

BlueOrange Alert: Baby Monitor Usage

Given the severity and complexity of the current situation, the use of baby monitors has been generally accepted by healthcare professionals *temporarily* in order to provide a way for healthcare workers, mainly nursing staff, to stay safe and limit unnecessary exposure to COVID-19 patients while they are in the hospital. Use of this simple technology is providing a way to monitor and facilitate two-way communication with patients without having to continuously go in and out of patient rooms, many of which are negative air pressure rooms, or emergency room bed areas that have been closed off with opaque windows rather than curtains.

That being said, BlueOrange would like to provide some guidance associated with using baby monitors in your healthcare facility, not to deter you from using them (especially if they are the only or best option for monitoring this vulnerable population) but as a way to mitigate any possible security risks that may arise as a result.

When looking to implement baby monitors in patient rooms:

- Check to determine what types of monitors you are using – some are better than others. Many organizations are taking donations of baby monitors from the public rather than buying new ones – be aware that not all monitors offer the same security features, especially if they are older models.
- Determine how you will connect the monitors – will they be on an existing WiFi network or simply paired with a base unit?
- Create an inventory of monitors and have staff members check-in/out the devices.
- If feasible, get additional (even verbal) patient/personal representative/family member consent to use such monitors, just like one would do for taking video or photographs in the hospital.
- Continue with existing clinical protocols to ensure that patients being monitored are also still connected to any other telemetry or vitals equipment as needed.
- Document this as an additional monitoring measure in the nursing notes/EHR.
- Consider other solutions that may provide similar functionality with less risk.

Consider the overall security of these devices – there is some risk of being hacked. In this crisis the risk to healthcare workers may outweigh that privacy and security risk, however, we encourage you to take as many security precautions as possible to limit the risk that the following monitors can be hacked.

Radio Monitors:

This or a wired connection are the most secure options. Most of the best baby monitors use encrypted channels, so the hacker would also need to be able to bypass that. All in all, most modern radio monitors are very unlikely to be hacked and greatly mitigate the risks.

WiFi Monitors:

Typically connect to a WiFi network, which is itself most probably connected to the internet. This opens the door to anyone anywhere in the world to potentially hack your device. The models that transmit a video feed to your mobile phone, also called Internet of Things (IoT) monitors, are a particular concern because they open the door to more potential breaches. Internet-connected baby monitors are indeed potentially vulnerable to hackers anywhere on earth, so be wary of those.

There are two different ways that WiFi baby monitors can be used: on a guest WiFi network or a private WiFi network.

1. Create new isolated wireless network:

- A new network for only these devices that restricts access to the required cloud services is the safest way to implement these devices.
- 2. Guest Internet access WiFi baby monitor hacking risk:
 - These devices may have access to other guest devices.
- 3. Private network WiFi baby monitors hacking risk:
 - Anyone who wants to hack your network could also gain access to any device on the network. This is the least secure option and one that we don't recommend.

Security Checklist for Baby Monitor Implementation

- Secure your network equipment:
 - Maintain update to date equipment to reduce risk of known security vulnerabilities;
 - Disable remote access to your network without multifactor access;
 - Use a strong password for the WiFi.
- Contact the manufacturer to receive software updates and fix potential security risks.
- Remove the default login details and set up a new strong password.
- Disable DDNS (Dynamic Domain Name System) if there is an option.
- Disable port forwarding or UPnP if it's an option.
- Disable remote access.

Other Monitoring Options: Similar functionality could be attained with CCTV solutions instead and may provide a better solution to display multiple rooms in one area but would be less portable. These devices do have their own risks and challenges to consider as the more secure implementation is going to be offline and wired. There are a number of wireless models that pair to a base station as mentioned above with the baby monitors. You will want to avoid anything that needs to join a wireless network or access the internet to be used, but depending on options, temporary implementation on an isolated network may make sense.

<https://abcnews.go.com/Health/nurses-find-monitor-patients-virus-baby-monitors/story?id=69907152>
<https://www.nj.com/coronavirus/2020/03/nj-hospital-doing-something-new-to-check-on-coronavirus-patients-baby-monitors.html>
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<https://www.kitchenertoday.com/coronavirus-covid-19-local-news/have-any-extra-baby-monitors-for-cmh-2190017>

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