The Royal Children's Hospital, Melbourne

PAEDIATRIC ECZEMA NURSE PRACTITIONER

CLINICAL PRACTICE GUIDELINES

THE ROYAL CHILDREN'S HOSPITAL MELBOURNE

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This project would not have been completed without all the support and encouragement from the above mentioned people.

DISCLAIMER

The paediatric eczema nurse practitioner (PENP) clinical practice guidelines presented in this document were developed by the paediatric eczema nurse practitioner candidate and the PENP project officer to act as a general guide for the PENP use within the inpatient wards, emergency department, outpatients and eczema workshop of the Royal Children's Hospital (RCH), Melbourne. They detail the initial assessment and management of eczema patients referred to the PENP at the RCH, Melbourne.

These guidelines have been developed with consensus from the PENP project steering committee members. The committee is comprised of professional stakeholders from a variety of disciplines based within and outside the hospital.

The recommendations contained in these guidelines do not indicate an exclusive course of action, or serve as a standard of treatment for patients with eczema. Variations, taking individual circumstances into account, may be appropriate.

The authors of these guidelines have made considerable efforts to ensure the information upon which they are based is accurate and evidence based. Users of these guidelines are strongly recommended to confirm that the information contained within them, especially drug doses, is correct by way of other independent sources. The authors accept no responsibility for any inaccuracies, information perceived as misleading, or the success of any treatment regimen detailed in the guidelines

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GLOSSARY

Adverse Drug Reactions
An adverse drug reaction (ADR) is defined as a response to any medication that is undesired, unintended or unexpected in doses recognized in accepted medical practice.

Extended Practice
Registered nurses who are Masters prepared with 5 years or more experience in a specialised field. Registered nurses with extensive experience who demonstrate advanced clinical skills and the ability to extend their practice into areas outside the scope of the nursing role. The areas of extended practice include prescribing from a limited formulary, certification of leave of absence, authority to request pathology investigations, refer, admit and discharge patients within their scope of practice. Advanced nursing practice generally refers to an extended and multifaceted clinical Nursing role encompassing collaboration with other disciplines.

Lichenification
Refers to the thickening of the skin and accentuation of normal skin lines.

Medication
A medication is a therapeutic good (substance or preparation) that is represented to achieve (or is likely to achieve) its principle intended action by pharmacological, chemical, immunological, or metabolic means in or on the body.

Nurse Practitioner (NP)
A registered nurse educated for advanced practice who is an essential member of an interdependent health care team and whose role is determined by the context in which s/he practices. A registered nurse whose registration has been endorsed in accordance with section 8B of the Nurses Act 1993.

Nurse Practitioner Candidate (NPC)
A registered nurse participating in stage two of the nurse practitioner demonstration model funded by the Department of Human Services (DHS). The NPC is an advanced practice clinician working within a multidisciplinary team undergoing education to formalise extended practice and in preparation to apply for endorsement through the Nurses Board of Victoria.

Paediatric Eczema Nurse Practitioner (PENP)
A nurse practitioner whose scope of extended practice is limited to eczema management throughout The Royal Children's Hospital in Melbourne, Victoria.

Prescribing
The provision by a medical or other designated professional, after clinical assessment of a patient, of written instructions for the dispensing and administration of a therapeutic medication or remedy.

Telangiectasia
Refers to the abnormal dilation of capillary vessels and arterioles.

LIST OF ABBREVIATIONS

Abbreviation	Full title
AD	Atopic dermatitis, synonymous with atopic eczema
ADR	Adverse drug reaction
AHRQ	Agency for Healthcare Research and Quality (USA)
b.d.	Twice a day
CPG	Clinical practice guideline
DHS	Department of Human Services
DUC	Drug usage committee
GP	General practitioner
H.A.C.C.	Home and community care
M, C and S	Microscopy, culture and sensitivity
NHMRC	National Health and Medical Research Council
Nocte	At night
NP	Nurse practitioner
PENP	Paediatric Eczema Nurse Practitioner
PRN	When required
q.i.d.	4 times a day
RCT	Randomised controlled trial
RCH	The Royal Children's Hospital
SCORAD	Severity scoring of atopic dermatitis
t.d.s	To be taken three times a day.
TMM	Therapeutic medication management
UR	Unit record: the unique numeric identifier for each patient treated at The Royal Children's Hospital
URL	Uniform Resource Locator
US	United States

INTRODUCTION

Background

The Paediatric Eczema Nurse Practitioner (PENP) project was aimed at establishing benefits of and limitations to, implementation of an advanced practice nursing role specifically within assessment, management and care of paediatric eczema at The Royal Children's Hospital (RCH). The PENP model of practice was implemented as an extension of the Eczema Support Nurse role that allowed the Nurse Practitioner candidate (NPC) to work in collaboration with medical, nursing and allied health professionals. The project established that the PENP model is an effective mechanism for delivering high quality care for children with atopic dermatitis/atopic eczema (AD) and their families, and is both highly accessible and acceptable to patients, families and professionals within the organisation and the community.

The project has continued beyond evaluation of the PENP role to expand upon and further develop comprehensive clinical practice guidelines (CPG) (including extended practice) specifically for the PENP role at the RCH. The area of extended practice includes prescribing from a limited formulary, authority to request pathology investigation, certification of leave of absence, refer, admit and discharge the patient within the scope of practice. The PENP clinical practice guidelines have been developed to act as a general guide to appropriate practice specifically for the PENP role at the RCH, Melbourne, Australia. The aim is to provide information on which decisions can be made, rather than dictate a specific form of treatment. Professional judgment and experience in conjunction with professional peer guidance and support will direct individual patient management.

Steering Committee

At the commencement of the project, a steering group was established to guide the development of the PENP CPG. The steering committee is comprised of professional stakeholders from a variety of disciplines based within and outside the hospital. The multiplicity of professions allows for comprehensive feedback and input from a broad range of areas. Members are as follows:

- Mr Cameron Barnes, Manager, Health Information Services, Royal Children's Hospital, Melbourne.
- Ms Emma King, Dermatology Nurse Coordinator, The Royal Children's Hospital, Melbourne.
- Ms Jane English, Nurse Unit Manager, Skin and Cancer Foundation, Victorian Dermatology Nurse Group.
- Dr. Igor Jakubowicz, General Practitioner, Knoxfield Medical Centre, Melbourne.
- Professor Linda Johnston, Chair of Neonatal Nursing Research, The Royal Children's Hospital and The University of Melbourne.
- Ms Olive Lee, Project Officer, Paediatric Eczema Nurse Practitioner Project, The Royal Children's Hospital, Melbourne.
- Associate Professor Paul Monagle, Divisional Director, Division of Laboratory Services, Women and Children's Health.
- Ms Liz Moore, Dermatology Nurse Coordinator, The Royal Children's Hospital, Melbourne.
- Ms Cathie Nolan, Unit Manager, Outpatient Services, The Royal Children's Hospital, Melbourne.

- Dr Joanne Smart, Paediatrician/Immunologist, The Royal Children's Hospital, Melbourne
- Mr Sean Spencer, Divisional Director (Nursing), The Royal Children's Hospital, Melbourne.
- Ms Thirza Titchen, Deputy Director, Pharmacy, The Royal Children's Hospital, Melbourne.
- Dr George Varigos, Dermatologist, Department Head, The Royal Children's Hospital, Melbourne.

The steering committee for the April 2007 review is as follows;

- Mr Cameron Barnes, Manager, Health Information Services, Royal Children's Hospital, Melbourne.
- Ms Emma King, Dermatology Nurse Coordinator, The Royal Children's Hospital, Melbourne.
- Ms Jane English, Nurse Unit Manager, Skin and Cancer Foundation, Victorian Dermatology Nurse Group.
- Dr. Maria Cendana-Paiva, General Practitioner Consultant, Liaison Program-Kids Connect, The Royal Children's Hospital, Melbourne.
- Professor Linda Johnston, Chair of Neonatal Nursing Research, The Royal Children's Hospital and The University of Melbourne.
- Ms Olive Lee, Project Officer, Paediatric Eczema Nurse Practitioner Project, The Royal Children's Hospital, Melbourne.
- Associate Professor Paul Monagle, Divisional Director, Division of Laboratory Services, Women and Children's Health.
- Ms Liz Moore, Dermatology Nurse Coordinator, The Royal Children's Hospital, Melbourne.
- Ms Debbie Lindsey, Unit Manager, Outpatient Services, The Royal Children's Hospital, Melbourne.
- Dr Joanne Smart, Paediatrician/Immunologist, The Royal Children's Hospital, Melbourne
- Ms Jenni Jarvis, Executive Director Nursing Services, The Royal Children's Hospital, Melbourne.
- Mr Brian Lilley, Deputy Director, Pharmacy, The Royal Children's Hospital, Melbourne.
- Dr George Varigos, Dermatologist, Department Head, The Royal Children's Hospital, Melbourne.

Search Strategies

Best available evidence is defined as the research identified as least susceptible to bias. This is determined according to predefined National Health and Medical Research Council (NHMRC) criteria (Anonymous, 2000). First searches are for systematic reviews, evidence based clinical practice guidelines, health technology assessments and randomised-controlled trials. If relevant material of this type is found the search stops. Otherwise the search strategy broadens to include studies with designs that are more prone to bias and less generalisable. Included are non-randomized controlled trials, cohort studies, case control studies, time series, observational studies, case series, narrative reviews and consensus statements. However, these study designs may be too prone to bias to allow determination of their validity beyond their immediate setting. Stakeholder feedback and peer review of the draft guidelines will be sought and sent to national bodies for endorsement. Further to this, available evidence for management of eczema in children will be

awarded a type of evidence according to the NHMRC 'Hierarchy of Evidence' to assist with identifying strength of evidence for each management guideline (Appendix 1).

Guideline Appraisal

Outcomes from the evaluation project highlighted the changing nature of clinical practice particularly in response to technological advances and research. Clinical Practice Guidelines require continued validation to remain current and a model for this process will be implemented prior to endorsement to ensure guidelines remain current. The Agency for Healthcare Research and Quality (AHRQ) based in the United States (US) conducted a study to define the parameters for ongoing guideline evaluation (Shekelle et al, 2001). They identified 6 situations for guideline revision. These include changes in:

1. Available interventions
2. The evidence on the benefits or harms of existing interventions
3. The outcomes that are considered important
4. The evidence that current practice is optimal
5. The values placed on outcomes
6. Resources available for health care

The AHRQ study recognised guideline evaluation via systematic review to be the ideal method for evaluation and update. However, systematic review is the method adopted for initial guideline development and as such, applying this model for guidelines appraisal would be too costly and time consuming. The study identified expense and time requirements would outweigh the benefits of this model, therefore alternatives were sought. The final analysis concluded that more than three quarters of the AHRQ guidelines need updating, and as a general rule, guidelines should be reassessed for validity every 3 years (Shekelle et al, 2001).

The PENP proposes that the guidelines relating to this role will be reviewed triennially where no changes during that time are identified. There exists a paucity of evidence in relation to specific paediatric interventions and therefore, peer review is sought via feedback and endorsement for each guideline contained herein.

References

Anonymous. (2000). How to review the evidence: systemic identification and review of the scientific literature. Canberra: NHMRC.

Shekelle, P. G., Ortiz, E., Rhodes, S., Morton, S. C., Eccles, M. P., Grimshaw, J. M., & Woolf, S. H. (2001). Validity of the Agency for Healthcare Research and Quality clinical practice guidelines: how quickly do guidelines become outdated? JAMA., 286(12), 1461-1467.

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CLINICAL PRACTICE GUIDELINE 1: ADMISSION/DISCHARGE PRIVILEGES

"Admitting privileges refers to the authorisation of procedures and specific care within a facility for those nurses and midwives who have been granted clinical privileges" (DHS, Victoria, 1999, p.51).

1. Purpose

1.1. To provide a framework for PENP practice with regard to admission and discharge privileges.
1.2. To clearly outline parameters for PENP admission and discharge practice.

2. Anticipated Patient Outcomes

2.1. Potential admissions and discharges will be carried out in a safe, effective and timely manner through a process of multidisciplinary, collaborative approach, consultation, and forward planning.
2.2. All patients with conditions outside PENP scope of practice and/or experience will be referred to dermatologist/paediatrician for further assessment and treatment.

3. Responsibility

The PENP is responsible for assessing the appropriateness of admission and discharge process

4. Scope

4.1. To assess and treat patients at the RCH outpatient clinic, eczema workshop, emergency department and wards. Patients admitted via outpatient clinic, emergency department or eczema workshop will be admitted under the dermatology team with PENP name on bed card.
4.2. All admissions are based on patients' clinical need for care and treatment. This may be influenced by other special circumstances that relate to the patient. All admissions will be carried out in consultation with the dermatologist/paediatrician.
4.3. PENP will not treat but refer patients who are systematically unwell or may require oral/IV antibiotics to a dermatologist/paediatrician.

5. Search Strategies

Best available evidence is defined as the research identified as least susceptible to bias. This is determined according to predefined National Health and Medical Research Council (NHMRC) criteria (Anonymous, 2000). First searches are for systematic reviews, evidence based clinical practice guidelines, health technology assessments and randomised-controlled trials. If relevant material of this type is found the search stops. Otherwise the search strategy broadens to include studies with designs that are more prone to bias and less generalisable. Included are non-randomized controlled trials, cohort studies, case control studies, time series, observational studies, case series, narrative reviews and consensus statements. However, these studies designs may be too prone to bias to allow determination of their validity beyond their immediate setting. Stakeholder feedback and peer review of the draft guidelines will be sought and sent to national bodies for endorsement. Search keywords included "admission and discharge" or "admission privileges".

6. Knowledge

6.1. Enrol in an accredited Nurse Practitioner Master programme.
6.2. Maintain up to date knowledge within PENP scope of practice.
6.3. Understand the medical conditions being treated, their natural progress, how to assess the severity of disease, and disease management.
6.4. Understand the RCH Dermatology Department's admission and discharge policy and process.

7. Process

Admission
Thorough patient assessment and history to be taken prior to admission which includes:

7.1. History

- General history (including failure to thrive)
- Duration and history of eczema
- Possible triggering factors
- Period of worsening/flare
- Family history of eczema, asthma, hay fever (atopy)
- Previous consultation (e.g. dermatologist, naturopath)
- Past and present treatments/medications used and the impact of these
- Previous relevant diagnostic investigations and results
- Immunisation status
- The effect of itch on child's sleeping pattern
- Known allergies, reactions, and formal allergy testing
- Other illness
- Current diet, food eliminated in the past and effect of this
- Social circumstances/effect on family
- Compliance with treatment
- Name of general practitioner (GP) for correspondence
- Physical mobility

7.2. Examination
Nurse Practitioner assesses the severity of eczema by using the SCORAD index to measure the severity of disease that includes the following clinical features

- Xerosis (dryness)
- Erythema (redness)
- Excoriation (open wounds)
- Oedema
- Lichenification (thickening)
- Secondary infection (crust/weeping)
- Figure of person on clinical pathway to estimate % of surface area involved
- Parents assessment of severity of itch and sleep disturbance

Growth examination; in particular weight, height (growth chart).

7.3. Investigation

- Skin swabs of lesion for bacterial/viral culture as required (see CPG on pathology request)
- Nasal swab from patient and parents for bacterial culture as required (see CPG on pathology request)

7.4. Equipment

Appropriate forms to be completed for SCORAD, admission and pathology (for infection investigation).

7.5. Intervention

- Liaise with bed allocations officer, communicate with dermatologist/paediatrician, dermatology registrar, parents and appropriate clinical area and staff when a patient's condition warrants admission.
- Liaise with HACC (if patient is admitted under HITH/PAC) and provide appropriate documentation.
- Complete all documentation including reason for admission, eczema clinical pathway and management plan and discharge eczema treatment plan, and date of next review in a timely manner in the medical records and treatment chart.
- PENP will communicate with the dermatologist/paediatrician regarding the patient's ongoing treatment.
- PENP will thoroughly document assessment findings, pathology results requested and treatment in the medical record to ensure continuity of care.

7.5. Discharge

- PENP to organise discharge planning at the earliest and safest possible date to promote recuperation and prevent readmission to hospital, and to ensure a smooth transition home and links to community services providers when needed. (http://www.rch.org.au/intranet/policy/9W062006.htm) The discharge will be based on sound clinical judgment by the PENP and the treating team on consultation with the parents/guardians/child.
- Equipment:
- Appropriate forms (including correspondence letter) for discharge, equipment distribution card, eczema treatment plan and medication prescription.
- PENP to write an electronic discharge summary (care planning for a safe discharge- http://www.rch.org.au/discharge/assessment.cfm?doc_id=3359)
- PENP will organise referrals to Home and Community Care/Hospital in the Home for home management if necessary and liaise on discharge.
- PENP will provide a written copy of the RCH multidisciplinary care plan (see Appendix 2 or the following URL) to the referring GP prior to patient discharge if required (see CPG on referral). (URL: http://www.rch.org.au/emplibrary/rch_clinpath/ECZEMAPATH7.PDF)
- PENP will organise follow up appointment for the patient.
- PENP will organise equipment distribution card to obtain non-prescribed dressing and creams and a prescription to obtain prescribed therapeutic medication.

8. Outcome of the admission and discharge practice

Several factors may influence the outcome of the PENP admission and discharge practice:

- Timing
- Complexity of patient condition
- Appropriateness of the admission and discharge.

A review of PENP practice including admission and discharge practices will take place at the Clinical Practice Review meeting or the dermatology general meeting 18 months after the role is implemented. Peer feedback and education to act as a

baseline for an ongoing credentialing process regarding PENP advance practice including admission and discharge privileges.

9. Teamwork

9.1. Continual liaison within the multidisciplinary team to keep stakeholders informed and ensures optimal patient outcomes.

9.2. Where the patient condition is outside of scope of PENP knowledge or expertise, patient will be referred to appropriate medical practitioner for consultation or co-management.

9.3. Maintain peer support via ongoing clinical supervision to optimise PENP professional development through ongoing discourse and continued feedback.

10. References

Anonymous. (2000). How to review the evidence: systemic identification and review of the scientific literature. Canberra: NHMRC.

Care Planning for a Safe Discharge
(URL:http://www.rch.org.au/discharge/assessment.cfm?doc_id=3359)

The Royal Women Hospital Discharge Procedure
(URL:http://www.rch.org.au/intranet/policy/9W062006.htm)

The RCH Medical/dermatology Nurse Coordinator Checklist Eczema Clinical path
(URL:http://www.rch.org.au/emplibrary/rch_clinpath/ECZEMAPATH7.PDF)

Victorian Government of Human Services. (1999, p.51) Victorian Nurse Practitioner-Final Report of the Task Force Melbourne.

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CLINICAL PRACTICE GUIDELINE 2: PATHOLOGY REQUEST

1. Purpose

1.1. To provide a guide and reference for the PENP where pathology requests are required within the scope of the advanced practice-nursing role.
1.2. To outline PENP practice parameters with regard to pathology requests.
1.3. To be used only within the context of the PENP practice.
1.4. To outline the PENP authority to request skin swab ± nasal swab samples to be tested for microscopy, culture and sensitivity, and immunofluorescence.

2. Anticipated Outcomes

2.1. All specimens for investigation will be collected, labelled and dispatched as per the RCH Laboratory services Specimen Collection Handbook – (http://www.wch.org.au/labservices/specimen/).
2.2. Appropriate therapeutic management for all patients will be implemented in a timely manner.

3. Responsibility

The PENP is responsible for assessing the appropriateness of a pathology request.

4. Scope

4.1. PENP to assess and treat and/or refer patients to dermatologist presenting with signs and symptoms of eczema with secondary skin infection at the RCH dermatology clinic and other departments.
4.2. PENP will not treat but will refer patients who are systematically unwell i.e. febrile, or may require oral/IV antibiotics (see PENP Referral CPG).

5. Search Strategies

Best available evidence is defined as the research identified as least susceptible to bias. This is determined according to predefined National Health and Medical Research Council (NHMRC) criteria (Anonymous, 2000). First searches are for systematic reviews, evidence based clinical practice guidelines, health technology assessments and randomised-controlled trials. If relevant material of this type is found the search stops. Otherwise the search strategy broadens to include studies with designs that are more prone to bias and less generalisable. Included are non-randomized controlled trials, cohort studies, case control studies, time series, observational studies, case series, narrative reviews and consensus statements. However, these study designs may be too prone to bias to allow determination of their validity beyond their immediate setting. Stakeholder feedback and peer review of the draft guidelines will be sought and sent to national bodies for endorsement. Search keywords included: “pathology request”.

6. Process

PENP to initiate a thorough and detailed patient assessment and history including:
6.1. History:

- General history (including failure to thrive)
- Duration and history of eczema
- Possible triggering factors
- Period of worsening/flare
- Family history of eczema, asthma, hay fever (atopy)

- Previous consultation (e.g. dermatologist, naturopath)
- Past and present treatments/medications used (including over the counter medication) and the impact of these.
- Previous relevant diagnostic investigations and results
- Immunisation status
- The effect of itch on child's sleeping pattern
- Known allergies, reactions, and any formal allergy testing
- Other illness
- Current diet, food eliminated in the past and effect of this
- Social circumstances/effect on family
- Compliance with treatment
- Name of GP for correspondence
- Physical mobility

6.2. Examination:
Nurse Practitioner assesses the severity of eczema by using the SCORAD index to measure the severity of disease that includes the following clinical features.

- Xerosis
- Erythema (redness)
- Excoriation (open wounds)
- Lichenification (thickening)
- Oedema
- Secondary infection (crust/weeping)
- Figure of person on clinical pathway to estimate percentage of surface area involved
- Parents assessment of severity of itch and sleep disturbance
- Systemic examination, in particular weight, height (growth chart).

7. Knowledge

7.1. Extensive knowledge of paediatric dermatology, especially atopic eczema including: anatomy, physiology and pathophysiology of the same.
7.2. The RCH Pathology Policy and Practice Guideline.
7.3. The RCH Laboratory Services Specimen Collection Handbook – (http://www.wch.org.au/labservices/specimen/)

8. Assessment

8.1. Detailed patient history.
8.2. Identify signs and symptoms of eczema with secondary skin infection such as open wounds, itch, pustules, crusts, vesicles, erythema or weeping from the infected lesion.
8.3. PENP to notify dermatologist/paediatrician regarding pathology requests and seek feedback from multidisciplinary team regarding interpretation of results to ensure continuity of patient care.
8.4. All patient consultations are an opportunity to educate patients and carers. Therefore, reinforce strategies relating to optimal eczema management.
8.5. PENP will thoroughly document all relevant information as required by the RCH medical records policy and pathology guidelines.

9. Interventions

Initiating diagnostic tests (see also CPG 4)

Test	Equipment and technique
Superficial skin swab/s from the infected lesion for microscopy and culture and gram stain	Wipe the plain cotton swab stick to swab the affected area, smear on glass slide, and place the swab in Amies charcoal transport medium, label the swab and send to RCH bacteriology. The swab may be moistened with sterile normal saline if required. For gram stain, use plain cotton swab stick to swab the affected area, smear on glass slide, and place specimen in sterile container, and send to RCH bacteriology.
Nose swabs from child and parents for culture	Wipe the plain cotton swab stick to a nare and place the swab in Amies charcoal transport medium, label the swabs and send to RCH bacteriology. The swab may be moistened with sterile normal saline if required.
Superficial skin swab/s from the infected lesion for viral direct immunofluorescence and viral culture for HSV and other viruses	Wipe a plain cotton swab stick to swab the affected area, smear on glass slide, and place swab in viral transport medium and send to RCH virology (Monday – Friday and Saturday morning). If intact vesicles are present, break the vesicles with a 23 G needles or swab, and firmly swab the base of the lesion.
Superficial skin scraping from child for fungal examination	Take skin scraping with surgical blade or glass microscope slide, and place specimen in sterile container, and send to RCH bacteriology. Do not send sharps to the laboratory.

9.1. Following thorough assessment and prior to commencement of antibiotic therapy (where indicated) laboratory testing may be required to confirm the diagnosis. The PENP will refer patient to dermatologist/paediatrician for therapeutic medication management (e.g. antibiotics) where current management is unsuccessful or inappropriate for the patient at that time. Therefore skin swabs ± nasal swabs for microscopy, sensitivity and culture and viral direct immunofluorescence may be required.

9.2. PENP to notify dermatologist/paediatrician of all pathology requests/results and seek advice/ feedback from the team regarding interpretation and patient outcomes.

9.3. PENP consultations are approached in a holistic manner. All patients require individual management plans to be developed that may be altered according to treatment responses, and idiosyncratic situations. (See PENP Therapeutic Medications Formulary [TMM]).

9.4. PENP will determine treatment regime according to assessment outcome and in conjunction with patient/carer and peer consultation.

9.5. PENP will continue with or develop an alternative management plan (including referring patient to dermatologist/paediatrician for antibiotic prescription) based on the test results.

9.6. PENP is aware of own limitations and where a patient presents with a condition or problem outside the scope of his/her current practice, experience

and/or expertise, the PENP will refer patient appropriately to dermatologist/paediatrician (see CPG 5).

9.7. PENP is responsible for follow up, monitoring side effects and treatment effectiveness. Therefore, PENP will establish and maintain a plan for reviewing the therapeutic objective and completion of treatment in conjunction with the patient/family and multidisciplinary team.

10. Teamwork

10.1. Continual liaison within multidisciplinary team to keep stakeholders informed and ensures optimal patient outcomes.

10.2. Where patient condition is outside the scope of PENP knowledge or expertise, patient will be referred to appropriate medical practitioner for consultation.

10.3. Maintain peer support via ongoing clinical supervision so as to optimise PENP professional development and continued feedback.

11. References

Anonymous. (2000). How to review the evidence: systemic identification and review of the scientific literature. Canberra: NHMRC.

The Royal Children's Hospital Pathology Policy (URL: http://www.wch.org.au/intranet/policy/9W022012.htm)

The Royal Children's Hospital Laboratory services Specimen Collection Handbook (URL: http://www.wch.org.au/labservices/specimen/)

Victorian Government Department of Human Services (2000). Victorian Nurse Practitioner -Final Report of the Task Force Melbourne.

Policy Development and Planning Division. (URL: www.dhs.vic.gov.au/vnp)

Victorian Nurses Act 1993 (URL: http://www.dms.dpc.vic.gov.au/)

Victorian Therapeutic Goods Act 1994 (URL: http://www.dms.dpc.vic.gov.au/)

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CLINICAL PRACTICE GUIDELINE 3: SKIN/WOUND SWAB FOR MICROSCOPY, CULTURE AND SENSITIVITY AND/OR DIRECT IMMUNOFLUORESCENCE

1. Purpose

1.1. To outline the PENP authority to order pathology request for eczema patients with suspected secondary skin infections (bacterial or viral).
1.2. To ensure PENP follows the pathology department guideline for all requests.
1.3. To provide a guide and reference for the PENP to request skin/wound swab for M, C and S.
1.4. To provide a guide and reference for the PENP to request a gram stain slide and skin/wound swab for M, C and S.
1.5. To outline the parameters for PENP practice.
1.6. To be used only within the context of the PENP practice.
1.7. To ensure prompt treatment is provided for all patients and families treated by the PENP.
1.8. To determine the aetiology of a client's problem, forming a baseline from which to guide patient care and management.

2. Anticipated Outcomes

2.1. PENP may request gram stain slide analysis as a preliminary analysis of wound/skin bacterial colonisation, where an eczema patient present with suspected secondary skin infection.
2.2. PENP may request M, C and S for eczema patients presenting with suspected secondary skin infection.
2.3. PENP may request direct immunofluorescence on eczema patients presenting with suspected secondary skin infection.
2.4. PENP will accurately assess all specimen results and determine to continue with treatment regime, or develop an alternative management plan (including referring patient to dermatologist/paediatrician for antibiotic prescription) based on the test results and in conjunction with patient/carer and peer consultation.
2.5. PENP is responsible for follow up, monitoring side effects and treatment effectiveness. Therefore PENP will establish and maintain a plan for reviewing the therapeutic objective and completion of treatment.

3. Scope

3.1. PENP to assess and treat and/or refer patients to dermatologist presenting with signs and symptoms of eczema with secondary skin infection at the RCH dermatology clinic and other departments.
3.2. PENP will not treat but will refer patients who are systematically unwell e.g. febrile, or may require oral/IV antibiotics (see PENP Referral CPG 5).

4. Process

PENP to initiate a thorough and detailed patient assessment and history as per CPG 2 for Pathology Request.

5. Knowledge

Extensive knowledge of pathology/pathophysiology of eczema, and eczema associated complications, and interpretation of laboratory results, this will be achieved through tutorials from the RCH laboratory services and dermatologist.

6. Equipment

6.1. Labelled request slip.
6.2. Equipment for taking specimen.
6.3. Containers as required for specimens requested.
6.4. Patient identification labels.
6.5. Biohazard bag.

7. Interventions

7.1. Detailed patient assessment and history as per CPG 2 on pathology request.
7.2. Complete the clinical notes section of the request slip in detail.
7.3. Mark “URGENT” on the request slip where results are required urgently.
7.4. PENP to notify dermatologist/paediatrician of all pathology requests/results and seek advice/ feedback from the team regarding interpretation and patient outcomes.
7.5. PENP will thoroughly document all relevant information in the patient’s medical record.
7.6. PENP consultations are approached in a holistic manner. All patients require individual management plans to be developed that may be altered according to treatment responses, and idiosyncratic situations (See PENP TMM).
7.7. Provide information and explanation to patients/parents of all investigations, the purpose and expected outcome.
7.8. PENP is aware of own limitations and where a patient presents with a condition or problem outside the scope of his/her practice, the PENP will refer patient to paediatrician/consultant.

8. Collecting and Labelling Specimens

8.1. Place patient identification label on each pathology request slip. Where no labels on hand, ensure all identifying factors are included on the specimen and the request slip including:
- Patient’s unique record – UR number.
- Full name.
- Date of Birth.
- Patient’s address.
- Ward/location
- .Inpatient/outpatient.

8.2. Ensure the request includes the PENP location and contact number to which the result is to be sent or telephoned.
8.3. Pathology request slips must bear the printed name and signature of the requesting Nurse Practitioner and the dermatologist and/or treating paediatrician/GP.
8.4. Ensure patient identification details on request slip match and are correct prior to specimen collection.
8.5. Label the specimen immediately following collection, and check identification details with patient (and family).
8.6. Unlabelled or incorrectly labelled specimens will not be processed.
8.7. State date and time of specimen collection or container label and request slip.

9. Transfer to Laboratory

9.1. Place specimens in out-going specimen tray for pick up and delivery by Pathology courier during normal weekday hours (See CPG 2).

9.2. Check collection times as specimen may need to be refrigerated (See CPG 2).

10. Teamwork

10.1. Continual liaison within multidisciplinary team to ensure stakeholders are informed and to ensure continuity of care for optimal patient outcomes.

10.2. Where patient's condition is outside the scope of PENP knowledge or expertise, patient will be referred to appropriate medical practitioner for consultation.

10.3. Ongoing peer support and clinical supervision to ensure professional growth and feedback.

11. References

The Royal Children's Hospital Pathology Clinical Practice Guideline (URL: http://www.wch.org.au/intranet/policy/9W022012.htm).

Victorian Government Department of Human Services. (2000) Victorian Nurse Practitioner -Final Report of the Task Force Melbourne. Policy Development and Planning Division. (URL: www.dhs.vic.gov.au/vnp)

Victorian Nurses Act 1993 (URL: http://www.dms.dpc.vic.gov.au/)

Victorian Therapeutic Goods Act 1994 (URL: http://www.dms.dpc.vic.gov.au/)

*Adapted from The Royal Children's Hospital Pathology Collection Guideline.

CLINICAL PRACTICE GUIDELINE 4: LEAVE OF ABSENCE CERTIFICATION

1. Background

1.1. To provide a guide and reference for the PENP where leave of absence certification is requested, within the scope of the advanced practice-nursing role.
1.2. To outline PENP practice parameters with regards to leave of absence certification.
1.3. To be used only within the context of the PENP practice.

2. Purpose

To formalise and provide a guide and reference for the PENP to write and assess individual/families who require documentation confirming authorised leave of absence certification.

3. Responsibility

The PENP is responsible for assessing the appropriateness of when a leave of absence/medical certificate is to be issued and signed.

4. Scope

All eczema patients and their caregivers who are treated by The Royal Children's Hospital PENP.

5. Search Strategies

Best available evidence is defined as the research identified as least susceptible to bias. This is determined according to predefined National Health and Medical Research Council (NHMRC) criteria (Anonymous, 2000). First searches are for systematic reviews, evidence based clinical practice guidelines, health technology assessments and randomised-controlled trials. If relevant material of this type is found the search stops. Otherwise the search strategy broadens to include studies with designs that are more prone to bias and less generalisable. Included are non-randomized controlled trials, cohort studies, case control studies, time series, observational studies, case series, narrative reviews and consensus statements. However, these study designs may be too prone to bias to allow determination of their validity beyond their immediate setting. Stakeholder feedback and peer review of the draft guidelines will be sought and sent to national bodies for endorsement. Search keywords include: "sick leave" and "medical certificate".

6. Process

6.1. Patient/family must be seen by the PENP and, following consultation Leave of Absence Certification will be signed and dated and issued.
6.2. PENP will provide certification confirming date of attendance.
6.3. Client confidentiality will be maintained, as nature of medical condition will not be disclosed.

7. Key Performance Indicators

To demonstrate PENP competency, a review of all Leave of Absence certificates will be conducted through peer feedback one year following implementation the role.

* The leave of absence certificate must be an original copy.

8. References

Anonymous. (2000). How to review the evidence: systemic identification and review of the scientific literature. Canberra: NHMRC.

Bird, S., (2003) Sickness certificates. To write or not to write, Australian Family Physician, 32(4) pp251-3 Case Study

Nurse Board of Victoria. Pre-Implementation Report: The Nurse Practitioner. Melbourne. 2001

Victoria Medical Board Policy on Certificate Certifying Illness: (URL: http://medicalboardvic.org.au/pdf/MPBofV_Guide.pdf and http://medicalboardvic.org.au/levelTwo.php?ref=34&art=55&uid=2)

Victoria Government Department of Human Services. The Victorian Nurse Practitioner Project: final report of the Task force. Melbourne: Policy Development and Planning Division, Victorian Government Department of Human Services 2000.

Royal Children's Hospital

Parent / Guardian Attendance Certificate

This is to certify that

was required to attend this hospital on

Because his/her child was receiving treatment.

Date

This is an original copy of the leave of absence certificate.

Signed

Emma King

Paediatric Eczema Nurse Practitioner
Dermatology Department
The Royal Children's Hospital
Flemington Road, Parkville,
Victoria
Australia 3052

Royal Children's Hospital

Patient
Attendance Certificate

This is to certify that

Has been receiving medical treatment and attended this hospital on

He/she is not able to attend school / crèche / work until

Date

This is an original copy of the leave of absence certificate.

Signed

Emma King

Paediatric Eczema Nurse Practitioner
Dermatology Department
The Royal Children's Hospital
Flemington Road, Parkville,
Victoria
Australia 3052

CLINICAL PRACTICE GUIDELINE 5: REFERRAL TO DERMATOLOGIST/PAEDIATRICIAN AND OTHER RELEVANT HEALTH CARE PROFESSIONALS

The practice of sending a patient to another program or practitioner for services or advice which the referring source is unable to provide, is known as a medical referral. Laine and Turner (Laine & Turner, 1999) found that "patients in practices with policies that limited access to specialists were less satisfied than patients in practices with less stringent policies. Dissatisfaction was especially high when patients reported an unmet desire to see a specialist". It is therefore appropriate that where necessary, the PENP refers patient to other health professional in a timely manner.

1. Purpose

To provide a framework for PENP practice with regard to dermatologist/paediatrician and other health professional referrals.
To clearly outline parameters for PENP referral practice.

2. Anticipated Outcome

2.1. All patients with conditions outside PENP scope of practice will be referred to an appropriate dermatologist/paediatrician for diagnosis and treatment.
2.2. All patients seen by PENP will receive prompt treatment or referral to dermatologist/paediatrician for further assessment where the patient's condition is outside PENP scope of practice and / or experience.
2.3. All patients who require health service outside PENP scope of practice (e.g. dietician) will be referred to an appropriate health professional.
2.4. All patients who require continuous management at home will be referred to home and community care (HACC) and/or the local general practitioner.

3. Scope

3.1. PENP to assess and treat patients at the RCH emergency department, wards and Dermatology outpatient clinic and eczema workshop.
3.2. PENP will not treat patients who are systematically unwell e.g. febrile, or with a condition or problem outside the scope of PENP current practice, experience and/or expertise but will refer these patients to dermatologist/paediatrician.
3.3. PENP will refer patients to appropriate health professional inside and outside the RCH as required.
3.4. A provider number is needed on the referral letter. Current federal law does not grant NPs provider numbers, the dermatologist/paediatrician must therefore co-sign all referral letters initiated by the PENP.

4. Responsibility

Paediatric Eczema Nurse Practitioner at the RCH.

5. Search Strategies

Best available evidence is defined as the research identified as least susceptible to bias. This is determined according to predefined National Health and Medical Research Council (NHMRC) criteria (Anonymous, 2000). First searches are for systematic reviews, evidence based clinical practice guidelines, health technology

assessments and randomised-controlled trials. If relevant material of this type is found the search stops. Otherwise the search strategy broadens to include studies with designs that are more prone to bias and less generalisable. Included are non-randomized controlled trials, cohort studies, case control studies, time series, observational studies, case series, narrative reviews and consensus statements. However, these study designs may be too prone to bias to allow determination of their validity beyond their immediate setting. Stakeholder feedback and peer review of the draft guidelines will be sought and sent to national bodies for endorsement. Search keywords included "referral and consultation".

6. Knowledge

6.1. The PENP will refer where circumstances indicate further patient assessment, and/or expertise.
6.2. The American Medical Association include the following principles to direct the process for further medical consultation: Where case is difficult or doubtful.
6.3. Where the primary benefit is for the patient or at patient's/parents' request.

7. Intervention

7.1. A written summary of the case to be sent to dermatologist/paediatrician including history, assessment findings, outcomes, current treatment, test performed and results obtained ensuring all relevant information provided.
7.2. A written summary of the case to be sent to referring doctors including history, assessment findings, outcomes, current treatment, test performed and results obtained ensuring all relevant information provided.
7.3. A copy of clinical pathway (multidisciplinary care plan) (Appendix 2) to be sent to the referring GP when required.
7.4. A written summary of the case to be sent to other appropriate health professionals when required.
7.5. PENP will thoroughly document assessment findings and tests requested to ensure continuity of care and patient satisfaction. These are to be provided in a written letter format and via telephone subject to availability of dermatologist/paediatrician.

8. Process

8.1. Determine the question; the reason for patient presentation.
8.2. PENP will thoroughly assess patient.
8.3. Establish urgency for referral.
8.4. Dermatologist/paediatrician's provider number to be included with referral.
8.5. All documentation to be specific, precise and duplicated.
8.6. Provide contingency plans.
8.7. Consult with multidisciplinary team members for feedback.
8.8. Patient follow- up

9. Outcome

Several factors may influence the outcome of a referral:
9.1. Timing: "The optimal timing from generalists to specialists has not been established for most conditions" (Donohoe et al., 1999). Timing is therefore dependent upon patient need with regards to clinical condition in particular (i.e. stable, severe and/or worsening);
9.2. Complexity of patient condition;

9.3. Appropriateness of the referrals.

10. Key Performance Indicator

A review of PENP practice including referrals will take place at the Clinical Practice Review meeting or the dermatology general meeting. Peer feedback and education will act as a baseline for an ongoing credentialing process regarding PENP advance practice including referrals.

11. Teamwork

11.1. Continual liaison within multidisciplinary team to keep stakeholders informed and ensures optimal patient outcomes.
11.2. Where patient condition is outside of scope of PENP knowledge or expertise, patient will be referred to appropriate medical practitioner for consultation.
11.3. Maintain peer support via ongoing clinical supervision to optimise PENP professional development through ongoing discourse and continued feedback.

12. List of Referrals

- Dermatologist
- Paediatrician
- Allergist/Immunologist
- Dietician
- Education officer
- Home and Community Care
- Local general practitioner (GP)
- Maternal and Child Health nurse
- Occupational therapist
- Physiotherapist
- Psychologist
- Royal District Nursing Service
- Social worker

13. References

Albertson, G., Lin, C.T., Schilling, L., Cyran, E., Anderson, S., Anderson, J.A. (2002). Impact of a Simple Intervention to Increase Primary Care Provider Recognition of Patient Referral Concerns The American Journal of Managed Care 8 (4), 375-381. **Level IV.**

Cohn, S. L., (2003) The Role of the Medical Consultant The Medical Clinics of North America 87, 1-6 **Expert Opinion.**

Donohoe, M. T., Kravitz, R. L., Wheeler, D. B., Chandra, R., Chen, A., & Humphries, N. (1999). Reasons for outpatient referrals from generalists to specialists. Journal of General Internal Medicine., 14(5), 281-286. **Level III – 3.**

Grumbach, K., Selby, J.V., Damberg, C., Bindman, A. B., Quesenberry, C., Truman, A., Uratsu, C., (1999). Resolving the Gatekeeper Conundrum: What Patients Value in Primary Care and Referrals to Specialists. The Journal of The American Medical Association 282(3), 261-66. **Level III – 2.**

Kerr, E.A., Hays, R.D., Mitchinson, A., Lee, M., Siu, A.L., (1999). The Influence of Gate keeping and Utilisation Review on Patient Satisfaction. Journal of General Internal Medicine 14, 287-96. **Level III – 2.**

Laine, C., & Turner, B. J. (1999). The good (gatekeeper), the bad (gatekeeper), and the ugly (situation). Journal of General Internal Medicine., 14(5), 320-321.**Expert Opinion.**

Nurse Practitioner Referral Form

To:

Re:

Affix sticker or write child's name address and date of birth

Name:
Address:
d.o.b **UR:**

Clinical Details:

Signature:

Emma King
Paediatric Eczema Nurse Practitioner
Royal Children's Hospital
Flemington Road
Parkville, 3052
Ph: 9345 4803 pager 5611

Email: emma.king@rch.org.au
Date:

CLINICAL PRACTICE GUIDELINE 6: PRESCRIBING

1. Background

The Nurse (Amendment) Act 2000 allows for a suitably endorsed nurse practitioner to gain limited prescribing rights.

2. Purpose

2.1. To provide a comprehensive framework for PENP prescribing practice.
2.2. To outline the parameters for PENP practice with regard to prescribing medication clearly.
2.3. To ensure the role of the PENP is clearly defined and understood.
2.4. To implement PENP authority to prescribe medications and provide high quality and prompt treatment for patients and their families through the extended practice of the PENP at the Royal Children's Hospital.

3. Anticipated Outcomes

Medication prescribed in a safe and timely manner for all patients seen by PENP where indicated.

4. Classification of Medication

Inpatients		
	Classification of medication	Prescribing situation
1	Unscheduled, S2, S3	Can prescribe specific agents dependant on RCH Drug Usage Committee (DUC) approval
2	S4	Can prescribe specific agents dependent on RCH DUC approval, and also an approved Health Services permit amendment from the DHS*
3	Nurse initiated per RCH MR 52	Can prescribe stat dose as on the front of the MR 52. To prescribe more doses, refer to point 1 or 2 depending on the classification
Outpatients and on discharge		
3	Unscheduled, S2 or S3 item that is non PBS	Can recommend patient buys, no prescription needed, otherwise if the patient is s public patient the NP will prescribe the items in the PENP formulary and patients will obtain items from the RCH pharmacy.
4	Any PBS item (Unscheduled, S2, S3, S4)	A prescriber number is needed on the prescription at present the NP cannot currently get prescriber numbers for PBS prescribing. Therefore, a doctor may write a script, to enable the patient to access the PBS or alternatively for a public patient the NP can prescribe via the PENP formulary and the patient can obtain items at the RCH pharmacy.
5	S4 item, non PBS	A prescriber number is needed on the prescription at present the NP cannot currently get prescriber numbers for PBS prescribing. Therefore, a doctor may write a script, to enable the patient to access the PBS or alternatively for a public patient the NP can prescribe via the PENP formulary and the

		patient can obtain items at the RCH pharmacy.

5. Definitions

Unscheduled – supply is not restricted, can be bought over the counter e.g. Mylanta

5.1. S2 (Schedule 2) – Pharmacy medicine – available without a prescription from a pharmacy or a licensed person e.g. clotrimazole cream.

5.2. S3 (Schedule 3) – Pharmacist only medicine – available from a pharmacist without a prescription e.g. hydrocortisone 1% cream 30g.

5.3. S4 (Schedule 4) – Prescription only medicine – available from a pharmacist on prescription e.g. betamethasone cream.

5.4. DUC – RCH Drug usage Committee (see URL:www.wch.org.au/genmed/clinical.cfm?doc_id=2598).

5.5. Prescribing means writing an order for a medicine on the RCH medication chart (MR 52) for an inpatient, or on a PBS or RCH prescription form for an outpatient. The prescription becomes a record of medication prescribed and dispensed to the patient.

5.6. PBS – Pharmaceutical benefit Scheme – enables patients' subsidised access to medicines.

*This process is currently under review by the Department of Human Service, Drugs and Poisons Unit

6. Responsibility

Paediatric Eczema Nurse Practitioner at the RCH is responsible for prescribing medication for which he/she has received approval under the Victorian Drugs, Poisons and Controlled Acts.

PENP is responsible for asking parents/guardians/patients about all types of medications the patient is taking and documenting this in the patient medical record – this includes prescription medication, over the counter medication and complementary and alternative medicine, and medication allergy.

7. Scope

7.1. PENP is authorised to prescribe medication ONLY listed in PENP Limited Therapeutic Medication Management (TMM) Formulary.

7.2. In the event where condition is not improved as predicted despite a repeat prescription, the PENP will refer patient to dermatologist/paediatrician for treatment.

7.3. PENP to assess and treat patients known to the RCH dermatology department and patients referred by paediatricians from other departments within hospital presenting with signs and symptoms of eczema.

7.4. In the event of different diagnosis made by the PENP and the referring paediatrician, the PENP will refer the patient to the dermatologist.

8. Search Strategies

Best available evidence is defined as the research identified as least susceptible to bias. This is determined according to predefined National Health and Medical Research Council (NHMRC) criteria (Anonymous, 2000). First searches are for systematic reviews, evidence based clinical practice guidelines, health technology assessments and randomised-controlled trials. If relevant material of this type is found the search stops. Otherwise the search strategy broadens to include studies

with designs that are more prone to bias and less generalisable. Included are non-randomized controlled trials, cohort studies, case control studies, time series, observational studies, case series, narrative reviews and consensus statements. However, these study designs may be too prone to bias to allow determination of their validity beyond their immediate setting. Stakeholder feedback and peer review of the draft guidelines will be sought and sent to national bodies for endorsement. Keywords included: 'Nurse Practitioner and Prescribing' "Victorian legislation and hospital policies on prescribing of medications".

9. Process

A thorough patient assessment and history including: medical, surgical, allergy/co-morbidity history

Assessment

9.1. PENP makes a diagnosis and generates treatment options for the individual patient.

9.2. A comprehensive medical history to be established and SCORAD index is used to assess the severity of the condition. Where appropriate, referral to dermatologist/allergist/immunologist for allergy testing.

History

- General history (including failure to thrive, weight and height-growth chart)
- Duration and history of eczema
- Possible triggering factors
- Period of worsening/flare
- Family history of eczema, asthma, hay fever (atopy)
- Previous consultation (e.g. dermatologist, naturopath, GP)
- Past and present treatments/medications used and impact of these (including over the counter medication)
- Previous relevant diagnostic investigations and results
- Immunisation status
- The effect of itch on child's sleeping pattern
- Known allergies, reactions, and any formal allergy testing
- Other illness
- Current diet, food eliminated in the past and effect of this
- Social circumstances/effect on family
- Compliance with treatment
- Physical mobility
- Name of GP for correspondence

Examination

9.3. Nurse Practitioner assesses the severity of eczema by using the SCORAD index to measure the severity of disease that includes the following clinical features.

- Xerosis
- Erythema (redness)
- Excoriation (wounds)
- Lichenification (thickening)
- Oedema
- Secondary infection (crust/weeping)

9.4. Figure of person on clinical pathway to estimate percentage of body surface area involved.

9.5. Parent's assessment of severity of itch and sleep disturbance.

9.6. Systemic examination, in particular weight, height (growth chart), hydration and temperature

Intervention

9.7. Where TMM is indicated the PENP selects the most appropriate medication, dose, frequency of administration and formulation for the patient within her/his scope of practice. Inform dermatologist/paediatrician regarding proposed therapeutic medication management to ensure continuity of care and optimum patient outcomes.

9.8. PENP is responsible for follow up, monitoring side effects and treatment effectiveness. Establishes and maintains a plan for reviewing the therapeutic objective and completion.

9.9. Arrange for a doctor to prescribe the items (if the PENP may not legally do so).

10. Knowledge

10.1. Complete an accredited "Therapeutic Medication Module" for nurse practitioners – Masters Degree.

10.2. Maintain up to date knowledge within PENP scope of practice.

10.3. Understand the medical conditions being treated, their natural progress and how to assess the severity of disease.

10.4. Maintain a working knowledge of non-pharmacological and pharmacological options available, the desirable and undesirable outcomes and how these may be identified and assessed.

10.5. Understand the pharmacokinetics of medication and how the action of medications may be altered (e.g. by age, pre-existing conditions such as renal impairment) and therefore appropriate therapeutic medication management (TMM) is prescribed.

10.6. Understand the potential for side effects and adverse drug reactions (ADR's) and the ways in which to avoid or minimise them. These include drug interactions, special precautions and contraindications. Report all ADR's for any response to a drug that is undesired, unintended or unexpected in doses recognised in accepted medical practice. (See URL - Adverse Drug Reaction Report).

10.7. Maintain an up to date knowledge of all medication listed in the PENP formulary including available doses, formulations and how these are supplied.

10.8. Apply the principles of evidence based practice and cost effectiveness when prescribing.

10.9. Understand the public health issues related to medicines and their use.

10.10. Appreciate the misuse potential of medications.

10.11. Maintain an up to date knowledge of new therapeutic treatments.

10.12. Understand the RCH Medication Policy section 4.4 "Nurse Practitioners (or Nurse Practitioner candidates) can prescribe substances for which they have received approval under the Victorian Drugs, Poisons and Controlled Substances Act. Approval for Nurse Practitioners to prescribe specific medications must also be obtained from the RCH Drug Usage Committee".

10.13. Understand the role of the RCH Drug Usage Committee.

10.14. Understand the implications of the Drugs Poisons and Controlled Substances Act and Regulations.

10.15. Understand the classifications in the Standards for the Uniform Scheduling for Drugs and Poisons and how this regulates availability of medications, including prescribing and supply to hospital inpatients and outpatients.

10.16. Appreciate how the Pharmaceutical Benefits Scheme is used at the RCH and how this affects patient access to subsidised medications.

11. Communication

11.1. Understand the cultural, language and religious implications of prescribing.
11.2. Understand the meaning of disease to the patients and family. Patients/parents' emotions and concerns are fully considered and dealt with in a sensitive manner.
11.3. Understand patient/parents' outcome aims.
11.4. Ensure patients (where age appropriate) and parents/care givers understand nature of condition and provide a rationale regarding potential risks and benefits of treatment options.
11.5. Understand the patient's right to refuse medication/management. Assist patients (age appropriate) and parents/care givers to make an informed choice regarding their treatment.
11.6. Ensure the consultation outcome is negotiated and agreed upon by patient, parents/ caregivers, practitioner and where appropriate, multi-disciplinary team will be involved.
11.7. Ensure clear and comprehensive instructions are provided to patient and/or carers regarding medication. How, when and what to take including possible side effects are to be supplied.
11.8. Empower patients and carers through education, encouraging clients to take responsibility for their own health and to manage medical issues independently as much as is possible.
11.9. Check patient/carers understanding of related medical issues and commitment to suggested treatment management.
11.10. Understand and adhere to RCH policy on "privacy" (see URL- http://www.wch.org.au/intranet/policy/04001019.htm)

12. Prescribing

12.1. PENP to be familiar with and adhere to the RCH Medication Policy (URL: http://www.rch.org.au/policy_rch/?doc_id=6570).
12.2. PENP authority to prescribe medication is limited to the medications listed in the PENP limited TMM Formulary ONLY, and is currently restricted by legislation.
12.3. PENP is acutely aware of own limitations and works within those parameters.
12.4. PENP refers or seeks guidance from other team members regarding patient condition and treatment where problems outside of scope of practice exist.
12.5. Medications are only prescribed where PENP has adequate up to date knowledge regarding actions, indications, contraindications, cautions, dose and side effects.
12.6. Ensure safety and accuracy by thoroughly checking calculations and dosages.
12.7. Identifies and reports common medication errors and prevention of the same.
12.8. Documentation is accurate, concise and timely on all records and clinical documents.
12.9. Writes legibly, clear and complete prescriptions that meet legal requirements.
12.10. Accepts personal responsibility for own prescribing and understands the legal implications of doing so.
12.11. Makes prescribing decisions based on the needs of patients and not personal considerations.

12.12. Understands how current legislation affects and limits prescribing practice – See Victorian Drugs, Poisons and Controlled Substances Act 1981 and Regulations (URL: http://www.dms.dpc.vic.gov.au/).
12.13. Prescribes within current professional codes of practice.
12.14. Keeps up to date with advances in practice and emerging safety concerns related to prescribing.
12.15. Keeps prescription pads safely and knows what to do if they are stolen/lost (e.g. inform police, Department of Human Services and RCH pharmacy).
12.16. Be familiar with the Royal Children's Hospital "Guidelines for Good Prescribing Practice (Intranet URL: Guidelines for Good Prescribing Practice).
12.17. Report any suspected Adverse Drug Reactions (ADR) to the RCH ADR advisory committee.

13. Prescribing Practice

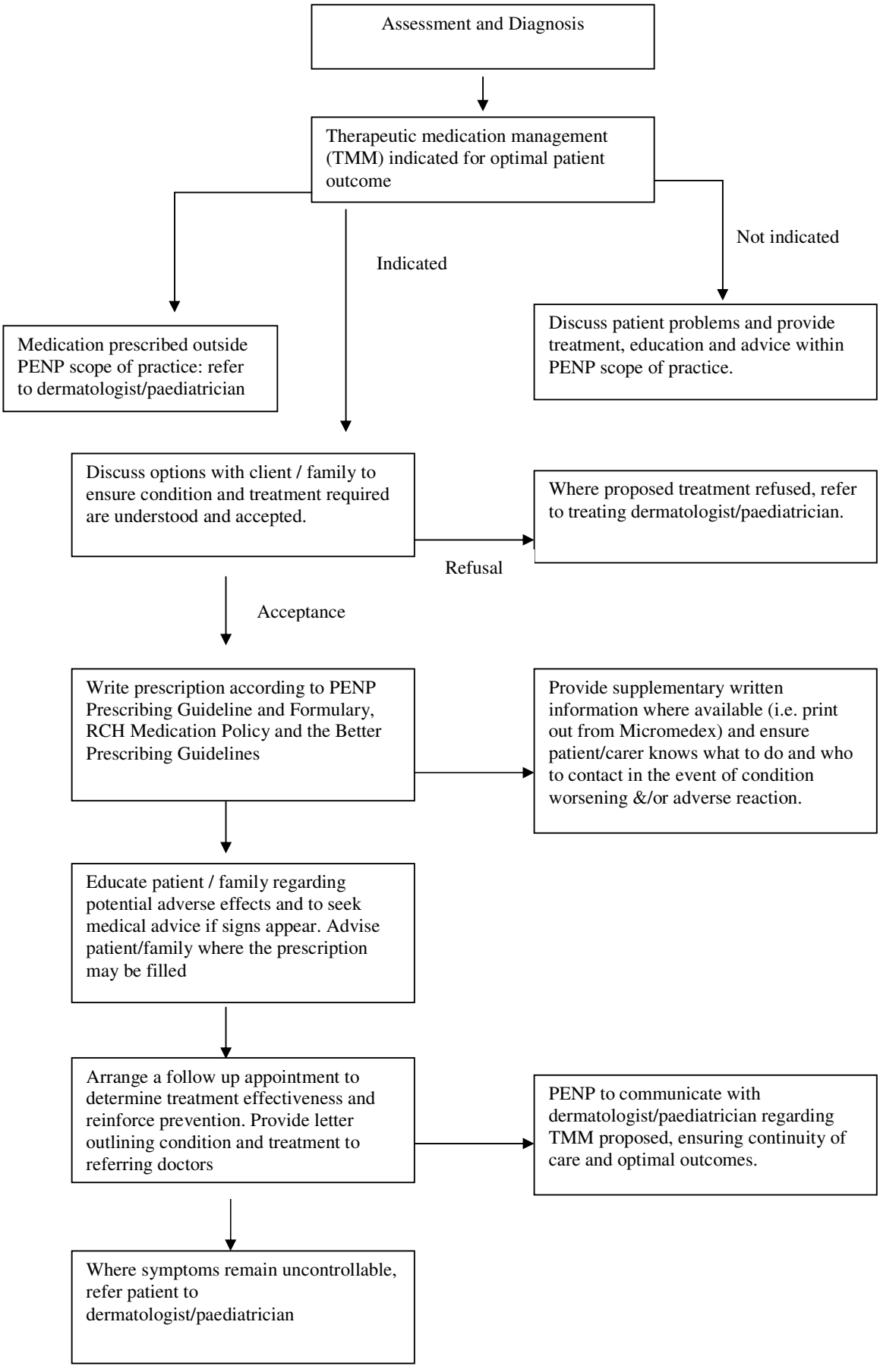
13.1. Before prescribing; record patient identification, weight, height & allergies.
13.2. Write legibly and print in capitals.
13.3. Calculate paediatric dose by weight or surface area.
13.4. Refer to current RCH Pharmacopoeia for prescription recommendations (URL: Paediatric Pharmacopoeia).
13.5. All prescriptions MUST include drug, dose, frequency, route, start date and prescriber's name (printed and signed). (Victorian Drugs, Poisons and Controlled Substances Act 1981 and Regulations URL: http://www.dms.dpc.vic.gov.au/).
13.6. PENP remains abreast of current prescribing practice, and is prepared to reassess and alter practice to ensure optimum prescribing principles are applied. Reflects upon own performance continually.
13.7. Demonstrates willingness to share and debate own and others prescribing practice and challenges inappropriate practice constructively.
13.8. Participates in clinical supervision and develops own support networks.
13.9. Establishes professional links with practitioners working in the same specialist field.
13.10. Refer to British National Health Service, National Prescribing Centre publication (2001) Maintaining Competency in Prescribing – An outline framework to help nurse prescribers 1st Edition. (URL: www.npc.co.uk).
13.11. Reviews and reports prescribing errors and near misses within a clinical governance context, therefore PENP to maintain familiarity with the RCH Accident/Incident Forms - Patient/Visitor (AIMS) Policy found at URL: http://www.wch.org.au/intranet/policy/05001006.htm.
13.12. Record ADR on the medical history, inform dermatologist if necessary, report ADR to the RCH ADR advisory committee.

14. Teamwork

14.1. To ensure continuity of care, PENP to maintain peer support networks through continued liaison with multidisciplinary team on a minimum weekly basis.
14.2. Maintains professional relationship with colleagues and multidisciplinary team based on understanding and respect for each other's roles.
14.3. Negotiates the appropriate level of support for the role as a nurse prescriber through ongoing peer review.
14.4. Provides support and advice to other prescribers where appropriate.
14.5. PENP to maintain a log of all therapeutic medications prescribed so as to enable audit/review of PENP prescribing practice.

14.6. Peer review to be maintained on a minimum monthly basis to optimise continued professional development and clinical outcomes.

Algorithm – PENP Prescribing



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British National Health Service (1999) Prescribing Nurse Bulletin Volume 1 Number 1

Paediatric Pharmacopoeia, 13th edition online, Royal Children's Hospital. Melbourne (URL: www.wch.org.au/pharmacy/intranet/pharmacopoeia)

RCH Policy on "Privacy" (URL: http://www.wch.org.au/intranet/policy/04001019.htm)

The Royal Children's Hospital Melbourne, *Women's & Children's Health Guidelines for Good Prescribing Practice Paediatric Pharmacopoeia* 13th Edition, 3. Women's and Children's Health. (URL: http://www.rchmelb.org/pharmacy/intranet/pharmacopoeia/pages/guideGoodPrescribe.html)

The Royal Children's Hospital Melbourne, *Women's & Children's Health Medication Policy* (URL: http://www.wch.org.au/intranet/policy/9P021001.htm)

Victorian Drugs, Poisons and Controlled Substances Act 1981 and Regulations (URL: http://www.dms.dpc.vic.gov.au/)

Victorian Government Department of Human Services. (2000) *Victorian Nurse Practitioner -Final Report of the Task Force Melbourne*. Policy Development and Planning Division. (URL: www.dhs.vic.gov.au/vnp)

Women and Children Health Adverse drug Report (URL: Adverse Drug Reaction Report)

CLINICAL PRACTICE GUIDELINE 7: THE PAEDIATRIC ECZEMA NURSE PRACTITIONER LIMITED THERAPEUTIC MEDICATIONS FORMULARY

(See also CPG for management of the child with atopic eczema/dermatitis)

The Paediatric Eczema Nurse Practitioner Limited Therapeutic Medication Formulary.

Topical Corticosteroids			
Constituent(s), form and presentation	Dose; Storage; Poison schedule	**Time to onset**	**Pharmacology; Uses/Indication; Contraindications; Precautions; Adverse Reactions; Drug Interactions**
Hydrocortisone acetate **Trade Name:** e.g. Sigmacort **Presentation:** Cream, 1% w/w: 30g, 50g Ointment 1% w/w: 30g, 50g	**Dose:** All ages: Applied twice a day to affected areas on the face and body. Increase usage when eczema flares; reduce the number of applications as eczema subsides. **Notes:-** Tachyphylaxis to topical treatment may occur, therefore best used intermittently once control is achieved. Consider bone mineral density assessment and periodic evaluation of hypothalamic/pituitary/adrenal (HPA) axis suppression for children receiving large and long-term doses of topical corticosteroids or any child supplemented with oral corticosteroid. **Storage:** Store below 25^{o} C **Poison schedule:** 30g S3, 50g S4 (RCH Paediatric Pharmacopoeia (2002) 13th Ed. pp136)	Absorption varies among individuals and loss of skin integrity will increase rate. Due to higher permeation properties of the skin and increased surface area to body mass ratio/risk of systemic absorption in children is increased.	**Pharmacology:** A mild corticosteroid (Potency; Group VII), it produces anti-inflammatory, immunosuppressive and antimiotic activity against fibroblasts and epidermal cells. They are also vasoconstrictive. **Use/Indications:** Non-infective inflammatory conditions of the skin, e.g. eczema. **Contraindications:** Rosacea, acne vulgaris, hypersensitivity to any component of the cream or ointment ulcerative skin conditions or impaired circulation, uncontrolled infection in the area to be treated e.g. acute herpes simplex, vaccinia, and varicella. **Precautions:** For external use only. Avoid contact with eyes. Prolonged and extensive usage may decrease resistance to infection and mask signs of infection. If infection of the skin is wide spread, suitable antiviral or antibacterial agents should be used first. Any occlusive dressing should be discontinued. If the infection does not respond promptly to therapy, corticosteroid therapy should be discontinued until the infection is controlled. Where very large areas are treated for long periods (e.g. atopic eczema), the possibility of systemic absorption exists, particularly if an occlusive dressing is applied. Prolonged use of large quantities of topical corticosteroids may also result in atrophic striae or acne eruption. If HPA-axis suppression is evident, withdrawal should be attempted and the frequency of application reduced. Manifestations of adrenal suppression in children include retardation of linear growth and delayed weight gain. Topical corticosteroid therapy in children should be limited to the minimum amount necessary for therapeutic efficacy. Long-term therapy in infants should be avoided as adrenal suppression may occur. Chronic topical steroid therapy may interfere with growth and development in children. Occlusive dressing or topical corticosteroid in nappy area should be used with caution because of the possibility of systemic absorption. **Specific Considerations:** *Relative potency, patient age, site and extent of disease, preparation type, method of application and length of treatment determine the incidence and severity of adverse effects. Hydrocortisone is a mild corticosteroid.* *Coexisting conditions:* Skin atrophy – increases systemic absorption and skin atrophy worsens; avoid use. Diabetes – systemic absorption increases blood glucose concentration; avoid extensive use. Impaired T cell function – systemic absorption results in immunosuppression; avoid extensive use. *Children:* Increased systemic absorption due to higher surface area/weight ratio. Skin permeability increased in neonates and infants. Consider a corticosteroid free period of at least 2 weeks after each 2-3 week period of daily use. **Adverse reactions:** *Common:* Folliculitis, steroid rosecea, perioral dermatitis, skin atrophy, delayed wound healing, striae, purpura, depigmentation, and telangiectasia. *Infrequent* – Allergic contact dermatitis. *Rare:* hyperaesthesia, subcutaneous skin atrophy, systemic effects (growth retardation, HPA suppression, hyperglycaemia, Cushing's syndrome, and cataracts). **Drug interactions**: Potential drug interactions are unlikely with topical therapy, occurring mainly with prolonged use or overuse. http://mims.hcn.net.au/ifmx-nsapi/mims-data/?MIval=MIMS_pi&product_code=1863&product_name=Sigmacort Australians Medicines Handbook, 2006.

The Paediatric Eczema Nurse Practitioner Limited Therapeutic Medication Formulary.

Topical Corticosteroids

Constituent(s), form and presentation	Dose; Storage; Poison schedule	Time to onset	Pharmacology; Uses/Indication; Contraindications; Precautions; Adverse Reactions; Drug Interactions
Methylprednisolone aceponate **Trade Name**: Advantan **Presentation:** Cream 1 mg/g (0.1%) 30g Ointment 1 mg/g (0.1%) 30g Fatty ointment 1 mg/g (0.1%) 15g Lotion 1 mg/g (0.1%) 20g * The base formulations of the various presentations influence the therapeutic effects	**Dose:** Apply sparingly once a day to the affected area on the body or twice a day if severe (max. 4 weeks in children). Reduce the number of applications as eczema subsides. Increase usage when eczema flares. **Notes:** Tachyphylaxis to topical treatment may occur, therefore best used intermittently once control is achieved. Consider bone mineral density assessment and periodic evaluation of hypothalamic/pituitary/adrenal (HPA) axis suppression for children receiving large and long-term doses of topical corticosteroids or any child supplemented with oral corticosteroid. **Storage:** Store below 25°C **Poison schedule:** S4 (RCH Paediatric Pharmacopoeia (2002) 13th Ed. pp136)	Absorption varies among individuals and loss of skin integrity will increase rate. Due to higher permeation properties of the skin and increased surface area to body mass ratio, risk of systemic absorption in children is increased.	**Pharmacology:** A potent steroid. The steroid receptor complex binds to certain regions of DNA, inducing anti-inflammatory, antipruritic and vasoconstrictive effects. **Use/Indications:** Inflammatory skin conditions Cream/Ointment /Fatty ointment: eczema, psoriasis. Lotion: eczema **Contraindications:** Rosacea, acne vulgaris, hypersensitivity to any component of the cream or ointment ulcerative skin conditions or impaired circulation, uncontrolled infection in the area to be treated e.g. acute herpes simplex, vaccinia, and varicella. **Specific Considerations:** *Relative potency, patient age, site and extent of disease, preparation type, method of application and length of treatment determine the incidence and severity of adverse effects. Hydrocortisone is a mild corticosteroid.* *Coexisting conditions:* Skin atrophy – increases systemic absorption and skin atrophy worsens; avoid use. Diabetes – systemic absorption increases blood glucose concentration; avoid extensive use. Impaired T cell function – systemic absorption results in immunosuppression ; avoid extensive use. *Children:* Increased systemic absorption due to higher surface area/weight ratio. Skin permeability increased in neonates and infants. Consider a corticosteroid free period of at least 2 weeks after each 2-3 week period of daily use. **Precautions:** Prolonged, extensive use; untreated bacterial, fungal skin lesions; systemic absorption; eye contact; pregnancy; lactation; children; occlusive dressing. Avoid long period of use in skin folds; medication should be discontinued if signs of hypersensitivity develop. If infection of the skin is widespread, suitable antiviral or antibacterial agents should be used first. Any occlusive dressing should be discontinued. If the infection does not respond promptly to therapy, corticosteroid therapy should be discontinued until the infection is controlled. Where very large areas are treated for long periods (e.g. atopic eczema), the possibility of systemic absorption exists, particularly if an occlusive dressing is applied. Prolonged use of large quantities of topical corticosteroids may also result in atrophic striae or acne eruption. If HPA-axis suppression is evident, withdrawal should be attempted and the frequency of application reduced. Manifestations of adrenal suppression in children include retardation of linear growth, delayed weight gain. Topical corticosteroid therapy in children should be limited to the minimum amount necessary for therapeutic efficacy. Long-term therapy in infants should be avoided as adrenal suppression may occur. **Adverse reaction:** Local itching, burning, erythema, vesiculation; possible adrenal suppression, local atrophy, telangiectasia, striae. **Drug interaction:** No specific information exists on interactions with other medications. http://mims.hcn.net.au/ifmx-nsapi/mims-data/?MIval=MIMS_pi&product_code=3191&product_name=Advantan Australians Medicines Handbook, 2006, pages 319- 320.

The Paediatric Eczema Nurse Practitioner Limited Therapeutic Medication Formulary.

Topical Corticosteroids			
Constituent(s), form and presentation	**Dose; Storage; Poison schedule**	**Time to onset**	**Pharmacology; Uses/Indication; Contraindications; precautions; Adverse Reactions; Drug Interactions**
Mometasone furoate cream **Trade name:** e.g. Elocon, Novasone **Presentation:** Cream, Ointment, 1 mg/ml (0.1%): 15g, 45g Lotion: 1mg/mL (0.1%) 30 ml	**Dose:** Apply thinly to the affected area, once a day for a usual maximum of 4 weeks. **Notes:** Dermatologist consultation advisable if using on the face, and then only for short periods. Review frequently. Tachyphylaxis may occur therefore best used intermittently once control is achieved. **Storage:** Cream and lotion store below 25 ^{o} C. **Poison schedule:** S4 (RCH Paediatric Pharmacopoeia (2002) 13th Ed. pp136)	Absorption varies among individuals and loss of skin integrity will increase rate. Due to higher permeation properties of the skin and increased surface area to body mass ratio risk of systemic absorption in children is increased.	**Pharmacology:** Potent corticosteroid (cream-Group IV, ointment – group II), mometasone furoate is a synthetic corticosteroid exhibiting anti-inflammatory, antipruritic and vasoconstrictive properties. **Use/Indications**: Inflammatory skin conditions. Short-term (up to 4 continuous weeks) relief of corticosteroid responsive inflammatory, pruritic skin conditions, e.g. psoriasis, atopic dermatitis, seborrhoeic dermatitis. **Contraindications:** Hypersensitivity to any component of the cream or ointment; tuberculous, fungal or viral skin infections; acne rosacea; perioral dermatitis; ulcerative conditions. **Specific Considerations:** *Relative potency, patient age, site and extent of disease, preparation type, method of application and length of treatment determine the incidence and severity of adverse effects. Hydrocortisone is a mild corticosteroid.* *Coexisting conditions:* Skin atrophy – increases systemic absorption and skin atrophy worsens; avoid use. Diabetes – systemic absorption increases blood glucose concentration; avoid extensive use. Impaired T cell function – systemic absorption results in immunosuppression; avoid extensive use. *Children:* Increased systemic absorption due to higher surface area/weight ratio. Skin permeability increased in neonates and infants. Consider a corticosteroid free period of at least 2 weeks after each 2-3 week period of daily use. **Precautions:** Eye contact; infection; prolonged, extensive use; occlusive dressing; pregnancy; lactation; children; medication should be discontinued if signs of hypersensitivity develop If infection of the skin is wide spread, suitable antiviral or antibacterial agents should be used first. If the infection does not respond promptly to therapy, corticosteroid therapy should be discontinued until the infection is controlled. Where very large areas are treated for long periods (e.g. atopic eczema), the possibility of systemic absorption exists, particularly if an occlusive dressing is applied. Prolonged use of large quantities of topical corticosteroids may also result in atrophic striae or acne eruption. If HPA-axis suppression is evident, withdrawal should be attempted and the frequency of application reduced. Manifestations of adrenal suppression in children include retardation of linear growth, delayed weight gain. Topical corticosteroid therapy in children should be limited to the minimum amount necessary for therapeutic efficacy. Long-term therapy in infant should be avoided as adrenal suppression may occur. **Adverse reaction:** Pruritus, burning, tingling/stinging; skin atrophy; acneiform reaction has been reported in less than 5% of patients. **Less common reactions** (< 1% of patients): erythema, furunculosis, dermatitis, abscess, aggravated allergy, increased lesion size, disease exacerbation, paraesthesia, dry skin, pimples, folliculitis and papular and pustular formation. **Drug interaction:** No specific information provided by MIMS on interactions with other medications. http://mims.hcn.net.au/ifmx-nsapi/mims-data/?MIval=MIMS_pi&product_code=2754&product_name=Elocon Australians Medicine Handbook, 2006, pages 319- 321.

The Paediatric Eczema Nurse Practitioner Limited Therapeutic Medication Formulary.

Topical Coal Tar Preparations			
Constituent(s), form and preparation	**Dose; Storage; Poison schedule**	**Time to onset**	**Pharmacology; Uses/Indication; Contraindications; Precautions; Adverse Reactions; Drug Interactions**
LPC 2-5% (Liquor picis carbonis) – **Presentation:** cream or ointment	**Dose:** LPC preparations are usually applied topically to the affected area at nocte. LPC is commonly mixed with olive oil in either sorbolene cream or zinc cream/paste at the RCH. **Notes:** The tar creams are only used on the trunk and limbs that are lichenified, but not on the face or flexures folds. Coal tar may permanently stain clothing. **Storage:** Keep out of reach of children, store away from heat and direct light, and keep the medicine from freezing. **Poison schedule:** Unscheduled **Note:** LPC preparations are made on request by RCH and community pharmacies. http://www.wch.org.au/intranet/policy/9P043002.htm	Immediate.	**Pharmacology:** Coal tar is a mixture of organic compounds that contains significant amounts of polycyclic hydrocarbons. The exact mechanism of action is unclear. Tars suppress DNA synthesis, reduce epidermal thickness, are antipruritic, and may be weakly antiseptic. **Use/Indications:** Coal tar is used to treat eczema, particularly chronic or lichenified areas, stable chronic plaque psoriasis, seborrheic dermatitis, dandruff. **Contraindications:** Inflamed, broken skin, infections, allergy to coal tar, conditions characterised by photosensitivity e.g. lupus erythematous, polymorphic light eruption (coal tars are photosensitising), unstable psoriasis, absence of beneficial use when used previously, weeping eczema, hypersensitivity to coal tar, and presence of folliculitis or acne vulgaris. **Specific considerations:** *Coexisting conditions:* Treatment with photosensitising medications – increases the risk of phototoxic reactions; avoid combinations. *Children:* Safety and efficacy of coal tar preparations have not been established. Should not be used in children < 2 years, except under the direction and the supervision of a dermatologist. **Precautions:** Avoid contact with eyes, avoid exposure to sunlight for at least 24 hours, do not apply coal tar preparation (other than bath emulsions) to genital or rectal areas, skin flexures or face, do not apply to acutely inflamed skin. **Adverse reaction:** Coal tars are generally safe, but messy and unpleasant. *Common:* mild stinging. *Rare:* folliculitis, irritant reactions, allergic reactions, photosensitivity, acneiform eruptions. *Staining:* May stain skin and hair and clothing. *Carcinogenicity:* Evidence is conflicting. Some epidemiological studies have raised the possibilities of skin malignancies in patients with psoriasis with very high exposure to tar and or ultraviolet radiation. Other studies have found no conclusive evidence of this. **Counselling:** Avoid contact with eyes. May stain skin, hair and clothes. Completely remove coal tar preparations before exposure to sunlight. **Practice points:** Use low concentrations of coal tar solution (0.5-1%) on face, flexures and genitals to reduce potential for irritation. Patient acceptance may be poor due to the messiness, smell and staining properties. http://micromedex.hcn.net.au Australians Medicines Handbook, 2006, pages 321-322.

The Paediatric Eczema Nurse Practitioner Limited Therapeutic Medication Formulary.

Topical Coal Tar Preparation			
Constituent(s), form and preparation	**Dose; Storage; Poison schedule**	**Time to onset**	**Pharmacology; Uses/Indication; Contraindications; Precautions; Adverse Reactions; Drug Interactions**
Hamiltons Eczema cream **Active ingredients:** Coal tar solution 3%, dimethicone 2.5%, zinc oxide 10%; mixed parabens, paraffin in a cream base **Presentation**: cream 100g	**Dose:** Apply topically 2 to 3 times daily or as directed. **Storage:** Store below 30^{o}C **Poison schedule:** Unscheduled	Immediate.	Pharmacology: **See LPC** **Use/Indications:** relief of redness, itching and burning in the treatment of eczema and dermatitis. **Contraindications:** See LPC **Precautions:** See LPC **Adverse reaction:** See LPC http://mims.hcn.net.au/ifmx-nsapi/mims-data/?MIval=MIMS_pi&product_code=1716&product_name=Eczema+Cream

The Paediatric Eczema Nurse Practitioner Limited Therapeutic Medication Formulary.

Topical Emollients			
Constituent(s), form and preparation	**Dose; Storage; Poison schedule**	**Time to onset**	**Pharmacology; Uses/Indication; Contraindications; Precautions; Adverse Reactions; Drug Interactions**
Moisturisers: • Sorbolene and 10% Glycerine • Liquid paraffin 50%, soft white paraffin 50% • QV cream • QV kids balm • Aqueous cream • Dermaveen lotion • Dermeze **Preparation:** Cream, Lotion, Ointment.	**Dose:** Apply regularly, usually 3-4 times a day. Applied to all skin areas as needed. **Notes:** The choice of emollient is based on the child's skin reaction to the emollient and the parents' preference. **Storage:** Store below 30ºC. For Dermeze store below 25ºC. **Poison schedule:** Unscheduled	Immediate.	**Pharmacology:** Moisturisers fall into 2 main categories, humectants and emollients, depending on the mechanism by which they improve skin hydration. Ideally they should be free from common contact allergens e.g. parabens. Smooth the roughened surface of the stratum corneum. *Humectants* attract transepidermal water to the stratum corneum and retain it, e.g. glycerine, polyethylene glycols, propylene glycol. *Emollients* are thought to moisturize the stratum corneum by filling the spaces between dry skin flakes with oil droplets. Some have an occlusive effect and will reduce transepidermal water loss. Soft paraffin is the most occlusive and therefore is the best emollient, however it is greasy and may preclude patient use. **Use/Indications:** Relieve symptoms of dry skin and optimise skin hydration. **Contraindications:** Hypersensitivity to product. **Adverse reaction:** Burning or stinging sensation. **Counselling:** For best results apply creams and ointments to damp or wet skin. Apply from to top to toe, not just eczematous areas. http://micromedex.hcn.net.au (moisturisers) Marks, R. How to measure the effects of emollients, Journal of Dermatological Treatment (1997) 8; S15-S18
Bath oils/washes/treatments: • QV wash • Dermaveen wash • QV shower balm • QV bath oil • Hamilton bath oil • Hamilton wash • Dermaveen bath treatment • Dermaveen oil • Oilatum bath oil **Preparation:** Oil, powder.	**Dose:** Add 1 capful (minimum) to a cool bath (<29 ºC), bd. **Notes:** The choice of bath/shower wash is based on the child's skin reaction to the preparation and the parents' preference. **Storage:** Store below 30º C. **Poison schedule:** Schedule 1	Immediate.	**Use/Indications:** Use in the treatment and prevention of dry skin conditions. **Contraindications:** Hypersensitivity to product. **Adverse reaction:** No information. http://micromedex.hcn.net.au (moisturisers)
Shampoos and Conditioners: • Dermaveen shampoo and conditioner • QV shampoo and conditioner	**Dose:** Use when required, not more than once per day. **Notes:** The choice of shampoo/conditioner is based on the child's skin reaction to the preparation and the parents' preference. **Storage:** Store below 30ºC. **Poison schedule:** Unscheduled.	Immediate.	**Use/Indications:** Use in the treatment and prevention of dry skin conditions. **Contraindications:** Hypersensitivity to product. **Adverse reaction:** No information. http://micromedex.hcn.net.au (moisturisers)

The Paediatric Eczema Nurse Practitioner Limited Therapeutic Medication Formulary.

Topical Antiseptic wash (Triclosan)			
Constituent(s), form and preparation	**Dose; Storage; Poison schedule**	**Time to onset**	**Pharmacology; Uses/Indication; Contraindications; Precautions; Adverse Reactions; Drug Interactions**
QV flare up bath oil **Active Ingredients:** Benzalkonium chloride 6% Triclosan 2% Light liquid paraffin 55.8% **Preparation:** Oil	**Dose:** Use once daily or as directed. **Storage:** Store below 30ºC. **Poison schedule:** Unscheduled.	Immediate.	**Pharmacology:** Water dispersible antiseptic bath oil. The emollient and antiseptic properties of QV Flare Up treats the symptom of atopic eczema by restoring skin hydration, and reducing the level of staphylococcus aureus colonising skin lesions. **Use/Indications:** Topical treatment of atopic eczema with S. aureus infection. **Contraindications:** Irritation or sensitivity to any of the ingredients; broken skin. **Precautions:** Always dilute before use; avoid contact with eyes; persistent irritation; children less than 6 months; do not use with wet wrap dressing. **Adverse reaction:** No undesirable effects if used appropriately, burning; irritation, drying, stinging if used undiluted oil, worse on open/sensitive skin. Superficial burning of the skin can occur if not rinsed off thoroughly. **Drug interactions:** Do not use with soap or detergents as these may reduce the activity of benzalkonium chloride. **Counselling:** It is important to thoroughly rinse the skin in fresh water post contact with QV Flare Up oil as contact irritation can occur. Information provided by Ego Pharmaceuticals Pty Ltd.
Microshield T **Active ingredients:** Triclosan 1% **Preparation:** Lotion	**Dose:** Use 5 ml on to wet skin, apply to all areas on the body not face) wash for 30 seconds with warm water, then rinse off thoroughly. For eczema, can lather into the scalp also. Leave for 30 seconds then rinse. **Storage:** Store below 30ºC. **Poison Schedule:** Unscheduled. (RCH Paediatric Pharmacopoeia, 2002, 13th Ed. pp136)	Immediate.	**Pharmacology:** Alkaline and soap free antiseptic wash, pH 5.5 **Use/Indications:** Use as prophylaxis to reduce cutaneous staphylococcal colonisation in recurrent skin infections of eczema and acne. **Contraindications:** Hypersensitivity to any of the ingredients, broken skin. **Precautions:** Always dilute before use; avoid contact with eyes; persistent irritation; do not use with wet wrap dressing. **Adverse reaction:** Can cause stinging or burning and skin dryness. **Counselling:** It is important to thoroughly rinse the skin in fresh water post contact with Microsheild T as contact irritation can occur. http://mims.hcn.net.au/ifmx-nsapi/mims-data/?MIval=MIMS_pi&product_code=1819&product_name=Microshield+T
Oilatum Plus **Active ingredients:** Benzalkonium chloride, triclosan 1% **Preparation:** Oil	**Dose:** Bath: 2 caps/20 cm bath; Infant bath: 1 ml, mix well with water. Soak for 10 – 15 min; gently pat skin dry, use once daily. **Note:** Oilatum Plus should not be used with soap. Oilatum Plus should always be diluted with water before use. **Storage**: Store below 25°C **Poison Schedule**: Unscheduled.	Immediate.	**Pharmacology:** Benzalkonium chloride and triclosan are antibacterial agents against staphylococcus aureus, the principal causative organism in infected eczema. **Use/Indications:** Treatment of infected eczemas; eczema at risk of infection **Contraindications:** Eye contact; infant < 6 months; oral ingestion **Precautions:** external use only; do not use with wet wrap dressing. **Adverse reaction:** Superficial burning of the skin can occur if not rinsed off thoroughly. **Counselling:** It is important to thoroughly rinse the skin in fresh water post contact with Microsheild T as contact irritation can occur. http://mims.hcn.net.au/ifmx-nsapi/mims-data/?MIval=MIMS_pi&product_code=3736&product_name=Oilatum+Plus

The Paediatric Eczema Nurse Practitioner Limited Therapeutic Medication Formulary.

Analgesic/Antipyretic Agents			
Constituent(s), form and preparation	**Dose; Storage; Poison schedule**	**Time to onset**	**Pharmacology; Uses/Indication; Contraindications; Precautions; Adverse Reactions; Drug Interactions**
Paracetamol Presentation**:** • Tablets 500mg • Oral liquid 24mg/ml or 48mg/ml • Suppositories 125 mg, 250mg, 500mg.	**Neonates, infants and children:** *Oral/Rectal:* 15mg/kg/dose 4 – 6 hourly, in an unsupervised community setting, limit dosage to 60mg/kg/24 hours for up to 48 hours, up to 90mg/kg/daily can be used under medical supervision with review after 48 hours; single doses of 30mg/kg may be used for night-time dosing. *Rectal:* 20-40 mg/kg as a once off dose, rounded to appropriate suppository strength. **Note**: Reinforce that paracetamol should not be taken for a period longer than 48 hours without review. Beware of hepatic toxicity in patients with already impaired liver function. Risk of haemolysis at high dose in G6PD patients. **Do not** use slow/modified release preparation in infants and children. **Poison schedule:** Unscheduled or Schedule 2, depending on the presentation and pack size. http://www.wch.org.au/pharmacy/intranet/pharmacopoeia/pages/paracetamol.html	30 minutes post oral administration. Rectal absorption can be erratic and delayed.	**Pharmacokinetics:** Not fully determined. Its analgesic effects may be due to inhibition of prostaglandin synthesis centrally, and to a lesser extent peripherally, here other mechanisms which block pain impulses may be involved. The antipyretic effect is probably due to the reduced production of prostaglandins in the hypothalamus. Paracetamol has negligible anti-inflammatory effects. Paracetamol is rapidly absorbed from the gastrointestinal tract, and is metabolised in the liver. **Uses/Indication:** Analgesic and antipyretic. Mild to moderate pain, fever, migraine and tension headache. **Precaution:** Prolonged use; phenylketonuria; patients with impaired renal or hepatic function. **Specific Considerations:** *Renal impairment:* Chronic paracetamol use may increase the rate of progression to chronic renal failure. *Hepatic impairment:* Patients with chronic liver disease may be at increased risk of liver damage following therapeutic dose or overdose of paracetamol, although evidence is lacking. *Children:* Paracetamol reduces fever symptoms in children but does not remove the cause or prevent febrile convulsions. Infants and children tolerate low grade fever (<38.0 – 38.5ºC) well, and there may be no advantage in giving paracetamol in this situation. **Adverse Reactions:** Rare with therapeutic doses. Paracetamol in recommended doses is not nephrotoxic and hepatotoxic; Rare: dyspepsia, nausea or allergic reactions. **Interactions**: The risk of paracetamol toxicity may be increased in patients receiving other potentially hepatotoxic drugs or hepatic enzyme inducers (e.g. rifampicin, drugs affecting gastric emptying or anticonvulsants). Increased risk of bleeding in patients taking regular doses of paracetamol while on an oral anticoagulants. **Counselling:** Give children paracetamol strictly according to the dose and frequency instructions on the label and if pain and/or fever persists for >48 hours, consult a doctor. Prevent overdosing by checking carefully which strength preparation is being used. Avoid using different products containing paracetamol all at the same time. Too much paracetamol can cause liver damage. http://mims.hcn.net.au Australian Medicines Handbook, 2006, pages 46-47.

CLINICAL PRACTICE GUIDELINE 8: MANAGEMENT OF THE CHILD WITH ATOPIC EZCEMA/ATOPIC DERMATITIS (AD)-OVERVIEW

1. Natural History of Disease

Atopic Dermatitis/Atopic Eczema (AD) is a "pruritic, inflammatory, chronic skin disease that typically begins in early childhood and may continue to recur as an adult disease" (Ellis & Luger, 2003). The prevalence of AD has increased over the last 30 years possibly due to environmental and lifestyle changes (Charman, 1999). It affects 5-20% of children world wide (Neame, Berth-Jones, Kurinczuk, & Graham-Brown, 1995; Thestrup-Pedersen, 2002). In Melbourne, Australia, the prevalence of reported AD has increased from 11.1% in 1993 to 17.2% in 2002 (Robertson, Roberts, & Kappers, 2004).

Children with AD have a skin condition characterised by dry, inflamed and itchy skin. This chronic condition can worsen and cause intractable pruritus, soreness, infection and sleep disturbance. This in turn can cause emotional distress to the child and parents, leading to frequent doctors visit (Ellis & Luger, 2003).

2. Clinical Features

- Usually begins in infancy. Eczema initially affects the face first, and then neck, wrist, limbs, abdomen, later it localises in the folds or flexures.
- Primary lesions may include papules, erythematous macules, and vesicles, which can coalesce to form patches and plaques.
- In severe eczema, secondary lesions from infection are marked by weeping and crusting.
- Chronic dermatitis is often dry and is characterized by thickened (lichenification) and scaling skin.

URL: http://www.wch.org.au/intranet/fracp_resources/?doc_id=543

3. Pathophysiology

The pathophysiology of AD is complex and not fully understood, but is believed to be multifactorial. It is proposed that the clinical expression of AD probably resulted from an interaction between genetic predisposition and a combination of allergic and non-allergic factors (Bigby, 2001; Charman, 1999; McHenry, Williams, & Bingham, 1995). AD is often associated with asthma, food allergy, allergic rhinitis and recurrent skin infections (Ellis & Luger, 2003). Histologically, increased circulating level of IgE antibodies is found in most patients with AD. One theory suggested that the proliferation of both type I and type II T helper cells activity at the cellular level has lead to the overproduction of cytokines and caused dermal inflammation (Eichenfield et al, 2002).

4. Prognosis

There is currently no cure for AD. Various interventions are aimed at symptom control, minimise the impact of disease on quality of life and prevent or reduce the onset of disease relapse and complications such as infection. These interventions consist of adequate skin hydration, education, avoidance of aggravators and the use of topical anti-inflammatory medications (Eichenfield & Beck, 2003).

5. Purpose For Guideline Development

The guideline has incorporated the existing AD management protocol for RCH Eczema Nurse Coordinator (http://www.wch.org.au/intranet/policy/9P043002.htm). It does not intend to replace clinical judgement of PENP, but to

5.1. Provide a framework for PENP to assess and manage patients with AD at the Royal Children's Hospital.

5.2. Ensure the role of the RCH PENP is clearly defined and understood.

5.3. Outline the parameters for PENP practice with regard to managing patients with signs and symptoms of AD.

5.4. Outline PENP authority to investigate aetiology of signs and symptoms of eczema so as to diagnose and implement appropriate treatment following thorough patient assessment.

5.5. Reduce the signs and symptoms of AD in predisposed infants and children.

5.6. Minimise the impact of the disease on quality of life

5.7. Prevent or reduce recurrence of eczema.

5.8. Provide an outline for implementation of PENP authority to assess, diagnose and treat patients with AD.

5.9. Enable the PENP to prescribe, administer and educate parents on the administration of topical anti-inflammatory such as topical corticosteroids, emollients, wet dressings or tar preparations

5.10. Ensure patient/parents understanding and assess compliance when administering the prescribed interventions.

5.11. Ascertain any difficulties patient/parents have had when administrating the prescribed interventions, and to act upon any side effects associated with the interventions.

5.12. Provide patients and their families with quality care, best practice outcomes and timely treatment of eczema through the extended practice of the PENP at the RCH.

6. Scope

6.1. PENP to assess and treat patients at the RCH outpatient clinic, emergency department, eczema workshop and inpatients.

6.2. PENP will not treat but refer patients who are systematically unwell or may require oral/IV antibiotic or require treatment outside the scope of PENP to the dermatologist/paediatrician.

7. Anticipated Patient Outcomes

7.1. To diagnose and treat patients with AD appropriately in a timely manner. All assessments, findings, treatments and outcomes related to the eczema patient will be carried out in a safe, effective and timely manner through a process of multidisciplinary, collaborative approach, and consultation.

7.2. Reduced severity of symptoms (pruritus, sleep disturbance) and signs (erythema, oozing or crusting, lichenification, cracking, oedema or papulation, excoriation, infection and dryness) (Charman, 1999). Reduced area of skin involvement.

7.3. Prevented or reduced disease relapse, reduced length of hospitalisation, and readmission rate to hospital

7.4. Improved client and family's compliance with treatment, and coping mechanism.

7.5. Improved client's satisfaction of treatment

7.6. Improve client's quality of life.

7.7. All patients with conditions outside PENP scope of practice and/or experience will be referred to dermatologist/paediatrician for further assessment and treatment.

8. Search Strategies

Best available evidence is defined as the research identified as least susceptible to bias. This is determined according to predefined National Health and Medical Research Council (NHMRC) criteria (Anonymous, 2000). First searches are for systematic reviews, evidence based clinical practice guidelines, health technology assessments and randomised-controlled trials. If relevant material of this type is found the search stops. Otherwise the search strategy broadens to include studies with designs that are more prone to bias and less generalisable. Included are non-randomized controlled trials, cohort studies, case control studies, time series, observational studies, case series, narrative reviews and consensus statements. However, these study designs may be too prone to bias to allow determination of their validity beyond their immediate setting. Stakeholder feedback and peer review of the draft guidelines will be sought and sent to national bodies for endorsement. Search keywords included "atopic eczema" or "atopic dermatitis".

9. Knowledge

9.1. Extensive knowledge of the functions of the skin

9.2. Extensive knowledge of the eczema disease, the disease's natural progress and how to assess the severity of disease.

9.3. Extensive knowledge of the treatment options for AD

9.4. Understand the pharmacokinetics of medications, its action, potential side- effects, dosage, administration and drug interactions (as per CPG for Prescribing).

9.5. Pathology knowledge.

10. Process

Assessment

PENP to take a detailed patient history and initiate a thorough assessment included:

History:

- General history (including failure to thrive)
- Duration and history of eczema
- Possible triggering factors
- Period of worsening/flare
- Family history of eczema, asthma, hay fever (atopy)
- Previous consultation (e.g. dermatologist, naturopath)
- Past and present treatments/medications used and effectiveness of these
- Previous relevant diagnostic investigations and results
- Immunization status
- The effect of itch on child's sleeping pattern
- Known allergies (including drug allergy), reactions, and any formal allergy testing
- Other illness
- Current diet, food eliminated in the past and effect of this
- Social circumstances/effect on family
- Compliance with treatment
- Name of general practitioner (GP) for correspondence
- Physical mobility

Examination:

Nurse Practitioner assesses the severity of eczema by using the SCORAD index to measure the severity of disease that includes the following clinical features.

- Xerosis
- Erythema (redness)
- Excoriation (wounds)
- Oedema
- Lichenification (thickening)
- Vesiculation (blisters)
- Secondary infection (crust/weeping) and carry out appropriate pathology request as required.
- Figure of person on clinical pathway to estimate % of surface area involved

- Parents assessment of severity of itch and sleep disturbance
- Growth examination, in particular weight, height (growth chart), hydration and temperature

(URL: http://www.wch.org.au/intranet/policy/9P013001.htm)

Diagnosis

Atopic eczema is usually diagnosed on clinical grounds, based on patient's history, such as itchy skin, family history of atopic illness (e.g. asthma, hay fever), onset under the age of 2 years and the appearance of flexural dermatitis (Williams, Burney, Pembroke, & Hay, 1994). PENP will consult with a dermatologist for confirmation of differential diagnosis.

A comprehensive medical / surgical history to be established and the SCORAD index is used to assess the severity of the condition. Where appropriate, physical examination and skin allergy test referral to allergist/immunologist/dermatologist is undertaken.

Indication for referral for skin allergy test

- History of flushing, itch, urticaria or general flare of the eczema after ingestion of food.
- Itchy child (< 12 months) with moderate severe AD and not improving with treatment.
- Compliance with adequate treatment regime for greater than 6 weeks with no improvement in eczema.
- Eczema sites in the periorbital and exposed areas such as arms and legs may indicate environmental allergy.
- PENP consults all patients and caregivers and their needs comprehensively.
- Diagnosis to be established taking into account all possibilities.

General management – non-infected AD

(Refer to Clinical pathway on PENP management of AD in children)

The aim of the treatment is long-term control rather than reactive management of relapses. In the absence of cure, the International Consensus Conference on AD (Ellis et al., 2003) defined the therapeutic objective as:

- Reduce signs and symptoms;
- Prevent or reduce recurrences;
- Provide long-term management by preventing exacerbation;
- Modifying the course of disease

Successful management of AD requires a systematic and comprehensive approach that encompasses education, skin hydration such as emollient, anti-inflammation such as topical corticosteroids, wet dressings and cool compresses, and identification and avoidance of aggravating factors.

Note: Detailed literature evidence and guidelines on individual treatment are provided in the treatment options and therapeutic medication formulary sections.

Education and general advice

Adequate time should be allowed for explanation and discussion of disease morbidity, aggravating factors, and education on

- Avoid aggravating factors e.g. heat, prickle and irritants.
- The use of emollients (cream/ointments), application frequency and sites and side effects.
- Wet dressings and cool compressing, if necessary.
- Topical corticosteroids, frequency and sites of application, and side effects (warning signs, prevention and assessment of)

A written management plan will be given to the parents, a copy for the medical record and a copy for the referring doctor.

Emollients

Skin dryness is a very common feature of AD. Emollients are said to improve lipid barrier function and to relieve the feeling of itchiness and dryness and prevent painful cracking (Holden et al., 2002). Emollients are most effective when applied after a bath. Frequent and continuous use of an emollient is recommended even in the absence of symptoms. The PENP will assess the skin dryness of the child with AD and prescribe emollient to all AD patients to reduce skin dryness as per RCH protocol

(URL:http://www.wch.org.au/intranet/policy/9P023006.htm).

Definition of terms(skin dryness)

Skin dryness is assessed as mild, moderate or severe. Mild skin dryness is assessed as fine scale, moderate skin dryness is assessed as visible scale, and severe skin dryness is assessed as visible, large, thick scale.

Mild skin dryness

- Aqueous cream or sorbolene and 10% glycerin 2-3 times a day to face, limbs and trunk, especially after bath
- Add bath oil to the bath daily

Moderate and severe skin dryness

- 50% soft paraffin and 50% liquid paraffin to the face and limbs 3 times a day, and sorbolene and 10% glycerin or aqueous cream to the trunk 3 times a day
- Add bath oil to the bath daily

Note : This may be altered for the individual depending on patient preference, tolerance and any practical limitations.

Topical anti-inflammatory (corticosteroid)

Topical corticosteroids are the first line treatment for atopic eczema lesions. Non-steroid such as pimecrolimus is not recommended as first line treatment for AD of any severity. Topical pimecrolimus is used as second line treatment of mild to moderate AD in children age 3 months and above that has not been controlled by topical corticosteroids, or where the use of topical corticosteroid is inadvisable (e.g. where there are serious or irreversible adverse effects from prolonged topical corticosteroid used). These medications are used in conjunction with emollients.

- Instruct parents to apply a layer of topical corticosteroid to the affected area, followed by a layer of prescribed emollient.

- Avoid using potent corticosteroids on the face, genitalia and intertriginous areas. Only prescribed hydrocortisone 1% to the face, groin and genitalia.

Mild AD

- Topical corticosteroid will only be prescribed if patient is not responding to the emollient treatment
- Prescribe hydrocortisone 1% to affected area b.d. until symptoms subside, then p.r.n.

Moderate and severe AD

- Prescribed hydrocortisone 1% to affected area on the face b.d until symptoms subsided, then p.r.n.
- Prescribed mometasone furoate 0.1% nocte or methyprednisolone aceponate 0.1% nocte to body until symptoms subside then use a less potent corticosteroid p.r.n.

Note: Parents are instructed to use corticosteroids carefully to avoid potential side effects. High potency corticosteroids such as mometasone furoate and methyprednisolone aceponate should only be used for short periods of time (generally up to 4 weeks, unless otherwise instructed by PENP or dermatologist) for clinical exacerbations.

Wet dressings

Wet dressings are used for patients with moderate to severe eczema to enhance the efficacy of corticosteroids and to prevent scratching and skin trauma (Smith, 2000).

Mild AD

- No requirement.

Moderately severe AD

- Apply wet dressing to body nocte to b.d.

Severe AD

- Apply wet dressing to body b.d. to q.i.d (for a limited period of 1-2 weeks)

Note: Over use of wet dressing may result in miliaria folliculitis or maceration of the skin.

Cool compress

Cool compresses are used for the face, neck, head and body in patients with moderate to severe AD to give immediate relief from the itch. It cools the skin and reduces erythema and helps to improve sleep disturbance.

Mild AD

- No requirement

Moderately severe AD

- Apply cool compress to face and other itchy lesions b.d. - qid, while awake.

Severe AD

- Apply cool compress to face and other itchy lesions 1-4 hourly, while awake.

Tar preparation

Tar preparations are used on areas of eczema on the trunk and limbs that are lichenified.

- Apply tar cream 1-5% to the affected lesions.

Note: Tar creams should never be applied to the face or flexures or groin.

Follow up and referral

- A follow up appointment will be made.
- Referral to other health professionals if required.

Note: Hospital admission may be required:

- For patient with severe AD despite optimal treatment.
- To control the eczema.
- To provide respite for the family.

Management of infection in eczema

Eczema skin is prone to secondary viral and bacterial infections.

Definition of terms

(http://www.wch.org.au/intranet/policy/9P023003.htm)

Secondary bacterial infection is identified as yellow weeping, crusts, reddened cracks, frank pus or multiple excoriations.

Secondary viral infection is identified as sudden onset of grouped, small white or clear fluid filled vesicles, or "punched out" lesions.

Note: Bacterial and viral infections can occur concurrently. If a child is admitted with infected eczema 2 years and under, splints must be applied before sleeping. Obtained from the RCH Equipment Distribution Centre (EDC), by filling out an EDC request card, measuring length of arm from shoulder to wrist and write measurement on EDC request card).

Secondary eczema infection can be painful, PENP may need to prescribe pain relief such as paracetamol.

Specific management

Bacterial infection

- Assessment as per general management.
- Skin swabs should be taken from every eczema patient admitted to the ward as per eczema clinical pathway (Appendix 2).
- If clinically infected, a skin swab is taken from an infected area of eczema from the patient's skin for microscopic culture and sensitivity (pathology request and skin/wound swab for M, C and S and direct immunoflourescence)
- A nasal swab should be taken from the patient and parents if there is recurring skin infection or boils to identify nasal carriage.
- Always examine for crusts and discharging lesions on scalp and take swab if relevant.
- While awaiting the swab result, it is usually assumed that a patient with severe flare up of eczema is infected.

- Cool compress to remove crusts or weeping, five to ten minutes every half to one hour or soak off crusts in the bath.
- Weeping and crusts **must** be removed before applying any corticosteroids, emollients or tar creams
- Removal of crusts is essential in the treatment of infection.
- Wet dressings will probably be required nocte and during the day (for limited period).
- Refer patient to dermatologist/paediatrician for further management
- Infections can be painful; paracetamol may need to be given.
- Topical corticosteroids to be commenced when the infection is cleared.
- Microshield T antiseptic wash is applied to skin, on face and body and scalp at bath time if tolerated by the patient. Hair is also washed in Microshield T. This can be applied on a daily basis for a few weeks. This may help to reduce the amount of bacterial and reduce secondary infections. It can be used intermittently once the eczema is under control. **Note:** Children with broken skin may not tolerate Microshield T antiseptic wash.
- Oilatum Plus or QV Flare Up antiseptic bath oil can be used daily in the bath, rather than using Microshield T. **Do not** use these in the water for wet dressings and instruct the patient/parent to rinse antiseptic off thoroughly.
- Use Emollients 2-4 hourly once crusts are removed. Emollients are **not** to be applied over crusted or weeping areas.

Viral infection (Herpes simples virus-HSV)

- Assessment as per general management. The child can be unwell and febrile.
- If clinically infected, HSV swabs for culture (see CPG on pathology request and skin/wound swab for M, C and S and direct immunoflourescence).
- Cool compressing to facial eczema to remove crusts 2-4 hourly.
- Wet dressings may be required.
- Topical corticosteroids are commenced 24 hours post admission, after weeping has stopped and crusts and vesicles are removed, although **not** directly to HSV lesions
- Refer patient to dermatologist/paediatrician for further management
- Pain relief may be indicated

Note: Hospital admission may be required for moderate or severe bacterial or viral infection

Case conferencing

For complex patients that require a multidisciplinary approach, the PENP will coordinate the different health professionals within and outside the RCH, and organize case conferencing as the need arises.

Comparison of cost associated with treatment options (prescribed medications)

Name	Preparation	Price
Hydrocortisone acetate 1% (Sigmacort)	30g 50g	PBS $8.08 PBS $8.53
Methylprednisone aceponate (Advantan)	1mg/ 1gm / 15g/30g	PBS $11.79 = 15gm
Mometasone Furoate (Elocon) 0.1%	15g 45g	PBS $11.79 PBS $25.81

CLINICAL PRACTICE GUIDELINE 9: TREATMENT OPTIONS - EDUCATION AND GENERAL ADVICE

This CPG is an extension of the CPG 8; refer to "purpose, scope, anticipated outcome, search strategies, and knowledge sections".

1. Background

The effective management of a child with AD is dependent upon good and compliant management by the parents. Parent compliance to the treatment can be achieved by good patient/physician/PENP relationship by providing informative and educational advice (Hoare, Li Wan Po, & Williams, 2000). The education and advice includes:

- General information about AD.
- Avoidance of trigger aggravators.
- Information for and demonstration of topical treatments.
- Discussion of realistic expectations.
- Follow up plan.

2. What evidence is available?

Evidence-based statement	Evidence level and references
Benefits	
Education program on AD management had a positive effects on disease severity and parents' compliance	Level II (Broberg, Kalimo, Lindblad, & Swanbeck, 1990; Staab et al., 2002) Level IV (M. J. Cork et al., 2003)
Harms	
No adverse effects were reported in the above studies	

3. Responsibility

The Royal Children's Hospital Paediatric Eczema Nurse Practitioner will provide general advice and support to patients, parents and health professional re-eczema management.

CLINICAL PRACTICE GUIDELINE 10: TREATMENT OPTION-EMOLLIENTS

This CPG is an extension of the CPG 8; refer to "purpose, scope, anticipated outcome, search strategies, and knowledge sections".

1. Background

The skin provides a barrier to the loss of water and prevents the penetration of irritants and allergens. Skin dryness is a very common feature of AD. Skin dryness could lead to inflammation and impaired barrier function (Hoare et al., 2000) **(Expert opinion)**. This in turn could result in increased loss of water from the stratum corneum, and lead to eczematous lesions. The use of surfactant and soap products removes further lipids from the skin layers and exacerbates the defective barrier function (M.J Cork, 1997) (**Expert opinion**).

Emollients which can be in the form of creams/ointments, bath oils, and soap substitutes are widely recommended as first line therapy for AD treatment (M.J Cork, 1997; Rajka, 1997) **(Expert opinion)**. Emollients are said to improve lipid barrier function and to relieve the feeling of itchiness and dryness and prevent painful cracking (Holden et al., 2002)**(Expert opinion)**. Emollients are often used in conjunction with topical corticosteroids to promote the hydration of the epidermal barrier (Leung et al., 1997) **(Expert opinion)**. Most studies on the effects of emollients on skin barrier function were conducted in healthy human volunteers.

2. What evidence is available?

Evidence-based statement	Evidence level and references
Benefits	
Emollients reduce the use of topical steroids and improve clinical symptoms of AD	Level I (Grimwalt et al., 2007)
Moisturizers influence skin barrier function of normal skin.	Level I (Buraczewska et al, 2007)
Using emollients in conjunction with a topical steroid improve clinical signs and symptom of AD significantly	Level I (Hoare et al, 2000)
Emollients hydrate and restore the epidermal barrier	Expert opinion (Cork, 1997) Level III-2-Adult (M.J Cork, 1997; Loden, Andersson, & Lindberg, 1999)
Emollients have steroid sparing effect on patient with AD	Level III-2 (Lucky, Leach, Laskarzewski, & Wenck, 1997)
Emollients relieve the feeling of skin dryness	Expert opinion (Holden et al., 2002).
Emollients have antipruritic effect as it has the cooling effect on the skin and the rapid improvement of skin inflammation	Expert opinion (Goodyear, Spowart, & Harper, 1991; Holden et al., 2002)

Harms

Minor adverse effects, such as a burning sensation, were reported in fewer than 2% of people in the RCTs identified by a systematic review	Level I (Hoare et al., 2000)

3. Circumstances in which this intervention may not apply

Hypersensitivity to any ingredients in a specific type of emollients

4. Responsibility

The Royal Children's Hospital Paediatric Eczema Nurse Practitioner

5. Equipment

The choice of emollients is based on the severity of child's disease, skin reaction to the emollients and parent/child's preference. The emollients included: Sorbolene and 10% glycerine, liquid paraffin, soft white paraffin, QV bath oil, QV cream, QV wash, QV shampoo and conditioner, QV kids balm, QV shower balm, Hamilton bath oil, Hamilton wash, aqueous cream, Dermaveen lotion, Dermaveen bath treatment, Dermaveen oil, Dermaveen wash, Dermaveen shampoo, Dermaveen eczema cream, Oilatum bath oil.

6. Process

(See also Clinical Pathway on Treatment According to Disease Severity CPG and CPG 8)

Instruct child/parents to apply emollients regularly at least twice daily, from top to toe even when there is no symptom of disease and especially after swimming or bathing.

7. Special consideration

Patients may be prescribed different emollients based on the child's disease severity, skin reaction to the emollient and child and parents' preference.

CLINICAL PRACTICE GUIDELINE 11: TREATMENT OPTION – WET DRESSING

This CPG is an extension of the CPG 8; refer to "purpose, scope, anticipated outcome, search strategies, and knowledge sections".

1. Background

Wet dressings (wet-wrap) is the use of wet towels and emollients, with less potent steroids if appropriate, to cool and heal the dry, itchy, flaky skin (Wallis, 1996). The wet dressing technique was first described by Goodyear et al in the treatment of AD in children (Goodyear et al., 1991). Wet dressings have been widely used to treat AD in children, they are used in patients with moderate to severe eczema to enhance the efficacy of corticosteroids and to prevent scratching and skin trauma (Smith, 2000) (Expert Opinion).

2. What evidence is available?

Evidence-based statements	Evidence level and references
Benefits	
No RCT evidence on the effect of wet dressings or other forms of bandaging in people with atopic eczema	Level I (Hoare et al., 2000)
No RCT evidence on the efficacy and safety of long-term treatment with wet dressings were found	Level I (Hoare et al., 2000)
Wet dressings have a useful role in improving the severity and extent of AD in patients. However, as most of the improvement occurred in the first two weeks prior to wet wrap dressings in this study. It is difficult to isolate the definite effect of wet dressings.	Level III-1(Pei, Chan, & Ho, 2001)
The number of disturbed nights and disruption of daily activities for both children and parents were reduced with the treatment of wet dressings.	Level VI(Mallon, Powell, & Bridgman, 1994).
Harms	
An uncontrolled study with small sample size have found wet dressings enhanced topical steroid absorption and cause temporary suppression of pituitary adrenal axis but returning to normal level 2 weeks post therapy with earlier forms of wet wrap dressings	Level IV (Goodyear et al., 1991).
An uncontrolled study with small sample size found mild to moderate folliculitis, mainly on the legs on patient treated with wet dressings.	Level IV (Wolkerstorfer, Visser, De Waard van der Spek, Mulder, & Oranje, 2000)

3. Circumstances in which this intervention may not apply

Do not use wet scarf or bandanna if unsupervised by parents/carer.

4. Responsibility

The Royal Children's Hospital Paediatric Eczema Nurse Practitioner will

4.1. Initiate wet dressings.

4.2. Educate and supervise other nursing staff in the application of wet dressings.

4.3. Educate, demonstrate and supervise wet dressing technique to parents of children with eczema (and children if age appropriate).

4.4. Advise parents to watch "Cool Ways to Beat Eczema" video/DVD before first application of wet-dressings.

5. Equipment

All equipment is available through the RCH Equipment Distribution Centre

5.1. Emollient, e.g. Dermeze/sorbolene and glycerin.

5.2. Topical steroid or tar preparation if required.

5.3. Bath oil.

5.4. Disposable towels.

5.5. Crepe bandages.

5.6. Bowl.

5.7. Tepid water.

5.8. Vinyl gloves (for nursing staff, not parents).

6. Process

6.1. Wash hands

6.2. Wet disposable towels in a bowl of tepid water and one capful of bath oil

6.3. Remove moisturisers from the containers

6.4. Apply cortisone or tar creams to the affected areas, if they are due to be applied

6.5. Apply moisturiser from top to toe

6.6. Wrap the wet towels around the affected areas, using a few layers

6.7. Wrap crepe bandages around the wet towels, firmly but not tightly. Avoid direct contact with the skin.

7. Special consideration

7.1. Wet dressings may be applied 1-4 times a day to any area of the body with eczema, example elbow or the knee.

7.2. Do not leave dried dressings on unless the child is asleep, as dry dressings can irritate the skin by causing it to become hot, dry and itchy.

7.3. The water used in the wet dressing should be warm, not cold. Wet dressings cool the skin by evaporation.

7.4. Overuse of wet dressings may result in maceration of the skin.

7.5. **No** antiseptics bath oils to be used within wet dressings. (http://www.wch.org.au/intranet/policy/9P043004.htm)

CLINICAL PRACTICE GUIDELINE 12: TREATMENT OPTION - COOL COMPRESS

This CPG is an extension of the CPG 8; refer to "purpose, scope, anticipated outcome, search strategies, and knowledge sections".

1. Background

The sensation of itching is generally heightened if the skin is warm. Measures to cool the skin therefore lessen itching ((Freedberg et al., 1999) (Expert opinion). Cool compressing is used for the face, neck, head and body in patients with AD to give immediate relief from the itch. They cool the skin and reduce erythema.

2. What evidence is available?

No studies were identified in this area through the literature search.

3. Definition of terms

Cool compress is used for the face, neck, head and body to give immediate relief.

4. Responsibility

The Royal Children's Hospital Paediatric Eczema Nurse Practitioner will

4.1. Initiate cool compressing.

4.2. Educate and supervise other nursing staff in the application of cool compressing.

4.3. Educate and supervise parents of children with eczema, on the cool compressing technique.

5. Equipment

5.1. Disposable towels

5.2. Cool tap water

5.3. Bath oil

5.4. Emollients, e.g. Dermeze or Sorbolene and 10% Glycerin or Aqueous cream.

5.5. Vinyl disposable gloves (nurse only)

6. Process

6.1. Fill a bowl with ***Cool*** tap water

6.2. Add a capful of bath oil to the water

6.3. Add disposable towels to the water, and soak until wet

6.4. Hold the wet disposable towel to the red, hot or itchy areas of skin for five to ten minutes, repeat every half to one hour until the redness, heat and itch has subsided

6.5. For the scalp, apply the wet towel as a bandanna

6.6. For the neck area, apply the wet towel as a scarf

6.7. Reapply moisturiser to the skin once the towels have been removed from the area

7. Special consideration

7.1. Bandanna and neck scarf only used under the supervision of parents/carer.

7.2. Remove and change the bandanna and scarf as necessary, **do not** leave on dry.

CLINICAL PRACTICE GUIDELINE 13: TREATMENT OPTION- TOPICAL CORTICOSTEROIDS

(See also the PENP drug formulary)

This CPG is an extension of the CPG 8; refer to "purpose, scope, anticipated outcome, search strategies, and knowledge and process sections".

1. Background

Intermittent use of topical corticosteroids for short-term reactive treatment of acute flares, in conjunction with emollients, have been the mainstay of therapy for AD for over forty years owing to their broad immunosuppressant and anti-inflammatory actions (Ellis et al., 2003; Hoare et al., 2000).

Topical corticosteroids are presented in various potency. The strength of potency is based on the amount of vasoconstriction produced by the product and the degree to which it inhibits inflammation. In Australia, the potency of corticosteroids is based on UK classification: mild, moderately potent, potent and very potent (URL - http://micromedex.hcn.net.au/). Across the different potencies, topical corticosteroids are presented in different formulations and strength and are available in various preparations (e.g. ointment, cream, lotion).

2. What evidence is available?

Evidence-based statement	Evidence level and references
Benefits	
A short burst of a potent topical corticosteroid is just as effective as prolonged use of a milder preparation for controlling mild or moderate atopic eczema in children.	Level I (Thomas et al., 2002)
Short-term topical corticosteroids versus placebo significantly improved clinical signs and symptoms of AD after 1-4 weeks.	Level 1 (Hoare et al., 2000)
Topical steroids versus each other significantly improved in 22-100% of people after 1-6 weeks.	Level I (Hoare et al., 2000)
No conclusive evidence to suggest the superiority of one formula of topical corticosteroids over another one.	Level I (Hoare et al., 2000)
Some evidence to suggest that the composition of vehicle used for a topical corticosteroids can affect its efficacy.	Level I (Hoare et al., 2000).
A short burst of 0.1% betamethasone valerate twice daily for three days followed by a base emollient only for four days is as effective as prolonged used of 1% hydrocortisone ointment twice daily for 7 days in improving disease severity and quality of life from baseline in children with mild to moderate AD.	Level II (Thomas et al., 2002)
There is no clear RCT evidence to suggest that the use of twice-daily topical corticosteroids is better than once-daily	Level I (Hoare et al., 2000)

topical corticosteroids, and that more frequent application will enhance efficacy.	
Topical corticosteroids can be used safely and effectively in the medium term as well as the short term providing they are used correctly (e.g. in short bursts), and the right strength is used for the right part of the body.	Level II (Berth-Jones et al., 2003; Hanifin, Gupta, & Rajagopalan, 2002; Thomas et al., 2002; Van Der Meer, Glazenburg, Mulder, Eggink, & Coenraads, 1999)
One systematic review and two subsequent suggested that intermittent dosing of fluticasone propionate is useful in maintenance treatment to prevent or delay the onset of relapse in AD RCTs.	Level I (Hoare et al., 2000) Level II (Berth-Jones et al., 2003; Hanifin et al., 2002)
Harms	
One systematic review (search date 1999) and one evidence-based review (search date 2002, 11 RCT and one longer term cohort study which included14 prepubertal children, median treatment 6.5 years using mild to moderate dose of topical steroid) found no clear evidence of serious systematic effect or skin thinning with correct use of topical corticosteroids.	Level I (Hoare et al., 2000)
Topical corticosteroids do not produce skin thinning or atrophy when used in short bursts over a long period in adult and paediatric patients with atopic eczema.	Level II (Hanifin et al., 2002; Van Der Meer et al., 1999)
Minor side effects such as burning, short stinging sensation on application of certain types of corticosteroids are observed in 5% of patients.	Level II (Vernon, Lane, & Weston, 1991)
In rare occasions, Telangiectasia of cheeks and steroid-induced atrophy of antecubital and popliteal fossae may occur with prolonged usage and is dose related.	Level IV (Furue et al., 2003)

3. Circumstances in which this intervention may not apply

See PENP drug formulary.

4. Responsibility

The Royal Children's Hospital Paediatric Eczema Nurse Practitioner

5. Equipment

Hydrocortisone acetate 1%, or methylprednisone aceponate 0.1% or mometasone furoate 0.1% based on the severity of patient's disease.

6. Process

See general management (CPG 8)

7. Special consideration

Treatment regimes for topical corticosteroids vary with disease severity and areas of involvement. Absorption of topical corticosteroids is higher at certain sites such as the face and flexures. Therefore, only apply hydrocortisone ointment/cream 1% to the affected areas on the face or nappy areas. The more potent corticosteroid such as Methyprednisone

aceponate 0.1% and mometasone furoate 0.1% applied only to affected areas on the body, and should only used for short period of time (generally up to 4 weeks) for clinical exacerbations.

CLINICAL PRACTICE GUIDELINE 14: TREATMENT OPTION - TOPICAL TAR PREPARATION

This CPG is an extension of the CPG 8, refer to "purpose, scope, anticipated outcome, search strategies, process and knowledge sections".

1. Background

Coal tar preparation is used to treat chronic AD. It is said that coal tar preparation may have anti-pruritic and anti-inflammatory effects on the skin (Leung et al., 1997) (Expert opinion)

2. Definition of term

Lichenification refers to the thickening of the skin and accentuation of normal skin lines.

3. What evidence is available?

Evidence-based statement	Evidence level and references
Benefits	
One systematic review found only one RCT comparing one type of coal tar preparation versus conventional 1% crude coal tar in 27 children with AD. This RCT found a reduction of 50% in infiltration, redness, skin thickening, scratch marks and dryness in both treatment groups.	Level II (Hoare et al., 2000).
Harms	
Four patients from the same RCT complained of stinging and itching.	Level II (Hoare et al., 2000).

4. Responsibility

The Royal Children's Hospital Paediatric Eczema Nurse Practitioner.

5. Special Consideration

Coal tar preparation should not be applied to the face or flexures.

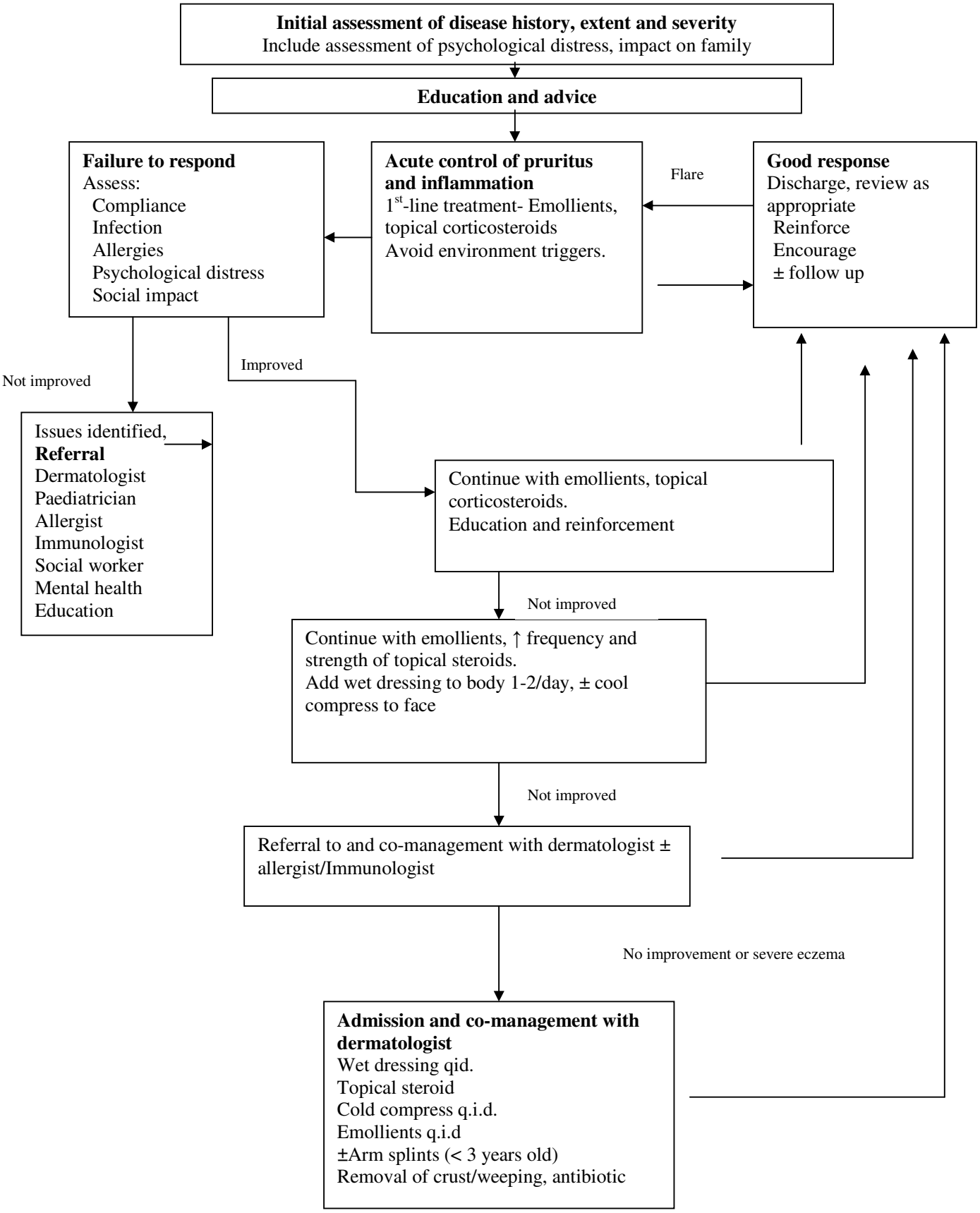
6. Equipment

Tar cream.

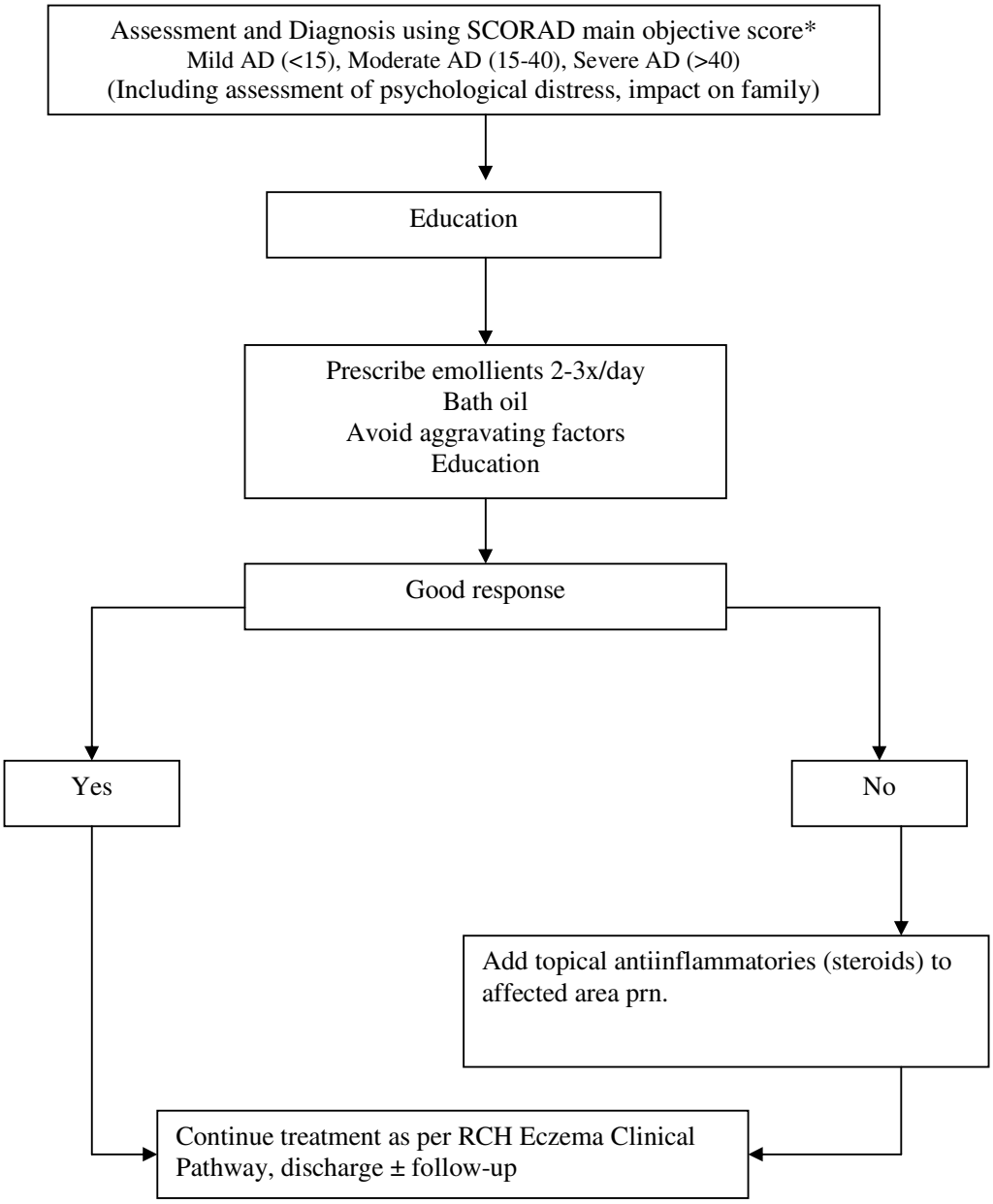
7. Process

See general management (CPG 9).

ATOPIC DERMATITIS: ALGORITHM FOR TREATMENT

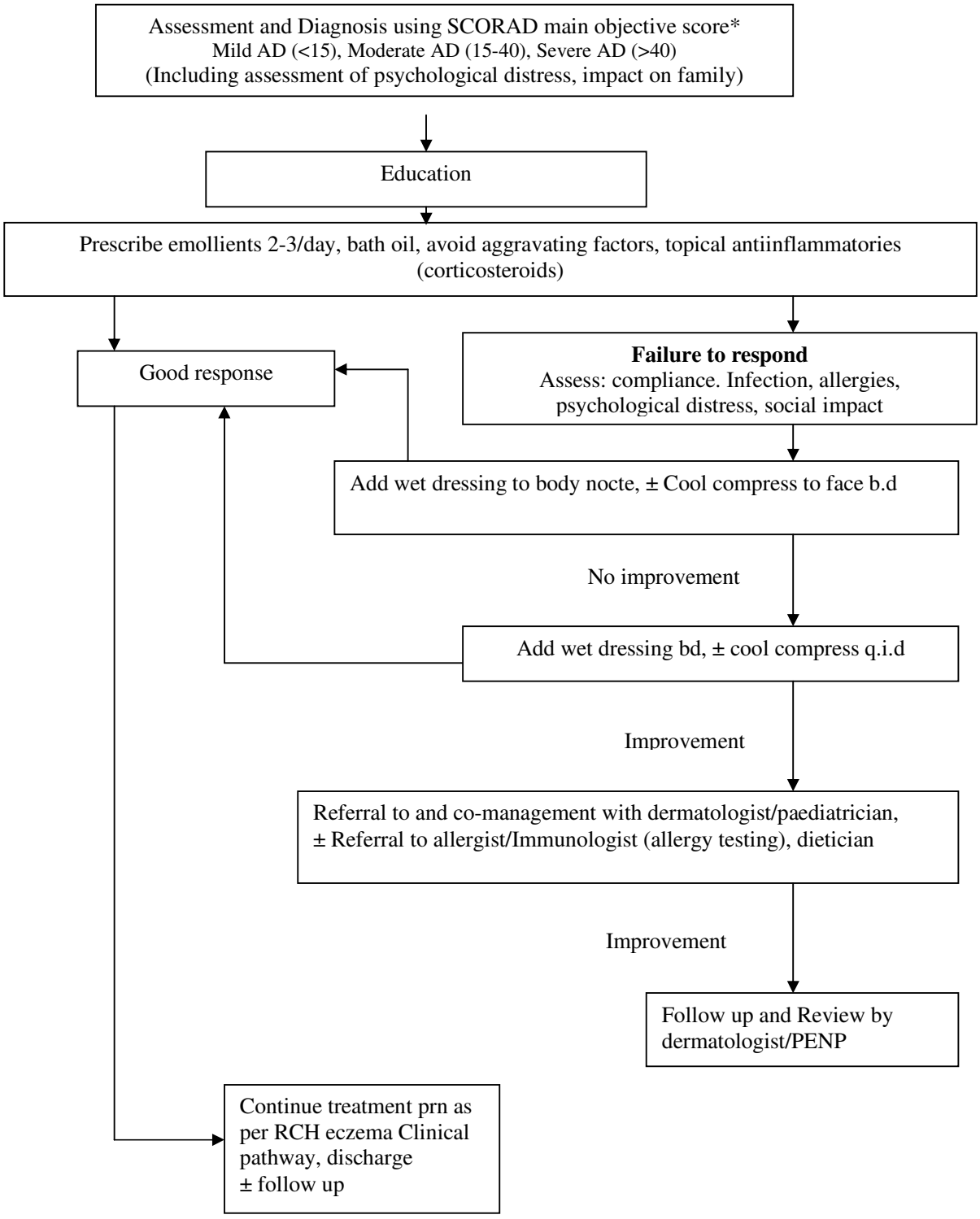


PENP - Clinical Pathway for Non-infected Mild AD



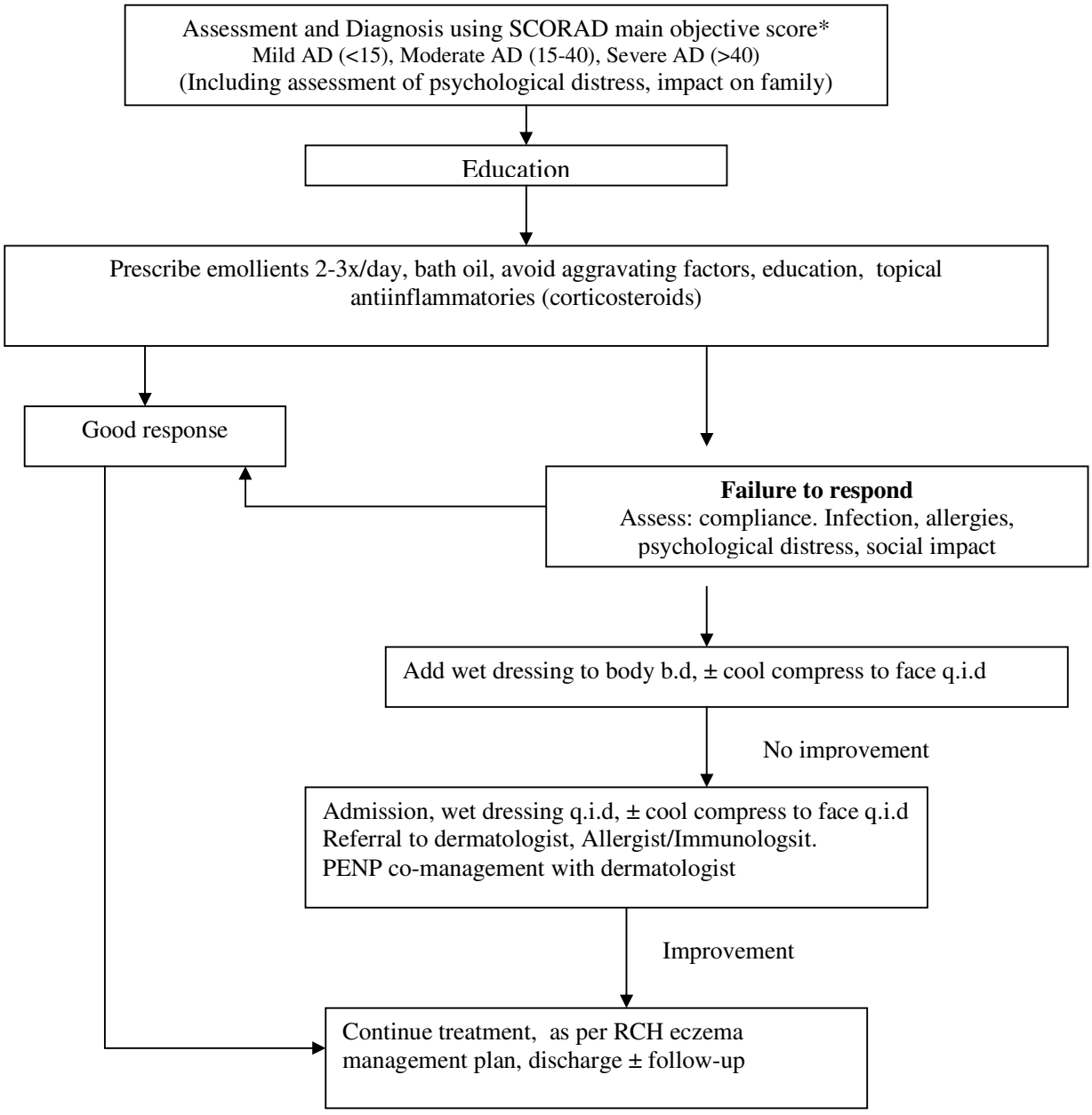
*Kunz, B. et al., Clinical validation and guidelines for the SCORAD index: consensus report of the European Task force on atopic dermatitis. Dermatology 1997; 195:10-19.
Note: SCORAD index is a grading scale consists of objective and subjective score. Objective score has a 0 – 83 point scale.
Mild AD = mean objective score <15 on 2 baseline measurements at a minimum interval of 2 weeks
Moderate AD = >15 mean objective score and <40 on 2 baseline measurements at a minimum of 2 weeks
Severe AD = mean objective score >40 on 2 baseline measurements at a minimum interval of 2 weeks.

PENP - Clinical Pathway for Non-infected Moderately Severe AD



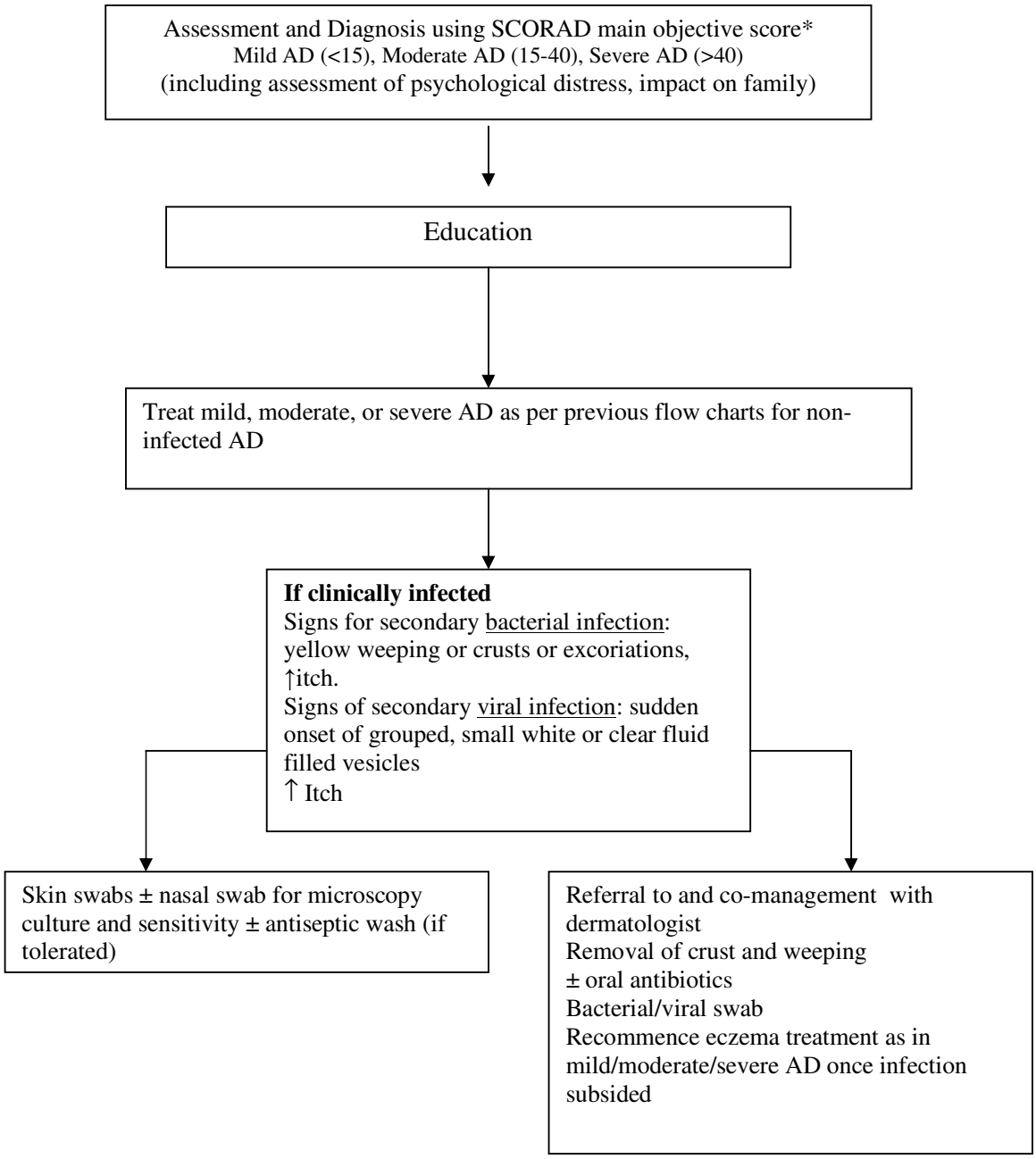
*Kunz, B. et al., Clinical validation and guidelines for the SCORAD index: consensus report of the European Task force on atopic dermatitis. Dermatology 1997; 195:10-19.
Note: SCORAD index is a grading scale consists of objective and subjective score. Objective score has a 0 – 83 point scale.
Mild AD = mean objective score <15 on 2 baseline measurements at a minimum interval of 2 weeks
Moderate AD = >15 mean objective score and <40 on 2 baseline measurements at a minimum of 2 weeks
Severe AD = mean objective score >40 on 2 baseline measurements at a minimum interval of 2 weeks.

PENP - Clinical Pathway for Non-infected Severe AD



*Kunz, B. et al., Clinical validation and guidelines for the SCORAD index: consensus report of the European Task force on atopic dermatitis. Dermatology 1997;195:10-19.
Note: SCORAD index is a grading scale consists of objective and subjective score. Objective score has a 0 – 83 point scale.
Mild AD = mean objective score <15 on 2 baseline measurements at a minimum interval of 2 weeks
Moderate AD = >15 mean objective score and <40 on 2 baseline measurements at a minimum of 2 weeks
Severe AD = mean objective score >40 on 2 baseline measurements at a minimum interval of 2 weeks.

PENP - Clinical Pathway for Infected AD



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Note: SCORAD index is a grading scale consists of objective and subjective score. Objective score has a 0 – 83 –point scale.
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Moderate AD = >15 mean objective score and <40 on 2 baseline measurements at a minimum of 2 weeks
Severe AD = mean objective score >40 on 2 baseline measurements at a minimum interval of 2 weeks.

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Appendix 1

The National Health and Medical Research Council

The Hierarchy of Evidence

I	Evidence obtained from a systematic review of all relevant randomised controlled trials.
II	Evidence obtained from at least one properly designed randomised controlled trial.
III-1	Evidence obtained from well-designed pseudo-randomised controlled trials (alternate allocation or some other method).
III-2	Evidence obtained from comparative studies with concurrent controls and allocation not randomised (cohort studies), case-control studies, or interrupted time series with a control group.
III-3	Evidence obtained from comparative studies with historical control, two or more single-arm studies, or interrupted time series without a parallel control group.
IV	Evidence obtained form case series, either post-test or pre-test and post-test.

The guidelines are based on reviews of the best available evidence. Level I evidence represent the gold standard for intervention studies; however it is not available for all areas of practice and for some guidelines the steering committee group considered it appropriate to utilise results from studies with lower levels of evidence. The guidelines have also been informed by experts in the field, locally (RCH) and internationally (Journal articles) (expert opinion).

Appendix 2

Medical/Dermatology Nurse Coordinator Checklist Eczema Clinical Path and GP Multi-disciplinary Care Plan

MULTIDISCIPLINARY CARE PLAN

GP contribution

Case conference ❑ Care plan ❑

GP Name_____

Address _____

_____

Telephone_____

Fax:

Patient details

Name _____

D.O.B. _____

Address _____

_____

Contact No.

Date of Care Plan faxed/forwarded _____

Problems	Goals	Action/Task	Service Provider Responsible
Eczema	Prevent eczema	1. Avoidance of triggering factors-e.g. Allergenic triggers, over-heating, drying of skin, irritation such as wool. 2. Frequent and continuous use of emollients (e.g. bath oil, moisturiser) at least twice daily even in the absence of symptoms.	
	Control of flares	Use when red or itchy (see attached Eczema Management Plan) □Topical steroids as prescribed until clear □ Pimecrolimus 1% as prescribed □ Application of wet dressings nightly if eczema did not improved despite steroid and preventative management □ Cool compress	
	Control secondary infection (Bacterial infection: crusts, yellow weeping, pustules Viral: vesicles	□ Oral antibiotics/antiviral as prescribed □ Removal of crusts – soak in bath, and wipe off as soon as possible.	
	Communication	GP and RCH dermatologist/Eczema Nurse Practitioner communicate via phone/letter post each visit.	
	Follow up	□ GP □ RCH Dermatologist □ RCH Eczema Nurse Practitioner	

Other Service Providers:

Name	Discipline	Contact details
2.		
3.		

Patient agreement to the goals of the Multidisciplinary Care Plan.
I understand the above care plan recommendations and agree to the outline goals.

Patient/Carers Signature_____GP Signature_____

Date: Care Plan review Date: