Syllabus

CLERKSHIP IN CLINICAL PHARMACY - 64862

Last update 01-11-2016

**HU Credits:** 15

**Responsible Department:** clinical pharmacy

**Academic year:** 0

**Semester:** Yearly

**Teaching Languages:** Hebrew

**Campus:** Ein Karem

**Course/Module Coordinator:** Prof. Shimona Superstine

**Coordinator Email:** amnonh@ekmd.huji.ac.il

**Coordinator Office Hours:** by appointment

**Teaching Staff:**
- Dr. Regina Protokin
- Prof Shimona Superstine
- Dr.
- Dr. Yakir Rottenberg
- Dr. Jonathan Cohen
Course/Module description:
Clerkships in the hospital wards and clinics Including workshops and lectures

Course/Module aims:
This course is an elaborate introduction to most therapeutic managements of hospitalized patients and is designed to train 1st year Pharm D students in clinical decision making while rotating in the various wards and clinics. At the end of the rotations the students will be able to:
1. Understand and appreciate the principles of medical treatments and the value of the clinical pharmacist as an important member of the medical team
2. Integrate the patient's disease and drug history acquired from his record or from his interview and apply this information to the plan of his drug therapy
3. Acquire knowledge in prospectively solving drug related problems
4. Acquire needed skills in proper communication with the patient and members of the medical team

Learning outcomes - On successful completion of this module, students should be able to:
clinical decision making while rotating in the various wards and clinics.

Attendance requirements(%):
100%

Teaching arrangement and method of instruction: During the rotations in each site, the students will be exposed to the patients hospitalized there at that specific time. Instruction will be provided by the clinical pharmacist (in case there is one located in the specific site) or the physician assigned to the task by the head of the department or unit. Each week each student will take a complete disease and drug history from 2-3 patients and will present the cases to the group of students and instructor or during the department weekly meeting. The presentation will include evaluation of the case from a clinical pharmacy perspective (were all drugs
indicated and the right choice for the specific patient, taking into consideration his condition and relevant parameters? If not, what are the best alternatives, the best dosage, route of administration, time of administration in relation to other drugs, etc. What are the side effects, drug – drug interactions, goal of therapy, duration of treatment, right manner of drug discontinuation and effective way to increase drug adherence and compliance with instructions. Cases for presentation will be selected according to their relevancy and value in the learning of drug therapy. In those cases where the instructor is a clinician and not a clinical pharmacist, he or she will be provided with instruction materials relevant to the study of the most frequent diseases in their floor(unit or department?) from a clinical pharmacy perspective. Academic lectures to students will be arranged so that they will not conflict with the times of the students' active participations in the physicians' rounds.

Course/Module Content:
The type and duration of each clinical rotation are described in the following Table:

<table>
<thead>
<tr>
<th>Site of Rotation</th>
<th>Duration (wks)</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Medicine, Hadassah Ein Karem</td>
<td>7</td>
<td>Prof. I. Nafarstak</td>
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<tr>
<td>Pediatrics, Hadassah Ein Karem</td>
<td>4</td>
<td>Prof. D. Engelhard</td>
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<tr>
<td>Cardiology, Hadassah Ein Karem</td>
<td>2</td>
<td>Prof. H. Lotan</td>
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<tr>
<td>Psychiatry in the Community</td>
<td>1</td>
<td>Dr. A. Dorevitch</td>
</tr>
<tr>
<td>Psychiatry, Hadassah Ein Karem</td>
<td>2</td>
<td>Prof. A. Shalev</td>
</tr>
<tr>
<td>Obstetrics &amp; Gynecology, Hadassah Ein Karem</td>
<td>1</td>
<td>Prof. N. Laufer</td>
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<tr>
<td>Diabetes Clinic, Hadassah Ein Karem</td>
<td>2</td>
<td>Prof. I. Raz</td>
</tr>
<tr>
<td>Oncology, Hadassah Ein Karem</td>
<td>2</td>
<td>Prof. T. Perez</td>
</tr>
<tr>
<td>Pediatric Intensive Care, Hadassah Ein Karem</td>
<td>1</td>
<td>Dr. I. Yatziv</td>
</tr>
<tr>
<td>Pediatrics and PICU, Hadassah Mt. Scopus</td>
<td>1</td>
<td>Prof. E. Kerem</td>
</tr>
<tr>
<td>Neurology, Hadassah Ein Karem</td>
<td>1</td>
<td>Prof. T. Ben Hur</td>
</tr>
<tr>
<td>Clinical Microbiology, Hadassah Ein Karem</td>
<td>1</td>
<td>Prof. A. Mozes</td>
</tr>
<tr>
<td>Pain Clinic, Hadassah Ein Karem</td>
<td>2</td>
<td>Prof. A. Davidson</td>
</tr>
<tr>
<td>Drug Information, Hadassah Ein Karem</td>
<td>2</td>
<td>Prof. Y. Karako</td>
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<tr>
<td>Teratology Institute, Hadassah Ein Karem</td>
<td>2</td>
<td>Prof. A. Or-Noy</td>
</tr>
<tr>
<td>Nephrology, Hadassah Ein Karem</td>
<td>1</td>
<td>Prof. M. Darnizki-Alhallel</td>
</tr>
<tr>
<td>Surgery, Sharei Zedek</td>
<td>2</td>
<td>Dr. B. Orkin</td>
</tr>
<tr>
<td>Family Medicine, Community Pharmacy</td>
<td>4</td>
<td>Prof. S. Yosselon-Superstine</td>
</tr>
</tbody>
</table>

Total 40 weeks

Internal Medicine (7 weeks): During rotations in the various Internal Medicine departments, each student will work out 2 cases each week and the instructor will discuss therapeutic options for each of the following diseases or conditions: diabetes, hypertension, heart failure, renal failure, pulmonary disorders, Ischemic heart disease, pneumonia, urinary tract infections, gastric diseases and inflammations, liver disease. The effect of these diseases on various body systems.
will be discussed.

Pediatrics (4 weeks): During rotations in the two Pediatrics departments, each student will work out 2 cases each week and the instructor will discuss therapeutic options for each of the following diseases or conditions: rash, urticaria, otitis, cellulitis, tonsillitis, pharyngitis, laryngitis, bronchiolitis, pneumonia, UTI in males versus females, meningitis (treatments protocols in different ages) gastrointestinal diseases (acute and chronic), bone and joints disorders, diabetes (type I), cancer disease in infants and children.

Pediatric Intensive Care (PICU, 2 weeks): The following topics will be covered: principles of parenteral therapy, fluid and nutritional therapy, post operative therapy (including choice and dosing of antibiotics according to age and infection severity), therapeutic approach to the septic patient, heart failure, renal failure, pulmonary failure. Other conditions will be covered according to the presence of relevant patients in the unit.

Oncology (2 weeks): During rotations in the oncology department and the day care, each student will work out 2 cases each week and the instructor will discuss therapeutic options (chemotherapy, radiation, biological therapy) for each of the following cancer diseases: breast, ovaries, lymphomas, leukemia, multiple myeloma, bone marrow transplant, cancer of the prostate, colon, head, brain, lung, melanoma and other types of cancer in various organs. In addition special attention will be given to supportive therapy such as personal analgesic therapy using different modes of opioids administration, drugs for prevention of nausea and vomiting, hematologic support.

Cardiology (2 weeks): During this rotation, each student will work out 2 cases each week and the instructor will discuss therapeutic options for each of the following diseases or conditions: acute and chronic Ischemic heart disease, cardiogenic shock, arterial and ventricular arrhythmias, antithrombotic therapy, PTCA, prevention of restenosis, drug therapy in cardiac valve disease, endocarditis, heart failure (different stages), heart transplant.

Neurology (2 weeks): During this rotation, each student will work out 2 cases each week and the instructor will discuss therapeutic options for each of the following diseases or conditions: stroke, anticoagulant and antithrombotic therapy, epilepsy – principles of primary therapy, monotherapy versus polytherapy, pharmacokinetic and pharmacodynamic considerations, seizures in head injury, Multiple Sclerosis, Parkinson's disease (drug treatment in comorbidities), Alzheimer's disease, other cognitive and neurological disorders.

Psychiatry (3 weeks): During this rotation, each student will work out 2 cases each week and the instructor will discuss therapeutic options for each of the following diseases or conditions: schizophrenia, depressive disorders, bipolar disorder, anxiety disorders, panic attacks, sleep disorders, eating disorders, personality disorders, substance-related disorders.

Clinical Microbiology (2 weeks): Students accompany the Infectious Disease Consultant on duty during his/her consultation rotations in various departments in the hospital and are also exposed to the telephone consultations. These consultations deal mainly with bacterial infections but relate to viral and fungal infections as well. Seminars include discussions on antibiotic of choice, drug
regimens, clinical considerations such as patients' characteristics and the severity of the disease. Infections covered include respiratory tract Infections, intra-abdominal infections, urinary and renal Infections, gynecological Infections, and central nervous system infections. There is also emphasis on special drug protocols for diseases such as AIDS and tuberculosis and on antimicrobial therapy during situations such as chemotherapy administration or transplantations.

Gynecology (1 week): Students will rotate in the special clinics for adolescent girls, women in menopause, fertility problems and pregnancy observation. Seminars and discussions will cover problems with drug therapy during pregnancy and lactation (especially in chronic diseases such as diabetes, hypertension, epilepsy, coagulation disorders), pre-op and post-op drug therapy, drugs in labor (antibiotics, analgesics, anesthetics, hemodynamic stabilizers).

Diabetic Clinic (2 weeks): Students will learn the recommended protocols and guidelines of diabetes management, the best ways to monitor a diabetic patient and consult him/her, principles of patient education on appropriate drug administration, use and storage, principles of non-pharmacological treatment, disease complications and risks reductions and of drug interactions avoidance. Pain Clinic (2 weeks): Students will be exposed to the various pain treatments in hospitalized patients suffering from acute pain (e.g. post operative pain) and to various pain treatments in patients suffering from chronic pain and are visiting the pain clinic. Various analgesics and modalities of pain alleviation techniques will be covered (e.g. PCA, spinal pumps, epidural injections) including non-pharmacological. Students will practice obtaining elaborate drug history and tailoring drug therapy to the individual patient according to his/her medical history and type of pain.

Drug Information Center (2 weeks): Students will get acquainted with the different information sources: Primary, Secondary, Tertiary and their differences. In particular they will practice use of electronic data sources, gathering information, interpretation and integration, documentation and application of the information into treatment guidance. They will learn how to introduce the information (e.g. drug indications, side effects, dosing, interactions) to the medical team. During the rotation the students will acquire skills in searching computerized programs designed to supply specific data such as drug-drug interactions and drugs incompatibilities. They will document all their activities including the answers supplied by electronic mails and telephone calls.

Teratology Information Center (2 weeks): Students will learn about the safety/risk of drugs use during pregnancy, in particular the use of antiepileptics, antihypertensives, anticoagulants and antidepressants. They will learn about the genetics of congenital malformations, mechanism of the harm inflicted by teratogens and the safe alternatives. In addition they will become familiar with the activities of the service and the principles of teratologic consultation.

Nephrology (1 week): Students will learn about acute and chronic renal disease, drugs with renal toxicity, adjusting drug dose according to the patient's renal function, drug therapy in the dialyzed patient.

Surgery (2 weeks): Students will be exposed to activities in the operation room, recovery unit and the surgery department and the medications used there. In addition they will learn about post-op infections, antibiotics use pre and post
surgery, total parenteral nutrition (TPN), drugs used in resuscitation, drugs used in anesthesiology, clinical pharmacy in the surgery unit.

Community and Family Medicine (4 weeks): The experiential learning part in the community will cover all expressions of clinical pharmacy in the community, mainly drug therapy monitoring (especially polypharmacy). Drugs will be checked for appropriateness of use in all aspects, e.g. indications, dosing, drug-drug interactions. The principles of disease management will be checked for applications in chronic diseases (e.g. hypertension, diabetes). During visits to the family physicians clinics, the students will train in extracting relevant information from the patient's chart, interviewing the patient, writing a pharmaceutical care plan, introducing it to the patient and the doctor and constructing a follow up plan.

**Required Reading:**
Any research, review publications recommended by the physicians in the rotation

**Additional Reading Material:**
Local guidelines and treatment protocols

**Course/Module evaluation:**
End of year written/oral examination 0 %
Presentation 0 %
Participation in Tutorials 0 %
Project work 0 %
Assignments 0 %
Reports 0 %
Research project 0 %
Quizzes 0 %
Other 100 %
exam, seminar and presentation

**Additional information:**
The sum total of grades received in all rotations and based on an examination or evaluation of seminars or case presentations