UV PERSONAL GERM PROTECTION

BIRD FLU
In the event of a bird-flu pandemic, a vaccine may be possible for the wealthier nations. There is no guarantee that it would be effective or available. Tamiflu, which has also been in short supply, may or not be helpful. If bird flu does become a pandemic it will be because it has become airborne.

BIO WARFARE
Anthrax and micro-organisms could be used in bio warfare. Again, there is no guarantee that vaccines would be available, especially for designer germs.

INSPIRATION
The UVPOD described on this page was inspired by the need for an effective personal protection technology. It was inspired by reports that vaccines for bird flu that might be available will not be sufficient to cover the entire U. S. Population, and certain groups, such as key government employees and industry executives would be given priority treatment. The average person needs some ability to protect themselves.

THE UVPOD
The UVPOD is a personal device to provide germ free breathable air with a comfortable transparent mask. A patent is pending. A schematic drawing on the right illustrates the elements of the product. The principal components are a "Fanny Fan Pack" that is composed of a filter, a small electric motor driven fan and rechargeable batteries. Another component is a flexible hose that contains a UV lamp and a reflective inner liner. A comfortable transparent mask is placed over the head, and the flexible hose supplies air at positive pressure through a distributor cap.

The UVPOD operates by sucking in air and sterilizing it with UV germicidal radiation, then flowing it past the face. UV germicidal radiation can kill germs, and especially virus like H5N1 very effectively. This process creates a small amount of ozone, which is removed from the air flow with an absorber. The germ free air is introduced into the transparent mask with a connection to a distributor cap. The air flows over the nose and exits out the bottom of the mask. Thus, a person can move around in crowds without any danger of the germs reaching their nose, mouth or eyes.

The upper figure shows how the system would look on a typical person.

ENGINEERING
There are many products for home air sterilization on the market. Many use ultraviolet light in the flow stream. These products do not guarantee any particular level of germ kill.

Dr. Eastlund was chief technical officer on a DARPA sponsored "immune building" program. He specialized in engineering UV light to kill microorganisms in flowing air in air conditioning ducts. (HVAC systems). This program developed methods of killing germs by many orders of magnitude. For examples, contamination levels of Bacillus subtilis a surrogate for anthrax, were reduced by a factor one in a million in tests at Batelle laboratories in flowing air at 3000 cubic feet per minute.

http://www.eastlundscience.com/UVPOD.html
air at 3000 cubic feet per minute.

These same engineering principle’s have been used in the design of the UVPOD.

The system has been designed to reduce the level of H5N1 (bird flu) virus concentration by a factor of one in a billion. The flow rate is assumed to be constant at a value greater than the peak inspiratory flow rate of an average human, which is 700 liters/minute. The same system will leave only one out of ten thousand anthrax micro-organisms.

CERTIFICATION
No specific NIOSH or CDC regulations have been written for UV assisted room sterilization devices.

The UVPOD will be provided with test data obtained by a professional laboratory. One such laboratory is Batelle Labs. They performed the measurements in the DARPA program referred to above.

SAFETY
OZONE: Ozone is produced by UV in air. The UVPOD will be designed to keep the ozone level below NIOSH safety limits and below any detection by the human nose.

LEAKAGE: A problem with gas masks and other protective devices, is that they must have good seals to the body. The UVPOD depends on positive air pressure within the mask. Thus, any pin pricks or cracks in the tubing and mask will not be a safety hazard because the air flows out of the mask, preventing germs from coming in.

EXPOSURE TO UV: UV can be dangerous to human skin and other human cells. The system is designed with no light leakage and no possibility of UV exposure to the wearer.

EASE OF USAGE
The battery pack will be designed for at least 4 hours of usage and will be rechargeable at any available outlet in the home or in an automobile. Like a cell phone, it can be in continuous use while being recharged.

HOW TO ORDER
This product is not presently available. We estimate it will sell for about $149. It will be produced if there is sufficient interest. Send us your name and e-mail address with an expression of interest.

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