1. The Medical Research Council (MRC) is one of the main agencies through which the Government encourages scientific research into HIV/AIDS. The MRC receives its funding through the Department for Business, Innovation and Skills and the annual spend specifically on HIV research in 2009/10 was approximately £29 million.

2. This submission aims to respond to the questions from the Committee which relate to cost, and specifically the prioritisation of research funding.

3. The MRC has a long history in supporting research in this area. In 1983 the MRC established a working party on AIDS and has supported research into HIV/AIDS since that time. The MRC’s research activities address the two biggest challenges; (i) protection from HIV transmission and (ii) treatment of those affected.

4. Research supported by the MRC includes protection studies ranging from design and development of vaccines against HIV, development of microbicides to inhibit sexual transmission of the virus, through to behavioural intervention studies to understand how to work with high risk communities to modify behaviour. Other research supported by the MRC aims to provide policy makers with information to guide service planning and public health action.

5. Our research on treatment is primarily aimed at better understanding how to manage antiretroviral therapy and discovering the optimum combinations of drugs for patients at different stages of disease.

6. A list of research studies relating to HIV in the UK from the MRC’s current portfolio is shown at Annex 1. The clinical studies supported, are underpinned by a number of more ‘basic’ studies aimed at understanding the biology of the virus or the immunology of the viral host interaction; epidemiological longitudinal surveillance studies/ databases and cohorts which have been supported (in full or in part) by MRC are shown at Annex 2.

7. Sexual Health and HIV in the UK
The MRC has worked closely with the UK Health Departments. From 1986-2008 the DH Policy Research Programme (PRP) provided funds (in 2008 this was approx £1m) to MRC, specifically for epidemiological, social and behavioural research, initially under the aegis of the Committee for the Epidemiological Study of AIDS (CESA). Following the publication of a ten year National Strategy for Sexual Health and HIV for England in July 2001 and similar policy developments in Scotland and Wales, a new body, the Sexual Health and HIV Research Strategy Committee (SHHRSC) was established in 2002 to include research that could better address the broader sexual health research priorities arising from these new national strategies for sexual health and HIV. Studies supported through the SHHRSC are indicated in the Review of the National Strategy for Sexual Health and HIV. This includes support for the National Survey of Sexual Attitudes and Lifestyles (NATSAL) 1990 (funded by the Wellcome Trust), NATSAL 2000 (funded by the MRC/ SHHRSC) and NATSAL 2010 (funded by MRC, WT ESRC and SHHRSC).

8. International Partnerships
The current research portfolio in HIV includes a diversity of research, both UK focussed and with a global health perspective. The MRC supports studies on HIV in the MRC Unit, The Gambia, and in partnership with the Uganda Virus Research Institute a joint the MRC/UVRI Research Unit on AIDS in Uganda. Approximately one third of the MRC’s current annual research spend on HIV relates to developing country / global health issues. There can be important feedback to the UK from international research, for example health practice models in sub-Saharan Africa, where almost two-thirds of all
people with HIV live, helped inform those of the UK, MRC fellow Dr Audrey Prost and colleagues at University College London used experience from Kenya, to inform models for voluntary counselling and testing for HIV⁴, in the UK.

9. The MRC has a longstanding partnership with the Department for International Development (DFID) which has provided support for activities both in prevention and treatment. For example the Microbicides Development Programme is a partnership between the UK and Sub-Saharan Africa to develop vaginal microbicides for the prevention of transmission of HIV infection. The MRC/DFID DART trial⁵ ⁶ one of the largest trials in Africa to evaluate two strategic approaches for the management of Antiretroviral Therapies (ART) provided robust evidence that ART can be delivered safely, without routine laboratory monitoring for toxic effects, but that differences in the progression of the disease suggested a role for monitoring CD4-cell count from the second year of treatment to guide the switch to second-line treatment.

10. The MRC also actively boosts HIV/AIDS research through partnerships with North America, Europe and Africa. For example, the MRC is a major player in the European and Developing Countries Clinical Trials Partnership (EDCTP)⁷ which involves 16 European countries and 46 sub-Saharan African countries, and aims to develop new clinical interventions to fight HIV/AIDS, malaria and TB. Since 2003, the MRC has contributed over £12m to this initiative (over and above the spend figure quoted above, first paragraph), a third of which focuses on HIV/AIDS.

Medical Research Council
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⁷ http://www.edctp.org/
Currently funded research within the MRC portfolio pertinent to UK includes topics such as

- Aspects of CD8+ T cell and NK cell recognition that impact on MHC class I associations with HIV-1 disease progression
- Assessing the impact of HIV-1 in the black Caribbean community in south London
- Correlating gene expression changes and innate immune responses with protective SIV vaccination in cynomolgus macaques
- Development of a universal HIV-1 vaccine
- Development of therapeutic vaccination strategies for the treatment of HIV-1 infection
- Direct Control of Human Gene Expression by HIV Proteins
- Edinburgh HIV Brain & Tissue Resource
- Experience and outcome of pregnancy among women living with HIV in the UK: impact of ethnicity and African region of origin
- Experiences of female migrant sex workers from Eastern Europe and effect of multiple vulnerabilities on risk of STIs/HIV
- Functional Properties of Cytotoxic T Cells that Suppress HIV: "The Good And The Bad"
- HIV-Host Interactions
- Humoral immunity to Human Immunodeficiency Virus (HIV)
- Identification of and molecular characterisation of a HIV restriction factor Lv2
- Incidence, prevalence and outcome of extensive virologic failure in over 60,000 patients with HIV (PLATO II)
- Incidence, prevalence, harms and intervention effects for problem and injecting drug use: crime, morbidity & mortality
- Infection of CD8 lymphocytes by HIV-1 in the aetiology of AIDS
- Inferring HIV transmission networks from time-resolved viral phylogenies for epidemiological modelling
- Interactions between HIV-1 and iron
- Is the treatment of HIV causing irreversible mitochondrial damage leading to long-term health consequences?
- Modelling the determinants and implications of the disparate trends in HCV and HIV amongst injecting drug users
- Modulation of TB-HIV drug interaction by host genetic influences
- National Phylogenetic Study of Current HIV Transmission in England
- Novel interventions in HIV-1 infection
- Pregnancy outcomes in HIV infected women in the United Kingdom
- Regulation of translation of human immunodeficiency virus type-1 RNA by the viral Gag protein
- Role of ESCRT-I and ESCRT-II in HIV-1 budding
- Role of the secretory pathway in HIV-1 egress from T cells
- Sexual Attitudes and Lifestyles of London's Eastern Europeans: SALLEE
- Sexual and reproductive health programme
- Structural Traps as RNA Therapeutics
- The extent of channelling bias when assessing the impact of antiretrovirals on cardiovascular events in HIV-positive patients
- The Impact of T Cell Immunity on HIV-1 Diversity
- The modulation of macrophage apoptosis during S. pneumoniae infection by HIV-1 or antiretroviral agents.
- The role of Nef in the downregulation of CD4 in the pathogenesis of HIV.
- The uses and outcomes of treatment of HIV infection in the UK
- What Constitutes a Protective CTL Response in HIV-1 Infection?

Link to MRC online portfolio http://www.mrc.ac.uk/ResearchPortfolio/index.htm
Longitudinal surveillance studies/ databases and cohorts with MRC support

We also support a number of research programmes not specifically assigned to the HIV portfolio including the third round of The National Survey of Sexual Attitudes and Lifestyles 2010 (Natsal 2010) (approx £5.5m over 5 yrs) where MRC is the main funding partner with Wellcome Trust, ESRC and SHHRSC.

Other longitudinal cohorts/collaborations

- **CASCADE Concerted Action on Seroconversion to AIDS and Death in Europe**
  This is collaboration between the investigators of 23 cohorts of persons with well-estimated dates of HIV seroconversion. Seroconverters are enrolled into the individual cohorts locally and nationally and are typically followed up life-long, national contributor is UK Register of HIV Seroconverters

- **COHERE** Collaboration of Observational HIV Epidemiological Research Europe
  To conduct epidemiological research on the prognosis and outcome of HIV-infected people from across Europe including pregnant mothers, children, and adults. To focus on scientific questions requiring a large sample size of patients which the contributing cohorts cannot answer individually.

- **NSHPC** National Study of HIV in Pregnancy and Childhood
  Information is collected on maternal demographics, ART, pregnancy outcome and infant’s infection status

- **ART CC** ART Cohort Collaboration
  The ART Cohort Collaboration, which includes 19 cohort studies from Europe and North America, was established to estimate prognosis of HIV-1 infected, treatment naïve patients initiating highly active antiretroviral therapy (ART).

- **HIV Drug Resistance Database**
  The UK HIV Drug Resistance Database was set up in 2001 as a central repository for resistance tests performed as part of routine clinical care throughout the UK. Over 51,000 test results have been received and organised, around 90% are in the form of viral gene sequences.

- **UK CHIC** UK Collaborative HIV Cohort
  Investigates the clinical outcomes, response to treatment and epidemic dynamics of HIV-1 in the UK. Currently, the database contains more than 34,000 records of patients who have attended for care at one of a number of HIV clinics around the UK.

- **DHICE** Databases for HIV: Integration, Collaboration and Engagement
  A multi-agency initiative, involving the National Health Service (NHS), the Health Protection Agency (HPA), Medical Research Council Clinical Trials Unit (MRC CTU), academia and the patient community, to develop a UK platform for integrated clinical and research data in the HIV field.

- **Edinburgh HIV Brain & Tissue Resource**
  The purpose of this brain and tissue bank, set up in 1990, is to retain, store and make available for research use, post mortem tissue samples from individuals who have died of HIV/AIDS. All the samples are authorised and ethically approved for research.