COVID-19 Rapid Antigen Testing

Overview

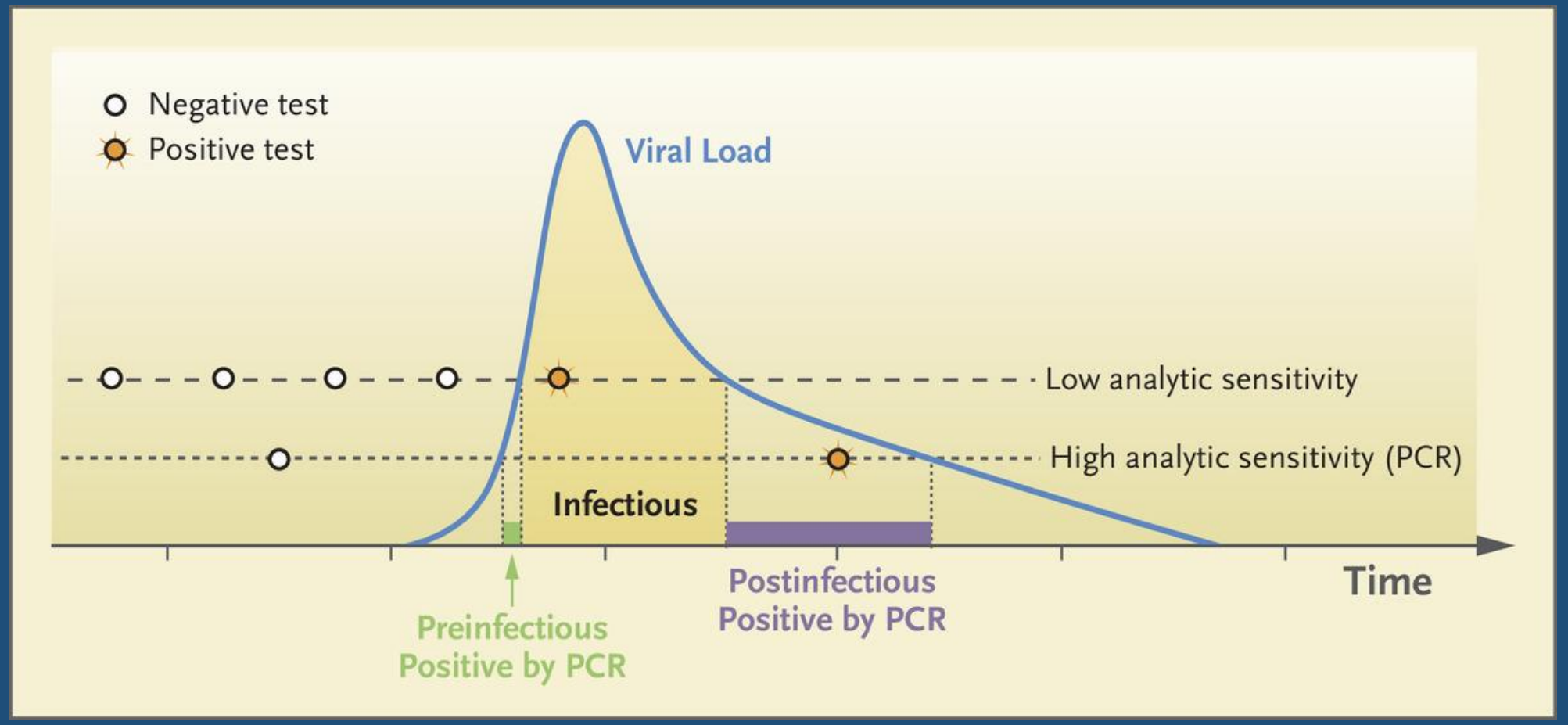
- Abbott BINAXNOW
- Anterior nare swab
- Detects viral antigen
- Results available within 15 minutes
- 600,000 kits may be allocated to Fire/EMS by Testing Task Force

VIDEO: https://www.globalpointofcare.abbott/en/product-details/navica-binaxnow-covid-19-us.html#

Overview

- Covered under MIEMSS CLIA waiver
- No physician orders required
- Requires reporting of all results via CRISP

Antigen Testing vs. PCR



MJ Mina et al. N Engl J Med 2020. DOI: 10.1056/NEJMp2025631

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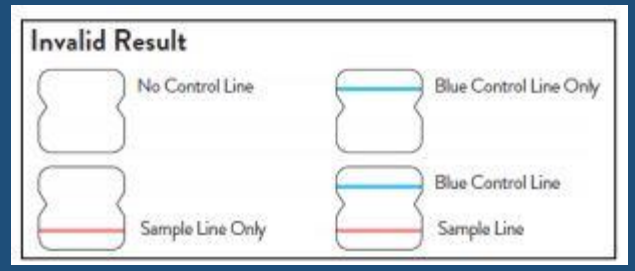
Test Results

- Symptomatic patients within 7 days of onset
  - Sensitivity 97%
  - Specificity 98.5%

- Invalid result – repeat antigen test



Use Cases

- Evaluate a symptomatic person**
- Contact tracing / investigation / surveillance
- Screening (with frequency)

Follow-up PCR Testing

	Symptomatic person	Asymptomatic person
Antigen test POS	Positive	*Obtain PCR test
Antigen test NEG	*Serial Testing	Negative

Truth

Test Result

	Disease (number)	Non Disease (number)	Total (number)
Positive (number)	A (True Positive)	B (False Positive)	$T_{Test\ Positive}$
Negative (number)	C (False Negative)	D (True Negative)	$T_{Test\ Negative}$
	$T_{Disease}$	$T_{Non\ Disease}$	Total

Specificity = True Negative / (True Negative + False Positive)

Positive Predictive Value = True Positive / (True Positive + False Positive)

Positive Predictive Value** if disease prevalence among the tested population is **10%**

	Has COVID-19	Doesn't Have COVID
Test Result Positive	9.7	1.8
Test Result Negative	0.3	88.2
Total (if 100 tested)	10	90

** Assuming test sensitivity = 97%, and specificity = 98%

Positive Predictive Value = 84%

(84% of people with a positive result will actually have COVID-19)

Positive Predictive Value** if disease prevalence among the tested population is **5%**

	Has COVID-19	Doesn't Have COVID
Test Result Positive	4.85	1.9
Test Result Negative	.15	93.1
Total (if 100 tested)	5	95

** Assuming test sensitivity = 97%, and specificity = 98%

Positive Predictive Value = 72%

(72% of people with a positive result will actually COVID-19)

Currently, across the state, PCR testing of EMS/Fire personnel is Positive 8-9%. Presumably, these people are being tested because of suspicion (i.e., higher pre-test probability) or concern as a contact. Lower prevalence, and decreased positive predictive value, should be anticipated if testing was to be used for screening. That's not bad, but something to plan for.

Process

- EMSOP submits a written plan and is approved by MIEMSS
  - Process for manually reporting all COVID-19 antigen tests (pos and neg) into CRISP
  - Process for ensuring clinicians who require a PCR test receive one within 24-48 hours of positive antigen result
  - Process to ensure weekly COVID-19 antigen inventory is submitted through SmartSheet form

Logistics

- Test kits distributed in sets of 40
- Same process as currently used for PCR test kits
- Six month expiration (rolling) from date of arrival at MDH

Training

- Abbott offers virtual super-user training

- Training resources

https://www.globalpointofcare.abbott/en/support/product-installation-training/navica-brand/navica-binaxnow-ag-training.html