# VIRO

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**VIRAL INFECTIONS, LIKE THE INFLUENZA, IS NOT JUST AN INCONVENIENCE. THE YEARLY COST FOR THE SEASONAL FLU IN SWEDEN IS 2,2 BILLION SEK, WHERE INDIRECT COSTS SUCH AS LOSS OF PRODUCTION ACCOUNT FOR APPROXIMATELY 90%. THIS PROJECT IS A FUTURISTIC CONCEPT OF HOW TO MINIMIZE VIRAL TRANSMISSION AT WORKPLACES.**

Most people take some action to avoid catching a virus, like washing their hands or staying at a distance from infected people. These actions attempt to minimize the risk one is exposed to when touching infected people or things they've touched, or when being in the vicinity of people coughing or sneezing. In addition to these commonly known transmission routes, researchers believe virus is also transmitted through aerosolized particles. In contrast to the droplets produced via a normal sneeze, these particles are tiny enough to stay airborne for hours. The particles are dispersed through the air and the risk of inhaling them is impossible for an individual to influence.

Research indicates that virus survival and spread is closely related to indoor climate control. An increase in humidity has been suggested as a novel potential strategy for disarming viral outbreaks. A more humid environment would affect the virus particle structure and thereby decrease the number of aerosolized particles. The humidity also affects our mucous by keeping it moist, which is important for the body to be able to fight off pathogens.

The indoor air in workplaces is often dry since it is rarely humidified. Swedish building standards recommend a relative humidity between 30-70%, where the lower limit seems to be connected to comfort and the upper limit relates to the risk of mold. Despite this, it is not uncommon for workplaces to have levels below 15%. Humidity level being dismissed purely as a comfort matter, together with the cost of running a humidifier, are thought to be the main reasons why the air at workplaces isn't humidified today.

Beside the possibility to physically intervene to counteract viral transmission, it is also necessary to consider the root of the matter - human behavior. Viruses exist at workplaces simply because infected employees are there. The reason behind this is most often a combination of corporate culture and a lack of awareness of when you are contagious.

Evidence shows that it is possible to detect virus from a persons breath. What if this technology would be put in a consumer product, to be used much like we use the body thermometer, to increase awareness of when a person is contagious?

To be able to decrease sick leave, it is necessary to approach both the physical environment and the way people behave around infectivity. My solution is Viro, a futuristic concept for managing viral transmission. The Viro system watches multiple data streams, such as societal flu reports, office-air particle data and the number of infected employees, to calculate risk level and advise on appropriate course of action. The earliest proposed steps include increasing levels of humidity and encouraging infected employees to work from home.

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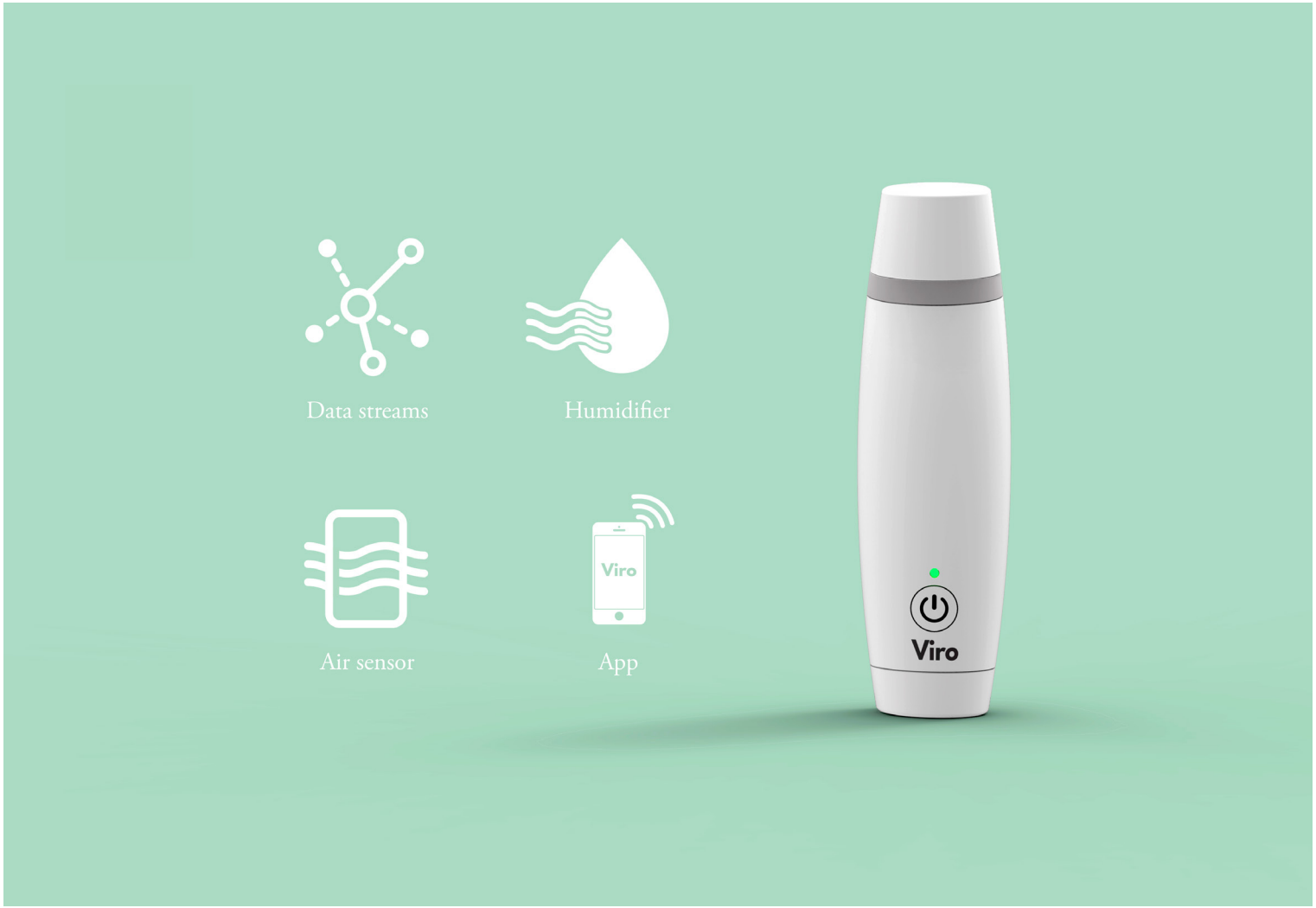
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