Reducing health disparities for low decile children and families: a nurse-led response

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ABSTRACT

BACKGROUND AND CONTEXT: Reducing health disparities for children living in deprived areas has been difficult to achieve. This paper describes the implementation of a nurse-led, child-specific clinic within a general practice setting to improve health outcomes for high needs Maori/Pacific Island and NZDep96 quintile groups 4 and 5 children and their whanau/families.

ASSESSMENT OF PROBLEM: The medical centre that implemented the clinic had a high number of enrolled children with chronic and recurrent morbidities. Children frequently did not attend clinic appointments, and there was high use of after-hours services.

RESULTS: An outcome audit after 18 months demonstrated a significant (>30%) reduction in eczema severity, daily irritability, and daily occurrence of pain. Post-intervention fewer children were hospitalised and there was a 50% reduction in antibiotic use.

STRATEGIES FOR IMPROVEMENT: The aim of the nurse-led clinic was to improve health gains, facilitate morbidity control of chronic conditions, and to offer prevention strategies to promote wellness for the target population. The reduction of morbidity severity by 10% was measured with specific morbidity scoring systems for eczema, constipation and nocturnal enuresis. Other outcome indicators measured vomiting/reflux, wheezing/coughing, constipation/soiling, irritability, sleep disturbances, hospital admissions, and antibiotic use.

LESSONS: Nurse-led clinics facilitated by nurses with advanced skills can reduce health disparities for the target population. The amount of time the nurse is able to spend with the child and whanau/family, and the provision of opportunistic assessments as required, has effected positive change in those children most in need.

KEYWORDS: Child health; low decile families; Maori/Pacific families: chronic conditions; nurse-led clinic

Background

Reducing health disparities for Maori and Pacific children and for children living in areas of high deprivation is a goal underpinning health provision in New Zealand. These children have rates of common chronic health conditions two to six times higher than those not living in socioeconomic deprivation.[1] This paper outlines an outcome evaluation of a child health nurse-led clinic which aimed to improve health gains, facilitate morbidity control of chronic conditions, and offer prevention strategies to promote wellness in this population.

Nurse-led clinics have become more commonplace in the provision of primary health care since the implementation of the Primary Health Care Strategy in 2001.[2] Government supported the development of innovative models of primary health care nursing practice which would help deliver the objectives of the Primary Health Care Strategy.[3] A more recent driver of nurse-led clinics has been funding from Primary Health Organisations (PHOs) to meet the specific health needs of the population.[4] Services which are nurse-led are not merely replacing the doctor

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with the nurse: nurses take the lead to add an enhanced quality of care.[5] Nurse-led clinics have been implemented successfully internationally[6–8] and nationally.[9,10] Child health conditions such as atopic eczema, asthma, functional constipation, urinary tract infections and iron deficiency anaemia have been successfully managed within the nurse-led clinic model.[5,7–9,11–15] Benefits of nurse-led clinics include increased patient satisfaction, longer consultations, and improved patient education.[5]

Hawkes Bay, a region on the east coast of New Zealand, has higher than the national average numbers of children and young people living in the most deprived (NZDep01 decile 10) areas according to the 2006 census. Thirty-five percent of children in Hawkes Bay live in deprivation areas 9 and 10 compared to 24% nationally.[16]

One of the authors (CR) works as a practice nurse at a general medical facility in Hawkes Bay. This facility serves a culturally diverse urban area, with an enrolled child population (0–18 years) of 4968. The demographics of the enrolled child population are shown in Table 1.

Purpose

The purpose of this paper is to present an outcome evaluation of a nurse-led clinic. An audit-based approach was used to evaluate the impact the clinic has had on children with chronic childhood conditions with particular emphasis on high needs Maori/Pacific Island children and NZDep96 quintile groups 4 and 5 whanau/families.

An application for ethical approval for this outcome evaluation was made to the Central Regional Health and Disability Ethics Committee. The Committee advised that this study does not require ethical approval, as it falls under exemptions 11.8 and 11.9 of the *Ethical Guidelines for Observational Studies: Observational Research, Audits and Related Activities* (NEAC, December 2006) and therefore requires no further review.

Assessment of problem

Significant numbers of the enrolled child population in the practice experienced chronic and recurrent morbidities. Nineteen percent of patients had outstanding debts to the practice. Sixty-eight children (0–18 years) did not attend their booked appointments over a two-month period. Over a one-year period, there were 70 011 child presentations without a scheduled appointment (walk-ins), or after-hours, and 62% of these children resided in NZDep96 quintile groups 4 and 5.[17]

In one year, 1644 children less than 18 years were identified as having a chronic condition. Repeat exacerbations were problematic, with the number of presentations ranging from two to eight per child. Sixty-five percent of these children lived in NZDep96 quintile groups 4 and 5.[17]

Strategies for quality improvement/change

The aim of the intervention was to improve health gains, facilitate morbidity control of chronic conditions, and offer prevention strategies to promote wellness to the target group of children. Chronic conditions included atopic eczema, asthma, food allergies/intolerances suspected or actual, functional constipation, gastroesopha-

Table 1. Demographics of enrolled children (n=4968) 0–18 years.[17]

Characteristic	
Ethnicity	**n (%)**
NZ European	2807 (57%)
Maori	1645 (33%)
Pacific Island	167 (3%)
Asian	68 (1%)
Indian	23 (0.5%)
African	18 (0.4%)
Middle Eastern	10 (0.2%)
Other	230 (5%)
NZDep96	
Quintile 1	278 (5.6%)
Quintile 2	400 (8%)
Quintile 3	854 (17%)
Quintile 4	854 (17%)
Quintile 5	2582 (52%)

geal reflux disease, nocturnal enuresis, and obesity. The clinic excluded children with complex cardiac, respiratory, renal, endocrinological, and neurological chronic morbidities. The service was funded by the Hawkes Bay Primary Health Organisation (HBPHO). All children under 18 years who were identified as having a chronic condition were sent a letter explaining the purpose of the clinic, and were offered the opportunity to make an appointment.

Each consultation was 45 minutes, which gave time to discuss, educate, and offer prevention strategies. Within each consultation, wider social issues affecting the child and their whanau/family were assessed, such as financial assistance, smoking cessation, transport issues, family violence screening, and housing concerns.

Opportunistic assessments were often performed out of designated child health clinic hours, and after hours (4pm to 7pm). Language barriers were managed with an interpreter service. The clinic recognised and embraced the 'Te Whare Tapa Wha' concept as described by Durie.[18] Te Whare Tapa Wha refers to the four walls of the whare (house), with each wall representing a dimension of health; taha wairua (spiritual), taha tinana (physical), taha hinengaro (mental/intellect), and taha whanau (extended family).[18] Following review of international best practice literature regarding the impact of child-specific, nurse-led clinics relating to eczema, constipation, and urinary tract infection, outcome indicators were adopted.[5,11–14,20–22]

The nurse-led clinic had specific objectives with regard to assessment of particular childhood chronic conditions. The reduction of morbidity severity by 10% was measured with morbidity scoring systems, such as the Six Area, Six Sign Atopic Dermatitis (SASSAD) severity score for children with eczema; the Bristol Stool Scale for children with constipation; and number of wet nights per week for children with nocturnal enuresis. Other child health outcome indicators measured vomiting/reflux, wheezing/coughing, constipation/soiling, irritability, sleep disturbances, hospital admissions, and antibiotic use. An outcome audit utilising the Medtech32 Patient Management System Query Builder function extracted data for analysis. Baseline data was collected at the time of the first visit from whanau/families, using direct questioning and observation. Post-intervention data was collected one month following the first clinic visit.

The purpose of the intervention was to reduce the frequency of the indicator(s) from daily to every second or third day, weekly, or none over a period of one month post-intervention.

The children and their whanau/families were the major stakeholders in the intervention. They were offered the choice of completing (or not) a consultation satisfaction survey (Appendix 1, available in the web version of this paper) posted to them with a prepaid return addressed envelope within three months of their last visit to the child health clinic. Another major group of stakeholders were the general practitioners (GPs) who worked within the practice. All GPs were offered the opportunity to complete a survey of the clinic (Appendix 2, available in the web version of this paper).

WHAT GAP THIS FILLS

What we already know: Children from Maori and Pacific families, and low decile groups have two to six times the rates of common chronic health conditions than other children. Improving the health status of these children has been difficult to achieve. High incidences of families not attending clinic appointments, and reduced access to health care because of increasing waiting times for outpatient clinics have led to widening health disparities.

What this study adds: A nurse-led, child-specific clinic for low-decile children with mild–moderate chronic conditions has been successfully implemented in New Zealand. Significant reductions in eczema severity, irritability and pain, alongside a decrease in hospital admissions and antibiotic use have been achieved by advanced nurses working with children and their whanau/families.

Results of assessment/measurement

Two hundred and sixty-five consultations were carried out over an 18-month period. Seventy-five percent were from NZDep96 quintiles 4 and 5.[19] Table 2 shows demographic data of children reviewed at the clinic. Results are reported under each of the specific chronic conditions.

Eczema

Fifty-four children with eczema were included in the outcome audit. Children were excluded from the audit if follow-up did not occur one month after the first visit. The average SASSAD baseline score was 29, and the average post-intervention SASSAD score was 13. This demonstrates an average reduction of 16 in the SASSAD scores, and equates to a 32% reduction in eczema severity (Figure 1).[19]

A possible correlation may be noted between the increase in daily emollient utilisation, the reduction in daily topical corticosteroid use (TCS), the reduction in daily itching, and the reduction in eczema severity (Figure 1). Daily emollient use increased by 51%, daily TCS reduced by 15%, daily itching reduced by 32%, and eczema severity decreased by 32%. Similar findings were noted in the United Kingdom in research which assessed the efficacy of education and demonstration of topical therapies for children with eczema in a nurse-led clinic environment.[12] Their results also demonstrated a significant increase in daily emollient utilisation and a significant reduction in eczema severity with no increase in the use of topical corticosteroids.

Constipation

Ten children who experienced constipation were included in the audit; seven were excluded because they did not attend their follow-up visit at the one month interval. On first assessment six children had Bristol scores 1 (constipation), and four had Bristol scores 2 (constipation) (Figure 2). Post intervention, in all 10 children included in the audit, stools became softer in consistency and hence easier to pass, with their Bristol scores ranging from three to five (normal stool consistency).[19]

Figure 1. Comparison of baseline and post-intervention eczema outcome indicators

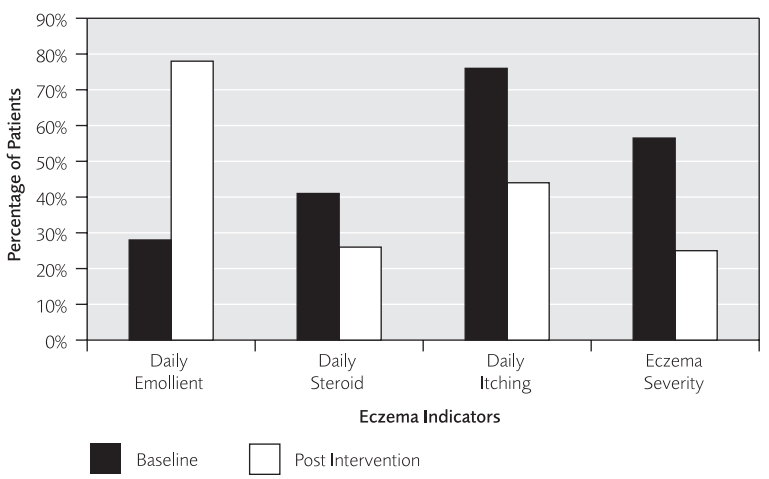

Table 2. Demographics of children (n=265) 0–18 years reviewed in the child health clinic

Characteristic	n (%)
Ethnicity	
NZ European	123 (46%)
Maori	99 (37%)
Pacific Island	24 (9%)
Indian	8 (3%)
Asian	3 (1%)
Other	8 (3%)
Age in years	
<5	197 (74.5%)
6–12	43 (16%)
13–18	25 (9.5%)
Gender	
Female	140 (53%)
Male	125 (47%)

Nocturnal enuresis

All four children who experienced nocturnal enuresis were included in the audit. On first visit the number of wet nights per week for each child ranged from two to seven weekly (Figure 3). Post intervention wet nights ranged from none to two wet nights per week for one month.[19]

Child health indicators measurement

Sixty-eight children aged from birth to 18 years were included in the audit (Table 3). Findings show at the time of the first visit, four children had been hospitalised within the previous month due to their chronic condition. One child on first visit was referred to hospital for eczema herpeticum infection, and one child was admitted to hospital post intervention for MRSA-infected eczema. At the time of the first visit 41% of children had received antibiotics within the previous

month, and post intervention 28% had received a course of antibiotics within the month interval.

Other findings showed a 36% reduction in daily mood irritability; a 28% increase in children sleeping throughout the night with 13% reduction in nightly sleep disturbances; a 22% reduction in the daily occurrence of pain; a 13% reduction of vomiting/reflux on a daily basis; a 12% reduction in daily occurrence of constipation/soiling; and an 11% reduction in children experiencing daily, or every second/third day, wheezing/coughing symptoms.[19]

GP survey results

Twelve GPs who worked within the practice gave feedback via a confidential survey (Appendix 2, available in the web version of this paper). All agreed the nurse-led clinic was a useful resource which had positively impacted upon their workload.

Family satisfaction results

Twenty whanau/families of the 68 children who had attended the nurse-led clinic gave feedback via a confidential consultation satisfaction survey (Appendix 2 in the web version). Findings showed all whanau/families strongly agreed or agreed that they were satisfied with the care received in the clinic; most whanau/families felt they were involved with goal setting; 85% felt the advice and education contributed to their child's improved

Figure 2. Constipation outcomes

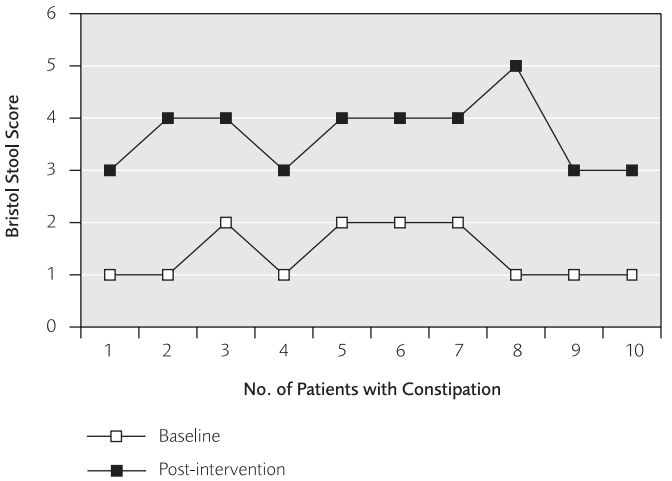

Figure 3. Nocturnal enuresis outcomes

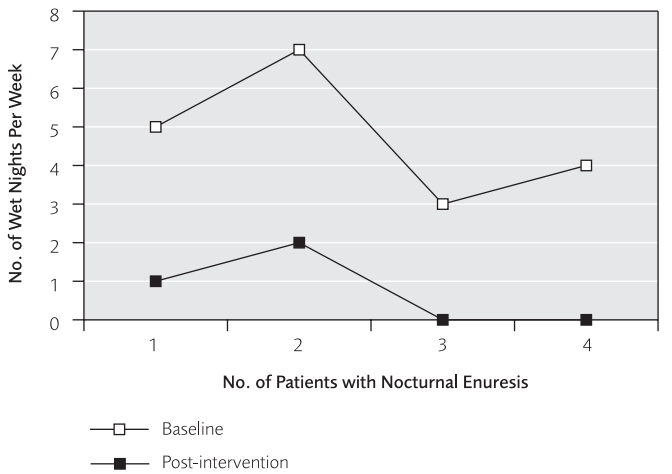

Table 3. Comparison of baseline and post-intervention child health indicators (n=68)

Indicator	None		Weekly		Every 2nd to 3rd day		Daily	
	B	PI	B	PI	B	PI	B	PI
Sleep disturbance	22 (32%)	41 (60%)	12 (18%)	11 (16%)	13 (19%)	4 (6%)	21 (31%)	12 (18%)
Pain	22 (32%)	46 (67%)	18 (26%)	15 (22%)	12 (18%)	6 (9%)	16 (24%)	1 (2%)
Vomiting/reflux	53 (78%)	65 (96%)	5 (7%)	3 (4%)	1 (2%)	0 (0%)	9 (13%)	0 (0%)
Wheeze/cough	47 (69%)	67 (98%)	14 (20%)	1 (2%)	6 (9%)	0 (0%)	1 (2%)	0 (0%)
Irritability	22 (32%)	49 (72%)	5 (7%)	11 (16%)	12 (18%)	3 (4%)	29 (43%)	5 (7%)
Constipation/soiling	53 (78%)	59 (87%)	3 (4%)	5 (7%)	3 (4%)	3 (4%)	10 (14%)	1 (2%)
Antibiotic use	40 (59%)	49 (72%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	28 (41%)	19 (28%)
Hospital admissions	64 (94%)	67 (98%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	4 (6%)	1 (2%)

B = Baseline
PI = Post intervention

health, and felt more confident and motivated; and finally, all whanau/families reported increased understanding of their child's diagnosis, medication, and treatment plan, and were satisfied with the amount of time the nurse spent with them.

Lessons and messages

Primary health care is population- and patient-focussed. The introduction of the child health nurse-led clinic provided a new resource for the medical practice. There were no primary health child-specific nursing services available to support children with common chronic conditions in the region. The clinic was developed to meet the needs of a specific population within the medical practice. Over an 18-month period, 265 nurse-led consultations were undertaken. Seventy-five percent of children in the group were from NZDep96 quintiles 4 and 5, and 46% were of Maori or Pacific Island descent.

The clinic's success could be attributed to early review of children with mild to moderate forms of chronic conditions, and hence preventing these conditions from becoming more severe. A further achievement of the clinic was facilitating a shift in service provision to primary health care in line with government targets outlined in the Primary Health Care Strategy.

Intervening when morbidities are mild to moderate, and then working closely with whanau/families with education and support, has enabled more efficient condition control.

Benefits for the practice have enabled nurses to undertake independent nurse-led clinics, thus using their knowledge and skills in ways not previously achieved.[23] The introduction of the child health nurse-led clinic did not require major practice change as all processes were acceptable and practicable for nurses, GPs, and whanau/families.

PHO, GP and practice nurse support has been essential to the success of the child health nurse-led clinic. It is anticipated that, with this ongoing support, the service will continue in the foreseeable future, addressing the health needs of children and young people in Hawkes Bay, and thus reducing the burden of ongoing chronic illness.

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COMPETING INTERESTS
None declared.

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Appendix 1: Consultation Satisfaction Survey

Eight questions in Likert scale with 5 responses: strongly agree, agree, neither agree nor disagree, disagree, strongly disagree

Questions:

1. I am satisfied with the care my child and I received.
2. I was involved in setting goals for my child that address the health issues that matter.
3. The advice and education has contributed to my child's improved health and wellbeing.
4. I feel more confident and motivated to manage my child's health needs.
5. I have a better understanding of my child's diagnosis, medication and treatment plan.
6. I was satisfied with the amount of time the nurse spent with my child and me.
7. The room in which I was consulted was satisfactory and met my needs.
8. I was able to book an appointment easily.

The name of the nurse I just saw...

Any other comments or suggestions?

Appendix 2: GP Survey

Five questions in Likert scale with 5 responses: strongly agree, agree, neither agree nor disagree, disagree, strongly disagree

Questions:

1. Have you found the child health clinic a useful resource to the care you provide to your patients?
2. Are you satisfied with the timeframe that it takes for your patients to be reviewed in the child health clinic?
3. Have you received positive feedback from parents regarding the management of care in the child health clinic?
4. Have you noticed a reduction in exacerbations or repeat presentations of children seen in the child health clinic?
5. Has this positively impacted upon your workload?

Any additional comments regarding the child health nurse-led clinic?