Expert Panels to Evaluate the Appropriateness of Various Treatments For Whiplash Patients

Conducted for the Swiss Insurance Association (SIA)

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1. BACKGROUND AND PURPOSE

Whiplash associated disorders (WAD) are an important social and economic problem that continues, despite the best efforts of medical science, to be ill understood. Definitive diagnosis purely on the basis of physical evidence is not possible and there are clear indications that there may be non-physical predisposing factors that increase the likelihood of an accident victim becoming chronically disabled [1] [2].

The Quebec study of WAD [3] set a landmark for the medical study of this condition, including what is known about the relationship of vehicle design and construction, type of automobile accident, driver and passenger seating, and anatomic and physiological characteristics of victims on the type and extent of injury. However, this study has been criticised [4], and by its own admission, has several limitations. It was conducted within the specific Canadian insurance context and in the early nineties. In many areas—especially whiplash cases without evidence of physical trauma—its main conclusions were that not much was known. It both instigated new research and initiated treatment programs in some places that seemed to have benefited different stakeholders. However, almost seven years after the publication of the study, the burden of whiplash remains heavy on its victims and on those who bear costs, and is still surrounded by uncertainty.

Diagnosis is dependent on the definition of whiplash, which is often described in terms of a wide range of symptoms – usually functional and lacking objective findings – or syndromes. Different specialists and examinations are usually required for diagnosis or therapy and visits to different specialists not infrequently lead to different and sometimes conflicting diagnoses and treatments.

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1 Harder S., M. Veilleuz, and S. Suissa, "The Effect of Socio-Demographic and Crash-Related Factors on the Prognosis of Whiplash", Journal of Clinical Epidemiology, Vol. 51, No. 5, 1998, pp. 377-384.

2 Suissa, S., S. Harder, and M. Veilleux, "The Relation between Initial Symptoms and Signs and the Prognosis of Whiplash", European Spine Journal, Volume 10, 2001, pp. 44-49.

3 W. Spitzer (ed) (1995). *Whiplash-associated disorders: Redefining "whiplash" and its management*. Montréal: Société de l'assurance automobile du Québec.

4 Freeman, M.D., A.C. Croft, and A.M. Rossignol, ""Whiplash Associated Disorders: Redefining Whiplash and Its Management" by the Quebec Task Force. A Critical Evaluation", Spine, Vol. 23, No. 9, pp. 1043-1049.

Thus, WAD includes a collection of syndromes with questionable causes and little current consensus as to the appropriate treatment.

In this environment of scientific uncertainty, physicians are not relieved of their need to make therapeutic decisions for those suffering from WAD. This study, which is part of a larger project, was **aimed at identifying consensus about what treatments are appropriate in dealing with patients suffering from whiplash associated disorder.** It did so by applying the RAND/UCLA Appropriateness Method for health care to the treatment of whiplash [5]. It integrated information from diverse sources and analysed it in an innovative manner to shed new light on this important question.

Note: As this report forms part of a larger report, the relevant reports of the other parts of this project should also be consulted. The overall objectives of this project – which, in addition to the part described here, involved extracting and analysis of information from insurance records and policy analysis – were to:

- identify consensus about what treatments are appropriate,
- determine medical, social, and legal factors that contribute to long-term disability,
- develop medical and policy guidelines that can help stakeholders to better deal with the uncertainties.

[5] Fitch K, Bernstein SJ, Aguilar MD, Burnand B, LaCalle JR, Lazaro P, van het Loo M, McDonnell J, Vader JP, Kahan JP, The RAND / UCLA Appropriateness Method User's Manual. Santa Monica: RAND, MR-1269/RE/DGXII, 2001.

2. METHOD

The RAND Appropriateness Method for the Development of Treatment Guidelines, as applied to Whiplash Associated Disorder

In the world of health care, the determination of correct care would ideally be based upon randomised clinical trials of treatments. Unfortunately, this is not possible for the vast majority of procedures performed. Therefore, to assist in determining whether care of adequate quality was provided, a team of researchers at RAND and UCLA developed what has come to be termed the *RAND / UCLA Appropriateness Method* (RAM) to determine "appropriate" care.[6] [7] A description of this method, as it is applied to this project is summarised hereafter.

Literature Review A literature search was performed, focusing on the efficacy, use, complications, and existing guidelines for care of WAD. The beginning point of this effort was the literature review that was undertaken as part of the study of the Quebec Task Force. Thus, the review was largely confined to articles and books appearing in the past five years. From Rand Europe's previous studies, it is evident that the scientific literature has focused primarily on three aspects of whiplash :

1. Clinical aspects of whiplash, including the medical treatment of whiplash
2. Psychological aspects of whiplash
3. Effects of legal and financial compensation systems on the occurrence of whiplash.

Our literature review expanded on these aspects by examining journal articles that provide information about the stated indications for whiplash and the efficacy and utilisation of various treatments. Articles were evaluated on the basis of design and areas of potential bias. Where applicable, evidence tables were prepared to present the data; formal meta-analyses were not considered appropriate in view of the heterogeneity of the studies included.

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[6] R.E. Park, A. Fink, R.H. Brook, et al. (1986). "Physician ratings of appropriate indications for six medical and surgical procedures," *American Journal of Public Health*, Volume 76, No. 7, 1986, pp. 766-772. See also R.H. Brook (1994). "The RAND/UCLA Appropriateness Method», *Methodology Perspectives*, Rockville, Maryland: Public Health Service, U.S. Department of Health and Human Services, AHCPR Publication No. 95-0009, pp. 59-70.

[7] J.P. Kahan and M. van het Loo (1999). "Defining appropriate health care," *Eurohealth*, Vol. 5, No.3, pp. 16-18. See also J.P. Vader and B. Burnand (1999). "Prospective assessment of the appropriateness of health care," *Eurohealth*, Vol. 5, No. 3, pp. 21-23.

This review served three purposes : (1) defining the various medical (and to a lesser extent, legal and social) options currently used in the treatment of whiplash, (2) understanding the current scientific consensus about what is known and what is not known regarding the etiology of long-term disability due to whiplash, and (3) identifying the current major scientific investigators in the field. This last purpose was used to contact individuals via telephone and electronic mail and - if feasible- in person to further understand the state-of-the-art of whiplash. The literature review results, supplemented by the interviews with experts, informed the design of the instruments (clinical framework) for the evaluation of appropriateness of treatments by the expert panel.

Clinical Framework Subsequent to the literature review, a clinical framework was developed. This framework was intended to reflect decision-making in sufficient detail to distinguish between the appropriateness or inappropriateness of care for WAD. This framework consisted of a catalogue of scenarios (or clinical indications), with each scenario representing a detailed description of a specific group of patients – in terms of their symptoms, past medical history and the results of relevant diagnostic tests – who are potential candidates for specific types of care. These scenarios, produced in the form of a series of matrices, were developed based on the information contained in the literature review and on expert advice, both from the panellists and from other experts. The factors that were taken into consideration in the construction of these scenarios had to be restricted in such a manner that a feasible number of indications could be examined. Based on our earlier experience, we had anticipated that the number of indications would be between 500 and 1500 in number. In the first round there were 1701 clinical scenarios; in the second round this was reduced to 450. The final list of factors entering into the definition of scenarios (or clinical indications) included not only the individual treatments to be evaluated (Cf. Table 1), but also the duration of symptoms, the severity of pain, the degree of cognitive/vegetative dysfunction and prognostic factors.

Medical Panel After establishing the clinical framework, a multi-disciplinary medical panel was convened to rate the scenarios. This panel of care-providers from academia and the community physicians, representing various settings, evaluated the appropriateness of various treatments for WAD. Selections to the panel were based on recommendations from professional and specialty societies and recognized experts in the field. When an expert was not able to accept the invitation to participate he /she was asked to suggest an alternative who was then contacted.

Panellist recruitment was closed at the time actual panel work was to begin (round one rating for the medical panel and one week before the expert meeting for the non-medical stakeholder panel). All of the panelists were from Switzerland and included members from the following disciplines: family practice, internal medical, neurology, psychiatry, neuropsychology, rehabilitation medicine, physiotherapy and chiropractic. No group constituted a majority and a diversity of opinion and approach was sought-after. Information on the composition of the panel can be found in Appendix 1.

The literature review and the list of indications were sent to the members of the panel. The instructions that accompanied the indications are included in Appendix 2. These panel members individually rated the appropriateness of using the various treatments for each indication on a nine-point scale, ranging from extremely inappropriate (=1) to extremely appropriate (=9), for the patient described in the indication. The panel members assessed the benefit-risk ratio for the "typical patient with specific characteristics receiving care delivered by the typical care provider in the typical health care setting in Switzerland." After this first round of ratings, the panel members met for 2 days under the leadership of project members who are experienced moderators. During this meeting, the panelists discussed their previous ratings, focusing on areas of disagreement, and were given the opportunity to modify the original list of indications and/or definitions, which they did in some cases. After discussing each chapter of the list of indications, they re-rated each indication individually. The two-round process focused on detecting consensus among the panel members. No attempt was made to force the panel to consensus. Thus, in examining the potential treatments for the WAD, the RAM was able to determine situations when treatments are inappropriate (that is, the risks outweigh the benefits) or appropriate or still uncertain.

Stakeholder panel In a variation on the traditional RAM, a second panel was also convened, consisting of other stakeholders in the care of WAD, involving people from different perspectives (patient organisations, lawyers, insurers, case managers, legal experts). The output from the medical panel as to the medical appropriateness of various treatments was used as input for the non-medical stakeholder panel. This group discussed the implications of appropriate medical treatment for other aspects

of care for whiplash victims (case management, insurance claims and settlements, legal aspects, social support, etc.). The multiplicity of disciplines involved in the treatment of whiplash necessitated holding two different panels. Although it might have been desirable to include all disciplines within one meeting, it was felt that the group would be too large. In addition, the methods is based on clinical scenarios that may be difficult to handle for individuals and professionals who do not have a specific background in medical or health care discipline related to whiplash. Therefore, we adopted a solution of selecting multiple specialties within two general categories of experts.

Treatments evaluated The following table shows the treatment modalities that were evaluated by the panel.

Table 1. Treatments evaluated

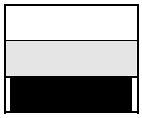
Cervical immobilisation
"Act-as-usual"
Active physical therapy
Chiropractic / Manual medicine
Passive physical therapy
Injections
Analgesics / Non-steroidal anti-inflammatory drugs
Psychosocial treatment
Acupuncture / Homeopathy
Psychoactive drugs (anxiolytiques, hypnotiques, antidepressants)
Muscle relaxants
Multidisciplinary pain referral

Definitions of treatments and terms Part of the preparation for the panel meeting and the panel meeting itself involved arriving at agreement on terms and definitions used in the descriptions of the clinical scenarios (indications) and the treatments to be evaluated. The definitions of each of the treatments, as well as the signs and symptoms used to create the clinical scenarios are included in Appendix 3, as they were agreed upon by the medical panel at the panel meeting. For a discussion of the importance of the various treatments as well as the clinical factors making up the

clinical scenarios (indications) the reader is referred to the review of the literature, contained in a separate document [8].

Defining appropriateness Following the standard procedure for the RAM, and using the scheme presented in Figure 1, each scenario was classified as "appropriate", "uncertain" or "inappropriate", based on the panel median rating (1-3 = inappropriate; 4-6 = uncertain; 7-9 = appropriate) and the degree of intra-panel agreement (i.e., all indications where there was disagreement were classified as "uncertain", irrespective of the panel median score). Intra-panel disagreement was considered to be present when, at least three of the eleven ratings fell in the 1-3 region and at least three in the 7-9 point region. This is indicated in Figure 1, below.

Figure 1. The two elements of panel median rating and intra-panel agreement were combined to determine appropriateness categories of the different treatments for whiplash (For definitions of agreement and disagreement, see text).



= Appropriate
= Uncertain
= Inappropriate

Intra-panel agreement

Panel Median	Agree	Indeter-minate	Disagree
1-3			
4-6			
7-9			

[8] van het Loo M, Frinking E, Kahan JP Vader J-P. A review of the literature on whiplash associated disorders. 2001. RAND Europe 47 pp.

3. RESULTS OF MEDICAL PANEL

Panel composition

Fifty persons were contacted to participate in one or the other of the expert panels according to the procedure defined in the methods section of this report. The final composition of the two panels, involving 20 persons in all is presented in Appendix 1. The major reasons for inability to participate were unavailability during the specific dates foreseen for the panel or lack of time. An exceptional reason given for non-participation by two of the experts approached was disagreement with the proposed panel composition (even though the final composition was not yet known). We feel that the final composition represents the state of the art level of medical thinking about WAD in Switzerland [9]. The group also represents a variety of opinions about whiplash and covers a broad spectrum of ideas.

During the initial discussions with panellists the question of concentrating only on chronic WAD or the need to consider also the acute phase was raised. Because provision or withholding of appropriate treatment in the acute phase can impact on the latter phase of the disorders, the panellists felt it was important to include consideration of appropriateness of treatment not only for the chronic phase, but also for the acute and sub-acute phases.

First round evaluation (medical panel)

A total of 1701 clinical scenarios, involving 7 different treatment modalities, were evaluated in the first round by the expert panellists. The instructions that were provided to the panellists are included in Appendix 2. On average the panellists invested 4 hours evaluating the clinical scenarios (range 1 – 10 hours). Following the first round and before the actual panel meeting, telephone interviews were held with all panellists. During these interviews it became evident that changes were needed to the clinical scenarios in order to make them more clinically relevant. In discussion with the panellists at the beginning of the panel meeting, these changes were agreed to and the number of final scenarios to be evaluated was 450.

[9] We explicitly asked the members of the non-medical panel their opinion on the composition of the medical panel. In general, they felt that the people selected to participate in the medical panel comprised a knowledgeable and representative group of the various medical disciplines involved in the treatment of whiplash, with the possible exception of the absence of experts in the field of 'alternative' treatments.

Appreciation of the literature review

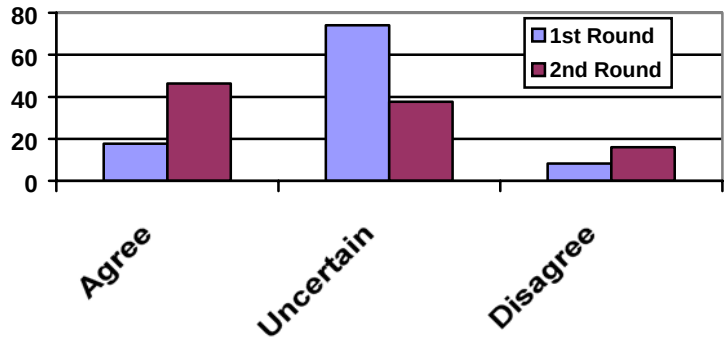
The literature review prepared by RAND Europe, with assistance of clinical specialists, was considered complete and unbiased by all panellists. Panellists invested, on average, 5 hours to the study of the literature review (range 3 – 8 hours). They considered the review to be generally informative and indicated that it played a role in their evaluation of the appropriateness of various treatments in the first-round rating. Several panellists contributed additional articles for consideration. They shed helpful light on the particular Swiss context of whiplash associated disorders, but did not fundamentally alter the scientific conclusions of the literature review. The review itself is available as a separate report [10].

Appropriateness

Multi-disciplinary discussion

An actual comparison between the «first round« rating, and the «second round» rating of *appropriateness* is difficult to perform because the number and content of the scenarios rated varied significantly between the two rounds. However, the impact of the panellists' interaction with other specialists can at least partially be analysed by looking at the differential agreement between the two rounds: the first round rating was done at home without any interaction and the second round was done following extensive discussion of the scenarios, the definitions, and the appropriateness of the different scenarios. In the «first round», agreement was found for 18% of the 1701 theoretical scenarios. The «second round» rating, following discussion of divergent ratings, resulted in a much higher agreement among panellists, reaching 46%,

Figure 2. Level of agreement, 1st and 2nd rounds of rating



[10] van het Loo M, Frinking E, Kahan JP Vader J-P. A review of the literature on whiplash associated disorders. 2001. RAND Europe 47 pp.

Final evaluation of agreement

As the notion of appropriateness includes a consideration for the agreement among the panel members (Figure 1), summary results for the agreement on each of the separate categories of treatment options evaluated are included in the statistical Appendix 4. The treatments where agreement was reached or exceeded for at least two-thirds of the scenarios (whether in favour of the treatment or against it) concerned "act as usual" (90%), cervical spine immobilisation (89%), injections (67%) and analgesics (70%). The areas where agreement was one-third or less of the scenarios included chiropractic (33%), alternative medicine (27%), psychoactive medication (29%) and muscle relaxants (21%). Frank disagreement was more rare and never reached 33% for any of the treatments. Table 2 shows, for all 450 scenarios the distribution of agreement and median vote categories.

Table 2 Median and agreement categories for all 450 clinical scenarios.

	Agreement			
Median	Agree	Indeterminate	Disagree	Total rows
1-3	129	42	18	189
4-6	0	65	48	113
7-9	80	62	6	148
Total columns	209	169	72	450

Final evaluation of appropriateness

The full ratings of the appropriateness of various treatments for whiplash associated disorders (450 scenarios) are included in Appendix 5(b-h), together with instructions for reading the ratings Appendix 5(a).

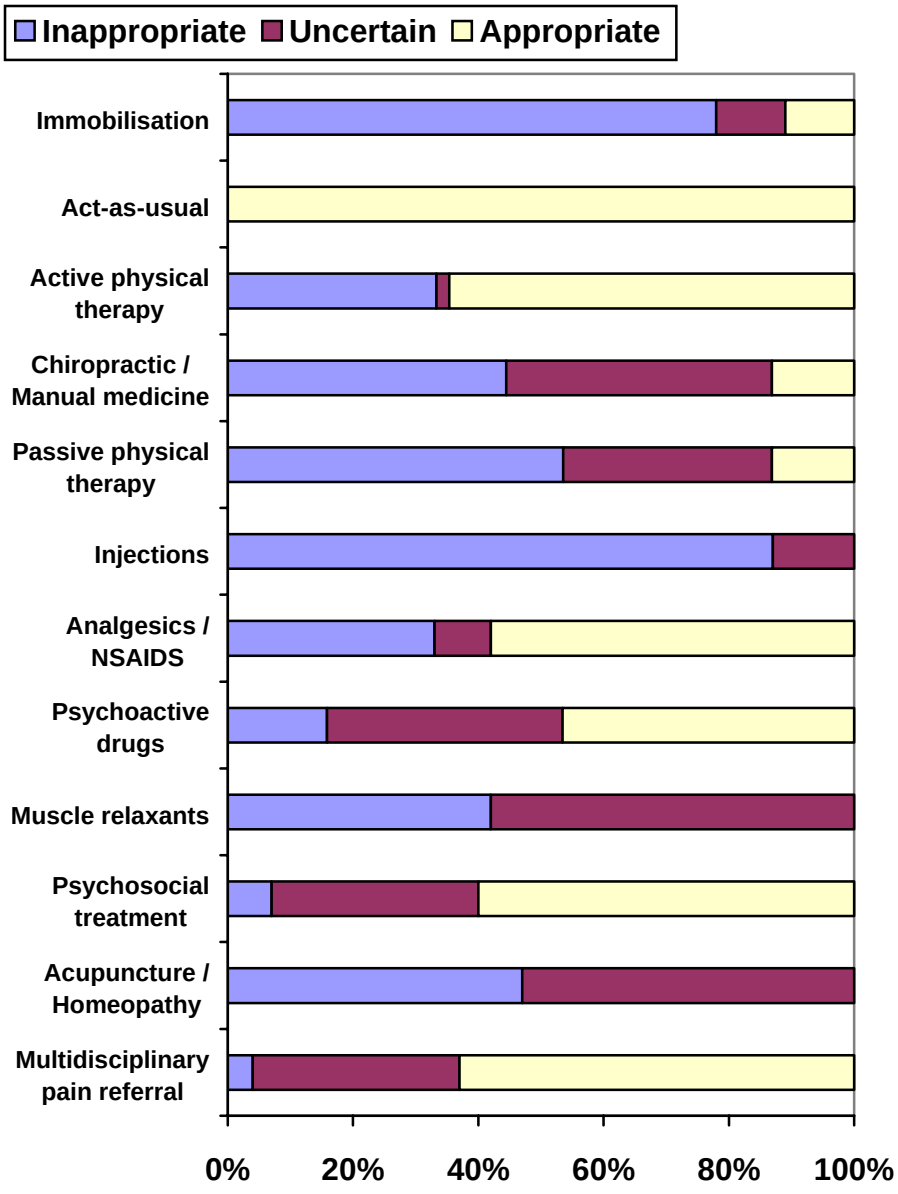
Overall, the panel rated 142 (32 %) of all 450 theoretical clinical scenarios as appropriate indications for the various treatments. Thirty percent of the indications were considered equivocal and 38% inappropriate. Results for appropriateness for each clinical category are also shown in Table 3.

Table 3. Type of treatment for whiplash by level of appropriateness

	Inappropriate	Uncertain	Appropriate	Total (Row)
	N (%)	N (%)	N (%)	
Act as usual	–	–	9 (100)	9
Cervical immobilisation	7 (79)	1 (11)	1 (11)	9
Active physical therapy	15 (33)	1 (2)	29 (64)	45
Chiropractic / manual medicine	20 (44)	19 (42)	6 (13)	45
Passive physical therapy	24 (53)	15 (33)	6 (13)	45
Injections	39 (87)	6 (13)	–	45
Analgesics / NSAIDs	15 (33)	4 (9)	26 (58)	45
Psychosocial therapy	3 (7)	15 (33)	27 (60)	45
Homeopathy / Acupuncture	21 (47)	24 (53)	–	45
Psychoactive drugs	7 (16)	17 (17)	21 (47)	45
Muscle relaxants	19 (42)	26 (58)	–	45
Multidisciplinary pain referral	1 (4)	9 (33)	17 (63)	27
Total (Column)	171 (38)	137 (30)	142 (32)	450

The figure 3 below shows the same results in graphic form.

Figure 3. Proportion of appropriate indications for the 12 treatment modalities



Appendices 6 and 7 present stratified analyses of appropriateness by various patient characteristics (Appendix 6) and mean and standard deviations of appropriateness scores for various treatment options and patient characteristics (Appendix 7).

Summary statements from evaluations of appropriateness

One of the highly attractive aspects of the RAM is the ability to present clinical scenarios in sufficient detail that the experts and clinicians are able to envision the

patient presented. This, however, carries with it the disadvantage that the results of the method (in the case of whiplash, a detailed evaluation of 450 scenarios) are hard to use, "as is", by the busy therapist. (There are however ways to make it these results easier to interpret. One such possibility is through the use of a computer algorithm, either as a stand-alone programme on a personal computer or via the world-wide-web. This latter possibility is discussed in the conclusion section of this report.)

What follows is a set of summary statements derived from the votes of the experts for the 450 scenarios. It should be born in mind, however, that to remain faithful to the method itself and to the evaluations of the experts, it is far preferable to refer to the detailed scenarios (Appendix 5). In the synthetic report, the results of the panel will be supplemented with information from the literature (See Appendix 3 for precise definitions of terms used). Appendix 10 gives similar information, but in tabular form.

Cervical immobilisation

Cervical spine immobilisation is generally inappropriate, with the possible exception of the situation of patients with severe pain, during the acute phase. In this case it may be appropriate for a limited time.

"Act-as-usual"

The explicit prescription by the care-giver that the patient should continue normal activities (to act-as-usual) "to the extent possible" is always appropriate.

Active physical therapy

Physical therapy implying the active involvement of the patient is generally appropriate, provided that it leads to improvement. In cases where there is minimal or no pain, such treatment is inappropriate.

Chiropractic / Manual medicine

Manipulative treatment by a chiropractor or manual medicine therapist is clearly inappropriate if there is no pain.
During the intermediate phase it is appropriate in the presence of severe pain.
In other cases, e.g., during the chronic phase and with light or moderate pain, the indication is uncertain.

Passive physical therapy

Passive physical therapy is generally inappropriate during the acute phase.
During the intermediate phase it is appropriate in the presence of severe pain.
In other cases, e.g., during the chronic phase and with light or moderate pain, the indication is uncertain.

Injections

Injections were never clearly appropriate according to the panel.
They are either clearly inappropriate or, at most, uncertain (e.g., in event of severe pain during the intermediate phase).

Analgesics / Non-steroidal anti-inflammatory drugs

Analgesics are generally appropriate in presence of pain, inappropriate in its absence.

Psychosocial treatment

Psychosocial treatment is generally inappropriate in the initial phase for mild cases.
It is considered appropriate for initially severe cases, particularly in the presence of cognitive and vegetative dysfunction.
In the intermediate and chronic phases of the disorder such treatment is almost always appropriate.

Acupuncture / Homeopathy

In the acute phase, these alternative treatments are considered inappropriate, unless there is severe pain, in which case they are considered uncertain.
In the intermediate and chronic phases, they are also uncertain in the presence of moderate pain.

Psychoactive drugs (anxiolytiques, hypnotiques, antidepressants)

Psychoactive drugs are generally inappropriate or uncertain in the acute phase unless there is severe pain and severe cognitive / vegetative dysfunction.
On the other hand, in the intermediate and chronic phases, they are generally considered appropriate, except in mild cases.

Muscle relaxants

Muscle relaxants are never clearly appropriate. They are inappropriate in patients with mild or moderate pain, and of uncertain value in severe pain, with considerable disagreement among the experts about this indication.

Multidisciplinary pain referral

This treatment option was only considered for intermediate and chronic phases. Here is was generally considered appropriate, except for instances when there was no pain. Even in these cases, however, when there was severe cognitive or vegetative dysfunction it was nonetheless appropriate.

Further comments

What follows are further considerations expressed by the medical expert panel – either during the discussion or derived from the panel votes – with bearing on the appropriateness of various approaches to treatment.

- **Effect of patient characteristics on treatment choice:** The patient characteristics composing the indications matrix, identified from the literature review, were not all considered relevant according to the panellists. After the first round, the panel decided that the absence or presence of a history of neck or head pain, does not influence their treatment choices, and this dimension was not included in the second round. The first and second round results showed that prognosis based on socio-demographic characteristics does not have a large impact on treatment decisions either. The effect of the degree of cognitive and vegetative dysfunction was also small. The panel results showed that treatment decisions are mostly influenced by the degree of physical pain and time since the accident. The effects of these dimensions are briefly discussed below.
- **Pain as a determinant of treatment choice**: The panel results indicate that the more severe the pain, more treatment options are rated appropriate. For patients with no pain, the median was in the inappropriate category (rates 1-3) in 78% of the indications. On the other hand, for patients with severe pain, the median for 53% of the indications was in the appropriate category (rates 7-9), and only 9% in the inappropriate category. The largest effect was visible with respect to analgesics and immobilisation, which were rated extremely inappropriate when the patient had no pain, and extremely appropriate with severe pain in the acute phase. It should be noted however that for immobilisation, the panel clearly indicated that, if prescribed, it should be done so for a limited time only.
- **Phase as a determinant of treatment choice**: The panel discussed three different

phases in the treatment of whiplash; the acute phase (< 6 weeks after the accident); the intermediate phase (> 6 weeks and < 6 months after the accident); and the chronic phase (> 6 months after the accident). The panel results show that the appropriateness of treatments differ per phase. In the acute phase, only a limited number of treatments have a median in the appropriate category (21% of the indications); in the intermediate and chronic phase, this is 41% and 31% respectively. Based on the panel results, it may be concluded that in the acute phase only the more promising and/or proven treatments are appropriate. If these are not successful, a wider range of treatment options is open in the intermediate phase. In the chronic phase, the medical care efforts should be reduced in favour of more attention to other ways of assisting the patient.

General remarks

The above information is based on the panel ratings. In this section, we also provide some information on remarks made by the panellists during the discussion.

For the panellists, there is a clear difference in the way whiplash patients should be treated at different moments in time. *In the acute phase*, the treatment of whiplash patients should be mainly focused on medical aspects, i.e., appropriate treatment. In the intermediate and chronic phase, other aspects play a greater, in not preponderating a role. The view of the medical expert panel on treatment of whiplash patients in the intermediate and chronic phase is briefly described below.

In the intermediate phase, the main aim of treatment is prevention of chronification. To reach this aim, medical, psychological and social ways of dealing with the patient have to be balanced:

- In terms of *medical treatment*, people need more treatment than in the acute phase. This means that different treatments might be tried, and the intensity of exercises may go up. Pain management plays an important role in this phase; there is no role for immobilization, but active and hand-on approaches such as physiotherapy and manual therapy are very important in this phase. In addition, multidisciplinary pain centers might be an option in this phase.
- In terms of *psychological treatment*, the intermediate phase might be the right phase to do a psychological evaluation. The intermediate phase is the phase in which the patient starts to feel helpless, requiring a change in treatment strategy; the need for psychosocial support is increasing.

- In terms of *social treatment*, there is a large role for the case manager. Co-operation among all caregivers involved in the treatment of whiplash patients is always essential, but especially in the intermediate phase. In this phase, co-ordination of all involved parties (general practitioner, psychologist /psychiatrist, insurer, etc.) becomes very important to make sure that the patient can focus on his/her recovery instead of worrying about his/her situation. Information exchange between the involved parties is of crucial importance. Personal contact and continuity of care-givers are crucial.

In *the chronic phase*, it is not always clear what the aim of treatment is. The aim of treatment should be better defined: aims could be full recovery, improvement of the quality of life, restoration of the ability to work, etc. In co-operation with the patient realistic aims should be defined. In doing so, it should be considered that group of chronic whiplash patients is very heterogenous, and different medical, psychological, and social problems play a role. Medical and social aspects of dealing with chronic whiplash patients were discussed by the medical expert panel. A summary of the discussion can be found below:

- In the chronic phase, the *medical problem* is not the main problem, and medical treatment is generally less appropriate. All efforts in earlier phases have shown that the doctor cannot 'control' the patient, and that factors other than purely medical factors play a role. The intensity of physiotherapy should decrease and the focus should shift from pain to function. In addition, there should be more focus on self-management. People should not be forced by their lawyers to try many different treatments. This is a waste of money and makes the situation of the patient only worse.
- In *social terms*, it is most important that the patients cope with the situation, and set clear treatment goals. Activities such as employment reorientation and support in solving insurance problems might help patients to better deal with the new reality in which they are living.
- The medical experts felt that it was important to put on record that in the chronic phase, the major concern was not the appropriateness of different medical treatment options, but the *importance of addressing the social, professional and family problems* of protracted suffering and illness and their consequences on the patients.

Panellists' evaluation

To evaluate the experts' opinion concerning the application of the RAM to the specific question of whiplash, they were asked to answer a questionnaire at the end of the panel session. On a scale ranging from 1 (low) to 5 (high), the panellists estimated the validity and the utility of the method at a mean score of 3.6 and 3.5 respectively. The quality of the discussion was evaluated at a mean of 4.1 and the experts own satisfaction in participating as a member of the panel was rated at 4.3.
The full evaluation of the medical expert panel is included in Appendix 8.

4. RESULTS OF NON-MEDICAL PANEL

Preliminary remark

It was initially foreseen to use the same format for the non-medical expert panel and to address the same questions. During initial discussions with these experts, however, it was evident that, although some of them would be quite at ease discussing the appropriateness of different treatment options, others considered that their expertise was not at all in that area and that it would be unfortunate to use their capacity in that manner. For this reason, the format of the non-medical panel was much more along the lines of a focus group approach. The non-medical experts, were provided with the same literature review as the medical experts and were asked also to comment on the preliminary results from the medical panel.

Background

Below is a summary of highlights of the panel discussion on whiplash associated disorders. The aim of the panel was to discuss whiplash associated disorders with people who are dealing with whiplash patients from a non-medical perspective. The discussion focused first on the views of the different stakeholders concerning prognostic factors and dealing with whiplash patients from a social and legal perspective. Then the focus shifted to discussion of the results of the panel of medical experts that was organised one week earlier. The list of participants in this expert panel can be found in Appendix 1.

It was our intention to include as many different non-medical stakeholders in this panel. Beforehand, we distinguished the following groups of stakeholders: patients, lawyers, judges, insurance representatives, and independent case managers. We succeeded in getting at least one participant from each of these groups, except for the patient groups who refused to participate. However, this gap was diminished to some extent by the participation of lawyers who represent patients on a regular basis and are close to the preoccupations of whiplash victims.

Appropriateness of treatments for WAD

As explained above, a panel of medical experts rated the appropriateness of different treatment strategies for WAD-patients. The panel ratings were presented to the non-

medical experts, who were asked to react to those results. In addition, the participants to the non-medical panel were asked about other factors influencing the outcome of WAD treatment.

Medical aspects

- **Results of the medical panel:** In contrast to their anticipation and experience, the members of the non-medical panel generally agreed with most results of the medical panel, e.g. on the importance of mobilisation. Given the fact that this agreement was somewhat surprising, the non-medical panellists argued whether there might be discrepancies between the manner medical professionals discuss the issue and the way they act in their clinical practice. In addition, the medical panel consisted of professionals who are very familiar with whiplash. Medical professionals that are not as knowledgeable about WAD may act quite differently.
- **Appropriateness of alternative treatment:** Most panellists believe that the medical panel may have underestimated the potential beneficial effects of alternative treatment and may have relied heavily on very traditional treatment options. It is the experience of some of the non-medical panellists that alternative treatments, such as craniosacral therapy, are often more effective than regular treatments, and that medical doctors tend to focus too much on somatic problems.
- **Importance of general pain management:** Pain management should play a larger role in the treatment of whiplash than it currently does. In general, pain management strategies are currently better understood than WAD treatment strategies. A strategy of pain management could lead to development of better indicators for establishing risk profiles related to long-term disability. Therefore, one of the panellists strongly advocated replacing management of whiplash by pain management, and suggests giving medical doctors a better training in pain management. While other panellists did not clearly support this opinion, they were no strong objections to this approach either.
- **Need for individualized medical treatment:** The panellists indicate that the way a treatment is given is generally more important than the type of treatment prescribed. In this respect, it is considered to be important to individualise the problem, to develop specific points of special attention for individual patients, to determine treatment goals together with the patient, and to see whether it is possible to reach these objectives. The development of longer term strategies toward treating WAD has many advantages over isolated and incidental treatments or medical shopping. Small improvement in the functionality of patients may lead to large savings in terms

of insurance claims.

- **Somatic and psychological problems are interwoven:** The members of the non-medical panel indicate that it is impossible to separate somatic and psychological problems. In treating patients, one should not make a difference between somatic and psychological factors. It should be accepted that both types of treatment are important. Currently, patients are better off if they do not undergo too much psychological treatment, because social insurance jurisprudence requires stricter criteria for coverage of predominantly 'psychological' cases. The legal system contains a disincentive for psychological treatment. This negatively affects the prognosis of the patient.

In addition to commenting on the specific medical aspects, the members of the non-medical panel were asked to reflect on other aspects of dealing with whiplash patients as well. The results of these discussions are described below. The full report of the meeting of the non-medical panel can be found in Appendix 9.

Organisational and interpersonal aspects

- **Importance of case management:** Given the involvement of various stakeholders of different backgrounds, panellists put substantial emphasis on the need for involved case management. The first question that needs to be answered with this respect is who will take this responsibility. One of the panellists indicated that medical doctors, preferably general practitioners, should be responsible for the co-ordination of the treatment. They should receive adequate remuneration in order to encourage them to take serious charge of the overall handling of whiplash cases. Other panellists do not consider this to be the role of medical doctors, but would prefer assigning this role to separate case managers.

  In addition to who should take the responsibility, the questions is what the exact role of such case managers should be. It was generally agreed that the role should focus on enabling a dialogue among insurers, patient, case manager, care givers, etc. This dialogue is needed to develop a platform to decide which route the patient should follow, and to improve mutual understanding. The case manager can also serve as a mediator between legal experts and doctors. Not all panellists agree on this; some panellists, however, believe that medical doctors should take a leadership role in case handling, and others think that more communication between the involved parties should be sufficient to improve mutual understanding.

- **Information provision needs to be improved:** It is important for patients to get information on whiplash at an early stage after the accident. They need information on what happened to them and on their prognosis; it should be explained that a whiplash generally does not become chronic.
- **Prognosis of whiplash patients can be positively influenced:** The panellists indicate that the prognosis of whiplash patients can be positively affected by creating an atmosphere of trust, early psychological coaching, early appropriate treatment, pain management, and adequate provision of information by a well informed general practitioner.
- **Creation of an environment of trust and security:** Often the process of social coaching of whiplash patients is started too late. Social coaching is however essential to improve the health status of the patient. Patients should be offered an environment of trust and security. In creating this environment, caregivers should not only deal with patients but also with their family, employers, etc. In addition, whiplash patients should not be forced to undergo many tests, as this engenders a feeling of distrust.

Education and training aspects

- **Improvement of education and training is needed:** The education of medical doctors, e.g., general practitioners and internal medicine specialists, concerning WAD needs to be improved. Currently, many general practitioners do not know enough about WAD to guide their patients. General practitioners should get better training in dealing with whiplash patients.
- **Mutual understanding of medical and legal experts:** The legal system has a defined way of dealing with whiplash patients. Medical doctors are generally not aware of the functioning of the legal system. Medical doctors, lawyers and judges should co-operate more closely to improve mutual understanding. Medical doctors have to understand that dealing with whiplash patients is very difficult for judges as (1) there is no scientific evidence available to support or deny whiplash claims; (2) it is very difficult to determine for what period of time the patient should be compensated; and (3) the fact that judges always have to decide, even if they do not know enough.
- **Develop a benchmark to determine the degree of disability of whiplash patients:** All panellists seem to agree that some kind of benchmark is needed to determine the degree of disability of whiplash patients. However, an important

question, that is not yet answered, is the validity of such a benchmark on disability assessment. Most panellists believe that medical doctors should answer that question; medical doctors think that judges and lawyers should answer that question. According to the panellists, the benchmark should not be a hard indicator; otherwise insurance companies might abuse it. None of the panellists, however, was able to define what such a benchmark should look like.

5. DISCUSSION, CONCLUSIONS, RECOMMENDATIONS

DISCUSSION

The RAND Appropriateness Method proved to be a valuable and accepted method to assess the appropriateness of various treatments for whiplash patients. Using the RAM, medical experts generated new insights in the treatment of WAD, in particular concerning areas where consensus exists, where is it absent and where uncertainty prevails. These insights are based on both their clinical expertise of the panellists and information from the scientific literature.

It would seem important to make some remarks with respect to the interpretation of the panel results:

- **Panel composition:** The appropriateness of treatments for WAD was evaluated by a multidisciplinary panel of well-known and recognised Swiss experts in the field of WAD. Although the panel was selected with care, the composition of the panel may influence the results of the evaluation. Previous studies in which different panels of diverse composition rated the appropriateness of a similar medical procedure have, however, shown that the effect of panel composition on the panel results is limited [11] [12] [13]. We feel it is not unreasonable to assume that the panel results generally reflect the opinions of Swiss whiplash experts. The panel itself felt that the process used was apt to lead to valid guidelines for the appropriate treatment of WAD. In addition the non-medical experts considered the composition as representative of those considered experts in the field.
- **Indication matrix:** The clinical scenarios described in the indications matrix are composed of relevant patient characteristics, but do not represent actual patients. The panel members thus rated the appropriateness of a specific treatment for a theoretical patient. In practice, there might be reasons to deviate from the recommendation of the expert panel, as a patient might have specific characteristics

[11] Fraser GM, Pilpel D, Kosecoff J, Brook RH. Effect of Panel Composition on Appropriateness Ratings. *Int J Qual Health Care* 1994;**6**:251-255.

[12] Bernstein SJ, Kosecoff J, Gray D, Hampton JR, Brook RH. The appropriateness of the use of cardiovascular procedures: British Versus U.S. Perspectives. *Intl J of Technology Assessment in Health Care* 1993;**9**:3-10.

[13] Vader J-P, Burnand B, Froehlich F, Dupriez K, Larequi-Lauber T, Pache I, Dubois RW, Gonvers J-J, Brook RH. Appropriateness of Upper Gastrointestinal Endoscopy: Comparison of American and Swiss criteria.

which ask for a different treatment strategy than the one recommended by the panel. In addition, the weight of these theoretical scenarios must be put into perspective of the frequency of actual cases. It is here that the use of the criteria, either prospectively to improve the appropriateness of care for WAD or retrospectively to evaluate care that has been provided, will be most indispensable in determining the proportion of care that is actually appropriate.

- **Treatment history:** The whiplash literature shows that whiplash patients generally undergo many different types of treatment. The treatment history of the patient was, however, not part of the clinical scenarios. In practice, the treatment history of a patient might to some degree influence the treatment strategy chosen. However, in the indication matrix we assumed that unsuccessful provision of a treatment in an earlier stage does not preclude it being appropriate in a later stage.

The RAM provides insight into the appropriateness of specific medical treatment options for specific whiplash patients, but does not generate information on the most appropriate ways of dealing with whiplash patients from a social and legal perspective. Therefore a non-medical panel was convened to discuss the results of the medical panel and to offer further insights in dealing with whiplash patients. The conduct of the non-medical panel proved to be a valuable addition to the RAM as it put the results of the medical panel in a broader perspective.

CONCLUSIONS

Highlights of the medical panel

The follows general summary statements are derived from the votes of the experts for the 450 scenarios. The actual evaluation for the 450 scenarios are included Appendix 5 of this report. The Appendix 3 contains precise definitions of terms used.

Cervical immobilisation

Cervical spine immobilisation is generally inappropriate, with the possible exception of the situation of patients with severe pain, during the acute phase. In this case it may be appropriate for a limited time.

"Act-as-usual"

The explicit prescription by the care-giver that the patient should continue normal activities (to act-as-usual) "to the extent possible" is always appropriate.

Active physical therapy

Physical therapy implying the active involvement of the patient is generally appropriate, provided that it leads to improvement. In cases where there is minimal or no pain, such treatment is inappropriate.

Chiropractic / Manual medicine

Manipulative treatment by a chiropractor or manual medicine therapist is clearly inappropriate if there is no pain.
During the intermediate phase it is appropriate in the presence of severe pain.
In other cases, e.g., during the chronic phase and with light or moderate pain, the indication is uncertain.

Passive physical therapy

Passive physical therapy is generally inappropriate during the acute phase.
During the intermediate phase it is appropriate in the presence of severe pain.
In other cases, e.g., during the chronic phase and with light or moderate pain, the indication is uncertain.

Injections

Injections were never clearly appropriate according to the panel.
They are either clearly inappropriate or, at most, uncertain (e.g., in event of severe pain during the intermediate phase).

Analgesics / Non-steroidal anti-inflammatory drugs

Analgesics are generally appropriate in presence of pain, inappropriate in its absence.

Psychosocial treatment

Psychosocial treatment is generally inappropriate in the initial phase for mild cases.
It is considered appropriate for initially severe cases, particularly in the presence of cognitive and vegetative dysfunction.
In the intermediate and chronic phases of the disorder such treatment is almost always appropriate.

Acupuncture / Homeopathy

In the acute phase, these alternative treatments are considered inappropriate, unless there is severe pain, in which case they are considered uncertain.
In the intermediate and chronic phases, they are also uncertain in the presence of moderate pain.

Psychoactive drugs (anxiolytiques, hypnotiques, antidepressants)

Psychoactive drugs are generally inappropriate or uncertain in the acute phase unless there is severe pain and severe cognitive / vegetative dysfunction.
On the other hand, in the intermediate and chronic phases, they are generally considered appropriate, except in mild cases.

Muscle relaxants

Muscle relaxants are never clearly appropriate. They are inappropriate in patients with mild or moderate pain, and of uncertain value in severe pain, with considerable disagreement among the experts about this indication.

Multidisciplinary pain referral

This treatment option was only considered for intermediate and chronic phases. Here is was generally considered appropriate, except for instances when there was no pain. Even in these cases, however, when there was severe cognitive or vegetative dysfunction it was nonetheless appropriate.

Further considerations

- **Effect of patient characteristics on treatment choice**: The patient characteristics composing the indications matrix, identified from the literature review, were not all considered relevant according to the panellists. The panel results showed that treatment decisions are mostly influenced by the degree of physical pain and time since the accident. The effects of these dimensions are briefly discussed below.
- **Pain as a determinant of treatment choice**: The panel results indicate that the more severe the pain, more treatment options are rated appropriate. For patients with no pain, the median was in the inappropriate category (rates 1-3) in 78% of the indications. On the other hand, for patients with severe pain, the median for 53% of the indications was in the appropriate category (rates 7-9), and only 9% in the

inappropriate category.

- **Phase as a determinant of treatment choice**: The panel discussed three different phases in the treatment of whiplash; the acute phase (< 6 weeks after the accident); the intermediate phase (> 6 weeks and < 6 months after the accident); and the chronic phase (> 6 months after the accident). The panel results show that the appropriateness of treatments differ per phase. In the acute phase, only a limited number of treatments have a median in the appropriate category (21% of the indications); in the intermediate and chronic phase, this is 41% and 31% respectively. Based on the panel results, it may be concluded that in the acute phase only the more promising and/or proven treatments are appropriate. If these are not successful, a wider range of treatment options is open in the intermediate phase. In the chronic phase, the medical care efforts should be reduced in favour of more attention to other ways of assisting the patient.
- **Shifting aim of treatment**: In the acute and intermediate phase the main aim of treatment is to prevent chronification. In the chronic phase, the panellists suggest, a discussion with the patient is needed to determine what realistic aims of treatment can be pursued (full recovery, improving the quality of life, restore the ability to work, etc). The chronic patients are very heterogeneous and often present a wide variety of problems that are medical as well as social, psychological and legal.
- **Co-operation among caregivers**: Co-operation among all caregivers involved in the treatment of whiplash patients is essential, especially in the intermediate phase. Personal contact and continuity of care-givers is crucial.

Highlights of the non-medical panel

- **Increased attention to alternative treatment**: Members of the non-medical expert panel felt that the effect of alternative treatment strategies, such as acupuncture, craniosacral therapy, and Johansson and Alexander techniques, may have been underestimated by the medical panel.
- **Need for a benchmark to determine the degree of disability**: All panellists agree that it is important, but also difficult, to develop a benchmark to determine the degree of disability of whiplash patients. Such a standard should not be a hard indicator, and the norms of the patient should be used as a starting point. Given the difficulties, there were no concrete indications as to what the benchmark might be.
- **Early and appropriate intervention improves prognosis**: The members of the non-medical expert panel state that there are things that can be done in an early phase of whiplash to improve the prognosis of the patient. Important are an

atmosphere of trust, early psychological coaching, early appropriate medical treatment, pain management and information provision to the patient by a well-informed general practitioner. General practitioners should be better educated about pain management in general and whiplash in particular, so that they better inform their patients.

- **Management of the relationships among the involved parties:** Generally, there are many parties involved in the medical, social, and legal treatment of whiplash patients, and often there is no or limited co-ordination among these parties. In order to arrange optimal care for the whiplash patient, it is important that all involved parties understand each other's positions. A case manager could play an important role in streamlining this process; s/he could help guide and co-ordinate all involved parties, including the patient, to determine what is the best approach for the patient. Co-ordination should take place both at the level of individual patients (to determine the appropriate treatment strategy) and at a higher level (to improve mutual understanding among judges, lawyers, insurers, doctors, patients, etc.).
- **Technical and biomechanical aspects:** The technical and biomechanical background of the collision circumstances can provide important indications for identifying the most appropriate diagnostic and therapeutic measures. Unfortunately, these elements are not always correctly assessed, either by the patient or the doctor involved. This can lead to a misjudgement of the collision severity and inappropriate treatment. Thus, the type of accident (e.g., mild, severe) as assessed by an engineer may lead to different emphasis of treatment modes (e.g., somatic, psychological).

RECOMMENDATIONS

Facilitate access to user-friendly appropriateness criteria: The results of a RAM-panel can be used in different ways, both retrospectively and prospectively. Retrospective use of the panel results includes comparing the results of the panel with actual patient data and determine to which degree those patients were treated appropriately, according to the expert panel. Such an approach may be important in evaluating global progress towards more appropriate care, but has the disadvantage, for the individual patient, that treatment assessed has already been implemented and such assessments are of little or no value to the patient whose treatment has been assessed, post hoc.

In addition, such retrospective evaluation of the appropriateness of care often suffers greatly from absence of sufficient and valid information required to assess

appropriateness of care.

1. **It is recommended** that, to allow retrospective assessment of appropriateness of care, using the criteria developed in this project, that a minimal data set of information be fostered and promoted which will include the elements and details used to elaborate the patient scenarios. Synergy should be assured with a parallel project to create just such a minimal data set for whiplash patients.
2. **It is recommended** that, as a follow-up to the present project, systematic use of such a data base be combined with systematic collection of a minimal outcome data set to allow follow-up of patient outcome in relation to the proposed criteria for appropriate care. Of prime importance is the collection of complete and high-quality data on treatments, their appropriateness and patient outcomes. If this systematic follow-up for all patients is unfeasible, a more limited cohort study could be planned, providing the same standards of full, complete and high-quality data collection is insured.

The results of the RAM-panel can also be used prospectively to develop clinical practice guidelines. Clinical practice guidelines are "systematically developed statements to assist practitioner and patient decisions about appropriate health care, i.e., decision aids for best practice". Clinical guidelines can take different forms; they can documented in written form, but they can also take the form of a web-based information system. In this case, caregivers can enter the patient characteristics into the computer and check whether the expert panel rated the chosen treatment as appropriate, uncertain, or inappropriate for a specific patient. The advantage of the prospective use of appropriateness criteria is that 1) it helps the physician and patient make a decision on the appropriate treatment before that treatment is undertaken, rather than after the fact, and 2) it promotes the documentation in the medical record of information related to the appropriateness of care, in case retrospective evaluation is later envisioned or applied.

3. **It is recommended** that, as a follow-up to the present project, clinical guidelines in electronic or paper form be made generally available to both physicians and patients to assist in the prospective choice of appropriate treatment, bearing in mind that clinical guidelines are meant to support and not to replace the decision making process of caregivers and that there may well be valid reasons to deviate treatment suggested by clinical practice guidelines.

Research priorities: For most treatment options, there was significant agreement on the appropriateness of the option: the panel either agreed that a specific treatment was appropriate or inappropriate. However, a fairly substantial percentage of the ratings was uncertain. As it is impossible to subsidise research on all these treatments at the same time, priorities need to be set on which topics should be studied first. The panel ratings indicating considerable disagreement or uncertainty might be used to target research to clarify those controversial or uncertain issues. For example, the panel results suggest that it might be interesting to study the effectiveness of psychosocial treatment of whiplash patients with a poor prognosis in the acute phase with light/moderate pain and light/moderate cognitive and vegetative dysfunction. Although there is disagreement about the effectiveness of psychosocial treatment for this type of patient, the median rating (=7) is in the appropriateness range suggesting that most panellists believe that psychosocial treatment might be a good idea.

4. **It is recommended** that the insurers consider fostering and funding *high-quality clinical studies* to gradually, but systematically, clarify the many outstanding questions related to the appropriate care of WAD. The notion of high quality, valid studies is particularly important in this field where much research is of poor quality and adds nothing to our knowledge base.

Updating panel results: As new studies on the effectiveness of treatments for WAD appear on a regular basis, it is very important that the results of the medical panel will be updated when developments in clinical research give reason to do so. To do this, however, it would be necessary to set up a "literature watch" which would scan the literature on the topic and flag areas where new publications from the literature might suggest the need to reconsider the panel's assessment of appropriateness for one or the other of the treatments. This is particularly important to insure that any guidelines derived from the present project are kept up-to-date and not allowed to become obsolete. If the latte case were to occur, the effect would be to promote inappropriate care rather than appropriate care.

5. **It is recommended** that the insurers consider an on-going programme, either internally or externally to monitor the state of medical literature and its possible impact on the conclusions and criteria stemming from this project.
6. **It is recommended** that, no later than 2006, the criteria for the appropriate treatment of WAD be fully re-evaluated.

Fostering understanding among all parties: Both the panels expressed the acute need to have better communication and understanding among all those involved in the care and treatment of whiplash patients.

7. **It is recommended** that the insurers consider instituting or fostering regular opportunities for all parties to share their view and perspectives on this important subject, in a non-conflictual setting. This would be beneficial to all, not the least of whom are the patients themselves, and could help clarify uncertainties, dispel misunderstandings and promote consensus.

6. Annexes

1. List of members of both panels
2. Instructions that accompanied rating forms
3. Definitions
4. Summary statistics on agreement
5. Full ratings
6. Summary statistics on agreement
7. Summary statistics on appropriateness
8. Panellists' evaluation of the process
9. Detailed report of the non-medical expert panel meeting
10. Table of treatment appropriateness by phase of illness