

Bateman, Andrew, Leese, Thomas, Bradshaw, Kimberley ORCID: <https://orcid.org/0000-0001-5322-2238> and Miller, Paul K. ORCID: <https://orcid.org/0000-0002-5611-1354> (2025) Creating a welcoming environment for patients with autism attending radiology, with innovative waiting room design: a scoping review. In: UK Imaging and Oncology Congress 2025 (UKIO 2025): Community & Consciousness: One Health, 2-4 June 2024, Liverpool ACC, UK.

Downloaded from: <https://insight.cumbria.ac.uk/id/eprint/8720/>

***Usage of any items from the University of Cumbria's institutional repository 'Insight' must conform to the following fair usage guidelines.***

Any item and its associated metadata held in the University of Cumbria's institutional repository Insight (unless stated otherwise on the metadata record) may be copied, displayed or performed, and stored in line with the JISC fair dealing guidelines (available [here](#)) for educational and not-for-profit activities

**provided that**

- the authors, title and full bibliographic details of the item are cited clearly when any part of the work is referred to verbally or in the written form
- a hyperlink/URL to the original Insight record of that item is included in any citations of the work
- the content is not changed in any way
- all files required for usage of the item are kept together with the main item file.

**You may not**

- sell any part of an item
- refer to any part of an item without citation
- amend any item or contextualise it in a way that will impugn the creator's reputation
- remove or alter the copyright statement on an item.

The full policy can be found [here](#).

Alternatively contact the University of Cumbria Repository Editor by emailing [insight@cumbria.ac.uk](mailto:insight@cumbria.ac.uk).

# **Creating a Welcoming Environment for Patients with Autism Attending Radiology, with Innovative Waiting Room Design: A Scoping Review**

*Andrew Bateman<sup>1,2</sup>, Thomas Leese<sup>1,3</sup>, Kimberley Bradshaw<sup>1</sup> and Paul K. Miller<sup>1</sup>*

<sup>1</sup> Institute of Health, University of Cumbria, UK

<sup>2</sup> Alliance Medical Ltd

<sup>3</sup> South Warwickshire University Foundation Trust

## **Abstract**

**Background:** Autism, affecting approximately 1% of the population globally can, in some affected individuals, significantly reduce sensory filtering compared to neurotypical individuals. This can lead, in turn, to heightened and sustained anxiety responses to a range of stimuli, not least bright lights, crowded spaces and loud noises. This paper reports findings of how environmental design in radiology departments impacts upon autistic patients, and how environmental adaptations could be made to help autistic patients manage sensory overstimulation.

**Method:** A scoping review of autism-specific healthcare design principles was conducted, using peer-reviewed articles retrieved via a metasearch of key medical databases, and grey literature from trusted sources.

**Results:** Analysis revealed three primary findings: (a) Environmental modifications based on the Autism ASPECTSS™ Design Index, such as reducing acoustic noise levels to below 40db, have potential for significant anxiety reduction and improvements in comfort and compliance; (b) Targeted adjustments to existing departmental environments, particularly regarding lighting/sound management, can be highly effective in improving patient experience; and (c) Autism-related environmental adaptations may have positive impacts for nonautistic patients, as evidenced by reductions in prescribed pain and psychiatric medication.

**Conclusions:** The findings underscore that environmental modifications in radiological settings can significantly impact upon autistic patients' healthcare experience. While departmental design may offer optimal solutions, immediate wins can be achieved through relatively minor adjustments to lighting and sound levels in extant facilities. These observations have practical implications for radiology departments (and healthcare facility managers) seeking to provide more inclusive and effective diagnostic imaging services in the future.

## References

- Bortz, K. (2018) 'Small changes to environment may improve care, education of children with autism', *Infectious diseases in children*, 31(6), pp. 1–3.
- American Psychiatric Association (2013) *Diagnostic and Statistical Manual of Mental Disorders: DSM-5*. Arlington, Va.
- Fletcher, T., Chen, A., Norris, A., Pizarro, E., Tran, J. and Tripp, M. (2023) 'Guidelines for Sensory Havens in Autism and Sensory-Friendly Events', *Teaching Exceptional Children*, pp. 4005992311717.
- Keehn, B., Westerfield, M. and Townsend, J. (2019) 'Brief Report: Cross-Modal Capture: Preliminary Evidence of Inefficient Filtering in Children with Autism Spectrum Disorder', *Journal of Autism and Developmental Disorders*, 49(1), pp. 385–390.
- World Health Organization (2023) *Autism*. Available at: <https://www.who.int/news-room/fact-sheets/detail/autism-spectrum-disorders> (Accessed: Jan 2025).
- Ziegler, U. (2015) 'Multi-Sensory Design as a Health Resource: Customizable, Individualized, and Stress-Regulating Spaces', *Design issues*, 31(1), pp. 53–62.