# Learning medicine at the bedside

## Participation in clinical research in a rural community; reflections of medical students' learning experience

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### INTRODUCTION

This paper explores the experiences of four medical students who as part of a summer studentship participated in a research visit at a rural location in New Zealand. This was a unique experience as the entire research laboratory was temporarily relocated from Auckland to the remote Hokianga community of Kohukohu. During this three day visit students were exposed to Maori culture as well as health and illness in a rural setting. There was an opportunity to interact with patients who do not usually interact with medical students and who participate in health-care in a way that is different from their city counterparts. Students had the opportunity to work closely with senior medical staff who were solely focussed on the site visit rather than being distracted by their many other responsibilities. Three students had just completed year 3 and one student had completed year 5 of the medical programme at the University of Auckland. This paper explores the social, medical, cultural and learning experiences during the research visit and contrasts them to the experiences gained while training in the city.

### BACKGROUND

The research was investigating the hypothesis that natriuretic peptides are novel biomarkers are useful in detecting left ventricular hypertrophy in patients with type 2 diabetes. Patients with type 2 diabetes in the community were referred by their general practitioner for inclusion in the study. After a history and physical examination participants underwent echocardiography as the "gold standard" test for detecting LVH. Blood samples were taken for the measurement of various biomarkers; body composition assessed by bio-impedance analysis and an ECG was performed.

To ensure that the study (entitled 'Natriuretic Peptides in the Community II') results are applicable to a broad population of patients with diabetes in New Zealand it was decided to recruit patients from both a rural and urban community. The urban population was recruited from Auckland general practices. To recruit patients from a rural community links were established with the Hauora Hokianga Enterprise Trust. The Trust receives government funds so that it can provide "free" medical and disability services to about 6500 people in an isolated rural area of Northland.

Northland has one of the most deprived populations in the country. While 30% of NZ's population is in the lowest 3 deciles, the same measure for Northland is 49%. Deprivation is particularly high in the Hokianga region with 21% of the population unemployed compared to 7.5% for the rest of New Zealand. Maori, who make up 73.4% of the population in the Hokianga, have age-standardised mortality rates almost 2.5 times higher than non- Maori. Furthermore, the rates of both avoidable mortality and potentially preventable hospital admissions are higher for Maori than non-Maori .

The research team from the University of Auckland was made up of four doctors (two medical specialists, a GP research fellow, and a cardiology research fellow), a research nurse, a senior research fellow in cardiac ultrasound, two expert technologists (echocardiography and electrocardiography), and four medical students (three year 3, one year 5). As part of the planning an initial site visit was carried out some months before the research visit. During this visit some of the investigators met with a local GP and diabetes nurse educator, key members of the local health board and community leaders. Prior to the research visit the local health team screened their practice records for patients who met the inclusion criteria. Those who met the inclusion criteria were visited by the diabetes nurse educator and written consent to participate in the study was obtained. The study was approved by the local ethics committee.

Kohukohu clinic, one of nine clinics operated by the Hauora Hokianga Enterprise Trust, was selected as the site for the research visits. Kohukohu clinic is situated in the hillside settlement Kohukohu Township. The clinic serves the town of around 200 residents and also the surrounding area, to make a total practice population of approximately 450 people. The township is situated on the Hokianga harbour, about 3 hours drive north-west of Auckland. There was little traffic and plenty of parking set aside for participants. On each of three days, 16 patients from Kohukohu and other Hokianga settlements were scheduled for a two-hour visit, which included a rotation through four rooms where different study related procedures were undertaken. Forty of these patients attended the appointment, 91% of the attendees were Maori. Five patients were excluded from the study because they did not meet the inclusion criteria.

After appropriate training, year 3 medical students performed electrocardiograms (ECGs), reviewed patient records, conducted bioimpedance body composition measurements, blood pressure measurements, and the initial processing of blood samples. One student was a trained phlebotomist and assisted with blood letting. The year 5

medical student performed a focused history and examination on all patients, under the supervision of one of the medical specialists.

### Reflections of Medical students

Perceptions about Hokianga life were gained from discussions with the study participants and other local people. This was not formal research but casual observations, which mainly occurred as patients completed the four stations that made up the research appointment.

### The Culture

The local Kohukohu community was very welcoming of the research team. A powhiri welcomed the research team to the community. A lavish meal was prepared for the team, and we felt very privileged and humbled by the lengths to which the community went to make us feel welcome. Such an experience in a community is all but impossible to obtain in a city setting, highlighting the value of this trip to pre-clinical medical students. Previous cultural experiences had been limited, and were largely confined to theoretical discussions in lecture theatres. This visit provided a 'hands-on' learning experience and truly emphasised the importance of cultural competence. At the conclusion of the visit, a poroporoake was held to farewell the team – a further tangible demonstration of the community's appreciation.

The cultural experience was hampered by the fact that most of the research group were not able to speak Maori. However, the year 5 student was able to speak Maori and with respectful shyness, she attempted to Korero, using a language she had learned for the previous 15 years. She described the experience as "the best environment for its use that I could possibly imagine". As cultural experience may be enhanced by understanding of, and perhaps learning to speak another language, offering a Maori language option during medical training may be helpful. This is especially so for those students who may be interested in practicing in rural communities, where significant proportions of the population are Maori.

### The Community

Some participants had returned to the rural environment to get away from the "rat race" of city life and enjoyed the peace and quiet and slower pace of life in the Hokianga region. It was also an opportunity to return to their roots. City life now seemed foreign to them; although many had spent the majority of their working lives in the city. Some participants reported having less financial resources than their city counterparts or when they had lived in the city. This did not seem to matter much to them. Some older participants described a "worn out" feeling and felt they were now "useless", yet, they are often looking after children and grandchildren. This perception was less true for the younger people living there. Participants enjoyed the close knit community but a few also commented on how it was difficult to maintain privacy.

The participants all seemed willing to include new-comers, such as ourselves, into their lives. The research team felt very welcome and privileged in this environment and felt it would be a useful for other medical students to experience the closeness of the Hokianga rural community.

Four patients that were scheduled for the research visit did not attend. The common factor was that the diabetes nurse specialist had not personally visited them about the study but had simply sent them written information. This seemed to demonstrate the key role of the close relationship between healthcare workers and the community who greatly valued personal contact and invitation. The closeness and friendliness amongst health professionals, support staff and patients was very appealing.

### The Medical Practice

The Hauora Hokianga Enterprise Trust rural doctors work in a community team relying on the Community Health Nurses, Kai manaki tangata (community support people), clerical assistants and the Diabetes Nurse Educator to share community knowledge to enhance practice. The whole team is involved in providing "health care" in its broadest sense. It is often the trust placed in team members, who mostly live in the area, that gets the patient to the doctor and ensures recommend treatments are followed. Each member of the team is valued - it is an integrated service. We noted that some of the population make use of traditional Maori remedies. However, there did not appear to be much resistance to conventional medicine in the group of patients we interacted with.

The most noticeable difference between rural and city medical practice was the apparently closer relationship between the patient and the doctor. The doctor takes on the role of "carer of the community" and is well respected and loved by the community. Patients seemed to trust the doctor and willingly follow medical recommendations or interventions. Overall it appeared to the students that general practice was very "patient friendly" in Kohukohu.

It seemed that GPs working in these circumstances may have a much better idea of the impact of patients' lives in a broader social context on the management of chronic illness. In the city some patients visit accident and emergency facilities and appear not to have regular follow-up with the same doctor. Similarly, medical students do not always have the opportunity to follow-up patients. Being involved in a community provides an excellent opportunity to see and understand both the impact of an illness on a patient's life and the consequences of medical interventions, be they for good or for harm. Such an experience would complement the health psychology lectures which discuss the impact of illness on people from a theoretical perspective.

Some patients encountered in the Hokianga seemed to view significant chronic illness from a less debilitating perspective than their city counterparts. One lady that was excluded from the research cohort casually remarked that she had had five heart attacks as if this was of little consequence. She went on to say "When you don't look after your body like I did when I was going through a rough time, you get heart attacks and that's just what happens." She did not seem troubled by the implications of having had heart attacks in the past and merely put it down to a consequence of her action and accepted the consequences. There was an overarching feeling of perseverance, of "getting on with things", of "making the most of what you have".

### The Clinical Learning

To the best of our knowledge, this study, which mobilised the Cardiovascular Research Unit to a rural area, is a novel experience in New Zealand. The fact that there were few major hiccups and the high productivity during our relatively short stay, are important points in themselves. People in rural communities, because of their isolation, may have limited access to secondary and tertiary healthcare facilities in addition to other barriers to care. As such, these patients may be at increased risk of disease and complications. We saw tangible evidence of this as some of previously undiagnosed cardiac/medical conditions were detected and referral made to appropriate services.

The medical students reviewed all patient files to confirm histories or to identify other pertinent points. Through this process, students realised the importance of detailed patient summaries, especially those which recorded what investigations and procedures had been undertaken in secondary care facilities. This highlighted the need for an integrated record system between primary and secondary care providers. The need for clear, detailed notes became apparent through this process, and will certainly influence the students note taking in future. The register of retinal screening and the electronic clinical and laboratory diabetes database was particularly useful in identifying the history of a patient's diabetes and possible diabetic complications.

The year 3 medical students enjoyed the opportunity to work closely with senior clinicians. The fact that clinicians were solely focused on the

research effort meant that a very close interaction could occur between students and clinicians that would be unlikely to occur in the city. In addition patients seemed very willing to allow students to participate in their care. These two factors combined so that students enjoyed an excellent learning experience. This clinical experience boosted confidence and provided an early opportunity to practice clinical examination skills and professionalism. Involvement in clinical research has stimulated the students' interest in pursing research during their career.

Although the year 5 student had just completed her year end medical and surgical short-case examination, she was responsible for taking the history and examination of all patients, under supervision, and found the experience enormously rewarding. Having both her history taking and examination skills directly observed while clerking 40 consecutive patients proved to be an excellent experience, which greatly boosted her confidence, prior to her starting as a Trainee Intern. She commented "I found myself shoulder deep in pathology, although mainly benign, the kind that twenty medical students would hover over in the city." Students noted that the participants seemed genuinely glad to see them there, unlike when they had been involved in patient care in the city.

The research visit also offered insights into the importance of team work – the students were part of a highly skilled, multi-disciplinary team. The importance of clear communication, respect for each person's role, and the ability to compromise were clearly demonstrated as the team worked to together to ensure a smooth research visit. The ability to make things happen and resolve challenges that arose were clearly evident.

## CONCLUSION

The research objectives of collecting data which is representative of the broader community were clearly met by this experience and in time will provide some interesting clinical results. In addition, working in a multi-disciplinary research group, in a rural community, with predominantly Maori people was an excellent early learning experience. The hands-on nature of the visit seemed more valuable than working on a theoretical project.

How much is gained from such an experience is very much a matter of how much effort is put in. While the community were extremely welcoming and more than willing to assist with medical education, it is ultimately the student that must engage with patients, learn about their culture and discover how best to interact competently with those from a different ethnic group. This is a crucial part of providing excellent medical care, making practical experiences such as this rural research visit all the more valuable.

## ACKNOWLEDGMENTS

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