Post Project Evaluation (PPE)

Lessons Learned Summary

17 December 2009

Theme	Lesson Area	Outcome	Recommendation
Project Management	The project lost key resources, critically Accounting and Design support, at important points during the project lifecycle, resulting in delays.	A project accountant was assigned mid-way through the initiation phase but was quickly re-assigned to another project deemed to have a higher priority. As a result, during the development of the Business Case, the project ran for two periods of 3 months with no accountant. On closer scrutiny of the project budget by a newly appointed project accountant prior to Business Case submission, a number of anomalies were noted and the budget had to be recalculated. Due to ill-health, retirement and short-term funding ending, the project also lost a key Board member, three Project Leads and a project support administrator. However, most significant challenge was the temporary loss of resource involving the reassignment of the project Design Lead to other projects. As this was an in-house resource, this project was only one in a portfolio of work, each demanding a high level of input over a long period of time. The lack of a dedicated Architect not only caused delays at the design stage but had a significant affect throughout the project lifecycle. When this key resource was redirected to other projects, they were unable to provide the main contractor with detailed technical information when requested, were also unable to issue formal AI's when necessary and at key points in the construction phase had to cancel or reschedule site progress meetings. This became particularly noticeable towards the end of the construction phase.	• Ideally project accountants should be assigned to each capital project at initiation stage. This issue has since been addressed for new capital projects and an accountant is now routinely assigned. • Template documents containing standard formulae should be used for the identification of the full project costs including the calculation of VAT, optimism bias, recurring revenue costs and new/build costs per m^2. This issue has also been addressed and templates are routinely used by the project accountants and Capital Projects Department. • NHS Board may need to review its strategy in relation to running medium to large projects on an "in-house" basis. This issue has since been addressed and resolved by the combined use of "in-house" and external resources.

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Project Management	Successful client involvement	The project was highly successful with regard to client involvement. Each clinical, administrative and support service was represented by at least one Team Lead and a work team. These individuals were appointed by their respective services and were fully responsible for defining the requirements within their areas. Team Leads were key to the overall design of the building, room relationships, room layouts, furniture and equipment specification; even the wall and floor coverings and colour schemes. They were required to sign off their requirements at each stage of the process. Part of the requirements definition activity involved the Leads documenting their operational procedures. This allowed the development of "Day in the Life" and "Week in the Life" schedules around which the various support services developed their work plans.	• Major capital schemes should continue to be client led, with senior representatives of each service area taking an active role on the project team.
Project Management	Impact on overall project of major changes in scope	The original project scope did not include some services which were added towards the end of the design phase. A full assessment of the impact of the inclusion of these services was initiated but the organisational will to find a solution was so great, and the timing so critical, the assessment could not be completed prior to the two additional Business Cases being submitted to Board. One service solution in particular was large and complex and the true impact of its late inclusion, in terms of technical design changes, was only fully understood well into the construction phase.	• Projects will always be challenged with late changes in scope. However, when changes of the magnitude described here are included, the Project Team must be allowed to complete a full impact assessment prior to the change being accepted. This issue has since been addressed as full scope change reviews are now implemented for all projects.

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Project Management	Communication between Project Leads	A number of the clinical services opted for a shared approach to the Project Lead role, mainly driven by resource constraints within their departments. This worked reasonably well for large parts of the project but did create some significant challenges when key strategic decisions had to be taken. In particular it delayed the sign-off processes for the schedule of accommodation, the equipment list and the room layouts.	• Where services opt to role-share the Project Lead responsibilities, a single decision maker must be identified. It is also the responsibility of those involved in the role-share to communicate effectively with each other so that they attend meetings fully briefed and in a position to influence decision making.
Project Management	Involvement of technology representatives	The technology departments (IT and phones) were involved in the very early stages of the project. They were also involved in the design and build stages and as a result were able to complete their tasks successfully and within budget. During the construction phase, the NHS Board approved an infrastructure project to upgrade the IT network on site. This had the potential to have a major impact on the project but as a result of the full involvement of the Technology Lead during the decision making process, the development was managed to a successful conclusion.	• Departments that provide fundamental infrastructure support such as IT and Communications must continue to be involved in all stages of the project from design thru build and in to construction and commissioning.
Project Management	Infection control guidance	An infection control representative was appointed to the project at a very early stage and provided invaluable advice and guidance during the production of the Schedule of Accommodation, room layouts and equipment list. The requirements in these areas were well understood and forecast to be met. However, during the course of the project major changes to existing Infection Control Guidance were introduced. This had a significant affect on both the room layouts and the	• Every effort should be made to retain the services of the same specialist advisors throughout the project lifecycle.

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		equipment list. Again advice was sought, provided and followed. The main challenges for the project occurred during the end of the construction phase and the beginning of the commissioning phase. During these phases up to four different reviews of the site were conducted by Infection Control representatives, all producing reports, all requesting changes, in a few cases providing contradictory advice. This resulted in significant confusion, some conflict and a delay in the completion of the commissioning phase.	
Project Management	Delegation of authority to Project Sponsor	Although new operational processes, policies and guidelines were fully discussed, documented and signed off by the Project Team, some Project Leads took unilateral, post-meeting decisions to implement alternative solutions for the better of their own service but to the detriment of the others. This caused conflict as well as an amount of re-work.	• In future projects where a number of individual clinical services are brought together to share premises and support services, the Project Sponsor should formally be given delegated authority over service project budgets. This will ensure that only solutions agreed through the formal Project Team decision making process are implemented.
Project Management	Clinical service re-design	Two of the main clinical services were undergoing major service redesigns prior to start of the construction project. Although draft strategies had been developed for both, neither had formally approved new ways of working. As the redesign projects reached their conclusions and the new ways of working were approved, a number of changes were received by the Design Team to accommodate them. This created a significant amount of re-work for the Design Team and	• With hindsight, it may have been more prudent to have delayed the start of the construction phase until the clinical redesign projects were, if not complete, at least further developed. Procedures now exist which allow the assessment of a project's readiness to move to the construction phase where clinical

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		had a knock-on effect for the main contractor as detailed technical information could not always be made available on request.	service redesign work is on-going.
Project Management	Project Board member's readiness	The Project Board members were all senior managers with considerable experience of the NHS. However, none had received formal training in project management or had been exposed to the rigours and responsibilities associated with being a Project Board member. By their own admission they, on occasion, felt they were well outside their respective areas of expertise and influence.	• This has since been addressed and all prospective Board Members attend a training course which provides them with the necessary skills to carryout the role effectively.
Project Management	The project did not have the appropriate project management resource at the early stages of the project lifecycle.	The project was not structured in the appropriate way from the outset and once a qualified project manager was assigned it was difficult to put the correct structure in place and change existing practice. Robust project management arrangements were in place for the commissioning phase and clear roles and responsibilities agreed and signed off by the key leads. There was no similar structure for the other areas and the delivery was more disordered. The commissioning Group and project team had duplicate members/frequencies and therefore duplication of effort. No formal record maintained of the approved designs and any changes prior to the appointment of the Project Manager. All sign off documentation and change requests maintained thereafter.	• Ideally project managers should be assigned to each capital project at initiation stage. This issue has since been addressed for new capital projects and a project manager is now routinely assigned. • Standard project management procedures are followed from conception so all people involved have a clear understanding of what is required from the outset. Project workshops should be held where roles and responsibilities are clearly defined and robust project plans developed for the life of the project. If

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			structures need revised to suit then changes should be made for the benefit of the project. • Standard documents for configuration management should be used from the initiation stage and all drawings and requirements should be signed off by key staff when they are finalised. Key documents include; signage, key suiting, room layout drawings, M&E drawings, IT, Service model etc.
Project Management	Successful client involvement	The project was highly successful for the commissioning phase with regard to client involvement. All leads were aware of the work to be undertaken and their individual responsibilities. Public representatives felt they had good access to key staff and were involved in decisions for the hospital such as the garden design and purchasing televisions for the bedrooms.	• Major capital schemes should continue to be client led, with the use of the commissioning structures and plans being adapted for future developments. Members of the public should continue to be involved at all stages throughout the project.
Project Management	Impact on overall project of major changes in scope	The original project scope included the care home who subsequently opted out during the planning phase causing major delays to the project.	• Projects will always be challenged with late changes in scope. However, when changes of the magnitude described here are included, the Project Team must be allowed to complete a full impact assessment prior to the change being accepted. This issue has since been addressed as full scope change reviews are now implemented for all projects.

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Project Management	Tracking project spend	Change control procedures were strictly adhered to following the appointment of the project manager resulting in around £21k of changes for the entire project.	• It is imperative that change control procedures are followed and are clearly outlined to contractors from the outset. Staff site visits should be encouraged although it should be made clear that instructions for change should be made through an appointed representative with the supporting project board approvals.
Project Management	Communication	On the positive side there were good communication channels at all levels, this was particularly in evidence during the refurbishment works when the clinical service still had to be delivered and on a parallel path the construction works had to progress. This was achieved by creating mini programmes and discussion with clinical staff. This approach identified critical areas for both and allowed each side to deliver what was required of them with minimum disruption to either.	• The provision of a comprehensive brief, the use of workshops and the in-depth consultation with all clinical and support services was seen as being extremely beneficial. In addition the continued interaction between the clinical staff and the Design Team also proved worthwhile, particularly at the end stage when those staff experienced in the installation and operation of linear accelerators were able to provide first hand knowledge and guidance to the Contractor and his Sub-Contractors, which avoided past difficulties being repeated.
Project Management	Design Team and Contractor selection	The Design Team selected for the project were well versed in similar projects and this was an obvious benefit to the project. With regards to the Contractor for the works they were	• Involvement of the clinical team during the interview selection process for the Design Team was seen as a positive step and was appreciated by

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		experienced in creating large concrete structures and the associated civil engineering works and during construction this was self-evident. In addition the performance of the Site Manager deserves particular mention as he effectively was the glue that held the project together.	the clinicians involved. • This confirms the widely held belief that the Construction Site Manager is key to the success of any project and consequently, as part of any tender submission, the CV of the Site Manager/Site Agent should be provided. Capital Projects Department have now included this in their standard contract preliminaries.
Project Management	Contractual documentation	In terms of process industry norms were by and large followed. However, one of the Contractors documents was seen as a particularly useful tool and they should be commended for this. The Architect and Quantity Surveyor had issues with the NHS Board's cost reporting format as they found it time consuming and cumbersome.	• Whilst these remarks have been noted the document provides a clear statement as to the financial health of the construction side of the project and is now being applied to all Capital Project Department projects.
Project Management	Project Manager	The Clinical Team felt that a dedicated full time on-site Project Manager would have freed them up from some of the more mundane tasks, eg signing for the delivery of Group 2 equipment, for example perhaps this aspect needs further discussion as to how the Contractor for the works accepts and stores the Group 2 items prior to fitting.	• The appointment of a full time, on-site Project Manager. • To enable the latest equipment models to be considered it will be necessary to include first and second fixes in the construction programme, with the first fix being generic and capable of accommodating any equipment and the second fix being undertaken once the equipment has been selected

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Funding	Tracking project spend	The external design team was responsible (with the main contractor) for compiling and publishing a monthly spend profile during the construction phase of the project. This failed to materialise on each occasion. The Project Accountant raised this as a concern at most team meetings, it was raised and escalated as a red risk but the information was not forthcoming. As a fall-back position the project spend was tracked using an accumulation of invoices passed each month. Predictably this only gave a retrospective financial position and made forecasting impossible.	• See recommendation on project accountants above. However, this issue has also been addressed by the inclusion of a requirement to use the NHS Board's standard cost reporting spreadsheet on all projects.
Funding	External funding opportunities	Verbal commitments had been made regarding additional external funding from other parties and these had been reflected in the project budget. However, due to unidentified procedural difficulties neither funding opportunity was realised.	• Ensure all financial commitments are in writing before they are committed in the budget.
Funding	Calculation and monitoring of revenue consequences	The determination of the revenue consequences for services, including income generation, was made more complex due to the number of different departments involved and the high number of funding sources. The number of operational and project accountants involved also created confusion and conflict. Now that the building is operational it is very difficult to monitor actual expenditure against that forecast for each service and reporting is very difficult also as there is no single finance contact/manager responsible for this. It could result in a loss of income generation which was seen as an added value opportunity in the Business Case.	• The style mix of clinical services on a single site is likely to be replicated as the Local Care Centre model is rolled out across the NHS Board. In recognition of this, the Board should review its finance structures to identify the possibility of adopting a matrix rather than the more vertical silo structure used traditionally to provide financial support to services.

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Funding	Type of lease	For this scheme and the many associated changes, discussions with senior finance colleagues and external auditors were held late resulting in several terms of the lease having to be renegotiated to ensure conformity with an operating lease.	• Senior finance colleagues with the appropriate expertise to be engaged in detailed discussions at an early stage to identify and manage the risks associated with leases • Early discussions should be held with external auditors to determine the exact nature of the lease and how it should be accounted for. • From 1 April 2009, NHS accounting will follow International Accounting Standards. These take a more subjective approach to the classification of leases, which will classify most long term lease buildings as finance leases and therefore on balance sheet. It is therefore likely that future scheme will not meet the value for money test and this procurement route will probably not be acceptable in the future. • Use Scottish Government Land and property Division for advice
Construction	Site hand-over and hand-back	In one project the site hand-over at the start of the project was smooth with no reported issues, however, the hand-back was a major issue. There was some confusion during the commissioning phase regarding which systems and processes had been handed back	• A single process that is comprehensive and suitable for use on most capital projects needs to be drafted and agreed by all the parties involved. This would avoid the

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		and which had not. This resulted in a number of assumptions being made by all parties which led to unnecessary conflict. The main areas affected included the commissioning of the heating system, the cold water systems, air handling units, keys, security arrangements and the remaining snagging items. A general commissioning checklist existed but was not comprehensive and needs to be tailored for each project. There was no formal process to manage and implement this which resulted in no standard, formal handover/hand-back process being developed.	confusion and unnecessary conflict during the commissioning and hand-back phases. This issue has since been addressed and formal checklists now exist and are used on each scheme.
Commissioning	Planning and carrying out the move	The huge amount of effort put into this exercise guaranteed its success. With only one exception all services cleaned, sorted, packed and labelled all their equipment and sundries prior to the move. The Site Management effort during the same period should also be recognised.	• The key to the success was the involvement of all parties in the planning stage, production of detailed plans and the presentation of them back to all those involved. Involving the team in the planning stages of this exercise and allowing them to define the most cost effective, efficient, and low risk methods of achieving the move objectives should guarantee success.
Commissioning	Specification and procurement of equipment.	One of the most challenging aspects of the project was the equipment list development and sign-off. This proved to be enormously time consuming and caused significant conflict in the project. The 3 main issues were scope, specification and responsibility for production of the list. Expectations had to be managed regarding an "everything must be new" approach and also an	• The NHS Board needs to reconsider providing a resource who has the responsibility for procuring equipment for capital projects. If this is not possible, procedures need to be put in place to define the interdepartmental roles and

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		"everything must be of the highest specification". At least two of the services were over budget and had to apply for additional funding. It should be noted, however, that a significant amount of the cost increase related to sharp increases in equipment prices and changes to infection control guidelines. The equipment list was eventually signed off within budget. Specifying and procuring items on the equipment list was as problematic as compiling it. The NHS Board no longer had a resource who is responsible for the procurement of equipment for capital projects and no procedures exist to manage this process. To avoid major issues resulting in the procurement of the wrong equipment, the Project Manager and Design Lead took on the bulk of the responsibility for this task and the extra workload associated with it.	responsibilities relating to this process. • NHS Boards should consider using the services of Health Facilities Scotland: Equipping and Technical Division.
Commissioning	On-going facilities management	The new building does not have a facilities manager who would co-ordinate, for example, the re-ordering of supplies, monitoring room use to maximise income generation and manage requests from new managers and clinicians seeking appropriate accommodation from which to run their services. This has resulted in services currently based in the building "owning" a large proportion of the available space. This is limiting opportunities for flexible working and income generation.	• The current position, should be reviewed to identify gaps in the support services currently provided for and look to either incorporate these into existing job descriptions or recruit a new resource with this specific role and related responsibilities. • Could the project have done something to avoid this?
Commissioning	Acceptance of the building with defects	This building hand-over had a number of outstanding issues; however, the majority were resolved throughout the commissioning phase. The main issues which have yet to be resolved are the heating system and security	• A single process that is comprehensive and suitable for use on most capital projects needs to be drafted and agreed by all parties

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		system. There was no opportunity for the NHS Board to decline the building as the lease agreement stated that we would accept the building once the 3rd party developers architect confirmed practical completion. The heating problems are still not resolved, one year after hand over.	involved, ensuring all services are fully commissioned. Future operating practices should be agreed prior to systems being installed, especially where the project involves 2 or more separate parties. For example, health and Primary Care.
Commissioning	Planning and carrying out the move	The huge amount of effort put into this exercise guaranteed its success. All services cleaned, sorted, packed and labelled all the equipment and sundries prior to the move. The Site Management effort during the same period should also be recognised. The key to the success was the involvement of all parties in the planning stage, production of detailed (minute by minute) plans and the presentation of them back to all those involved.	• Involving the team in the planning stages of this exercise and allowing them to define the most cost effective, efficient, and low risk methods of achieving the move objectives should guarantee success. Development of plans and commissioning strategies.
Commissioning	Specification and procurement of equipment.	The equipment list development and sign-off proved to be enormously time consuming and had a dedicated Capital Projects member of staff to carry out this work with clinical staff and the supplies department. They were also present on site to accept deliveries and reconcile delivery notes on receipt of goods. The contractors allowed the NHS Board to store equipment on site free of charge which did not impact on the commissioning phase of the project.	• NHS Boards should provide a similar resource for future projects, or identify responsible persons to deliver this over various departments.
Commissioning	Commissioning Period	The commissioning period particularly for the engineering services was compressed in order to achieve a deadline for handover.	• From an NHS Board perspective this has now been addressed in that a defined period will be allocated within the construction programme and

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			unless overridden by a clinical need this timescale will move with the end date for the construction phase of the works, i.e. if the build element takes longer, the commissioning period in its entirety moves it is not reduced.
Commissioning	Ongoing maintenance	Estates Maintenance were involved at the design review workshops and made some useful contributions. However, their input at Site Progress and Technical Meetings was not adequate. In addition the attendance at system demonstrations particularly where there was non-standard equipment, eg a gas powered water chiller, gas humidifiers, was not at the level expected.	• Since the completion of this project a greater emphasis on the role and attendance of "Estates Maintenance Staff" at such meetings/demonstrations has been expressed and a slight improvement has been noticed. This aspect will continue to be monitored and will be the subject of higher level discussions between appropriate departments.

Health Finance Directorate
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