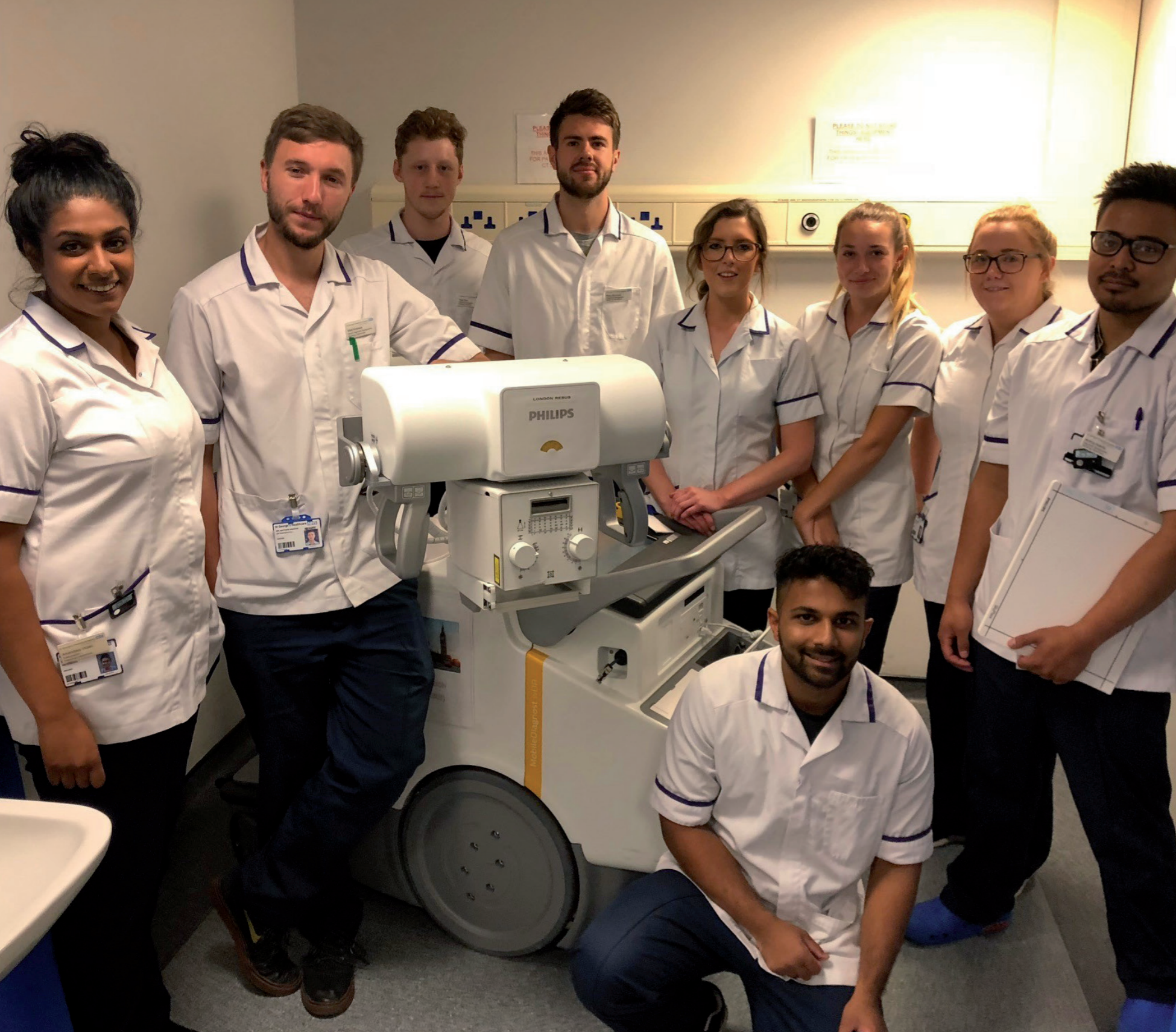


A photograph of two healthcare professionals, a woman and a man, in a clinical setting. The woman, on the left, is wearing a white lab coat and has a stethoscope around her neck. She is looking towards the right with a slight smile. The man, on the right, is wearing glasses and a blue scrub top. They appear to be engaged in a conversation or a task. The background is a plain, light-colored wall.

A study to review **the differences in image quality between standard practice image capture in mobile x-ray** and the use of SkyFlow

**Benefits include an easier workflow with no compromise on image quality**

**Author:** Hitesh Patel, Superintendent Radiographer,  
St. George's University Hospitals NHS Foundation Trust



**Photo: Members of St. George's Hospital Radiography Team:** Amandeep Hujan, Matthew Andrews, Jeremy Adante, Ryan Burcham, Kim Babbage, Keeran Mystey, Jessica Freeman, Emma Madigan & Harry Roe.

“ During the reporting it was very clear which images had been captured whilst utilising the Philips SkyFlow technology, and which images had been captured without it. The images with SkyFlow technology allowed for easier diagnostic reporting

In 2017, St. George's Hospital, Tooting, part of St. George's University Hospitals NHS Foundation Trust purchased a **Philips wDR mobile digital X-ray system**, together with **SkyFlow technology**.

**At St George's Hospital, mobile x-rays were traditionally acquired without using a grid and this resulted in image quality being significantly reduced. SkyFlow technology, using advanced algorithms to reduce image degradation due to scatter, facilitated the acquisition of images without the need for a grid and without compromising image quality. Some of the benefits of a grid-less system are lower dose, quick image capture due to the avoidance of alignment issues and lighter detectors which results in a more comfortable experience for the patient and greater ease of use for the radiographer. Hitesh Patel, Superintendent Radiographer for generals, mobiles and theatres, explains, “with the purchase of this new technology we had the opportunity to improve the quality of our mobile x-rays without adding to the radiation burden of the patient and thereby advancing our practice in what is a considerable part of our workload”.**

This study records our findings around aspects of clinical image quality and its results on our clinical practice.

At St George's, bedside chest radiographs are the most frequent radiological examination performed in the intensive care unit. In particular, patients with acute cardiopulmonary problems or those on mechanical ventilation may receive daily chest X-ray exams while in the ICU. Historically when using our traditional older CR mobile machines we are regularly faced with the challenge of

carefully balancing dose and image quality alongside ensuring patient safety in aspects such as NG line placements.

When we received the new machines with improved image quality and dose reduction potential, we ran a series of lunchtime sessions to train all the staff on its benefits. Our mobile machines only pull the portable X-ray requests from PACS, and the Philips system automatically ensures that all exams with this 'portable' patient view prefix using over 6kv, have SkyFlow applied.

Once we had a new procedure in place, we enlisted Dr Johnny Vlahos, Consultant Radiologist, who was asked to report on his observations over a specific time period.

During the reporting it was very clear which images had been captured whilst utilising the Philips SkyFlow technology, and which images had been captured without it. The images with SkyFlow technology allowed for easier diagnostic reporting whilst maintaining a low dose of around 85 and 2 for a typical chest. Dr Vlahos claimed that 'the SkyFlow obtained images offer a significant improvement in image quality and help to support our staff to deliver extremely low dose levels and enhanced positive patient outcomes for our Trust.'

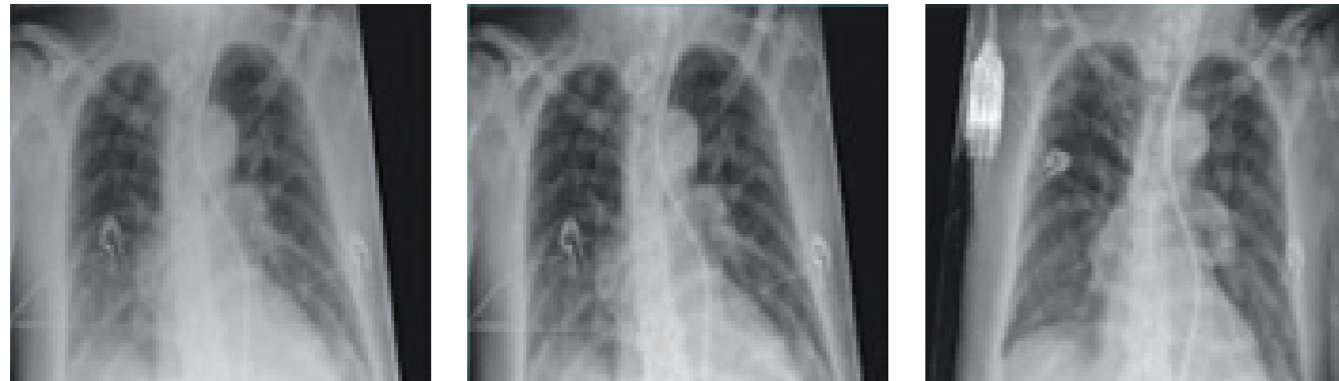
In ITU the staff were excited to be able to use the 'grid-like' images to easily and safely find NG tube lines on the mobile machines monitor without the delays and consequences of waiting for an image to be viewed on PACs.

# Philips SkyFlow

## Superior image contrast enhancement without a grid

Philips SkyFlow reduces the effect of scattered radiation for non-grid bedside chest exams, allowing the user to obtain DR images with grid-like contrast, without the constraints and disadvantages of using a grid.

In this study it was demonstrated that the image clarity using SkyFlow's grid-less technology was just as good, if not better than with a grid. Comparative images, with and without the SkyFlow technology were reviewed:



Reference image acquired without grid

Same exposure, but processed with SkyFlow

Image of same patient acquired on a different day with grid

### Simple automatic operation for immediate results

SkyFlow X-ray image processing requires no operator input and automatically adjusts contrast enhancement based on the amount of scatter for the individual patient. Therefore, it is suitable for a wide range of patient types, particularly for bariatric patients.

### Grid-less workflow saves time

It identifies scatter signal and automatically applies correction immediately at the bedside. Users can review quality images and make decisions on-the-spot, just as mobile radiography demands. Additionally, by eliminating the grid, retakes caused by grid misalignment can also be eliminated.

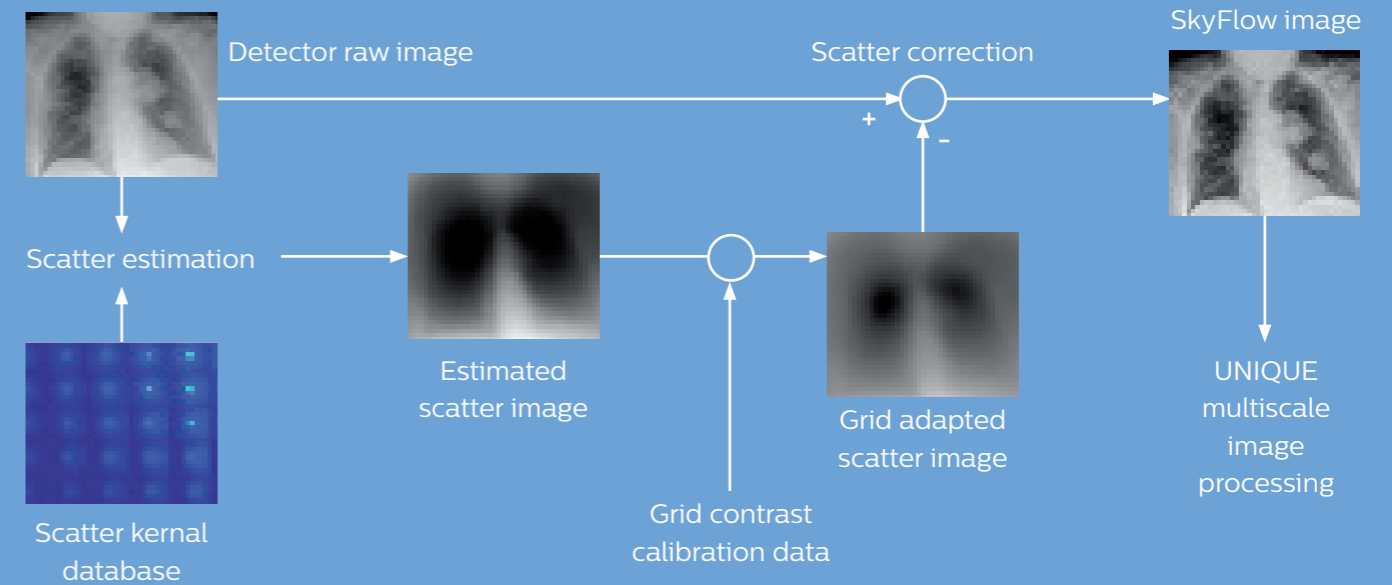
### Focus on the patient

There is no need to prepare the detector with an anti-scatter grid, so that the operator can devote full attention to the patients, shorten the exam times and position them comfortably.

### Maintain excellent image quality

Exceptional DR images can be obtained with grid-like contrast for all patient types, including bariatric. By using SkyFlow X-ray image processing for bedside and trolley chest exams in combination with Philips large SkyPlate detector, the operator can obtain an image that is virtually indiscernible from an image acquired with a grid.

# Philips MobileDiagnost wDR



### Excellent visibility for easy access

The robust, mobile system offers a sliding column that moves down and out of the way for a clear view of the surroundings, and this clear field-of-vision allows for excellent workflow as manoeuvrability is enhanced with accessing challenging spaces in the operating theatre, A&E, ICU and general ward.

### Seamless workflow

It allows for outstanding workflow with rapid availability of premium digital images. Small form factor, cable-free design, Philips SkyPlate wireless portable detectors and SkyFlow technology, and

only 3-clicks to complete an exam all combine to speed up workflow.

### Outstanding image quality

Superb, high contrast images are possible (without a grid) using SkyPlate detectors and SkyFlow technique. UNIQUE multi-resolution image processing and a 20kW generator, powerful enough to generate quality images for a broad variety of patient types, supports diagnostic confidence.

Please contact Philips on [imagingoffers@philips.com](mailto:imagingoffers@philips.com) to arrange an onsite demonstration for your hospital.

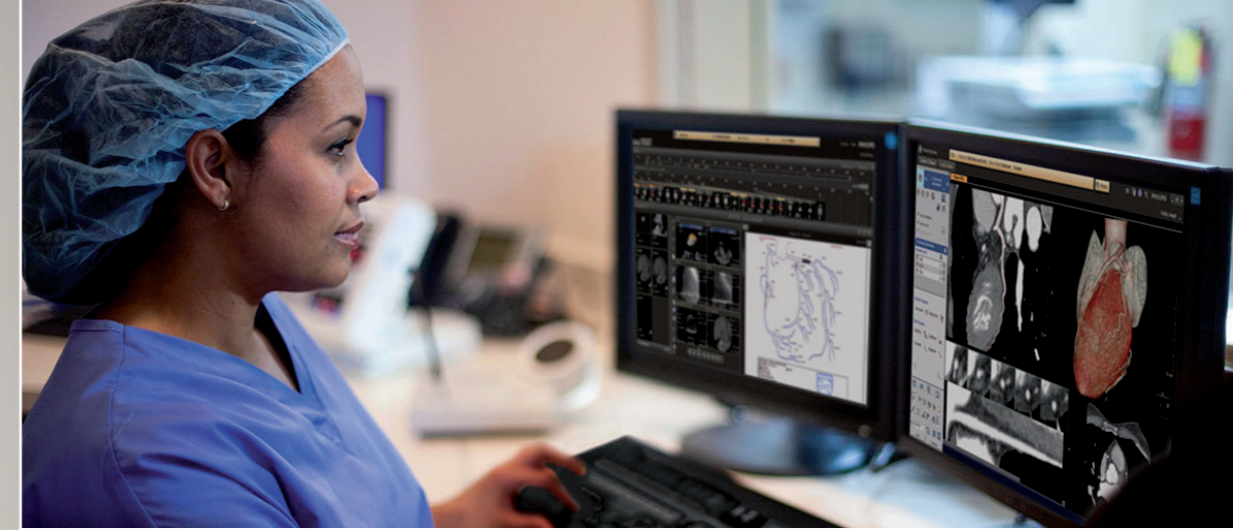
### Ref:

St George's University Hospitals NHS Foundation Trust is the largest healthcare provider in southwest London. The main site, St George's Hospital in Tooting, one of the country's principal teaching hospitals, is shared with St George's University of London, which trains medical students and carries out advanced medical research. St George's also hosts the St George's, University of London and Kingston University Faculty of Health and Social Care Sciences, which is responsible for training a wide range of healthcare professionals from across the region.

St. George's University Hospitals NHS Foundation Trust serves a population of 1.3 million across southwest London. A large

number of services, such as cardiothoracic medicine and surgery, neurosciences and renal transplantation also cover significant populations from Surrey and Sussex, totalling around 3.5 million people.

The Trust also provides care for patients from a larger catchment area in southeast England, for specialities such as complex pelvic trauma. Other services treat patients from all over the country, such as family HIV care and bone marrow transplantation for non-cancer diseases. The Trust also provides a nationwide state-of-the-art endoscopy training centre.



## Dr Vlahos

### Clinical interests

Dr Vlahos is a Consultant Radiologist with a number of specialist clinical interests.

These include cardiothoracic radiology, abdominal radiology and advanced CT applications such as 3D, quantitative techniques, dual energy CT and iterative reconstruction dose reduction.

### Professional profile

Dr Vlahos is a Consultant Radiologist in the UK and a Diplomat with the American Board of Radiology. He graduated in 1990 with an MBBS from King's College, London, before attaining a BSc in 1993 from the same establishment.

He then took up the post of senior house officer (SHO) at King's College Hospital, Papworth

Hospital and Addenbrooke's Hospital, Cambridge. From 1996 to 2002 he was appointed a specialist registrar in radiology at St Bartholomew's and the Royal London Hospitals.

In 2001 Dr Vlahos took up a one-year Alwyn Bursary and clinical fellowship in chest and body imaging at St Bartholomew's and the Royal London Hospitals. He then took up a one-year fellowship in chest and body imaging at New York University USA in 2002.

The following year he was appointed assistant professor and attending physicians at New York University until 2007. He has been a consultant at St George's since 2007.

Dr Vlahos' research highlights include being the divisional and departmental lead for research and being consultant to the industry for technology development and research. He sits on international research panels and research grant allocation committees as well as being a reviewer for numerous journals.

He has made many scientific presentations and authored many papers, chapters and original textbooks.

- Member General Medical Council
- Member Medical Defence Union
- Fellow Royal College of Radiologists
- Member Royal College of Physicians
- Member Radiological Society of North America
- Member American Roentgen Ray Society
- Member American Society of Emergency Radiology
- Member European Society of Radiology
- Member American Board of Radiology
- Member Society of Thoracic Radiology
- Howlett Prize in Radiology – Winner 1993 and Runner up 1992
- Winner Tanner Prize in Obstetrics and Gynaecology 1993

- Winner Ware Prize in Pathology 1993
- Glaxo Dermatology Prize – Runner up 1992 and 1993
- Awarded RSNA Certificate of Merit 2008, 2009 and 2010
- Winner Journal of Thoracic Imaging Review Award 2010
- Winner Siemens Research Award 2010
- Winner London School of Radiology Research Prize 2009
- Winner ARRS Certificate of Merit 2008
- Winner Hounsfield Award 2001
- Winner RSNA Magna cum Laude Award 2001
- Winner Aylwen Bursary Award 2000
- Winner RSNA Certificate of Excellence in Design 2000
- Winner 8th North Thames Research Award 2000
- Winner Finzi National Research Award 1999

