

## HIV ADVANCED (YEAR 2) PHARMACY RESIDENCY

### ANTIRETROVIRAL THERAPEUTIC DRUG MONITORING ROTATION

**McGill University Health Centre  
Québec Antiretroviral Therapeutic Drug Monitoring Program**

**Preceptors:**

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**Québec Antiretroviral Therapeutic Drug Monitoring Program**

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Antiretroviral therapeutic drug monitoring (TDM) is available for all individuals living with HIV in Québec. The program is completely funded by the Ministère de la santé et des services sociaux du Québec. Plasma concentrations of antiretrovirals are measured by the biochemistry department of the McGill University Health Centre (MUHC) and the results are then interpreted by pharmacists. A report with pharmacological advice is sent to the treating physician. The TDM interpretations take into consideration virologic control, past virologic failure, viral genotypic and phenotypic data, concomitant medications, indication for TDM, adverse events, and other patient-specific data such as age, weight, gender, etc.

The primary role of the HIV pharmacist at the Québec antiretroviral TDM program consists of interpreting the TDM results and sending a pharmacological report to the treating physician. The pharmacist is also involved in reviewing the literature to update the PK/PD parameter targets, developing dose adjustment algorithms for each antiretroviral measured, training the Québec physicians, pharmacists and nurses on antiretroviral TDM, evaluating the program and the clinical utility of antiretroviral TDM and participating in retrospective and prospective research on TDM and antiretroviral pharmacokinetics.

**Duration of rotation: 5 weeks**

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The resident must have some knowledge of written French as 80% of the TDM reports must be written in this language. Presentations and interventions with the TDM team and the members of the Chronic Viral Illness Service (MUHC) can be done in English.

### **Goals:**

By the end of the rotation:

- 1) the resident will have gained knowledge on antiretroviral pharmacokinetics and antiretroviral therapeutic drug monitoring;
- 2) the resident will interpret plasma concentrations of antiretrovirals and recommend dose modifications, as needed, to optimize therapy;
- 3) the resident will participate in the continued development of the Québec Antiretroviral Therapeutic Drug Monitoring Program.

### **Objectives:**

By the end of the rotation, the resident will be able to:

- 1) Describe the literature supporting antiretroviral therapeutic drug monitoring and the arguments against antiretroviral therapeutic drug monitoring;
- 2) Explain the policies and procedures of the Québec Antiretroviral Therapeutic Drug Monitoring Program;
- 3) Describe the pharmacokinetic / pharmacodynamic properties of the antiretrovirals analyzed;
- 4) Calculate pertinent PK / PD parameters: extrapolated  $C_{min}$ , genotypic inhibitory quotients, weighted genotypic inhibitory quotients, virtual inhibitory quotients, instantaneous inhibitory potentials;
- 5) Interpret plasma concentrations of antiretrovirals and make appropriate recommendations based on indication for TDM, history of past virologic failure; genotypic and phenotypic viral resistance, and clinical data (viral load, CD4, adverse drug reactions).
- 6) Provide appropriate and concise drug information in a timely manner to health professionals who have queries on antiretroviral TDM or on a specific patient TDM interpretation report.

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- 7) Develop a TDM algorithm for dose adjustments or work on a TDM-related project.
- 8) Prepare and present a conference or a journal club on a subject related to antiretroviral TDM or antiretroviral pharmacokinetics.

### **Activities:**

Approximately 10 to 20 TDM interpretations will be done per week. Other activities during the rotation will be :

- 1) participating in weekly HIV pharmacy meetings
- 2) attending weekly Chronic Viral Illness Service academic rounds
- 3) presenting a TDM-related conference or journal club
- 4) developing a TDM algorithm for dose adjustments or working on a TDM-related project (to be determined during the first week of rotation).

### **Assessment and Evaluation:**

- The resident will complete a written self-assessment at midpoint (2.5 weeks) and at the end of the rotation (5 weeks).
- The primary preceptor, in collaboration with the secondary preceptors if needed, will complete a mid-point assessment (verbal or written) at 2.5 weeks and a written final assessment at 5 weeks.
- Verbal feedback will be given throughout the rotation.
- The Therapeutic Drug Monitoring assessment form will be used for these assessments.
- At the end of the rotation, the resident will also complete an evaluation of the rotation and of the preceptors.