Supplementary material: dynamic chest radiography device, procedure and set-up

To accompany the manuscript 'Diagnosis and characterisation of hemidiaphragm dysfunction using dynamic chest radiography: a novel chest imaging modality'

DCR was performed using a dynamic radiography system (Konica Minolta, Inc., Tokyo, Japan), composed of a CMP200DR 50kW generator (CPI Inc., Palo Alto, California, USA), AeroDR HD 17x17 FPD (Konica Minolta, Inc., Tokyo, Japan), Varian Rad-60 Saphire X-ray tube and an Optica 60 collimator (Varian Medical Systems, Palo Alto, California, USA), in an erect posteroanterior (PA) projection. The system is CE marked for use in the UK and EU for cineradiographic imaging, and is installed in a standard radiology room.

Patients were instructed to take three sharp sniff-like breaths, followed by a deep breath in and then out. Instructions were read from a card by the radiographer. The manoeuvre was practised with the patient in a trial run before exposure to ionising radiation.

The X-ray exposure conditions were: source to image distance (SID) 200cm, focal distance 180cm, tube voltage 100kV, tube current 80mA, exposure duration of pulsed X-ray 4ms, image capture rate 15fps. For filtering out soft rays, a tube filter of 1.0mm Al, 0.1mm Cu was used. Time taken for preparation, patient instruction and image acquisition was around five minutes per patient.