THE AWARDS 2020

Research Project of the Year: STEM

Institution name	Newcastle University
Submission title or project name	Engineering a halt to the 'superbug'
Nominee/key personnel	Professor David Graham
URL	https://www.ncl.ac.uk/research/impact/casestudies/superbug/#discovermore
Submission	It is estimated that antibiotic resistance (AR) will have a cumulative cost of $100 trillion dollars by 2050 and over 700,000 additional lives will be lost per year. Prof David Graham and colleagues have gathered evidence to quantify the relative importance of pollution to AR global spread by tracking AR sources and sinks in countries around the world. They discovered that wastewater and fecal matter are the primary vectors for the spread of AR, and it is possible to reduce AR in the environment a million-fold by reducing open defecation and implementing waste containment. The research informed the latest UN policy on water, sanitation, hygiene (WASH) and wastewater management to prevent infections and reduce the spread of antimicrobial resistance. Now Prof Graham and colleagues are monitoring sewage for the COVID-19 virus from across networks in Spain and North East England to provide an early indicator of its spread.