All the calculations that would ever be needed in this country could be done on the three digital computers which were then being built — one in Cambridge, one in Teddington, and one in Manchester. No one else, he said, would ever need machines of their own, or would be able to afford to buy them." -- Professor Douglas Hartree, Cambridge mathematician, 1951
PROGRESSION

MOBILE PHONES
COMPUTERS
ROBOTS
DAVINCI
TIMELINE OF ROBOTICS

- 1985 IBM Puma 560 performed neurosurgical biopsies
- 1988 TURP performed with PROBOT
- ROBODOC femur manipulation during hip surgeries
- 1990 NASA & Ames Research telepresence surgery (telesurgery), virtual reality, robots, and medicine
- The U.S. Army - MASH (Mobile Advanced Surgical Hospital)
- 1993 Computer Motion AESOP® voice-activated robotic system for endoscopic surgery
- 1995 MONA Intuatives first robot performed 1st Lap Cholecystectomy
- 1998 ZEUS® HERMES® centralized voice command and recognition system
- Intuitive Surgery created daVinci Surgical System® a master-slave system
- 2001, SOCRATES™ 1st transatlantic telesurgery performed (New York – Strasbourg)
- 2002 first robotic prostastectomy
UK DISTRIBUTION

- Addenbrooke’s Hospital – Cambridge
- Barnet & Chase Farm NHS trust – London
- Bradford Hospital - Yorkshire
- Broomfield Hospital – Essex
- Christies Hospital – Manchester
- Frimley Park NHS Foundation Trust – Surrey
- Guy's Hospital – London
- Kent and Canterbury
- Lister Hospital – Hertfordshire
- New Cross - Wolverhampton
- Oxford Radcliff Trust – Oxford
- Royal Berkshire - Reading
- Royal Marsden Hospital – London
- Royal Liverpool - Liverpool
- Royal Surrey County NHS trust - Guildford

- St. George's Healthcare NHS Trust - London
- St. James’s University Hospital – Leeds
- Saint Mary’s Hospital – School of Medicine – London
- South Devon Healthcare NHS Foundation Trust - Devon
- Southmead Hospital Bristol
- The London Clinic – London
- The Princess Grace Hospital – London
- University College Hospital (UCH)- London
- The Wellington Hospital (UK)
- Wexham Park Hospital - Berkshire
- Galway Clinic
- Mater Private – Dublin
- Cork Maternity Hospital
WORLD WIDE DISTRIBUTION

325000 PROCEDURES PERFORMED LAST YEAR
1,000,000 PROSTATES REMOVED TO DATE

- 2009 24%
- 2010 38%
- 2011 54%
- 2012 63%
MASTER SLAVE SYSTEM

- DIRECT CONTROL
- MIMICS MOVEMENT
- NO MEMORY
WHY ROBOTICS?

- SHORTER LENGTH OF STAY
- SMALLER SCARS
- LESS PAIN
- BETTER DISEASE OUTCOME
- LESS BLOOD LOSS

- MORE ERGONOMIC
- EASY TO LEARN
- 3D VISION
- INTUATIVE
SURGEON

- 3D TECHNOLOGY
- REMOVES HAND SHAKE
- WRISTED INSTRUMENTATION
- 7 DEGREES OF MOVEMENT
- INTUATIVE MOTION
- EASY TO LEARN
WHY NOT?

- MONEY
- MENTORSHIP
- MONEY
- NUMBERS
- MONEY
- HAPTIC FEEDBACK
- MONEY
WHO WHAT WHERE

- WHERE IN THE BODY CAN YOU USE ROBOTICS?
- WHAT PROCEDURES CAN YOU PERFORM?
- WHAT CAN’T IT DO?
UCLH

- 198 PROSTATECTOMY
- 3 PARTIAL CYSTECTOMY
- 6 CYSTECTOMY WITH NEOBLADDER
- 4 CYTECTOMY WITH CONDUIT
- 8 PELVIC LYMPH NODE CLEARANCE
- 4 NEPHRECTOMY
- 1 COMBINED URETHROPROSTATECTOMY AND MITROFFANOFF
- 5 UNITS OF BLOOD
- NO CONVERSION
- 67% 24HR STAY
- 4 READMISSION
ROBOTIC DEVELOPMENT AT UCLH

- UROLOGY
- GYNAECOLOGY
- HEAD AND NECK/ENT
- COLORECTAL
- HEPATOBILARY
- BARIATRIC
- SINGLE PORT
EDUCATION

- Mentoring
- Hands on experience
- Technique refinement
- Training modules
- Console experience
- Theatre teams
- Master classes
FUTURE DEVELOPMENTS

TORS
FUTURE DEVELOPMENTS

- Tele-presence
- Remote mentoring
- MRI overlay
- Fluorescence imaging
- Robotic assistants
- Remote controlled
- Micro bots
- No incisions
FUTURE DEVELOPMENTS

- SILS
- NOTES
- MICROBOTS
THANK YOU

ANY QUESTIONS

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