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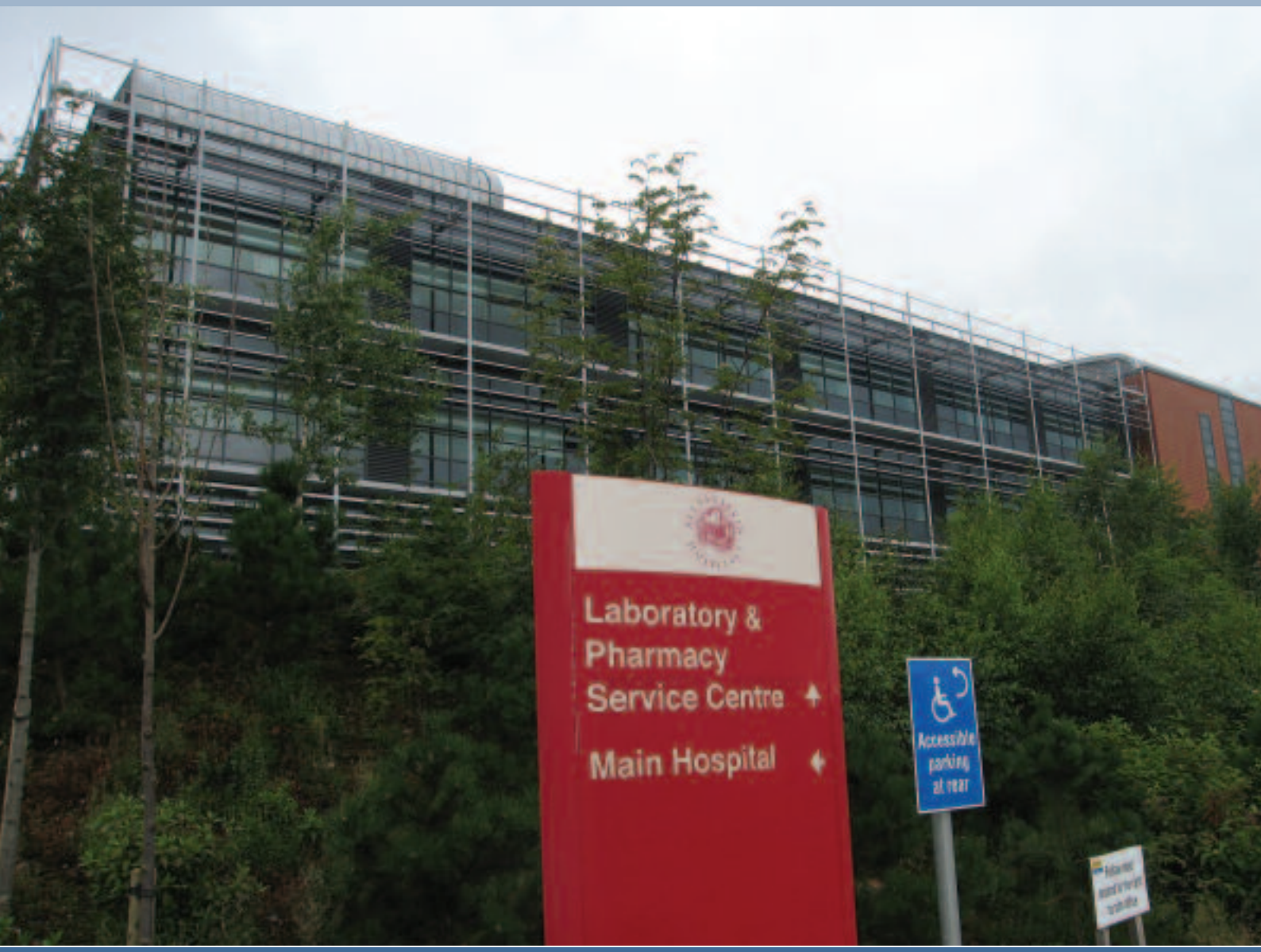
Delivering Pathology Services: The PFI Laboratory and Pharmacy Centre at Altnagelvin



REPORT BY THE COMPTROLLER AND AUDITOR GENERAL
NIA 9/08-09 3 September 2008

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Delivering Pathology Services: The PFI Laboratory and Pharmacy Centre at Altnagelvin

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J M Dowdall CB
Comptroller and Auditor General

Northern Ireland Audit Office
3 September 2008

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Abbreviations

CPA	Clinical Pathology Accreditation (UK) Ltd
DHSSPS	Department of Health, Social Services and Public Safety
HSC	Health and Social Care
ICT	Information and Communications Technology
ITN	Invitation to Negotiate
NIAO	Northern Ireland Audit Office
PFI	Private Finance Initiative
PPP	Public Private Partnership
PSC	Public Sector Comparator
RPI	Retail Price Index
WHSSB	Western Health and Social Services Board

Executive Summary

Executive Summary

1. Altnagelvin Area Hospital is part of the Western Health and Social Care Trust[1] (the Trust) and is the largest acute hospital in Northern Ireland, outside Belfast. The development of the Laboratory and Pharmacy Services Centre (the Centre) is a key component of a major redevelopment programme which is currently underway within the Altnagelvin complex. The Centre was funded through a public private partnership and the capital value of the contract equates to around £15.2 million, with annual unitary payments of around £1.6 million over its 25 year life. A further £3.1 million was also invested by the public sector in providing a range of specialised equipment for the Centre.

2. Ahead of the procurement process, the Trust appointed a management and design team who were required to produce a well researched and comprehensive design brief (known as an exemplar design). The Trust took possession of the new Centre at the end of January 2007, 10-12 weeks ahead of the schedule agreed at contract award.

Main Findings

3. In our review of the planning, design and delivery of the new Centre we found that:

   (a) The new Centre provides: larger, fully equipped facilities to meet the increasing demands from an increasing number of patients; increased provision of services to the primary care sector; and the development of a number of regional specialties within the hospital, including a cancer unit.

   (b) There is evidence that Laboratory and Pharmacy Services in the area served by the Altnagelvin hospital are likely to experience increasing demand due to factors such as increases in population, an aging population and higher mortality rates.

   (c) The facilities at Altnagelvin, before the new Centre was constructed, were not purpose-built and in some cases would not have continued to meet required standards for laboratory accommodation. This contributed to a number of the laboratories failing to acquire accreditation from the Clinical Pathology Accreditation (UK) Ltd (CPA). The new facilities will enable the Trust to meet new accreditation, benchmarking and clinical governance requirements. The Trust may also benefit from improved workforce planning following reconfiguration of services.

   (d) The Department of Health, Social Services and Public Safety (the Department) has recently published its recommendations, following a public consultation process, on the future of pathology services in Northern Ireland[2]. These recommendations impact on the future of the new Centre at Altnagelvin. This consultation followed a 2001 Public Accounts Committee report[3], but came too late to inform the business case for the capital development project at Altnagelvin. The Department considers that the development of the Altnagelvin facility is consistent with its plans in both the short and longer term.

1 The Western Health and Social Care Trust brings together the former Altnagelvin, Foyle and Sperrin Lakeland Trusts and Westcare Business Services from 1st April 2007
2 *Recommendations for the Future of Pathology Services in NI* – DHSSPS December 2007
3 *Report on Pathology Laboratories in Northern Ireland* - Session 2001-2002 (6th Report: 06-01-R (Public Accounts Committee))

(e) The main driver for the delivery of the new Laboratory and Pharmacy Services Centre was the ongoing development of Altnagelvin Area Hospital as a major acute hospital, as envisaged in Developing Better Services[4], the Department's policy to modernise hospitals in Northern Ireland. Although not part of a strategic consideration of the delivery of pathology services in Northern Ireland, the Department told us that reasonable assumptions could be made about the appropriate pathology specialities required to support acute hospital services at Altnagelvin and the primary care needs of the area.

(f) The development of an exemplar design for the Centre included site analyses and selection and an outline design for the project, developed in conjunction with users. The use of the exemplar design increased certainty regarding the costing of the project, affordability and site related factors before going to the market. Also, through consultation with each of the main user groups, full user-client sign-off was achieved on content, layout and quality benchmarks.

(g) The consortia were challenged to be innovative in demonstrating how they could most efficiently deliver the Project and there was evidence of flexibility and innovation in design in the final agreed scheme.

(h) The Trust concluded that the PFI development option represented the best value for money on the basis that it virtually guaranteed future costs and delivered a high degree of certainty on the Altnagelvin development programme timetable. In arriving at that conclusion the Trust also considered the financial consequences of any delay on Phase 3 of the main hospital's development.

(i) The Trust completed a rigorous assessment of proposals for the equipment to be installed in the new centre, engaging six independent expert clinical assessors. This assessment identified significant omissions within the equipment proposed by bidders. This resulted in the equipment proposals being excluded from consideration at Full Business Case stage and the 'build only' PFI option taken forward.

(j) Despite the use made of the exemplar design, the costs for the project increased following design changes, negotiation with the preferred bidder and delays in the procurement. The increases in costs resulted in the estimated unitary charge increasing by 21 per cent. These cost increases were in part caused by the need to take account of enhanced clinical accreditation standards, issue of new health building standards and construction inflation.

(k) It took over five years for the preferred bidder to be appointed and financial close was not achieved until April 2005. As a result of various delays/changes over the period of the project, a significant amount of additional cost was incurred by the Trust in relation to legal and financial consultancy fees. The £280,000 paid, represented 1.9 per

Executive Summary

cent of capital value costs. This is relatively low when compared with similar PFI schemes but reflects that the original estimates for advisory costs were very optimistic.

(l) The Altnagelvin Project Team has not evaluated the costs associated with the procurement process. The Northern Ireland Audit Office Report on the Funding and Management of three PFI projects in the health sector, published in February 2004[5], raised the importance of managing internal costs and recommended that a time recording system for internal costs for any major project should be introduced. Such systems assist in the management and control of staff associated with the project, and determine full project costs for post-project evaluation.

(m) Although the Laboratory and Pharmacy Centre project was not subject to a formal Gateway review process, as it was already well advanced when Gateway Reviews were made compulsory in 2004. However, a 'healthcheck' for the project was completed in January 2007. The results of this review were positive.

5 *The Private Finance Initiative: A review of the funding and management of three projects in the Health Sector:* NIAO February 2004 HC 205

Part One:
The Altnagelvin Hospital site is undergoing a major redevelopment programme

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Background to Altnagelvin Area Hospital Redevelopment

1.1 Altnagelvin Area Hospital is part of the Western Health and Social Care Trust (the Trust) and is the largest acute hospital in Northern Ireland, outside Belfast. The Hospital serves a population of around 200,000 for general services and 400,000 for specialist services such as fractures, orthopaedics and ophthalmics. The Hospital admits 26,000 patients each year and manages 150,000 outpatient and 14,000 day case attendances. The Hospital also provides accident and emergency services, with approximately 49,000 attendances each year.

1.2 The modernisation and development of Altnagelvin Area Hospital and supporting services, was included in the £172 million allocation for Acute Services which formed part of the £2.9 billion investment programme announced in December 2005, for health and social services[6] over the ten years of the Investment Strategy for Northern Ireland. This has been updated in the reiteration of the Investment Strategy published in February 2008[7], with an estimated £26.5 million allocated over the Comprehensive Spending Review period 2008-09 to 2010-11 to the redevelopment of Altnagelvin. As set out in Appendix 1, subject to business case and funding approval, the entire redevelopment programme for Altnagelvin is estimated to cost over £250 million and is planned to be delivered in five phases to the end of 2015-16.

1.3 From the outset, the redevelopment of the Altnagelvin complex was planned as a fully integrated scheme to ensure that the hospital continued to function with the minimum disruption to services throughout the redevelopment programme. Phase 1 of the programme was completed in April 2000. Phase 2 of the scheme (the subject of this report) is the provision of a modern and fully equipped laboratory and pharmacy services building to service the workload at the Hospital. Phase 3 commenced in April 2006. Prior to the provision of the new centre, the laboratory and pharmacy services were accommodated in, what the Trust considered to be, largely sub-standard temporary accommodation across the hospital site. The Trust told us that the accommodation had reached the end of its useful life and there was a pressing requirement to secure new modern facilities for these key services. In addition, the Trust also saw the completion of Phase 2 as critical to the successful delivery of the overall Altnagelvin redevelopment programme.

The Laboratory and Pharmacy Services Centre was funded through a public private partnership

1.4 Each of the Phases was managed as a separate procurement, with Phases 1 and 3 using a traditional works construction project. The Laboratory and Pharmacy Services Centre (Phase 2) was funded through a public private partnership. The capital value of the contract equates to

6 *Investment Strategy for Northern Ireland,* issued as draft consultation in December 2004 and published in December 2005, which set out a 10 year potential investment programme of up to £16 billion over the period 2005-2015
7 *Building a Better Future-Investment Strategy 2008–2018*

around £15.2 million with annual unitary payments of around £1.6 million over its 25 year life. A further £3.1million was invested by the public sector in the provision of a range of specialised equipment for the Centre. Capital projects of similar value today would not normally be considered for Private Finance Initiative (PFI). Research conducted by Treasury in 2003[8] into individually procured small PFI projects concluded that there was evidence that smaller projects faced a number of difficulties that need to be addressed, to ensure that their success was not obtained at disproportionate transaction and development costs. In addition, although PFI continues to perform well in these small schemes, procurement times are often disproportionately large.

1.5 Ahead of the procurement process, the Trust appointed a management and design team who were required to produce a well researched and comprehensive design brief (known as an exemplar design). The key dates in the progress of the project from initial expression of interest to consultation and commissioning of the facility, are set out in Figure 1. The Trust told us that Outline Business Case approval was obtained during the 2002-03 financial year. They explained that delays in the process were, in part, as a result of initial external advice on implementation timescales proving

Figure 1: The Centre was operational within five years of the exemplar design

Task	Completed
Expressions of Interest sought	May 2000
Exemplar design finalised	June 2002
Issue of Invitation to Negotiate to bidders & staff associations	July 2002
Receipt of bids	October 2002
Submission of Best and Final Offer	May 2003
Appointment of preferred bidder	April 2004
Completion of detailed negotiations with preferred bidder and Trust approval	January 2005
Full Business Case Approvals (Department of Health, Social Services and Public Safety (DHSSPS) / Department of Finance and Personnel)	April 2005
Contract Award/Financial Close	April 2005
Completion and Commissioning of Facility	January 2007

Source: NIAO from documentation supporting the procurement

8 *PFI: Meeting the Investment Challenge,* HM Treasury, July 2003

Part One:
The Altnagelvin Hospital site is undergoing a major redevelopment programme

unrealistic and the absence of clear, centrally issued Northern Ireland guidance at that time, resulted in the Trust needing to quality assure decisions at each stage of the process.

1.6 The 2006 NIAO report on Improving Northern Ireland's Infrastructure[9] stressed the importance of user involvement in design as being key to the success of many of the Investment Strategy projects. This applies to both PFI and traditional procurement. HM Treasury is keen to drive down design costs and to ensure that projects are analysed for affordability before procurement. This requires a clear idea of design specification, which HM Treasury believes can be achieved through clients taking more of a lead in design. This approach has been successfully piloted in the £63 million Belfast City Hospital Cancer Centre, which was funded through a mix of PFI and traditional procurement.

The laboratory and Pharmacy Centre was delivered three months ahead of schedule

1.7 The Trust took possession of the new 6,900 square metre Centre at the end of January 2007, 10 -12 weeks ahead of the schedule agreed at contract award. The Centre provides larger, fully equipped facilities to meet the increasing demands from an increasing number of patients, additional provision of services to the primary care sector and the development of a number of regional specialties within the hospital, including a cancer unit. These include five separate specialist laboratory areas that allow the introduction of new laboratory technology, along with a new pharmacy department incorporating special cancer drug production and stock control facilities and a state-of-the-art "dispensing robot".

Scope of this Report

1.8 The focus of this Report is Phase 2 of the Altnagelvin redevelopment programme – the Laboratory and Pharmacy Services Centre. In particular the report will examine:

- The case for a new Laboratory and Pharmacy Services Centre at Altnagelvin **(Part Two)**;
- The decision to deliver the building through a public private partnership and the use made of an exemplar design **(Part Three)**; and
- Project management and delivery; including the support from advisors, timetable and delivery of the Centre **(Part Four)**.

Part Two:
The Department identified a need for modern technological facilities for laboratory and pharmacy services at Altnagelvin

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The Department identified a need for modern technological facilities for laboratory and pharmacy services at Altnagelvin

2.1 In 2002 the DHSSPS Developing Better Services modernisation policy proposed that Altnagelvin Hospital would continue to serve as an acute hospital supporting a broad range of services. The capital investment announced as part of that policy[10] included the provision of a services centre providing laboratory and pharmacy support services at Altnagelvin. The Full Business Case produced for the Centre set out the four main factors identifed by the Trust as driving the need for change as: government policy and professional imperatives; demographic imperatives; estates imperatives and service demand. A fuller analysis of these factors is included in Appendix 2.

An increase in population, an aging population and higher mortality rates were expected to place greater demands on laboratory and pharmacy services

2.2 The growing demand for both pharmacy and laboratory services in the North West meant that the core population serviced by the Trust had increased by 9 per cent over the period 1991-2001(population of 161,000 increasing to 176,000) and this was anticipated to increase to 189,000 (+7 per cent) over the following 10 years[11]. Furthermore, the Business Case estimated that the age profile of the population in 2001, compared with that forecast in 2011, showed a significant increase in the number of people over 60 years of age, which was likely to place higher demands on laboratory and pharmacy services. In recent years, studies have shown that the primary population served by Altnagelvin was the most deprived in Northern Ireland,[12] with Derry and Strabane Council areas having the highest mortality rates of the 26 District Council areas. These factors and the higher incidence of coronary heart disease and lung cancers in those areas are expected to result in increasing demand for laboratory and pharmacy services at Altnagelvin.

2.3 In addition, the Business Case highlighted an increasing workload in the individual

Figure 2: Workload at Altnagelvin Laboratories was increasing

Laboratory Department	Period	Estimated annual workload increase
Clinical Chemistry	2001 to 2003	9%
Haematology	1997 to 2002	4% to 9%
Microbiology	2000 to 2002	0.5%
Histopathology	1997 to 2002	10.1%
Cytopathology	1997 to 2002	1.4%

Source: Altnagelvin Laboratory and Pharmacy Centre Full Business Case

10 Ministerial Announcement "Developing Better Services" 23 February 2003 Annex A
11 Based on Trust analysis of the 2001 census
12 NI Multiple Deprivation Measure (May 2005)

laboratory departments at Altnagelvin, which had shown year on year annual increases resulting in the need for both staff and major equipment (Figure 2). The Business Case also identified a sustained increase in output from the pharmacy services (72 per cent in the 11 year period to March 2004), and a requirement to treat more patients with increasingly complex medical needs was expected to place more demand on pharmacy services . In particular, the provision of medical and surgical sundries, dressings and intravenous fluids, represented by volume, the largest workload for the Pharmacy, and the Business Case projected a further increase of 66 per cent on 2003-04 turnover for the period up to 2008-09.

The existing laboratories had difficulty in meeting the required accreditation standards

2.4 Before the construction of the new Centre, the Trust's laboratory and pharmacy services were delivered from three different facilities, grouped in two main locations - in the second floor of the treatment wing of the main Altnagelvin Tower Block and a mix of temporary and permanent buildings located at the base of the Tower Block. Many of these buildings were expected to have a useful life of 15 years but were still in use after 25-30 years and the fabric was in poor condition, requiring increasing levels of maintenance expenditure to provide viable accommodation. As a result, there was a significant risk that a number of facilities could lose their operating accreditation, which threatened the overall viability of hospital services.

2.5 Ensuring the quality, effectiveness and value for money of laboratory services is critical and laboratories should be subject to regular audit and have the necessary clinical governance arrangements in place. The importance of accreditation of Pathology Services in Northern Ireland was a key recommendation of the Public Accounts Committee in its 2002 report on pathology services for Northern Ireland[13]. The Department estimates that 59 per cent of pathology services across Northern Ireland are not fully accredited, with many not enrolled in accreditation schemes[14]. The generally recognised scheme is with Clinical Pathology Accreditation (UK) Ltd (CPA). The facilities at Altnagelvin were not purpose-built and in a number of cases would not have continued to meet CPA standards for laboratory accommodation. Indeed, in 2002, the histopathology, cytopathology and microbiology laboratories failed CPA inspection, prompting significant capital investment of approximately £350,000 in temporary accommodation to allow attainment of full CPA accreditation status and continuation of safe services. Both the laboratory and pharmacy areas were also considered uneconomic to maintain in terms of statutory standards, such as Fire Code regulations. By September 2006, CPA accreditation was not in place for two laboratories and one had only conditional accreditation (Figure 3).

13 Pathology Laboratories in Northern Ireland – Public Accounts Committee Report Sixth Report, Session 2002
14 Consultation on the Future of Pathology Services in NI – DHSSPS, November 2006

Part Two:
The Department identified a need for modern technological facilities for laboratory and pharmacy services at Altnagelvin

Figure 3: By September 2006 two laboratories had lost their accreditation status

Discipline	Accreditation Status		
	Not Accredited	Conditional Accreditation	Full Accreditation
Microbiology		✓	
Clinical biochemistry			✓
Cytopathology			✓
Histopathology			✓
Haematology	✓		
Blood Transfusion	✓		

Source: Phase 2 Altnagelvin Full Business Case

The Trust has had a shortage of consultant staff

2.6 The process of attaining CPA accreditation is not only measured on the condition of the buildings. Problems with recruiting specialist posts was also a factor in the failure to achieve full accreditation. At the time of our initial review (October to December 2006), one of three haematologist posts had been filled; one of two consultant microbiologists were in post; and four of six consultant staff were in place within histopathology. We were advised that, subsequent to our review, staff are in place and only one consultant microbiologists post remains to be filled. The Trust told us that these posts are only addressing current demand and the predicted increase in both laboratory and pharmacy activity levels (paragraphs 2.2 to 2.3) will require a corresponding increase in staffing.

The Department has recently set out the strategic policy and principles for the future of pathology services in Northern Ireland

2.7 In December 2003 (during the advanced stages of the award of the contract for the Centre), the Chief Medical Officer commissioned a review into pathology services in Northern Ireland. This aimed to provide the Department with a strategic plan for strengthening and developing effective, high quality, clinical pathology laboratory services, responsive to the needs of the patients and users. It was to take account of work in progress both locally and nationally, including North/South dimensions, and the recommendations of the Public Accounts Committee Report on Laboratory Pathology Services[15]. The outcome of this review was the production of the consultation paper, the "Future of Pathology Services in Northern Ireland", published in November 2006.

15 *Report on Pathology Laboratories in Northern Ireland* - Session 2001-2002 (6th Report: 06-01-r, Public Accounts Committee)

2.8 The 2005 Full Business Case for the Centre acknowledged the commissioning of this review and its significance in the continuing need for a modern pathology service at Altnagelvin. Whilst the Business Case noted that the review was yet to commence, it was expected that its findings would support the continued need for a comprehensive pathology service at Altnagelvin, given its geographic isolation in the west of the province and the wide range of acute services provided at Altnagelvin. The Trust told us that, since there was a clear and present need to address the provision of on-site pathology and laboratory services at the outset of the project, it decided to progress its development following Phase 1 completion in April 2000.

2.9 In December 2007 the Department published its recommendations following the public consultation process[16]. The 24 recommendations (listed at Appendix 3) will impact on the future of the new Centre at Altnagelvin, and the new facilities will enable the Trust to meet new accreditation, benchmarking and clinical governance requirements. The Trust may also benefit from improved workforce planning following reconfiguration of services. The key impacts of the recommendations on the new Altnagelvin Centre are:

- the presence of 24 hour clinical biochemistry, haematology/bloodbank – this is identical to current service provision at Altnagelvin; and

- the presence of a 24 hour microbiology lab (one of only two in NI, the other being in Belfast). The Trust told us that it believes there is sufficient contingency regarding space in the new laboratory to accommodate any proposed changes of this type.

2.10 The pathology review team had recommended that histopathology and cytopathology services should be provided from Belfast, with small facilities at the large acute hospitals (including Altnagelvin) for urgent diagnostic work, and a permanent consultant pathologist team at Altnagelvin. The consultation paper recommended that plans for new laboratories at Altnagelvin should go ahead in such a way that the planned laboratory for histopathology and cytopathology can be used for other purposes when the new Belfast laboratory is operational. The Trust had raised significant questions about the efficiency and increased turnaround times as a consequence of having all tissue processing done in one regional location. The Department told us that, after considering comments received during the course of the pubic consultation, its view at this time, is that histopathology and cytopathology services in Northern Ireland should, in future, be provided predominantly from Belfast and Altnagelvin, with small facilities in Antrim, Craigavon and Ulster Hospitals for urgent diagnostic work. They explained that, due to the current changing nature of these specialties, the current provision of histopathology and cytopathology services will continue in the short term; and there will be a further review

Part Two:
The Department identified a need for modern technological facilities for laboratory and pharmacy services at Altnagelvin

of these services in three years time. In the interim, existing services will remain unchanged. The Department considers that the development of the Altnagelvin facility is therefore consistent with its plans in both the interim period and the longer term.

Part Three:
The Laboratory and Pharmacy Services Centre was delivered using an exemplar design through a public private partnership

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The Laboratory and Pharmacy Services Centre was delivered using an exemplar design through a public private partnership

The Trust appointed a management and design team who were required to produce a well researched and comprehensive design brief

3.1 In PFI projects the public sector defines the service to be delivered. Traditionally these service requirements have been framed not as precise input specifications and designs for a particular asset, but as an output specification defining the service required. From the output specification, the private sector partner determines how to deliver the service, drawing on its own innovation and experience and detailing this in its formal submissions. However, in the Altnagelvin Laboratory and Pharmacy project, the Trust applied an exemplar design, in defining its outputs and assessing the bid submissions, and appointed a management and design team who were required to produce a well researched and comprehensive design brief.

3.2 The development of the exemplar design included site analyses and selection and an outline design for the project, developed in conjunction with users. It is a process that has been developed by the Department's Health Estates Group, adopted by the Royal Institute of British Architects (Figure 4) and recognised by HM Treasury as best practice[17]. Through additional input to the

Figure 4: The Royal Institute of British Architects has issued a position paper on the Exemplar Design Process

The Royal Institute of British Architects has identified advantages in the exemplar design approach as part of what it calls its 'Client Concept Design Model' of Smart PFI, including:

- the creation of a relationship between the user-client and the initial design team, which will engender a better understanding of client requirements, while promoting innovation and enhancing design quality;
- improving resources for design at the outset of the project;
- providing the public sector with a thorough understanding of cost and affordability issues prior to engaging with the market;
- reducing uncertainty for the private sector;
- preventing the need for multiple, hugely costly and mainly abortive designs and costings, particularly by bidders who were not awarded the contract, which drives up the cost to the public purse;
- reducing bid costs and times which in turn increases market capacity; and
- ensuring that the private sector takes full responsibility for the funding, detailed design, construction, management, maintenance and availability of the facility.

However, it also identified a number of concerns. They included:

- lack of capacity in the public sector to meet increased demands of exemplar design;
- input from the private sector over design;
- the ability of the public sector to produce accurate cost estimates;
- ensuring that the whole life costing is both intelligent and complete;
- the need for the public sector to promote innovation;
- insufficiency of risk allocation model, particularly the allocation of design risk; and
- restrictions on construction techniques e.g. if certain layouts were precluded.

Source: RIBA Position Paper Smart PFI

17 *Improving Standards of Design in the Procurement of Public Buildings:* Commission for Architecture and the Built Environment and the Office of Government Commerce, October 2002

design brief at the outset of the project, the project team was able to reflect the client's actual need, rather than a theoretical model. The Trust told us that applying this model enabled it to benefit from design intelligence gathered at the early stages of the project. Furthermore, enhanced development and testing provided increased certainty regarding the budget of the project, affordability and site related factors before going to the market. As a result, through consultation with each of the main user groups, full user-client sign-off was achieved on content, layout and quality benchmarks. An output specification was also produced, together with a robust budget for the project based on the outline design solution and taking account of all site specific costs. The exemplar design was completed prior to, and issued as part of, the Invitation to Negotiate (ITN) in July 2002. Following the issue of the ITN, bidders were required to demonstrate how they could most efficiently deliver the required design solution. They were also invited to identify any areas of the design where they felt that improvements could be made.

Bidders were challenged to be innovative

3.3 The Trust told us that the exemplar design was not intended to limit the design options available to bidders. However, it expected that any alternative design proposal would comply with the design requirements set out in the exemplar design and (as a minimum) equivalent levels of build and finish specification. The Trust told us it has been very closely involved in all aspects of the design process and the exemplar design was largely adopted by the PFI bidder with only very marginal changes.

3.4 The bidders were challenged to use their innovation to demonstrate how they could most efficiently deliver the required outputs including engineering, construction, facilities management, financing and the provision of partnering services where appropriate. Examples of flexibility and innovation in design in the final agreed scheme include:

- additional office and technical accommodation were included in the design to cater for an increase in staff numbers and workload;
- an area of open space was left between the laboratory/pharmacy building and the new Hospital South Block for larger scale expansion up to 3 storeys high that could also involve some remodelling of the existing building for functional relationships;
- the aseptic suite utilises a vaporised hydrogen peroxide gassing system to sterilise constituents used to make aseptic products. Quality assurance pharmacists suggest that this will be the future for aseptic preparation of products and Altnagelvin has become the first non-licensed unit to introduce this technology;
- an automated dispensing system (robot) has been installed in the dispensary/stores area, only the second pharmacy robot installed in Northern Ireland;
- the use of high density storage systems should ensure best use of space within the building;

Part Three:
The Laboratory and Pharmacy Services Centre was delivered using an exemplar design through a public private partnership

- the development of a combined clinical biochemistry/ haematology/ blood bank specimen reception area will maximise the efficient use of support staff;

- flexible use of space – laboratory areas, particularly those containing automated equipment, are open plan to allow free flow of work throughout the space. This should maximise the ability to respond to technical innovation and development of analysers in the future; and

- all laboratory departments now have adequate space and facilities to develop undergraduate and postgraduate training of biomedical scientists and postgraduate medical trainees.

The Invitation to Negotiate sought three bids from Public Private Partnership (PPP) consortia

3.5 In July 2002, the output specification for the PPP proposal, as set out in the Invitation to Negotiate (ITN), called for bids under three options:

(a) Mandatory Bid – PPP partner to provide and maintain the facility and equipment for twenty five years;

(b) Variant Bid 1 – PPP partner to provide and maintain the facility, only with equipment provided by the Trust; and

(c) Variant Bid 2 – PPP partner to provide and maintain the facility for twenty five years and provide and maintain the equipment for the first seven years.

3.6 Bids were received from two consortia in October 2002. Following ongoing assessment and negotiations, the Trust invited both consortia to submit Best and Final Offers, which were received in May 2003. These were subject to detailed financial and non-financial appraisal, following which the Trust concluded that the equipment provision options, i.e. the Mandatory Bid and Variant Bid 2, should be ruled out due to the significant concerns in relation to equipment provision and maintenance evaluations (examined further in Part Four). Based on the financial analysis and taking account of the benefit appraisal scores, the preferred bid detailed for further consideration at the Full Business Case stage was Variant Bid 1, i.e. PPP partner to provide and maintain the facility, only with equipment provided by the Trust.

In the original Business Case a publicly funded solution was the preferred option, but this was not supported following further evaluation

3.7 In the original Business Case (approved by the Western Health and Social Services Board (WHSSB) Health Care Committee in October 2003), a publicly funded building and equipment was the preferred option. The Chief Executive of WHSSB wrote to the Department in February 2004 stating that the original Business Case clearly demonstrated that a publicly funded option gave the best economic outcome and that this option had been unanimously endorsed as the preferred option. In his submission, he expressed his concern that Departmental officials had subsequently indicated that the

"capital funding for the preferred option could not be found from the DHSSPS Capital Budget before 2008-09 and that, as an alternative, the PFI route might now have to be followed". The Department told us that ultimate approval, taking account of all factors, lies with it and DFP and the PFI route would only be followed if it represented best value for money.

The Trust concluded, based on updated cost information, that the PFI option represented the best value for money option, as it virtually guaranteed future costs and delivered a high degree of certainty on the delivery timetable

3.8 In the Full Business Case approved in April 2005, the Trust considered which option could expose the public sector to significant financial exposure and/or result in a delay in the new Centre. Overall, the Trust concluded that the relatively small cost difference between the PFI option and the public sector procurement option (which equated to an equivalent annual revenue cost of £48,539 over the 25 year contract period (total £1.2 million) or 5.4 per cent of total forecast revenue costs) and conflicting results from sensitivity analysis on the benefit scores, did not justify the adoption of the public sector procurement option. The Trust considered that the public sector option would expose it to potentially significant financial exposure and impact on services and quality standards resulting from a delay in completion.

3.9 The Trust concluded that the PFI development option represented the best value for money as that option virtually guaranteed future costs and delivered a high degree of certainty on the Altnagelvin re-development programme timetable. In arriving at this conclusion the Trust also considered the financial consequences of delay on the main hospital Phase 3 development (this had already received funding approval) which was dependent on the relocation of laboratory and pharmacy services from the Hospital tower blocks into the new Centre. Consequently any further delay in the development of the Services Centre would have had a direct "knock on" delay on the Phase 3 development. The PFI option was expected to result in a saving of at least six to 12 months in the overall development programme.

3.10 The Trust and the PFI preferred bidder had also invested considerable time in the development of detailed room layouts and design specifications over the nine months up to the preparation of the full business case and the Trust was confident that the PFI operator would deliver a high quality facility. In addition, the Trust believed that close involvement in the detailed specification afforded it the opportunity to ensure that the design specification maximised the design life of the building, which in turn would enhance the residual value to the Trust on hand-back at the end of the concession term. The Trust told us that it considers that the value for money and benefits cited in support of the PFI procurement (namely completion on time and on cost and the expected positive benefits on the dependent work on Phase 3) have been realised. Furthermore it confirms that the laboratories and pharmacy were handed over at the end

Part Three:
The Laboratory and Pharmacy Services Centre was delivered using an exemplar design through a public private partnership

of January 2007, prior to the contractual date of April 2007, which enabled the work on the Phase 3 to benefit.

Part Four:
The costs of the project increased following design changes, negotiation with preferred bidder and delays in the procurement

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The provision of equipment for the Services Centre was excluded from the project

4.1 A specification for the provision of equipment was initially sought within the Invitation to Negotiate (ITN) issued in July 2002. The equipment listed provided details of equipment in use within the various departments at that time. Bidders were, however, free to propose alternative equipment providing that all such proposals continued the required support of the activities of the various departments. On receipt of the initial bids for new and replacement equipment, an Equipment Selection Group (which included the Director of Pharmacy & Pathology, the Technical Equipment Manager and a finance representative) scrutinised the proposals.

4.2 The evaluation team identified major concerns. In particular the periods of equipment refresh were considered unrealistically long and wholly inappropriate. The evaluation team also identified significant omissions within the equipment tables proposed by both bidders. These concerns were also raised during assessments undertaken by six independent expert clinical assessors, who carried out separate reviews on the facility. Based on the recommendation of the evaluation team, the equipment proposals were excluded from consideration at Full Business Case stage and the 'build only' PFI option taken forward.

There was a significant increase in the estimated cost of the Centre between February 2004 and February 2005

4.3 Our examination of the full business case prepared in February 2004, with the revisited full business case submitted in February 2005, indicates that there were significant increases in costs that resulted in increases in the estimated unitary charges. These increases were due to changes in exemplar design, following negotiations with the preferred bidder, and delays in procurement. The cost increases were, in part, caused by enhanced clinical accreditation standards, the issue of new health building standards and construction inflation. The analysis at Figure 5 shows an increase of 21 per cent in the unitary charge for the preferred option of a PFI funded building.

4.4 The Full Business case highlighted the main reasons for the cost increases as:

- changes to the functional relationships between rooms and in some instances the function of individual rooms;
- upgrades of partitions and walls for security and sound insulation;
- changes to the aseptic suite to provide larger male and female changing rooms each with individual changing cubicles;
- provision of special glazing and sheet steel in the partition walls of the pharmacy to provide security at reception and entrance areas;

Figure 5: Negotiations with the preferred bidder and changes to the exemplar design resulted in a significant increase in costs and estimated annual unitary charges

	February 2004 £'000	February 2005 £'000	Variance £'000	Variance %
Annual Unitary charge	1,352	1,637	+285	+21
Net Present Value of unitary charges	21,525	25,287	+3,762	+17.5
Construction costs	10,068	12,252	+2,184	+21.7
Facilities management maintenance cost	225	263	+38	+16.9
Sinking fund	122	139	+17	+13.9

Source: Phase 2 Altnagelvin Full Business Case

- additional windows;
- reconfiguration of laboratory areas;
- the upgrade of worktops in laboratories from laminate to epoxy, to resist the highly corrosive chemicals used and to be consistent with Health and Safety standards and CPA Accreditation;
- improving design quality through reduction of rendering on the main south and east elevations and replacing it with a terracotta tile cladding system; and
- the re-introduction of the proposed design treatment of the south and west elevations to provide solar shading and to facilitate window cleaning as set out in the exemplar design.

The Trust was concerned about affordability and its ability to meet the unitary payments should inflation increase significantly

4.5 In considering the long-term affordability of the project should inflation spiral, the Trust produced a formula, accepted by the preferred bidder, that addressed this concern. Based on a review of historical and forecast inflation trends completed for the Full Business Case, the Trust estimated that there is a higher risk of Retail Price Index (RPI)[18] exceeding 2.5 per cent than being lower than 1.5 per cent. Through the application of this model, if RPI is lower than 1.5 per cent, the unitary charge will continue to be indexed (at 1.2 per cent) resulting in an additional cost to the Trust. However in the event that inflation is greater than 2.5 per cent, 50 per cent of the unitary charge will be capped (at 2.2 per cent), resulting in a net saving for the Trust.

18 The RPI is designed to measure changes in prices of different kinds of goods and services bought by a typical household. The RPI is a measure of the change from month to month in this total cost.

Part Four:
The costs of the project increased following design changes, negotiation with preferred bidder and delays in the procurement

In such circumstances, the Trust will benefit from the removal of any upwards inflation risk on half of the unitary charge.

The Trust identified a corporation tax issue that could have led to excess profits for the Operator and standard form documentation was amended accordingly

4.6 During its review of the financial model and through negotiations with the preferred bidder, the Trust noted that the model was revised to provide for a contingent corporation tax liability. This related to the recognition of a construction profit on completion of the construction. Although this did not result in any overall increase in the tax payable, it would have resulted in the tax becoming payable much earlier and consequently resulted in a material economic cost. To address this issue the unitary charge calculated by the preferred bidder was increased to maintain the internal rate of return on the equity finance. The effect was the transfer of this cost to the public sector. However, the Trust identified the transfer and concluded that it was highly unlikely that HM Revenue and Customs would require any recognition of construction profit. Consequently, to avoid any additional profit to the Operator, the standard form documentation was amended to ensure that, if the tax payable was less than the provision made in the financial model, 50 per cent of the excess should be paid over to the Trust. The Trust estimate that it could save £130,000 from this arrangement, but the assessment of the impact within the private sector financial model is ongoing.

Financial and legal advisors' fees increased due to delays in the project, but still compared favourably to advisors' costs on similar PFI projects

4.7 The Public Accounts Committee, in its 2008 report on the Use of Consultants in the NI Civil Service[19], raised concerns about overspends in consultancy costs, the standard of project appraisal and management and control. The planned delivery of the Services Centre using PFI required the engagement of external legal and financial advisors, who were appointed in early 1999. At that stage it was envisaged that the project would take 18

Figure 6: Fees paid to advisors increased significantly

	Advisors Fees	
	Legal Fees £	**Financial Advisors £**
Original proposed fees	47,500	48,205
Final fees	153,770	130,510

Source: Trust Records

19 *"Report on Use of Consultants"*, Public Accounts Committee Sixth Report Session 2007/08, February 2008

months to reach financial close. However, after the appointment of the advisors, it took over five years for the preferred bidder to be appointed and financial close was not achieved until April 2005. As a result of various delays/changes over the period of the project, a significant additional cost was incurred by the Trust in relation to legal and financial fees (Figure 6). The Trust explained that this arose in part, because the initial advice from its advisors on implementation timescales proved unrealistic. Given the absence of clear central Northern Ireland guidance at that time on the PFI procurement process and the likely timescales, the Trust considered it necessary to quality assure decisions at each stage of the process. In addition the Trust told us that there were also other unavoidable delays, largely outside its control.

4.8 In this project, the costs of the external advice equated to approximately 1.9 per cent of capital value costs. This compares favourably with advisors' costs on previous Northern Ireland PFI projects. In the Education Pathfinders Projects, expenditure on consultancy support equated to four per cent[20]. The consultants' fees for the Royal Victoria Hospital Car Park and the Antrim Renal Unit equated to seven and four per cent respectively[21]. The National Audit Office report "Improving the PFI tendering process"[22], found that the average cost of external advice for all projects was just over £3 million or 2.6 per cent of the capital value of projects. Hospitals were marginally above the average, schools were less than two per cent and schemes in other sectors came out at over three per cent. The percentage of capital costs calculated for advisors fees for the Altnagelvin Centre is relatively low when compared with similar PFI schemes and indicates that the original estimates for advisory costs were very optimistic. The Trust has accepted that, in placing less reliance on consultants, it had placed increased pressures on the project team and on individual members of the team prior to completion. It recognises, in project managing future schemes, that this is an issue it will need to address to strike a better balance in the use of consultants and prevent over-dependence on individuals.

4.9 Before HM Treasury guidance reforms in 2003[23], procurement costs for the public sector were not included in the Public Sector Comparator (PSC)[24]. Therefore the evaluative comparison made on smaller projects would not have captured such internal value for money factors. To address this issue, proposals for a reform of the PSC enabled value for money appraisal to take into account the procurement costs associated with a PFI project. The Altnagelvin Project Team has not evaluated these costs, nor have those costs been included within the PSC. The Trust told us that, as the information was not available, a decision was made to exclude from both the PFI and PSC to enable comparability. The NIAO Report on the Funding and Management of three PFI projects in the health sector (paragraph 4.8) raised the importance of managing internal costs and

20 *"Building for the Future"* NIAO October 2004 NIA 113/03
21 *"The Private Finance Initiative: A Review of the Funding and Management of Three Projects in the Health Sector"* NIAO February 2004 HC 205
22 *"Improving the PFI tendering process" NAO* March 2007 HC 149 Session 2006-2007
23 *PFI: Meeting the Investment Challenge,* HM Treasury, July 2003
24 A Public Sector Comparator is used to compare and ensure that a project being procured on a PFI basis is obtaining best value for money at all stages of negotiation when compared to procuring the project on a conventional procurement basis.

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The costs of the project increased following design changes, negotiation with preferred bidder and delays in the procurement

recommended that a time recording system for internal costs for any major project should be introduced. Such systems assist in the management and control of staff associated with the project, and determine full project costs for post project evaluation.

The Altnagelvin Project was well advanced when Gateway reviews were made compulsory in 2004, but the Trust arranged for a 'healthcheck' on the effectiveness of the project

4.10 In 2001, the Office of Government Commerce introduced the Gateway Review Process. This is a performance management tool to track and assess the effectiveness of major capital projects, including PFI schemes, throughout their procurement process[25]. However, this process only became compulsory in 2004[26], by which stage the Altnagelvin project was well advanced. Recognising the benefits of this process, the Trust submitted, at our suggestion, a potential risk assessment to the Department of Finance and Personnel's Central Procurement Directorate, who determined that the project was low risk and rather than subjecting it to a full Gateway Review, arranged a 'healthcheck', which took place in January 2007. This is effectively a hybrid Gateway Assessment, which provided an overall positive assessment, indicating that the project is on target to succeed but may benefit from the uptake of recommendations for improvement. The Trust is now undertaking a post project evaluation, which commenced on the anniversary of the building handover in March 2008.

25 An OGC Gateway Review is carried out at a key decision point by a team of experienced people, independent of the project team. There are five OGC Gateway Reviews during the lifecycle of a project, three before contract award and two looking at service implementation and confirmation of the operational benefits. In Northern Ireland the OGC Gateway Review Process is overseen by Central Procurement Directorate (CPD) and applies to all major capital projects including those following PPP or PFI procurement routes.

26 DAO(DFP) 17/04 *Delivering success in Government acquisition based programmes and projects*

Appendices:

Appendix One: (Paragraph 1.2)
Altnagelvin is undergoing a major five-phase redevelopment programme

Phase 1 *(Completed April 2000)*	**Contract Value £23 million** • Day Case Unit • Main Operating Theatre • Intensive Care and High Dependency Units • Medical Imaging Department • Hospital Sterilising and Disinfecting Unit • Outpatients Department • Office Accommodation • Enabling Works
Phase 2 *(Completed January 2007)*	**Contract Value £18 million** Laboratories and Pharmacy
Phase 3.2A *(Estimated Completion 2008-09)*	**Contract Value £32.9 million** Redevelopment of Ward Accommodation to meet a projected need to address current Health and Safety/Statutory shortfalls.
Phase 3.2B *(Estimated Completion 2009-10)*	**Contract Value £15 million** Construction of new 3 storey building containing: Coronary Care Unit and Cardiology; Acute Medical unit; and Stroke Services.
Phase 3.3 *(Estimated Completion 2011-12)*	**Contract Value £26.5 million** Refurbishment and extension of existing Tower Block Treatment Wing.
Phase 3.4 *(Estimated Completion 2013-14)*	**Contract Value £32.9 million** Refurbishment and extension of existing Tower Block Treatment Wing.
Phase 3.5 & 3.6 *(Estimated Completion 2013-14)*	**Contract Value £19 million** Construction of new 2 storey building to include: Catering Services; Staff Dining; Main Entrance; and Consultants. Together with demolition of redundant buildings, construction of roads, car parks and refurbishment within Treatment Wing.
Phase 4[1] *(Estimated Completion 2014-15)*	**Contract Value £55.6 million** Emerging Service Needs to include: Intensive Care Unit; Accident and Emergency Upgrade; Renal; combined heat and power system; Endoscopy; Site-wide Infrastructure.
Phase 5[1] *(Estimated completion 2015-16)*	**Estimated value £50 million**[2] Construction of Radiotherapy Facility.

Notes
1. Phase 4 is subject to business case approval and funding identification. Phase 5 is an early indicative estimate and subject to development of the business case and approval and funding identification.
2. In the absence of detailed information on requirements this is an estimated figure.

Source: DHSSPS

Appendix Two: (Paragraph 2.1)

The factors underlying the need for change in the delivery of the Trust's laboratory and pharmacy services

(a) **government policy and professional imperatives** – these propose the designation of a number of acute hospitals in Northern Ireland with the development of nine regional hospitals, of which Altnagelvin Hospital will be responsible for the delivery of acute services in the North and West region servicing a population of circa 350,000. In addition, Altnagelvin has been identified as the location for a regional cancer unit and regional dialysis unit, whilst it is expected that the forthcoming Regional Review of Pathology Services will further support the need for a continuing comprehensive Laboratory Service to be located at Altnagelvin;

(b) **demographic imperatives** – as the only regional hospital located in the Western half of the province (the proposed acute hospital in Enniskillen is unlikely to be available for at least another 6 to 7 years and in any case, on the basis of current and anticipated Regional Strategy, will not provide a full range of acute services). Altnagelvin is not only required to provide laboratory and pharmacy services to meet the requirements of hospital patients but also provides a key service to a much larger population within the primary and community care sector;

(c) **Estates imperatives** – laboratory and pharmacy services are currently accommodated within a mix of temporary and permanent buildings located at the base of the main hospital tower blocks. These buildings (which are now between 25 and 30 years old and had an expected life of ten years) are in very poor condition and require increasing amounts of expenditure to maintain the basic building fabric. Continuing maintenance is not a viable option and there is a significant risk that the condition of the buildings could result in the withdrawal of Pathology accreditation. The withdrawal of such accreditation would have enormous implications for the overall viability of Altnagelvin as the major acute hospital in the North and West of the province; and

(d **Service demand** – both laboratory and pharmacy services have experienced significant growth in service demand over the last ten years and clinical staff expect this strong growth trend to continue.

Source: Full Business Case Feb 2005

Appendix Three: (Paragraph 2.9)

Department's Recommendations for the Future of Pathology Services in Northern Ireland

1.	There should be a managed clinical network for pathology, consistent with the new guidance on Managed Clinical Networks which is currently being developed. The network should involve all professional groups.
2.	A small working group should be established to explore the potential of formalising operational and management links between the pathology network, HSC Trusts and the Northern Ireland Blood Transfusion Service.
3.	The Departmental workforce plan in relation to consultant pathologists posts should be reconsidered in the light of the new configuration of services proposed in this report.
4.	The Departmental workforce plan in relation to Technical and Scientific staff should be reconsidered in light of the new configuration of services proposed in this report. As part of this process, future requirements for administrative and clerical staffing should also be examined.
5.	The Department should ensure that the current voluntary arrangements for the provision of out-of-hours services are replaced by more sustainable and appropriate arrangements across Northern Ireland by 2010.
6.	Joint medical and biomedical science initiatives with both Queen's University and the University of Ulster should be developed further, to strengthen diagnostic and academic pathology at a number of levels.
7.	There is a need for appropriate clinical input from pathology staff to ensure a timely and responsive service. Clinical pathology services should be an integral component of multidisciplinary team working and the delivery of inpatient and outpatient services in hospital settings.
8.	HSC Trusts should ensure that all pathology services are subjected to obligatory regular audit, and that clinical governance is used to best effect to ensure quality, equity of provision, and responsiveness to clinical need.
9.	All pathology services must enrol with CPA (UK) Ltd accreditation scheme by April 2008 and work towards full accreditation by 2010.
10.	HSC Trusts, with support from the managed clinical pathology network, should ensure that all laboratory activity is benchmarked using the National Pathology Alliance Benchmarking Service, the Acute Hospitals Portfolio – Pathology Module, and the Northern Ireland financial benchmarking exercise.
11.	The future demand for pathology services requires that resources currently allocated be retained and reinvested in the pathology services. HSC Trusts and commissioners should agree arrangements for the reinvestment of resources, ensuring more effective use of resources as a result of reconfiguration, and taking account of all competing demands for resources.
12.	The Department, in conjunction with Regional Supplies Services, HSC Trusts and the pathology network, should develop proposals for the implementation of regional procurement and maintenance in relation to all new and replacement laboratory equipment.
13.	Consideration should be given to buying services from the private sector or from the Universities when expensive equipment is required which is used infrequently.

14. Point of care testing should be managed under a regional framework in line with CPA accreditation standards and the guidelines of the Royal College of Pathologists.
15. The current work in bringing forward capital development proposals for a regional pathology ICT system should be completed by 2009.
16. The current arrangements for sample transportation, and sample management within laboratories should be reviewed with a view to ascertaining the most cost-effective and efficient way of delivering samples, entering relevant data on ICT systems, tracking samples though laboratories, and delivery of reports, taking into account the new configuration of services proposed and the needs of primary care, particularly in rural areas.
17. The regional services should remain in Belfast and should be managed by Belfast HSC Trust. Opportunities to benchmark all of these services against their equivalent in the rest of the UK should be explored. There should be input from the pathology network to ensure equity of access to regional services and regular review of services to consider devolvement of investigations which become more routine in nature.
18. Laboratory services for Belfast should be provided from a single facility on a 24-hour daily basis, to include integrated clinical biochemistry and haematology, histopathology, cytopathology, microbiology, and all regional services, including the autopsy service. Essential diagnostic facilities to support specific clinical needs at other Belfast locations should be developed.
19. All acute hospital sites should have 24-hour biochemistry and haematology, except for within the Belfast Trust where a single service will operate.
20. The current provision of histopathology and cytopathology services service should continue in the short term and there should be a further review of histopathology and cytopathology services in 3 years' time to assess the future configuration of services in the light of emerging technological developments and the developing role of pathology within multidisciplinary team working.
21. Belfast and Altnagelvin will continue to provide a full microbiology service on a 24-hour basis. In Antrim, Craigavon and the Ulster, microbiology will not routinely operate on a 24-hour basis, but Trusts will ensure a sufficient service to meet anticipated clinical demands. Trusts will ensure that hospitals with no on-site microbiology laboratory have an appropriate level of clinical input from a consultant microbiologist, with particular emphasis on a need to ensure adequate local infection control arrangements.
22. There should be no laboratory facilities at local and enhanced local hospitals; services should be provided by the nearest laboratory.
23. Primary and community care pathology services should be provided by the nearest laboratory.
24. HSC Trusts should ensure that the planning, design, commissioning and construction of the new laboratory and mortuary infrastructure are taken forward in the light of the proposals for reconfiguration of pathology services.

Source: Recommendations for the Future of Pathology Services in Northern Ireland DHSSPS December 2007

NIAO Reports 2007-08

Title	HC/NIA No.	Date Published
2007		
Internal Fraud in Ordnance Survey of Northern Ireland	HC 187	15 March 2007
The Upgrade of the Belfast to Bangor Railway Line	HC 343	22 March 2007
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2008		
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