

UK declares war on antimicrobial resistance

A new funding collaboration between the biggest health and biomedical research organisations in the UK hopes to make progress against antimicrobial resistance. Geoff Watts reports.

In one of his first duties as the newly appointed UK Government Science Minister, Greg Clark has launched a major initiative aimed at tackling antimicrobial resistance. Its strategy encompasses the laboratory, the clinic, and the wider environment.

The body set up to oversee the initiative—led by the Medical Research Council (MRC) and dubbed a “war cabinet”—will comprise all seven of the UK’s research councils together with the Department of Health and other government departments, the Wellcome Trust, and a range of organisations with a direct or indirect interest in microbial resistance.

Collectively they have formed a new grouping, the Antimicrobial Resistance Funders’ Forum (ARFF), through which to share information about what actions they are taking, now and in the future. By providing the framework for a more coordinated approach they aim to give a boost to research on microbial resistance, and to maximise its impact on national and international policy making and other activities relevant to its control.

“The threat of antimicrobial resistance is more than a threat; it’s turning into a reality”, said Desmond Walsh, Head of Infections and Immunity at the MRC. “This initiative is a step change. We want to bring together, in a coordinated manner, the expertise of a range of different disciplines.”

Workshops organised by the MRC in 2013 have already identified a series of research priorities now grouped under four themes. The first, “Understanding resistant bacteria in the context of the host” covers work on the nature of resistance at all levels from the gene upwards, and will aim to find new targets for potential treatments, and

new ways of predicting the evolution of resistance.

Research covered by the second theme, “Accelerating therapeutic and diagnostics development”, will back the hunt for new small molecule antibiotics, especially those that may circumvent the emergence of future resistance.

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Theme three, “Understanding the real world interactions”, will explore how people and communities interact with the environment and so influence bacterial behaviour and the transmission of genes within and between bacterial species.

The fourth theme, “Behaviour within and beyond the health care setting” will study human behaviour and motivations, and the manner in which these can affect the development and spread of resistance. It will also look for effective ways of changing peoples’ behaviour.

The organisers of the new initiative are at pains to stress the involvement of all the UK’s research councils. They point out that problems with resistance affect animal as well as human health. Livestock in particular are increasingly found to harbour antibiotic-resistant bacteria. These are also detectable in environments ranging from fields and rivers to hospitals and kitchen sinks. Yet the relation between animal and human microbial resistance is still uncertain.

Even the Arts and Humanities Research Council (AHRC) has found a place in the new Forum. By way of illustrating what might seem

an unlikely involvement the AHRC quoted an example of a project it already funds. Titled “Visualising the Invisible” it was set up to examine how staff think about infection in health-care settings, how and where they envisage microbes, and where they perceive the risks to lie. Its findings will inform future attempts to educate health-care workers about the dangers of antibiotic resistance.

The Funders’ Forum is now ready to start considering research proposals. The MRC will act as the coordinating body to which applicants direct their initial approach. “At present we’re focussing on the first two themes”, says Walsh. “In the first instance there is £25 million. It’s a ring-fenced amount of money dedicated to antimicrobial resistance.”

Concern over the emergence and increase of microbial resistance is far from new. As far back as 1969 the Swann Report on resistance fostered by the use of antibiotics in agriculture concluded that “the administration of antibiotics to farm livestock, particularly at sub-therapeutic levels, poses certain hazards to human and animal health”. It recommended a ban on the agricultural use of antibiotics of importance to human medicine. More recently chief medical officer Professor Dame Sally Davies used the second volume of her 2011 Annual Report to point out that, “If we have no suitable antibiotics to treat infection, minor surgery and routine operations could become high risk procedures.”

Meanwhile the MRC has calculated that since 2007 the UK alone has spent £275 million on research into microbial resistance. Its bleak conclusion is that, to date, no effective solutions have been found.

Geoff Watts



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