



Don't Order Multiple Serological Investigations Without a Clinical Indication for Infections

Despite its longstanding role in revealing individual immunity, serology, the analysis of blood serum for pathogen-specific antibodies, remains a largely untapped potential for understanding the burden of infectious diseases in human. Serological tests can potentially be misused leading to unnecessary cost and avoidable stress. Judicious use of serological tests is important in delivering appropriate care for pediatric patients.

It's important to understand the following:

- I. **Reduced Costs:** Unnecessary tests add to healthcare costs, both for the patient and the healthcare system.
- II. **Less is More:** Multiple tests can lead to false positive results, causing unnecessary worry and prompting additional irrelevant investigations.
- III. **Targeted Approach:** Focusing on tests with a clear clinical indication helps identify the cause of infection more effectively.

Accordingly, a barrage of blood tests including serology might not be helpful. Doctors should take a focused approach based on the patient's medical history and specific symptoms.

Haselbeck AH, Im J, Prifti K, Marks F, Holm M, Zellweger RM. Serology as a Tool to Assess Infectious Disease Landscapes and Guide Public Health Policy. *Pathogens*. 2022 Jun 27;11(7):732. doi: 10.3390/pathogens11070732. PMID: 35889978; PMCID: PMC9323579.

Mast E.E., Margolis H.S., Fiore A.E., Brink E.W., Goldstein S.T., Wang S.A., Moyer L.A., Bell B.P., Alter M.J., Advisory Committee on Immunization Practices (ACIP) A comprehensive immunization strategy to eliminate transmission of hepatitis B virus infection in the United States: Recommendations of the Advisory Committee on Immunization Practices (ACIP) part 1: Immunization of infants, children, and adolescents. *MMWR Recomm. Rep.* 2005; 54:1–31.

Metcalfe C.J., Farrar J., Cutts F.T., Basta N.E., Graham A.L., Lessler J., Ferguson N.M., Burke D.S., Grenfell B.T. Use of serological surveys to generate key insights into the changing global landscape of infectious disease. *Lancet*. 2016; 388:728–730. doi: 10.1016/S0140-6736(16)30164-7.

Cutts F.T., Hanson M. Seroepidemiology: An underused tool for designing and monitoring vaccination programmes in low- and middle-income countries. *Trop. Med. Int. Health*. 2016; 21:1086–1098. doi: 10.1111/tmi.12737.

Plotkin S.A. Correlates of protection induced by vaccination. *Clin. Vaccine Immunol.* 2010; 17:1055–1065. doi: 10.1128/CVI.00131-10.

Fischer C., Jo W.K., Haage V., Moreira-Soto A., de Oliveira-Filho E.F., Drexler J.F. Challenges towards serologic diagnostics of emerging arboviruses. *Clin. Microbiol. Infect.* 2021; 27:1221–1229.

Azman A.S., Lessler J., Luquero F.J., Bhuiyan T.R., Khan A.I., Chowdhury F., Kabir A., Gurwith M., Weil A.A., Harris J.B., et al. Estimating cholera incidence with cross-sectional serology. *Sci. Transl. Med.* 2019;11: eaau6242. doi: 10.1126/scitranslmed.aau6242.

Teunis P.F., van Eijkeren J., Ang C.W., Van Duinhoven Y. Biomarker dynamics: Estimating infection rates from serological data. *Stat. Med.* 2012; 31:2240–2248. doi: 10.1002/sim.5322.

Setoh J.W.S., Ho C., Yung C.F., Tam C., Yelen, Tee N.W.S. Epstein-barr virus seroprevalence and force of infection in a multiethnic pediatric cohort, Singapore. *Pediatr. Infect. Dis. J.* 2019; 38:1173–1176. doi: 10.1097/INF.0000000000002484.

Clapham H., Hay J., Routledge I., Takahashi S., Choisy M., Cummings D., Grenfell B., Metcalfe C.J.E., Mina M., Barraquer I.R., et al. Seroepidemiologic study designs for determining SARS-COV-2 transmission and immunity. *Emerg. Infect. Dis.* 2020; 26:1978–1986. doi: 10.3201/eid2609.201840.