

COVID-19 Diagnosis: Antigen Testing

Symptomatic and asymptomatic (exposure, group-setting) antigen testing strategies, POC vs. lab-based testing, specimen self-collection, and pooled test performance.

2023 IDSA Guideline
Diagnosis of COVID-19: Antigen Testing
Hayden, Hanson, Manabe et al. • Clin Infect Dis
2024;78(7):e350-92

FORMAT 10 GRADE recommendations — Ag = rapid antigen test; NAAT = nucleic acid amplification test (rapid RT-PCR or lab-based).

1 Symptomatic Individuals

STATEMENT	STRENGTH
R1 — Single Ag test over no test. Test within 5 d of symptom onset; if suspicion remains high after negative Ag, confirm with NAAT. Positive Ag has high specificity — no confirmation needed to guide treatment/isolation	Strong Moderate
R2 — Standard NAAT (rapid RT-PCR or lab-based) suggested over a single rapid Ag test	Conditional Low
R3 — Single standard NAAT suggested over 2 consecutive rapid Ag tests. If NAAT unavailable in time and first Ag is negative, repeat Ag testing (within 5 d of onset); positive first Ag needs no repeat	Conditional Very low

2 Asymptomatic — Known Exposure

STATEMENT	STRENGTH
R4 — Single (one-time) Ag test suggested over no testing in specific situations — individualize decision to test	Conditional Moderate
R5 — Single standard NAAT suggested over a single rapid Ag test	Conditional Low
R6 — If NAAT unavailable/delayed and first Ag is negative, repeat Ag testing is a reasonable next step (repeat-testing algorithm modeled, not directly studied)	Conditional —

3 Asymptomatic — Group & Event Settings

STATEMENT	STRENGTH
R7 — Schools/workplaces desiring testing: neither for nor against 2 consecutive Ag tests vs. no testing — no direct evidence available	— Evidence gap
R8 — Before large gatherings (concert, conference, sporting event): neither for nor against Ag testing vs. no testing — individualize; a one-time NAAT may help if result changes subsequent actions	— Evidence gap

4 Testing Logistics

QUESTION	RECOMMENDATION
POC vs. lab-based (R9)	Either POC or laboratory-based Ag testing suggested — performance appears comparable, though symptomatic/asymptomatic mix in studies was not well reported (conditional, low)
Self-collection (R10)	Either observed or unobserved self-collection of swab specimens suggested if self-collection is performed (conditional, low). Negative Ag reduces likelihood of infection but does not exclude it — clinical correlation still required
High-risk / outbreak use	A positive test in high-risk individuals prompts increased symptom monitoring; in outbreak settings, positive results assist isolation, quarantine, and contact-tracing decisions

5 Pooled Test Performance (Evidence Summary)

POPULATION	POOLED SENSITIVITY / SPECIFICITY (VS. STANDARD NAAT)
Symptomatic, ≤7 d	Single Ag: sensitivity 81% (95% CI 78–84%), specificity 100% (95% CI 100–100%)
Symptomatic, ≤5 d	Single Ag: sensitivity 89% (95% CI 83–93%), specificity 100% (95% CI 99–100%) — best-performing window
Symptomatic, repeat Ag ×2	Modeled: sensitivity 98% (95% CI 97–99%), specificity 100% (95% CI 99–100%) within first 5 d
Standard NAAT (reference)	Sensitivity 97% (95% CI 93–99%), specificity 100% (95% CI 96–100%) vs. composite reference standard
Asymptomatic, known exposure	Single Ag: sensitivity 63% (95% CI 56–69%), specificity 100% — pediatric population similar (~62%)