

## Inventory Reduction & Process Optimisation Effects of MedTrac Implementation in Pilot NHS Cardiology Department

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### Background

Hospitals throughout the world consistently report difficulties in maintaining control of their medical consumable and device expenditures. Studies show that the level of inventory waste is generally around 20% of all items on hand – with a further 25-30% excess to requirements and therefore at greater risk of waste.

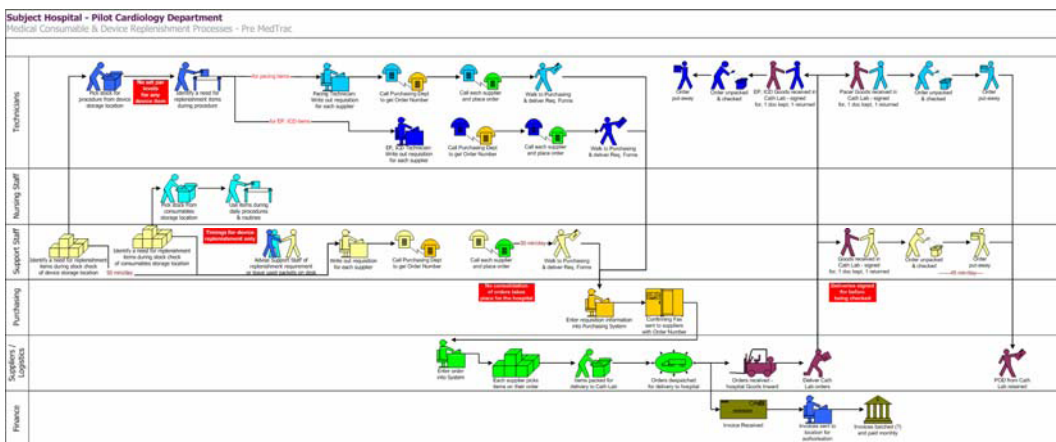
The core reason that effective working capital management and control has been so difficult to capture in hospitals is the absence of data captured at the point and time of use. Everyone seems to know how much they spend – but no-one knows how much they actually use!

Reports from health services throughout the world mirror this experience – yet every health system appears to exist in virtual isolation. Several hospitals have recorded good progress in specific areas of reform addressing this dearth of information – but the lessons are not broadcast – or they are not taken up because “we’re different” or “we don’t have enough money to invest in long-term improvement”.

Of course these claims are demonstrably untrue – further studies show that usage of consumables and devices by procedure type and physician is 80-90% consistent. Such findings beg the question of why usage of all medical and pharmaceutical consumables

and devices in every department of a hospital cannot be forecast, tracked and ordered based on classic stock management methodologies applied at point-of-use.

This study goes to the core of this issue – examining the impact of a point-of-use data collection process and system on stock levels and business processes as they changed in one section of the Cardiology Department of a major London Hospital (CD). A comparison is made with the Trust considered to be the current benchmark of NHS practice – Leeds Teaching Hospital NHS Trust.



**Start point—  
manual, repetitive,  
replicated, no stock  
visibility...**

**...as found in most  
hospitals...**

## Opportunity for Broader NHS –Minimum £275 Million per Annum

Over the past six years Ithaca Business has observed and implemented numerous solutions such as those reported on here.

The outcomes of open system stock management processes and systems such as MedTrac, when applied throughout a hospital, invariably result in:

- ❖ sustained replenishment productivity improvements of 80-90%;
- ❖ sustained reductions in stock levels of 50-55%;
- ❖ sustained reductions in year-on-year expenditure on medical consumable and device items of 3-7%.

When these findings are applied to the

broader NHS and limiting the extrapolation to expenditure on medical device items across the 173 Acute Trusts only—a cost estimated in 2006 at £5.5 billion—the potential savings as they relate to working capital annual expenditure and stock-take valuations would be as follows:

- ❖ Assuming an overall 5% reduction in expenditure per annum, £275 Million would be saved every year;
- ❖ Assuming stock-turns of 4 per annum (better than those achieved in the Pilot CD) current stock-on-hand of medical devices across NHS Acute Trusts is £1.3 Billion. This could be reduced to £750 Million, saving waste and storage space.

On the productivity improvement front, costed findings from projects Ithaca has implemented show that expenditure on agency staff per Acute Trust could amount to approximately £1 Million per year.

Such predictions can be benchmarked against the experience of the Leeds Teaching Hospital NHS Trust who, doing a similar project to MedTrac the hard way (building the programs themselves), have recorded remarkably similar sustained results.

Other benchmarks for open systems can be found at Goulburn Valley Health (Australia), Omuta Hospital (Japan) and Adelaide & Meath Hospital (Ireland). Closed systems are typically far more costly and cannot demonstrate sustained compliance.

## Stock Levels Can Stabilise at £1.2 Million—50% of pre-Pilot

MedTrac tags were introduced ahead of DHL's September 2006 stock-take recording a value of £2,410,436. This was a large increase on the April 2006 stock-take however such escalation is quite typical at the outset of such projects because:

- ❖ Manual counts in unmanaged environments are almost never complete – 'just-in-case' stock is kept in all sorts of places;
- ❖ Item pricing is generally missing for at least 50% of items – making numbers subject to large discrepancies – and that staff lack visibility of stock value.
- ❖ Pressure to perform core roles causes people to place larger

orders less frequently in order to reduce overall workload;

- ❖ There is no applied knowledge of usage so, again, things are ordered on a 'just-in-case' basis.

The inevitable result of this is that greater levels of expiry & obsolescence will occur – meaning that a significant proportion of extra money spent will be wasted.

Initial focus during the MedTrac implementation was on educating staff and gaining confidence in the use of MedTrac processes and systems as well as analysing the data in order to suggest appropriate PAR levels.

From late January onward efforts began to use data collected to bring down stock levels by ordering less.

This consisted of producing suggested order reports – which were not enforced.

In March the suggested orders became mandatory and were ordered to only replenish PAR levels.

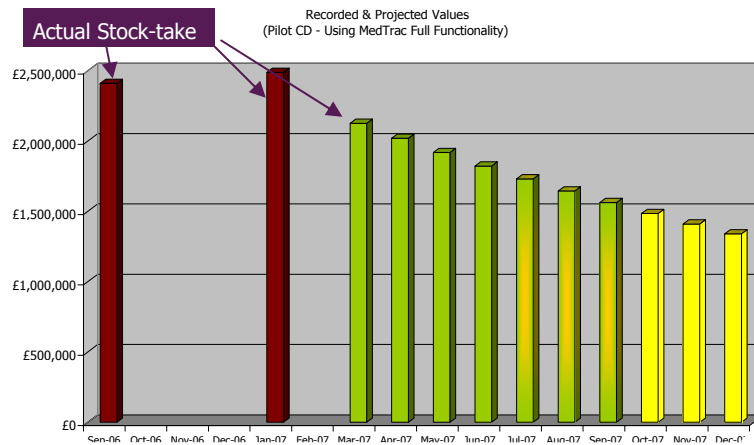
The results from this can be seen in the stock-take conducted on 31<sup>st</sup> March 2007 where inventory value had fallen by 15% in only 6 weeks – to £2,125,948. For the first time stock value had been successfully reduced using applied analysis of usage data.

Analysis of usage figures for all items in the Pilot CD over a 145 day period shows that the overall inventory level can be maintained at around £1.2 million – and possibly, with greater turns, at a point between £850K and £900K. It would be expected that stock levels would stabilise somewhere between the £1 and £1.2 million mark.

Expectations are that continued use of MedTrac would lead to substantially more reduction in inventory value, without adversely impacting availability.

The graph below demonstrates the actual and projected outcomes for the remainder of 2007 assuming full implementation of the MedTrac functionality.

**"...the over-ordered value of £456,500 could have, at worst, been halved..."**



## Changed Ordering Patterns—Driven by Stock Visibility

The overall reduction observed above is further illuminated by an examination of the month-on-month ordering patterns in the Pilot CD.

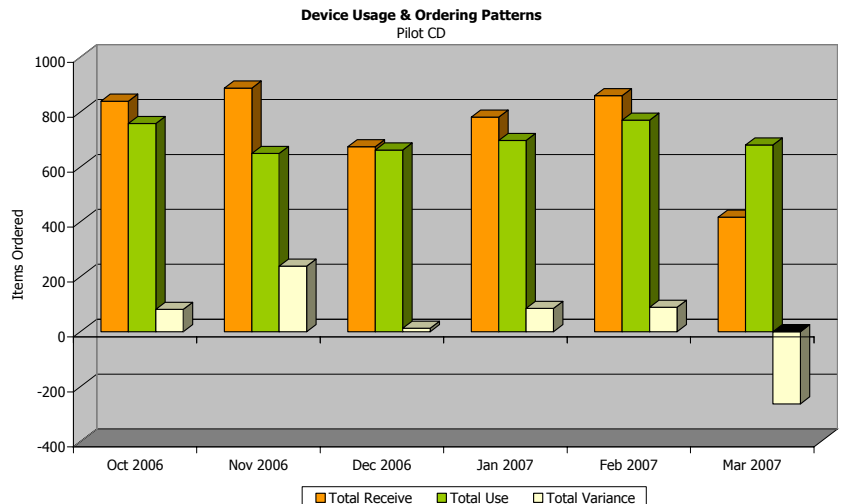
We can see the impact that MedTrac's reporting capabilities have on inventory level reduction. For the first time staff engaged in the change can see what is being used against what is being ordered. Uptake of MedTrac's process is not yet complete – with around 85 percent of tags being returned and re-corded – however the impact is clear as can be seen in the graph.

This graph considers items purchased over the period October 2006 – March 2007 in six core areas. It is clear that, as staff become more

confident in the usage reports and suggested order regimes emanating from MedTrac, they are beginning to order less and use up on-hand stock.

An analysis of the cost implications of the change shows that, had MedTrac been fully operating for the period, the over-ordered value of

£456,500 could have, at worst, been halved while allowing a very conservative 50% for safety stock. The potential saving for the six categories of item shown over a 6½ month period would be almost £230,000 – at a minimum!



# Productivity Improvement—Outcomes & Challenges

Most hospitals have, over many years, developed administratively burdensome and costly methodologies to manage replenishment. These processes are typically replicated multiple times within and across departments where they are frequently conducted by relatively highly paid professional staff.

The Pilot CD was no different.

The question is whether – especially in an environment where the call for the use of professional skills outstrips availability – the performance of basic administrative tasks constitutes appropriate use of a professional’s time. There is a spurious argument that says, “it gives them ownership” – this is incorrect, they would have ownership at a much more appropriate, management, level if they were – instead – to be a part of a team that accurately forecasts activity and pre-sets authorised par levels for stock on the basis of that work.

Apart from replicated activity there was a significant load of manual processing for all staff involved in the replenishment activity – plus a number of disconnects such as having no par levels for the majority of items stocked and

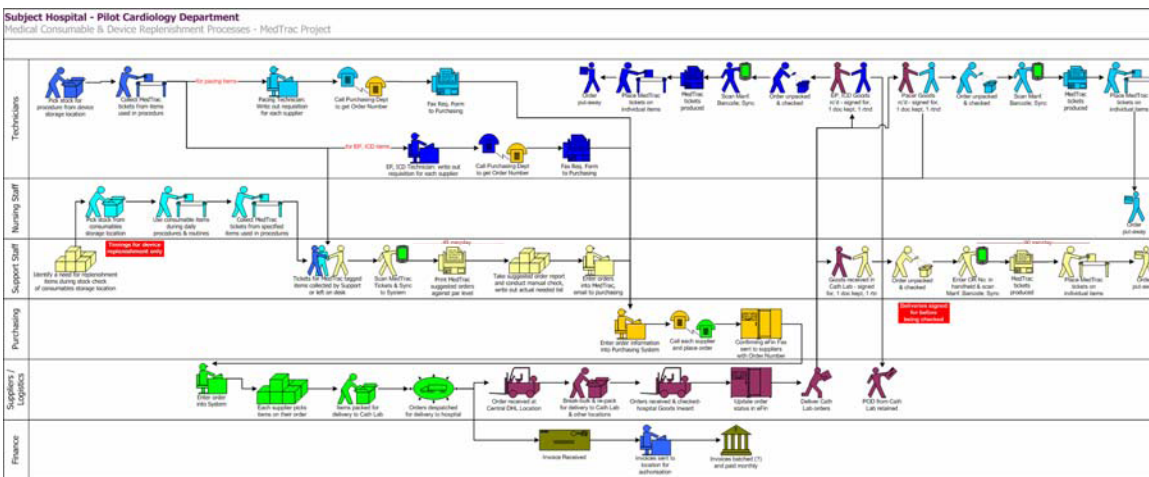
signing for deliveries from external suppliers prior to actually checking accuracy, quantity and quality.

During implementation areas of the Pilot CD who chose to adopt MedTrac experienced small improvements in process flow while areas (Pacing, EP and ICD) who partially adopted MedTrac experienced a workload increase.

Challenges typically faced in hospital system implementations were evident in the Pilot CD and it is common to find only very small process improvements during initial stages. These include achieving compliance from all staff in using the new system and associated processes—this relies heavily on gaining the trust and confidence of staff in the consultative and supportive way MedTrac and DHL have done in the Pilot CD, inclusive of providing on-site staffing, ultimately leading to a reduction in administrative workload.

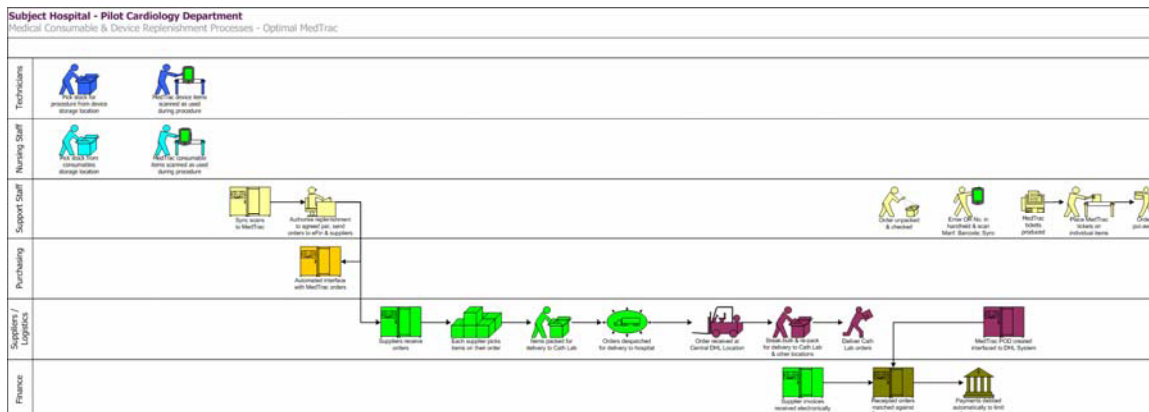
The diagrams below depict the process in the Pilot CD during the implementation process and as they would be in an optimal situation where dramatic improvements in productivity can be achieved.

## Pilot CD Processes During MedTrac Implementation



***"Dramatic productivity improvement can be achieved."***

## Projected Pilot CD Processes Assuming Full MedTrac Adoption





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who are we?

Ithaca is an independent business transformation practice that works with organisations to overcome obstacles and realise opportunities they may not even know they have.

Our proven, process-oriented approach, applied together with robust business analysis has given Ithaca a strong track record of success across numerous industry sectors. Ithaca's solutions have encompassed everything from process reengineering to software, outsourcing, in-sourcing, organisational re-structuring and more.

The outcomes we implement are dramatic and measurable – for the organisation and for the bottom-line.

what do we do?

strategy

Strategy: having a shared vision; setting goals; planning to achieve them

Business strategy is vital to all organisations and at Ithaca we take a rigorous approach, working with clients to create a clear direction for their organisation. This provides a map for the future, as well as the route to take now. Benefits of robust business strategy and associated objectives can only be realised through effective implementation. We help clients deliver both.

performance

Performance: achieving your goals; knowing when you are on track; sustaining the achievement

Strategy without performance is only a dream. Doing the right thing at the right time and place, in the right way and visibly measuring the outcomes will achieve the dream. Success relies heavily on execution. This is challenging in most organisations – Ithaca works to generate consensus by jointly developing, prioritising and facilitating the implementation of action.

enablers

Enablers: identifying supporting tools; implementing them; maintaining them

Outcomes that consistently meet strategic goals and performance objectives are those that identify and effectively utilise the right set of supporting systems and tools.

who have we done it for?

Ithaca's clients range from blue-chip multi-nationals and government such as the Department of Defence, Bayside Health, CSL Pharmaceuticals and Bonlac Foods Carter Holt Harvey to more medium-sized and smaller companies including Harris Watson and Elmbridge Borough Council.

A typical comment from our clients would be along the lines expressed by Pam Balstrup (Operating Suite Services Manager, Bayside Health), "the best change management program I have ever seen", when describing the one-off AUD\$3M, recurrent 7% saving in working capital spend, 65% reduction of total cost-to-serve whilst improving customer service delivery to 99%+ Ithaca delivered.