

The Rapid COVID Screening (RCS) Tool

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ABSTRACT

As the COVID-19 outbreak continues, there is a dire need to organise and allocate resources while optimising costs and time: identification of patients should be rapid and economical. With the current spectrum of clinical presentations of patients with COVID-19, it is important to be thorough while determining symptoms involving the various organ systems including possible contact history. Point-of-care (POC) lung ultrasound has already proven to be a reliable tool in diagnosing lung inflammatory processes: the results are immediate and the examination is safe, repeatable, and cheap. Early use of POC lung ultrasound could prove invaluable in COVID-19 patients, leading to early correct diagnoses and appropriate management. The author suggests a tool that incorporates various aspects in clinical history, POC lung ultrasound findings and hemodynamic parameters for identification and management of patients during the COVID-19 pandemic.

Key Words: COVID-19, Sars CoV-2, Emergency department, Screening, Point-of-care, Lung ultrasound.

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With the recent advent of the COVID-19 pandemic, more than 150 nations have come into effect with significant increases in the total number of cases on a frequent daily basis.¹

The complete clinical picture in regard to COVID-19 pandemic is still under investigation. Reported illnesses have ranged from mild to severe respiratory disease including death. Individuals at extremes of age, especially those with severe comorbidities, are at increased risk of developing serious COVID-19 illness.² Emergency departments (EDs) and clinics that continue to stand on frontline have put great emphasis in considering a low threshold for identifying patients with possible COVID-19 infection as the disease continues to become widespread.

There have been proposals of various criteria that can assist for further investigations and guiding for home or hospital isolation / quarantine placement.³

However, there have now been reports that describe a typical presentations of COVID-19 infection beyond that of respiratory complaints which includes gastrointestinal, neurologic, dermatologic manifestations etc.⁴ This emphasises how important and thorough a history should be ensuring a definite inquiry of systems.

Travel history was once given importance during overall assessment, which is now not the case due to significant community penetration seen worldwide. It is now more logical to inquire about contact history to a suspected/confirmed COVID-19 patient. It is also important to remember that various patients sometimes prefer to deny symptoms due to a fear of stigmatisation and forceful hospital/home isolation measures,⁵ therefore it is useful to objectively identify via a detailed account of history and imaging findings.

Point-of-care (POC) lung ultrasound (US) has recently been advocated for the assessment of COVID-19 positive patients with respiratory complaints demonstrating variety of findings such as Kerley B lines, pleural thickening, pulmonary consolidations and pleural effusions. It is considered to be equivalent to chest radiograph in detecting COVID-19 pneumonia patients. There have been proposals of standard protocols for POC Lung US that can be conveniently performed at the bedside of the patient allowing immediate screening and decision making in terms of management and disposition.⁶

Various international campaigns have been extremely active and informative in raising public health awareness emphasising on practising simple precautions. However, they have not been very successful in containing the disease. Therefore, EDs and clinics continue to receive a large number of patients with suspected/confirmed disease; for which reason, it is imperative that a strong screening tool is designed that would assess the patient on various aspects of the disease, and would function to serve as a first line of defense to decide a COVID-19 positive case from one that is not and an unstable COVID-19 positive case from a stable one.

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Table I: The proposed rapid covid screening (RCS) tool for suspected COVID patients.

On first contact (with full personal protective equipment measures), conduct a history and look out for following:	
Symptoms (major)	Contact history (minor)
Fever Chills Headaches Sore throat Runny nose / sneezing / post nasal drip Conjunctivitis Sneezing Cough (dry / productive) Hemoptysis Difficulty in breathing Chest pain Fatigue Myalgia / arthralgias Nausea / vomiting Abdominal pain Diarrhea Anuria / oliguria Confusion Seizures Skin rash and/or finger / toe discoloration	Exposure to suspected / confirmed COVID 19 positive cases.
If two major or one major and one minor then apply the following:	
Hemodynamic findings (high risk)	Ultrasonography findings
Heart rate >100 beats per minute Blood pressure <90 mmHg, Mean arterial pressure <65 mmHg Respiratory rate >24/minute Pulse oximetry <92%	Kerley B-lines Pleural irregularity Sub pleural collection Consolidation Pleural effusion Left ventricular dysfunction (new onset)
Stratify according to the following:	
Unstable patient	Stable patient
If any one of high risk, transfer to high dependency unit / intensive care unit with negative isolation precautions for COVID-19 polymerase chain reaction testing and stabilisation. If not high risk, perform ultrasound for any of the above findings. if positive ultrasound, transfer to high dependency unit with negative isolation precautions for COVID-19 polymerase chain reaction and stabilisation.	If no high risk or ultrasound features, send COVID-19 polymerase chain reaction testing and consider appropriate discharge with isolation/quarantine precautions, if possible.

At present, various hospitals of Pakistan are attempting to scale up to the measure of receiving a surge of cases during the pandemic. I strongly feel the following tools will serve to assist in the assessment of adult patients in EDs until further research continues to surface.

CONFLICT OF INTEREST:

Author declared no conflict of interest.

AUTHOR'S CONTRIBUTION:

MAB: Responsible for the concept, drafting, critical revision and final approval of the article.

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