



Empowered to care:

# How can AI transform nursing

A Middle East perspective



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## Executive summary

**Nurses are not short on skill, judgement or compassion. They are short on time.**

Artificial intelligence (AI) offers healthcare systems a powerful opportunity to reimagine nursing capacity by equipping nurses with smarter clinical and operational tools, freeing them from avoidable administrative burden and enabling more time, focus and expertise to be directed where it matters most: patient care.

Healthcare systems across the region are being asked to deliver more care, to more people, with greater complexity and more disciplined use of resources, while managing the patient experience and ensuring the highest clinical outcomes. Nurses are at the centre of this challenge. They are the largest part of the healthcare workforce – the professionals patients see most often and one of the clearest pressure points in the patient care journey.

AI offers a powerful opportunity to change that equation.

Today, the GCC's nursing workforce faces significant shortages similar to global trends and remains heavily dependent on international talent. The global shortfall is estimated at approximately 5.8 million as of 2023, and around 71% of nurses across the region are expatriates, reflecting how global talent has supported decades of health system expansion.

But as demand rises and the need for skilled nurses grows, this model cannot meet future needs on its own. Persistent nursing shortages will require stronger national capability, better career pathways, improved working conditions and most important a technology and AI tools that supports nurses' day-to-day work.

The purpose of AI in nursing is not to replace judgement, empathy or skill. It is to help nurses apply them more effectively, reliably and safely. PwC Middle East's Digital Health and AI Adoption Survey for Nurses across the GCC in 2025 shows that the foundations are already in place, while examining digital readiness, AI adoption, training gaps and barriers to scaling AI safely in practice.

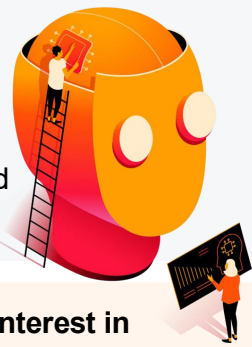
The survey findings indicate that

most nurses regularly use digital solutions, and

**57%**

**reported already using AI-enabled tools in their workplace,**

primarily in staff scheduling (77%), automated documentation (60%) and patient monitoring and alerts (49%).



Although

**76%**

**of nurses express interest in AI training, many have yet to receive formal digital health or AI-related support.**

Without targeted upskilling, adoption risks running ahead of capability. AI will only deliver its full value when frontline professionals are equipped to use it confidently, safely and consistently in ways that improve care quality.

Evidence from multiple studies shows **AI-enabled tools can save one to two hours per nurse per shift** by reducing administrative burden and improving workflow.





The PwC Middle East estimates that, based on 75% adoption of AI-enabled nursing tools and 1.5 hours saved per nurse per day, suggests this could **unlock at least 93 million nursing hours annually across the GCC – equivalent to around**

## US\$2B

**in productivity value**, while freeing up clinical time for more direct patient care.

Realising this potential requires health leaders to align regulation, scope-of-practice frameworks, digital capability and targeted AI deployment around the realities of nursing work. AI must be designed for nurses, built around their workflows, and scaled through trusted models that strengthen care quality, safeguard patient safety and earn confidence across the health system.

Drawing on frontline insights, leadership interviews, global case evidence and economic modelling, this report presents a practical pathway to scale AI responsibly, expand nursing capacity, improve productivity, support retention and build more sustainable care models.

Scaled responsibly, AI can empower nurses to operate at the top of their capability, support better decisions at the bedside, improve productivity and strengthen retention.

**For the GCC, the future of nursing is not less human.** By giving nurses the gift of time, responsible AI can return more attention, presence and compassion to patients – empowering the workforce and building a more sustainable healthcare system.

# 02

## Key findings from the PwC Middle East Digital Health and AI Adoption Survey for Nurses

### AI enthusiasm is high across the GCC nursing workforce



55%

of GCC nurses report being very comfortable using digital technologies, with 67% using electronic systems for daily documentation and 57% of respondents using AI-enabled tools in their workplace

77%

of nurses surveyed, who use AI, apply it for staff scheduling, while 60% use it for automated documentation and nearly 50% for patient monitoring and alerts

79%

of nurses believe AI will positively impact the nursing profession within the next three to five years

76%

of nurses expressed interest in AI training, yet 39% report having received no formal digital health or AI-related training, highlighting a clear readiness gap

61%

of nurses ranked reduced administrative workload as AI's top benefit, followed by enhanced patient monitoring (50%) and improved communication (43%)

# Nursing at an inflection point

## Global trends and GCC realities



Globally, nursing workforce pressures are intensifying due to converging demographic and epidemiological trends. Ageing populations and the rising burden of non-communicable diseases (NCDs) are driving sustained demand for labour-intensive, continuity-based care models that rely heavily on nursing capacity. In Organisation for Economic Co-operation and Development (OECD) economies, the share of the population aged 65 and over is projected to approach or exceed 30% by 2050,<sup>5</sup> while NCDs account for approximately 74% of global mortality.<sup>6</sup> These trends fundamentally shift care delivery toward models that rely heavily on nursing capacity, increasing workload intensity and skill requirements.

Despite growth in the global nursing workforce, from approximately 27.8 million nurses in 2018 to 29.8 million in 2023, supply continues to lag demand. The global shortfall is estimated at approximately 5.8 million as of 2023. While projections suggest the gap could narrow to around 4.1 million by 2030 due to expanded training and retention efforts, progress remains uneven and fragile across regions.<sup>7</sup> Increasing international migration has also intensified competition for talent across health systems.



### What the global inflection point means for the GCC

These global dynamics are acutely reflected across the GCC. Despite high healthcare spending, GCC countries continue to face nursing shortages.

According to findings from Middle East Health Industries in PwC's 29th Global CEO Survey, 34% of regional Health Industries CEOs identified availability of key skills as a leading threat over the next 12 months. The survey also found that only 51% of Health Industries CEOs believe they can attract high-quality technical AI talent - the lowest confidence level among the six industries covered in the Middle East results.<sup>8</sup> Structural factors underpin this instability. Nurses report high workloads, burnout and limited involvement in decision-making, alongside concerns about compensation and career.<sup>9</sup>



The GCC's heavy reliance on expatriate nurses, who comprise approximately 71% of the nursing workforce, adds further vulnerability, as many view roles in the region as transitional.<sup>10</sup> Chief nursing officers (CNOs) interviewed as part of PwC Middle East's Digital Health and AI Adoption Survey for Nurses consistently highlighted the challenge of staff retention.<sup>11</sup>

In response, GCC countries are expanding local nursing education, investing in training capacity and implementing initiatives to elevate the attractiveness of nursing careers for nationals, under frameworks such as Saudi Vision 2030 and the We the UAE 2031.<sup>12, 13</sup>

This highlights a critical shift: future nursing workforce strategies in the GCC must move beyond workforce expansion alone and focus on productivity, capability and retention. In this context, digital innovation, particularly AI, can amplify the impact of the nursing workforce, enabling nurses to deliver more efficient, high-quality and sustainable care.



**Nurses are the  
backbone for hospitals**

# 04

## Digital readiness and AI adoption

What the survey tells us

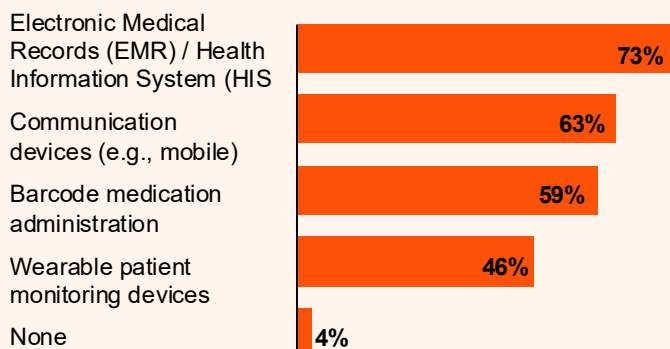


### 4.1 Nurses as early adopters of digital and AI-enabled tools

Survey findings indicate that nurses in the GCC are familiar with digital tools within hospital environments. A significant majority of respondents (73%) reported routine use of electronic medical records, digital communication systems (63%) and medication administration technologies (59%), reflecting a high baseline level of digital exposure (see Figure 1).

**Figure 1: Adoption of digital technologies in daily practice**

**Which of the following technologies or its systems do you currently use in your daily nursing practice?**

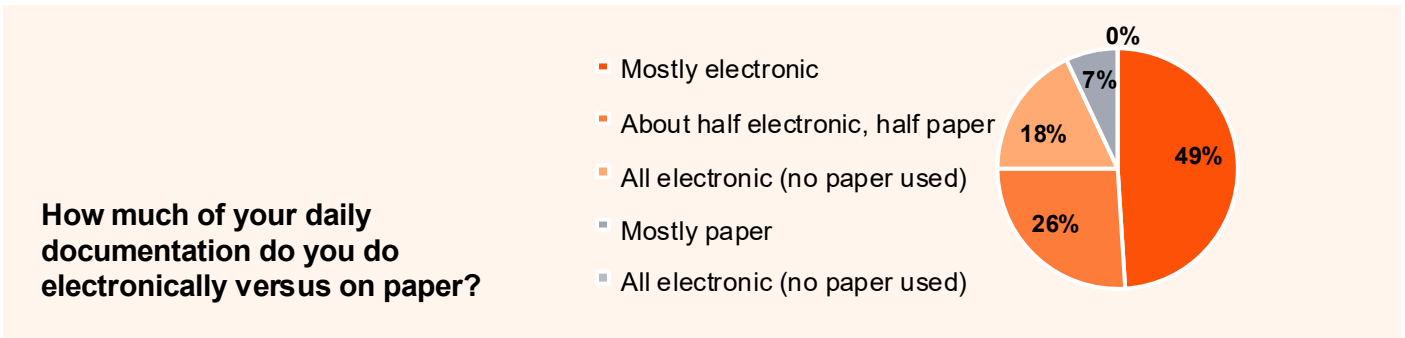


Source: PwC Middle East Digital Health and AI Adoption Survey for Nurses 2025



A combined 67% of respondents report that their documentation is mostly or fully electronic (49% mostly electronic and 18% fully electronic), while a further 26% use a hybrid model of paper and electronic systems (see Figure 2). Only a small minority rely primarily on paper, suggesting that electronic documentation is now embedded in routine practice across most healthcare settings in the region. This widespread adoption is reinforced by high levels of confidence (see Figure 3): 55% of nurses report being very comfortable using digital health technologies and 37% somewhat comfortable, meaning over nine in ten express comfort with technology in their daily work.

**Figure 2: Level of electronic vs paper-based documentation**



Source: PwC Middle East Digital Health and AI Adoption Survey for Nurses 2025

**Figure 3: Comfort level with using digital health technologies**



Source: PwC Middle East Digital Health and AI Adoption Survey for Nurses 2025

## 4.2 Where AI is being used today?

According to survey findings, 57% of respondents indicated that they are already exposed to, or using, AI-enabled systems in their daily work (see Figure 4).

These systems are most commonly embedded within operational and workflow processes rather than standalone clinical decision tools, underscoring that AI adoption to date has been pragmatic and task-oriented, not experimental. Qualitative insights from PwC’s interview with CNOs reinforce this finding, with nursing leaders noting that nurses are often the first clinical group to interact consistently with new digital tools due to their continuous presence across patient pathways.

**Figure 4: Use of AI-powered systems in nursing practice**

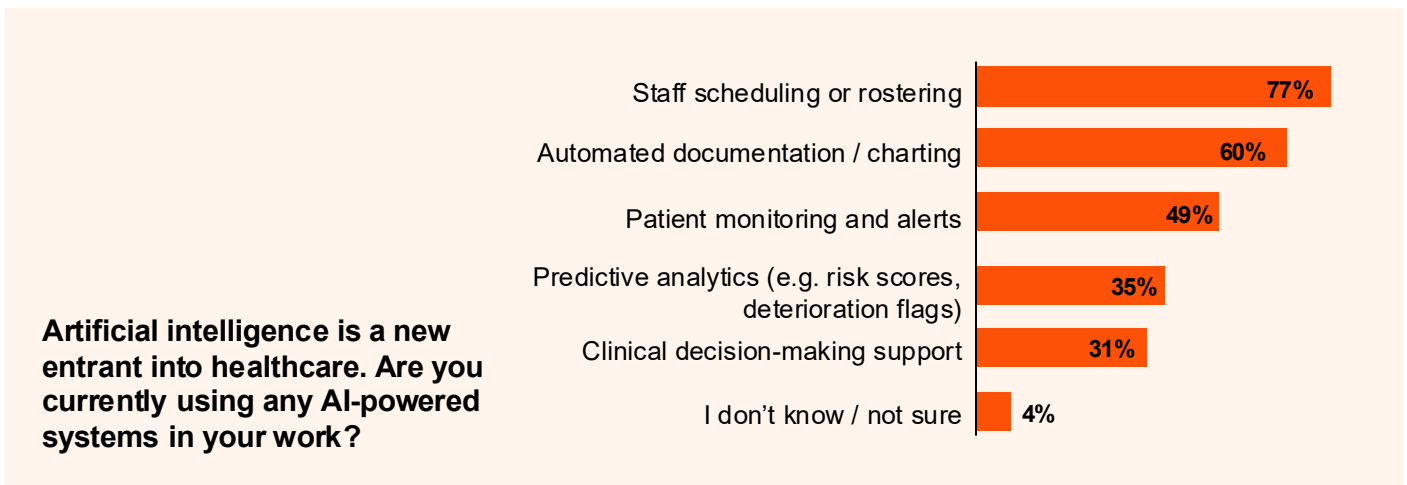


Source: PwC Middle East Digital Health and AI Adoption Survey for Nurses 2025

Current AI use is concentrated in areas that directly address workload pressure and operational inefficiency. Survey respondents ranked workforce scheduling and shift optimisation as the most prevalent AI-supported function at 77%, followed by clinical documentation and administrative automation (60%), while nearly half indicated patient monitoring and alert systems (see Figure 5). By contrast, more advanced applications, such as AI-driven diagnostic (predictive analysis) and clinical decision-making support, remain less common at 35% and 31% respectively, reflecting both regulatory caution and a preference for incremental adoption.

This pattern suggests that AI is currently being deployed where it can free nursing time, reduce duplication and improve reliability, rather than replace clinical judgment.

**Figure 5: Awareness of AI functions used in the workplace**



Source: PwC Middle East Digital Health and AI Adoption Survey for Nurses 2025



## 4.3 Anticipated benefits – AI as a capacity enabler

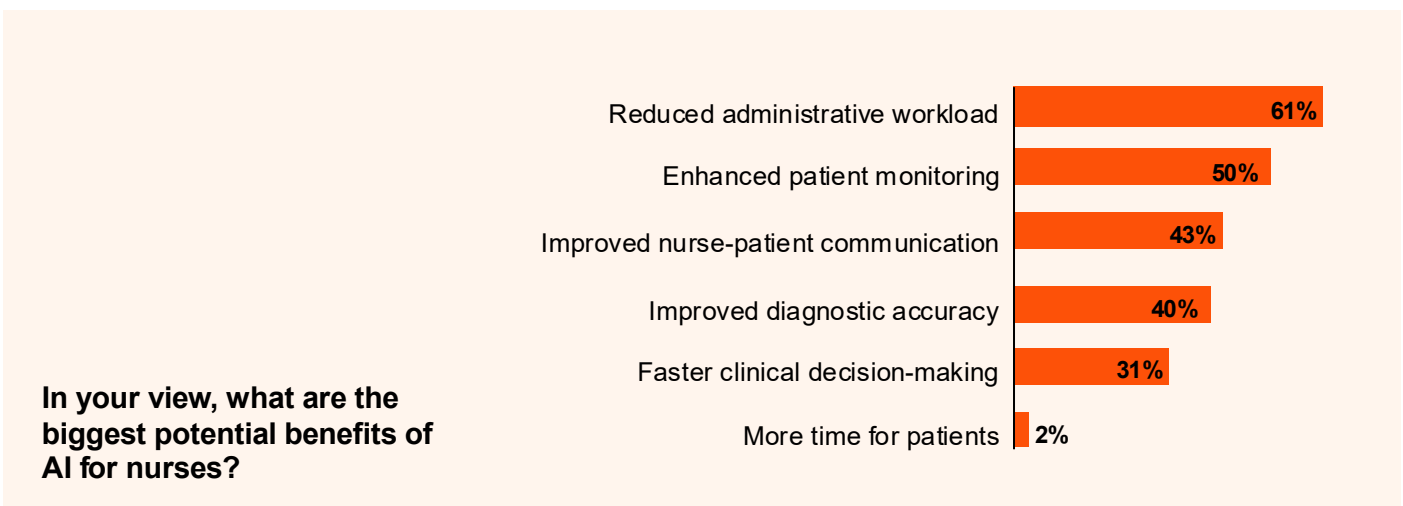
When asked about the expected benefits of AI, nurses overwhelmingly prioritised reduction in administrative burden (61%), followed by improved patient monitoring (50%) and more effective communication across care teams (43%) (see Figure 6). These priorities are closely aligned with the most time-intensive and non-clinical aspects of nursing work.

Notably, nurses did not primarily associate AI with workforce reduction or role displacement. Instead, qualitative responses emphasised AI's potential to allow nurses to spend more time on direct patient care, improve continuity and reduce burnout, reinforcing the framing of AI as a capacity and productivity multiplier, rather than a substitute for nursing expertise.

If AI enters the medical field, many tasks such as paperwork will be reduced; however, communication with patients to ensure their understanding cannot be replaced by AI



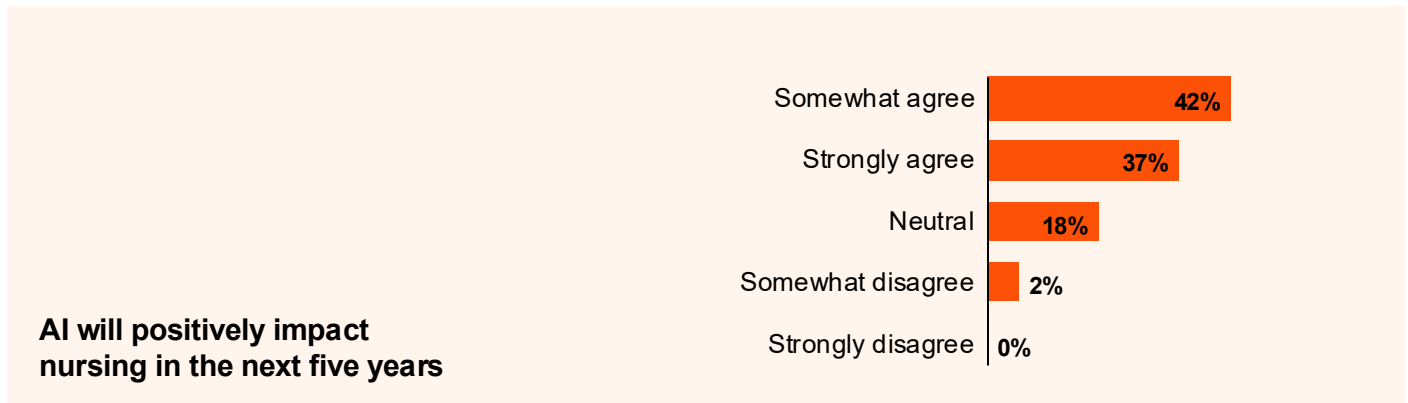
Figure 6: Perceived benefits of AI for nurses



## 4.4 Sentiment and readiness for change

Overall sentiment toward AI adoption is cautiously optimistic. Nearly four in five surveyed nurses believe AI will have a positive impact on the nursing profession within the next five years, while 42% somewhat agree, noting the importance of governance, training and implementation quality (see Figure 7).

**Figure 7: Perceived impact of AI on nursing in the next five years**



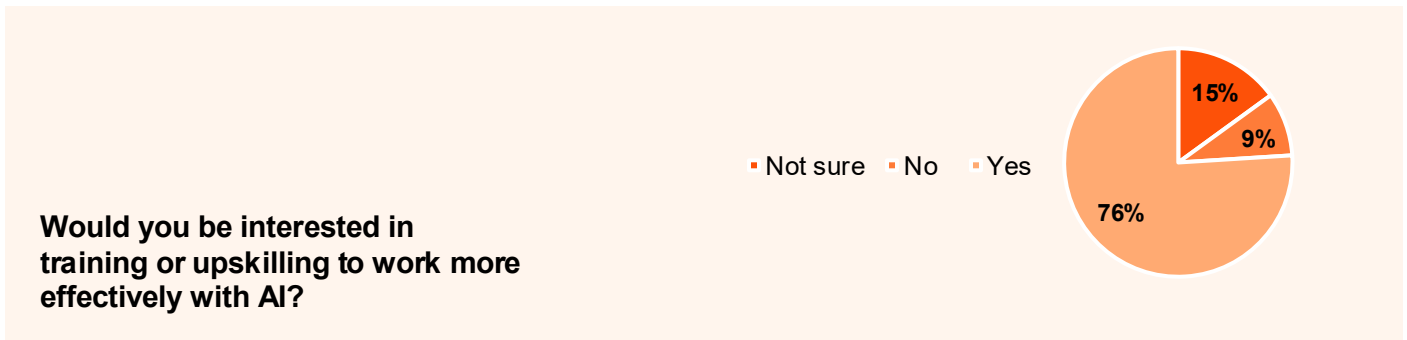
Source: PwC Middle East Digital Health and AI Adoption Survey for Nurses 2025

Interest in upskilling is high, with a little more than three quarters of respondents expressing willingness to participate in AI or digital health training (see Figure 8). However, this appetite contrasts with current competency gaps. Approximately 39% of surveyed nurses reported having received no formal training in digital health or AI-enabled systems, highlighting a critical constraint to scaling adoption safely and effectively (see Figure 9).

We need continuous training to keep up with technological advancements in our work

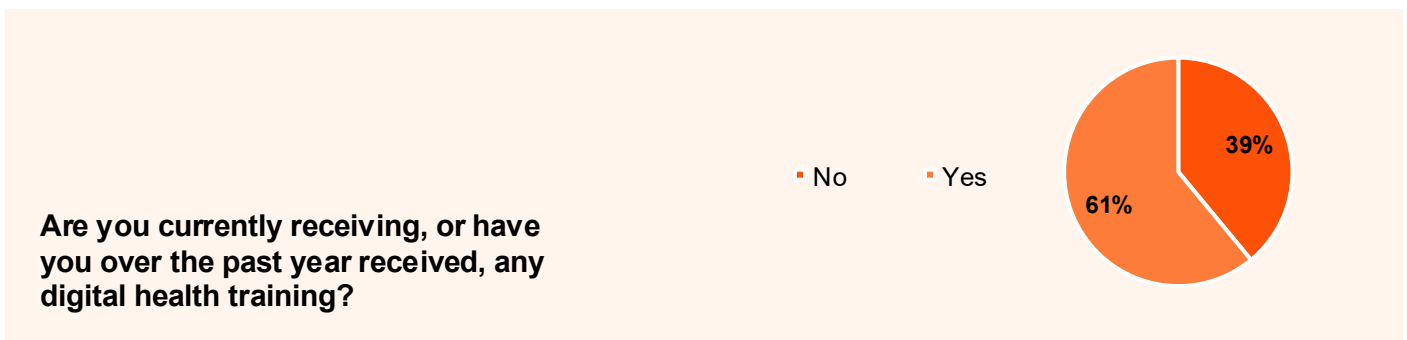


**Figure 8: Interest in AI training and upskilling among nurses**



Source: PwC Middle East Digital Health and AI Adoption Survey for Nurses 2025

**Figure 9: Receipt of digital health training among nurses**



Source: PwC Middle East Digital Health and AI Adoption Survey for Nurses 2025

Interviews with CNOs echoed these concerns, emphasising that without structured training, clear protocols and strong clinical governance, AI risks being underutilised or unevenly adopted across teams.



There should be more opportunities for learning and development

## 4.5 Implications

The survey findings suggest that the barrier to scaling AI in nursing is not acceptance, but enablement. Nurses are already engaging with digital and AI tools, understand where value lies and are open to further adoption. However, realising AI’s full potential will require deliberate investment in competency development, workflow redesign and change management. These insights provide a critical foundation for identifying priority AI use cases and quantifying potential impact on nursing capacity.

# 05

## Five priority AI use cases to unlock nursing capacity

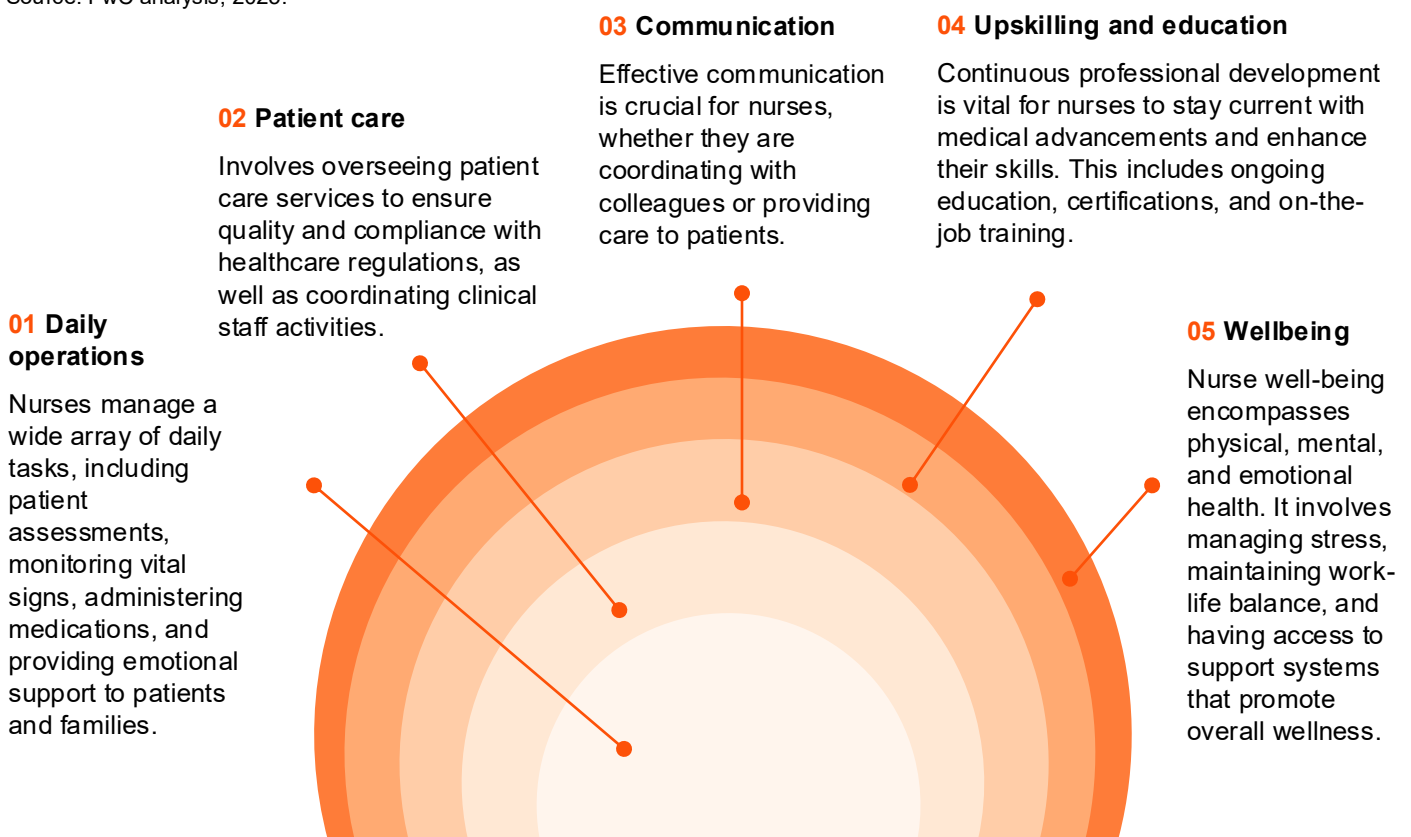


AI's relevance to nursing lies in its ability to augment, not replace, clinical practice. When embedded into daily workflows, AI can reclaim nursing time for direct patient care, strengthen continuity and support nurses in managing growing clinical complexity. Chief Nursing Officers consistently identify documentation automation, remote monitoring and workflow optimisation as the most transformative applications for frontline nursing.

Below, we highlight five areas where we explore AI's contribution to nurses' daily practice, based on how global organisations are leveraging it. (see Figure 10).

### Figure 10: How AI elevates impact across clinical and operational functions

Source: PwC analysis, 2025.



# 01 Daily operations

## Why this matters

Documentation, scheduling and care coordination consume a substantial share of nurses' time, directly limiting bedside care and contributing to fatigue.

## Evidence and impact

Health systems globally are deploying AI-enabled documentation and workflow tools to automate routine administrative tasks. At Apollo Hospitals (India), AI systems automating documentation, discharge summaries and scheduling are projected to free up to three hours per day for nurses and physicians, with around 3.5% of digital budget allocated to these workforce-stabilisation tools.<sup>14</sup>

In the United States, ambient documentation solutions deployed at Cedars-Sinai Medical Center and across The Permanente Medical Group have reduced manual charting and saved clinicians close to one hour per day, improving access to real-time patient information and reducing coordination delays.<sup>15, 16, 17</sup>

**Key takeaway:** Up to three hours of nursing time saved per shift through AI-enabled documentation and workflow automation.

# 02 Patient care

## Why this matters

Nurses play a central role in early intervention, care coordination and discharge planning, areas where timely insights can prevent deterioration and avoid unnecessary admissions.

## Evidence and impact

In the United Kingdom, the Health Navigator Proactive Health Coaching programme used machine-learning models to identify patients at high risk of emergency admission, enabling nurse-led telephone interventions focused on self-management and adherence. A randomised controlled evaluation showed a 36% reduction in A&E attendances, a 30% reduction in unplanned admissions and 25% fewer planned admissions, alongside improved patient confidence and quality of life.<sup>18</sup>

At Gloucestershire Hospitals NHS Foundation Trust, an AI model identifying likely long-stay patients at admission correctly flagged 66% of patients who went on to remain hospitalised beyond 21 days, enabling earlier nurse-led discharge planning and improved resource management.<sup>19</sup>

**Key takeaway:** 25-36% reductions in emergency and unplanned admissions through AI-supported, nurse-led interventions.



## 03 Communication

### Why this matters

Effective communication is essential for safe nursing care, yet language barriers remain a major challenge in multilingual health systems.

### Evidence and impact

At Geneva University Hospitals, voice-to-voice AI translation tools were used by nurses and clinicians across 60 real-world encounters involving 18 languages. In 83% of interactions, healthcare professionals successfully achieved their communication objectives, particularly for short, task-specific exchanges such as medication instructions and discharge guidance.<sup>20</sup>

At the Mayo Clinic, AI-enabled analytics were used to identify hospitalised patients with language barriers and complex needs, improving prioritisation for in-person interpreter services and enhancing care equity.<sup>21</sup> A 2024 scoping review further confirmed that nurses are among the most frequent adopters of AI translation tools in understaffed and multilingual care environments.<sup>22</sup>

**Key takeaway:** More than 80% successful communication in task-based nursing interactions using AI translation tools

## 04 Upskilling and education

### Why this matters

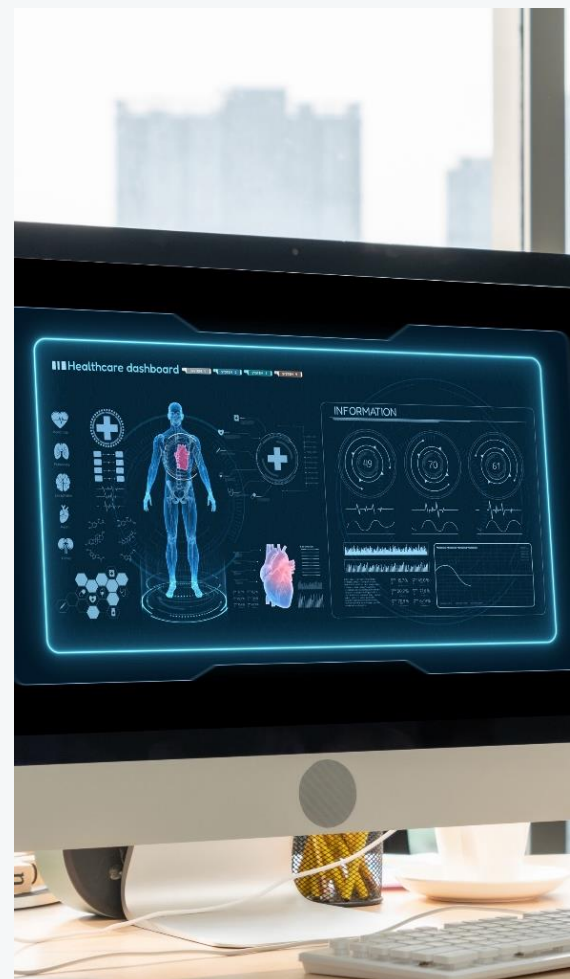
Global nursing shortages and rising training demand are straining traditional education models, creating a need for scalable, high-quality alternatives.

### Evidence and impact

Across academic institutions in the United States and Europe, AI-powered virtual simulation platforms are being embedded into nursing education. At Manhattanville University, AI-driven virtual patients enable students to practice clinical decision-making and communication in realistic scenarios, supported by automated feedback.<sup>23</sup> Similar AI-supported simulations and virtual tutors have been deployed at the Norwegian University of Science and Technology and the University of Eastern Finland, enhancing triage skills and clinical judgment.<sup>24,25</sup>

A meta-analysis of 12 randomised controlled trials found that nursing students using virtual simulations demonstrated significantly stronger clinical reasoning and applied knowledge than control groups, confirming the educational value of AI-enabled training.<sup>26</sup>

**Key takeaway:** Statistically significant improvements in clinical reasoning and performance among nursing students using AI-enabled simulation.



## 05 Wellbeing

### Why this matters

Burnout and emotional exhaustion threaten nurse retention, care quality and workforce sustainability.

### Evidence and impact

In South Korea, Ewha Women's University developed the *Nurse Healing Space* app, which uses AI algorithms to match nurses with tailored wellbeing interventions across mindfulness, acceptance and commitment therapy, reflective storytelling and laughter therapy. Studies involving more than 300 nurses demonstrated significant reductions in job stress, burnout and negative stress responses, with randomised trials confirming superior outcomes compared to self-selected support programmes.<sup>27, 28</sup>

**Key takeaway:** Statistically significant reductions in burnout and stress among nurses using AI-guided wellbeing tools.

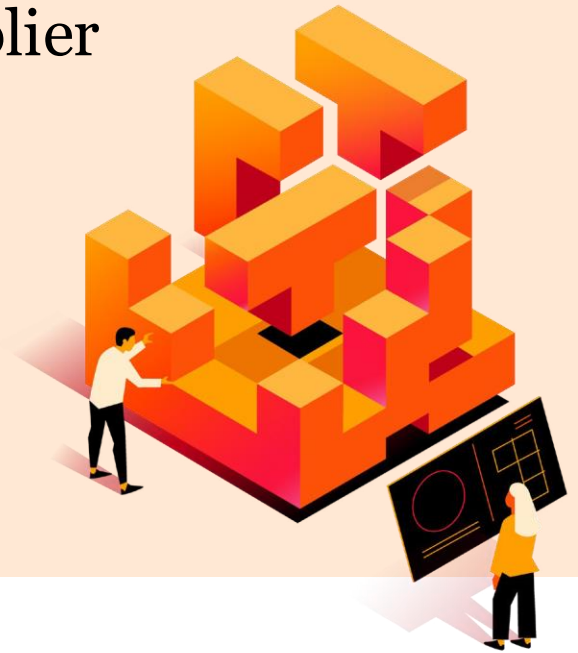


Across diverse health system contexts, these use cases demonstrate that AI can materially reduce non-clinical burden, support safer care and improve nurse wellbeing. While individual implementations vary, the evidence consistently shows that AI delivers greatest value when applied to time-intensive, workflow-heavy aspects of nursing practice. These use cases provide the foundation for quantifying AI's potential impact on nursing capacity in the GCC, explored in the following section.



# 06

## Quantifying the opportunity: AI as a productivity force multiplier



### 6.1 The economic case for AI in nursing

The economic rationale for AI adoption in nursing is significant. Across health systems globally, a substantial share of nursing time is consumed by documentation, task coordination and routine monitoring – functions well suited to automation and AI support. The time saved from such administrative and logistical tasks can be redirected toward patient care, improving system productivity, care quality and workforce sustainability.

This opportunity is particularly relevant in the GCC, where health systems rely heavily on expatriate nurses and face high turnover alongside growing demand for care. In this context, inefficiencies and lost clinical time carry a higher operational and financial cost. Here, AI represents a pragmatic complement to education and recruitment efforts, enabling health systems to expand effective capacity without waiting for long workforce pipeline lead times.





## 6.2 Evidence on time released to care

Multiple studies across hospital settings globally show that AI-enabled documentation tools can significantly reduce the time nurses spend on charting. Reported savings can amount up to nearly two hours per shift in reduced documentation time, allowing nurses to redirect the time toward direct patient care, coordination, or recovery.<sup>29,30,31</sup>

“ A body of evidence indicates AI can save nurses between one and two hours per shift, primarily by automating documentation, task delegation and routine monitoring functions

Additional gains are observed through task automation and workflow optimisation. Globally, robotic assistants deployed in acute care settings have removed non-clinical errands, such as transporting supplies and lab samples, from nursing workloads, delivering thousands of hours of cumulative time savings over relatively short deployment periods. Similarly, AI-enabled workflow tools have been shown to reduce administrative time by approximately one hour per shift in large health systems.<sup>32</sup>

## 6.3 PwC productivity modelling for the GCC

Building on this evidence base, PwC conducted a productivity-based economic analysis to estimate the potential impact of AI adoption on nursing capacity across GCC health systems. The analysis translates time saved into economic value, reflecting the opportunity cost of clinical hours redirected toward patient care and operational efficiency.

**To ensure credibility, the model applies conservative assumptions:**

25% adoption of AI-enabled solutions such as ambient documentation and workflow automation

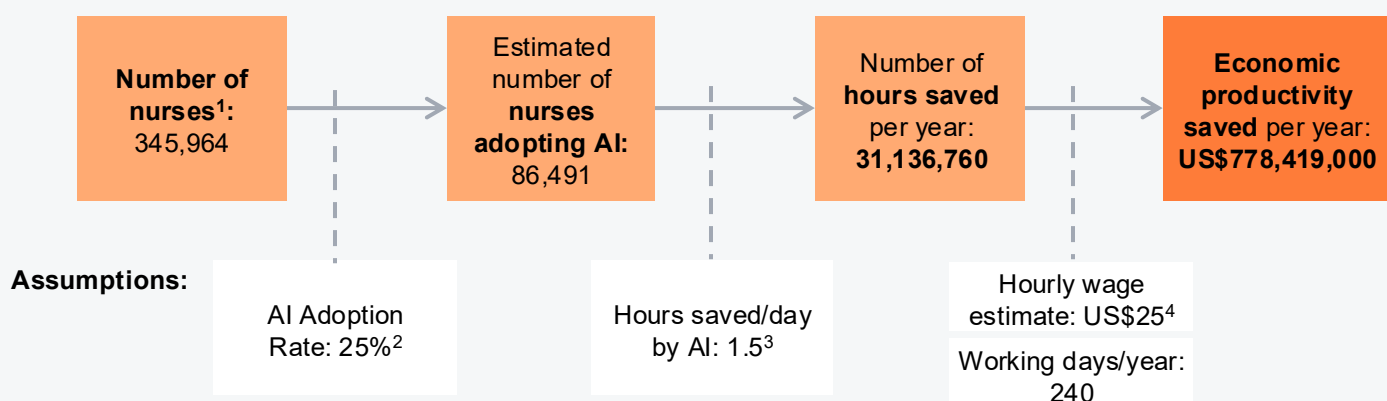
Average time savings of 1.5 hours per nurse per day, reflecting the lower end of international evidence



Under this scenario, PwC estimates that AI adoption could unlock more than 31 million nursing hours annually across the GCC, equivalent to approximately US\$778m in annual productivity gains (see Figure 11).<sup>33</sup> These gains represent the monetary value of clinical time released for direct care delivery, improved coordination and system throughput. Assuming stronger uptake, the projected productivity gains increase substantially, reaching approximately US\$1.5bn at 50% adoption **and up to US\$2.3bn at 75% adoption.**

Importantly, this estimate captures first-order productivity effects only. It does not account for downstream benefits such as reduced nurse turnover and recruitment costs, improved patient outcomes, or avoided hospital admissions and readmissions. The total socioeconomic impact of AI-enabled nursing productivity is likely to be materially higher than the modelled estimate.

**Figure 11: Economic impact of AI adoption in nursing in GCC countries**



Notes/sources:

1. Number of nurses based on the latest reported data in the WHO Health Workforce Accounts Data Portal. Source: WHO (2025) National Health Workforce Accounts Data Portal. <https://apps.who.int/nhwportal>
2. 25% representing a first-wave implementation scenario, assuming large hospitals adopt AI early while smaller facilities follow. Source: Digital Healthcare SME Input
3. An average time savings of 1.5 hours is assumed, based on academic and industry research consistently reporting reductions ranging from 1 to 2 hours. Source: Ju et al. (2025). Generative AI-Based nursing diagnosis and documentation recommendation using virtual patient electronic nursing record data. Healthcare Informatics Research, 31(2), 156–165. <https://doi.org/10.4258/hir.2025.31.2.156>
4. Hourly compensation estimates are derived from PwC Global and desktop research using the salary aggregator SalaryExpert (2025).

## 6.4 Implications for healthcare leaders

AI can act as a force multiplier for nursing capacity, delivering measurable productivity gains while supporting care quality and workforce sustainability. For GCC health systems facing persistent supply constraints, AI offers a pragmatic and scalable lever to expand effective capacity. However, realising this value depends on targeted deployment, prioritising use cases that release nursing time, adopting conservative and scalable solutions and embedding AI within broader workforce strategies.



# 07

## Barriers and enablers to scaling AI and elevating the nursing profession



While AI represents a powerful lever to expand nursing capacity and improve care delivery, its impact depends on non-technical enablers that elevate the nursing profession as a whole. Competency development, workflow integration, career pathway reform, data foundations and workforce alignment are the conditions that determine success.

This section outlines the non-technical enablers required to ensure that AI adoption translates into meaningful productivity gains and professional empowerment for nurses.

### 7.1 Competency and skills gaps

While the GCC is well positioned to capture the productivity upside, survey findings and stakeholder interviews consistently indicate that competency, not willingness, is the primary constraint to scaling AI in nursing. While nurses report strong interest in AI-enabled tools and training, access to structured digital and AI upskilling remains uneven. 61% of nurses surveyed received digital health training, while nearly 40% have not, suggesting uneven access to the skills needed to effectively use digital and AI-enabled tools. Without more systematic upskilling and change management, health systems risk underutilising AI and failing to realise its full productivity potential.





Competency gaps extend beyond basic tool usage. Nurses must also develop the skills to interpret AI outputs, understand limitations and integrate insights into clinical workflows. Without this foundation, AI risks being underutilised or applied inconsistently across teams.



## Ongoing development of medical devices should be complemented with continuous training on the latest therapeutic technologies

**Enabler:** Health systems should embed digital and AI literacy into core nursing competencies, through onboarding, continuing professional development and leadership pathways, positioning these skills as integral to modern nursing practice rather than optional add-ons.

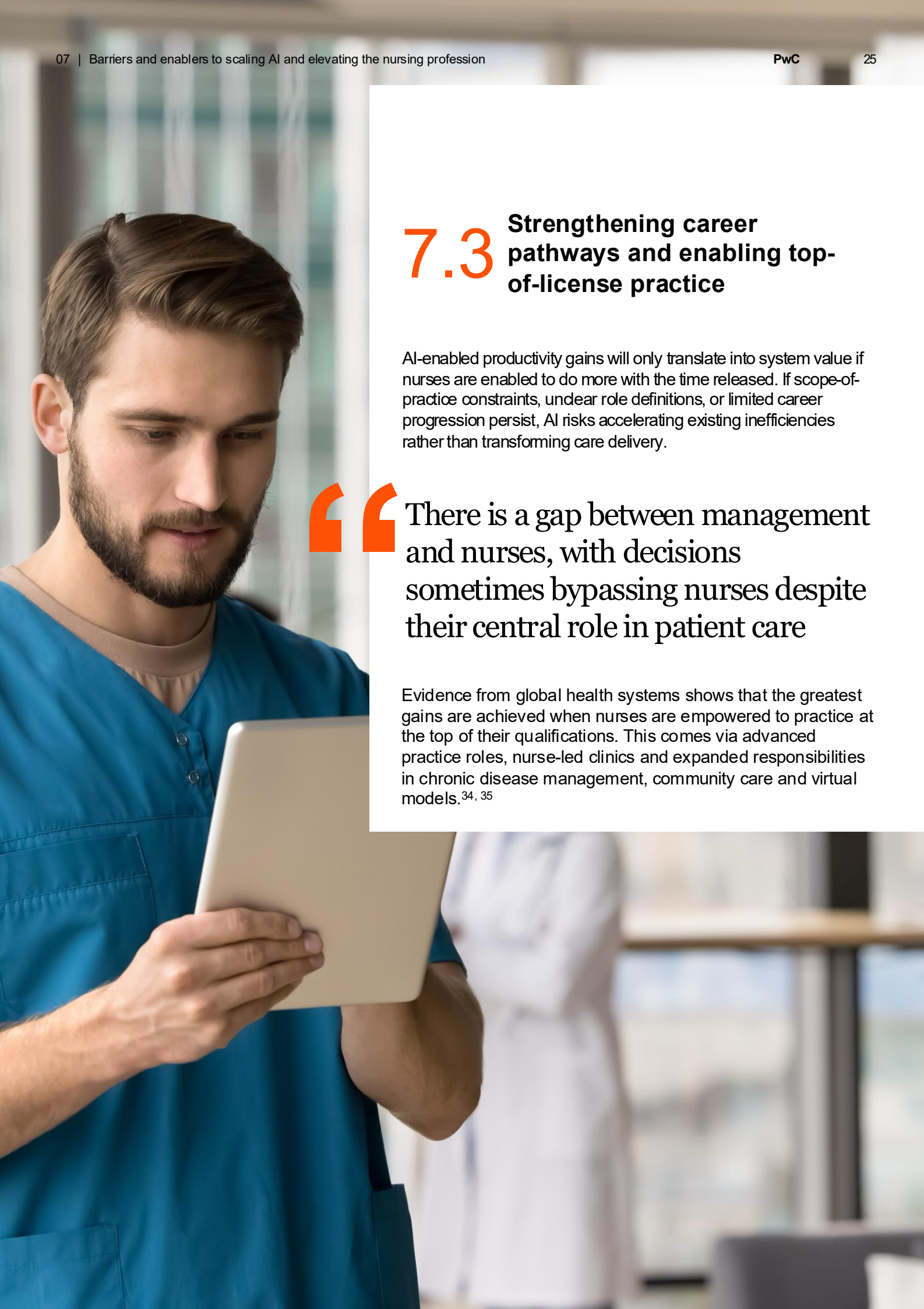
## 7.2 Workflow integration and clinical change management

AI initiatives frequently struggle to scale when introduced as standalone solutions rather than integrated into nursing workflows. Nurses operate across tightly coupled processes, documentation, monitoring, coordination and escalation and tools that add steps or duplicate effort can unintentionally increase workload.

Survey insights indicate that nurses value AI most when it removes friction, operating in the background to automate routine tasks and surface insights at the point of care, rather than requiring additional interfaces or manual inputs. CNO interviews reinforce that successful adoption depends on co-design with nursing teams and iterative refinement in real clinical environments.

**Enabler:** AI should be implemented as part of a clinical transformation effort, supported by workflow redesign, frontline engagement and continuous feedback, not as a purely technical deployment.



A man with a beard, wearing blue scrubs, is looking down at a tablet computer he is holding. The background is a blurred hospital or clinic setting.

## 7.3 Strengthening career pathways and enabling top-of-license practice

AI-enabled productivity gains will only translate into system value if nurses are enabled to do more with the time released. If scope-of-practice constraints, unclear role definitions, or limited career progression persist, AI risks accelerating existing inefficiencies rather than transforming care delivery.

“ There is a gap between management and nurses, with decisions sometimes bypassing nurses despite their central role in patient care

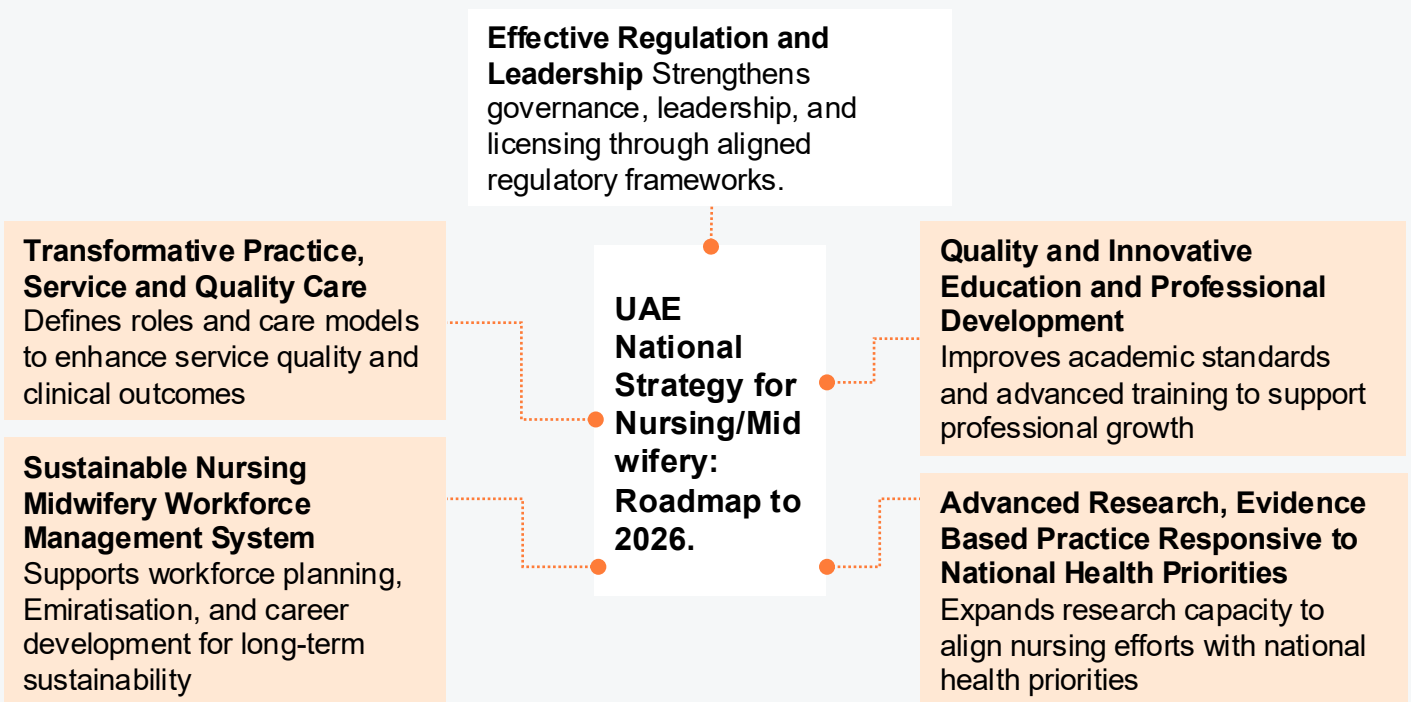
Evidence from global health systems shows that the greatest gains are achieved when nurses are empowered to practice at the top of their qualifications. This comes via advanced practice roles, nurse-led clinics and expanded responsibilities in chronic disease management, community care and virtual models.<sup>34, 35</sup>

In the GCC, variation in scope-of-practice regulations and the prevalence of expatriate nursing workforces create uneven conditions for role expansion.<sup>36</sup>

**Enabler:** Empowering the nursing profession requires workforce and policy reforms alongside technology, including clearly defined career pathways, recognition of advanced roles and mechanisms that allow nurses to fully apply their training and expertise.

Encouragingly, some countries in the region are already moving in this direction. The UAE National Nursing Strategy exemplifies a forward-looking approach to elevating nursing across the region (see Figure 12).

**Figure 12: Spotlight on the UAE National Strategy for Nursing/Midwifery: Roadmap to 2026**



## 7.4 Data foundations and interoperability

AI effectiveness is fundamentally dependent on data quality, completeness and interoperability. While many GCC health systems have invested heavily in electronic medical records and digital infrastructure, fragmentation across providers and care settings continues to limit the performance of AI tools, particularly those reliant on longitudinal patient data. Nurses are often the first to experience the consequences of poor data integration, including duplicated documentation, incomplete patient histories and inconsistent alerts.

**Enabler:** Continued investment in interoperable systems, standardised data definitions and strong clinical data governance is essential to support scalable, reliable AI adoption in nursing.





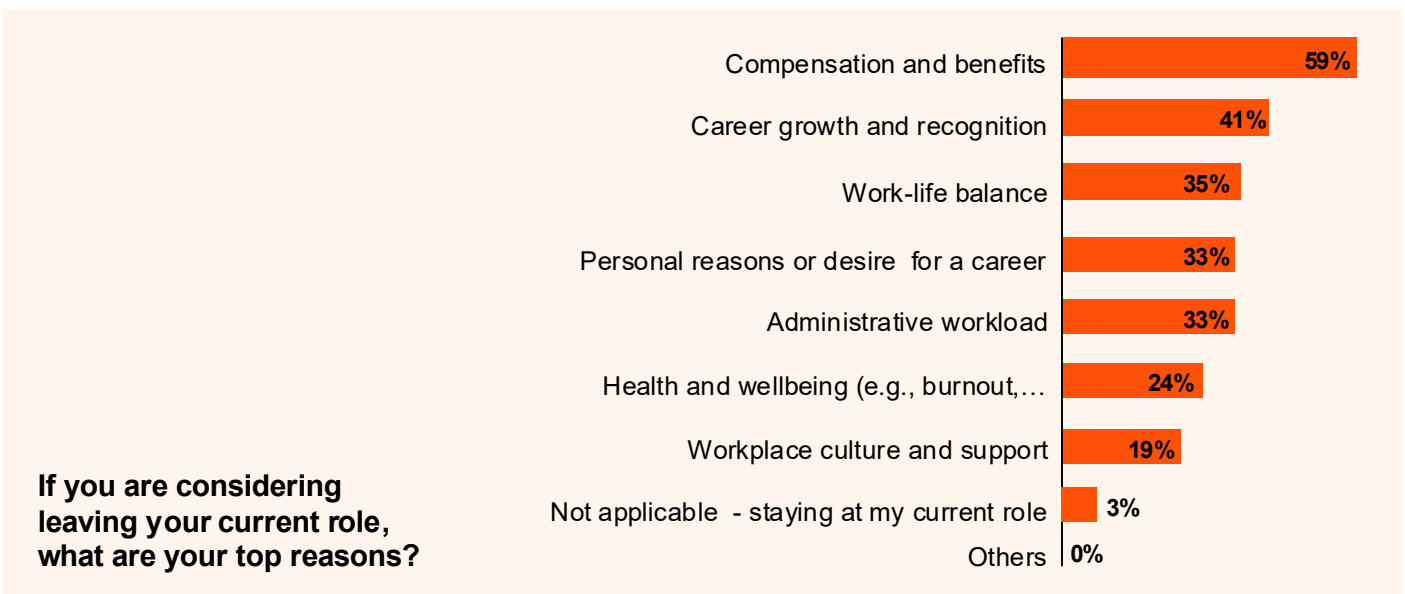
## 7.5 Workforce sustainability and retention: Addressing the root causes

AI adoption will only deliver sustained impact when it is accompanied by action to address the structural drivers of nurse attrition and burnout. Evidence from the PwC Middle East Digital Health and AI Adoption Survey for Nurses 2025 confirms that retention hinges on financial security, workload sustainability, professional recognition and career growth.

“The working atmosphere is very positive, though there is a need for better salaries”

Compensation and benefits are the most frequently cited reason nurses consider leaving their roles, outweighing administrative burden or work-life balance concerns (see Figure 13). At the same time, nearly a third of nurses reported work-life balance as one of their top reasons for considering leaving their current role indicating that extended schedules could potentially have a burnout risk.

Figure 13: Top reasons for considering leaving the current role

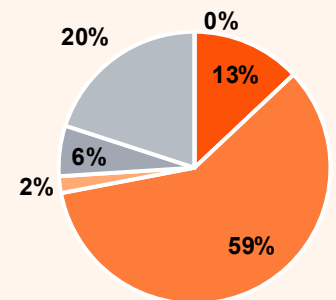


Recognition and professional respect are equally important. International evidence from the Magnet Recognition Program, operated by the American Nurses Credentialing Center and the highest international honour for nursing excellence, shows that shared governance, professional development and formal recognition of nursing excellence are associated with lower turnover and better patient outcomes.<sup>37</sup>

Career advancement and educational incentives, including sponsored postgraduate education and protected learning time, further strengthen retention, particularly in a workforce where 81% of nurses surveyed already hold bachelor's degree or higher (See Figure 14).

**Figure 14: Highest nursing qualification of respondents**

- Certificate in nursing (e.g, practical/vocational nursing)
- Bachelor's degree in nursing (e.g, BSN, BScN)
- Doctorate in nursing (e.g., PhD, DNP)
- Diploma in nursing
- Master's degree in nursing (e.g., MSN, MScN)



### What is your highest nursing qualification?

Source: PwC Digital Health and AI Adoption Survey for Nurses 2025

Work-life balance innovations, such as flexible scheduling and self-rostering, are emerging as effective retention tools. Notably, staff scheduling is already one of the most common AI use cases reported by nurses in the GCC, highlighting an opportunity to deploy AI not only for efficiency, but for wellbeing and sustainability.

**Enabler:** Positioning AI as part of a holistic workforce strategy, linked to wellbeing, recognition and career development, strengthens both adoption and retention outcomes.



# 08

## Ethical and regulatory imperatives for AI integration in nursing

Integrating AI into nursing practice requires a strong ethical and regulatory framework to protect patients, support caregivers and build trust in technology. In the GCC, regulators and healthcare authorities are placing increasing emphasis on the following critical areas.<sup>38</sup>

### 01 Data privacy and patient confidentiality

AI systems rely on sensitive health data, making privacy protections paramount. Regulations such as the UAE's Personal Data Protection Law (2021) and the GCC-wide AI ethics manual underscore the need for strict safeguards, informed consent protocols and clear data governance standards. Regulators must ensure that AI platforms comply with these requirements, preventing unauthorised data sharing or misuse.

### 02 Fairness, equity and non-discrimination

Algorithms must be trained on diverse datasets that reflect the GCC's varied patient populations. Bias in training data can exacerbate health inequities. National AI strategies in Saudi Arabia and the UAE already identify fairness as a core principle, but regulators must go further, setting standards for inclusive datasets, auditing AI tools for bias and mandating corrective actions when inequities are detected.

### 03 Transparency and explainability

For nurses and patients to trust AI, outputs must be interpretable. AI cannot be treated as a 'black box'. Regulators should require vendors to provide explainability tools and ensure clinicians are trained to understand AI-driven recommendations. This transparency is essential to support informed clinical decision-making and patient trust.

### 04 Accountability and liability

When AI errors occur, there must be clarity on who bears responsibility. Is it the nurse, the hospital, or the software provider? Current GCC liability frameworks are evolving, but regulators should establish explicit rules around shared accountability, malpractice coverage and redress mechanisms for patients. Human oversight of AI-driven care must remain a legal requirement.

### 01 Competency and governance structures

Hospitals across the GCC are beginning to form AI oversight committees, but regulators can strengthen consistency across the system by setting clearer expectations around competency and governance. This includes requiring continuous digital training for nurses to build AI literacy, establishing certification pathways that support the safe use of AI tools in clinical care and ensuring institutional governance structures are in place to oversee implementation and provide ongoing monitoring of how these technologies are used in practice.

### 02 Balancing innovation with patient protection

Regulators must strike a balance between encouraging innovation while safeguarding patients. A proactive approach could include regulatory sandboxes for piloting AI in nursing, accompanied by strong monitoring systems to evaluate impact on patient safety, privacy and care quality. GCC regulators have a pivotal role in ensuring AI strengthens, rather than undermines, nursing practice. A comprehensive framework built on privacy, fairness, transparency, accountability and competency will not only protect patients but also empower nurses to safely harness AI for improved care outcomes.<sup>39</sup>

# 09

## Your next move

Addressing nursing shortages in the GCC requires a coordinated, system-level response. AI and digital innovation can play a critical role, but only when aligned with broader workforce, regulatory and professional reforms. Based on the evidence, four priority actions stand out.



### 01 Scale up and modernise nursing education locally

Reducing long-term reliance on expatriate labour requires sustained investment in local nursing education pipelines. GCC governments should continue expanding nursing colleges, upgrading training infrastructure and strengthening faculty capacity through international academic partnerships. Offering full scholarships, stipends and guaranteed employment pathways can attract high-performing students into nursing and improve completion rates. Curricula must include digital health, AI literacy and advanced clinical skills to produce future-ready nurses, reducing reliance on expatriate labour.

### 02 Improve nurse employment conditions and career prospects

Retention must be treated as a strategic priority, not a downstream consequence of recruitment. Regulators and health authorities should strengthen staffing policies, promote safe nurse-to-patient ratios and support workload management approaches that reduce burnout. Ensuring fair and competitive compensation, alongside benefits such as housing, health coverage and overtime protections, remains central to workforce stability. These efforts should be complemented by evidence-based retention strategies, clear career progression opportunities and initiatives that elevate the profession's image through public awareness campaigns and government recognition, alongside continued improvements in working conditions.

### 03 Harness technology and innovation as force multipliers

Regulators should encourage investment in AI and digital health tools that reduce administrative burden, support clinical decision-making and enable new models of care. Policies and workforce frameworks must evolve to formally integrate remote monitoring, robotics, virtual nursing and AI-enabled scheduling into staffing and care delivery models, as part of the broader efforts to modernise the profession.

### 04 Empower and involve nursing leadership in policymaking

Strong nursing leadership is a prerequisite for sustainable reform. GCC regulators should ensure that CNOs and senior nursing leaders are represented in health planning, regulatory bodies and reform initiatives. Establishing or strengthening national nursing councils can provide structured platforms to guide standards, workforce planning and professional development. Embedding nursing perspectives into decision-making signals professional respect, improves policy relevance and ensures that reforms reflect frontline realities.

The nursing challenges facing the GCC cannot be addressed through workforce expansion alone. Demographic pressures, rising care complexity and ongoing reliance on expatriate labour mean that traditional supply-side solutions will be insufficient or slow to materialise. The future of nursing in the GCC will be defined by how effectively health systems combine intelligent tools with empowered professionals, so nurses can spend more time on care, less time on administration and more time applying their full training.

## Methodology

This paper is primarily informed by a GCC-wide survey of nurses conducted by PwC, providing frontline perspectives on workforce experience, digital readiness, AI adoption, perceived benefits and training needs. The survey captured responses from nurses across GCC countries, care settings and specialties.

Survey findings are complemented by interviews with chief nursing officers and senior nursing leaders across the GCC, which provide system-level perspectives on workforce pressures, retention challenges and digital transformation readiness.

In addition, PwC conducted a targeted desktop review of global and regional evidence from sources including the World Health Organization (WHO), the International Council of Nurses (ICN) and the OECD to contextualise GCC findings.

Finally, PwC developed a conservative productivity modelling approach to estimate the potential impact of AI on nursing capacity, informed by survey results and global benchmarks.



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## About PwC

At PwC, we help clients build trust and reinvent so they can turn complexity into competitive advantage. We're a tech-forward, people-empowered network with more than 364,000 people in 136 countries and 137 territories. Across audit and assurance, tax and legal, deals and consulting, we help clients build, accelerate, and sustain momentum. Find out more at [www.pwc.com](http://www.pwc.com).

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