

Cost–Utility Analysis for Chest CT versus RT-PCR for COVID-19 Detection

Dear Editor,

COVID-19 has become an important public health problem internationally in 2020. The disease caused problems in several countries around the world. The infection can result in febrile illness with a respiratory problem.^[1] In our previous report, we have shown the limitation on the basic screening tool, temperature monitoring, for mass screening for people coming from risk areas.^[2] In clinical practice in preventive medicine, adding to the screening for risk population, the early diagnosis on suspicious cases of COVID-19 is similarly important. In general, common investigative tools include CT lung imaging and Reverse transcription polymerase chain reaction (RT-PCR).^[3] Fang *et al.* reported that the detections rates for initial chest CT and RT-PCR for COVID-19 detection among the clinically suspicious cases were equal to 98% and 71%, respectively.^[3] Nevertheless, there is still no study on cost and utility of tools for diagnosis.

Here, the authors performed a medical economics analysis to clarify the cost–utility of CT versus RT-PCR for COVID-19 detection. The primary data on cost are hereby referred to referencing costs for chest CT and RT-PCR by the Thai Ministry of Public Health and presented in USD. For utility, the data in the referencing publication by Fang *et al.* are directly referred.^[3] The number of participants in the referencing data source is equal to 51. The cost–utility analysis is done according to the standard medical economics technique. The cost–utility value is directly calculated as “cost–utility = cost/utility.” According to the study, cost, utility, and cost per utility of chest CT versus RT-PCR for COVID-19 detection are presented in Table 1. Based on the analysis, the cost per utility for chest CT is higher. This might imply that RT-PCR tool is still a good choice for early detection of COVID-19 in clinically suspicious cases, especially for the developing countries with limited resource.

Table 1: Cost, utility, and cost per utility of for chest CT versus RT-PCR for COVID-19 detection

	Chest CT	RT-PCR
Cost (USD)	94.67	50.49
Utility (%)	98%	71%
Cost-utility (USD)*	96.60	71.53

*Cost-utility is equal to cost per utility (cost/utility)

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

Won Sriwijitalai¹, Viroj Wiwanitkit^{2,3}

¹RVT Medical Center, Bangkok, Thailand, ²Department of Tropical Medicine, Hainan Medical University, Haikou, China, ³Department of Community Medicine, Dr. DY Patil University, Pune, Maharashtra, India

Address for correspondence:

Dr. Won Sriwijitalai,
RVT Medical Center, Bangkok, Thailand.
E-mail: wonsriwi@gmail.com

Received: 24 Feb 20

Accepted: 16 Mar 20

Published: 05 Jun 20

References

- Hsia W. Emerging new coronavirus infection in Wuhan, China: Situation in early 2020. *Case Study Case Rep* 2020;10:8-9.
- Sriwijitalai W, Wiwanitkit V. Positive screening for Wuhan novel coronavirus infection at international airport: What's the final diagnosis for positive cases. *Int J Prev Med* 2020;11:30.
- Fang Y, Zhang H, Xie J, Lin M, Ying L, Pang P, *et al.* Sensitivity of chest CT for COVID-19: Comparison to RT-PCR. *Radiology* 2020;200432. doi: 10.1148/radiol.2020200432. [Epub ahead of print].

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Access this article online

Quick Response Code:



Website:

www.ijpvmjournal.net/www.ijpvm.ir

DOI:

10.4103/ijpvm.IJPVM_83_20

How to cite this article: Sriwijitalai W, Wiwanitkit V. Cost–utility analysis for chest CT versus RT-PCR for COVID-19 detection. *Int J Prev Med* 2020;11:67.

© 2020 International Journal of Preventive Medicine | Published by Wolters Kluwer - Medknow