

EFRS Preliminary Statement on Simulation in Radiography Education

Draft - September 2021

The COVID-19 Pandemic has placed huge challenges on radiography education.[1] Countries have adopted individual strategies, including epidemiological studies, isolation of positive cases, mass closures and vaccination to attempt to prevent and postpone the spread of the disease.[2-4] It is unlikely to be lost to any working in the field of radiography, that clinical colleagues and students, are potential vectors for COVID-19.[5] As a direct consequence, some aspects of radiography education have shifted to virtual environments or simulation.[6] It should be noted, however that discussion around the use of simulation in radiography education is not new. Rosenkoetter, in 2007, raised this as a potential component of online radiography programs within the United States of America.[7] More recently Stowe and colleagues (2021) highlighted that medical simulation dates back to the early 1960s.[8] Within radiography, evaluations as far back as 2012 document the benefits of computer-based simulation on student radiographers' performance in a real X-ray room.[9] Within radiography, the use of simulation has been widely documented in all subspecialties including medical imaging[8-10], nuclear medicine[11] and radiation therapy[12, 13].

Simulation, within healthcare training programmes, is a broad term. Many definitions commonly exist and focus on technologies which allow the creation of real-world situations where students can learn, practice, and assess their skills in a safe environment. Simulation can provide such opportunities through whole body models, specific devices (part task trainers), actors portraying patients, carers and allied health professionals and even scenarios built into computer systems (virtual, augmented and traditional computer screen based).

Simulation is becoming increasingly more accepted within the training of health professions, particularly radiographers. The goal of simulation is often to allow training away from the clinical environment in a supervised and safe setting, typically within a higher education institute. There are opponents to the use of simulation, reasons commonly cited include the lack of realism, costs and maintenance requirements and lack of an effective strategy for implementation into training curricula.[14]

Opportunities for using simulation within radiography are growing rapidly. Simulators are becoming increasingly more versatile as are the opportunities for learning and assessment. Simulation continues to provide an essential option for supporting the delivery of educational programmes during the Global Pandemic but must be used appropriately. Radiography educators, however, are currently experiencing several problems relating the inclusion of simulation within their respective training curricula. Such challenges are likely to include:

1. Radiography skills and competencies amenable to teaching and learning within a simulation environment.
2. Role for simulation in comparison to the traditional clinical learning environment.
3. Efficacy of using simulation for radiography assessments.
4. Acceptability of simulation by professional bodies and national regulatory agencies.
5. Appropriate methodologies / strategies for the successful inclusion of simulation within training curricula.
6. Optimum methods and standards for the training of academic and clinical educators in simulation.
7. Scoping of the current requirements for simulation in radiography education.

Simulators are likely to play an increasing role in radiography training. It is important that recommendations and best practices are shared internationally. This preliminary statement confirms the commitment of the European Federation of Radiographer Societies (EFRS) to provide a comprehensive set of recommendations on the 'Appropriate use of Simulation within Radiography Education'. Following approval by the EFRS Executive Board a Working Group will be established during 2021/22 to develop this important work. The goal will be to publish an approved Statement following the EFRS General Assembly in November 2022.

References

1. Tabatabai, S., Simulations and Virtual Learning Supporting Clinical Education During the COVID 19 Pandemic. *Adv Med Educ Pract*, 2020. 11: p. 513-516.
2. Zhai, P., et al., The epidemiology, diagnosis and treatment of COVID-19. *Int J Antimicrob Agents*, 2020. 55(5): p. 105955.
3. Polack, F.P., et al., Safety and Efficacy of the BNT162b2 mRNA Covid-19 Vaccine. *N Engl J Med*, 2020. 383(27): p. 2603-2615.
4. Knoll, M.D. and C. Wonodi, Oxford-AstraZeneca COVID-19 vaccine efficacy. *Lancet*, 2021. 397(10269): p. 72-74.
5. Ahmed, H., M. Allaf, and H. Elghazaly, COVID-19 and medical education. *Lancet Infect Dis*, 2020. 20(7): p. 777-778.
6. Rainford, L.A., et al., The impact of COVID-19 upon student radiographers and clinical training. *Radiography (Lond)*, 2021. 27(2): p. 464-474.
7. Rosenkoetter, L.E., Moving toward online courses. *Radiography*, 2007. 13(4): p. 271-275.
8. Stowe, J., et al., CTSim: Changing teaching practice in radiography with simulation. *Radiography (Lond)*, 2021. 27(2): p. 490-498.
9. Cosson, P. and R.N. Willis, OCCASIONAL SERIES OF WHITE PAPERS CONCERNING EDUCATIONAL SIMULATION, 2012.
10. O'Connor, M., et al., 3D virtual reality simulation in radiography education: The students' experience. *Radiography*, 2021. 27(1): p. 208-214.
11. Robertson, H.J., J.T. Paige, and L. Bok, *Simulation in radiology*. 2012, New York: Oxford University Press. xvii, 310 p.
12. Leong, A., P. Herst, and P. Kane, VERT, a virtual clinical environment, enhances understanding of radiation therapy planning concepts. *J Med Radiat Sci*, 2018. 65(2): p. 97-105.
13. Jimenez, Y.A. and S.J. Lewis, Radiation therapy patient education using VERT: combination of technology with human care. *J Med Radiat Sci*, 2018. 65(2): p. 158-162.
14. Bokken, L., et al., Strengths and weaknesses of simulated and real patients in the teaching of skills to medical students: a review. *Simul Healthc*, 2008. 3(3): p. 161-9.



EFRS | EUROPEAN FEDERATION OF
RADIOGRAPHER SOCIETIES

www.efrs.eu