

GUIDE TO THE COADMINISTRATION OF VACCINES**Dr. Duke Ashong^{*,1} and Dr. Ludovica Munarin^{#,2}**¹Local Health Unit 5 Polesana, Veneto Region, Italy.²Local Health Unit 3 Serenissima, Veneto Region, Italy.***Corresponding Author: Dr. Duke Ashong**

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ABSTRACT

Immunization is one of the primary prevention tools used against vaccine-preventable infectious diseases today. During the course of the immunization session, the health staff in charge, has the task of informing the user about the possible vaccinations indicated by the immunization schedule and offer possible vaccinations according to the needs of the patient and his health condition. The work experience of healthcare personnel in community and family health, whose mission is the prevention and control of the diffusion of infectious diseases through vaccination, has allowed to detect a criticality linked to the lack of a valid and updated tool that can be a guide on the coadministration of more vaccinations on the same day. The drafting of the "Guide to the coadministration of vaccines" was conducted from October 2018 to May 2019. The elaboration of the results of the qualitative systematic review took place through consultation of technical sheets, direct contact with pharmaceutical companies and review of the scientific reading. The tool used to conduct this study was mainly research in PubMed. The final work is represented in an Excel spreadsheet with specific commercial names of vaccines mostly used by the Health Authorities on the axis of the abscissas, and generic names on the ordinate axis. The format used makes it possible to rapidly comprehend the vaccines that can be coadministered in the same session and nevertheless ensure homogeneity of work among the healthcare personnel.

KEYWORDS: Vaccines, coadministration of vaccines, immunization.**INTRODUCTION**

In the historic period in which we live, subjected to constant changes, vaccinations play a fundamental role in society, so much so that they are often a topic of interest. Now vaccination calendar targets every age group, from 0 to 65 years and over. It is fundamental to underline how the phenomenon of globalization has changed human lifestyles. Think of the increase in international travel over the last few decades and the increased number of travelers, especially last minute. This shows how simple and easy it is to reach any part of the world in short time, with a high risk of spreading vaccine-preventable diseases. It is therefore essential, for those working in an immunization center, to have at their disposal a guide to coadminister 2 or more vaccines simultaneously in the same vaccination session. The need to build this instrument stems from the possibility of solving different problems that may occur during the vaccination session. The advantages derived from this guide are: creation of homogeneous methodologies for health professionals, reduction of patient waiting time, reduction of overbooking of patients, the possibility of speeding up the vaccination schedule) (eg. coadministering more vaccines in the same session, reduces uncalled for and excessive patient attendance). The vaccines available today are more effective and safe,

thanks to the progress of medical research and the complex series of quality controls to which they are constantly subjected.^[1] Unlike decades ago, the vaccinations that are proposed by the vaccination calendar for life, published in the 2017-2019 Italian National Vaccination Prevention Plan, are many more, although in reality they contain less antigenic contents than the vaccines used in the past. Among the many questions that users ask if more vaccines given together weaken the immune system. The truth is that the simultaneous administration of multiple vaccines increases the chances of being protected against vaccine-preventable disease. Vaccines have the goal of stimulating our immune system for the formation of memory cells, appointed to ensure that the immune system will be capable to fight the infecting agent without getting sick. Diseases, weaken the organism, not vaccines.^[2]

MATERIALS AND METHODS

The guide to the coadministration of vaccines is an indispensable tool for the health professional who deals with vaccinations. It was designed and compiled by including the vaccines mostly used in pediatric and adult clinics, international vaccination center. The drafting of this Guide began in October 2018 and ended in

September 2019, making continuous updates based on latest published studies. The objective of this guide is to make health professionals independent in carrying out their professional tasks. Initially Vaccine package leaflet were consulted. Where adequate information was provided regarding the coadministration of several vaccines, in the same session, direct contact was made with the pharmaceutical companies, accompanied by the search for numerous studies by reviewing the scientific literature. Microsoft Excel was used to draw up the vaccination coadministration guide. The key words used

for the research reading and review were the following: "vaccination" and "coadministration of vaccines. The search tools mainly used for drafting up the table are:

- PubMed
- European Medicine Agency database
- Vaccine leaflets
- Red book, Pink book and other books
- Several other science database tools

The vaccine coadministration guide will be reviewed whenever there are updates.

PROJECT PRESENTATION

GUIDE TO THE COADMINISTRATION OF VACCINES (Updated in October 2019)

	RTV ROTARIX	RTV ROTATEQ	HEXA HEXYON INARIIX HEXA	PCV13 PREVENAR VAX-23	PNEUMO BEXSERO	TRUMEMBA	INARIIX DTPh	MIN acwy NIMENRIX*	MPRV PRIORIX TETRA	MMR VAXPRO	VARIVAX	POLIO BOOSTRIX	HPV GARDASIL9	BOOSTRIX	ZOSTAVAX	ENGERIX B ped/ad	FENDRIX *2	IMOVAX POLIO	TWINRIX	HIBERIX ACT-HIB	HAVARIX ped/ad AVANIM ped/ad	TICONAC	STAMARIL	DUKORAL	RABIPUR	GUARO	TYPHIM VIVOTIF	
PCV13	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
MPRV	AL	AL	YES	YES	YES	YES	YES	YES	YES	NO	NO	YES	YES	YES	NO	YES	NS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
MIN B	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NS	YES	NS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
MIN ACWY	AL	AL	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NS	YES	NS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
RTV	YES	YES	YES	YES	AL	AL	YES	AL	AL	AL	AL	AL	AL	AL	NO	YES	NS	YES	AL	YES	AL	AL	AL	AL	YES	YES	AL	AL
HEXA	YES	YES	YES	YES	YES	AL	NO	YES	YES	YES	YES	NO	AL	NO	AL	NO	NS	NO	NO	NO	YES	YES	YES	YES	YES	YES	YES	YES
DT	AL	AL	NO	YES	YES	YES	NO	YES	YES	YES	YES	NO	YES	NO	YES	YES	NS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
T	YES	YES	NO	YES	YES	YES	NO	YES	YES	YES	YES	NO	YES	NO	YES	YES	NS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
DTP ped.	YES	YES	NO	YES	YES	YES	YES	YES	YES	YES	YES	NO	AL	NO	AL	YES	NS	YES	NS	YES	YES	YES	YES	YES	YES	YES	YES	YES
DTP Adult	AL	AL	NO	YES	YES	YES	NO	YES	YES	YES	YES	NO	YES	YES	YES	NS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
HIB	YES	YES	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NS	YES	NS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
MIN C	AL	AL	YES	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES	NS	YES	NS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
HAV	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NS	YES	NS	YES	YES	YES	SI	YES	YES	YES	YES	YES	YES	YES
HIV	YES	YES	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NS	YES	NS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
VAR	AL	AL	YES	YES	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES	NO	YES	NS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
MMR	AL	AL	YES	YES	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES	NS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
ANTIFLU	AL	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
PENTAVALENT *1	YES	YES	NO	YES	YES	YES	NO	YES	YES	YES	YES	NO	YES	NO	AL	NO	NS	NO	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES
DT-POLIO	NO	NO	NO	YES	YES	YES	NO	YES	YES	YES	YES	NO	YES	YES	YES	NS	YES	NS	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES
DTTP	AL	AL	NO	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES	NO	YES	YES	NS	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
POLIO	YES	YES	NO	YES	YES	YES	YES	YES	YES	YES	YES	NO	YES	YES	NS	YES	NS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
HPV	AL	AL	AL	YES	YES	YES	AL	YES	YES	YES	YES	YES	YES	YES	NS	YES	NS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
YF	AL	SI	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	YES	NS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
TYPHOID DS	AL	AL	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NS	YES	NS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
CHOLERA	AL	AL	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NS	YES	NS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
RZ	AL	AL	AL	YES	NS	NS	AL	NS	NO	NO	YES	YES	NS	YES	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
RABIES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NS	YES	NS	YES	NS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
TYPHOID YM	AL	AL	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NS	YES	NS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
TICK-BORNE ENCEPHALITIS	AL	AL	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NS	YES	NS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
JAPANESE ENCEPHALITIS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

ABBREVIATIONS
 YES = Same vaccine
 YES = can be coadministered
 NO = can not be coadministered
 NS = not specified. Evaluation by health personnel
 AL = age limits
 PENTAVALENT*1: diphtheria, Tetanus, Pertussis, Haemophilus influenzae type b and Hepatitis B

NOTES
 YES*1: can be coadministered, not guaranteed best protection under 2 years of age, consider booster dose.
 YES*2: at least 8 hour interval, after taking Dukoral before taking vivottif.
 MEN acwy NIMENRIX *1: wait 28 days before giving any vaccine contain tetanus toxoid if it has not been performed on the same day as nimenrix.
 FENDRIX*2: It can be given as a booster dose (like any adjuvanted hepatitis B) after a primary course with any hepatitis B vaccine.
 GENERAL RULE: more vaccines can be co-administered in the same vaccination session, bearing in mind that if the injection site is the same, an interval of 2.5 cm must be respected between one vaccine and another.

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Fig. 1: Guide to the Coadministration of vaccines.

The project is graphically represented so that it can be of practical and easy comprehension for health professionals. The commercial names of the vaccines are

noted on the x-axis, while the generic names are noted on the y-axis. The health personnel, who wants to verify the coadministration of different vaccines must position a

virtual line on the axis of the abscissa, on the vaccine of interest and follow the virtual line to the other vaccine of interest on the axis of the ordinates. If the answer is "YES", they can be coadministered. If the answer is "NO", the two vaccines are not compatible for coadministration and "AL" if the two vaccines cannot be coadministered because of age limits. In the lower area of the table, "NOTES" add additional information.

RESULTS AND CONCLUSION

The qualitative systematic review of the scientific literature showed that any inactivated vaccine can be co-administered with other vaccines simultaneously, including those with attenuated components.^[3] Before coadministering, however, it is necessary to check the health status of the patient through a pre-vaccination history that allows the health personnel to understand whether a patient is suitable for vaccination.

The results obtained from this research are many, including some news:

- cholera vaccine (Dukoral) can be administered at least 8 hours after oral typhoid vaccination;
- the 4 tablet anti-typhoid vaccination confers protection for 5 years;
- the yellow fever vaccine with other live attenuated vaccines (e.g MMR, MMRV, VARICELLA), can be coadministered in the same session
- meningococcal ACWY vaccine can be coadministered with anti-meningococcal B vaccine;
- the adjuvanted hepatitis B vaccine can be used as a booster dose in non-responding subjects^[4];
- possibility to dilute the ACT-HIB vaccination with TETRAVAC in a single vial.

- vaccine doses can administered 4 days before the minimum interval or age, are considered valid.^[5] The 4 day grace period doesn't apply to the rabies vaccine^[5], the 4 day grace period should not be used when scheduling future vaccination visits, and should not be applied to the 28-day interval between live parenteral vaccines not administered at the same visit.^[8]

Vaccination can be carried out in the same anatomic site provided that they are 2.5cm at a distance from each other.^[6,7] The authors of this article advise that at least one of the two vaccine shots should be known to give less reactions so as to reduce patient discomfort and increase compliance to future vaccinations. E.g, if tetanus, meningitis and hepatitis A vaccines have to be given on the same day. The tetanus vaccine and hepatitis A vaccine can be given in the same anatomic site, while the meningitis vaccine can be given in another anatomic site.

The use of this instrument "Guide to the Coadministration of vaccines":

- ✓ reduces patient waiting time and overbooking.
- ✓ guides health personnel during daily work task
- ✓ guarantees homogeneity and professional autonomy and finally allows health personnel to quickly protect patients (no significant increase in reactogenicity, normal profiles of immunogenicity) who have to get vaccinations for special reasons.

The coadministration guide, is a continuously updated tool that allows healthcare personnel to carry out professional tasks in autonomy and of considerable utility for the management and organization of vaccination sessions.

ROTARIX	
DTPa, HIB, IPV, PENTA PCV13, MEN C, ESA,	https://www.ema.europa.eu/en/documents/product-information/rotarix-epar-product-information_en.pdf
MEN B (BEXSERO)	"A Multi-Component Meningococcal Serogroup B Vaccine (4CMenB): The Clinical Development Program" Miguel O'Ryan, Jeffrey Stoddard, Daniela Toneatto, James Wassil, and Peter M. Dull. Published online 2013 Dec 12. doi: 10.1007/s40265-013-0155-7. (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3890039/)

ROTATEQ	
DTPa, HIB, IPV, HBV, PENTA PCV13, MEN C, ESA	https://www.ema.europa.eu/en/documents/product-information/rotateq-epar-product-information_it.pdf
MEN B (BEXSERO)	"A Multi-Component Meningococcal Serogroup B Vaccine (4CMenB): The Clinical Development Program" Miguel O'Ryan, Jeffrey Stoddard, Daniela Toneatto, James Wassil, and Peter M. Dull. Published online 2013 Dec 12. doi: 10.1007/s40265-013-0155-7. (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3890039/)

HEXYON	
PVC13, ROTAVIRUS, MMR	https://ec.europa.eu/health/documents/community-register/2013/20130417125771/anx_125771_it.pdf
MEN ACWY (Nimenrix)	https://www.ema.europa.eu/en/documents/product-information/nimenrix-epar-product-information_it.pdf
MEN B (Bexero)	https://www.ema.europa.eu/en/documents/product-information/bexero-epar-product-information_en.pdf
MPRV	https://gskpro.com/content/dam/global/hcpportal/en_MT/PDF/Homepage/Products/productlisting/priorix-tetra/Priorix_Tetra_PI_II_078_18_Apr_2017.pdf
MEN C	https://farmaci.agenziafarmaco.gov.it/aifa/servlet/PdfDownloadServlet?pdfFileName=footer_007127_035436_FI.pdf&retry=0&sys=m0b113
HAV, VAR, RABBIA, TIFO (im e o.s.), TBE (ped.), E.GIAPPONESE	“General Rule: Inactivated vaccines are generally not affected by circulating antibody to the antigen. Live attenuated vaccines may be affected by circulating antibody to the antigen.” January 2011 (MMWR 2011;60(No.RR-2):1-61). (https://www.cdc.gov/vaccines/pubs/pinkbook/downloads/genrec.pdf).

INFARIX HEXA	
PCV 13, MEN C, MEN ACWY, MEN B, RTV, MPRV	https://www.ema.europa.eu/en/documents/product-information/infanrix-hexa-epar-product-information_it.pdf
MPR	https://www.ema.europa.eu/en/documents/product-information/m-m-rvaxpro-epar-product-information_it.pdf
HAV, RABBIA, TIFO(im e os), TBE, E.GIAPPONESE	“General Best Practice Guidelines for Immunization: Introduction. Suggested citation: Ezeanolue E, Harriman K, Hunter P, Kroger A, Pellegrini C. General Best Practice Guidelines for Immunization. Best Practices Guidance of the Advisory Committee on Immunization Practices (ACIP).” (https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf)
VAR	https://ca.gsk.com/media/537989/infanrix-hexa.pdf

PREVENAR 13	
MEN B, MEN ACWY, RTV, DT, T, DTP (ped.), DTP (ad.), HIB, MEN C, HBV, ESA, PENTA, DTP-IPV, IPV, ANTINFLU	https://www.ema.europa.eu/en/documents/product-information/prevenar-13-epar-product-information_it.pdf
HPV-9, F.G, TIFO os / im, COLERA, HZ, RABBIA, E.GIAPPONESE, TBE, MPRV, MPR, VAR	“General Best Practice Guidelines for Immunization: Introduction. Suggested citation: Ezeanolue E, Harriman K, Hunter P, Kroger A, Pellegrini C. General Best Practice Guidelines for Immunization. Best Practices Guidance of the Advisory Committee on Immunization Practices (ACIP).” (https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf)

PNEUMOVAX	
ANTINFLU	https://www.cdc.gov/vaccines/vpd/pneumo/hcp/administering-vaccine.html
ZOSTER	- “Concomitant administration of pneumococcal-23 and zoster vaccines provides adequate herpes zoster coverage” Wyman MJ, Stabi KL. 2013 Jul-Aug;47(7-8):1064-8. doi: 10.1345/aph.1R742. Epub 2013 May 28. https://www.ncbi.nlm.nih.gov/pubmed/23715069 - Evaluation of the incidence of herpes zoster after concomitant administration of zoster vaccine and polysaccharide pneumococcal vaccine. Tseng HF, Smith N, Sy LS, Jacobsen SJ. 2011 May 9;29(20):3628-32. doi: 10.1016/j.vaccine.2011.03.018. Epub 2011 Mar 22. https://www.ncbi.nlm.nih.gov/pubmed/21435407 (https://clinicaltrials.gov/ct2/show/results/NCT00535730?view=results)

BEXERO	
PCV13, MPR, MPRV, ESA, DT, T, DTP ped., DTP ad., HIB, MEN C, HBV, VAR, PENTAVAC, DTP-IPV, DT-POLIO, IPV	https://www.ema.europa.eu/en/documents/product-information/bexsero-epar-product-information_it.pdf
MEN ACWY	“Immunogenicity and safety of the 4CMenB and MenACWY-CRM meningococcal vaccines administered concomitantly in infants: A phase 3b, randomized controlled trial.” Macias Parra M, Gentile A, Vazquez Narvaez JA, Capdevila A, Minguez A, Carrascal M, Willemsen A, Bhusal C, Toneatto D. 2018 Nov 29;36(50):7609-7617. doi: 10.1016/j.vaccine.2018.10.096. Epub 2018 Nov 7. (https://www.ncbi.nlm.nih.gov/pubmed/30414782)
HPV-9	“Immunogenicity, Tolerability and Safety in Adolescents of Bivalent rLP2086, a Meningococcal Serogroup B Vaccine, Coadministered with Quadrivalent Human Papilloma Virus Vaccine.” Senders S, Bhuyan P, Jiang Q, Absalon J, Eiden JJ, Jones TR, York LJ, Jansen KU, O'Neill RE, Harris SL, Ginis J, Perez JL. 2016 May;35(5):548-54. (https://www.ncbi.nlm.nih.gov/pubmed/26835974)
F.G, TIFO os/im, COLERA, RABBIA, TBE, E.GIAPPONESE	“General Best Practice Guidelines for Immunization: Introduction.” Suggested citation: Ezeanolue E, Harriman K, Hunter P, Kroger A, Pellegrini C. General Best Practice Guidelines for Immunization. Best Practices Guidance of the Advisory Committee on Immunization Practices (ACIP). (https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf)

TRUMEMBA	
MEN ACWY, DT, T, MENC, DT-POLIO, DTP-IPV, IPV, HPV-9	https://www.medicines.org.uk/emc/product/2670/smpc
PVC13, MPR, MPRV, HAV, HBV, VAR, ANTINFLU, HIB, F.G, HPV-9, TIFO os/im, COLERA, RABBIA, TBE, E.GIAPPONESE	“General Best Practice Guidelines for Immunization: Introduction.” Suggested citation: Ezeanolue E, Harriman K, Hunter P, Kroger A, Pellegrini C. General Best Practice Guidelines for Immunization. Best Practices Guidance of the Advisory Committee on Immunization Practices (ACIP). (https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf)

INFANRIX DTPa	
PCV13, MPR, MPRV, MEN B, MEN ACWY, RTV, HIB, MEN C, HAV, HBV, VAR, INFLUENZA, IPV, F.G, TIFO os/im, COLERA, RABBIA, TBE, E.GIAPPONESE	“General Best Practice Guidelines for Immunization: Introduction. Suggested citation: Ezeanolue E, Harriman K, Hunter P, Kroger A, Pellegrini C. General Best Practice Guidelines for Immunization. Best Practices Guidance of the Advisory Committee on Immunization Practices (ACIP).” (https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf)

NIMENRIX	
ESA, DT, T, DTP ped., DTP ad., DTP-IPV, DT-POLIO, IPV, HIB, HBV, PENTAV	https://farmaci.agenziafarmaco.gov.it/aifa/servlet/Pdf
PCV13, MPR, MPRV, VAR, HAV, TIFO os/ im, F.G, TBE, RABBIA, HPV- 9	“Safety and Immunogenicity of a Quadrivalent Meningococcal Conjugate Vaccine and Commonly Administered Vaccines After Coadministration.” Roberto Gasparini;Miguel Tregnaghi;Pavitra Keshavan;Ellen Ypma;Linda Han;Igor Smolenov. The Pediatric Infectious Disease Journal. 35(1):81–93, JANUARY 2016. (https://insights.ovid.com/pubmed?pmid=26398743)
MEN B	“Immunogenicity and safety of the 4CMenB and MenACWY-CRM meningococcal vaccines administered concomitantly in infants: A phase 3b, randomized controlled trial.” Macias Parra M, Gentile A, Vazquez Narvaez JA, Capdevila A, Minguez A, Carrascal M, Willemsen A, Bhusal C, Toneatto D. 2018 Nov 29;36(50):7609-7617. (https://www.ncbi.nlm.nih.gov/pubmed/30414782)
TBE, ANTINFLU, COLERA,	“General Best Practice Guidelines for Immunization: Introduction.” Suggested citation: Ezeanolue E, Harriman K, Hunter P, Kroger A, Pellegrini C. General Best Practice Guidelines for Immunization. Best Practices Guidance of the Advisory Committee on Immunization Practices (ACIP). (https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf)

MENVEO	
ESA, PENTA, HAV, HBV, FG, TIFO, E. GIAPPONESE, RABBIA, MEN B, HPV, DTP(Ped), DTP, TETANO, DT, POLIO, HIB, MPR, MPRV, VAR, PCV 13, DT-POLIO	<p>https://www.ema.europa.eu/en/documents/product-information/menveo-epar-product-information_it.pdf</p> <p>- Safety and Immunogenicity of a Quadrivalent Meningococcal Conjugate Vaccine and Commonly Administered Vaccines After Coadministration. Gasparini R, Tregnaghi M, Keshavan P, Ypma E, Han L, Smolenov I. <i>Pediatr Infect Dis J.</i> 2016 Jan;35(1):81-93. doi: 10.1097/INF.0000000000000930. https://www.ncbi.nlm.nih.gov/pubmed/26398743</p> <p>- Immunogenicity and safety of a CRM-conjugated meningococcal ACWY vaccine administered concomitantly with routine vaccines starting at 2 months of age. Terry M Nolan, Michael D Nissen, Aftab Naz, Julie Shepard, Lisa Bedell, Matthew Hohenboken, Tatjana Odrlic, and Peter M Dull. <i>Hum Vaccin Immunother.</i> 2014 Feb 1; 10(2): 280–289. Published online 2013 Nov 12. doi: 10.4161/hv.27051 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4185919/</p>
TBE, ANTINFLU, COLERA,	<p>“General Best Practice Guidelines for Immunization: Introduction. Suggested citation: Ezeanolue E, Harriman K, Hunter P, Kroger A, Pellegrini C. General Best Practice Guidelines for Immunization. Best Practices Guidance of the Advisory Committee on Immunization Practices (ACIP)”. (https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf)</p>

PRIORIX TETRA	
ESA, DT, T, DTP ped., DTP ad., HIB, REVAXIS, HBV, IPV, PENTAVAC, MEN B, MENA ACWY, PCV13, MEN C	<p>https://gskpro.com/content/dam/global/hcpportal/en_MT/PDF/Homepage/Products/productlisting/priorix-tetra/Priorix_Tetra_PI_II_078_18_Apr_2017.pdf</p>
HAV	<p>“Immunogenicity and Safety of an Inactivated Hepatitis A Vaccine When Coadministered With Measles-mumps-rubella and Varicella Vaccines in Children Less Than 2 Years of Age.” Stephen Rinderknecht; Marian Michaels; Mark Blatter; Manjusha Gaglani; Wilson Andrews; Nazha Abughali; Vijayalakshmi Chandreshekar; Andrew Trofa. <i>The Pediatric Infectious Disease Journal.</i> 30(10):e179-e185. OCTOBER 2011(https://insights.ovid.com/pubmed?pmid=21617573)</p>
F.G.	<p>“Vaccination & Immunoprophylaxis: General Recommendations.” Andrew T. Kroger, Candice L. Robinson. (https://wwwnc.cdc.gov/travel/yellowbook/2020/preparing-international-travelers/vaccination-and-immunoprophylaxis-general-recommendations)</p>
RABBIA, TBE, E. GIAPPONESE, TIFO os/im, COLERA	<p>“General Best Practice Guidelines for Immunization: Introduction.” Suggested citation: Ezeanolue E, Harriman K, Hunter P, Kroger A, Pellegrini C. General Best Practice Guidelines for Immunization. Best Practices Guidance of the Advisory Committee on Immunization Practices (ACIP). (https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf)</p>

PROQUAD	
ESA, DT, T, DTP-IPV, DT-POLIO, IPV, HBV, PENTA, HIB, PCV13, HAV	<p>https://www.ema.europa.eu/en/documents/product-information/proquad-epar-product-information_it.pdf</p>
MEN B(Bexsero)	<p>https://www.ema.europa.eu/en/documents/product-information/bexsero-epar-product-information_it.pdf</p>
MPRV, MPR, VAR, MEN ACWY, FG, TIFO os/ im, COLERA, HPV9, RABBIA, TBE, E.GIAPPONESE	<p>“General Best Practice Guidelines for Immunization: Introduction. Suggested citation: Ezeanolue E, Harriman K, Hunter P, Kroger A, Pellegrini C. General Best Practice Guidelines for Immunization. Best Practices Guidance of the Advisory Committee on Immunization Practices (ACIP)”. (https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf)</p>

MMR VAX - PRO	
ESA, DT, T, DTP-IPV, DT-POLIO, IPV, HBV, PENTAVAC, VAR HIB, PCV13, HAV	https://ec.europa.eu/health/documents/community-register/2017/20171215139691/anx_139691_it.pdf
MEN B	https://www.ema.europa.eu/en/documents/product-information/bexsero-epar-product-information_it.pdf
TIFO os/im, HPV-9, COLERA, RABBIA, TBE, E.GIAPPONESE	“General Best Practice Guidelines for Immunization: Introduction.” Suggested citation: Ezeanolue E, Harriman K, Hunter P, Kroger A, Pellegrini C. General Best Practice Guidelines for Immunization. Best Practices Guidance of the Advisory Committee on Immunization Practices (ACIP). (https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf)
F.G	“Mutual interference on the immune response to yellow fever vaccine and a combined vaccine against measles, mumps and rubella “. Juliana Romualdo Nascimento Silva, Luiz Antonio B. Camacho, Marilda M. Siqueira, Marcos de Silva Freire, Yvone P. Castro, Maria de Lourdes S. Maia, Anna Maya Y. Yamamura, Reinaldo M. Martins, Maria de Luz F. Leal, Collaborative Group for the Study of Yellow Fever Vaccines · Vaccine 29 (2011) 6327–6334 (https://www.who.int/immunization/sage/meetings/2018/october/6_Nascimento_Silva_et_al_Interference_MMR_and_YF_(Brazil)_Vaccine_2011.pdf?ua=1)

VARIVAX	
DT, T, HIB, IPV, MPR, HBV	https://farmaci.agenziafarmaco.gov.it/aifa/servlet/PdfDownloadServlet?pdfFileName=footer_005532_035032_FI.pdf&retry=0&sys=m0b113
HAV	“Immunogenicity and safety of an inactivated hepatitis A vaccine when coadministered with measles-mumps-rubella and varicella vaccines in children less than 2 years of age.” Rinderknecht S, Michaels MG, Blatter M, Gaglani M, Andrews W, Abughali N, Chandreshekar V, Trofa AF. <i>Pediatr Infect Dis J.</i> 2011 Oct (https://www.ncbi.nlm.nih.gov/pubmed/21617573)
PCV13, MEN B, MEN ACWY, ESA, DTP Ped., DTP ad., MEN C, ANTINFLU, PENTA, DT-POLIO, HPV-9, TBE, E. GIAPPONESE, TIFO os/ im, RABBIA, COLERA	“General Best Practice Guidelines for Immunization: Introduction.” Suggested citation: Ezeanolue E, Harriman K, Hunter P, Kroger A, Pellegrini C. General Best Practice Guidelines for Immunization. Best Practices Guidance of the Advisory Committee on Immunization Practices (ACIP).(https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf)
F.G	“Vaccination & Immunoprophylaxis: General Recommendations.” Andrew T. Kroger, Candice L. Robinson. (https://wwwnc.cdc.gov/travel/yellowbook/2020/preparing-international-travelers/vaccination-and-immunoprophylaxis-general-recommendations)

POLIO-BOOSTRIX	
PCV13, MPR, MPRV, MEN B, MEN ACWY, HIB, MEN C, HAV, HBV, VAR, ANTINFLU, HPV-9, F.G, TIFO os/im, COLERA, RABBIA, TBE, E. GIAPPONESE	https://farmaci.agenziafarmaco.gov.it/aifa/servlet/PdfDownloadServlet?pdfFileName=footer_000200_036752_FI.pdf&retry=0&sys=m0b113

GARDASIL 9	
DT, T, DTP ad., DTP-IPV, DT-POLIO	https://www.ema.europa.eu/en/documents/product-information/gardasil-9-epar-product-information_en.pdf
MEN ACWY	“Safety and Immunogenicity of a Quadrivalent Meningococcal Conjugate Vaccine and Commonly Administered Vaccines After Coadministration”. Roberto Gasparini; Miguel Tregnaghi; Pavitra Keshavan; Ellen Ypma; Linda Han; Igor Smolenov. The Pediatric Infectious Disease Journal. 35(1):81–93, JANUARY2016. (https://insights.ovid.com/pubmed?pmid=26398743)
MEN B	“Immunogenicity, Tolerability and Safety in Adolescents of Bivalent rLP2086, a Meningococcal Serogroup B Vaccine, Coadministered with Quadrivalent Human Papilloma Virus Vaccine.” Senders S, Bhuyan P, Jiang Q, Absalon J, Eiden JJ, Jones TR, York LJ, Jansen KU, O'Neill RE, Harris SL, Ginis J, Perez JL. <i>Pediatr Infect Dis J</i> . 2016 May (https://www.ncbi.nlm.nih.gov/pubmed/26835974)
HAV, HBV, EPATITE A+B	“Systematic review of human papillomavirus vaccine coadministration.” Noronha AS, Markowitz LE, Dunne EF 2014 May (https://www.ncbi.nlm.nih.gov/pubmed/24412351)
PCV13, MPR, MPRV, HIB, MEN C, VAR, F.G, TIFO os/ im, COLERA, RABBIA, TBE, E.GIAPPONESE	“General Best Practice Guidelines for Immunization: Introduction.” Suggested citation: Ezeanolue E, Harriman K, Hunter P, Kroger A, Pellegrini C. General Best Practice Guidelines for Immunization. Best Practices Guidance of the Advisory Committee on Immunization Practices(ACIP). (https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf)

BOOSTRIX

MPR, MPRV, MEN ACWY, HIB, MEN C, HAV, HBV, VAR, ANTINFLU, IPV, HPV-9, F.G, TIFO os/im, COLERA, RABBIA, TBE, E. GIAPPONESE,	“General Best Practice Guidelines for Immunization: Introduction.” Suggested citation: Ezeanolue E, Harriman K, Hunter P, Kroger A, Pellegrini C. General Best Practice Guidelines for Immunization. Best Practices Guidance of the Advisory Committee on Immunization Practices(ACIP). (https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf)
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ZOSTAVAX	
INFLUENZA	https://www.fda.gov/media/82524/download “Immunogenicity and Safety of an Adjuvanted Herpes Zoster Subunit Vaccine Coadministered With Seasonal Influenza Vaccine in Adults Aged 50 Years or Older”. Tino F Schwarz, Naresh Aggarwal, Beate Moeckesch, Isabelle Schenkenberger, Carine Claeys, Martine Douha, Olivier Godeaux, Katrijn Gruppig, Thomas C Heineman, Marta Lopez Fauqued, Lidia Oostvogels, Peter Van den Steen, and Himlal Lal . Published online 2017 Sep 26. (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5853904)
PCV 13	https://www.cdc.gov/vaccines/vpd/shingles/hcp/zostavax/administering-vaccine.html
PPSV 23	- “Concomitant administration of pneumococcal-23 and zoster vaccines provides adequate herpes zoster coverage” Wyman MJ, Stabi KL. 2013 Jul-Aug;47(7-8):1064-8. doi: 10.1345/aph.1R742. Epub 2013 May 28. https://www.ncbi.nlm.nih.gov/pubmed/23715069 - Evaluation of the incidence of herpes zoster after concomitant administration of zoster vaccine and polysaccharide pneumococcal vaccine. Tseng HF, Smith N, Sy LS, Jacobsen SJ. 2011 May 9;29(20):3628-32. doi: 10.1016/j.vaccine.2011.03.018. Epub 2011 Mar 22. https://www.ncbi.nlm.nih.gov/pubmed/21435407 (https://clinicaltrials.gov/ct2/show/results/NCT00535730?view=results)
T, DT, DTP, DTPP, DT-POLIO	Recommendations of the Advisory Committee on Immunization Practices for Use of Herpes Zoster Vaccines. Kathleen L. Dooling, , Angela Guo, Manisha Patel, Grace M. Lee, Kelly Moore, Edward A. Belongia, and Rafael Harpaz, <i>MMWR Morb Mortal Wkly Rep</i> . 2018 Jan 26; 67(3): 103–108. <i>MMWR Morb Mortal Wkly Rep</i> . 2018 Jan 26; 67(3): 103–108. Published online 2018 Jan 26. doi: 10.15585/mmwr.mm6703a5 - “General Best Practice Guidelines for Immunization: Introduction.” Suggested citation: Ezeanolue E, Harriman K, Hunter P, Kroger A, Pellegrini C. General Best Practice Guidelines for Immunization. Best Practices Guidance of the Advisory Committee on Immunization Practices(ACIP). (https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf)

ENGERIX B	
PCV13, MPR, MPRV, MEN B, MEN ACWY, RTV, DT, T, DTP ped, DTP ad., HIB, MEN C, HAV, VAR, ANTINFLU, DT-POLIO, DTP-IPV, IPV, HPV-9, F.G, TIFO os/im, COLERA, RABBIA, TBE, E.GIAPPONESE, PENTA	http://vk.ovg.ox.ac.uk/vk/hepatitis-b-vaccine

FENDRIX	
PCV13, MPR, MPRV, MEN B, MEN ACWY, RTV, DT, T, DTP ped, DTP ad., HIB, MEN C, HAV, VAR, ANTINFLU, DT-POLIO, DTP-IPV, IPV, HPV-9, F.G, TIFO os/im, COLERA, RABBIA, TBE, E.GIAPPONESE	“General Best Practice Guidelines for Immunization: Introduction.” Suggested citation: Ezeanolue E, Harriman K, Hunter P, Kroger A, Pellegrini C. General Best Practice Guidelines for Immunization. Best Practices Guidance of the Advisory Committee on Immunization Practices(ACIP). (https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf)

IMOVAX POLIO	
PCV 13, MPRV, MPR, MEN B, MEN ACWY, RTV, DT, T, DTP ad., DTP ped, HIB, MEN C, HAV, HBV, VAR, ANTIINFLU, HPV-9, F.G, TIFO os/im, COLERA, RABBIA, TBE, E.GIAPPONESE	https://farmaci.agenziafarmaco.gov.it/aifa/servlet/PdfDownloadServlet?pdfFileName=footer_000737_029310_RCP.pdf&retry=0&sys=m0b113

TWINRIX	
PCV13, MPRV, MPR, MEN ACWY, DT, T, DTPped, DTP ad, HIB, MEN C, HAV, HBV, VAR, INFLUENZA, DTP-IPV, IPV, HPV-9, F.G, TIFO os/im, COLERA, RABBIA, TBE, E.GIAPPONESE	https://www.ema.europa.eu/en/documents/product-information/twinrix-adult-epar-product-information_en.pdf

HIBERIX/ACT-HIB	
PCV13, MPRV, MPR, MEN ACWY, RTV, DT, T, DTP ad., DTP ped, HIB, MEN C, HAV, HBV, VAR, INFLUENZA, DTP-IPV, IPV, HPV-9, F.G, TIFO os/im, COLERA, RABBIA, TBE, E.GIAPPONESE	“General Best Practice Guidelines for Immunization: Introduction.” Suggested citation: Ezeanolue E, Harriman K, Hunter P, Kroger A, Pellegrini C. General Best Practice Guidelines for Immunization. Best Practices Guidance of the Advisory Committee on Immunization Practices(ACIP). (https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf)

HAVRIX – AVAXIM	
PCV13, MPRV, MPR, MEN ACWY, RTV, ESA, DT, T, DTP ad., DTP ped, HIB, MEN C, HBV, VAR, ANTINFLU, PENTAV, DT-POLIO, DTP-IPV, IPV, HPV-9, F.G, TIFO os/im, COLERA, RABBIA, TBE, E.GIAPPONESE	“General Best Practice Guidelines for Immunization: Introduction.” Suggested citation: Ezeanolue E, Harriman K, Hunter P, Kroger A, Pellegrini C. General Best Practice Guidelines for Immunization. Best Practices Guidance of the Advisory Committee on Immunization Practices(ACIP). (https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf)

TICOVAC	
PCV13, MPRV, MPR, MEN B, MEN ACWY, ESA, DT, T, DTP ped., DTP ad., HIB, MEN C, HAV, HBV, VAR, ANTINFLU, PENTA, REVAXIS, DTP-IPV, DT-POLIO, IPV, HPV-9, F.G, TIFO os/im, COLERA, RABBIA, E.GIAPPONESE	“General Best Practice Guidelines for Immunization: Introduction.” Suggested citation: Ezeanolue E, Harriman K, Hunter P, Kroger A, Pellegrini C. General Best Practice Guidelines for Immunization. Best Practices Guidance of the Advisory Committee on Immunization Practices(ACIP). (https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf)

STAMARIL	
PCV13, MEN B, MEN ACWY, ESA, DT, T, DTP ped., DTP ad., HIB, MEN C, HAV, HBV, ANTINFLU, PENTAVAC, DT-POLIO, DTP-IPV, HPV-9, TIFO os/im, COLERA, RABBIA, TBE, E. GIAPPONESE	<p>“General Best Practice Guidelines for Immunization: Introduction.” Suggested citation: Ezeanolue E, Harriman K, Hunter P, Kroger A, Pellegrini C. General Best Practice Guidelines for Immunization. Best Practices Guidance of the Advisory Committee on Immunization Practices(ACIP). (https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf)</p> <p>https://farmaci.agenziafarmaco.gov.it/aifa/servlet/PdfDownloadServlet?pdfFileName=footer_000737_026970_FI.pdf&retry=0&sys=m0b113</p> <p>https://farmaci.agenziafarmaco.gov.it/aifa/servlet/PdfDownloadServlet?pdfFileName=footer_000200_028725_FI.pdf&retry=0&sys=m0b113</p>
MPRV, MPR, VAR	<p>“Vaccination & Immunoprophylaxis: General Recommendations.” Andrew T. Kroger, Candice L. Robinson. (https://wwwnc.cdc.gov/travel/yellowbook/2020/preparing-international-travelers/vaccination-and-immunoprophylaxis-general-recommendations)</p>

DUKORAL	
PCV13, MPRV, MPR, MEN ACWY, ESA, DT, T, DTP ped., DTP ad., HIB, MEN C, HAV, HBV, VAR, ANTINFLU, PENTAVAC, DT-POLIO, DTP-IPV, IPV, HPV-9, F.G, TIFO os/im, COLERA, RABBIA, TBE, E. GIAPPONESE	<p>“General Best Practice Guidelines for Immunization: Introduction.” Suggested citation: Ezeanolue E, Harriman K, Hunter P, Kroger A, Pellegrini C. General Best Practice Guidelines for Immunization. Best Practices Guidance of the Advisory Committee on Immunization Practices(ACIP). (https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf)</p> <p>https://farmaci.agenziafarmaco.gov.it/aifa/servlet/PdfDownloadServlet?pdfFileName=footer_000200_028725_FI.pdf&retry=0&sys=m0b113</p>

RABIPUR	
PCV13, MEN B, MEN ACWY, ESA, DT, T, DTP ped., DTP ad, HIB, MEN C, HAV, HBV, INFLUENZA, PENTAVAC, REVAXIS, DTP-IPV,DT-POLIO, IPV, HPV-9, COLERA, TIFO im/os, TBE, E.GIAPPONESE	<p>https://farmaci.agenziafarmaco.gov.it/aifa/servlet/PdfDownloadServlet?pdfFileName=footer_002539_035947_FI.pdf&retry=0&sys=m0b113</p>
MPRV, MPR, VAR	<p>“General Best Practice Guidelines for Immunization: Introduction.” Suggested citation: Ezeanolue E, Harriman K, Hunter P, Kroger A, Pellegrini C. General Best Practice Guidelines for Immunization. Best Practices Guidance of the Advisory Committee on Immunization Practices(ACIP). (https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf)</p>

IXIARO	
PVC13, MPRV, MPR, MEN ACWY, RTV, ESA, DT, T, DTP ped., DTP ad, HIB, MEN C, HAV, HBV, VAR, MPR, INFLUENZA, PENTAVAC, DT-POLIO, DTP-IPV, IPV, HPV-9, F.G, TIFO im/os, COLERA, RABBIA, TBE	<p>“General Best Practice Guidelines for Immunization: Introduction.” Suggested citation: Ezeanolue E, Harriman K, Hunter P, Kroger A, Pellegrini C. General Best Practice Guidelines for Immunization. Best Practices Guidance of the Advisory Committee on Immunization Practices(ACIP). (https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf)</p>

TYPHI im	
PCV13, MPR, MPRV, MEN ACWY, ESA, DT, T, DTP ped., DTP ad., HIB, MEN C, HAV, HBV, VAR, INFLUENZA, PENTAV, DT-POLIO, DTP-IPV, IPV, HPV-9, F.G, COLERA, RABBIA, TBE, E.GIAPPONESE	<p>“Safety of Typhim Vi Vaccine in a Postmarketing Observational Study” Leonard C. Marcus, James E. Froeschle, David R. Hill, , Martin S. Wolfe, Diane Maus, Bradley Connor, Alberto M. Acosta, Edward R. Rensimer, Alan Roberts, MD, Kenneth Dardick, Journal of Travel Medicine, Volume 14, Issue 6, 1 November 2007. (https://academic.oup.com/jtm/article/14/6/386/1835050)</p>

VIVOTIF os	
PCV13, MPRV, MPR, MEN ACWY, MEN B, ESA, DT, T, DTP ped., DTP ad., HIB, MEN C, HAV, HBV, VAR, ANINFLU, PENTAV, DT-POLIO, DTP-IPV, HPV-9, F.G, COLERA, RABBIA, TBE, E.GIAPPONESE	https://farmaci.agenziafarmaco.gov.it/aifa/servlet/PdfDownloadServlet?pdfFileName=footer_004175_025219_FI.pdf&retry=0&sys=m0b113 “General Best Practice Guidelines for Immunization: Introduction.” Suggested citation: Ezeanolue E, Harriman K, Hunter P, Kroger A, Pellegrini C. General Best Practice Guidelines for Immunization. Best Practices Guidance of the Advisory Committee on Immunization Practices(ACIP). (https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf)
HAV(Havrix)	https://farmaci.agenziafarmaco.gov.it/aifa/servlet/PdfDownloadServlet?pdfFileName=footer_000200_028725_FI.pdf&retry=0&sys=m0b113

Abbreviation

Antinflu	Antiflu
CHOLERA	CHOLERA
DT	Diphtheria-Tetanus
DTPa	Diphtheria -Tetanus-Pertussis acellulare
DTPped/ad	Diphtheria-Tetanus-Pertussis pediatric/adult
DTP-IPV	Diphtheria-Tetanus-Pertussis-Poliomyelitis(Inactivated)
DT-POLIO	Diphtheria-Tetanus-Poliomyelitis
JE	Japanese Encephalitis
Hexa	Hexavalent(Diphtheria-Tetanus-Pertussis-Poliomyelitis-Haemophilus influenzae b, Hepatitis B)
YF	Yellow Fever
HPV-9	Human Papilloma Virus 9 valent
HAV	Hepatitis A
HBV	Hepatitis B
HIB	Haemophilus influenzae b
HZ	Herpes Zoster
IPV	Inactivated Poliomyelitis Vaccine
MEN ACWY	Meningitis A,C,W,Y
MEN C	Meningitis C Coniugato
MMR	Measles-Mumps-Rosolia
MPRV	Measles-Mumps-Rosolia-Varicella
PENT	All combinations for pentavalent with Diphtheria-Tetanus-Pertussis-Poliomyelitis-Haemophilus influenzae b-Hepatitis B)
PCV13	Pneumococcal conjugato 13 valent
PPSV23	Pneumococcal polysaccharide vaccine 23 valent
RAB	Rabies
RTV	Rotavirus
T	Tetanus
TYPHD	Typhoid
TBE	Tick Borne Encephalitis
VAR	Varicella

ACKNOWLEDGEMENTS

Both authors contributed equally. Health professionals who would like to receive the pdf of the guide to the coadministration of vaccines and be continuously updated through an automatic mail list can send a mail “update coadministration of vaccines” to vaccineinfoitaly@gmail.com

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3. General Raccomandartions - CDC www.cdc.gov/vaccines/pubs/pinkbook/downloads/genrec.pdf
4. Fendrix vaccine usage in non responders to standard Hepatitis B vaccines - T Kemp, A. Vedio, G. Lawson, ST. Green - Department of infection and tropical medicine, Royal Hallamshire hospital, Shiefeld https://www.academia.edu/26290951/Audit_of_the_use_of_Fendrix_B_for_non-responders_to_standard_Hepatitis_B_vaccines

5. Timing and Spacing of Immunobiologics – CDC - <https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/timing.html>
6. Administering Multiple Injectable Vaccines During a Single Visit—Summary of Findings From the Accelerated Introduction of Inactivated Polio Vaccine Globally - S.B Dollan et al <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5853974/>
7. Linee Guida Italiane sull'utilizzo dei farmaci antiretrovirali sulla gestione diagnostico-clinica delle persone con infezione da HIV-1 - Ministero della salute http://www.salute.gov.it/imgs/C_17_pubblicazioni_2261_allegato.pdf
8. Scheduling Vaccines Immunization Action Coalition <https://www.immunize.org/askexperts/scheduling-vaccines.asp>