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Health Advice and Guidance on Injection Hygiene for Intravenous Drug Users

DEGREE PROGRAMME IN NURSING
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ABSTRACT

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Misusing intravenous drugs is a worrying public problem connected to many social and health issues. Intravenous drug abuse represents a huge challenge for the healthcare sector, and reducing the harms associated with injecting drug use is a key priority for protecting public health. Health injection advice can significantly reduce the risk of infections and health complications associated with unhygienic injection practices among IV drug users.

The project thesis is done in cooperation with Satakunnan Sininauha ry and Satakunta University of Applied Sciences. The purpose of the project is to produce an easy-to-understand guidance on injection hygiene for intravenous drug users. The objective is to provide a series of clear and practical guidance on injection hygiene for intravenous drug users to decrease injection infections. The target group are intravenous drug users, especially those IV drug users who mainly visit Satakunnan Sininauha.

The methodology used in this project is waterfall, which requires every step must be finished before going on to the next.

The final product is a printable English language guide and an electronic version on the website of Satakunnan Sininauha ry. It includes aspects of equipment preparation, hand cleaning and disinfection, solution preparation, how to select a healthy vein for injection, injection site disinfection, intravenous injection, needle disposal, and wound compression for haemostasis. It received positive feedback from the consultants and clients in Satakunnan Sininauha ry. Most participants believed the product could help target group change or improve their practice to some extent.

Keywords: hygiene, guidance, intravenous drug users

CONTENTS

1 INTRODUCTION

It is estimated that 500 000 Europeans, including approximately 15 000 Finnish people have injected illegal drugs in 2022. The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) states that Finland has one of the highest numbers of drug-related deaths among people under 25 years of age in Europe, proportional to the population. (European Drug Report, 2023) According to Finnish Institute for Health and Welfare, drug experimentations and uses among Finnish people have increased since the 1990s. Data collected in autumn 2022 shows that the increase has continued between 2018 and 2022, with more and more Finns aged 15-69 have personal experiences with drugs. (Karjalainen et al., 2023)

Misusing intravenous drugs is a worrying public problem connected to many social and health issues. Intravenous drug use is the injection of drugs directly into the bloodstream through a needle. It can cause a variety of skin conditions, increase the risk of infection, and lead to long-term complications or even death. Intravenous drug users may cross-use contaminated injecting equipment which can transmit blood-borne diseases such as HIV and viral hepatitis. Intravenous drug use allows the drug to enter the bloodstream directly, causing a strong high, which greatly increases the risk of overdose and death. (Gateway Foundation, n.d.) Drug use leads to changes in some brain areas and functions that are the same as those of other mental illnesses such as schizophrenia, anxiety disorders or impulse control disorders, triggering a potential predisposition to develop that mental disease. (National Institute on Drug Abuse [NIDA], 2021)

Intravenous drug abuse represents a huge challenge for the healthcare sector, and reducing the harms associated with injecting drug use is a key priority for protecting public health. Health injection advice can significantly reduce the risk of infections and health complications associated with unhygienic injection practices among IV drug users. (European Monitoring Centre for Drugs and Drug Addiction, 2023)

This project thesis is done in cooperation with Satakunnan Sininauha ry, which is a non-profit organization founded in 1965. It helps alcohol and drug addicts reduce their substance abuse and addiction problems, provides accommodation for chronic homelessness, offers them mental support and help with employment, supports their daily needs, and assists them in reintegrating into normal life. (Porin Sininauha, n.d.)

The purpose of the project thesis is to produce an easy-to-understand guidance on injection hygiene for intravenous drug users. The objective is to provide a series of clear and practical guidance on injection hygiene for intravenous drug users to decrease injection infections.

2 THEORETICAL BASIS OF THE PROJECT

2.1 Key concepts

Hygiene

According to World Health Organization, hygiene refers to conditions and practices that help to maintain health and prevent the spread of diseases. When it comes to IV drug users, good hygiene practice is more about sterilization of equipment, hand hygiene and sanitation before handling, preparing, or using drugs. (World Health Organization, n.d.)

Guidance

In Oxford Learner's Dictionary, guidance means “help or advice that is given to somebody, especially by somebody older or with more experience”. (Oxford Advanced Learner’s Dictionary, n.d.)

Intravenous drug users

Those who use a syringe to inject narcotics directly into the blood vessels are known as intravenous (IV) drug users. When a medication is injected, it enters the bloodstream right away, speeding up its delivery to the brain. Shooting up a narcotic like heroin might increase the user's risk of overdosing and developing an addiction because of the quickly perceived, highly rewarding effects. (Geoffrion, 2023.)

2.2 Methods used in the project

We employ a waterfall methodology in our project. Every step in the Waterfall workflow must be finished before going on to the next. Although there are many different kinds of project management approaches, Waterfall is a good fit for projects with well-defined goals from the start. Every task in the waterfall methodology is linked together by dependencies. This implies that before starting the next work, the previous one must be finished. This guarantees that the job is completed on schedule and encourages effective communication all along the way. This method makes it easier to create a project plan that is well-planned and dependable. (Larson & Gray, 2021, p.565)

2.3 Previous studies and projects

Burt and Thiede (2016) conducted a study about the sharing of syringes and other injection supplies among injectable narcotics users in Seattle and Washington between 1994 and 2013. In the early studies, there was a greater level of needle sharing, which gradually decreased. Simultaneously, less other injection equipment was shared. Even after risk-associated variables were controlled for, these tendencies remained. In parallel, there was a decrease in the number of documented HIV cases among injecting drug users and an increase in the quantity of needles given out by neighbourhood needle exchanges. The apparent long-term decline in injection equipment sharing points to a significant accomplishment in the fight against injection equipment sharing in public health initiatives. (Burt & Thiede, 2016.)

Research by David and Daily (2017), investigated the relationship between NEP utilization and HCV control among injectable drug users using a meta-analysis methodology. Six research with 2,437 individuals were considered out of the 555 citations examined. There were several issues raised, including participant representation, a lack of clarity in the confounding factor adjustment, bias from participant nonresponse, and loss of follow-up. NEP's effect on drug users' ability to prevent hepatitis C is still unknown. To shed light on this matter, well-conducted research employing standardized metrics and assessment techniques is required. (Davis et al., 2017.)

Guichard and Lert (2015) did a study, which examined variables associated with injection risk behaviours during their first injection among injection users who started using injections after 2000. The findings point to the necessity of creative harm reduction initiatives aimed at a range of contexts and demographics, such as young people and different party scenes. It is vitally necessary that current injectors receive education to safeguard themselves and anyone they might introduce to injection. (Guichard et al., 2015.)

For the Care and Prevent project, Harris and Scott (2020) created a questionnaire and conducted in-depth qualitative interviews with drug injectors in London. The participants gave specifics about their medical issues, care-seeking behaviours, drug use, injecting, and living situations. Drug users who are homeless or live in unsuitable housing do not currently have access to harm reduction equipment and safe injecting resources. Injection preparation with non-sterile source of water may lead to fungal and bacterial infections, especially if heat is not applied. It is imperative that the homeless have access to skin cleansing products and water for injections, and that prevention campaigns are specifically designed to address the reality faced by those who mix and inject narcotics in public areas. (Harris et al., 2020.)

Thakarar (2023) studied structured conversation guidelines that are intended to guide discharge decisions and maybe increase patient involvement in the process. The purpose of the Dialogue Guide is to explore its viability and acceptability as well as to look at experiences, outcomes, and lessons discovered through its use. Four infectious disease physicians and eight patients tested the conversation guide. The majority of participants concurred that it was critical to include the patient's values and preferences in the conversation guide. Patients felt more in control of their care after being discharged, but they also believed that their autonomy had grown. Physician participants suggested two areas for improvement: the length of the guidelines and the information related to pain treatment. (Thakarar et al., 2023.)

3 PURPOSE AND OBJECTIVES OF THE PROJECT

The purpose of this project thesis is to produce an easy-to-understand guidance on injection hygiene for intravenous drug users.

The objective is to provide a series of clear and practical guidance on injection hygiene for intravenous drug users to decrease injection infections.

The project tasks include as follows:

1. Searching relevant theoretical knowledge
2. Taking picture descriptions containing the required disinfection, injection materials, and the injection procedure from start to finish
3. Producing the product— a guide both in a paper version and an electronic version on the website.
4. Writing the thesis

4 IMPLEMENTATION OF THE PROJECT

4.1 The description of the target group

A target group could be the clients, sponsors, or anyone else who is interested in or needs project information to make decisions (Larson & Gray, 2021, p.125). The target group of this project are intravenous drug users, especially those IV drug users who mainly visit Satakunnan Sininauha as it is the cooperation organization in this project. The final product is aimed at helping the target group members gain health advice on injection hygiene.

4.2 Resources and risks

A SWOT analysis is a strategic planning tool for evaluating the strengths, weaknesses, opportunities, and threats in a project. It can be divided into evaluating internal and external factors (Table 1). Internal factors are aspects that can be controlled, including strengths and weakness. External factors, on the other hand, are not controlled. These are opportunities and threats. (Winter, 2023.)

Table 1. SWOT Analysis of the project

Internal	Strengths: Available resources: computers, cameras on the smart phones, the Internet, the printers in SAMK, the simulation room in SAMK and the materials needed for the intravenous injections from the simulation room	Weakness: To ensure the high-quality of the picture descriptions on the injection guidance, it might take a big effort for the authors.
External	Opportunities:	Threats: Time management. The project needs to be finished

	The authors can get help from the supervised teacher and the library service from SAMK. Thesis writing requires deep research, and extensive literature searches improve the ability to search, evaluate, and synthesize information from a variety of sources. Reading medical researches on injections deepens the authors' expertise.	before the end of this year. In the meantime, the two authors will take several clinical practices in different time, it requires more communication between the authors to maintain a good collaboration.

4.3 The stages of the project

The PMI (Project Management Institute) defines the five project management phases including project initiation, project planning, project implementation, project monitoring, and project close to make up the project lifecycle. (Eby, 2023.)

The first stage is the project initiation. It was initiated in August 2023 with a thesis topic provided by the Satakunta University of Applied Sciences and Satakunnan Sininauha ry. In this stage, the authors got familiar with different types of bachelor thesis and project methodology. Meanwhile, the purpose and objectives of the thesis were defined. The authors also gathered a number of research on infections related to intravenous injections, especially their situations in Europe and in Finland. This stage of the project lasted until the end of December 2023.

In the project planning phase, the authors refined the purpose and objectives of the project, analyzed the project tasks and target groups, and defined the project methodology. The available resources and possible risks of the project were analyzed. Project stages, timelines and assessment plans were developed. The authors also got help with literature retrieval from SAMK library's infotelakka. The first thesis plan was submitted at the end of January 2024 and after several revisions, it was finally approved by the supervisor at the beginning of March. After that, the authors informed the contact people from Satakunnan Sininauha about the project plan and got an agreement on the preparation of a thesis from SAMK.

In the project implementation stage, the authors began to work on the project product, also known as the injection guidance. Before formally starting to make the product, the authors reviewed some relevant injection materials from the different databases and other resources online. Unfortunately, most of the instructional materials on how to administer intravenous injections are aimed at nurses rather than intravenous drug users, so the content from them is not entirely appropriate for the target group. The authors then tried to put themselves in the role of intravenous drug users and think about how their injections would be different from those administered by nurses. Compared to regular injections, the authors think that this injection guidance may include the medication preparation aspect. Because intravenous drug injectors usually do not have a solution that has been prepared in a standardised manner and they lack the knowledge of how to make it. As well, the hygiene of the solutions is an important factor in injection hygiene. After identifying what is included in the injection guidance, the authors booked the SAMK simulation room and took pictures for the injection guidance in May. The guidance draft was finished and sent to the supervisor and the contact person in Satakunnan Sininauha in August. The included pictures and injection instructions are organized in sequence of the procedure so that the readers can follow them step by step. The final product was completed in September after corrections based on the comments from the supervisor and the contact person. In the meantime, a feedback questionnaire about the product was made and got approved by the supervisor.

In the project monitoring stage, the authors presented the final product (Appendix 1) in the two units of Satakunnan Sininauha in October 2024. The feedback forms were also sent to the consultants and the clients in Satakunnan Sininauha.

When the project product is ready, the project turns into the closing stage. The authors evaluated the project by analyzing the responses from feedback forms and self-evaluation. The authors started to make the final thesis at the end of October 2024.

5 EVALUATION

5.1 Evaluation of the project and product

In the last stage, authors reviewed the whole work by journaling and backtracking. Two times power point presentation were presented in Satakunnan Sininauha Ratapiha apartment and Varikko apartment separately. Participants included staff and clients of Satakunnan Sininauha. The presentation introduced the topic, purpose and objectives, product of the project and assessment plan. Then the feedback forms were given to participants to fill. The form, which was created by authors, is attached as Appendix 2. The form evaluated five parts of the project: clarity, visual appeal, practicality, behavioural effect and suggestion.

Totally 13 participants had filled feedback form. About clarity, description ”The language is simple and easy to understand” was graded an average of 8.6/10 by participants. There are some professional medical words in the guidance, which makes it less easy to understand.

About visual appeal, description “The pictures are clear and helpful to understand the instructions better” was graded an average of 9.15/10. The pictures of guidance were taken by authors originally and match the text well.

About practicality, “The guidance is realistic and easy to follow in the situation” was graded an average of 8.19/10. The guidance was made strictly by following the injection procedure, which is difficult and demanding for drug users. They usually inject in random environments, where clean and full equipment is not available. This fact could be taken into consideration in future possible improvement.

Regarding behavioural effect, the description ”The brochure would motivate the intravenous drug users to change or improve any of their current practices” was graded an average of 8/10. Most participants believe the guidance can help the target group to some extent.

The last part is the suggestion. One participant believed that an attached video could help users understand the guidance more clearly.

The authors tried to use simple, straightforward language and clear, up-close pictures in the injection guidance to ensure that the guidance is easy to understand and follow. The project is to produce a printable English language guide. The suggestion of making a video of the feedback maybe can serve as an area for further study.

5.2 Self-evaluation

This project greatly improved the authors' professional expertise, especially in the area of intravenous injection. By focusing on developing health advice and guidance on injection hygiene for intravenous drug users, we have deepened our understanding of safe and hygienic injection techniques, harm reduction strategies, and users' education.

Working on this project has also profoundly influenced multiple aspects of our academic skills. Throughout the process, the authors gained a deeper understanding of how to search, evaluate, and collect evidence-based research from databases, thereby improving our literature retrieval and critical thinking skills and ability to synthesise research findings. One difficulty we met is that some resources are written in Finnish and the authors lack sufficient Finnish language skills. The authors' ability to search, use and translate Finnish sources has upgraded.

In addition, the authors have improved skills in cohesion, style and language in academic writing. The authors practised the skill of how to express complex ideas concisely. The thesis writing has also enhanced our knowledge of proper citation and reference formatting, which is critical for maintaining academic integrity and supporting the work’s credibility.

The authors tried several programs to make a clear typography of the product, such as Canva, PowerPoint, Adobe Photoshop and Word. After comparing, we decided to use Word to illustrate the product because of its widespread usability, easy to use, and free of charge.

The biggest struggle in our project is time management. Because the authors still have ongoing courses, as well as multiple clinical practices. Balancing these with the conduct of the thesis project is the biggest hurdle. The guidance draft was planned to be finished in June 2024, but unfortunately, the authors did not finish it until August because of poor time management and personal reasons.

The collaboration between the authors went well. The authors distribute the work equally. Through instant messaging software and Hill's online meeting, the team members received timely communication, even though the two authors were in different cities.

The project also reminded us to think about the unique challenges faced by intravenous drug users. These skills are essential to providing compassionate, patient-centred care, and this project has strengthened our ability to apply theoretical knowledge to practical nursing care.

In conclusion, this project not only improved the authors' professional expertise in injecting, academics but also developed essential skills such as paying attention to detail, considering nursing ethics and patient-centred care, self-motivation and teamwork, which gave us a good foundation for possible future nursing work and further study.

5.3 Reliability of the project

According to the Finnish National Board on Research Integrity (TENK), the ethical principles of reliability, honesty, respect, and accountability need to be followed throughout the progress of any research. (Finnish National Board on Research Integrity, 2023, p.11.)

When working on the thesis, the authors followed the ethical guidelines of the University of Applied Sciences for thesis writing. Ethical considerations are essential at every stage of a thesis to ensure its integrity, respect, and responsibility. Authors adhered to standards of scientific practice and knowledge during the planning, implementation, and evaluation of projects. While doing the project, the authors showed respect for each other. (Finnish National Board on Research Integrity, 2023, p.13.)

While doing literature retrieval, the authors used reliable evidence-based literature. Sources were scientific and from reliable databases, and the authors only chose the latest research sources. It is important to respect the original author of the publication and avoid plagiarism by citing the publication properly. (Finnish National Board on Research Integrity, 2023, p.17.) The authors followed the project methodology to achieve the required quality standards and produced the final product, a guidance on injection hygiene for intravenous drug users.

5.4 Ethical viewpoints of the project

As authors of the project thesis plan, have acquired approvement of the project from the cooperation organization, Satakunnan Sininauha. After having presented the purpose, plan, and product of the project, fully understanding and consent were established as a prerequisite of gaining approval from the cooperation agent. As follows, the agreement of preparation of the thesis has been signed by both students and Satakunta University of Applied Sciences. The agreement claims about rights and responsibilities, including terms of publication of results and confidentiality. (Arene, n.d., p.6.)

Based on the thesis topic, ethical issues are especially important and sensitive. Drug users are a marginalized group in society, and they may have suffered much in life. Non-discrimination has been presented throughout the whole process.

In the evaluation stage of the project, the authors gave a presentation and communicated with the consultants and clients in Satakunnan Sininauha to get their feedback about the product. Before the discussion, those participants had been fully informed about the purpose and goals of the project.

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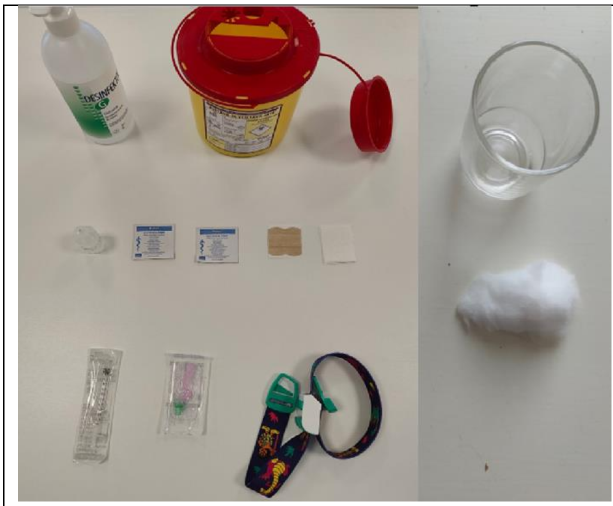
APPENDIX 1: FINAL PRODUCT

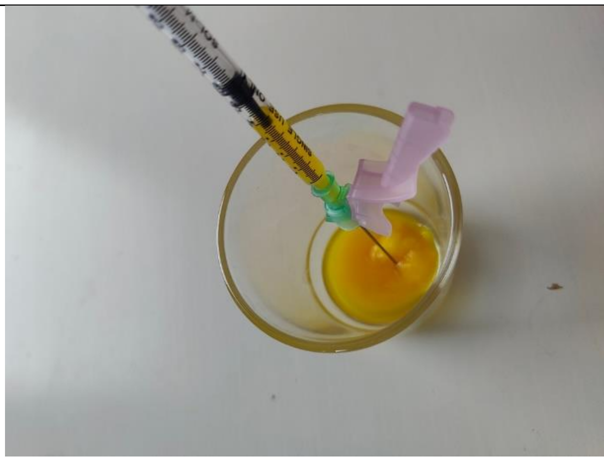
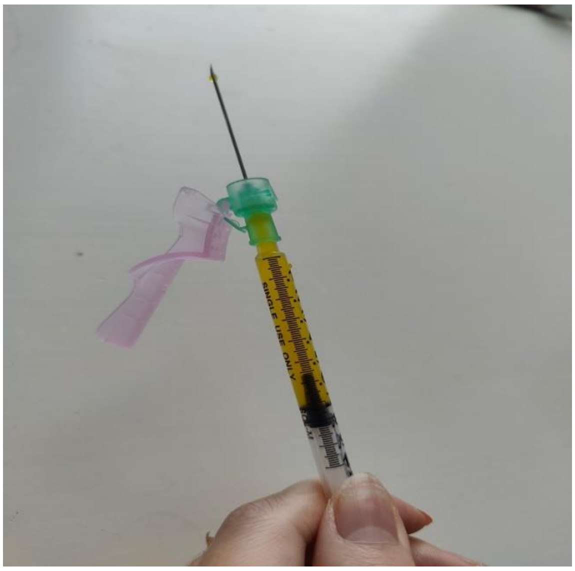
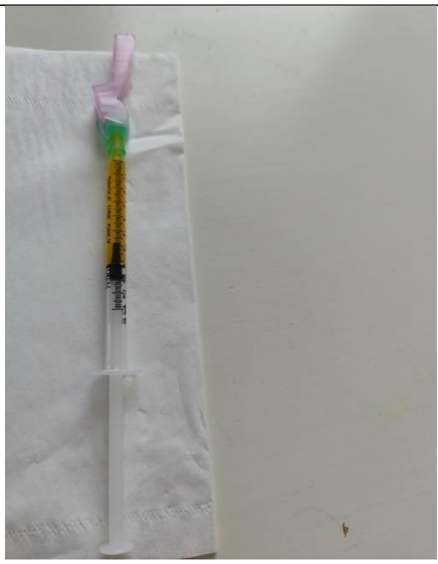


1. Equipment preparation: alcohol-based hand rub; sterile single-use needles and syringes; alcohol swap; tourniquet; dry swab; sharps container; drugs; sterile water or cooled boiled water; a clean cooker or glass; cottons and a disinfectant surface.

2. Hand hygiene: rinse your hands after washing them with soap and water under the faucet.

3. Hand disinfectant: To disinfect your hands, use a product with an alcohol basis.

4. Pour the drug into a fresh cooker or glass and add sterile water into it.

 5. Use a clean syringe to mix the medications until the powder is completely dissolved in the liquid.	 6. Use a new cotton swab as a filter in the cooker. The needle hole should be positioned in the liquid above the cotton, beveled side down. Take a syringeful of the dissolved medication.
 7. Air bubbles can be eliminated by pointing the needle upside and flicking the syringe. Push the plunger up slowly until the air leave through the needle hole.	 8. Carefully lay it on a clean surface.

9. Avoiding veins with active or recent signs of inflammation on injection site selection: Symptoms of inflammations may include sore when touched, swelling, itching, pain, redness, skin warmth, rash or pus draining.

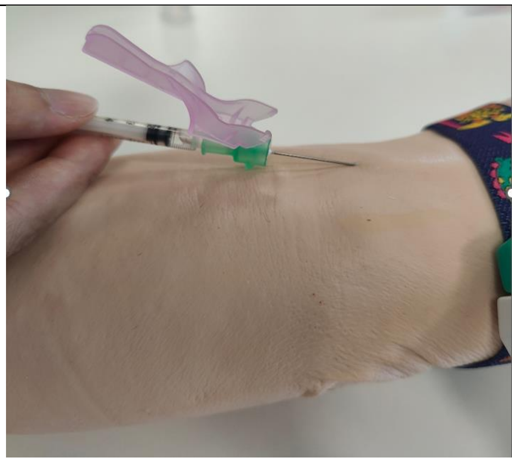
10. Selecting a good vein: the safest places to inject are the arms, upper sites first, then lower sites. It is easier to find a vein when you're warm and hydrated. Another way to see the veins is to pump your fist.

    Advice: Don’t forget to change the injection sites regularly to give the old one time to heal.

11. Cleaning the injection site: wipe it off with alcohol pads and wait 30 seconds to let it dry. Avoid touching or blowing on the area. Wiping in a single direction and pads can be used only one time.

12. The tourniquet should be tied a few inches above the injection site. Be careful not to bind the tourniquet excessively.

13. The technique for inserting a needle involves facing the beveled (open) side of the needle upward at an angle ranging from 15 to 35 degrees, always pointing in the direction of the heart.



14. Registering: If easily dark red blood pours into the syringe when you pull back on the plunger, the needle has successfully entered the vein. To inject drugs, steadily depress the plunger after releasing the tourniquet. If not, the tourniquet needs to be taken off and the needle needs to be withdrawn because it was unable to penetrate the vein. Then, on a different site, repeat steps 9–14.

15. Pulling out: Gently remove the needle from the injection site at the same angle that it was inserted at after administering the medication. Put the syringe in a container meant for sharp objects.

16. Aftercare: Use a dry swab or cotton ball to provide pressure to the injection site for a few minutes while maintaining a straight arm. Reapply a fresh bandage over the injection site.

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The guidance brochure is part of a project thesis, which is done in cooperation with Satakunnan Sininauha ry and Satakunta University of Applied Sciences. It is written by Mengzhen Ren, and Jie Zhang.

Satakunnan Sininauha samk

APPENDIX 2: FEEDBACK FORM

Feedback

Project: Health Advice and Guidance on Injection Hygiene for Intravenous Drug Users

Place: Satakunnan Sininauha ry

Date:

How would you rate the following aspects on a scale of 1 to 10.
(1 means that you disagree, and 10 represents that you agree.)

1. The language is simple and easy to understand.
   I disagree 1 2 3 4 5 6 7 8 9 10 I agree

2. The pictures are clear and helpful to understand the instructions better.
   I disagree 1 2 3 4 5 6 7 8 9 10 I agree

3. The guidance is realistic and easy to follow in the situation.
   I disagree 1 2 3 4 5 6 7 8 9 10 I agree

4. The brochure would motivate the intravenous drug users to change or improve any of their current practices.
   I disagree 1 2 3 4 5 6 7 8 9 10 I agree

Please write any suggestions:

Is there anything in the brochure that you want to change or improve? If there is, what is it?