Summary of Source 1:

This articles shows that Stethoscope are commonly used in health clinics. And Stethoscopes can be easily contaminated through perspiration, body hair, sebum, and resident bacterial flora which makes Stethoscope a common cross transmission device of bacteria to people. It shows that bacteria can stick to the stethoscope after a use of a patient and vice versa. So UVC light were tested on these Stethoscopes and the result shows that it disinfection the same as most common cleaning method of Stethoscopes like alcohol. This cleaning method drastically reduces bacteria, this is because the UVC light is a physical approach that exerts a germicidal effect by breaking down the molecular bond in DNA. Including UVC light to Stethoscope helps microbial resistance along with just disinfecting patient rooms.

This article also tells you that there's is an alternative while using UVC. Instead of the normal traditional UVC light bulb, you could use UVC LED. Which is a lot more ecological because it does not produce hazardous waste product that need to be disposed, such as mercury or xenon in bulb lamps. Although UVC LED have a shorter live time than illumination LEDS, they still have more operative use when compared with mercury lamps. Some positive features that brings UVC LED a better alternative is UVC doesn't need time to warm up, there is no degradation of the LEDs performing continuous on and off cycles. The flow architecture and emission wavelength is flexible to your liking, and is shock resistant. Also LED technology doesn't produce heat even after long usage, and UVC LED may be fully operative even at a low voltage. But of course there is still a lack of studies and applications using this technology.

Compare: How are these two sources of information similar?

These two sources of informations are similar because they both talk in-depth about using UVC light to eliminate bacteria. These information both answer a bit of my sub-questions by talking about what type of bacteria does it and where can it be used, and also how it kills bacteria. These two sources are also similar because they show how bacteria can be spread and how efficient and effective of using UVC light to disinfect rather than using alcohol for the stethoscope and conventional UV light. Also, these two sources are similar because it talks about the possible future advancements to UVC and realistically can be in public places. Like how UVC light bulbs can be UVC LED, a future possibility. And UVC light being mass produced and be placed more in public spaces, a future possibility.

SOURCE 1:

Time Effectiveness of Ultraviolet C Light (UVC) Emitted by Light Emitting Diodes (LEDs) in Reducing Stethoscope Contamination

Your WONDER question:

Can UV light be used to kill airborne viruses, if so, how can this method be implemented worldwide?

SOURCE 2:

UV Light That Is Safe for Humans but Bad for Bacteria and Viruses

Contrast: How are these two sources of information different?

These two sources are different because source #1 talks about the cross-transmission of bacteria from person to person using Stethoscope. And it shows that the UVC light is as effective as using regular cleaning methods like alcohol. Also, sources #1 talks about theres a knew advances technology of using UVC which is UVC LED. A more ecological and efficient alternative from using traditional UVC light bulbs. While the other source talks about using UVC light to kill MRSA bacteria, a common cause of surgical wound infections. Another idea source 2 talks about is since influenza virus spreads through by people coughing, sneezing, or talking. It shows that UVC light can successfully kill aerosolized influenza virus in the air. Lastly, the article shows that the price of the UVC light which is less than $1000, which is could be more inexpensive if was produced more widely and if UVC was more common it could prevent the spread of infectious diseases.

Summary of Source 2:

This article shows that UVC light can kill bacteria without harming the human tissue and this device could be place in indoor public spaces. They decided that UVC light could be on the ceiling overhang in public spaces such as hospitals, doctors offices, schools, airplanes, airports, and other public spaces. This could reduce seasonal influenza epidemics, as well as influenza pandemics. The UVC light could be effective at killing MRSA (methicillin-resistant Staphylococcus aureus) bacteria, a common cause of surgical wound infections, but without harming human or mouse skin. Another idea this article shows is that influenza virus spreads from person to person mainly through fine liquid droplets, or aerosols, that become airborne when people with flu cough, sneeze, or talk. And this study proves that UVC light can be used to efficiently kill aerosolized influenza virus in the air, in a setting similar to a public space. They did this by releasing a aerosolized H1N1 virus (a common flu virus), in a test chamber and exposed to very small doses of 222 nm UVC light. This inactivated the flu virus as efficient as a conventional germicidal UV light. This article also shows that the price of the lamps is less than $1000, which could decrease if the lamps were mass produced. Relatively, UVC light are inexpensive, and this device could be in more places than UV lights and if there are more UVC lamps around, it could prevent the spread of infectious diseases