THE NEW ZEALAND MEDICAL JOURNAL
Vol 118 No 1224 ISSN 1175 8716

The health status of quota refugees screened by New Zealand's Auckland Public Health Service between 1995 and 2000

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Abstract Each year New Zealand accepts approximately 750 refugees from overseas for resettlement in New Zealand. Known as "Quota Refugees", these people arrive in groups of 125 six times each year. Since 1979 their first six weeks in New Zealand have been spent at the Mangere Refugee Resettlement Centre in Auckland. This Centre comprises several agencies which prepare the refugees for their life in New Zealand. Among the agencies is a Medical Clinic, which provides health screening, and management of any medical problems found. This paper describes the findings of the health screening, mainly those refugees screened between 1995 and 2000, but also includes some historical data from the opening of the Resettlement Centre

Each year, New Zealand takes a quota of 750 refugees from overseas; about 10 other countries also take a quota of refugees. These refugees have been mandated by the United Nations High Commission for Refugees (UNHCR), and have often lived in refugee camps for many years. New Zealand also accepts asylum seekers, about whom there is a separate report.[1] The invited or 'quota' refugees are selected by the New Zealand Immigration Service (NZIS), and come to New Zealand in groups of about 130, and on arrival, stay at the Mangere Refugee Resettlement Centre (MRRC) in Auckland for 6 weeks. MRRC, which started receiving refugees in 1979, is possibly unique in the world because of its collection of agencies on the one site, the agencies being:

- Refugee Branch of NZIS—responsible for the documentation for each refugee.
- Refugee and Migrant Service—a non-government organisation (NGO) responsible for the social aspects of resettlement.
- School of Refugee Studies of the Auckland University of Technology—which runs educational programmes for all ages.
- Refugees as Survivors (RAS)—an autonomous torture/trauma counselling service.
- The Medical Clinic—under the auspices of the Auckland Regional Public Health Service,

During their stay at MRRC, the refugees are prepared for their new life in New Zealand, and among the preparations are medical screening and treatment. Any treatment needed is either started at MRRC, or the refugee is referred to the appropriate clinic. Adverse medical findings do not have any effect on the refugees right to resettlement.

On leaving MRRC, all the refugees are given a copy of their medical records, and part of the resettlement process involves a support worker from RMS helping the refugee to register with a GP.

We report here key findings, mainly from the period of 1995–2000, but also including historical data from the opening of the clinic. Some comparisons are made with asylum seekers.

Methods

Medical records have been kept since the clinic first opened in 1979. An annual medical report was written every year from 1979 until 1992. Since July 1995, the records have been computerised, initially shelf general practice patient management system, Medtech-32. The main data is derived from analysis of the Microsoft Access software program from July 1995 until the end of 1999. The screening programme is evolving; so over time, some procedures are introduced and others dispensed with. In addition, some refugees do not receive all the tests. In most cases this occurs in young children in whom for technical reasons not enough blood is obtained to carry out all the tests.

The data includes stated nationality, age, and sex; the screening process includes a chest X-ray for all those 16 years and over; and for all ages, a Mantoux test, full blood count, haemoglobinopathy screening, iron studies, liver function tests; serology for HIV antibodies, Hepatitis B surface antigens, and antibodies, Hepatitis C antibodies, morbilli and rubella IGG; one urine test; and 3 stool tests for *Salmonella* and *Shigella* bacterial species, and all other faecal parasites. Women are offered cervical smears and gynaecological bacteriological screening. The clinical medical examination is standardised, and includes a psychosocial assessment.

Historical data before 1995 are taken from the annual reports, and is presented for tuberculosis, HIV, and some faecal pathogens. Where data are missing, it is because it is not available, usually at times of restructuring when lack of continuity of staffing made collection of data difficult.

Laboratory parameters from the testing laboratories as printed with each result were used to determine the normality of blood tests. Data were analysed using Epi Info 2000 software. Relative risks (RR) and 95% confidence intervals (CI) were calculated, with corresponding p values.

Results

Demographics

2992 refugees received health screening at the MRRC between July 1995 and the end of 1999. Their age and sex demographics are presented in Figure 1; Tables 1 indicates their nationalities. Figure 2 and Table 2 compare the age/sex and nationalities, respectively, of quota refugees compared with asylum seekers. Of the 2992 refugees, 1403 (46.9%) were female and 1589 (53.1%) were male; 34 different nationalities were recorded.

Table 1. Demographic characteristics of quota refugees screened at Mangere Refugee Resettlement Centre (1995–1999)

Nationality	Number	Percentage (%)
Iraqi	875	29.2
Ethiopian	691	23.1
Somali	527	17.6
Vietnamese	176	5.9
Iranian	131	4.4
Sudanese	91	3
Afghan	68	2.3
Other	431	16.4

Figure 1. Demographic characteristics of quota refugees screened at the Mangere Refugee Resettlement Centre, Auckland, New Zealand (1995–1999)

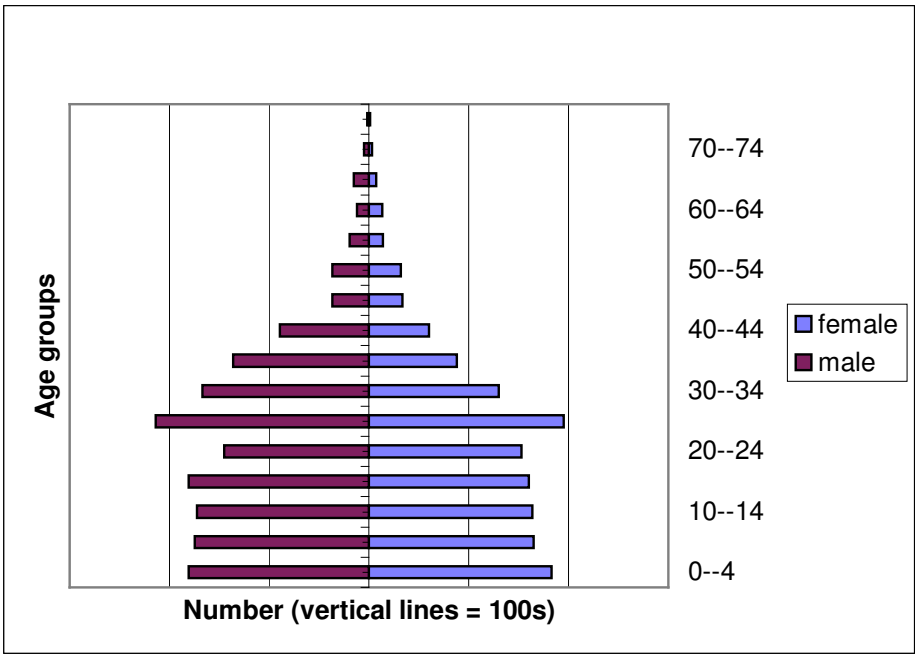


Figure 2. Demographic characteristics of screened asylum seekers in Auckland, New Zealand (1999–2000)

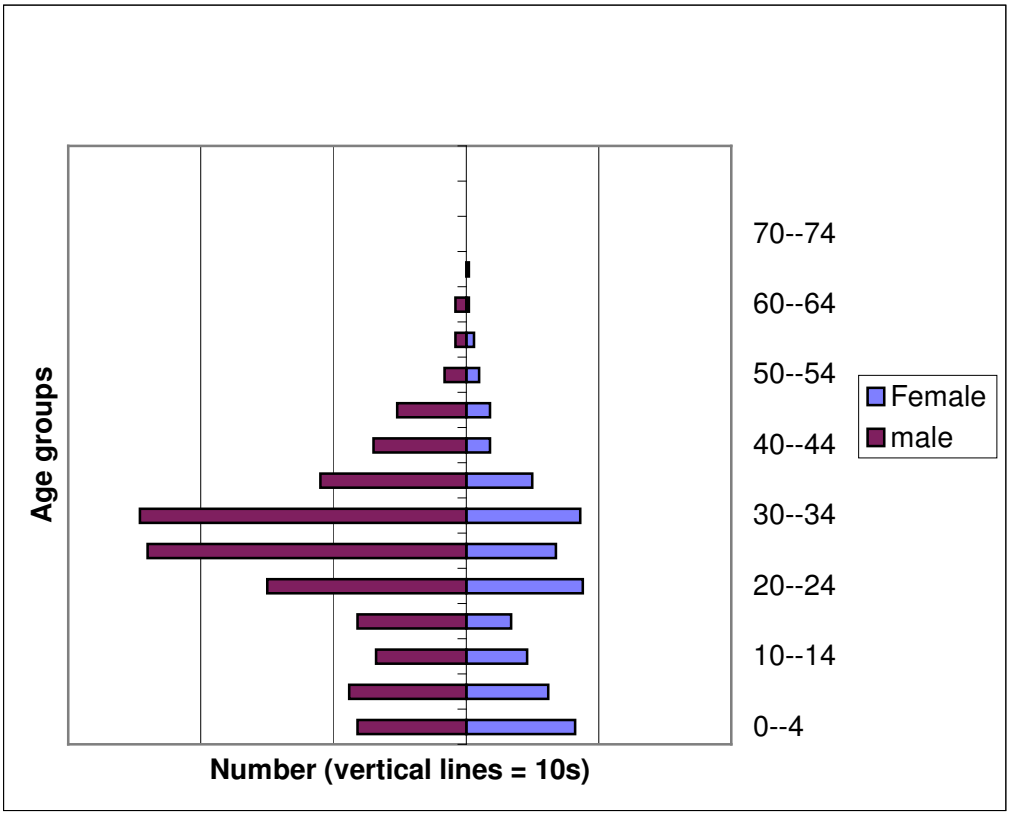


Table 2. Demographic characteristics of quota refugees 1995–1999, compared with asylum seekers 1999–2000

Nationality	Quota refugees		Asylum seekers	
	Number	Percentage (%)	Number	Percentage (%)
Iranian	131	4.4	168	18.7
Afghan	68	2.3	146	16.2
Sri Lankan	47	1.6	138	15.3
Czech	0	0	133	14.8
Kuwaiti	2	0.1	65	7.2
Somali	527	17.6	46	5.1
Iraqi	875	29.2	41	4.6
Other	1340	44.8	163	18.1

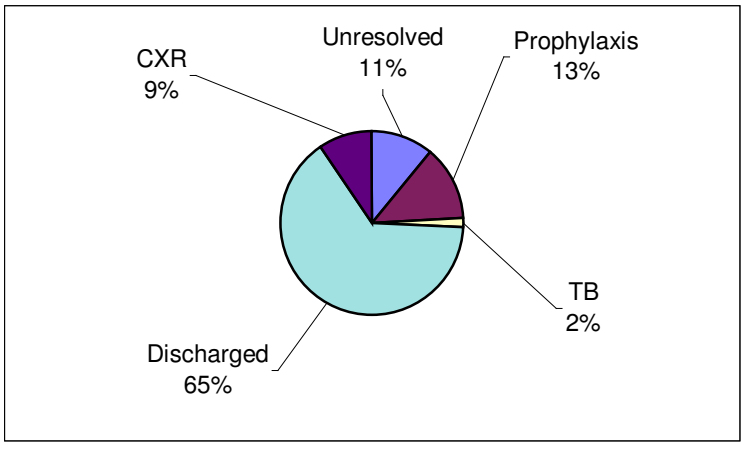
Infectious diseases

The four most prevalent infectious diseases in the World (excluding upper respiratory tract infections) are:

- Tuberculosis
- Malaria
- HIV infection
- Schistosomiasis

Tuberculosis—Figure 3 shows the outcome of screening from July 1995 until July 1998 (1405 refugees). After that time, the management of Mantoux positive refugees has devolved to the public health units in the areas in which the refugees have settled.

Figure 3. Outcome of tuberculosis testing in quota refugees screened at Mangere Refugee Resettlement Centre (1995–1999)



CXR=serial chest X-ray; TB=tuberculosis; Prophylaxis=treatment for latent TB infection with Isoniazid; Unresolved=generally those refugees whose Mantoux test is positive, but who are undergoing further investigation at the time they left the Centre—e.g. awaiting sputum culture for tuberculosis, and who were followed up outside the Centre.

For the population under consideration, all 2992 had a mantoux test, of whom 995 (34.3%) had a result of 10mm or more.

Malaria—Many refugees come from an area in which malaria is endemic (e.g. Sub-Saharan Africa). There is no test for quiescent malaria, but all refugees are asked if they have had malaria, and if they come from a malaria endemic area; 26% of all the refugees questioned report that they have had malaria in the past.

HIV infection—Testing for HIV infection started at the Centre in 1994, but reliable data exists from computerisation of the data in mid-1995. The data has been grouped to avoid the risk of identifying individuals.

Table 2. Prevalence of positive HIV tests among quota refugees screened at Mangere Refugee Resettlement Centre (1995–1999)

Group	Number tested (%)	Number HIV-positive (%)
Sub-Saharan Africa	1349 (98.0)	52 (3.9)
South East Asia	251 (96.9)	4 (1.6)
Neither of the above	1223 (96.8)	1 (0.1)
All quota refugees	2823 (97.3)	57 (2.0)

Table 3. Serology of infectious diseases other than HIV among quota refugees screened at Mangere Refugee Resettlement Centre (1995–1999)

Serological test	Number tested (%)	Number positive of those tested (%)	Range by nationality (%) / Mean / SD
Schistosomal Ab	2825 (94.4)	620 (21.9)	0–100 / 17 / 25.9
Anti HBs	2964 (90.0)	729 (24.6)	
HBsAg	2923 (97.7)	136 (4.7)	0–100 / 13.8 / 27.5
Anti HCV†	1926 (88.4)	43 (2.3)	0–10/ 1.5 / 2.7
HCV RNA present	40 (93) of those positive	19 (47.5) of those with positive antibodies; 0.99% of the 1926 tested	
Treponemal Ab	2847 (95.2)	113 (4.0)	0–100 / 6.5 / 19.4
Rubella IGG	2681 (89.6)	2240 (83.6)	40–100 / 81 / 17.5
Morbilli IGG†	2396 (98.1)	1843 (76.9)	0 – 100 / 81.1 / 22.8

†Testing started in 1997.

Intestinal parasites—Each refugee is requested to give three stool samples. In the population studied, all 2992 refugees gave at least one sample. If every refugee had given three samples as requested, there would have been 8976 samples. In fact there were 8485 samples examined, (of which 45 were insufficient for analysis). Thus 8440 samples were analysed, 94% of the possible total.

Table 4 lists the number of individuals affected by each intestinal pathogen. Any given individual may be affected by more than one pathogen.

A previous study of the Mangere refugees showed an overall prevalence of 31%[2] of individuals with one or more parasites; of which 7% had two parasites detected, 1% had three, and 0.1% had four.

Table 4. Prevalence of selected intestinal pathogens/parasites among quota refugees screened at Mangere Refugee Resettlement Centre (1995–1999)

Pathogen/parasite	Number (%) with pathogen/parasite in stool
Ascaris lumbricoides	89 (3.0)
Clonorchis sinensis	15 (0.5)
Giardia lamblia	450 (15)
Hookworm	125 (4.2)
Hymenolepis nana	189 (6.3)
Salmonella spp*	70 (2.3)
Schistosoma mansoni	80 (2.7)
Shigella spp	57 (1.9)
Strongyloides stercoralis	53 (1.8)
Taenia spp	24 (0.8)
Trichuris trichuria	232 (7.8)

*One recorded case of *S. typhi*; unusual pathogens included 2 individuals with Sarcocystis and 9 with Trichostrongylus.

Other health parameters

Blood-related pathology—None of the study subjects was affected by a haemoglobinopathy to the extent they had clinical disease. However, the carrier state for various haemoglobinopathies and iron-related disorders were found as recorded in Table 5.

Table 5. Blood related pathology in among quota refugees screened at Mangere Refugee Resettlement Centre (1995–1999)

Condition	Number (%) tested	Number (%) positive of those tested
Alpha thalassaemia trait	2933 (98)	236 (8.1)
Beta thalassaemia trait	2933 (98)	42 (1.4)
Delta thalassaemia trait	2933 (98)	6 (0.2)
HbS (heterozygous)	2933 (98)	10 (0.3)
HbE (heterozygous)	2933 (98)	21 (0.7)
HbF	2933 (98)	136 (4.6)
Other*	2933 (98)	10 (0.3)
Type not recorded	2833 (98)	5 (0.15)
Anaemia	2826 (94.5)	197 (7.0)
Iron therapy prescribed†	2894 (96.7)	646 (22.3)

*Hb Stanleyville II, HbO Arab, HbE+HbF; †Iron therapy is prescribed for ferritin levels below normal (ferritin levels not recorded).

Nutrition—The body mass indices (a measure of relative body fatness) of the adult refugees are presented in Figure 4.

Figure 4. Body Mass Index (BMI in kg/m^2) of adult (>17 years) quota refugees screened at Mangere Refugee Resettlement Centre (1995–1999)

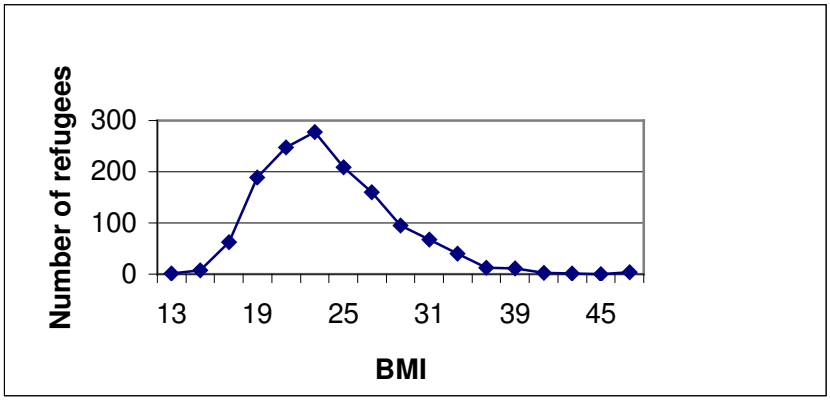


Table 6. BMI statistics of adult (>17 years) quota refugees screened at Mangere Refugee Resettlement Centre (1995–1999)

Variable	Number (% of all refugees)
Adult quota refugees >17 years	1388 (46.4)
Mean BMI = 23.0	–
Standard Deviation = 4.6	–
Underweight: BMI 18.5 or less	201 (14.5)
Overweight: BMI >25	390 (28.1)
Underweight needing iron therapy	472 (15.8)
Overweight needing iron therapy	948 (31.7)

Chronic illness—ICD-9 coding of significant illnesses was started on 4 September 1997; the population affected by this coding was 1796 individuals, or 60.0% of the study total.

Table 7. ICD-9 coded chronic illnesses/conditions among quota refugees screened at Mangere Refugee Resettlement Centre (1995–1999)

Illness/condition (ICD-9 code)	Number (%)
Diabetes: insulin dependent, controlled (250.1)	5 (0.2)
Diabetes: non-insulin dependent, controlled (250.0)	13 (0.4)
Diabetes: non-insulin dependent, uncontrolled (250.2)	7 (0.2)
Hypertension (401)	49 (1.6)
Dyspepsia (535)	69 (2.3)
Haemorrhoids (455.6)	33 (1.1)
Goitre (240 & 241)	19 (0.6)
Hearing loss (389)	26 (0.9)
Heart murmur NOS (785.2)	70 (2.3)
Back, unspecified disorders (724)	32 (1.1)

NOS=not otherwise specified.

Diseases with low prevalence—Some conditions (particularly those associated with atopy) typically have a low prevalence among refugees. For instance, there were no recorded refugees with eczema or otitis media with effusion (glue ear). Asthma, confirmed or suspected, had a recorded prevalence of only 0.8%.

Tobacco and alcohol intake—All adult refugees are asked if they drink alcohol and/or use tobacco. Prevalence is shown in Table 8.

Table 8. Prevalence (%) of tobacco and alcohol intake among quota refugees screened at Mangere Refugee Resettlement Centre (1995–1999), by sex

Variable	Total	Male	Female	RR / CI / p value
Number aged >17 years	1434	778	656	
Using tobacco (%)	288 (20.1)	251 (32.3)	37 (5.6)	6.03 / 4.34–8.38 / <0.001
Drinking alcohol (%)	64 (4.5)	57 (7.3)	7 (1.1)	6.87 / 3.15–14.95: <0.001

Psychosocial issues—The onsite Torture/Trauma Counselling Service is responsible for the screening and treatment of quota refugees, hence data for psychosocial trauma is confined to a study group in MRRC before the RAS Service opened. This study[2] showed that about 20% had been subjected to some form of significant mistreatment in the form of detention and/or physical mistreatment.

About 14% reported some form of significant psychological symptoms, while about 7% were diagnosed as having suffered post traumatic stress disorder. A greater proportion of females reported psychological symptoms, but a greater proportion of males reported mistreatment. As noted below, referral for counselling and psychological services is one of the more frequent reasons for refugees requiring referral to secondary services.

Referrals to secondary services

On leaving the Refugee Centre, all refugees are given a printed copy of the records, with a covering letter, and requested to register with a general practitioner in the area in which they are settling.

Referrals are made to secondary services, mostly hospital outpatient clinics. The referrals are detailed in Table 9. (Note that any individual may be referred to more than one clinic.) A total of 2189 *referrals* were made, representing 1423 *individuals,* being 47.6 % of the total population.

Historical issues in refugee health

Is the health of the refugees becoming worse? Apart from the appearance of HIV infection, this appears not to be the case. Historical data for separate conditions are presented below. Missing data points indicate where data is not available, usually at the times of restructuring.

Table 9. Referrals to services other than a GP among quota refugees screened at Mangere Refugee Resettlement Centre (1995–1999)

Service referred to	Number referred (%)
Infectious Diseases	480 (21)
Imaging	261 (11.4)
Mental Health	163 (7.1)
Respiratory Medicine	146 (6.4)
ENT	139 (6.1)
Ophthalmology	127 (5.6)
Cardiology	124 (5.4)
Orthopaedics	117 (5.1)
Sexual Health	114 (5.0)
General Surgery	96 (4.2)
General Medicine	72 (3.1)
Gastroenterology	54 (2.4)
Endocrinology	42 (1.8)
Urology	47 (2.1)
Obstetrics	38 (1.6)
Gynaecology	32 (1.4)
Diabetic	26 (1.2)
Other	*
Total	**2189 referrals**

*Dermatology 21 (0.9%), Family Planning: 21 (0.9%); Plastic Surgery: 18 (0.8%); Neurology 15 (0.7%); Dental 15 (0.7%) plus Audiology, Concussion, Genetics, Geriatrics, Haematology, Nephrology, Neurosurgery, Oncology, Prosthetics, Rheumatology, Vascular Surgery (all less than 0.5%). ENT=Ear Nose Throat.

Figure 5. Tuberculosis (TB) rates among adult quota refugees screened at Mangere Refugee Resettlement Centre (1979–1998)

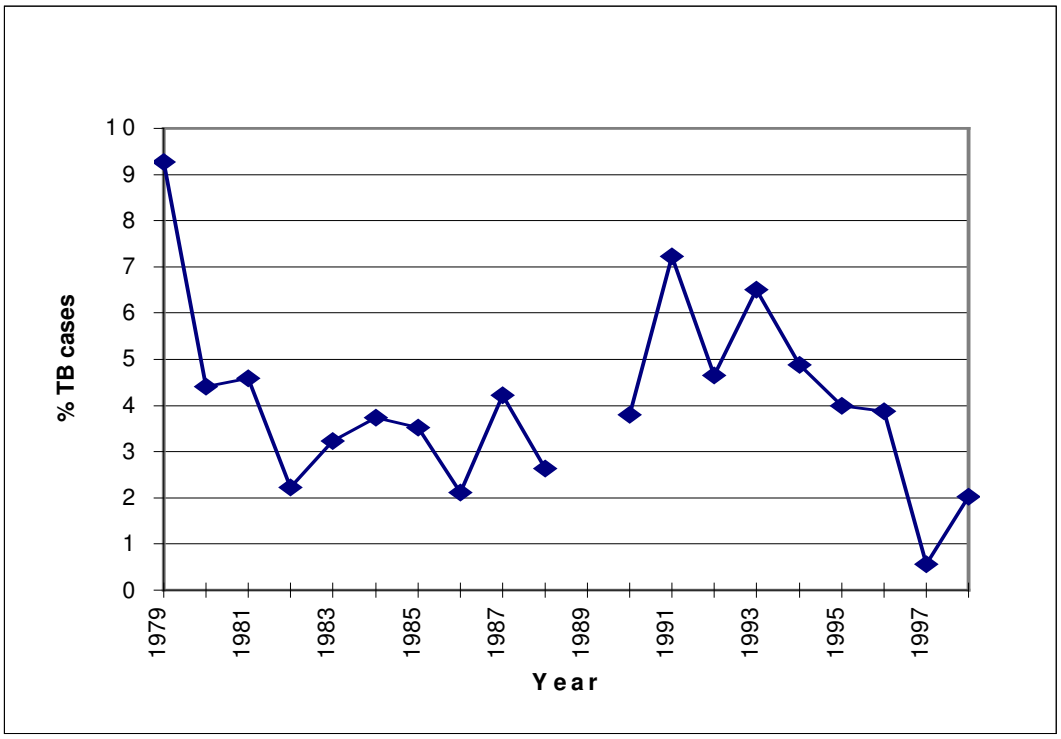
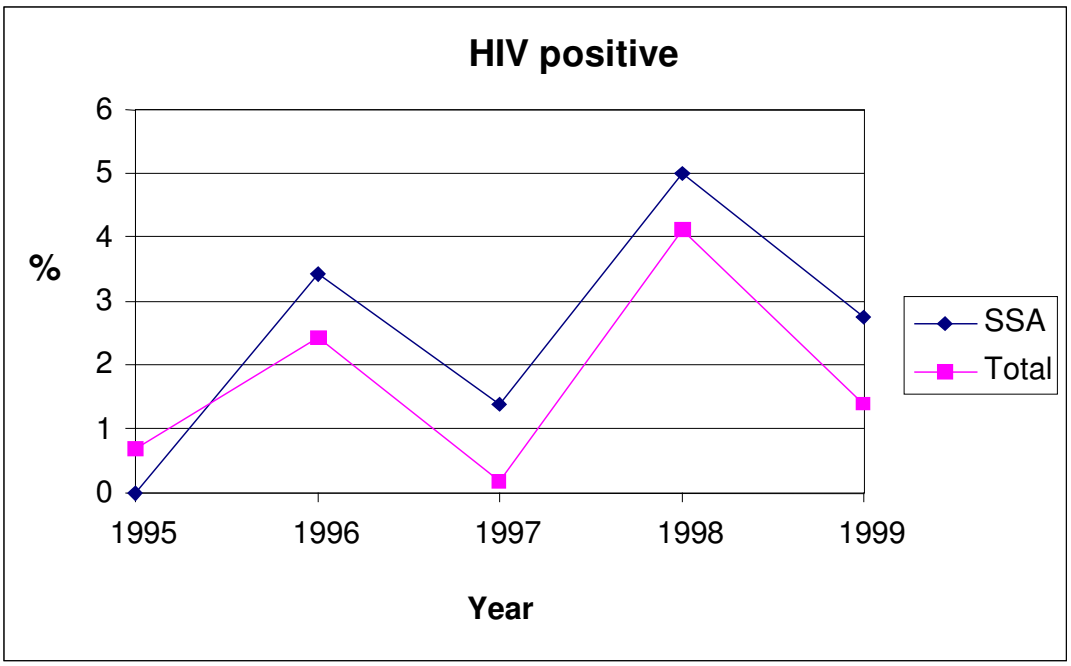


Figure 6. HIV infection among quota refugees screened at Mangere Refugee Resettlement Centre (1995–1999)



SSA=Sub-Saharan Africa.

Figure 7. Rates of presumptive hepatitis B virus (HBV) carriers among quota refugees screened at Mangere Refugee Resettlement Centre (1979–1999)

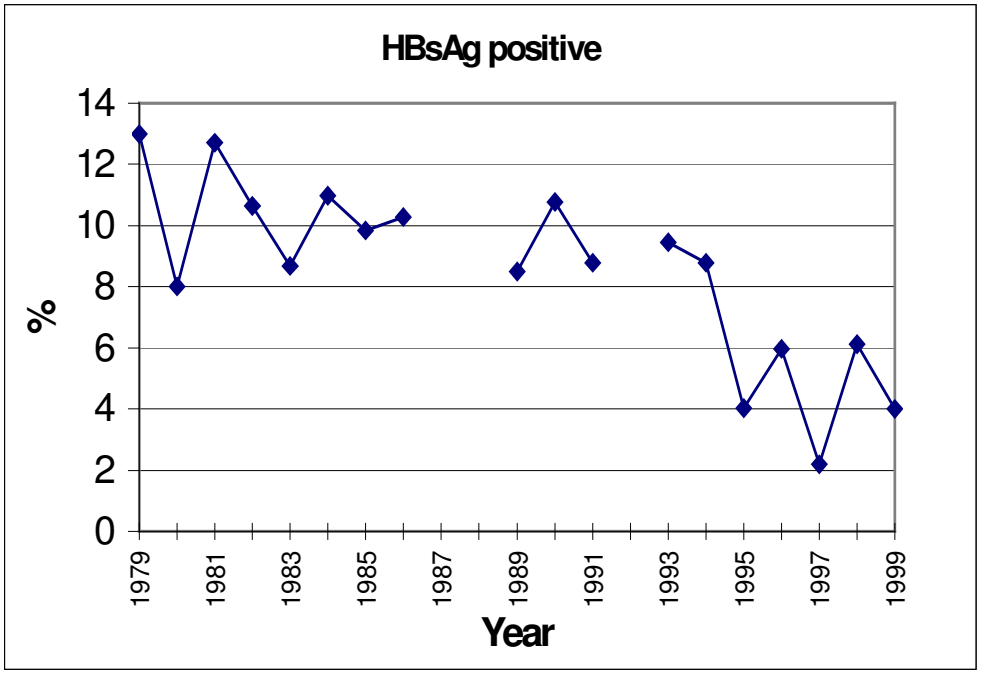
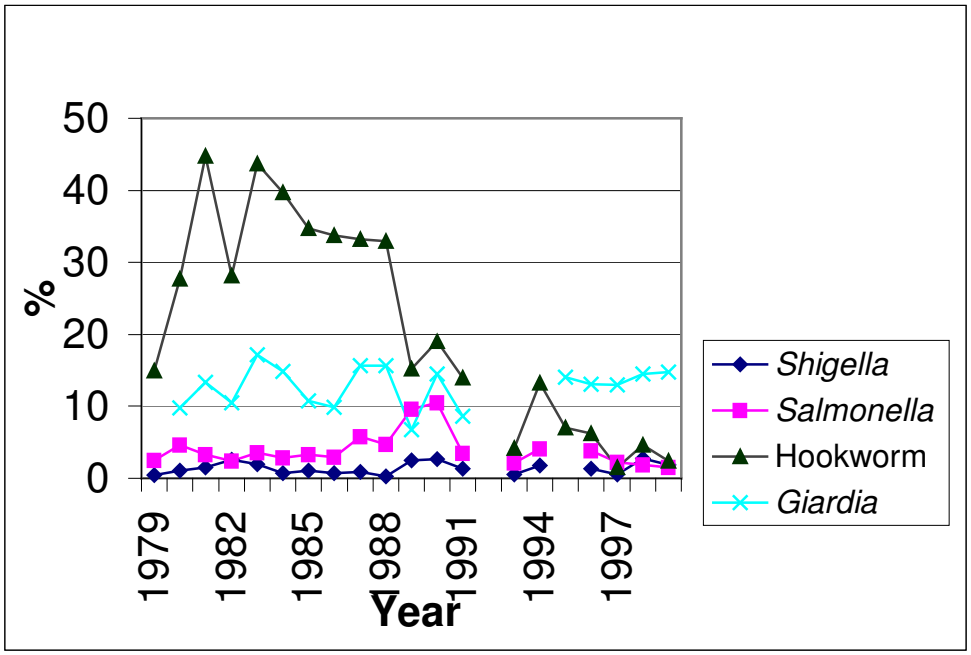


Figure 8. Rates of selected intestinal pathogens/parasites among quota refugees screened at Mangere Refugee Resettlement Centre (1979–1999)



Gender issues in refugee health

Women's health

- **Female genital mutilation (FGM)—**This was found only in women from the Congo, Sudan, Ethiopia, and Somalia (especially the latter). At total of 606 women from these ethnicities were asked and/or examined. A total of 349 were reported to have had FGM. The prevalence of FGM among Ethiopian and Somali refugees was 43.2% and 71.5%, respectively. It is found at all ages, although its prevalence in greater in older age groups, particularly in those older than 10 years.
- **Chlamydia—**The results for this have been recorded since the beginning of 1997, 2177 being affected, of whom 1005 were females of all ages. At total of 236 women were tested for chlamydia, of whom results were available for 234 including 4 (1.7%) individuals with chlamydia infection.
- **Cervical smears—**339 women had cervical smears, of which there were records for 308, and of these 9 (2.9%) had cervical dysplasia.
- **Pregnancy—**The ICD-9 code of 'normal pregnancy' was recorded for 45 women being 7.9% of the total number (568 women) over the age of 12 years. The youngest was 15, the oldest 44 (mean age 27; SD 6.7 years).
- **Contraception—**A total of 423 women were assessed for contraceptive and associated status, see Table below

Table 10. Contraceptive and associated status among quota refugee women screened at Mangere Refugee Resettlement Centre (1995–1999)

Status	No contraception	Oral	DPV	IUD	Condom
Number (%)	211 (50.0)	24 (5.7)	11 (2.6)	29 (6.9)	30 (7.1)
Status	**Natural**	**Diaphragm**	**Operative**	**Post menopausal**	
Number (%)	21 (5.0)	0 (0)	15 (3.5)	40 (9.5)	

Oral=combined oral or progesterone only; DPV=progesterone depot injection; IUD=any form of intrauterine device; Natural=rhythm, or other non-interventional methods; Operative=hysterectomy or tubal ligation.

Gender disparities—The male vs female disparity in the use of alcohol and tobacco has been noted above. As might be expected, there are statistically significant disparities in the prevalence of diseases with a sexually transmitted component, although notably not in the case of HIV infection. In recent intakes of refugees, the prevalence of HIV infection among women has exceeded that of men.

Table 11. Prevalence (%) of selected diseases by gender among quota refugee women screened at Mangere Refugee Resettlement Centre (1995–1999)

Disease	Female prevalence	Male prevalence	Ratio M:F	P value
Syphilis	4.5	7.7	1.71	0.004
HBV carriage	4.3	7.1	1.65	0.01
HIV infection	2.5	3.6	1.44	0.17

Discussion

The results outlined above can be described individually, in relation to asylum seekers screened by the Auckland Health Service, and for refugees in general. The results demonstrate a well-known fact: Refugees and asylum seekers resettled in countries of second asylum have high health needs.

Using referrals to secondary services as an index of health needs, a paper from Ireland compares the rates of referral for refugees with those of a usual general practice population, and found that 16% of refugees were referred, compared to 5% of general practice population.[3]. However, refugee health needs may be less than those of certain at-risk groups of the resident population. For example, in a New Zealand study examining the financial health costs of refugees compared with Pacific Island People, Maori, and 'other' populations, the health costs per capita are in descending order, with Pacific Island populations incurring the greatest costs. That study found that refugee health costs lay between those of Maori and Pacific Island People.[4]

Perhaps the most obvious difference between refugees and asylum seekers in New Zealand lies in the differing demography of the two groups, in particular the differences in sex and ethnicity.

A commonly repeated statement is that, worldwide, 80% of refugees are women and children, and two-thirds are women and girls.[5] UNHCR figures show that among mandated refugees, worldwide, the proportion of adult males and females is about equal.[6]. Yet the majority of asylum seekers in developed countries are male, as is seen in the asylum seekers screened in Auckland,[1] and also, for example, in the United

Kingdom, where, in one study, less than one-fifth of the asylum-seeking population were women.[7] The reasons for this discrepancy between refugees and asylum seekers have been described as being due to 'lack financial resources, held back by childcare responsibilities and cultural and other restrictions.' Services for women refugees are described as being 'gender-blind,' in spite of the greater obstacles that women face.[8]

The barriers to women refugees being resettled are well known to UNHCR and NZIS. The latter has policies which seek to redress this problem, including a special 'women at risk' category for quota refugees. The success of these policies is represented in the more gender-balanced demography of the quota refugees. A notable feature of the quota refugees admitted under the 'Pacific Solution' (mainly Afghani boat people attempting to reach Australia) was a reversion to the asylum-seeker pattern of male dominance. In one intake, for example, from a total of 136 refugees, 117 (86%) were male. A predominance of single males brings with it a range of problems, for example housing, family re-unification, well known to the agencies supporting refugees and asylum seekers.

The different mix of nationalities between quota refugees and asylum seekers is also noteworthy. The motives for those seeking asylum in the UK have been recorded, including local knowledge of asylum receiving countries.[9,10] (Whether these motives are different from mandated refugees, and hence contributes to the different nationality mix is not certain.) Other reasons may relate to the length of time it takes for a quota refugee to leave their country and finally reach New Zealand, compared with the immediacy of the asylum-seeking process. In other words, the nationality of quota refugees represents past conflicts, while that of asylum seekers represents present problems.

The different pathway between quota refugees and asylum seekers also has an impact on the prevalence by nationality of disease, particularly for acquired diseases. By definition, a refugee does not come to New Zealand from his or her country of origin. Many have complex travel histories, and an attempt to relate prevalence to nationality is generally unrewarding or even misleading. However there are some exceptions, particularly the prevalence of HIV infection in those from Sub-Saharan Africa, and also a few notable diseases, for example the prevalence of Clonorchis among the Lao, due to their habit of eating uncooked fish.

Even for non-acquired disease, for example haemoglobinopathies in relatively high prevalence among all nationalities of refugees, makes detailed listing by nationality a hardly worthwhile exercise. Some tailoring of refugee screening by area of origin may be worthwhile, and has been suggested.[11] In the past, some tailoring has been done at MRRC; particularly the refugees from the southern Yugoslav province of Kosovo who were not screened for schistosomiasis (as they came directly from Europe where it is not prevalent) but were instead screened for active hepatitis A. In the main, however, for screening refugees it is better to offer a comprehensive set of tests rather than attempt to modify the tests by ethnicity.

The screening process at Mangere is constantly evolving. A recent change is that asymptomatic refugees no longer have their stools examined for any bacterial pathogen. The only pathogen of importance, *Salmonella typhi* (or *S. paratyphi*) was found only once in over 8000 specimens, hence testing for bacterial pathogens was not considered a worthwhile use of health funds. Other matters at present under

review include the cost-benefit analysis of routine Mantoux testing; Vitamin D deficiency; diabetes and hyperlipidaemia screening in older refugees; and tailoring screening for children, particularly those related to vaccination preventable diseases, where routine vaccination might be a better option than testing.

As far as practitioners involved in screening those of a refugee background are concerned, it is suggested that the battery of tests offered at MRRC is a good starting point, and in a large population, the tests will reveal disorders in a worthwhile proportion.

The data also shows that health concerns traditionally found in the population of resettlement countries also occur in refugees, for example diabetes and hypertension, hence the possible need to include appropriate screening among refugees, as well as screening for more unusual diseases. The prevalence of excess weight among quota refugees may also be surprising: The lack of correlation between iron deficiency and low weight shows that quota refugees are generally malnourished rather than undernourished. The high prevalence of smoking, particularly among males, also offers an area where health education should offer significant benefits.

By contrast, some diseases common in the New Zealand population, particularly those associated with asthma and atopy, are uncommon among refugees. The probable reasons for this are not entirely clear, but probably relate to the 'hygiene hypothesis'.[12]

The data also draw attention the health needs (reproductive and otherwise) of refugee women, although the rates of sexually transmitted infections and cervical smear abnormalities appear to be low compared with the host population.[13,14]. In Auckland, at least, there are now specific services for those whose health is adversely affected by FGM. Practitioners involved with services for refugees should make particular provision for the health needs of refugee women, bearing in mind the greater than usual need for these services to be gender sensitive.

Among the infectious diseases, there are no unexpected findings when comparing refugees in resettled in other parts of the World and asylum seekers screened in Auckland. The cost-benefit utility of routine Mantoux testing has been questioned,[15] and (as noted above) is under review. Interestingly, overseas screening of refugees,[16] or indeed screening on arrival,l[17] appear to have little impact on the subsequent incidence of TB among the resettled refugees. Hence the fact that although refugees and asylum seekers have been screened for TB it does not mean that practitioners should relax their vigilance for this disease.

According to published UNHCR data, only 3 countries (Canada, USA, and Australia), among the 12 quota-accepting countries, routinely carry out comprehensive pre-screening of quota refugees.[18,19] This screening is generally not done for the refugees' benefit, but, for example, to exclude those with 'communicable diseases of public health significance, current or past physical or mental disorders that are or have been associated with harmful behaviour, and drug abuse or addiction.' [20]

According to published information,[21] general practitioners in Australia do not know the results of the overseas screening of refugees presenting to them as patients. At the time of writing, the only overseas screening carried out for quota refugees destined for New Zealand is for active tuberculosis and HIV infection. Tuberculosis must be

treated before travel to New Zealand, and the number of quota refugees with HIV infection accepted for resettlement is limited to 20 per year.

Alleviation of psychological upset is an important health need among quota refugees, although it appears to be a greater concern in asylum seekers; this may be due to the uncertain state in which asylum seekers find themselves. Nevertheless, for quota refugees, it still represents one of the most common reasons for referral to secondary services.

Is screening of refugees and asylum seekers worthwhile? The literature refers to the health screening of refugees in different countries as being 'a confusing blend'[22]. Indeed, it has been questioned whether routine screening is needed at all for any immigrants,[23] and it is not carried out for some countries, notably the United Kingdom. The 'confusing blend' probably arises because of confused motives for screening.

The reasons for screening may include all or some of the following:

(a) Completion of health documentation needed by immigration services.

(b) The exclusion of certain categories of health problems from resettlement countries.

(c) The assessment of the refugee, physically, emotionally, psychologically, and socially.

(d) The management of any problems found from (b) and (c) above.

(e) The prevention of the spread of infectious diseases from the refugee to the population of the resettlement country.

(f) The prevention of the spread of infectious diseases from the resettlement country to the refugee.

(g) The prevention of future health problems in refugees.

(h) Collection of data.

(i) Assessment of, and planning for, the impact of refugee health on the resettlement country.

A valuable paper by Reid et al examines the relationship between public health risk and personal health benefit in screening refugees.[24] Refugee health screening programmes are generally set up to minimise public health risk, but evolve to serve the personal health of refugees, as exemplified by the formation of torture/trauma counselling services for refugees.

There are well-defined criteria for the effective implementation and management of screening programmes. These criteria refer to screening programmes which look for asymptomatic diseases, disease precursors, or disease surrogates (such as cervical screening), but they can, where relevant, also be applied to mass medical-screening programmes such as refugee health screening.[25,26]

No studies appear to look at the effectiveness of refugee health screening, although certain components of the screening (e.g. intestinal parasites) have been examined.[27] Given the diverse reasons why refugee health screening is carried out, an assessment of effectiveness is likely to be complex.

Refugee health screening in the sheltered environment of the Mangere Refugee Resettlement Centre is only a small first step in the resettlement of refugees. Of greater importance is the ongoing use that resettled refugees and asylum seekers make of primary and secondary medical services, and finding ways that this use can be enhanced by refugee and medical provider.

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