



SOCIAL ISSUES COMMITTEE

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Our Ref: 11/492

9 November 2011

The Hon David Clarke MLC
Chair
Legislative Council Standing Committee
on Law and Justice
Parliament House
Macquarie Street
SYDNEY NSW 2000

Dear Mr Clarke

I refer to the letter from the Principal Council Officer of the Eleventh Review of the Motor Accidents Authority and the Motor Accidents Council by the Standing Committee on Law and Justice regarding the Questions on Notice arising from the public hearings of the review and the Standing Committee's supplementary Questions on Notice.

I am pleased to enclose the Motor Accidents Authority's response to the additional Questions on Notice.

I also enclose the corrected transcript of my evidence given on the second hearing day of the review on 17 October 2011.

Any questions about this matter may be directed to Mr Christian Fanker, A/Manager, Ministerial and Community Assistance, at the Motor Accidents Authority on 8267 1990 or by email at christian.fanker@maa.nsw.gov.au.

Yours sincerely

Andrew Nicholls
Acting General Manager

STANDING COMMITTEE ON LAW AND JUSTICE

**ELEVENTH REVIEW OF THE EXERCISE OF THE FUNCTIONS
OF THE MAA AND MAC**

**SUPPLEMENTARY QUESTIONS AND QUESTIONS ON NOTICE ARISING FROM
PUBLIC HEARINGS**

Supplementary Questions

- 1. Is the MAA consulting with the NSW Farmers Association regarding scheme coverage for farm bikes (including quad bikes) when used either on or off public roads?**

Response:

The former General Manager of the MAA wrote to the Chief Executive Officer of the NSW Farmers Association on 13 August 2010 to arrange a meeting to discuss the issues raised in the Association's submission to the tenth review. Although no reply was received to the letter, I am happy to again extend that invitation to the NSW Farmers Association to canvass the contents of their submission to the tenth review, or issues of concern to the Association which have subsequently arisen.

- 2. Can the MAA provide a brief on the timeliness and extent of prudential/solvency reporting by APRA on the insurers. In essence, how quickly would the Minister be advised of a threat to solvency and potential impact on the NSW Treasury?**

Response:

The MAA and the Australian Prudential Regulation Authority (APRA) have signed a Memorandum of Understanding (MOU) that allows MAA and APRA to exchange information relating to the prudential supervision and solvency of general insurance companies. The MAA constantly monitors the financial stability of insurers, is in regular contact with APRA, and would be promptly alerted to any signs of significant financial concern in relation to any of the CTP insurers.

The current arrangement was put in place based on the recommendations of the HIH Royal Commission, which indicated the need for a single prudential regulator that had MOU arrangements with relevant individual State regulators. The Motor Accident Insurance Commission of Queensland has a similar MOU in place with APRA.

The MOU sets out a framework for cooperation between the two agencies in areas of common interest where co-operation is essential for the effective and efficient performance of their respective financial regulation functions. Under this protocol, the MAA requests and receives, on approximately a six-monthly basis, copies of (1) the CTP insurers' solvency coverage ratios which indicate the level of assets as against the capital required under APRA's Prudential Standards, (2) APRA assessments of the insurers' viability using the Probability and Impact Rating System

(PAIRS) and (3) from this year, MAA officers have commenced attending meetings with APRA's Company Analysts. The MAA is currently tendering for an actuary to assist the MAA in assessing APRA's reports and attending Analyst's meetings. The MAA and APRA have also committed to reviewing the current MOU.

The MAA also attends executive meetings with APRA and the Motor Accident Insurance Commission of Queensland, held approximately every six months, during which issues concerning the prudential supervision of CTP insurers and the general insurance industry are raised and discussed. At this forum, MAA would be ordinarily informed of major issues concerning NSW CTP insurers.

If the MAA is advised by APRA of a threat to the solvency of a CTP insurer that may be unable to meet its insurance liabilities, the Minister would be advised of such a threat, as soon as is practicable after being advised by APRA.

If the threat is determined to be significant, section 177 of the *Motor Accidents Compensation Act 1999* (the Act) allows MAA to "appoint an appropriately qualified person to audit or inspect, and report to the Authority on, the accounting and other records relating to the business or financial position of a licensed insurer ..."

In such a situation, the MAA would almost certainly consult APRA before appointing an inspector under section 177 of the Act. Upon receipt of the inspector's report, the MAA would as soon as practicable thereafter advise the Minister of the potential impact on NSW Treasury.

If the insurer is already insolvent, the Minister may also be advised of the MAA's need to obtain funding or to borrow such amounts as the Nominal Defendant considers are necessary to satisfy claims and judgements arising from or pertaining to third-party policies issued by an insolvent insurer.

Questions on Notice Arising from Public Hearings

- 3. Has the MAA been giving the Minister updates highlighting discrepancies in insurer profit projected in the filings versus the actual profits made?**

Response:

The Chief Executive Officer of the MAA and the Chairperson of the Motor Accidents Authority Board submits to the Minister, for presentation to the Parliament each year, an Annual Report summarising the Authority's performance and the outcomes achieved in administering the motor accidents scheme.

The Annual Report includes a Motor Accident Compensation Scheme Report which reports on the CTP insurers' prospective and realised profit by underwriting year.

The Authority provides reports and advice on the operation of the Scheme to the Minister on a regular basis.

4. How many premium filings has the MAA rejected and why?

Response:

The MAA has formally rejected proposed premium changes, or filings, on three occasions in the past two years for failing to comply with the Premium Determination Guidelines as required by the *Motor Accidents Compensation Act 1999*.

Two of the proposed changes were rejected due to the incomplete or insufficient information provided which did not allow the MAA, or its independent actuary, to make a fully informed decision about the proposal. The third rejection resulted from a change in the proposed profit margin being greater than the allowed variance from the insurer's previous filing.

The MAA confirms that the fourth rejection mentioned in the transcript was, upon verification, a situation where the MAA requested the insurer to review a filing, rather than have it rejected in the first instance, as it was deemed likely to be excessive.

As exemplified in the previous paragraph, formal rejections are very rare as the Authority, or its independent actuary, will often request explanations or extra information from insurers during the premium filing process that may result in them amending a filing to achieve compliance, rather than it proceeding and facing possible rejection.

5. Has a filing ever been rejected because it wasn't sufficient?

Response:

I am advised that no filing has been rejected because it was insufficient during the course of the current Scheme, which was established in 1999.

6. Turnaround time for matters at MAS.

Response:

The average time from lodgement of a MAS dispute to finalisation (whether an assessment of treatment, or permanent impairment, or a further assessment) was 119 working days in 2010/11, identical to last year. Since there is significant variation in lifecycles for the different dispute types, it is useful to consider the median duration, which for all types of disputes decreased from 104 working days last year to 98 working days in 2010/11.

Referral to an Assessor is generally deferred when there is a need to clarify the issues in dispute and/or obtain all relevant information. In a minority of cases a matter is deferred (for up to 6 months) because a MAS assessor has found the injuries to be not ready for assessment.

The median duration of the majority of MAS disputes that are not deferred has reduced to 89 working days for permanent impairment assessments (a reduction of 3 days since last year) and has remained stable at 97 working days for treatment disputes.

7. Could the MAA provide the Committee with a copy of the Permanent Impairment Guidelines that relate to the evaluation of scarring?

Response:

Attached to this document are two documents, the MAA Permanent Impairment Guidelines and Chapter 13 of the AMA Guide to the Evaluation of Permanent Impairment ("The Skin").

Please note that the MAA Permanent Impairment Guidelines gives specific direction as to how to use and interpret the AMA guides as well as specific advice on the assessment of scarring.

8. Could the MAA give more details on the calculation of the 5% discount rate? Has it proven adequate to date? Should IPART make recommendations in relation to the discount rate?

Response:

The discount rate applied in motor accident settlements is consistent with that applied in all other awards of lump sums in NSW personal injury schemes. For example, the *Civil Liability Act 1987* and the *Workers Compensation Act 1987* provide for the application of a discount rate of 5%, where another rate has not been prescribed by regulation.

The current discount rate of 5% is consistent with other Australian States and Territories which use discount rates generally between 5 and 6%.

The purpose of a set discount rate of the future economic loss component of a compensation award in a compensation scheme is to ensure that an appropriate long term average is used, avoiding the situation that a settlement, which is meant to last in the long term, is affected by short term fluctuations in interest rates.

The discount rate in the motor accidents scheme is determined under the legislation. Any change to the current arrangement for setting the discount rate would need to be addressed by Parliament. Any consideration of the use of IPART to regulate discount rates in the motor accidents scheme would ideally need to consider the implications for other personal injury schemes.

9. How many new entrants have there been to the CTP scheme in the last decade?

Response:

In the last decade, arising from the failure of HIH and subsequent reassignment of licences, there have been two new entrants to the NSW CTP Scheme – CIC Allianz Insurance Ltd and FAI Allianz Ltd. FAI Allianz Ltd subsequently withdrew from the Scheme in 2002.

10. What is the MAA doing to entice new insurers to the scheme?

Response:

The MAA has prepared Guidance Notes for potential applicants for a NSW CTP Licence. Several insurers not currently in the CTP market have been approached in the last two years and asked about their interest in entering the market. Due to a range of commercial in confidence reasons these insurers have decided at this point not to apply for a CTP licence.

11. Has the MAA made contact with Carers NSW in the last year or thereabouts?

Response:

Yes. The former General Manager of the MAA wrote to the Chief Executive Officer of Carers NSW on 13 August 2010 to seek a meeting to discuss the issues raised in Carers NSW submission to the tenth review. Although no reply was received to the letter, the MAA would be happy to again contact Carers NSW concerning their submissions to the Law and Justice Committee.

12. How long has Taylor Fry been the MAA's scheme actuary?

Response:

Since 1999, however, the MAA is currently in the process of tendering for actuarial firms for the various roles that are required by the compensation authorities through a competitive tender process that is being overseen by the State Contracts Board.

13. Why can't you aggregate WPI for physical impairment with WPI for psychological impairment?

Response:

It is important to remember the measurement is not of the injury itself, but rather the permanent impairment that results from the injury. One of the stated legislative objectives, and the purpose of the 10% impairment threshold, is to ensure that compensation is directed primarily to those who have suffered permanent and severe injuries.

Thankfully medical science and practice have advanced to the stage that the minority of injuries today result in significant permanent impairment. As all medical and related treatment expenses are paid for by the CTP insurer, the money is being directed appropriately to assist the injured person to recover.

If one could aggregate physical and psychological impairment, the result could be that someone with a relatively minor physical injury and a relatively minor psychological injury could be entitled to Non-Economic Loss (NEL). The two types of impairment are assessed separately – so that someone with a serious physical injury greater than 10% WPI is entitled to NEL, and someone with a serious

psychological injury greater than 10% is entitled to NEL, as indeed is someone who has both a serious physical injury AND a serious psychological injury. However someone who has neither a serious physical injury (>10%) nor a serious psychological injury (>10%) is not entitled to NEL.

14. Do any members of the Motor Accidents Council reside in regional areas of New South Wales?

Response:

One member of the Motor Accidents Council resides on the far South Coast.

15. How many late claims are made each year, how many are being disputed or rejected by insurers but are not coming to CARS for special assessment?

Response:

Under the *Motor Accidents Compensation Act 1999*, a claim must be made within six months of the accident, as an object of the Act is to encourage early and appropriate treatment and rehabilitation to achieve optimum recovery. A late claim may be accepted by the insurer if the claimant provides a full and satisfactory explanation for the delay in making the claim.

Over the past few years approximately 22% of claims (2,000) are being made after the six month period, after seven months this figure drops to between 8% - 12%. The vast majority of these are accepted by the insurer.

Approximately 150 – 200 late claim disputes per year are referred to CARS, currently less than 10% result in a finding that the late claim could not be made.

From the available data it is not possible to determine how many, if any, late claims are rejected by insurers but are not challenged through CARS.

The Urinary and Reproductive Systems

Introduction and approach to assessment

- 8.21 In general, Chapter 11 of the AMA 4 Guides (pp 249-262) provides clear methods for assessment of impairment in these systems.
- 8.22 For male and female sexual dysfunction, objective pathology should be present for an impairment percentage to be given.

The Endocrine System

Introduction and approach to assessment

- 8.23 Chapter 12 of the AMA 4 Guides (pp 263-275) will be used occasionally to assess impairment following motor vehicle accidents. Each endocrine organ or system is listed separately.
- 8.24 Where an impairment class defines a range of whole person impairment percentages the assessor should define a specific percentage impairment within the range described by the class that best describes the clinical status of the claimant.
- 8.25 Where injury has resulted in fat necrosis in the mammary glands this should be assessed using Chapter 13 (pp 278-289, AMA 4 Guides) The Skin.

Specific Interpretation of the AMA 4 Guides

- 8.26 Section 12.8 (p 275, AMA 4 Guides) with the title of Mammary Glands is superseded by the MAA Guidelines. **Total loss of one or both mammary glands is deemed to be an impairment of greater than 10% of the whole person.**

The Skin

Introduction and approach to assessment

- 8.27 Chapter 13 of the AMA 4 Guides (pp 278-289) refers to skin diseases generally. In the context of injury, sections 13.4 Disfigurement (p 279, AMA 4 Guides) and 13.5 Scars and Skin Grafts, are particularly relevant.
- 8.28 Disfigurement, scars and skin grafts may be assessed as causing significant permanent impairment when the skin condition causes limitation in performance of activities of daily living. Assessment should include a history that sets out any alterations in activities of daily living. The AMA 4 Guides (p 317) contains a Table of Activities of Daily Living.
- 8.29 A scar may be present and rated 0% whole person impairment.

Specific Interpretation of the AMA 4 Guides

- 8.30 Table 2 (p 280, AMA 4 Guides) provides the method of classification of impairment due to skin disorders. Three components, namely signs and symptoms of skin disorder, limitation of activities of daily living and requirements for treatment define five classes of impairment. The assessing physician should derive a specific percentage impairment within the range described by the class that best describes the clinical status of the claimant. All three criteria must be present. Impairment values are whole person impairment.
- 8.31 When using Table 2 (p 280, AMA 4 Guides) the assessor is reminded to consider the skin as an organ. The effect of scarring (whether single or multiple) is to be considered as the total effect of the scar(s) on the organ system as it relates to the criteria in Table 2.
- 8.32 Criteria for facial impairment are listed on page 229 of the AMA 4 Guides. Table 4 (p 230 AMA 4 Guides) provides whole person impairment scores for specific facial disfigurement.
- 8.33 For the purpose of assessing fat necrosis, Chapter 13 The Skin (pp 277-289), may be used by analogy, where appropriate.
- 8.34 The Table for the Evaluation of Minor Skin Impairment (**TEMSKI**) (Table 8.1) is an extension of Table 2 (p 280, AMA 4 Guides). The TEMSKI divides Class 1 into 5 categories of impairment. When an assessor determines a skin disorder falls into Class 1, the assessor must assess the skin disorder in accordance with the TEMSKI criteria.
- 8.35 The TEMSKI is to be used in accordance with the principle of 'best fit'. The assessor must be satisfied that the criteria within the chosen category of impairment best reflect the skin disorder being assessed. The skin disorder should meet most, but does not need to meet all, of the criteria within the impairment category in order to satisfy the principle of 'best fit'. The assessor must provide detailed reasons as to why this category has been chosen over other categories.
- 8.36 Where there is a range of values in the TEMSKI categories, the assessor should use clinical judgment to determine the exact impairment value.

Table 8.1 Table for the Evaluation of Minor Skin Impairment (TEMSKI)

Criteria	0% WPI	1% WPI	2% WPI	3 – 4% WPI	5 – 9% WPI
Description of the scar(s) and/or skin condition(s)	Claimant is not conscious or is barely conscious of the scar(s) or skin condition	Claimant is conscious of the scar(s) or skin condition	Claimant is conscious of the scar(s) or skin condition	Claimant is conscious of the scar(s) or skin condition	Claimant is conscious of the scar(s) or skin condition
(shape, texture, colour)	Good colour match with surrounding skin and the scar(s) or skin condition is barely distinguishable	Some parts of the scar(s) or skin condition colour contrast with the surrounding skin as a result of pigmentary or other changes	Noticeable colour contrast of scar(s) or skin condition with surrounding skin as a result of pigmentary or other changes	Easily identifiable colour contrast of scar(s) or skin condition with surrounding skin as a result of pigmentary or other changes	Distinct colour contrast of scar(s) of skin condition with surrounding skin as a result of pigmentary or other changes
	Claimant is unable to easily locate the scar(s) or skin condition	Claimant is able to locate the scar(s) or skin condition	Claimant is able to easily locate the scar(s) or skin condition	Claimant is able to easily locate the scar(s) or skin condition	Claimant is able to easily locate the scar(s) or skin condition
	No trophic changes	Minimal trophic changes	Trophic changes evident to touch	Trophic changes evident to touch	Trophic changes are visible
	Any staple marks or suture marks are barely visible	Any staple marks or suture marks are visible	Any staple marks or suture marks are clearly visible	Any staple marks or suture marks are clearly visible	Any staple marks or suture marks are clearly visible
	Location	Anatomic location of the scar(s) or skin condition is not clearly visible with usual clothing/hairstyle	Anatomic location of the scar(s) or skin condition is not usually visible with usual clothing/hairstyle	Anatomic location of the scar(s) or skin condition is usually visible with usual clothing/hairstyle	Anatomic location of the scar(s) or skin condition is usually visible with usual clothing/hairstyle
Contour	No contour effect	Minor contour effect	Contour defect visible	Contour defect easily visible	Contour defect easily visible
ADL / Treatment	No effect on any ADL	Negligible effect on any ADL	Minor limitation in the performance of few ADL	Minor limitation in the performance of few ADL AND exposure to chemical or physical agents (for example, sunlight, heat, cold etc) may temporarily increase limitation	Limitation in the performance of few ADL (IN ADDITION TO restriction in grooming and dressing) AND exposure to chemical or physical agents (for example, sunlight, heat, cold etc) may temporarily increase limitation or restriction
	No treatment, or intermittent treatment only, required	No treatment, or intermittent treatment only, required	No treatment, or intermittent treatment only, required	No treatment, or intermittent treatment only, required	No treatment, or intermittent treatment only, required
Adherence to underlying structures	No adherence	No adherence	No adherence	Some adherence	Some adherence

This Table uses the principle of 'best fit'. You should assess the impairment to the whole skin system against each criteria and then determine which impairment category best fits (or describes) the impairment. A skin impairment will usually meet most, but does not need to meet all, criteria to 'best fit' a particular impairment category

SOURCE: AMA Guides to the Evaluation of Permanent Impairment - FOURTH EDITION - 1995

Chapter 13

The Skin

This chapter provides criteria for evaluating the effects of permanent impairments of the skin and its appendages. These are considered especially in terms of the effects they may have on an individual's ability to carry out daily activities, including those related to employment.

Before using the information in this chapter, the reader should study Chapters 1 and 2 and the Glossary (p. 315), which discuss the general purpose of the *Guides*, the situations in which they are useful, basic definitions, and recommended methods for evaluating impairments. An impairment evaluation report, as explained in Chapter 2, should include information such as that shown below.

A. Medical Evaluation

- History of medical condition
- Results of most recent medical evaluation
- Assessment of current medical status and statement of further medical plans
- Diagnosis

B. Analysis of Findings

- Impact of medical condition on life activities
- Explanation for concluding that the condition is stable and unlikely to change
- Explanation for concluding that the individual is or is not likely to suffer further impairment by engaging in usual activities
- Explanation for concluding that accommodations or restrictions related to the impairment are or are not warranted

C. Comparison of Analysis with Impairment Criteria

- Description of clinical findings and how these findings relate to *Guides* criteria
- Explanation of each estimated impairment
- List of all impairment percentages
- Estimated whole-person impairment percentage

13.1 Structure and Functions

The components of the skin and its functions are shown in Table 1 (p. 278). The functions of the skin include (1) providing a protective covering; (2) participating in sensory perception, temperature regulation, fluid regulation, electrolyte balance, immunobiologic defenses, and resistance to trauma; and (3) regenerating the epidermis and its appendages.

Protective skin functions include, for example, barrier defenses against damage by chemical irritants and allergic sensitizers, invasion by microorganisms, and injuries by ultraviolet light. Temperature regulation involves the proper function of the sweat glands and the small blood vessels. The barrier defense against fluid loss is related to the intactness of the stratum corneum.

Permanent impairment of the skin is defined as any anatomic or functional abnormality or loss that persists after medical treatment and rehabilitation and

Table 1. Structure and Functions of the Skin.*

Structure or component	Function	Perturbations
Epidermis		
Stratum corneum	Barrier against microorganisms, chemicals, water loss	Infection, contact dermatitis, xerosis
Squamous and basal cells	Stratum corneum regeneration, wound repair	Squamous or basal cell carcinoma, ulceration
Melanocytes	Protection from ultraviolet radiation	Vitiligo, sunburn, hyperpigmentation, melanoma
Langerhans cells	Immune surveillance	Allergic contact dermatitis
Dermis		
Blood vessels and mast cells	Nutrition, thermoregulation, vasodilation	Ulceration, heat stroke, urticaria (contact, systemic), hand-arm vibration syndrome
Lymphatics	Immune surveillance, lymphatic circulation	Lymphedema
Nerve tissue	Sensory perception	Neuropathies, pain, itching, sensory changes
Connective tissue	Protection from trauma; wound repair	Hypertrophic and atrophic scars, scleroderma
Eccrine (sweat) glands	Thermoregulation	Heat intolerance
Sebaceous glands	Synthesis of skin surface lipids	Acne, chloracne, xerosis
Hair	Insulation, outward appearance	Folliculitis, alopecia
Nails	Manipulation of small objects	Paronychia, dystrophy, onycholysis, difficulty with grasping

*Modified from Mathias,⁵ Table 10-7, p. 138.

after a length of time sufficient to permit regeneration and other physiologic adjustments. A permanent impairment is unlikely to change in the near future. Impairments may relate, for instance, to immunobiologic defenses against microorganisms or to alterations of sensory perception because of a systemic disorder. Because the degree of a permanent impairment may change, the patient's impairment should be reevaluated at appropriate intervals.

Evaluations of cutaneous impairment must consider abnormalities of function of the skin's components as well as losses of function. Evaluation is usually possible through the exercise of sound clinical judgment based on a detailed medical history, a thorough physical examination, and the judicious use of diagnostic procedures. Laboratory aids include such procedures as patch, open, scratch, intracutaneous, and serologic tests for allergy; Wood's light examinations and cultures and scrapings for bacteria, fungi, and viruses; and biopsies.

13.2 Methods of Evaluating Impairment

In evaluation of a permanent impairment related to a skin disorder, the actual functional loss should be the prime consideration, although the extent of the cosmetic involvement also may be important. Impairments of other body systems, for instance, behavioral problems, restriction of motion or ankylosis of joints, and respiratory, cardiovascular, endocrine, or gastrointestinal tract disorders, may be associated with skin impairments. When there is a permanent impairment of more than one body system, the extent of whole-person impairment related to each system should be evaluated, and the estimated impairment percentages should be *combined* using the Combined Values Chart (p. 322) to determine the person's total impairment.

Manifestations of skin disorders may be influenced by physical and chemical agents that a patient may encounter. Avoidance of these agents, perhaps by changing occupation, might alleviate the skin disorder. Nonetheless, the presence of the disorder should be recognized, and it should be evaluated in accordance with the criteria below.

In determining the appropriate impairment class (Table 2, p. 280) for an affected individual, the physician should primarily consider the impact of the skin condition on the individual's daily activities. Likewise, the frequency and complexity of needed medical treatment may vary considerably. Both the frequency and the intensity of signs or symptoms, as well as the frequency and complexity of the needed medical treatment, may be used to determine the appropriate

percentage and estimate within any impairment class. In general, the more frequent and intense the symptoms and the more frequent and complex the medical treatment, the higher the estimated impairment percentage should be.

Impairment estimates or ratings for the skin generally should be expressed in whole numbers ending in 0 or 5, except for class 1 estimates, for which smaller increments may occasionally be justified.

This chapter includes several examples of impairment in each class to assist the physician in arriving at appropriate estimates of impairment percentages.

13.3 Pruritus

Pruritus is a subjective, unpleasant sensation and symptom that provokes the desire to scratch or rub and is frequently associated with cutaneous disorders. Pruritus is closely related to pain and is mediated by pain receptors and pain fibers when they are weakly stimulated. The itching sensation may be intolerable. Like pain, pruritus may be defined as a unique complex made up of afferent stimuli interacting with the emotional or affective state of the individual and modified by the individual's past experience and present state of mind.

The sensation of pruritus has two elements, peripheral neural stimulation and central nervous system reaction, that are extremely variable in makeup and time. The first element may vary from the absence of sensation to an awareness that stimuli are producing either a usual or an unusual sensation. The second element is modified by the person's state of attentiveness, past experience, motivation at the moment, and stimuli such as exercise, sweating, and changes in temperature.

In evaluating pruritus associated with skin disorders, the physician should consider (1) how the pruritus interferes with the individual's performance of the activities of daily living, including occupation; and (2) to what extent the description of the pruritus is supported by objective skin findings, such as lichenification, excoriation, or hyperpigmentation. Subjective complaints of itching that cannot be substantiated objectively may require referral or consultation.

13.4 Disfigurement

Disfigurement is an altered or abnormal appearance. This may be an alteration of color, shape, or structure, or a combination of these. Disfigurement may be

a residual of injury or disease, or it may accompany a recurrent or ongoing disorder. Examples of disfigurement include giant pigmented nevi, nevus flammeus, cavernous hemangioma, and alterations in pigmentation.

With disfigurement there is usually no loss of body function and little or no effect on the activities of daily living. Nevertheless, disfigurement may impair by causing social rejection or an unfavorable self-image with self-imposed isolation, life-style alteration, or other behavioral changes. If impairment due to disfigurement does exist, it is usually manifested by a change in behavior, such as withdrawal from social contacts, in which case it would be evaluated in accordance with the criteria in the *Guides* chapter on mental and behavioral conditions.

Impairments related to disfigurement or altered pigmentation should be evaluated in accordance with the criteria given in Table 2 (p. 280) and described later in this chapter. Descriptions of disfigurement are enhanced by good color photographs showing multiple views of the defects. The probable duration and the permanency of the disfigurement should be estimated.

The possibility of improving the condition through medical or surgical therapy, and the extent to which it can be concealed cosmetically, as with hairpieces, wigs, or cosmetics, should be described in writing and depicted with photographs if possible.

13.5 Scars and Skin Grafts

Scars are cutaneous abnormalities that result from the healing of burned, traumatized, or diseased tissue, and they represent a special type of disfigurement. Scars should be described by giving their dimensions in centimeters and by describing their shape, color, anatomic location, and any evidence of ulceration; depression or elevation, which relates to whether they are "atrophic" or "hypertrophic"; texture, which relates to whether they are soft and pliable or hard and indurated, thin or thick, and smooth or rough; and attachment, if any, to underlying bone, joints, muscles, or other tissue. Good color photographs with multiple views of the defect enhance the description of scars.

The tendency of a scar to disfigure should be considered in evaluating whether an impairment due to the scar is permanent. Another consideration is whether the scar can be changed, made less visible, or concealed. Function may be restored without improving appearance, and appearance may be improved without altering function.

Table 2. Impairment Classes and Percents for Skin Disorders*

Class 1: 0%-9% impairment	Class 2: 10%-24% impairment	Class 3: 25%-54% impairment	Class 4: 55%-84% impairment	Class 5: 85%-95% impairment
Signs and symptoms of skin disorder are present or only intermittently present; and There is no limitation or limitation in the performance of <i>few</i> activities of daily living, although exposure to certain chemical or physical agents might increase limitation temporarily; and No treatment or intermittent treatment is required.	Signs and symptoms of skin disorder are present; or intermittently present; and There is limitation in the performance of <i>some</i> of the activities of daily living; and Intermittent to constant treatment may be required.	Signs and symptoms of skin disorder are present; or intermittently present; and There is limitation in the performance of <i>many</i> of the activities of daily living; and Intermittent to constant treatment may be required.	Signs and symptoms of skin disorder are <i>constantly</i> present; and There is limitation in the performance of <i>many</i> of the activities of daily living that may include intermittent confinement at home or other domicile; and Intermittent to constant treatment may be required.	Signs and symptoms of skin disorder are <i>constantly</i> present; and There is limitation in the performance of <i>most</i> of the activities of daily living, including occasional to constant confinement at home or other domicile; and Intermittent to constant treatment may be required.

*The signs and symptoms of disorders in classes 1 and 2 may be intermittent and not present at the time of examination. The impact of the skin disorder on daily activities should be the primary consideration in determining the class of impairment. The frequency and intensity of signs and symptoms and the frequency and complexity of medical treatment should guide the selection of an appropriate impairment percentage and estimate within any class (see chapter introduction).

Skin grafts may be used to replace skin losses resulting from trauma or disease. Grafts commonly lack hair, lubrication, pliability, and sensation and demonstrate altered pigmentation. These changes affect the function and appearance of the site where the graft is placed. The altered lubrication, pliability, and sensation may result in diminished protection against microorganisms and diminished resistance to mechanical, chemical, and thermal trauma. The altered appearance may be significant, if the area involves exposed parts such as the dorsum of the hand, the face, or the neck.

If a scar involves the loss of sweat gland function, hair growth, nail growth, or pigment formation, the effect of such a loss on the performance of daily living activities should be evaluated.

Burns and scars may be evaluated according to the criteria in this chapter, with special consideration of the impact of the injury on the patient's daily activities. When the impairment resulting from a burn or scar is based on peripheral nerve dysfunction or loss of range of motion, it may be evaluated according to the criteria in *Guides* Chapters 3 and 4, provided appropriate guidelines exist in those chapters. If chest-wall excursion were limited, or if there were behavioral changes secondary to disfigurement, the chapters on the respiratory system or mental and behavioral conditions would be consulted.

If other chapters also were used to estimate the impairment from a patient's skin disorder, the skin disorder evaluation would *exclude* consideration of the components evaluated with those chapters. If impairment from a skin disorder is to be considered

along with a component based on any other organ system, both components first must be expressed as whole-person impairment percents and then *combined* using the Combined Values Chart (p. 522).

13.6 Patch Testing—Performance, Interpretation, and Relevance

Patch testing is not a substitute for an adequately detailed history. Nevertheless, when properly performed and interpreted, patch testing can make a significant contribution to the diagnosis and management of contact dermatoses.

The physician must be aware that patch testing can yield false-positive and false-negative results. Selecting the proper concentration of the suspected chemical, vehicle, site of application, and type of patch is critical in assuring the validity of the procedure. Making such selections and determining the relevance of the test results require considerable skill and experience.

A positive or negative patch test result should not be accepted at face value until the details of the testing procedures have been evaluated. Although appropriate test concentrations and vehicles have been established for many common sensitizers, for most chemicals in existence there are no established vehicle and concentration standards. Further details about patch testing and its pitfalls are discussed in standard texts, some of which are listed at the end of this chapter.

13.7 Criteria for Evaluating Permanent Impairment of the Skin

Class 1: Impairment of the Whole Person, 0% to 10%

A patient belongs in class I when (1) signs or symptoms of a skin disorder are present or only intermittently present; and (2) there is no limitation, or limitation in the performance of *few* activities of daily living, although exposure to certain chemical or physical agents might increase limitation temporarily; and (3) no treatment or intermittent treatment is required.

Example 1: A 48-year-old white man had been involved with the manufacturing of silver nitrate for 20 years. Five years ago he noted bluish discoloration of the inner canthi of his eyes, which progressed so that presently his sclerae, face, and arms were decidedly bluish and the unexposed skin showed a slightly bluish tint. Although the man was aware of these changes, they did not bother him. There was no loss of function or impairment in the performance of daily activities, and otherwise his health was good.

Physical examination disclosed the changes of the eyes described above and bluish pigmentation in the posterior nasal passages and around the turbinates and the fauces. The remainder of the physical examination was normal. Results of laboratory studies were normal, except that biopsy of the skin of the arm confirmed the diagnosis of argyria.

Diagnosis: Argyria.

Impairment: 0% impairment of the whole person.

Comment: If impairment from cosmetic disfigurement existed, it would be manifested by behavioral changes, which would be evaluated in accordance with the criteria set forth in the *Guides* chapter on mental and behavioral conditions.

Example 2: A 62-year-old man developed a lichenoid, purpuric dermatosis of the legs 3 years ago, and a biopsy was performed. He experienced no pruritus, and he received specific medication. Six months later an incomplete, annular, infiltrative lesion causing no symptoms developed in the right antecubital fossa. A biopsy established the diagnosis of mycosis fungoides. Results of thorough blood studies and bone marrow and liver biopsies were normal. The lesion responded completely to 300 rad (3 Gy) of x-ray therapy.

Diagnosis: Mycosis fungoides.

Impairment: 0% impairment of the whole person.

Comment: Mycosis fungoides (cutaneous T-cell lymphoma) is a slowly progressive malignant neoplasm that may recur, which may lead to increasing impairment.

Example 3: A 27-year-old man who worked for a small paint manufacturing company developed acute contact dermatitis of the hands and arms. He related the onset of the illness and exacerbations to the preparation of batches of latex paint. Patch testing revealed a strong allergic reaction to 0.1% petrolatum mixture of a nonmercurial preservative, 2-n-4-isothiazolin-3-1, which was used by the company in its latex paints. The patient was unable to avoid latex paint completely, and his dermatitis continued. When he left the company to seek other employment, the dermatitis resolved.

Diagnosis: Allergic contact dermatitis caused by a preservative.

Impairment: 0% impairment of the whole person.

Comment: The preservative to which the worker was allergic was manufactured for use in latex paints. While it was used widely in the paint manufacturing industry, it was not used in other industries where the worker might come into contact with it. He had no limitation in the performance of daily activities, and therefore his impairment was estimated at 0%. However, he might have been considered disabled under some state workers' compensation statutes.

Example 4: A 38-year-old woman sustained a 7 x 12-cm second-degree flame burn to her forearm, which healed spontaneously. She had no complaints, and there was no interference with daily living activities. Physical examination disclosed a 7 x 12-cm depigmented area of the arm, but the healed skin demonstrated normal pliability, lubrication, and sensation.

Diagnosis: Scarring caused by thermal burn.

Impairment: 0% impairment of the whole person.

Example 5: A 52-year-old janitor had episodes of transient dermatitis of the hand from the detergents he used in wet-work duties during a 13-year period. About 10 years ago, depigmentation developed on the sides of most of his fingers and over the dorsums of the hands and distal forearms. Recently, other areas of depigmentation became apparent on the upper torso and thighs. A physical examination confirmed these changes.

The janitor used a germicidal disinfectant that contained para-tertiary butyl phenol (TBP). Patch tests revealed a 2+ reaction to TBP 1% in petrolatum but not to other common industrial allergens. A month after the tests were performed, the site of the positive patch test became depigmented. Ultraviolet light therapy in combination with oral methoxsalen (PUVA therapy) failed to stimulate repigmentation during a 1-year period. Covering with cosmetics was unsatisfactory.

The janitor also was required to perform outdoor maintenance work. Sunburn frequently occurred in the areas of his skin that lacked pigmentation. Early actinic changes with wrinkling, bruising, and scaling of the skin were present. His increased susceptibility to sunburning required the regular use of protective sunscreens for outdoor work and other activities. Otherwise he had no impairment in performing activities of daily living.

Diagnosis: Allergic contact dermatitis and occupational leukoderma caused by a phenolic chemical, TBP.

Impairment: 5% impairment of the whole person.

Comment: This impairment estimate does not consider any impairment of the man's self-image or of social relationships, nor the effects these impairments might have on his future life—including his employment. Any behavioral changes, if present, would be evaluated in accordance with the criteria in the *Guides* chapter on mental and behavioral disorders (p. 291).

Example 6: A 25-year-old woman, who performed outdoor utility repairs, sustained a thermal burn on the left side of the face and arm. She required a 6 x 10-cm skin graft to the left forearm. She complained that numbness in the graft interfered with certain nonspecialized hand activities. She experienced intermittent pain of the left ear when she was outdoors in cold weather, especially when temperatures were below 20°F.

The pain constituted an annoyance that required warming of the ear with a cap or the placement of something warm over the area. Because of the hypopigmentation at the burn sites, she was required to wear sunscreen with a high sun protection factor. The atrophy and scaling of the left forearm required the regular use of a moisturizer.

Physical examination disclosed that the forearm graft was completely healed, showed only a protective reaction, and was atrophic and scaly. There was normal range of motion. The remainder of the skin on the left forearm and that of the left side of the face, including the ear, was hypopigmented, and its sensation was normal.

Diagnosis: Skin graft and hypopigmentation secondary to thermal burn.

Impairment: 5% impairment of the whole person.

Comment: The patient's numbness was related to the residual effects of the burn and graft and was not related to a peripheral nerve injury. Accordingly, neurologic assessment of the peripheral nerves was not necessary.

Example 7: A 35-year-old woman had a 10-year history of chronic urticaria (hives). She had never had life-threatening angioedema, nor had she needed to go to an emergency room because of related symptoms. Without treatment, the woman had urticarial lesions on the hands, face, or trunk daily, involving 10% to 20% of the body surface. When the lesions were on the hands, the swelling interfered with driving or with grasping objects. When the lesions were present, she had severe itching that interfered with sleep, sexual relations, and ability to concentrate on her work and housekeeping activities.

Physical examination, performed when the patient was taking a non-sedating oral antihistamine, indicated that the patient was free of urticarial lesions. Laboratory testing indicated 12% eosinophils in the blood smear (200 white blood cells counted).

Diagnosis: Chronic urticaria.

Impairment: 5% impairment due to urticaria.

Comment: With present treatment, the patient had no limitation in her daily activities. However, if the patient were treated with a sedating antihistamine, there might be limitation of her ability to perform certain activities, such as driving or participation in group activities, and the estimated impairment might need to be increased. Further, such treatment might have an impact on the patient's employability for certain jobs, a factor in disability. These considerations are discussed in Chapter 2 and the Glossary.

If a change in therapy became necessary, or if therapy at some future time no longer controlled the urticaria, a reevaluation would be indicated. For example, on the basis of the information given above, if the patient's urticaria could not be controlled, the estimated impairment due to her skin disease would be 20%.

Class 2: Impairment of the Whole Person, 10% to 25%

A person belongs in class 2 when (1) signs and symptoms of a skin disorder are present or intermittently present; and (2) there is limitation in the performance of some of the activities of daily living; and (3) intermittent to constant treatment may be required.

Example 1: A 28-year-old woman developed an eczematous eruption beneath the wedding ring on the fourth finger of her left hand shortly after the birth of her first child 6 years earlier. The eruption gradually spread to involve areas on several fingers of both hands, despite treatment and avoidance of the use of jewelry. The eruption persisted for several months, then subsided slowly. A severe flare-up of hand dermatitis occurred after the birth of a second child 2 years later.

At present, a chronic, low-grade dermatitis persisted despite special precautions. Intermittent treatment was required to control the dermatitis. The patient had no history of eczema, hay fever, or asthma, and no family history of atopy. Her general health was good, but the chronic hand dermatitis caused intermittent discomfort and limitation in the performance of some activities of daily living, such as dishwashing, childcare, and grasping.

Results of a physical examination and basic laboratory studies were normal except for scarring and lichenification. Patch tests performed with various food, household, cosmetic, and diagnostic and therapeutic materials were nonreactive.

Diagnosis: Chronic dermatitis of the hands, due to undetermined factors.

Impairment: 10% impairment of the whole person.

Comment: Although the patient's chronic dermatitis caused impairment of some daily activities and merited placement in functional class 2, the intermittent nature of the symptoms and the need for treatment warranted an impairment estimate of only 10%, at the lower end of the class 2 impairment range.

Example 2: A 43-year-old construction worker suffered a second-degree burn of the anterior part of the neck, which healed with hypertrophic scar formation involving an estimated 1% of the skin surface. The scar was quite susceptible to ultraviolet light, so the man had to wear sun blockers when he was outdoors. In addition, the scar was easily irritated and lacked durability, so he was unable to wear clothes that rubbed on his neck. He had intermittent episodes of itching and burning confined to the scarred areas, which temporarily caused him to stop all activities for periods of 5 to 10 minutes.

A physical examination indicated that the scar was raised, red, and hard and contrasted markedly with the adjacent normal skin. There was limitation of flexion and extension of the neck.

Diagnosis: Hypertrophic scar secondary to thermal burn; limitation of neck motion.

Impairment: 10% impairment of the whole person.

Comment: The skin impairment should be combined using the Combined Values Chart (p. 322) with the estimated impairment due to loss of motion of the neck (refer to *Guides* chapter on musculoskeletal system).

Example 3: A 25-year-old man who had a family history of "eczema" and "hay fever" had had a recurrent pruritic eruption since the age of 1 month, when it was characterized by oozing lesions of the face, scalp,

neck, and upper extremities. A diagnosis of infantile eczema was made shortly after onset. As a boy he had had periods of relatively complete remission, but even during these periods, lichenified patches in his antecubital, popliteal, and neck areas persisted. Exacerbations were severe during high school years and increased in frequency during college.

For the past several years, the man had suffered exacerbations approximately once per month, lasting 7 to 10 days and involving the shoulders, arms, hands, legs, and trunk. The exacerbations could be brought on by cold weather, sudden changes in environmental temperature, or stressful situations at home. During the exacerbations, the eczema limited some activities of daily living, and he had difficulty sleeping, washing dishes, and concentrating on his work as an accountant. During remissions, the lichenified dermatitis persisted in the antecubital and popliteal fossae and at the sides of the neck, but this was a minimal annoyance and did not significantly limit daily activities.

The eczema required intermittent application of topical steroid creams during relative remissions. When it flared up, constant application of topical steroids was required, as were antihistamines and oatmeal starch baths. Systemic steroids were required once per year to induce remissions.

Results of a physical examination with basic laboratory studies were normal, except that lichenified areas appeared at the lateral aspects of the neck and in the creases of the arms and legs.

Diagnosis: Atopic dermatitis.

Impairment: 15% impairment of the whole person.

Comment: Exacerbations of atopic dermatitis may be precipitated by a variety of excitants. The estimated impairment, 15%, is based on occasional interference with some activities of daily living. The frequency and severity of the signs and symptoms and the need for, and complexity of, medical treatment merit an estimate near the middle of class 2.

Example 4: A 30-year-old white man was employed in a rare-metals refining plant. He was inadvertently splashed with concentrated liquid zirconium chloride over the face, scalp, and neck. He was immediately washed and then taken to the hospital, where he remained for 2 days. Healing and epithelialization occurred without complications. He returned to work 22 days after the episode.

Months after the incident, the man noted that depigmentation of the splashed areas had begun to occur. He noted that the depigmented areas sunburned easily, causing considerable discomfort and restricting his ability to work outdoors or pursue other outdoor activities. Regular application of a sunscreen was necessary. Whenever the patient operated a

hot kiln or approached a furnace, the heat caused a marked stinging sensation within the affected skin areas, which was so intense that he had to stop all activities for 10 to 15 minutes until the pain subsided. Also, muscle twitching occurred within affected areas. Similar episodes might be provoked by hot showers or extremely warm days. Occasional muscle twitching and severe discomfort might occur within the affected areas and wake the patient from sleep once or twice a week. The patient experienced considerable embarrassment when attempting to explain his disfigurement, and he avoided many kinds of social activities in which he previously had participated.

A physical examination 1 year later showed that there had been no change in the patient's pigment loss, hyperesthesia, and intolerance to sunlight and warmth. There were well-demarcated areas of depigmentation on the right side of the face, extending from behind the right ear to the center of the face, and from the midtemple area of the scalp to the chin. There were smaller areas of depigmentation on the left side of the neck and behind the right ear. The maximum dimensions of the depigmented areas on the right side of the face were 16 x 11 cm. There were narrow collars of hyperpigmentation around the depigmented areas. Neurologic examination indicated that all of the depigmented areas were hypersensitive to cold, heat, pinprick, and touch, and for some of these areas, low-temperature stimuli were mistakenly identified as "hot" and "burning."

Diagnosis: Zirconium chloride burn and leukoderma with residual skin dysfunction.

Impairment: 20% impairment of the whole person.

Comment: The percentage of cutaneous impairment is based on the limitation of some activities of daily living. The frequent occurrence of intense signs and symptoms, which precludes the performance of various activities, merits a rating at the upper end of class 2 impairment. If effective medical treatment were available that could reduce the frequency and intensity of the signs and symptoms, then the estimated impairment percentage could be reduced. The behavioral changes exhibited by this patient should be evaluated according to the criteria described in the *Guides* chapter on mental and behavioral disorders (p. 291); any psychiatric impairment would increase the skin-related impairment.

Example 5: A 40-year-old woman purchased a sculptured-nail kit consisting of liquid methylmethacrylate monomer and powdered methylmethacrylate polymer. When mixed and applied to the fingernails according to directions, the chemicals formed a paste, which hardened to clear plastic resembling artificial nails. The woman's nails initially were

normal, but she eventually developed swelling and redness of the eponychial and paronychia areas with severe pain and paresthesia of all fingers. She lost the nails on all 10 fingers. When the acute inflammatory process subsided, the woman underwent patch testing and a positive result was found to 5% methylmethacrylate monomer in olive oil.

The patient was observed for several years, during which time none of her fingernails regrew. The nail beds were exposed and keratinized, and the paronychia areas continued to be swollen and tender. The paresthesia persisted, although the woman long before had stopped using the sculptured nail kit. She complained of difficulty grasping, cold sensitivity, burning, tingling, and a "pins and needles" sensation, especially when picking up small objects such as coins.

The woman also had difficulty with other non-specialized hand activities, which aggravated the symptoms and increased the paresthesia of the fingers. She typically applied adhesive bandages over petroleum jelly to her nail beds and wore gloves most of her waking hours. She was anxious and depressed and required an occasional psychiatric consultation.

Diagnosis: Chemically induced nail dystrophy and onychia.

Impairment: 20% impairment due to chemically induced nail dystrophy, which is to be combined using the Combined Values Chart (p. 322) with an appropriate value for the paresthesia (see the part on the hand in the *Guides* chapter on the musculoskeletal system) to estimate the whole-person impairment. A mental and behavioral impairment (Chapter 14, p. 291) might further increase the estimate.

Class 3: Impairment of the Whole Person, 25% to 55%

A patient belongs in class 3 when (1) signs and symptoms of the skin disorder are present or intermittently present; and (2) there is limitation in the performance of many of the activities of daily living; and (3) intermittent to constant treatment may be required.

Example 1: A 45-year-old man had had a persistent pruritic dermatitis involving the ankles, forearms, and hands, and occasionally the face and neck, for 6 years. The skin over these parts was excoriated and lichenified. He had had recurrent bouts of pyogenic infection, and on occasion regional lymph nodes had become swollen and tender.

At the time of onset, the man's work as a nurseryman included general greenhouse activity, such as planting, weeding, watering, fertilizing, and

spraying with numerous pesticides and antifungal agents. Some of the chemicals were found to be primary irritants. The man's dermatitis initially responded to topical therapy and the avoidance of irritants, but the condition would flare up after reexposure. Eventually, the symptoms did not subside with avoidance of incriminated agents and changing jobs, and neurodermatitis or the "itch-scratch syndrome" ensued. Warm environments, sweating, and stress provoked episodes of severe itching. The man had no history of a previous dermatologic problem.

Three years before examination, the patient began to have episodes of headache and memory loss and to note periods of tenseness and apprehension accompanied by nausea and vomiting. He was treated intermittently for the mental disturbances, and there was little improvement of the neurodermatitis.

The patient had not engaged in nursery work for the past 3 years. He found it difficult to tolerate other kinds of work, claiming that they made his dermatitis worse. He was gainfully employed no more than 6 months during the year. At home he was unable to perform household maintenance chores and to participate in social and recreational activities, and he experienced difficulty sleeping.

A physical examination disclosed the signs described above.

Diagnosis: Persistent neurodermatitis secondary to occupational contact dermatitis.

Impairment: 30% impairment due to the skin disorder, which is to be increased by an amount that is proportional to the estimated mental and behavioral impairment (see Chapter 14).

Example 2: A 28-year-old man had had acne vulgaris, hydradenitis suppurativa, and dissecting cellulitis of the scalp for the past 12 years. The condition only temporarily improved with conventional methods of treatment, which included topical and systemic antibiotics, intralesional corticosteroids, aspiration, marsupialization, using zinc sulfate, and two courses of isotretinoin. During the past 5 years he developed large cystic lesions, mainly involving the posterior scalp, face, neck, upper trunk, axilla, and inguinal area. The lesions were accompanied by fever and aching joints.

The man's skin was severely scarred. The large lesions on his back, chest, and scalp and in the inguinal area made it difficult for him to rest comfortably in warm weather. In the warm environment of the workplace and especially in the summer, clothing irritated his skin, causing a flaring of the cysts and sinuses. Sweating also aggravated the disorder. He had difficulty sleeping, participating in social and recreational activities, and maintaining regular employment.

Physical examination demonstrated the presence of inflamed cystic lesions located as described above. The white blood cell count was 22,000/mm³.

Diagnosis: Acne conglobata; hydradenitis suppurativa; dissecting cellulitis of the scalp; severe scar formation.

Impairment: 30% impairment of the whole person.

Example 3: A 44-year-old man sustained burns to the dorsum of both hands and both feet, which required grafting. The grafts healed well, but the man was bothered by dryness and cracking, and the grafts were easily injured by minor trauma and noxious chemicals. He bathed and shampooed with gloves on, because water and soap irritated his hands. He also had trouble grasping his toothbrush, comb, or writing instrument because of the cracking, decreased sensation, and stiffness of the skin. His feet were uncomfortable in leather shoes, and he wore cloth shoes. He had to use moisturizers constantly.

A physical examination disclosed that the grafts on the patient's hands and feet were dry, somewhat atrophic, and stiff.

Diagnosis: Scarring due to thermal burns.

Impairment: 30% impairment of the whole person.

Example 4: A 45-year-old white man developed an eczematous eruption on his left hand and arm during the spring 4 years ago. The eruption was treated effectively by admitting him to the hospital and giving topical medications. After he was discharged, the condition flared up, involving the right side of his face and neck and the left forearm to the bottom of his workshirt sleeve. The eruption responded incompletely to treatment but subsided in the fall. It returned the next spring but subsided during the winter.

During the next 2 years, up until the time of his impairment assessment, the eruption persisted perennially and was characterized as being erythematous and slightly scaling, with distinct borders and confluent patches involving the face, neck, and arms. It was learned that the eruption on the exposed area subsided to some degree when the man was away from work, but it flared up within a day after his return, even on the night shift. He worked in the warehouse of a paper box factory and handled only printed paper cartons. The work areas were illuminated exclusively by banks of fluorescent tubes contained in low-hanging fixtures.

A medical examination disclosed evidence of chronic dermatitis. There were no positive reactions from extensive patch tests with materials from the patient's work, home, or personal activities, or from those on the standard screening tray. The minimal

erythema dose was significantly decreased. Photopatch tests with halogenated salicylanilides and fragrances were negative. However, within 6 hours after he was exposed to 5 minutes of light from an 8-W fluorescent bulb, severe erythema and edema developed in the exposed area. Five days later, this area was eczematous. Results of tests for urinary porphyrins were within normal limits.

It was determined that the patient experienced severe photosensitivity. He had marked exacerbations of the persistent eruption when exposed to sunlight, even through window glass, and he could not go out during daylight hours or remain in rooms with natural light coming through the windows. He noted that the skin eruption was aggravated by exposure to light from fluorescent light sources. Thus, he was precluded from entering into many normal employment and social activities. He used topical corticosteroid medications on a continuing basis to maintain control, but even with the physician's care he could not eradicate the skin eruption, which remained itchy and unsightly.

Diagnosis: Persistent light reactor; with reactions elicited and aggravated by ultraviolet light and fluorescent light.

Impairment: 40% impairment of the whole person.

Example 5: About 22 months earlier, a 35-year-old man had developed a persistently sore mouth. An examination revealed many eroded lesions of the tongue and oral mucous membranes. The patient subsequently noted the appearance of vesicles and bullae over the face, trunk, and extremities. A diagnosis of pemphigus vulgaris was confirmed by laboratory studies. Oral corticosteroids were administered in high doses to control the disease.

The patient continued to have persistent blisters and erosions that resulted in chronic, unremitting pain on swallowing or attempting to speak. He was unable to eat solid foods, brush his teeth, speak above a whisper, or sleep at night. Because of the severity of the erosions and the skin fragility involving his mouth, trunk, and genital area, he was unable to have sexual intercourse. Azathioprine therapy was added to the high-dose corticosteroid regimen, but control of the disease was limited. The complex therapy for his illness required frequent visits to the physician for checkups and laboratory monitoring.

A physical examination disclosed infected bullae of the mouth and trunk and increased systolic blood pressure. Laboratory studies indicated leukopenia, believed to be the result of the therapy.

Diagnosis: Pemphigus vulgaris.

Impairment: 45% impairment.

Comment: The patient had interference with many activities of daily living because of the lesions and pain of pemphigus. Therapy led to leukopenia, which also should be evaluated in terms of impairment (see *Guides* chapter on hematopoietic system). The whole-person impairments of several organ systems would be *combined* using the Combined Values Chart (p. 322).

Example 6: A 22-year-old woman entered the hospital with fever, malaise, arthralgia, painful hands and feet, and marked erythema, bullae, and edema of the face and the back areas not covered by her bathing suit. She also had tender, red legs with several small ulcers, and she complained of abdominal pain and nausea. The acute episode had been precipitated by a trip to the seashore, where she had sunbathed for several hours.

A physical examination disclosed that the patient had erythema, edema, and scaling of exposed body areas; generalized annular, atrophic plaques involving the trunk; and atrophic plaques and bullae on her palms and soles. The liver was tender to palpation, and there was an apical systolic murmur. Funduscopic examination showed perivascular hemorrhages and fluffy exudates. Laboratory tests indicated hemolysis, leukopenia, hypocomplementemia, hyperglobulinemia, albuminuria, hematuria, a positive result of a lupus erythematosus cell test, and high antinuclear antibody titer.

Steroid therapy was begun, and the patient's condition responded well. However, the hematuria and albuminuria persisted, and maintenance steroid therapy was necessary. She remained tired most of the time, especially after slight exertion. Hydroxychloroquine and, later, dapsone therapy was begun for the severe cutaneous involvement with only partial improvement of lesions on the palms and soles. She continued to have considerable difficulty with grasping, standing, and walking.

Diagnosis: Systemic lupus erythematosus.

Impairment: 50% impairment due to lupus erythematosus, which is to be *combined* using the Combined Values Chart (p. 322) with appropriate impairment estimates related to the other involved systems, the hematopoietic, urinary, and visual systems.

Class 4: Impairment of the Whole Person, 55% to 85%

A patient belongs in class 4 when (1) signs and symptoms of a skin disorder are *constantly* present; *and* (2) there is limitation in the performance of *many* of the activities of daily living, which may include intermittent confinement at home or other domicile; *and* (3) intermittent to constant treatment may be required.

Example 1: A 55-year-old man, who had been employed for 30 years as a parts clerk at a construction company warehouse, severely injured his right leg in a crash that occurred during working hours. The injury was followed by a deep-vein thrombophlebitis of the right leg that required 6 months of total or partial bed rest in a hospital and at home.

After recovery the man began to work for a chemical company. He wore an elastic stocking, but his right leg began to swell more and more each day. Four days after starting work, he spilled a can of caustic drain cleaner, causing second- and third-degree burns over 20% of the right lower leg. He was hospitalized for 12 weeks until the burn healed, leaving a scar but no thickening or contracture.

After 4 months, the man returned to work at the chemical company, but in spite of using elastic support stockings and diuretics, the leg edema became intolerable. He was unable to stay on his feet for more than 4 hours at a time without significant swelling and discomfort. He began to develop stasis dermatitis with ulceration. Periodic treatment with Unna paste boots and occasional admissions to the hospital healed the ulcers only temporarily. He began to experience sleeplessness, and he could tolerate clothing over the leg only for 1 or 2 hours. After 5 years at the chemical company, he quit work and applied for workers' compensation benefits, alleging total disability. Thereafter he had to be hospitalized because of sepsis and persisting cellulitis.

At the time of evaluation, the patient had pitting edema of the right leg below the knee. A hypopigmented, atrophic, hyperesthetic scar extended from the mid thigh to the ankle and from the anterior midline around the thigh to the posterior midline. There was altered perception of pain and touch such that the slightest stimulation of the skin in the area of the scar was associated with marked discomfort. The dysesthesia was so severe that the patient could not tolerate clothing rubbing the scar. He had a 4 x 5-cm ulcer with a granulating base over the right medial malleolus. The surrounding skin was erythematous, and the patient had difficulty with weight-bearing because of pain from the ulcer.

Diagnosis: Postthrombophlebitis syndrome with stasis dermatitis and ulceration; scar formation secondary to chemical burn.

Impairment: 55% impairment of the whole person.

Comment: Future episodes of phlebitis, cellulitis, and ulceration are to be expected. Diligent medical care will be required indefinitely. In similar cases, a physician might be asked to apportion a percentage of the whole-person impairment to the crash injury and to the burn. Apportionment is discussed in Chapters 1 and 2 and the Glossary (p. 315).

Example 2: Raynaud's phenomenon had first been observed in a 38-year-old construction worker about 5 years previously. Four years ago, the worker had noted difficulty in swallowing, and then he had developed swelling and tightening of the skin of the fingers, with gradually worsening ulcerations on several digits of both hands. Dressing and feeding became progressively more difficult.

The patient had impairment of a number of the activities of daily living. He had to chop up his food to swallow it. He had difficulty with self-care and personal hygiene, including brushing his teeth, combing his hair, and dressing himself. He was unable to grasp hammers and screwdrivers at work because of the pain associated with finger ulcerations. On outdoor jobs in the winter, he had to carry a hand warmer and stop work frequently because of severe Raynaud's phenomenon. He had difficulty climbing a ladder and grasping the rungs.

A physical examination showed that the patient had increased pigmentation with telangiectasia, primarily on the face, forearms, and dorsal surface of his hands. He had a pinched facial appearance, and the skin over most of the body was hidebound and not easily movable. The chest excursion was limited. The fingers were held in flexion, and the patient had ulcerations on the distal phalanges of both index fingers. He was unable to extend his fingers because of stiffness, tightness, and pain.

The patient's weight was 20% below his desirable weight. A complete blood cell count was within normal limits, except for an erythrocyte sedimentation rate of 40 mm/h. Other findings were normal, except that roentgenographic examinations showed mild esophageal stenosis and disturbed peristaltic activity.

Diagnosis: Acrosclerotic scleroderma, mild stenosis of the esophagus, and flexion deformities of fingers with chronic ulcerations.

Impairment: 55% impairment due to scleroderma, which should be combined using the Combined Values Chart (p. 322) with appropriate impairment estimates for stenosis of the esophagus and flexion deformities.

Example 3: A 32-year-old white man was first admitted to the hospital because of a widespread pustular eruption associated with an acute conjunctivitis and severe arthritis of all joints of the hands, wrists, knees, ankles, and toes. The man stated that he had been in good health until 2 months before admission, when he had developed an erythematous, scaly eruption of the pretibial areas, which spread to involve the upper extremities and hand. He then developed

pain, swelling, and erythema of the knees and a sterile urethral discharge. The joints of the hands and feet were warm, red, and tender, with minimal swelling. Findings from a skin biopsy specimen were compatible with exudative psoriasis. He was treated with topical therapy, with no response, but his condition improved with systemic steroids and cytotoxic agents. At the time of discharge, the diagnosis was thought to be Reiter's syndrome, keratoderma blennorrhagica, or pustular psoriasis with psoriatic arthritis.

The man was rehospitalized 3 months later with an acute and severe exacerbation of his skin eruption, with severe pain, swelling, and deformity of all joints of his extremities. A skin biopsy specimen again was diagnostic of exudative psoriasis. Radiographic examination of the hands and wrists demonstrated marked demineralization of the carpal bones, the proximal and distal heads of the metacarpals, and the phalanges. Joint space narrowing and periosteal reactions were present in the metacarpal bones of both hands. Flexion deformities were present in both hands.

Oral doses of methotrexate only partially controlled the disease. The patient continued to have periodic flareups of arthritis and psoriasis that required hospitalization. Exacerbations of the disease with generalized pustulation involving the trunk, palms, and soles made it difficult for him to care for himself, stand, sit, walk, and drive. He had difficulty with grasping and tactile discrimination at work, and he was unable to have sexual intercourse.

Diagnosis: Pustular psoriasis with psoriatic arthritis.

Impairment: 60% impairment due to psoriasis, which should be combined using the Combined Values Chart (p. 322) with appropriate impairment estimates for limitations of joint motion and for any other involved organ system.

Comment: The clinical features of Reiter's syndrome and pustular psoriasis may overlap. Both may relapse and adversely affect the activities of daily living.

Example 4: A 25-year-old man had suffered burns over 85% of the total body surface area and smoke inhalation 3 years previously. Some areas healed spontaneously, and some required skin grafting. The man developed respiratory distress during the acute phase, which responded to pulmonary treatment. However, he could not work with heavy equipment, because his skin was fragile, dried, and cracked. When exposed to warm environments, the man became hot and dizzy because he was unable to perspire. He had marked difficulty with writing, walking, and non-specialized hand activities, because of scar formation that caused pain and decreased ranges of motion.

His ability to participate in group activities was greatly limited. He had no sexual relations after the injury and became short of breath with physical activity.

A physical examination disclosed that 85% of his body had healed atrophic scars, healed hypertrophic scars, and minimally atrophic skin grafts and donor sites. Several of the healed atrophic areas were depigmented, including some on the cheeks and the backs of the hands. There was partial destruction of the left ear, and the fingernails were distorted. He had a diminished range of motion of both hands.

Diagnosis: Extensive scarring due to thermal burns.

Impairment: 60% impairment of the whole person.

Comment: The skin (burn) impairment should be combined (Combined Values Chart, p. 322) with whole-person impairments due to loss of motion (Chapter 3) and pulmonary dysfunction (Chapter 5) and adjusted to consider any mental and behavioral impairment present (Chapter 14).

Example 5: A 56-year-old man was admitted to the hospital because of a generalized pruritic eruption. His condition had begun 20 years earlier with pruritic patches on the back and extremities. Despite topical therapy, the eruption gradually became generalized, and many patches became infiltrated plaques. Recently, nodular lesions and tumors developed. Past treatment included topical nitrogen mustard, PUVA, photophoresis, and electron beam therapy.

A physical examination showed a generalized eruption consisting of erythematous, scaly plaques, some of which were quite firm. There were many excoriations on the trunk and extremities and foul-smelling and draining nodular tumors on the face, palms, and soles. Palpable axillary and inguinal lymph nodes were present.

Laboratory tests were normal, except that examination of a skin biopsy specimen and an axillary lymph node confirmed the diagnosis of mycosis fungoides.

The patient was given a cytotoxic agent intravenously daily for 5 days, followed by oral doses of the same cytotoxic agent. The eruption was not controlled with the cytotoxic agent and radiation therapy. He was confined to his home and was unable to care for himself, walk, travel, grasp, or participate in sexual activity.

Diagnosis: Mycosis fungoides.

Impairment: 75% impairment of the whole person.

Comment: Tumor-stage, widespread mycosis fungoides requires close medical surveillance. Morbidity is considerable, and the prognosis is poor. There is interference with some activities of daily living, and most patients die within 2 to 5 years.

Class 5: Impairment of the Whole Person, 85% through 95%

A patient belongs in Class 5 when (1) signs and symptoms of skin disorder are *constantly* present; and (2) there is limitation in the performance of *most* of the activities of daily living, including occasional to constant confinement at home or other domicile; and (3) intermittent to constant treatment may be required.

Example 1: A 12-year-old girl had had photophobia for 8 years. At the age of 5 years, she had developed marked pigmentation of the sun-exposed areas of the face, chest, arms, and legs. Since then, she developed generalized freckling of the skin, several areas of telangiectasia, and multiple basal and squamous cell epitheliomas. The condition was progressing in severity, and the patient required continuous observation and treatment. She had been confined to the home for the past year.

A physical examination showed all of the signs described above. Basic laboratory findings were normal, and results of fecal and urinary porphyrin studies were negative.

Diagnosis: Xeroderma pigmentosum.

Impairment: 85% impairment of the whole person.

Comment: Xeroderma pigmentosum is a progressive disease, and the ultimate impairment approaches 100%, a fatal devolution. Metastatic carcinoma from squamous cell carcinomas or malignant melanoma may develop.

Example 2: A 19-year-old man had bullous lesions that had developed shortly after birth and had been present continuously since then, except for very minor and short remissions. Bullae appeared after the slightest trauma and, at times, without apparent trauma, and healed with severe scarring. The man requires continuous hospitalization.

Examination showed that the man's fingers were tapered stumps. Bullae were present constantly in the mouth and pharynx and probably extended to the epiglottis. His weight was 40% below the desirable weight for his height. Roentgenography showed a stricture of the esophagus.

Diagnosis: Epidermolysis bullosa dystrophica.

Impairment: 95% impairment due to epidermolysis bullosa dystrophica, which is to be *combined* (Combined Values Chart, p. 322) with impairment

estimates for the stricture of the esophagus and the fingers to determine the impairment of the whole person.

Comment: This autosomal recessive disorder is one of the most impairing of all hereditary diseases, and impairment approaches 100% and death. An impairment related to mental and behavioral factors may be present.

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