

# Transmissible disease epidemiology & statistical science in public health, criminal justice & performance monitoring

<https://www.neurodegenerationresearch.eu/survey/transmissible-disease-epidemiology-statistical-science-in-public-health-criminal-justice-performance-monitoring/>

## Title of project or programme

Transmissible disease epidemiology & statistical science in public health, criminal justice & performance monitoring

## Principal Investigators of project/programme grant

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United Kingdom

## Source of funding information

Medical Research Council

## Total sum awarded (Euro)

1021814.555

## Start date of award

01-04-2005

## Total duration of award in months

60

## The project/programme is most relevant to

- Prion disease

## Keywords

Statistical monitoring, transmission studies, database linkage, policy designs, vCJD, influenza A, blood-borne viruses, drugs-related deaths, criminal justice

## **Research abstract in English**

Statistical science is about well-designed data capture and disciplined study protocols as well as analytical techniques. We apply, and develop, statistical science at the interface of public health and other jurisdictions. In particular, we focus on transmissible diseases which transit other jurisdictions (BSE and vCJD, HIV and Hepatitis C, pandemic flu, and injecting drug use), on ethical database linkages, and cost-efficient formal designs (including randomisation) to test model assumptions and find out whether criminal justice or public health interventions work. Naively set targets often conceal a lack of basic understanding of how to improve performance. They delay research, and waste or divert resources, especially if institutional compliance is statistically mis-judged. Because the criminal justice system is enriched for clients who have a multiplicity of health problems, such as addictions, mental health and blood-borne viruses, criminal justice settings are a cost-efficient location for trialling and implementing interventions that ameliorate the (public) health of often marginalised communities. We work in 6 main areas, as follows:

UK surveillance of secondary vCJD, including provision for autopsy surveillance, and database linkage studies to elucidate operative risks.

Epidemiological mapping of avian flu and human H5NI outbreaks, together with design for, and trialling of, data acquisition (daily matrix of personal meetings), programs and analysis to test feasible social distancing strategies for limiting human flu. Efficient recall by diagnosed flu cases of their recent past contacts is needed if we are to estimate transmission rates robustly. Statistical exploitation of Scotland's key data-sources on heterosexually transmitted and drug-resistant HIV is also of interest.

Testing, monitoring, and updating of our published projections on late liver sequelae of Scotland's injector-related Hepatitis C epidemic, with particular attention to debiased estimation of prognostic influences (notably: heavy alcohol consumption), and their prevalence.

Database linkage designs to quantify demographic influences on drugs-related mortality; 12-week risk of suicide by recently-released prisoners; and quantification of transition rates (and time-dependent influences thereon) between healthcare settings, drug treatment and prison.

Designs for evaluating criminal justice or public health interventions in criminal justice settings, with specific attention to performance monitoring, value-for-money, and cost-effectiveness.

## **Lay Summary**