European Specialization in Oncology Pharmacy (EUSOP)
100 hours Education Program Through the Academy of the European Society of Oncology Pharmacy (ESOP)

Education Content

1. Basics of Oncology Pharmacy (18 Hours)

Learning Targets

- understanding national and international quality standards of oncology pharmacy
- understanding classification and mechanism of action of antineoplastic drugs
- understanding and application of aseptic technique and clean working principles
- understanding and application personal protective equipment (PPE) and preparation of antineoplastic drugs
- awareness of technical, microbiological and environmental monitoring, installation and implementation of systems explained in their own working environment
- understanding the importance of working with cytotoxic drugs and monitoring methods in occupational health

Note on implementation
For all topics, suitable sources of literature and information should be presented. This section contains 9.5 hours of international webinars, 2 hours of national trainings and 6.5 hours of international workshops.

A. Quality Standards of Oncology Pharmacy (3h)
   i. Quality Standards of Oncology Pharmacy (Quapos) ESOP
   ii. Quality Management Systems Around the Globe
   iii. Pharmacist's Involvement from Prescription to Administration

B. The Classification and Mechanism of Action of Antineoplastic Drugs (2h)
   i. The Classification and Mechanism of Action of Antineoplastic Drugs

C. Pharmacist's Involvement from Prescription to Administration (6h)
   i. Aseptic Technique
   ii. Clean Working
   iii. Personal Protective Equipment (PPE)
   iv. Spill-Kit

v. Waste Disposal
vi. Prescription
vii. Methods of Dose Calculation

D. Pharmacy Anticancer Drug Unit (3h)
i. Devices
ii. Automation
iii. Facilities
iv. Room Design
v. Furniture
vi. HVAC

E. Monitoring & Validation (2h)
i. Technical Monitoring and Validation
ii. Microbiological Monitoring and Validation

F. Working with Cytotoxic Drugs (1.5h)
i. The Risk of Working with Cytotoxic Drugs
ii. Monitoring Methods in Occupational Health

G. Emergency Pharmacy in Oncology Treatment (0.5h)

Note on implementation
International webinars provide interactive communication between instructors and participants. Participants can ask questions directly to the trainers. Instructors use instant surveys, photos and videos to transfer information effectively. National training programs are conducted in the native languages of the countries. For this reason, education in this context should be translated into local languages beforehand. However, before conducting national trainings, the lecture need to be accredited by the Accreditation team, therefore the lectures should be provided in English. International educations are face-to-face trainings. These trainings are conducted with case discussions, applied workshops. The goal is to interactively perform all of the participants in a discussing environment. For this reason, all necessary materials must be prepared in advance and an information should be provided containing guidelines for the participants.

2. Oncology Pharmacy in Practice (11 Hours)

Learning Targets

- to be able to apply basic and intermediate oncology pharmacy knowledge in practice
- to understand the role of pharmacists in clinical trials and to be able to take part in these studies

- to learn challenges in oncology pharmacy and to use this knowledge in practice
- to understand basic principles of oncology therapy
- to have information on topics such as medical errors, risk management and pharmacovigilance, and using this information in practice
- to be able to use the information sources and literature effectively
- to have knowledge about the nutrition approach of cancer patients and being able to apply these information effectively in the treatment process

Note on implementation
For all topics, suitable sources of literature and information should be presented. This section contains 6.5 hours of international webinars, 3 hours of national trainings and 1.5 hours of international workshops.

A. Formulations & Pharmacokinetics of Antineoplastic Drugs (1.5h)

B. Clinical Trials in Oncology (2h)

C. The Challenge of Oral Chemotherapy & Compliance, Adherence - Methods of Enhancing (1h)

D. Physicochemical Stability of Cytotoxic Drugs (1h)

E. The Basic Principles of Oncology Therapy (1h)

F. Pharmacovigilance (1h)

G. Medication Errors / Risk Assessment (1h)

H. Information Sources and Literature (1h)

I. Nutritional Support in Cancer Patients (1h)

J. Pharmaceutical Intervention in Emergency Oncology (0.5h)

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3. Clinical Oncology Pharmacy (46 Hours)

Learning Targets

- to be able to use clinical pharmacy skills in oncology pharmacy
- to understand the place of radiotherapy applications in oncology pharmacy
- to understand the importance of patient communication in oncology pharmacy and to provide patient consultancy service
- to be able to prevent/reduce drug interactions and side effects and to provide an effective service
- to be able to create pharmaceutical care plan and documentation
- to be able to understand supportive treatment/care options and use this knowledge in practice
- to learn about the common types of cancer in the society, to understand their classification, diagnosis and treatment methods
- to learn about pediatric oncology pharmacy skills
- to learn about approach to geriatric cancer patients and their diseases and to be able to use this information in practice
- to learn how to approach to pregnant cancer patients and those with sexual dysfunction during cancer treatment
- to understand the role of the oncology pharmacist in patients with organ dysfunctions

Note on implementation
For all topics, suitable sources of literature and information should be presented. Speakers are pharmacists and oncologists. This section contains 25 hours of international webinars, 3 hours of national trainings and 18 hours of international workshops.

A. Cancer Biology, Etiology, Epidemiology (2h)

B. Tumor classification, TNM system, Grading, Staging (1h)

C. Personalized Oncology and Predictive Molecular Diagnostic (1h)

D. Radiotherapy (1h)

E. Radio & Nuclear Pharmacy (1h)

F. Supportive Therapy (3h)

i. Supportive Therapy Management

ii. Supportive Therapy in Clinic

iii. Pharmaceutical Care Plan and Documentation

G. Interactions of Anticancer Drugs (2h)

H. Side Effects of Anticancer Drugs (1h)

I. Complementary Medicine in Oncology (1h)

J. Patient Communication for Oncology Pharmacists (3h)

i. Patient Counseling
ii. Oral cancer treatment
iii. Medication reconciliation

K. Psycho-Oncology (1h)

L. Clinical Presentation, Diagnosis and Treatment (23,5 h)

i. Digestive Cancers
ii. Breast Cancer
iii. Urological and testicular Cancers
iv. Melanoma and non-melanoma skin Cancers
v. Hematological malignancies
vi. Head/Neck Cancers
vii. Lung Cancer
viii. Gynecological Cancers

M. Treatment of Pediatric Oncology Patients (2h)

N. Treatment of Geriatric Oncology Patients (1h)

O. Chemotherapy During Pregnancy (0.5 h)

P. Sexual dysfunction during cancer treatment (0.5 h)

Q. Treatment of Oncology Patients with Organ Dysfunctions (1h)

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4. Biologics in Oncology Pharmacy (25 Hours)

Learning Targets

- Understanding the importance and importance of biologics in cancer treatment
- To understand the characteristics of proteins and monoclonal antibodies and the important concepts in protein synthesis.
- To be able to understand the differences between synthetic drugs and biologics and the challenges about them.
- To be able to understand the steps of the development of biological drugs and to use this knowledge in the meaning of the formulation stages of these drugs
- To learn the production and purification processes of biological drugs
- To learn biosimilars, their development and production. Learning new concepts emerging in these processes and the future of biosimilars
- To be able to understand the current practice and regulations about biosimilars
- To learn biologics frequently used in practice
- To be able to use these information to establish an action plan for the management of biosimilars in hospital

Note on implementation
For all topics suitable sources of literature and information should be presented. This section is performed 10 hours international webinars, 4 hours national trainings and 11 hour international workshops.

A. Introduction to Proteins & Monoclonal Antibodies (2h)
   i. Characteristics of proteins
   ii. Protein Synthesis
   iii. Monoclonal Antibodies

B. Introduction to Biological Medicines (3h)
   i. Characteristics and basic concepts of biologics
   ii. Development of Biologics
   iii. Quality of Biologics

C. Introduction to Biosimilars (3h)
   i. What is Biosimilars?
   ii. Biosimilar Development
   iii. Challenges of the Biosimilars (Panel/Group Disscussion)

D. Current Practice & Regulations (11h)

i. Regulatory aspects of biosimilars
ii. Substitution/Interchangeability/Switching
iii. Patient Education & Counselling
iv. Biosimilarity Studies
v. Extrapolation between clinical indications
vi. Economics of biosimilars

E. Biosimilars from Development to Clinic (2h)
i. 1st Gen. G-CSF / Erythropoietin
ii. 2nd Gen. Infliximab / Insulin
iii. 3rd Gen. Rituximab / Trastuzumab
iv. Clinical Guidelines, Central

F. Concerns Regarding Biosimilars (1h)

G. Action Plan Adaptation to Your Hospital / QMS (1h)

H. Practical challenges implementation use of biosimilars (1h)

I. Take Home Message/Post Evaluation (1h)

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