

Finland



Pharmaceutical Assistant's and Technician's **Work Placements**

Helsinki Vocational College



Education and Culture DG

Lifelong Learning Programme

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Pharmaceutical Assistant's and Technician's Work Placements in Finland

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1. Introduction

Dear Student

◆ This information package is designed to give you an overall view of vocational education and work in the pharmaceutical sector in Finland, together with some useful background information related to legislation on and dispensing of pharmaceuticals. We hope that the package will help you in preparing for your period of practical training in our country. On reading this material package you may find both differences and similarities in pharmaceutical work in comparison to your country. However, due to your position as a foreign student at your placement address your duties may be limited to those you would be allowed to carry out in your own country.

From a learning viewpoint it might be beneficial for you to go through both your own country's material package and that of your destination country and to compare the two.

In Chapter 2 you will find a general description of our country's education system and more information on how pharmaceutical training is provided in our country.

Chapter 3 gives an overview of the structure of the pharmaceutical sector and how it is organised.

Chapter 4 defines how pharmaceutical professions are defined and their core expectations. This chapter focuses on the services that are available for foreign students as placement opportunities in our country. The sub-chapters also include descriptions of daily work which are intended to assist you in defining the work you will encounter during your practical training period. These "snap shot" descriptions have been written by students during their practical training periods.

Chapter 5 describes the most relevant legislation governing the pharmaceutical sector in Finland.

Chapter 6 has some links to help you with search for more detailed information.

Chapter 7 describes some specific terms and acronyms.

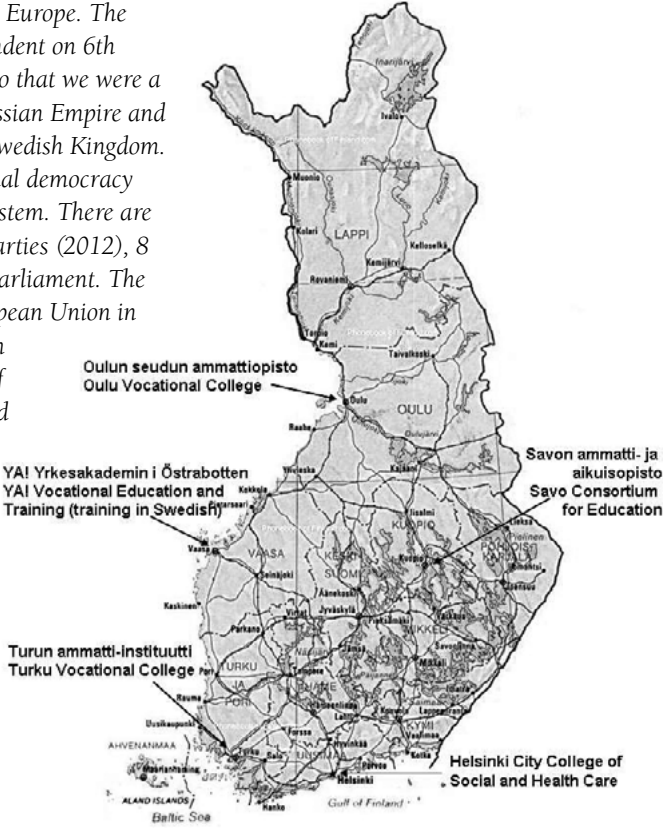
We hope you will find this information package useful and we wish you every success with your practical training period in our country!

Welcome to Finland!

◆ We are happy that you have chosen Finland as the destination for your practical training and we hope you will have a successful and productive learning experience.

Finland has two official languages, Finnish and Swedish. The official minority language Sami is spoken in most northern municipalities by less than 2000 inhabitants.

Finland is one of the Nordic countries located in north-eastern Europe. The country became independent on 6th December 1917. Prior to that we were a Grand Duchy of the Russian Empire and before that part of the Swedish Kingdom. Finland is a constitutional democracy and has a multiparty system. There are 16 registered political parties (2012), 8 of which have seats in Parliament. The country joined the European Union in 1995 after a referendum in 1994 in which 57% of the population supported membership.



The population is approximately 5.5 million, of which more than 90% are Finnish speaking. The Swedish speaking population, some 5.5% of the population, is located on the southern and western coastlines and in the Åland autonomous province.

The rest of the population consists of migrants of various nationalities, of which Russians and Estonians are the biggest groups.

The southern province of Uusimaa is the most densely populated area with approx. 1.5 million inhabitants. Three of the four biggest cities are located in Uusimaa: Helsinki (capital of Finland), Espoo and Vantaa. There are some 19 cities that have more than 50,000 inhabitants and numerous smaller towns all around the country. As a pharmaceutical sector student coming to Finland for practical training, your destination may be in the capital area, in Turku (approx. 180,000), in Oulu (just under 150,000 inhabitants), Kuopio (just under 100,000), or Vaasa (approx. 60,000).

In comparison to other European Union Member States Finland is the fifth largest by land area but has the lowest population density, only 16 inhabitants per km².

According to Eurobarometer (2005) almost 2/3 of the respondents in Finland indicated that their English language skills were good enough for conversation, so you can be sure that you will be able to communicate in English!

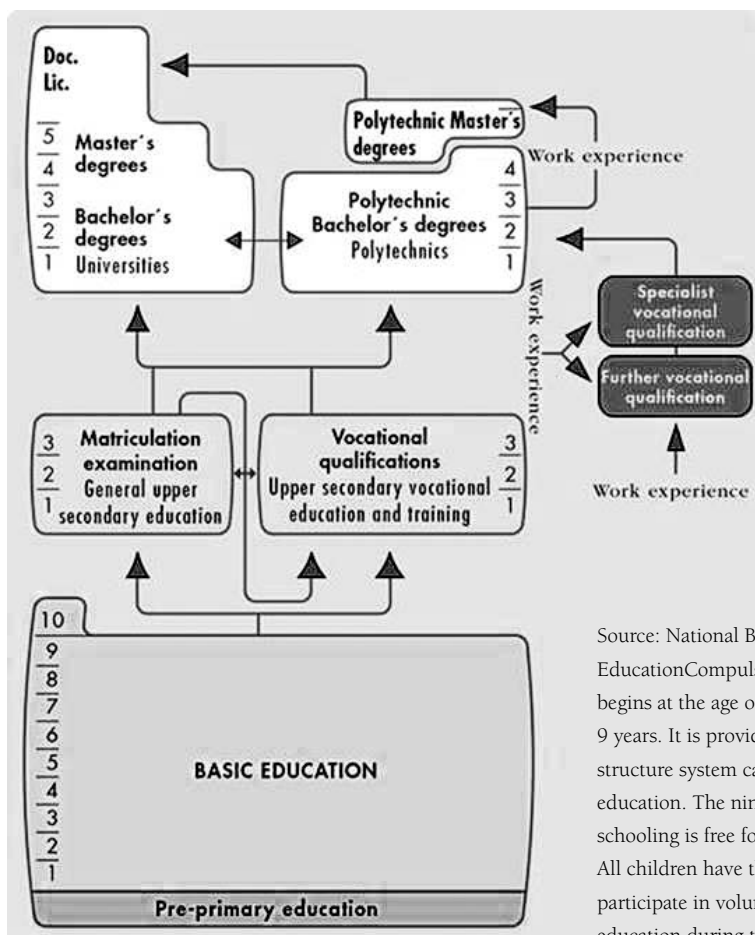
We would be happy to welcome you for a practical training period in Finland!

2. Educational System

2.1. Finnish Educational System

◆ The diagram is to give you an overall view on structure of the educational system in Finland.

Education is free on all levels of the system. In basic education, general upper secondary education and in upper secondary vocational education and training students are also entitled to free meal a day.



Source: National Board of Education
Compulsory education begins at the age of 7 and lasts for 9 years. It is provided in a single structure system called basic education. The nine-year basic schooling is free for all pupils. All children have the right to participate in voluntary pre-primary education during the year preceding compulsory schooling. Nearly all six-year-olds do so.

General upper secondary education commonly takes three years to complete and gives eligibility for polytechnic and university studies. At the end of upper secondary school students usually take the national matriculation examination. *Typically matriculated students apply either to universities or polytechnics for higher education. Those matriculated students not being able to pass entry exams to universities or polytechnics may apply for upper secondary vocational education. Due to completed three year general*

upper secondary education their studies in vocational education last two years. Students coming to vocational education directly from compulsory basic education are to complete their vocational studies in three years.

Pharmaceutical education in Finland is only available in upper secondary vocational education and training and in universities. Polytechnics – or Universities of Applied Sciences do not offer pharmaceutical training.

2.2. Pharmaceutical Education

Pharmaceutical education and training in universities

Master of Science (Pharmacy) is a higher university degree. Masters of Science (Pharm.) work in supervisory and expert functions. Pharmacists (retail pharmacy), hospital dispensary pharmacists, and responsible pharmacists in the pharmaceutical industry and pharmaceutical wholesale companies must have a master's degree in pharmacy.

Bachelor of Science (Pharmacy) is a lower university degree. Bachelors of Science (Pharm.) mainly work in pharmacies in customer service and providing pharmaceutical guidance, in hospital dispensaries with responsibility for pharmaceutical production and in dispensing of drugs. In pharmaceutical companies and pharmaceutical wholesale companies, Bachelors of

Science (Pharm.) work in inspection and supervisory functions.

Pharmaceutical training in vocational education

Pharmaceutical technicians and assistants are technical workers who have studied at a vocational school. Those completing such studies previously received the title pharmaceutical worker. Their tasks were similar. Pharmaceutical technicians have specialised during the last year of their studies in pharmacy work, pharmaceutical assistants in hospital dispensaries, as well as in pharmaceutical companies and pharmaceutical wholesale companies. Below you will find more detailed job descriptions by field of operation.

There are also people with no education in the field working in auxiliary

functions in the pharmaceutical field. Their tasks vary greatly.

Pharmaceutical assistant and pharmaceutical technician training programmes

In pharmacies pharmaceutical technicians take care of storage (e.g. ordering, receiving goods and taking them to the storage location). Their tasks often include office work and recording prescriptions. In addition, pharmaceutical technicians take care of invoicing the Social Insurance Institution (Kela) and credit customers, as well as of window-dressing and decorating customer premises.

In hospital pharmacies pharmaceutical assistants work in, for example, pharmaceutical production

departments, logistics and in hospital dispensaries.

Pharmaceutical assistants specialising in the pharmaceutical industry may work as assistants in, for example, clinical research, marketing, or research and development. They might also specialise in pharmaceutical production, being familiar with the treatment of starting materials and the use of equipment and machinery required for the pharmaceutical manufacturing process, to name just a couple of examples.

Pharmaceutical assistants specialising in pharmaceutical wholesaling store, pick and pack medicines and other products for order assembly and take care of customer service and purchasing.

2.3. Curriculum Content of Pharmaceutical Assistants and Technicians

◆ Pharmaceutical technicians work in pharmacies and pharmaceutical assistants in hospital pharmacies under the supervision of a pharmacist. Pharmaceutical assistants may also be employed in the pharmaceutical industry or in the wholesale sector. They assist in the preparation, checking, storage and dispensing of drugs. Their work duties may also include office and computer work. Pharmaceutical technicians nor assistants are not allowed to give advice on medication.

The scope of the Vocational Qualification in Pharmaceutics (Pharmaceutical Assistant or Pharmaceutical Technician) is 120 credits. Students can do the training following completion of basic education, in which case it lasts 3 years, or after passing the matriculation examination (completion of upper secondary school education), in which case it lasts 2 years. The grading scale and pass requirements are Excellent 3, Good 2, Satisfactory 1 (lowest acceptable performance 1).

The qualification gives general eligibility for further studies at a university or polytechnic. The language of education is Finnish.

Curriculum: Pharmaceutical assistant/technician (Finland, for example Helsinki Vocational College, Welfare Sector) (credit = 40 hrs of work for student)

- **Basic vocational studies** (40 cr.) (list of courses and credits making up the modules)
 - > Working in the pharmaceutical field (9 cr. theory + 1 cr. on-the-job learning)
 - > Command of information technology (10 cr. theory + 5 cr. on-the-job learning)
 - > Logistics (10 cr. theory + 5 cr. on-the-job learning)

Basic vocational studies are compulsory for both pharmaceutical technician and pharmaceutical assistant.

- After common/basic vocational study modules the student has to choose one from the following **optional study programmes** (1 x 30 cr. = 10 cr. theory + 20 cr. on-the-job learning):
 - > Pharmacy work (choosing this option, student will graduate as pharmaceutical technician)
 - > Hospital pharmacy work (choosing this option, student will graduate as pharmaceutical assistant)
 - > Pharmaceutical industry work (choosing this option, student will graduate as pharmaceutical assistant)
 - > Pharmaceutical wholesale work (choosing this option, student will graduate as pharmaceutical assistant)

Thus the difference between two qualification titles derives from choosing one of the optional study programmes.

- and **two optional study modules** (10 credits each)
 - > Quality work in pharmaceuticals
 - > Visual merchandising and marketing
 - > Command of information technology
 - > Manufacturing medicinal products

Pharmaceutical technicians and pharmaceutical assistants are to choose two optional modules according to their own interest.

Composition of the qualification

The compulsory qualification modules for all candidates are working in pharmaceuticals (10 cr.), information

technology (15 cr.) and logistics (15 cr.). In addition, candidates must also take one of the following qualification modules: working at a

hospital dispensary (30 cr.), working in the pharmaceutical industry (30 cr.), working in the pharmaceutical wholesale business (30 cr.). In addition, candidates must take optional qualification modules that support vocational specialisation, such as quality work, use of information technology at work and preparation of pharmaceuticals. Furthermore, it is possible to choose modules from other vocational, further and specialist qualifications.

The total credit value of the vocational qualification modules is 90 credits (this does not include competence-based qualification modules). In addition, students entering the programme after upper secondary school must take 20 credits of core subjects and 10 credits of free-choice qualification modules. Students may individually choose modules to expand the qualification.

Vocational skills and competences required for completion of the qualification

Those who have completed the qualification shall:

- have a command of pharmacy logistics;
- know how to use IT equipment and software;
- know how to pick and pack pharmaceuticals/be familiar with quality requirements/know how to handle customer returns;
- know how to treat pharmaceutical and chemical waste/take into

account sales bans and quarantines/
be familiar with the life cycles of pharmaceuticals;

- be able to work in dosage dispensation/storage/pharmaceutical industry assignments;
- be able to work ergonomically and in compliance with the principles of business operations and sustainability;
- be able to function proactively, co-operatively and in a quality-conscious and service-oriented manner;
- know how to draw up the necessary messages and work reports, making use of information technology;
- be able to assume responsibility for their own work, assess their own work performance and develop their vocational skills;
- be able to manage in work-related interactive situations in one foreign language and both national languages.

There are five different vocational colleges in Finland providing the qualification (in alphabetical order):

- Stadin ammattiopisto, hyvinvointiala – Helsinki Vocational College, Welfare Sector
- Oulun seudun ammattiopisto – Oulu Vocational College
- Savon ammatti- ja aikuisopisto – Savo Consortium for Education
- Turun ammatti-instituutti – Turku Vocational Institute
- Yrkesakademin i Österbotten – Vocational Education and Training (Education provided in Swedish)

3. Structure of Pharmaceutical Sector in Finland

3.1. Health Care System in Finland

◆ Safeguarding the health of Finnish citizens is based on the constitution of Finland and on social and health legislation. The provision of health care services available for everyone as specified in law belongs to the obligations of municipalities. In Finland, basic health care services can be obtained both from public health care providers (health centres and hospitals) with mainly free services and from private service providers. Public health care is virtually free of charge and available for all those living in Finland. For health centre services the client pays, for example, only an annual fee of 20 euros and the rest of the costs are covered by municipal and state tax funds (this varies in different parts of Finland). For hospital stays, the client pays a fixed daily rate of about 20 euros, and for visits to outpatient clinics about the same sum. The problem with public health care services is that access to treatment may sometimes take time and that there are many people needing treatment, which means there will often be queues.

Private service providers offer similar services, from primary health care to hospital services. Some people pay for the services themselves, some may hold insurance, and for some occupational health care will cover the costs of such privately provided health care. Services are relatively expensive but also quick.

In Finland, every person is covered by health insurance. If an annual maximum sum defined for the insurance is exceeded, the client will only need to pay a nominal sum, such as 1.5 euros per prescription medicine bought.

The national health insurance reimburses, for example, drugs prescribed by a doctor that are necessary for the treatment of disease. Drug reimbursement covers:

- medication
- dietary foods
- basic ointments used for the treatment of chronic skin disease
- medication prescribed by dentists.

3.2. Pharmacies in Finland

◆ In Finland you can only buy medicines in retail pharmacies. In Finland, pharmacies are privately

owned, with the exception of university pharmacies, which are companies owned by the state and administered by

universities. There are two university pharmacies, one is administered by the University of Helsinki and the other by the University of Eastern Finland. The Helsinki University Pharmacy has several pharmacy points of service, five of them situated in Helsinki. Helsinki is also the location of a point of service where the company administration, pharmaceutical manufacturing, invoicing and other similar activities take place. In addition, the University Pharmacy has 12 points of service in the other major Finnish cities. The University of Eastern Finland pharmacy is situated in Kuopio.

In Finland most prescriptions are in electronic form. With an electronic prescription the pharmacist needs an identification card and two identification codes to process the prescription at the pharmacy. To handle an electronic prescription you have to be a registered pharmacist in Finland. Pharmacist technicians do not have identification cards and thus they do not handle prescriptions.

Customers receive partial or complete reimbursement (see below) for products they buy if the **Pharmaceuticals Pricing Board** working in connection with the **Ministry of Social Affairs and Health** has confirmed reimbursability and a moderate wholesale price for the products. In addition, the products must have been prescribed for necessary treatment of disease as specified in the Health Insurance Act.

Reimbursements are divided into three classes:

- basic reimbursement of 35% of the drug price or reference price
- lower special reimbursement of 65% of the drug price or reference price
- higher special reimbursement of 100% of the drug price or reference price; the customer will nevertheless have a 3-euro mandatory payment for any drug bought.

Customers will receive the reimbursement directly from the pharmacy as long as they present what is called their “Kela card” or other identification card with social security number in connection with the purchase of prescription drugs. With this social security number the reimbursement information can be called up electronically from the national database (including a note of any entitlement to special reimbursement due to a specific disease). If a medicine falls within the scope of the reference price system and its price exceeds the reference price, customers will need to pay any share exceeding the reference price.

Finland applies generic substitution and a reference price system. This means that on certain conditions pharmacies are obliged to exchange the medicinal product prescribed by a physician or a dentist for the cheapest or close to cheapest commonly available interchangeable medicinal product.

4. Definition of Professions

4.1. Retail Pharmacy

◆ A pharmacy owner, or pharmacist, must obtain a pharmacy licence from the Finnish Medicines Agency, Fimea. Fimea is the authority responsible for the supply of medicines in Finland. To be able to apply for a pharmacy licence, one must have a master's degree in pharmacy. Pharmacies are owned by private pharmacists, not companies. One owner can own one pharmacy and a maximum of three subsidiary pharmacies or pharmacy points of service in the vicinity.

Pharmacy staff include, in addition to the owner, Masters of Science (Pharm.), Bachelors of Science

(Pharm.), pharmaceutical assistants, pharmaceutical technicians, pharmaceutical workers, office workers and cleaners. Those with a master's degree in pharmacy work in supervisory functions. Those with a bachelor's degree in pharmacy work in customer service, dispensing of prescription drugs and on the self-service side giving advice to customers. Pharmaceutical assistants also give advice on the self-service side. Pharmaceutical technicians and workers mainly work in store management, at the cash desk, in the office or in auxiliary tasks in pharmaceutical manufacturing.



Pharmacies do not normally prepare a lot of medicines. However, most pharmacies do prepare medicines prescribed to be made up at the pharmacy. Pharmacies make up, for example, ointments and solutions. However, there are pharmacies in Finland that make their own cough medicines and other proprietary products. They produce medicines for other pharmacies to sell.

Finnish pharmacies vary in size. For foreign students based in Helsinki, on-the-job learning associated with polytechnic studies in pharmaceutics most often takes place in large or medium-sized pharmacies in Helsinki, Espoo or Vantaa.

Students most commonly fetch prescription drugs from the store for bachelors or masters of pharmacy, work at the cash desk, fill shelves, receive and place goods, inventory, separate pharmaceutical waste, organise and wipe shelves, archive or shred documents, print out reports, change money or run other bank errands, pack and dispatch copies of delivered prescriptions to the Social Insurance Institution of Finland (Kela), return medicines to pharmaceutical wholesalers and maintain records of regular customers.

Most customers encountered at the cash desk speak Finnish. Therefore, students on international exchange do not work at the cash desk or in

customer service. In some pharmacies, however, a student speaking good English may work at the cash desk. Please note that each pharmacy has slightly different duties, especially for foreign students.

Example of a pharmaceutical technician's working day in a small pharmacy:

The pharmacy is open from 9 am to 7 pm. Today I am on the morning shift, i.e. I open up the pharmacy. A B.Sc. (Pharm.) comes in at the same time.

First I switch on the computers, take money from the safe and place it in the cash desk. In addition, I print out and file the prescription log from the preceding day.

Tamro pharmaceutical wholesalers deliver goods before the opening time of the pharmacy already. I therefore check the goods that have come in, enter them in our records and place them on shelves. Every now and then I interrupt this work to serve customers at the cash desk.

I also print out stickers with new prices for self-care medication. New medicines price lists come in every two weeks, changing some prices. At 11 am another B.Sc. (Pharm.) comes in, as well as a technical worker for the evening shift. I can then go to the shop and post office and afterwards take a 20-minute lunch break.

After lunch, I work at the cash desk again, serving customers. At about 1 pm, when everyone has had their lunch break, ordered goods come in from another pharmaceutical wholesale company, Oriola. I check the goods, enter them in our records and place them on shelves.

Before 2 pm I go to the health centre to deliver medicines and collect prescriptions to be renewed. We go there every day. On the same trip I take ordered medicines to the home care centre and collect new orders. After returning to the pharmacy, I make some coffee and take a ten-minute coffee break.

After the coffee break, I wipe self-care shelves and fill them up, as necessary, from the store at the back of the pharmacy. In the afternoon, there are usually more customers. In that case, I spend a lot of time at the cash desk and serving customers. At some point in the afternoon, I cash up and pack money for delivery to the bank. The money is collected by a guard who takes goods to the central pharmacy at the same time. I leave work at 5 pm.

In Finland, pharmacies have operating instructions for all their main tasks, such as receipt of goods, pharmaceutical waste disposal and cleaning up. The instructions are written by a person with best knowledge of that particular duty (e.g. a master's degree in pharmacy) and updated as necessary.



They are in Finnish but students will be familiarised with the contents, as related to their duties. At the very beginning of the on-the-job training period, the supervisor usually discusses occupational safety issues, such as alarm buttons, with the student.

The working outfit usually consists of a protective coat, in some pharmacies a coat and trousers or skirt. The main colour of the working outfit is often white. The pharmacy will provide working outfits and have them cleaned. Students must have their own working shoes. Sturdy shoes worn only indoors are suitable working shoes.

Smoking is forbidden in pharmacies. Some pharmacies in larger shopping centres may have separate smoking rooms. Staff can go there in their lunch and coffee breaks.

The number of working hours of full-time pharmaceutical workers is 115 hours per three weeks. The normal

number of daily working hours is 8, and one may have a shorter working day once a week, for example. During work placement students work seven hours a day, five days a week. Working hours vary greatly depending on

whether the pharmacy is open in the evening or during weekends. A student may have an evening shift about once a week and may need to work on Saturdays. However, the main working time is weekdays and during the day.

4.2. Hospital Pharmacy and Hospital Dispensary

◆ Drug distribution in primary health care is carried out by pharmacies and health centre dispensaries. Primary health care includes health centres and regional hospitals. The head of a health centre dispensary often holds a bachelor's degree and sometimes a master's degree in pharmacy. In specialized care, drug distribution is carried out by hospital dispensaries. Hospital dispensaries also take care of drug supply for hospitals and institutions. The tasks of hospital and health centre dispensaries include purchase, manufacturing, storage and distribution of medicines to various departments.

Hospital and health centre dispensaries make up far more medicines than pharmacies do. They make up, for example, local anaesthetics, disinfectant solutions and sachets (divided powders). They also handle cytotoxic drugs. Part of the drug manufacturing activities in hospital dispensaries is aseptic.

In hospital dispensaries, those with a master's degree in pharmacy work

in supervisory or expert functions, those with a bachelor's degree in drug dispensing and manufacturing. Pharmaceutical assistants and workers work in store management and auxiliary tasks in pharmaceutical formulation.

In pharmaceutical production, students mainly weigh sachets, label, print out labels, prepare technical solutions, such as alcohol dilutions, monitor storage conditions, wipe with alcohol products taken to aseptic areas, fold up sachets for powders, produce capsules, sort out waste, bottle products, check and clean scales. In drug dispensing, students collect drugs, file, enter data from narcotics cards on the computer, receive goods, put them in place, and deal with medicines returned from the wards. Students may also have the chance to be introduced to wards and ward pharmaceuticals together with a pharmaceutical worker, including visiting the solutions storage facilities, unloading goods and assembling orders. They may visit a cytotoxic drugs laboratory with a pharmaceutical worker but students cannot work in such laboratories.

Example of a pharmaceutical assistant's working day in a smallish hospital dispensary:

Here is a typical pharmaceutical assistant's working day at a hospital dispensary: At Helsinki City Hospital Dispensary pharmaceutical assistants work at one work post (e.g. collection, unloading) for one week at a time and then change posts. This week I have been unloading. There are normally two pharmaceutical workers at the unloading post but as my workmate has been sick, I received goods from both pharmaceutical wholesalers (Oriola and Tamro) during the early part of the week.

I start work at 8.00 am, and when I arrive at my work post, Tamro's delivery has already arrived. I start unloading

and take the first coffee break at a suitable time around 9.30 am.

After the break I continue unloading. Tamro's delivery has usually been received, unloaded, recorded and shelved by 11.00 am. When I have completed unloading, I help with assembling orders or organise the store, as necessary.

My lunch break is at 11.30 am. After lunch, I check where help is needed and help as necessary. Oriola's delivery arrives at 1 to 2 pm. I receive the consignment but before unloading I take a coffee break. Oriola's consignment has usually been received, unloaded, recorded and shelved by 4 pm. If there is still time, I organize the store. My day is complete at 4 pm when I leave for home.



During the first working days, the student is introduced to occupational safety instructions at the workplace. Hospital dispensaries have operating instructions for all main activities, such as the receipt of goods, disposal of pharmaceutical waste, and packing and dispatch of ordered medicines to wards. Instructions are usually written by the people normally doing the work, and updated as necessary.

At hospital dispensaries the working outfit consists of a protective coat and possibly trousers, usually white. The working coat and trousers are provided at the workplace. Students must have their own working shoes. Working shoes must be low-heeled, clean shoes

worn only indoors. For pharmaceutical production shoes are mostly either provided at the workplace or protective shoe covers are used. Smoking is not allowed at workplaces in Finland.

At a hospital dispensary, the normal working time for full-time workers is 8 hours a day, from 8 am to 4 pm. The working time includes a lunch break of 20 minutes and a coffee break of 10 minutes. A shorter day is done once a week due to the shortening of working hours. Saturdays and Sundays are free. Students doing their on-the-job training at a hospital dispensary work seven hours every weekday. Their working hours are often from 8 am to 3 pm.

4.3. Pharmaceutical Industry

◆ Like pharmaceutical wholesalers, pharmaceutical companies are limited liability companies owned by their shareholders. They must comply with the Limited Liability Companies Act. Some are public companies, meaning, for example, that their shares are publicly traded. In limited liability companies, the General Meeting elects the company Board which, under the leadership of the Chairman of the Board, appoints the Managing Director to manage company operations.

In Finland, the pharmaceutical industry employs about 5,300 people in research and development (R&D), marketing

authorisation management, marketing and production. Most company employees work in R&D. The second largest sector is marketing.

Industrial pharmaceutical production has largely moved outside Europe. Therefore, the number of employees in pharmaceutical production in Finland is lower than in previous decades. Of companies operating in Finland, Orion, Bayer, Santen and Ayanda have production in Finland, but only Orion in the Helsinki area may offer on-the-job training in production for foreign students. In addition, there are service companies marketing various services

for the industry, where students can receive their on-the-job training. Such services include, for example, activities associated with clinical research, work on marketing authorisation, logistics services and temp services.

The pharmaceutical industry employs members of many professional groups. Masters and bachelors of pharmacy work there in supervisory and expert functions. Pharmaceutical assistants and workers work in pharmaceutical production and in auxiliary tasks in offices. The pharmaceutical field in all, as well as the personnel, is subject to exact regulation. This regulation is explained in more detail in Section 5 National legislation.

In the pharmaceutical industry, work is available in R&D, marketing authorisation management, marketing and production. On-the-job training is available in pharmaceutical companies but also in companies offering them services (such as clinical research services, processing of marketing authorisations, logistics services and temp services). Most on-the-job training places for polytechnic studies in pharmaceuticals are available in the capital area. The most common tasks of students in the pharmaceutical industry vary depending on the field of activity and consist of auxiliary tasks mainly in offices (such as copying, filing, document writing and organisation). Depending on the field of activity,

the tasks may be associated with, for example:

- pharmaceutical manufacturing, importing, marketing or drug development
- application for and maintenance of marketing authorisations
- writing and renewal of price and reimbursement applications
- pharmacovigilance, i.e. collection and analysis of data on adverse effects.

In the pharmaceutical industry, many clients and employees speak English. Operating instructions and documentation are in English, too (with the exception of pharmaceutical production). Therefore, students should cope well in English in most on-the-job training places in the pharmaceutical industry even though the daily working language is usually Finnish.

The pharmaceutical industry is subject to many multinational requirements and highly regulated, which may be problematic for students on exchange. Fulfilling the requirements for orientation and mastering of operating instructions, for example, may take several weeks. In addition, the number of on-the-job training places in the pharmaceutical industry is quite limited. As the companies are often rather large and there are a lot of staff, it is important for students to have plenty of initiative and be independent to do well in on-the-job training there.

Ordinary everyday clothes and good shoes are suitable for office work. If the tasks are associated with production, a working outfit will be provided at the workplace. Each company has its own rules concerning smoking but mostly smoking is forbidden inside the company (designated areas might be available).

The normal working hours for pharmaceutical assistants in pharmaceutical companies are 8 hours, including the opportunity to have a meal and normally two breaks. Students in on-the-job training usually work seven hours a day, five days a week. If the work placement is in pharmaceutical production, the working time may include evening shifts because production most commonly operates in two shifts.

Example of a pharmaceutical assistant's working day in production at a pharmaceutical company:

I start my day by checking on the notice board which film-coating solution we are going to produce that day. Then I go to the "kitchen" to check whether the starting materials are available or whether they need to be fetched from the weighing department. If they are not available in the weighing department, either, I will fetch them from the store. When starting materials are in order and have been checked (e.g. for name, amount and quality), I choose the planned apparatus and

equipment (e.g. mixer, homogeniser, etc.) for preparing the solution. We have a log describing everything (work instructions) that we follow carefully in our work. We document our process step by step in the log. Before beginning production, an independent person will check the cleanliness of equipment and containers.

To start the work, we use a bar code reader to enter starting materials in the log and start manufacturing according to work instructions (concerning, for example, mixing time and speed, temperature, any cooling conditions and times, etc.). Toward the end of the shift, when the solution is ready, we document its transfer to the warehouse. The premises are then cleaned. Some containers are sent away for washing and some of them (e.g. small and easily damaged parts) we wash ourselves.

Meal and coffee breaks are taken as tasks allow. For example, a homogenisation cycle takes about 60 minutes, during which one can easily have a meal. We have to wear special clothes on the production premises, and when I leave for a meal, for example, I change my clothes when leaving the production premises and again on return.

Knowledge and skills required for these tasks include, for example, quality assurance, drug manufacturing equipment and procedures, and being systematic, precise and composed.

Example of a pharmaceutical assistant's working day at a pharmaceutical company with production activity, products for clinical research:

I start my day by reading my e-mail and checking for any urgent tasks there. Information on such urgent tasks may sometimes be given on a note left on my desk. Then I continue checking and recording research product jars, a job I started the day before. Each medicine jar bears a code, and I check that the code is included on the list. I then record the jars in the clinical research storage.

After lunch, I discard pharmaceutical waste. I separate cardboard from secondary packaging, plastic, glass and pharmaceutical waste in separate designated containers. Then I pack research products for clinical research abroad. The products have to be labelled first, and appropriate documentation has to be enclosed. I perform all my tasks exactly according to the operating instructions, documenting what I do.

Knowledge and skills required for these tasks include, for example, familiarity with the basic principles of clinical research, documentation, and preciseness.



4.4. Wholesalers

◆ Pharmaceutical wholesale companies are limited liability companies owned by their shareholders. They must comply with the Limited Liability Companies Act. Some are public companies, meaning, for example, that their shares are publicly traded. In limited liability companies, the General Meeting elects the company Board which, under the leadership of the Chairman of the Board, appoints the Managing Director to manage company operations.

Pharmaceutical wholesalers serve various types of clients, such as pharmacies, hospital dispensaries, pharmaceutical companies, medical centres and veterinaries. They mainly deal with logistics, i.e. storage,



order assembly and distribution of medicines. In addition, their services include importation of products for compassionate use, distribution of medicines for research, support services for sales and marketing, such as storage and distribution of marketing material, other logistics solutions and training services. In Finland, a single channel model is applied for drug distribution, i.e. pharmaceutical manufacturers concentrate the distribution of all their products to one pharmaceutical wholesale company.

Pharmaceutical wholesalers employ members of many professional groups. Masters and bachelors of pharmacy work there in supervisory and expert functions. Pharmaceutical assistants and workers have logistic tasks and auxiliary tasks in offices.

Customers of pharmaceutical wholesalers include, for example, pharmacies, hospital dispensaries, pharmaceutical companies and medical centres. Pharmaceutical wholesalers work mainly with logistics, i.e. storage, collection and distribution of medicines, and related office work. The work of pharmaceutical wholesalers is closely regulated and controlled. As an example one could mention that pharmaceutical distributors must be able to ensure faultless delivery of medicines to any pharmacy in Finland within 24 hours. There are only a few pharmaceutical wholesale companies active in Finland. These operate mainly in the capital area but one has its main logistics centre in Tampere.

In pharmaceutical wholesale companies, students mainly work on logistic tasks.

Such tasks may vary from the receipt and unloading of goods to placement in storage, putting together orders for customers and dispatch. Pharmaceutical wholesaling involves plenty of office work, and some tasks may consist largely of such work.

Pharmaceutical wholesale companies work mainly in Finnish but some documents are in English and cooperation with foreign pharmaceutical companies and other foreign actors occurs in English. In warehouses many of the staff may not speak English. In offices the situation is different. Nevertheless, a student will be able to cope in English in both environments. There are only few on-the-job training places in pharmaceutical wholesale companies. As pharmaceutical wholesalers often have rather large organisations, there are a lot of staff and everyone is busy, it is important for students to have plenty of initiative and be independent to do well in on-the-job training there.

Ordinary everyday clothes and good shoes are suitable for office work. For warehouse work, a working outfit is usually provided at the workplace. Each company has its rules concerning smoking that should be found out before training.

The normal working hours for pharmaceutical assistants at pharmaceutical wholesale companies are 8 hours, including the opportunity

to have a meal and normally two breaks. The work is most often done in shifts. During on-the-job training students usually work seven hours a day, five days a week, in morning and evening shifts.

Example of a pharmaceutical assistant's working day at a pharmaceutical wholesale company:

The working day begins with changing into a working outfit. All store workers must wear protective shoes.

There are many tasks available at pharmaceutical wholesale companies, such as receipt of goods, order picking using a conveyor belt system (pass line picking) or pallets, work in the return department, and dispatch of goods.

In the return department, the day is started by unloading pallets of returned goods. Returned goods are divided by reason of return, such as suspected medicinal product error, false order or false collection. Returned goods are treated individually and recompensed according to operating instructions and/or instructions given by principals. At the same time, the decision is made whether to return the product to the sales department or to discard it. Products approved for sale are taken back to their respective places in storage every morning. Suspected medicinal product errors are handled first, then "ordinary" returns. Work in the return department is challenging and suitable

for those who like to solve problems. Workers constantly discuss with each other and ask each other's opinions on the reasons for return and on whether products can be resold.

In pass line picking systems, boxes move on an automatic conveyor belt and stop at various stations depending on what goods are available there. At each station, the picking list of products ordered by the customer is taken from the box. The products are pulled from their places on the shelves specified on the list. Each collected product is signed off by initialling the list, and the product and list are replaced in the box. The box is pushed back onto the moving line to proceed to the following station and finally to be closed automatically and packed by hand. The box is then ready for the dispatch department. Wholesalers dispatch goods several times a day, and one can be very busy trying to collect everything planned for dispatch at a certain time. Work must often be done fast and requires precision.

A typical working day in the return department

9.00 am The working day begins by changing into working clothes. Then I go to the return department, where the morning begins by unloading incoming return pallets.

10.00 am Handling of suspected non-medicinal product errors, i.e.

compensating customers and deciding according to operating instructions whether the products will be sent to principals or product managers in-house or discarded.

12.30 pm Once a week, all products suspected of non-medicinal product error that are to be sent on elsewhere are packed in boxes, address stickers are printed out, and the boxes are taken to the dispatch department.

1.00 pm Handling of ordinary product returns. Example: A product that was not needed was accidentally ordered by a pharmacy. The pharmacy receives a refund, and the product is returned to its place in the store.

4.00 pm Everything is put in place and the computer switched off. Boxes are taken to the dispatch department. Clothes are changed before leaving the workplace.

5. Legislation

◆ It is important for the student to be familiarised with the health and safety procedures relevant to the particular tasks involved. These include for example handling of chemicals, cytotoxic substances and so on. In most of the cases this is taken care of during the initiation period and while reading the standard operating procedures.

The Ministry of Social Affairs and Health is responsible for developing pharmaceutical service, and preparing legislation on medicines. The aim of pharmaceutical service is:

- to promote safe medical treatment
- to safeguard comprehensive pharmaceutical service nationwide
- to promote cost effectiveness in the use and prescription of pharmaceuticals
- to develop the reimbursement system appropriate to treatment
- to keep pharmaceutical costs to patients and society reasonable.

Pharmaceutical service is guided, supervised and developed by the Finnish Medicines Agency (Fimea), the Pharmaceuticals Pricing Board, the National Supervisory Authority for Welfare and Health (Valvira) and the National Institute for Health and Welfare under the Ministry of Social Affairs and Health.

The Finnish Medicines Agency, Fimea is responsible for the general planning

and guidance of pharmaceutical service. It promotes the population's health and safety by supervising medicinal products, blood and tissue products and by developing the pharmaceuticals field.

The logo for Fimea, the Finnish Medicines Agency, features the word "fimea" in a lowercase, bold, sans-serif font. The letter "f" is significantly larger and more stylized than the other letters.

Lääkealan turvallisuus- ja kehittämiskeskus
Säkerhets- och utvecklingscentret
för läkemedelsområdet
Finnish Medicines Agency



Valvira

National Supervisory Authority
for Welfare and Health

The National Supervisory Authority for Welfare and Health (Valvira) guides and supervises the prescription practices of the health care professionals and units.

Fimea issues quarterly lists of interchangeable medicinal products with valid marketing authorisation in Finland. Some of the medicinal products belonging to the generic substitution system also belong to the reference price system. Medicinal products belonging to the reference price system are defined in a list based on Fimea's list of interchangeable medicinal products and published by the Pharmaceuticals Pricing Board. Based on prices reported by companies,

the Pharmaceuticals Pricing Board defines a reference price for each reference price group to form the basis for reimbursement for products in the group.

Finnish pharmacies are mainly (with the exception of university pharmacies) privately owned companies. There are over 800 pharmacies in Finland. There is at least one pharmacy in nearly every municipality, and in most municipalities several. You need to have a licence to operate a pharmacy in Finland. Pharmacy licences are granted by Fimea. Fimea also decides on the establishment of new pharmacies. The licence system and obligations associated with the licence are meant to ensure good and equal availability of medicines and pharmacy services throughout the country. In Finland, as in many other EU countries, a pharmacy licence can only be obtained by an applicant with master's degree in pharmacy.

The Finnish Medicines Act defines that a person dispensing medicines or providing pharmaceutical information must have a master's or bachelor's degree in pharmacy. Therefore, such duties cannot be included in the job description of a pharmaceutical technician.

All pharmaceutical companies and pharmaceutical wholesale companies operating in Finland are limited liability companies.

The pharmaceutical wholesale sector in Finland is divided into two: distributing pharmaceutical wholesalers, and pharmaceutical wholesalers better known as affiliates of foreign pharmaceutical companies and marketing their products. For example Oriola, Tamro and Magnum Medical are actually pharmaceutical distribution companies operating in Finland. In Finland, pharmaceutical wholesaling follows a single-channel system, where each medicinal product is mostly available from one wholesale company only. Responsibilities and job descriptions vary greatly between various companies and their services. Needs change as the functional environment changes. Pharmaceutical wholesalers comply with quality standards imposed on them, such as Good Distribution Practice (GDP).

In the pharmaceutical industry, there are small and large companies. Some have wide product ranges, while others are pure research companies. Orion is an all-Finnish largish pharmaceutical company. Pharmaceutical companies comply with relevant directives and guidelines, such as Good Laboratory Practice (GLP), Good Clinical Practice (GCP) and Good Manufacturing Practice (GMP). Drug safety is followed worldwide throughout a product's life cycle, from the beginning of clinical trials preceding marketing authorisation until the expiry of the last marketing authorisation. This procedure is there to ensure



patient safety. Systematic emphasis has been placed on structured risk management during the last few years. This means predicting pharmaceutical risks, whether we are aware of them or not, and reacting to the risks. The marketing authorisation documentation for new medicinal products needs to include a separate risk management plan. According to § 30 of the Finnish Medicines Act, the marketing authorisation holder of a medicinal product must keep a record of all verified or suspected adverse effects of the product and report these to Fimea. Pharmacovigilance, or visible drug safety work in pharmaceutical companies, is associated with this.

Nearly all companies importing, manufacturing or selling medicines

released for consumption in Finland, as well as those with research activity (that have formed a cooperative) hold a pharmaceutical injuries insurance. The insurance was granted for the cooperative by the Pharmaceutical Insurance Pool. The Pool is made up of insurance companies. The pharmaceutical injuries insurance compensates for any unexpected adverse effects in users of medicines sold or released for consumption in Finland.

Finnish ethical guidelines are set for Finnish pharmacies. The instructions are intended to support the pharmacy personnel in ethical problems arising in everyday situations. The guideline in brief: The aim of the pharmacy is to take care of the safe, effective and



high quality drug dispensing as well as informing about medicines and health. The personnel at the pharmacy act for the best of the customer. All pharmacists respect generally accepted principles in health care. The personnel of the pharmacy respect decisions of the customers and inform the customer adequately. All customers are entitled to unique service. The pharmacy personnel improve and develop their professional knowledge in order to act in the best interests of the customer. They also collaborate with the other health care personnel and authorities. Pharmacists enhance the appreciation and reliability of the pharmacy sector in society as well as the proper and safe use of medicines. All information related to business and customers is kept confidential.

The body awarding the certificate of vocational education and training is the provider authorised by the Ministry of Education and Culture. The qualification certificate for an upper secondary vocational qualification completed as a competence-based qualification is awarded by the Qualification Committee appointed by the National Board of Education. The level of the certificate (national or international) is EU classification level 3 or Upper Secondary School level (ISCED 3). The national/regional authority providing accreditation/ recognition of the certificate is the Ministry of Education and Culture's Finnish National Board of Education, a central administrative board operating under the auspices of the Ministry of Education and Culture.

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<http://www.lvp.fi/en/> Finnish Pharmaceutical Insurance Pool

<http://www.valvira.fi/en/> National Supervisory Authority for Welfare and Health

Certificate Supplement by National Board of Education: source:

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7. Glossary

Fimea = The Finnish Medicines Agency

GCP = Good Clinical Practice

GDP = Good Distribution Practice

GLP = Good Laboratory Practice

GMP = Good Manufacturing Practice

IVT = Initial Vocational Training

Kela = The Social Insurance Institution of Finland

R&D = Research and Development

Valvira = The National Supervisory Authority for Welfare and Health



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