A proposal of how the UK can become a world leading centre for the design and development of vaccines for infectious diseases – a scope and system description

<u>Purpose</u>

To enable the UK to be better able to respond to the need for a vaccine against a new, emerging or re-emerging infectious disease which either threatens the UK, or a part of the world for which the UK has a health protection interest or responsibility, or is deemed a global health security risk.

Principles

- The UK should draw on international collaboration and mutual support as part of a solution.
- Solutions should incentivise innovation and optimise funding from commercial and non-public investors.
- Any solution should strengthen the UK's capability to respond to known threats and currently unknown threats.
- A solution must start by building on UK strengths and by filling any key gaps in our capability. Where this is not possible or practical the UK should draw on international collaborations.

Criteria to identify priority diseases

The following criteria are intended to help prioritise an agreed list of diseases where we need to focus work UK efforts to develop vaccines. Criteria cover

- risks
- value for money
- feasibility

With this in mind the scope of for our solution should cover infectious human and zoonotic diseases, with human epidemic potential, for which there is:

- no effective vaccine currently available on the market (whether for prophylactic use or for epidemic response), and /or:
- inadequate market incentives for normal commercial vaccine development process

Using the criteria members of the Expert Group are invited to complete the questionnaire at annex A. The questionnaire captures views from across the group on:-

- the diseases the UK Vaccines Network should focus on in the immediate future
- where the science has got to on these diseases and why
- the technology platforms for the UK network solution to focus on



UK Vaccines Network

Based on the 10th March discussion with the Expert Group we are using UK Vaccines Network as the working title for system we will need to have in place in the UK.

Our assumption is that Blocks A and G are critical dependencies for the UK Vaccines Network. Block A will provide the network with on-going data and intelligence from global surveillance systems to inform real-time prioritisation of research, development and stockpile production. Funding prioritisation will require stop/go decisions based on risk vs value for money considerations. This is out of scope for the immediate work in hand.

Block G sets out the enablers that will underpin a successful UK Vaccines Network.

A legal framework offering indemnity from UK courts to producers where vaccines are developed in stress situations. This will also need to address intellectual property right issues.

An efficient and responsive <u>regulatory framework</u> that will expedite vaccine design and development.

A funding model to support a networked public/private partnership model.

Again we should assume that this out of scope for the immediate work in hand.

Block H assumes there is a facility to deliver large volumes and doses of vaccine to support the deployment of mass vaccination programmes. It is likely that funding to enable and meet this demand would come via the International Co-ordinations Group.

The blocks where we believe the Expert Group can advise are Blocks B - H. Is the analysis of the strengths and gaps correct? Are these the right opportunities are we missing any?

Block	Existing Strengths	Gaps	Opportunities
Block B Academic network	e.g. LSHTM, HPRUs, Oxford		
Block C Permanent manufacturing capability for small stockpiles	e.g. Porton Down and Pirbright		
Block D UK based volunteer challenge studies	Oxford		
Block E UK sited production capacity for use in clinical trials and for modelling			Can existing expertise in Porton Down and Pirbright and Pharma develop a joint capacity?
Block G Phase 3 trials, platforms and children studies	Oxford, LSHTM, Wellcome Trust		A UK hub for in-field clinical trial platforms and trial management K expertise in
Block H – UK based hard end, large scale manufacturing			Is there an opportunity to attract pharmaceutical manufacturing back to the UK?

Annex A – Questionnaire (please do use the general comments section to provide any comments on the scope and the system description set out in the main paper)

Market Failure e.g. no effective vaccine currently available on the market or insufficient market incentive	Target diseases	How advanced is the science?	Comments
General Comments			