

Letter to Editor

Routine use of condom as an ultrasound probe cover to prevent cross infection in COVID-19 Intensive Care Unit

Running title: Condom as an Ultrasound Probe Cover to prevent cross contamination in ICU

Keywords: Point of Care Ultrasound; COVID-19; Infection Control; Condoms, Ultrasonography; cross infections

Dear Editor,

Point of Care Ultrasonography (POCUS) is routinely used in intensive care unit (ICU) as a diagnostic and therapeutic tool [1]. Despite several benefits of ultrasound in ICU, there is a risk of infection transmission from one patient to another. Moreover, a large number of invasive and semi-invasive procedures are performed in ICU which increases the exposure of ultrasound probe to multi-drug resistant infections which requires high level disinfection of ultrasound probes [2]. During current COVID-19 crisis with heavy inflow of the patients in ICU and deficiency of adequate staffing, manual high level disinfection of ultrasound probes is compromised and this increases the risk of cross contamination in COVID-19 ICU.

To prevent cross transmission of infection we are using male condom (Figure 1) to cover ultrasound probes. It is cheap (<1\$/day in a 15 bedded ICU), easily available, and does not obscure ultrasound image. Before examining patient, the probe is covered with male condom, jelly is applied over the probe covered with condom and examination is performed using the standard technique. Once the scan is completed the condom is discarded, probe is cleaned and a new condom is used for examining the next patient.

Guideline recommends use of dedicated probe covers and sterile jelly both inside and outside transducer if the ultrasound probe comes in contact with mucous membrane or body fluids [3]. Dedicated ultrasound covers are costly, requires sterile jelly to be placed both inside and outside, and also difficult to acquire due to huge demand during pandemic. The condoms are easily available at any medical shop, inexpensive, and pre-lubricated so it does not require jelly to be placed inside. Condoms not only prevents the transmission of infection between patients but also protects the probe from various hazardous substances including blood and body fluids.

For more than two decades condoms are used as probe cover during transvaginal ultrasonography. Various studies have also showed that condoms are effective probe covers for prevention of transmission of infection during transvaginal ultrasonography [4,5]. During COVID crisis more patients were accommodated in a small space and many of these patient were on steroids and immunocompromised, the risk of transmission of infection is even high in these patient due to the use of PPEs. To prevent infection transmission we started using condom as a probe cover during first wave of COVID and we continued to use it as a cheaper alternative to commercially available probe cover even in non-COVID settings.

There is no published report of routine use of condoms as an ultrasound probe covers for POCUS in COVID- ICU. As the use of ultrasound in ICU is widening, ultrasound probes might become the major transmitter of infection if proper cleaning and disinfection practices are not followed during care of critically ill patients. Condoms can be used as a cheaper alternative to commercial probe covers especially when there is scarcity of resources. We are now routinely using condoms to prevent cross contamination of ultrasound probes in COVID as well as non-COVID ICUs.

References:

1. Campbell SJ, Bechara R, Islam S. Point-of-Care Ultrasound in the Intensive Care Unit. *Clin Chest Med.* 2018; 39(1):79-97.
2. Costello C, Basseal JM, Yang Y, Anstey J, Yastrebov K. Prevention of pathogen transmission during ultrasound use in the Intensive Care Unit: Recommendations from the College of Intensive Care Medicine Ultrasound Special Interest Group (USIG). *Australasian Journal of Ultrasound in Medicine* 2020; 23: 103-110.
3. Nyhsen CM, Humphreys H, Koerner RJ, Grenier N, Brady A, Sidhu P, et al. Infection prevention and control in ultrasound - best practice recommendations from the European Society of Radiology Ultrasound Working Group. *Insights Imaging.* 2017; 8(6):523-535.
4. Amis S, Ruddy M, Kibbler CC, Economides DL, MacLean AB. Assessment of condoms as probe covers for transvaginal sonography. *J Clin Ultrasound.* 2000;28(6):295-8.
5. Basseal JM, Westerway SC, Hyett JA. Analysis of the integrity of ultrasound probe covers used for transvaginal examinations. *Infect Dis Health.* 2020;25(2):77-81.

Figure 1: Showing Phased, Curved and linear array probes covered with male condom



UNDER PELL