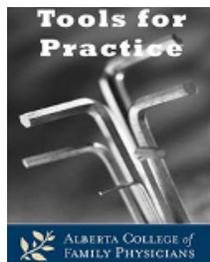


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COVID-19 Rapid Reviews

Along with regular Tools for Practice, the PEER team will be writing rapid reviews to address COVID-19 topics relevant for primary care. The evidence is changing rapidly and it is possible that as you read this, new evidence will already be available. We will try our best to stay in front and keep you up-to-date during these challenging times.



Serology, Serology: How Accurate and Prevalent Art Thou?

Clinical Question: What is the role of serology testing in the COVID-19 pandemic?

Bottom Line: IgM and IgG antibodies may reveal an individual's recent (after ~2 weeks) exposure to COVID-19. How long serology remains positive and whether antibodies confer immunity to subsequent infection is unknown. Many different tests exist, each with different accuracy. Current evidence does not support routine use of serology testing in COVID-19 management.

Evidence:

- Time to antibody seroconversion (after symptom onset):
 - 85 hospitalized COVID-19 patients had 216 serial tests.¹
 - Sharp increase in positivity for IgM and IgG at ~2 weeks.
 - IgM 90% positive at day 19, IgG >90% at ~1 month.
 - 173 hospitalized COVID-19 patients had 535 serial tests.²
 - Median time to seroconversion: IgM=12 days, IgG=14 days.
 - Less than 7 days of illness: IgM ~40%.
 - Limitations: short studies, unknown length of time IgG remains positive.
- Determining population prevalence of infection (including asymptomatic cases):
 - Sampling of 865 people from Los Angeles, 35 antibody tests positive (~4%).³
 - 4.7% after adjusting for sex, ethnicity, and income.
 - Black patients, those from households with low incomes, and symptomatic patients more likely to test positive.

- If results extrapolated to Canada,⁴ Canada would have 1.5-1.8 million cases.
 - Currently have ~100,000.⁵
 - Population based sampling in Geneva found ~10% of citizens antibody positive.⁶
 - Estimate 11.6 seroconverted citizens for every confirmed COVID-19 case.
 - Serologic test accuracy compared to PCR testing +/- CT findings:
 - Published:
 - Sensitivity (truly have COVID-19 and antibody test positive):^{7,8} 36%-99%.
 - Depends on the test characteristics and when patient tested.
 - Specificity (truly don't have COVID-19 and antibody test negative):^{3,7} 89%-99.5%.
 - Health Canada Approved Tests:⁹
 - Sensitivity after ~14 days of symptoms: 97.4%-100%.
 - Specificity range: 98.5%-100%.
 - Limitations: Results mostly from test companies' in-house calculations.
 - Does testing positive for COVID-19 antibodies confirm immunity?
 - No studies have determined whether those who have had COVID-19 (as determined by IgG antibodies) have immunity to another COVID-19 infection.
 - This will likely be answered in vaccine trials.

Context:

- In the US, companies can bypass approval process to market their tests.
 - Over 100 companies have marketed tests.¹⁰
- The sensitivity of serological testing in elderly or immunocompromised is unknown.¹¹
- Serology should not routinely be used to diagnose acute COVID-19 infection.¹²

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Disclosures:

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