MatrixCare by ResMed

Executive perspectives: How artificial intelligence can impact home-based care

HOME HEALTH / HOSPICE / PALLIATIVE CARE / PRIVATE DUTY

Executive summary

As home health and hospice organizations continue to face industry headwinds, providers must adopt an innovative approach to help support growth and efficiencies. Artificial intelligence and machine learning are quickly evolving to play a bigger role in home health and hospice care.

In this whitepaper, we surveyed several home health and hospice executives on the impact artificial intelligence and machine learning will have on home-based care.

Get to know our executive survey panel

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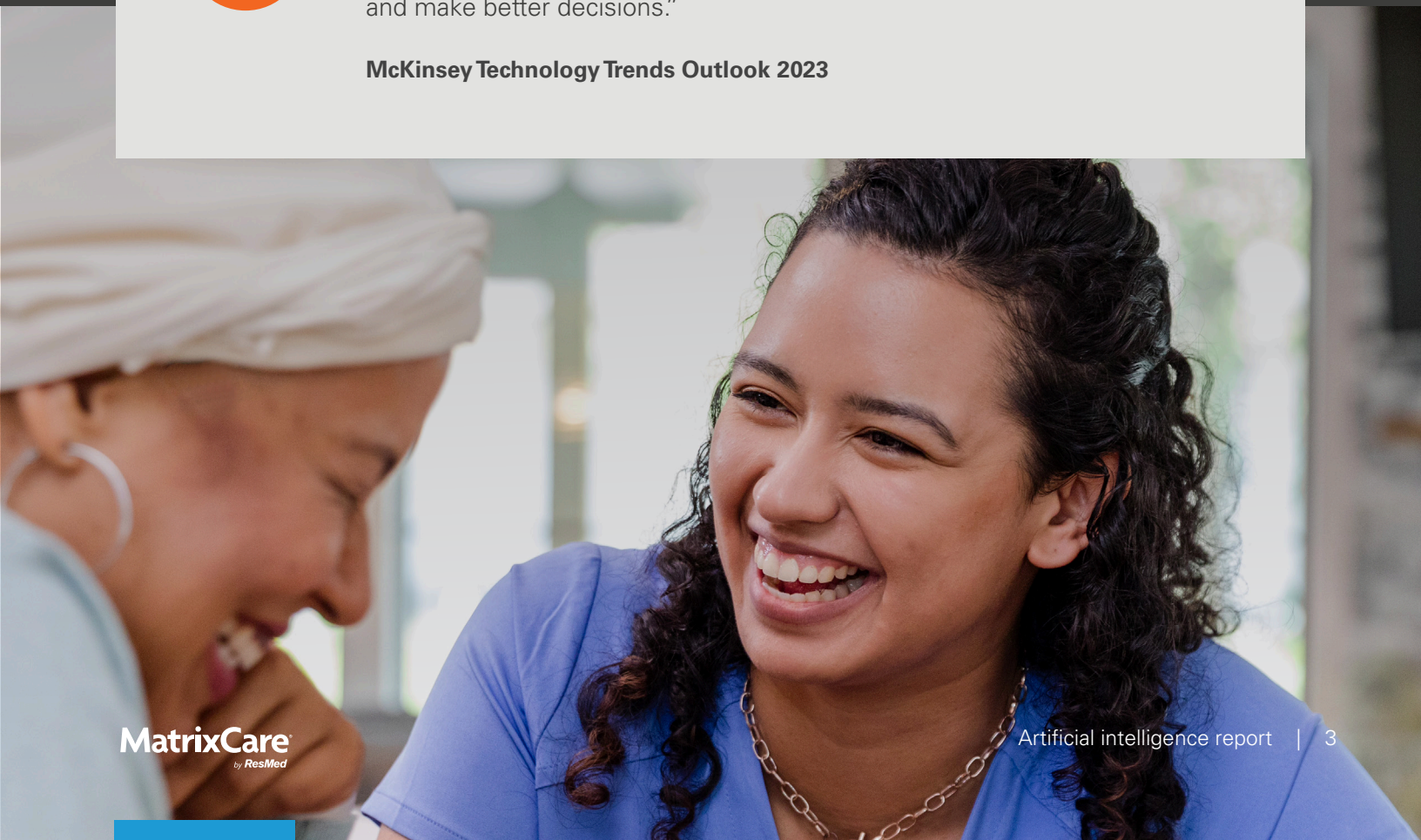
What are artificial intelligence and machine learning?

Artificial intelligence **(AI)**
is the theory and development of computer systems able to perform tasks that normally require human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages.

Machine learning **(ML)**
is the use and development of computer systems that can learn and adapt without following explicit instructions, by using algorithms and statistical models to analyze and draw inferences from patterns in data.

> With AI capabilities, such as machine learning (ML), computer vision, and natural-language processing (NLP), companies in all industries can use data and derive insights to automate processes, add or augment capabilities, and make better decisions."
>
> **McKinsey Technology Trends Outlook 2023**



How can AI and ML benefit patients with chronic illnesses or elderly individuals in home-based care?

When patients are in the home with chronic illnesses, having a holistic view and the ability to address those issues during visits will ultimately help lead to improved outcomes and a potential referral to other programs.

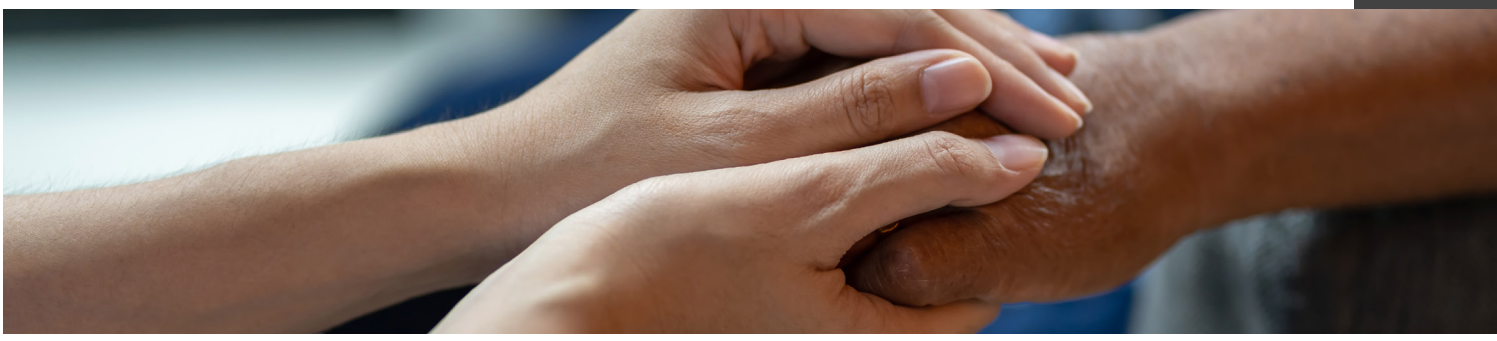
While clinicians are the ones in the home facilitating care, they oftentimes go into a visit without much insight into what to prioritize. Machine learning can provide more information and insight into how they can engage proactively and in a predictable way.

> Remote monitoring: AI-powered devices can continuously monitor patients' vital signs, activity levels, and other health metrics in real time. This enables healthcare providers to remotely track patients' health status and intervene promptly if any abnormalities are detected.

Barbie Long, RN, BSN, Community Healthcare and Hospice

> It can help track treatments and their effectiveness in real time, allowing early interventions and more timely symptom control.

Lennie Brown, RN, CHPN, Mesilla Valley Hospice



Could remote monitoring detect health issues and improve patient care?

In home health, the objective of remote patient monitoring has often been to inform the caregivers of possible issues or deterioration in a patient's condition so they can proactively engage in hopes of avoiding readmission.

When combined with AI, remote monitoring promises to provide helpful insights to home health agencies as they seek to prioritize patient visits. The use of intelligent tools in these technologies can improve overall efficiencies and caregiver-patient ratios by focusing on the patients who are most in need — while ensuring all patients receive the highest-quality care.

> Remote patient monitoring platforms allow healthcare providers to remotely monitor patients' health status using data from various sources, including wearable devices, mobile apps, and electronic health records. AI algorithms can analyze this data to identify trends or abnormalities that may require intervention, such as sudden changes in weight or medication adherence.
>
> **Barbie Long**
> RN, BSN, Community Healthcare and Hospice

How can AI-driven decision support tools assist in tailoring care plans, predicting patient needs, and providing timely and efficient care?

AI and ML can assist with building a personalized plan of care as well as in post-visit tasks by creating a personalized care plan for patients based off of information collected both before and during the visit.

Predictive analytics: By continuously analyzing patient data, AI can predict potential health issues before they arise. For example, AI algorithms can forecast the likelihood of disease exacerbations, hospital readmissions, or adverse drug reactions based on patterns in the data. Healthcare providers can then intervene proactively to prevent or mitigate these events, improving patient outcomes and reducing healthcare costs.

Barbie Long, RN, BSN, Community Healthcare and Hospice

There will be algorithms developed that will analyze individual patient data as well as all patient data with similar diagnosis and demographics that will be able to determine when, how and what interventions should be done clinically to best treat the patient. For the hospice patient, predicting a date of death would be helpful for final arrangement planning and making the most out of the time remaining in a patient's life. This data could also be presented to doctors referring patients to hospice so they could get people into hospice sooner.

Dave Hooper, RN, Nurse Informaticist, Day Kimball Home Care

AI can listen in on assessments and provide real-time data-driven advice regarding interventions to current problems as well as notify clinical staff of new problems that require attention. This will allow clinical staff to focus on the patient and provide patient-specific care, while steering them away from generic care, care plans and treatments.

Lennie Brown, RN, CHPN, Mesilla Valley Hospice

What are the challenges and opportunities for integrating AI into the existing home-based care ecosystem?

AI is a supportive technology, not a replacement technology. It's important to always be sure that it's not taking the clinician or the back-office worker out of the loop.

The role of AI and ML (and of technology in general) is to provide insights so clinicians can make more informed decisions. It can bring information forward in a way that's consumable and helpful, that takes the repetitive processes out of their daily tasks, and automates those workflows — ultimately empowering them to drive better outcomes.

Adoption and acceptance: Healthcare providers and patients may be resistant to adopting AI technologies due to concerns about reliability, usability, and job displacement. Overcoming resistance and gaining acceptance for AI-driven solutions requires effective training, education, and demonstration of their value in improving patient outcomes and efficiency.

Barbie Long
RN, BSN,
Community Healthcare and Hospice

Cost is a major driver as well as logistics in AI talking to current systems, as well as adaptation and ROI.

Angela Leonzi
RN, BSN,
Stratford VNA, Inc.

We're barely scratching the tip of the iceberg when it comes to utilizing AI and ML in home health and hospice. As we catch up with the innovative capabilities offered by the technology, we'll see leaps in adoption from the improved ease of use, fast decisive clinical judgments from insights generated from the models, improved margins for the provider organizations from the improvements in efficiency and efficacy, and ultimately better patient outcomes.

Daniel Zhu
Vice President,
Product Management, MatrixCare

What privacy and security considerations are important when using AI in home-based care?

Privacy is inextricably linked to security. For organizations striving to maintain compliance as well as the trust of those they serve, they must be mindful of the digital tools they choose and ensure that their partners' values align with, and support, their own values and policies.

This approach to security is even more true for AI and ML, which many providers shy away from due to a lack of knowledge around the risks, HIPAA concerns and the expectation for data security.

> Patient's collected data is already secured in MatrixCare. Why would that change? There is an expectation of data security that I wouldn't think you would ignore if you employ AI.
>
> **Dave Hooper,** RN, Nurse Informaticist, Day Kimball Home Care

> Data encryption: All patient data, including health records, must be encrypted both in transit and at rest. Encryption ensures that even if data is intercepted or accessed without authorization, it remains unreadable. Access control: Implement robust access control mechanisms to restrict access to patient data to authorized personnel only. This includes using strong authentication methods like biometrics or multi-factor authentication.
>
> **Barbie Long,** RN, BSN, Community Healthcare and Hospice

Discover how AI can benefit your organization

AI and ML are revolutionary when it comes to transforming care delivery in home health and hospice, and it will only continue to evolve. That's why we're committed to staying ahead of these trends.

As the multiyear winner of the Best in KLAS award for Long-Term Care Software and Home Health and Hospice EMR, MatrixCare is trusted by thousands of facility-based and home-based care organizations to improve provider efficiencies and promote a better quality of life for the people they serve.

Call 866.469.3766 to learn more, or visit **matrixcare.com.**

About MatrixCare

MatrixCare provides software solutions in out-of-hospital care settings. As the multiyear winner of the Best in KLAS award for Long-Term Care Software and Home Health and Hospice EMR, MatrixCare is trusted by thousands of facility-based and home-based care organizations to improve provider efficiencies and promote a better quality of life for the people they serve. As an industry leader in interoperability, MatrixCare helps providers connect and collaborate across the care continuum to optimize outcomes and successfully manage risk in out-of-hospital care delivery.

About ResMed SaaS

As a global leader in health technology, ResMed has developed transformative cloud-connected medical devices and solutions for people with sleep apnea, COPD and other chronic diseases. Today the company is applying this digital health expertise more broadly through its SaaS solutions, MatrixCare and Brightree, offering comprehensive software platforms that support healthcare providers in settings outside of the hospital.