

**OA-031** PROGRESS IN THE DEVELOPMENT OF SAFE AND EFFECTIVE TUBERCULOSIS VACCINESDereck Tait. *Aeras, South Africa*

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**Background** Tuberculosis (TB) is the largest cause of mortality due to a single infectious agent. There were ~9.6 million cases of TB and ~1.5 million TB deaths in 2014, of which over 80% occurred in low- and middle income countries. In 1993, TB was declared a public health emergency by the World Health Organisation. Multidrug- and extensively drug-resistant TB is becoming increasingly common and adding significantly to the burden of disease. We will not meet the target of the WHO End TB Strategy of TB elimination by 2035 unless new interventions, drugs, diagnostics, and vaccines, become available. Modelling has demonstrated that elimination of TB is most likely to be achieved with new and effective TB vaccines. Effective and safe TB vaccines will also address the global crisis of drug resistant TB. The development of safe and effective TB vaccines is achievable as the human immune response does control TB in some circumstances – the highest risk of TB disease is within two years of skin test conversion, 90% of people with latent TB infection never develop TB disease, and BCG vaccine does provide partial protection. The probability of success is improved by significant progress in the field and the availability of new tools such as the robust use of improved animal models, increased diversity of mechanisms of action, combination vaccines, use of alternative routes of administration and stringent stage gates to concentrate resources of those vaccines most likely to succeed. New tools such as a controlled human infection model are in development, and novel clinical trial designs and use of special populations allow more streamlined studies and potentially earlier proof of concept. Globally, there are currently 13 TB vaccines in various stages of clinical development and efficacy data will be available from some of these candidates within one to three years.