The threat to global health security from emerging and re-merging respiratory tract infections will be ever present because of the genetic adaptability of microbes, and their ability to resist clinical interventions and public health measures aimed at their elimination. Although much has been learned from previous outbreaks, present surveillance systems have their inherent weaknesses, and recent experiences with MERS-CoV14 show that pandemic preparedness still faces major political and scientific challenges. An important priority for control of infectious disease is to ensure that scientific and technological advances in molecular diagnostics and bioinformatics are well integrated into public health. More effective and wider partnerships based on equity and best ethical practice, across governments, health care, academia, industry, and with the public, are essential to effectively galvanise economic, political and scientific measures required to develop core capacities, including legislation, national focal points, and pandemic planning to reduce risk of global spread and reduce the burden of respiratory tract infectious diseases. An urgent need exists to establish trusting and effective meaningful collaborations between countries to tackle new emerging microbial threats. This will facilitate early and rapid detection of potential pandemic infectious disease outbreaks through public health actions within the framework of the International Health Regulations.16

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Case definition and management of patients with MERS coronavirus in Saudi Arabia

Exponential increases in the number of cases of the Middle East respiratory syndrome coronavirus (MERS-CoV) in Saudi Arabia in March, 2014,1 led to the appointment of Adel Fakeih as acting Minister of Health on April 21, 2014. He made the control of the MERS outbreak a top priority in the country’s health agenda. An advisory council was set up to urgently develop scientific evidence-based plans to control the MERS
outbreak and prevent human-to-human and animal-to-human transmission; an appropriate management algorithm, including best-practice guidelines for accurate diagnosis, infection control, intensive care, emergency medicine, and treatment; prioritise research related to the MERS-CoV outbreak such as case-control and cohort studies, seroprevalence studies, and clinical trials; and to effectively monitor outbreak control activities.

A continuously operating command and control centre was established in the minister’s office. In addition to the advisory council, nine further platforms were established: interministerial to coordinate efforts between the Ministry of Health (MOH) and other concerned ministries; capacity-building to recruit and mobilise qualified staff to work in hospitals treating patients with MERS-CoV, increase the number of beds in intensive care units, and provide state-of-the-art machines such as extracorporeal membrane oxygenation to treat patients with respiratory failure refractory to conventional ventilation; public relations to communicate relevant information to the public, health-care workers, and local and international media; clinical operation to coordinate management of patients and transfers between hospitals; public health to collect data related to patients and their contacts; data analysis to enter and analyse data; epidemiological to provide consultations on data analysis and interpretation; laboratory to ensure fast and reliable diagnostic testing; and, infection control to oversee infection control practice and staff training activities.

A MERS referral hospital run by well trained staff was designated in Riyadh, Jeddah, and Dammam to receive and manage all patients infected with MERS-CoV. The MOH enforced strict infection prevention activities.

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**Figure: Management algorithm for patients suspected of MERS coronavirus infection**

CD = case definition. SOB = shortness of breath. *Patients with suspected MERS-CoV infection who do not have shortness of breath, hypoxaemia, or evidence of pneumonia can be cared for and isolated in their home (if suitable).
Regulatory obstacles affecting ecological studies in the ICU

Health-care-associated bacterial infections are an important cause of morbidity and mortality in critically ill patients, especially patients needing mechanical ventilation. Decolonisation with topical antibiotics, such as selective digestive tract decontamination (SDD) or selective oropharyngeal decontamination (SOD), eradicates potentially pathogenic bacteria, preventing ventilator-associated pneumonia and bacteraemia. In two Dutch studies, SDD and SOD reduced mortality, intensive-care unit (ICU) length of stay, ICU-acquired bacteraemia, and carriage with antibiotic-resistant bacteria. Accordingly, both measures were deemed cost effective. Only studies that assessed the unit-wide implementation of SDD or SOD provide evidence of a