

Appendix C: Sample Curriculum

Example from the Lawrence Family Medicine Residency, last updated August 2022

1. HIV Prevention

a. Goals/objectives:

- i. Provide comprehensive and effective prevention counseling, incorporating various prevention strategies (e.g. behavioral strategies, male circumcision, STI treatment, needle exchange, PrEP, PEP, Treatment as prevention)
- ii. Effectively counsel, initiate, and manage patients on Pre-Exposure Prophylaxis (PrEP)
- iii. Effectively counsel, initiate, and manage patients on Post-Exposure Prophylaxis (PEP), both for non-occupational (nPEP) and occupational (oPEP) exposures
- iv. Identify investigational prevention strategies (HIV vaccines; broadly neutralizing antibodies (BNABs) for HIV prevention; new ARVs for PrEP)
- v. Identify gender, sociodemographic, racial and other inequities in PrEP utilization

2. Testing and counseling

a. Goals and objectives:

- i. Based on current guidelines, appropriately screen patients for HIV and recommend appropriate intervals for repeat testing
- ii. Describe the currently available testing methods for HIV diagnosis; understand their basic characteristics, including frequency and reasons for false positive/negative/indeterminate results
- iii. Appropriately interpret test results for individual patients, including in setting of ambiguous results as may be seen during current or prior PrEP use, or early HIV infection

3. Epidemiology

a. Goals/objectives:

- i. Define and distinguish basic epidemiologic terms including prevalence, incidence, and incidence rate.
- ii. Describe the key epidemiologic features of the global HIV epidemic, and the implications thereof on screening and treatment programs
- iii. Describe the key epidemiologic features of the US HIV epidemic, including HIV disparities, and the implications thereof on screening and treatment programs
- iv. Know where to get local epidemiologic data, and describe the key epidemiologic features of the HIV epidemic in Lawrence and its surrounding communities, and the implications thereof on screening and treatment programs

4. Basic virology and immunology

a. Goals/objectives:

- i. Describe the HIV life-cycle, and which stages of the lifecycle are targeted by currently available classes of antiretroviral drugs
- ii. Describe the natural history of chronic HIV infection, and apply this understanding to patient care including basic assessment and clinical decision-making (such as developing appropriate differentials based on disease stage, making recommendations about ART initiation, etc.)
- iii. Describe the key components of the interaction between HIV and the immune system, and apply this knowledge to effectively counsel and educate patients about the disease

5. Primary care of persons with HIV

a. Goals and objectives:

- i. Describe the key components of the initial evaluation of persons with HIV (history, exam, baseline laboratory evaluation, key counseling points)
- ii. Describe current health care maintenance guidelines for persons with HIV, including laboratory monitoring, vaccine recommendations, and recommended screening for co-morbid conditions

6. ART management part 1 – mechanism of action, pharmacology, drug-drug interactions, timing of treatment initiation, monitoring treatment response, monitoring/treatment of key side effects and toxicities

a. Goals and objectives:

- i. Understand the basic mechanism of action of each of the major classes of antiretroviral medications
- ii. Understand the key pharmacokinetic properties of the most commonly used antiretrovirals in clinical practice
- iii. Describe the most significant drug-drug interactions of each of the most commonly used antiretrovirals in clinical practice
- iv. Describe the most significant side effects/toxicities of each of the most commonly used antiretrovirals in clinical practice, and appropriate management strategies for each (including lipodystrophy; lactic acidosis; hepatotoxicity; nephrotoxicity; bone disease; other metabolic complications; systemic drug reactions such as DRESS, ABC hypersensitivity, and SJS/TEN; and Immune Reconstitution Inflammatory Syndrome)
- v. Describe the optimal time of treatment initiation in ART-naïve patients
- vi. Describe the expected virologic response to treatment
- vii. Describe appropriate laboratory monitoring of patients on ART

7. **ART management part 2** – HIV drug resistance
 - a. Goals and objectives:
 - i. Describe the basic nomenclature of drug resistance and the language of HIV treatment failure more generally
 - ii. Describe the epidemiology of primary drug resistance in the US
 - iii. Describe how drug resistance develops in patients on ART, and identify 3-5 risk factors for the same
 - iv. Describe the key mechanisms of drug resistance for each of the different ARV classes
 - v. Describe the different type of resistance tests available in clinical practice; how they differ; and how to determine which test to order for a given patient
 - vi. Understand how to interpret the results of the various types of resistance tests, including utilization of online resources such as the Stanford database to aid in their interpretation

8. **ART management part 3** - management of treatment-experienced patients, switch strategies, investigational agents/strategies
 - a. Goals and objectives:
 - i. Understand the key principles that guide regimen switching, be it for reasons related to treatment failure, toxicity, or simplification
 - ii. Describe the implications of treatment interruption in patients who are failing therapy
 - iii. Identify 2-3 novel agents under investigation, as well as relevant resources on investigational drugs and strategies for patients and providers

9. **HIV-related complications and co-morbidities** – part 1 (prevention, diagnosis and treatment of common HIV-related complications: OIs)
 - a. Goals and objectives:
 - i. Describe the clinical presentation of common opportunistic infections (w/attention to: CAP, MAC, candidiasis, PJP, cryptococcosis, Toxoplasmosis, CMV, HSV, VZV, PML/JCV) and co-infections (COVID-19)
 - ii. Describe current diagnostic and treatment strategies for common opportunistic infections
 - iii. Describe current guidelines for prevention of common opportunistic infections, including appropriate use of prophylaxis (when to start and stop) and vaccination

10. **HIV-related complications and co-morbidities** - part 2 (prevention, diagnosis and treatment of common HIV-related complications/OIs II)
 - a. Goals and objectives:
 - i. Describe the clinical presentation of common systems-based complications of HIV (nervous system, respiratory, GI, renal, dermatologic, cardiac, endocrine, musculoskeletal, dental/oral, ophthalmologic, hematologic)
 - ii. Describe the current guidelines for diagnosis, treatment, and prevention of common systems-based complications of HIV

11. **HIV-related complications and co-morbidities** - part 3 (prevention, diagnosis and treatment of common HIV-related complications/OIs III)
 - a. Goals and objectives:
 - i. Describe the clinical manifestations of common STIs and malignancies in patients with HIV
 - ii. Describe current recommendations for diagnosis and treatment of common STIs and malignancies in patients with HIV
 - iii. Describe the current recommendations for screening and prevention of common STIs and malignancies in patients with HIV

12. **Key populations** – youth/adolescents, women and infants, LGBTQ+ persons, people with substance use disorder, racial and sociodemographic minorities, HIV-2
 - a. Goals and objectives:
 - i. For the populations noted, describe key considerations impacting HIV vulnerability (biopsychosocial, environmental, and structural factors affecting rates of HIV acquisition) and HIV-related health outcome measures
 - ii. Describe the management of women at risk of or diagnosed with HIV, and their infants, during peri-conception, pregnancy, and peri-partum (perinatal ART management, family planning including DDIs with contraceptives, infant feeding counseling, management of neonates born to mothers with HIV)
 - iii. Understand terminology around sexual and gender identity (including gender-inclusive terms, pronouns, orientation, attraction, expression), the basics of gender-affirming hormonal therapy (including common DDIs with ARVs), and the relevant health care maintenance considerations for LGBTQ+ individuals
 - iv. Understand basic SUD treatment, including motivational interviewing and knowledge of medication-assisted treatment with attention to smoking cessation, alcohol use disorder, and opiate use disorder
 - v. Understand the impact of race and ethnicity on inequities in HIV-related treatment and prevention outcomes. Have basic understanding of race as a social construct, concept of structural racism, and their impacts on the HIV epidemic.
 - vi. Understand the basics of HIV-2 infection (including pathogenesis, co-infection of HIV-1 and HIV-2, diagnosis, and management recommendations)

13. Medical legal issues, advocacy

- a. Goals and objectives:
 - i. Understand key medical legal and ethical issues related to HIV disease and its diagnosis, including issues of consent for testing; confidentiality; disclosure; and screening and treatment of minors
 - ii. Understand basic health care policy/economics issues, including the systems that have been established to ensure access to care for those with HIV, and how these may be impacted by health care reform

14. Clinical research and HIV-related quality improvement, PCMH

- a. Goals and objectives:
 - i. Review national and local HIV-related outcome goals and disparities
 - ii. Evaluate current system processes and identify gaps in expected and actual patient outcomes in our patient population
 - iii. Implement a research and/or QI-project to close these gaps and improve patient outcomes
 - iv. Understand individual team members' roles in provision of quality care for patients
 - v. Understand how to use panel management tools to track and implement panel-based interventions for QI
 - vi. Utilize team members to implement interventions for priority patients identified through panel review