To consider the options for the future location of Papworth Hospital from an independent clinical point of view – an overview for Monitor

Professor Terence Lewis FRCS
Professor Tony Davison FRCP

3/April/2014

Index

1. The reviewers

Mr Terence Lewis FRCS

Consultant Cardiothoracic Surgical Appointments

The Royal London Hospital	1979 – 1995
St Bartholomew's Hospital	1995 – 1997
Senior Consultant Cardiothoracic Surgeon	1997 – 2008
South West Cardiothoracic Centre, Derriford Hospital, Plymouth	
Medical Director, Plymouth Hospital NHS Trust	2000 – 2008
Director of Cardiac Surgical Research	
The Royal London Hospital and of the Sir Henry Souttar	
Experimental Surgical Laboratories	
Medical Engineering and Sensors Committee	1992 – 1996
The Science and Engineering Research Council	
Executive Member of the Society of Cardiothoracic Surgeons	
of Great Britain and Ireland	
Regional Advisor in Cardiothoracic Surgery	
North Thames (East)	1992 – 1995
South West Region	2003 – 2008
Consultant Advisor in Cardiac Surgery to the Royal Navy	1988 – 2008
Medical Director South West Advisory Committee	
for Clinical Excellence Awards	
President of the Society of Perfusionists' of Great Britain and Ireland	
Sir Clement Price Thomas Award of the Royal College of Surgeons for	2007

services to Surgery

Retired from the NHS in 2008 on completion of the New South West Cardiothoracic Institute

Present

Plymouth Marine Laboratories
Chairman 2009 onwards
Director 2002 – 2009

President of Plymouth Heartbeat
Honorary Life Vice President of HeartSwell South West
Governor University of Plymouth 2009 onwards
Chairman Plymouth University School of Medicine and Dentistry, Medical School Board
Non-Executive Director Plymouth Hospitals NHS Trust

Clinical Service Reconfiguration and Governance Review Experience

Chaired the production of the blue print for the amalgamation of St Bartholomew's and The London Hospitals.

Commissioned to assess governance of Cardiothoracic Surgical Services at King Edward VII Hospital, Midhurst.

Designed and helped commission cardiothoracic surgical services for the Cromwell Hospital 1984.

Commissioned by the UK Government and then the Devolved Northern Irish Government to Review Clinical Governance and Clinical Services in Omagh and Enniskillen, Northern Ireland.

Involved in Clinical Governance and Guidelines advice for the development of Cardiothoracic Surgery in the UK, through the Executive of the Society of Cardiothoracic Surgeons of the Royal College of Surgeons of England, including release of surgeon and unit specific results to the Department of Health and the public.

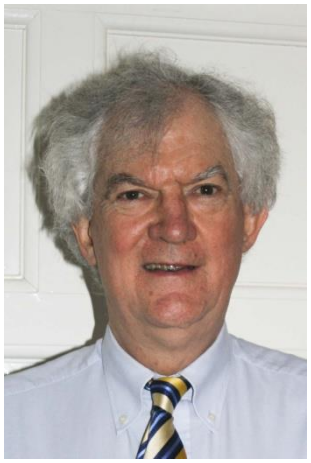
Helped design and commission cardiothoracic services for the New South West Cardiothoracic Centre for the Peninsula 1995 – opened 1997.

Helped to negotiate with the DoH for funding and then design the new Cardiothoracic Centre in Plymouth, opened 2007.

Independent Review of Clinical Services at the BUPA Cromwell Hospital – December 2010.

External review of Private Practice, Imperial College Healthcare NHS Trust 2012

Dr Anthony (Tony) Graham Davison



Present
Respiratory Lead East of England Respiratory Network
Honorary Consultant Physician Southend University Hospital

Consultant General and Respiratory Medicine Southend University Hospital	1987-2011
Appointed Respiratory Lead for East of England	2010
Appointed Visiting Professor University of Essex	2008
Appointed Honorary Senior Clinical Lecturer Barts and Royal London Medical School	2005
Co-Chair of the Improving and Integrating Respiratory Services (IMPRESS) (British Thoracic Society and General Practice Interest in Airways Group)	2006-2011
Chair of Clinical Advisory group to INHALE (Interactive Health Atlas for the Lung England)	2011-2012
Member Executive Committee British Thoracic Society	2006-2011
Co-Chair British Thoracic Society Guidelines for Emergency Oxygen in Adult Patients. (This project won the National Patient Safety Award in 2011)	2004-2011
Clinical Advisor Department of Health, Commissioning COPD	2010
Clinical Advisor Department of Health. Outcome measures in Respiratory Disease	2010
Member DH Clinical Group on Home Oxygen for England	2009-2011
Advisor 18 week sleep disorders: Commissioning pathway. Department of	2008

Health

Expert Advisor COPD National Service Framework	2006-2007
Elected Member of Council- British Thoracic Society	2002-2005
Royal College of Physicians External Assessor for General Professional Training – 1997 to 2005 – Chairman of Visits	2003-2005
Member British Thoracic Society Guidelines Committee for drawing up guidelines for management of non-invasive ventilation	1999-2001
Member British Thoracic Society Guidelines Committee for drawing up guidelines for management of interstitial lung disease	1995-1999
Member of the British Thoracic Society Guidelines Committee for Home Care in COPD	2003-2006
RCP representative on NHS Clinical Assessment Guardian Group (NHS Direct)	2002-2006
Royal College of Physicians External Assessor for General Professional Training	1997-2005
Chairman of Visits	2003-2005
President Eastern Region Thoracic Society	2005-2010
Chairman Eastern Region Thoracic Society Development Group	2003-2010
Chairman East of England Home Oxygen Procurement Management Board	2010-2011
Advisory Committee on Distinction Awards – General Body member, Eastern Region	2001-2003
Clinical Advisor to North Thames (East) Review of Neurosciences	1996-1997
Clinical Director of Medical Services Southend University Hospital	1994-2009
Clinical Director Long Term Conditions	2009- 2011
Clinical Lead – Emergency Services Collaborative	2002-2004

2. Scope: purpose of the report

To give an overview of the potential options for the redevelopment of Papworth Hospital by literature review and interview of key clinical and managerial personnel at Addenbrooke's Hospital, Peterborough Hospital and Papworth Hospital. With input, in addition from Special Commissioners; the University of Cambridge; Cambridge Medical School; The Eastern Academic Health Science Network; and local Commissioners.

Specification

- An expert independent review of the clinical arguments for and against moving all activity from the existing site of Papworth Hospital NHS Foundation Trust ('Papworth') to a new build hospital financed through a private finance initiative ('PFI') to be located next to Addenbrooke's hospital (Cambridge Biomedical Campus).
- an expert independent review of the clinical arguments for and against moving all activity from the existing site of Papworth Hospital NHS Foundation Trust ('Papworth') to Peterborough and Stamford Hospitals NHS Foundation Trust ('Peterborough') in order to make use of spare capacity at Peterborough; and
- A high level assessment of the clinical feasibility of moving a proportion of activity currently taking place at either Papworth or Addenbrooke's to Peterborough in conjunction with the construction of a smaller hospital to be built next to Addenbrooke's.

3. Documentation Reviewed

Extensive documentation review including from all three sites:

1. CQC inspection reports
2. NHS Foundation Trust updates
3. Annual Plans
4. MONITOR option reports
5. Strategic Contingency Planning Team reports
6. Assessments of Sustainability
7. Deloitte Final Revenue Review report
8. New Papworth draft appointment Business Case
9. MONITOR appointments Business Case
10. PFI Affordability review
11. PFI Site Development Plan
12. A number of documents presented to the Reviewers from individual clinical departments
13. E-mail from Steven Bridge to DH re Papworth Synergy Saving due to Co-location with Addenbrooke's
14. Papworth co-location benefits. Keith McNeil. 22 Nov 2014 and following e-mail trail to 27 Nov 2013

4. Meetings conducted

Professor Sir Leszek Borysiewicz, Vice Chancellor, University of Cambridge

Professor Patrick Maxwell, Regius Professor of Physic - School of Clinical Medicine**,** University of Cambridge

Dr Robert Winter, Managing Director the Eastern Academic Health Science Network

Mr James Palmer, Medical Director Specialist Commissioners

Maureen Donnelly, Chair of Cambridgeshire and Peterborough Clinical Commissioning Group

CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST

Dr Keith McNeil, Chief Executive Officer

Jane Ramsay, Chair

Dr Jag Ahluwalia, Medical Director

Professor Edwin Chilvers , Professor of Medicine, Honorary Consultant Respiratory Physician, and Respiratory Research Lead**,** University of Cambridge Department of Respiratory Medicine

Dr Trevor Baglin, Lead Consultant Pathologist, including blood transfusion

Dr Judith Babar, Consultant Radiologist, and Clinical Lead for Radiology

Dr Pasupathy Sivasothy, Consultant Physician and Clinical Lead for Chest Medicine

Dr David Gilligan, Consultant Physician and Lead Consultant for Lung Cancer

PAPWORTH HOSPITAL NHS FOUNDATION TRUST

Stephen Bridge, Chief Executive Officer

Professor John Wallwork, Chairman, Papworth Hospital NHS Foundation Trust /retired Consultant Cardiothoracic Surgeon

Dr Mark Slade, Medical Director /Consultant Physician

Mr John Dunning, Consultant Cardiothoracic Surgeon, Clinical Director - Surgery

Ken Brewer, Project Director - New Papworth Hospital

Josie Rudman, Interim Director of Nursing

Dr Ian Smith, Director of Research and Development

Jane Payling, Director of Finance

Mr Steven Tsui, Consultant Cardiothoracic Surgeon and Clinical Director, Transplantation

Dr John Kneeshaw, Consultant Cardiothoracic Anaesthetist - Lead Consultant for Anaesthetics

Ann-Marie Ingle, former Director of Nursing at Papworth / recently appointed Chief Nurse at
Cambridge University Hospitals

Dr Sarah Clarke, Clinical Director Strategic Development /Clinical Lead Papworth PFI, Consultant Cardiologist

Dr Bobby Agrawal, Consultant Radiologist and Clinical Lead for Radiology, including Nuclear Medicine

Dr Martin Goddard, Consultant Histopathologist and Clinical Lead for Pathology, including Transplantation

Dr Charles Haworth, Consultant Physician and Clinical Lead for Thoracic Medicine / Lead Consultant for Cystic Fibrosis

Dr Joanne Pepke Zaba, Consultant Chest Physician and Clinical Lead for Pulmonary Hypertension

Dr Mike Davies, Consultant Physician, Respiratory Support and Sleep Centre and Lead Consultant for respiratory critical care

Dr Robert Rintoul, Consultant Chest Physician and Lead Consultant for Lung Cancer

Dr Ian Smith, Consultant Chest Physician and Lead Consultant for Respiratory Support and Sleep Centre/Director for Research and Development

Dr Helen Parfrey, Consultant Physician and Lead Consultant for Interstitial Lung Disease

Mr Aman Coonar, Consultant Surgeon and Lead Consultant for Thoracic Surgery

PETERBOROUGH AND STAMFORD HOSPITALS NHS FOUNDATION TRUST

Chairman, Robert Hughes

John Randall, Medical Director

Dr Jo Porter, Senior Consultant Cardiologist, Clinical Lead

Dr Seema Brij, Consultant Physician and Clinical Lead for Lung Cancer

Dr Lori Calvert, Consultant Physician and Lead Chest Physician

Dr Tamer Sadek / Mr Randle Milne, Consultant Radiologist and Lead Consultant for Radiology

Dr Kanchan Rege, Consultant Pathologist and Lead Pathologist including blood transfusion

Dr Vijay Dhakshinamoorthy, Lead Consultant for A&E

5. Summary of Papworth, Addenbrooke's and Peterborough's development of cardiac and respiratory clinical services over the last two decades

Papworth has developed respiratory and cardiac services that are Regional or Supra-regional e.g. cystic fibrosis, interstitial lung disease, chronic lung infection, pulmonary hypertension, sleep and ventilation, heart and lung transplantation (one of 7 national centres), lung surgery, cardiac surgery, pulmonary hypertension surgery (the only national centre), extra corporeal membrane oxygenation (one of 5 national centres), specialist radiology and pathology services to support these activities. Papworth has one of the two cardiac pathologists working nationally. 90% of the pathology is specialist work, often supporting other pathologists in the region and nationally. Papworth does almost no DGH type radiology, e.g. estimated 6 chest x-rays per year for GPs. All respiratory sleep was a regional service until recently; some districts have recently developed their own services. Papworth has also developed outreach services to districts not providing a local respiratory sleep service. Papworth remains (and will remain) a regional/supra-regional centre for non-respiratory sleep, home ventilation, and ventilator weaning. Papworth has also more recently developed as an acute heart attack centre, and patients with acute chest pain are triaged straight to Papworth so that they can benefit from acute cardiac intervention.

Addenbrooke's has developed Respiratory Services:

1) Supporting a DGH with acutely ill patients, e.g. Acute Chronic Obstructive Pulmonary Disease, Acute Non Invasive Ventilation, acute asthma, acute infection including Tuberculosis.
2) Supporting a specialist tertiary centre for many diseases e.g. hepatology and liver transplantation, renal diseases and transplantation.
3) Lung cancer has developed as a joint service between Addenbrooke's and Papworth. There is a joint Multi-professional meeting attended by physicians, surgeons, oncologists, nurses etc. Complex brochoscopic investigations and surgery are

performed at Papworth, while chemotherapy is given at Addenbrooke's. There is no duplication of services between Addenbrooke's and Papworth.

4) Developing an excellent academic research infrastructure.
5) Specialist services- allergy.

In the last ten years or so there has been the anticipation that Papworth will move to Addenbrooke's. This has greatly affected the way Addenbrooke's and Papworth's cardiac and respiratory services have developed. Managers and clinicians at both hospitals have been developing services in a synergistic, rather than in a competitive manner, so that when the move occurs there will be little duplication of services. There has however also been a planning blight in as much as required developments have not been made because of the planned move. We found many examples of this, including lack of development of cardiac services and thoracic surgery at Addenbrooke's. Currently Thoracic Surgeons travel to Addenbrooke's from Papworth to support the Major Trauma Centre. This is unsatisfactory and is potentially unsafe.

Peterborough's main focus has been on the centralisation of services at the new Peterborough Hospital site. This is a magnificent new build. There has been concentration on trying to develop an integrated respiratory service between the hospital and the community. The emphasis has been on improving the care delivered to the local population. There is also an ambition to enhance DGH cardiac services by developing complex pacing and possibly elective angioplasty.

6. Options Considered

a. Status Quo

For Papworth to stay as an isolated speciality hospital on its present site without huge expenditure is unsustainable. The buildings, clinical safety and governance arrangements are now inadequate. Clinical support from such specialities as neurology, neurosurgery, vascular surgery, upper GI medicine and surgery and general surgery, and also in other sub-specialities is inadequate for an organisation performing such complex work on a patient age group which is getting older with more concomitant co-morbidity. The clinicians at Addenbrooke's work hard to provide this service but the role of an isolated dual speciality hospital for complex, dangerous work is now inappropriate. Unstable very sick patients with complications occurring during complex surgery or other interventions need rapid support from a wide range of specialities like those mentioned above. At present, with these being covered from Addenbrooke's, the delay for specialist help can be unacceptably long. Similarly major trauma patients arriving at Addenbrookes's with serious chest injuries requiring thoracic surgery will have to wait for the team to arrive from Papworth. This can take over an hour. It is highly likely that this situation will be unacceptable for Major Trauma Centre designation in the future, putting at risk the major trauma arrangements for East Anglia. A solution would be for Addenbkooke's to set up separate thoracic surgery. This would be a very expensive duplication of service. Many of the clinicians at both Papworth and Addenbrooke's already have clinical responsibilities in each other's organisations and their geographical separation is inefficiency.

Small speciality hospitals traditionally tend to have an atmosphere and ethic which is very enjoyable to work in and has often been very productive; maintaining a significant element of this would be important for any relocation of Papworth Hospital but is not a reason for things staying as they are.

It was also recognised that the research potential of Papworth, with its unique patient population has not been exploited as it should have been. This is because of geographical distance between Papworth, CUH, and the University. This is accentuated by the relative lack of research infrastructure at Papworth. The research facilities at Papworth could be improved but this would be a more costly option than using those at the Cambridge Biomedical Campus. It would be very difficult to attract leading scientists to an isolated Papworth compared to an integrated Cambridge Biomedical Campus. The latter would be financially very beneficial for the organisations, their partners, the university and UK high tech business. Co-location would enable this to happen in an efficient manner but geographical separation makes this very difficult.

The maintenance of Papworth in its isolated position without the infrastructure of a larger, wider based organisation is also against emerging specialist commissioner guidelines.

None of the clinicians at Papworth thought that the status quo was viable.

In summary, Papworth is an extremely successful and important hospital for the UK, both clinically and in scientific terms. It has however peaked in its present form and will not be able to progress to its full potential. It is isolated geographically and is now at risk from lack of infrastructure and clinical support, and paradoxically it is becoming increasingly exposed by its success in a number of extremely important service lines. The site itself, and its buildings are inappropriate and continued activity at Papworth creates serious clinical governance risks.

b. Relocating all of Papworth to Peterborough

Peterborough is an excellent modern and well-designed facility which will service its patients well once its role has been clarified. The hospital is perceived as having a substantial amount of unused capacity and has financial problems to which the PFI repayments significantly contribute. This element will only increase year on year by indexation. It is entirely appropriate to consider whether Papworth's move could occupy all or some of this perceived spare capacity.

There is no doubt that Peterborough Hospital does feel spacious compared to many older hospitals. However there are no substantial empty spaces suitable for the relocation of a complex integrated organisation such as Papworth.

Utilisation of the fourth floor of Peterborough has been suggested as a possible space. This would entail very considerable expenditure. It would not be big enough

and would require the removal of some very important facets of Peterborough Hospital for example, its excellent education facilities for all staff, including primary care. It would also require the relocation of its laboratories. It has been estimated that the capital costs of converting the 4th floor of Peterborough Hospital, plus providing the remaining c. 35,000 square metres of space required would cost £155 million far exceeding the £125 million capital cost of the Cambridge Biomedical Campus solution(Papworth co-location benefits document 14).

An attempt to shoehorn Papworth into Peterborough would irreparably damage Papworth's capabilities and will also probably jeopardise Peterborough's ability to perform its role as a District General Hospital within its own community. With Papworth in a DGH the emergency bed pressures related to DGH winter emergency load (unpredictable and uncontrolled) would have a major impact on the Papworth's elective work.

From a clinical angle, placing Papworth in Peterborough makes no sense. There is not the depth of infrastructure within Peterborough to support the requirements of Papworth e.g. PET CT Scanning, invasive radiology, solid organ transplantation, transplant immunology, and other synergistic clinical supportive activities.

Such a development would mean Addenbrooke's would have to rethink its strategic direction. It would have to set up thoracic surgery to support the major trauma centre. It would also need to develop to a considerable degree cardiology and possibly cardiac surgery which, as mentioned in 5, have not been developed in anticipation of the Papworth move to Addenbrooke's. These would be a duplication of the Papworth services at Peterborough.

Most clinicians commented that geographically Cambridge was in the centre of patient's flows for specialist services and Peterborough was at the edge. This relocation would involve far more travel for the patients and their relatives.

The potential for research and service development would be minimal with the move to Peterborough. Almost all clinicians commented on this. Any research facilities would have to be constructed at extra expense, and there would be great difficulty in attracting scientists to Peterborough.

Many Papworth clinicians told us that they would probably apply for different posts if the to move to Peterborough occurred.

The Peterborough clinicians also had little enthusiasm for this proposed move. Some thought it would compromise the care Peterborough Hospital delivers as a District General Hospital. The issue of how a major trauma centre could be supported was also raised.

This move would also not be suitable for many of Papworth's specialist services, for example pulmonary hypertension, heart and lung transplantation, cystic fibrosis etc which would probably also have to be developed at Addenbrooke's resulting in

potential duplication and waste. This is because synergistic services exist with Addenbrooke's as mentioned before e.g. transplant immunology.

Removing this option as a clinical solution would be to provide important clarity for the situation to the north-west of Cambridge and be the first piece of the jigsaw for a clinically based assessment of the interrelationships between the various organisations in that part of East Anglia.

c. **Transfer of appropriate work to Peterborough presently being undertaken at either Papworth or Addenbrooke's which originates from the Peterborough area, or partial fragmentation of Papworth's services so that some could be transferred to Peterborough in order to reduce the size of the PFI.**
There is probably a small amount of district general hospital activity provided to patients from the Peterborough area at Papworth and possibly some at Addenbrooke's. The numbers are not quantified but clinicians told us that they are likely to be extremely small, e.g. Papworth only does approximately 6 GP Xrays a year (and it unlikely that these are from Peterborough).Any activity suitable for repatriation would largely be related to ambulatory/day case and 23 hour procedures (Document 14- McNeil to Bridge and DH Nov 2013) Such numbers and type would not influence the size of the proposed PFI. Some patients will probably go to Papworth for the Rapid Access cardiological service and the reasons for this happening are almost certainly the much shorter referral to appointments times at Papworth and Addenbrooke's, patient choice and GP referral practice. Only £38 million of Papworth's £128 million income comes from CCG's, the amount from Cambridgeshire and Peterborough CCG is only £13 million i.e. Papworth only receives 10% of its income from the local PCT (from document 14- Papworth co-location benefits). Most of this will probably come from patients around Cambridge rather than Peterborough. These can all be reversed over a length of time once Peterborough's role becomes clearer within their community and local commissioner preference would of course be to work in that direction. However the volume is certainly low. Papworth clinicians already support DGH services at Peterborough and Hinchingbrooke which allows DGH patients to stay locally. Only complex work goes to the Papworth centre.

As far as the relocation of whole tranches of Papworth's activity to Peterborough rather than within the PFI, there is very little rationale for this in clinical terms as Papworth's services are remarkable interdependent with each other and their future plans have been carefully worked out to be synergistic with Addenbrooke's (section 5). It has been suggested that separate parts, such as the sleep centre and the respiratory support service might be a separate part of their activity which could be done elsewhere but clinical examination of what this really means would show that this would not be practical or remotely desirable. The sleep and Respiratory Support unit is vital in supporting the ECMO service; non-respiratory sleep disorders e.g. parasomnias, nocturnal epilepsy; cerebral telangiectasia; weaning from ventilation; respiratory failure resulting from neurological disease. All of these have synergy with services at Addenbrooke's and are Regional or Supra-regional rather than DGH activities.

In summary, there are no clinical drivers for the fragmentation of the services at Papworth and their relocation at Peterborough. It may be with the development of Peterborough that the small numbers of patients from the locality who currently travel to Addenbrooke's or Papworth, (either by referral or personal choice) would reverse, but these numbers are not thought to be large. Such movement should be encouraged. This will not make any difference to the overall size of the new Papworth PFI. Fragmentation of clinical services would severely damage the ability of Cambridge and Papworth to provide the full range of integrated care needed to minimise the risk and optimise the outcomes of these potentially dangerously ill patients.

d. Relocation of Papworth within the new Papworth PFI to the Cambridge Biomedical Campus.

Many of the services at both Papworth and Addenbrooke's have, over the last five years been synergistically designed and configured. The co-location of the two organisations in terms of clinical efficiency and patient centred design is very compelling. Some examples are thoracic surgery transferring alongside Addenbrooke's thus supporting the major trauma centre: and similarly emergency cardiac investigation and intervention also in the new Papworth alongside Addenbrooke's would mean that potentially unstable patients would not have to be transferred 15 miles after being triaged with an acute cardiac event. Adult Cystic Fibrosis (CF) will be on same site as paediatric CF. Papworth's radiology (expertise in imaging) complements Addenbrooke's (expertise in intervention). A 24/7 cardiothoracic radiology rota will be possible. Many CF patients require emergency radiological intervention e.g. bronchial arterial embolisation; these currently have to be transferred to Addenbrooke's from Papworth. Cardiac and chest pathology will complement Addenbrooke's pathology. Many of the patients with the rare diseases that Papworth deals also require the expertise of departments at Addenbrooke's e.g. patients with pulmonary hypertension (Papworth) with connective tissue disorders (Rheumatology Addenbrooke's). The sleep and respiratory support unit physicians will participate in the managing acute respiratory failure.

In isolation, both organisations have important clinical deficiencies some examples are:

1. The time taken for a Thoracic Surgeon to get to Addenbrooke's from Papworth if needed for major chest trauma;
2. The availability of support services coming from Cambridge to Papworth in neurology, upper GI medicine and surgery, heptalogy etc;
3. The difficulty of transferring any critically ill patient from Papworth to Cambridge, for example with bronchial artery bleeding. These will increasingly present governance problems and are corrected by collaborative co-location, which not only guarantees their joint future as a centre of excellence for the people of the East of England but will fulfil the commissioners emerging model for specialist and trauma services.

The development of The Cambridge Biomedical Campus is of great importance to improving clinical standards, UK science and health sector industry, fulfilling the Government's drive to "health, wealth and innovation". The relocation of Papworth to this campus will be integral to its success. The concentration of Papworth's cutting edge services adjacent to a large teaching hospital, university molecular building, and with substantial investment by Pharma will produce major opportunities for research and development. Also as part of this development it has been agreed to build The Heart and Lung Research Centre which will be charitably funded. This £40 million development will probably only occur if Papworth relocates to the Cambridge Biomedical Campus. To miss this opportunity to create a truly synergistic concentration of healthcare research and industry by enabling the emergence of a unique research based hub of excellence for the UK with concomitant ramifications for patient care, research, UK industry, and wealth creation would be a tragedy.

Uncertainty is corrosive and decisions need to be made. Delay will lead to the slow degradation by attrition of the very important role that Papworth plays in the clinical provision of very advanced cardiac and thoracic medicine and surgery in the UK .This would also jeopardise a unique opportunity in research and industry for Cambridge and the UK. Together with the damage to Papworth, Addenbrooke's would be presented with an extremely difficult situation in terms of the maintenance of its trauma status viz-a-viz thoracic surgery and the extent of its cardiac services. These are currently inadequate and both of which would need to be provided if there is a delay and this would be very expensive and wasteful.

The Specialist Commissioners recognise that cardiovascular and pulmonary disease are together by far the most common cause of mortality and morbidity in the western world. Their incidence is likely to grow with increasing age and obesity of the population. Demand for treatment, as well as prevention, can only increase and will need to be managed. Papworth is not going to run out of work.

All of the clinicians at Papworth and Addenbrooke's were in favour of this move. One term used repeatedly by them was the synergy of services that would be produced by this move. The clinicians had no desire for New Papworth to be fossilized in the move, more that this was the right direction of travel with exciting possibilities to improve patient care. It was also recognised that the research potential of Papworth would be fully utilised.

The move would also deliver substantial financial savings which have been quantified as £5.223 million (document 13 -E-mail Steven Bridge to DH).

The degree of collaboration between Addenbrooke's and Papworth is already considerable and the thought, design and agreement of the future of their joint services bodes well of the development of a highly integrated joint service with both organisations achieving the right breadth of infrastructure as well as being able to maximise a clinical development and research base in this very fast moving group of disease processes.

e. Moving some respiratory , cardiac, or other work originating in the Cambridge area to Peterborough

This must be considered because if this movement was possible then the size of the new Papworth PFI build could be reduced. District General Hospital respiratory and cardiac services are provided at Addenbrooke's, Peterborough, and Papworth Hospitals for their local populations and is general in nature. The amount of that work done at Papworth for the local population is small with only 10% being commissioned from the local CCG. There is increasing emphasis on treatment being provided as close to home as possible. Patients now expect this.

An analysis of this question necessitates breaking the work down into its components i.e., respiratory, cardiac, specialist, general, inpatient, emergencies, day-case, outpatient and investigations.

There is no clinical justification for moving the specialist respiratory or cardiac work which is currently performed at Papworth for the Cambridge population to Peterborough. This includes elective and emergency inpatient and outpatient activity. This is dealt with in section 6b.

The majority of inpatient non-elective admissions in respiratory medicine will be emergencies. An example is life threatening asthma. There would be serious clinical governance issues if these emergencies were forcibly diverted over 40 miles to receive care. Delay would be reflected in outcomes and some patients would die in the ambulance while being transferred and this would be totally unacceptable. Primary angioplasty for some acute heart attacks (STEMIs) has recently been developed, these arrangements are comprehensive, 24/7 and based at Papworth, although for these patients initial triage and treatment may well have been elsewhere including Peterborough. If New Papworth was on the Cambridge Biomedical Campus it would be inappropriate to provide this service at Peterborough on clinical grounds. The most common cause of emergency cardiac admission to a DGH is acute chest pain. It would be inappropriate on clinical grounds to transfer all of these patients from Cambridge to Peterborough, or from Peterborough to Cambridge except for acute intervention.

Outpatient activity for general respiratory and cardiac work (typical DGH work) is generated by patient choice and GP referral practice. Preventing Cambridge residents with respiratory or cardiac problems from being seen in Cambridge and diverting them over 40 miles to Peterborough would be difficult. Cambridge respiratory and cardiac departments would presumably have to be removed from the Choose and Book system for Cambridge residents, we do not think that this would be acceptable. There is currently little or no patient movement in this direction. Medical staff would also need to travel to Peterborough to staff the clinics; this is a very inefficient use of medical time.

Day case cardiology is predominantly cardiac catheterisation and pacing. Conceivably these could be done at Peterborough for Cambridge residents. This would require

investment and diversion of manpower as medical staff would have to travel to Peterborough. It would seem probable that the patient preference would be to have their tests in Cambridge and this could lead to pressure to develop Cambridge services as a matter of urgency. Day cases in respiratory medicine are predominantly bronchoscopy for lung cancer. It is very difficult to justify clinically sending a patient 40 miles for this.

In terms of investigation, cardiac CT scanning and MRI are part of the specialist services and there would be no clinical justification in moving these to Peterborough. Other more simple tests such as Echocardiography are already done at Peterborough for their local population. Asking Cambridge patients to travel 40 miles to have a test which lasts 15 minutes or so doesn't seem reasonable. The space used is also very small.

The overall saving accruing from providing the DGH respiratory and cardiac services for the Cambridge population to Peterborough would be small (if any). There would be wasted medical time and inevitable inefficiencies with a split service. The residents of Cambridge would perceive this proposal as disadvantageous because they would have to travel over 40 miles to have treatments that are provided in the local hospitals in the rest of the East of England.

Consideration of moving services which are not respiratory or cardiac from Cambridge to Peterborough was not part of this paper's specification, and the reviewers did not have to opportunity to discuss or explore this in their visits. However the arguments against moving work from other specialities, whether it is tertiary or secondary care, from Cambridge to Peterborough are similar to those for respiratory and cardiac. The clinical arguments against moving a specialist tertiary service to Peterborough e.g. liver transplantation are again identical to those given for not moving respiratory and cardiac services from Papworth(covered in 6d). There are different considerations for the normal secondary care services that any DGH provides**.** If a service exists at Cambridge and Peterborough government policy is that the patient can choose, thorough choose and book, where to go for outpatient treatment. They can't be forced to go somewhere which is centrally decided. Indeed Cambridge patients can already choose to go to Peterborough, but they are not doing so, and we can see no reason why this would change. It would theoretically be possible to decommission some DGH type services in Cambridge and commission these in Peterborough. However this would fragment services in Cambridge. All emergencies in this speciality would still initially come or be brought to Cambridge, and potentially all these patients would have to be transferred over to Peterborough by ambulance. Addenbrooke's provides highly specialised services and the support of all departments is necessary to maintain this. We think that decommissioning of services at Addenbrooke's which jeopardises emergency care of Cambridge patients would not be clinically justifiable. Another possibility would be to split a speciality and do some elective surgery of Cambridge patients at Peterborough. The clinical risks involved in surgeons operating on patients while being resident over 40 miles away are not acceptable, and there are also patient choice issues to overcome. The complex patients and emergencies being cared for at Addenbrooke's require a

comprehensive health care system and any decommissioning of services, or alteration in service provision at Addenbrooke's that jeopardises this has no clinical justification.

7. Patient, Staff, University, Research and Education

- **Patients:** Papworth Hospital has a long tradition of patient involvement. The patient base is strongly supportive of the move to the Addenbrooke's campus provided that the personality of Papworth can be preserved as they see the importance of the inter-relationship of support services and research development. It would be difficult to persuade the patient base to move 40 miles to the north-west at Peterborough but probably not impossible as it known that the patients tolerate travelling moderate distances for specialised services.
- **Staff perspective:** it is considered that the great majority of medical staff would relocate if Papworth was built on the Cambridge Health campus. Most of the consultants live between Papworth and Cambridge or around Cambridge already. The position with non-medical clinical staff is not quite so clear. On the one hand, house prices are more expensive in Cambridge and travel is not easy at peak times from the west of Cambridge into Cambridge and relocation for some groups may be financially difficult to achieve without support and encouragement. It is however, already difficult to recruit more junior grades of nurses to the highly specialised intensive care units of Papworth, largely because of its geographical isolation and this should be improved by being alongside Addenbrooke's and close to Cambridge.
- **University/Research:** the Vice Chancellor of Cambridge University is well aware of the opportunities for the enhanced development of research enabled by the co-location of Papworth onto the Cambridge Biomedical Campus. The University is committed to supporting the development of the Heart and Lung Research Centre together with the British Heart Foundation and individual philanthropists. This represents a huge opportunity for maximising research in the cardiovascular field particularly as Papworth would be immediately alongside a molecular biology centre and the Astra Zeneca Pharma development on the same campus. The physicians and surgeons in training who will participate in this research will benefit enormously, as indeed will their patients in the future.
- **Education:** there is a requirement for a very wide range of education, not only of medical under-graduates and post-graduates, but also for professions allied to medicine including nursing and technical staff. All of these would benefit from co-location on the Cambridge site. The Cambridge Medical School is substantially expanding the number of its under-graduates and this can only be helped by the adjacency of the new Papworth build. The academic aspirations and possibilities are strongly supported by the Managing Director of Eastern Academic Health Science Network (EAHSN).

8. Discussion with the specialist commissioners and local commissioners

There will be re-organisation of specialist health services along demographic lines based on trauma centres which will provide a full range of specialist services and infrastructure.

This fits entirely with the Papworth/Addenbrooke's co-location. The local commissioning group is also strongly supportive of the development of integrated system which provides a full range of integration and appropriate governance structure. Neither commissioning bodies would be in favour of a relocation of Papworth to Peterborough.

9. Risks

There are risks to any development but the reviewers believe that the clinical risks involved with the relocation of Papworth to Addenbrooke's are considerably lower than those of either fragmentation or wholesale movement to Peterborough. The financial risks are not within the remit of this report but no consideration of reconfiguration can ignore finance. It would seem that the financial risks of such relocation are very low and indeed the possibilities of enhancing clinical care and research could provide a considerable degree of financial stability. The potential risks of excess capacity need to be addressed. The PFI should be no larger than is really required. As discussed in 8 the demand for cardiovascular and respiratory services is likely to grow. In addition there will be significant movement of respiratory medicine into new Papworth. Much of Cambridge University Hospital was constructed between 1960-70, this requires renovation and refurbishment. It is estimated that this will take 7 years. This will reduce bed capacity. It is also planned to build many new facilities by 2020. If there were any spare capacity in the new Papworth PFI, and we think that this is unlikely, then this would be utilised for the Cambridge refurbishment and modernisation plans (from document 13). There are however, considerable risks to not going ahead with the new Papworth and many of these have already been alluded to. However a risk of prime importance is that of delay. This will create great uncertainty and will in effect prolong the status quo, which as explained in 6a is not a tenable situation. This will be destabilising.

10. Conclusion

This review recommends on, clinical grounds, the relocation of Papworth to the Cambridge Biomedical campus with the decision, in principle, being made as a matter of urgency in the interests of patients and for the enhancement of clinical excellence. There is no clinical case for wholesale or departmental relocation of Papworth to Peterborough.