

# Innovative technologies in geriatric nursing: Transforming elderly care delivery.

Thomash Colungea\*

Pediatric Intensive Care Unit, Ramón y Cajal University Hospital, Spain

## Introduction

The aging population worldwide is growing at an unprecedented rate, presenting new challenges and opportunities in healthcare. According to the World Health Organization, the number of people aged 60 years and older is expected to double by 2050, which will significantly impact the healthcare systems. Geriatric nursing, which focuses on providing care for the elderly, plays a pivotal role in ensuring that aging individuals live with dignity, independence, and the highest possible quality of life. In this context, innovative technologies are transforming elderly care, improving outcomes, and enhancing the efficiency of healthcare delivery [1].

Telemedicine is one of the most impactful technological advancements in geriatric nursing. It allows for virtual consultations between elderly patients and healthcare providers, particularly beneficial for those in rural or underserved areas. With telemedicine, elderly individuals can access healthcare services without needing to travel long distances, which can be physically taxing. Additionally, remote monitoring tools, such as wearable devices and sensors, enable healthcare providers to track vital signs, medication adherence, and even detect early signs of chronic illnesses or potential falls [2].

For instance, wearable devices like smartwatches and fitness trackers can monitor heart rate, blood pressure, and activity levels. This real-time data can be transmitted to healthcare providers, enabling proactive management of conditions like hypertension or diabetes. Remote monitoring also helps in managing multiple chronic conditions, allowing nurses and caregivers to provide timely interventions. Such tools are not only beneficial for patients but also for caregivers who may find it difficult to provide constant supervision [3].

Artificial intelligence (AI) is revolutionizing geriatric care in numerous ways, from predictive analytics to personalized care plans. AI can analyze vast amounts of data to predict potential health risks or complications, enabling nurses and doctors to intervene before problems escalate. For example, AI algorithms can detect patterns in health data, alerting healthcare providers to early signs of conditions like dementia or Parkinson's disease. By identifying such conditions at an early stage, AI helps in preventing the rapid deterioration of cognitive function, leading to better quality of life for elderly individuals [4].

In addition, robotics is transforming elderly care by offering assistance with daily activities. Robots can help with tasks such as lifting, transferring, or assisting individuals with mobility issues, reducing the physical strain on healthcare providers. Robotic devices can also be used to deliver medications, ensuring adherence to prescribed treatment regimens. For example, robotic medication dispensers can remind patients to take their medications on time and in the correct dosage. This is especially useful for elderly patients who may struggle with memory and may forget to take their medications [5].

Smart home technologies are enhancing the independence and safety of elderly individuals, especially those with cognitive or physical impairments. Smart home devices include automated lighting, thermostats, motion sensors, and voice-activated assistants such as Amazon's Alexa or Google Assistant. These devices can be programmed to respond to the needs of elderly individuals, helping them manage their environment more easily [6].

For instance, motion sensors can detect when a person falls or is in distress and send an alert to a caregiver or healthcare provider. Similarly, voice-activated systems allow elderly individuals to control lights, appliances, or make emergency calls, reducing the need for physical intervention. This can be particularly beneficial for people with limited mobility or cognitive impairment, providing them with a sense of security and autonomy in their own homes [7].

Smart home technologies can also support caregivers by providing them with real-time updates about the patient's well-being. For example, a caregiver may receive notifications about the patient's activity levels, sleep patterns, or if they have not eaten or taken their medication at the designated time. These updates ensure that the elderly receive the proper care while allowing their loved ones to monitor their condition without being physically present at all times [8].

Virtual and augmented reality technologies are beginning to be used in geriatric care to provide therapeutic benefits and enhance the overall well-being of elderly individuals. VR can be used to simulate environments that stimulate the mind, reduce stress, and improve cognitive function. For example, virtual reality can provide elderly patients with immersive experiences such as virtual travel or interactive exercises, helping to combat feelings of isolation and depression that are common among the elderly [9].

---

\*Correspondence to: Thomash Colungea, Pediatric Intensive Care Unit, Ramón y Cajal University Hospital, Spain. E-mail: thomas.colu@gmail.com

Received: 02-Dec-2024, Manuscript No. AAICCN-24-157125; Editor assigned: 03-Dec-2024, Pre QC No. AAICCN-24-157125(PQ); Reviewed: 17-Dec-2024, QC No. AAICCN-24-157125; Revised: 23-Dec-2024, Manuscript No. AAICCN-24-157125(R); Published: 30-Dec-2024, DOI:10.35841/AAICCN-7.6.242

Augmented reality, on the other hand, can be used to assist patients with dementia or Alzheimer's disease by providing visual cues and reminders. These technologies can help patients navigate their daily routines and improve memory retention by overlaying helpful information on their surroundings, such as a reminder to take medication or the name of a family member. Such interventions help in maintaining independence and improving cognitive health, making it easier for elderly individuals to remain engaged in their care [10].

## Conclusion

Innovative technologies are transforming the field of geriatric nursing, offering solutions to the unique challenges posed by the aging population. Through the integration of telemedicine, AI, robotics, smart home technologies, VR/AR, and advanced data management systems, elderly individuals can benefit from improved care delivery, enhanced independence, and better overall health outcomes. These technologies not only support elderly patients but also alleviate the burden on caregivers and healthcare providers, ultimately contributing to a more sustainable and effective healthcare system for aging populations. The future of geriatric care lies in the continued development and adoption of these technologies, ensuring that elderly individuals can age with dignity and quality of life.

## References

1. Abo AM, Alade KH, Rempell RG, et al. Credentialing pediatric emergency medicine faculty in point-of-care ultrasound: Expert guidelines. *Pediatr Emerg Care*. 2021;37(12):e1687-94.
2. Ecury-Goossen GM, Camfferman FA, Leijser LM, et al. State of the art cranial ultrasound imaging in neonates. *J Vis Exp*. 2015;2(96):e52238.
3. Grebenik CR, Boyce A, Sinclair ME, et al. NICE guidelines for central venous catheterization in children. Is the evidence base sufficient?. *Br J Anaesth*. 2004;92(6):827-30.
4. Weiss SL, Peters MJ, Alhazzani W, et al. Surviving sepsis campaign international guidelines for the management of septic shock and sepsis-associated organ dysfunction in children. *Intensive Care Med*. 2020;46(1):10-67.
5. Ishii S, Shime N, Shibasaki M, et al. Ultrasound-guided radial artery catheterization in infants and small children. *Pediatr Crit Care Med*. 2013;14(5):471-3.
6. Montiroso R, Provenzi L. Implications of epigenetics and stress regulation on research and developmental care of preterm infants. *J Obstet Gynecol Neonatal Nurs*. 2015;44(2):174-82.
7. Pallás-Alonso CR, Losacco V, Maraschini A, et al. Parental involvement and kangaroo care in European neonatal intensive care units: a policy survey in eight countries. *Pediatr Crit Care Med*. 2012;13(5):568-77.
8. Feeley N, Waitzer E, Sherrard K, et al. Fathers' perceptions of the barriers and facilitators to their involvement with their newborn hospitalised in the neonatal intensive care unit. *J Clin Nurs*. 2013;22(3-4):521-30.
9. Singer LT, Salvator A, Guo S, et al. Maternal psychological distress and parenting stress after the birth of a very low-birth-weight infant. *JAMA*. 1999;281(9):799-805.
10. Provenzi L, Barellò S, Fumagalli M, et al. A comparison of maternal and paternal experiences of becoming parents of a very preterm infant. *J Obstet Gynecol Neonatal Nurs*. 2016;45(4):528-41.