Immigrant health service

Annual report

2007

January 2008

Executive summary

The Immigrant health service at the Royal Children's Hospital is part of the Department of General Medicine. The clinical component currently consists of one weekly outpatient clinic providing a multifaceted assessment and consultation service. There are just over 1000 attendances annually. The staff are passionate about paediatric refugee health and providing best practice, family-centered care. Over the last 2 years there has been extensive development of the service with a focus on efficiency of clinical services, development of evidence based resources for clinical practice, provision of education and development of a clinical research interest in paediatric refugee health.

Our vision is to develop a complete service. Our goals are:

- To expand direct program delivery
- To act as a comprehensive tertiary referral service for children of a refugee background
- To develop our role in education and health policy
- To act as a formal consultation service to primary care providers
- To maintain and develop partnerships with adult services in refugee health and primary care initiatives
- To consolidate as a statewide and national centre of expertise in paediatric refugee health issues
- To continue and to develop research activities.

We anticipate benefit in providing a comprehensive tertiary service to streamline health care for refugee children and families. We anticipate this will:

- Optimise clinical care for families
- Provide care coordination for non English speaking families and help them navigate The Royal Children's Hospital
- Reduce the overall number of referrals to tertiary services
- Provide an assessment service for recently arrived families where there are urgent medical concerns, or if primary health providers with expertise in refugee health are overwhelmed
- Divert and pre-empt emergency presentations in this group, by provision of prompt outpatient specialist management and provision of a back-up consultation service.

People of a refugee background are a group with complex medical needs, who frequently have multiple issues picked up on post arrival screening. Appropriate management of these issues is essential to promote long term health. Malaria, tuberculosis, complicated parasite infections, significant nutrition/growth issues and rickets are not primary care management issues. High dose Vitamin D supplementation is not yet readily available in the community setting and general paediatric problems frequently have a more complicated aetiology in refugee patients. Ultimately, the complexity of paediatric refugee health issues means some degree of specialist input is essential. Developing a statewide network with strong partnerships between primary and specialist care will facilitate health within the community, public health and efficient use of health resources. Maintenance of the knowledge base developed within the paediatric refugee health service can help develop capacity in primary care through education, by linking families to community services and by supporting primary health care providers assuming ongoing care.

Background

According to the 1951 United Nations Convention Relating to the Status of Refugees, a ***refugee*** is a person who

"owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group, or political opinion, is outside the country of their nationality, and is unable to or, owing to such fear, is unwilling to avail him/herself of the protection of that country."
(United Nations High Commissioner for Refugees, UNHCR)

As of 1 January 2007, the number of people under the UNHCR mandate and labeled as people "of concern" was estimated at 20.8 million worldwide. This includes refugees, asylum seekers, people displaced internally within their own country, civilians who have returned home but still require assistance and stateless people. In the year 2006, the UNHCR documented 8.4 million refugees, making up 40% of the total population of concern to the UNHCR (UNHCR, 2006).

Australia accepts around 14,000 refugees annually under the Humanitarian Program. Approximately 3,800 refugees resettle in Victoria each year, between 2001- 2005 approximately 1,500 of the annual intake were aged < 15 years. In 2005/6, 80% of the humanitarian entrants originated from Africa; with 60% of the total intake from Sudan. Demographics are available at http://www.immi.gov.au/about/reports/annual/2005-06/_pdf/DIMA-annual-report-2005-06-part-1.pdf and http://www.dhs.vic.gov.au/multicultural/downloads/refugee_health_action_plan_%20final.pdf

In 2006/7 there were 3629 Humanitarian Program entrants to Victoria, 2004 under the Special Humanitarian Program (sponsored by a proposer living in Australia) and 1494 under the Refugee program. ***Over half the Humanitarian program entrants to Victoria were aged < 20 years***. In mid 2007, the Department of Immigration and Citizenship (DIAC) decreased the Sudanese intake to 33%, thereby increasing the number of Burmese and Iraqi refugees to approximately one third each of the total humanitarian intake. DIAC has reported that 64% of Burmese new arrivals in Victoria over the past 5 years have occurred in the years 2006-2007 (DIAC, Settlement data, 2007). This dramatic change in entrant demographics is not currently reflected in the Immigrant Health Clinic's data for 2007, but will be in the future.

Displaced family living in no mans land, Thai Burma border 2007. Photo: K Sangster

Umpium refugee camp, Thailand. Photo: K Sangster.

Clinic structure

The Immigrant Health Clinic runs weekly at the green and red desk outpatients on Monday afternoons from 1 pm, concurrently with Infectious diseases/Travel, Immunisation, and Gastroenterology. Interpreters, Immunisation, Pathology Collection, Radiology and Pharmacy are all available on-site.

Clinical care

The families seen are often large (commonly 4-6 children), which significantly increases the complexity of a healthcare visit. In families who have not accessed primary care we will perform a comprehensive refugee health screen of all children/adolescents and refer adults to appropriate services. Our experience is that families prefer to have screening for all members simultaneously, minimising transport and time. The health issues covered in recently arrived families include (at the minimum): the family's concerns, immunisation, TB screening, Vitamin D, parasite screening, nutritional concerns and medical/developmental history. A typical first visit will comprise history and examination for all members, height and weight, Mantoux testing, blood collection and instructions and kits to collect faecal specimens. A second visit is booked and includes: follow-up of results, +/- chest X rays, explanation of treatment plan and typically administration of immunizations, Vitamin D and Vitamin A which are provided free of charge.

We take care not to duplicate screening investigations, which often necessitates several phone calls to the general practitioner or community pathology laboratories. We spend time explaining the concepts of health screening and health promotion and giving appropriate (verbal) instructions on medications. Families are provided with detailed correspondence and a clear plan for each member's ongoing care, facilitating entry into local health services. A copy of each letter is sent to the referring practitioner. For families that have not accessed primary care; we try to link them locally, ideally to a practitioner with an interest in refugee health.

Staff

Three doctors (2 consultants and a registrar) see around 10 patients each. A Dental therapist works fortnightly and provides dental assessment. Bookings, referrals and liaison with primary care providers and community workers are coordinated by the clinic nurse coordinator. Families are notified of their appointment by telephone the Friday prior to clinic by a multilingual worker. Two fabulous volunteers help families find their way around the hospital to streamline accessing multiple services.

The medical staff are all general paediatricians, with experience in developmental paediatrics. Additional areas of interest of the clinic doctors include tropical medicine, allergy, medical ENT, child protection, dermatology and disability medicine. There is close liaison with the Infectious Diseases Unit and the Respiratory Medicine Unit.

Clinical load on other services

Immigrant health clinic does create additional workload for other services due to the nature of the screening and multidisciplinary care provided. Clinic has direct effects for service provision for:

- Immunisation Providers
- Interpreters
- Pathology collection
- Laboratory staff (especially malaria screening)
- Radiology

The earlier start time was introduced in 2007 to reduce the load on pathology collection and immunization in the late part of the afternoon.

Attendance

Attendance rates are around 80%, which compares favourably to other outpatient clinics at the Royal Children's Hospital (RCH). Further details are provided in section on clinic demographics.

Referrals

Referrals to Immigrant health clinic are from general practitioners, including the network of general practitioners with expertise in refugee health and also from other services within RCH. Typical reasons for referral include:

- Initial assessment
- Specialist advice on issues that have arisen in assessment in primary care
- Assessment of Vitamin D status/dosing with the high formulation available free at RCH.

The medical staff are general paediatricians and most health issues are handled within the clinic. All nutritional, growth, Vitamin D, developmental, learning issues, and common medical ENT issues are managed within the service. The majority of communicable disease issues are also handled within the clinic. Typical referrals to other services at RCH include:

- Infectious diseases for management of complicated communicable diseases issues
- Cardiology for review of murmurs
- General surgery, particularly for circumcision for religious/cultural reasons
- Ophthalmology for assessments prior to starting medications
- Audiology referrals

Times are coordinated with Immigrant health clinic appointments by the Immigrant health coordinator which reduces visits for families and hopefully reduces the load on interpreter resources.

Triage

A weekly triage meeting occurs between the medical and nursing coordinator, preference is given to complex families or patients and where there are multiple issues needing attention. The waiting list for immigrant health clinic has typically been 6-8 weeks through 2007, although patients requiring urgent appointments have been seen earlier. Referrals for children with positive Mantoux tests are also triaged to the Infectious Diseases (ID) unit or Tuberculosis (TB) clinic depending on waiting times; referrals for children with low vitamin D where other screening has been completed are also triaged to general paediatrics. The proportion of families seen for Vitamin D alone decreased over 2007 due to this system.

Medical student electives

A medical student elective was organized for 4 weeks in January 2007, with a day each week spent at RCH, the Royal Melbourne Hospital Refugee Health Clinic, the Western Region Health Centre, and Foundation House. Additional time was also spent with the FARREP program at RMH. The medical student (Ingrid Laemmle-Ruff) won the Peter Jones prize for her essay on her elective. A further elective placement has been organized for early 2008 for a medical student from the University of Newcastle who will be examining health equity and health access and reviewing policy models for paediatric refugee health around Australia.

Developments for 2008

In 2008, the registrar position will again be shared between 2 trainees (working fortnightly). Dr Tom Connell is commencing with the Infectious diseases unit and will be the main point of referral for ID advice and co-management for communicable diseases issues. An application has been made through DHS for funding for a 0.5 time Refugee Health Fellow position for a senior trainee.

We hope to set up a Vitamin D dosing clinic on Saturdays (sessions before and after winter) for families living locally where ongoing vitamin D dosing is required and there are no other health issues. We are aiming to set up a convenient, family focused and accessible health care delivery option which will also provide an opportunity for community health education, ideally using bicultural workers. We will aim to cluster clinics by language group, for interpreter efficiency. Discussions are underway with Outpatient management.

In conjunction with the Interpreting Service at RCH and Northern Metropolitan Institute of TAFE we hope to offer a student placement for the bilingual health worker course. This will offer students experience of the health system, help build capacity in the bicultural health training and provide contacts for the RCH interpreter service with recent graduates in emerging language groups. There is potential for RCH to take a leadership role with interpreter training positions in the longer term.

Staff

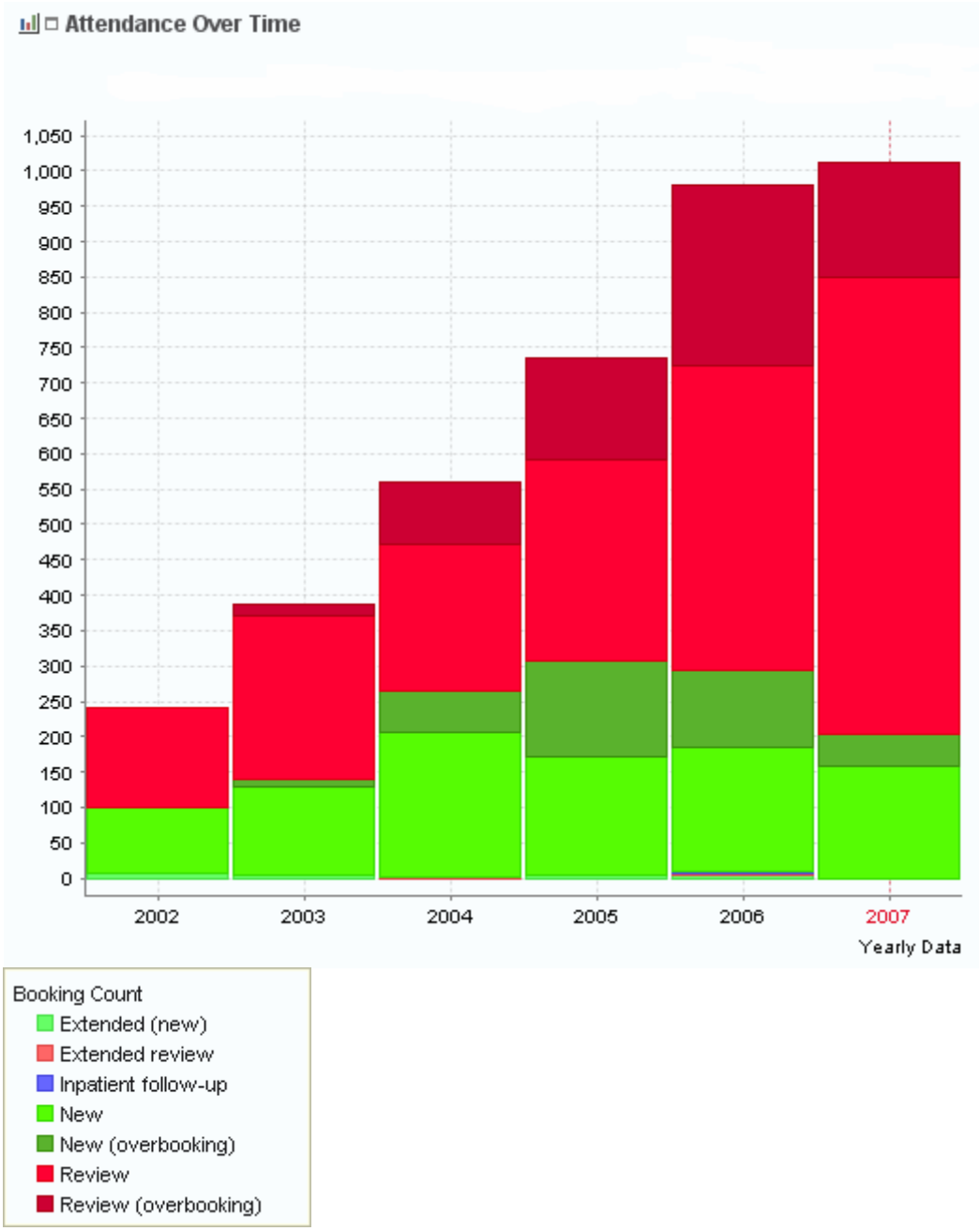
Medical	**Hours/time per week**
Georgie Paxton	FFS + 3.5 hours coordination
Andrea Smith	FFS January - June 2007 (Maternity leave)
Margie Danchin	FFS (fortnightly clinic, M/L cover)
Sally Munday	FFS (fortnightly clinic, M/L cover)
Kate Thomson	3.5 hours fortnight
Olivia Lee	3.5 hours fortnight
Coordination	
Helen Milton	0.4 EFT
Other	
Tatiana Polizzi (Dental therapist)	3 hours fortnight
Nagaha Idris (African worker, offsite)	2
Cally Bartlett (Volunteer)	
Elly Woudstra (Volunteer)	
Santino Wek Aru (Interpreter)	3.5 hours
Research	
Katrina Sangster	0.3 EFT June 2007
Catherine Lloyd-Johnsen	0.2 EFT July 2007
Abraham Arkadio	0.2 EFT July 2007
Santino Wek Aru	0.2 EFT September 2007
Ahmed Ahmed	Casual November 2007
Lisa Anderson	0.2 EFT November 2007
Mandy O'Brien	0.2 EFT October 2007
Nigisti Mulholland	0.6 EFT November 2007
Natalie Smith	0.5 EFT November 2007

Clinic demographics

Immigrant Health Clinic commenced in mid 2001, initially as an extension of the Immunisation and Travel clinic. The following data were compiled using information from the Hospital's outpatient bookings system, available from mid-2002. The data for 2002 represent an incomplete year.

Attendance

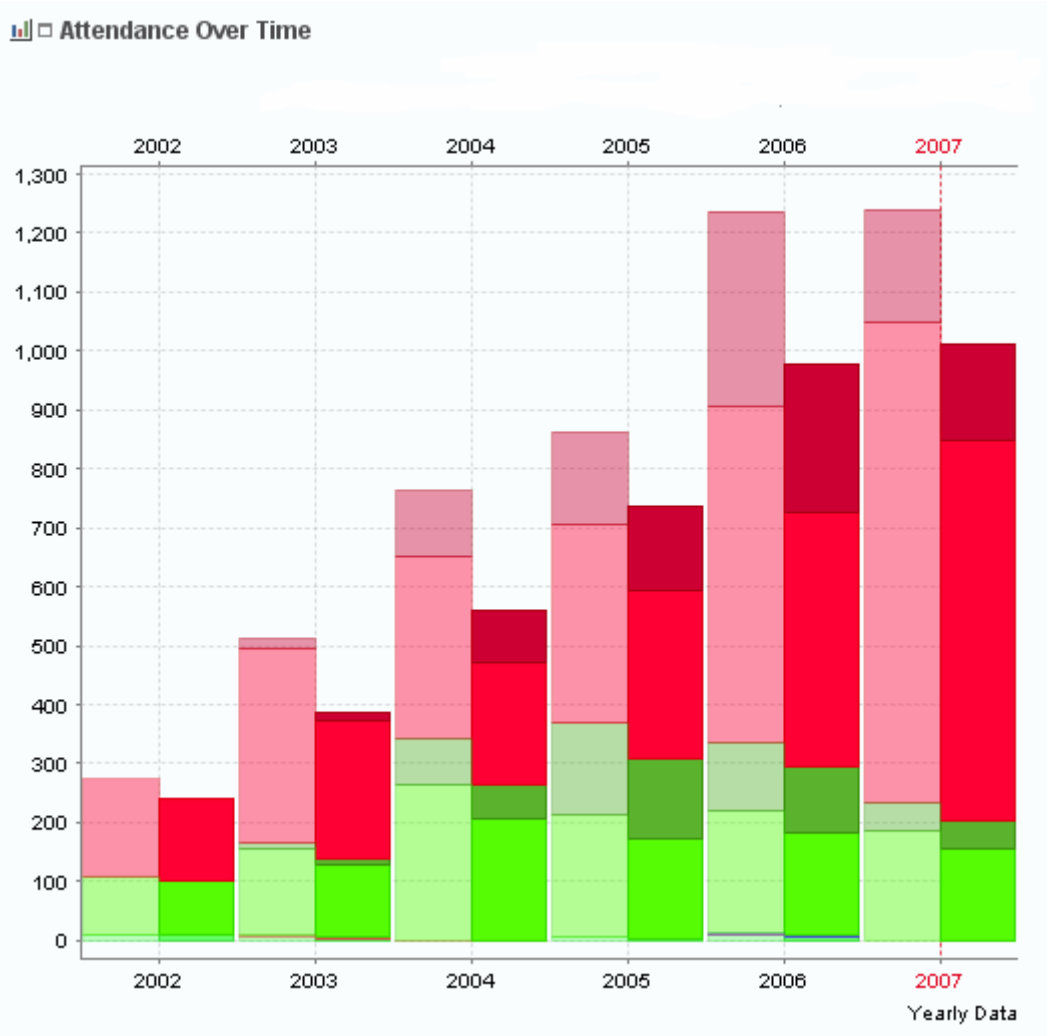
Figure 1: Clinic attendance



The number of new patients seen increased initially then was relatively stable over 2004-2006 with an increase in the proportion of review bookings. This is likely to represent increased complexity of patient care issues. There was a relative decrease in new patients seen in 2007; this may be due

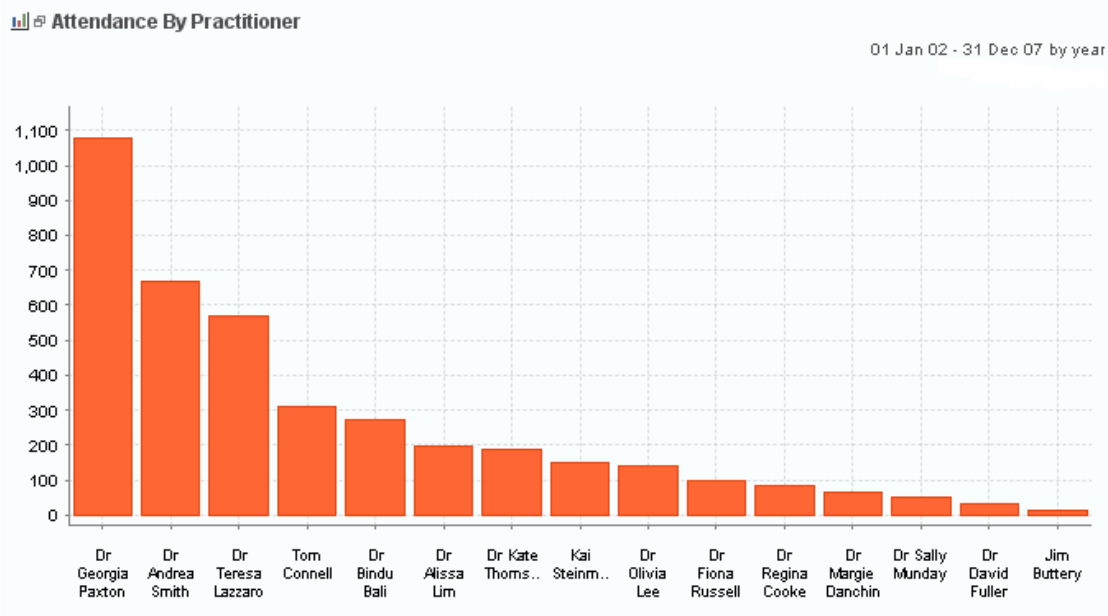
to the triage system employed (referring children with latent TB infection and isolated vitamin D deficiency to other clinical services) however another possible explanation is that for periods of 2007, primary care providers who had previously seen large numbers of refugee patients were not taking new patients with flow on effects for the number of referrals to tertiary services. There is scant data on how many new arrivals access an initial health assessment, however what there is, suggests 40-60% of recent entrants have seen a health care provider in the initial 12 month period after arrival. Pathways for referral of refugee patients to primary care vary with visa type; people on a refugee visa have increased settlement support and are linked with the refugee health nurses; for those arriving on special humanitarian visas the onus is on their sponsor to link them with a health care provider.

Figure 2: Attendance rates (as a proportion of bookings)



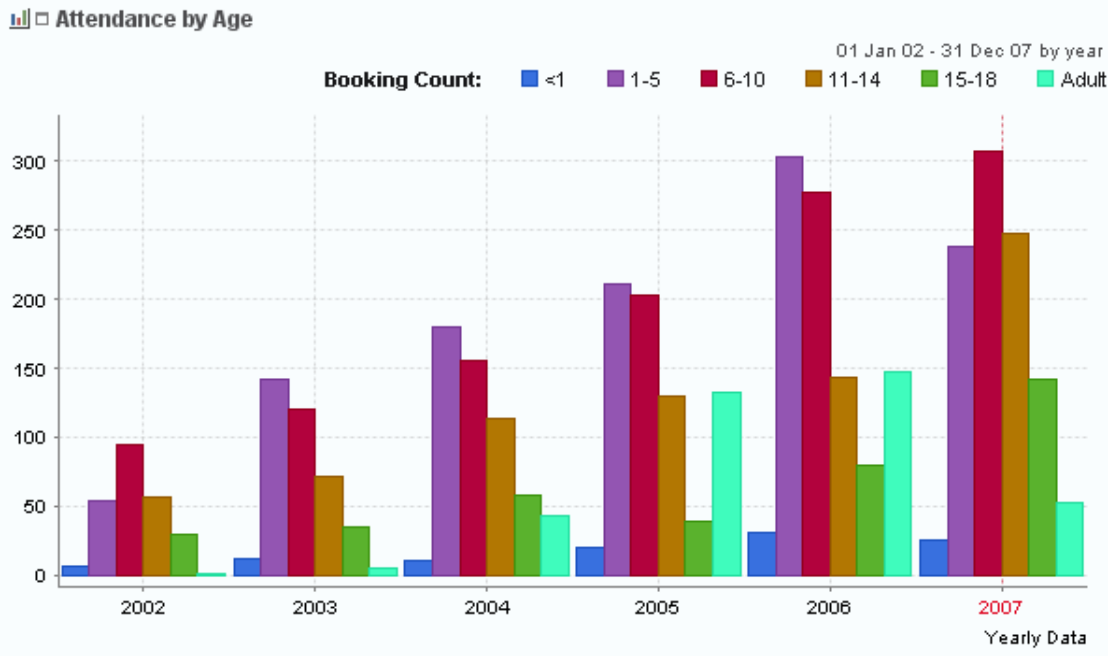
Bookings are shown in the lighter colour, attendances in solid colours. Overall attendance was 80% for 2007. High attendance rates have been maintained despite the increase in bookings and non-English speaking patient demographic.

Figure 3: Attendance by Doctor



Many doctors have worked in the Immigrant health clinic since it started, building capacity in paediatric refugee health care. In 2007 the registrar position was shared by 2 of the outpatient registrars who worked fortnightly clinics for the whole year (and continence clinic on alternate weeks). The same arrangement is in place for 2008.

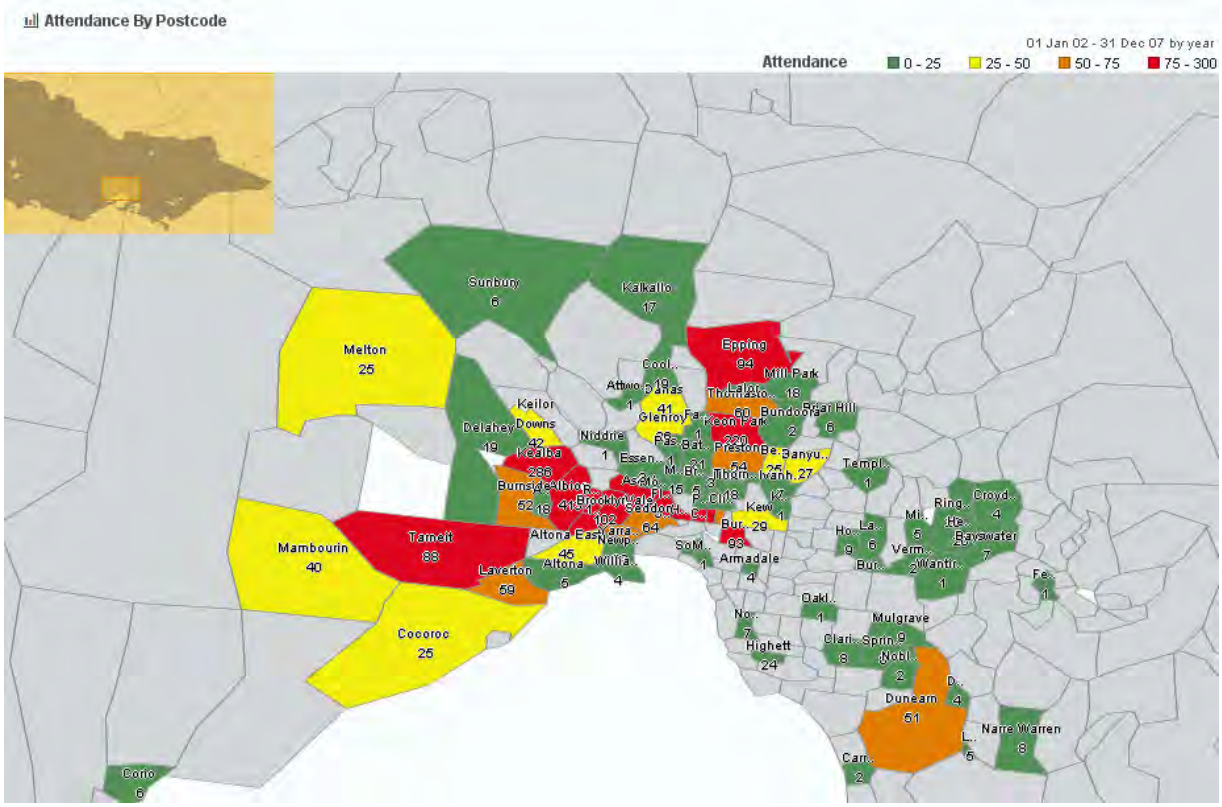
Figure 4: Age distribution



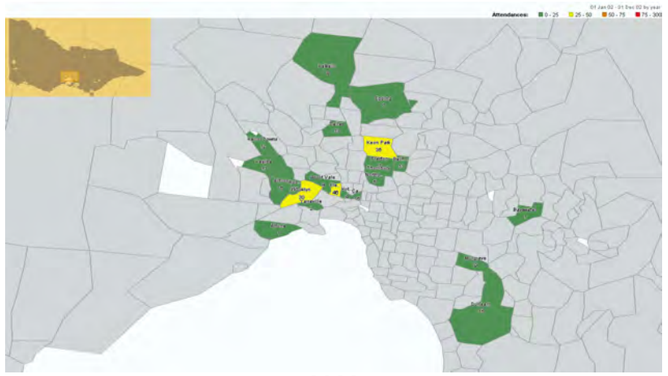
The age distribution of patients attending the Immigrant health clinic shows a predominance of young children.

Figure 5: Attendance by postcode

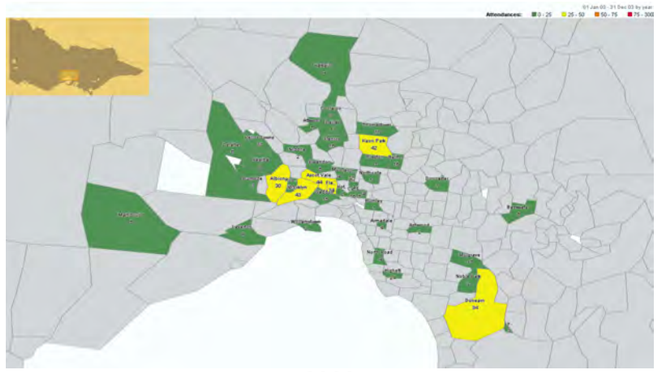
The clinic provides care for immigrant families from a wide geographic area of metropolitan Melbourne, which makes the high attendance rates remarkable given the logistic issues involved in accessing public transport with several young children. Summative data for 2002-07 are presented in **Figure 5**. The Western and Northern suburbs were the most common area of residence. Yearly attendance by postcode shows an initial progression in the catchment area of the clinic population. There is still a large patient base living in the inner northern suburbs close to the Royal Children's Hospital.



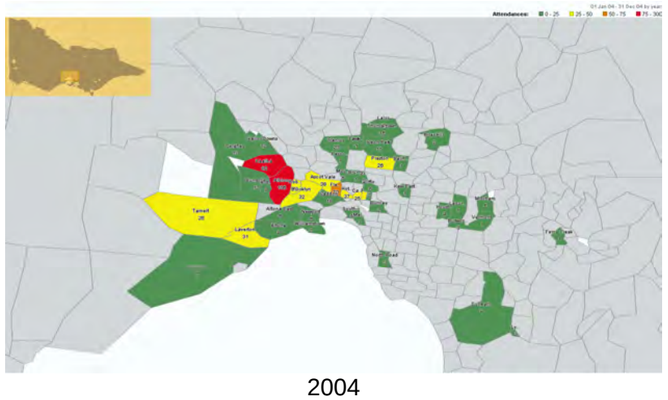
The Royal Children's Hospital Immigrant Health Service



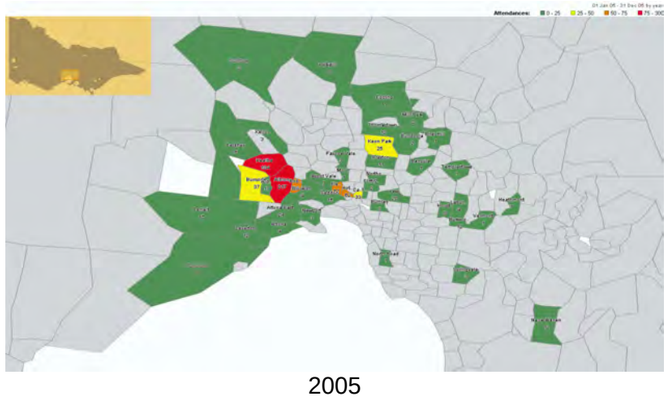
2002



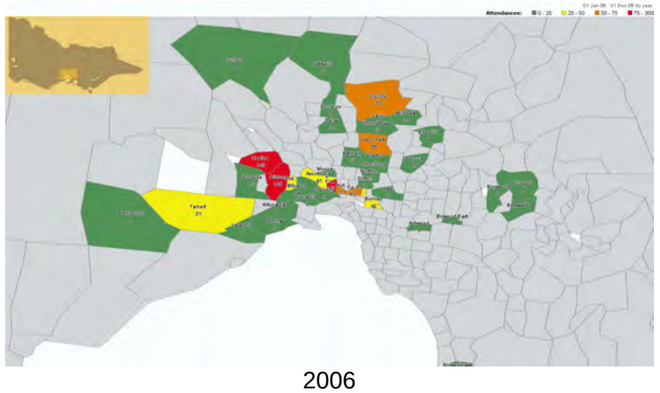
2003



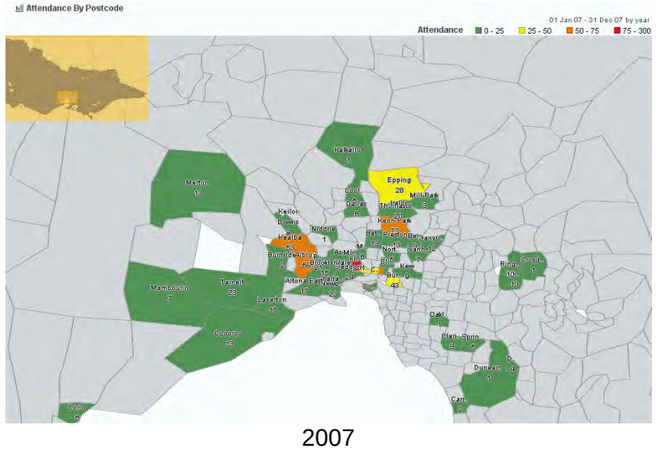
2004



2005



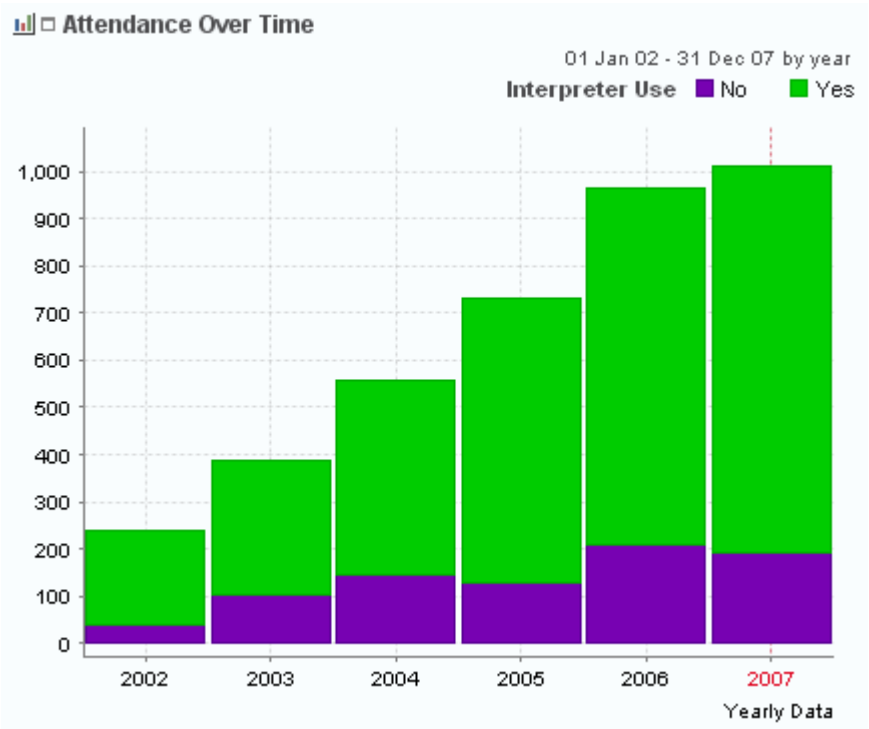
2006



2007

Languages and interpreter usage patterns

Figure 6: Interpreter use



Interpreter use has remained constant at around 80% of clinic attendances. This represents a significant clinical load for the interpreting service, which has noted a steady increase in requests for interpreters over recent years.

Figure 7: Languages spoken

English was nominated as the preferred language in only 73 attendances in 2007 and in 6% of attendances overall in the last 5 years. There were 28 different languages used by families attending the Immigrant Health Clinic in 2007. Dinka was the most frequent first language, reflecting the high Sudanese humanitarian refugee intake in recent years.

Attendance by Language

01 Jan 02 - 31 Dec 07 by year

Language \ Date	2002	2003	2004	2005	2006	2007	Grand Total
Dinka	10	22	164	415	241	214	1,066
Somali	97	84	118	99	193	164	755
Arabic	41	113	97	98	199	150	698
English	7	21	39	33	72	73	245
Tigrinya	12	31	27	10	44	34	158
Swahili				9	77	41	127
Nuer		31	29	4	8	22	94
Karen					14	66	80
Amharic	13	18	21	1	2	20	75
Oromo	3	9	13	2	33	15	75
Chin					8	60	68
Bari				17	15	18	50
Harari	15	15	6	3			39
Dari	16	4	1	12			33
Sudanese					9	22	31
Kirundi				3	7	21	31
Tigre		1	2	2	18	7	30
Serbian	21	4					25
Burmese						20	20
Kriol					7	10	17
Indonesian						16	16
Pashto						15	15
Not Stated			2	2	11		15
Vietnamese		3	11	1			15
Persian		6	5	2			13
Juba Arabic					6	6	12
Hakka		3	1			7	11
Italian			11				11
Mandingo				10			10
Assyrian		6	1			1	8
Tetum					8		8
Bosnian	5			2			7
Turkish		4		2			6
Other			1		2	2	5
Gio					4	1	5
Chaldean						4	4
Lebanese			2	2			4
Mandarin	1	2			1		4
Russian		4					4
Tamil		1	1			1	3
Kurdish (Arabic)		3					3
Nepalese			3				3
Urdu		1		2			3
Luo						2	2
Albanian			2				2
Philipino				2			2
Punjabi				2			2
Sinhalese						1	1
			1				1
Ethiopian			1				1
Ukranian			1				1
Grand Total	**241**	**386**	**560**	**735**	**979**	**1,013**	**3,914**

Figure 7: Languages spoken

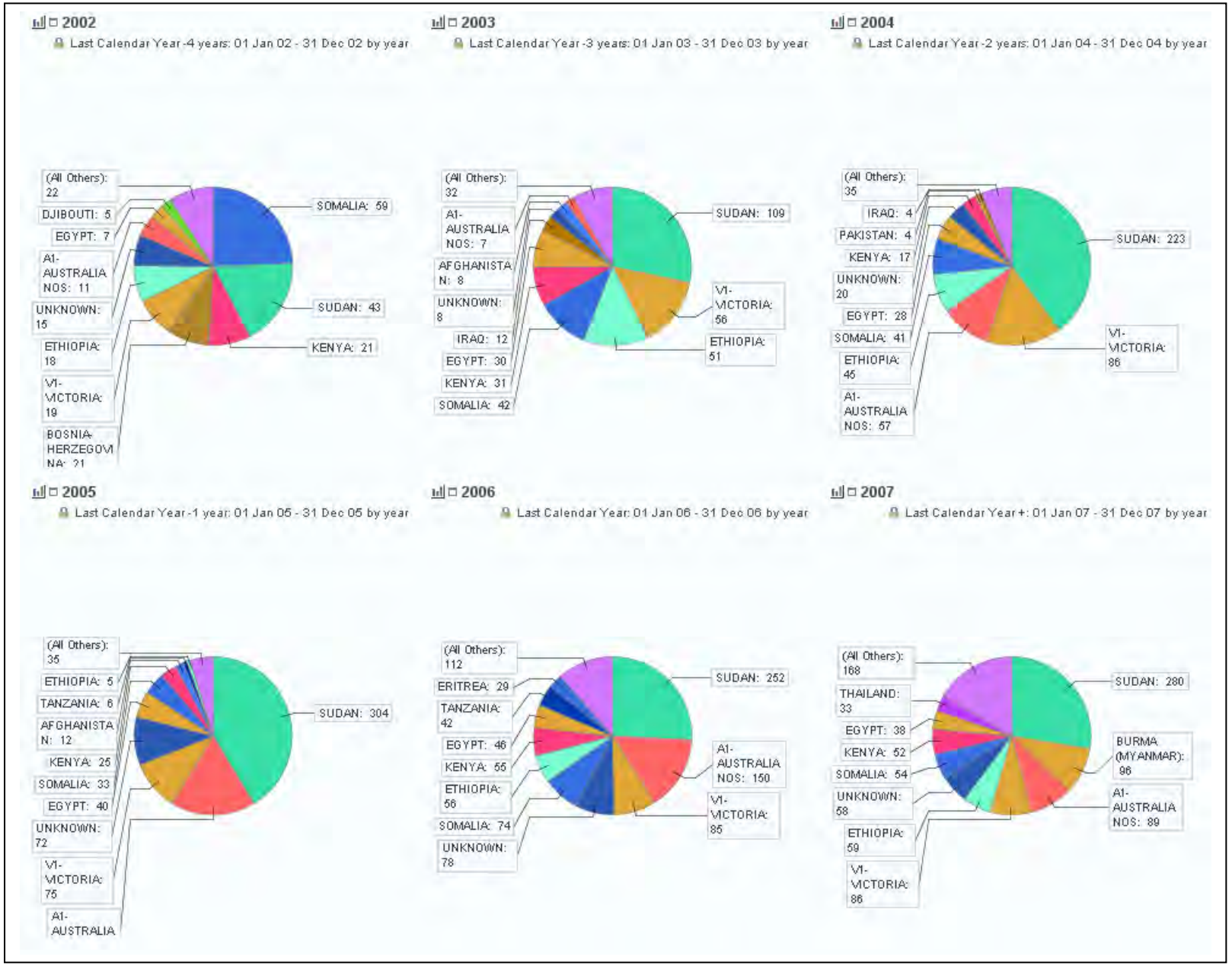
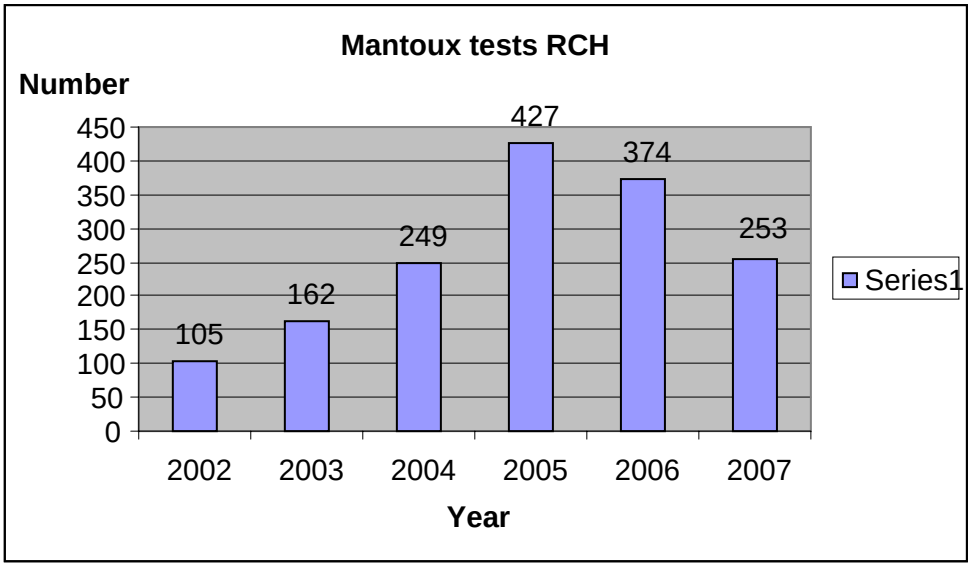


Figure 8: Country of origin

The country of origin details over the last 5 years reflect the demographics of the humanitarian intake. It is likely that there is an over-representation of Australia or Victoria being (incorrectly) listed as source countries in this data. The figures for 2007 show the newer humanitarian entrants from Myanmar.

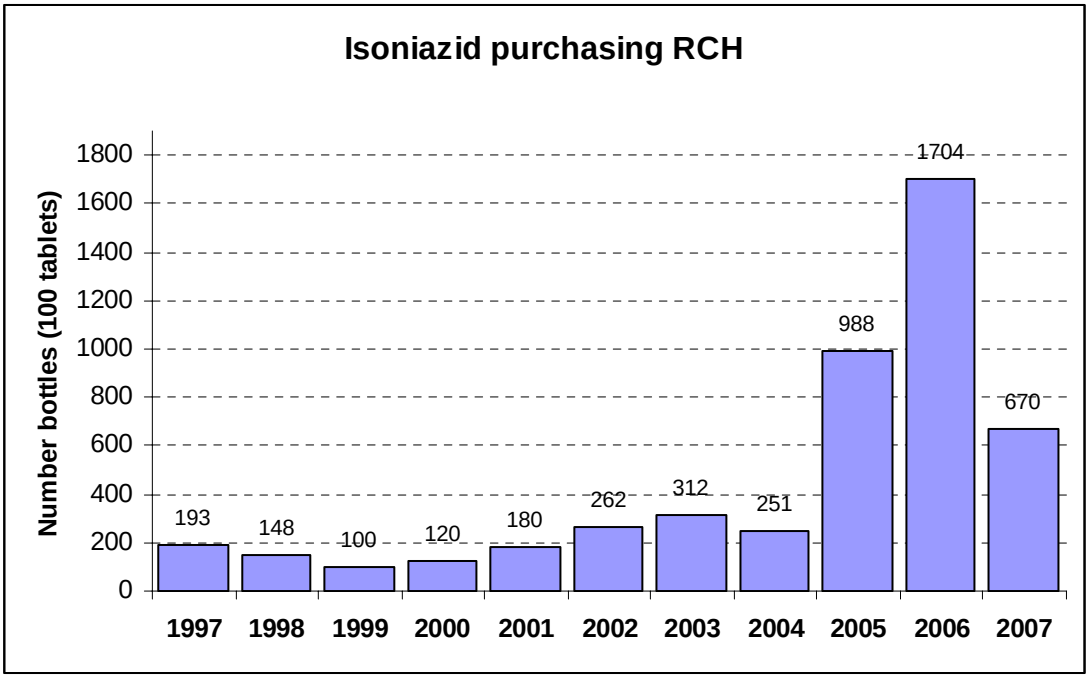
Mantoux tests

Information on the number of Mantoux tests performed has been obtained from the Immunisation Service, clinic specific information is not available. All new patients to the Immigrant health clinic are offered Mantoux testing, unless it has already been completed. Many patients presenting to the TB clinic are referred because of positive Mantoux tests, therefore these tests are not repeated. The decrease in Mantoux testing performed in 2007 is likely to reflect a relatively increased proportion of review visits and increasing availability of Mantoux testing in primary care (not readily available prior to 2006).



Isoniazid prescribing

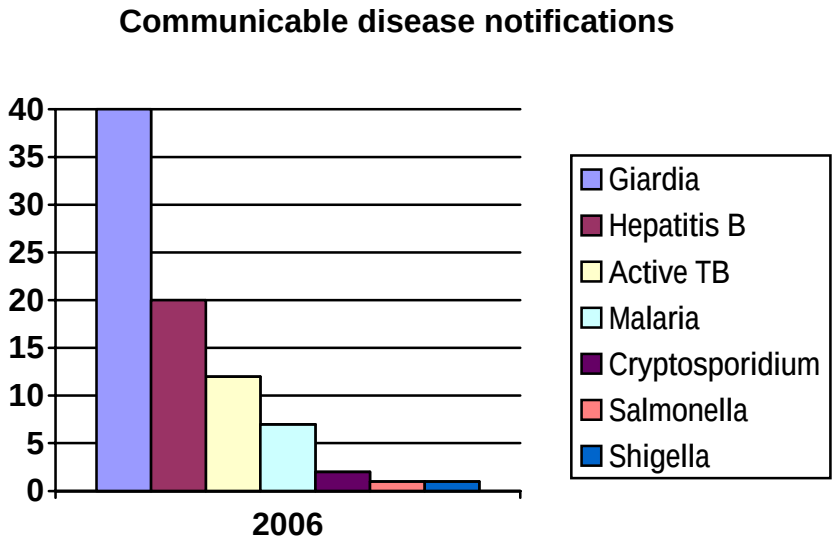
Isoniazid (INH) is used in the treatment of both Tuberculosis (TB) disease and in the treatment of latent TB infection (LTBI). It is not used for other purposes. TB is a notifiable disease (data available through DHS) however LTBI is not, and there is scant data on prescribing patterns. Data on ***purchasing patterns*** for INH over the last 11 years was obtained from pharmacy, as a surrogate for prescriptions. Current prevalence data in recently arrived refugees suggests up to 50% of Immigrant Health patients warrant treatment for LTBI based on Mantoux results. There was an increase in purchasing of Isoniazid for the period 2005-2007 that coincided with the increase in patient bookings for Immigrant Health Clinic and increased complexity of the patient demographic. There was a large amount purchased late in the 2006 year, hence the 2007 figure may be lower due to this.



Information on ***prescriptions*** was sourced for 2007; in total 207 patients were prescribed INH, 69 from Immigrant health clinic.

Communicable disease notifications

All patients with notifiable diseases seen in clinic in **2006** were notified to the Department of Human Services (DHS), regardless of whether the diagnosis was made at RCH or in primary care. This was done after discussion with the Communicable diseases unit at DHS to help provide accurate Communicable disease information for this patient group. In total 83 notifications were made; they were all group B conditions (written notification within 5 days of diagnosis).



Education and resource development

Website

A Website was developed in January 2007:
http://www.rch.org.au/immigranthealth/index.cfm?doc_id=10575
It contains clinic information, links to Immigrant health resources and clinic guidelines. The clinic guidelines were drafted in late 2006 and have been reviewed by Infectious Diseases, Respiratory Medicine, Immunisation, Gastroenterology and Endocrinology. Resources (including translated parent handouts) are also compiled on the RCH users drive (accessible within hospital).

Clinical guidelines developed and available electronically in 2007:

- RCH Clinical practice guideline: **Immigrant health** (focus on Emergency presentations)
- **Overview of health issues in immigrant children**
- **Assessment and screening**
- **Immunisation catch-up**
- **Vitamin D**
- **Vitamin A**
- **Parasite infections**
- **Hepatitis B**
- **Tuberculosis screening**
- **Iron deficiency and anaemia**
- **Malaria**

Lectures and talks

FRACP paediatrics lectures	November 2007, November 2006
Refugee Health Nurses	November 2007, May 2007
Western Region General Practice	November 2007, August 2006
Centre for Community Child Health	November 2007, August 2006
Parasitology Special Interest Group	November 2007
Refugee settlement pathways group	October 2007
Paediatric Update RCH (forum)	September 2007
General Practice SIG Refugee Health	September 2007
Critical care nursing course	August 2007, September 2006,
Dandenong Hospital Refugee Health Day	June 2007
Masters of Public Health Consortium	June 2007, June 2006
Northern Hospital paediatric group	June 2007
Keynote plenary African resettlement conference	April 2007
Primary School Nurses	February 2007
Infection control nursing group	November 2006
Northern Region General Practice SIG	June 2006
FEAT (RACP)	February 2006

Ongoing medical student teaching in clinic

Research

A research group has been set up under the supervision of the Centre for International Child Health, administered through the Murdoch Childrens Research Institute to develop research in paediatric refugee health.

Current projects

Health literacy in recently arrived African communities

Successful application for Department of Human Services Public Health Research Funding 2006-2007, application November 2006, notified March 2007. **Funding awarded: $96,555**. Investigators: Dr G Paxton, Dr J Buttery, Ms C Lloyd-Johnsen, A/Prof BA Biggs, Dr C Lemoh, Prof P Ebeling, Mr A Arkadio, Mr S Wek Aru, Dr K Leder, Dr C Marshall, Prof J Torresi, Dr N Kennedy, Dr S Goldfeld.

Project: Health literacy and effective health promotion with vulnerable communities: Health literacy in newly arrived African communities. Strong bones and healthy communities.

This project aims to develop an understanding of health literacy in recently arrived African communities by assessing self-reported health needs and the community's experiences and expectations of health services and health promotion initiatives. The project will focus on the community's views on Vitamin D and bone health in order to develop an effective, culturally responsive health promotion strategy, to provide information to guide health policy and to propose a model of ongoing health care in the field of Vitamin D and bone health that is feasible, acceptable and sustainable in the community. It consists of 3 stages, community focus groups, interviews with health care providers and a knowledge attitudes practice survey in the refugee health clinics at RCH and RMH and also in an English language school setting pending Department of Education approval.

A Health and Wellbeing Status Report on Refugee Children and Young People 0-18 years.

Successful tender for the health status report commissioned by the Office for Children May 2007, notified September 2007. **Funding awarded: $99,990**. Investigators: Dr G Paxton, Ms A OBrien, Prof M South, Prof S sawyer, A/Prof BA Biggs, Dr C Lemoh.

This project will document the current health status of refugee children and young people by a process of literature review and stakeholder consultation with health service providers in Victoria and also interstate. The review of the literature includes both an overview of the relevant medical literature and review of Government reports and databases and Census information. It will act as a foundation document for policy around paediatric refugee health in the future, and make recommendations for areas of policy review and future research.

Clinical audit / epidemiological data

A database of clinic attendances was kept from 2001-2005. The 2006 data has now been collated and entered after Ethics approval was obtained in early 2007. We are currently in the process of data analysis and write up.

An additional audit research protocol has been submitted to look at epidemiological data in the Burmese refugee population. This project will be a collaboration between RCH Immigrant Health Clinic and a Community Health Centre and will provide key information regarding vaccination coverage and disease prevalence which will aim to inform cost-effective and efficient screening

policies and an overview of health status of an emerging refugee population to Victoria. It also aims to promote collaborative research and strengthen links between tertiary and the primary care settings.

Other

- Involved in the TIGER study: **Tuberculosis Interferon Gamma Evaluation Research** in conjunction with Respiratory and ID units.

Successful **Proposal development for Victorian Office of Multicultural Affairs (now Victorian Multicultural Commission) Language Services Strategy** for: Interpreter and bicultural worker training for health promotion around Vitamin D and bone health - funding to be used to train recent interpreting graduates in health education around Vitamin D, for help with Health Literacy project.

Reference groups

(Dr Georgie Paxton)

- **Victorian Refugee Health Network** February 2008 – ongoing
- **Initial Health Assessment and Ongoing Care** June 2007 – ongoing
- **Refugee Health Assessment Tool Reference Group** (RACGP) Nov 2006 – Mar 2007
- Review (and costing) for proposed **Refugee pharmaceuticals program** for DHS November 2006
- **Refugee Heath Service Coordination Implementation Group**. WestBay Primary Care Partnership Feb 2007 – Oct 2007
- **Settlement support services reference group Western Region** Feb 2007 – April 2007

Publications

- Australian Society for Infectious Diseases: **Diagnosis, management and prevention of infections in recently arrived refugees: Immunisation section**, final draft currently being reviewed, January 2008.
- **Book chapter:** Immigrant health. Royal Children's Hospital Handbook. 8th Edition, January 2007.
- **Book chapter:** Section 5: Child and Adolescent health. Promoting Refugee Health, A Handbook for General Practitioners. Foundation House June 2007.
- **Coles Baby Magazine** Summer edition 2006. Vitamin D and rickets.
- **Clinic guidelines** (as listed previously)

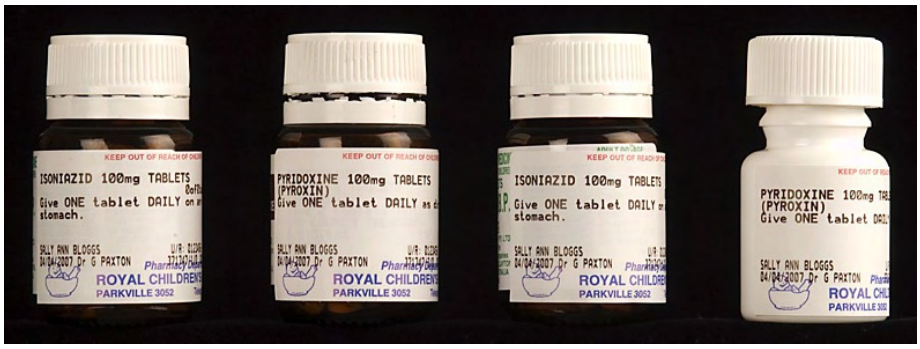
Clinical quality and safety initiatives

Results proforma

A results proforma was developed to facilitate assessment, efficiency in clinic and aid communication with primary care providers in November 2006. It is possible this could be extended to a patient held copy in the future.

Prescribing safety

Given most families do not speak English, at least initially after arrival, and presumably an even lower number read English, we have developed specific prescribing measures to facilitate safe prescribing for tuberculosis (TB) medications. Although this was developed for non-English speaking families we actually use this with all patients, as we think it clarifies dosing. TB medications are colour coded (isoniazid = green, rifampicin = red, pyrazinamide = blue, ethambutol = yellow) and active medications are dispensed in different bottles to the concurrent vitamin supplements (see below). This arose from a discussion with a family where 2 siblings had been dispensed medications for prevention/treatment of latent TB infection. Each child had been prescribed Isoniazid and pyridoxine (B6). The children's mother came back with her script and showed the medications she had been given (see first photo below), asking "I have 2 medicines and 2 vitamins, so why are there 3 brown bottles?". Since this time, with the help of pharmacy we have colour coded all TB medications (see photos) and provided a colour based dosing schedule. This has advantages as it can be used for all language groups, and if patients phone clinic staff with possible adverse drug reactions, we can ask them to stop "the green medicine" instead of relying on people reading prescriptions.




DOSE INSTRUCTIONS

FOR:_____ UR:_____

PHARMACIST:_____ DATE:_____

RIFAMPICIN:
Give _____ ONCE per day on an empty stomach

ISONIAZID:
Give _____ ONCE per day on an empty stomach

PYRAZINAMIDE:
Give _____ ONCE per day

ETHAMBUTOL:
Give _____ ONCE per day
on _____ days of the week

Help from the volunteer service

Finally, we are indebted to Cally Bartlett and Elly Woudstra and the volunteer service at the Royal Children's Hospital. Think about going to a new hospital with multiple children to attend something called 'the green desk', then go to pathology collection, come back for immunizations and a Mantoux test, pick up a script for some of the kids and attend the Radiology department for an X-ray. This involves multiple floors, signs in English and instructions involving coloured lifts… in short it is a major logistical challenge. Cally and Elly provide a friendly and personal introduction to the hospital as they help families complete these tasks and negotiate the pathways around the hospital between areas of clinical care.

Additional information can be supplied if needed. Contact details:

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