

# **Osprey**

**The Training Programme for  
Clinical System Engineers**

**Report 2004 – 2006 Programme**

**Information Pack 2006 – 2008 Programme**

# PART 1

## Contents

Part 1	Contents	Page 1
Part 2	Chief Executive Briefing	Page 2 - 5
Part 3A	Clinical Systems Engineer	Page 6 - 7
Part 3B	Job and Role description	Page 8 - 10
Part 4A	Biographies – Current CSEs	Page 11 - 15
Part 4B	Biographies - Trainers	Page 16 - 18
Part 5	Achievements	Page 19 - 24
Part 6	Evaluation	Page 25 - 33
Part 7A	Outline of the programme	Page 34 - 37
Part 7B	Outline Timetable	Page 38 - 40
Part 8	Joining the programme	Page 41 - 42
Part 9	Terms and conditions	Page 43 - 54
Part 10	Budget	Page 55 - 57
Part 11	Contacts	Page 58

## **PART 2**

### **2. Chief Executive Briefing**

Creating a Patient Led NHS requires a 'step' change in the way services are both commissioned and delivered by front line staff, to reflect real choice in terms of timeliness, cost and both clinical and service quality.

However, since 1997 the NHS annual budget will have increased from £47 Billion to £98 Billion by 2008 for only a 3% increase in activity so far (Economist July 04). On 15th October 2005 The Economist reported the impact that this 'un-productive' investment in the NHS has had on the UK economy as a whole (National Health Service: Stressed Out).

It is now vital that the NHS demonstrates the dramatic improvements in timeliness, efficiency, clinical and service quality that are expected for this level of investment. Clinicians have a pivotal role in designing healthcare systems that add quality and value.

Over 2 years senior clinicians and managers with a clinical background are trained in operations management techniques from a wide range of industries. Unlike any other training course, this programme provides CSEs with time and support to put these techniques into practice by working alongside clinical and Board level teams. Thus the programme provides NHS organisations with access to the same systematic and evidence based management approach that revolutionised the manufacturing sector in the 1970s.

#### **2.1 History of the programme.**

In April 2003 Mike Marchment, SHA CEO for West Midlands South, convened a meeting with 5 other SHA CEOs to demonstrate and discuss how evidence based techniques from the manufacturing sector could be adapted to healthcare. The original six strategic health authorities Chief Executives were:

Thelma Holland, South West Peninsula  
Terry Hanafin, Essex  
Richard Jeavons, West Yorkshire  
David Johnson, North & East Yorkshire and Northern Lincolnshire  
Mike Marchment, West Midlands South  
& Duncan Selbie, South East London, who joined the programme in June 03.

Dr Kate Silvester BSc MBA FRCOphth, Mr Richard Steyn MS FRCSEd(C-Th) FIMCRCSEd MRCGP and Dr Richard Lendon MBChB, FRACGP demonstrated how applying

manufacturing systems engineering techniques to their healthcare systems revealed how issues regarding timeliness, cost and quality of care could be addressed by simple but counterintuitive interventions. For example they showed the negative impact of medical assessment units on patient flow and A&E targets versus the cost free approach of timing the daily discharges to precede the admissions.

The ensuing discussion revealed why there was a risk that capacity and investment plans in the NHS could be equally unproductive. The SHA CEOs agreed that these techniques should be applied within their healthcare systems and that initially senior clinicians were considered to be the best candidates to do this for a number of reasons:

- a. thorough understanding of the clinical 'production lines' i.e. processes
- b. ability to grasp the engineering principles and apply them to healthcare
- c. data literacy to produce the statistical evidence required
- d. influence with managers and other clinicians to implement this approach in their own clinical practice and elsewhere in the healthcare system.

The effectiveness of non medics in this role has yet to be proven.

## **2.2 Developing the programme locally.**

In January 04, the six strategic health authorities recruited nine senior doctors (in full and part time posts) from primary, secondary and mental health organisations to become Clinical Systems engineers (CSEs). These senior doctors are:

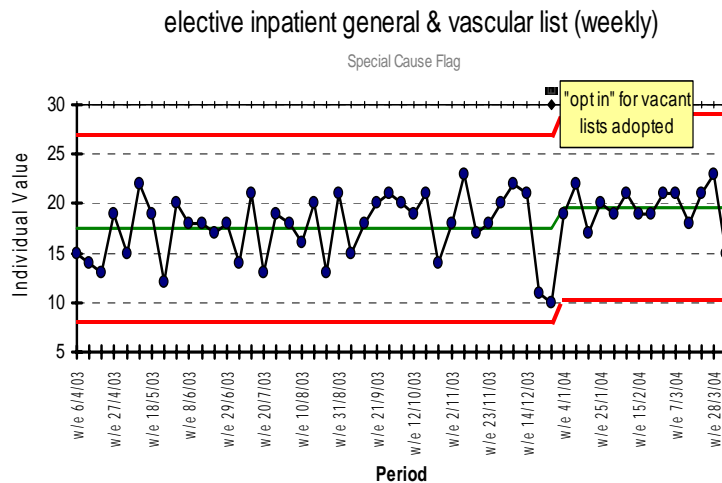
Dr Simon Baugh, Medical Director, Bradford District Community Care Trust  
Dr Kanan Pande, General Practitioner, Hull, Yorkshire  
Dr Liz Taylor, General Practitioner, Tipton, West Midlands,  
Dr Roger Skilton, Consultant Anaesthetist, York, Yorkshire  
Dr Nicola Williams, Consultant Anaesthetist, Gloucester,  
Dr Seema Bhandari, Registrar in Public Health, SWPSHA,  
Dr Virginia Craig, Consultant in Palliative Care, now Associate Director for Clinical Systems Improvement, Princess Alexandra Hospital, Harlow.  
Dr David Tomlinson, Consultant in HIV, SE London  
Dr Gail Mifflin, Consultant Haematologist, University Hospital London

The CSEs attended 3 days training per month and were supported by information technology (video and telephone conferencing) while applying these techniques with local project teams. The training was provided by Dr. Kate Silvester, Mr.

Richard Steyn, Dr Richard Lendon and Paul Walley (from Warwick Business School).

## 2.3 Evidence based management.

The programme is characterised by a systematic approach to understand the flow of patients, money, information and staff skills through the healthcare 'factory' from presentation to discharge. CSEs facilitate local teams to understand and address the bottlenecks in the system improving timeliness, cost and quality of care.



In contrast to the misleading comparative methods normally provided as 'evidence' of improvement, this statistical process control chart shows the impact of a simple change in one surgical directorate in a general hospital. Rather than letting operating lists stand idle when surgeons were away, they were offered to colleagues in the same directorate. The average number of theatre sessions used increased by 2 per week. As a result, over 12 months, a further 104 operating sessions were performed with no increased capacity or running costs.

### 2.3.1 Cost benefits

The cost of the 2 year programme (including salaries and training) was £600k p.a., providing a return of £9.4 million from the local projects in the first year alone. A detailed summary of some of the projects in which the CSEs were involved is given in Section 5: Achievements.

## 2.4 CSE at Board Level: addressing the deficits

The CSE programme offers Boards of NHS organisation the opportunity to correct the fundamental flaw in the contracting process that generates the financial deficits.

Currently the contracts are based on past activity, rather than demand variations. This ensures that healthcare organisations fail to achieve their contracted activity and income with waiting lists beyond the target waiting times. This leads to the inevitable short term and vicious annual cycle of prioritisation, increased costs of short term capacity (e.g. waiting list initiatives or private sector contracts) followed by cost cutting initiatives that make the underlying variations in capacity worse. Longer term investments in capacity also fail to deliver the expected activity and income since they frequently fail to address the variations in capacity at the key constraints in the system.

CSEs are now coaching senior clinicians and executives in the techniques to improve the contracting processes to ensure that investments in the NHS provide the expected improvement in access, cost efficiency and quality.

## **2.5 CSE: Where next?**

CEOs are invited to join the 2006-2008 programme by freeing interested clinicians (or senior managers with a clinical background) for a minimum of 3 days per week for 2 years. The assessment days are the 6<sup>th</sup> and 7<sup>th</sup> of February 2006 and the programme starts on 16<sup>th</sup> May 2006.

## **PART 3A**

### **3. The 'Osprey Programme' and role of the Clinical Systems Engineer**

#### **3.1 Introduction**

The Osprey Programme, sponsored by the Chief Executives of six Strategic Health Authorities is an exciting and innovative programme to train clinicians in systems engineering techniques to improve the timeliness, cost and quality of clinical care.

#### **3.2 What is a clinical systems engineer?**

Manufacturing systems engineers have been around since the beginning of the 20<sup>th</sup> Century. They are responsible for designing the manufacturing facility and systems for making a new product to meet the customers' expectations in terms of timeliness, cost and quality. They also help ensure that the design of the system is safe and comfortable to work within thereby reducing errors, accidents and every day frustration for staff.

Edward Deming, a quality guru of the 1950s, coached the Japanese manufacturing systems engineers and they now epitomise this discipline. The techniques they developed for managing manufacturing systems, such as that at Toyota, can be readily applied to healthcare systems.

The new and developing role of the Clinical System Engineer (CSE) brings together medicine, engineering and the human dynamics of change. It helps clinical staff to see the whole system in which they work and then redesign processes that result in continuous improvement. The same principles also apply at the strategic level of organisations in capacity planning, financial planning and performance management. In this way the science of quality improvement underpins the strategy for a whole organisation to improve the timeliness, cost and quality of patient care.

#### **3.3 Outline of the programme**

This is a two year programme where CSE trainees are expected to devote a minimum of 3 days per week (12 days per month) to CSE related work. Of these, 3 days per month will be spent attending training days, the majority of which are expected to take at central location, possibly in London. The CSE's remaining time will be spent with local teams applying and sharing their learning to deliver measurable improvements in patient services. By the second year the trainee would expect to be working alongside senior clinicians and directors at strategic level using the same skills to help improve commissioning, capacity planning, finance and performance management processes. Trainees will be supported by the current CSE's, a director within the organisation and by the Osprey Project coach. Support will be provided using a mix of face to face meetings, conference calls and video conferencing, as appropriate.

### **3.4 Organisational Structure.**

The trainee CSE will report to a director within their sponsoring organisation who will ensure that projects are aligned to the organisational strategy and that data and information support is available. Identification of analyst support is essential from the outset. The director lead is encouraged to attend training events to help develop their understanding the clinical systems approach and to help facilitate its use at Board level.

### **3.5 Funding**

The original 6 SHA/WDC will fund the training costs and the employing organisations will release the trainees time for training and project work. Employing organisations will fund salaries and on costs. Terms and conditions of employment will remain unaffected. Additional funding for the training costs will be required for CSE's from organisations outside the original 6 SHAs.

### **3.6 Timetable for Appointments**

The assessment days are on 6<sup>th</sup> and 7<sup>th</sup> February 2006 and are likely to take place in the south west. There may be the opportunities, depending on local circumstances, to commence local project work, shadow current CSE's and attend training events prior to the May start date.

Those interested in the programme are requested to send a copy of their CV, a signed letter of support from the director of their employing organisation (confirming funding as above) and a copy of the local application form for their local organisation (if required). These should be sent to Annie Jefferies by 16th January 2006.

Annie Jefferies  
Development & Redesign Team  
South West Peninsula Strategic Health Authority  
Peninsula House  
Kingsmill Road  
Tamar View Industrial Estate  
Saltash,  
PL12 6LE

[Annie.Jefferies@swpsha.nhs.uk](mailto:Annie.Jefferies@swpsha.nhs.uk)

01752 315033

07775 927782

A draft job description and person specification is available for local organisations to use if required.

**The training programme itself will commence on 16<sup>th</sup> May 2006.**

Further information can be obtained from the SHA leads in the contacts section of this pack.

## PART 3B

*Insert Trust logo*

### Draft Job Description for completion by employing organisation

JOB TITLE:	Clinical Systems Engineer
GRADE:	NHS SMP / Medical contract
LENGTH OF CONTRACT:	Two year secondment commencing May 2006
TIME COMMITMENT:	Minimum of 3 days per week, 6 programmed activities or equivalent.
REPORTS TO:	<i>Insert title of Trust Director</i>

#### ROLE SUMMARY

The post holder will have a key role within the organisation to implement clinical system improvement methodology to deliver measurable improvement to patient services. The projects selected will be closely aligned to achieving organisational strategic goals. Supported by an executive director the role will require strong leadership skills and the ability to translate complex information and articulate findings to clinical and executive teams. Training and support will be provided to the post holder by the Osprey project coach and the existing cohort of Clinical System Engineers (CSE's). Trainees will in turn be expected to cascade their learning to local teams. Trainees will also be asked to present their findings and report regularly to the executive board, the national team and, where appropriate, at SHA and national events.

#### PRINCIPLE DUTIES AND RESPONSIBILITIES

##### Personal Development

- Participate fully in the comprehensive 2 year learning programme, to ensure that knowledge, experience and individual competencies become highly developed
- Participate as a team member of the Osprey programme building relationships with the other disciplines

##### Project Work

- Apply appropriate statistical and analytical tools and techniques to locally agreed projects and to help improve the understanding of complex healthcare systems that enable stakeholders to identify priorities for service improvement
- Lead pilot work to test out new approaches and identify opportunities for further innovation that will make a real difference to patients

- Undertake research and analysis so that change processes are underpinned with evidence and publish findings as appropriate
- Ensure evaluation is a feature of any planned system change
- Communicate regularly with team stakeholders, executive and SHA/WDC sponsors with regard to progress of individual projects against agreed objectives

### **Coaching, Teaching and Facilitating**

- Provide leadership and influence at all levels of the local health economy, particularly to executive teams of the host organisation
- Act as a facilitator, teacher and coach for the host organisation influencing the continuous development of high quality safe services for patients
- Conducts formal process improvement training for clinicians and senior managers in this discipline drawing on the learning from key institutions and industry.
- Provide coaching, where requested, to information directors in the production of high quality reports for boards and clinical teams
- Undertake presentations at a National and local level to ensure sharing and learning across the NHS and to actively promote the use of CSE techniques

### **STYLE OF WORKING**

The post-holder will be expected to work in a collaborative way with all colleagues, to prioritise a heavy workload and to ensure that all deadlines are met. It is essential for the post-holder to be able to work under pressure, to handle conflicting demands and to maintain a sensitive and confidential approach at all times. A sense of humour is essential.

It is important to be aware that this post will require travel throughout the UK to attend meetings, seminars, workshops and conferences. Overnight stays will be necessary.

### **TRUST TERMS AND CONDITIONS:**

*Insert local terms*

## Clinical System Engineer – Person Specification

Requirements	Essential E or Desirable D	How Identified
Demonstrates clinical knowledge and expertise of several clinical specialties e.g. medicine, surgery, general practice, mental health	E	Application Form, CV, Documentary Evidence
Membership or Fellowship of one of the Colleges or equivalent experience	E	“ “ “
Experience of working across whole clinical systems including working in multi-disciplinary and multi-agency teams	D	Application form and CV
<b>Skills</b>		
Ability to interpret and understand basic statistics	E	Application Form, CV, Assessment Day process
Able to build positive working relationships and communicate at all levels and with different groups of NHS staff	E	Assessment Day process
Experience of service redesign skills that are grounded in practical applications and implementation	D	Application Form, CV, Assessment Day process
Ability to facilitate, teach and coach	D	“ “ “
Demonstrates ability to listen, question and challenge appropriately	E	Assessment Day process
Effective presentation skills	E	Application Form, CV, Assessment Day process
Ability to influence	D	Assessment Day process
Skills in research, analysis and synthesis	D	Application Form, CV, Assessment Day process
Ability to take complex information from multiple sources and translate into a concise and easily understood format	D	Assessment Day process
<b>Personal attributes</b>		
Highly developed interpersonal skills	D	Assessment Day process
Demonstrates flexible, approachable, supportive and encouraging approach to teamwork	E	Assessment Day process
Able to travel to variety of sites	E	Application form and Assessment day

## **PART 4**

### **4. Biographies of the Current CSE's**

#### **Dr Simon Baugh MB.ChB. DPM. MRCPsych**

I have worked in Bradford as a consultant in adult psychiatry since 1984, and still work in effect as a full time consultant.

I became involved in management soon after my appointment, firstly on the Unit Management team as Clinical Director for Mental Health and later as Medical Director and Director of Mental Health in the Bradford District Community Trust from 1992 to 2002. From 2002 to the present I am the Medical Director of the Bradford District Care Trust.

I was the initial sponsor for the application to become a second wave Trust in 2002, for the first three months leading the project team.

- I have developed an interest in IT systems and their use in Mental Health, joining the Minimum Data Set Project Board at the DoH, and more recently the DoH Mental Health Outcomes Measures project group. We have developed a clinical IT system in Bradford and changed working practice and systems as a result of the needs of clinical data capture, and I have led several redesign workshops around these issues.
- I was part of the reference group for the National Service Framework for Mental Health.
- Clinical member eleven external inquiries into untoward adverse events in Mental Health services, and chaired one external review.
- Developed an interest in control charts as a method of auditing patient suicides and untoward deaths within the Trust.

#### **Dr Seema Bhandari B.Sc. (Hons.), M.B.,Ch.B, MRCP**

I qualified in 1998 from Glasgow University Medical School, and did my General Medical Training in London and Bath. After having got my MRCP in 2003, I worked in Accident & Emergency in Frenchay and Southmead Hospitals in Bristol, where I was first exposed to thinking about 'modernisation' principles.

I have always been interested in others and my own non-clinical skills as well as how we design (or don't) to deliver high quality patient care. I worked with a Somerset PCT doing Public Health for 9 months before doing the Osprey Programme. I currently work with the South West Peninsula Strategic Health Authority as a Clinical Systems Engineer.

During the last two years I have worked with different clinical teams to improve access, flow of patients, staff working conditions, quality and reliability of care across Devon and Cornwall. These are exciting times and I am sorry to be leaving Osprey in 2006. I am returning to continue my clinical training, but hope to be applying these principles back at the front line, whilst maintaining my avid interest in learning about change and Clinical Systems Engineering.

**Dr Virginia Craig BSc PhD MRCP**

I am currently employed associate director of clinical systems improvement at PAH having been the trainee CSE for Essex. This remit translates into a post that requires me to have an understanding of the current processes and the ability to encourage staff to redesign those processes. Facilitation of change and sustaining change are also important aspects.

My background is in both scientific research and also medicine. Following on from my PhD, I went on to study medicine at Edinburgh and qualified in 1987. For the first nine years after qualification I worked in the acute sector in a number of specialties, moving from Edinburgh to Plymouth via Salisbury. I had initially started training as a Haematologist but, in 1996 I made a career change and took up a post at a hospice in Essex. When that contract finished, I moved to another Essex hospice and a few years later was appointed as their Medical Director.

I resigned from my post as Medical Director for personal reasons and took up the CSE training programme because this fitted exactly with direction I wanted my career to take.

**Dr. Gail Mifflin MA, MRCP, MRCPATH**

I qualified in 1991 and trained in medicine and haematology in London, Nottingham, Leeds and New Zealand. In 2002 I was appointed as Consultant Haematologist at the Royal Free Hospital. In 2004 I started as a CSE at SE London SHA, I kept a clinical commitment of one day per week but moved to UCLH to do this as the RFH were unable to offer me a secondment opportunity.

I have thoroughly enjoyed this, the training has been fantastic. The downside has been the intrinsic slowness and difficulties involved in change. My work has concentrated on improving flow through an acute trust, improving flow through sexual health clinics and improving information use. In addition, with David Tomlinson, we have trained and supported approximately 50 local clinicians to use these methods. I envisage continuing with all these work streams in 2006 in addition to scheduling elective care.

### **Dr. Kanan Pande MBBS; MRCOG; MRCGP**

Kanan Pande, an inner city GP from Hull, joined the Osprey programme in January 2004. Before completing her Vocational Training in 1997, Kanan was a Clinical Lecture in Obstetrics and Gynaecology at St.Thomas' Hospital in London. She has a wide experience of working in both Primary and Secondary care.

Kanan has been a GP member of the Professional Executive Committee of West Hull PCT for the past 4 yrs, providing Clinical Leadership to the Diabetes and Children's Services locally. She is also a board member of the Humberside Faculty of the RCGP. Kanan has a deep interest in providing patient-centred care.

### **Dr Roger Skilton MB BS MRCP FRCA**

I qualified in 1983 (London CXHMS) and have held a varied portfolio of training posts to date: A & E; General Medicine; Paediatrics; Obstetrics & Gynaecology; General Practice (GP qualified 1990) & Anaesthesia. I have worked in healthcare systems outside the UK (Australia & USA) before joining York NHS Trust as a Consultant Anaesthetist in November 1998. I took the opportunity to join the Osprey programme (on a 2 year part-time secondment) in March 2004.

This innovative programme provides training for senior clinicians interested in high level performance issues: timeliness; cost & quality of healthcare by adopting proven techniques from systems engineering applied in manufacturing.

York NHS trust is developing an improvement agenda with aims to improve patient flow, and I am currently working with colleagues to ensure improvement plans & service re-design, are based on established engineering principles with appropriate measures.

### **Dr Liz Taylor BSc MRCGP**

After graduating from Birmingham in 1997, I joined the Black Country Vocational Training Scheme. During my hospital training I found myself constantly questioning the system and getting frustrated with 'the way things have always been done'. In 1999 I joined the Junior Doctors Committee of the BMA and was elected to the Executive. I was involved in the junior doctors' task force and this was my first taste of management.

After completing VTS I joined a large PMS pilot in Tipton and had planned to do several years as a GP before 'branching out'. However the opportunity of the

CSE programme couldn't be missed – perhaps this was the 'better way of doing things' that I had been looking for?

I have learned an enormous amount over the last 2 years and truly believe that this could help the NHS survive and be a better organisation for patients and staff. I have also learned that changing the system takes a long time and that people are as equally important as the processes. Being old doesn't necessarily make you wise but it gives you some kudos. I am planning to continue practicing as a GP and consolidate my clinical skills by implementing what I have learned from within the system.

**Dr. David Tomlinson B.Sc.(Hons),MB. BS., FRCP**

David qualified in 1985 from the late lamented Westminster Hospital Medical School, having acquired an intercalated degree in pharmacology on the way. He followed the usual general medical training with SHO and Registrar jobs at the Royal London and associated hospitals, before specialising in HIV and Genitourinary Medicine. He was a Consultant in this specialty at St. Mary's Hospital, Paddington for ten years and took a keen interest in undergraduate and postgraduate training. Following a two year career break as an award winning chef in the wilderness of Herefordshire, David returned to work with Kate Silvester and Gail Mifflin as part of the exciting and innovative Osprey programme in South East London. This started life as a national experiment between the Modernisation Agency and 6 SHAs, aimed at training nine clinicians in systems engineering theory and techniques and looking at how this can be transferred to improve patient flow through our healthcare systems. He is also pursuing a long term interest in medical acupuncture. Challenges for 2006 will include applying clinical systems engineering to the 18 week implementation at the SHA and across the South East London Sector.

**Dr Nicola Williams BSc FRCA**

Nicky qualified in 1983 from the Royal Free and is a consultant Anaesthetist and coordinator of paediatric anaesthesia at Gloucester Royal Hospital.

Nicky developed an interest in Systems and their impact on patient safety and joined the Osprey programme to develop her management skills. While continuing with her anaesthetic post 2/7 week at Gloucester, she worked 3/7 week at the CSE for West Midlands South SHA. This involved working at Hereford hospital, persuading clinicians to look at their systems of care and plan their capacity to meet the stable demand for their services. The human dimension of change is frustratingly slow, but 2 years on managers and clinicians at Hereford are adopting these techniques driven by the cost implications of a new Private Finance Initiative.

Nicky helped develop and deliver a monthly training programme that provides clinicians and managers in WMSHA with the basic systems improvement skills. Depending on the outcomes of the re-organisation in the Midlands, Nicky will continue to deliver training to clinicians and Boards. She is keen to engage the Board and her colleagues in adopting these techniques in Gloucester.

## **PART 4B**

### **Biographies of the Trainers**

#### **Amanda Layton**

Amanda is an experienced trainer, facilitator and coach, who started her career in the NHS as a general nurse and specialised in acute mental health. She has thirty years of NHS experience, with over seventeen years in quality improvement and redesign. She directed the first national Collaborative Programme on Cancer Service Redesign across West London and is until March 2006 directing the London Learning Partnership, a highly successful programme of development. The Partnership is funded by London's five Workforce Confederations to support practical learning in service improvement for health and social care staff. It has provided training and support to over 8,000 staff during the last five years and is one of the few pan-London initiatives still supported by the five Workforce Confederations.

Amanda regularly coaches staff and is licensed to use MBTI, Firo B, the NHS Leadership Qualities Framework 360 feedback tool and is an NLP advanced practitioner, which supports her skills as a change agent and her work with leading and developing teams. Over the last five years she has worked closely with the Department of Health on service improvement and was part of the design team on a number of the Improvement Leaders' Guides. She regularly presents at national conferences and is a member of the Steering Committee on 'Forum on Quality in Health Care' at the Royal Society of Medicine.

#### **Richard Lendon MBChB, FRACGP**

Richard qualified from the University of Birmingham Medical School in 1989. From 1991-1996 he lived in Australia. Having worked to Registrar level in Paediatrics and Emergency Medicine, he returned to GP training and subsequently became a partner in a large practice in Coffs Harbour. After returning to England, he became a partner in a practice in Lincoln from 1997-2002.

In 2002, he joined the Redesign Team at the NHS Modernisation Agency on a full-time basis. In particular, he has been heavily involved in work examining the problems of patient flow and has been leading the Real Measurement for Real Improvement program.

Richard has returned as a GP in Lincoln where he is using the CSI techniques in his own practice and PCT.

### **Jean Penny MSc OBE**

Jean Penny is a diagnostic radiographer who has worked in the NHS all her life. She is currently the Head of Learning in the NHS Institute for Innovation and Improvement where she leads the work on developing capacity and capability in innovation and improvement skills throughout the NHS. This involves developing learning and supportive systems to enable and motivate staff to continuously develop their ability for creative thinking and innovative solutions. The aim is that everyone is capable, enabled and encouraged to work with others to improve the service they provide. She led the development of the popular Improvement Leaders' Guides and was awarded the OBE in the Queen's Birthday Honours list in June 2003.

### **Kate Silvester BSc MBA FRCOphth**

Kate originally trained and practised as an ophthalmologist. In 1991 she retrained as a manufacturing systems engineer. Kate spent seven years in management consultancy transferring manufacturing principles to service industries such as banking, airlines and healthcare.

In 1999 she rejoined the UK's National Health Service and worked on many national programmes to improve the flow of patients through the system, thus improving timeliness, cost and quality of healthcare. Kate's specific area of expertise is in the design and management of organisational systems to address the variability in demand and capacity.

She now coaches NHS boards and senior clinicians in systems engineering techniques (including Lean) as the Coach to the CSE Programme.

### **Richard Steyn. MS FRCSEd(C-Th) FIMCRCSEd MRCGP**

Richard is a consultant thoracic surgeon at Heartlands Hospital in Birmingham and he has also worked in general practice. He took part in the original NHS Cancer Services Collaborative and was appointed the National Clinical Lead in demand and capacity for the NHS Modernisation Agency. Richard not only developed the illustrative models that illustrate the impact of variation on queues, but applies the systems engineering principles to improve the quality of his own clinical practice. In 2004 he was awarded the Queen's gold medal for his voluntary work with the emergency services.

### **Paul Walley, MSc MBA, Lecturer in Operations Management, Warwick Business School.**

Paul Walley has extensive experience of operations management and systems improvement within the UK healthcare system. His main role has been to analyse existing procedures and to recommend ways of improving the process

design. For example, the review of pathology at UHW involved recommending changes to the planned layout of the new pathology department. Paul's work with the emergency care produced some ground-breaking analysis of demand for emergency care and recommendations of how this demand should be managed and divided into process streams. The early work resulted in large improvements in waiting times, especially for minor patient treatment. The approach was adopted by the Emergency Services Collaborative. Most recently, Paul has been working with the NHS Modernisation Agency to produce a training course targeted at senior people within the healthcare system who are to be used as trainers within their own organisations on the Improvement Partnership for Hospitals initiative. This involves the development of web-supported material (in conjunction with Capita) and the 5-day Clinical Systems Improvement (CSI) training course.

## PART 5

### 5. Achievements

The SHAs sponsoring the programme had very different organisation models by which they engaged their CSE in improvement and clinical systems engineering work. Some had formal links to an improvement team, while for other CSEs the improvement work was seen as part of their substantive role. e.g. as a medical director. Some CSEs trained other clinicians and local teams in improvement techniques but were not directly engaged in these projects.

The achievements can be characterised as follows

1. Achievement by local teams with CSE involvement
2. Training by CSEs of clinicians and local teams. The quantifiable achievements of these teams are unknown or unrecognised so far.
3. Publications
4. Presentation and Workshop at conferences

#### 5.1 Achievement by local teams

The majority of CSEs were involved in some capacity with local project teams. Most of the time they offered training in basic improvement techniques or in some cases provided a rational diagnosis of the problem in a service e.g. analysis of demand and capacity to understand the cause of a queue.

The table below shows some of the results of local project implementations.

Project	Time saving	Annual Cost saving	Quality improvement
Warwick; orthopaedic LOS project in patients undergoing THR	3 day reduction in Length of Stay (LOS)	reduced from £71,000 to £35,000 pa (280 bed days)	Reduced risk of infection and complications
A&E tracking: £2000 cost of implementation	A&E 95% to 98% Majors for 75% to 95% in 4 hours	£100,000 one off payment for achieving target	Improved discharge planning, treatment and communication
UHL – discharge planning project	8.8d reduction in LOS on single orthopaedic ward (80% patients)	£514,800* in bed days saved p.a. (4200 bed days)	Improved discharge planning, and communication
Basildon USS pilot Cost of implementing service is a maximum of £74k per annum.	Inpatient bed days saved: approx 6500 Outpatient waiting time saved: approx 420 weeks	£86 - £114k in drug costs (LMW heparin) giving net gain £12 - £40k per year £785k in hotel costs*	No unnecessary drugs whilst waiting for scan, earlier start of correct treatment, better use of capacity
GEH improved tracking in MAU - discharge sheet	0.5d reduction in LOS for 80% patients	£568,750* in bed days saved p.a. (4550 bed days)	Improved discharge planning, treatment and communication
GEH consultant based wards	1.5d reduction in LOS for 80% patients.	£1,365,000* in bed days saved	2 hours per day junior doctor 'bleep free' time.

(medical teams)	Cons WR reduced from 4 to 2 hrs	p.a. (10,900 bed days)	
GEH introduction of Flow team for longer stay patients	7d reduction for LOS in 20% patients	£1,592,500* in bed days saved p.a.	Improved discharge planning, and communication
Royal Cornwall; USS, improving access	Waiting time reduced from 18months for routine outpatient scan to 8 weeks	Time releasing saving of A&C staff time as no longer had to shuffle the Queues	No unnecessary waiting.
Royal Cornwall; CT, improving access by redesigning use of clinical Imaging assistants	Waiting time reduced from 12months to 3 months for all routine OP scans	Time releasing saving of A&C staff time as no longer had to shuffle the Queues	No unnecessary waiting
Royal Cornwall; tracking system in A&E – free internally designed.	Increased % seen within 4 hours from 90% to 96%		Improved discharge planning, and communication within A&E.

CSEs have a crucial role in engaging their peers by providing a rational, data driven, statistically significant analysis of the demand and capacity or quality of a local service. The following table shows the recognised potential benefits following the diagnostic phase of a service in which the CSEs have been involved. We recognise that there is a long lead time between a local team recognising they have an issue and taking action.

Potential gains	Time	Cost	Quality
Podiatric surgery SEL -	2 hrs 23 mins saving each week allowing additional 5 new or 7 FU patients - Waiting time reduced		Reducing DNA rates (30% to 5% for new and 14% to 5% for FU patients)
Queen Mary's Sidcup LOS/ discharge	Assuming 1 day from the LOS of 80% patients (medical & surgical)	£1,825,000* in bed days saving p.a. (14,600 bed days)	Improved discharge planning, treatment and communication
Hereford DCU project	79 extra day cases per week;	increased income from PbR; better use of existing capacity (staffing, overheads etc)	Reduced cancellations; reduced waiting time and WL numbers
Hereford Rheumatology project		cost of new consultant balanced against loss of consultant activity through sickness	Reduced patient cancellation & rebooking; ability to meet 18 wk target;
Bradford MHT– (all patients have an up-to-date care plan that is reviewed daily)	Improves access to Inpatient care when required	Reduction in LOS by one day for adult in-patients = £887,536* p.a. (7100 bed days)	Reduces variations for in-patients
York Ophthalmic	Saving of waiting list	£125,392 (318	Reduce waiting time to

surgery	initiative scheme for cataract surgery	cases @ £310 per case cf £704)	13 weeks No weekend working for staff
George Eliot Radiologists same day 'hot reporting' CT, MRI, ultrasound, Angio etc	8 day reduction in LOS Will help achieve 18 week GP to Rx target and 62 day cancer target	10% of 175 emergency inpatient admission /week*£125* =£113,750* p.a. (910 bed days)	Improved cancer survival: Reduced Hosp SMR: increased productivity
SDHT; Physiotherapy Musculoskeletal service, reducing variation in capacity	Waiting time reduced from up to 14 weeks for OP appointment to no wait system	Cost that would have been invested into more physio time	Potentially earlier healing,
Royal Cornwall; Ophthalmology OPD, changing post-op cataracts follow up with doctor to nurse led follow up.	Reduce waiting time for F/U and OP	4,000 outpatient slots	Reduce waiting time to 13 weeks, reduce frustration for patients as less likely to be cancelled to accommodate urgent new patients for doctor appt.

\* Costs calculated as £125/day hotel cost. Although these may not represent costs that can be cut from budget the bed days saved could either be used to cut beds or, more realistically, as all Trusts have waiting lists, this represents the potential for increased elective admissions (as emergency admissions are stable) and increased revenue from Payment by Results. As this happens another time saving will become apparent as the waiting list and waiting time decreases for elective surgery. Once no waiting lists are achieved the system becomes responsive to the patient's needs with no additional administrative or re-work costs for the 'waiting list'.

## 5.2 Training by CSEs of clinicians and local teams.

The majority of CSE time was spent training. Often this was part of the local clinical leads programme run by the SHAs involved or with specific teams working with the Modernisation Leads.

In South East London Gail Miflin and David Tomlinson have developed a CSI clinician training programme which is repeated every three months. This programme consists of five half days of introductory training (mandatory) and group support on project work through monthly half day learning sets. Additional one to one support is offered as required. Over 100 clinicians/clinical managers will have been trained by the end of January 2006.

- Session 1 covers demand, capacity and flow
- Session 2 SPC and Top Level Analysis
- Session 3 on Improvement methodologies, tools and techniques
- Session 4 on organisational cultures, change management, personal styles and using differences
- Session 5 on spread, sustainability and project planning (each clinician to have a project to take forward).

### 5.3 Publications

We have included some of the presentations and papers made by the CSEs to date.

#### **Books:**

Chapters for Management for Psychiatrists edited by D Bhugra and A Burns. (Third edition 2006, in press).

Understanding systems. K Silvester, S Baugh

Improving Quality. P Walley, K Silvester, S Baugh

#### **Peer reviewed papers:**

Using a Top Level Analysis to understand patient flow through an acute hospital trust and identify key areas for improvement. – D Tomlinson et al, to be submitted to Health Services Management Research Dec 2005

Performance improvement programme to reduce length of stay by reducing variability in the discharge process for orthopaedic patients at University Hospital Lewisham – sustaining the gains. –D Tomlinson et al - to be submitted to Clinician in Management Dec 2005

Managing Variation: Lessons from the UK National Health Service, K Silvester, R Steyn, P Walley, Journal of Healthcare Management accepted Nov 2005 (in Press.)

Healthcare Process Improvement Decisions – A Systems Perspective  
P Walley, K Silvester, S Mountford International journal of healthcare quality assurance, accepted July 05, (in press).

Reducing waiting times in the NHS: Is lack of capacity the problem?  
K Silvester, R Lendon, H Bevan, R Steyn, P Walley  
Clinician in Management 2004 Volume 12 Number 3 pages 105 – 111

Case study to demonstrate the principles in the above paper.  
M Lee, K Silvester  
Clinician in Management 2004 Volume 12 Number 3 pages 105 – 111

Explaining why patients wait for care: Measuring the demand, capacity, backlog and activity for an endoscopy service.  
L Allan, M Chapman, D Johnson, P Walley, K Silvester, R Steyn.  
European Journal of Clinical Oncology (2001, still in press!)

Chaos, the Enemy of Quality. K Silvester. Clinician in Management, October 1997

To go with the flow. K Silvester, Clinician in Management, August 1996

It's the system that's the problem, doctor! K Silvester. Clinician in Management, Dec. 95

#### **Not refereed**

Series for the Health Services Finance Management Association Journal (HFMA)

1. View point: Is the system perfectly designed to achieve a deficit? K. Silvester May 05
2. Understanding the deficit. K Silvester, P Walley June 05
3. Preventing the deficit. K Silvester, P Walley July 05

'Of mechanisms, organisms and social systems' - the paper which influenced my career.  
K Silvester, Clinician in Management, December 1998.

Clinical Process Re-engineering, K Silvester, World Technology Update 1996/97

Florence's Cure, K Silvester Healthcare Today, June 1995.

Engineering Clinical Systems, K Silvester Health Estate Journal, September 1995

## **5.4 Presentations and Workshops at conferences**

### **17th Annual National Forum on Quality Improvement in Health Care, Orlando, Florida, December 2005**

- **Clinical Systems Engineer – a new job role?**  
Dr David Tomlinson, Dr Sharon Lamont PhD
- **Managing Patient Flow: Inpatient and Outpatient Settings**  
Eugene Litvak, PhD, Professor of Health Care and Operations Management, Boston University Health Policy Institute; Kate Silvester, Richard Steyn, MS, FRCSEd (C-Th), FIMCRSEd, MRCPGP

### **Health Services Journal National Conference 'Using Information to improve performance', London – November 2005.**

- **Practical information tools for improved decision making**  
Dr David Tomlinson

### **Royal College of Psychiatrists First National Conference presented in partnership with NIMHE and NHMP, London, UK – November 2005.**

- **Human systems impacting on change – the experience of a partnership between a Clinical Director and a Clinical Systems Engineer**  
Dr David Tomlinson and Dr Eleanor Cole.

### **22<sup>nd</sup> International Conference for International Society for Quality in Healthcare, Vancouver, Canada, October 2005.**

- **Osprey Project – An innovative programme training doctors as Clinical Systems Engineers in the NHS.**  
Dr Nicky Williams & Virginia Craig

### **4th International Conference on Health Economics, Management and Policy in Athens, Greece – June 2005.**

- **Understanding patient flows through hospital systems – using a top level analysis tool**  
Dr David Tomlinson

### **1<sup>st</sup> Annual International Summit on Redesigning Hospital Care, San Diego, California June 2005**

- **Clinical Systems Engineer: A new job role**  
Dr. Kate Silvester BSc FRCOphth MBA, Dr. Gail Miflin MA MRCP MRCPPath
- **Leaning the discharge Process**  
Dr Jeanne Huddlestone, Medical Director, Mayo Clinic, Rochester, Dr. Kate Silvester BSc FRCOphth MBA,
- **From Statistics to of comparison to statistics of improvement: why clinicians struggle with improvement science and using a balanced score card in real time**  
Dr Robert Lloyd, PhD (IHI), Dr. Kate Silvester BSc FRCOphth MBA,

### **University of Michigan Lean Healthcare Certificate Program, Ann Arbour, Michigan, April 05**

- **NHS Modernisation Initiative in the U.K: Capacity and queuing studies for Lean healthcare in the UK**  
Dr Kate Silvester BSc FRCOphth MBA

**16<sup>th</sup> Annual Forum on Quality Improvement in Healthcare, Orlando ,Florida, December 2004**

- **Improving patient flow by reducing variability in the discharge process at University hospital Lewisham.**  
Dr David Tomlinson
- **Managing patient flow: inpatient and outpatient settings, Eugene Litvak PhD,** Professor of Health Care and Operations Management, Boston University Health Policy Institute, Kate Silvester BSc FRCOphth MBA, Richard Steyn MS FRCSEd(C-Th) FIMCRCSEd MRCP

**3rd International Conference on Health Economics, Management and Policy in Athens, Greece – June 2004.**

- **Clinical systems engineering in practice.** Dr David Tomlinson

**European Forum on Quality in Healthcare, Copenhagen April 04**

- **Improving healthcare systems by managing variation & patient flow** Richard Lendon Kate Silvester BSc FRCOphth MBA, Mr. Richard Steyn MS FRCSEd FIMCRCSEd MRCP

**15<sup>th</sup> Annual Forum on Quality Improvement in Healthcare, New Orleans December 2003**

- **Taming the tail of the dragon: our experience of acute hospital flow**  
Carol Haraden PHD, IHI, Roger Resar MD, IHI, Eugene Litvak, Professor of Health Care and Operations Management, Boston University Health Policy Institute , Kate Silvester BSc FRCOphth MBA,
- **Toolkit for improving patient flow: The role of the clinical systems engineer,** Dr. Kate Silvester BSc FRCOphth MBA, Mr. Richard Steyn MS FRCSEd FIMCRCSEd MRCP
- **Managing patient flow;** Dr. Kate Silvester BSc FRCOphth MBA, Mr. Richard Steyn MS FRCSEd FIMCRCSEd MRCP

**European Forum on Quality in Healthcare, Bergen April 03**

- **Taming the tail of the dragon: our experience of acute hospital flow**  
Carol Haraden PHD, IHI, Roger Resar MD, IHI, Richard Lendon Kate Silvester BSc FRCOphth MBA, Mr. Richard Steyn MS FRCSEd FIMCRCSEd MRCP

**14<sup>th</sup> Annual Forum on Quality Improvement in Healthcare, Orlando Florida December 2002**

- **Managing Patient Flow**  
Eugene Litvak PhD, Professor of Health Care and Operations Management, Boston University Health Policy Institute , Kate Silvester BSc FRCOphth MBA, Richard Steyn MS FRCSEd(C-Th) FIMCRCSEd MRCP
- **A Toolkit for Improving Patient Flow: The Role of a Clinical Systems Engineer**  
Shaun Mountford RGN RSCN DipN BSc MA, Project Facilitator, George Eliot Hospital, Dr.Kate Silvester BSc MBA FRCOphth, Associate Director of Redesign, NHS Modernisation Agency

**13<sup>th</sup> Annual Forum on Quality Improvement in Healthcare, Orlando Florida December 2001**

- **Managing Patient Flow to Reduce Variation**  
Kate Silvester FRCOphth MBA
- **Patient Flow across the continuum,**  
Mats Botesjig, Medical Director, Hogland Hospital, Jonkoping County Council, Sweden.
- **Advanced principles of flow**  
Kate Silvester National redesign leader, NHS Modernisation Agency, Debra Johnston, Organisation development, Good Hope Hospital

**Also go to [www.steyn.org.uk](http://www.steyn.org.uk) for current presentation material and book list**

**PART 6**

**THE OSPREY PROGRAMME**  
AN EVALUATION  
Executive Summary

PHASE ONE  
JANUARY 2004 – DECEMBER 2005

SHARON S LAMONT  
RESEARCH CONSULTANT

07786 430957  
SHARON.LAMONT@NTWSHA.NHS.UK

**Full Report available at [www.steyn.org.uk](http://www.steyn.org.uk)**

# **Osprey evaluation of Phase 1**

## **Executive summary**

**October 2005**

### **Introduction**

Redesign and improvement of the NHS needs innovative approaches like the Osprey programme. This experimental programme is focussed on improving the patient's experience and reducing delay and error. The journey travelled by the Osprey programme has resulted in a challenge to existing ways of thinking; ensures the patient is the primary focus; has re-examined existing processes and eliminated steps that add no value. Evaluation of this programme has shown it has been successful on several fronts. It has:

- Introduced a new and innovative approach to service improvement in the health care system
- Made a real difference to the time, cost and quality of health care, with identified cost savings in the first year of £9.4 million.
- Been able to translate systems engineering into health care and more importantly show how improvements can make a difference
- Developed a robust training programme that has been evaluated and modified to meet health care requirements
- Enthused many individuals, teams and organisations through its logic and simplicity and use of data
- Enabled clinicians to integrate more fully with the structure and culture of health care organisations
- Developed and trialled the new role of the clinical systems engineer

### **Background**

The Osprey Programme was established as a joint venture between six Strategic Health Authorities in England and the NHS Modernisation Agency. It followed a

presentation by Dr. Kate Silvester and others to the NHS Top Team on 13<sup>th</sup> March 03.

Using real data this presentation demonstrated how major investments in capacity (e.g. a medical assessment unit) had no impact on the timeliness and outcomes of care. They also showed how the persistent mismatches between the variations in demand (referrals and admissions) and available capacity resulted in increased waiting lists, delays and cancellations. By refocusing the Trust's attention to reducing the variations in discharges - delays in Accident and Emergency, assessment units and elective cancellations would be reduced. Improving patient flow was shown to free capacity.

In 2003 the Osprey Club (the name was taken from the venue where the first meeting was held, Osprey House in Redditch) established how evidence based management could be replicated at Board level of the Trusts and Primary Care Trusts of the participating Strategic Health Authorities (SHA), using a clinical systems engineering approach. Following this meeting, nine clinicians (in the programme known as Clinical Systems Engineers (CSEs)) were recruited to replicate this capability within these SHAs over the next 2 years.

Implicit in the decision to recruit clinicians to replicate this work are assumptions based on evidence that suggests:

- peer to peer communication is key to changing belief systems
- changing existing clinical systems is key to improving patient flow and quality of care
- clinicians understand the clinical processes and have the core skills required to understand flow and variation (statistics).

## **Evaluation**

Following conversations with Kate Silvester and representatives from the six participating Strategic Health Authorities, it was agreed that the Osprey programme would be fully evaluated. The evaluation would:

1. Explore how CSEs learn the concepts of clinical systems engineering
2. Explore how the CSEs disseminate these concepts to other key individuals within their place of work
3. Describe how the CSE concepts are applied in practice

With the above objectives in mind, a qualitative action research study was undertaken. This approach ensured that the research was continuous, that data were gathered in the form of electronic diaries and interviews, analysed and fed back on a monthly basis to the Osprey team to allow informed development of the programme.

## **Results from Phase 1**

The results from Phase 1 will be split into three separate but overlapping sections.

### **1. Osprey training**

The evaluation of Osprey has resulted in a narrative that documents the beginning of training, its journey and some of the destinations arrived at.

### **2. Evaluation processes**

The dynamic nature of the programme has meant adjustment of the evaluation methodology from time to time as emerging themes called for a change in design, therefore the second section will record the evaluation pathway.

### 3. **Emerging themes**

Key themes will be introduced, and there will be discussions about how they have been able to inform the next stage of the programme and what impact they have on service redesign.

Osprey training and evaluation processes have been covered in the full report. This summary will concentrate on key result areas as follows:

- Clinical and managerial support
- The need for a supportive infrastructure
- The role of the CSE
- Measurable achievements

#### **Clinical and managerial support**

The issue of support for the CSE was a constant and growing theme in this study. It was the most recurring theme and provided the greatest amount of data by far. Although the remaining themes (infrastructure, role and achievements) are considered separately, arguably they all hinge on the existence of strong support systems from the outset.

Support takes many different forms, from the engagement and explicit commitment of the top team to working alongside a dedicated service improvement team. This study indicated that not all executive boards were willing to invest time in service improvement programmes such as Osprey and that there was some confusion about which initiatives to adopt when there were several in existence. Such support may have been hindered by a lack of planning on the part of the Osprey team, strategic health authorities and host organisations to align the individual CSE projects with Trust priorities. Some CSEs experienced motivational difficulties in the absence of senior team support, which may reflect a lack of understanding at board level around the relationship

between clinical flow and key drivers of access targets, income and cost and quality. This gap in understanding was identified as a key issue at the beginning of Phase 1 and will be a focus of Phase 2.

The involvement and commitment of Strategic Health Authority sponsors was also a recurring theme. For some, integration and direction was clear and unambiguous from the outset but some CSEs experienced tensions with their SHA sponsors as individual and organisational needs and aspirations were in conflict. This often led to some confusion and increased uncertainty about which aims were to be prioritised.

Low levels of SHA sponsor attendance at the monthly meetings had a direct impact upon the evaluation process. Their views were not always obtainable and decisions could not be made about issues raised during that month. The effect was a slowing down of the Osprey progress as items for discussion were repeatedly deferred. However, when evaluation responses were received from SHA leads, they suggested a real interest in the programme and a determination to make it succeed.

Mutual support and encouragement of all CSEs in the Osprey team was thought to be extremely beneficial, as was integration with an existing team of dedicated change agents helps to maintain momentum and project management, provide a repository of skills to ensure consistency across the organisation, provide ready networks and enable the CSE to more easily learn about the history of service improvement within the organisation.

The active involvement and support of clinicians in service improvement initiatives was clearly an important factor in perception about spread. However several participants, both doctors and managers, suggest that doctors are not necessarily the most appropriate individuals to effect change in others due to a perceived lack of organisational awareness and skills.

### **The need for supportive infrastructure**

Shortage of data and data analysts has been a contentious issue. The significance of accurate and interpreted data to the work of the CSE should not be underestimated. Several CSEs spoke of the absence of good clean data to work with, the misunderstandings between the CSE and Trust departments when asking for data, the time it took for data to filter through the system and the scarcity and sometimes skills shortage of data analysts. This may be a reflection of the poor use of data and information in current NHS decision making processes. Reliable administrative support was also an issue for those who did not belong to existing teams. This reinforces the need to place the CSE in an established and supportive environment.

### **The role of the CSE**

There were concerns about the most appropriate working pattern for the CSE. Some worked full time as a CSE while others maintained some level of clinical practice, with advantages and disadvantages for each model. Arguably this is very much an individual preference and the data do not provide a clear steer in either direction.

The role of the CSE within the host organisation has been somewhat uncertain, as some CSEs found themselves as 'problem solvers' instead of facilitators, or as additional data analysts.

### **Measurable success**

The original objectives of the Osprey programme were not specific. Rather they were broad aims around the training of doctors in systems engineering principles that would in turn influence and improve health systems within local health economies. Within individual CSE projects of work and the Osprey group as a whole, there is certainly very clear evidence of personal development and learning.

As well as clear and measurable successes in influencing and engaging others, there is a growing body of evidence to suggest that the CSE programme has been able to reduce healthcare costs and improve quality. The measurement of these successes was not the remit of this study, as it was left to the participating organisations and CSEs to measure their individual effectiveness. It is important to add, however, that these successes were jointly attributable to the CSEs, organisations and project teams who were able to demonstrate through the use of run charts, the overall return on investment.

### **Recommendations**

Clear and unambiguous terms of reference are needed from the start. They should be written in collaboration with and agreed by all parties involved who sign up to the remit and principles of the group. Key benefits of detailed terms of references, or contract, will help to focus the efforts of all participants and establish clear lines of accountability and responsibility. They should be revisited regularly and amended only when all partners agree to the changes. Specifically, such a contract should include:

- Clear objectives of the programme (flexible but always agreed by all participants) focussing on the timeliness, cost and quality of health care.
- Roles and responsibilities (of CSEs, Osprey team, SHA sponsors and host organisations: who commissions/owns the programme, the process; who is responsible for provision of support systems and what will they consist of; who will attend which meetings; who will feedback; who will create connectivity between networks; who has responsibility for training and coaching etc.)
- Accountabilities (who is responsible for measurement of achievement, for performance management etc., and how will this be carried out)
- Timescales (when do actions need to be carried out, by whom)
- Feedback (who is responsible for establishing regular feedback between CSE/SHA/Trust and what form will this feedback take)

In addition, individual projects must be arranged jointly with the host organisation to ensure alignment with their priorities. This will help reduce tension between Osprey and Trust objectives and also ensure top team commitment to the programme.

As the data have indicated that this work relies on effective negotiation and influencing skills, change management skills should be incorporated in a structured way from the outset of the training programme. This may be facilitated by the recruitment of non medics in the next phase of Osprey, due to start in April 06.

### **Conclusion**

Although still in its infancy and continuing to adapt and develop, the Osprey programme has made a real difference to the quality, timeliness and cost of health care. It is a dynamic programme that will learn from its experiences and continue to change course to cope with ever growing demands. As the first of its kind, it must be continually monitored to ensure the factors that hinder its success can be explored and reduced, and the factors that make this programme successful can be replicated in other service improvement initiatives.

**Sharon S Lamont**  
**October 2005**

## PART 7A

### 7. Outline of the CSE Training Programme

This is a two year programme that frees the Clinical Systems Engineer (CSE) candidates for a minimum of 3 days per week.

The 2006 to 2008 training programme starts on the 16<sup>th</sup> May in Warwick. The first day the new recruits will 'meet the gang' of current CSEs before they go on to start the residential Clinical Systems Improvement programme at Warwick University.

The formal training starts with the 5 day residential Clinical Systems Improvement programme at Warwick University. This involves 2 days (17<sup>th</sup> & 18<sup>th</sup> May 2006) followed by a further 3 days a month later (14<sup>th</sup>, 15<sup>th</sup> & 16<sup>th</sup> June).

This programme was developed by The NHS Modernisation Agency and Warwick Business School and provides a solid foundation in the operations management principles learned in Manufacturing and applied to healthcare. Please visit the following web site to see the details of the CSI programme.

<http://www.wbs.ac.uk/executive/clinical-systems-improvement.cfm>

Thereafter the CSE will attend additional training for 3/7 every month at a central location in England (to be decided depending on the base locations of the applicants) with one of these days visiting other industries to see how these principles are applied elsewhere. This will cover the operations management principles in detail as well as the human dimensions of change. The training programme is managed by the Clinical Systems Engineering coach, Dr Kate Silvester BSc MBA FRCOphth. It is evaluated independently and monthly and the evaluation will be fed back to the CSEs, the coach and directors in employing organisations.

Between training sessions, the CSE will work alongside local teams in their organisations for the other 2/7 per week, honing their skills and developing their confidence. These local teams will be supported by established CSEs and the National Coach by telephone and video conference facilities.

By the second year CSEs will be working alongside senior clinicians and directors at strategic level showing how the same skills can be used to improve commissioning, capacity planning, finance and performance management processes.

## 7.1 Programme Content:

Audit of the 1<sup>st</sup> phase of the CSE programme revealed that 50% of the training days addressed the hard systems engineering issues e.g. Statistical Process Control, demand and capacity, process and value stream mapping, Lean and Just-in-Time techniques. The other 50% of training days addressed the soft system or human dimensions of change experienced by local teams and the CSEs themselves. These days were supported by other coaches e.g. Jean Penny on learning preferences, Amanda Layton on polarity management.

Examples of the topics that are covered in detail in the monthly training events are as follows:

### The 'Hard' stuff:

**Process mapping** is key to understanding, in detail the sequence of steps that process a sick patient into a 'better' patient. This involves everyone understanding what each person does in one place (with one piece of equipment) at one time to any patient, their clinical and admin information.

**Value stream mapping** puts values to the process map to identify the waste. Waste time is identified by recording the time to perform each step and the time spent waiting between steps. The cost of each step (lost income) are also identified as is the quality i.e. % error at each step giving the overall chance of one patient being processed correctly.

**Lean Thinking.** This is a philosophy as identified by Womack and Jones in their book 'The machine that changed the world'. It characterises Toyota as the Toyota way. Lean thinkers ruthlessly and continuously expose and remove waste from their processes to reveal the quality problems. They use tools to solve these problems in a systematic way. Applying the tools without 'thinking lean' is not possible.

**Accelerated redesign** is a method for bring together a team to understand, identify and resolve the time, cost and quality issues in a process as experienced by a patient from presentation right through to discharge and then coming up with an action plan to change the process appropriately.

**Demand and Capacity:** why do queues and waiting lists form despite increases in capacity? How can the system be designed to prevent queues and prioritisation?

**Scheduling:** Identifying the bottlenecks and scheduling resources at the required intervals to optimise flow through the bottlenecks. Discrete event simulation is a method of doing this as is the theory of constraints (Rope and Drum) method of optimising flow.

**Statistical Process Control** allows statistically significant changes to be identified in real time rather than the 'control' and 'population' samples method medics are used to. This is a branch of statistics little used in the clinical environment but revolutionised quality improvements in the manufacturing sector. CSEs will need a SPC software package.

### **The 'Soft' Stuff:**

Change management is a broad term that recognises the human dimensions and emotional impact of change.

**Myers Briggs learning preferences:** A useful model to help identify individuals' different learning preferences and how best to present information to different groups of people.

**Belbin team roles:** A simple but effective way of identifying the preferred roles in teams and how effective teams can be built by ensuring these keys roles are represented. This may provide important in-sights between working in hierarchies or as part of a team.

**Kubler Ross** bereavement curve that helps explain an individual's or organisations readiness and response to change by identified the language and behaviour clues as time progresses.

**Spread & sustainability;** Sharon Lamont, who has undertaken the evaluation of the CSE programme so far, gives an excellent session covering the issues identified by research as key to ensuring that real improvement do happen and lasting change is sustained.

**Speaking to persuade:** Actors train us to get our message across quickly and powerfully with useful hints and tips on body language, voice and presentation skills.

**Polarity Management:** Many issues cannot be addressed as black or white nor is there an 'either / or' option. Often there are complex issues that need to be kept in balance or organisations swing from one pole to another e.g. centralisation to decentralisation. Looking at issues in terms of conflicting polarities and managing them as 'both / and' is an extremely useful way of gauging the next steps in an organisation undergoing change

**Coaching and Facilitation skills:** Coaching skills are key to working alongside clinical colleagues improving their own services. Facilitating small and large groups during process mapping events is a key role for a CSE.

**Web sites and reading list.**

Current 'hard stuff' presentation materials and reading lists are available at [www.steyn.org.uk](http://www.steyn.org.uk)

The ex-NHS Modernisation Agency's improvement guides are a useful free resource and are available at [www.modern.nhs.uk/improvement](http://www.modern.nhs.uk/improvement) guides.

**7.2 Visits to other organisations**

CSEs are encouraged to visit other organisations in the manufacturing and service sectors. This will allow the CSEs to experience other industries and to see how the operations management principles they will learn on the CSE programme are applied elsewhere. Days have been scheduled in to do this. CSEs can either arrange these with local organisations or Kate Silvester will arrange 'days out'. Organisations we have visited so far include Smith and Nephew dressings factory in Hull, the Nestle factory in York, Booths Super Market in Lancaster, British Nuclear Fuels in Plymouth, and the RAC traffic control centre in Birmingham.

These visits may be linked to the 2 other two days and in which case the venue for the training may be arranged locally.

Part 7b - timetable 251105.xls

Timetable		Date	New Ospreys	Location	Provisional schedule of content	Established Ospreys	Location	subject
May 06	Tuesday	16		Warwick	Meet the gang		Warwick	Meet the gang
	Wednesday	17	CSI part 1	Warwick Univesity	CSI		Warwick	Kate's Klinik
	Thursday	18	CSI part 1	Warwick Univesity	CSI			
June 06	Wednesday	14	CSI part 2	Warwick Univesity	CSI			
	Thursday	15	CSI part 2	Warwick Univesity	CSI			
	Friday	16	CSI part 2	Warwick Univesity	CSI			
July 06	Monday	3			Old' Ospreys' training day		London	Kate's Klinik
	Tuesday	4		London	Kate's Klinik		London	Kate's Klinik
	Wednesday	5		London	Process and value stream mapping			
	Thursday	6		London	Demand and capacity			
Aug 06	Wednesday	9		London	Kate's Klinik			
	Thursday	10		London	Human dimensions of change			
	Friday	11		Possible Visit TBA	To be arranged			
Sept 06	Monday	11			Old' Ospreys' training day		London	Kate's Klinik
	Tuesday	12		London	Kate's Klinik		London	Kate's Klinik
	Wednesday	13		London	Looking for waste			
	Thursday	14		London	Lean simulation			
Oct 06	Tuesday	10		London	Kate's Klinik			
	Wednesday	11		London	Statistical Process Control			
	Thursday	12		Possible Visit TBA	To be arranged			
Nov-06	Wednesday	15		London	Kate's klinik			
	Thursday	16		London	Kate's klinik		London	
	Friday	17	Grand Round	London	Grand Round	Grand Round	London	Grand Round
Dec 06	Tuesday	5		London	Kate's Klinik			
	Wednesday	6		London	Belbin, teams and nerve curve			
	Thursday	7		Possible Visit TBA	To be arranged			

Timetable		Date	New Ospreys	Location	Provisional schedule of content	Established Ospreys	Location	subject
Jan 07	Tuesday	16			Old' Ospreys' training day		London	Kate's Klinik
	Wednesday	17		London	Kate's Klinik		London	Kate's Klinik
	Thursday	18		London	Polarity management			
	Friday	19		London	Mortality Improving HSMR			
Feb 07	Monday	12		London	Kate's Klinik			
	Tuesday	13		London	Speaking to persuade			
	Wednesday	14		Possible Visit TBA	To be arranged			
March 07	Tuesday	13		London	Kate's Klinik			
	Wednesday	14		London	Kate's Klinik		London	Kate's Klinik
	Thursday	15	Grand Round	London	Grand Round	Grand Round	London	Grand Round
April 07	Wednesday	25		London	Kate's Klinik			
	Thursday	26		London	Financial basics			
	Friday	27		Possible Visit TBA	To be arranged			
May 07	Tuesday	15			Old' Ospreys' training day		London	
	Wednesday	16		London	Kate's Klinik		London	
	Thursday	17		London	To be arranged			
	Friday	18		London	To be arranged			
June 07	Monday	11		London	To be arranged			
	Tuesday	12		London	To be arranged			
	Wednesday	13		Possible Visit TBA	To be arranged			
July 07	Tuesday	10			Old' Ospreys' training day		London	
	Wednesday	11		London	Kate's Klinik		London	
	Thursday	12		London	To be arranged			
	Friday	13		London	To be arranged			
Aug 07	Wednesday	8		London	To be arranged			
	Thursday	9		London	To be arranged			
	Friday	10		Possible Visit TBA	To be arranged			

Timetable		Date	New Ospreys	Location	Provisional schedule of content	Established Ospreys	Location	subject
Sept 07	Tuesday	11		London	Kate's Klinik			
	Wednesday	12		London	Kate's Klinik		London	
	Thursday	13	Grand Round	London	Grand Round	Grand Round	London	Grand Round
Oct 07	Monday	15		London	To be arranged			
	Tuesday	16		London	To be arranged			
	Wednesday	17		Possible Visit TBA	To be arranged			
Nov 07	Tuesday	13			Old' Ospreys' training day		London	
	Wednesday	14		London	Kate's Klinik		London	
	Thursday	15		London	To be arranged			
	Friday	16		London	To be arranged			
Dec 07	Tuesday	4		London	To be arranged			
	Wednesday	5		London	To be arranged			
	Thursday	6		Possible Visit TBA	To be arranged			
Jan 08	Monday	14			Old' Ospreys' training day		London	
	Tuesday	15		London	Kate's Klinik		London	
	Wednesday	16		London	To be arranged			
	Thursday	17		London	To be arranged			
Feb 08	Tuesday	12		London	To be arranged			
	Wednesday	13		London	To be arranged			
	Thursday	14		Possible Visit TBA	To be arranged			
March 08	Wednesday	19		London	Kate's Klinik			
	Thursday	20		London	Kate's Klinik		London	
	Friday	21		London	Board Presentations		London	Board Presentations

## **PART 8**

### **8. Joining the programme**

There are a number of routes to joining the programme:

- Some of the original 6 SHAs CEOs have started local recruitment initiatives via the CEOs of ambulance, primary, secondary and social care organisations.
- Many clinicians outside the boundaries of the original 6 SHAs have also expressed an interest and are welcome to join the programme.

In both cases the potential CSE recruit should secure:

- support from a director of their organisation,
- funding for their salary for a minimum of 3 days/ week,  
Some clinicians may already hold a clinical / management post in which improvement or governance is already part of their role and this time is already secure within their current conditions of employment
- funding for their training costs  
Some of the original 6 SHAs will ensure that funding for the training (but not salaries) will be transferred to the organisation employing CSEs but these are local agreements to be agreed following the current NHS restructuring.

#### **8.1 Organisation Structure of the CSE Programme.**

The CSE reports to a director of their employing organisation who will ensure that projects are aligned to the organisation strategy.

Access to information technology and a data analyst is essential for the CSE, local clinical and board level teams to use these evidence based management techniques effectively.

The director should also attend some of the training programme in order to understand the clinical systems approach and facilitate its use at Board level. We would recommend the one day Executive Clinical System Improvement course at Warwick University as a minimum.

#### **8.2 How do I get recruited?**

A second wave of recruitment is now underway for the April 2006-2008 training programme.

The recruitment process is being organised locally within the 6 participating Strategic Health Authorities. The current contacts within the original 6 participating SHAs are:

	Contact & e-mail	Phone number
West Midlands South	<a href="mailto:tamar.thompson@wmsha.nhs.uk">tamar.thompson@wmsha.nhs.uk</a> Maggie.Morgan-Cooke@wmsha.nhs.uk	01527 587608
South East London	Janine.francis@selondon.nhs.uk	07879416921
North East Yorkshire, North Lincolnshire	<a href="mailto:Alex.Morton-Roberts@neynlha.nhs.uk">Alex.Morton-Roberts@neynlha.nhs.uk</a> chris.o'brien@neynlha.nhs.uk	01904 7245 52 Mb 07876031419
West Yorkshire	anthony.kealy@westyorks.nhs.uk	+1 0113 295 2168
S W Peninsula	Annie.Jefferies@swpsha.nhs.uk	01752 315033 07775 927782
Essex	Anne.Wilkinson@essexsha.nhs.uk	01245 397797

Those who are not employed within the boundaries of the 6 original Strategic Health Authorities, but who would still like to join the programme, and who have the support of their employing organisations should send their details to [Annie.Jefferies@swpsha.nhs.uk](mailto:Annie.Jefferies@swpsha.nhs.uk) so that they can be included in the assessment days.

They should also contact the CSE Programme Coach [Kate.silvester@wmsha.nhs.uk](mailto:Kate.silvester@wmsha.nhs.uk) on 0774 8646 301 for further information.

### 8.3 Assessment for the Programme

The next dates for assessment are Monday 6<sup>th</sup> and Tuesday 7<sup>th</sup> of February 2006 in Taunton, Somerset.

Please send your contact details to [Annie.Jefferies@swpsha.nhs.uk](mailto:Annie.Jefferies@swpsha.nhs.uk) on 01752 315033 or 07775 927782 if you are in a position to join the programme and attend the assessment day.

## **PART 9**

# **Clinical Systems Engineers Training Programme 2006/2008**

## **9. Agreement, terms and conditions.**

### **9.1 Introduction**

These terms of agreement set out the arrangements and responsibilities of the Clinical Systems Coach, current SHA leads, the local employing organisations and the participants on the 2006/2008 Clinical Systems Engineers (CSE) training programme. The programme will commence in May 2006 and finish in May 2008.

This does not constitute a contract of employment. The responsibilities relate solely and directly to the content and delivery of the training programme.

Acceptance onto the two year modular training programme will only occur following successful completion of the pre-course assessment process and payment in full of course fees.

The terms and conditions of employment for the individual participants accepted onto the training programme rest with their current employer as agreed in their local contract of employment. Professional conduct and governance arrangements of their employing organisation will apply to the individuals concerned throughout the training programme.

At the start of the course each participant will be given:

- A prospectus for the two year course
- Copies of the terms of agreement signed by the responsible parties.
- Copies will be held by the Coach, individual participant, local employing organisations and host organisation.
- Copy of the Clinical Systems Coach Job Description and Objectives for 2006/2008
- Budget overview that indicates how the course fees are to be spent and dates for regular reviews by the participants.

The programme and course content will be led by Dr. Kate Silvester BSc MBA FRCOphth, Clinical Systems Engineering Coach who is directly employed by the six sponsoring SHA's and whose contract is held by the host SHA, currently West Midlands South SHA.

In light of the NHS organisational changes in April 2006, the leads for the six SHAs involved in the CSE programme will take full responsibility for ensuring that the terms of this agreement are transferred safely to a named individual within a

local organisation (SHA/PCT/WDC/Other). These local organisations will be responsible for new CSEs' salaries, the training costs (as indicated in the attached budget), contribution to the National Coach's salary and the continued employment of the current established CSEs (assuming that they remain employed within the new SHA region).

## **9.2 The responsibility of the Clinical Systems Engineering Coach;**

The Clinical Systems Engineering coach is responsible for the course content and delivery of the training programme from May 2006 to 2008.

## **9.3 The CSE training programme consists of:**

- The introduction day: the current generation and new generation of CSEs to meet on 16<sup>th</sup> May 2006 is an opportunity
- Warwick 5 day Clinical Systems Improvement programme: The new CSE recruits will then attending the 5 day Clinical Systems Improvement (CSI) course at Warwick University. The course is residential at Warwick University and is delivered in a 2 day block (17<sup>th</sup> and 18<sup>th</sup> May 2006) followed by a residential 3 day block (14<sup>th</sup>, 15<sup>th</sup> and 16<sup>th</sup> June 2006). This is compulsory. It provides an excellent overview of operations management from many industries.
- The monthly training programme: Thereafter the new recruits will meet for 3 days each month at a central location convenient for all the trainees on the programme. This will be in a central location e.g. London but will depend on cost of meeting room facilities. These days will include local project reviews and training delivered by Kate Silvester plus a range of experts from the NHS and other academic/learning institutions.

The CSEs will be encouraged to visit to other organisations to see how the operations management principles learned on the course are applied in other industries. These will be arranged as day visits approximately every 2 months by Kate Silvester or can be arranged locally by the trainee CSEs through for example their local Chambers of Commerce.

The first generation and established Clinical Systems Engineers will attend bi-monthly learning set for 2 days. This will consist of a 1 day learning set, followed by 1 day to join the new generation of CSEs for the project reviews. The cost of this continuing support by and for the established CSEs has been included in the budget.

- **Intellectual property**

The Warwick University CSI materials and training materials used by other coaches on the programme remain the express property of Warwick University and the individuals concerned. They should not be

reproduced without their permission. When asked, most of the coaches on the programme are happy for their materials to be used within the NHS but not for commercial gain.

- **Evaluation and Action Learning**

The programme will be continuously evaluated by an independent researcher.

All the participants on the programme are asked to take part in the anonymised monthly evaluation performed by an independent researcher. This provides regular and frequent feedback so that any issues can be addressed and resolved quickly by the coach, the local employing organisation or within the team. Therefore participants that do express their concerns or do not take part in the evaluation cannot expect issues to be highlighted or resolved.

Participants will be asked to submit a monthly diary that addresses specific questions relating to their objectives and experience. These will be analysed and the issues feedback anonymously for discussion and resolution at the monthly learning set. The directors of employing organisations may also be asked to feed back their experience of the programme.

This method was very useful for the first cohort of CSEs. As well as offering an opportunity for regular and frequent feedback, the evaluator will be addressing a specific question during this phase of the programme based on the null hypothesis that 'there is no difference between the learning of CSEs with a medical background and CSEs who are managers with a clinical background'.

The executive summary and detailed evaluation from the 1<sup>st</sup> CSE training programme 2004-06 are available.

- **Feedback of issues**

In the unlikely event that a participant wishes to leave the programme before the end of the two year commitment, this should be discussed with the executive lead of their employing organisation, the lead for the SHA (or equivalent organisation) responsible for funding their training and the programme coach. It will not be possible to refund the Warwick University CSI course fees or the programme fees as this will impact the other organisations involved.

If the CSE moves to another organisation within the SHA locality, support for time release will need to re-negotiate with the new employing organisation. If supported these terms and conditions will be agreed and countersigned by the new employer.

In the event that the new employing organisation decides they are unable to support the CSE role, the training will cease unless the CSE can secure funds from elsewhere. Compensation for loss of training costs will be sought from the employing organisation by the original local SHA or equivalent organisation.

The majority of issues in the first wave of the training programme involved the lack of objectives agreed by the employing organisation and the CSE. There were further issues involving data analyst and project support at a local level. Hence the responsibilities of the employing organisation and a named director have been set out in this document.

- **Monthly Learning sets**

The established and trainee CSEs will attend the monthly (established CSEs bi-monthly) training days. These are run as a confidential learning set at which the participants can exchange ideas and learning regarding the 'hard' systems issues but also the 'soft' human dimensions of change. These events are confidential and the Chatham House rule applies i.e. the content and learning can be discussed outside the room but is not attributable to any organisation or individual. CSE are expected to attend all the training days.

- **Grand Rounds.**

The timetable shows 3 days over the 2 years at which the directors and local project team members of the employing organisation are invited to attend with the CSEs for a 'Grand Round'.

This event will encourage learning and sharing between the organisations involved in the CSE programme. The Chatham House rule will apply. This wider participant event will focus not only on local project improvement in timeliness, cost and quality of care, but also how the CSE skills are being transferred used and applied at Board level. Executive leads are expected to attend these events and actively contribute to this learning.

- **Confidentiality.**

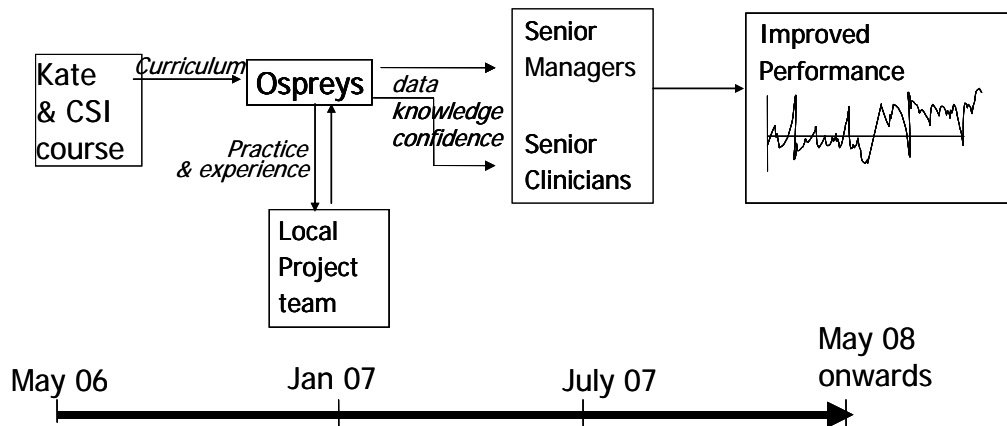
In taking part within the CSE programme, the participating organisations will agree that any statistics or data are essential to the programme and will be shared with other CSE participants for learning purposes only. Express permission from the organisations concerned will be gained first if such material is to be used for academic publication or to be shared more widely across NHS. Participating organisations are encouraged to use this programme as an opportunity to provide the NHS with the evidence based management that is currently in short supply.

## 9.4 The responsibility of the Trainee Clinical Systems Engineers.

The training programme requires participants to attend the 3 days monthly of training. Failure to attend the training regularly, or not to be involved in local projects, will limit the skills and personal development of the capability and skills of all the participants. It may also leave the participant feeling very exposed and isolated.

The trainee CSE will apply the learning through a series of local projects that are agreed with the chief executive, director of operations, finance, nursing or medical director in line with the organisation's strategy. The objectives for the CSE should be agreed and regularly reviewed by the trainee CSE, Coach and the nominated director concerned.

The diagram below demonstrates in broad terms the programme plan for the CSE and the development of their role within their employing organisation.



The CSE will actively train others in their employing organisation and share their learning locally, nationally and internationally as agreed.

- **Evaluation**

The participants will be asked to contribute to the monthly individual evaluation conducted by the independent evaluator. This will ensure that the trainee has a regular and frequent opportunity to feedback any concerns or issues to the CSE coach, other trainee CSEs, The SHA (or equivalent organisation) responsible for funding training or their employing organisation. The anonymised evaluation will be reviewed monthly and the Coach will be responsible for any changes required to the content or delivery of the programme. The named director of the employing organisation will be responsible for ensuring that any other issues e.g. employment, project or IT issues are dealt with locally.

## 9.5 The responsibilities of the employing organisations.

The organisations employing trainee clinical systems engineers must ensure that a named director is appointed to:

Agree the local terms and conditions and salary of the employee. The role of a clinical systems engineer and job description is supplied. The employing organisation and trainee should consider the HR implications of secondments, full time, fixed term or permanent contracts. They should also consider the impact on professional points and recognition schemes. There is no accreditation of the CSE programme currently, although the 5 day CSI programme at Warwick Programme is accredited and recognised academically.

**The local contract must ensure that the CSE trainee is released for a minimum of 3 days per month to attend the training, join with local improvement projects within the employing organisations and/or deliver training locally.**

There should be a clear link between the organisation's strategy and the trainee clinical systems engineers' objectives for the 2 years of the training programme. These should be agreed and reviewed by the director of operations, finance, nursing or the medical director of the employing organisation.

The individual performance review will be conducted, in confidence, by the director of the local employing organisation with input or attendance by the CSE Coach as by the local terms and conditions of their employment. Reviews will be conducted in July 2006, July 2007 and at the end of the training programme. The individual performance of the trainees at training sessions will be confidential between the other participants and coach.

In order to achieve this, the recommendations from the evaluation of the first wave of the CSE programme are:

- The CSE will report directly to a named director of their employing organisation responsible for their contract and providing the support required to fulfil this post. (See below)
- The named director is encouraged to attend the 1 day introduction to CSI course at Warwick. (Attendance by the sponsoring director of employing organisation at the 5 day Warwick University CSI course and funding for this should be negotiated locally )

This will ensure that:

- the employing organisation understands the potential and impact of the CSE approach and reviews the return on investment for this role and training.
- there are clear links between the local projects and the organisation's strategy so that the objectives of their CSE are clear.

- The director acts as a conduit for CSE techniques to be used at board level
- That the trainee clinical systems engineer works as part of and is supported by the local 'modernisation' team(s) or equivalent.
- The named director is responsible for resolving any issues (see below) that are identified in the evaluation process
- The named director takes part in the monthly evaluation as required.
- The named director attends the 3 days over the 2 years of the programme to join the Grand Round. This offers participating organisations the opportunity to share their learning.
- **Salary, hotel accommodation and travel expenses.**

The employing organisation will be responsible for the CSE's salary, on costs, travel and accommodation expenses. We estimate, based on past costs for 2004-6, that hotel and travel expenses for the monthly CSE training sessions will amount to approximately £4600 over the two years depending on number of nights away and distance travelled (see Budget). There will be additional travel expenses depending on the CSEs local commitments. These will be defined by their local terms and conditions, local job description as agreed with their employing organisation. For example, some CSEs will be employed by one organisation; others will be expected to provide training and support for more than one organisation locally.

- **Equipment**

The employing organisation will be responsible for ensuring that their CSEs have a laptop computer, basic software tools (e.g. Microsoft office etc.) with remote dial in access to the organisation's server and supported by the IT provider used by the local employing organisation. The SHA lead (or equivalent organisation) is responsible for the training budget and will fund specific SPC software.

- **Data Analyst support**

The Clinical Systems Engineering and improvement approach is characterised by the use of data presented in a statistically significant way. It will be impossible for the directors, local project teams or CSEs to function without access to data. The employing organisation **must** ensure that there is a named data analyst to support this programme locally. This data analyst will in turn receive extensive Statistical Process Control (SPC) training by the CSE. This in turn will influence how data is collected and presented across the local organisation.

This will influence the local implementation of the national Connecting for Health programme.

- **Local administration support**

This is essential and should be provided as part of the CSEs current terms and conditions or as part of the support for the local 'modernisation' team of which the CSE should be a key member.

In addition administrative support will be provided to help Kate Silvester run the training programme centrally. This programme administrator's contract will be held by the host organisation holding the CSE budget but the salary costs will be contributed by the SHAs involved within the CSE training programme at the equivalent of 1day / week. (See budget).

- **Telephone conferencing.**

The CSE programme holds a teleconferencing account. British Telecommunications (BT) invoices will be sent to the host organisation. This facility can be arranged through the programme administrator in the host organisation. The budget will not cover teleconferences on behalf of local project teams in local organisations.

- **Video conferencing facilities.**

With increasing numbers of new CSEs and participating organisation it will not be possible for Kate to support them through physical meetings. Kate Silvester and Richard Steyn have video conferencing facilities available locally and use these often to coach and support project teams worldwide. All postgraduate medical facilities and many Board rooms have such facilities and they should be made available and funded by the local organisation.

## **9.6 The responsibility of the current SHA leads**

The current leads for the current SHAs participating in the programme will ensure that:

- transfer of the group training money for the two year programme directly to the host organisation or naming the director within the local organisations to whom the training money will be transferred and to who the host organisation will send the annual invoice.
- transfer of the additional training costs (i.e. the optional items) will be negotiated with CSE's locally and then transferred to the host organisation.

- transfer any contracts for the current CSEs that are held within SHAs as in line with the NHS regulations.
- transfer the funding for the continuation of support and training or the current established CSEs to the host organisation.
- Ensure that objectives are agreed between the established CSEs and their future employing organisations. These, as for all the CSEs, should be in line with the organisation's strategy. The established CSEs will still need the support set out in 'responsibility of the employing organisations' in Section 4 of this document.
- SHA leads will attend bi-monthly CSE lead meeting and actively contribute to the development and vision of the CSE programme.
- Local SHA leads will keep in regular contact with their local CSEs, establish local networks and support mechanisms as appropriate and requested by the local CSEs (current and future).

**The current contacts within the participating SHAs are:**

	Contact & e-mail	Phone number
West Midlands South	<a href="mailto:tamar.thompson@wmsha.nhs.uk">tamar.thompson@wmsha.nhs.uk</a> Maggie.Morgan-Cooke@wmsha.nhs.uk	01527 587608
South East London	Janine.francis@selondon.nhs.uk	07879416921
North East Yorkshire, North Lincolnshire	<a href="mailto:Alex.Morton-Roberts@neynlha.nhs.uk">Alex.Morton-Roberts@neynlha.nhs.uk</a> chris.o'brien@neynlha.nhs.uk	01904 7245 52 Mb 07876031419
West Yorkshire	anthony.kealy@westyorks.nhs.uk	+1 0113 295 2168
S W Peninsula	Annie.Jefferies@swpsha.nhs.uk	01752 315033 07775 927782
Essex	Anne.Wilkinson@essexsha.nhs.uk	01245 397797

## **9.7 The responsibility of the Host Organisation – currently West Midlands South SHA**

The National CSE Coach's contract and the CSE programme budget will be held by the host organisation. This is currently West Midlands South SHA.

The transfer of the programme budget and the coach's contract will be arranged by the current host (West Midlands South SHA) to an appropriate organisation in line with the NHS organisation changes in April 2006. The Host Organisation will invoice participating organisations for the monies upfront i.e. at the beginning of the 2006 financial year as per the budget costs are show below. These will depend on the number of CSEs recruited and will be agreed with all the participating organisations once the final numbers are known.

There will be regular monthly training budget and expenditure reviews between the CSEs, the local SHA (or equivalent) organisations and the host organisation at the monthly learning events as occurs now.

## 9.8 The Budget and Course Fees.

The costs depend on the number of CSE recruits since the predominant cost is the cost of meeting facilities. The detailed costs CSEs will be made available when the final numbers of CSEs are known.

There are 3 components to the costs of the programme.

- The group training and facilities costs
- The individual new CSE costs
- The salary of the National CSE programme coach.

### Group training and facilities costs.

**The group costs are purely indicative and are based on the costs of the current programme.** These costs cover the two year span of the programme and the contribution to this cost by the SHA or equivalent organisation will be compulsory.

Costs depend on the number of CSEs and the location of the training. For 17 new CSEs and 7 established CSEs the current estimate per CSE (as at November 05) is approx. £6,500/CSE. Updated details of the budget costs will be made available once the final numbers and the costs of an appropriate training location are known.

Organisations employing CSEs are reminded that they will also have to budget for the travelling expenses and accommodation costs. We estimate these to be £4600 over the 2 years based on current costs.

### 2. The individual new CSE costs:

Item	Item cost £s	
Warwick Course £2500 per person	2500	compulsory
Coaching £1200/person	1200	optional
SPC Soft ware/person	800	This is compulsory. However some Health Authorities already have group licenses for SPC software and this should be made available to the CSE.
Additional course fees	1000	optional
Conference e.g. IHI	2000	optional
<b>Total additional per new CSE</b>	<b>7500</b>	

These are one off costs and represent the costs for each candidate for the duration of the 2 year programme.

### 3. Contribution to National CSE Coach's salary and on costs.

This contract is currently held by West Midlands SHA and the contribution by all participating organisations to the coach's salary and on costs is compulsory. Organisations must ensure that the current contributions they

make to West Midlands South SHA in support of Kate's salary continue. West Midlands South will ensure that Kate's terms and conditions are transferred to the future host organisation. The host organisation will invoice the other participating organisations for their contribution to Kate Silvester's salary on a quarterly basis.

## 9.9 Terms and conditions

- **Pay 'up front' in March 06 and 07:**

The participating SHAs (or equivalent) will be asked to make their full contribution to the CSE group costs on an annual basis to the programme once their CSEs have been recruited. This payment, which depends on the number of CSEs per employing organisation, will be invoiced from the host organisation to those employing CSEs in March of 06 and 07.

- **Not refundable.**

The training costs are not refundable since deposits and venue costs will often be paid in advance to get the best value for money and discounts. Similarly outside speakers do not reduce their daily fee if fewer CSEs attend. Therefore fees cannot be returned either in part or full if an individual cancels their place within four weeks of course commencing or any period thereafter for any reason, including health reasons. A substitute trainee CSE could be put forward and providing satisfactory assessment and could take up the place in time to start the Warwick CSI course in May 06. No new CSEs will be accepted on to the programme after May 2006.

It will be the responsibility of the employing organisation, the director of the employing organisation to whom the CSE reports locally and the CSE to ensure that they make the most of the training on offer.

Against this background and in exceptional circumstances participants may ask or be asked to terminate their place on the training programme. This kind of sanction will be discussed in full with the employing organisation, the local SHA lead (or equivalent) and the participant concerned before being implemented. In these exceptional circumstances any outstanding fees will not be returned.

**I have read understood and agree the terms and conditions for participating in the Clinical Systems Engineering Programme.**

.....Participant

.....Director on behalf of the employing organisation

..... Local SHA (or equivalent) organisation

.....Coach

| ..... Date

## PART 10

### 10. Budget and Costs as at 28.11.05

**This budget will be updated when the final numbers and location for training are known.**

The costs depend on the number of CSE recruits since the predominant cost is the cost of meeting facilities. The detailed costs CSEs will be made available when the final numbers of CSEs are known.

There are 3 components to the costs of the programme.

1. The group training and facilities costs
2. The individual new CSE costs
3. The salary of the National CSE programme coach.

#### 10.1 Group training and facilities costs.

**The group costs are purely indicative and are based on the costs of current programme.** It depends on the number of CSEs. For 17 new CSEs and 7 established CSEs the budgeted costs are as follows:

<b>Group costs</b>	<b>Group costs total £s</b>
Room hire + VAT (London)	35744
Accommodation costs £40/ per head (London)	51960
Trainers £1500/day, VAT & expenses	23166
Telephone and VC charges	2000
Admin 1 day / week (£20000p.a.pro rata)	2300
Sharon evaluation travel and hotel	3450
Web site	5000
Sundry expenses e.g. photocopying, documents, postage etc.	3000
<b>Group costs sub Total</b>	<b>126620</b>

The main cost is meeting facilities which make up 70% of the group costs. NHS facilities are being actively sought to lower these costs.

This Group Cost will be pro-rata to the organisations according to the number of new and established CSEs. An example of the pro-rata method is given below.

Contribution to Group Costs (excluding Kate's salary and expenses)	New CSEs	Established CSEs	Pro Rata	Contribution to Group costs excluding Kate's Salary	Additional New CSE training costs	Total training Cost SHA	Travel and accom' at £4600/Osp
Essex	4	1	5	26379	30000	56379	23000
Peninsula	4	0	4	21103	30000	51103	18400
SE London	0	2	2	10552	0	10552	9200
W Midlands	1	1	2	10552	7500	18052	9200
West Yorks	1	1	2	10552	7500	18052	9200
NEYNLHA	4	2	6	31655	30000	61655	27600
Bristol	1		1	5276	7500	12776	4600
Wales	1		1	5276	7500	12776	4600
Manchester	1		1	5276	7500	12776	4600
<b>Total</b>	<b>17</b>	<b>7</b>	<b>24</b>	<b>126620</b>			

Travel expenses, subsistence and on costs.

Organisations employing CSEs are reminded that they will be responsible for their CSE's salary at a minimum of 3/7 week. They will also have to budget for the travelling expenses and accommodation costs. We estimate these to be £4600 over the 2 years.

## 10.2 The individual new CSE costs:

Item	Item cost £s	
Warwick Course £2500 per person	2500	
Coaching £1200/person	1200	optional
Soft ware/person	800	
Additional course fees	1000	optional
Conference e.g. IHI	2000	optional
<b>Total additional per new CSE</b>	<b>7500</b>	

### What is compulsory?

All new CSEs must attend the Warwick University Clinical systems improvement course. This is 5 day residential (residential costs included in the £2500) and is held at Warwick University Business School (nearest train station = Coventry). It consists of 2 days followed by 3 days a month later.

CSEs need a Statistical Process control package of their choice or one in use by their employing organisation. They will need a soft ware license for this.

The contribution to the group cost will be compulsory.

### **What is optional?**

The current cohort of CSEs were provided with executive coaching training by the NHS Leadership programme with a budget of £1200 per CSE. The employing organisation may already have a contract for this kind of coaching or mentoring that the CSE can join locally.

All the CSEs attended a variety of other courses e.g. Lean healthcare summit, 6 Sigma, HFMA course on Payment by Results. We have budgeted a further £1000 pounds for such course if the opportunity arises.

All CSEs should be given the opportunity to attend the Institute of Healthcare Improvement conference in Orlando in December 06 or 07, or the European Quality in Healthcare Forum in April 06 in Prague. The current cohort have presented papers, presentations or abstracts and have sometimes been given free places but have had to pay travel and accommodation. We have budgeted £2000 for this.

### **10.3 Contribution to National Programme Coach's Salary.**

Currently this is paid by the 6 Original SHAs and this will be continued until 2008. However other CSEs not from the original SHA areas will be asked to contribute to the National Coach's salary depending on the number of recruits.

## PART 11

### 11. Contacts

<b>Contacts for SHAs currently participating in the programme</b>		
West Midlands South	<a href="mailto:tamar.thompson@wmsha.nhs.uk">tamar.thompson@wmsha.nhs.uk</a> Maggie.Morgan-Cooke@wmsha.nhs.uk	01527 587608
South East London	Janine.francis@selondon.nhs.uk	07879416921
North East Yorkshire, North Lincolnshire	<a href="mailto:Alex.Morton-Roberts@neynlha.nhs.uk">Alex.Morton-Roberts@neynlha.nhs.uk</a> chris.o'brien@neynlha.nhs.uk	01904 7245 52 Mb 07876031419
West Yorkshire	anthony.kealy@westyorks.nhs.uk	+1 0113 295 2168
S W Peninsula	Annie.Jefferies@swpsha.nhs.uk	01752 315033 07775 927782
Essex	Anne.Wilkinson@essexsha.nhs.uk	01245 397797

<b>National CSE programme Coach</b>	<a href="mailto:Kate.silvester@wmsha.nhs.uk">Kate.silvester@wmsha.nhs.uk</a>	0774 86 46 301
-------------------------------------	--	----------------

<b>Recruitment information and assessment days 6<sup>th</sup> and 7<sup>th</sup> February 2006</b>	<a href="mailto:Annie.Jefferies@swpsha.nhs.uk">Annie.Jefferies@swpsha.nhs.uk</a>	01752 315033
--	--	--------------

<b>Current CSEs</b>		
Dr Simon Baugh	Simon.Baugh@bdct.nhs.uk	07768744997
Dr Kanan Pande	kanan.pande@neynlsha.nhs.uk	07970705661
Dr Liz Taylor	liz.taylor@wmsha.nhs.uk	07968 042553
Dr Roger Skilton	Roger.skilton@york.nhs.uk	07900 918564
Dr Nicola Williams	nicky.williams@wmsha.nhs.uk	+1 (07771) 930993
Dr Seema Bhandari	seema.bhandari@swpsha.nhs.uk	07867 781545
Dr Virginia Craig	virginia.craig@pah.nhs.uk	01279 827604
Dr David Tomlinson	david.tomlinson@selondon.nhs.uk	+1 (07771) 934699
Dr Gail Mifflin,	gail.mifflin@selondon.nhs.uk	07946528982