGREE OF DISABILITY			
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work	
A. NO HERNIATED DISC ON IMAGING:				
1. No neurologic findings, and:				
a. No nonoperative treatments	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	(1- 3)
b. Treatment with one nonoperative modality	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	(4- 6)
c. Treatment with two or more nonoperative modalities	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	(7- 9)
2. Abnormal neurologic exam, and:				
a. No nonoperative treatments	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	(10- 12)
b. Treatment with one nonoperative modality	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	(13- 15)
c. Treatment with two or more nonoperative modalities	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	(16- 18)
B. DISC HERNIATION ON IMAGING:				
1. No neurologic findings, and:				
a. No nonoperative treatments	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	(19- 21)
b. Treatment with one nonoperative modality	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	(22- 24)
c. Treatment with two or more nonoperative modalities	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	(25- 27)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 6
 "LAMINECTOMY" IS INDICATED IN A
 PATIENT WITH BACK PAIN ONLY, AND:

	DEGREE OF DISABILITY																								
	MILD Limits Sports						MODERATE Limits Work						SEVERE Unable to Work												
2. Abnormal neurologic exam, and:	9	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	9							
a. No nonoperative treatments	(1.0, .0, A)									(1.0, .2, A)									(1.0, .4, A)						
b. Treatment with one nonoperative modality	9	1	2	3	4	5	6	7	8	2	3	4	5	6	7	8	9								
	(1.0, .0, A)									(1.0, .4, A)									(1.0, .4, A)						
c. Treatment with two or more nonoperative modalities	9	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	9							
	(1.0, .0, A)									(1.0, .6, A)									(1.0, .6, A)						

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 7 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH SYMPTOMS OF CENTRAL SPINAL STENOSIS, NOT DUE TO SPONDYLOLISTHESIS AND:	DEGREE OF DISABILITY			
	MILD	MODERATE	SEVERE	
A. NO CENTRAL STENOSIS ON IMAGING:				
1. No neurologic findings:	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	(1- 3)
2. Abnormal neurologic exam:	7 2 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	7 2 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	(4- 6)
B. CENTRAL STENOSIS ON IMAGING:				
1. No neurologic findings:	4 2 2 1 1 2 3 4 5 6 7 8 9 (2.0, 1.0, A)	1 1 2 3 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.7, D)	1 1 2 4 1 1 2 3 4 5 6 7 8 9 (8.0, .9, A)	(7- 9)
2. Abnormal neurologic exam:	2 1 3 1 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.7, I)	1 2 4 1 1 1 2 3 4 5 6 7 8 9 (7.0, .8, A)	1 4 4 1 2 3 4 5 6 7 8 9 (8.0, .8, A)	(10- 12)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 8

"LAMINECTOMY" IS INDICATED IN A PATIENT WITH SYMPTOMS OF LATERAL SPINAL STENOSIS, AND:

	DEGREE OF DISABILITY			
	MILD	MODERATE	SEVERE	
	Limits Sports	Limits Work	Unable to Work	
A. NO LATERAL STENOSIS ON FUNCTIONAL MYELOGRAM:				
1. No neurologic findings:				
a. No noninvasive treatments	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	(1- 3)
b. One or more noninvasive treatments	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	(4- 6)
2. Minor neurologic abnormality with or without root tension sign:				
a. No noninvasive treatments	8 1 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	(7- 9)
b. One or more noninvasive treatments	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	(10- 12)
3. Major weakness:				
a. No noninvasive treatments	8 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	(13- 15)
b. One or more noninvasive treatments	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	(16- 18)
B. LATERAL STENOSIS ON IMAGING:				
1. No neurologic findings:				
a. No noninvasive treatments	6 2 1 1 2 3 4 5 6 7 8 9 (1.0, .8, A)	2 2 1 1 2 1 1 2 3 4 5 6 7 8 9 (3.0, 1.7, I)	2 3 2 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.7, D)	(19- 21)
b. One or more noninvasive treatments	4 3 1 1 1 2 3 4 5 6 7 8 9 (2.0, 1.0, A)	2 1 3 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.0, I)	1 3 3 2 1 2 3 4 5 6 7 8 9 (7.0, .8, A)	(22- 24)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

	MILD			MODERATE			SEVERE		
	Limits Sports	Limits Work	Unable to Work	Limits Sports	Limits Work	Unable to Work	Limits Sports	Limits Work	Unable to Work
Chapter 8									
"LAMINECTOMY" IS INDICATED IN A PATIENT WITH SYMPTOMS OF LATERAL SPINAL STENOSIS, AND:									
2. Minor neurologic abnormality with or without root tension sign:									
a. No noninvasive treatments	3 4 1 1 1 2 3 4 5 6 7 8 9 (2.0, .7, A)	1 1 1 6 1 2 3 4 5 6 7 8 9 (5.0, .8, A)	1 1 2 3 4 5 6 7 8 9 (6.0, 1.2, A)	3 4 1 1 1 2 3 4 5 6 7 8 9 (2.0, .7, A)	1 1 1 6 1 2 3 4 5 6 7 8 9 (5.0, .8, A)	1 1 2 3 4 5 6 7 8 9 (6.0, 1.2, A)	(25- 27)		
b. One or more noninvasive treatments	3 2 3 1 1 2 3 4 5 6 7 8 9 (2.0, .9, A)	1 5 1 2 1 2 3 4 5 6 7 8 9 (5.0, .7, A)	2 1 2 3 1 1 2 3 4 5 6 7 8 9 (7.0, 1.1, I)	3 2 3 1 1 2 3 4 5 6 7 8 9 (2.0, .9, A)	1 5 1 2 1 2 3 4 5 6 7 8 9 (5.0, .7, A)	2 1 2 3 1 1 2 3 4 5 6 7 8 9 (7.0, 1.1, I)	(28- 30)		
3. Major weakness:									
a. No noninvasive treatments	2 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.9, I)	2 3 2 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.0, I)	3 3 3 1 2 3 4 5 6 7 8 9 (8.0, .7, A)	2 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.9, I)	2 3 2 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.0, I)	3 3 3 1 2 3 4 5 6 7 8 9 (8.0, .7, A)	(31- 33)		
b. One or more noninvasive treatments	1 2 1 1 2 1 1 2 3 4 5 6 7 8 9 (4.0, 1.9, I)	2 4 2 1 1 2 3 4 5 6 7 8 9 (7.0, .7, A)	1 2 6 1 2 3 4 5 6 7 8 9 (9.0, .4, A)	1 2 1 1 2 1 1 2 3 4 5 6 7 8 9 (4.0, 1.9, I)	2 4 2 1 1 2 3 4 5 6 7 8 9 (7.0, .7, A)	1 2 6 1 2 3 4 5 6 7 8 9 (9.0, .4, A)	(34- 36)		

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 9

"LAMINECTOMY" WITHOUT FUSION
IS INDICATED IN A PATIENT WITH
SPONDYLOLISTHESIS, AND:

		DEGREE OF DISABILITY	
		MILD Limits Sports	SEVERE Unable to Work

A. GRADE I-II ISTHMIC
SPONDYLOLISTHESIS ON IMAGING:

1. Back pain only:									
a. No neurologic findings, and:									
1) No nonoperative treatments	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	(1- 3)
2) Treatment with one or more nonoperative modalities	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	(4- 6)
b. Minor neurologic abnormality with or without root tension sign, and:									
1) No nonoperative treatments	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	1 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	1 1 2 3 4 5 6 7 8 9 (1.0, .8, A)	1 1 2 3 4 5 6 7 8 9 (1.0, .8, A)	1 1 2 3 4 5 6 7 8 9 (1.0, .8, A)	1 1 2 3 4 5 6 7 8 9 (1.0, .8, A)	1 1 2 3 4 5 6 7 8 9 (1.0, .8, A)	(7- 9)
2) Treatment with one or more nonoperative modalities	8 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 1 1 1 1 1 1 1 1 1 (1.0, .7, A)	1 1 2 3 4 5 6 7 8 9 (1.0, .7, A)	1 1 2 3 4 5 6 7 8 9 (1.0, .8, A)	1 1 2 3 4 5 6 7 8 9 (1.0, .8, A)	1 1 2 3 4 5 6 7 8 9 (1.0, .8, A)	1 1 2 3 4 5 6 7 8 9 (1.0, .8, A)	1 1 2 3 4 5 6 7 8 9 (1.0, .8, A)	(10- 12)
2. Sciatica/cruraigia or claudication (with or without back pain):									
a. No neurologic findings, and:									
1) No nonoperative treatments	8 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	8 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	1 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	8 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	8 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	8 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	8 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	8 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	(13- 15)
2) Treatment with one or more nonoperative modalities	7 1 1 1 1 1 1 1 1 1 (1.0, .3, A)	7 1 1 1 1 1 1 1 1 1 (1.0, .7, A)	1 1 2 3 4 5 6 7 8 9 (1.0, .7, A)	7 1 1 1 1 1 1 1 1 1 (1.0, 1.0, A)	7 1 1 1 1 1 1 1 1 1 (1.0, 1.0, A)	7 1 1 1 1 1 1 1 1 1 (1.0, 1.0, A)	7 1 1 1 1 1 1 1 1 1 (1.0, 1.0, A)	7 1 1 1 1 1 1 1 1 1 (1.0, 1.0, A)	(16- 18)
b. Minor neurologic abnormality with or without root tension sign, and:									
1) No nonoperative treatments	7 1 1 1 1 1 1 1 1 1 (1.0, .3, A)	7 1 1 1 1 1 1 1 1 1 (1.0, .6, A)	1 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	7 1 1 1 1 1 1 1 1 1 (1.0, .7, A)	7 1 1 1 1 1 1 1 1 1 (1.0, .7, A)	7 1 1 1 1 1 1 1 1 1 (1.0, .7, A)	7 1 1 1 1 1 1 1 1 1 (1.0, .7, A)	7 1 1 1 1 1 1 1 1 1 (1.0, .7, A)	(19- 21)
2) Treatment with one or more nonoperative modalities	7 1 1 1 1 1 1 1 1 1 (1.0, .6, A)	7 1 1 1 1 1 1 1 1 1 (1.0, .8, A)	1 1 2 3 4 5 6 7 8 9 (1.0, .8, A)	6 1 1 1 1 1 1 1 1 1 (1.0, 1.4, I)	6 1 1 1 1 1 1 1 1 1 (1.0, 1.4, I)	6 1 1 1 1 1 1 1 1 1 (1.0, 1.4, I)	6 1 1 1 1 1 1 1 1 1 (1.0, 1.4, I)	6 1 1 1 1 1 1 1 1 1 (1.0, 1.4, I)	(22- 24)
c. Major weakness, and:									
1) No nonoperative treatments	7 1 1 1 1 1 1 1 1 1 (1.0, .4, A)	6 1 2 3 4 5 6 7 8 9 (1.0, 1.1, A)	1 1 2 3 4 5 6 7 8 9 (1.0, 1.1, A)	6 1 1 1 1 1 1 1 1 1 (1.0, .8, A)	6 1 1 1 1 1 1 1 1 1 (1.0, .8, A)	6 1 1 1 1 1 1 1 1 1 (1.0, .8, A)	6 1 1 1 1 1 1 1 1 1 (1.0, .8, A)	6 1 1 1 1 1 1 1 1 1 (1.0, .8, A)	(25- 27)
2) Treatment with one or more nonoperative modalities	7 1 1 1 1 1 1 1 1 1 (1.0, .2, A)	6 1 1 1 1 1 1 1 1 1 (1.0, .6, A)	1 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	6 1 1 1 1 1 1 1 1 1 (1.0, .9, A)	6 1 1 1 1 1 1 1 1 1 (1.0, .9, A)	6 1 1 1 1 1 1 1 1 1 (1.0, .9, A)	6 1 1 1 1 1 1 1 1 1 (1.0, .9, A)	6 1 1 1 1 1 1 1 1 1 (1.0, .9, A)	(28- 30)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

	DEGREE OF DISABILITY																					
	MILD Limits Sports						MODERATE Limits Work						SEVERE Unable to Work									
Chapter 9																						
"LAMINECTOMY" WITHOUT FUSION IS INDICATED IN A PATIENT WITH SPONDYLOLISTHESIS, AND:																						
B. GRADE I-II DEGENERATIVE SPONDYLOLISTHESIS ON IMAGING:																						
1. Back pain only:																						
a. No neurologic findings, and:																						
1) No nonoperative treatments																			9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	(31- 33)
2) Treatment with one or more nonoperative modalities																			8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	(34- 36)
b. Minor neurologic abnormality with or without root tension sign, and:																						
1) No nonoperative treatments																			8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	(37- 39)
2) Treatment with one or more nonoperative modalities																			8 1 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 1 1 2 3 4 5 6 7 8 9 (1.0, .7, A)	7 1 1 2 3 4 5 6 7 8 9 (1.0, .7, A)	(40- 42)
2. Sciatica/cruralgia and/or claudication without back pain:																						
a. No neurologic findings, and:																						
1) No nonoperative treatments																			8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	5 1 1 1 1 1 2 3 4 5 6 7 8 9 (1.0, 1.3, I)	5 1 1 1 1 1 2 3 4 5 6 7 8 9 (1.0, 1.7, I)	(43- 45)
2) Treatment with one or more nonoperative modalities																			4 4 1 1 2 3 4 5 6 7 8 9 (3.0, 1.1, A)	2 3 2 2 1 2 3 4 5 6 7 8 9 (5.0, 1.1, D)	1 5 2 1 1 2 3 4 5 6 7 8 9 (7.0, .9, A)	(46- 48)
b. Minor neurologic abnormality with or without root tension sign, and:																						
1) No nonoperative treatments																			8 1 1 2 3 4 5 6 7 8 9 (1.0, .1, A)	4 2 3 1 2 3 4 5 6 7 8 9 (3.0, 1.6, I)	4 1 1 3 1 2 3 4 5 6 7 8 9 (3.0, 2.3, D)	(49- 51)
2) Treatment with one or more nonoperative modalities																			5 3 1 1 2 3 4 5 6 7 8 9 (1.0, 1.1, A)	1 2 2 2 2 1 2 3 4 5 6 7 8 9 (5.0, 1.2, I)	1 2 1 3 1 1 1 2 3 4 5 6 7 8 9 (7.0, 1.8, I)	(52- 54)
c. Major weakness, and:																						
1) No nonoperative treatments																			5 2 2 1 2 3 4 5 6 7 8 9 (1.0, 1.3, I)	4 1 2 2 3 1 2 3 4 5 6 7 8 9 (5.0, 2.4, D)	3 2 3 1 1 2 3 4 5 6 7 8 9 (7.0, 2.6, D)	(55- 57)
2) Treatment with one or more nonoperative modalities																			2 1 3 1 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.4, I)	2 1 1 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.4, I)	1 2 2 4 1 2 3 4 5 6 7 8 9 (8.0, 1.6, I)	(58- 60)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 9

"LAMINECTOMY" WITHOUT FUSION
IS INDICATED IN A PATIENT WITH
SPONDYLOLISTHESIS, AND:

	DEGREE OF DISABILITY			
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work	
3. Sciatica/cruralgia and/or claudication with back pain:				
a. No neurologic findings, and:				
1) No nonoperative treatments	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	6 1 1 1 1 2 3 4 5 6 7 8 9 (1.0, .8, A)	(61- 63)
2) Treatment with one or more nonoperative modalities	5 1 3 1 2 3 4 5 6 7 8 9 (1.0, .8, A)	3 1 2 1 2 1 2 3 4 5 6 7 8 9 (3.0, 1.9, D)	3 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (3.0, 2.0, D)	(64- 66)
b. Minor neurologic abnormality with or without root tension sign, and:				
1) No nonoperative treatments	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	5 2 1 1 1 2 3 4 5 6 7 8 9 (1.0, 1.2, I)	5 2 1 1 1 2 3 4 5 6 7 8 9 (1.0, 1.6, I)	(67- 69)
2) Treatment with one or more nonoperative modalities	5 1 2 1 1 2 3 4 5 6 7 8 9 (1.0, 1.1, A)	4 1 2 2 1 2 3 4 5 6 7 8 9 (4.0, 2.2, D)	3 2 2 2 1 2 3 4 5 6 7 8 9 (4.0, 1.9, D)	(70- 72)
c. Major weakness, and:				
1) No nonoperative treatments	5 1 1 1 1 1 2 3 4 5 6 7 8 9 (1.0, 1.1, I)	4 1 2 2 1 2 3 4 5 6 7 8 9 (2.0, 2.2, D)	3 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 2.6, D)	(73- 75)
2) Treatment with one or more nonoperative modalities	3 2 1 1 1 1 1 2 3 4 5 6 7 8 9 (2.0, 1.4, I)	2 1 1 1 3 1 1 2 3 4 5 6 7 8 9 (6.0, 2.2, D)	2 1 1 1 3 1 1 2 3 4 5 6 7 8 9 (7.0, 2.7, D)	(76- 78)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 10 FUSION WITH OR WITHOUT "LAMINECTOMY" IS INDICATED IN A PATIENT WITH SPONDYLOLISTHESIS, AND:	DEGREE OF DISABILITY			
	MILD Limits Sports	Moderate Limits Work	SEVERE Unable to Work	
A. GRADE I-II ISTHMIC SPONDYLOLISTHESIS ON IMAGING:				
1. Back pain only:				
a. No neurologic findings, and:				
1) No nonoperative treatments	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .8, I)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, 1.0, I)	(1- 3)
2) Treatment with one or more nonoperative modalities	3 2 3 1 2 3 4 5 6 7 8 9 (2.0, 1.2, A)	2 2 1 3 1 2 3 4 5 6 7 8 9 (4.0, 2.1, I)	1 1 1 2 3 4 5 6 7 8 9 (7.0, 1.2, A)	(4- 6)
b. Minor neurologic abnormality with or without root tension sign, and:				
1) No nonoperative treatments	7 2 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	5 1 1 2 1 2 3 4 5 6 7 8 9 (1.0, 1.3, I)	5 1 2 1 1 2 3 4 5 6 7 8 9 (1.0, 1.8, I)	(7- 9)
2) Treatment with one or more nonoperative modalities	4 1 3 1 2 3 4 5 6 7 8 9 (2.0, 1.3, A)	1 1 3 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.4, I)	1 1 1 2 3 4 5 6 7 8 9 (7.0, 1.2, A)	(10- 12)
2. Sciatica/cruralgia or claudication (with or without back pain):				
a. No neurologic findings, and:				
1) No nonoperative treatments	6 3 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	6 1 1 1 1 2 3 4 5 6 7 8 9 (1.0, 1.1, I)	6 1 1 1 1 2 3 4 5 6 7 8 9 (1.0, 1.4, I)	(13- 15)
2) Treatment with one or more nonoperative modalities	3 1 3 1 2 3 4 5 6 7 8 9 (3.0, 1.4, I)	1 2 2 3 1 1 2 3 4 5 6 7 8 9 (6.0, 1.7, I)	1 2 2 1 3 1 2 3 4 5 6 7 8 9 (7.0, 1.6, I)	(16- 18)
b. Minor neurologic abnormality with or without root tension sign, and:				
1) No nonoperative treatments	6 1 2 1 2 3 4 5 6 7 8 9 (1.0, .6, A)	6 1 1 1 1 2 3 4 5 6 7 8 9 (1.0, 1.3, I)	6 1 1 1 1 2 3 4 5 6 7 8 9 (1.0, 1.7, I)	(19- 21)
2) Treatment with one or more nonoperative modalities	3 1 2 2 1 2 3 4 5 6 7 8 9 (3.0, 1.4, I)	1 1 1 2 3 1 1 2 3 4 5 6 7 8 9 (6.0, 1.6, I)	1 1 2 3 2 1 2 3 4 5 6 7 8 9 (8.0, 1.0, I)	(22- 24)
c. Major weakness, and:				
1) No nonoperative treatments	3 2 1 2 1 1 2 3 4 5 6 7 8 9 (3.0, 1.7, I)	3 1 1 3 1 1 2 3 4 5 6 7 8 9 (6.0, 2.4, D)	3 1 2 1 1 1 2 3 4 5 6 7 8 9 (6.5, 2.8, D)	(25- 27)
2) Treatment with one or more nonoperative modalities	2 1 3 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.5, I)	1 1 3 2 1 1 2 3 4 5 6 7 8 9 (7.0, .9, A)	1 1 2 4 1 2 3 4 5 6 7 8 9 (8.5, 1.0, A)	(28- 30)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 10

FUSION WITH OR WITHOUT
"LAMINECTOMY" IS INDICATED
IN A PATIENT WITH
SPONDYLOLISTHESIS, AND:

DEGREE OF DISABILITY

MILD Limits Sports MODERATE Limits Work SEVERE Unable to Work

B. GRADE I-II DEGENERATIVE
SPONDYLOLISTHESIS ON IMAGING:

1. Back pain only:

a. No neurologic findings, and:

1) No nonoperative treatments

8 1	6 1 2	5 1 3	
1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	(31- 33)
(1.0, .1, A)	(1.0, 1.1, I)	(1.0, 2.0, I)	

2) Treatment with one or more nonoperative modalities

4 2 2 1	2 1 1 4 1	1 5 2 1	
1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	(34- 36)
(2.0, 1.0, A)	(6.0, 1.8, I)	(7.0, 1.1, A)	

b. Minor neurologic abnormality with or without root tension sign, and:

1) No nonoperative treatments

8 1	4 1 2 2	4 1 1 2 1	
1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	(37- 39)
(1.0, .2, A)	(2.0, 1.6, I)	(3.0, 2.6, D)	

2) Treatment with one or more nonoperative modalities

4 2 1 1 1	1 3 3 1 1	1 2 4 2	
1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	(40- 42)
(2.0, 1.1, I)	(6.0, 1.2, A)	(8.0, .8, A)	

2. Sciatica/cruralgia and/or claudication without back pain:

a. No neurologic findings, and:

1) No nonoperative treatments

8 1	8 1	6 2 1	
1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	(43- 45)
(1.0, .2, A)	(1.0, .2, A)	(1.0, .7, A)	

2) Treatment with one or more nonoperative modalities

7 1 1	3 2 3 1	2 1 1 2 2 1	
1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	(46- 48)
(1.0, .6, A)	(3.0, 1.7, I)	(5.0, 1.8, I)	

b. Minor neurologic abnormality with or without root tension sign, and:

1) No nonoperative treatments

8 1	6 2 1	5 1 1 1 1	
1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	(49- 51)
(1.0, .2, A)	(1.0, .8, A)	(1.0, 1.1, I)	

2) Treatment with one or more nonoperative modalities

6 1 1 1	2 2 3 2	1 1 1 1 3 2	
1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	(52- 54)
(1.0, 1.0, I)	(5.0, 1.6, I)	(6.0, 1.7, D)	

c. Major weakness, and:

1) No nonoperative treatments

7 1 1	4 1 1 1 2	3 1 1 1 1 1 1	
1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	(55- 57)
(1.0, .4, A)	(2.0, 1.9, I)	(4.0, 2.3, D)	

2) Treatment with one or more nonoperative modalities

5 1 2 1	2 1 1 1 1 3	1 1 1 1 2 1 2	
1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	(58- 60)
(1.0, 1.6, I)	(5.0, 2.2, D)	(6.0, 2.2, D)	

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 10 FUSION WITH OR WITHOUT "LAMINECTOMY" IS INDICATED IN A PATIENT WITH SPONDYLOLISTHESIS, AND:	DEGREE OF DISABILITY			
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work	
3. Sciatica/cruralgia and/or claudication with back pain:				
a. No neurologic findings, and:				
1) No nonoperative treatments	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	6 1 2 1 2 3 4 5 6 7 8 9 (1.0, 1.1, I)	5 1 1 2 1 2 3 4 5 6 7 8 9 (1.0, 1.8, I)	(61- 63)
2) Treatment with one or more nonoperative modalities	2 2 2 1 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.4, I)	2 3 4 1 2 3 4 5 6 7 8 9 (6.0, .7, A)	1 4 3 1 1 2 3 4 5 6 7 8 9 (7.0, .7, A)	(64- 66)
b. Minor neurologic abnormality with or without root tension sign, and:				
1) No nonoperative treatments	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	4 1 2 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.8, I)	3 1 1 1 2 1 1 2 3 4 5 6 7 8 9 (4.0, 2.3, D)	(67- 69)
2) Treatment with one or more nonoperative modalities	5 1 1 1 1 1 2 3 4 5 6 7 8 9 (1.0, 1.3, I)	1 4 2 2 1 2 3 4 5 6 7 8 9 (5.0, 1.3, I)	1 1 1 1 4 1 1 2 3 4 5 6 7 8 9 (8.0, 1.3, I)	(70- 72)
c. Major weakness, and:				
1) No nonoperative treatments	5 1 2 1 1 2 3 4 5 6 7 8 9 (1.0, 1.4, I)	3 2 1 3 1 2 3 4 5 6 7 8 9 (6.0, 2.4, D)	2 1 4 2 1 2 3 4 5 6 7 8 9 (8.0, 2.3, D)	(73- 75)
2) Treatment with one or more nonoperative modalities	1 1 1 2 3 1 1 2 3 4 5 6 7 8 9 (4.0, 1.3, I)	1 4 3 1 1 2 3 4 5 6 7 8 9 (7.0, 1.0, A)	1 1 1 6 1 2 3 4 5 6 7 8 9 (9.0, 1.0, A)	(76- 78)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 11
MISCELLANEOUS

A. "LAMINECTOMY" IS INDICATED IN A
PATIENT WITH SCIATICA/CRURALGIA,
PROGRESSIVE MOTOR WEAKNESS, AND:

- | | | |
|--|--|------|
| 1. No herniated disc or stenosis
on imaging | 9
1 2 3 4 5 6 7 8 9
(1.0, .0, A) | (1) |
| 2. Herniated disc or stenosis
on imaging | 1 8
1 2 3 4 5 6 7 8 9
(9.0, .1, A) | (2) |

B. "LAMINECTOMY" IS INDICATED IN A
PATIENT WITH CAUDA EQUINA
SYNDROME, AND:

- | | | |
|--|--|------|
| 1. No herniated disc or stenosis on
imaging | 9
1 2 3 4 5 6 7 8 9
(1.0, .0, A) | (3) |
| 2. Herniated disc or stenosis on
imaging | 9
1 2 3 4 5 6 7 8 9
(9.0, .0, A) | (4) |

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate.

Chapter 12
 REPEAT "LAMINECTOMY" WITHIN THREE MONTHS
 OF PRIOR "LAMINECTOMY" IS INDICATED IN A
 PATIENT WITH:

	SYMPTOMS		
	Stable But Persisting	Recurrent	Worsening
A. NO HERNIATED DISC OR SCAR TISSUE ON IMAGING:			
1. No neurologic findings	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .6, A)
2. Neurologic abnormality unchanged	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .7, A)
3. New neurologic abnormality	8 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .7, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .9, A)
B. SCAR TISSUE WITHOUT NERVE ROOT COMPRESSION ON IMAGING:			
1. No neurologic findings	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .6, A)
2. Neurologic abnormality unchanged	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	8 1 1 2 3 4 5 6 7 8 9 (1.0, .2, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .7, A)
3. New neurologic abnormality	8 1 1 2 3 4 5 6 7 8 9 (1.0, .3, A)	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .7, A)	6 1 1 1 2 3 4 5 6 7 8 9 (1.0, 1.2, I)
C. SCAR TISSUE WITH NERVE ROOT COMPRESSION ON IMAGING:			
1. No neurologic findings	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	6 1 2 1 2 3 4 5 6 7 8 9 (1.0, 1.1, I)	5 1 1 2 1 2 3 4 5 6 7 8 9 (1.0, 1.7, I)
2. Neurologic abnormality unchanged	9 1 2 3 4 5 6 7 8 9 (1.0, .0, A)	3 1 1 2 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.6, I)	2 2 3 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.7, I)
3. New neurologic abnormality	7 1 1 1 2 3 4 5 6 7 8 9 (1.0, .4, A)	1 3 1 4 1 2 3 4 5 6 7 8 9 (5.0, 1.6, I)	1 1 1 1 1 4 1 2 3 4 5 6 7 8 9 (6.0, 1.7, D)
D. DISC HERNIATION ON IMAGING:			
1. No neurologic findings	6 1 1 1 2 3 4 5 6 7 8 9 (1.0, 1.7, I)	1 2 1 2 2 1 1 1 2 3 4 5 6 7 8 9 (3.0, 2.1, D)	3 2 1 1 1 2 3 4 5 6 7 8 9 (5.0, 2.1, D)
2. Neurologic abnormality unchanged	3 1 1 1 2 3 4 5 6 7 8 9 (3.0, 2.6, D)	1 2 3 2 1 1 2 1 2 3 4 5 6 7 8 9 (5.0, 2.1, D)	3 1 1 2 2 1 2 3 4 5 6 7 8 9 (7.0, 1.4, I)
3. New neurologic abnormality	2 1 1 1 2 1 1 1 2 3 4 5 6 7 8 9 (6.0, 2.3, D)	1 1 1 2 4 1 2 3 4 5 6 7 8 9 (8.0, 1.2, I)	2 2 5 1 2 3 4 5 6 7 8 9 (9.0, .7, A)

Appropriateness scale: 1 = extremely inappropriate, 5 = uncertain, 9 = extremely appropriate

VI NOTES SUR LA LECTURE DES TABLEAUX DE «NECESSITE»

La lecture des tableaux de nécessité est similaire à la lecture des tableaux d'adéquation (annexe IV). La grande différence est que, lors de l'évaluation de la nécessité, seules les indications ayant déjà été jugées appropriées sont prises en considération. Le tableau ci-après présente une partie de la page 8 de l'évaluation de la nécessité des indications opératoires pour hernie discale. Le titre du chapitre et les indications spécifiques se trouvent à la tête des colonnes et sur la marge de gauche. A chaque indication *déjà considérée comme appropriée* correspond la distribution des votes des panélistes sur le caractère nécessaire de l'indication, ainsi que quelques statistiques sommaires pour cette indication-là. Par exemple, les indications dans la dernière ligne, correspondant à la section C.3.c du chapitre 2, concernent des patients qui souffrent d'une sciatique sub-aiguë (chapitre 2), dont l'examen radiologique met en évidence une hernie discale et un fragment libre (section C), qui présentent des troubles neurologiques mineurs, sans signe d'irritation de la racine du nerf sciatique (section 3), et qui ont déjà bénéficié d'au moins deux types de traitements conservateurs sans succès (section c). Les indications sont alors stratifiées en colonnes selon le degré de handicap des patients, allant d'un handicap léger (limitant l'activité sportive du patient), jusqu'à un handicap sévère (incapable de travailler).

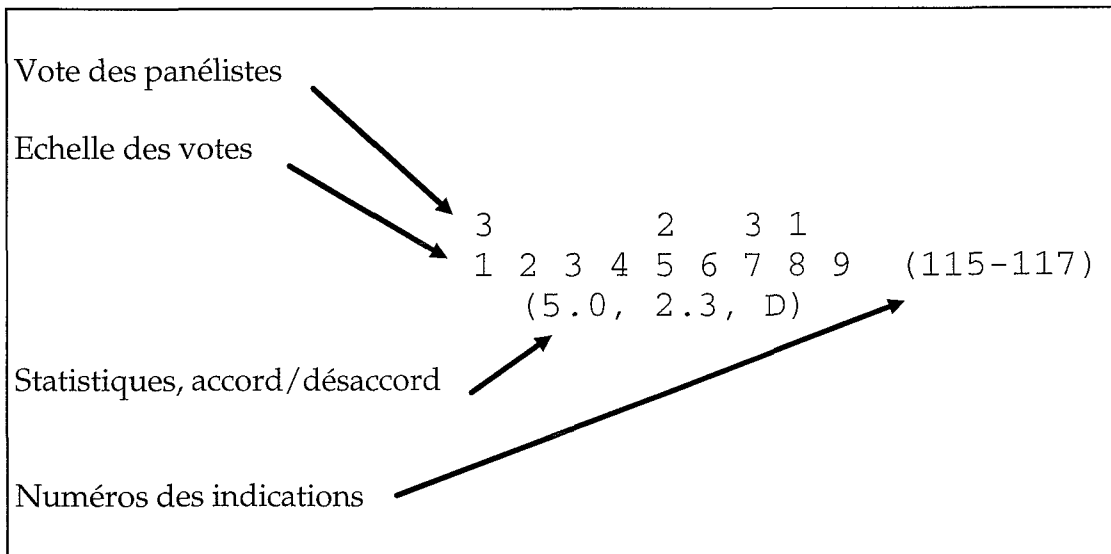
Tableau 1 Extrait d'un tableau de l'évaluation de la nécessité

Chapter 2 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH SUBACUTE SCIATICA/CRURALGIA (6 WEEKS TO 6 MONTHS DURATION) NO INSURANCE CLAIM, AND:	DEGREE OF DISABILITY									
	MILD Limits Sports			MODERATE Limits Work			SEVERE Unable to Work			
C. DISC HERNIATION WITH FREE FRAGMENT ON IMAGING:										
1. No neurologic findings, and:										
a. No nonoperative treatments										(91- 93)
b. Treatment with one nonoperative modality										(94- 96)
c. Treatment with two or more nonoperative modalities				5			1 2 1			(97- 99)
				1 2 3 4 5 6 7 8 9			(1.0, 2.6, D)			
2. Root tension sign only, and:										
a. No nonoperative treatments										(100-102)
b. Treatment with one nonoperative modality				4 1			3 1			(103-105)
				1 2 3 4 5 6 7 8 9			(3.0, 2.8, D)			
c. Treatment with two or more nonoperative modalities	4 1 1 1 1 1			3 2 2 2						(106-108)
	1 2 3 4 5 6 7 8 9			1 2 3 4 5 6 7 8 9			(4.0, 2.6, D)			
3. Minor neurologic abnormality without root tension sign, and:										
a. No nonoperative treatments										(109-111)
b. Treatment with one nonoperative modality				4 1 1 3						(112-114)
				1 2 3 4 5 6 7 8 9			(4.0, 2.6, D)			
c. Treatment with two or more nonoperative modalities	3 1 1 2 1 1			3 2 3 1						(115-117)
	1 2 3 4 5 6 7 8 9			1 2 3 4 5 6 7 8 9			(5.0, 2.3, D)			

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

L'échelle des appréciations de la nécessité par les experts va de 1 à 9. Les chiffres au-dessus de l'échelle indiquent comment les neuf panélistes ont voté pour la nécessité de l'opération pour cette indication particulière. Pour la dernière colonne de la section C.3.c (exemple repris ci-dessous), trois panélistes ont voté 1, deux ont voté 5, trois ont voté 7 et un 8. Les statistiques en dessous de l'échelle indiquent le score médian des panélistes (5 dans cet exemple) et la déviation moyenne absolue des votes par rapport à la médiane (2.3). Le "D" indique désaccord, "I" indéterminé (ni accord, ni désaccord), et "A" accord. Les définitions de ces derniers termes sont décrites dans la section méthode du texte. Pour l'exemple en question, le panel trouvait que l'indication opératoire bien qu'appropriée (seules les indications appropriées sont évaluées) n'était pas considérée comme nécessaire, (score médian de *nécessité* en dessous de 7 et présence de désaccord entre les panélistes).

Tableau 2 Détails des appréciations pour une indication particulière



Les chiffres entre parenthèses tout à droite de la page se réfèrent aux numéros des indications, pour le chapitre en question et situées sur cette ligne-là. L'exemple ci-dessus se réfère à l'indication numéro 117 du chapitre 2.

VII TABLEAUX DES SCENARIOS DE NECESSITE

Chapter 1
 "LAMINECTOMY" IS INDICATED IN A
 PATIENT WITH ACUTE
 SCIATICA/CRURALGIA (LESS THAN
 6 WEEKS DURATION), AND:

	DEGREE OF DISABILITY			
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work	BEDBOUND or Hospitalized
A. NO HERNIATED DISC ON IMAGING:				
1. No neurologic findings, and:				
a. No nonoperative treatments	(1- 4)
b. Treatment with one nonoperative modality	(5- 8)
c. Treatment with two or more nonoperative modalities	(9- 12)
2. Root tension sign only, and:				
a. No nonoperative treatments	(13- 16)
b. Treatment with one nonoperative modality	(17- 20)
c. Treatment with two or more nonoperative modalities	(21- 24)
3. Minor neurologic abnormality without root tension sign, and:				
a. No nonoperative treatments	(25- 28)
b. Treatment with one nonoperative modality	(29- 32)
c. Treatment with two or more nonoperative modalities	(33- 36)
4. Minor neurologic abnormality with root tension sign, and:				
a. No nonoperative treatments	(37- 40)
b. Treatment with one nonoperative modality	(41- 44)
c. Treatment with two or more nonoperative modalities	(45- 48)

Necessity scale: 1 = Clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 1 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH ACUTE SCIATICA/CRURALGIA (LESS THAN 6 WEEKS DURATION), AND:	DEGREE OF DISABILITY			
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work	BEDBOUND or Hospitalized
5. Major weakness, and:				
a. No nonoperative treatments	(49- 52)
b. Treatment with one nonoperative modality	(53- 56)
c. Treatment with two or more nonoperative modalities	(57- 60)
B. DISC HERNIATION ON IMAGING:				
1. No neurologic findings, and:				
a. No nonoperative treatments	(61- 64)
b. Treatment with one nonoperative modality	(65- 68)
c. Treatment with two or more nonoperative modalities	(69- 72)
2. Root tension sign only, and:				
a. No nonoperative treatments	(73- 76)
b. Treatment with one nonoperative modality	(77- 80)
c. Treatment with two or more nonoperative modalities	(81- 84)
3. Minor neurologic abnormality without root tension sign, and:				
a. No nonoperative treatments	(85- 88)
b. Treatment with one nonoperative modality	(89- 92)
c. Treatment with two or more nonoperative modalities	(93- 96)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 1
 "LAMINECTOMY" IS INDICATED IN A
 PATIENT WITH ACUTE
 SCIATICA/CRURALGIA (LESS THAN
 6 WEEKS DURATION), AND:

	DEGREE OF DISABILITY															
	MILD Limits Sports			MODERATE Limits Work			SEVERE Unable to Work			BEDBOUND or Hospitalized						
4. Minor neurologic abnormality with root tension sign, and:																
a. No nonoperative treatments	. . . . . ( 97-100)															
b. Treatment with one nonoperative modality	. . . . . (101-104)															
c. Treatment with two or more nonoperative modalities	. . . . . 3 1 1 2 1 1 1 2 3 4 5 6 7 8 9 (105-108) (5.0, 2.9, D)															
5. Major weakness, and:																
a. No nonoperative treatments	. . . . . 2 2 2 2 1 2 1 1 1 3 1 2 3 4 5 6 7 8 9 (109-112) (7.0, 2.2, D) (7.0, 2.4, D)															
b. Treatment with one nonoperative modality	. . . . . 1 1 1 1 4 1 1 1 1 2 4 1 2 3 4 5 6 7 8 9 (113-116) (8.0, 2.0, D) (8.0, 2.1, D)															
c. Treatment with two or more nonoperative modalities	. . . . . 2 1 1 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (117-120) (3.5, 2.3, D) (8.0, 1.7, I) (9.0, 1.6, I)															
C. DISC HERNIATION WITH FREE FRAGMENT ON IMAGING:																
1. No neurologic findings, and:																
a. No nonoperative treatments	. . . . . (121-124)															
b. Treatment with one nonoperative modality	. . . . . (125-128)															
c. Treatment with two or more nonoperative modalities	. . . . . (129-132)															
2. Root tension sign only, and:																
a. No nonoperative treatments	. . . . . (133-136)															
b. Treatment with one nonoperative modality	. . . . . (137-140)															
c. Treatment with two or more nonoperative modalities	. . . . . 4 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (141-144) (3.0, 2.9, D)															

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 1 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH ACUTE SCIATICA/CRURALGIA (LESS THAN 6 WEEKS DURATION), AND:	DEGREE OF DISABILITY			
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work	BEDBOUND or Hospitalized
3. Minor neurologic abnormality without root tension sign, and:				
a. No nonoperative treatments (145-148)
b. Treatment with one nonoperative modality (149-152)
c. Treatment with two or more nonoperative modalities (153-156)
(4.0, 2.2, I)				
4. Minor neurologic abnormality with root tension sign, and:				
a. No nonoperative treatments (157-160)
b. Treatment with one nonoperative modality (161-164)
c. Treatment with two or more nonoperative modalities (165-168)
5. Major weakness, and:				
a. No nonoperative treatments (169-172)
b. Treatment with one nonoperative modality (173-176)
c. Treatment with two or more nonoperative modalities (177-180)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 2

"LAMINECTOMY" IS INDICATED IN A PATIENT WITH SUBACUTE SCIATICA/CRURALGIA (6 WEEKS TO 6 MONTHS DURATION) NO INSURANCE CLAIM, AND:

DEGREE OF DISABILITY

	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work
A. NO HERNIATED DISC ON IMAGING:			
1. No neurologic findings, and:			
a. No nonoperative treatments	(1- 3)
b. Treatment with one nonoperative modality	(4- 6)
c. Treatment with two or more nonoperative modalities	(7- 9)
2. Root tension sign only, and:			
a. No nonoperative treatments	(10- 12)
b. Treatment with one nonoperative modality	(13- 15)
c. Treatment with two or more nonoperative modalities	(16- 18)
3. Minor neurologic abnormality without root tension sign, and:			
a. No nonoperative treatments	(19- 21)
b. Treatment with one nonoperative modality	(22- 24)
c. Treatment with two or more nonoperative modalities	(25- 27)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 2 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH SUBACUTE SCIATICA/CRURALGIA (6 WEEKS TO 6 MONTHS DURATION) NO INSURANCE CLAIM, AND:	DEGREE OF DISABILITY		
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work
4. Minor neurologic abnormality with root tension sign, and:			
a. No nonoperative treatments	(28- 30)
b. Treatment with one nonoperative modality	(31- 33)
c. Treatment with two or more nonoperative modalities	(34- 36)
5. Major weakness, and:			
a. No nonoperative treatments	(37- 39)
b. Treatment with one nonoperative modality	(40- 42)
c. Treatment with two or more nonoperative modalities	(43- 45)
B. DISC HERNIATION ON IMAGING:			
1. No neurologic findings, and:			
a. No nonoperative treatments	(46- 48)
b. Treatment with one nonoperative modality	(49- 51)
c. Treatment with two or more nonoperative modalities	(52- 54)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 2
 "LAMINECTOMY" IS INDICATED IN A PATIENT
 WITH SUBACUTE
 SCIATICA/CRURALGIA (6 WEEKS TO
 6 MONTHS DURATION) NO INSURANCE
 CLAIM, AND:

	DEGREE OF DISABILITY		
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work
2. Root tension sign only, and:			
a. No nonoperative treatments (55- 57)
b. Treatment with one nonoperative modality (58- 60)
c. Treatment with two or more nonoperative modalities	4 1 1 3 1 2 3 4 5 6 7 8 9 (3.0, 2.1, I)	..... ( 61- 63)
3. Minor neurologic abnormality without root tension sign, and:			
a. No nonoperative treatments (64- 66)
b. Treatment with one nonoperative modality (67- 69)
c. Treatment with two or more nonoperative modalities	3 1 1 2 2 1 2 3 4 5 6 7 8 9 (4.0, 2.3, D)	..... ( 70- 72)
4. Minor neurologic abnormality with root tension sign, and:			
a. No nonoperative treatments (73- 75)
b. Treatment with one nonoperative modality	2 1 3 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 2.0, D)	..... ( 76- 78)
c. Treatment with two or more nonoperative modalities	1 2 2 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.8, I)	..... ( 79- 81)
5. Major weakness, and:			
a. No nonoperative treatments	2 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 2.1, D)	..... ( 82- 84)
b. Treatment with one nonoperative modality	2 2 1 3 1 1 2 3 4 5 6 7 8 9 (7.0, 2.1, D)	..... ( 85- 87)
c. Treatment with two or more nonoperative modalities	2 1 2 1 2 1 1 2 3 4 5 6 7 8 9 (5.0, 2.1, D)	..... ( 88- 90)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 2 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH SUBACUTE SCIATICA/CRURALGIA (6 WEEKS TO 6 MONTHS DURATION) NO INSURANCE CLAIM, AND:	DEGREE OF DISABILITY									
	MILD Limits Sports	MODERATE Limits Work			SEVERE Unable to Work					
C. DISC HERNIATION WITH FREE FRAGMENT ON IMAGING:										
1. No neurologic findings, and:										
a. No nonoperative treatments										(91- 93)
b. Treatment with one nonoperative modality										(94- 96)
c. Treatment with two or more nonoperative modalities										5 1 2 1 1 2 3 4 5 6 7 8 9 (97- 99)
2. Root tension sign only, and:										
a. No nonoperative treatments										(100-102)
b. Treatment with one nonoperative modality										4 1 3 1 1 2 3 4 5 6 7 8 9 (103-105) (3.0, 2.8, D)
c. Treatment with two or more nonoperative modalities										4 1 1 1 1 1 3 2 2 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (106-108) (3.0, 2.4, D) (4.0, 2.6, D)
3. Minor neurologic abnormality without root tension sign, and:										
a. No nonoperative treatments										(109-111)
b. Treatment with one nonoperative modality										4 1 1 3 1 2 3 4 5 6 7 8 9 (112-114) (4.0, 2.6, D)
c. Treatment with two or more nonoperative modalities										3 1 1 2 1 1 3 2 3 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (115-117) (3.0, 2.0, I) (5.0, 2.3, D)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 2
 "LAMINECTOMY" IS INDICATED IN A PATIENT
 WITH SUBACUTE
 SCIATICA/CRURALGIA (6 WEEKS TO
 6 MONTHS DURATION) NO INSURANCE
 CLAIM, AND:

	MILD		MODERATE		SEVERE		
	Limits	Sports	Limits	Work	Unable to	Work	
4. Minor neurologic abnormality with root tension sign only, and:							
a. No nonoperative treatments	(118-120)
b. Treatment with one nonoperative modality	3 1 1 1 1	2	1 1 2 1 1 1	1 1 2 1 1 1	(121-123)
c. Treatment with two or more nonoperative modalities	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	(6.0, 2.1, D)	1 2 3 4 5 6 7 8 9	(124-126)
5. Major weakness, and:							
a. No nonoperative treatments	(127-129)
b. Treatment with one nonoperative modality	2 1 1 3 1 1	1 1	1 1 1 2 1 3	1 2 3 4 5 6 7 8 9	(130-132)
c. Treatment with two or more nonoperative modalities	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	(7.0, 2.0, I)	1 2 3 4 5 6 7 8 9	(133-135)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 3 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH SUBACUTE SCIATICA/CRURALGIA (6 WEEKS TO 6 MONTHS DURATION) INSURANCE CLAIM, AND:	DEGREE OF DISABILITY		
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work
A. NO HERNIATED DISC ON IMAGING:			
1. No neurologic findings, and:			
a. No nonoperative treatments		(1- 3)
b. Treatment with one nonoperative modality		(4- 6)
c. Treatment with two or more nonoperative modalities		(7- 9)
2. Root tension sign only, and:			
a. No nonoperative treatments		(10- 12)
b. Treatment with one nonoperative modality		(13- 15)
c. Treatment with two or more nonoperative modalities		(16- 18)
3. Minor neurologic abnormality without root tension sign, and:			
a. No nonoperative treatments		(19- 21)
b. Treatment with one nonoperative modality		(22- 24)
c. Treatment with two or more nonoperative modalities		(25- 27)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 3 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH SUBACUTE SCIATICA/CRURALGIA (6 WEEKS TO 6 MONTHS DURATION) INSURANCE CLAIM, AND:	DEGREE OF DISABILITY		
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work
4. Minor neurologic abnormality with root tension sign, and:			
a. No nonoperative treatments		(28- 30)
b. Treatment with one nonoperative modality		(31- 33)
c. Treatment with two or more nonoperative modalities		(34- 36)
5. Major weakness, and:			
a. No nonoperative treatments		(37- 39)
b. Treatment with one nonoperative modality		(40- 42)
c. Treatment with two or more nonoperative modalities		(43- 45)
B. DISC HERNIATION ON IMAGING:			
1. No neurologic findings, and:			
a. No nonoperative treatments		(46- 48)
b. Treatment with one nonoperative modality		(49- 51)
c. Treatment with two or more nonoperative modalities		(52- 54)
2. Root tension sign only, and:			
a. No nonoperative treatments		(55- 57)
b. Treatment with one nonoperative modality		(58- 60)
c. Treatment with two or more nonoperative modalities		(61- 63)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 3 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH SUBACUTE SCIATICA/CRURALGIA (6 WEEKS TO 6 MONTHS DURATION) INSURANCE CLAIM, AND:	DEGREE OF DISABILITY		
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work
3. Minor neurologic abnormality without root tension sign, and:			
a. No nonoperative treatments	(64- 66)
b. Treatment with one nonoperative modality	(67- 69)
c. Treatment with two or more nonoperative modalities	4 2 2 1 1 2 3 4 5 6 7 8 9 (2.0, 1.1, A) (70- 72)
4. Minor neurologic abnormality with root tension sign, and:			
a. No nonoperative treatments	(73- 75)
b. Treatment with one nonoperative modality	(76- 78)
c. Treatment with two or more nonoperative modalities	1 2 3 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.2, I) (79- 81)
5. Major weakness, and:			
a. No nonoperative treatments	(82- 84)
b. Treatment with one nonoperative modality	1 1 1 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.9, D) (85- 87)
c. Treatment with two or more nonoperative modalities	1 3 3 1 1 1 2 3 4 5 6 7 8 9 (7.0, .9, A) (88- 90)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 3 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH SUBACUTE SCIATICA/CRURALGIA (6 WEEKS TO 6 MONTHS DURATION) INSURANCE CLAIM, AND:	DEGREE OF DISABILITY		
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work
C. DISC HERNIATION WITH FREE FRAGMENT ON IMAGING:			
1. No neurologic findings, and:			
a. No nonoperative treatments (91- 93)
b. Treatment with one nonoperative modality (94- 96)
c. Treatment with two or more nonoperative modalities (97- 99)
2. Root tension sign only, and:			
a. No nonoperative treatments (100-102)
b. Treatment with one nonoperative modality (103-105)
c. Treatment with two or more nonoperative modalities (106-108)
3. Minor neurologic abnormality without root tension sign, and:			
a. No nonoperative treatments (109-111)
b. Treatment with one nonoperative modality (112-114)
c. Treatment with two or more nonoperative modalities (115-117)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 3 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH SUBACUTE SCIATICA/CRURALGIA (6 WEEKS TO 6 MONTHS DURATION) INSURANCE CLAIM, AND:	DEGREE OF DISABILITY									
	MILD Limits Sports			MODERATE Limits Work			SEVERE Unable to Work			
4. Minor neurologic abnormality with root tension sign, and:										
a. No nonoperative treatments										(118-120)
b. Treatment with one nonoperative modality										(121-123)
c. Treatment with two or more nonoperative modalities										(124-126)
5. Major weakness, and:										
a. No nonoperative treatments										(127-129)
b. Treatment with one nonoperative modality										(130-132)
c. Treatment with two or more nonoperative modalities										(133-135)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 4
 "LAMINECTOMY" IS INDICATED IN A
 PATIENT WITH CHRONIC
 SCIATICA/CRURALGIA (MORE THAN 6
 MONTHS DURATION), NO INSURANCE
 CLAIM, WITH:

	DEGREE OF DISABILITY		
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work
A. NO HERNIATED DISC ON IMAGING:			
1. No neurologic findings, and:			
a. No nonoperative treatments		(1- 3)
b. Treatment with one nonoperative modality, :			
1) Supervised exercise not included		(4- 6)
2) Supervised exercise included		(7- 9)
c. Treatment with two or more nonoperative modalities, :			
1) Supervised exercise not included		(10- 12)
2) Supervised exercise included		(13- 15)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 4 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH CHRONIC SCIATICA/CRURALGIA (MORE THAN 6 MONTHS DURATION), NO INSURANCE CLAIM, WITH:	DEGREE OF DISABILITY		
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work
2. Minor neurologic abnormality with or without root tension sign, and:			
a. No nonoperative treatments	(16- 18)
b. Treatment with one nonoperative modality			
1) Supervised exercise not included	(19- 21)
2) Supervised exercise included	(22- 24)
c. Treatment with two or more nonoperative modalities,:			
1) Supervised exercise not included	(25- 27)
2) Supervised exercise included	(28- 30)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 4

"LAMINECTOMY" IS INDICATED IN A PATIENT WITH CHRONIC SCIATICA/CRURALGIA (MORE THAN 6 MONTHS DURATION), NO INSURANCE CLAIM, WITH:

DEGREE OF DISABILITY

	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work
3. Major weakness, and:			
a. No nonoperative treatments	(31- 33)
b. Treatment with one nonoperative modality, :			
1) Supervised exercise not included	(34- 36)
2) Supervised exercise included	(37- 39)
c. Treatment with two or more nonoperative modalities, :			
1) Supervised exercise not included	(40- 42)
2) Supervised exercise included	(43- 45)
B. DISC HERNIATION ON IMAGING:			
1. No neurologic findings, and:			
a. No nonoperative treatments	(46- 48)
b. Treatment with one nonoperative modality, :			
1) Supervised exercise not included	(49- 51)
2) Supervised exercise included	(52- 54)
c. Treatment with two or more nonoperative modalities, :			
1) Supervised exercise not included	(55- 57)
2) Supervised exercise included	(58- 60)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 4 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH CHRONIC SCIATICA/CRURALGIA (MORE THAN 6 MONTHS DURATION), NO INSURANCE CLAIM, WITH:	DEGREE OF DISABILITY		
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work
2. Minor neurologic abnormality with or without root tension sign, and:			
a. No nonoperative treatments		(61- 63)
b. Treatment with one nonoperative modality, :			
1) Supervised exercise not included		(64- 66)
2) Supervised exercise included		(67- 69)
c. Treatment with two or more nonoperative modalities, :			
1) Supervised exercise not included		(70- 72)
2) Supervised exercise included	5 1 1 2 1 2 3 4 5 6 7 8 9 (1.0, 1.9, I)	(73- 75)
3. Major weakness, and:			
a. No nonoperative treatments		(76- 78)
b. Treatment with one nonoperative modality, :			
1) Supervised exercise not included		(79- 81)
2) Supervised exercise included	3 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 2.7, D)	(82- 84)
c. Treatment with two or more nonoperative modalities, :			
1) Supervised exercise not included	3 1 1 1 1 2 1 2 3 4 5 6 7 8 9 (5.0, 2.8, D)	(85- 87)
2) Supervised exercise included	3 1 1 2 2 1 2 3 4 5 6 7 8 9 (5.0, 2.8, D)	(88- 90)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 4 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH CHRONIC SCIATICA/CRURALGIA (MORE THAN 6 MONTHS DURATION), NO INSURANCE CLAIM, WITH:	DEGREE OF DISABILITY		
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work
C. DISC HERNIATION WITH FREE FRAGMENT ON IMAGING:			
1. No neurologic findings, and:			
a. No nonoperative treatments		(91- 93)
b. Treatment with one nonoperative modality, :			
1) Supervised exercise not included		(94- 96)
2) Supervised exercise included		(97- 99)
c. Treatment with two or more nonoperative modalities, :			
1) Supervised exercise not included		(100-102)
2) Supervised exercise included	4 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (2.0, 2.4, D)	(103-105)
2. Minor neurologic abnormality with or without root tension sign, and:			
a. No nonoperative treatments		(106-108)
b. Treatment with one nonoperative modality, :			
1) Supervised exercise not included		(109-111)
2) Supervised exercise included	3 1 2 2 1 1 2 3 4 5 6 7 8 9 (5.0, 2.6, D)	(112-114)
c. Treatment with two or more nonoperative modalities, :			
1) Supervised exercise not included	3 1 2 2 1 1 2 3 4 5 6 7 8 9 (5.0, 2.6, D)	(115-117)
2) Supervised exercise included	3 1 2 2 1 1 2 3 4 5 6 7 8 9 (6.0, 2.6, D)	(118-120)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 4 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH CHRONIC SCIATICA/CRURALGIA (MORE THAN 6 MONTHS DURATION), NO INSURANCE CLAIM, WITH:	DEGREE OF DISABILITY									
	MILD Limits Sports	MODERATE Limits Work			SEVERE Unable to Work					
3. Major weakness, and:										
a. No nonoperative treatments									(121-123)
b. Treatment with one nonoperative modality,:										
1) Supervised exercise not included									(124-126)
2) Supervised exercise included									(127-129)
c. Treatment with two or more nonoperative modalities,:										
1) Supervised exercise not included									(130-132)
2) Supervised exercise included									(133-135)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 5 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH CHRONIC SCIATICA/CRURALGIA (MORE THAN 6 MONTHS DURATION), INSURANCE CLAIM, WITH:	DEGREE OF DISABILITY		
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work
A. NO HERNIATED DISC ON IMAGING:			
1. No neurologic findings, and:			
a. No nonoperative treatments	(1- 3)
b. Treatment with one nonoperative modality, :			
1) Supervised exercise not included	(4- 6)
2) Supervised exercise included	(7- 9)
c. Treatment with two or more nonoperative modalities, :			
1) Supervised exercise not included	(10- 12)
2) Supervised exercise included	(13- 15)
2. Minor neurologic abnormality with or without root tension sign, and:			
a. No nonoperative treatments	(16- 18)
b. Treatment with one nonoperative modality			
1) Supervised exercise not included	(19- 21)
2) Supervised exercise included	(22- 24)
c. Treatment with two or more nonoperative modalities, :			
1) Supervised exercise not included	(25- 27)
2) Supervised exercise included	(28- 30)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 5 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH CHRONIC SCIATICA/CRURALGIA (MORE THAN 6 MONTHS DURATION), INSURANCE CLAIM, WITH:	DEGREE OF DISABILITY		
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work
3. Major weakness, and:			
a. No nonoperative treatments	(31- 33)
b. Treatment with one nonoperative modality, :			
1) Supervised exercise not included	(34- 36)
2) Supervised exercise included	(37- 39)
c. Treatment with two or more nonoperative modalities, :			
1) Supervised exercise not included	(40- 42)
2) Supervised exercise included	(43- 45)
B. DISC HERNIATION ON IMAGING:			
1. No neurologic findings, and:			
a. No nonoperative treatments	(46- 48)
b. Treatment with one nonoperative modality, :			
1) Supervised exercise not included	(49- 51)
2) Supervised exercise included	(52- 54)
c. Treatment with two or more nonoperative modalities, :			
1) Supervised exercise not included	(55- 57)
2) Supervised exercise included	(58- 60)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

	DEGREE OF DISABILITY			
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work	
Chapter 5 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH CHRONIC SCIATICA/CRURALGIA (MORE THAN 6 MONTHS DURATION), INSURANCE CLAIM, WITH:				
2. Minor neurologic abnormality with or without root tension sign, and:				
a. No nonoperative treatments	(61- 63)
b. Treatment with one nonoperative modality, :				
1) Supervised exercise not included	(64- 66)
2) Supervised exercise included	(67- 69)
c. Treatment with two or more nonoperative modalities, :				
1) Supervised exercise not included	(70- 72)
2) Supervised exercise included	(73- 75)
3. Major weakness, and:				
a. No nonoperative treatments	(76- 78)
b. Treatment with one nonoperative modality, :				
1) Supervised exercise not included	(79- 81)
2) Supervised exercise included	3 1 2 1 2 1 2 3 4 5 6 7 8 9 (3.0, 2.4, D)	(82- 84)
c. Treatment with two or more nonoperative modalities, :				
1) Supervised exercise not included	(85- 87)
2) Supervised exercise included	3 2 1 1 1 1 2 3 4 5 6 7 8 9 (3.0, 2.4, D)	(88- 90)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 5 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH CHRONIC SCIATICA/CRURALGIA (MORE THAN 6 MONTHS DURATION), INSURANCE CLAIM, WITH:	DEGREE OF DISABILITY		
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work
C. DISC HERNIATION WITH FREE FRAGMENT ON IMAGING:			
1. No neurologic findings, and:			
a. No nonoperative treatments		(91- 93)
b. Treatment with one nonoperative modality, :			
1) Supervised exercise not included		(94- 96)
2) Supervised exercise included		(97- 99)
c. Treatment with two or more nonoperative modalities, :			
1) Supervised exercise not included		(100-102)
2) Supervised exercise included		(103-105)
2. Minor neurologic abnormality with or without root tension sign, and:			
a. No nonoperative treatments		(106-108)
b. Treatment with one nonoperative modality, :			
1) Supervised exercise not included		(109-111)
2) Supervised exercise included		(112-114)
c. Treatment with two or more nonoperative modalities, :			
1) Supervised exercise not included		(115-117)
2) Supervised exercise included		(118-120)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 5

"LAMINECTOMY" IS INDICATED IN A PATIENT WITH CHRONIC SCIATICA/CRURALGIA (MORE THAN 6 MONTHS DURATION), INSURANCE CLAIM, WITH:

DEGREE OF DISABILITY

	DEGREE OF DISABILITY								
	MILD Limits Sports	MODERATE Limits Work			SEVERE Unable to Work				
3. Major weakness, and:									
a. No nonoperative treatments	..... (121-123)								
b. Treatment with one nonoperative modality,:									
1) Supervised exercise not included	..... (124-126)								
2) Supervised exercise included	..... (127-129)								
				2 1	1 2	1 2			
				1 2	3 4	5 6	7 8	9	
				(5.0, 2.6, D)					
c. Treatment with two or more nonoperative modalities,:									
1) Supervised exercise not included	..... (130-132)								
2) Supervised exercise included	..... (133-135)								
				2	1 1	1 1 1	2		
				1 2	3 4	5 6	7 8	9	
				(6.0, 2.7, D)					

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 6 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH BACK PAIN ONLY, AND:	DEGREE OF DISABILITY		
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work
A. NO HERNIATED DISC ON IMAGING:			
1. No neurologic findings, and:			
a. No nonoperative treatments		(1- 3)
b. Treatment with one nonoperative modality		(4- 6)
c. Treatment with two or more nonoperative modalities		(7- 9)
2. Abnormal neurologic exam, and:			
a. No nonoperative treatments		(10- 12)
b. Treatment with one nonoperative modality		(13- 15)
c. Treatment with two or more nonoperative modalities		(16- 18)
B. DISC HERNIATION ON IMAGING:			
1. No neurologic findings, and:			
a. No nonoperative treatments		(19- 21)
b. Treatment with one nonoperative modality		(22- 24)
c. Treatment with two or more nonoperative modalities		(25- 27)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 6

"LAMINECTOMY" IS INDICATED IN A
 PATIENT WITH BACK PAIN ONLY, AND:

	DEGREE OF DISABILITY		
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work
2. Abnormal neurologic exam, and:			
a. No nonoperative treatments (28- 30)
b. Treatment with one nonoperative modality (31- 33)
c. Treatment with two or more nonoperative modalities (34- 36)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 7 "LAMINECTOMY" IS INDICATED IN A PATIENT WITH SYMPTOMS OF CENTRAL SPINAL STENOSIS, NOT DUE TO SPONDYLOLISTHESIS AND:	DEGREE OF DISABILITY									
	MILD			MODERATE			SEVERE			
A. NO CENTRAL STENOSIS ON IMAGING:										
1. No neurologic findings:										(1- 3)
2. Abnormal neurologic exam:										(4- 6)
B. CENTRAL STENOSIS ON IMAGING:										
1. No neurologic findings:										(7- 9)
2. Abnormal neurologic exam:										(10- 12)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 8

"LAMINECTOMY" IS INDICATED IN A PATIENT WITH SYMPTOMS OF LATERAL SPINAL STENOSIS, AND:

	DEGREE OF DISABILITY		
	MILD	MODERATE	SEVERE
	Limits Sports	Limits Work	Unable to Work
A. NO LATERAL STENOSIS ON FUNCTIONAL MYELOGRAM:			
1. No neurologic findings:			
a. No noninvasive treatments	(1- 3)
b. One or more noninvasive treatments	(4- 6)
2. Minor neurologic abnormality with or without root tension sign:			
a. No noninvasive treatments	(7- 9)
b. One or more noninvasive treatments	(10- 12)
3. Major weakness:			
a. No noninvasive treatments	(13- 15)
b. One or more noninvasive treatments	(16- 18)
B. LATERAL STENOSIS ON IMAGING:			
1. No neurologic findings:			
a. No noninvasive treatments	(19- 21)
b. One or more noninvasive treatments	(22- 24)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

	DEGREE OF DISABILITY								
	MILD			MODERATE			SEVERE		
	Limits Sports			Limits Work			Unable to Work		
2. Minor neurologic abnormality with or without root tension sign:									
a. No noninvasive treatments									(25- 27)
b. One or more noninvasive treatments						1 1 2 3 2			(28- 30)
							1 2 3 4 5 6 7 8 9		(7.0, 2.0, D)
3. Major weakness:									
a. No noninvasive treatments							2	1 2 1 1 2	(31- 33)
								1 2 3 4 5 6 7 8 9	(6.0, 2.2, D)
b. One or more noninvasive treatments				3	2 1 1 2			1 2 2 4	(34- 36)
							1 2 3 4 5 6 7 8 9		(5.0, 2.3, D)
									(7.0, 1.8, I)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 9

"LAMINECTOMY" WITHOUT FUSION
IS INDICATED IN A PATIENT WITH
SPONDYLOLISTHESIS, AND:

DEGREE OF DISABILITY

MILD
Limits
Sports

MODERATE
Limits
Work

SEVERE
Unable to
Work

A. GRADE I-II ISTHMIC
SPONDYLOLISTHESIS ON IMAGING:

1. Back pain only:

a. No neurologic findings, and:

1) No nonoperative treatments (1- 3)

2) Treatment with one or more
nonoperative modalities (4- 6)

b. Minor neurologic abnormality
with or without root tension
sign, and:

1) No nonoperative treatments (7- 9)

2) Treatment with one or more
nonoperative modalities (10- 12)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 9 "LAMINECTOMY" WITHOUT FUSION IS INDICATED IN A PATIENT WITH SPONDYLOLISTHESIS, AND:	DEGREE OF DISABILITY		
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work
2. Sciatica/cruralgia or claudication (with or without back pain):			
a. No neurologic findings, and:			
1) No nonoperative treatments	(13- 15)
2) Treatment with one or more nonoperative modalities	(16- 18)
b. Minor neurologic abnormality with or without root tension sign, and:			
1) No nonoperative treatments	(19- 21)
2) Treatment with one or more nonoperative modalities	(22- 24)
c. Major weakness, and:			
1) No nonoperative treatments	(25- 27)
2) Treatment with one or more nonoperative modalities	(28- 30)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 9

"LAMINECTOMY" WITHOUT FUSION
IS INDICATED IN A PATIENT WITH
SPONDYLOLISTHESIS, AND:

DEGREE OF DISABILITY

	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work	
B. GRADE I-II DEGENERATIVE SPONDYLOLISTHESIS ON IMAGING:				
1. Back pain only:				
a. No neurologic findings, and:				
1) No nonoperative treatments	(31- 33)
2) Treatment with one or more nonoperative modalities	(34- 36)
b. Minor neurologic abnormality with or without root tension sign, and:				
1) No nonoperative treatments	(37- 39)
2) Treatment with one or more nonoperative modalities	(40- 42)
2. Sciatica/cruralgia and/or claudication without back pain:				
a. No neurologic findings, and:				
1) No nonoperative treatments	(43- 45)
2) Treatment with one or more nonoperative modalities	4 1 2 1 1 1 2 3 4 5 6 7 8 9 (2.0, 2.1, I)	(46- 48)
b. Minor neurologic abnormality with or without root tension sign, and:				
1) No nonoperative treatments	(49- 51)
2) Treatment with one or more nonoperative modalities	4 1 2 1 1 1 2 3 4 5 6 7 8 9 (3.0, 2.6, D)	(52- 54)
c. Major weakness, and:				
1) No nonoperative treatments	(55- 57)
2) Treatment with one or more nonoperative modalities	3 1 2 1 1 1 3 1 2 3 4 5 6 7 8 9 (5.0, 2.2, D)	2 2 2 1 2 3 4 5 6 7 8 9 (5.0, 2.7, D)	(58- 60)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

	DEGREE OF DISABILITY		
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work
Chapter 9 "LAMINECTOMY" WITHOUT FUSION IS INDICATED IN A PATIENT WITH SPONDYLOLISTHESIS, AND:			
3. Sciatica/cruralgia and/or claudication with back pain:			
a. No neurologic findings, and:			
1) No nonoperative treatments	(61- 63)
2) Treatment with one or more nonoperative modalities	(64- 66)
b. Minor neurologic abnormality with or without root tension sign, and:			
1) No nonoperative treatments	(67- 69)
2) Treatment with one or more nonoperative modalities	(70- 72)
c. Major weakness, and:			
1) No nonoperative treatments	(73- 75)
2) Treatment with one or more nonoperative modalities	(76- 78)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 10 FUSION WITH OR WITHOUT "LAMINECTOMY" IS INDICATED IN A PATIENT WITH SPONDYLOLISTHESIS, AND:		DEGREE OF DISABILITY																					
		MILD Limits Sports			MODERATE Limits Work			SEVERE Unable to Work															
A. GRADE I-II ISTHMIC SPONDYLOLISTHESIS ON IMAGING:																							
1. Back pain only:																							
a. No neurologic findings, and:																							
1) No nonoperative treatments									(1- 3)													
2) Treatment with one or more nonoperative modalities									(4- 6)													
						2	1	1	3	1	1												
						1	2	3	4	5	6	7	8	9									
						(5.0, 1.6, I)																	
b. Minor neurologic abnormality with or without root tension sign, and:																							
1) No nonoperative treatments									(7- 9)													
2) Treatment with one or more nonoperative modalities									(10- 12)													
						2	1	2	4														
						1	2	3	4	5	6	7	8	9									
						(5.0, 1.9, D)																	
2. Sciatica/cruralgia or claudication (with or without back pain):																							
a. No neurologic findings, and:																							
1) No nonoperative treatments									(13- 15)													
2) Treatment with one or more nonoperative modalities									(16- 18)													
						1		2	3	1	1	1											
						1	2	3	4	5	6	7	8	9									
						(6.0, 1.4, I)																	
b. Minor neurologic abnormality with or without root tension sign, and:																							
1) No nonoperative treatments									(19- 21)													
2) Treatment with one or more nonoperative modalities									(22- 24)													
							2	1	3	2	1												
						1	2	3	4	5	6	7	8	9									
						(7.0, 1.0, I)																	
c. Major weakness, and:																							
1) No nonoperative treatments									(25- 27)													
2) Treatment with one or more nonoperative modalities									(28- 30)													
						1		3	3	2		1	1	2	2	3							
						1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
						(6.0, 1.1, A)					(8.0, 1.1, I)												

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 10 FUSION WITH OR WITHOUT "LAMINECTOMY" IS INDICATED IN A PATIENT WITH SPONDYLOLISTHESIS, AND:	DEGREE OF DISABILITY								
	MILD Limits Sports	MODERATE Limits Work			SEVERE Unable to Work				
B. GRADE I-II DEGENERATIVE SPONDYLOLISTHESIS ON IMAGING:									
1. Back pain only:									
a. No neurologic findings, and:									
1) No nonoperative treatments	. . . . . ( 31- 33)								
2) Treatment with one or more nonoperative modalities	. . . . . 3 1 2 2 1 1 2 3 4 5 6 7 8 9 (5.0, 2.1, I) (34- 36)								
b. Minor neurologic abnormality with or without root tension sign, and:									
1) No nonoperative treatments	. . . . . ( 37- 39)								
2) Treatment with one or more nonoperative modalities	. . . . . 2 1 1 1 2 1 1 1 2 3 4 5 6 7 8 9 (5.0, 2.2, D) (40- 42)								
2. Sciatica/cruralgia and/or claudication without back pain:									
a. No neurologic findings, and:									
1) No nonoperative treatments	. . . . . ( 43- 45)								
2) Treatment with one or more nonoperative modalities	. . . . . ( 46- 48)								
b. Minor neurologic abnormality with or without root tension sign, and:									
1) No nonoperative treatments	. . . . . ( 49- 51)								
2) Treatment with one or more nonoperative modalities	. . . . . ( 52- 54)								
c. Major weakness, and:									
1) No nonoperative treatments	. . . . . ( 55- 57)								
2) Treatment with one or more nonoperative modalities	. . . . . ( 58- 60)								

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

	DEGREE OF DISABILITY		
	MILD Limits Sports	MODERATE Limits Work	SEVERE Unable to Work
3. Sciatica/cruralgia and/or claudication with back pain:			
a. No neurologic findings, and:			
1) No nonoperative treatments (61- 63)
2) Treatment with one or more nonoperative modalities	1 2 3 4 5 6 7 8 9 (6.0, 1.3, I)	..... ( 64- 66)
b. Minor neurologic abnormality with or without root tension sign, and:			
1) No nonoperative treatments (67- 69)
2) Treatment with one or more nonoperative modalities	1 2 3 4 5 6 7 8 9 (6.0, 1.0, I)	..... ( 70- 72)
c. Major weakness, and:			
1) No nonoperative treatments (73- 75)
2) Treatment with one or more nonoperative modalities	1 2 3 4 5 6 7 8 9 (6.0, 1.2, A)	..... ( 76- 78)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 11
MISCELLANEOUS

- A. "LAMINECTOMY" IS INDICATED IN A PATIENT WITH SCIATICA/CRURALGIA, PROGRESSIVE MOTOR WEAKNESS, AND:
- 1. No herniated disc or stenosis on imaging (1)
 - 2. Herniated disc or stenosis on imaging 1 2 3 4 5 6 7 8 9 (9.0, .7, A) (2)
- B. "LAMINECTOMY" IS INDICATED IN A PATIENT WITH CAUDA EQUINA SYNDROME, AND:
- 1. No herniated disc or stenosis on imaging (3)
 - 2. Herniated disc or stenosis on imaging 1 2 3 4 5 6 7 8 9 (9.0, .6, A) (4)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

Chapter 12

REPEAT "LAMINECTOMY" WITHIN THREE MONTHS OF PRIOR "LAMINECTOMY" IS INDICATED IN A PATIENT WITH:

SYMPTOMS

Stable But
Persisting Recurrent Worsening

A. NO HERNIATED DISC OR SCAR TISSUE ON IMAGING:			
1. No neurologic findings	.....	.....	( 1- 3)
2. Neurologic abnormality unchanged	.....	.....	( 4- 6)
3. New neurologic abnormality	.....	.....	( 7- 9)
B. SCAR TISSUE WITHOUT NERVE ROOT COMPRESSION ON IMAGING:			
1. No neurologic findings	.....	.....	( 10- 12)
2. Neurologic abnormality unchanged	.....	.....	( 13- 15)
3. New neurologic abnormality	.....	.....	( 16- 18)
C. SCAR TISSUE WITH NERVE ROOT COMPRESSION ON IMAGING:			
1. No neurologic findings	.....	.....	( 19- 21)
2. Neurologic abnormality unchanged	.....	.....	( 22- 24)
3. New neurologic abnormality	.....	.....	( 25- 27)
D. DISC HERNIATION ON IMAGING:			
1. No neurologic findings	.....	.....	( 28- 30)
2. Neurologic abnormality unchanged	.....	.....	( 31- 33)
3. New neurologic abnormality	.....	.....	( 34- 36)

Necessity scale: 1 = clearly not necessary, 5 = might be necessary, 9 = clearly necessary.

VIII SUMMARY OF RESEARCH PLAN

The occurrence of low back disorders in general and sciatica in particular is increasing in Western populations. The peak incidence ranges between the fourth and the sixth decade causing serious socio-economic charges to the community (both direct and indirect costs). Despite the existence of multiple treatment modalities, back related disability rates are increasing. Surgery is one option in the board spectrum of patient management. It is well established that quality of care, e.g. of a surgical procedure, depends on appropriate patient selection. Although most surgical treatment failures are attributed to poor patient selection, no widely accepted consensus exists on accurate indications for the appropriate use of a surgical procedure. To test the difference between treatment modalities, either surgical or non-surgical, a randomized controlled study would give the strongest evidence of appropriate care in a given clinical constellation. However, such a study design would encounter obvious practical and ethical difficulties in presence of well established procedures. The RAND-UCLA appropriateness method (RAM) consists in the development of explicit criteria, based on published evidences and collective expert opinions.

The RAM provides criteria on which to evaluate the appropriateness of medical care and to prepare clinical guidelines. Applying the RAM, our group has developed explicit criteria of indications for surgery of lumbar disc hernia and spinal stenosis.

This project has three aims: Firstly, to evaluate the validity of these criteria prospectively in comparison to free clinical decision by means of a prospective controlled study. Secondly, to assess the comparable direct costs of either treatment approach (operative or non-operative) in relation to health care consumption and thirdly, to assess prospectively the outcome of patients treated for low back disorders by using patient-oriented, practically relevant outcome measurements such as general health perception, pain perception, medical consumption, work absenteeism and clinical symptoms. These data will also form an epidemiological data-base for future research.

Patients with low back pain and/or sciatica referred for neurosurgical consultation at the CHUV, will be prospectively enrolled into the study. Appropriateness criteria will be applied to each clinical situation, however the neurosurgical consultant will be blinded to the appropriateness rating. Outcomes will be compared at 12 months' follow-up between treatment that is appropriate (operative or non-operative) and treatment that is inappropriate.

The study will therefore allow a form of further validation of the appropriateness criteria, which afterwards could be proposed as guidelines and a tool for postgraduate training.

KEY WORDS:

Appropriateness of care, Laminectomy, Lumbar disc surgery, Sciatica, Quality Assurance, Quality of health care, Guidelines, Methods.

IX FEASIBILITY OF WWW-BASED PRACTICE GUIDELINES

Objective

Test the technical feasibility, acceptability and practicability of world-wide web (WWW) based, clinical practice guidelines to assist in determining the appropriateness of medical procedures.

Background

Wide variations in clinical practice and the growing awareness of the need to assess and improve quality of care have brought to light the possibility of developing and implementing clinical practice guidelines, defined as systematically developed statements to assist the physician and the patient in choosing appropriate health care for specific clinical circumstances. Actual use of guidelines has led to mixed results in terms of better patient care. Growing emphasis is being placed on the implementation phase to seek ways of insuring that guidelines do actually improve care. The growth of the WWW makes it a likely candidate for strategies to disseminate and implement guidelines. In spite of its admitted advantages in terms of universal access and ease of updating guidelines, the obstacles to its use in clinical practice are by no means negligible. To date, although publications have studied and reviewed the potential of the internet to *identify* guidelines and other relevant medical information, no studies have yet assessed the potential of the WWW to *implement* clinical practice guidelines in the physician's office.

Method

Using a prototype of WWW-based guidelines developed by a multidisciplinary team of guidelines methodologists, practicing clinicians and distributed information technologists, thirty-five physicians from different medical disciplines will test the use of detailed clinical practice guidelines concerning the appropriateness of low-back surgery and gastrointestinal endoscopy. Insuring optimal technical access, this study will focus on the practicability of using WWW based guidelines in clinical practice and the acceptability, for physicians and patients, of this means of implementing and expert medical decision aid.

Expected results

Feasibility and practicability will be evaluated mainly by the willingness of participating physicians to continue using the proposed guidelines beyond, or outside the study period. Lack of feasibility will address possible reasons therefor, in terms of network access, difficulty of use or functioning of the program, perceived benefit for participating physicians relative to effort required, subjects chosen for guidelines in the program and possible disagreement between guidelines and current practice of participating physicians.

Importance

Given the growth of both clinical practice guidelines and the use of the WWW, the possibility of implementing valid guidelines via the WWW holds considerable potential for improving patient care.

Key words

Appropriateness of care, clinical practice guidelines, health services research, quality of care, World Wide Web, feasibility, implementation, information technology, communication technology.

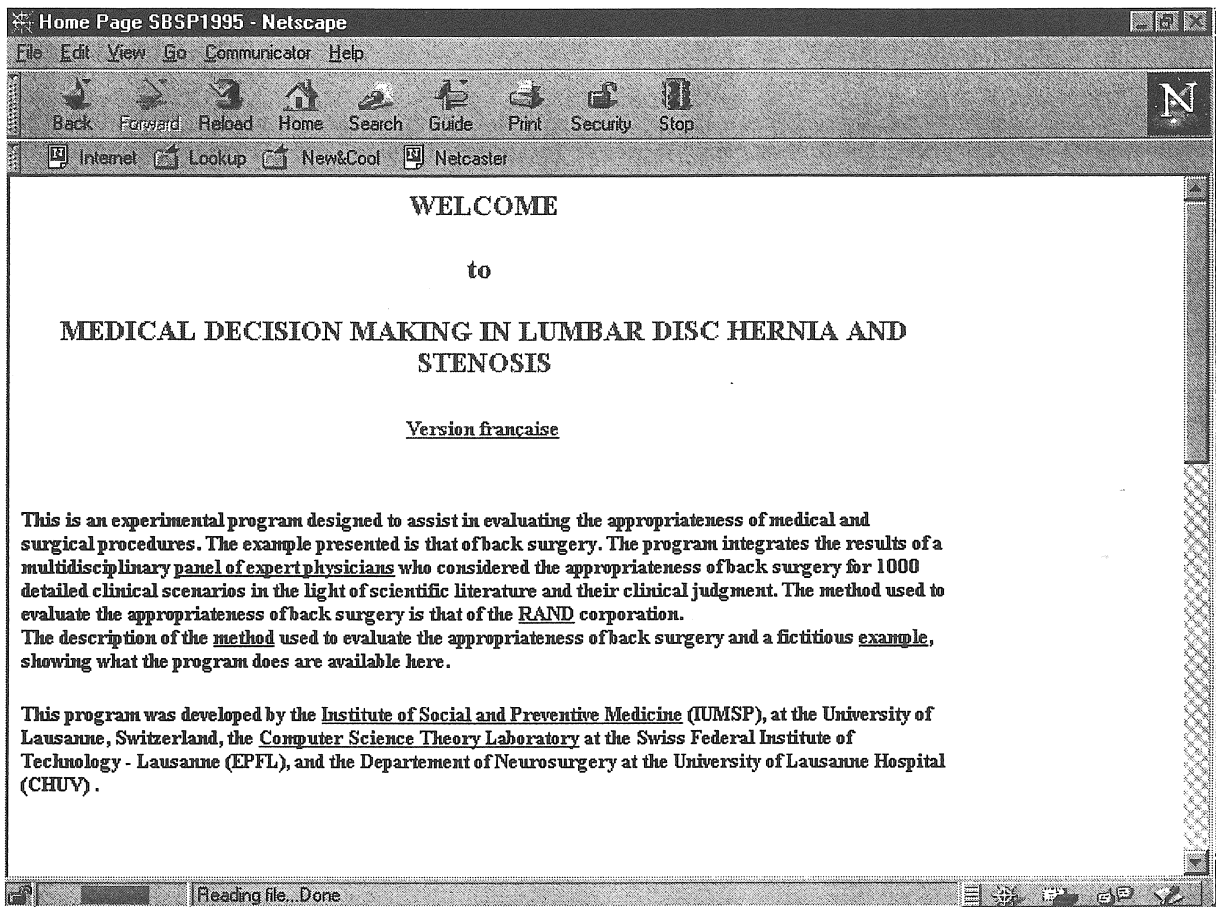
X SWISS BACK SURGERY PANEL 1995

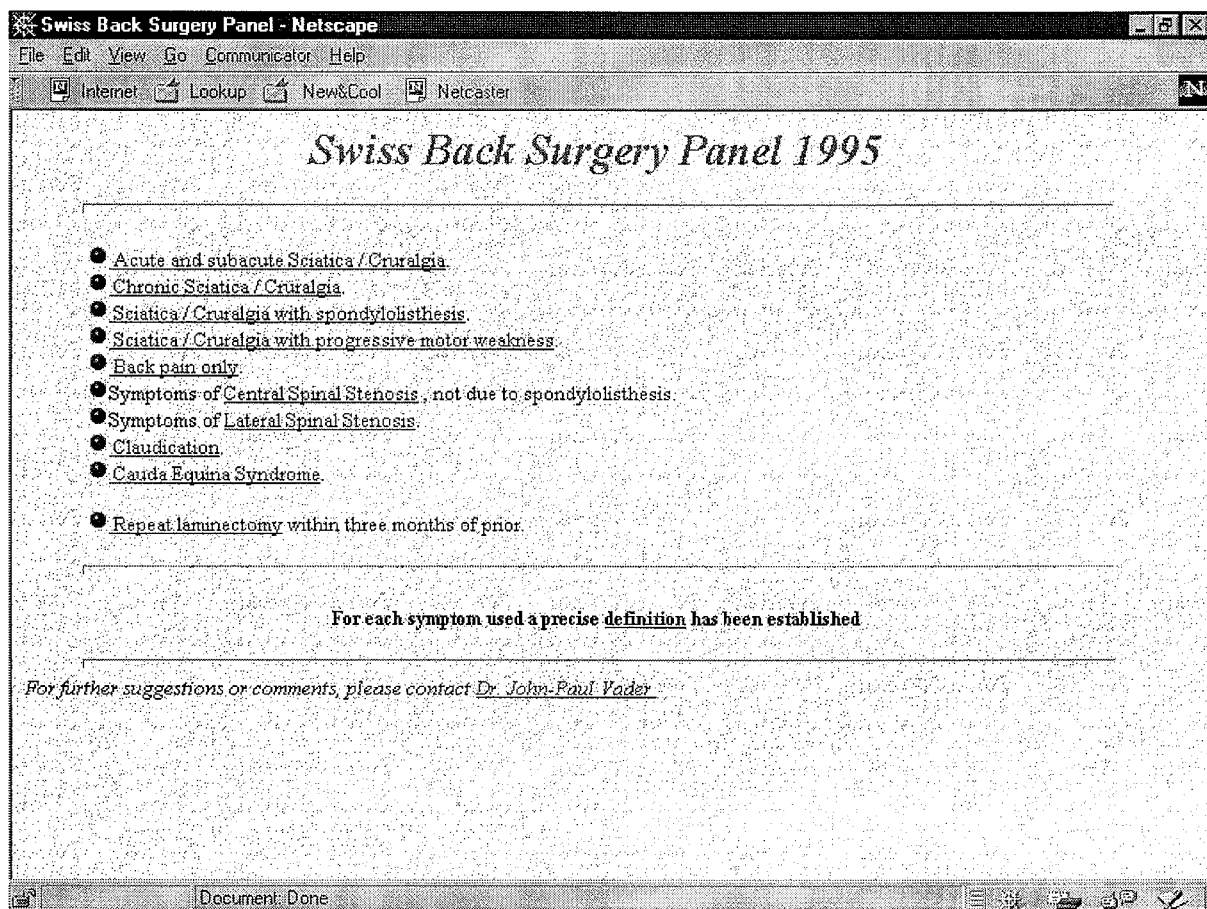
POST-PANEL QUESTIONNAIRE

Median (**bold**) or mean (*italics*) value of the evaluation of the panel process and its results by the experts participating in the panel who had been proposed by their respective specialty societies.

Item:	Not at all 1	A little 2	Some- what 3	Pretty much 4	Very much 5
Review of the Scientific Literature					
How completely did you read it?					X
How many hours did you spend reading it?	___4.5___ hours				
How informative was it?				X	
How much did it influence your first round ratings?			X		
First round ratings (done before the meeting)					
How easy did you find the task?			X		
How onerous did you find the task?			X		
How clear were the instructions?				X	
How inconsistent do you believe you were? (the effects of fatigue, memory, different times to rate, format of instrument, etc.)			X		
How many hours did it take you?	___6.3___ hours				
Panel meeting					
How knowledgeable about the subject matter were the moderators?				X	
How well did the moderators function as group leaders?					X
How informative was the discussion?					X
How argumentative was the discussion?			X		
How much were you influenced in your second ratings by the feedback from the first round ratings?			X		
How much were you influenced in your second ratings by the discussion?				X	
Overall impressions of your experience					
How satisfying did you find your participation on this panel?					X
How well do you believe <i>your own ratings</i> reflect the appropriateness of laminectomy?				X	
How well do you estimate that <i>the panel's ratings</i> will reflect the appropriateness of laminectomy?				X	
How much do you believe that this panel process can lead to guidelines to assist physician decision making for laminectomy?				X	
How did your participation on this panel compare with your expectations?	much worse	worse	as expected	better	much better

XI ECHANTILLON DE PAGES DU SITE D'AIDE A LA DECISION MEDICALE





Swiss Back Surgery Panel - Netscape

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SYMPTOM : ACUTE AND SUBACUTE SCIATICA / CRURALGIA

Duration of the symptom : Acute Subacute

Degree of disability : Mild Moderate Severe Bedbound

Neurologic exam :

Nonoperative treatments : 0 1 >1

Radiologic exam :

Insurance claim : No Yes

Document: Done

**Swiss Back Surgery Panel 1995
Result**

- [Opinion of the panelists](#)
- [Panelist vote distribution](#)
- [Summary of the case](#)
- [How appropriateness is determined](#)
- [Reference to the Panel](#)

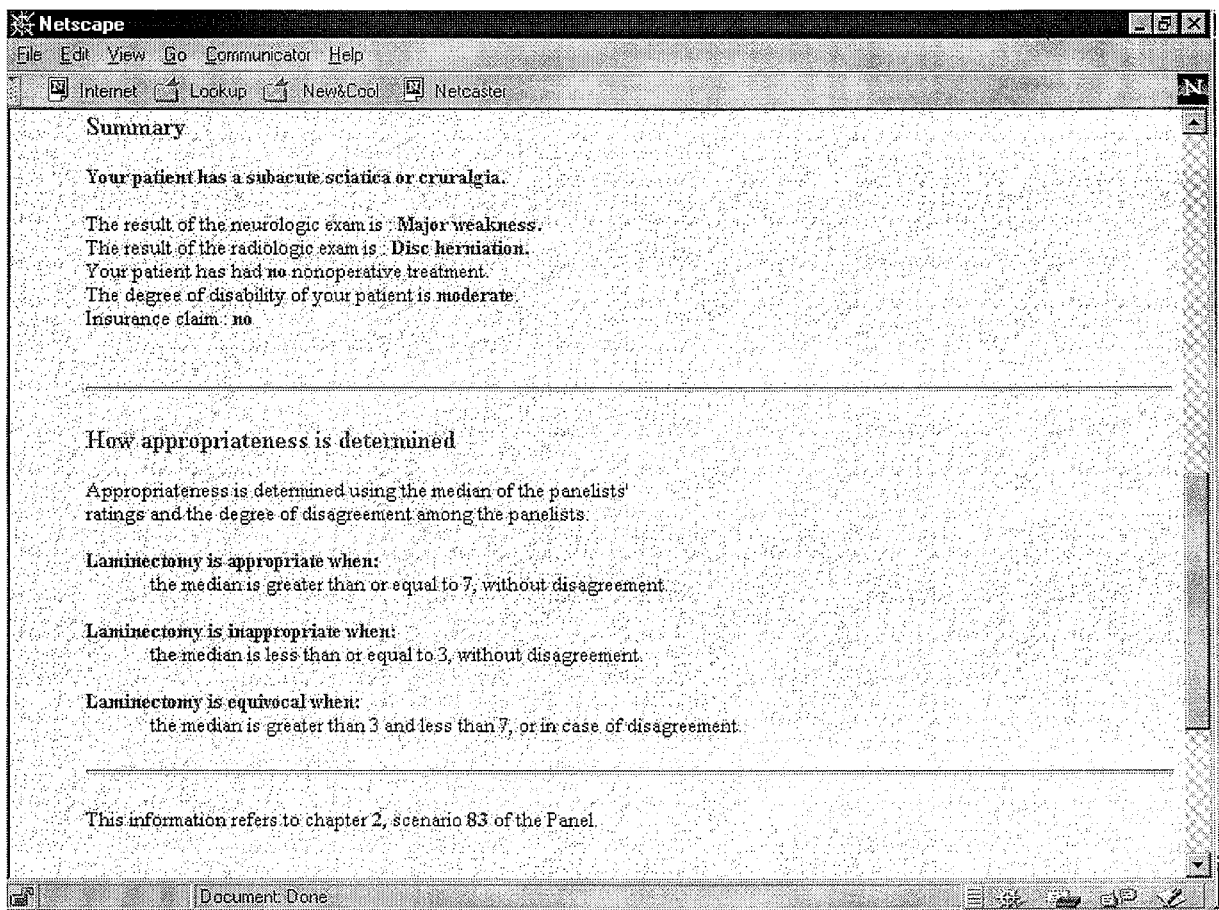
- [Bibliographic references](#)
- [Return to main menu](#)

Opinion of the panelists

The panelists have found that the indication for operation is **EQUIVOCAL**.

Panelist vote distribution :

Scale	1	2	3	4	5	6	7	8	9
Frequency	1	0	0	0	2	2	4	0	0



The image shows a Netscape browser window titled "Références bibliographie - Netscape". The address bar contains "Internet", "Lookup", "New&Cool", and "Netcaster". The main content area displays the following text:

SELECTED BIBLIOGRAPHIC REFERENCES ON LOW-BACK SURGERY

(A summarized review of the medical literature on low-back surgery, which included reference to these articles was formed part of the basis for the panelists' judgment on the appropriateness of surgery for the scenarios presented).

Abramovitz JN, Neff SR. Lumbar Disc Surgery: Results of the Prospective Lumbar Discectomy of the Joint Section on Disorders of the Spine and Peripheral Nerves of the American Association of Neurological Surgeons and the Congress of Neurological Surgeons. *Neurosurgery* 1991; 29:301-308. [Abstract](#).

Badley EM, Rasooly I, Webster GK. Relative importance of musculoskeletal disorders as a cause of chronic health problems, disability, and health care utilization: findings from the 1990 Ontario Health Survey. *J Rheumatol* 1994; 21:505-514. [Abstract](#).

Bessette L, Liang MH, Lew RA, Weinstein JN. Classics in Spine Surgery Literature Revisited. *Spine* 1996; 21:259-263. [Abstract](#).

Bigos S, Bowyer O, Braen G, et al. Acute Low Back Pain Problems in Adults. *Clinical Practice Guideline No 14*. 1994; (Abstract).

Boden SD, Davis DO, Dina TS, Patronas NJ, Wiesel SW. Abnormal Magnetic-Resonance Scans of the Lumbar Spine in Asymptomatic Subjects - A Prospective Investigation. *J Bone Joint Surg* 1990; 72-A:403-408. [Abstract](#).

Castro WH, Jerosch J, Hepp R, Schulitz KP. Restriction of indication for automated percutaneous lumbar discectomy based on computed tomographic discography. *Spine* 1992; 17 (10):1239-1243. [Abstract](#).

Cats-Baril WL, Frymoyer JW. The Economics of Spinal Disorders. In: Raven Press L, ed. *The Adult Spine: Principles and Practice*. New York: Raven Press Ltd, 1991.

Chatterjee S, Foy PM, Findlay GF. Report of a Controlled Clinical Trial Comparing Automated Percutaneous Lumbar Discectomy and Microdiscectomy in the Treatment of Contained Lumbar Disk Herniation. *Spine* 1995; 20:724-729. [Abstract](#).

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