Royal Papworth Hospital
NHS Foundation Trust

Agenda Item 5i

Report to:	**Board of Directors**	**Date: 6th December 2018**
Report from:	**Dr Roger Hall** **Medical Director**	
Principal Objective/ Strategy and Title	**RESEARCH & DEVELOPMENT** **Research/Education**	
Board Assurance Framework Entries	**Unable to improve cardiothoracic care in the wider health care community** **BAF numbers: 730 and 731**	
Regulatory Requirement	**None**	
Equality Considerations	**None believed to apply**	
Key Risks	**Failure to give R&D strategic recognition resulting in damaged reputation.** **Adverse changes to funding streams resulting in reduced opportunity for education and training.**	
For:	**Information**	

In preparation for the Trust's move to the Cambridge Biomedical Campus, it was felt prudent to review the current state of its research activity and consider whether there was a need for reform. An early decision was to change the emphasis in our review from a Royal Papworth orientated approach to a wider campus based examination of Heart and Lung Research. To achieve this goal The Cambridge Cardiorespiratory Research Strategy Steering Group was established in December 2017 at the request of Royal Papworth Hospital, who approached Dr Ron Zimmern requesting that he Chair this group. The group has a wide membership including representatives from Royal Papworth, University of Cambridge, CUH and CUHP. The group has met several times and has sought evidence from the many leaders in Cardiorespiratory Research in Cambridge.

An Interim Report from the Steering Group which describes the current cardiorespiratory research landscape and makes a number of recommendations will be circulated with the papers for Part 2 of this meeting. The conclusions and recommendations of the report are outlined below and a letter to Dr Zimmern from RPH is attached (Appendix 1), which provides a response to recommendations made in the interim report.

The interim review forms the preparatory work ahead of the production of a formal Research Strategy document early in 2019.

Conclusions and Recommendations

4.1 The original intent when we started the process was that we would bring to our sponsors, the School of Clinical Medicine of the University of Cambridge and Royal Papworth Hospital, a draft strategy for their comments and subsequent adoption. Early in this process it became obvious that this would not be possible. There were too many areas of uncertainty that would require, if not total, at least some degree of resolution. We therefore decided to present these observations by way of what we have termed an Interim Report of Cardiorespiratory Research in Cambridge, in order that our sponsors might –

(a) consider and comment on the matters that we discuss in the report
(b) confirm those matters where we have made a firm recommendation and
(c) give a steer on those other matters where we have set out options for their consideration.

4.2 The previous section summarised our analysis of cardiorespiratory research in Cambridge and our observations about the gaps and issues that would need further discussion and resolution. We set out in this section the conclusions of the Strategy Group. In some matters, where there was clear unanimity in our deliberations, we have made specific recommendations; in others we set out the options and invite as appropriate the Clinical School, Royal Papworth Hospital and Addenbrookes to consider the issues and to provide guidance where we are undecided about how best to proceed.

4.3 It is our intention that, following the feedback from this stage of the process, we would subsequently produce a document that would serve as the basis of a policy for cardiorespiratory research. However it would not (indeed without much more detailed work could not) be one that would function as a business plan with specific objectives and financial projections. We envisage that the document that we would produce would be a relatively short paper that sets out the context of cardiorespiratory research in Cambridge (as we have done in this report) but additionally to describe its general aims and objectives together with its specific nature, priorities and special characteristics. This would serve (a) to provide a blueprint and direction of travel for those responsible for such activities in Cambridge and (b) to inform funding bodies, potential philanthropists and benefactors of our potential by setting out a credible and compelling narrative of the essence of Cambridge cardiorespiratory research.

We recommend that the final product of our deliberations should be a high level policy document setting out the general aims and objectives and the specific nature, priorities and special characteristics of Cambridge cardiorespiratory research.

4.4 The Strategy Group was in unanimous agreement about the need for leadership as set out in the previous section and its importance. It wished, however, to emphasise that the different aspects of research activity in this field were already led by experienced researchers all of whom already provided specific leadership in their respective areas of expertise. It was therefore not leadership per se that was required, but specifically organisational and strategic leadership that was needed. Most but not all felt that this could only be achieved by identifying an individual who would act as a figurehead to provide visibility and focus, and who would be empowered to act on behalf of the collective leadership across all domains of cardiorespiratory research. The question of whether such an individual was to be found from within the existing team of senior leaders or whether an external appointment would need to be made was felt to be a matter for the Clinical School to decide in consultation with relevant NHS partners.

We recommend that as a matter of urgency and priority a decision is made by the Clinical School in consultation with relevant NHS partners as to whether such a single organisational leader (rather than a number of individuals) such as discussed above would be needed; whether he or she might be identified from within the existing organisations; if so to make such an appointment as soon as possible, and if not to consider how best to seek such a leader (s) by external appointment.

4.5 The need to change the culture at Royal Papworth Hospital was recognised by the Strategy Group as an essential requirement for progress. It nevertheless wished to

state explicitly that it understood the considerable financial pressures of NHS trusts in general and of the specific pressures created by the move of the hospital to the Biomedical Campus. It also recognised the investments that Royal Papworth Hospital had recently made to further research in terms of some of its consultant staff through, for example, its 50:50posts. Nevertheless, that research was not taken as seriously as the provision of clinical services by the current leadership could not be doubted. An opportunity now exists through the endorsement of this strategy to balance the culture and to explicitly embrace the interdependence of clinical practice, the generation of evidence and service quality.

4.6 To some it could appear perverse, especially in the present financial climate, to be making investments in academia and research that might not appear to at first sight to provide value for a service institution. There are, however, data to support the contention that the change from a high quality service hospital to an academic hospital medical centre provides significant benefits by way of higher quality of care and better clinical outcomes. It is also well recognised that in the long run the enhancement of such a hospital's reputation will increase its referral rate and that the attraction of high quality academic clinical fellows in effect provides 'free' service provision for its outpatient and other clinical services. The tripartite mission of academic medical centres of clinical, teaching and research should underpin policy at any such institution.

We recommend that the Board of Royal Papworth Hospital agrees explicitly the need to make the transition from a specialist service hospital to a specialist academic medical health centre by embracing this tripartite mission and by giving research greater emphasis at Board level, and puts in place a strategy and process to ensure that it is motivated across all three of these domains and not just on clinical excellence.

4.7 One major gap that was identified was the lack of specific research programmes in asthma and chronic obstructive pulmonary disease. Our analysis suggested that there were two approaches to this problem: to focus on excellence in the appointee and to build on that person's existing strengths, or to seek to recruit researchers for a particular disease. The Strategy Group felt unable to make a specific recommendation but wished to state first, that the Cambridge approach (which has always served it well) was to focus on the recruitment of excellence of its academic staff and to build on existing strengths; and, second, that one should also have regard to the views of the pharmaceutical industry and their potential for research partnerships and research funding where having expertise in common diseases might prove advantageous.

We recommend that the Clinical School in consultation with its NHS partners deliberate this matter and give us a steer on which of the two paths should be reflected in the final strategy document.

4.8 The Strategy Group identified the contrast between cardiovascular and respiratory research in that the former is the subject of well-endowed funding resources of the British Heart Foundation whereas the potential for funding from small respiratory charities was much less. Cardiovascular research also has a University Strategic Research Initiative which inter alia acts to support the Cardiovascular Cambridge network, and due to transition into an Interdisciplinary Research Centre (IRC) in 2019. A major change in respiratory research will follow as a result of Professor Edwin Chilvers 'departure from Cambridge at the end of September 2018. The implications of this will be discussed below, but better co-ordination of respiratory research is clearly needed. The extent to which this should be separate from mechanisms that co-ordinate cardiovascular research requires discussion. A view also exists that it is the Papworth focus on both heart and chest medicine that has driven the establishment of a

cardiorespiratory research strategy; but that left purely to scientific considerations, cardiovascular research and respiratory research might have been considered somewhat separately. Notwithstanding this concern the Strategy Group believes that research would suffer no significant detriment by considering the two within a single strategy, but that existing mechanisms should be used to ensure better co-ordination of respiratory research.

We recommend that means are found to transition a Cardiovascular Cambridge network to one that includes respiratory research, leading to in effect a Cardiorespiratory Cambridge.

4.9 Our reflections on academic gaps led us to the conclusion that the major areas that required consideration were cardiothoracic surgery, cardiothoracic anaesthesia and critical care, and cardiorespiratory imaging. We received information and comments on all of these, but the Strategy Group (while agreeing with the three areas) did not feel that it was in a position to prioritise them. It laid out four sets of decisions that were needed:

(a) which of these three areas should be chosen for inclusion in the strategy? and in what priority
(b) at what level should appointments be made?
(c) whether the strategy should be to 'home grow' the programme, nurturing promising research fellows, consultants or others with a strong academic bent, or whether to search for a global leader in the field
(d) how the posts are to be funded.

The Strategy Group and most of our respondents were of the view that to "home grow" these posts might be the safest way to proceed, yet recognised the merit in advertising globally for leading academics to head up these various programmes notwithstanding the greater risks. The departure of Professor Edwin Chilvers requires that the same four questions be asked of the future of academic respiratory medicine.

We recommend that the Clinical School in consultation with Royal Papworth Hospital, Addenbrookes and other relevant NHS and commercial partners debate these issues and provide a steer for the Strategy Group when they move into the next stage of their deliberations.

4.10 These discussions led to one other related concern which in effect was about how best to incentivise NHS consultants to undertake research, and to ask what mechanisms might be created that could allow them to act as principal investigators and apply for research grants without having to leave the employment of the NHS to take up an academic appointment with the University. In particular the issue of honorary academic contracts was discussed, and whether the award of honorary lectureships within the Clinical School to NHS consultants might be a way forward.

We recommend that the Clinical School in consultation with the University determine if there are ways that might be established to incentivise NHS consultants to undertake research and to act as principal investigators and apply for research grants independently.

4.11 The Strategy Group identified prevention as an important area for further research but was aware that preventive cardiology was not as yet an element of the clinical service provided by Royal Papworth Hospital. Some of those consulted pointed out the importance of such work especially if at some future date Papworth would take on the leadership of cardiovascular medicine across the region and across the primary,

secondary and tertiary divide. Others referred to the opportunities provided by the CEU and the benefits of greater collaboration with Royal Papworth Hospital in the field of cardiovascular prevention.

We recommend that Royal Papworth Hospital endorses in principle cardiovascular prevention as an element of its future services, and discusses with the Clinical School and in particular the CEU within the Department of Public Health and Primary Care the opportunities that exist for academic research into both cardiovascular and respiratory disease prevention.

4.12 We are aware of the links that have already been made with the Wellcome Sanger Centre and the EMBL-EBI at the Wellcome Genome Campus by some groups; and of the potential for much greater collaboration between those institutions and others with research interests in this field at Royal Papworth Hospital and at Addenbrookes. We were told of some of the barriers and cultural tensions that have precluded greater co-operation but were unanimous in our view that greater effort should be placed on seeking to overcome some of these and to establish more by way of collaborative research.

We recommend that there be formal discussions between researchers on the Wellcome Sanger Campus and those at Royal Papworth Hospital and at Addenbrookes with a view to better understanding of such barriers and to give some recommendations as to how to enhance the relationship.

4.13 The gross disparity between the amount of epidemiological research carried out at the CEU in cardiovascular disorders and the lack of any respiratory epidemiology expertise in Cambridge is striking. Whether there exists any rational linkage between these two fields from a research perspective beyond the practical reality that Royal Papworth Hospital is both a heart and a chest hospital has been questioned by some. The question therefore exists as to whether one should leave respiratory epidemiology for those in other centres to deal with, or whether one should attempt to make respiratory epidemiology a major element of Cambridge epidemiology has to be answered. We understand from Professor Danesh that he would have no problem in principle for Cambridge to establish such an expertise, but points out that to do so would require considerable additional resources.

We recommend that the Clinical School and its NHS partners provide a steer as to whether or not a move to establish a respiratory epidemiology presence might be desirable, and if so where it might stand in relation to other academic priorities such as cardiothoracic surgery or critical care.

4.14 We identified two problems in our focus on late translational research. First, the perception by those involved in clinical work that, in the eyes of the University, late translational research and clinical trials play second fiddle to basic research. Second, that there could be better co-ordination between basic and translational. It is hoped that with the strategic lens being focused on cardiorespiratory research, and with the establishment of the HLRI on the Biomedical Campus, the second problem will in effect find a natural solution. But as to the first, we believe that some consensus needs to be reached, in terms of future investment. How do the NHS and the University intend proceed in terms of the relative priorities between the two? Or is it that one necessarily has to pit the one against the other in terms of priorities? Might not the University be totally supportive of late translational research and clinical trials provided that they were of the highest quality and resulted in high impact publications and global relevance? And if the latter what might be needed to achieve such a result?

We recommend that the Clinical School deliberates this matter with its NHS counterparts and give us a steer as to what direction the strategy should take, what priority should be accorded to late translational research and clinical trials, and what investment might be needed and by whom to bring late translational research and clinical trials to attain international standards of excellence.

4.15 A conclusion that stroke research should be best considered in the context of a cardiorespiratory strategy rather than a neurology strategy was the unanimous view of those consulted. Whereas research on the sequelae of stroke, and of the effects of ischaemia on neural tissue might be considered a matter for neuroscientists, the causes and aetiology of stroke appeared to us to be very much within the domain of cardiovascular researchers. This conclusion is very much amplified by the explicit statements of the British Heart Foundation that it considers stroke to be an integral part its funding policies.

We recommend that stroke is embraced as an integral part of the cardiorespiratory strategy and that this is endorsed by the Clinical School and by Royal Papworth Hospital and Addenbrookes.

4.16 Commercial links are seen to be a vital part of the strategy. Cambridge University Health Partners is a crucial and an essential link for all three organisations, the University, Addenbrookes and Royal Papworth Hospital in effecting some of these relationships. The importance of commercial as distinct from academic funding has been recognised in this report especially for late translational research and clinical trials. Much progress has been made in effecting these links especially in the last two years, but more needs to be done.

We recommend that the strategic importance and the necessity of further improving these links are endorsed by all parties with a stake in this strategy, that specific attention be given to requirements for allowing greater commercial investment in such research and in the conduct of clinical trials, and that the exact role of Cambridge University Health Partners in making these links be more precisely defined.

4.17 The lack of co-ordination or strategic overview between researchers in the Primary Care Unit working on heart and lung disease in the community and researchers with similar interests at Royal Papworth Hospital and Addenbrookes was a matter of some concern to the Strategy Group. Heart failure was a subject particularly singled out as an important area for consideration in this regard.

We recommend that consideration be given to greater co-ordination of work across the primary, secondary and tertiary sectors by all parties; and that explicit attempts are made for researchers in primary care to attend relevant events and meetings organised by Royal Papworth Hospital and by Addenbrookes

4.18 Royal Papworth Hospital has historically only concerned itself with adult heart and chest disease and has explicitly decided not to provide a paediatric service in either medicine or surgery. Its status as a Level 2 congenital heart disease centre means that it does not provide surgery for either adult or paediatric congenital heart disease, but by way of support extensive services in cardiology together with national specialist

services such as pulmonary hypertension and heart and lung transplantation. The strategic issue is the extent to which there should be a reconsideration of this decision if the proposed Children's Hospital was to materialise in the coming decade, and if so, the implications for research.

We recommend that while this is an important decision that will need to be made in due course, it is one which might be left for the purposes of this strategy; and as a consequence the establishment of major research programmes in paediatric heart or chest disease is likely not to be of immediate high priority

4.19 The move of Royal Papworth Hospital to the Biomedical Campus provides an opportunity for integrating some of the functions of the Research Offices, the Clinical Trial Units, the Tissue Banks and the Clinical Research Centres to provide a more efficient service. We have heard views that speak to the advantages of such integration and others less certain because of perceived difference in the cultures of the two organisations. Notwithstanding these different views it was clear that over time there would have to be some degree of integration since having two entirely separate administrative centres would not be a sensible endpoint. But that said, it was felt that integration should not be forced; rather that it should be encouraged to develop in an evolutionary manner over a period of time.

We recommend that Addenbrookes and Royal Papworth Hospital endorse the view that integration should be the goal but that such integration should not be rushed but encouraged to happen in an evolutionary manner over an appropriate period of time

4.20 The enabling of EHRs, Lorenzo at Royal Papworth Hospital and EPIC at Addenbrookes, to serve the purposes of research will be an important element of the research strategy if the full benefits of such records are to be realised. How this is to be carried out will in itself be a field that warrants detailed academic work and collaboration with mathematicians, statisticians and computer scientists.

We recommend that Addenbrookes and Royal Papworth Hospital endorse the importance of ensuring that their respective EHRs can support research and that explicit steps are taken to enable their repurposing to provide such support.

4.21 We finish this report by considering a matter that we alluded to in an earlier section, the governance of cardiorespiratory research. Given that at least three institutions, the Clinical School, Royal Papworth Hospital and Addenbrookes all have significant stakes in cardiorespiratory research; and given also the importance of the commercial sector in such research, the issue arises as to who should take on the responsibility for the final strategy and for ensuring its implementation. We did not consider this question in detail at the Strategy Group, believing it to be a matter for our sponsors to deliberate and to reach a conclusion. We do, however, suggest that as well as the three lead institutions a fourth, Cambridge University Health Partners, might also be among the institutions considered for such a role.

We recommend that the Clinical School, Royal Papworth Hospital and Addenbrookes all consider explicitly this matter and communicate to us the results of their deliberations.

Recommendation:

The Board of Directors is requested to note the contents of this report and accompanying response.