Universal access to pneumonia prevention and care: a call for action

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In recognition of the sixth World Pneumonia Day on November 12, 2014, we call for action to increase universal access to interventions that prevent and treat pneumonia in children. Every year, around 935 000 children younger than 5 years of age die of pneumonia, an acute respiratory infection caused by viruses, bacteria, parasites, and fungi.[1] We must intensify our efforts to achieve the sustainable development goal target of ending these and other preventable child deaths by the year 2030.[2]

Solutions to prevent pneumonia and protect children include early and exclusive breastfeeding, vaccinations, hand washing with soap, safe drinking water, and using low-emission cookstoves.[3] For children who contract pneumonia, death can occur within 3 days.[4] Prompt recognition of symptoms, early care-seeking, and treatment with effective antibiotics can save lives. Those children who seek treatment late can develop severe pneumonia, a condition in which the fatality rate can be as high as 10%.[5]

Yet, in 2013, less than half of children with suspected clinical pneumonia were treated with an antibiotic in the 75 Countdown countries, where 95% of all child deaths occur.[6] Geographical barriers, poverty, inappropriate treatment from the private sector, gender inequality in decision-making, and local perceptions of illness often delay care-seeking.[7] Health-system bottlenecks include dysfunctional supply management systems, insufficient funding for drugs, inadequate knowledge about interventions by clients and providers, health-worker shortages, poor support for training or retention of health workers, and a failure to convert national policies into action plans.[8]

50% of total pneumonia deaths occur in only six countries (India, Nigeria, Pakistan, Democratic Republic of the Congo, China, and Ethiopia).[1] Almost all deaths occur in poor or remote communities where effective prevention and treatment interventions are not equitably distributed.[3] Recent improvements in child survival have often been at the expense of equity. This factor is especially relevant in the case of pneumonia, which is strongly associated with poverty and poor nutrition.

For universal health coverage to be successful, services need to be accessible to all and should be provided in the most cost-effective ways. Community-based service, in which community health workers provide case management of sick children, is a key approach to addressing both of these challenges. Community-based care of pneumonia, diarrhoea, and malaria has increased early access to appropriate treatment, while significantly decreasing morbidity and mortality in young children.[9] For these reasons, UNICEF, WHO, and partners are supporting the integrated community case management strategy to train, equip, and supervise community health workers to treat children with pneumonia, diarrhoea, and malaria with oral antibiotics, oral rehydration therapy, zinc, and artemisinin-based combination therapy, respectively.[10]

Many children die because health-care providers do not have the tools to easily detect signs of pneumonia. Diagnosis is still largely presumptive and based on counting respiratory rate in children with cough or difficulty breathing—a difficult task even for trained health workers, and one which often results in incorrect diagnosis and inappropriate treatment.[11] Several research groups are now developing easy-to-use devices that focus on one or more approaches to measure respiratory rate, such as mobile phone applications, automated accelerometers, cough sound detectors,

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and other automated breath counting and classification devices. However, their clinical performance, usability, and acceptability in endemic settings are unknown, and studies are currently underway to establish their accuracy. Once this work has been done, policy makers and donors will need to work together with implementation partners to facilitate the introduction of these devices on a large scale in countries where the pneumonia burden is high.

While increased respiratory rate can be a sign of mild pneumonia, low oxygen saturation (hypoxaemia), is a sign of severe pneumonia and a strong predictor of death. Pulse oximeters can be used to reliably and non-invasively identify hypoxaemic children, but are rarely available outside specialist facilities in resource-constrained countries.[12] Consequently, management of hypoxaemia is generally suboptimum, as shown in a study[13] with children who died of pneumonia in Uganda; the findings of this study showed that only one child had received oxygen. The value of pulse oximetry is increasingly recognised by child health experts worldwide, and in WHO's 2013 technical update[14] of guidelines for management of common childhood illnesses, establishment of oxygen delivery and monitoring systems as a universal standard of care is recommended. Efforts to increase the availability of diagnostic aids for pneumonia, pulse oximeters, and expansive implementation of low-cost oxygen technology are essential to more accurately detect symptoms of pneumonia, reduce inappropriate use of antibiotics, and improve case management.

With the Millennium Development Goal to reduce child mortality by two-thirds by 2015 now unachievable for many countries, the momentum and strengthened political commitment built by the goals need to be sustained to further reduce child mortality from pneumonia and other infectious diseases. Sociocultural research on knowledge, attitudes, cultural practices, and health-seeking behaviours are needed, as well as further evidence on equitable and more cost-effective delivery strategies and diagnostic techniques. Much work remains to be done by 2030 on the expansion of integrated services to increase immunisation rates with the pneumococcal vaccine, reduce exposure to indoor air pollution, promote adequate nutrition, and allow the effective treatment of children with pneumonia. This scale-up will need functional and reliable health systems and policy frameworks, which will allow community health workers to treat pneumonia with antibiotics, and probably more importantly, strong political and financial support.

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