

Family Medicine Clerkship

Curriculum Resources



ACGME [Competencies](#)

Clerkship Objectives organized by [ACGME & FM Themes](#)

[FM Principles](#)

Core Topics

[Special Topics](#)

[General Resources](#)

[Clerkship Setting](#)

[Faculty Development](#)

[Glossary](#)

[FMCR Members](#)

[User's Guide](#)

[Future of FM Report](#)

Immunizations

OVERVIEW

Immunization has been cited as one of the top 10 public health achievements of the 20th century. Every day in the United States, 11,000 babies are born who must be vaccinated. To be protected against 10 vaccine-preventable diseases, they should receive 14-18 doses of vaccines by 18 months of age and 19-23 doses through childhood. Adult vaccines continue to be underutilized. Students will be challenged to learn the large body of knowledge to be able to immunize our population effectively against vaccine-preventable illnesses.

Fortunately, there are great Internet and PDA resources so that much of this immunization information does not need to be memorized and can be easily accessed with good information management skills. Additionally, students must learn the skills needed to communicate with patients and parents of patients clearly and sensitively about the risks and benefits of vaccines. Finally, students must be able to administer vaccines correctly.

TOPIC LEARNING GOALS AND OBJECTIVES

(Organized by ACGME Competencies)

Patient Care

GOAL: Students will recommend timely vaccinations based on age, medical conditions, lifestyle, and environment.

OBJECTIVES: Students will be able to:

- Describe the CDC vaccine schedule for children and adults and access the detailed schedule on the Web or on a handheld computer (e.g., <http://www.immunized.org>).
- Understand the rationale for vaccine indications based on lifestyle and environment.
- Apply the Recommended Childhood and Adolescent Immunization Schedule and the Recommended Adult Immunization Schedule to a patient or scenario.

GOAL: Students will apply contraindications appropriately, and take advantage of every opportunity for immunization.

OBJECTIVES: Students will be able to:

- State major contraindications.
- Access details of contraindications (e.g., Web site or handheld software).
- Determine when live vaccines can be dangerous for patients who were immunosuppressed or immunosuppressed contacts of patients receiving the vaccine.

GOAL: Students will administer vaccines appropriately.

OBJECTIVES: Students will be able to:

- Distinguish between common, minor side effects versus rare serious effects (the latter should be reported to the Vaccine Adverse Event Reporting System (<http://www.vaers.org/>.)
- Distinguish between vaccine delivery using the intramuscular versus the subcutaneous route and site.
- Demonstrate the ability to draw up a vaccine and deliver it using appropriate site and the right needle size.

Medical Knowledge

GOAL: Students will explain the vaccines, the diseases they prevent, and the recommended schedules for administration.

OBJECTIVES: Students will be able to:

- List and describe the common viral and bacterial diseases for which we vaccinate our population, including communicability.
- Discuss communicability and transmission routes.
- List which vaccines contain live organisms.
- Discuss why some vaccines are conjugated.
- Describe the appropriate timing for vaccine delivery.
- Discuss why there are minimal intervals between vaccines.
- Discuss why there is no need to restart a vaccine series if there is a delay in the schedule.
- Describe the public health burden of these diseases prior to widespread vaccination and the subsequent declines in disease due to vaccination.

Practice-Based Learning and Improvement

GOAL: Students will understand the barriers that prevent higher immunization rates among our children and adults.

OBJECTIVES: Students will be able to:

- Explain how health disparities based on income and lack of health insurance contribute to under-immunization.
- Discuss vaccine financing.
- List typical missed opportunities for immunizations in medical settings.
- List methods by which doctors and health departments can increase immunization rates.
- Discuss how misinformation on vaccine-related adverse events affects immunization rates and disease.
- Discuss local resources for vaccination.

Interpersonal and Communication Skills

GOAL: Students will discuss benefits and risks of vaccines with patients and parents of patients clearly and sensitively.

OBJECTIVES: Students will be able to:

- Provide / discuss vaccine risk-benefit information to patients and parents of patients when offering vaccinations (e.g., provision of the CDC Vaccine Information Statements from <http://www.cdc.gov/nip/publications/VIS/default.htm>).
- Describe the importance of preventing vaccine preventable diseases.
- Communicate effectively with patients and parents that have worries or concerns about the use of vaccinations.

Professionalism

GOAL: Students will establish and adhere to high personal standards in the provision of immunizations to patients.

OBJECTIVES: Students will be able to:

- Communicate honestly and openly with patients and families about the personal and public health issues surrounding our national immunization program.

Systems-Based Practice

GOAL: Students will appraise and utilize the best practice guidelines based on the most current available information to recommend immunizations and to raise immunization rates.

OBJECTIVE: Students will be able to:

- Develop a critical approach to making health care decisions for individuals and groups by using quality indicators (e.g., USPSTF, HEDIS), community and national health data, guidelines (e.g., AHRQ, managed care), cost data, and EBM applications (on the Internet or PDA).
- Find and use the CDC National Immunization Program website and other high-quality Web sites as resources for finding and evaluating evidence-based clinical practice guidelines www.cdc.gov/nip.
- Find and use the Web site of the Task Force on Community Preventive Services that rates the evidence on ways to increase immunization rates <http://www.thecommunityguide.org/vaccine/default.htm>.

EDUCATIONAL METHODS AND RESOURCES

Teaching Strategies

- Lectures (see slide sets on <http://www.immunizationed.org>)
- Small-group cases from the Teaching Immunization for Medical Education (TIME) program
- Preceptor-student interaction on actual clinical cases
- Independent reading

Integration Strategies

- Immunization theory is typically covered in infectious disease or host defense courses in preclinical years. Actual practice is covered in primary care clerkships (e.g., family medicine).

Clinical Experience

- Counsel patients and parents of patients in clinical settings. Review vaccine indications and contraindications for individual cases with preceptor. Learn to prepare and give vaccines in clinical settings.

Independent Learning

- The CDC Web site <http://www.cdc.gov/nip/> contains a wealth of information on immunizations and is a great resource for independent learning.
- Teaching Immunization Delivery and Education (TIDE)
TIDE is a Web-based interactive provider education curriculum designed to give faculty, students, residents, and practitioners a flexible tool to teach and learn immunization delivery. All work is completed on-line. Organized in four modules (childhood immunizations, assessing immunization rates, improving rates in your practice, and adolescent immunizations), it is self paced and offers continuing education credits for physicians and nurses. <http://www2.edserv.musc.edu/tide/menu.lasso>
- Textbooks and Journal Supplements as listed below.

Small-Group Learning/Problem-Based Learning

- Small-group cases from the Teaching Immunization for Medical Education (TIME) program

Curricular Resources

- ATPM's medical education materials were developed through the Teaching Immunization for Medical Education (TIME) Project, a collaborative initiative of ATPM, the Department of Family Medicine, University of Pittsburgh School of Medicine and CDC. Materials developed through this initiative are referred to as the TIME Resource.
http://www.atpm.org/Immunization/TIME/body_time.html

The TIME Resource consists of case-based modules in two teaching formats:

1. Multistation Clinical Teaching Scenarios (MCTS).
Topics in this series include: adult vaccination, childhood vaccination, Haemophilus influenzae type b, hepatitis B, influenza, measles, and pertussis.
2. Problem Based Learning (PBL).
The PBL series consists of modules for hepatitis B, influenza, measles, and pertussis.

The modules focus on vaccine indications and contraindications, immunization schedules, and efficient ways to increase vaccination levels and decrease missed

opportunities to vaccinate. They provide a comprehensive package of ready-to-use instructional materials that can be easily integrated into existing curriculums.

The PBL modules are free. They are designed for use with first- and second-year medical students within schools of medicine with PBL tracks.

Each MCTS packet consists of:

- a facilitator's guide
- 3 small-group booklets, each of which can be used with 3-4 students
- the reference articles

Each disease-specific topic has 5 to 6 teaching scenarios that can be covered in 60-90 minutes, depending on the questions raised and the facilitator's teaching style.

Both the MCTS and PBL approach present medical students and residents with case scenarios to be discussed in small groups. MCTS offers a number of cases for analysis while the PBL approach focuses on a core case. Both methods employ small-group contextual learning techniques demonstrated to be highly effective in facilitating learner problem-solving skills and content knowledge. Both methods encourage active student participation. The PBL approach encourages student-directed assessment of case scenarios whereas a facilitator guides the MCTS process. Some of the TIME products are available for free at <http://www.atpm.org>.

Published Material

- Vaccines, ed. Plotkin and Orenstein (Saunders/Elsevier), is a leading textbook in the discipline.
- Epidemiology and Prevention of Vaccine-Preventable Diseases is a major CDC textbook, also known as the Pink Book.
<http://www.cdc.gov/nip/publications/pink/>
- The Report of the Committee on Infectious Diseases, American Academy of Pediatrics, is another major text; it is known as the Red Book.
Online version <http://aapredbook.aappublications.org/>
- Vaccines across the Life Span, | 2nd ed., 2003.
http://www.jfponline.com/supplements/jan_03_supplement.asp

Lectures

- These slides were provided courtesy of the Centers for Disease Control and Prevention; Richard K. Zimmerman, MD, University of Pittsburgh; and Richard D. Clover, MD, University of Louisville. Additional slide presentations appropriate for use by educators will be developed for this site.
<http://www.immunizationed.org/Downloads.asp>

Web Sites

General

- The National Immunization Program

<http://www.cdc.gov/nip/default.htm>

- The Group on Immunization Education (GIE) of the Society of Teachers of Family Medicine is dedicated to improving the knowledge of family medicine educators by providing information about immunizations and strategies to transmit this knowledge to students and residents. The Group also has copies of the latest Recommended Childhood Immunization Schedule and the Recommended Adult Immunization Schedule.

<http://www.immunized.org/>

Shots 2004 is a quick reference guide to the annual Recommended Childhood and Adolescent Immunization Schedule, and the Recommended Adult Immunization Schedule that is recommended by the Advisory Committee on Immunization Practices (ACIP). Details on each vaccine are available by clicking on the vaccine names. Available free for PDAs and on the Web.

<http://www.immunized.org/>

- American Academy of Family Physicians
The annual Recommended Childhood and Adolescent Immunization Schedule and the Recommended Adult Immunization Schedule as well as other Academy immunization policy statements are available on the AAFP Immunization Website at: <http://www.aafp.org/x10615.xml>
These documents are also available through the AAFP Order Department at (800) 944-0000. The schedules have also been promoted to the AAFP Constituent Chapters for promotion at their meetings and through their newsletters.
- In addition, immunization information is promoted at the AAFP's Annual Scientific Assembly, through the AAFP's 2004 Annual Clinical Focus program (Caring for America's Aging Population), American Family Physician and the Family Practice Management journals, and through other venues such as CME activities and monographs.
- Immunization Action Coalition is a premier source of childhood, adolescent, and adult immunization information and hepatitis B educational materials. Resources include newsletters, pictures and stories of persons harmed by vaccine preventable diseases, and periodic emails of electronic updates of important vaccination news. <http://www.immunize.org>
- The National Network for Immunization Information (NNII) provides up-to-date, science-based information to health care professionals, the media, policy makers, and the public -- everyone who needs to know the facts about immunization. The Information provided includes NNII Immunization Newsbriefs, an easy way to keep on top of the latest vaccine issues in the news. <http://www.immunizationinfo.org/>
- National Partnership for Immunization
The mission of NPI is to encourage greater acceptance and use of immunization for all ages through partnerships with public and private organizations. <http://www.partnersforimmunization.org/>
- Task Force for Community Preventive Services
The Community Guide's systematic review of the effectiveness of selected population-based interventions aimed at improving vaccination coverage in children, adolescents and adults focused on strategies within three strategic areas: <http://www.thecommunityguide.org/vaccine/default.htm>
 - Increasing community demand for vaccinations
 - Enhancing access to vaccination services

- Provider-based interventions

Infants and Children

- Every Child By Two
<http://www.ecbt.org>
- National Immunization Program
<http://www.cdc.gov/nip/diseases/child-vpd.htm>
- Immunization Action Coalition: State Mandates
<http://www.immunize.org/laws/index.htm>

Pregnant Women

- US Department of Health and Human Services and CDC Guidelines for Vaccinating Pregnant Women
http://www.cdc.gov/nip/publications/preg_guide.htm

Adolescents and Adults

- National Coalition for Adult Immunizations
<http://www.nfid.org/ncai/>
- 100% Immunization Campaign
<http://www.immunizeseniors.org>
- National Immunization Program
<http://www.cdc.gov/nip/diseases/adult-vpd.htm>
- American Lung Association
<http://www.lungusa.org/>

Travel Health

- National Center for Infectious Diseases: Travelers' Health
<http://www.cdc.gov/travel>

Potential State Partners

- State Immunization Program
<http://www.immunize.org/states/index.htm>
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- State Immunization Coordinators
<http://www.immunize.org/nslt.d/n18/coord18.htm>

Health People 2010 Immunization Objectives

- <http://www.health.gov/healthypeople/document>

National Extension Immunization Workgroup

- <http://www.nnh.org/NewNNH/immune.htm>

Multimedia

- Several picture galleries are available on the web, containing photographs of vaccine preventable diseases. Many of these images were acquired from the Public Health Image Library, sponsored by the Centers for Disease and Prevention. They may be used by educators for teaching purposes. The images in this collection are in the public domain and are thus free of any copyright restrictions. For public domain images, permission is not required, but we ask that you credit the original institution and contributor (when known) whenever the image is used in any publicly distributed media.

<http://phil.cdc.gov/Phil/default.asp>

<http://www.vaccineinformation.org/photos/index.asp>

<http://www.immunizationed.org/diseases.asp>

Contact People

- The Group on Immunization Education (GIE) of the Society of Teachers of Family Medicine is dedicated to improving the knowledge of family medicine educators by providing information about immunizations and strategies to transmit this knowledge to students and residents.

<http://www.immunizationed.org/>

ASSESSMENT STRATEGIES

- Sample Quizzes are available from the TIME project.
- Chart stimulated recall is a useful technique to test medical students.

FACULTY DEVELOPMENT

- Vaccines edited by Plotkin and Orenstein (Saunders/Elsevier) is a leading textbook in the discipline.
- Epidemiology and Prevention of Vaccine-Preventable Diseases is a major CDC textbook, also know as the Pink Book.
<http://www.cdc.gov/nip/publications/pink/>
- The Report of the Committee on Infectious Diseases, American Academy of Pediatrics, is another major text; it is known as the Red Book.
Online version <http://aapredbook.aappublications.org/>
- Vaccines across the Life Span , 2nd ed., 2003.
http://www.jfponline.com/supplements/jan_03_supplement.asp

BUDGETARY CONSIDERATIONS

- Web access to Vaccines across the Life Span , Supplement to the Journal of Family Practice is free.
- Some of the TIME resource modules are free from <http://www.atpm.org>
- The PDA software Shots 2004 is free.
- TIDE self-instruction materials are free.

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For questions or comments, please contact [Webmaster](#) or [Ardis Davis](#)

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