COVID-19 Pandemic
Proposed Return-to-Workplace Testing Algorithm

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In a peer-reviewed report,[1] investigators propose an algorithm to help employers and treating physicians decide whether SARS-CoV-2 IgG testing might be useful in their return-to-workplace plans.

SARS-CoV-2 IgG testing identifies people who have developed an antibody response to the virus. The usefulness of IgG testing in return-to-workplace plans depends on several complex variables. However, no clear federal guidance has been given to businesses on how and when to use IgG testing. If scientific evidence supports that positive antibodies confer immunity against SARS-CoV-2 infection, this proposed algorithm may help employers develop a framework for using antibody testing.

Return-to-Workplace IgG Testing Algorithm[1]

Assumptions:

SARS-CoV-2 IgG provides immunity from reinfection (more research is needed to determine this)

The test is at least 99% specific (ie, it has a low false-positive rate)

Workplace risk factors	Value
Exposure to symptomatic patients	3
Frequent exposure to customers	1.5
Frequent exposure to, or in close quarters with, other employees	1

Local disease prevalence	Value
>10%	5
5%-10%	2
<5%	1

Multiply values ✕

>5
Strongly consider testing

3-5
Consider testing

<3
No testing

For employees with risk factors, such as specific health conditions, individual testing may be appropriate.

1. Shrank WH, Caveney B, Miller S, et al. A simple algorithm for return to workplace employer antibody testing. *Popul Health Manag.* 2020; 23(5):346-349. doi:10.1089/pop.2020.0136

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Return to Workplace Testing Algorithm

Article Title: A Simple Algorithm for Return to Workplace Employer Antibody Testing

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Background

- Findings from several studies suggest that antibody testing can predict protection from future SARS-CoV-2 infection.[1,2]
- However, as employers consider plans for return-to-workplace (RTW) scenarios, federal recommendations on antibody testing for safe reentry remain unclear.[3]
- Factors that contribute to this uncertainty include variations in antibody test characteristics, underlying risk of populations to be tested, and regional prevalence of viral infection.
- **Objective:** In this report, the investigators propose a simple algorithm for employers to guide RTW testing policies.

Methods and Results

- Chief medical officers from several national payers, laboratory companies, retail pharmacies, and provider organizations were convened to develop an algorithm to guide the use of antibody testing in RTW plans.
- For the proposed algorithm to be applied in RTW settings, good evidence must be available to demonstrate that SARS-CoV-2 tests predict protection form reinfection. A high-quality test with at least 99% specificity must also be available. Assuming these criteria are met, the proposed algorithm applies numeric values to 2 key variables:
    - Workplace risk factors
    - Local disease prevalence
- Values are then assigned for both variables and multiplied to provide a result that informs an employer as to whether antibody testing should be considered for RTW plans.
    - < 3: no antibody testing
    - 3 to 5: consider antibody testing
    - > 5: strongly consider antibody testing
- For example, if "workplace risk factors" is assigned a value of 3 (interacts with symptomatic patients in a healthcare setting) and the "local disease prevalence" is assigned a value of 2 (5% to 10% disease prevalence), the resulting value is 6 and suggests that the employer should strongly consider antibody testing.

Conclusions

- Once scientific evidence confirms that positive antibodies confer immunity against SARS-CoV-2 infection, this proposed algorithm can help employers develop a framework for using antibody testing.

References
1. Wölfel R, Corman VM, Guggemos W, et al. Virological assessment of hospitalized patients with COVID-2019. *Nature*. 2020;581(7809):465-469. doi:10.1038/s41586-020-2196-x
2. Cao Y, Su B, Guo X, et al. Potent neutralizing antibodies against SARS-CoV-2 identified by high-throughput single-cell sequencing of convalescent patients' B cells. *Cell*. 2020;182(1):73-84.e16. doi:10.1016/j.cell.2020.05.025
3. Return-to-Work Criteria. Centers for Disease Control and Prevention. Updated August 10, 2020. Accessed December 9, 2020. https://www.cdc.gov/coronavirus/2019-ncov/hcp/return-to-work.html

The information presented in this piece is not intended to tell a physician or healthcare practitioner how to care for their patient. Each physician or healthcare provider should make patient care decisions based upon the provider's clinical patient assessment, expertise, and experience.