



Defense Health Agency (DHA) Clinical Communities Speaker Series

2025 SEP CCSS: Healthcare Innovation and Readiness: Empowering Change and Resilience in Global Care Delivery

2025 SEP CCSS S06: Stem Cell Implants: Emerging Innovation for Stroke Recovery

Resource List

The [World Health Organization, \(WHO, 2024\)](#) highlighted stem cell transplantation's increasing potential for treating non-malignant and genetic disorders through stem cell implantation. In addition to its therapeutic promise, the WHO emphasized the need for ethical oversight, equitable access, and integration of transplantation services into national healthcare systems, especially in low-resource settings. A new resolution adopted in 2024 called for the development of a global strategy to enhance the availability and safety of transplantation practices worldwide.

The [National Center for Advancing Translational Sciences, \(NCATS, 2025\)](#) launched the Stem Cell Translation Laboratory (SCTL) to accelerate the therapeutic development process using cutting-edge stem cell technologies. SCTL employed advanced methodologies to improve the reproducibility, scalability, and safety of stem cell applications in translational research. Over the past decade, significant progress in stem cell biology created new opportunities for both basic and clinical scientists. SCTL also worked to establish quality control standards, develop multi-omics characterization methods, and replaced costly reagents with more efficient alternatives to streamline cell differentiation protocols.

[Drug Design, Development and Therapy, \(DDDT, 2024\)](#) published a comprehensive systematic review titled, "Revolutionizing Stroke Recovery: Unveiling the Promise of Stem Cell Therapy", which explored the transformative potential of stem cell-based treatments for stroke rehabilitation. The authors compiled clinical trial data to assess the safety and efficacy of these therapies, while also addressing ethical considerations surrounding stem cell use. Notably, the review explained the mechanisms by which stem cells contribute to neurogenesis, angiogenesis, and immunomodulation—critical processes in stroke recovery. The paper concluded by identifying gaps in current research and proposing future directions for clinical translation.

The "Focus On Stem Cell Research" resource from the [National Institute of Neurological Disorders and Stroke, \(NINDS, 2024\)](#) explained the unique properties of stem cells, including their ability to differentiate into various cell types and self-renew. It distinguished between embryonic stem cells (ES), induced pluripotent stem cells (iPSCs), and adult stem cells, noting that while ES and iPSCs can become any cell type, adult stem cells have more limited differentiation potential. Despite the promise of stem cell therapies, NINDS emphasized that significant technical hurdles remain, requiring sustained and intensive research efforts.



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References

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