Muhammed Alshamari (born in 1975) is a specialist in clinical radiology. He received his medical degree in 2000 from Al-Mustansiriya University in Baghdad. He did his internship in 2005 to 2006 at Karlskoga Hospital. Since 2007 he has been working at the Department of Radiology at Örebro University Hospital. His research of low-dose computed tomography (CT) began in 2010 at Örebro University. Currently, he is combining his clinical work as a radiologist at Örebro University Hospital with research and participation in medical education at the School of Medicine in Örebro University.

Since the discovery of X-rays in 1896, radiography has been a common and well-known method in diagnostic imaging, especially in the imaging of the abdomen and lumbar spine, despite abundant evidence of its limited diagnostic value. Computed tomography, an advanced imaging method, has higher diagnostic power but exposes the patient to a higher radiation dose compared to radiography. However, low-dose CT of the abdomen and lumbar spine at a similar radiation dose to radiography, i.e., at 1 mSv, could be a better alternative to radiography despite its low image quality compared to standard CT. In the present thesis, we test if low-dose CT has significantly better image quality and can give more diagnostic information than radiography in the imaging of the abdomen and lumbar spine.