

Medipex Annual Report

2007/08

Chairman's Forward

The encouraging signs of being able to achieve a return on the public investment shown in the first three years of Medipex Ltd's existence have been reinforced in the past year. In 2007, Medipex sustained its momentum by handling 144 new ideas and selection of 72 projects for further development. Negotiations on exploitation agreements continue to be progressed resulting to-date in cumulative total of five new businesses and development of thirty products to commercialisation the highest number achieved by any Hub in the country. Medipex has only been able to achieve and exceed on its targets through strong engagement and support of its stakeholder community. It is particular pleasing to see the continued growth of effective partnerships with NHS community, a range of organisations from within the healthcare technologies sector, Venture Capital organisations and industry.



This continued commitment of NHS staff from across Yorkshire and Humber's National Health Service to developing new ways of providing better healthcare for patients, was graphically illustrated at this years Medipex NHS Innovation competitions awards ceremony. The 15 finalists nominated for prizes in the competition, showcased the breadth of the regions innovations that have the ability to provide improvements in healthcare delivery in the wider NHS.

These endeavours were given regional recognition, at the highest level when Medipex, was crowned 'Innovation Champion 08' in Yorkshire Forward's prestigious Innovator/08 Awards hosted by Michael Portillo. This demonstrates that the region as a whole recognises the hard work and efforts of Medipex staff, as well as that of NHS organisations from around the region in growing the regional economy.

Securing further two years (April 09/April 11) of funding from PSRE 4 provides added financial security to Medipex. However the NHS Next Stage Review "High Quality Care For All", led by Professor Lord Darzi, reported earlier this year and presents a range of options for change some of which are likely to impact upon the nature and source of future funding for Medipex. The indications are that DH funding will be secured up to 2011 however beyond that the proposed changes will have an impact. The regional focus of the hubs will be retained and enhanced because it is through engagement at the local level that progress can be maintained. The Strategic Health Authority's greater responsibility for delivering the regions innovation agenda will be part of this future realignment. Board members will need to be vigilant and proactive in ensuring that through these changes Medipex has a key role to play in delivering within the regions changing innovation landscape and therefore continues to face an exciting future.

As Chairman, it remains a privilege to lead Medipex, an activity that continues to be both enjoyable and challenging. Over the coming year I look forward, under guidance from the Board of Directors and the support of our client trusts across Yorkshire and Humber to help Medipex enhance its contribution to innovation.

Lastly I extend my thanks to the Company management and staff for their excellent achievements over the year and their continued endeavours in helping NHS staff from across the region make a contribution to the competitiveness and prosperity of the region.

Gareth Lloyd-Jones
Chairman

Executive Summary

Welcome to our fourth annual report and I am very pleased to announce Medipex has continued to deliver very impressive results on behalf of our NHS members. Over the last year we have:-

- ◆ Received 143 new ideas (678 in total)
- ◆ 103 projects initially taken forward (stage 1)
- ◆ Commercially exploited 9 new ideas on behalf of our member Trusts (27 in total)
- ◆ Helped to create 2 new spin out healthcare businesses creating employment & bringing prosperity to the region (5 in total)
- ◆ Celebrated the creativity of NHS staff at our Innovation Awards evening
- ◆ Continued our commitment to supporting innovative R&D in the NHS – we are actively engaged in 25 R&D projects valued at over £3.5 million
- ◆ Provided £90,000 Proof of Concept funds directly to NHS staff with viable projects (£340K total)
- ◆ Generated substantial PR on behalf of NHS innovations & Medipex activities in national, regional press and media outlets
- ◆ Retained a strong and active membership and support amongst NHS Trusts in Yorkshire & Humber

An example of the commercialisation work done during 2007 was the licence of Verified Login software to Rothband Ltd.

Verified Login, developed by Dr David Brettle Head of Radiological Physics at Leeds Teaching Hospital NHS Trust, will help to make viewing of PACS images much safer due to its unique way of ensuring that the monitor used to view digital images must be correctly set up before the user is allowed to view any images.



CEO Richard Clark (2nd right) demonstrating the Verified Login to Rothband Ltd. (L toR) Dr David Brettle, Leeds Teaching Hospital (Inventor), Mr Paul Mr Paul Dixon, Rothband Ltd and Mr Andrew Davies, Fenton Communications (software developer)

I would also like to pay tribute to our team who have continued to work tirelessly on behalf of our members and the Innovator '08 accolade awarded to Medipex by Yorkshire Forward earlier this year was a significant recognition for all the hard work by Medipex staff.

At the beginning 2008 we took on two new members of staff. Liz Maddaford joined as CEM Data Coordinator with responsibility for clinical expertise mapping and support for ActNOW. We also took on Rebecca Dickinson to work with Stephanie Bridgford providing administrative support. During the year we moved offices from Hyde Terrace (kindly provided by Leeds Teaching Hospitals) to the Leeds Innovation Centre which will be sufficient for all our current needs.

Looking forward to the challenges ahead we will endeavour to extend our services to more NHS Trusts in the region whilst maintaining the quality of service provided to existing members. We will measure this in several ways including the usual deal flow metrics but also as we work towards Customer First accreditation, an independent benchmark of customer satisfaction. Finally, at the time of writing this report we have just received notification of a successful application to the Government (DIUS) for PSRE 4 funds (£600K) and a further £250K from our RDA, Yorkshire Forward. Both these activities will commence during 2009 and will involve additions to the team as well as more direct support to front line NHS staff.

Richard Clark
Chief Executive

Deal Flow/IP Pipeline

Since starting activities in 2004 Medipex has received 678 disclosures of which 290 were selected for further assessment and feasibility study (Stage 1). We currently have 28 active projects, and a further 25 are classed as R&D projects. Analysis of the figures indicates that approximately 10% of the projects taken forward are likely to result in a successful outcome i.e. either a commercial licence or a spin out company or sale of a product. The quality of the disclosures i.e. those initially taken forward, has also gone up each year, indicated by the year on year increase in projects advancing through the stage gate process.

We have successfully negotiated 29 commercial deals for our NHS Trust members which have so far generated just over £90K of commercial income out of which Medipex has recovered its costs and fees resulting in £63K going back in to the NHS.

We have been directly involved in the creation of 5 new healthcare spin out businesses, each with part ownership (equity) shared by the NHS Trust and inventors. Medipex has contributed towards establishment of the spin outs with approximately £90K cash from its Proof of Concept funds and we have helped to raise a further £1 million of VC funds towards development of market ready products and employment of 10 FTE staff. All 5 companies are currently based in Yorkshire and Humber and are contributing towards the economic prosperity of our region as well as the improved healthcare that the new products will deliver when they are marketed.

Deal Flow by Year						
Year	2003/04	2004/05	2005/06	2006/07	2007/08	Totals
Total Projects Identified	22	211	158	144	143	678
Projects Registered on Database	22	50	43	62	113	290
(Stage 1)						
Research projects	0	3	2	4	16	25
Projects Still Active (Apr '08)	2	2	2	6	16	28
Closed (after being registered)	18	43	32	43	71	207
Deals	2	2	7	9	9	29
						Averages
% Registered on Database		24%	27%	43%	79%	43%
% closed (of projects registered)		88%	77%	69%	64%	75%



Innovation Competition

The annual innovation competition and awards evening was once again very successful with some 100 people attending the awards ceremony at the Royal Armouries. There were four winners in each of the 4 categories.

Dr Giles Morrison, Medical Imaging and Medical Physics at Sheffield Teaching Hospitals NHS Foundation Trust. Giles innovation was a Dynamic Cardiac CT Phantom that, if successful, will ensure optimum CT dose (i.e. minimal dose) for patients with sub-optimal or irregular heart rate. (Medical Devices category).

Dr Prashant Verma also from Medical Physics at Sheffield Teaching Hospitals NHS Foundation Trust whose idea was the development of a software package for photo-therapy treatment planning. Patients undergoing phototherapy treatment will often receive an escalating radiation dose depending on the skin's response to the previous treatment. The software package enables nurses to accurately calculate patient treatment times based on results of a minimal erythral dose test that the patient undergoes. (Software & ICT Category).

The winner of the Rehabilitation & Assistive Technology category was Dr. Bipin Bhakta from Rehabilitation Medicine at Leeds Teaching Hospitals NHS Trust with a robotic system (iPAM) to aid recovery after stroke. iPAM supplements, but does not replace, the therapists' work and addresses the shortage of hands-on therapy available to most stroke patients in the UK. By enabling patients to undertake extra exercise, it has the potential to accelerate recovery and improve final arm function; not only would this benefit patients themselves, it may also reduce health and social care costs.

The final winner was Amanda Jackson, Network Educator from Barnsley PCT with her development of evidence based teaching materials including advice and a parent information leaflet about newborn skincare. There is currently a lack of impartial information available for parents and Amanda's teaching package stresses the need to treat newborn skin carefully and identifies how essential it is to avoid baby toiletries for the first few weeks of life.

The impact of the teaching package on the network has been huge

- ◆ most units now removing baby toiletries from their clinical areas
- ◆ staff empowered to educate families about the potential health consequences of using baby toiletries on newborn skin.

Some of the income Medipex has generated through its commercial activities is used as a Proof of Concept fund in order to speed up project appraisals, prototype developments, IP Protection and market information. Throughout the year we committed £90K towards supporting 11 projects with investment. We have also successfully bid for a further £300K PoC funds from the PSRE 4 funds from DIUS however the funds won't be released until mid 2009.

We are pleased to report on the expansion and continued success of the e-commerce website, Ennovations (www.ennovations.co.uk) which is proving an invaluable source of training materials, books, DVDs and software developed by specialist NHS staff for NHS use with Medipex assisting the Trusts to publish their works e.g. Radiotherapy: Principles to Practice Second Edition. The site is increasingly being used by the wider NHS Innovation Hub network which assists the avoidance of development of duplicate products and helps to maximise the level of visitors to the site.



Clinical Mapping

We are also working with the Strategic Health Authority to better understand how service improvements and other innovative best practise can be spread through to where it is most needed.

We have also expanded the clinical mapping activities and formally combined our activity into ActNOW which is generating a combined clinical expertise coverage across most of the North of England. The purpose of ActNOW is to create a business friendly interface for healthcare companies interested in contacting the NHS to seek clinical expertise, use of facilities and clinical trials for medical devices and diagnostics. On average we are receiving 2 or 3 enquiries per month from device companies struggling to make contact with the relevant clinical expert. This is likely to create an extremely important way for new innovations to be evaluated by the NHS and for selected NHS experts to generate the evidence base to help with their widespread uptake as well as being another valuable income stream.

Financial Summary

During 2007/08 grant funding continued to be the main source of income from two main sponsors, Department of Health (DH) and DIUS through the Public Sector Research Exploitation (PSRE) Fund. Turnover for the year was £716,904 and core funding of £508K received from DH plus PSRE 3 funds contributed towards this with the balance drawn from external income. The major expenditures were staff salaries, followed by Proof of Concept and general business development.

DH funds are administered via the National Innovation Centre who provide a coordination and reporting role between the 9 Innovation Hubs plus Adoption Hub and Training Hub and DH. The following statement is an acknowledgement of this support "MEDIPEX has benefited from funding from the NHS Institute for Innovation & Improvement's National Innovation Centre. The views expressed in this publication are those of the authors and not necessarily those of the NHS Institute for Innovation & Improvement's National Innovation Centre."

The company reported a small surplus on the year of £19K associated with interest earned net of corporation tax.

Active Projects

Some of the Active Projects Logged During 2007/08

Bradford Smart Walker	WRHIP Project in conjunction with Bradford University. The concept is to design a device which allows orthopaedic patients and carers to monitor the amount and correctness of rehabilitation exercise	Bradford Teaching Hospitals NHS Foundation Trust
Administrative Database	Administration of workflow in key clinical departments	Bradford Teaching Hospitals NHS Foundation Trust
Diabetic Foot Screening Competency Pack	A training course and pack associated with the delegation of diabetic foot screening activities to podiatry assistants	Calderdale and Huddersfield NHS Foundation Trust
Patient-specific instrumentation	This project aims to develop patient specific templates for use in knee replacement surgery. The templates are cutting blocks which are prepared pre-operatively and will assist surgeons in accurately preparing patients knee bones during surgery, reducing	Hull and East Yorkshire Hospitals NHS Trust
Antenatal Ultrasound Training and QA Software	Software to allow improved training and QA of ultrasonographers in the art of Nuchal Translucency	Leeds Teaching Hospitals NHS Trust
Chrodat	Chrodat will be an intelligent software package used in a renal unit to assess the efficacy of a treatment plan.	Leeds Teaching Hospitals NHS Trust
Ovarian Tissue Cryopreservation	A novel method for freezing and thawing of the ovarian tissue for better results.	Leeds Teaching Hospitals NHS Trust
Targeted Contrast Agents	Development of targeted contrast agents for the detection of atherosclerotic plaques which are at high risk of rupturing.	Leeds Teaching Hospitals NHS Trust
Intelligent Pneumatic Arm Movement robotic system	Intelligent Robotic system to aid physical therapy in stroke. A single robot system has been developed into dual robotic system that is attached to the patient's arms at two points and uses two co-operating pneumatic robot	Leeds Teaching Hospitals NHS Trust
Parenting booklets	Parenting guides comprising adult and children versions of publications dealing with sleep, management of dinner times, toileting, children's behaviour	Rotherham Primary Care Trust
Paediatric Respiratory Rate	Non invasive measurement of respiratory rate in children in A&E & Acute settings	Sheffield Children's NHS Trust
Clinical Assessment Tool	The purpose of the toolkit booklet is to provide hospital wards and departments with a coordinated, comprehensive, up to date range of standards, providing accurate, timely feedback. The toolkit compliments the acuity and dependency work	Sheffield Teaching Hospitals NHS Foundation Trust
ECG Interpretation Training	An electronic training package to train individuals in interpreting ECG data	Sheffield Teaching Hospitals NHS Foundation Trust
Phototherapy Dose Calculator	Software to help a nurse calculate the dose of UV to give a patient undergoing phototherapy	Sheffield Teaching Hospitals NHS Foundation Trust
Fluid Disposal System	Automated system for fluid waste management in operating theatres.	Sheffield Teaching Hospitals NHS Foundation Trust
Dynamic Cardiac CT Phantom	An initial idea to develop a phantom to calibrate a new CT scanner used to diagnose heart problems. The phantom would be a physical model with a representation of the heart/aorta including a pumping system.	Sheffield Teaching Hospitals NHS Foundation Trust
Patient tagging system	Electronic tagging system for lost/confused patients. Unit in form of wrist tag containing a circuit to alarm a receiver at the ward door, perimeter of the hospital or nursing home.	The Mid Yorkshire Hospitals NHS Trust
Patient Information Film	Bowel cancer surgery patient information film	York Hospitals NHS Foundation Trust
New Hardware and Software for MEG Scanner	To develop an MEG device which allows the measurement of brain activity to be made despite patient movement.	York Hospitals NHS Foundation Trust

Commercial Deals by Year

2004	IRPS – Interactive Radiotherapy Planning for Students	E
2004	Radiotherapy: Principles to Practice Book	E
2005/06	Sacral Support Arm	E
2005/06	Simple Rules Toolkit Booklet	E
2005/06	Cookridge History Book	E
2005/06	Eat Yourself Happy DVD	E
2005/06	Electrical Impedance Spectroscopy for pre term birth	L
2005/06	Panoramic Test Object (ToPAN)	L
2005/06	SPNET – Electronic purchase & stock control software	L
2006/7	Research In Action Training Pack	E
2006/7	Clinical Assurance Toolkit	E
2006/7	Motorised Drip Stand	L
2006/7	PC Cart	L
2006/7	Aperio Diagnostic Ltd	S O
2006/7	Leeds Reproductive Bioscience Ltd	S O
2006/7	Epaq Ltd	S O
2006/7	Knight Sheffield Table	L
2006/7	HMDS – Blood Analysis Reagent Kit	L
2006/7	Monitor Shroud	L
2006/7	LOGIN – PACS QA Software	L
2007/8	Parenting Issues DVD	E
2007/8	ImageI Ltd	S O
2007/8	Vertual Ltd	S O
2007/8	J View Nuclear Medecine software	L
2007/8	Plaster Room CD's	L
2007/8	SEAT (Assistive Technology Software)	L
2007/8	ECG Training package	L
2007/8	Mammography Phantom	L
2007/8	HLIMS – Haemo Lab QA & Reporting Software	L

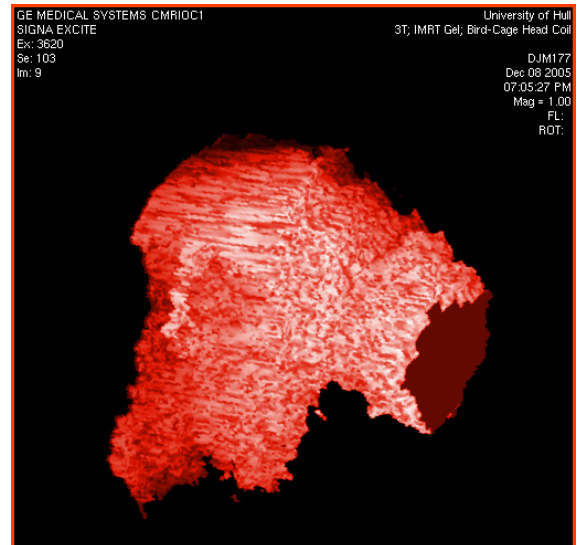
E – Product sold via www.ennovations.co.uk

L – Licence deal with Third Party

SO – Spin out company

New Healthcare Companies Formed

Imagel Ltd - Has developed a dosimeter to assist radiotherapists in an independent safety check on the appropriate dose for applications of intensity modulated radiotherapy (IMRT). IMRT is an advanced method of high-precision radiotherapy utilising powerful computer-controlled very powerful X-ray machines to deliver precise radiation doses to a specific area within the body. The radiation conforms to the exact tumour shape allowing much higher radiation doses while minimizing damage to the surrounding healthy tissue. Treatment is planned carefully using 3-D CT images of the patient in conjunction with computerised dose calculations to determine the dose intensity pattern, which will best conform to the tumour shape.

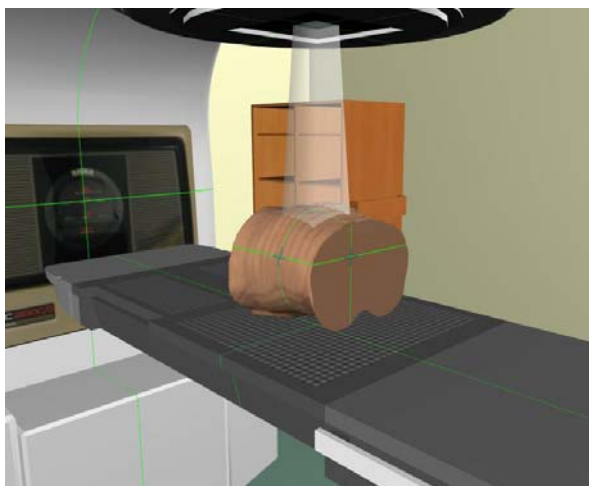


3-D Dosemap image produced by Imagel phantom

Typically, combinations of several intensity-modulated fields from different beam directions produce a tailored radiation dose that maximizes dose to the tumour while also protecting adjacent healthy tissues. The team have developed a stable and accurate polymer gel dosimeter for use in pre-treatment planning of radiation therapy. Through the use of a novel production method they have eliminated any inhomogeneities and artefacts within the gel medium, to achieve reproducible and precise results. In order to obtain absolute dose measurements a calibration procedure must be followed. This technique and the subsequent imaging of the radiated gel dosimeters has been perfected by the team. Imagel are currently having their gel evaluated at a number of leading IMRT centres.

Vertual Ltd - VERTual is an interactive virtual training environment spun out from Hull University & Hull & East Yorkshire Hospital NHS Trust. Radiotherapy treatment used to treat cancer is increasingly focussed on specialist sites involving significant capital investment in linear accelerators (LINACS) (typically £2.5 million per suite). A national training crisis has arisen because access to these LINAC suites by students has become severely restricted during normal working hours. A consequence of this is an unacceptably high student drop out rate, particularly from first year undergraduate radiotherapy courses, and this is starting to have an impact on patients receiving treatment for cancer within proscribed national limits.

VERTual is a 3-D platform utilising immersive visualisation technology and software to create a virtual reality training simulator for radiotherapy trainees.



The system provides opportunities for students to learn about the features of the LINACs, the patient setting and to learn an appreciation of the accuracy of the treatment. The “flight-simulator” approach provides hands-on training for staff and students and allows them to acquire practical, technical and problem-solving skills. 3-D Dosemap image produced by Imagel phantom

The VERT system is being installed in 10 academic centres and many NHS facilities across UK and several orders have been received from overseas training centres. Longer term plans include developing 3-D anatomy and other related training packages.

Success Stories

Breast Biopsy Phantom

Dr Giles Morrison, Head of Radiation Protection Services at Sheffield Teaching Hospitals NHS Foundation Trust, was asked to solve a specific problem associated with inaccurate calibration of the stereotactic core biopsy system fitted to mammography X-ray units. In some instances errors in calibration, had they not been picked up, would have led to a core biopsy being taken from the wrong position in the patient and hence generated a false negative result.

Giles led a team from Clinical Engineering that have not only solved this problem but they have created a generic test phantom that should accommodate most types of mammography units with a stereo tactic biopsy units. The invention won a Medipex Innovation Award in 2007 and has recently been licensed to a Yorkshire based company, Leeds Test Objects Ltd.

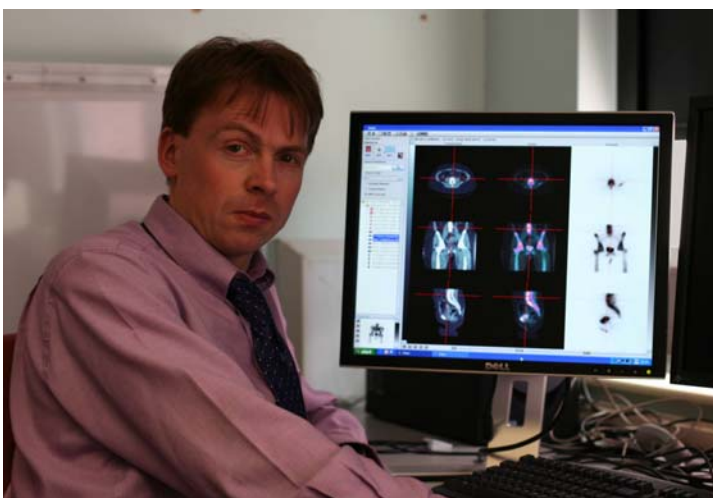


j-View Nuclear Medicine Viewing Software

Link Medical, a leading supplier of image processing software, and the Medical Physics and Clinical Engineering Department at Sheffield Teaching Hospitals NHS Foundation Trust are celebrating a licensing deal for jView, a java based nuclear medicine image viewing package developed at the Trust.

jView was developed by Trust employee Dr Peter Metherall in response to the needs of clinicians to be able to view and manipulate nuclear medicine images on PCs anywhere around the Trust and remotely at home via the internet. jView supplements PACS systems by allowing viewing and manipulation of nuclear medicine colour images on any PC leading to a more accurate diagnosis of the patient's condition.

Link Medical has taken a licence from the Trust to commercialise jView.



Dr Peter Metherall demonstrating the jView system

Dr Matthew Westmore, Technical Director of Link Medical, said "Link Medical have always understood that our greatest assets are our users. We have created a model where our products are significantly influenced by customer requests, suggestions, and developments; this is a particularly exciting example of this. Pete has done a fantastic job of developing a system that solves many problems in the distribution of nuclear medicine data, problems that are not being addressed by the OEMs or the PACS providers."

Success Stories (cont)

A cutting edge software tool to improve user's interaction with their prescribed Assistive Technology (AT) devices has been designed, developed and is now retailed by Madhouse Software Productions.

Switch Environment Assessment Tool (SEAT) – is a software application created by Madhouse Software in collaboration with Barnsley District General NHS Foundation Trust, to obtain information about the disabled person's abilities to interact with their assistive technology device (when using a switch). It allows people who prescribe this kind of technology to effectively identify the correct interactive settings for these tools for a particular user.

SEAT consists of a series of seven simple tests, each of which evaluates different aspects of the individual's interactive abilities. The results of these tests which can be used by switch based applications, suggest such values as 'Scan Duration', 'Hold Down Time' and 'Post Acceptance time'; all of which allow a picture of how the user interacts to be created and can be used to significantly increase the effectiveness of their interaction with the devices they use.



Barnsley Hospital NHS Foundation Trust
Barnsley Primary Care Trust
Bradford District Care NHS Trust
Bradford & Airedale Teaching Primary Care Trust
Bradford Teaching Hospitals NHS Foundation Trust
Calderdale and Huddersfield NHS Foundation Trust
Rotherham, Doncaster & South Humber Healthcare NHS Trust
East Riding of Yorkshire Primary Care Trust
Harrogate and District NHS Foundation Trust
Hull & East Riding Community Health Teaching NHS Trust
Hull & East Yorkshire Hospitals NHS Trust
Hull Teaching Primary Care Trust
Leeds Partnerships NHS Foundation Trust
Leeds Primary Care Trust
Leeds Teaching Hospitals NHS Trust
Rotherham Primary Care Trust
Scarborough & North East Yorkshire Healthcare NHS Trust
Sheffield Care NHS Trust
Sheffield Children's NHS Trust
Sheffield Primary Care Trust
Sheffield Teaching Hospitals NHS Foundation Trust
South West Yorkshire Mental Health NHS Trust
Wakefield Primary Care Trust
York Hospitals NHS Foundation Trust
Yorkshire Ambulance Service NHS Trust
NHS Yorkshire and the Humber (Strategic Health Authority)

Board Membership 2007/08

During the year several board members stepped down due to changes in their day job and were replaced such that the board composition at the end of the year was:-

Professor G Lloyd-Jones	Chairman
Dr S Ward	York Pharma Plc (Vice Chairman)
Mr R Clark (CEO)	Medipex Limited
Mr D Dickson	Garbutt & Elliott Accountants
Prof Peter Dettmar	Technostics Ltd
Dr Philip Drury	Advisor to DH
Professor M Hawley	Barnsley Hospital NHS Foundation Trust
Professor M Smith	Sheffield Hallam University
Dr Matt Toogood	Leeds Teaching Hospitals NHS Trust
Mr C Linacre	Sheffield Teaching Hospitals NHS Foundation Trust
Mr C Linacre	Bradford Teaching Hospitals NHS Foundation Trust
Professor P O Professor	York Health Economics
Professor John Hutton	NHS Yorkshire & the Humber
Dr Sue Proctor	Observer, Yorkshire Forward
Andrea Scully	Observer, Yorkshire Forward
Mrs Ann Starkey	Medipex Ltd, Company Secretary

Medipex Family Tree

Medipex team has now expanded up to 10 people and a new family tree identifies each team member.

