CALL TO ACTION

Battle against Respiratory Viruses (BRaVe) Initiative

A group of clinicians, scientists, and public health experts met in Geneva on 6 and 7 November 2012 to identify crucial needs in the battle against the morbidity and mortality caused by respiratory infections. Their deliberations emphasized the following points:

1. **Severe and acute respiratory infections including those resulting in pneumonia are the main infectious diseases killer globally accounting for an estimated 3.9 million deaths per year**. In children aged less than 5 years, approximately 120 million cases of pneumonia occur annually, resulting in an estimated 1.4 million deaths, primarily in developing countries.

2. **Viral respiratory infections (VRIs) are found in most cases of childhood pneumonias and are predisposing factors in most cases of bacterial pneumonias.** In addition, VRIs cause many other acute respiratory syndromes resulting in hospitalizations and deaths across all age groups, with substantial impact in infants and young children, the elderly, and those with underlying cardiopulmonary or immunocompromising conditions.

3. **New respiratory viral threats** like SARS-associated coronavirus (SARS-CoV) or highly pathogenic avian influenza A (such as H5N1 or H7N7) virus will continue to emerge, and present a risk of pandemic disease impacting global health security.

4. **Progress has been made towards reaching the Millennium Development Goal 4 to "Reduce child mortality",** with respect to pneumonia mortality. Improvements in prevention, particularly expanded use of available bacterial vaccines, and treatment, including standardized case management of pneumonia and other severe respiratory infections have been made in recent decades but these still require broader implementation and/or refinement.

5. **Nonetheless, the current treatment paradigm of targeting bacterial respiratory infections with antibiotics alone, is inadequate** to optimally reduce pneumonia and other acute respiratory infections mortality, and may have negative consequences including adverse drug effects and raising healthcare costs. Inappropriate antibiotic use for VRIs also contributes to the increasingly serious problem of antibiotic resistance in bacterial pathogens.

6. **Furthermore, our understanding of the mechanisms of transmission and disease pathogenesis in key patient groups is incomplete,** limiting the development of rational and optimized preventive and therapeutic strategies. Further basic and clinical research is needed.

7. While vaccines are available for influenza, they are incompletely utilized and more effective, broadly protective, and long-lasting immunogenic influenza vaccines are needed. Furthermore, there are no approved vaccines for other respiratory viruses and no clarity about if and when any might become available. **There is an urgent need for development of safe and effective vaccines against respiratory viruses, particularly for respiratory syncytial virus, a leading cause of VRI morbidity and mortality in young children and elderly worldwide.**

8. Antiviral treatment of seasonal and pandemic influenza can reduce morbidity and mortality, especially when treatment is started early. However, cost-effective antiviral agents and other therapies for other VRIs are not currently available, and **an urgent need exists to support research for new safe and effective therapeutics to target specific respiratory viruses but also, if possible, to develop antivirals with broad spectrum activity.**

9. Respiratory viral infections are often unrecognized because of the lack of rapid, inexpensive and reliable diagnostic tests. **There is thus an urgent need to have good diagnostic tests especially at point of care to guide therapeutic choices and to improve clinical management.**

10. In addition, better access to and use of existing care systems and practices, such as ensuring early and appropriate oxygen therapy and monitoring, **is needed to improve clinical management of severe acute respiratory infection in the context of other therapeutic strategies.**

The signatories of this call to action urge public health authorities, research organizations and private sector to collaborate on developing and implementing a global plan of action to address in a comprehensive and integrated manner the morbidity and mortality caused by acute viral respiratory infections and their complications through relevant basic and clinical research and the development of improved surveillance, diagnostics, therapeutics, vaccines and strengthening of clinical research infra-structures and healthcare delivery systems.

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