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WHAT, WHEN AND FROM WHOM?

Healthcare providers' views to infectious diseases
screening practises of immigrants in Finland

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The number of international immigrants has increased both globally and in Finland. In 2008, almost 30,000 migrants came to Finland. Infectious diseases are health problems associated with immigrants and screening these from immigrants has been seen as a way to prevent them from spreading to the recipient population. At present there are no national guidelines for infectious diseases screening of all immigrant groups. The latest guidelines date back to 1993 covering only refugees and asylum seekers.

The aims of this study were to describe the current state of infectious disease screening from immigrants arriving in Finland and the findings of this screening. In addition the study aimed to define whether the current infectious disease screening has been useful from the health professionals' point of view and find suggestions given by these health care professionals on how to improve the current screening practises.

The study used a cross-sectional mixed mode (Web-based and mailed questionnaire) survey targeted to health professionals working in different primary health care facilities in different parts of Finland. The number of respondents was 121 and the response rate 69%. The respondents were public health nurses (n=92), medical doctors (n=16) and nurses (n=13). Descriptive statistics was used to analyse the results.

Immigration-related health examinations were done in all different workplaces. Immigration-related health examinations were most frequently done to adopted children, refugees, returnees and immigrants who have family ties to Finland. Problems with health examinations related to difficulties with language, excessive need of time, poor flow of information, different concepts of illnesses, illiteracy and lack of trust. Infectious diseases testing was most often done to refugees and asylum seekers. Most frequently tested infectious diseases were hepatitis B, HIV and tuberculosis. Most common finding was hepatitis B.

The respondents perceived immigrants' infectious diseases screening important both to the immigrants themselves and to the society. Several suggestions on how to improve screening practises were given, including formulating clear instructions, informing about justification of screening, providing training, centralising screening systems and improving flow of information.

More systematic approach to immigrants' infectious diseases screening is needed. Nationwide instructions could be used to be used to balance the benefits, costs and harms of the screening. Informing and training about screening is also needed.

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ABBREVIATIONS

CAD	Canadian dollar
HPA	Health Protection Agency (UK)
IHR	International Health Regulations
USD	United States of America dollar
PHN	Public health nurse
QALY	Quality adjusted life years
RPR	Rapid plasma reagin, a test for syphilis
SARS	Severe acute respiratory syndrome
TST	Tuberculin skin testing
VFR	Visiting friends and relatives

1. INTRODUCTION

International migration has been rapidly increasing during the past decades (Castles, 2000). Immigration to Finland has also been increasing over time, especially during the past few years. Almost 30,000 immigrants came to Finland during the year 2008, which is more than double the amount ten years ago. (Statistics Finland, 2008a).

Immigrants move to Finland for various reasons. In 2008, almost half of all the 20,000 residence permits were granted on the basis of working in Finland. Residence permits granted for students consisted 23% and those granted for people having Family ties in Finland 30% of all permits. (Finnish Immigration Service, 2008a). From around 3,000 – 4,000 asylum seekers yearly, 500-800 get a favourable decision to their application (Finnish Immigration Service, 2008b). Municipalities have received 650-750 refugees yearly (Finnish Immigration Service, 2009).

During the course of history, several measures have been taken to prevent infectious diseases from spreading from geographical area to another. Screening infections from immigrants is one of those measures. (Keane and Gushulak, 2001). Increasing movement of people during the past decades has made screening a topical issue. Various infectious diseases are screened, especially tuberculosis and HIV. Screening, either voluntary or compulsory, can be justified on the basis of two reasons: protecting public health and helping individual immigrants to receive treatment when they need it. (Coker, 2004). Refugees and asylum seekers often come from areas of high prevalence of infectious diseases and are thus in need of health care (Nohynek et al., 1993, Coker, 2004, Health Protection Agency, 2006).

Practises of infectious diseases screening of immigrants varies between countries. In European countries medical examinations to immigrants are usually not mandatory but voluntary and the findings of the examinations do not affect the decision of asylum or residence permit. (Coker, 2003). In Finland there are no compulsory medical examinations or infectious diseases screening for immigrants moving to Finland from any area of the world. Refugees and asylum seekers are offered a voluntary medical examination upon arrival to Finland, but people immigrating to

Finland for other reasons are not systematically examined. The findings of the medical examinations of refugees and asylum seekers do not affect to the decision made on residence permit (Nohynek et al., 1993).

National Public Health Institute in Finland, under the auspice of Ministry of Social Affairs and Health, has formulated guidelines on preventing problems caused by infections in refugees and asylum seekers in 1993 (Ministry of Social Affairs and Health, 1993). These guidelines include recommendations on screening of infections, namely tuberculosis, hepatitis B, HIV and syphilis. Since 1993 the number of foreign nationals in Finland has doubled (Statistics Finland 2009a) and the guidelines are now being revisited by an expert group under the auspice of the Ministry of Social Affairs and Health and the National Institute for Health and Welfare. Given that only less than 10% of immigrants coming to Finland are refugees and asylum seekers (Finnish Immigration Service, 2008b, Finnish Immigration Service, 2009, Statistics Finland, 2009a) background information is needed from the medical examinations made to other immigrants, too.

The aims of this study are to describe the current pattern of infectious disease screening from immigrants arriving in Finland and the findings of this screening. In addition the study aims to define weather the current infectious disease screening has been useful according to health professionals and find suggestions given by health care professionals on how to improve current screening practises.

2. REVIEW OF LITERATURE

2.1. Material and methods to literature review

For the literature review, a literature search was carried out in Medline-database using keyword “*emigration and immigration*” in different combinations with words “*communicable diseases*”, “*communicable disease control*”, “*mass screening*”, “*cost-benefit analysis*” and “*physical examination*”. In Popline-database keywords “*immigration*” and “*screening*” were used. The search was not totally systematic in nature, because search was continued with using reference lists from the relevant articles found.

A Finnish Fimnet-database was also used to find articles concerning situation Finland. In addition the Internet pages of National Institute for Health and Welfare and Statistics Finland were used to find statistical information of infectious diseases and immigration.

2.2. Definitions

2.2.1. Immigrant

When measuring migration flows, United Nations (UN) defines an international migrant as “person who moves to a country other than that of his or her usual residence”. The definition divides migrants into two groups: long-term migrants are those who move to a period of at least one year and short-term migrants are those who move to stay for 3-12 months. (UN, 1998).

In terms of countries of origin, countries of destination and reasons to migrate from country to another international migrants form a very diverse group. Migration can be voluntary or forced. The reasons for voluntary migration are often financial, people move to find better lives for themselves and their families. Forced migrants, on the other hand, usually do not have any other alternatives but to leave their homes

because of armed conflicts, political violence or natural disasters. (Castles, 2000, Carballo and Mboup, 2005, Health Protection Agency, 2006).

This diversity in definitions concerning international migration causes challenges in interpreting and especially comparing statistics and results of different studies. In this study the term “immigrant” or “migrant” is used in the sense of foreign-born people who move to Finland for more than 3 months. The relatively short period of time is chosen because the study is concentrated on health examinations related to immigration process and infectious diseases that can spread even during a short period of time.

Immigrants can also be categorised in different groups based on their reason for migration (UN, 1998). In this study immigrants were divided into eight groups depending on their status: refugees, returnees, immigrants who have come to work, students, immigrants who have family ties in Finland, asylum seekers, adopted children and those immigrants whose background is not known. This taxonomy was selected because the status of the immigrant defines what kind of health care he/she is entitled to in Finland.

2.2.2. Screening

There is a variety of definitions of medical screening but they all have some core issues in common. Screening is a process of selection that aims to find those individuals that are at sufficiently high risk of certain disease or condition to justify for further action. These actions can be preventive measures or more testing. Screening is not done on a basis of a medical complaint but it is done to individuals that do not have symptoms or have not recognised the symptoms of a condition screened for. The aim of screening is to benefit the individuals that are screened. Screening usually refers to a test or an inquiry applied systematically within a programme. (Raffle and Gray, 2007, Wald, 2008). Raffle and Gray (2007) depict screening as a sieving process, separating those who have a positive test result from those who have a negative result. A positive result in a screening test does not yet prove that the individual has the disease or condition in question but that further

interventions are needed.

The world classic of screening principles and practises was a Public Health Paper for WHO written by Wilson and Jungner in 1968. They highlighted ten principles of screening (Table 2.1.) which are meant guide planning screening programmes. The basic rule was that if all the principles are met, the screening programme should be initiated. Although the list may appear as a simple way to judge possible screening programmes, the complexity of the screening was highlighted even by Wilson and Jungner themselves. (Wilson and Jungner, 1968, Raffle and Gray, 2007). There are often no simple answers if the criteria is met or not and even if it is, careful research is needed on affordability of the programme and the benefit and harm that the programme can do (Raffle and Gray, 2007).

Table 2.1. Screening criteria of Wilson and Jungner

<ol style="list-style-type: none"> 1. The condition sought should be an important health problem. 2. There should be an accepted treatment for patients with recognized disease. 3. Facilities for diagnosis and treatment should be available. 4. There should be a recognizable latent or early symptomatic stage. 5. There should be a suitable test or examination 6. The test should be acceptable to the population. 7. The natural history of the condition, including development from latent to declared disease, should be adequately understood. 8. There should be an agreed policy on whom to treat as patients. 9. The cost of case-finding (including diagnosis and treatment of patients diagnosed) should be economically balanced in relation to possible expenditure on medical care as a whole. 10. Case-finding should be a continuing process and not a “once and for all” project.

Wilson and Jungner, 1968

In the Finnish legislation screening has been defined as “*examination of the population or a certain part of the population, or sampling in order to discover a certain disease or its precursor or to identify a pathogen*”. According to the Government Decree of Screening, screening is part of preventive health care. It does

not only include performing the screening tests but the whole screening programme: definition of the target group, advice and guidance to individuals, feedback information delivery, referral to further examinations and organising the health services needed. (Valtioneuvoston asetus seulonnoista, 2006). In this study the Finnish definition of screening is used because the study discusses screening practises in Finland.

2.3 Impact of immigration to spreading of infectious diseases

New infectious diseases introduced to an intact continent can have devastating results. Historically infectious diseases have played an essential role for example in Europeans colonising new continents. (McNeill, 1976). However, nowadays the concern is if the growing migration from low-income countries with high prevalence of infectious diseases, especially tuberculosis, hepatitis B and HIV/AIDS is increasing the prevalence of these diseases in high-income countries (Coker, 2004, Health Protection Agency, 2006, EASAC, 2007).

Health of immigrants is affected by the situation in their country of origin, circumstances during their travel and factors in their country of destination (WHO, 2003, Carballo and Mboup, 2005, Gushulak and MacPherson, 2006, Health Protection Agency, 2006). Examples of situations in the countries of origin are HIV, hepatitis B and tuberculosis. Total of 67% of 33 million HIV-infected people live in sub-Saharan Africa (UNAIDS, 2008). In areas with high prevalence of hepatitis B, such as sub-Saharan Africa and South-East Asia, up to 20% of the population can be chronically infected (WHO, 2004). Incidence of tuberculosis is also high in Africa and in South East Asia (Ministry of Social Affairs and Health, 2006). It is likely that people immigrating from these areas also have higher incidence than population in the high-income destination countries. The journey of the migrants can be anything between a few hour plane flight to many years spent in hardship and insecurity fleeing war and persecution. Although for most migrants the health consequences of the journey are minimal, refugees, asylum seekers and migrants who have been trafficked or smuggled are at greater risk for circumstances that harm their health. (WHO, 2003. Health Protection Agency, 2006).

Not all infectious diseases of immigrants are contracted in their home country or on the way to the recipient country. Immigrants seem to be at higher risk than the indigenous population to contract infections like tuberculosis in their destination country because of poor housing and vulnerable socio-economic status. Difficulties in accessing health services contribute to the increased risk of acquiring infections. (Health Protection Agency, 2006, EASAC, 2007).

Several studies have shown that the incidence or prevalence of infectious diseases, especially tuberculosis and hepatitis b, are higher in immigrant population than in indigenous population (Coker, 2003, Health Protection Agency, 2006). However, determining the actual risk to indigenous population caused by the infectious diseases imported by immigrants is more complicated than just comparing the prevalence in immigrants and in host population. Geographic relocation of infectious diseases should be differentiated from risk of infectious disease spreading to the population of the recipient country. If the infection cannot be transmitted in the new location, e.g. because of absence of vector like malaria spreading mosquitoes, transmission cannot occur. In these circumstances, the infection may cause an economical burden to the country of destination but it is not a threat to public health. (Gellert, 1993).

Little is known about the actual risk for the population at the country of destination from the infectious diseases carried by immigrants (EASAC, 2007). Based on surveillance data the UK Health Protection Agency found that there is no concern of tuberculosis transmission from non-UK born population to indigenous white population. In spite of an increase in incidence rate among non-UK born population during past years the rate had remained low and stable in the indigenous population. (Health Protection Agency, 2006). This is in line with a study that found no correlation between the incidence of tuberculosis in foreign-born and U.S.-born persons in different states in U.S.A. The highest incidence of tuberculosis in foreign-born persons was in the western U.S.A whereas the highest incidence in U.S.-born was in the northeast. (McKenna et al., 1995). One reason for the low transmission between foreign-born and native people is assumed to be that tuberculosis is only transmitted in close contacts, usually between people living in the same household.

However, the indigenous minority ethnic groups who have links to the endemic countries seem to be at higher risk for tuberculosis. (Coker, 2004, Health Protection Agency, 2006).

Others have studied transmission of tuberculosis with the help of genotyping. A study in Denmark determined the magnitude of tuberculosis transmission between Somalis and Danes. Only 0.9% of Danish tuberculosis patients were likely to be infected by Somalis whereas 1.8% of the Somalis were infected by Danes. (Lillebaek et al., 2001). A study conducted in the U.S. found very little transmission of tuberculosis taking place between foreign- and U.S.-born population. Only two from a total cohort of 367 cases were found from U.S.-born people that were infected by foreign-born persons. (Chin et al., 1998). However, some contradictory evidence exists. A Dutch study modelled that in 2030, at least 60% of Dutch tuberculosis cases were result of transmission from foreign people (van Wolleswinkel den Bosch et al., 2002).

2.4. Screening of immigrants' infectious diseases

2.4.1. Background of medical screening of immigrants

History of screening infectious diseases from immigrants originates from concern that infections introduced by immigrants pose a threat to public health. Immigrants are perceived to be importing diseases to otherwise healthier population. (Keane and Gushulak, 2001, Markel and Stern, 2002, Welshman and Bashford, 2006). During the course of history various methods have been taken to prevent people from infected communities to enter the healthy communities e.g. quarantine and exclusion. The concept of preventive quarantine stems back to 1377 when ships coming from plague-infected areas to Ragusa (modern Dubrovnik) were ordered a 30-day isolation period before allowing them to dock. (Gensini et al., 2004). Measures taken to prevent leprosy and bubonic plague from spreading in seventh century are also classical examples of exclusionary approaches. Spreading of both diseases was attempted to be controlled by limiting the movement of people infected or coming

from areas affected by the diseases. (Keane and Gushulak, 2001).

Practise of newcomer screening, inspection and exclusion practised by the U.S. in 19th century is also an example of exclusive approach used towards immigrants. Immigrants were required to undergo medical screening and chemical disinfection before allowing the entrance to the U.S. Immigrants were screened for several diseases, e.g. cardiac problems, communicable diseases, goiter, skin infections and physical disabilities. Many of these conditions were a reason for deportation. Curable diseases were treated in a public health facility in Ellis Island for a reasonable time. If the disease was not cured the immigrant was recommended to be deported. (Smith, 2001, Markel and Stern, 2002)

“International sanitary conference” in Paris 1851 aimed to improve control of infectious diseases and explore possibilities to standardise quarantine practises. The organising of the conference was raised from the concern caused by intermittent epidemics of cholera in Europe. (Keane and Gushulak, 2001, Gensini et al., 2004). This and several following conferences lead to International Sanitary Regulations, a predecessor of current International Health Regulations (IHR) (Keane and Gushulak, 2001). The new IHR from 2005 allow nations to temporarily implement health measures including quarantine, isolation and treatment of travellers when a public health emergency of international concern is occurring. “Public health emergency of international concern” is an extraordinary event that can, through international spread of disease, pose a public health risk to other states and that might need international co-operation. The IHR also allows nations to conduct non-invasive medical examinations to travellers on arrival or departure for public health purposes. Furthermore, additional health measures can be applied to travellers that are found or suspected to be affected by an infectious disease that poses a threat to public health. (WHO, 2008).

2.4.2. Different practises of screening

Issues relating to immigration are considered to fall within the scope of national sovereignty and thus every country has its own legislation regarding to immigrant

screening (WHO, 2003). At present, legislative requirements related to medical standards of migrants differ widely between countries. The diversity of migrant groups, geographical origins and destinations prevents universal screening practises to be applied globally (Gellert, 1993). The screening practises can vary within a country and even between different clinics in a same country. Risk factors and prevalence of diseases vary between countries of origin and even within the same ethnicity. Thus screening practises would ideally take into account the variety between immigrant groups. (Stauffer et al., 2002). Because scientific evidence of effectiveness of screening is unavailable, guidelines for screening practises stem from clinical experience, expert opinions, known risks and studies that report high prevalence of infectious diseases in immigrants (Stauffer et al., 2002, Adams et al., 2004). Screening practises also reflect historical traditions and are influenced by cultural and political factors, even more than by public health imperatives (Welshman and Bashford, 2006). The practises vary in terms of what is screened and from which groups of immigrants, is the screening done before departure or after arrival and is the screening voluntary or compulsory (The Lancet Infectious Diseases, 2007).

Nations with long history as immigrant-receiving countries (e.g. Australia, Canada, USA) have some requirements for obligatory health screening as a part of migration process. Screening in these countries is usually done prior to the departure from home country but it can also be conducted after arriving to the country of destination, or use these two methods to complement each other. (Keane and Gushulak, 2001).

Screening can be done in order to prevent immigrants with certain diseases from entering the country. However, the impact of findings of screening can be different for immigrants with different status. A difference can be made with voluntary and forced migrants. In some cases forced migrants, e.g. refugees, can be granted a waiver from the excludible medical condition. With this process legislation can be used to serve humanitarian purposes. (Keane and Gushulak, 2001).

Different infectious diseases vary in their speed of spread. Diseases that spread slowly, e.g. tuberculosis or HIV/AIDS are managed with different approach to screening than diseases like whose spread is very rapid, like Severe Acute

Respiratory Syndrome (SARS) of possible avian influenza pandemic. (EASAC, 2007). Most commonly recommended diseases to be screened are tuberculosis, hepatitis B, HIV, syphilis and intestinal parasites (Stauffer et al. 2002, Adams et al., 2004).

2.4.3. Screening system in Finland

Primary health care in Finland is organised by the municipalities. (Kansanterveyslaki 1972). Immigrants are entitled to use municipal health services if they have a home municipality in Finland. A person immigrating from abroad has a home municipality in Finland if he/she has a permanent or a continuous residence permit or is a citizen of Finland, other EU countries or another specified country (Iceland, Liechtenstein, Switzerland or Norway). Immigrants from other countries with fixed-term residence permit for minimum of one year may be entitled to have a home municipality in Finland if they have an intention to be living permanently in Finland. Students and people working in Finland can be defined as having an intention to live in Finland permanently if they have a contract of employment or a place of study for minimum of two years. The family members of all above mentioned people are also entitled to use municipal health services. (Kotikuntalaki 1994).

In most municipalities there is a special facility offering social- and health care services for refugees, returnees and sometimes asylum seekers. If a special facility is not there or it only covers social care services, there still might be a public health nurse or a nurse in primary health care services who performs health examinations to the refugees immigrating to the municipality. Other immigrants than refugees, returnees and asylum seekers do not have facilities providing services especially for them. They can use municipal health services if entitled to them or private health services.

The current national instructions of infectious diseases screening of immigrants are guidelines formed by National Public Health Institute in Finland, under the auspice of Ministry of Social Affairs and Health, in 1993. They give instructions on what to screen from refugees and asylum seekers but not from other groups of immigrants.

Diseases recommended to be screened are tuberculosis, syphilis, hepatitis B and HIV. In addition, stool parasites are recommended to be tested from symptomatic children and stool culture from all who have symptoms. (Ministry of Social Affairs and Health, 1993).

National Tuberculosis Control Programme defines migrants and visitors coming from high prevalence countries as being high risk for tuberculosis. In the Programme, health examinations to screen tuberculosis are recommended to be organised to refugees, asylum seekers and Ingarian returnees as well as other immigrants coming from high-incidence countries. These health examinations should include anamnesis, clinical examination and chest radiographic screening for everyone over 7 years old. Children should be screened with tuberculin skin test (TST). (Ministry of Social Affairs and Health, 2006).

2.5. Cost-effectiveness of screening

Knowledge of cost-effectiveness of different practises of screening infectious diseases from immigrants is scarce. However, few studies evaluating cost-effectiveness are reported, most of them evaluating screening of tuberculosis (Dasgupta et al., 2000, Schwartzman and Menzies, 2000, Dasgupta and Menzies, 2005, Porco et al., 2006, Mor et al., 2008). Furthermore, a study published in 1999 evaluated cost-effectiveness of screening intestinal parasites (Muenning et al., 1999) and a study conducted in 1988 evaluated cost-effectiveness of HIV antibody screening (Zowall et al., 1990).

Dasgupta et al., compared cost-effectiveness of two different tuberculosis screening schemes, pre-immigration screening and post-immigration passive surveillance (passive case detection), to close contact investigation in Canada. Study was done retrospectively collecting data over one year period in 1996-1997. Close contact investigation had a high case detection rate and was considered to be more cost-effective than screening programmes. Cost for tuberculosis infection detected and treated was 10,000 Canadian dollars (CAD) in close contact investigation group whereas in pre-immigration screening costs were CAD 31,000 and passive

surveillance CAD 56,000 per case detected and treated. (Dasgupta et al., 2000).

Mor, Lerman and Leventhal (2008) studied cost-effectiveness of tuberculosis screening in Ethiopian immigrants to Israel. The study group included immigrants who were screened before immigration in Addis Abeba, Ethiopia, and the comparison group was immigrants screened after immigration in Israel. Tuberculosis was diagnosed an average 297 days earlier in the study group compared to the comparison group. In addition, costs for maintaining a health station in Addis Abeba to conduct screening and treatment were relatively low. The authors recommend screening that is centralised in nature and conclude that pre-immigration screening is cost-effective. (Mor et al., 2008).

Immigrants applying for a visa to U.S. for more than 6 months are required to undergo radiographic TB screening. A study conducted in 2005 used a hypothetical cohort of 1,000 individuals using a time period of 20 years after their entry in U.S. The aim of the study was to estimate incremental costs rising from follow-up and evaluation interventions to immigrants that had received B-notification (active but sputum smear negative TB or inactive TB) in the pre-immigration screening program. Results show that domestic follow-up of this cohort would prevent 2-5 new TB cases and a cost per Quality Adjusted Life Year (QALY) saved would be USD 20,000 in the worst case scenario. The writers conclude that evaluating and treating active TB of immigrants received B-notification is highly cost effective serving the patient as well as the community although it would only decrease the total number of TB cases in California by 1 %. (Porco et al., 2006). However, this study did not define the costs of the initial screening programme that caused some of the immigrants to receive the B-notification.

In the case of some infections it is possible to consider presumptive treatment of immigrants rather than screening programs. Muennig, Pallin, Randall, Sell and Chan (1999) made a cost effectiveness analysis in the U.S. comparing no preventive intervention to universal screening and presumptive treatment in intestinal parasites of immigrants. Presumptive treatment with 400 mg of albendazole per day for five days would result to saving USD 4.3 million annually and avert at least 870 disability-adjusted life-years (DALY's). The results also suggest that screening is

more expensive and less effective in averting DALYs than presumptive treatment. Compared with no preventive intervention screening would cost USD 159,236 per DALY averted. (Muennig et al., 1999).

2.6. Ethical issues of screening

Impact of screening has not been well studied and there is only little evidence that screening benefits public health benefits to the population at the receiving country. Using a method whose efficacy or cost-effectiveness is not proved is dubious. (EASAC, 2005, The Lancet Infectious Diseases, 2007). The European Academies Science Advisory Council suggests that more well-designed research to defining risks and tracking trends is needed. That would able the policy-makers to base their decisions on broad evidence rather than isolated case reports. (EASAC, 2005). However, infectious diseases screening that is done patient centred aiming to treating those who are infected can be appropriate in improving individuals' health (HPA, 2006).

Screening has several constraints that reduce its effectiveness. Test that are used are not always sensitive and they can lead to false negatives, resulting missed cases (EASAC, 2005). Screening that is not applied consistently to all migrants risks for infections carried by not screened migrants, e.g. irregular migrants, VFR's, migrants arriving on short-term status, to enter in the country (Angell and Cetron, 2005, EASAC, 2005, The Lancet Infectious Diseases, 2007). Immigrants remain at higher risk to acquire the infectious diseases screened after they have settled in to their new country of residence, thus the screening conducted at during the process of entering the country is not necessarily effective in finding the cases within immigrants. UK Health Protection agency found out that only 23 % of immigrants' tuberculosis cases were diagnosed within 2 years after arrival. (Health Protection Agency, 2006).

Migrants are reluctant to undergo screening if they fear that a positive result will affect negatively on their residence application. This fear is often well justified. (WHO, 2003, The Lancet Infectious Diseases, 2007). Screening can be used as discriminative measure if immigrants are prohibited entering the country on the basis

of their medical status. In addition, screening programmes that aim to identify migrants with infectious diseases that would cause them to be deported from the country are probable to affect negatively on migrants' seeking health services. This would both harm the health of migrants themselves but it also would be a risk for the public health. (Markel and Stern, 2002).

Screening infectious diseases from immigrants can also create or strengthen a conception in the public that immigrants pose a threat to the society (Markel and Stern, 2002, *The Lancet Infectious Diseases*, 2007). An editorial in the *Lancet Infectious Diseases* (2007) strongly criticises plans of UK and Australia governments to introduce compulsory HIV testing to immigrants. According to the editorial such plans are “*populist and more to do with assuaging public fears and misconceptions in relation to migration (and subsequently winning elections than addressing public-health priorities in any coherent way.)*”. (*The Lancet Infectious Diseases*, 2007).

2.7. Other methods than screening to prevent spreading of infectious diseases

Lack of knowledge on effectiveness of screening warrants exploring other methods to protect public health and prevent infectious diseases from low-income countries from spreading in high-income countries. These methods can include surveillance and sentinel systems within immigrant population (EASAC, 2005). Immigrants can also be encouraged to seek treatment whenever they have symptoms because many diseases, especially tuberculosis, may present only a long time after immigration. (*Lancet Infectious Diseases*, 2007).

Many immigrants return to their home country for a visit and then return back to the recipient country. This group of travellers is commonly called “visiting friends and relatives”, VFR. Because VFR's spend their time in local settings and in close contact with local people, the risk of contracting infectious diseases is higher than that of common tourists. (Gellert, 1993, HPA, 2006). VFR's may not perceive the health risks related to travelling back to their original country significant. Improving travel-related health care by offering VFR's appropriate vaccinations and health education on how to prevent infections may be an effective measure to prevent infection

transmission (Gellert, 1993, Angell and Cetron, 2005).

Vaccinating is an effective measure for preventing many infectious diseases from spreading. Many countries are now offering BCG-vaccination against tuberculosis to children based on risk assessment. Hepatitis B is also effectively preventable by vaccine and WHO recommends hepatitis B vaccination to be part of universal vaccination programmes (WHO, 2004). However, based on very low prevalence of hepatitis B, in Finland the vaccine is only offered to people at great risk of contracting hepatitis B (National Public Health Institute, 2005). Children of immigrants from high-prevalence countries are usually considered to be at high risk of both these diseases (HPA, 2006) although in Finland only children of HBsAg positive parents are offered the vaccination (National Public Health Institute, 2005).

Global prevalence pattern of infectious diseases obviously has a great impact on infectious diseases of immigrants. When high-income countries contribute to the control and treatment programmes in the countries where migrants originate from they are promoting their own public health, too. As an example, the UK Health Protection Agency recommends the UK to review ways in which it could contribute more to the prevention of global HIV and hepatitis B epidemic (HPA, 2006). The National Tuberculosis Control Program in Finland also states that giving aid to Russia, the Baltic countries and Africa decreases risk of importing tuberculosis and multi-drug resistant tuberculosis to Finland. Furthermore, by working in high incidence countries Finnish health professionals would gain skills in controlling tuberculosis and ensure Finland has high level of expertise in tuberculosis control and treatment. (Ministry of Social Affairs and Health, 2006).

A cost-effectiveness study published in 2005 compared existing radiographic screening program in the U.S. to radiographic screening in U.S. plus expanded DOTS (directly observed treatment, short course) program in Mexico (Schwartzman et al., 2005). It found that U.S. investment of USD 34.9 million in DOTS program in Mexico would result in savings of USD 108 million by decreased direct and indirect costs of immigrants' tuberculosis in U.S. The expanded DOTS program would avert 2591 cases of tuberculosis and 349 deaths caused by tuberculosis in USA. Majority (88 %) of averted tuberculosis cases would have occurred among undocumented

migrants and visitors who would not have been covered by the screening program. The study did not include effects of secondary spread of tuberculosis in U.S. although that would even further increase the effectiveness of expanded DOTS program. (Schwartzman et al., 2005).

3. AIMS

The overall aim of the study was to assess screening of infectious diseases from immigrants coming to Finland. The more specific aims were:

1. To describe the current pattern of infectious disease screening from immigrants arriving in Finland.
2. To describe the findings of this screening.
3. To define whether the current infectious disease screening has been useful according to health professionals.
4. To find suggestions given by health care professionals on how to improve current screening practises.

4. MATERIALS AND METHODS

4.1. Study site

The study was carried out in Finland in primary health care settings, in altogether 21 municipalities. Almost half of all immigrants arrive to five biggest cities in Finland, namely Helsinki, Espoo, Tampere, Turku and Vantaa. More than half of the questionnaires (n=85, 56%) were sent and 56 (46% of total completed) were received from these cities. Emphasis was given to areas within these cities that are known for high proportion of immigrant residents. In addition, some smaller towns that have received immigrants and quota refugees during the last three years were included in the study. These towns are Hämeenlinna, Joensuu, Jyväskylä, Kajaani, Kemi, Kokkola, Kotka, Kuopio, Lahti, Mikkeli, Oravainen, Oulu, Rovaniemi, Savonlinna, Tornio and Vaasa. Altogether these municipalities had received 65 % of all immigrants who came to Finland during the year 2007 and 79 % of all refugees.

4.2. Participants

The target population consists of health professionals, e.g. medical doctors and public health nurses and nurses working with immigrants in different settings. These settings include special services for immigrants, municipal primary health care facilities in bigger cities of Finland, Finnish Student Health Service, student health care facilities of bigger cities and occupational health clinics. In municipal health care facilities emphasis is given to professionals who have a lot of immigrants as clients.

4.2.1. Inclusion and exclusion criteria

Inclusion and exclusion criteria for the respondents of the survey were as follows:

Inclusion criteria:

- health care professional (nurse, public health nurse or a medical doctor) and
- working in a health care facility (immigrant health services, health centre, occupational health clinic, student health service) in a bigger city of Finland or a municipality that has received quota refugees during the past three years and
- willing to participate the study

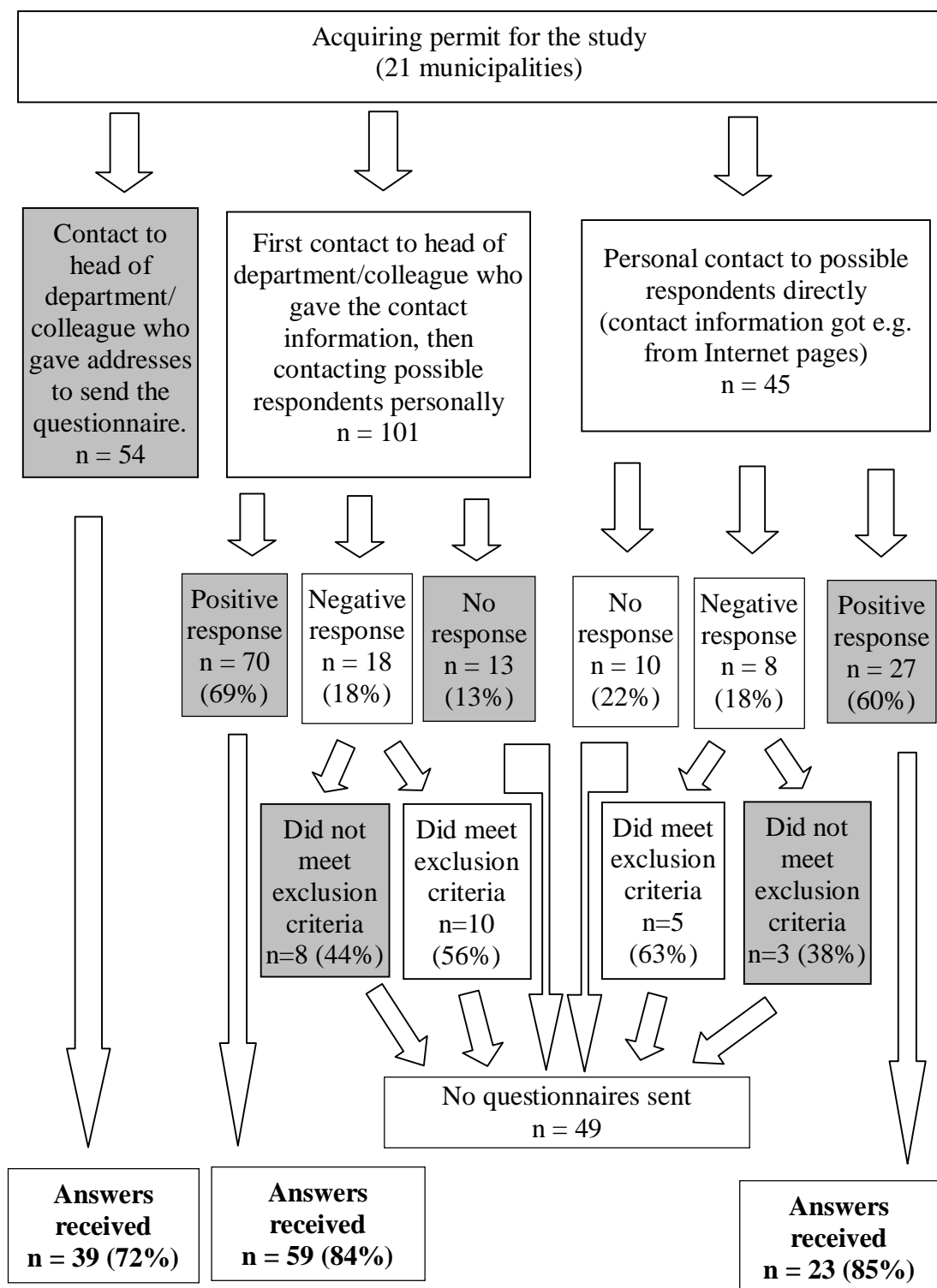
Exclusion criteria:

- having no or very few immigrants as clients/patients in the health facility neither currently nor previously during the past three years or
- work not including situations that deal with infectious diseases of immigrants

4.2.2. Recruitment of participants

Flow-chart of recruitment of participants is presented in Graph 4.1. Possible respondents were identified with the help of information given by contact persons in the municipality, e.g. heads of departments and people working in immigrant services. Information of possible respondents was also gathered from the Internet pages or the municipalities and health service provides. During the course of data collection, total of 200 persons who might be possible respondents were identified and tried to be contacted by e-mail or by phone to ask their willingness to participate the study. Majority of the possible respondents (73%) were contacted personally by the researcher and only one fourth (27%) by the head of department or other person without the researcher being involved.

Graph 4.1. Flow-chart of data collection by mode of contact



The eligible participants found are marked in grey colour in Graph 4.1.. They include all those whose address was given by their head of department or a colleague but who did not meet the exclusion criteria and all whose contact information was found otherwise and were contacted but did not meet the exclusion criteria. Of those to

whom contact was not attained, only the possible respondents whose contact information was given by head of department or a colleague are included as eligible, because they were perceived to more likely to fulfil the inclusion criteria than those whose contact information was found from the Internet or other source. Total number of eligible participants was therefore 175, out of whom 121 completed the questionnaire making the overall response rate 69%.

Mode of contact was most often e-mail and sometimes by phone. No contact was attained for 23 persons (12 %) despite of several e-mails sent. Attaining contact was tried to be improved by phone with no success. Of those to whom contact was attained, 26 declined to participate to the study. Fifteen of those who declined met the exclusion criteria, so. stated that they had only very few or not at all immigrants as clients or they their work did not include anything concerning infectious diseases. Lack of time because of tight work schedule was the most common reason given to declining to participate when the exclusion criteria was not met.

4.3. Methods used in this study

4.3.1. Definition of Web-based survey

The term “electronic survey” or “e-survey” can be defined as “*a survey in which a computer plays a major role in both the delivery of a survey to potential respondents and the collection of survey data from actual respondents*”. A form of electronic surveys is a Web-based survey, which can only be accessed through a Web-browser because the survey physically resides on a network server. When an electronic survey uses alternative formats for data collection, it can be called mixed-mode survey. (Jansen et al., 2007).

4.3.2. Data collection methods

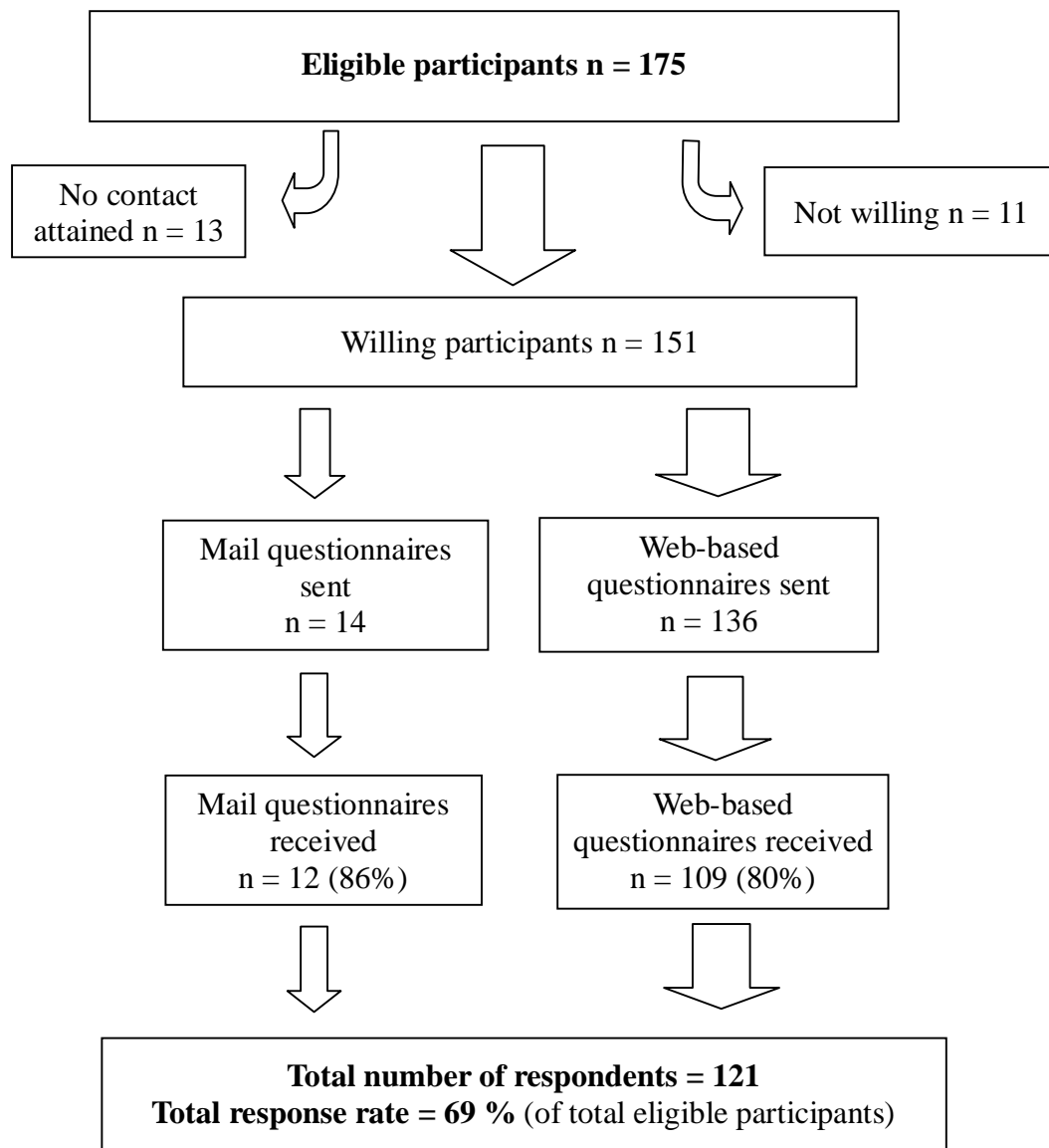
The survey was conducted as a mixed-mode survey by semi-structured questionnaire (Appendix 1). The questionnaire consisted of five sections: background information

of the respondent (9 questions), immigrant clients (4 questions), immigration-related health examinations (8 questions), screening of infectious diseases (10 questions) and instructions used to conduct screening of infectious diseases (6 questions). If no immigration-related health examinations were done in the respondent's workplace, he/she could skip part of the questions in section C, immigration-related health examinations. The language of the questionnaire was Finnish and the respondents answered it in Finnish or Swedish. Answering to the questionnaire was estimated to take around 20 minutes.

Respondents could choose to fill in either a Web-based questionnaire or paper-and-pen (mailed) version of the same questionnaire. Web-based questionnaire was constructed with E-lomake questionnaire program, version 3. Invitation application was used in a way that only people with individual key and password provided by e-mail could answer the questionnaire. Paper-and-pen version was created in Word, printed out and mailed to the respondents.

The number of questionnaires sent by both forms and the response rates are presented in Graph 4.2. The respondents were asked if they preferred a Web-based or paper-and-pen questionnaire and they were provided with the questionnaire of their choice. When the contact was made by the head of department or colleague, the contact person who was recruiting the participants was informed of the possibility of choosing between two different methods to answer the questionnaire. Web-based questionnaire was ten times more wanted (136 respondents) than the paper-and-pen (14 respondents) version. Both modes of data collection resulted a good response rate, the percentage of returned questionnaires were 80% and 86% for Web-based and mailed questionnaires respectively.

Graph 4.2. Respondents by the mode of questionnaire



Individual invitations to answer the Web-based questionnaire were sent to a group of 1-14 people at the time, altogether to 14 groups. Invitation to the first group was sent in 28 October 2008 and to the last group in 21 February in 2009. Invitations were sent only after the research permit from the municipality in question had been received. Only two invitations were sent on February, majority of the respondents got the invitation latest on January. All the respondents, except these two, were asked to fill in the questionnaire by the end of January. Those who got the questionnaire earlier had therefore a longer period of time to complete it than those who got it later. The invitation application made it possible to see who of the respondents to the Web-

based survey had answered the questionnaire. One to four reminders were sent to the e-mail addresses to those recipients who had not filled in the Web-based questionnaire within one to three weeks of invitation. No reminder was sent to the recipients of the paper-and-pen questionnaire. The questionnaires were completed between 29 October 2008 and 24 February 2009.

The two forms of questionnaires had some slight differences due to technical matters. Web-based questionnaire was programmed to consist five different pages, but the respondent was able to move back and forward within the pages. However, some questions in Web-based format were made obligatory to answer before the respondent was able to continue to the next page, a characteristic that was not possible to be included to the mailed version. Due to the limitations in the software used, the Web-based questionnaires had to be completely filled within the same day in order not to lose the answers.

4.3.3. Methods used for protecting against bias

Poorly designed and unclear questions can cause bias if respondents are not able to give truthful answers because of misunderstandings (Boynton and Greenhalgh, 2004). Questions were formed in a way that they were as easily understandable to the target population as possible. Clarity of the questions and the technical functioning of the Web-based questionnaire were tested with a pilot study. The respondents were given numerous possibilities to clarify their answers when multiple choice questions were used. In addition, e-mail address of the respondents could be used by the researcher to clarify possible misunderstandings in the answers. The two forms of data collection, Web-based and mailed questionnaires were made as similar as possible to acquire comparable results with both methods.

A pilot study was conducted in 19 June - 7 July, 2008, with four respondents: three public health nurses and one medical doctor. The respondents represented professionals in different health care facilities: reception centre for asylum seekers, child health clinic, occupational health care and student health care. All the respondents answered to a Web-based questionnaire, programmed with E-lomake,

version 2. The questionnaire used in the pilot study had additional space for comments. In addition to the respondents, one medical doctor with long experience of working with immigrants reviewed the questionnaire and gave his comments. Questions were revised based on the comments given by the respondents of the pilot. The actual survey was done in a newer version of E-lomake program, version 3.

Low response rate can be a source of bias in surveys (Braithwaite, 2003, Wakley, 2005). In this study, several measures were taken to increase the response rate. Reminders have been effective in increasing response rate in both mail and Web-based surveys (Asch et al., 1997, Edwards et al., 2002, Beebe et al., 2007, Braithwaite et al., 2003). The responders who had not answered the Web-based questionnaire within one to two weeks were sent 1-4 e-mail reminders with a link to the questionnaire. Questionnaires sent by mail included a stamped return envelope, a factor found to be effective in increasing response rate (Kellerman and Herold, 2001, Edwards et al., 2002). Response rate can also be increased with the design of the questionnaire, by placing the easy to answer questions first (Ekman et al., 2007). This method was utilised in this study although the general design of the Web-based questionnaire was not possible to be influenced much. However, the newest version of E-lomake was used in order to make the design clearer. The questionnaire did not include questions of sensitive nature, a factor that has been associated with poor response rate (Edwards et al., 2002).

Contacting respondents before sending questionnaires has been shown to increase response rate (Edwards et al., 2002). All possible respondents were be contacted by e-mail or by phone before sending the invitation to take part in the study in order to inform them about the survey and to increase compliance to take part in the survey. The contact was made in most cases by the researcher but some were contacted by the heads of their department. Contacting possible respondents was also a way to ensure that they met the inclusion criteria and exclude those who met the exclusion criteria.

In a study of Beebe et al., (2007) mixed-mode survey was used to acquire higher response rates. In their study mixed-mode referred to a situation where the same respondent gets the survey both in mail and in Web-based format whereas here in this

survey the respondents were able to choose between the two methods (Jansen et al., 2007). In this way ease of answering with a Web-based questionnaire was exploited but in addition also those not comfortable using the Internet could take part in the study.

Some technical properties of Web-based questionnaire were utilised in order to reduce bias. Multiple choice questions were made obligatory to answer before the respondent was able to continue to the next page in order to reduce the number of missing answers (Rhodes et al., 2003). Using personal key and password to access the questionnaire gave several advantages: one person giving multiple answers was prevented, keeping record of those who had answered and those who had not was possible as well as sending reminders to those who had not yet answered and the certainty of identity of respondents was increased.

To assess the non-response bias, some baseline characteristic of respondents and non-respondents were compared. These characteristics include profession, place of work and gender.

The researcher entered the data from paper-and-pen questionnaires manually using the same E-lomake form as to those answering with Web-based questionnaire. From E-lomake-software data entry was made automatically into SPSS- and Excell-files. This automatic transfer of data has the advantage of avoiding potential errors that can happen in manual data entry (Braithwaite, 2003, Rhodes et al., 2003). Manually entered paper-and-pen questionnaires were double checked at this point to avoid typing errors.

4.4. Sample size calculation and its justification

The sample was designed in a way that it would be representative of public health nurses and medical doctor working in primary health care in Finland and having immigrants as clients. Altogether 150 questionnaires were sent to those medical doctors and public health nurses, working in:

- 9 reception centres for asylum seekers; 6 questionnaires

- cities to which most immigrants come; Helsinki, Espoo, Tampere, Turku and Vantaa: 80 questionnaires
- smaller municipalities which have received refugees during last three years; Kotka, Mikkeli, Savonlinna, Kuopio, Jyväskylä, Vaasa, Oulu, Kajaani, Rovaniemi, Kemi, Kokkola, Tornio, Hämeenlinna, Lahti, Joensuu, Kontiolahti; 86 questionnaires
- occupational health care of international companies and city of Helsinki; 9 questionnaires
- FSHS and other student health care facilities; 19 questionnaires

4.5. Analytical approach

4.5.1. Statistical Methods

Analysis was done using SPSS versions 13 and 15 and Microsoft Excell. Mostly descriptive statistics was used. The most important baseline characteristic (independent variables) used are place of work, client profile and conducting immigration related health examinations.

As summary statistics, mean was used for Normally distributed variables and some ordered categorical variables (e.g. satisfaction with instructions on scale 1-5). For the non-Normally distributed data median and range were used. Frequency distribution tables were drawn to describe mainly the baseline characteristics whereas other findings were presented in bar-charts.

Open-ended questions resulted in qualitative data. This qualitative data was analysed by searching categories and then counting the frequency of answers that could be fitted in the category. Most of the qualitative data is presented in tables that summarise the results.

4.5.2. Data handling and record keeping

A record was kept by the researcher of the contacts that had been made during

recruitment of participants. Information gathered was collected into an Excell file which was saved in the personal computer and in two flash disks of the researcher. The computer and flash disks were stored out of the reach of other people. The Excell file included information of the persons contacted during the recruitment period (phone number, E-mail address, profession and place of work) as well as the key information they had given in e-mails and over phone conversations. The file also included list of possible respondents, their place of work, profession, E-mail address and information on whether they had replied to the contact and were willing to participate.

Answers to the Web-based questionnaire were automatically saved to E-lomake programme in the server of University of Tampere computer center. E-lomake was also used as data entry program to the paper-and-pen questionnaires, in which case the data entry was done by the researcher. Answers to the E-lomake were checked daily and if new answers were found they were converted into SPSS-format and saved to the personal computer and flash disk of the researcher

4.6. Ethical review

Each municipality or private health care facility was contacted beforehand to enquire if a permission was required to conduct the study. These permissions were then obtained utilising the protocol in use in each municipality or private health care facility (Appendix 2).

The questionnaire did not include questions of individual clients/patients nor did it require any information from patient records. Information about infectious diseases and health examinations was asked from groups of patients: refugees, asylum seekers, working people, students, returnees, adopted children, people with family ties in Finland and others.

Taking part in the study was voluntary for the respondents. Answering the questionnaire was considered to be consent to take part in the study and no separate informed consent was asked. No monetary incentive was given to the respondents

but they were offered a possibility to obtain a summary or the results of the study to their E-mail address after the study was completed. E-mail address, the only identifying item, was detached from the answers after preliminary analysis. The results are presented in a way that no individual respondent or client can be identified from them.

4.7. Funding

Costs of phone calls to the health care facilities and to the respondents were covered by KTL (National Public Health Institute, presently National Institute for Health and Welfare, THL) as well as costs risen from trips to Helsinki to attend meetings at KTL and gather background information. E-lomake and other software used to conduct the study were provided by the University of Tampere. Costs of envelopes and stamps for sending the paper-and-pen questionnaires were covered by the researcher.

5. RESULTS

5.1. Background information

5.1.1. Basic information of the respondents

In total 121 health professionals, of whom 116 (96 %) were women, answered the questionnaire. Median age of the respondents was 48 years (range 23-62). The questionnaires were sent to 21 municipalities, but the respondents came from 20 municipalities (Table 5.1.). One of the respondents did not specify the municipality.

Table 5.1. Municipalities in the study.

Municipality	Number (and %) of respondents (n = 121)	Number of immigrants in 2008* (total in Finland 29 114)	Immigrants in municipality / respondent (mean 145)
Vantaa	18 (15%)	1,358	75
Helsinki	16 (13%)	7,538	471
Turku	15 (13%)	1,147	76
Espoo	12 (10%)	2,706	226
Tampere	8 (7%)	1,323	165
Vaasa	8 (7%)	641	80
Oulu	7 (6%)	672	96
Jyväskylä	6 (5%)	671	119
Rovaniemi	5 (4%)	397	79
Kotka	4 (3%)	405	101
Savonlinna	4 (3%)	77	19
Hämeenlinna	3 (3%)	228	76
Kokkola	3 (3%)	239	80
Mikkeli	3 (3%)	126	42
Kajaani	2 (2%)	189	95
Lahti	2 (2%)	451	226
Joensuu	1 (1%)	215	215
Kuopio	1 (1%)	295	295
Oravainen	1 (1%)	166	166
Tornio	1 (1%)	208	208

*) source: Statistics Finland 2009a

Most of the respondents (n=92; 76%) were public health nurses, 16 (13%) were medical doctors and 13 (11%) nurses. Six of the doctors had specialised in general medicine. Some of the public health nurses had another profession in addition; 6 of them were nurses, 3 occupational health nurses and 1 midwife. They are all categorised as public health nurses in this study. One nurse was a midwife, too, but she is categorised as a nurse.

Table 5.2. shows the ages and years of work experience with immigrants of different groups of professionals. In total the mean number of years the respondents had worked with immigrant clients was 10.7. Mean age for medical doctors was 57.6 years whereas to other professionals 46.5. Medical doctors were thus older than the other professionals.

Table 5.2. Age and work experience of different groups of professionals

		Medical doctor (n=16)	Public health nurse (n=92)	Nurse (n=13)	Total (n=121)
Age	<i>Median (range)</i>	56 (29-62)	48 (23-61)	48 (28-57)	48 (23-62)
Years of work with immigrants	<i>Median (range)</i>	10 (1-21)	10 (0-30)	9 (0-20)	10 (0-30)

5.1.2. Workplaces and responsibilities

Distribution of the respondents' places of work is shown in Table 5.3. Most of the respondents were working in municipal health centres. About a third of all respondents were working in one or more of the following: maternity clinics, child health clinics and school health services. These three workplaces were counted in one category because the clinics are often combined and one person works in at least two of them. Furthermore, all these clinics are taking care of families but are not specially focused on immigrants. Sixteen (13%) respondents were working in services that are specially targeted to immigrants, 12 of them in immigrants' health service points and 4 in reception centres for asylum seekers. One person working in detention unit and one working in health centre but as a nurse for asylum seekers are also included in the category of reception centre for asylum seekers.

Student health services include both Finnish Student Health Service and municipal student health services. One person stated to be working both in child health clinic and in student health services. Three of those included in “health centre, other work” were working in infectious diseases units and one was a health planner. Two respondents worked in health centre but did not specify their responsibilities.

Table 5.3. Places of work of the and immigrants as responsibility

Place of work	Number of respondents and % of total (total=121)	Immigrants as a special responsibility (n and % within the place of work)
Maternity and/or child health clinic or school health	43 (36%)	12 (28%)
Health centre, general practice	31 (26%)	7 (23%)
Student health services	16 (13%)	1 (6%)
Immigrants' health services	12 (10%)	12 (100%)
Occupational health care	8 (7%)	3 (38%)
Health centre, other work	4 (3%)	0 (0%)
Reception centre for asylum seekers	4 (3%)	4 (100%)
Health centre, unknown work	2 (2%)	0 (0%)
Child health clinic and student health services	1 (1%)	0 (0%)

Third (n=39, 32%) of the respondents had immigrant clients as a special responsibility in their work. The distribution of special responsibility for immigrant clients between the respondents' places of work is shown in Table 5.3. As expected, all the respondents working in immigrants' health services or reception centres had immigrants as a responsibility, but also some of the respondents working in health centres had that responsibility. Surprisingly special responsibilities towards immigrant clients were found also within occupational health care and student health services and within all professional groups. Those who had immigrants as a

responsibility did not, however, have a longer work experience with immigrants compared to those without the responsibility (mean of years work experience 10.2 and 10.9, respectively).

5.1.3. Characteristics of respondents and non-respondents.

Of total 175 eligible participants 121 were respondents and 54 non-respondents. Baseline characteristics of both respondents and non-respondents are presented in Table 5.4. Medical doctors and men seem to be underrepresented within the respondents as well as respondents coming from smaller towns. People working in other places than health centre were, however, well represented among the respondents. Based on the information gathered, it was not possible to know if those working in health centre were working in general practise, maternity clinics, child health clinics or school health services so they are all included in the same category.

Table 5.4. Baseline characteristics of respondents and non-respondents

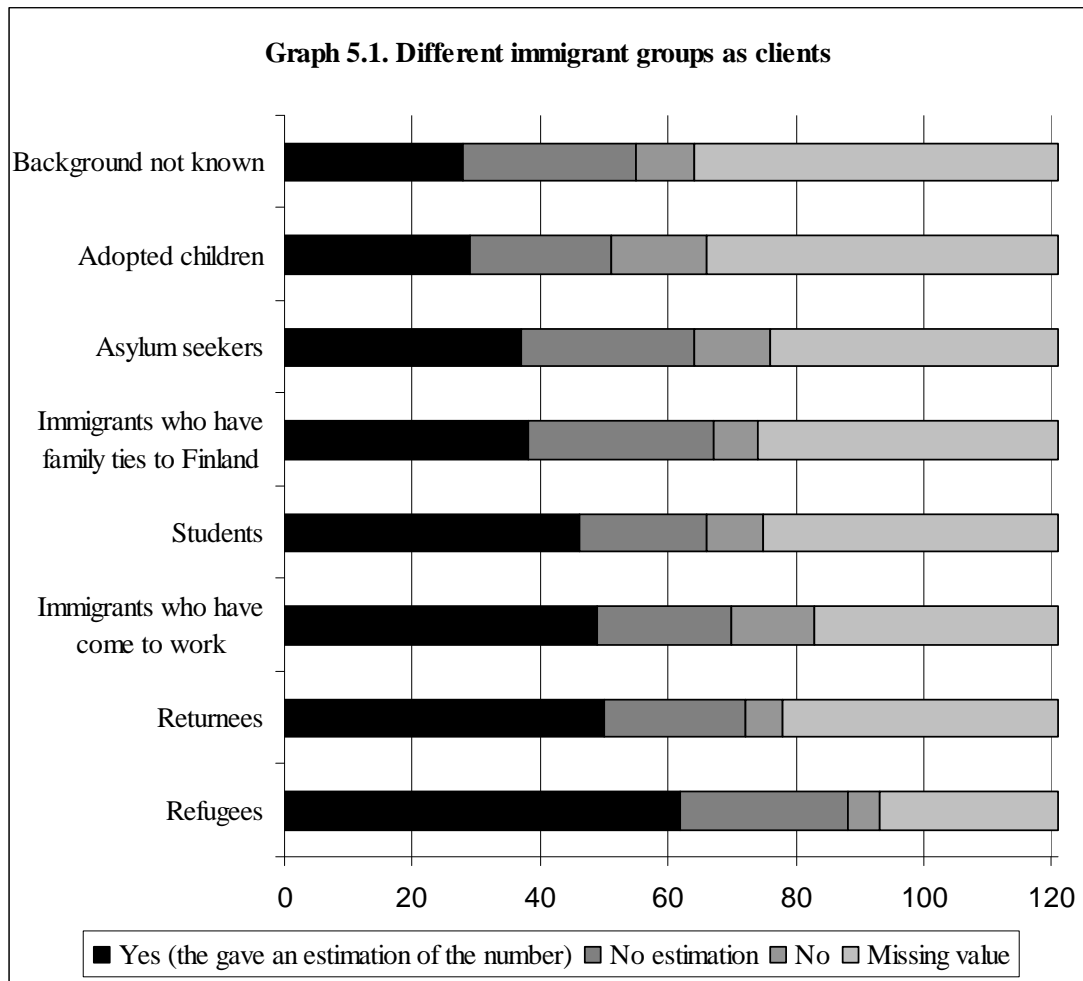
		Respondents (n=121)	Non-Respondents (n=54)
Profession	PHN or nurse	105 (87%)	31 (57%)
	Medical doctor	16 (13%)	23 (43%)
	Other	0 (0%)	1 (2%)
Gender	Women	115 (96%)	46 (85%)
	Men	6 (4%)	8 (15%)
Place	Bigger city	55 (46%)	17 (31%)
	Small town	43 (36%)	30 (56%)
Place of work	Health centre	81 (67%)	45 (83%)
	Student health services	16 (13%)	3 (6%)
	Immigrants' health service	12 (10%)	2 (4%)
	Occupational health care	8 (7%)	1 (2%)
	Reception centre	4 (3%)	3 (6%)

5.1.4. Client population

Majority of the respondents (n=97, 80%) gave an estimation of their client population. The population ranged between 100 and 650,000. The highest estimation, 650,000, is likely to be an error given that the respondent was working in a town with a total population of 55,000. Variance is vast and probably due to both ambiguity of the question and the real variability between work descriptions. Most of the respondents (n=108; 89%) gave some estimation on the number of immigrant clients they have. The estimations ranged between six per year and 140 per month. Because the figures given were estimates, they were not analysed as absolute numbers.

When respondents were asked to give an estimation of how many clients of different immigrant groups they have monthly or yearly, most of them chose the alternative “no estimation” or they omitted question. Graph 5.1 shows the distribution of different answers. The only group where half of the respondents (n=62, 51%) gave a number to estimate their amount as clients was refugees. The estimations ranged from 0 to 120 per month, median being 5. When the respondents chose “no estimation” as their answer, it is not clear whether they did not have the group as a client or they do have the group as clients but they did not want to estimate how many per month. Thus in the following analysis only those who gave an estimation about the number are counted as having that group as clients.

Refugees were the only group found to be clients in all the different health facilities. Asylum seekers were present as clients in all the other facilities except student health services, returnees in other facilities than reception centres and students elsewhere than immigrants’ health services. A detailed graph on distribution of different groups in different health facilities is presented in Appendix 4.

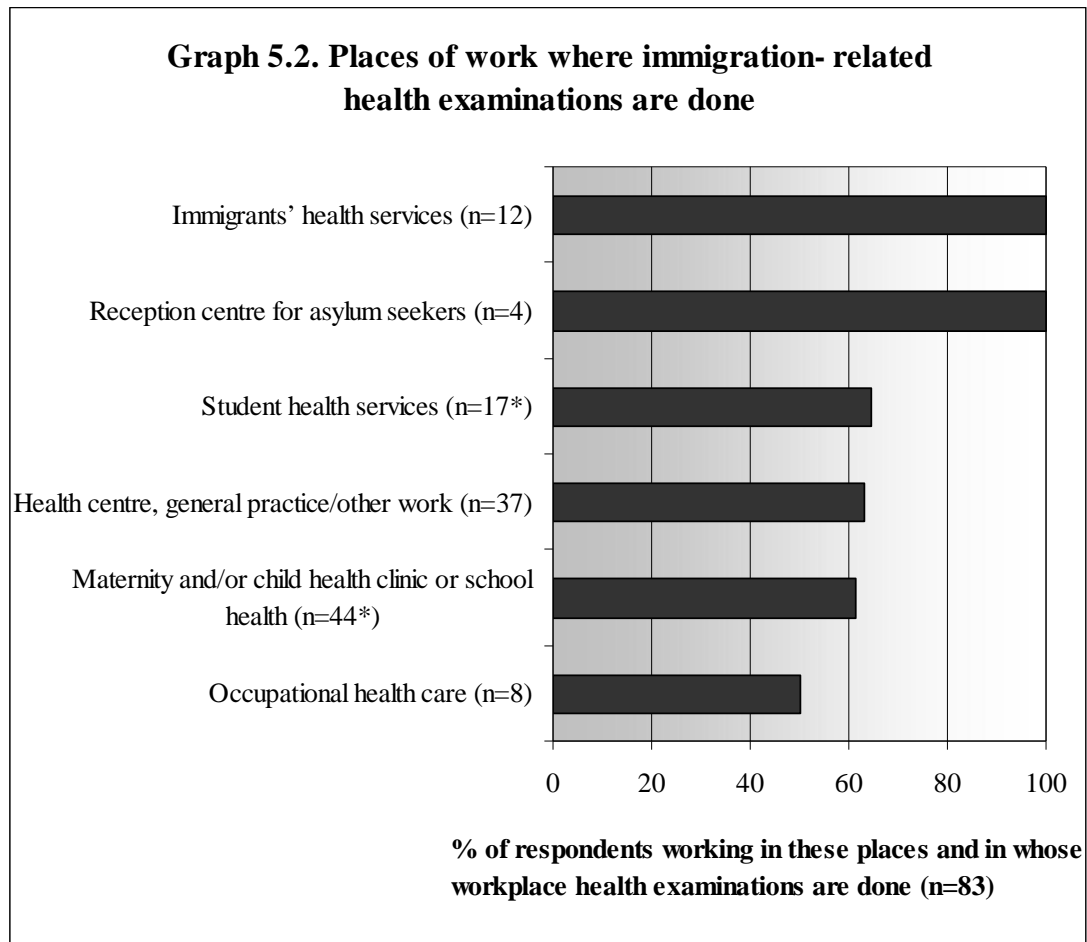


5.2. Health examinations to immigrants

5.2.1. Health examinations in relation to workplaces and immigrant groups

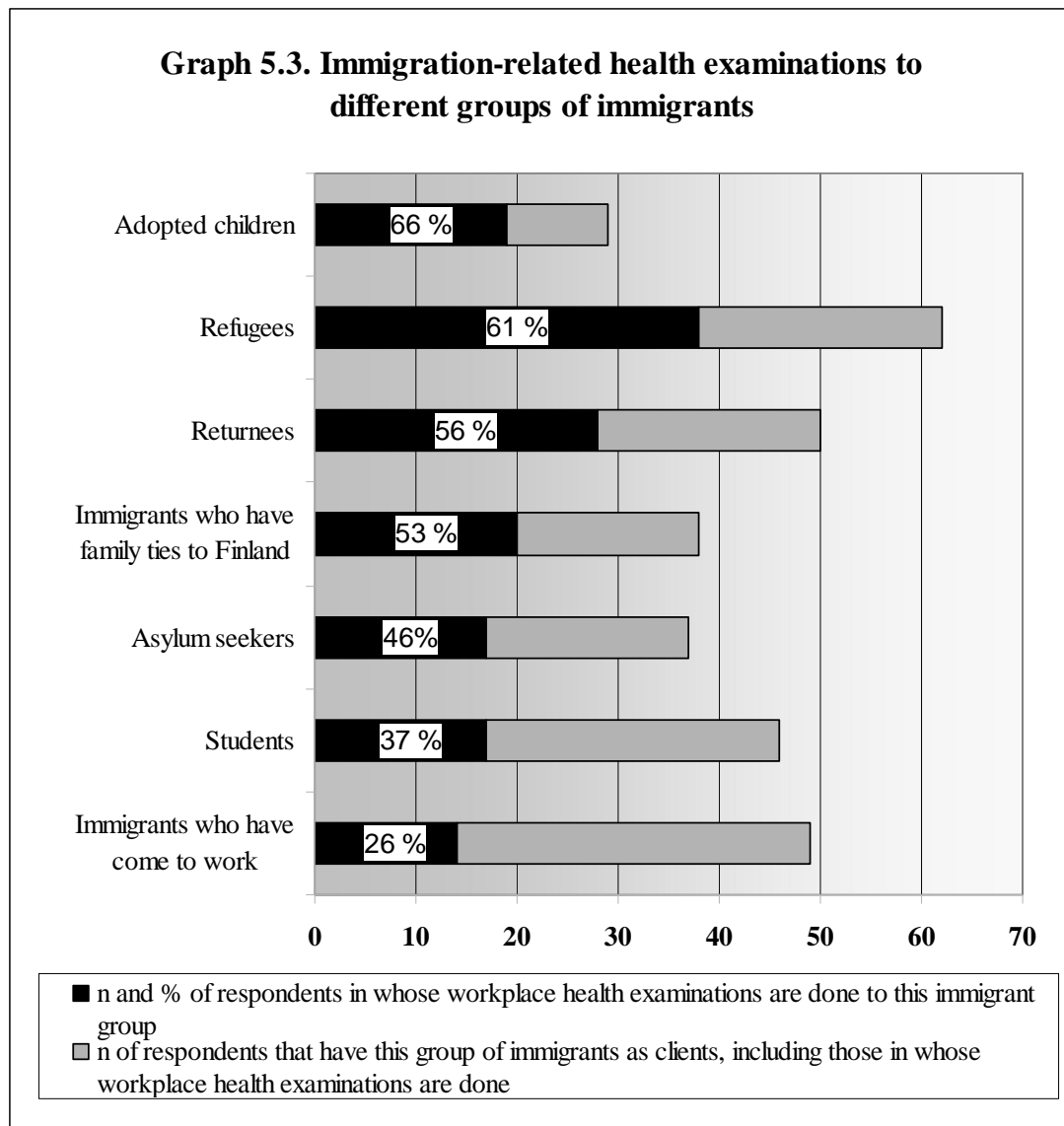
Respondents were asked if immigration related health examinations are done in their workplace. Immigration related health examinations were defined as “health examinations that are not based on medical complaint and that are done to a person who has just immigrated to the country”. Two thirds (n=83, 69%) of the respondents stated that the examinations are done in their place of work. Graph 5.2. shows the distribution of workplaces where immigration related health examinations are done. Not surprisingly, all respondents working in immigrants' health services or reception centres for asylum seekers stated that immigration-related health examinations are done in their workplaces. However, the examinations were done in all the other

workplaces as well.



*) One respondent who was working both in child health clinic and student health services is included in both categories.

Immigration-related health examinations were more frequently done to adopted children, refugees, returnees and immigrants who have family ties to Finland than to other groups of immigrants. More than half of the respondents who had these groups as clients stated that immigration-related health examinations to these groups are done in their workplace. Graph 5.3. presents the proportion of places where health examinations are done out of total number of places where specified immigrant groups are as clients.

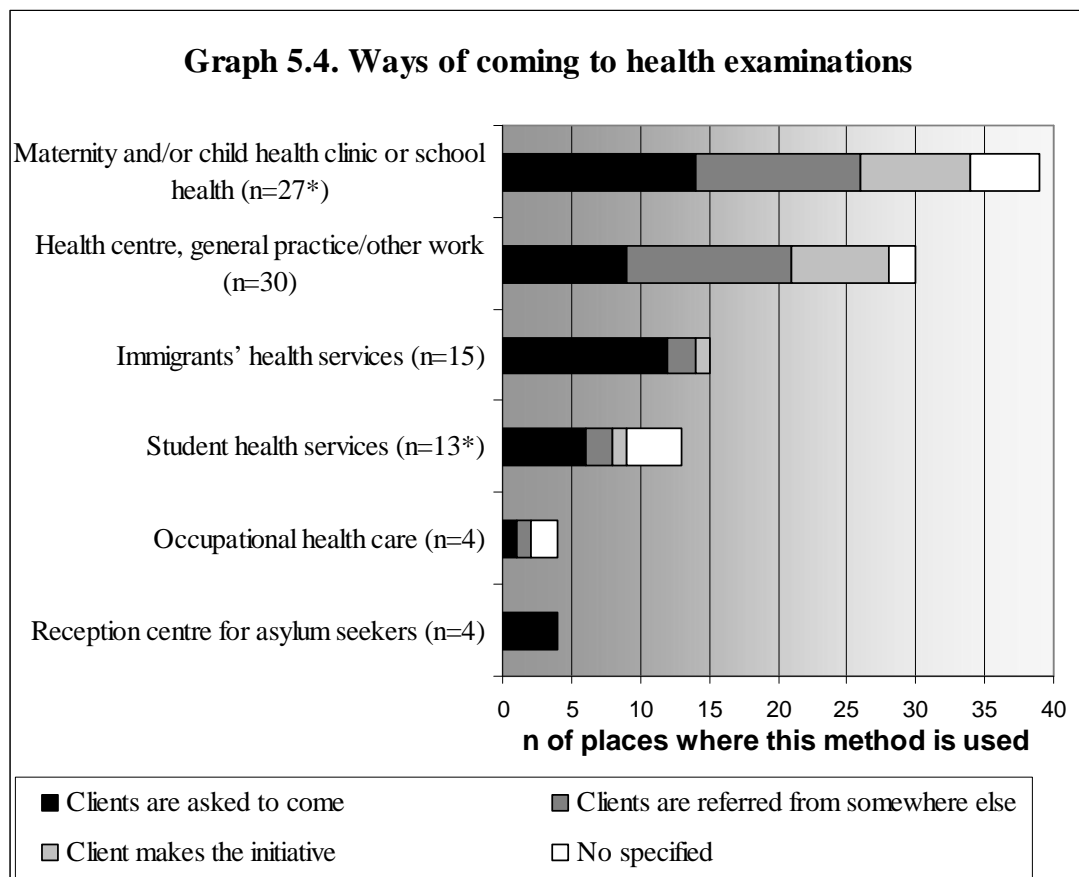


5.2.2 Practical arrangements of health examinations

Practises of who performs immigration-related health examinations vary between different workplaces. Of 83 respondents who reported that immigration-related health examinations are done in their workplaces, majority (n=63, 76%) stated that public health nurse or a nurse performs the examinations either alone (n=10), always with a medical doctor (n=26) or with a medical doctor only when needed (n=27). In 9 cases the respondents clarified their answer by writing that whether the doctor does the examinations always or when needed depends on the immigrant group or the situation of the individual. Three respondents explained that a doctor performs all the examinations for refugees but to other groups only when needed. The situations of

the immigrants that have an effect to whether they go to a doctor's appointment include previous health examinations and current complaints/medical problems. One respondent replied that someone else performs the health examinations but did not clarify who.

Two thirds (n=56, 76%) of respondents doing immigration-related health examinations reported using professional interpreter always or often when performing the examinations. This is slightly more than what was reported from other health examinations (n=74, 70%) and more than in emergency visits (n=38, 42%). Those reporting not to have given situations in their work are excluded from the figures.



*) One respondent who was working both in child health clinic and student health services is included in both categories.

Invitation to the health examinations was the most utilised way to get the immigrants to come to immigration-related health examinations. In half (n=45, 54%) of the 83

places where immigration-related health examinations are done, this method was used. In 35% (n=29) of the places clients were referred from somewhere else and in 21% (n=17) of the places the client him/herself makes the initiative to come to the health examination. Several methods could be in use at the same time: 23 (28%) of the respondents mentioned two or more ways for clients to come to the health examinations. Graph 5.4. shows the distribution different ways to come to health examinations in different workplaces. All clients in reception centres and majority in immigrants' health services come to the examination by an invitation. In health centres the client often makes the initiative to come to health examinations although invitations and referrals from other places are also used.

Respondents also mentioned other ways for clients to come to the immigration-related health examinations. Twelve respondents wrote that office for immigrant services or some other social service facility to refer immigrants to health examinations and two mentioned children's day care to be referring immigrant children to health examinations. Other ways mentioned once were school or international office at school referring, a familiar client and a doctor or a nurse finding a client over another appointment.

Third of the respondents (n=40, 33%) had referred immigrants to go to have a health examination somewhere else. There was no difference between those who had health examinations done in their workplaces and those who did not have the examinations done. Most frequently mentioned place for referral was health centre (28 mentions). Immigrants' health service point was mentioned 9 times as a place for referral. Other places mentioned once were maternity clinic, student health services, occupational health care, reception centre and specially agreed doctor at municipal services.

Almost half (n=36; 43%) of the 83 respondents in whose workplace immigration-related health examinations are done stated that they are aimed to be done in maximum one month's time after immigration to Finland. Only 8 respondents (10%) stated that the health examination is aimed to be done from two to twelve month's time after the immigration, five of them were working in student or school health care services. Estimations about when the health examination is actually done ranged from minimum of "as soon as possible" to maximum of two years after the

immigration. One third (n=27, 33%) did not give any estimation on the time. Nonetheless, almost third (n=26, 31%) of the 83 respondents answered that immigration-related health examination is done maximum of one month after the client has immigrated to Finland. Table 5.5. presents the crosstabulation of recommended and actual times for health examinations. Recommended and actual points of time seem to be fairly congruent with each other although concept “as soon as possible” is difficult to interpret.

Table 5.5. Time points for immigration-related health examinations

		Health examinations are done		
		As soon as possible	Up to one month	After one month
Health examinations are recommended to be done	As soon as possible (n=15)	2 (13%)	7 (47%)	6 (40%)
	Up to one month (n=21)	1 (5%)	14 (67%)	6 (29%)
	After one month (n=8)	0 (0%)	2 (25%)	6 (75%)

5.2.3. Problems of the health examinations

When asked about problems that they have faced concerning immigration-related health examinations the respondents mentioned several of them. Problems and solutions are listed in Table 5.6. Most frequently mentioned problems were language- and communication-related. Difficulties in getting an interpreter to the appointment were common, especially if the language in question is a rare one. Gaining previous health information was problematic and lack of time or resources was creating problems. Immigration-related health examinations need a longer time than a normal appointment and that was sometimes difficult to organise. The conception of time varies between cultures and this creates problems when immigrants do not come to the appointment at the agreed time. Immigrants may miss their appointment or do not go to the laboratory for tests. Respondents mentioned several problems stemming from cultural differences. Understanding illnesses and treatments might be different than in Finnish society and knowledge about one’s own body deficient. Lack of understanding of psychiatric disorders and presenting psychiatric problems as

somatic was especially mentioned.

Table 5.6. Problems and solutions relating to health examinations of immigrants

Problems encountered in immigration-related health examinations (number of times mentioned)	Solutions to the problems (number of times mentioned)
Problems with language (14) and getting an interpreter (14)	<ul style="list-style-type: none"> - Booking the interpreter in advance (2) - Telephone interpretation (2) - Finding out if someone in the family/friends can interpret (2) - Conducting some appointments with and some without an interpreter (1) - Using all possible means of communication (1)
Inadequate background information about previous health problems or vaccinations (17)	<ul style="list-style-type: none"> - Starting immunisation programme from the beginning (4) - Using information provided by KTL about immunisation programmes in different countries (2) - Using an interpreter (2) - Testing the level of antibodies (1)
Lack of time and resources (8), health examinations time consuming (4)	<ul style="list-style-type: none"> - Working together with social services (2) - Booking another appointment time (2)
Being late (5) or missing (6) the appointments	<ul style="list-style-type: none"> - Collaboration with social services (2) - Talking, explaining, reminding and informing about practices repeatedly (1) - Ascertaining by phone that the client is coming (1)
Different conceptions of illnesses and treatments (4), deficient knowledge of body functions (2), somatisation (8), illiteracy (3)	<ul style="list-style-type: none"> - Explaining in a simple and clear way (2) through a professional interpreter (1) - Having an appointment together with a PHN and a doctor (1)
Lack of trust, traumatic experiences difficult to discuss (3)	<ul style="list-style-type: none"> - Repeated appointments to build trust (2) - Training in different cultures (1)
System-related problems: unclear who is entitled to health examinations (4), continuation of treatment and flow of information (3)	<ul style="list-style-type: none"> - Multiprofessional collaboration with social services (3)

Furthermore, clients' illiteracy may hinder understanding different practices. Cultural

differences affecting attitudes towards gender of health professional was also mentioned. Lack of trust for health care or medicines can create problems and some issues, e.g. traumatic experiences, are difficult for clients to discuss. Problems relating the current health care system were also elicited. It is not always clear if the immigrant is entitled to health examination and continuation of treatment and flow of information can be problematic. One practical issue causing problems were temporary identification numbers and their transfer to permanent ones which might cause a lot of work.

Many of the problems, like lack of time, were difficult to resolve. The respondents, however, gave many solutions to the above mentioned problems. Extended time needed to conduct immigration-related health examinations can create problems when resources are scarce but it can also be a solution and prevent many problems. Time and professional interpreter is needed when health- and system-related issues are explained to immigrants. Patience and creativity is required when trying to ensure mutual understanding between the professional and the immigrant client. Five respondents mentioned collaboration with social services as a solution to several problems. Appointments held together with public health nurse and medical doctor were also mentioned.

5.3. Infectious diseases testing of immigrants

5.3.1. Testing done to different groups of immigrants

The respondents were asked about tests taken from different immigrant groups in other settings than immigration-related health examinations. Testing was most common to refugees and asylum seekers. Most (n=52, 84%) of respondents who have refugees as clients and majority (n=28, 75%) of those having asylum seekers as clients had tested at least one of the diseases from these groups. Testing of other groups was slightly more uncommon as 61-66% of respondents who had these groups as clients had tested something from them. Refugees and asylum seekers were also tested with more tests. Of the 12 tests asked in the questionnaire, refugees were tested with median of 8 tests and asylum seekers with 6 tests when the other groups

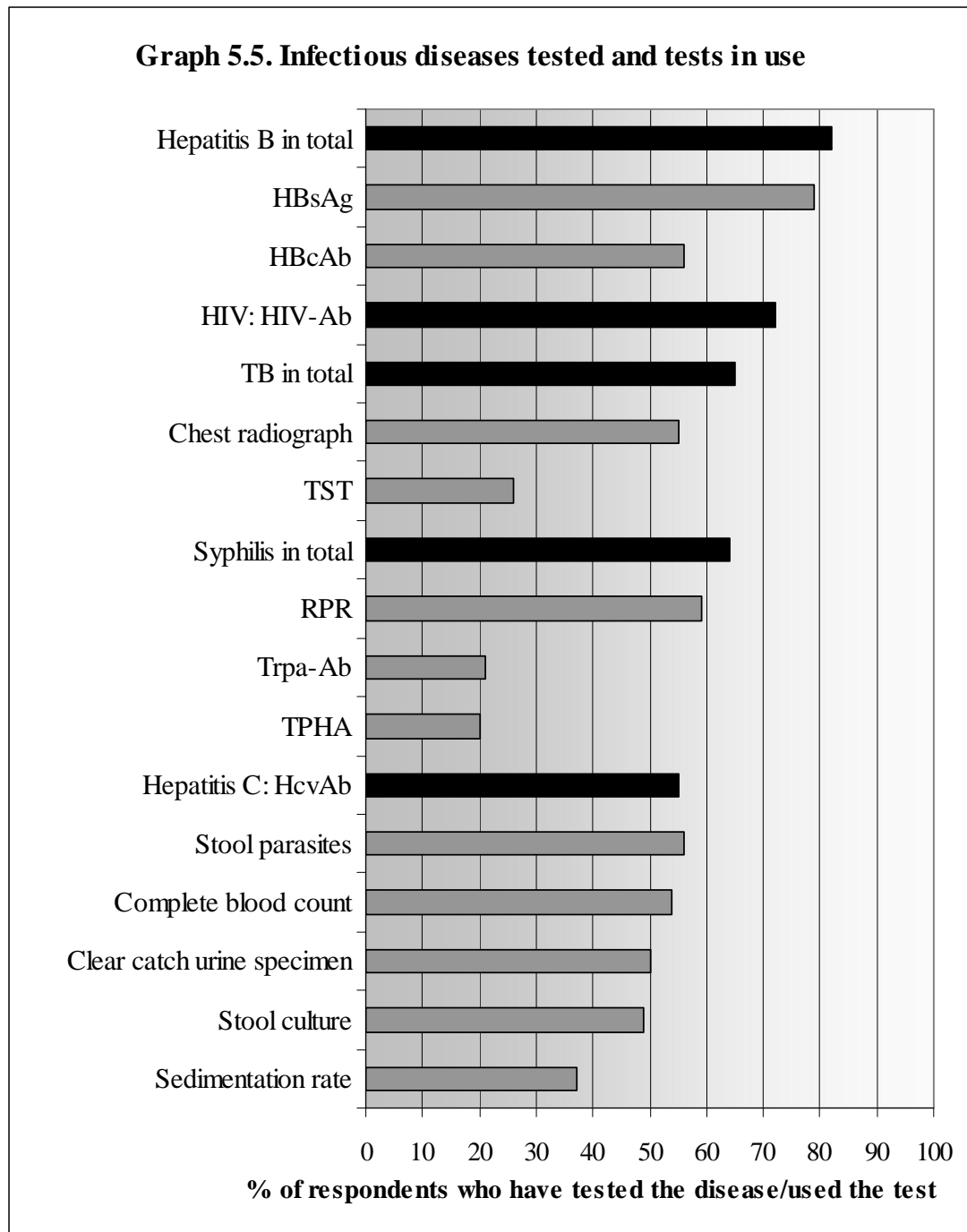
were tested with median of 2.5-5 tests. Hence refugees and asylum seekers were both more tested and had health examinations more often than the other groups. More detailed information about test taken from different groups of immigrants is presented in Appendix 4.

5.3.2. Different infectious diseases tested from immigrants

Graph 5.5. presents the number of respondents that have tested different infectious diseases from immigrants from at least one immigrant group. Hepatitis B seems was most often tested from immigrants as 82% of the respondents had tested it at least from one immigrant group. More than two thirds of had also tested HIV, tuberculosis and syphilis.

On hepatitis B the respondents were asked if they have tested the surface antigen (HBsAg) or the core antibody (HBcAb) from some groups of immigrants. HBsAg can be used to test if the client is a chronic carrier of hepatitis B virus and can spread the disease to other people. HBcAb tells if the client is already immune to the virus or if he/she will need vaccination. HBsAg was more often tested (n=96, 79%) than HBcAb (n=68, 56%). When asked to give comments about testing hepatitis B, many of the respondents mentioned that they always test hepatitis B from immigrants. Hepatitis B (HBsAg) is also part of normal screening done in maternity clinics to all pregnant mothers, not just immigrants. Hepatitis was also tested if some family member has the disease or otherwise based on the need. Some respondents also mentioned that vaccinations are offered to the family member of chronic hepatitis B carriers.

Majority of the respondents (n=87; 72%) had tested HIV antibodies from at least one immigrant group. HIV testing is part of normal screening programme in maternity clinics and is done to all mothers who give their consent.



On tuberculosis testing both chest radiograph and tuberculin skin test (TST) was asked. Chest radiograph shows active pulmonary tuberculosis and TST indicates if the body is producing antibodies for TB. Half (n=67, 55%) of the respondents had tested tuberculosis by chest radiograph and fourth (n=31, 26%) by tuberculin skin test from one or more groups of immigrants. Respondents were also asked to give free comments on tuberculosis testing. Seventeen respondents mentioned that tuberculosis testing is done based on need. The basis of for testing can be either the

symptoms of the client or the area from which the client is coming from. Some public health nurses stated that doing referrals to laboratory tests is not their job but the doctors'. Tuberculin skin testing was mentioned to be done to all immigrant children under seven years if vaccination scar is not visible. Seven of the respondents mentioned that doing tuberculin skin testing is done centred in either their own workplace or in some other place.

Testing syphilis with three different tests was asked. Test for rapid plasma reagin (RPR) is a non-specific test that can be used to screen syphilis and to track the progress of the disease. Newer, and more specific, screening test is Treponema Pallidum antibody (Trpa-Ab) test. Treponema Pallidum Haemagglutination Assay (TPHA) can be used to re-test a positive RPR test or to clarify unclear cases. RPR seems to be still the most used test for testing syphilis, the respondents used it almost three times more than Trpa-Ab (71 versus 25 respondents, respectively). Only 24 respondents (20%) had used TPHA.

More than half of the respondents (n=67, 55%) had tested hepatitis C from at least one group of immigrants. Seventeen respondents stated that hepatitis C is only tested on the basis of need; four of them mentioned that it is tested if there is risk behaviour, e.g. drug use, in the family.

Other tests asked in the questionnaire were stool parasites, stool culture, complete blood count, clear catch urine specimen and sedimentation rate. About half of the respondents had tested stool parasites to detect intestinal parasites, complete blood count to test anaemia, urine specimen to test urinary infections and stool culture to test bacteria in the stool. Sedimentation rate was a little less used. However, 35 (29%) respondents mentioned that these test are only done on the basis of need and not as screening for all immigrants.

5.3.3. Infectious diseases found from immigrants

Respondents were asked to estimate how many cases of tuberculosis, hepatitis B, HIV, syphilis and other infectious diseases have been found in the test from

immigrants. Respondents were also given the possibility to comment these findings and their referral. Most common finding was hepatitis B with around 300 cases found per year. Tens of cases of tuberculosis, syphilis HIV and intestinal parasites had also been found. Because estimates given by different respondents can refer to same cases, the actual number of cases cannot be calculated. Tuberculosis and HIV cases were often referred to special health care. Those found to be carriers of hepatitis B were given counselling about preventing the infection to be spreading and the family members were offered hepatitis B vaccination. Treatment of syphilis was done in the primary health care after consulting specialist.

5.3.4. Gaining consent and giving results of testing

Two thirds of the respondents (n=78, 65%) stated that clients are asked verbally to give consent for testing infectious diseases while only 12% of respondents (n=15) stated that a written consent is asked. Six (5%) respondents answered that consent is asked both verbally and in written format. Thirty-four (28%) respondents did not ask for consent to test infectious diseases, one of them commented that screening is not done in his/her workplace. Six respondents wrote that they do not know or are not sure about the common practices and four that it is possible to decline the testing. Other comments to this question included that the clients are explained the reasons for and voluntariness of screening. Using of an interpreter when asking the consent was also mentioned. Some of the comments given were contradictory; a respondent mentioned that in general the clients easily want to go to testing while another told about a big proportion of clients refusing testing when the consent was specifically asked.

Majority of the respondents (n=98, 81%) stated that results of infectious diseases testing are told verbally on appointment. Especially if the results are positive, they are told on appointment, as mentioned by five respondents. Three respondents added that in the case of a positive result also additional information is provided, sometimes in written format, to explain the meaning of the infection. Twenty-five respondents (21%) answered the results are told by phone and 14 (12%) that results are given in a written format. Only one respondent mentioned using e-mail to tell the results of

tests to the clients. Twelve respondents did not answer the question and 34 (28%) gave more than one way to tell the results. Eight respondents added as a comment that results are given with the help of an interpreter, two of them mentioned interpretation via phone. Giving the information by the Internet and by SMS were both mentioned once.

5.4. Instructions for infectious diseases screening

5.4.1. Instructions that are in use

About one third of the respondents (n=42, 35%) reported using infectious diseases screening instructions issued by Ministry of Social Affairs and Health in 1993. Other regional or national instructions were less used, by 17% of respondents (n=20). Instructions of their municipality or work unit were using almost half of the respondents (n=58, 48%). Table 5.7 shows the different instructions that the respondents mentioned. Twenty seven respondents (22%) reported they do not use any instructions for screening infectious diseases from immigrants and three respondents stated that new instructions are being developed. However, the respondents had some inconsistencies in their answers, 6 of the 20 respondents who ticked “no instructions in use” also ticked one or more instructions that they do use. Ten respondents did not answer the question about instructions at all. Eight of the 20 respondents who used other regional or national instructions mentioned to use instructions issued by the National Public Health Institute (Table 5.7.). It is possible that those respondents still meant the same instructions that were prepared by National Public Health Institute and authored by Ministry of Social Affairs and Health in 1993.

Table 5.7. Other instructions in use

Other regional or national instructions in use (number of respondents)

- National Public Health Institute (8)
- Instructions to maternity clinics (3)
- Ministry of Employment and the Economy (1)
- Instructions to reception centres issued in 28.3.2006 (1)
- Hospital District of Helsinki and Uusimaa (1)
- National Vaccination Programme (1)
- National Tuberculosis Control Programme (1)
- Communicable Diseases Act and Decree (1)

Instructions of a municipality or work unit (number of respondents)

- Instructions based on recommendations of an infectious diseases specialist/ infectious diseases unit (7)
 - Instructions issued by the head physician (4)
 - Based on national instructions (5)
 - Instructions for refugees and returnees (4)
 - Routine screening for adopted children 28.2.2007 (1)
 - Instructions developed by immigrants' service (1)
 - Work unit (1)
 - Other municipal instructions (5)
-

The 1993 instructions were mostly in use in health services for immigrants and health centres and were less used in occupational health care and student health services. Occupational and student health care also seem to be places where more frequently no instructions were in use to conduct infectious diseases screening to immigrants. Instructions of own unit or workplace were in use in all workplaces except reception centres for asylum seekers.

5.4.2. Satisfaction with the instructions

Despite the respondents were mostly satisfied with the instructions they were using for screening, they wanted to have new instructions (Table 5.8.). Of the 90 respondents who reported using at least one of the instructions, 52 (58%) stated that they are satisfied with the instructions. Still two thirds (n=64, 71%) wanted to have new instructions. Two thirds (n=27, 64%) of respondents using 1993 instructions of Ministry of Social Affairs and Health and 60% (n=35) using instructions of their own

unit were satisfied with the instructions they use. This was more than those using other national instructions (n=9, 45%). Of the 27 respondents who were using more than one instruction, 16 (60%) thought that the instructions have the same content and do they do not have discrepancies between each other.

Table 5.8. Satisfaction with the current instructions and wish to have new instructions

Are satisfied with the current instructions	Want new instructions	
	Yes	No
Yes (n=60)	35 (58%)	25 (26%)
No (n=55)	50 (91%)	5 (9%)

5.5. Information and education about the screening

Information relating to health examinations of immigrants was mostly sought from colleagues (74% of the respondents; n=90). Almost half of the respondents (n=50, 41%) had used the Internet to find the information. Internet pages of the National Public Health Institute (currently National Institute for Health and Welfare) were mentioned by 17 respondents (14%) as a source of information, followed by Terveystieto which was mentioned 11 times. Other Internet pages mentioned were those of municipalities, Ministry of Social Affairs and Health and WHO.

Respondents also gave other places from where they had sought information. The following places were mentioned (number of times mentioned in parenthesis): immigrants' health care facilities (9), unit of infectious diseases (8), courses/training (4), doctor (3), head of the unit (2), neighbouring towns/municipalities (2), National Public Health Institute (2) literature (2) and health administration (1).

Majority of the respondents (n=106, 87%) thought that there should be more training about screening. Training was more wanted by those in whose workplace health examinations are done than those who did not do health examinations (93% vs 76%, respectively). All the respondents working in immigrants' services, reception centres and occupational health services wanted to have more training. Two respondents

commented that education on a general level is needed. Other comments were about more training needed to medical doctors who examine immigrants, smaller municipalities that receive quota refugees, to new employees and training about new infections.

5.6. Usefulness of screening and suggestions to improve the screening instructions

The respondents perceived immigrants' infectious diseases screening important. When they were asked to estimate the usefulness on a scale from 1-5, five being "very useful", the mean grade was for immigrants themselves 4.4 and for the society 4.3, respectively. Ten respondents did not give comments on this. Nurses and public health nurses considered screening slightly more important (4.4 for immigrants and for the society) than doctors (4.1 for immigrants and 4.0 for the society). There was no difference among those who have more or less immigrant clients.

The main reasons the respondents gave for screening to be important were prevention of spreading the disease (mentioned by 13 respondents) and the health of an individual immigrant (mentioned by 11 respondents). In addition, for immigrants themselves the screening was justified because risk to contract infections is higher at the country of origin (2) and positive results have been found (2). Two respondents mentioned that the society benefits from early detection of diseases because it is cheaper to treat them before the diseases have spread to other people.

The respondents gave several ideas on how to improve screening practises. These ideas are presented in Table 5.9. Respondents would like to have clear nationwide instructions for screening. The instructions should tell what should be screened, from whom and at what point of time. Instructions that would show the screening procedures based on the immigrants' situations, e.g. country of origin and the status of the immigrant, were also needed. Some respondents also wrote that the justification of screening should be clearly explained so that they could explain it to the clients. In addition the respondents wished to have information about the infectious diseases and their treatment procedures.

Table 5.9. Ideas to improve screening practises

Suggestions on what screening instructions should include and how to improve screening practises (number of times mentioned in parenthesis)

Clear instructions for screening	<ul style="list-style-type: none"> - nationwide, uniform instructions (22) - clear and simple instructions (32) so that there is no need for individual interpretation (2) - what is screened (31), where (4) and when (11)
Instructions to different groups of immigrants	<ul style="list-style-type: none"> - from whom the test are taken (15) and from whom not (2) - depending on the country of origin (8) - instructions to different groups of immigrants (8), also to work-based (6) and family-based immigrants (4), students (3), returnees (1) and adopted children (1) - children and pregnant women (4) - foreign students should present health documents when coming to Finland (3)
Justification for screening	<ul style="list-style-type: none"> - evidence-based instructions, justification for screening (8) - affordable and fast tests (1) - avoiding unnecessary tests (6)
Training and information	<ul style="list-style-type: none"> - information about different diseases and their treatment procedures to health care personnel (11) - a place to turn for advice when problems (5) - training on screening (9) - information about screening and the diseases to the immigrants in different languages (6)
Improving flow of information	<ul style="list-style-type: none"> - a document (“health card”) to the immigrants of the screening done (3) - collaboration with social services (2)
Locally centralised screening	<ul style="list-style-type: none"> - immigration-related health examinations are done concentrated in one unit (6) - a coordinator for immigrants in the municipality (1)
Time and resources	<ul style="list-style-type: none"> - immigration-related health examinations take time (2) - using an interpreter is essential for good outcome (3)

When the respondents were asked to give ideas to improve the screening practises, many of them gave suggestion on what tests should be included in the screening instructions. These suggestions, and the suggestions of what not to screen or what to screen only in special circumstances are presented in Table 5.10.

Table 5.10. Suggestions on what tests to include in screening instructions

Tests suggested to be included	Tests suggested not to be included	Tests suggested to be included only when needed
<ul style="list-style-type: none"> - Tuberculosis: <ul style="list-style-type: none"> - Chest radiograph (4) - RPR (2) - Blood test for TB (1) - TB (1) - HIV (5) - Hepatitis <ul style="list-style-type: none"> - HbsAg (2) - Hepatitis B (2) - Hepatitis C (1) - Hepatitides (1) - Stool examinations <ul style="list-style-type: none"> - Parasites (6) - Stool culture (1) - Complete blood count (4) - Helicobacter (2) - Sedimentation rate (1) - Alat (1) - N gonorrhoeae culture (1) - TSH (1) - Eosinophil (1) - CRP (1) 	<ul style="list-style-type: none"> - Sedimentation rate (2) - Stool culture (2) - Complete blood count (1) - Clear catch urine specimen (1) - TST (1) - Salmonellae (1) 	<ul style="list-style-type: none"> - Stool parasites (from other than Africans, 1) - Malaria, dengue (only if fewer, 1) - Stool culture and urine sample only from symptomatic, 1) - chest radiograph if coming from tb endemic area, 1)

Most of the tests suggested to be included to the screening practises were the same that are included in the current screening instructions for refugees and asylum seekers, e.g. tuberculosis, HIV and hepatitis B. In addition many other tests were suggested. Nonetheless, some respondents remarked that not all the test presented in the questionnaires should be included as actual screening tests. The answers show that there is diversity in opinions on what should be screened and what not.

6. DISCUSSION

6.1. Aims and main findings of the study

The aims of this study were to describe the current pattern of infectious disease screening from immigrants arriving in Finland and the findings of this screening. In addition the study aimed to define whether the current infectious disease screening has been useful according to health professionals and find suggestions given by health care professionals on how to improve current screening practises.

Of the 121 respondents, 92 were public health nurses, 16 medical doctors and 13 nurses. Respondents came from different places of work: municipal health centres, reception centres for asylum seekers, student health facilities and occupational health care.

Immigration-related health examinations were done in all types of health facilities; in total 83 (69%) respondents stated that the examinations are done in their place of work. The health examinations were mostly (n=63, 76%) done by a public health nurse or a nurse either alone or with a medical doctor. Invitation to the clients was the most utilised way to get the immigrants to come to immigration-related health examinations although immigrants were also referred from somewhere else or they came to the examination by their own initiative. Problems in immigration-related health examinations concerned difficulties with language, excessive need of time, poor flow of information, different conceptions of illnesses, illiteracy and lack of trust. Solutions found to these problems included sparing enough time to conduct the health examinations, using professional interpreter, collaborating with other professionals and practising patience and creativity.

In the study, separation was made between immigration-related health examinations, focusing on infectious diseases screening, and other testing of infectious diseases. Immigration-related health examinations were more frequently done to adopted children, refugees, immigrants who have family ties to Finland and returnees than to other groups of immigrants. Testing was most common to refugees and asylum seekers. Hepatitis B surface antigen was most often tested from immigrants, majority

(82%) of the respondents had tested it from immigrants. More than two thirds of the respondents had also tested HIV, tuberculosis and syphilis. Most common finding was hepatitis B with around 300 cases found per year. Majority of respondents stated that consent for testing infectious diseases is asked, either verbally or in written format. Results of infectious diseases testing were most commonly told verbally on appointment.

Instructions used to do infectious diseases screening from immigrant vary. One third of the respondents (n=42, 35%) reported using infectious diseases screening instructions issued by Ministry of Social Affairs and Health in 1993, while several other instructions were in use at the same time. Although the respondents were mostly satisfied with the instructions they were using for screening, they wanted to have new instructions. Information relating to health examinations of immigrants was mainly sought from colleagues (74% of the respondents; n=90), although other sources, like Internet pages, immigrants' health facilities and infectious diseases unites, were mentioned. More training about screening about screening was wanted.

The respondents perceived immigrants' infectious diseases screening important both for the immigrants themselves and to the society. Several suggestions on how to improve screening practises were given, including formulating clear instructions, informing about justification of screening, providing training, centralising screening systems and improving flow of information.

6.2. Strengths of the study

6.2.1. Response rate

When making surveys to health professionals, response rate is an issue of concern both with mail and Web-based surveys. Response rates overall tend to be modest and especially so when studying health professionals (Asch et al., 1997 , Braithwaite et al., 2003, Leece et al., 2004). The response rate of this study, 69%, was satisfactory and exceeded a mean response rate of 62% (SD 21%) found in a study that reviewed U.S. originated mail surveys published in medical journals during the year 1991

(Asch et al., 1997). Cull et al. (2005) studied response rates in surveys to paediatrics and found out that the mean response rate between years 1994-2002 was 68%. In another systematic review studying Internet-based surveys for health professionals between 1999 and 2002, the surveys were found to have vastly varying response rates, ranging from nine to 94 % (Braithwaite et al., 2003). A recent study in Finland, a postal survey to medical doctors, resulted in response rate 54.6% (Saarinen, 2007).

Most of the respondents were contacted personally by the researcher before sending the questionnaire. Those contacted personally by the researcher also answered more than those contacted only by their head of department (84% versus 74%). E-mail was an effective way of getting contact to health care professionals and all of the respondents had an e-mail address. Attempts to improve getting contact were made by using a phone, but this proved to be difficult as the possible respondents could not answer the phone in the middle of their workday. Respondents were also given a lot of time to complete the questionnaire, although those who got the questionnaire later (in January 2009), had less time than those who received it already in autumn 2008. Response rates are higher in surveys where the topic is of interest to the respondents (Edwards et al., 2002). Many of the respondents spontaneously expressed their interest to immigrants' health care issues when they were contacted by the researcher and thus were already willing to participate in the study.

6.2.2. Non-response bias

Because response rate can tell about the non-response bias only indirectly (Asch et al., 1997), other measures have to be taken to assess the bias. One way to do that is to compare important variables of respondents and non-respondents (Cummings et al., 2001). In this study every contact made to the possible respondents was recorded in an Excell-table and thus baseline characteristics, including profession, gender and place of work were able to be collected also from the non-respondents. These variables are compared in Table 5.4. in page 39. The invitation application of the software used for the Web-based questionnaire, E-lomake 3, made it possible to see which of the participants had answered and which not. In the mailed questionnaires defining respondents and those not responded was made by deduction based on the respondents workplaces, professions etc.

Comparing the baseline characteristics shows that women were overrepresented as there were 96% and 85% of women among the respondents and non-respondents, respectively. However, this should not affect the result much because the difference is small and the topic of the study, screening and testing practises, should not be dependent on the gender of the health professional but more of the place where he/she is working. The proportion of respondents coming from small towns was smaller among the respondents (36%) than the non-respondents (56%). It is possible that although participants from smaller towns were eligible, they felt that they had too little experience on immigrant clients to participate to the study. A better proportion of respondents from smaller towns would have increased the input from of places where immigrant clients are few.

People working in other places than health centres, so. student-, occupational- and immigrant health services, were overrepresented among the respondents. The good response rate among people working in student and occupational health care is, however, positive. Recruiting participants from these places was initially challenging. This shows that participants found were motivated to take part in the study. Smaller proportion of respondents working in health centres compared to the non-respondents, 67% versus 83% respectively, is not alarming because even then people working in health centres were well represented among the respondents.

The profession of the respondents is skewed towards public health nurses and nurses. This is a common phenomenon and it is known that response rates in surveys for medical doctors are generally smaller than in those to other health professionals (Asch et al., 1997). The fact that less medical doctors completed the questionnaire can create bias in this study. Although it is often public health nurses who conduct health examinations, it is likely that more testing and diagnosing of infectious diseases is done by the medical doctors. Therefore if more medical doctors had answered, the results could have showed more testing of infectious diseases taking place as well as more cases of the diseases found.

6.2.3. Internal validity

The questionnaire was mainly clear and easy to understand, based on the generally

clear and consistent answers given. Most of the questions were tested with the pilot study where four health professionals working in different settings were as respondents. Respondents of the pilot were given several possibilities to comment on the questions. In addition one medical doctor who had long history of working with asylum seekers reviewed the questionnaire and gave his comments. These comments were taken into account when designing the final questionnaire.

Open-ended questions resulted several, sometimes lengthy, answers referring that the respondents had interest to the topic. In addition to the open-ended questions the respondent were given the possibility to clarify their answers to the most of the categorised questions as well. This was done in order to increase the response rate and get clarification to the answers (Boynton and Greenhalgh, 2004, Wakley, 2005). These clarifications were taken into account when the data was analysed.

Some technical advantages of Web-based questionnaire were used to improve the quality of data received. Making some of the questions compulsory to answer in Web-based questionnaire decreased missing answers (Rhodes et al., 2003). Data was automatically transferred into SPSS- and Excell-files, eliminating the errors in data entry (Braithwaite, 2003, Rhodes et al., 2003, Roberts, 2007).

6.2.4. External validity

When considering surveys, and Web-based surveys in particular, the major constrains are usually related to sample representativeness and thus external validity of the survey. People who have access to Internet and have the technical proficiency to use it may not be representative of general population, creating a strongly biased sample. (Braithwaite et al., 2003, Roberts, 2007). In Finland, however, medical doctors and public health nurses that can access Internet can be considered to be representative of all the medical doctors and public health nurses. There are no statistics of usage of Internet by health professionals, but the fact that all hospital districts and most municipal health centres were using an Internet portal called "Terveysportti" already in 2001 (Ämmälä, 2001) shows that Internet is widely in use in health care. However, to eliminate the possibility of poor representativeness, a choice was offered to fill in a paper-and-pen version of the questionnaire. In addition calling by phone

was used as additional method to sending E-mails in getting contact to the possible respondents. Nevertheless, still only 10% of the respondents chose the paper-and-pen format over Web-based questionnaire.

The aim of the data collection was to cover a representative selection of Finnish municipalities. Both postal and Web-based surveys can be used when the study population comes from a geographically large area (Edwards et al., 2002, Roberts, 2007). Altogether 20 municipalities were represented in this study, including both the biggest cities in Finland receiving most immigrants and smaller towns that have taken quota refugees but where the immigrant population is otherwise small. The coverage of different municipalities was good enabling a comprehensive view to different practises of health examinations to immigrants. The municipalities in the study represented 65% of the municipalities where immigrants came in 2008 (Statistics Finland, 2009a).

When identifying possible respondents, the search focused in immigrants' health services and areas having high proportion of immigrants in the population within the municipalities. Thus the respondents probably do not represent the overall health professionals of the municipalities in question. The aim was, however, to find respondents that have experience on immigrant clients and that work in different health care settings. The fact that 32% of respondents had immigrant clients as special responsibility refers that this was successful. In addition, assuming that guidelines of immigrants' infectious diseases testing are agreed within the municipality and the health professionals follow these follow these guidelines in their practise, getting a representative of the municipalities is more crucial than getting a representative sample within the municipalities.

Different health care facilities were well represented. About two thirds of the respondents were working in municipal health centres which form the foundation of Finnish health care. Student health care facilities were also well represented in the sample, as 13 % of the respondents were working in student health care in different parts of Finland. Respondents from immigrants' health services formed a disproportionately big (n=12, 10%) part of the respondents compared to the minor role these services have in Finnish health care system as whole but that was

intentionally sought for. Only by 7% of the respondents came from occupational health care. More representation from occupational health facilities would have given a better picture of health services provided to immigrants who have come work in Finland.

6.3. Limitations of the study

6.3.1. Difficulties in terminology

Defining “immigrant” is a complicated task. In this study all foreign-born people moving to Finland for at least 3 months were perceived to be immigrants. This definition was chosen because the time needed for spreading infectious diseases can be very short. However, this definition was not made clear to the respondents, who, consequently, might not have considered e.g. foreign students to be immigrants. Furthermore, this definition differs from that of Statistics Finland, where immigrants are those moving to Finland for minimum of 12 months (Statistics Finland, 2009b).

Dividing immigrants to different categories can be complicated, too, as some respondents pointed out. One person can belong to several categories, e.g. a student can be working or an asylum seeker can study. Defining the category is especially difficult with immigrants having family ties to Finland. If their family members have come to Finland as a refugees, are the ones following also categorised as refugees? Legally this is often the case (Ulkomaalaislaki, 2009) but more clarification on this issue in the questionnaire would have been needed.

6.3.2. Limitations of the questionnaire

The questionnaire was tested in a pilot study. However, several changes were made to the questionnaire after that and the new questionnaire was not pilot-tested. Although questions were tried to be formed in an unambiguous way, some unclarities were found when the results were analysed. The biggest challenge for interpreting the answers was created by question number B2: “How many immigrants with different background would you estimate to have as clients?” The respondents were

given a possibility to answer “no estimation” and most of the respondents used that alternative. When that alternative was chosen, it is not possible to know if the respondents did not have immigrants from the given group as clients or if they had but did not want to specify the number. All those answering “no estimation” had therefore to be excluded from the analysis that concerned the given immigrant group and that made the number of respondents small.

Some minor difficulties concerned questions A2 place of work and B2 client population. Not all the respondents clarified what kind of work they are doing in a health centre so it was not possible to classify them as working in certain settings. Because the respondents work in such different settings, asking their client population did not result clear conclusions of the client base they are taking care of. Client population may be difficult to estimate and is calculated differently in different settings. For example, in general practise of a health centre the client population can consist the whole town whereas in maternity clinic it can be only some dozens of mothers attending the clinic. Question E5 (What should screening instructions include?) was sometimes misunderstood to mean what tests should be advised to be taken from immigrants Originally the question referred to overall practical issues that the instructions should include. This misunderstanding did not come up in the pilot. However, the tests suggested to be taken where also included to the analysis.

Questions C5 and C6 (How long after immigration health examination is supposed to / will take place?) caused some analytical dilemmas because no predetermined choices were given. Not all the respondents answered the questions with specific times but using terms as “as soon as possible”, therefore putting the answers to a numeric scale was impossible. When the respondents had answered using several instructions, question E2 about the satisfaction to the screening instructions could not specifically be used to see what instructions the respondents were most satisfied with because one answer was referring to several instructions in use.

Although the response rate was fairly good, some measures may have helped to increase the response rate even more. The questionnaire could have been shorter. There is some contradictory evidence about length of the questionnaire affecting the

response rate. Asch et al. (1997) did not find association with response rate and length of the questionnaire whereas others have found shorter questionnaire length to be effective in increasing response rate (Kellerman and Herold, 2001, Edwards et al., 2002). In this study the questionnaire was fairly long but it was made in a manner that it would be fast to fill in with multiple-choice questions.

6.3.3. Differences of Web-based and mailed questionnaires

Although some questions were compulsory to answer in Web-based questionnaire, this was not possible to accomplish in the mailed questionnaire. Hence the mailed questionnaires had more missing answers and also some markings that were difficult to interpret, e.g. the respondents had made an unclear mark in tick box or used illegible handwriting. The number of mailed questionnaires was, however, small, therefore this did not have a big impact on the results. The respondents had also written comments to the sides of the papers of the mailed questionnaire, but those comments were relatively easy to transfer into database due to the several boxes reserved for comments in the Web-based questionnaire.

Some technical difficulties were experienced while using the Web-based questionnaire. At least five respondents reported some problems when saving the filled questionnaires and at least three completed questionnaires were missed because of these problems. Some technical problems appeared already when conducting the pilot study when one respondent could not reach the questionnaire in the Internet. The means to solve these problems were few, limited only to advice given by phone to the respondents and contacting the provider of the questionnaire programme.

6.4. Scientific conclusions

The results show that immigrant clients can be found from different health care facilities in different parts of Finland, both in bigger cities and smaller towns. Immigration-related health examinations are to some extent done to all different immigrant groups although they are more commonly done to adopted children, refugees, immigrants who have family ties to Finland and returnees.

Infectious diseases testing is done both within immigration-related health examinations and outside the health examinations in different need-based situations. Most commonly tested disease, from the ones asked, was hepatitis B, followed by HIV, tuberculosis and syphilis. This testing has resulted to cases of infectious diseases found, most common of which is hepatitis B.

Screening is perceived to be important by the health professionals. Several, both local and national, instructions on conducting infectious diseases screening to immigrants are in use side by side. Some confusion among the health professionals prevails on where the instructions are derived from. Information about screening is sought from many different sources. Health professionals wish to have clear, nationwide instructions and they also give ideas on improving the screening practises.

6.5. Relation to previous studies

6.5.1. Practical aspects of immigration-related health examinations

Immigration-related health examinations were most frequently done to adopted children and refugees. This is partly congruent with current instructions, where only refugees and asylum seekers are offered immigration-related health examinations (Ministry of Social Affairs and Health, 1993, Nohynek et al., 1993). However, according to the results, only in less than half of the workplaces where asylum seeker can be found as clients, health examinations were done to them. The explanation for this small number may be that only 3% of the respondents were working in reception centres for asylum seeker where immigration-related health examinations are usually done. Majority of respondents who had asylum seekers as clients worked in health centres where asylum seekers come to find emergency services (Pirinen, 2008).

As suggested by the respondents, a mean to improve screening practises is centralising screening in one unit or in an area. This is also what has been done in

many places. Centralising the health services of asylum seekers to few medical doctors in a municipality has been suggested previously, too (Salmi, 2002). In his doctoral thesis, Pirinen (2008) even contemplates the possibility of creating a new special qualification to medical doctors, immigrant health care.

In a situation where a common language cannot be found, using a professional interpreter with immigrant clients is essential for obtaining medical history and treating the clients (Adams et al, 2004, Health Protection Agency, 2006, Pirinen, 2008). The current screening instructions also recommend using an interpreter if needed (Ministry of Social Affairs and Health, 1993). Many of the respondents highlighted the importance of using an interpreter although many of them also brought out the difficulties that there are in getting the interpreters. This difficulty was found in the study of Pirinen (2008), too. In this study, two thirds (n=56, 76%) of the respondents doing immigration-related health examinations reported using professional interpreter always or often, but in ideal situation this number should be even higher. As the respondents pointed out, using an interpreter would also serve as a solution to many problems faced in immigration-related health examinations.

Current instructions do not specify the time when immigration-related health examinations should be done in relation to the time of immigration. They only advise to do the examinations “as soon as possible” especially in the situations where the refugee or asylum seeker is accommodated in a dormitory where spreading tuberculosis is a possibility. (Ministry of Social Affairs and Health, 1993). According to the results of this study, the health examinations are done relatively early after immigration. Almost half of the respondents that gave an estimation of the time point when health examinations done estimated that they are done within one month after immigration.

Not all the respondents stated asking a consent before testing infectious diseases although the majority (n=93, 77%) of them did. Current instructions advice to do use screening tests only if the client gives a permission for that. However, the instructions refer to a screening situation whereas the answers given here refer to testing in general. (Ministry of social affairs and health, 1993). The situation around informed consent is contradictory. Immigrants may have suspicions towards health

professionals and they might fear that their health situation can be a reason for them to be deported (WHO, 2003). Thus they may also be reluctant to give a consent for infectious diseases testing that is done to benefit their health. These points further emphasize the importance of using an interpreter to clarify the situation to the client.

6.5.2. Different diseases tested and found

The current guidelines on preventing problems caused by infections in refugees and asylum seekers formulated in 1993 recommend screening of tuberculosis (chest x-ray/TST), Hepatitis B (HbsAg), syphilis (RPR) and HIV. Stool parasites and stool culture are recommended to taken if needed. (Ministry of Social Affairs and Health, 1993). Based on the results of this study, practises follow the recommendations as hepatitis B, HIV, tuberculosis and syphilis were most commonly tested of the tests asked. In addition the respondents had tested hepatitis C, complete blood count and sedimentation rate although they are not recommended to be used as screening tests. This testing was, based on the additional comments the respondents wrote, mostly made in the basis of need, hence they were not used as screening tests. In testing syphilis, RPR was the most common test used. However, all respondents may not have been aware that the laboratory at National Institute for Health and Welfare has been using a newer method, treponema pallidum specific immunologic assay (Trpa-Ab) since 1 September 2004 as the test used in antenatal screening (National Institute for Health and Welfare, 2008). Thus the actual proportion of this test may be larger.

The most common finding of the infectious diseases testing was hepatitis B. This is not a surprise because hepatitis B was also most often tested and HBsAg is included to the normal screening program in maternity clinics. The respondents reported finding around 300 cases of hepatitis B per year although this number could include the same cases repeatedly. It is not clear how many of the cases were actual infections, either acute or chronic, and how many were persons found to be immune to hepatitis B virus (detected with HbcAb). In Finland incidence of acute hepatitis B has decreased from about 150 per year at the beginning of the decade to 20-50 yearly. The number of chronic hepatitis B cases found has been 200-300 per year. (National Institute for Health and Welfare, 2009). However, based on prevalence information from migrants' countries of origin, it is estimated that in Finland there

might be around 6,400 foreign-born persons with chronic infection of hepatitis B (Leino, 2006).

Second most commonly tested infection was HIV with some tens of cases found yearly. According to the infectious diseases register, 191 new cases of HIV infection were found in 2007, out of which 32% were found from foreigners. The number of HIV cases diagnosed from foreigners has varied between 20 and 63 during the past ten years. (National Public Health Institute, 2008). The respondents had also detected tens cases of tuberculosis and syphilis. In Finland, 100-150 pulmonary TB cases are reported yearly, out of which 10% are found from foreign born population (Ministry of Social Affairs and Health, 2006). Majority of Finland's 100-200 syphilis cases yearly are acquired abroad (National Public Health Institute, 2008) but some have also been found from immigrant mothers during the regular screening in maternity clinics (Hiltunen-Back, 2007). Respondents also reported findings of intestinal parasites from immigrants. Intestinal parasites have commonly been reported from asylum seekers. In the study of Pirinen (2008), intestinal parasites were found from 39% of the stool samples taken from asylum seekers arrived to Tampere, Finland. Study of Rimhanen-Finne and Kuusi (2009) shows that majority of reported cases of giardiasis in children were found from immigrants.

6.5.3. Usefulness of screening

The respondents perceived screening to be highly useful both to the society and to the immigrants. However, the scientific evidence of benefits that screening has to public health is scarce (Coker, 2004, EASAC, 2007, The Lancet Infectious Diseases, 2007). On the other hand, evidence that infectious diseases of immigrants spread to the recipient population is also rare (Coker, 2004), thus it is obviously difficult to show that screening would benefit public health. It is not rare that perceptions of public health professionals and those working in clinical settings differ when it comes to benefits and risks of screening. Clinicians seek what is best for their patients whereas public health professionals are concerned of the population as whole. (Raffle and Gray, 2007).

Screening also has its' risks and disadvantages. Some of the respondents called for

evidence-based instructions that would give justification for screening as well as suggested that avoiding unnecessary tests would improve screening practises. For the society, screening causes costs (Muenning et al., 1999, Dasgupta et al., 2000) and it can deepen the suspicions toward immigrants (Markel and Stern, 2002). For the immigrants themselves, immigration-related screening, as all the other screening programmes, can cause discomfort and anxiety and pose them to risks caused by the test or interventions done thereafter (Raffle and Gray, 2007). The negative results, either true or false, can cause false sense of confidence that the disease will never be present. This can be detrimental because many immigrants develop infectious diseases only some time after immigration. (Coker, 2004).

Different diseases vary in their qualities in respect to screening, e.g. no cost-effectiveness tests may exist or effective treatment is lacking (Wilson and Jungner, 1968). When concerning immigrants, the situation is yet more complicated with different immigrant groups and their entitlement to different health services. Thus there might not be explicit answers showing if screening is beneficial or not. Careful consideration of the overall situation is needed.

6.6. Public health implications

The results of this study show that infectious diseases testing of immigrants is ongoing in different types primary care health facilities and in different kinds of municipalities. However, confusion prevails on how to best conduct the screening in practice. This study brings forth the wish of health professionals to have clear instructions of screening, covering all the different immigrant groups and indicating what should be screened and when. Screening essentially means a screening programme that is systematically implemented, thus if proper screening programme is wanted it would best to be organised nationwide.

The results of this study can be used when new instructions of immigrants' infectious diseases screening are developed. The results show in which health facilities different immigrant groups can be found as clients and thus they help to focus interventions directed to different immigrant groups. The respondents gave many useful

suggestions on how to improve screening practises. When planning new instructions, feedback and ideas from those working with immigrants could make the instructions more practical.

Discussion of infectious diseases screening of immigrants should be continued and this study can be used to facilitate that discussion. Although screening is usually justified with its benefits to public health, it also has several ethical dilemmas especially if it is made compulsory. The benefit of screening to public health has not been proved but it may benefit the health of immigrants themselves.

6.7. Further research proposals

This study did not find out about the costs of the screening. Cost-effectiveness studies done in this area are scarce but point to the direction of high costs per a case found. The health care systems, as well as patterns of immigration, vary greatly between countries and the cost-effectiveness situation in Finland is not yet mapped. More focus should be put to cost-effectiveness of screening to be able to target the resources of the society correctly.

Assessing the proportion of immigrants undergone health examination or infectious diseases screening when coming to Finland fell out of the scope of this study as did studying immigrants' perceptions of screening. Both would be important issues to know. More research is also needed on the impact of immigrants' infectious diseases have on public health.

In the open-ended questions the respondents mentioned several problems concerning immigration-related health examinations. They also gave several suggestions on how to improve the health examinations. More profound information on the experiences of health professionals could be found with proper qualitative methods e.g. interviews and focus group discussions.

7. CONCLUSIONS AND RECOMMENDATIONS

Immigration-related health examinations were done in all different types of health facilities surveyed in this study. However, some of these facilities had only few immigrants as clients and thus their experiences about immigrants' infectious diseases were limited. Health professionals perceived screening infectious diseases from immigrants to be important also to public health although scientific evidence is lacking. Developing instructions in many municipalities or work units simultaneously is ineffective in its own and can cause excess screening taking place just to be sure. It would, therefore, be more efficient use of resources if national screening instructions for all groups of immigrants would be in place.

Health professionals working with immigrants have suggestion on how to improve screening practises. These suggestions include formulating clear instructions, informing about justification of screening, providing training, centralising screening systems and improving flow of information. The perceptions of health professionals should be taken into account when nationwide plans are made.

When instructions for screening or other interventions are developed, it is essential that the information of the new instructions reaches the people doing the work. Currently many instructions are in use simultaneously and health professionals seek information from many different sources. This might be partly because current national instructions cannot be found from the Internet. When new instructions are developed, informing about these instructions should be done effectively. Internet and e-mail can be used in disseminating this information as the health professionals can be contacted by e-mail and use Internet in their work.

More systematic approach to immigrants' infectious diseases screening is needed. Clear instructions would be important to balance the benefit from screening to public health and harm of costs of the screening.

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APPENDIX 1: QUESTIONNAIRE

MAAHANMUUTTAJIEN INFEKTIOSEULONTA

Tässä kyselyssä selvitetään maahanmuuttajien infektiöseulonnan käytäntöjä eri puolilla Suomea. Kyselyssä on 5 sivua ja siihen vastaaminen kestää noin 20 minuuttia. Toivon, että vastaat kysymyksiin oman tämänhetkisen työsi perusteella.

Ohjeita lomakkeen täyttämiseen:

- Voit liikkua lomakkeessa Edellinen- ja Seuraava-painikkeiden avulla. Jo kirjoitetut tiedot pysyvät tällöin tallessa.
- Osa kysymyksistä on merkitty pakollisiksi ja niihin on vastattava ennen kuin pääsee siirtymään lomakkeessa seuraavalle sivulle.
- **Viemällä hiiren oranssin kysymysmerkin päälle saat lisätietoja kysymykseen vastaamisesta.**
- Halutessasi saat lopuksi sähköpostiisi palautteen, joka sisältää osan vastauksistasi. Voit myös saada tietoa tutkimuksen tuloksista halutessasi.
- Lisätietoja ja neuvoja ongelmatilanteissa antaa tutkija Anna Pulakka, puh. 044-5749920, anna.pulakka@uta.fi. Myös kommentteja kyselystä otetaan mielellään vastaan!

A) Vastajan taustatiedot [1/5]

1. Ammatti

- Lääkäri, mahdollinen erikoisala ja/tai erityispätevyys

Ei mikään

Ei mikään

- Terveydenhoitaja

- Sairaanhoitaja

- Muu, mikä ammatti:

2. Työpaikka

- Turvapaikanhakijoiden vastaanottokeskus ?

- Terveyskeskus, mikä työ:

- Maahanmuuttajien palvelupiste tai vastaava

- Työterveyshuolto

- YTHS

- Muu opiskelijaterveydenhuolto

- Muu, mikä:

3. Työskentelypaikkakunta

-Valitse tästä-

Muu, mikä:

4. Onko sinulla maahanmuuttajatyö erityisenä vastuualueena?

- Kyllä, pakolaiset
- Kyllä, turvapaikanhakijat
- Kyllä, muut maahanmuuttajat, mikä ryhmä:

- Ei
- En tiedä/ei sovitettu

5. Kuinka monta vuotta olet tehnyt nykyistä työtäsi? ?

6. Kuinka monta vuotta olet tehnyt työtä, jossa sinulla on maahanmuuttaja-asiakkaita? ?

7. Mahdollisia lisätietoja liittyen työnkuvaasi ja maahanmuuttajatyöhön:

8. Ikä

9. Sukupuoli

Seuraava >>

B) Asiakkaat [2/5]

1. Kuinka suuri on asiakasväestöpohjasi?

- En osaa arvioida

2. Kuinka paljon arvioisit asiakkainasi olevan eri maahanmuuttajia? ?

	Vuodessa	Kuukaudessa	En osaa arvioida
(Anna arviosi vuoden tai kuukauden mukaan.)	<input type="text"/>	<input type="text"/>	<input type="text"/>

3. Kuinka paljon eri taustan omaavia maahanmuuttajia sinulla on asiakkaina?

(Anna arviosi vuoden tai kuukauden mukaan. Maahanmuuttajaryhmien määritelmät löytyvät kysymysmerkin kohdalta->) ?

	Vuodessa	Kuukaudessa	En osaa arvioida
Pakolaisia	<input type="text"/>	<input type="text"/>	<input type="text"/>
Turvapaikanhakijoita	<input type="text"/>	<input type="text"/>	<input type="text"/>
Töihin tulleita	<input type="text"/>	<input type="text"/>	<input type="text"/>
Opiskelijoita	<input type="text"/>	<input type="text"/>	<input type="text"/>
Paluumuuttajia	<input type="text"/>	<input type="text"/>	<input type="text"/>
Adoptiolapsia	<input type="text"/>	<input type="text"/>	<input type="text"/>
Perhesyistä Suomeen muuttaneita (muuta kuin edellämainittuihin ryhmiin kuuluvia)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Maahanmuuttajia, joiden taustaa en tiedä	<input type="text"/>	<input type="text"/>	<input type="text"/>

4. Kuinka usein käytät ammattitulkia sellaisten maahanmuuttajien

vastaanottotilanteissa, joiden kanssa Sinulla ei ole yhteistä kieltä? ?

	En koskaan	Harvoin	Usein	Aina	Tällaisia tilanteita ei ole työssäni
Maahanmuuttoon liittyvissä terveystarkastuksissa	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Muissa terveystarkastuksissa	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sairasvastaanotolla	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

<< Edellinen

Seuraava >>

C) Maahanmuuttoon liittyvät terveystarkastukset [3/5]

1. Tehdäänkö työyksikössäsi maahanmuuttoon liittyviä terveystarkastuksia (=tarkastuksia, joita tehdään juuri maahan muuttaneelle ja joita ei tehdä terveydellisen synn/vaivan perusteella) **seuraaville maahanmuuttajaryhmille?** ?

	Kyllä	Ei	Mahdollisia lisätietoja:
Pakolaisille	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
Turvapaikanhakijoille	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
Töihin tulleille	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
Opiskelijoille	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
Paluumuuttajille	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
Adoptiolapsille	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
Perhesyistä Suomeen muut- taneille (muille kuin edellä mainittuihin ryhmiin kuuluville)	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
Maahanmuuttaja-asiakkaille, joiden taustaa en tiedä	<input type="radio"/>	<input type="radio"/>	<input type="text"/>

2. Oletko ohjannut maahanmuuttajia terveystarkastukseen johonkin muualle?

En Kyllä, minne?

HUOM: Jos yksikössä ei tehdä maahanmuuttoon liittyviä terveystarkastuksia, VOIT SIIRTYÄ SEURAAVALLE SIVULLE (kyselyn kohtaan D).

3. Kuka tekee maahanmuuttoon liittyviä terveystarkastuksia työyksikössäsi? ?

- Terveydenhoitaja tai sairaanhoitaja
- Lääkäri aina
- Lääkäri vain tarvittaessa
- Joku/jotkut muut

Lisätietoja tarvittaessa:

4. Kuinka maahanmuuttoon liittyvään terveystarkastukseen hakeudutaan yksikössäsi?

- Asiakkaat kutsutaan niihin. ?
- Asiakasta kehoitetaan (jostain muualta) hakeutumaan tarkastukseen.
- Asiakas itse tekee aloitteen.
- Jotenkin muuten, miten:

- En tiedä

5. Kuinka pitkän ajan kuluessa maahanmuutosta terveystarkastus on suositeltu tehdä teidän yksikössäsi?

- En tiedä

6. Kuinka pitkän ajan kuluessa maahanmuutosta terveystarkastus yleensä tehdään teidän yksikössäsi?

- En tiedä

7. Millaisia ongelmia maahanmuuttajien terveystarkastuksissa on ollut?

8. Millaisia ratkaisuja ongelmiin on löytynyt?

<< Edellinen

Seuraava >>

D) Infektiotautien seulonta [4/5]

1. Miltä maahanmuuttajaryhmittä olet tutkinut seuraavia infektioitauteja nykyisessä työssäsi? (Voit valita useamman vaihtoehdon.)

1.a) TUBERKULOOSI

Thorax-rtg, keneltä: ?

- | | |
|--|---|
| <input type="checkbox"/> Pakolaisilta | <input type="checkbox"/> Adoptiolapsilta |
| <input type="checkbox"/> Turvapaikanhakijoilta | <input type="checkbox"/> Perhesyistä Suomeen muuttaneilta |
| <input type="checkbox"/> Töihin tulleilta | <input type="checkbox"/> Maahanmuuttajilta, joiden taustaa en tiedä |
| <input type="checkbox"/> Opiskelijoilta | <input type="checkbox"/> En keneltäkään |
| <input type="checkbox"/> Paluumuuttajilta | |

Mantoux-koe, keneltä:

- | | |
|--|---|
| <input type="checkbox"/> Pakolaisilta | <input type="checkbox"/> Adoptiolapsilta |
| <input type="checkbox"/> Turvapaikanhakijoilta | <input type="checkbox"/> Perhesyistä Suomeen muuttaneilta |
| <input type="checkbox"/> Töihin tulleilta | <input type="checkbox"/> Maahanmuuttajilta, joiden taustaa en tiedä |
| <input type="checkbox"/> Opiskelijoilta | <input type="checkbox"/> En keneltäkään |
| <input type="checkbox"/> Paluumuuttajilta | |

Kommentteja tuberkuloosin tutkimisesta:

1.b) B-HEPATIITTI

HBs-Ag (hepatiitin kantajuus), keneltä: ?

- | | |
|--|---|
| <input type="checkbox"/> Pakolaisilta | <input type="checkbox"/> Adoptiolapsilta |
| <input type="checkbox"/> Turvapaikanhakijoilta | <input type="checkbox"/> Perhesyistä Suomeen muuttaneilta |
| <input type="checkbox"/> Töihin tulleilta | <input type="checkbox"/> Maahanmuuttajilta, joiden taustaa en tiedä |
| <input type="checkbox"/> Opiskelijoilta | <input type="checkbox"/> En keneltäkään |
| <input type="checkbox"/> Paluumuuttajilta | |

HBc-Ab (rokotustarpeen arvio), keneltä:

- | | |
|--|---|
| <input type="checkbox"/> Pakolaisilta | <input type="checkbox"/> Adoptiolapsilta |
| <input type="checkbox"/> Turvapaikanhakijoilta | <input type="checkbox"/> Perhesyistä Suomeen muuttaneilta |
| <input type="checkbox"/> Töihin tulleilta | <input type="checkbox"/> Maahanmuuttajilta, joiden taustaa en tiedä |
| <input type="checkbox"/> Opiskelijoilta | <input type="checkbox"/> En keneltäkään |
| <input type="checkbox"/> Paluumuuttajilta | |

Kommentteja B-hepatiitin tutkimisesta:

1.c) C-HEPATIITTI

Hcv-Ab, keneltä: ?

- | | |
|--|---|
| <input type="checkbox"/> Pakolaisilta | <input type="checkbox"/> Adoptiolapsilta |
| <input type="checkbox"/> Turvapaikanhakijoilta | <input type="checkbox"/> Perhesyistä Suomeen muuttaneilta |
| <input type="checkbox"/> Töihin tulleilta | <input type="checkbox"/> Maahanmuuttajilta, joiden taustaa en tiedä |
| <input type="checkbox"/> Opiskelijoilta | <input type="checkbox"/> En keneltäkään |
| <input type="checkbox"/> Paluumuuttajilta | |

Kommenteja C-hepatiitin tutkimisesta:

1.d) HIV

HIV-Ab, keneltä: ?

- | | |
|--|---|
| <input type="checkbox"/> Pakolaisilta | <input type="checkbox"/> Adoptiolapsilta |
| <input type="checkbox"/> Turvapaikanhakijoilta | <input type="checkbox"/> Perhesyistä Suomeen muuttaneilta |
| <input type="checkbox"/> Töihin tulleilta | <input type="checkbox"/> Maahanmuuttajilta, joiden taustaa en tiedä |
| <input type="checkbox"/> Opiskelijoilta | <input type="checkbox"/> En keneltäkään |
| <input type="checkbox"/> Paluumuuttajilta | |

Kommenteja HIV:n tutkimisesta:

1.e) SYFILIS

Kardioliipiini (KardAb, seulontatesti, taudin aktiivisuuden selvittely), keneltä: ?

- | | |
|--|---|
| <input type="checkbox"/> Pakolaisilta | <input type="checkbox"/> Adoptiolapsilta |
| <input type="checkbox"/> Turvapaikanhakijoilta | <input type="checkbox"/> Perhesyistä Suomeen muuttaneilta |
| <input type="checkbox"/> Töihin tulleilta | <input type="checkbox"/> Maahanmuuttajilta, joiden taustaa en tiedä |
| <input type="checkbox"/> Opiskelijoilta | <input type="checkbox"/> En keneltäkään |
| <input type="checkbox"/> Paluumuuttajilta | |

TPHA (positiivisen kardioliipiinitestin varmistus, epäselvien tapauksen selvittely), keneltä: ?

- | | |
|--|---|
| <input type="checkbox"/> Pakolaisilta | <input type="checkbox"/> Adoptiolapsilta |
| <input type="checkbox"/> Turvapaikanhakijoilta | <input type="checkbox"/> Perhesyistä Suomeen muuttaneilta |
| <input type="checkbox"/> Töihin tulleilta | <input type="checkbox"/> Maahanmuuttajilta, joiden taustaa en tiedä |
| <input type="checkbox"/> Opiskelijoilta | <input type="checkbox"/> En keneltäkään |
| <input type="checkbox"/> Paluumuuttajilta | |

Trpa-Ab (uudempi seulontatesti), keneltä: ?

- | | |
|--|---|
| <input type="checkbox"/> Pakolaisilta | <input type="checkbox"/> Adoptiolapsilta |
| <input type="checkbox"/> Turvapaikanhakijoilta | <input type="checkbox"/> Perhesyistä Suomeen muuttaneilta |
| <input type="checkbox"/> Töihin tulleilta | <input type="checkbox"/> Maahanmuuttajilta, joiden taustaa en tiedä |
| <input type="checkbox"/> Opiskelijoilta | <input type="checkbox"/> En keneltäkään |
| <input type="checkbox"/> Paluumuuttajilta | |

Kommenteja syfiliksen tutkimisesta:

1.f) MUUT

TVK (perusverenkuva, trombositit ja leukosyyttien erittelylaskenta), keneltä: ?

- | | |
|--|---|
| <input type="checkbox"/> Pakolaisilta | <input type="checkbox"/> Adoptiolapsilta |
| <input type="checkbox"/> Turvapaikanhakijoilta | <input type="checkbox"/> Perhesyistä Suomeen muuttaneilta |
| <input type="checkbox"/> Töihin tulleilta | <input type="checkbox"/> Maahanmuuttajilta, joiden taustaa en tiedä |
| <input type="checkbox"/> Opiskelijoilta | <input type="checkbox"/> En keneltäkään |
| <input type="checkbox"/> Paluumuuttajilta | |

Lasko, keneltä:

- | | |
|--|---|
| <input type="checkbox"/> Pakolaisilta | <input type="checkbox"/> Adoptiolapsilta |
| <input type="checkbox"/> Turvapaikanhakijoilta | <input type="checkbox"/> Perhesyistä Suomeen muuttaneilta |
| <input type="checkbox"/> Töihin tulleilta | <input type="checkbox"/> Maahanmuuttajilta, joiden taustaa en tiedä |
| <input type="checkbox"/> Opiskelijoilta | <input type="checkbox"/> En keneltäkään |
| <input type="checkbox"/> Paluumuuttajilta | |

F-para (suolistolaiset), keneltä:

- | | |
|--|---|
| <input type="checkbox"/> Pakolaisilta | <input type="checkbox"/> Adoptiolapsilta |
| <input type="checkbox"/> Turvapaikanhakijoilta | <input type="checkbox"/> Perhesyistä Suomeen muuttaneilta |
| <input type="checkbox"/> Töihin tulleilta | <input type="checkbox"/> Maahanmuuttajilta, joiden taustaa en tiedä |
| <input type="checkbox"/> Opiskelijoilta | <input type="checkbox"/> En keneltäkään |
| <input type="checkbox"/> Paluumuuttajilta | |

F-BaktVI (Salmonella, Shigella, Kampylobakteerit), keneltä:

- | | |
|--|---|
| <input type="checkbox"/> Pakolaisilta | <input type="checkbox"/> Adoptiolapsilta |
| <input type="checkbox"/> Turvapaikanhakijoilta | <input type="checkbox"/> Perhesyistä Suomeen muuttaneilta |
| <input type="checkbox"/> Töihin tulleilta | <input type="checkbox"/> Maahanmuuttajilta, joiden taustaa en tiedä |
| <input type="checkbox"/> Opiskelijoilta | <input type="checkbox"/> En keneltäkään |
| <input type="checkbox"/> Paluumuuttajilta | |

PLV (puhtaasti laskettu virtsa), keneltä:

- | | |
|--|---|
| <input type="checkbox"/> Pakolaisilta | <input type="checkbox"/> Adoptiolapsilta |
| <input type="checkbox"/> Turvapaikanhakijoilta | <input type="checkbox"/> Perhesyistä Suomeen tulleilta |
| <input type="checkbox"/> Töihin tulleilta | <input type="checkbox"/> Maahanmuuttajilta, joiden taustaa en tiedä |
| <input type="checkbox"/> Opiskelijoilta | <input type="checkbox"/> En keneltäkään |
| <input type="checkbox"/> Paluumuuttajilta | |

Kommenteja muiden
infektioautien tutkimisesta:

2. Mitä infektioauteja on löytynyt? ?

	Määrä/vuosi	Kommenteja hoitoon ohjauksesta ym.
Tuberkuloosi	<input type="text"/>	<input type="text"/>
B-hepatiitti	<input type="text"/>	<input type="text"/>
HIV	<input type="text"/>	<input type="text"/>
Syfilis	<input type="text"/>	<input type="text"/>
Muita	<input type="text"/>	<input type="text"/>

3. Pyydetäänkö asiakkailta suostumus infektioautien seulontaan? ?

- Kyllä, suullisesti
 Kyllä, kirjallisesti
 Suostumusta ei pyydetä

Lisätietoja:

4. miten tutkimuksen tulokset kerrotaan asiakkaalle? ?

- Suullisesti puhelimitse
 Suullisesti vastaanotolla
 Kirjallisesti sähköpostilla
 Kirjallisesti muuten
 Jotenkin muuten*

*miten?

5. Kuinka tarpeelliseksi (asteikolla 1 [ei tarpeellinen] - 5 [erittäin tarpeellinen]) näet maahanmuuttajien infektioseulonnan

	1	2	3	4	5	En ota kantaa	Miksi/lisäkommentteja?
a) maahanmuuttaja-asiakkaille itselleen?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
b) yhteiskunnalle?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>

<< Edellinen

Seuraava >>

E) Ohjeet maahanmuuttajien infektioautien seuloonnan [5/5]

1. Mitä ohjeita työyksikössäsi käytetään maahanmuuttajien infektioseulonnan tekemiseen?

Sosiaali- ja terveysministeriön vuoden 1993 ohjeita

Muita valtakunnallisia/alueellisia ohjeita, mitä:

Oman kunnan/yksikön/työpaikan ohjeita, mitä:

Ei mitään ohjeita

Ohjeet ovat kehittelyn alla, millaiset ohjeet:

2. Käyttämäsi maahanmuuttajien infektioseulonnan ohjeet:

	Kyllä	En/ei	Kommentteja:
a) Oletko tyytyväinen käyttämiisi ohjeisiin?	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
b) Ovatko ohjeet keskenään samansisältöisiä ja ristiriidattomia?	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
c) Kaipaako uusia ohjeita maahanmuuttajien infektioseulonnan?	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
d) Pitäisikö koulutusta maahanmuuttajien infektioseulonnan lisää?	<input type="radio"/>	<input type="radio"/>	<input type="text"/>

3. Mitä maahanmuuttajien infektiöseulonnan ohjeiden tulisi pitää sisällään?

4. Miten maahanmuuttajien infektiöseulontaa voisi mielestäsi kehittää?

8. Mistä haet tietoa maahanmuuttajien terveystarkastuksiin liittyvissä asioissa, käyttämiesi ohjeiden lisäksi?

Kollegoilta

Internet-sivuilta, mistä:

Muualta, mistä:

9. Mitä muuta viestitettävää liitteen maahanmuuttajien terveystarkastuksiin Sinulla olisi?

SUURI KIITOS VASTAUKSESTASI!

Jos haluat palautteen omista vastauksista sähköpostiisi, kirjoita sähköpostiosoitteesi tähän: ?

Haluan lisäksi tietoa sähköpostiini tutkimuksen tuloksista tutkimuksen valmistuttua. ?

Jos yksikkönne infektiöseulontaohjeet ovat saatavana, voit liittää ne liitetiedostona lomakkeen loppuun (kohdassa: haluan lähettää liitetiedoston/liitetiedostoja) tai ottaa yhteyttä tutkijaan (Anna Pulakka, puh. 044-5749920, anna.pulakka@uta.fi) niiden lähettämistä varten.

<< Edellinen

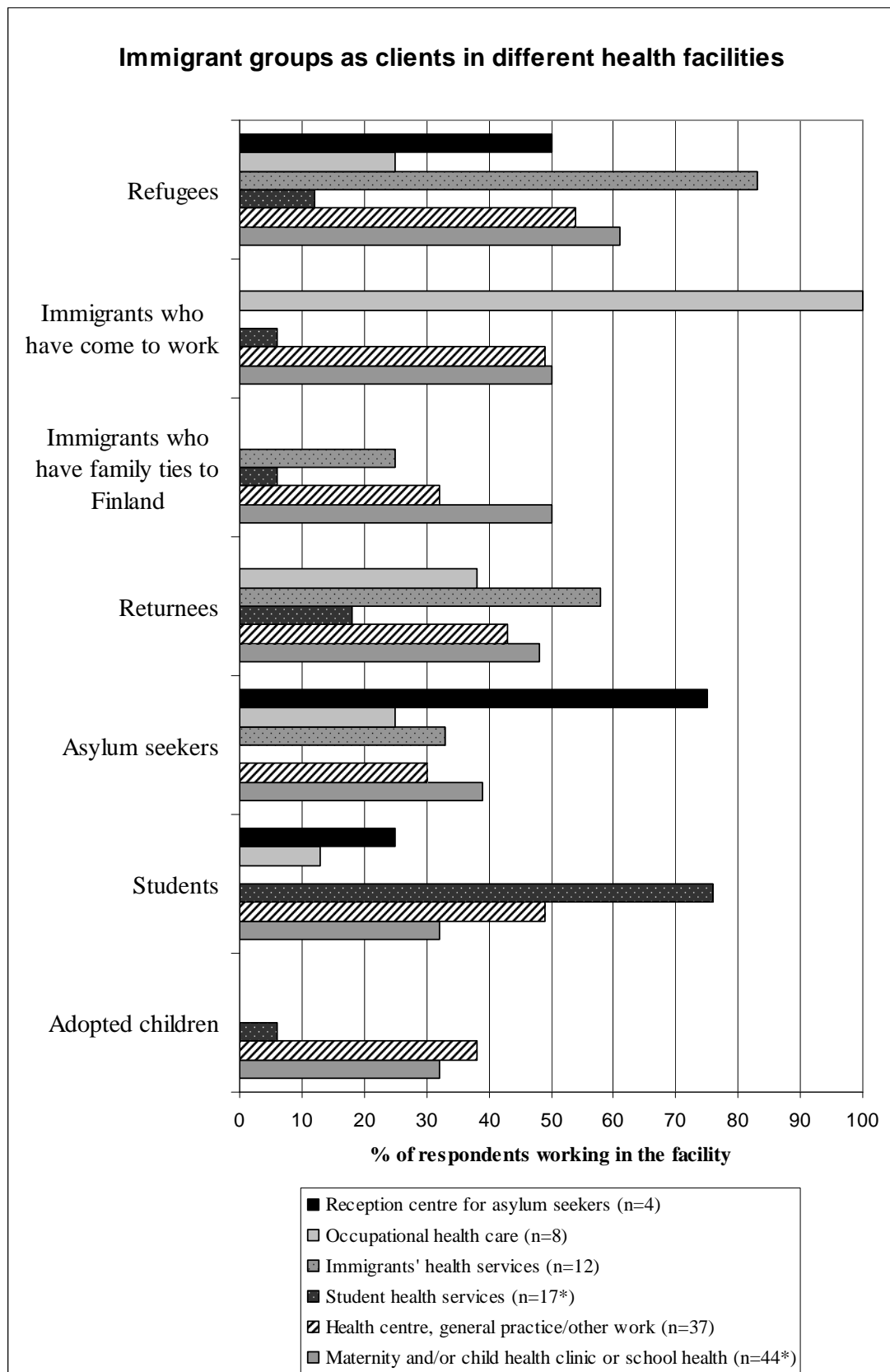
Seuraava >>

APPENDIX 2 : RESEARCH PERMITS

Place	Name and title	Date
Jyväskylän kaupunki Sosiaali- ja terveystieteiden Avoterveydenhuolto	Jarmo J Koski Tulosaluejohtaja, avoterveydenhuollon palvelut Vastaava ylilääkäri	16.10.2008
Kotkan kaupunki	Kari Korhonen Terveysjohtaja	17.10.2008
Vantaan kaupunki Sosiaali- ja terveystoimi/ Terveystieteiden palvelut	Kirsi Savolainen vs. Terveystieteiden johtaja	20.10.2008
Kokkolanseudun Terveystieteiden Kuntayhtymä	Hannele Tikkakoski-Alvarez Avohoidon ylihoitaja	21.10.2008
Turun kaupunki Terveystoimi	Arto Raassina vs. Tulosaluejohtaja	27.10.2008
YTHS	Markku Kanerva Johtajaylilääkäri	29.10.2008
Tornion kaupunki Hyvinvointipalvelut	Kaisu Norrrkniivilä Perusturvajohtaja	30.10.2008
Oulun vastaanottokeskus	Katja Kolehmainen Johtaja	30.10.2008
Itä-Savon sairaanhoitopiirin ky.	Arja Sistonen Hallintoylihoitaja	3.11.2008
Rovaniemen kaupunki Terveystieteiden palvelukeskus	Tapio Raasakka Palvelupäällikkö	3.11.2008
Oulun kaupunki Sosiaali- ja terveystoimi	Tuula Tähtinen Terveystieteiden palvelujohtaja	4.11.2008
Espoon kaupunki Sosiaali- ja terveystoimi/ Tieto, laatu ja kehittäminen	Lea Konttinen vs. Kehittämispäällikkö	4.11.2008
Vaasan kaupunki Terveystieteiden palvelut	Anne Pohjola Ylihoitaja	4.11.2008
Hämeenlinnan seudun kansanterveystyön ky.	Tuovi Sohlberg Avoterveydenhuollon ylihoitaja	6.11.2008
Rovaniemen kaupunki Terveystieteiden palvelukeskus	Tapio Raasakka Palvelupäällikkö	10.11.2008

Place	Name and title	Date
Kainuun maakunta –kuntayhtymä Vastaanotto- ja terveyskeskussairaalatoiminta	Pekka Ruuska Ylilääkäri	19.11.2008
Lahden kaupunki Sosiaali- ja terveystoimiala	Risto Raivio Terveyspalvelujen johtaja	21.11.2008
Helsingin kaupunki Terveyskeskus Tutkimustoimikunnan koordinaatioryhmä	Matti Toivola Toimitusjohtaja	24.11.2008
Mikkelin kaupunki Sosiaali- ja terveystoimi	Pekka Pöllänen Johtava ylilääkäri	25.11.2008
Tampereen kaupunki Hyvinvointipalvelut Vastaanottotoiminta	Paula Paavilainen Hoitotyön päällikkö	27.11.2008
Tampereen kaupunki Hyvinvointipalvelut Lasten ja nuorten terveystoiminta	Eija-Liisa Ala-Laurila Ylilääkäri	2.12.2008
Kemin kaupunki Sosiaali- ja terveystoiminta	Ritva Lundbom Terveystoiminnan johtaja	5.12.2008
Tampereen kaupunki Hyvinvointipalvelut Maahanmuuttajapalvelut	Irja Vesasto-Aro Toimistopäällikkö	10.12.2008
Joensuun kaupunki Sosiaali- ja terveystoiminta	Anne Karttunen Johtava ylilääkäri	10.12.2008
Kuopion kaupunki Sosiaali- ja terveystoiminta	Pietikäinen Matti Avohoidon johtaja	5.1.2009

APPENDIX 3: IMMIGRANTS IN DIFFERENT HEALTH FACILITIES



*) One respondent who was working both in child health clinic and student health services is included in both categories.

APPENDIX 4: INFECTIOUS DISEASES TESTING

