

CHALLENGES IN ASSESSING AND DIAGNOSING CHILDHOOD ATOPIC ECZEMA IN PRIMARY HEALTHCARE

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SUMMARY

Childhood atopic eczema (AE) has a profound physical, emotional and social effect on the patient and the parent. This effect can be compounded by a delay in diagnosis and effective management. The primary healthcare (PHC) nurse in the public-health sector often lacks the knowledge to assess, diagnose and treat a child with AE. This article focuses on strategies that the PHC nurse can use to assess and diagnose children with AE.

This article has been peer reviewed.

INTRODUCTION

Healthcare in South Africa (SA) comprises private and public sectors. According to the health indicators of the Health Systems Trust (HST),^{1,2} an average of 16.4% of South Africans had private medical coverage in 2014. It is clear from this statistic that 83.6% of South Africans did not have private medical coverage in 2014 and were mainly served by the public-health sector. This sector is funded by the state (national, provincial and local authorities) and has to compete with many other state funding priorities. In 2014, the estimated expenditure on health comprised 15.1% of the state's total expenditure.³

In South Africa, entry into the public-health system is via PHC facilities. This system functions as follows: patients who present at a PHC facility are seen mainly by registered nurses (preferably a PHC nurse) or sometimes by medical doctors when they are referred to the doctor by the nurse in terms of the Essential Drug List (EDL).

The PHC nurse is responsible both for the initial assessment and management of the patient and for identifying the need for additional management by other members of the multi-disciplinary team. If a condition does not respond to treatment at the PHC level, or is complicated and needs further investigation or alternative treatment that is not available at the PHC level, the patient is referred to the next level of care. According to the referral system in South Africa, a patient should be referred from the PHC level to the secondary level and then, if necessary, to the tertiary level. However, sometimes patients are referred from the PHC level directly to the tertiary level if specialist care is needed which might not be available at the secondary level.

In a research study towards a doctoral degree,⁴ it was

identified that approximately 60% of children with AE are unnecessarily referred from the PHC facilities to the tertiary dermatology clinic. The reasons identified for this were:

- the lack of knowledge of PHC nurses about the assessment, diagnosis and management of AE;
- ineffective drug treatment – only 1% hydro corticosteroid topical cream is available at the PHC level, therefore only very mild AE can be treated – or insufficient quantities of drug treatment at the PHC facilities, and;
- difficulty in assessing children with AE because the accompanying person was often not the parent.

The effect of this was delayed treatment for these children, poor control of the disease and a reduced quality of life for both the children and their parents. Addressing the knowledge gap of the PHC nurses in the assessment and diagnosis of AE in children appears to be a logical starting point from which to address the challenge.

ASSESSMENT

DIAGNOSING AND GRADING THE SEVERITY OF THE CHILD WITH AE

In a study conducted by the World Allergy Organisation Speciality and Training Council, it was found that the majority of allergic patients are seen by health workers not trained in the assessment, diagnosis and treatment of allergies.⁵ This situation is also true for South Africa.^{4,6}

Thorough assessment and management of a child with AE requires time and effective communication between the healthcare worker and the parent and/or the patient. South Africa is a multi-cultural and diverse society and therefore communication between the healthcare provider and the patient can be part of the difficulties in the assessment and

TABLE I: GUIDELINE FOR PHC NURSES IN ASSESSING AND DIAGNOSING AE**GUIDELINE: ASSESSMENT AND DIAGNOSIS**

- Perform a thorough assessment through a detailed history and physical examination in order to diagnose the child and determine the severity, the presence of complications and the presence of co-morbidities such as rhinitis, rhino-conjunctivitis, asthma and depression.
- Use clinical knowledge to diagnose AE.
- Assess the severity of the AE using the percentage of body surface involved, the acute, sub-acute or chronic changes and the quality of life, and grade the severity as mild, moderate or severe (see Table II).
- Monitor growth (weight and height) and refer if there is evidence of failure to thrive according to the percentile charts.
- IgE levels are not indicated for the PHC level; if indicated, it could form part of identifying allergens and the management of the patient at the next level of care.

management of illnesses. It can also hamper the building of a trusting relationship between the parties involved.^{7,8} In the public-health sector, the lack of time spent with each patient on assessment and treatment (including health education) is often a stumbling block for the healthcare workers. One of the factors contributing to the lack of time for consultations is the low ratio of healthcare workers to patients.^{8,9,10} In a study by Meintjes,⁴ it was observed that the average amount of time spent by health professionals in consulting a parent of a child with AE was seven minutes.

There are different sets of criteria for diagnosing AE. In a systematic review of cross-sectional and case-control

studies,¹¹ it was found that the United Kingdom's diagnostic criteria for AE were the most extensively validated and it is recommended that these criteria should be used. However, a South African study among isiXhosa-speaking people, including 1,000 children each from rural, urban and peri-urban population areas, found that the United Kingdom's diagnostic criteria for AE was not reliable in this population.¹² A South African guideline for AE focusing on medical practitioners was published at the end of 2014 and this guideline recommends that the revised United Kingdom diagnostic criteria should be used for the South African population.¹³ In a health system where the time spent on patients is already limited, it would be helpful if the PHC nurse had clinical knowledge of the presenting features of AE at the different age groups in order to make an initial diagnosis:

- *In the infant phase (birth–2 years):* red, scaly lesions that typically develop on the cheeks and often on the chin; the nappy area is mostly spared, but the cubital/popliteal fossae or other parts of the limbs are involved.
- *Childhood phase (2–12 years):* the eczema involves the flexural areas, neck, wrists and ankles.¹⁴

In the National Institute for Health and Care Excellence (NICE)¹⁵ guidelines, a holistic approach with regard to the assessment, diagnosis and grading of the AE is

TABLE II: STEPWISE APPROACH TO THE PRIMARY HEALTHCARE MANAGEMENT OF CHILDHOOD AE

Step 1: Mild	• Apply complete emollient therapy: - Prescribe the complete emollient ointment (not aqueous cream) as the first line of treatment for all children with atopic eczema. - Provide sufficient quantities of emollient that is at least 250 g/week, depending on the severity and the size of the child. Bigger children could need more (adults should get 500 g/week). - Explain and demonstrate how to apply the emollient and how often: ○ Emollients should be used in larger amounts and more often than the other topical treatments. ○ Apply the emollient at least twice daily over the whole body, and more often if needed, even if there are no symptoms. ○ Shower or bath the child after swimming. ○ The child should preferably bath once a day in warm water for a few minutes to hydrate the skin. ○ After bathing or swimming the skin must be pat dried and not rubbed. ○ Apply the emollient within three minutes after drying the child. Smooth it in as this improves the absorption and reduces the risk of developing occlusion folliculitis. ○ Use the emollient as a stay-on treatment as well as a soap and shampoo. ○ Do not wash the hair while bathing. ○ Emollient treatment often comes in a pot. To prevent bacterial contamination, the required amount must be scooped out with a clean spoon. Fingers should not come into contact with the content. • 1% hydrocortisone topical treatment once or twice daily for 7–14 days – for the amount see Table III. • Once remission is achieved, continue with complete emollient therapy, non-drug therapy and, if necessary, with 'weekend' topical corticosteroid (TCS) therapy and wean off to the lowest dose needed for control. • If an initial burst of treatment with a moderate-strength TCS is needed, the child must be referred to the clinic doctor to initiate the treatment. • When triggers such as tobacco smoke, clothing made from rough fabrics, soap, exposure to pets, environmental pollution and allergens are strongly suspected, give relevant health education. • Provide health education on the need for adherence.
Step 2: Moderate	• Apply complete emollient therapy. • Apply moderate-strength topical corticosteroid once or twice daily for 7–14 days – initiated by the clinic doctor. • Once remission is achieved, continue with complete emollient therapy, non-drug therapy and, if necessary, with 'weekend' topical corticosteroid (TCS) therapy and wean off to the lowest dose needed for control together with complete emollient therapy. • If no remission is achieved, refer. • Rest as step 1.
Step 3: Severe	• As for step 2, plus the following referrals. • Refer to dermatologist. • Refer to psychologist/social worker.
Step 4: Co-morbidities	• Treat according to relevant treatment protocols and/or refer.

recommended. To determine the severity of the eczema, the 2014 South African guideline for AE uses the body surface involved, where 1% body surface is approximately the size of one of the patient's hands, including the fingers; the presence of acute skin changes, including oedema, erythema, vesicles, exudation and crusting,¹⁴ which indicates more severe eczema; and the impact on the quality of life.¹⁶

Different validated tools are available to measure the quality of life of the child with AE as well as that of the parent. These include the Infant Dermatitis Quality of Life (IDQoL) index for children <4 years,¹⁷ the Children's Dermatology Life Quality Index (CDLQI)¹⁸ for children >4 years of age and the Dermatitis Family Impact (DFI).¹⁹ Although these questionnaires have been validated, a systematic review concluded that no validated banding to interpret their scores exists and that further research is needed.²⁰ Owing to the need for further research on these tools and the existing challenges in PHC presented by a low healthcare worker to patient ratio and limited time available for patient care, it is recommended that, as part of diagnosing the severity of the AE, the PHC nurse use his/her clinical judgement about quality of life by assessing sleep disturbances, absenteeism from school/work, visible scratch marks and social withdrawal¹³ instead of complicated tools.

IDENTIFICATION OF TRIGGER FACTORS AND ALLERGENS

AE in children is often associated with allergies. Allergy testing was requested by parents in the study done by Meintjes,⁴ as they were often confused about what the offending allergen(s) could be. Dermatologists in the public-health sector were not convinced of the value of allergy testing for the patients presenting at a paediatric outpatient department of a tertiary hospital.⁴ A systematic review suggests that no evidence exists that measuring IgE levels – skin-prick testing or serum-specific IgE levels – changes the initial clinical diagnosis and management of AE.²¹ However, IgE levels show sensitivity to external aggravating factors and allergens, which may or may not correlate with the severity of the AE, is complex and influenced by various factors.²² This requires the decision about treatment to be made by a specialist and not the PHC nurse.

Different consensus documents give guidance on allergy testing. The Allergy Society of South Africa (ALLSA) guidelines on allergen testing indicate the main reasons for identifying the allergens, namely, to be able to provide more effective and relevant therapy and health education and to avoid harm through the unnecessary restriction of diets and daily activities.²² ALLSA also provided a position statement on skin-prick testing and, although the procedure may appear to be very simple, the interpretation of the results requires clinical expertise.²³ The consensus document of the French Society of Dermatology suggests three reasons for a child's needing allergy testing:

- severe AE that does not respond to treatment despite good compliance and the condition receiving adequate and appropriate treatment;
- an atopic child with a slowing down in their growth curve, and
- an atopic child with a possible symptomatic food allergy.²⁴

These reasons are clear and easy to follow and provide a clear indication for referral by the PHC nurse. However, long before allergy testing becomes a possibility, the PHC nurse can make a big difference in the life of the child with AE and the parent by focusing initial health education and management on the repair and maintenance of the skin barrier and adherence to the basic principles of skincare and drug management.

GROWTH AND DEVELOPMENT MONITORING

Childhood AE could lead to delayed growth and development, especially in the case of severe eczema where more than 50% of the body surface is involved. Although the delay in growth appears likely to be reversible in the long term, assessment of their growth and development is recommended for children with AE.^{25,26} The NICE guidelines for the management of AE in children from birth up to 12 years¹⁶ suggest that their growth be monitored continuously in order to identify children with failure to thrive, as this could be a reflection of the severity of the AE or an indication of another underlying problem.

Stear²⁷ found that only 15% of the health professionals (medical doctors and dieticians) in South Africa conducted growth assessment on children with allergies. This correlates with study findings by Meintjes,⁴ where it was

TABLE III: ADULT FINGER-TIP UNITS TO APPLY TCS²⁹

	3–6 MONTHS	1–2 YEAR OLD	3–5 YEARS	6–10 YEARS	11 YEARS AND OLDER (ADULT SCALE)
Face and neck	1	1.5	1.5	2	2.5
Torso and abdomen	1	2	3	3.5	7
Back and buttocks	1.5	3	3.5	5	7
Entire arm and hand	1	1.5	2	2.5	4
Entire leg and foot	1.5	2	3	4.5	8
A hand and fingers (front and back)	–	–	–	–	1

noted that no specific growth assessment was done for children with AE. It was also noted in this study that the Road-to-Health-Card was seldom used during the consultations. A possible explanation for this is the fragmentation of service points, immunisations and curative service being rendered by different healthcare professionals. According to the Maternal, New born, Child and Women's Health and Nutrition Strategy for South Africa, the monitoring and promotion of growth should form part of a PHC nurse's overall assessment and management of every child seen, as there are many factors that can influence a child's growth and development.²⁸ This strategy should also be applied by the PHC nurse when assessing a child with AE.

CONCLUSION

PHC nurses are often the first healthcare workers in the

public-health system with whom a parent has contact in seeking help for their child with AE. It is therefore vital for PHC nurses to be trained and equipped to assess holistically and correctly diagnose a child with AE in order to provide relevant treatment, health education and referral to other members of the multi-disciplinary team when indicated. This could help to relieve some of the physical, emotional and social burdens that atopic eczema places on the child and the parent.

DECLARATION OF CONFLICT OF INTEREST

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