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Drug use, related risk behaviour and
harm reduction interventions utilization
among injecting drug users in Estonia:
implications for drug policy



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LIST OF ORIGINAL PUBLICATIONS

- I Vorobjov S, Des Jarlais DC, Abel-Ollo K, Talu A, Rüütel K, Uusküla A. The importance of early age of first injection among people who inject drugs in Tallinn, Estonia. Submitted into the Int J Drug Policy, May 03, 2012.
- II Vorobjov S, Uusküla A, Des Jarlais DC, Abel-Ollo K, Talu A, Rüütel K. Multiple routes of drug administration and sexual risk behavior among injecting drug users in Tallinn, Estonia. J Subst Abuse Treat 2012; 42:413–20.
- III Vorobjov S, Uusküla A, Abel-Ollo K, Talu A, Rüütel K, Des Jarlais DC. Comparison of injecting drug users who obtain syringes from pharmacies and syringe exchange programs in Tallinn, Estonia. Harm Reduct J 2009;20;6:3.
- IV Vorobjov S, Uusküla A, Abel-Ollo K, Talu A, Des Jarlais DC. Should pharmacists have a role in harm reduction services for IDUs? A qualitative study in Tallinn, Estonia. J Urban Health 2009;86:918–28.

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- Paper III: Data analysis, writing the first draft of the manuscript to which other authors contributed.
- Paper IV: Study design, data collection, data analysis, writing the first draft of the manuscript to which other authors contributed.

ABBREVIATIONS

AOR	adjusted odds ratio
CI	confidence interval
EMCDDA	European Monitoring Centre for Drugs and Drug Addiction
ESPAD	European School Survey Project
EU	European Union
HAART	highly active antiretroviral therapy (HIV and AIDS treatment)
HIV	human immunodeficiency virus
HCV	hepatitis C
HBV	hepatitis B
ICD	International Classification of Diseases and Health Problems
IDU	injecting drug user
RDS	respondent driven sampling
SEP	syringe exchange program
STI	sexually transmitted infections
UNODC	United Nations Office on Drugs and Crime
WHO	World Health Organization

I. INTRODUCTION

*„High quality scientific evidence is needed when professionals
intervene in the lives of other people“
(Sir Iain Chalmers)*

There have been a lot of myths and misconceptions about the nature of addiction. When science began to study addiction in the 1930s, people addicted to drugs were thought to be morally flawed and lacking in willpower (NIDA 2010). Those views shaped society's responses to drug abuse, treating it as a moral failing rather than a health problem, which led to an emphasis on punitive rather than preventative and therapeutic actions. Recent scientific research has shown that drug abuse and addiction is a chronic relapsing brain disease that is characterized by compulsive drug seeking and use, despite harmful consequences (Ersche et al., 2012; Kasanetz et al., 2010; Leshner 1997).

Drug abuse and addiction are substantial threats to the public good, besides affecting public health generating crime, disorder, family break ups and community decay (Strang et al., 2012). Contemporary drug policy aims through a broad range of regulations, enforcements and laws to promote the public good, but the effectiveness of these policy measures is rarely informed by scientific evidence. From the perspective of public health, there is need for a system that is more in line with the risks that different drugs pose, and shows an understanding of the effects of different regulatory approaches on drug use and drug-related harms (Room & Reuter 2012). Here scientific research can make important contributions to inform and guide the selection of policies, in order to prevent the initiation of drug use, help problem users change their behavior to reduce the consequences of their drug use and control the supply of illicit drug use (Strang et al., 2012).

The use of drugs has grown during the past two decades in the general population and among schoolchildren in Estonia (ESPAD Report 1995; ESPAD Report 1999; ESPAD Report 2003; ESPAD Report 2007; ESPAD Report 2011; Hansson 2009). In addition, Estonia has one of the highest rates of estimated injecting drug use prevalence in Eastern Europe, which is the main driver of the HIV epidemic, causing a high number of drug-related deaths among young males and entailing high social and health welfare costs to society (Mathers et al., 2008). Why injecting drug use in particular is posing a problem to such an extent and severity in Estonia is open to interpretation and further rigorous research. This thesis is contributing to the existing knowledge base by describing the phenomenon of injecting drug use and injecting drug user's behavior, the drug users population needs for health and prevention services and implications for drug policy. Further, this work analyzes utilization of existing harm reduction interventions (measures to minimize drug related damage) targeted at injecting drug users and the introduction of possible new interventions.

2. REVIEW OF LITERATURE

2.1. Drug use as a dependence disorder

2.1.1. Concepts related to drug use and abuse

People have been using drugs for thousands of years for a variety of purposes, depending on various socio-cultural and biological factors. Although drugs affect our lives every day, such as when using medications or via news reporting in the media, defining drug itself can be complicated. The concept of “drug” has varied usage, in medicine it refers to any substance with the potential to prevent or cure disease or enhance physical or mental welfare; in pharmacology it means any chemical agent that alters the biochemical or physiological processes of tissues or organisms, in the context of international drug control, “drug” means any substance in Schedule I and II of the 1961 and 1971 Convention, whether natural or synthetic origin (UNODC 2003).

Feeling happiness and peacefulness is a complicated art and one of the easiest and perhaps the most rapid way to alter one’s moods and feelings is to affect brain with chemical substances (Harro 2006). Drug use can be the use of any drug, a headache pill, a cup of coffee, a glass of wine, a cigarette – they all affect human brain and behaviour. The drug abuse begins when drug use is starting to cause problems, i.e. either physical, psychological, legal or social harms to the user and/or to others affected by the drug users’ behaviour (Maisto et al., 1999). It is not clear, why drug use becomes the centre of individual’s life and means a continuous and deepening process for some people, but not for others. There have been loads of studies researching the pathways of dependence, whether it is genetically or neurobiologically determined, cognitive or behavioral disorder or of psychosocial origin.

Several substance abuse classifications are available: ie. (1) the International Classification of Diseases and Health Problems – ICD; (2) American Psychiatric Association’s criteria for Diagnostic and Statistical Manual of Mental Disorders – DSM; (3) based on from which the treatment community view drug abuse (i.e. a moral, psychological or disease perspective); (4) the type of drug used (opioids, stimulants); or (5) the route of administration (i.e. injection drug use) (American Psychiatric Association 2000; EMCDDA 2009; West & Hardy 2006; World Health Organization 1992). Irrespective of different classifications in defining dependence the main characteristic is a strong desire, often overpowering, to take the psychoactive drugs (which may or may not have been medically prescribed), alcohol, or tobacco, while other parts of life will be left aside.

This study defines “drug use” as those uses of psychotropic substance(s) for non-medical purposes which have been prohibited by international drug control.

2.1.2. Drug use epidemiology research

The effective prevention of health problems and other consequences of substance use requires information on the prevalence, characteristics and patterns of use, together with information on the problems associated with that use. Epidemiologic research plays a critical public health role by generating and providing evidence to estimate the magnitude, impact, and risk of drug abuse and related problems in a population, and to lay the foundation for developing strategies to prevent drug abuse, plan and evaluate drug abuse services, and suggest new areas for basic, clinical, and treatment research.

Specific research areas of particular interest include but are not limited to the following:

1. natural history, current and emergent drug abuse trends (assess and examine rates (e.g., prevalence, incidence) emerging and current patterns, and trends of drug use, abuse, addiction, morbidity, mortality and associated social and behavioral consequences (e.g., crime, violence, sexually transmitted infections such as HIV, and other co-morbidities) in general and defined populations, with special attention to health disparity issues);
2. studies of the origins and trajectories of drug use, abuse, and addiction (developmental trajectories: etiology, vulnerability, co-morbidity, genetics, course);
3. social epidemiology (studies of the dynamic multi-level interaction among social environmental and individual-level factors in contributing to and/or protecting against drug use, abuse, and addiction and associated behavioral, social, and health outcomes across the life course);
4. public health policy (studies to understand the effects of changing federal, state, or local laws, regulations and policies on the epidemiology of drug use which have the potential to inform future policy decisions);
5. methodological (e.g., studies to compare the effect of different methods on data quality and on data collection) and measurement studies (e.g., studies assessing the accuracy of alternative methods for the survey measurement of drug use) (Babor et al., 2010; Sloboda 2005).

2.1.3. Drug use in the general population

Global trends in prevalence rates of drug use have remained generally stable over the last decade; UNODC has estimated 149 to 271 million people aged 15–64 years, approximately 5% used an illicit drug at least once in 2009/2010 (UNODC 2011). It is estimated that over one in five of all 15–64 year-olds has used cannabis at least once in their lifetime on average in European countries (EMCDDA 2011a). Lifetime prevalence of amphetamines use among young adults (15–34 years) varied from 0.1% to 14% and ecstasy use from 0.6% to 13% in European countries (EMCDDA 2011a). Drug use is consistently more common among males than in females.

The use of drugs has grown during the past two decades in Estonia. In the total population of Estonia, aged 15 to 64 years, around 15% in 2003 and 21% of people in 2008 had tried an illicit drug at least once in their lifetime (Hansson 2009). Six per cent of people aged 15 to 64 had used cannabis, 1% had used ecstasy and 1% amphetamines over the last 12 months. The use of heroin and synthetic heroin (analogues of fentanyl) has increased among general population. In general population survey in 2008 the total of 2% of participating males aged 15 to 24 had used heroin and 1% had used fentanyl in the last 12 months, while in the same survey conducted in 2003, the use of heroin or fentanyl in the last 12 months was not reported (Hansson 2004; Hansson 2009).

According to studies conducted by the European School Survey Project on Alcohol and Other Drugs (ESPAD) the proportion of adolescents aged 15–16 years who had tried illicit drugs has increased through the years in Estonia. A total of 7% of adolescents had tried an illicit drug at least once in their lifetime in 1995, rising to 15% in 1999, 24% in 2003, 30% in 2007 and 32% in 2011 (ESPAD Report 1995; ESPAD Report 1999; ESPAD Report 2003; ESPAD Report 2007; ESPAD Report 2011). Whilst in 1995 and 1999 the proportion of lifetime use of illicit drugs among Estonian schoolchildren was the lowest when compared with the average proportion of other European countries, since 2003 the proportion has exceeded the European average (ESPAD Report 2011). Cannabis has been the most prevalent illicit drug amongst schoolchildren (lifetime prevalence in 2011 was 24%), followed by inhalants (16%) and non-medical use of tranquillizers or sedatives (8%) among schoolchildren.

The use of drugs is associated with opinions about those drugs. It is known that the beliefs concerning the harmfulness of drug use are inversely related to the prevalence of drug use (Compton et al., 2005). As drug use has become more prevalent in Estonia, it suggests that people's corresponding beliefs about drugs have also changed. When using the results of ESPAD studies it can be seen that there has been decrease in the beliefs surrounding the dangers of cannabis use; over 60% of adolescents considered occasional cannabis use great risk during first ESPAD study in 1999, while less than half of respondents considered it as a great risk in 2011 (Figure 1). The less schoolchildren consider cannabis use or the use of other drugs a great risk, the more ready they are to try them. Data from a number of European countries show a high correlation between estimates of drug use in the adolescent population and adult population (Babor et al., 2010), so it can be assumed that beliefs about the dangers of drug use have decreased overall in the general population over recent decades in Estonia.

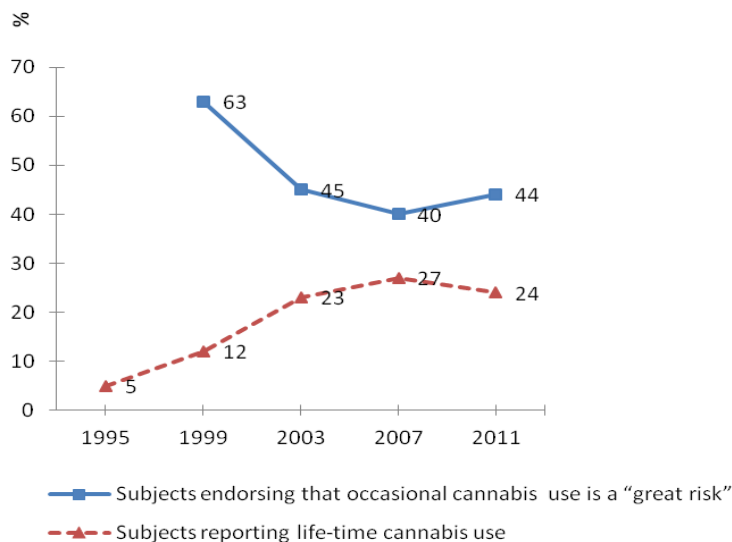


Figure 1. Life-time use of cannabis among 15–16 year old adolescents in Estonia and perceived risk of occasional cannabis use in the ESPAD study, 1995–2011.

2.1.4. Injecting drug use

EMCDDA considers injecting drug use as being a “problem drug use” together with long duration or regular use of opioids, cocaine and/or amphetamines (EMCDDA 2009). The majority of problem drug use in Europe is formed by injecting drug use and the use of opioids, although in a few countries amphetamine use and often polydrug use are also prevalent (EMCDDA 2009).

In most cases, drug users progress from mild drugs to stronger drugs and from non-injecting to injecting. The process is described by the “gateway effect”, according to which drug use is preceded by smoking and alcohol use, illicit drug use itself begins with cannabis smoking, and thereafter, progress is made to those drugs with a stronger effect (Kandel & Faust, 1975). Although there are doubts that the gateway effect in a strict sense does exist (Anthony 2002; Morral et al., 2002a; Morral et al., 2002b). Variations in patterns of drug initiation suggest that entry into drug use is dependent on social factors, drug availability, characteristics of users and social settings that facilitate or deter use (Degenhardt et al., 2012). It has been found that the beginning of drug use is influenced more by social factors, both at the societal and individual level, while problem use is more associated with psychological factors (Frisher et al., 2007).

The risk factors for starting injecting may be socio-demographic or individual, e.g. gender (more frequent among men) younger age, dropping out of school, smoking cannabis and crack, having an injecting sex partner, involvement of prostitution and contact with violence (Fuller et al., 2001; Fuller et al., 2002; Miller et al., 2006; Neaigus et al., 2001; Pates et al., 2005; Van

Ameijden et al., 1994; Van Ameijden & Coutinho 2001). Furthermore, transfer from non-injecting administration routes to injecting initiation may be more likely among some certain substance users, such as regular and long-term users of cocaine, heroin and tranquilisers (Van Ameijden et al., 1994, Van Ameijden & Coutinho 2001). Progress to injecting may be influenced by the desire to achieve a stronger effect and at the same time reduce costs (i.e. the same effect for less money) (Bravo et al., 2003). The reasons for not starting injecting have been mentioned as fear of blood and the injection process as well as fear of possible negative health outcomes, particularly HIV infection and overdose (Bravo et al., 2003).

Previous research has documented that IDUs have increased risks associated with early onset of drug use (Anthony & Petronis 1995; Friedman et al., 1989; Fuller et al., 2001; Neaigus et al., 1996). It is known that younger IDUs are at a high level of risk for HIV and HCV, and engage in risky injection practices such as more frequent injecting, sharing syringes; sex-related risk behaviors like early sexual initiation, having unprotected sex, higher number of sexual partners and working at a young age in the sex trade (Becker Buxton et al., 2004; Des Jarlais et al., 1999; Fuller et al., 2001; Fuller et al., 2002; Kral et al., 2000; Miller et al., 2007). Understanding the relationship between early injecting initiation and possible consequences regarding later drug problems could help target prevention and early intervention.

IDUs often combine drugs using multiple substances with different routes of administration, combined use (multiple substances, multiple administration routes) has been associated with particularly elevated risks (Southwell 2005). Different routes of administration of drugs carry different risks (Pates et al., 2005). Drug users using non-injecting routes have lower risk of infections transmitted via blood, a lower risk of overdose and fewer problems with dependence syndrome. Also they will not suffer from the acute or chronic health conditions caused by injecting. There is evidence that while IDUs are at high risk of HIV through equipment sharing, the specific drugs injected (e.g. cocaine) may increase the risk of HIV infection, and that non-injecting drug use (particularly crack cocaine and methamphetamine) may increase the risk of sexual acquisition of HIV (DeBeck et al., 2009; Lloyd-Smith et al., 2009; Semple et al., 2010; Strathdee & Stockman 2010). Most research on HIV and drug use in Eastern Europe has focused on injecting without considering the potential impact of non-injecting drug use among injectors. There is limited data on the route of administration and on the nature of the harms to which drug users are exposing themselves (Strang et al., 1998).

2.1.5. Injecting drug use in Estonia

It has been estimated that almost 16 million (with a range of 11–21 million) people worldwide inject drugs (Mathers et al., 2008). The largest numbers of injectors were found in China, the USA, and Russia, while over 40% of IDUs who are HIV positive are found in Estonia, Ukraine, Burma, Indonesia, Thailand,

Nepal, Argentina, Brazil, and Kenya (Mathers et al., 2008). Estonia has the highest estimated injecting drug use prevalence in Eastern Europe together with Russia, and the prevalence estimated in Western Europe is two to seven times lower compared with Estonia (Mathers et al., 2010). There are an estimated 13,000 IDUs in Estonia with a prevalence of 2.4% of the adult population (aged 15–44) (Uusküla et al., 2007a). Injecting drug use is most prevalent in the North-Eastern part of Estonia and in the capital, Tallinn.

Since 2005, surveys have been carried out to study risk behaviour and the prevalence of infectious diseases among IDUs. These surveys have taken place in the Estonian cities of Tallinn (2005, 2007, 2009), Kohtla-Järve (2005, 2007), and Narva (2010) (Lõhmus et al., 2008; Lõhmus et al., 2011; Uusküla et al., 2005; Uusküla et al., 2011). Based on the results it can be said that the majority of IDUs in Estonia are male, young adults (mean age 24 to 27 years) and ethnic Russian speakers, who represent about 85% of IDUs in Tallinn (the capital city), 98% in Kohtla-Järve and 76% in Narva (these latter two are cities near the Russian border) (Lõhmus et al., 2011; Uusküla et al., 2011). The average injection career has lengthened over the years, from six years (in 2005) to ten years (in 2009). The main drugs being injected have been fentanyl, produced in illegal drug labs, and amphetamine in Tallinn, poppy liquid in Kohtla-Järve, and amphetamines and fentanyl in Narva. The injection of fentanyl is associated with elevated injecting risk behaviour, fentanyl injectors have higher odds of being HIV positive and higher odds for lifetime overdose (Talu et al., 2010). Also polydrug use has been quite prevalent among IDUs throughout the years (Rüütel et al., 2011a). The estimated prevalence of HIV among injecting drug users is 40–90% and over 30% of IDUs have shared a syringe based on different studies (Platt et al., 2006; Uusküla et al., 2005; Uusküla et al., 2007b; Wilson et al., 2007).

Injecting drug use is the main cause of HIV epidemic in Estonia, with the highest number of new HIV cases (31 cases per 100,000 people in 2009) in Europe and with the highest HIV prevalence among the adult population (1.2% in 2009) (ECDC 2011; UNAIDS 2011). Negative health consequences attributable to injecting drug use are the leading causes of death among males aged 25 to 30 year in Estonia (there were 27 HIV related deaths per 100,000 males in 2009 and 104 deaths per 100,000 males caused by a drug overdose) (Statistics Estonia 2010). In addition to premature mortality among IDUs there are health related costs (e.g. the treatment of dependence disorder and infectious diseases – HIV, HCV), labour force loss (IDUs are young working-age males) and social costs (e.g. state benefits, criminal justice system and police arrests) to the society.

The extent and severity of Estonian injecting drug use problem, affecting both IDUs and the wider community, reveals that there is a continuing need for prevention and harm reduction services in Estonia.

2.2. Health and social services for drug users

2.2.1. History and general concept of harm reduction

Drug policy addresses both reducing the supply of drugs and reducing the demand, the latter encompassing prevention, treatment, rehabilitation and reducing the harms related to drug use. Defining what constitutes harm reduction has varied in the literature (Collins et al., 2012). In this thesis, the definition from the International Harm Reduction Association (IHRA) is used (IHRA 2010). The IHRA defines harm reduction as a perspective and a set of practical strategies to reduce the negative consequences of drug use, incorporating a spectrum of strategies from safer use to abstinence (IHRA 2010). The idea originates from a pragmatic approach that drug use has been present throughout history and some people will continue to engage in high-risk behaviors even though they experience associated harms. Ignoring or criminalizing drug use will lead to additional negative side-effects, and instead an appropriate drug policy with public health principles should be applied to minimize the related harms (Collins et al., 2012; Room & Reuter 2012). Another principle is a non-moralistic approach, drug abuse or dependence is seen more as an illness, often with relapses, not a criminal behavior, and services are delivered in a supportive and non-judgmental manner. Although the main aim is to minimize the consequences of drug use, harm reduction does not exclude or presume a dependence treatment goal of abstinence (Rhodes & Heidrich 2010).

The spectrum of strategies refer to not only to specific interventions, but also to general principles on reforming drug policy and other public policies, through which societies respond to the drug problem (Hunt et al., 2003). Harm reduction principles can be used as a framework for all drugs including tobacco and alcohol use, but the focus of this thesis is on illegal drug use, especially on harms related to injecting drug use.

One of the earliest forms of harm reduction dates back to the late 1950s, when the Canadian researcher Robert Halliday first practiced methadone treatment for opioid dependence (Hart 2007). Methadone maintenance was first introduced in 1964 in response to the outbreak of intravenous use of heroin in New York City (Courtwright et al., 1989). Contemporary ideas of harm reduction emerged in 1970s in the Netherlands, with a concern to integrate drug users into society and to maximize their contact with social, treatment, health and other community services (Lowinson et al., 2005). At the same time drug user organizations also appeared, so-called “Junkie Unions”, who distributed clean syringes at places where IDUs gathered, to reduce the spread of hepatitis (Grund et al., 1992).

In the mid-1980s, to prevent the spread of HIV/AIDS, municipal syringe exchange programs were introduced at first in Netherlands and in Great Britain (O’Hare 2007). Although the particular concern was the risk of HIV infection, another concern was health risks associated with drug use and a poor lifestyle (Ashton & Seymour 2010; Seymour & Eaton 1997). People engaged with

injecting drug use were under served by health services and consumer led services for them were created for the first time in the UK in Liverpool and its surrounding area (Merseyside and Cheshire) (Seymour & Eaton 1997). The services aimed to give advice, primary care, clean injecting equipment, HIV testing and possibilities for opioid substitution therapy through drop in centers and outreach, in order to lessen the impact of injecting drug use on the health of affected individuals and the larger community. From this developed the Mersey Model of Harm Reduction which was soon adopted by Australia, Canada, Switzerland, and later by many other countries. The model is based on three principles: (1) it is important to make contact with whole population at risk; (2) maintain contact with the belief that as long there is contact with drug users, there is a possibility to influence to change their behavior; (3) make changes in their behavior (Ashton & Seymour 2010).

2.2.2. Key services for HIV prevention and harm reduction for IDUs

Preventing HIV transmission through injecting drug use is one of the key challenges and a comprehensive package for the prevention, treatment and care of HIV among IDUs is provided by WHO (WHO, UNODC, UNAIDS 2009). It includes (1) syringe exchange programs (SEPs); (2) opioid substitution therapy and other drug dependence treatment; (3) HIV testing with counseling; (4) antiretroviral therapy; (5) prevention and treatment of sexually transmitted diseases; (6) condom programs; (7) targeted information, education and communication for IDUs; (8) vaccination, diagnosis and treatment of HCV and (9) prevention, diagnosis and treatment of tuberculosis.

1. Syringe exchange

SEPs are associated with the harm reduction approach the most, and are perhaps the most widely available throughout the world. SEPs are reported to be available in all EU member states, in Australia, in parts of North America and within a number of developing and transitional countries (EMCDDA 2011a, Hunt et al., 2003). According to Mathers *et al*, SEPs were available in 82 countries worldwide in 2009 (Mathers et al., 2010). At first it was argued that needle exchange may encourage injecting (Ashton & Seymour 2010; Grund et al., 1992). Now the evidence has proved the effectiveness of the SEPs in limiting the spread of HIV, HBV and HCV and other blood-borne diseases among IDUs (Bastos & Strathdee 2000; Des Jarlais et al., 1996; Palmateer et al., 2010). Also it has been documented that initiation and continuation of SEP use among high risk drug users is related to cessation of syringe sharing (Bluthenthal et al., 2000; Vazirian et al., 2005).

There are different forms of SEPs – stand alone exchanges, based on community outreach workers, mobile services, SEPs attached to specialist drug services, pharmacy exchange services, accident and emergency departments,

genito-urinary clinics and primary care, depending on the country (Hunt et al., 2003; Parsons et al., 2002). Although a variety of possibilities are available, alternative modalities have been suggested to reduce HIV transmission, such as pharmacy sales, injector specific packs, mass distribution and vending machines (Coffin 2000; Obadia et al., 1999). Furthermore, studies conducted in Russia and Eastern Europe have stressed the need for additional sources of syringes besides SEPs in these high-risk areas (Aceijas et al., 2007; Sarang et al., 2008). But currently, data on pharmacists' and IDUs' attitudes and current practices relating to pharmacists' role in harm reduction strategies are scant in Eastern Europe.

The opportunity to exchange syringes in pharmacies has proved its effectiveness, and is most widely used in the United Kingdom, also in New Zealand, Australia and Ukraine (Lurie et al., 1998; Sheridan et al., 1996; Sheridan et al., 2005; Thein et al., 2003; USAID 2012). Complementary to offering sterile needles and syringes, other services such as the dispensing of injecting related paraphernalia (such as sterile wipes, "cookers", filters and sterile water), methadone treatment and education regarding infection prevention and safer drug use have also been organized in pharmacies (Matheson et al., 2002; Sheridan et al., 1996, Sheridan et al., 2007; Strang et al., 1996).

2. Opioid substitution therapy and other drug dependence treatment

Opioid substitution therapy is available in all European countries, worldwide in a total of 70 countries and the provision of treatment has increased steeply through the last decade (EMCDDA 2011a; Mathers et al., 2010). Methadone is the most widely used and researched substitution medication, buprenorphine and the combination of buprenorphine/naloxone – Suboxone – are also commonly used (Gowing et al., 2011). It is estimated that overall about half of opioid users have access to treatment in Europe, comparable with those reported in Australia and the United States and higher than in Canada (EMCDDA 2011a). While Russia has the highest number of opioid users, the drug addiction specialists strongly oppose to the use of substitution therapy (Mendelevich 2011; Rechel 2010).

The effectiveness of substitution treatment for opioid dependent drug users has been proved by a range of different studies, although the poor quality of provision reduces benefit (Bethesda 1995; Gowing et al., 2011; Strang et al., 2012). It significantly reduces drug use, the injection of illegal drugs and the sharing of injecting equipment. In addition, less risky sexual behaviour and the reduction of crime and mortality have been observed.

For a selected group of chronic heroin users heroin-assisted treatment is available in some countries (Netherlands, United Kingdom, Spain, Denmark, Germany, Switzerland, Canada) (EMCDDA 2011a; Hunt et al., 2003). This treatment is proposed for patients who have not responded to other treatment. Although the cost has been estimated between three to 10 times higher than methadone treatment, it has shown to be cost-effective (EMCDDA 2011b).

The harm-reduction principle, aimed to achieve contact with drug users and services delivered in a non-judgmental manner, is focused on achieving a change in the drug user's behavior. Therefore individual and group-level approaches are central components for promoting health behavior change. Counseling intervention with motivational interviewing, in combination with case management, is considered effective in treating drug dependence (Hunt et al., 2003; Lundahl et al., 2010; Robles et al., 2004). In addition, other psychosocial interventions are used including cognitive behavioral therapy, contingency management, community reinforcement approach, matrix model, therapeutic community model, the Minnesota model and the 12-step recovery approach (e.g. Narcotics Anonymous) (Board on Global Health 2006).

3. Other services for IDUs

Naloxone, an opioid antagonist, is a medication which counters the effects of an opioid overdose and has been used by emergency staff in many countries, but is now becoming more widely distributed by harm reduction services to people who use drugs, their peers and families. The provision of naloxone with training of users and families to prevent opioid overdose deaths has been introduced in several countries in the United Kingdom, Germany, Italy, the United States, Canada (Baca & Grant 2005; Sporer & Kral 2007).

Drug consumption rooms have proved to reduce harms related to drug use, like prevention of HIV, HCV and HBV, reducing overdoses to prevent deaths, facilitating access to treatment and other health and social services, reducing street drug use and associated litter (Hunt et al., 2006; Lloyd & Godfrey 2010). Also they are effective modalities for attracting more marginalized and vulnerable drug users. Drug consumption rooms are available in Germany, Switzerland, the Netherlands, Spain, Norway, Luxembourg, Australia, Canada (Hunt et al., 2006).

WHO describes information, education and communication approaches essential to reduce the risks and harms related to drug use (Hunt et al., 2003). Distributing leaflets on advertising services, information on reducing risk-taking, management of medical crises such as overdose, are widely used to complement other services.

Illicit drug markets are attributed to the harms related to drug use due to poor product quality and harm-reduction responses include early warning systems and pill testing (Hunt et al., 2003). Early warning systems have been developed to monitor changes in drug consumption patterns and monitor the appearance of new substances (EMCDDA 2007). Pill testing is an option for drug users to test their pills, used most frequently ecstasy-like substances, to get information about the quality of the substance and this also allows the monitoring of the drug market and alerting early warning systems about the strength/purity or contamination of drugs (EMCDDA 2001). This development is a part of Dutch drug policy and is to some extent used in Austria, Belgium, France, Germany, Spain and Switzerland.

4. Effectiveness of harm reduction interventions

As noted above, harm reduction is a package of different strategies and evidence implies that harm reduction services have an enhanced impact when they are used in combination (Collins et al., 2012; Rhodes & Hedrich 2010). Syringe exchange in combination with substitution treatment is more effective in reducing HIV and HCV risk than stand-alone interventions (Van den Berg et al., 2007). Additionally, syringe exchange in combination with HIV-testing, counseling for infectious diseases and information and education materials helps to limit the spread of infectious diseases among drug users (Arponen et al., 2008). A similarly enhanced effect has resulted from the combination of substitution treatment and adherence to AIDS treatment or integrating AIDS treatment with tuberculosis treatment (Rhodes & Hedrich 2010).

A recent meta review of existing studies and data documented evidence in support of a variety of harm reduction interventions (Kimber et al., 2010). A summary of this review `s conclusions is presented in Table 1 (Culley et al., 2012).

Table 1. Overview of the EMCDDA meta review of the effectiveness of harm reduction interventions

Treatment type \ Outcome measure	Opioid substitution treatment (OST)	Syringe exchange programs (SEP)	Peer naloxone distribution (PND)
HIV transmission	Sufficient evidence that OST reduces HIV transmission	Tentative evidence that SEP reduces HIV transmission	Insufficient evidence that PND reduces HIV transmission
Hepatitis C (HVC) transmission	Tentative evidence that OST has limited effectiveness in reducing HVC transmission	Insufficient evidence about effectiveness in reducing HVC transmission	Insufficient evidence about effectiveness in reducing HVC transmission
Self-reported injecting risk behaviors	Sufficient evidence that OST reduces risk behaviors	Sufficient evidence that SEP reduces risk behaviors	Sufficient evidence that PND reduces risk behaviors
Overdose mortality	Sufficient evidence that OST reduces overdose mortality	Insufficient evidence about effect on overdose deaths	

Source: Kimber et al., 2010.

2.2.3. Services for HIV prevention and harm reduction for IDUs in Estonia

The main services for IDUs in Estonia are the SEPs and the opioid substitution therapy with methadone, provided by non-profit organizations and mainly funded by the state according to the national HIV/AIDS strategy (Laisaar et al., 2011).

SEPs were initiated in Estonia in 1997, in Tallinn. By 2010 nine non-governmental organizations were providing syringe exchange and counseling services in 36 syringe exchange points, 13 of which were stationary centers, located in high drug use areas in Tallinn and in the North-Eastern part of Estonia (EUSK 2011). There were approximately 7,000 customers and more than 2.1 million syringes were distributed in 2011. When using estimations of IDU prevalence, it can be said that roughly about 60% of IDUs are covered by syringe exchange services in Estonia. In the presence of a high prevalence of injecting drug use and HIV, there is a need for complementary approaches to increase the availability of clean syringes for IDUs in Estonia. For harm reduction policy and practical solutions, evidence-based data is needed on involving pharmacies in harm reduction, and potential barriers.

While methadone detoxification has been present in Estonia since 1998, opioid substitution treatment with methadone was officially introduced in 2001, although it has only become used on a significant scale since 2003 with the opening of a specialized centers (Abel-Ollo et al., 2008; Laisaar et al., 2011). There were six substitution treatment providers in eight different settings in 2011 in Estonia and a total of 1,064 clients received methadone substitution treatment in 2010. However the proportion of drug users treated remains low, it is estimated that approximately 7% is covered by treatment (Mathers et al., 2010). Buprenorphine has been available since 2003, but is not widely used, probably due to the fact that clients are supposed to pay themselves (Laisaar et al., 2011). Assessment on the quality of methadone substitution treatment in Estonia claimed that for effective treatment in addition to dispensing of methadone, behavioural and psychological interventions should be integrated more thoroughly (Abel-Ollo et al., 2008).

Free voluntary HIV-testing and counseling services were provided in the eight AIDS counseling centers in 2010, and for the population groups at the most risk via prevention and harm reduction services voluntary HIV-testing is available in Estonia (EUSK 2011; Laisaar et al., 2011). Furthermore the provision of free and anonymous diagnostics and treatment services for sexually transmitted infections targeted IDUs and their sexual partners is available in Jõhvi and Narva, cities in North-Eastern part of Estonia. Studies have shown that about 2% of IDUs have been diagnosed with tuberculosis and there is need for services to refer IDUs to tuberculosis screening (Rüütel et al., 2011a; Rüütel et al., 2011b). More than half (55%) of all persons with tuberculosis and HIV dual infection in Estonia were drug users in 2010 (Viiklepp, personal communication, 2011).

This thesis concentrates on problems related to injecting drug use, as it represents a significant and important public health issue in Estonia. Despite the efforts injecting drug use is a major contributor to preventable morbidity and mortality, associated with harms and costs due to high number of acquired blood-borne infections (HIV, HCV, HBV), high number of overdoses and crime among youth and young adult populations. There is need to respond more effectively through evidence-based measures to harms related to injecting drug use.

2.3. Drug use research and drug policy

While the use of drugs dates back throughout history, modern drug policy is over a century old and reflects how societies deal with the problems caused by drugs through laws and programs (Babor et al., 2010). There are a multitude of approaches aimed at tackling the challenges of illicit drugs and targeting different dimensions of problems relating to drugs. These different approaches can target and impact on different aspects of society, such as health, safety and public order, the criminal justice system and social and economic functioning. Policies can be devised in terms of the harms they seek to minimise, the sources they seek to affect, or those who bear the burden of the encountered harms (MacCon & Reuter, 2001).

National and international approaches to tackling the challenges of illicit drugs tend to be mixed (Culley et al., 2012). Firstly, governments and international organisations deploy a range of measures aimed at targeting the supply of illicit drugs, through law enforcement interventions, seizures, precursor interdictions, and destruction of production facilities and crops. Secondly, there are measures that are intended to reduce the demand for illicit drugs, by targeting users or potential users directly; these include education and information provision through a variety of different media, early interventions with at risk groups, treatment and possession bans. Finally, there are interventions geared at reducing harms such as illnesses and morbidity, for example through needle exchange programs or substitution treatment.

Drugs policy at the European Union (EU) level is coordinated by the European Commission and it functions as the main executive body and is responsible for EU level actions (Culley et al., 2012). The main EU technical and operational agencies in the drugs field are the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), Europol (the European Police Office) and Eurojust (the European agency for judicial cooperation).

The EMCDDA is a reference point, gathering data and publishing reports on the drugs situation in the EU (EMCDDA 2012). It coordinates the European Information Network on Drugs and Drug Addiction (REITOX) for the collection and exchange of data and information on drugs and drug addiction between 27 Member States of the EU, Norway, Turkey, Croatia and the European Commission.

Europol plays an important role in terms of law enforcement coordination and expertise. It facilitates and supports cross-border investigations and operations, provides information on drug trafficking, and acts as a central institute from which the Member States of the EU can draw expertise (EUROPOL 2012). Europol also publishes reports that are disseminated to the EU policymakers and the law enforcement community in the Member States. Eurojust is the body that improves the coordination of investigations and prosecutions between competent authorities in the Member States of the EU and contact points in 24 non-Member States (Eurojust 2012).

Internationally, the United Nations Office on Drugs and Crime (UNODC) plays a key role in coordinating action and assisting member nations in addressing the challenges associated with illicit drugs, drawing on key legal instruments that form the basis of international cooperation in the field (UNODC 2012). The Commission on Narcotic Drugs is the main body dealing with this area in the United Nations system.

The EU Drugs Strategy and Action Plans employ a combination of approaches to tackling drugs. The Strategy has two policy areas – supply reduction and demand reduction – and three cross-cutting themes – coordination, international cooperation, and information, research and evaluation (Culley et al., 2012). An important aspect of EU drugs policy has been the creation of an evidence base through the development of new indicators and systematic collection of data on drugs in the EU. In Europe national drug strategies are designed at the national level and the EU Drugs Strategy is expected to add value to national-level drugs policy. According to EMCDDA every Member State of the EU has a national drug strategy supported by an action plan with concrete targets and time line (EMCDDA 2010).

In Estonia drug-related research and drug policy is regulated by the National Strategy on the Prevention on Drug Dependency 2004–2012 (NSPDD) and the National Strategy for the Prevention of HIV/AIDS 2006–2015. NSPDD came into force in 2005, before that drug policy was regulated by Alcohol and Drug Abuse Strategy since 1997. The field of harm reduction (i.e. syringe exchanges, methadone substitution treatment, and distributing condoms) is regulated by the National HIV/AIDS Prevention Strategy, which is the fourth national program. The first National AIDS Prevention Program was approved in effect in 1992–1996, the second program, the National Action Plan for Prevention of HIV/AIDS and other Sexually Transmitted Diseases was implemented in 1997–2001, and the third was adopted in 2002–2006. The Ministry of Social Affairs is the main coordinator involving the Ministry of Education and Research, the Ministry of Internal Affairs, the Ministry of Justice, the Ministry of Finances and other partners. According to the recent plans after the end of NSPDD in 2012 and the National HIV/AIDS Prevention Strategy in 2015, drug policy with HIV/AIDS prevention strategy will fall under the Estonian National Health Strategy and there will be no separate strategies coordinating the drug field solely.

3. AIMS OF THE RESEARCH

The general aim of this research was to evaluate drug use and risk behaviour among people who inject drugs (IDUs), their use of harm reduction services targeting them and the introduction of possible new harm reduction services, in Estonia.

The specific aims were:

1. To describe the initiation of drug use and to explore possible consequences of early initiation into injecting drug use on further risk behavior and on HIV prevalence (Paper I);
2. To examine the relationship between routes of drug administration and HIV serostatus and to identify related socio-demographic, drug-use related factors and sexual risk behaviours among IDUs (Paper II);
3. To determine the occurrence of risk behaviour and HIV infection prevalence, coverage with and use of harm reduction services by the IDUs who primarily use syringe exchange programmes (SEPs) compared with those who primarily use pharmacies as their source of sterile syringes in Tallinn (Paper III);
4. To explore pharmacists' and IDUs' attitudes toward the role of pharmacists in HIV prevention activities for IDUs and discover potential barriers that might prevent the sale of syringes from pharmacies and regarding the offering of harm reduction services through pharmacies in Tallinn (Paper IV).

4. MATERIALS AND METHODS

The current work is based on the results of two cross-sectional studies and on two qualitative studies.

4.1. Cross-sectional studies

4.1.1. Study design, setting, and interventions

Cross-sectional studies using respondent-driven sampling (RDS) (Uusküla et al 2011) were used to recruit IDUs for interviewer-administered surveys in 2007 (Paper I; Paper II; Paper III) and in 2009 (Paper I) in Tallinn, Estonia. Inclusion criteria in both studies were being 18 years or older, either a Russian or Estonian language speaker, having had injected in the previous two months and being able to provide informed consent. Recruitment began with the non-random selection of five to six ‘seeds’ representing diverse IDU types (by gender, ethnicity, main type of drug used, engaging in sex for money and HIV serostatus). Eligible participants were provided with coupons for recruiting up to three of their peers. Coupons were uniquely coded to link participants to their survey responses and biological specimens and for monitoring who recruited whom. Participants who completed the study received a primary incentive (a food voucher worth 6.40 Euros) for participation in the study and a secondary incentive (food vouchers worth 3.20 Euros for each eligible person they recruited to the study). The RDS technique uses participants’ social networks to access individuals who may not appear in public venues and are not in contact with service providers (Heckathorn 1997; Heckathorn 2002; Heckathorn et al., 2002; Salganik & Heckathorn 2004).

An interviewer-administered questionnaire in face-to-face interviews was used in both studies in 2007 and in 2009 (Paper I; Paper II; Paper III), based on the WHO Drug Injecting Study Phase II survey (version 2b (rev.2)) (Des Jarlais et al., 2006). Interviews were held in confidence, in a room of the syringe exchange program (SEP) between the IDU participant and the interviewer. Recruitments were conducted and the surveys administrated by a team of trained fieldworkers. The study protocols included pre- and post-HIV test counseling for study participants.

Venous blood was collected from participants and tested with commercially available kits for HIV antibodies Vironostika HIV Uniform II Ag/Ab (BioMerieux); positive cases were confirmed with INNO LIA HIV I/II Score Westernblot in 2007 and using Abbott IMx HIV-1/HIV-2 III Plus (Abbott Laboratories) in 2009. The testing was conducted at the state HIV/AIDS reference laboratory in Tallinn.

4.1.2. Statistical analysis

For data analysis primary descriptive variables included age of onset of injecting drug use, substances used, frequency and patterns of injecting drug use, risk behavior including sexual risk behavior, utilization of harm reduction services and HIV serostatus. Correlates with selected outcome measures (see below) were explored using the chi-square test for proportions, Fisher's exact test for small cell expected values (<5), the t-test for normally distributed continuous variables, the Wilcoxon rank sum test for non-normally distributed continuous variables and ordered categories together with multiple logistic regression analysis to assess confounding and interaction between variables. Odds ratios (OR) and adjusted odds ratios (AOR) are reported together with the 95% confidence intervals (CI).

Main outcome measures:

- For analysis in Paper I, the main outcome measure was age at IDU initiation. IDUs were categorized into two groups, "early initiators" who reported starting injecting drug use at 15 years or younger and "later initiators" starting injecting at 16 years or older. At first, analysis was carried out separately in the samples of 2007 and 2009, to check if there were differences between the samples; factors used in the analysis did not differ between the study years and therefore in the analysis, presented data from 2007 and 2009 were combined to increase the power of the analysis. AORs were calculated using length of injecting career and study year as control variables in a logistic regression model. To assess the association between HIV serostatus and early injecting initiation, logistic regression analysis was used with serostatus as an outcome measure and control for the effect of variables representing characteristics and events associated with beginning to inject that would have likely occurred before HIV infection and duration of injecting.
- In Paper II the mode of drug use administration (exclusive IDU, non-exclusive IDU) was selected for main outcome measure; subjects were classified into exclusive injectors (who reported only injecting drug use in the six months prior to the interview) or non-exclusive injectors (who reported injecting plus other routes of drug administration in the six months prior to the interview). Using multiple routes was defined as injecting during the last six months plus at least monthly use of at least one illicit drug other than by injection. Marijuana use was included as non-injecting drug use, but alcohol use and cigarette smoking were not. HIV serostatus, risk behaviors and characteristics were compared between the two groups. AORs were calculated using a logistic regression model, adjusted for gender, age, employment status, age at IDU initiation, years injecting and frequency of injecting per day.
- In Paper III, the primary source for clean syringes was selected for an outcome; respondents were categorized into two groups, pharmacy or

SEP (which included IDUs who got their syringes from SEP outreach workers) based on their self-reported main source for clean syringes within the previous six months. Multivariate analysis was conducted to explore factors associated with using pharmacies as a main source of syringes. AORs were calculated using gender, age, employment status, duration of injection career and frequency of injecting per day as control variables in a logistic regression model.

Statistical analyses were carried out using Stata 9 for Windows software (Stata 2005). RDS analysis Tool v. 5.0.1 was used to calculate homophily to examine for possible recruitment bias (Volz et al., 2007).

Ethical approval was obtained from the Tallinn Medical Research Ethics Committee (in 2007) and from the University of Tartu, Estonia (in 2009).

4.2. Formative research

Qualitative research is recommended during early phases of intervention development, and is used to gain insight into people's attitudes, behaviours, value systems or lifestyles (Mack et al., 2005; Morgan 1988). Focus groups can help to determine a broad range of views on a specific topic, and the opportunity for group interaction stimulates conversation and reactions. To inform the research, interpretation and decision making focus groups both with target group members (IDUs) and service providers (pharmacists) were conducted.

For Paper II, qualitative research including focus groups with IDUs were conducted. A total of 16 IDUs took part in four focus groups held between December 2009 and January 2010 in Tallinn. Focus group participants were recruited via a drop-in center and SEPs. The groups were run by trained moderators using a semi-structured guide. The focus group discussions were audio recorded with participants' consent, and recordings were transcribed. Sources of qualitative data included notes, summaries, and transcriptions. Content and themes emerging from the qualitative data were analyzed by project staff to guide the analysis and interpretation of the survey findings. Information was gathered to determine: (1) why some IDUs are exclusive injectors and some prefer multiple routes of administration; (2) which drugs are administered; (3) all possible routes of administration. Sexual behavior was not addressed in the focus groups. Informed consent was obtained from the participants. Focus groups were held in Russian, as the majority of IDUs are Russian speakers, and were translated into Estonian for analysis.

Paper IV based on the focus groups with pharmacists and IDUs. A total of 140 pharmacies were identified in Tallinn and a random sample of 70 pharmacies was selected. Pharmacists from the selected pharmacies were invited to participate in focus groups through telephone contact with one of the researchers. Respondents were offered gift cards worth 300 Estonian Kroons

(around 19 Euros) for their time and contribution to the study. Discussions focused on: (1) background attitudes and beliefs about HIV/AIDS, IDUs and SEPs; (2) syringe sale practices and attitudes to selling syringes to IDUs; (3) involvement of pharmacies in HIV prevention and their willingness to cooperate.

IDUs were recruited via a drop-in center which provides services for IDUs from all over Tallinn and which has previous experience in accessing IDU networks. IDU respondents were offered gift cards worth 100 Estonian kroons (around 6 Euros) for their time and contribution to the study. Discussions focused on: (1) possible sources for clean syringes and attitudes toward SEPs; (2) experiences of syringe sale practices in pharmacies; (3) suggestions about involving pharmacies in HIV prevention.

There were six focus groups with pharmacists and IDUs, held from January to May 2008 in Tallinn. Three focus groups were with pharmacists, where a total of 19 participants took part. In three focus groups with IDUs, a total of 15 individuals participated.

Focus groups generally lasted one hour and were conducted in Estonian or Russian depending on the language preferred by the participants. Informed consent was obtained from the participants. A semi-structured guide was used for conducting the focus groups. All interviews were audio-taped and transcribed. Focus groups held in Russian were translated into Estonian for analysis. Data from the transcripts was first coded according to the main study questions. After a second reading, the researcher formulated subcategories for each main theme. After a third reading, the researcher selected subcategories depending on how frequently they appeared in the transcripts. Initial coding was done by one researcher, after that second researcher read through the initial coding, where coding disagreements were identified the topic was recorded based on discussion between the researchers. Both researchers were present in all focus groups. The specific quotes reported in the results were chosen to reflect common attitudes.

Analyses were carried out using NVivo 8 software (NVivo 2008).

The Ethics Review Board at the University of Tartu approved the studies.

5. RESULTS AND DISCUSSION

5.1. Characteristics of participants

IDUs who participated in the studies in 2007 and 2009 in Tallinn were mainly Russian-speaking males with mean age of 27 years. Over 70% had been injecting for more than five years, the primary drugs injected were fenatnyl and amphetamine. The frequent use of fentanyl is the cause of high number of overdoses, more than 60% of respondents had experienced a non-fatal overdose. About third of IDUs had shared syringes during last six months and more than half of them were HIV seropositive. Main characteristics of study participants are described in the Table 2.

Table 2. Main characteristics of IDUs in Tallinn, in 2007 and in 2009 studies

	2007			2009		
	n	%	95%CI	n	%	95%CI
<i>Age (mean; SD)</i>	(26.5; 5.7)			(27.7; 5.5)		
<i>Gender:</i>						
Male	294	84	80–88	272	82	78–86
Female	56	16	12–20	59	18	14–22
<i>Ethnicity:</i>						
Russian/Russian speaking	286	85	81–89	282	93	90–96
Estonian	51	15	11–19	20	7	4–10
<i>Educational level (years):</i>						
10–12	155	45	40–51	168	51	45–56
≤9	186	55	49–60	163	49	44–55
<i>Main source of income in last 6 months:</i>						
Regular or temporary job	187	53	48–59	112	34	29–39
Other*	163	47	41–52	219	66	61–71
<i>Having health insurance:</i>						
No	196	57	51–62	179	54	49–60
Yes	150	43	38–49	151	46	40–51
<i>Drug use initiation:</i>						
By other means of administration	238	68	63–73	198	60	54–65
Injecting	112	32	27–37	133	40	35–46
<i>Duration of injecting career:</i>						
0–2 years	40	11	8–15	23	7	4–10
3–5 years	65	19	15–23	46	14	10–18
6–10 years	156	45	40–50	119	36	31–41
≥11 years	87	25	21–30	143	43	38–49
<i>Frequency of injecting during last 4 weeks:</i>						
Less than daily	109	31	26–36	205	63	57–68
Daily	241	69	64–74	122	37	32–43

	2007			2009		
	n	%	95%CI	n	%	95%CI
<i>Main drug injected during last 4 weeks:</i>						
Fentanyl	249	72	67–77	169	55	49–61
Amphetamine	90	26	22–31	85	28	23–33
Other	5	2	0.5–3	52	17	13–22
<i>Ever overdosed:</i>						
No	128	37	32–42	107	32	27–38
Yes	222	63	58–68	224	68	62–73
<i>Sharing syringes during last 6 months:</i>						
No	223	64	59–69	227	70	64–75
Yes	124	36	31–41	96	30	25–35
<i>HIV serostatus:</i>						
Negative	157	45	40–50	164	50	44–55
Positive	193	55	50–60	167	50	45–56
<i>Ever had HIV test:</i>						
No	52	15	11–19	44	13	10–17
Yes	297	85	81–89	286	87	83–90
<i>Ever received drug-related treatment:</i>						
No	214	61	56–66	179	54	49–60
Yes	136	39	34–44	152	46	40–51
<i>Ever been in prison:</i>						
No	146	42	36–47	136	41	36–47
Yes	204	58	53–64	195	59	53–64

* “Other“ means government benefits, spouse, partner, relative or friend’s income, street begging, selling drugs, sexs for money or stealing.

5.2. Initiation of drug use and possible consequences of early initiation into injecting drug use (Paper I)

The mean age of starting to inject drugs in the 672 current IDUs included in the study was 18 years with a range of 9 to 42 years. Almost a quarter (23%; n=156) reported early initiation (i.e at or below 15 years of age). The numbers of early and later initiators by calendar year are presented in Figure 2. Some similarities can be observed in the curves for those with very young age and those with older age at first injection. Namely the rapid rise in the mid and late 1990s and highest numbers of IDU initiators in the years 1996 to 2000. Since the 2000s, the number of early initiators declined steeply while the numbers of later initiators remained relatively unchanged. A steady increase in the number of early injectors from the 1990s until 2000 coincides with the period of transition when Estonia faced major socio-political and economic changes after the break-up of the Soviet Union.

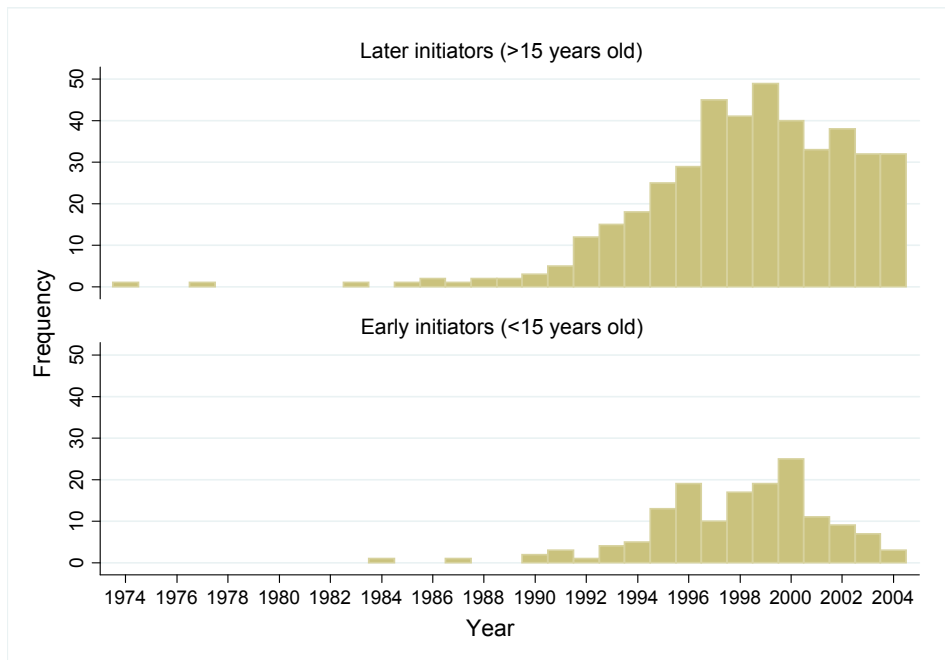


Figure 2. Number of late- and early-injecting initiators beginning injecting by calendar year.

IDUs initiating injection early differed significantly from their older initiate counterparts, namely by exhibiting higher risk behaviour both at the time of initiation and later in their IDU-career. According to 2009 study (there were no tobacco and alcohol use questions in 2007 study questionnaire) early initiators were younger as regards their first tobacco use (the mean age 10.3 vs 12.7 years, $p < 0.001$) and their first alcohol use (the mean age 12.3 vs 14.2 years). Being younger at first use of either tobacco ($r = 0.4$, $p < 0.001$) or alcohol ($r = 0.4$, $p < 0.001$) was positively correlated to first use of illicit drugs. Overall smoking prevalence among IDUs was 99% and 51% reported alcohol use at least once a week; there were no differences between early versus later initiators.

Early initiators had a three times shorter interval between initiation of illicit drug use to escalation into injecting drugs (mean of 0.5 vs 1.6 years, $p < 0.001$). In the long term, early initiation was associated with socio-demographic factors (e.g. lower educational level, being currently unemployed) and high risk injection behaviour (e.g. higher intensity of sharing syringes and paraphernalia) (Table 2 in Paper I). The early initiators also had significantly higher HIV seropositivity (AOR 2.12; 95%CI 1.45–3.12). These findings suggest some important implications for the development of interventions.

There are implications for health educators who are developing and implementing prevention programs. A recent study among Estonian teachers revealed that teachers were uncertain in what form and to what extent specific

subjects regarding drug education should be addressed and exaggerating the dangers of drug use were considered effective (Vorobjov et al., 2011). ESPAD surveys results – higher proportion of lifetime use of illicit drugs (including cannabis) in Estonia than European average proportion – supports the evidence that drug education stressing the dangers of drug use do not have effect on the youth's behavior (Faggiano et al., 2008). Instead, drug prevention programs for youth should provide accurate information with teaching resistance skills using social influence approaches and normative education (Babor et al., 2010). Due to the strength of the associations between several variables associated with early age of onset of substance use and other health risk behaviours among middle school students, comprehensive prevention programs should be initiated during elementary school and continued at least through middle school (Du Rant et al., 1999, Kokkevi et al., 2006). In addition, programs which provide alternative activities, such as family and/or community based interventions or mass-media campaigns, can be helpful, although there is little evidence of their effect (Babor et al., 2010).

There are implications for public health professionals and for primary health care providers. For example, there should not be any age restrictions on access to harm reduction services such as syringe exchange and substitution therapy (EHRN 2009). In addition it is common that children with substance abuse problems are often co-morbid with anxiety, depression, attention deficit hyperactivity disorder, or some other psychiatric disorder (Deas 2006; Shrier et al., 2003). Psychiatric disorder when neglected in childhood may lead to adolescent illicit drug use, therefore screening for substance use is important even in young adolescence. Interventions should not only focus on helping patients discontinue their drug use, but also address those factors in children's lives that are associated with the drug use, which may require the help of mental health care professionals (Du Rant et al., 1999; McLellan & Meyers 2004; Winters 1999).

There appeared multiple adverse health consequences – HIV infection in particular – associated with early initiation into drug injecting in Estonia that emphasize the need for early intervention efforts targeting young people at risk of early initiation into drug injecting and policies aimed at delaying the age of starting drug use, including injecting drug use, which may contribute to reducing risk behaviour among IDUs.

5.3. Routes of drug administration, related risk factors and HIV serostatus among IDUs (Paper II)

Across the sample of 350 current IDUs, there was a small, but significant subset of IDUs (14%, n=49) who, besides injecting, administered drugs also by other routes. These IDUs who also used other routes were less likely to be HIV seropositive (AOR 0.49; 95%CI 0.25–0.97) and reported lower frequency of injecting (proportions of daily injectors 47% vs 72%, p=0.001). Our findings

were similar to the study among IDUs in New York City (Des Jarlais et al., 2011): injectors who reported intranasal heroin use in addition to injecting drugs were significantly less likely to be HCV seropositive than those who did not report intranasal heroin use (AOR 0.52; 95% CI 0.33–0.82). Thus, it may be suggested that substituting non-injecting drug use for injecting drug use may be having a protective effect against infection with blood-borne viruses among those who are not infected yet.

Those reporting other routes exhibited more risky sexual behavior. Namely, IDUs reporting multiple routes of drug administration were more likely to report multiple sexual partners in the previous 12 months (59% vs 43%, $p=0.033$) and a higher number of self-reported sexually transmitted diseases (20% vs 9%, $p=0.019$). Although non-exclusive IDUs had a lower HIV prevalence than exclusive injectors (35% vs 59%, $p=0.002$) the HIV prevalence was substantially high and warrants attention and measures to prevent the heterosexual transmission of HIV into the general population and raises the need for tailored harm-reduction services. Possible interventions for non-exclusive IDUs exhibiting high sexual risk behavior might include HIV testing with counseling; STI testing and treatment, and, in the light of recent studies, timely initiation of HAART, if infected, may further help to reduce sexual transmission of HIV (Cohen et al., 2011).

Although there were no differences between the exclusive injectors and injectors reporting multiple routes of administration in terms of the frequency of overdoses, a high overall rate of self-reported non-fatal overdoses (over 60%) requires attention. During the focus group interviews some IDUs reported that they try new drugs by other routes before injecting or start by injecting small amounts for precautionary reasons, when the strength or purity of the drug was not trusted. Nevertheless there is need for overdose prevention training among IDUs perhaps including greater access to naloxone (Green et al., 2008). At present, naloxone is available only in emergency care and there are no overdose prevention programs in Estonia.

The relevant message from this paper is that HIV prevention programs for IDUs need to address non-injection as well as injection drug-use. The substitution of non-injecting drug use for injecting drug use may be a potentially important new method for reducing HIV through sharing of injecting equipment. In addition to promoting alternatives to injecting, interventions might incorporate social marketing campaigns to reinforce the positive identity of non-injectors, non-injecting treatment options to encourage reverse transition or short-term prescribing to lower the tolerance (Southwell 2005).

5.4. HIV infection and risk behavior prevalence and utilization of harm reduction services by IDUs (Paper III)

Three hundred and fifty IDUs completed the questionnaire. A total of 99% answered that they had received new and unused syringes during the previous six months. The sources for new and unused syringes in that six month period were: pharmacies, 80%; SEPs, 72%; SEP outreach workers, 37%; friends, 23%; other drug users, 6%; drug workers and drug agencies, 4%; sexual partners, 2%; and street vendors, 1% (multiple responses allowed). Over 80% have had HIV testing prior to the study and about 40% reported having drug abuse treatment.

In a context of high HIV incidence and prevalence among IDUs, this paper investigated if there are differences between the individuals who primarily use SEPs compared with those who primarily use pharmacies as their source of sterile syringes in Tallinn and whether pharmacies could complement SEPs in dispensing syringes and other injecting equipment.

IDUs using mainly pharmacies were at a less “advanced” stage of their injection career. Pharmacy user group included a higher proportion of new injectors (those reporting injecting two years or less) (16% vs 6%, $p=0.002$). Also they reported lower injection frequencies: less likely to inject daily (62% vs 76%, $p=0.009$) and lower injecting frequency on the last day they injected (proportion of users reporting more than one injection per day 75% vs 89%, $p=0.002$), and fewer fentanyl users among pharmacy users (74% vs 85%, $p=0.015$).

New injectors create special problems for HIV prevention, they may increase the size of the local IDU population with increasing the need for prevention and treatment services. In addition they may not self identify as IDUs and may not fully appreciate the need to protect themselves against HIV and other blood-borne diseases, and may find HIV prevention and drug services difficult to access. Therefore pharmacies could be a key role in connecting IDUs to treatment and preventive services prior to a transition to riskier to riskier use of injection drugs. There are several examples in Europe, Australia, New Zealand, the United States, and also in Ukraine where pharmacies have been involved in providing services for drug users (Deren et al., 2003; Lurie et al., 1998; Matheson et al., 2002; Thein et al., 2003; USAID 2012). Despite some concerns for safety and about improperly discarded syringes, as well as undesired effects that drug users might have on the sensitivities of other business customers (Fuller et al., 2004; Lewis et al., 2002; Lurie et al., 1998; Taussig et al., 2002) it has been feasible to recruit pharmacists to provide services to IDUs (Matheson et al., 1999; Sheridan et al., 1997; USAID 2012) and to cultivate a public health perspective among pharmacists (Coffin et al., 2000; Rich et al., 2002; Taussig et al., 2002; USAID 2012).

As HIV and HCV prevalence were high in both groups the pharmacy group had somewhat lower odds for being infected with either HIV or HCV (AOR 0.54; 95%CI 0.33–0.87 and AOR 0.10; 95%CI 0.02–0.50, accordingly). But pharmacy users had close to two times higher odds of reporting multiple sexual

partners (AOR 1.88; 95%CI 1.17–3.04) and casual sexual partners (AOR 2.09; 95%CI 1.24–3.53).

These findings suggest that there are different groups of IDUs with different risk profiles and it may be useful for developing targeted interventions. Encouraging pharmacies not only to sell sterile injection equipment to IDUs, as a regulated alternative to SEPs, but also to provide linkages to other services, may be widely applicable in those areas where injecting drug use is a major driving force in HIV transmission. Strategies to expand syringe access should be combined with other harm reduction services to make both sources more effective and easily utilized.

5.5. Pharmacists role in HIV activities for IDUs (Paper IV)

All pharmacists in the focus groups had come into contact with IDUs at their workplace. It appeared that pharmacists saw themselves as part of the public health system and believed that HIV/AIDS was a serious social and public health issue, but held a strongly negative position toward IDUs and against the idea of free distribution of clean syringes or other injecting equipment and disposal of used syringes in pharmacies. Although selling syringes over-the-counter is allowed in Estonia, several pharmacist participants refused to sell syringes to IDUs. Counselling and health promotion was regarded as one aspect of a pharmacist's work, but there was a strong belief that pharmacies are not the right place for HIV/AIDS prevention. However, pharmacists agreed to make information leaflets available and inform IDUs about possible services, for example to refer them to the nearest SEPs, HIV testing or drug treatment centres. Resistance was explained by concerns that IDUs would steal from the pharmacy, endanger staff and scare away other customers, but not that syringe sales would increase drug use, as has been found previously (Farley et al., 1999; Lewis et al., 2002).

IDUs stated that pharmacies were convenient for acquiring syringes due to their extended opening hours and local distribution; however they have detected stigma from pharmacists and other customers. A positive attitude prevailed also toward SEPs: all IDUs in our study were aware of their existence and had used their services. As for weaknesses of SEPs, respondents mentioned the small numbers, limited coverage and operating hours. IDUs stressed the need for distilled water which could be sold for one-time administration, and other paraphernalia.

The specific quotes reflecting common attitudes about experiences of syringe sale practices in Estonia are presented in Box 1 and suggestions about the involvement of pharmacies in HIV prevention are presented in Box 2.

Box 1. Experiences of syringe sale practices in pharmacies

Pharmacists:

Quotation 1: "...Many pharmacies do not sell syringes any more, it is better to lose two junkies than all your customers..."

Quotation 2: "...Our price policy is that a syringe costs [a high price]. We do not get so many addicts that it would disturb our normal work routine..."

Quotation 3: "...I sell syringes, but I am selective about whom I sell to, there is a very big difference who is buying"

IDUs:

Quotation 4: "... We will buy syringes here, on the spot, when we need them... Who will go so far? ..."

Quotation 5: "...Exchange points are open at certain times. But what do you do in the evening? You go to a pharmacy that is open 24 h, but they do not sell syringes to you..."

Quotation 6: "...You go to a pharmacy, want to buy syringes and they tell that we do not sell syringes. All in all, they want to get rid of you, because you are an addict. But other people can buy syringes without any problems..."

Box 2. Suggestions about the involvement of pharmacies in HIV prevention

Pharmacists:

Quotation 1: "...We are not against informational materials, these could be placed on a separate table and anyone interested can take them..."

Quotation 2: "...I would firmly refer to them, please your SEPs are there and there..."

IDUs:

Quotation 3: "...Distilled water is needed, it plays a big part. Just in small ampules..."

Quotation 4: "...At a reasonable price, around a kroon, there would be plenty of buyers for this kit (containing syringe, needle, water, filter, sterile sponge)..."

The results from both the pharmacists and IDUs are valuable for understanding barriers and the potential improvement of harm reduction within pharmacies in Estonia. There are no formal or legislative obstacles for providing HIV prevention services for IDUs at pharmacies. Providing services to IDUs within pharmacy settings is contingent upon pharmacists and their staff receiving professional development trainings that cultivate sensitivity towards the needs and experiences of IDUs. Continuous education of pharmacists on drug use, HIV prevention issues and practical guidance on how to work/counsel an IDU client can remove some barriers. Pharmacists should be engaged in developing appropriate interventions, and selecting pharmacists who are motivated to work with IDUs and/or pharmacists from high drug use areas who could give the most benefit and allow positive experiences to build.

6. GENERAL DISCUSSION

Drug abuse is a significant problem in Estonia, associated with several health and social problems, which warrants attention on policy-makers level with the help of public health professionals to revise existing measures and find the best strategies for effective responses to this situation. Although there is no single or universal solution to the drug problem there are a number of evidence-based interventions to input into drug policy.

This thesis refers that there are distinct subgroups among people who inject drugs and who may need specific interventions. Adolescent risk-taking is a significant public health concern. Interventions to delay initial tobacco and alcohol use and to reduce the rapid transition to drug use including injecting drug use could have substantial public health benefits. Further development of the Estonian existing drug education program is needed. It should meet the attributes of evidence based knowledge with taking into account the actual situation surrounding youth drug use. Also should be suitable for the students' age and containing a detailed division of different issues by lessons and school stages. More attention should be paid at school level to selective prevention: to develop guidelines for coping with drug-related cases, prevention work with risk-group students and cooperation with organisations outside schools. Also family and parenting programs have demonstrated the effectiveness in reducing the onset of drug use (Babor et al., 2010). Similarly environment and classroom management programs, and teaching social or life skills, have shown a positive impact on adolescent behavior (Babor et al., 2010). Such interventions would need to focus on relatively young adolescents.

Based on the findings in order to help problem drug users to reduce the consequences of their drug use, the substitution of non-injecting drug use for injecting drug use may be a potentially important new method for reducing HIV transmission through multi-person use of drug injection equipment. Interventions promoting alternatives to injecting with social marketing campaigns to reinforce the positive identity of non-injectors and different treatment options to encourage reverse transition or short-term prescribing to lower the tolerance could be used in HIV prevention programs (Pates et al., 2005). In the presence of a high prevalence of injecting drug use and high HIV prevalence among IDUs in Estonia, there is a need for a comprehensive approach to find additional sources for acquiring syringes besides SEPs. One option could be engaging pharmacies in high drug use areas and /or pharmacists willing to be public health educators to expand syringe access in combination with other harm reduction interventions. Altogether, further expanding syringe exchange programs by improving the quality of services offered is helpful.

In addition, interventions which have been effective in reducing risk behavior and harm among drug users are: methadone and buprenorphine maintenance, heroin substitution, opiate antagonists (e.g. naltrexone depot formulation), SEPs, antiretroviral therapy, HIV counseling and testing, psycho-social treatment, peer self-organizations, naloxone distribution (primarily for

opiate users with high risk of overdose) and brief interventions in general medical settings (Babor et al., 2010; Dutta et al., 2012). A recent review revealed that the combination of SEPs, medication-assisted therapy, anti-retroviral therapy and HIV counseling with testing in combination with expansion and high effectiveness yield in reduced HIV incidence and reduced levels of future morbidity, mortality and healthcare costs (Dutta et al., 2012). There are also resources available offering data through the Cochrane Collaboration, EXASS Network provided by Pompidou Group, EMCDDA's best practice portal and European Harm Reduction Network, useful for policy makers in the areas of drug-related prevention, treatment, social reintegration and harm reduction.

Given the severity of injecting drug use problem, Estonia would benefit from a consistent strategy regulating drug policy with the monitoring and evaluation of the actions. From an evidence based perspective, evaluation is an important tool for demonstrating possible effects or unintended consequences and necessary for forward planning (Pompidou Group & European Commission 2012). While drug policy will be regulated under the National Health Strategy addressing a wide-range of topics, it may entail loss of focus from drug related problems and delay of implementing necessary actions.

In conclusion, despite the efforts already made the existing drug policy measures and interventions should be reevaluated to make necessary amendments and formulation of new approaches to scale-up of harm reduction interventions. Under limited resources the evaluations of quality of interventions through developed quality control criteria are essential. Basing drug policy on scientific evidence will not eliminate drug use or the problems related to drug injecting, but reorienting drug policy towards evidence based approaches has the potential to reduce harms more effectively and would allow for the redirection of the vast financial resources towards where they are needed most.

7. CONCLUSIONS

1. Early initiation into injecting drug use is related to multiple adverse health consequences and doubled risk for HIV seropositivity. Evaluation of current preventive programs targeted at adolescents and developing new comprehensive evidence-based interventions to prevent drug use or delay the age of starting drug use, including the age of starting to inject drugs is crucial in Estonia. In addition there is a need for consistent programmes for youth at risk to identify potential risk factors and manage these.
2. IDUs who engage in non-injecting drug use may be reducing their risk of acquiring HIV through sharing injection equipment, but if already infected may be a critical group for sexual transmission of HIV to people who do not inject drugs. The substitution of non-injecting drug use for injecting drug use may be a potentially important new method for reducing HIV transmission through multiperson use of drug injection equipment.
3. IDUs who visit pharmacies represent a subgroup of an earlier stage of IDUs and had a lower prevalence of HIV than SEP users. Strategies to expand syringe access should be combined with other harm reduction interventions to make both sources of syringes more effective and easily used.
4. Pharmacists reported a readiness to sell syringes to IDUs, however, negative attitudes toward IDUs were identified as important factors restricting such sales. IDUs stated that pharmacies were convenient for acquiring syringes due to their extended opening hours and local distribution. Addressing negative attitudes through educational courses and involving pharmacists willing to be public health educators in high drug-use areas would improve access for HIV prevention services for IDUs. Pharmacies could be utilized as a gateway for drug users to enter into existing services targeted at IDUs.

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SUMMARY IN ESTONIAN

Uimastite tarvitamise riskitegurid ja kahjude vähendamise teenused süstivatele narkomaanidele Eestis: soovitused uimastipoliitika korraldamiseks

Kõikidest uimastite tarvitajatest ei saa regulaarseid tarvitajaid ja nad ei pruugi jääda sõltuvusse. Samas ei ole täpselt teada, miks mõnele tähendab uimastite tarvitamine järjest süvenevat protsessi, teisele mitte. On leitud, et uimastite tarvitamise alustamist mõjutavad enamasti sotsiaalsed tegurid, kuid probleemne tarvitamine on põhjustatud valdavalt psühholoogilistest mõjuritest (Frischer jt 2007). Süstimise alustamise riskitegurid võivad olla sotsiaaldemograafilised või individuaalsed, näiteks sugu (sagedasem meeste hulgas), vanus (≤ 16 aastat), koolist väljalangemine, kanepi ja *crack*'i suitsetamine, süstiva seksuaalpartneri olemasolu, kaasatus prostitutsiooni ning kokkupuude vägivallaga (Fuller jt 2001, Fuller jt 2002, Miller jt 2006, Neaigus jt 2001, Pates jt 2005, Van Ameijden jt 1994, Van Ameijden jt 2001). Samuti on süstimisele üleminek tõenäolisem regulaarse ja pikaajalise kokaiini, heroini või trankvillisaatorite tarvitajatel (Van Ameijden jt 1994, Van Ameijden jt 2001). Süstimisele üleminekut võivad mõjutada ka tugevama toime vajadus või soodsam hind (ehk sama toime madalama hinnaga) (Bravo jt 2003).

On leitud, et ühe ja sama narkootikumi erinevate manustamisviisidega kaasnevad ka erinevad riskid, kuigi tarvitamise sagedus ja annus jäävad samaks (Pates jt 2005). Mittesüstivatel narkomaanidel on väiksem risk nakatuda vere kaudu levivatesse haigustesse, väiksem üledoosi oht ja vähem probleeme sõltuvussündroomiga. Neil ei esine ka ägedaid või kroonilisi terviseprobleeme, mis süstimisega kaasnevad. Üldiselt mõjutab narkootikumide manustamise viisi kaks tegurit: peamine manustamisviis narkomaani sotsiaalses keskkonnas ning narkoturg, mis määrab kättesaadava aine tüübi (Pates jt 2005). Enamasti minnakse lahjematelt uimastitelt üle kangematele ja mittesüstimiselt süstimisele. Protsessi kirjeldab lävepakuteooria (ingl k *gateway effect*), mille järgi narkootikumide tarvitamisele eelneb suitsetamine ja alkoholi pruukimine, alustatakse kanepiga ning seejärel minnakse üle tugeva toimega narkootikumidele (Kandel ja Faust 1975).

Eestis on hinnanguliselt 13 000 süstivat narkomaani, mis moodustab ligikaudu 2,4% täiskasvanud elanikkonnast (15–44-aastased) (Uusküla jt 2007a). Ida- ja Lääne-Euroopa riikide võrdlus näitab, et süstiv narkomaania on enam levinud just Venemaal ja Eestis (Mathers jt 2010). Süstivad narkomaanid on peamiselt noored (keskmiselt 24–27-aastased) vene keelt kõnelevad mehed, kes elavad Tallinnas ja Ida-Virumaal (Lõhmus jt 2008, Lõhmus jt 2011, Uusküla jt 2005, Uusküla jt 2011). Uimastite süstimine koos süstimisvarustuse jagamisega on põhjustanud Eestis HIV-epideemia: eri uuringute hinnangul on 40–90% süstivatest narkomaanidest HIV-positiivsed (Platt jt 2006, Uusküla jt 2005, Uusküla jt 2007b, Wilson jt 2007). HIV-nakkuse kandjate arv Eestis on tõenäoliselt üle 10 000, samuti on Eestis registreeritud uute HIV-juhtude määr

kõrgeim Euroopas (UNAIDS 2011). Eesti narkoturu peamiseks narkootikumideks on fentanüül (77%) ja amfetamiin (23%). Kiirelt väljakujuneva sõltuvuse ja suure üledoosiohu tõttu peetakse fentanüüli üheks ohtlikumaks narkootiliseks aineks. Fentanüüli süstimine on seotud suurema HIV levimuse ning seda soodustava riskikäitumisega – süstla ja muu süstimisvarustuse jagamise ning riskialti seksuaalkäitumisega (Talu jt 2010).

Kirjeldatud olukord viitab jätkuvale vajadusele ennetavate ja kahjusid vähendavate teenuste järele. Ennetustegevused peaksid piirama eelkõige uimastite tarvitamise (sh süstimise) alustamist ja olema suunatud eri sihtrühmadele: noortele; mittesüstivatele narkomaanidele, et selgitada süstimisega kaasnevaid ohte; ning süstivatele narkomaanidele, et takistada süstimise levikut nende lähikondsete hulgas (Pates jt 2005). Piiramaks HI-viiruse, B- ja C-hepatiidi ning muude vere kaudu edasikanduvate haiguste levikut, propageeritakse süstivatele narkomaanidele steriilse süstimisvarustuse (süstlad, nõelad jm) kasutamist. Siiani on see toimunud valdavalt süstlavahetusprogrammide kaudu. Meetodi edukus sõltub selle vastavusest narkomaani vajadustele, mistõttu tuleks puhta süstimisvarustuse hankimiseks pakkuda erinevaid võimalusi (Coffin 2000; Obadia jt 1999). Üks võimalusi süstlavahetusprogrammide kõrval on süstlavahetus apteekides, mille edukust on rahvusvaheliselt tõendatud (Lurie jt 1998, Sheridan jt 1996, Thein jt 2003, USAID 2012). Apteegid on korraldanud nii steriilse süstimisvarustuse jagamist, kasutatud süstalde kogumist, meta-doonasendus- ja võõrutusravi kui ka nakatumisest hoidumise ja uimastite ohutuma tarvitamise õpetamist (Matheson jt 2002, Sheridan jt 1996, Strang jt 1996, USAID 2012).

Eeltoodust lähtuvalt oli töö üldeesmärk hinnata uimastite tarvitamist, riskikäitumist ja kahjude vähendamise teenuste kasutamist süstivate narkomaanide hulgas ning võimalike uute kahjude vähendamise teenuste rakendamise vajadust Eestis.

Uurimistöö erieesmärgid olid järgmised:

1. kirjeldada uimastite tarvitamise alustamist süstivate narkomaanide seas ning välja selgitada süstimise varajase alustamise mõju edasisele riskikäitumisele ning HIVi levimusele (I publikatsioon);
2. uurida seoseid uimastite eri manustamisviiside ja HIV-serostaatuse vahel ning välja selgitada seonduvad sotsiaaldemograafilised tegurid, eri manustamisviiside mõju uimastite tarvitamise riskiteguritele ja seksuaalkäitumisele süstivate narkomaanide seas (II publikatsioon);
3. välja selgitada riskikäitumise esinemine ja HIVi levimus ning hinnata kahjude vähendamise teenuste kasutamist ja vajadust nendel süstivatel narkomaanidel, kes hangivad süstlaid peamiselt apteekidest, ja nendel, kes teevad seda süstlavahetusprogrammi kaudu (Tallinna näitel) (III publikatsioon);
4. uurida nii apteekrite kui ka süstivate narkomaanide arvamusi, mis puudutavad apteekrite kaasatust HIVi ennetamisse süstivate narkomaanide seas, hinnata apteekrite võimalusi pakkuda süstivatele narkomaanidele

kahjude vähendamise teenuseid ning välja selgitada võimalikud takistused, mis võivad piirata süstalde müüki ja kahjude vähendamise teenuste pakkumist (Tallinna apteekide näitel) (IV publikatsioon).

Uurimistöö metoodika

Käesolev uurimistöö põhineb kahel läbilõikeuuringul (publikatsioonid I, II ja III) ja kahel kvalitatiivsel uuringul (publikatsioonid II ja IV).

2007. ja 2009. aastal Tallinnas korraldatud läbilõikeuuringutes osales vastavalt 350 ja 331 süstivat narkomaani. Uuritavate leidmiseks rakendati uuritavate poolt uuringusse kaasamise meetodit. Uuringutes osalemise kriteeriumid olid järgmised: vanus vähemalt 18 aastat, vene või eesti keele oskus, narkootikumide süstimine viimase kahe kuu jooksul ning võimelisus anda teadlik nõusolek. Iga uuritavaga tehti anonüümne intervjuu, et koguda andmeid sotsiaaldemograafilise tausta, süstiva narkomaania, seksuaalse riskikäitumise, kriminaalse tausta ning narkomaaniaravi kogemuse kohta. Samuti võeti vereproov HIV-vastaste antikehade leidmiseks.

Kvalitatiivsete uuringute käigus intervjueriti 16 süstivat narkomaani (II publikatsioon) ning seejärel 19 apteekrit ja 15 süstivat narkomaani (IV publikatsioon). Fookusgruppide intervjuerimisel kasutati poolstruktureeritud küsimustikku. II publikatsiooni koostamiseks koguti teavet järgmiste küsimuste kohta: (1) missuguseid uimasteid tarvitatakse, (2) kuidas erinevaid uimasteid manustatakse ning (3) miks mõned süstivad narkomaanid eelistavad ja kasutavad narkootikumide manustamise viisina ainuüksi süstimist. IV publikatsiooni koostamiseks koguti teavet järgmistel teemadel: (1) olemasolevad puhaste süstalde saamise kohad ja suhtumine süstlavahetusprogrammi, (2) süstlade ostmine apteekidest ning sellekohased arvamused ja kogemused, (3) soovitud apteekide kaasamiseks ennetustegevustesse ja kahjude vähendamise teenustesse. Intervjuud fookusgruppidega tehti eesti ja vene keeles, intervjuud lindistati ning hiljem transkribeeriti. Andmed kategoriseeriti alakategooriatesse, mis järgnevalt kodeeriti eesmärgiga kaardistada uuritava nähtuse omadused, et kirjeldada ja seletada antud nähtust.

Tulemused ja arutelu

Tulemustest selgus, et süstimisega alustatakse keskmiselt 18-aastaselt (vahemikus 9–42 eluaastat). Ligikaudu veerand uuritavatest vastas, et on alustanud süstimist nooremalt kui 15-aastaselt. Väga noori (alla 15-aastaseid) süstimisega alustanud oli kõige rohkem aastatel 1996–2000, praeguseks on nende osakaal mõnevõrra langenud ja stabiliseerunud. Väga noorelt alustanute hulgas oli rohkem madala haridustasemega isikuid ja töötuid ning nende riskikäitumise tõenäosus oli suurem. Kõnealune uuritavate grupp oli märkimisväärselt varem hakanud suitsetama ja alkoholi proovima, samuti olid nad kaks suurema tõenäosusega HIV-positiivsed (kohandatud analüüsi põhjal).

Kirjeldatud tulemused näitavad, kuivõrd olulised on sekkumised, mis takistavad või lükkavad edasi uimastite tarvitamise alustamist. Noorte käitumise mõjutamisel on efektiivseks osutunud laiaulatuslike ennetusprogrammide elluviimine koolides võimalikult madalas õppeastmes, perekondade kaasamine ja lähikonnapõhised sekkumised (Babor jt 2010, Du Rant jt 1999, Kokkevi jt 2006).

On teada, et sageli võib lapsel või noorukil koos sõltuvusprobleemiga esineda depressioon, hüperaktiivsus, ärevushäire, keskendumisraskus või mõni muu psüühiline probleem, mis on viinud sõltuvusprobleemi tekkeni (Deas 2006, Shier jt 2003). Seetõttu on väga oluline probleemi varajane märkamine ning last ümbritsevate inimeste oskus probleemi ära tunda ja suunata laps vajaliku abini (eeldusel, et see on olemas ja kättesaadav). 2011. aastal uuriti Eestis alaealiste uimastisõltlaste tervishoiu- ja tugiteenuste vajadusi. Uurimistulemused näitasid alaealistele mõeldud ravikohtade vähesust ja pikki järjekordi, mis pärsivad alaealise probleemidele lahenduse leidmist.

Samuti on teada, et osa süstivatest narkomaanidest eelistab uimasteid tarvitada ainult süstimise teel ning osa neist kasutab teisi manustamisviise. Antud väitekirja analüüsist selgus, et narkomaanid, kes süstimise kõrval lisaks teisi manustamisviise kasutasid, olid 50% võrra vähema tõenäosusega HIV-positiivsed. Samas olid nad seksuaalselt aktiivsemad: neil oli enam seksuaalpartnereid ning nad olid sagedamini nakatunud seksuaalsel teel levivatesse haigustesse. Teiste manustamisviiside propageerimisega võib kaasa aidata HIVi leviku piiramisele nende süstivate narkomaanide seas, kes ei ole veel nakatunud. Samas HI-viirusega nakatunud, kes on seksuaalselt aktiivsemad, vajaksid enam HIVi ja teiste suguhaiguste testimise võimalusi, samuti ravi ja nõustamist. Uuemate teadusuuringute põhjal on teada, et antiretroviirusravi varajane alustamine võib vähendada HI-viirusega nakatumist seksuaalsel teel (Cohen jt 2011).

Selleks, et piirata HI-viiruse levikut süstivate narkomaanide seas, on Eestis rakendatud mitmesuguseid kahjude vähendamise teenuseid, enamasti süstlavahetust ja metadoonasendusravi. Üks võimalusi laiendada ennetusprogramme ning jõuda paremini sihtgrupini on apteekide kaasamine, mis on andnud häid tulemusi paljudes riikides, sh USAs, Inglismaal, Šotimaal, Austraalias ja Ukrainas (Deren jt 2003; Lurie jt 1998; Matheson jt 2002; Thein jt 2003; USAID 2012). Apteegid on korraldanud näiteks steriilsete süstalde müümist, juhendanud nakkushaigustest hoidumist ja uimastite ohutumat tarvitamist, jaganud süstimisvarustust ning pakkunud metadoonasendus- ja võõrutusravi (Matheson jt 2002; Sheridan jt 1996, Sheridan jt 2007; Strang jt 1996).

Intervjuudest süstivate narkomaanidega selgus, et puhtaid süstlaid saadakse peamiselt apteekidest või süstlavahetusprogrammi kaudu. Analüüsi tulemused näitasid, et süstivad narkomaanid, kes hankisid puhtaid süstlaid enamasti apteekidest, olid veel nii-öelda algajad ning süstlavahetusprogrammi eelistajatega võrreldes oli nende hulgas vähem ka HIV-positiivseid. Tulemus lubab arvata, et apteekide kaasamine aitaks leida kontakti süstivate narkomaanidega, kellel võib-olla puudub kokkupuude asjakohaste riiklike teenustega ning võimaluse korral suunata neid teenuste juurde.

Süstalde hankimise koht sõltub selle lähedusest ja mugavusest. Fookusgrupis osalenud süstivate narkomaanide sõnul ei ole süstlavahetuspunkte piisavalt, mistõttu võiksid sarnaseid teenuseid pakkuda ööpäeva läbi avatud apteegid. Enamik apteekritest oli nõus müüma narkomaanidele steriilseid süstlaid, aitamaks piirata nakkushaiguste levikut. Apteekrite suhtumine süstivatest narkomaanidest klientidesse oli kahetine. Narkomaanide toime pandud vargused olid põhjustanud negatiivse suhtumise, samas peegeldus vastustest mõistmine, et need on haiged inimesed, kes vajavad abi. Apteekrite negatiivset suhtumist leevendaksid mõnevõrra koolitused, mis õpetavad narkomaanidega suhtlema, vallandamata nende agressiivset käitumist. Samuti vajaksid apteekrid rohkem teavet riikliku ennetustegevuse ja kahjude vähendamise teenuste kohta. Koostöö apteekritega aitaks luua lisavõimalusi narkomaanide riskikäitumise vähendamiseks. Hinnata tuleb ka apteegi klientide valmisolekut ja nõusolekut. Elanikkonna nõusolekut soodustaks asjakohane teavitamine ja teenuste läbimõeldud korraldus, näiteks eraldi ruumid või teenuse osutamine kindlatel kellaaegadel.

Järeldused

1. Väga varajane (15-aastaselt ja nooremalt) süstimise alustamine põhjustab mitmeid terviseriske, sh kaks korda suuremat riski nakatuda HI-viirusega. Eestis on vaja hinnata olemasolevaid noortele suunatud ennetusprogramme ning välja töötada uusi laiaulatuslikke tõenduspõhiseid ennetusprogramme, et vältida või edasi lükata narkootikumide tarvitamise alustamist noorte seas. Samuti on vaja süsteemseid ja järjepidevaid sekkumisi sagedasema riskikäitumisega noorte mõjutamiseks.
2. Süstivatel narkomaanidel, kes kasutavad uimastite tarvitamisel ka teisi manustamisviise, on väiksem risk nakatuda HI-viirusega. Samas nakatununa võivad nad kujuneda riskirühmaks, kes kannab viiruse seksuaalsel teel üldrahvastikku. Süstimise asendamine muu manustamisviisiga võib vähendada HI-viirusega nakatumist süstivate narkomaanide hulgas.
3. Süstivad narkomaanid, kes hangivad puhtaid süstlaid peamiselt apteekidest, on tõenäoliselt lühema süstimise "karjääriga". Samuti on HI-viirusega nakatunuid nende hulgas vähem kui narkomaanide seas, kes hankisid puhtaid süstlaid peamiselt süstlavahetusprogrammi kaudu. Kahjude vähendamise teenuste (sh süstlavahetusteenuse) laiendamine hõlbustaks vajaliku abi kättesaadavust süstivatele narkomaanidele.
4. Apteekrid olid valmis müüma narkomaanidele puhtaid süstlaid, kuid teatud juhtudel võib negatiivne suhtumine osutada takistuseks. Süstivad narkomaanid leidsid, et apteekide eelis süstlavahetuspunktide ees on apteekide suurem hulk ja pikemad lahtiolekuajad. Apteekrite negatiivset suhtumist aitaksid leevendada koolitused süstiva narkomaania olemuse, ennetustegevuste ja kahjude vähendamise teenuste kohta. Koostöö apteekritega, kes oleksid nõus osalema riskikäitumist vähendavate teenuste pakkumisel, aitaks luua vajalikke lisavõimalusi, et piirata HIVi ja teiste vere kaudu edasi-kanduvate nakkuste levikut.

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PUBLICATIONS

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Teadustöö kirjeldus

Peamised uurimisvaldkonnad:

- riskikäitumine süstivate narkomaanide hulgas ja nakkushaiguste levimus
- sõltlastele suunatud teenuste kasutamine
- uimastiennetus ja uimastihariduse edastamine

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