

Surgical face mask capable of identifying patients at risk of spreading viral infection

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Technology description

Temperature-sensitive Surgical Face Mask for Identifying at-risk Patients and Reducing Viral Infection Summary & Detailed Description

Hospitals need a quick and inexpensive method for triaging virus-infected patients while limiting exposure to others. A novel hospital face mask concept incorporates one or more thermochromatic materials to provide a clear color indicator on the basis of temperature. These thermochromatic materials may be provided in a liquid or aerosol form, that are color-changed in the presence of an active fever, i.e. a temperature over 98.6 degrees Fahrenheit. The invention, therefore, provides for a mechanism to identify febrile patients and to quarantine or treat such patients based on the increased risk of contamination.

Rapid identification of patients presenting with fever from a larger population of patients wearing sterile face masks provides a new and cost-effective way to manage patient intake and to reduce the risk of patient-patient transmission of active viruses. The invention meets an unmet clinical need by replacing two individual technologies (face masks and thermometers), each individually requiring patient interaction, with a single device. Accordingly, the combination of the two items allows for quicker identification of patients with fever with reduced personnel contact and, provides a new and effective way to identify febrile patients. In event of viral epidemic, implementation of these masks can quickly triage patients while also limiting respiratory exposure to other patients and staff may be useful in reducing transmission of the virus.

Detailed Description

Numerous viral infections exist in which transmission of the virus is active during the presentation of fever. Sterile face masks are one inexpensive and effective commercially available mechanism for reducing viral transmission by limiting transmission of airborne particles and water droplets from coughing and sneezing. In the event of a large disease pandemic, hospitals require a way to quickly identify infectious patients while still limiting exposure to those non-infected.

The mask works by preventing the spread of droplets of saliva from the mouth onto other surfaces or into the air. By preventing the spread of these droplets to the air and surfaces, contamination can be reduced, thus reducing the chance of patient to patient, or patient to caregiver transmission. However, not all patients are ill or contagious. A frequent sign of illness or a patient that is likely to be contagious is one whom also has a fever. Upon entry, most protocols require patients to sign-in, wait in a waiting

room, and spend time around other potentially ill patients. Only after a certain period of time is the patient even given an initial overview for temperature or other issues that would benefit both the patient and others near the patient. Only at that point might separation or a face mask be provided in many instances. Thus, current methods involve the separate application of temperature indication and of coverage of the mouth and nose of the patient.

A face mask that changes color as an indicator of fever will provide hospitals with a quick and inexpensive method for triaging infected patients while limiting exposure to others. The face mask may use multiple thermochromatic materials in combination to provide an indicator. The thermochromatic material may be in multiple layers, and may further include a transparent layer. The masks can also be tailored to the specific or common temperature for known viral or transmittable infections, wherein a specific temperature is created with a transition point at or near the temperature for certain illnesses. Further embodiments may also include a bacterial or viral indicator embedded to the facial mask.

Application area

- Limits the spread of infectious bacteria in clinical settings
- Cost effective and inexpensive for hospitals
- Can be tailored to the specific or common temperature for known viral or transmittable infections

Institution

[Thomas Jefferson University](#)

Inventors

[John Eisenbrey](#)

Assistant Professor

Radiology

联系我们



叶先生

电话：021-65679356

手机：13414935137

邮箱：yeyingsheng@zf-ym.com