

# **WHO Immunological Basis for Immunization Series**

**Module 18: Hepatitis A  
Update 2019**

**Immunization, Vaccines and Biologicals**



**World Health  
Organization**

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# The immunological basis for immunization series: module 18: Hepatitis A (Immunological basis for immunization series ; module 18)

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# Abbreviations and acronyms

ACIP	Advisory Committee on Immunization Practices (United States)
ALT	Alanine aminotransferase
ASP	Aspartate transaminase
BMI	Body mass index
CDC	Centers for Disease Control and Prevention (United States)
cDNA	Complementary deoxyribonucleic acid
DTaP	Diphtheria, tetanus, acellular pertussis vaccine
EIA	Enzyme-linked Immunoassay
ELISA	Enzyme-linked immunosorbent assay
EL.U	ELISA units
EPI	Expanded Programme on Immunization
GBD	Global burden of disease
GMC	Geometric mean concentration
HAART	Highly active antiretroviral therapy
HAV	Hepatitis A virus
eHAV	enveloped HAV
HAVCR1	HAV with an attachment cellular receptor TIM 1
HBV	Hepatitis B virus
HCV	Hepatitis C virus
Hib	Haemophilus influenzae type b
HIV	human immune deficiency virus
HLA	Histocompatibility leukocyte antigen
Ig	Immunoglobulin
MAVS	Mitochondrial antiviral signaling protein
MMR	Measles, mumps and rubella vaccine
MSM	Men who have sex with men
LAK	Lymphokine-activated killer cells
NK cells	Natural killer cells
PBMC	Peripheral blood mononuclear cells
RIFIT	Radioimmunofocus assay
RNA	Ribonucleic acid
TCID	Tissue culture-infective dose
UV	Universal vaccination
WHO	WHO World Health Organization

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# Preface

This module is part of the WHO series The immunological basis for immunization, which was initially developed in 1993 as a set of eight modules comprising one module on general immunology and seven modules each devoted to one of the vaccines recommended for the Expanded Programme on Immunization (EPI) – i.e. vaccines against diphtheria, measles, pertussis, polio, tetanus, tuberculosis and yellow fever. Since then, this series has been updated and extended to include other vaccines of international importance.

The main purpose of the modules is to provide national immunization managers and vaccination professionals with an overview of the scientific basis for vaccination against a range of important infectious diseases. The modules developed since 1993 continue to be vaccine-specific, reflecting the biological differences in immune responses to individual pathogens and the differing strategies employed to create the best possible level of protection that can be provided by vaccination. The modules also serve as a record of the immunological basis for the WHO recommendations on vaccine use, published in the WHO vaccine position papers<sup>1</sup>.

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<sup>1</sup> See: [http://www.who.int/immunization/documents/positionpapers\\_intro/en/index.html](http://www.who.int/immunization/documents/positionpapers_intro/en/index.html), accessed 31 July 2018.

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This module was updated for WHO by **Daniel Shouval**<sup>2</sup>, Professor of Medicine, Liver Unit, Hadassah-Hebrew University Medical Center, Jerusalem, Israel and **Pierre Van Damme**<sup>3</sup>, Professor of Medicine, Faculty of Medicine & Health Science, Vaccine and Infectious Disease Institute, Centre for Evaluation of Vaccination, Universiteit Antwerpen, Belgium.

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