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Diretoria Científica Adjunta ASBAI
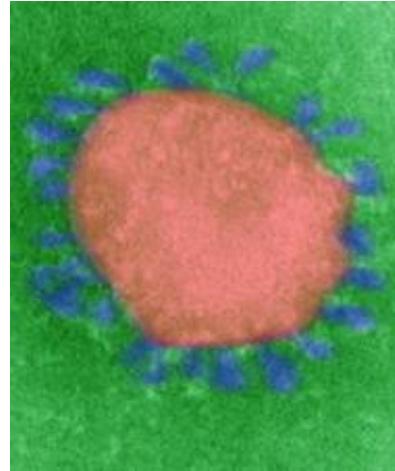
Getty images

Quadro clínico

Muito heterogêneo

Anosmia, disgeusia, ageusia (sem sintomas nasais relevantes)

Hipóxia sem desconforto respiratório

https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html

Bénezit et al. Lancet Infec Dis. 2020. doi.org/10.1016/S1473-3099(20)30297-8

Diagnóstico

Laboratorial

Isolamento vírus

Resposta imune ao vírus

Exames de imagem

Exames de análises clínicas

Identificação do agente infeccioso

Tzanck Smear
Multinucleated giant cell

https://healthjade.net

≠

*https://br.freepik.com*


https://clinicarx.com.br

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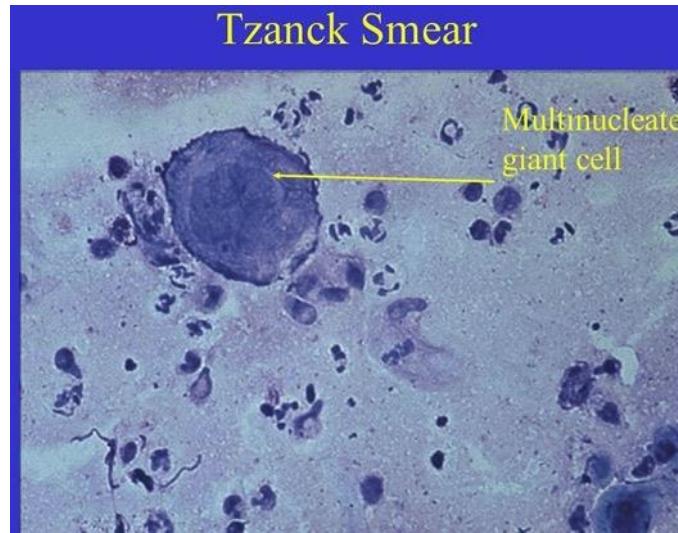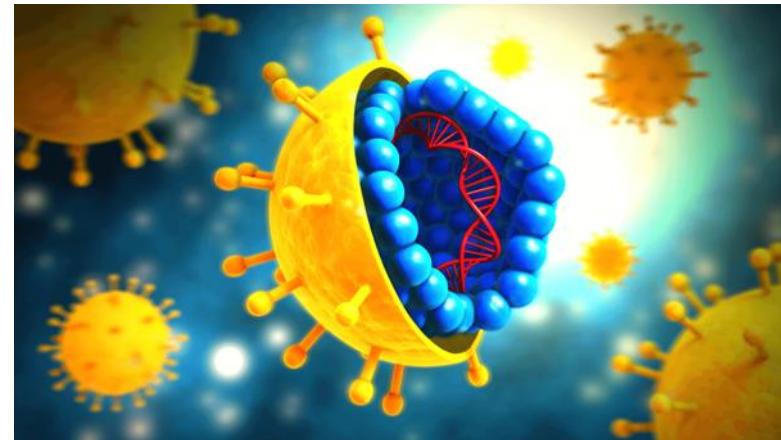
RT-PCR
Muitos fatores podem interferir nesse processo ...

Tipo de material coletado e usado para coleta
Técnica coleta e encaminhamento material
Tempo de sintomas
Taxa de replicação viral
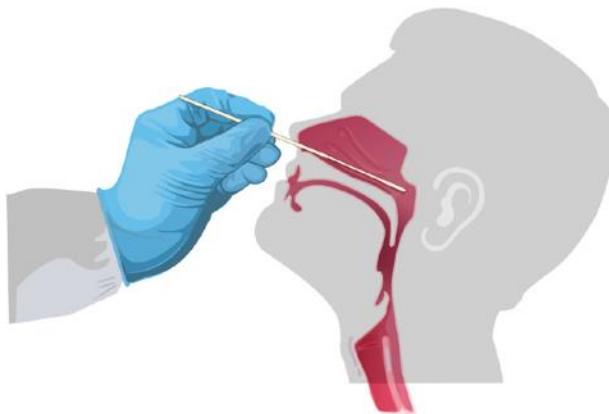
CDC Guidelines, 2020
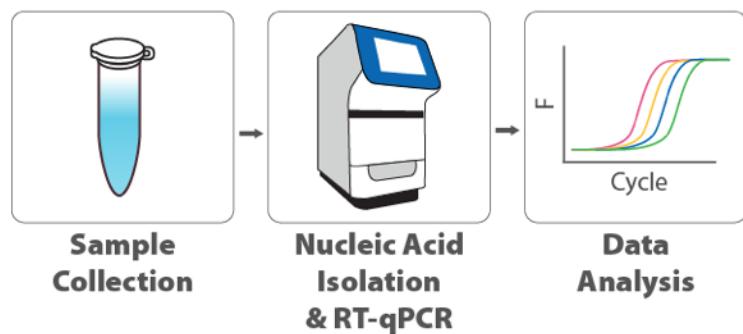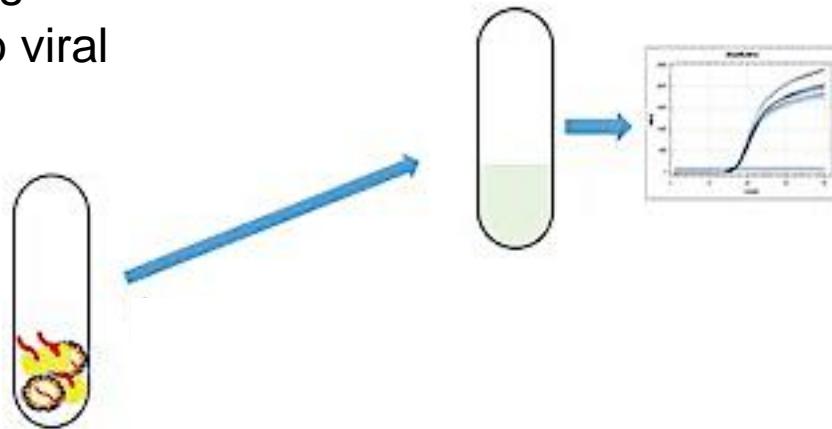
Tipo de kit – diferentes alvos genéticos
Mutações vírus
Uso de mais de um kit/amostra -Testes duplex

Sample Collection → **Nucleic Acid Isolation & RT-qPCR** → **Data Analysis**

F
Cycle

Watson et al. BMJ 2020;369:m1808 doi: 10.1136/bmj.m1808
Tahantam & Ardebili. Exp Ver Mol Diag2020.https://doi.org/10.1080/14737159.2020.1757437

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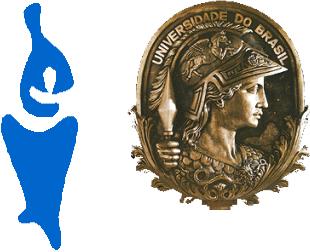
Positividade

Table. Detection Results of Clinical Specimens by Real-Time Reverse Transcriptase–Polymerase Chain Reaction

Specimens and values	Bronchoalveolar lavage fluid (n = 15)	Fibrobronchoscope brush biopsy (n = 13)	Sputum (n = 104)	Nasal swabs (n = 8)	Pharyngeal swabs (n = 398)	Feces (n = 153)	Blood (n = 307)	Urine (n = 72)
Positive test result, No. (%)	14 (93)	6 (46)	75 (72)	5 (63)	126 (32)	44 (29)	3 (1)	0
Cycle threshold, mean (SD)	31.1 (3.0)	33.8 (3.9)	31.1 (5.2)	24.3 (8.6)	32.1 (4.2)	31.4 (5.1)	34.6 (0.7)	ND
Range	26.4-36.2	26.9-36.8	18.4-38.8	16.9-38.4	20.8-38.6	22.3-38.4	34.1-35.4	
95% CI	28.9-33.2	29.8-37.9	29.3-33.0	13.7-35.0	31.2-33.1	29.4-33.5	0.0-36.4	

Abbreviation: ND, no data.

Wang, JAMA online March 11, 2020

0-7 dias

leve: OF 61.3% (46/75) NF 72.1% (147/204)

grave: OF 60% (12/20) NF 73.3% (11/15)

8-14 dias

leve: OF 29.6% (8/27) NF 53.6% (96/179)

grave: OF 50% (18/36) NF 72.3% (34/47)

≥ 15 dias

leve: OF 11.1% (1/9) NF 54.5% (6/11)

grave: OF 36.8% (14/38) NF 50% (17/34)

(SEM cálculos de significância)

Yang, 2020
medRxiv preprint doi:
https://doi.org/10.1101/2020.02.11.20021493

Pacientes mais graves:
> positividade e
por + tempo

*Sethuraman et al
JAMA. 2020;323(22): 2249-51*

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Aproximadamente 70% sensibilidade e 95% de especificidade

PADRÃO OURO

Watson et al. BMJ 2020;369:m1808 doi: 10.1136/bmj.m1808

Reconstructed diagnostic sensitivity and specificity of the RT-PCR test for COVID-19

Nikhil S Padhye

Background. Real-time reverse transcription polymerase chain reaction (RT-PCR) targeting select genes of the SARS-CoV-2 RNA has been the main diagnostic tool in the global response to the COVID-19 pandemic. However, the diagnostic accuracy of the test has not been studied systematically outside of the laboratory setting. The aim of this study is to provide estimates of the diagnostic sensitivity and specificity of the RT-PCR test developed by China CDC. Methods. The study design is a secondary analysis of published findings on 1014 patients in Wuhan, China, of whom 601 tested positive and 413 were negative for COVID-19. Sensitivity and specificity were reconstructed using a Bayesian approach from probabilistic knowledge of the diagnostic errors. Predictive values of the test were calculated, resulting in estimates for the number of confirmatory tests that are needed for establishing the presence or absence of COVID-19, depending on the prior probability of a patient having the disease. Results. The sensitivity of the RT-PCR diagnostic test was estimated to be 0.777 (95% CI: 0.715, 0.849), while the specificity was 0.988 (95% CI: 0.933, 1.000). The confidence intervals include sampling error in addition to the error due to probabilistic knowledge of the data. Discussion. The Chinese version of the RT-PCR test had a conspicuous rate of false negative results, likely missing between 15% and 29% of patients with COVID-19. For a patient with a prior probability of COVID-19 greater than 18%, at least two negative test results would be needed to lower the chances of COVID-19 below 5%. Caution is advised in generalizing these findings to other versions of the RT-PCR test that are being used in diverse geographic regions.

更新日期: 2020-04-29

Testes rápidos de Ag viral ou Moleculares

Udugama et al. ACS Nano 2020, 14, 3822−3835
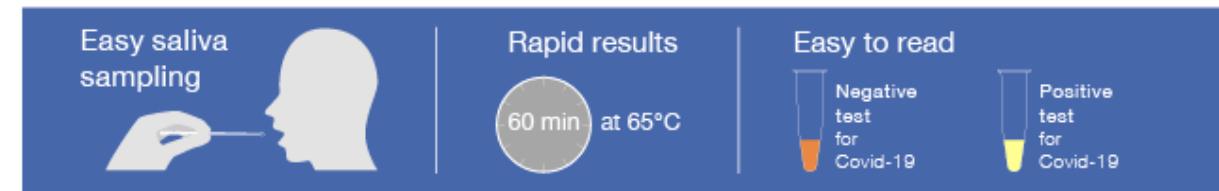
COVID-19 Ag ECO TEST
15 a 30 min

https://www.skillcell-alcen.com

Imunidade inata – **IFN tipo I e células NK**
Imunidade adaptativa – **imunidade celular –T citotóxico (CD8)**
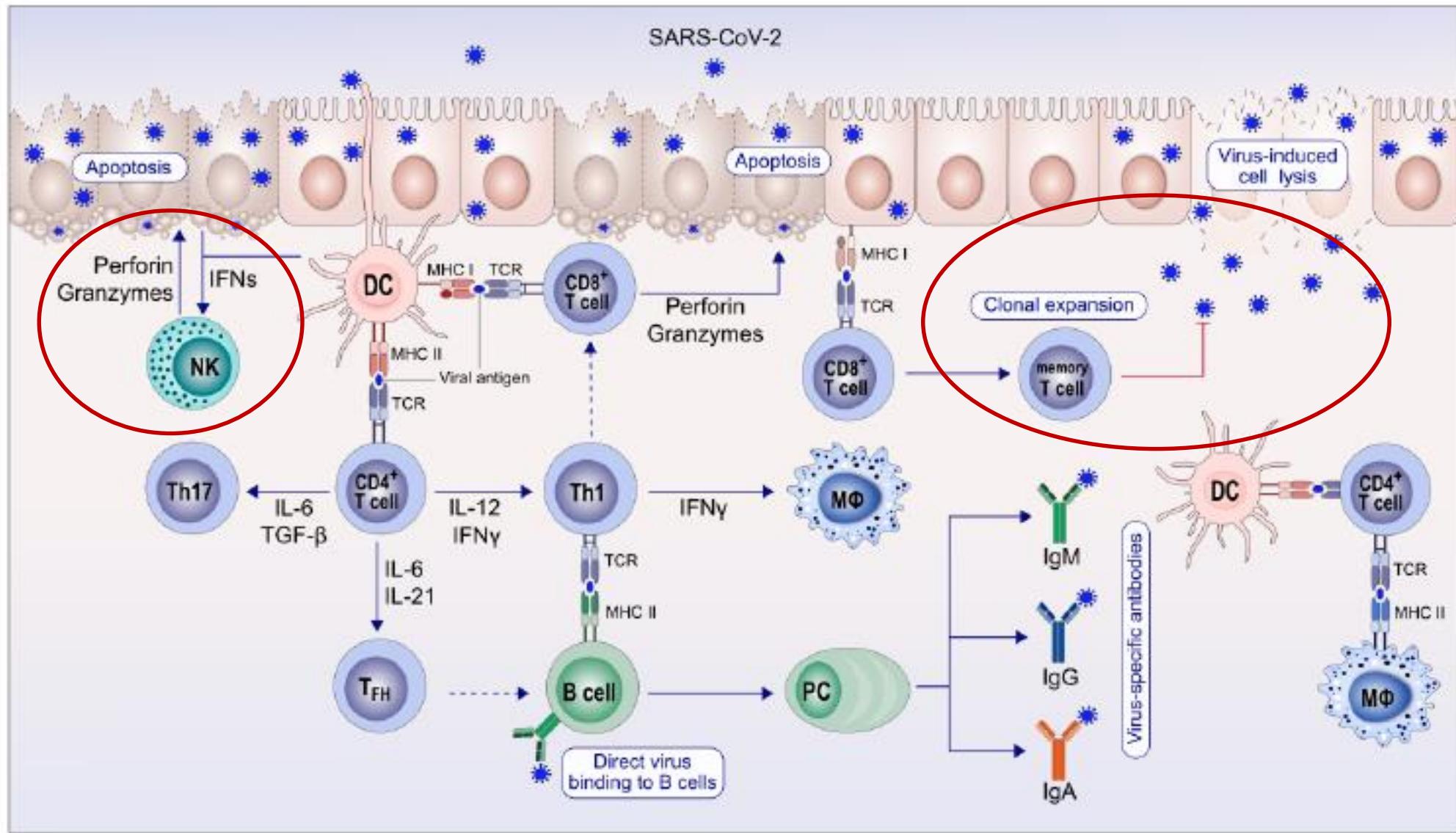
*Azkur et al.
Allergy, May 2020
doi.org/10.1111/all.14364*
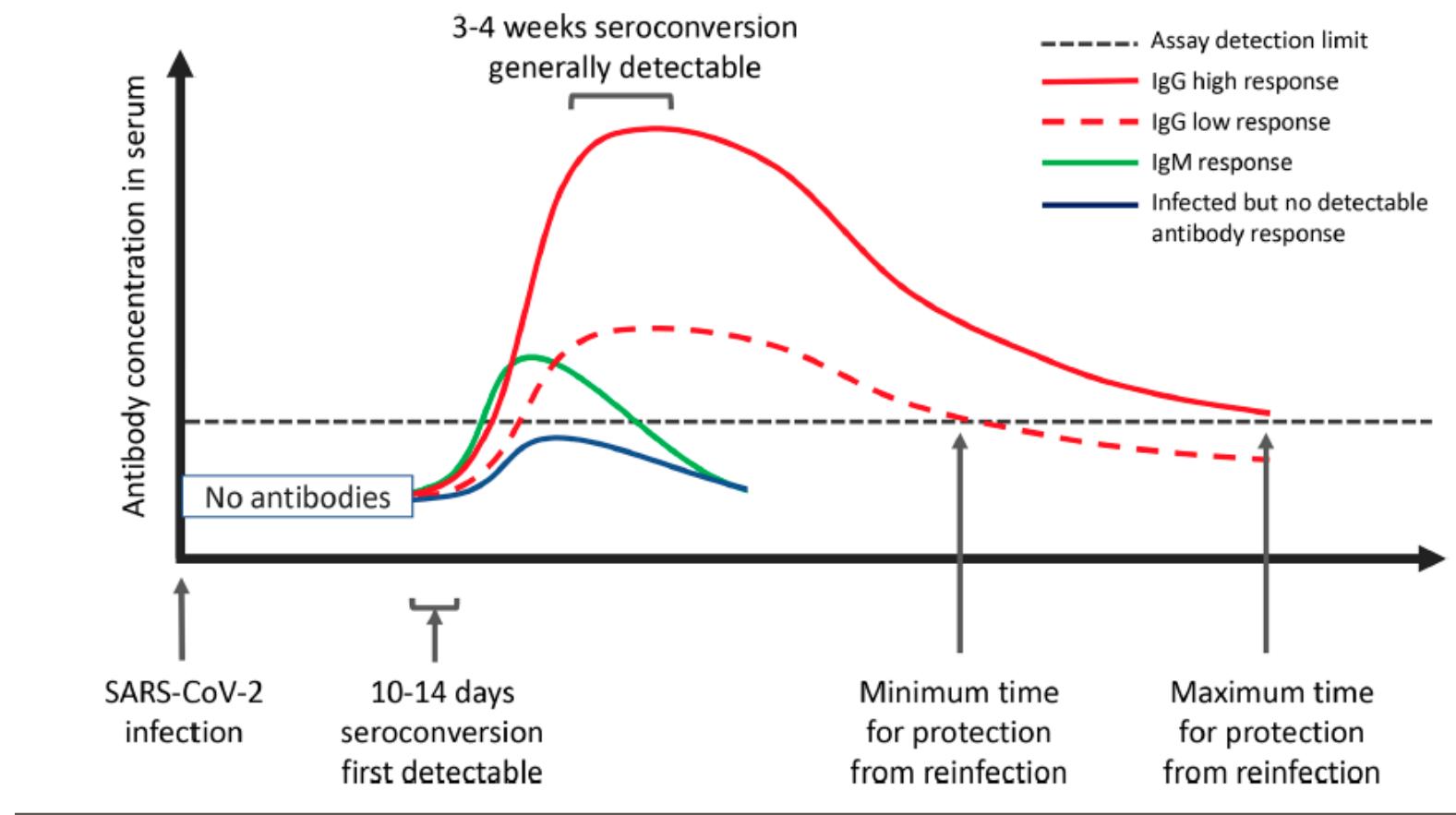
Kellam and Barclay, Journal of General Virology, 2020.
DOI 10.1099/jgv.0.001439

Testes sorológicos

IgA - IgG

IgM - IgG

(Elisa – Quimioluminescência)

Testes rápidos IgM - IgG

                IgM/IgG

(Imunocromatografia-

Lateral flow essays)
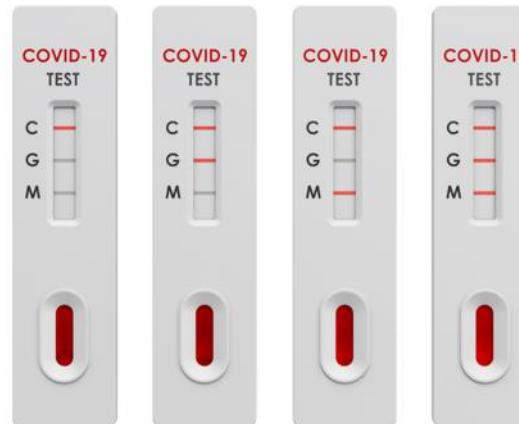
sangue/plasma/soro
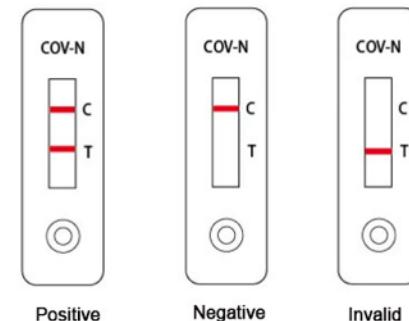
Sensibilidade e Especificidade testes sorológicos
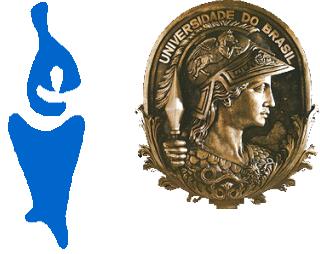
"Padrão ouro" – RT-PCR

Sensibilidade/especificidade dos testes varia muito entre eles e tem sido superestimada

Acs contra proteína NC (capsídeo do núcleo, + abundante), mais sensíveis, mas

Acs contra Receptor Binding Domain (RDB) da proteína S (Spike) mais específicos e provavelmente neutralizantes

Watson et al. BMJ 2020;369:m1808 doi: 10.1136/bmj.m1808
Sethuraman et al. JAMA. 2020;323(22): 2249-51

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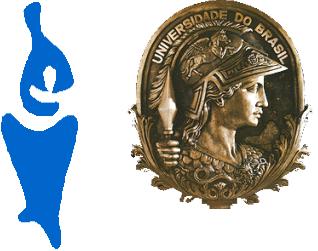
Análises Clínicas

Hemograma – neutrofilia/linfopenia/plaquetopenia

Provas de atividade inflamatória: PCR, VHS, D dímero, ferritina
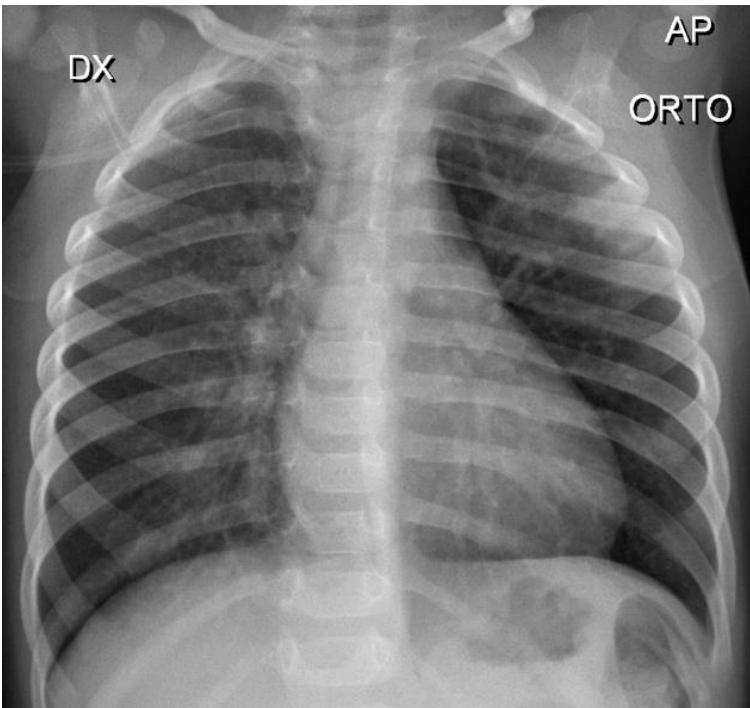
# Exames de imagem

radiopaedia

Exames de imagem
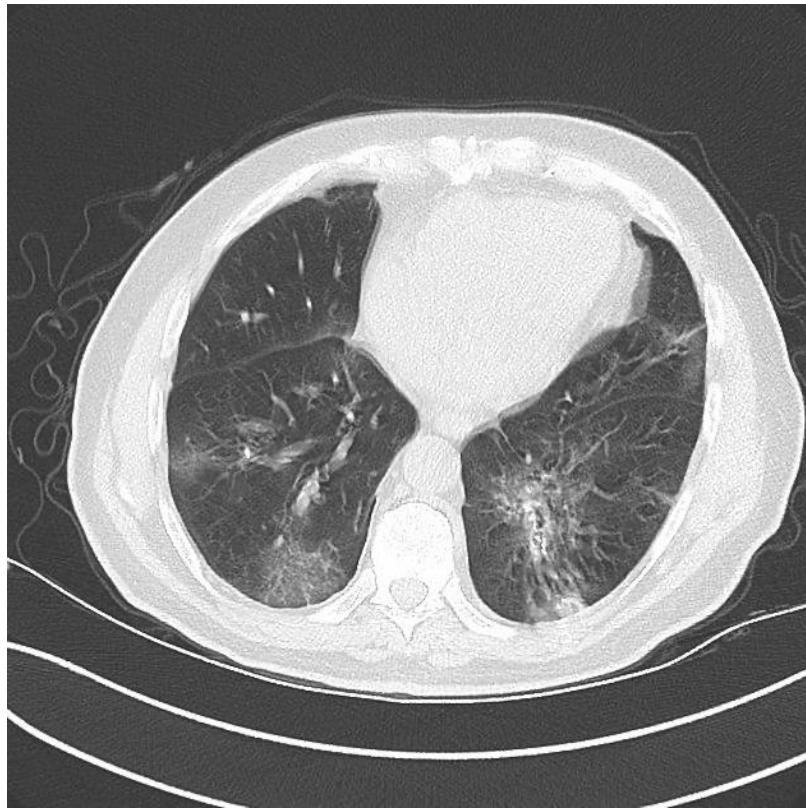
Case courtesy of Dr Derek Smith,
Radiopaedia.org, rID: 75249

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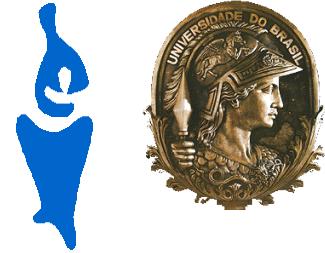
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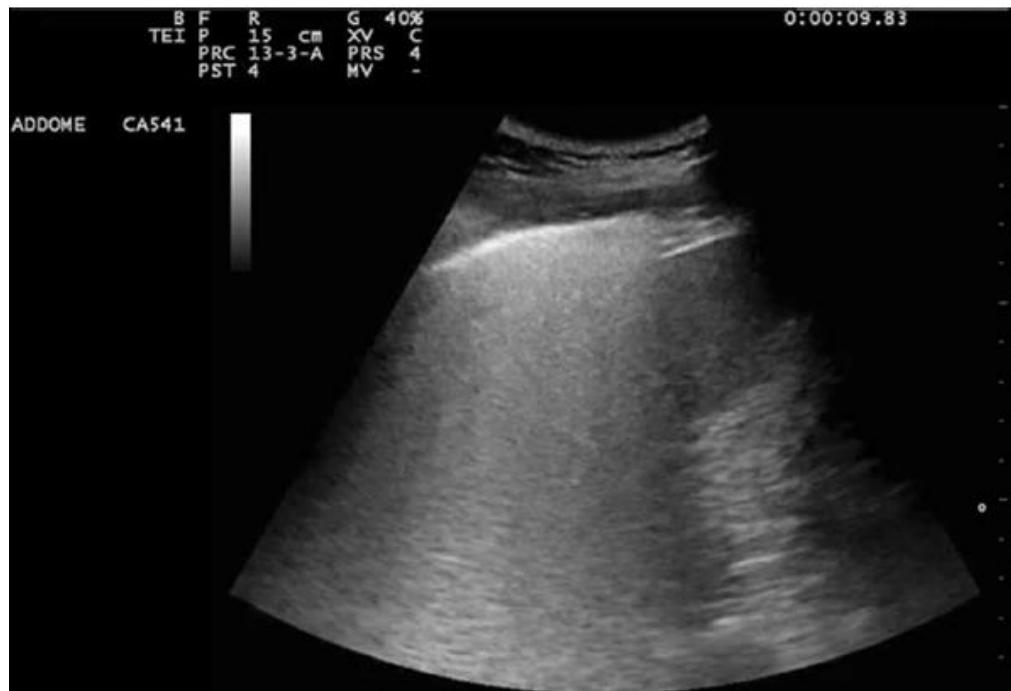
Sofia et al. Journal of Ultrasound (2020) 23:217–221

Concluindo ...

Nenhum teste tem acurácia de 100% !

Achados característicos x patognomônicos

Sorologia não define "passaporte imunológico" isoladamente

Padrão ouro – "o que temos para hoje" (70%): RT-PCR

Sinais e Sintomas

Hist. Epidemiológica

RT-PCR

Exames análises clínicas

Exame Radiológico

Sorologia