



Annual Report – 10th Anniversary



From the Directors

From conception the SPRinT programme has aimed to increase the quality of performance of the *individual* and *team* in emergency situations, to decrease risk by introducing robust systems and to increase staff professional development and satisfaction.

SPRinT has developed from the frontline, by frontline staff, and in the main is a voluntary effort driven by the passion of staff who can see the outcome of effective learning.

While teams continue to learn, and team working, empowerment and a culture of resilience and cohesiveness is promoted, then the care of our patients and their safety is optimised.

We are delighted that our 10 year anniversary has arrived, how fast it has gone and how many wonderful people have participated.

We believe we have demonstrated how the individual health care professional can support patient safety through improved inter-professional teamwork. The work and changes in small steps at the level of the micro-unit are the basis to improve patient safety, engagement of health care providers is improved and our initiative has been highly accepted. Patient safety initiatives from bottom-up encouraging participation of every single care provider by learning effective inter-professional teamwork within daily practice are an effective way fostering patient safety.

The SPRinT programme aims to sustain itself for the next 10 years as well, promoting training for teams to deliver in situ simulation programmes in their own hospitals and developing models that can enable all health staff to participate in the learning experience.

Margarita Burmester and Mary Lane

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Mission Statement

The *SPRinT* (Simulated interPRofessional Team Training) Programme is designed to provide unique tailored learning opportunities to large numbers of NHS staff through a rigorous and challenging in-situ simulation programme. The programme is quality controlled by intense mentoring and regular review of faculty and



continual evaluation of the programme success in meeting participants' educational and personal objectives. The *SPRinT* programme has provided a weekly opportunity for education of all staff involved in paediatric care since 2008. Simulated critical events are safely rehearsed within a real multi-professional team in their actual clinical environment. Our focus is on human factors, emphasising team performance while rehearsing the management of rarely occurring critical events. *SPRinT* simulations identify workplace system weaknesses (latent threats) enabling issues to be highlighted and corrected as well as providing 360° feedback evaluation (including video feedback) which is inbuilt in the programme.

By providing high quality team training at the clinical interface we aim to improve patient care and safety.

Background and History

The *SPRinT* Programme was founded in 2008, at a time when in-situ simulation was virtually unknown. In-situ simulation has strength in addressing complexities for training in teamworking skills, raising awareness of human factors, and as a provision of a method for identifying system failures at local or organisational level. The feasibility and challenges of in-situ simulation are well documented, but the *SPRinT* Programme has successfully embedded simulation for staff in their working day in the paediatric intensive care unit (PICU), the paediatric cardiorespiratory ward, adult high dependency unit, and adult intensive care unit at Royal Brompton Hospital.

In February 2008 a commitment to undertake regular *crisis resource management* training using medical simulation was made by the Paediatric Intensive Care consultant team. A paediatric resuscitation team was formed of interested PICU consultants and paediatric nurse educators, and a series of 10 scenarios were constructed from adverse events that had occurred on PICU or Rose Ward. Bi-monthly in-situ simulation training on PICU or Rose ward ran for the first 12 months. The simulation sessions were run in real time and used equipment and personnel according to the clinical needs of the scenario. 34 nurses and 32 doctors participated during this period, and a 4 week summer defibrillation workshop was run for 90 doctors and nurses.

Initial simulation sessions utilised low fidelity mannequins already purchased by the trust. By the end of 2008 the team secured funding from the *League of Friends* to purchase a high fidelity Simbaby and thereafter acquired equipment for part-task training, audio-visual equipment (SMOTS trolley with vital signs feed and network recorder) for debriefing from the London Deanery as part of STeLI (Simulation and Technology-enhanced Learning Initiative), and became a designated *School of Paediatrics "Simulation Lead Centre"*.

In 2009 the Director of Paediatrics made a space commitment of 1 cubicle on PICU for simulation equipment to be set up for regular *in-situ* scenario and part-task training. In-situ simulation sessions were now run weekly in paediatric areas: PICU, Rose Ward, CT Scan and theatres. At this point more than 100 members of the paediatric medical and nursing teams had gone through simulation. Planning and running a high-fidelity full-immersion simulation requires 2-3 trained personnel and so 2 Paediatric Anaesthetic Consultants were recruited to the team.

Our aims from May, 2009 were:

- 1st aim - Increased Quality of Resuscitation / Emergencies
- 2nd aim – To Decrease Risk through Robust Systems
- 3rd aim – To Increase Staff Professional Development and Satisfaction
- 4th aim – To create innovative equipment to enhance specialist learning
- 5th aim – To contribute to the evidence base by developing research programmes

In order to achieve these aims, we recognised that we needed **protected time for faculty & learners for weekly SPRinT in-situ simulation**. We asked for support from medical and nursing management within the paediatric division, and simulation training to be included in the job plans of members of the *SPRinT* team; we achieved 0.4 FTE of a paediatric nurse educator position and 0.2 FTE Simulation Technician.

In order to be effective teachers, *SPRinT* faculty needed **Improved training in adult education**. The trust funded the *Children's Hospital Boston Simulator Programme team (Harvard University)* to come to London for a 3 day intensive graduate training course for all 13 members of the *SPRinT* team in June 2010. This training was followed up by a **2 day refresher course** again for all 13 team members in November 2010, funded by *SPRinT* and Royal Marsden charitable funds. In this way the *SPRinT* team built on existing knowledge and enhanced educational capabilities.

From 2010-2014, the *SPRinT* programme continued to develop and annually won multiple regional awards for innovation and education. By 2015 the *SPRinT* programme was established and recognised as making a significant impact on patient safety and won the Patient Safety Award for Education and Training at the Patient Safety Congress HSJ (Health Services Journal). In this year the programme was also shortlisted for the HSJ Awards (Health Services Journal) and was commended for a Health Business Award.

By 2017, the CQC published their report, *SPRinT* was highlighted as one of the four 'Outstanding' areas of practice in Royal Brompton Hospital:- "We saw several areas of outstanding practice including in the service for children and young people, *SPRinT* training has won National awards. Delegates attend the training from all over the world. The training has been taught and has commenced at other hospitals nationally."

In-Situ Simulation

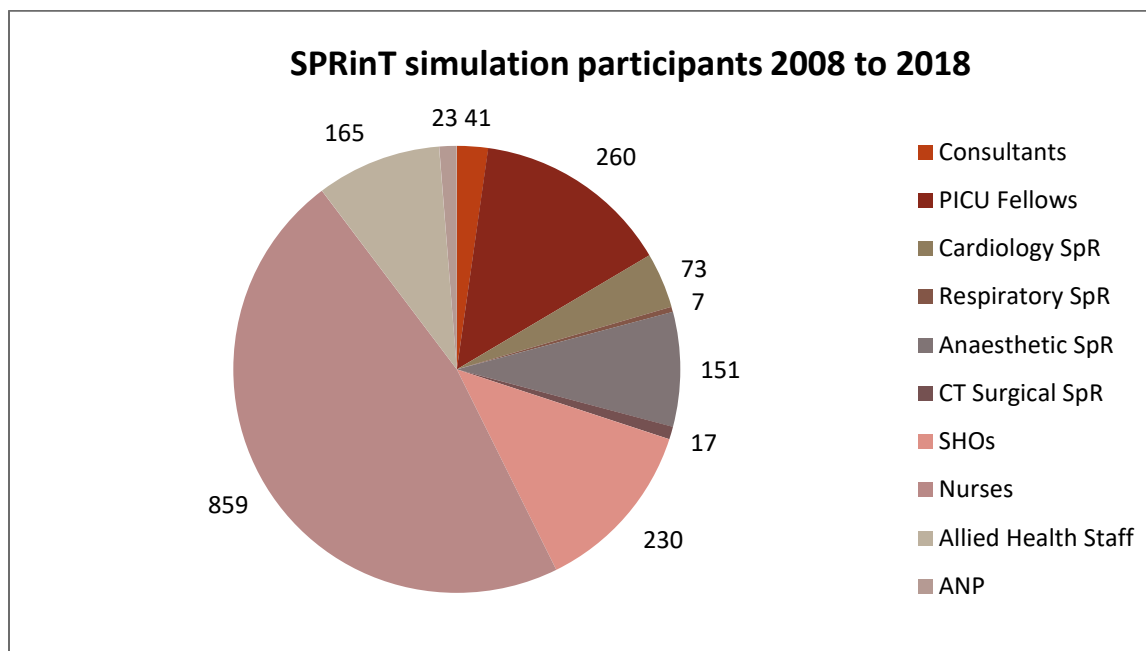
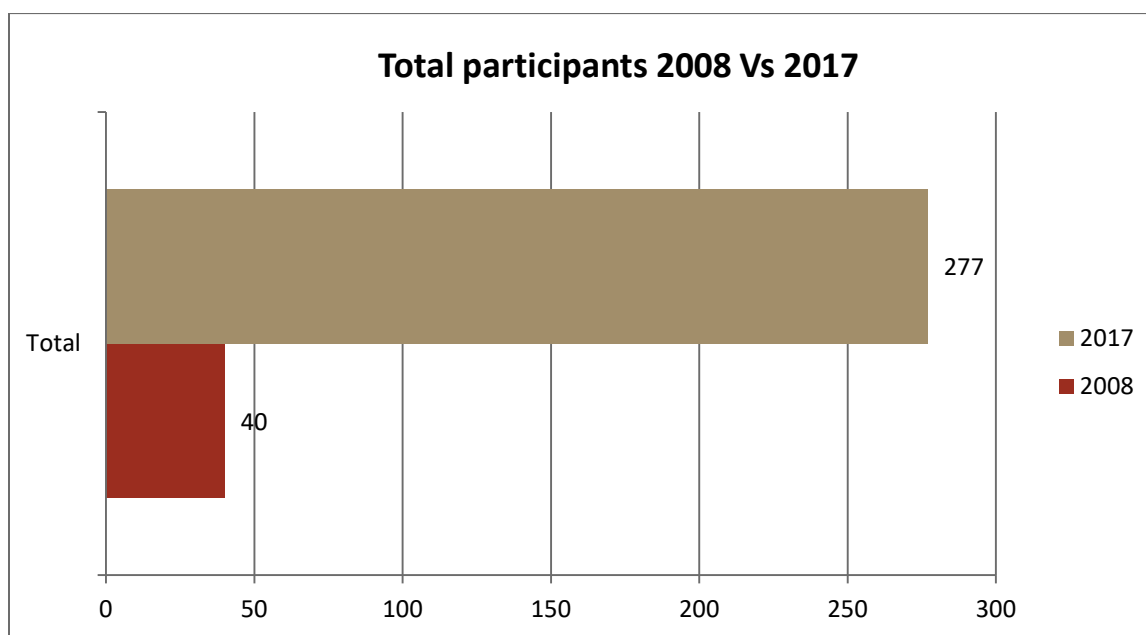
Our in-situ simulation courses, or SPRinT team training courses, occur weekly in the real clinical area where involved multi-disciplinary teams are working. Two hour courses consist of introductions and icebreakers, interactive teaching on crisis resource management principles, introduction to the simulation environment, simulated scenario derived from a real clinical event in that area, and facilitated video-assisted debriefing. Debriefs are always co-facilitated by faculty from different professional backgrounds; we find that this fosters an environment which promotes interprofessional learning in the participant and faculty team. Our objective is that all staff working in Paediatrics attend a SPRinT team training course at least once per year.



Features of SPRinT in-situ simulation courses

Members of the SPRinT team run in-situ simulation courses in areas such as paediatric intensive care, the paediatric cardiorespiratory ward, adult HDU and adult intensive care, as well as requested areas as diverse as Cath labs, theatres, and the paediatric play room!

To date, **1826** staff have undertaken at least 1 SPRinT team-training simulation event, with many undertaking multiple simulations. Research [undertaken by the SPRinT programme in 2012](#) indicates that repeated exposure to simulation is most beneficial to crisis resource management training and single, isolated exposure may not be sufficient. We aim that all staff in Paediatrics attend SPRinT at least once a year as part of their continuing professional development. In 2017, **38** SPRinT Courses were run with **277** participants (207 PICU, 57 Rose Ward, 13 Adult Critical Care).

10 Year Participation in *SPRinT* in-situ simulation coursesComparison of total number of *SPRinT* in-situ simulation participants per year (2008 vs 2017)

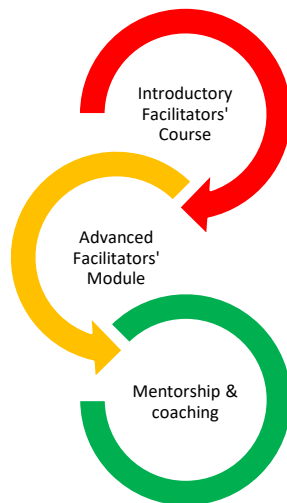
Latent Threats

For the past ten years, we have used in situ simulation to expose system vulnerability and flaws which often remain hidden until they impact patient safety. These hidden threats are termed latent threats. In 2017 we published a [retrospective review](#) of latent threat identification and mitigation through SPRinT courses since 2008.

48 latent threats were identified and rectified using service improvement projects. This equates to about 1 LT per 4.6 courses. A vital conclusion from our research was that an in situ simulation program can identify important LTs which traditional reporting systems, such as Datix, miss. Subsequent improvements in workplace systems and resources can improve efficiency and remove error traps. In 2017, there were only 4 LT's identified, but 3 of these 4 were on the cardiorespiratory ward; this follows embedding regular SPRinT courses every month on the ward.

Faculty Development

Key to our goal of increasing access to SPRinT Courses for the workforce across the Trust is strong faculty development. This includes mentoring faculty who have undertaken SPRinT Introductory or Advanced Facilitators' Courses. From an initial group of 14 interprofessional enthusiasts, our faculty has now swelled to a faculty of 28 people across the Trust.



SPRinT Faculty Development Pathway

"Your support and ongoing guidance has been invaluable to help the faculty team-build. Looking forward to the 10th Anniversary of SPRinT in 2018 with exciting times ahead!"

SPRinT Team

Our faculty group is the heart of the SPRinT Team, ensuring regular in-situ simulation courses in our hospital are consistently high-quality and embedded in everyday practice. Their ideas for pop up workshops for quality CPR, airway skills, and defibrillation are integrated into the workplace for staff when they have a moment to spare.

They also share their expertise with healthcare professionals from across the UK who come to learn to facilitate or who want mentoring in their own educational practice. We welcome additions to the SPRinT Team from any professional background!



2017/18 SPRinT Faculty

SPRinT Director	Margarita Burmester	Lead Consultant PICU
SPRinT Director	Mary Lane	Consultant Paediatric Anaesthetist
Lead Nurse for SPRinT	Lydia Lofton	Paediatric Intensive Care Nurse
Deputy SPRinT Nurse	Sami Collins	Senior Staff Nurse, Rose Ward
SPRinT Research Fellow	Craig Knott	PICU Clinical Fellow
SPRinT Research Fellow	Cecilia Korb	PICU Clinical Fellow
SPRinT Technical Consultant	James Wood	Information Manager for Paediatrics
SPRinT PA	Sadiya Uddin	PA to PICU Consultants & SPRinT
SPRinT Faculty	Amy Chan-Dominy	Consultant in PICU & AICU
SPRinT Faculty	Julie Combes	National Programme Manager
SPRinT Faculty	Judy Cotterill	Lead Nurse, Recovery & Cath Lab
SPRinT Faculty	Ajay Desai	PICU Consultant
SPRinT Faculty	Kumi De Costa	PICU Practice Educator
SPRinT Faculty	Dan Fossey	Paediatric Practice Educator
SPRinT Surgical Consultant	Olivier Ghez	Consultant Paediatric CT Surgeon
SPRinT Faculty	Sian Jaggar	Paediatric Anaesthetic Consultant
SPRinT Faculty	Kieran McManamy	Practice Educator, Elizabeth HDU
SPRinT Faculty	Sonia Mendonca	Practice Educator, AICU
SPRinT Faculty	Sara Mele	Consultant Anaesthetist
SPRinT Faculty	Sarah Osborne	Practice Educator, Hospital to Home
SPRinT Faculty	Cathy O'Donoghue	Consultant Paediatric Anaesthetist
SPRinT Faculty	Maurizio Passariello	Consultant in Anaesthetics & AICU
SPRinT Faculty	Jo Poole	Paediatric Practice Educator
SPRinT Faculty	Toranj Raimalwalla	PICU Clinical Fellow
SPRinT Faculty	Helena Sampaio	PICU Advanced Nurse Practitioner
SPRinT Faculty	Victoria Sheward	Consultant in PICU
SPRinT Faculty	Jolana Sykorova	Practice Educator, AICU
SPRinT Faculty	Sarah Trenfield	Consultant in Anaesthetics & HDU
SPRinT Faculty	Caterina Vlachou	Consultant in Anaesthetics & HDU
SPRinT Faculty	Neil West	Paediatric Practice Educator

External Courses

Outside our own institution we have trained 220 people on our Introductory Facilitators' Course and a further 38 people have undertaken our extensive Advanced Facilitators' module.

We run specialist clinical simulation courses such as the Neonatal Cardiac Emergencies Courses and have hosted simulation workshops for the Royal Society of Medicine on specialist topics such as In-situ Simulation, Using Simulation to Improve Patient Safety, and Paediatric Deteriorating Patient days.



Introductory Facilitators' Course

- 220 participants (2011-2017)
- 2 day introductory simulation facilitator course
- 15 HEE North West London places, 5 places for out of area participants

Advanced Facilitators' Module

- 38 participants (2011-2017)
- 4 day intensely mentored course with focus on in-situ simulation
- 4 HEE North West London places, 1 place for out of area participant

Neonatal Cardiac Emergencies

- 93 participants (2010-2017)
- 1 day course on the diagnosis and management of congenital heart disease presenting as neonatal emergencies, combining lectures and simulations
- Designed for doctors and nurses working in paediatrics, A&E, NICU and anaesthesia.

External Courses Designed and Facilitated by SPRinT

"Very inspiring and knowledgeable instructors who were willing to share their own experiences, good and bad."

"Very interesting and thought provoking. A whole new way of listening and communication has been explored. I think this has made the whole group rethink the way we communicate with each other."

"This course has altered my way of thinking about simulation and the relevance of teamwork particularly."

Research and Conference Presentations

We prioritize development of educational research using simulation to contribute to development of a stronger evidence base, and consider it essential that practices are shared and discussed widely. We were privileged in 2017 that 10 members of the SPRinT Team attended and hosted 5 local, national, and international meetings this year, presenting original work or facilitating workshops for meeting delegates.

We are proud of our international team, and started out the year with a strong representation of international faculty representing SPRinT at the 2017 International Meeting on Simulation in Healthcare (IMSH) in Orlando, Florida....Ireland, England, South Africa, Greece, Australia, Brazil, and Portugal....with more team members back at home who couldn't attend from

France, Philippines, North America, Sri Lanka, India, and Germany!



We were thrilled to see Cecilia Korb awarded the runner-up poster prize in simulation at the Developing Excellence in Medical Education Conference (DEMEC) held in Manchester. The presentation was on educational research led by SPRinT using

deliberate practice with feedback to improve the quality of CPR in the paediatric intensive care unit.

Sami Collins and Cecilia Korb presented at the Association for Simulated Practice in Healthcare (ASPiH) annual conference held in Telford. There was significant interest in Sami's work on participant perception of anxiety related to simulation, and we are excited about further iterations of this work. Cecilia's presentation on improvement of non-technical skills and confidence following SPRinT, and the impact of repeated training, was met with interesting questions on how we can translate this to real clinical practice. We were excited to be able report how we are approaching this using TeamMonitor in real resuscitations, and look forward to future development of this work.



2017 Conferences: SPRinT presentations or workshops

International Meeting on Simulation in Healthcare (IMSH) 2017, Orlando, USA.

23rd Annual Meeting of the Society in Europe for Simulation Applied to Medicine. Paris, France.

31st Paediatric Intensive Care Society Annual Scientific Meeting. Nottingham, UK.

Royal Society of Medicine Patient Safety Section: Quality Improvement through Simulation. London, UK.

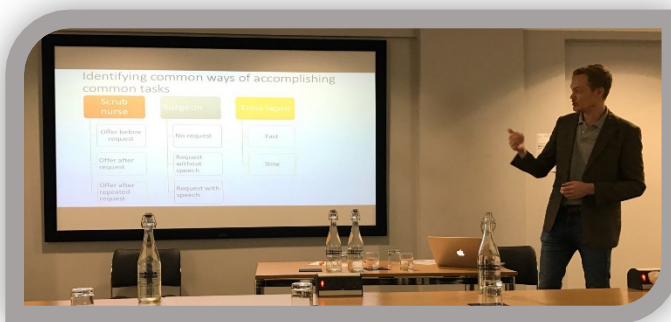
6th National Neonatal Simulation Conference. Southampton, UK.

Association for Simulated Practice in Healthcare (ASPiH) 8th Annual Conference, Telford, UK.

Developing Excellence in Medical Education Conference, Manchester, UK.

Communication & Teamwork in In-Situ Simulated Resuscitations

In 2017 we embarked upon a collaborative study between the SPRinT programme and social scientists from University College London on *Communication and Teamwork in In-Situ Simulated Resuscitations*. This study aims to develop further research to inform clinical educational needs and training strategies to improve teamwork and communication in resuscitations, in order to provide better patient care.



The pilot phase of the project analysed videoed simulated resuscitation events in order to improve how we teach teamwork and communication. Videoing real resuscitation events would enable us to explore this in much greater detail and with more relevance and accuracy. We have been

engaging with staff, families, and other researchers and healthcare professionals to explore their experiences and perceptions of video recording in clinical settings for patient safety and quality improvement.

Part of the staff engagement workshop included an opportunity to hear about the analytical techniques being used to look at how teams communicate and work together during resuscitations, and to hear about the first stage of analysis. We hope to be able to share more progress as this research progresses in 2018.

Special Events

This summer we partnered with the Royal Brompton Paediatric Nurse Education team to introduce the first simulation session for staff attending the 15th Introduction to Congenital Heart Disease Course held at the Royal Brompton Hospital/National Heart & Lung Institute. The course is a yearly collaboration with Great Ormond Street Hospital for Children and Evelina Children's Hospital, rotating across host sites every two years. Additionally, participants were able to test and improve their skills in a simulation-based quality CPR competition. We hope the addition of simulation to this course will continue in the future!



Leaders from the SPRinT Programme have been invited to lead several exciting events in 2017. Lydia Lofton was invited to facilitate a pre-conference track with an international team of paediatric simulation educators on behalf of the International Pediatric Simulation Society (IPSS) at the annual meeting of the Society in Europe for Simulation Applied to Medicine (SESAM) in Paris. Margarita Burmester represented the Association for Simulated Practice in Healthcare (ASPiH) at the 6th National Neonatal Conference in Southampton. She presented and facilitated discussion about ASPiH Standards for Simulation-based Education as being a goal we should all aspire to in the simulation community. Find more information about ASPiH Standards here: <https://aspih.org.uk/standards-framework-for-sbe/>

Mary Lane hosted a meeting at the Royal Society of Medicine on patient safety, quality improvement, and resilience in healthcare, where Margarita Burmester presented on influencing change using simulation, followed by a workshop on identification of latent threats using simulation.



Lydia Lofton was invited to be on the final panel discussion at the annual University College London P (UCL) Partners Education Conference. This session rounded off the conference with lively discussions around interprofessional education, use of digital technology, and patient involvement in educational initiatives.

Recognition and Milestones

2008 SPRinT founded by Margarita Burmester, Meredith Allen, Kumi de Costa and Jennifer Armstrong

2010 Open-chest ECMO model showcased at Royal Society of Medicine surgical training day

2010 SPRinT highly commended at London Deanery's STeLI (Simulation and Technology-enhanced Learning Initiative) third annual 'Innovation in Education - the engine for change' conference

2010-14 Margarita Burmester appointed Secretary & Research lead of Paediatric Intensive Care Society Simulation group 2011

2011-14 Margarita Burmester elected Founding Board of Director member of the International Pediatric Simulation Symposia & Workshops (IPSSW)

2011 SPRinT Winner of London Deanery's STeLI Excellence Prize for cardiothoracic innovations

2012 SPRinT Winner London Deanery's STeLI Educational Excellence Innovation Award

2014 Health Education North West London Meeting. Simulation: Is a New Approach Needed? 3 SPRinT posters highly commended

2015 SPRinT Winner of HSJ Patient Safety Award for Education and Training

2015 Finalist Health Service Journal Awards

2015 Association for Simulated Practice in Healthcare (ASPiH) Annual Conference, Dr Helen MacGloin, PICU/SPRinT research fellow, awarded the Best short communications / work in progress prize.

2015 Lydia Lofton, Lead Nurse for SPRinT, elected Chair of Paediatric Special Interest Group for Association for Simulated Practice in Healthcare (ASPiH).

2015 commended for Health Business award - patient safety

2016 Mentoring of adult critical care SPRinT Team members and programme expansion

2016 Margarita Burmester, elected to Executive Committee for the Association for Simulated Practice in Healthcare (ASPiH)

2017 Lydia Lofton, Lead Nurse for SPRinT, elected to Board of Directors for the International Pediatric Simulation Society (IPSS)

2017 SPRinT programme named one of four outstanding areas of practice by CQC (Care Quality Commission) at Royal Brompton Hospital

2017 Margarita Burmester, SPRinT Founder and Co-Director, elected Co-Chair of Health Education North West London Simulation Network