

Table 2 Summary of course contents covering topics related to vaccines and vaccination

Courses	Disciplines and their majors	Summary of vaccine-related topics covered	Proportion of vaccine-related content in teaching-related sections (%)	Practical skills components
《Pharmacology》	Medicine: Rehabilitation Therapy Studies、Dental Medicine、Pediatrics、Clinical Medicine、Clinical Medicine (Pediatrics Track)、Clinical Medicine (Integrated Master's)、Clinical Medicine (Rural Medical Track)、Ophthalmological and Optometric Medicine Nursing: Nursing Public Health: Maternal and Child Health Medicine、Preventive Medicine Pharmacy: Medical Pharmacy、Pharmacy、Traditional Chinese Pharmacy Biomedical Science : Biological Sciences 、Biotechnology	Research and development of therapeutic vaccines and their applications	128/8339=1.5%	None
《Medical Microbiology》	Medicine: Dental Medicine、Clinical Medicine (Integrated Master's)、Clinical Medicine (Pediatrics Track)、Clinical Medicine、Pediatrics、Clinical Medicine (Rural Medical Track)、Ophthalmological and Optometric Medicine Nursing: Nursing Public Health: Preventive Medicine、Maternal and Child Health Medicine、Health Inspection and Quarantine Pharmacy: Medical Pharmacy、Pharmacy、Traditional Chinese Pharmacy	Theoretical basis of artificial immunization; applications of vaccines against major viral diseases (influenza vaccine, polio Salk and Sabin vaccines, hepatitis A, hepatitis B, and Japanese encephalitis vaccines); challenges in vaccine development	113/13897=0.81%	None
《Experiment of Pathogen Biology and Medical Immunology》	Medicine: Clinical Medicine、Clinical Medicine (Integrated Master's)、Clinical Medicine (Pediatrics Track)、Dental Medicine Public Health: Maternal and Child Health Medicine、Preventive Medicine Pharmacy: Medical Pharmacy、Pharmacy、Traditional Chinese Pharmacy	Assessment of vaccine immunization efficacy (ELISA)	85/5171=1.64%	None
《Gynecology and Obstetrics》	Medicine: Clinical Medicine (Pediatrics Track)、Ophthalmological and Optometric Medicine、Rehabilitation Therapy Studies、Dental Medicine Public Health: Preventive Medicine、Maternal and Child Health Medicine、 Pharmacy	Neonatal hepatitis B immunoprophylaxis	27/21296=0.13%	None
《Pediatrics》	Medicine: Clinical Medicine (Pediatrics Track)、Ophthalmological and Optometric Medicine、Rehabilitation Therapy Studies、Clinical Medicine (General Practice Track)、Clinical Medicine (Rural Medical Track) Public Health: Preventive Medicine、Maternal and Child Health Medicine	Clinical applications of artificial active and passive immunization; vaccination screening procedures in pediatric vaccination clinics; the diphtheria-tetanus-pertussis (DTP) vaccine (post-class exercises)	65/8247=0.79%	None
《Severe Infectious Diseases Control and Prevention》	Medicine: Clinical Medicine (Pediatrics Track)、Clinical Medicine (Integrated Master's) Public Health: Preventive Medicine	Significance and strategies of immunization programs	33/4105=0.80%	None
《Child Health Care》	Medicine: Clinical Medicine (Pediatrics Track)、Pediatrics Public Health: Maternal and Child Health Medicine	Concepts related to immunization programs; pediatric immunization schedules; adverse reactions to vaccination; implementation and efficacy evaluation of immunization programs	137/6578=2.08%	None
《36 Hours of Molecular Biology》	Medicine: Clinical Medicine (Pediatrics Track)、Clinical Medicine (Integrated Master's)、Clinical Medicine (General Practice Track)、Ophthalmological and Optometric Medicine、Clinical Laboratory Technology	Applications of molecular biology in vaccine production	17/4525=0.38%	None
《Infection and Immunity》	Medicine: Clinical Medicine (General Practice Track)	Concepts, common preparations, types, and characteristics of artificial active and passive immunity, as well as their applications in the prevention and treatment of viral infections	112/17770=0.63%	None
《Clinical Microbiology》	Medicine: Clinical Laboratory Technology	Concepts, types, advantages, and disadvantages of artificial active and	113/13280=0.85%	None

laboratory》 《45 Hours of Medical Immunology》	Medicine: Clinical Medicine、Clinical Medicine (Integrated Master's)、Pediatrics、Clinical Medicine (Pediatrics Track)、Clinical Medicine (Rural Medical Track)、Ophthalmological and Optometric Medicine	passive immunization Requirements for vaccine preparation; types and applications of common vaccines	63/4223=1.49%	None
《Preventive Medicine》	Medicine: Clinical Medicine (Integrated Master's)	Definition of planned immunization and vaccine effectiveness evaluation	18/7263=0.25%	None
《Infectious Diseases》	Medicine: Ophthalmological and Optometric Medicine	Research progress in malaria vaccine development	14/8590=0.16%	None
《Children Infectious Diseases》	Medicine: Pediatrics、Clinical Medicine (Pediatrics Track)	Vaccination against influenza; preventive measures for pediatric tuberculosis (BCG vaccination)	89/10989=0.81%	None
《Pediatric Internal Medicine》	Medicine: Pediatrics、Clinical Medicine (Pediatrics Track)	Pediatric planned immunization schedule	10/7395=0.14%	None
《Ophthalmological and Optometric Medicine-Pediatrics》	Medicine: Pediatrics	Pediatric planned immunization schedule	10/5730=0.17%	None
《Female Reproductive System Disease》	Medicine: Clinical Medicine (General Practice Track)	Neonatal hepatitis B immunoprophylaxis	27/21568=0.13%	None
《Pediatric Nursing》	Nursing: Nursing、Midwifery	Basic concepts of immunization programs and vaccines; content of the national immunization schedule in China	83/10911=0.76%	None
《Obstetric and Gynecological Nursing》	Nursing: Nursing	Neonatal vaccination and disease screening	15/8703=0.17%	None
《Community Nursing》	Nursing: Nursing	Pediatric vaccination schedules; adverse reactions to vaccination and corresponding countermeasures	43/6006=0.72%	None
《Clinical Immunological Diagnostics》	Public Health: Health Inspection and Quarantine	Types and characteristics of common vaccines; basic features and evaluation methods of vaccines; implementation of planned immunization and expanded immunization programs	146/1482=9.85%	None
《Brief History of Public Health Development》	Public Health: Health Inspection and Quarantine、Preventive Medicine	Historical evolution of immunization	12/3238=0.37%	None
《Introduction of Maternal and Child Health》	Public Health: Maternal and Child Health Medicine、Preventive Medicine	Pediatric vaccination; pediatric immunization schedules; developmental history of immunization in China	52/6071=0.86%	None
《Health Law and Health Supervision》	Public Health: Maternal and Child Health Medicine、Health Inspection and Quarantine、Preventive Medicine	Legal regulations on vaccination	25/9144=0.27%	None
《Laboratory of Pharmacology》	Pharmacy: Traditional Chinese Pharmacy、Pharmacy	Research and development of therapeutic vaccines and their applications	128/24080=0.53%	None
《General Biology》	Biomedical Science: Biotechnology	Allergic reactions to vaccination	13/8600=0.15%	None
《Biology》	Biomedical Science: Biomedical Engineering	Allergic reactions to vaccination	13/7540=0.17%	None
《Professional practice I- Center for Disease Control and Prevention》	Public Health: Preventive Medicine	Types of common vaccines; vaccination procedures and schedules; contraindications and adverse reactions to vaccination	70/3469=2.02%	Provided
《Clinical Internship (Multi-Semester)》	Medicine: Rehabilitation Therapy Studies、Clinical Medicine (Pediatrics Track)、Clinical Medicine (General Practice Track)	National immunization program vaccine schedule and other vaccination methods	47/5505=0.85%	Provided
《Clinical Internship》	Medicine: Clinical Medicine (Rural Medical Track)	Pediatric immunization schedules for national immunization program vaccines; vaccination strategies for non-national immunization program vaccines; precautions for vaccination and management of adverse reactions	51/22111=0.23%	Provided

*The proportion of vaccine-related content was calculated as the Chinese character count of vaccine-related content divided by the combined character count of the teaching-related sections in each included curriculum guideline. The teaching-related sections included course objectives, content objectives, course implementation plan, course content and requirements, and, where applicable, practical content and requirements.