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A Study on Artificial Intelligence for Healthcare

report

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Foreword #1

Andreas Cleve
Co-founder and CEO at Corti

As we hit the midpoint of the decade - with a quarter of the 21st century behind us - now is the perfect moment to take a big picture view of where we are in healthcare and what might come next.

Across Europe, the boom in specialization has transformed lives. New innovations are enabling healthcare professionals to deliver cutting-edge treatments, perform precise diagnoses, and reduce errors at scale. Quality of care is higher than ever.

But alongside these remarkable improvements comes fragmentation. Specialization can lead to gaps in general care due to a lack of available healthcare professionals, or leave care disjointed and split among multiple specialists.

The public perception of what healthcare looks like has changed too. The promise made by universal basic healthcare is that wherever you go, you get the care you need. But with patients arguably more informed than ever, the definition of treatment is shifting to become: access to specialized care, when I need it.

> “ Healthcare systems across Europe are under immense strain, grappling with rising demand, aging populations and an increase in chronic disease.

This means that even as more advanced treatments and care are possible, basic access is becoming a problem. Healthcare professionals face overwhelming workloads and are less able to consistently focus on driving quality and giving full, undivided attention to patients. Still, doctors spend a third of their time doing administration themselves to keep up, leaving them battling burnout and lawsuit risk. All in all, this means that to many, healthcare seems broken.

> “ Amid these challenges, artificial intelligence has emerged as a way to give back the biggest commodity currently lacking within healthcare - time.

By easing administrative burdens and supporting quality control, AI can free healthcare professionals to focus on what they do best: delivering patient care. The technology is also at the point where it can start to ease the pressure placed upon individual healthcare professionals by providing a pool of trusted knowledge and resources to draw on as real-time feedback.

These capabilities are not only about creating efficiencies; they directly impact patient outcomes, enabling faster, more accurate, personalized care.

> “ Real-time AI support can augment great healthcare practice, forming part of patient interactions to be called upon whenever doubt arises.

By gathering insights from a trusted ‘walled garden’ of case notes, peer expertise and validated datasets, AI can provide context-aware second opinions, tailored to the situation at hand.

In the coming years, AI has the potential to radically improve levels of specialization while maintaining high levels of access. That's a trade-off we have never seen before. The economist Adam Smith told us that every time you increase access or lower the price of a good or service, quality has to follow, and that you cannot give higher quality at a lower price. But that's the offer we believe AI can solve for healthcare.

The big picture impact? The prospect of making life better for patients and healthcare professionals alike.

The path forward is not without obstacles. Building trust in AI is essential. AI adoption must be guided by rigorous ethical standards, transparency, and a clear focus on enhancing rather than replacing human expertise - augmentation rather than automation.

It will take a concerted effort by technology companies, healthcare institutions, policymakers, and frontline staff to ensure AI tools are implemented correctly and used to their full potential. At Corti, we will continue to lead from the front, developing AI solutions and acting as trusted partners to healthcare professionals across Europe.

It is now genuinely possible to imagine a world where everyone has access to medical expertise, no matter where they are. Together, we can navigate the challenges of the present day and build a future where healthcare systems are more resilient, accessible and human-centric than ever before.

Foreword #2

Dr. Michael Dahlweid

MD, PhD – Chief Product Officer at Dedalus Group

If you've ever watched a doctor juggling patient care, administrative tasks, and keeping up with 2,000 new medical papers published weekly, you might wonder if healthcare professionals secretly have an extra set of arms we can't see. Spoiler alert: they don't. But they might just be getting the next best thing.

At a time when European healthcare services are performing a high-wire act between skyrocketing demand and shrinking resources, artificial intelligence emerges not as a miracle cure, but as something potentially more valuable: a very smart safety net.

The vital signs of our healthcare systems tell an interesting story. Our workforce is shrinking just as our populations age – a demographic double-whammy that would make any statistician wince. Meanwhile, our clinicians spend up to a third of their time on documentation rather than patient care. It's like having the world's finest orchestra spend their concerts filling out paperwork about which notes they're playing.

Yet as this report reveals, we stand at a fascinating inflection point. While 74% of healthcare professionals support AI's usage in practice, there's still a pronounced gap between acceptance and implementation. This isn't surprising - healthcare professionals are trained to be skeptical. You don't want a doctor who gets excited about every new miracle cure they see advertised on late-night television.

But here's where it gets interesting: trust in AI jumps significantly among those who've actually used it in practice. It's rather like vegetarian sausages - surprisingly good once you get over your initial suspicions. The data suggests that AI isn't just winning hearts and minds; it's winning them by being genuinely useful.

The key lies in understanding AI not as a replacement for clinical expertise, but as an augmentation of it. Think of it as giving our healthcare professionals a particularly intelligent assistant - one that never gets tired, never needs coffee, and never complains about having to work weekends. Though it also never brings donuts to the break room, so there are trade-offs.

What excites me most is AI's potential to help resolve a fundamental healthcare challenge: the trade-off between specialization and accessibility. Historically, increasing expertise has meant decreasing availability - rather like having a brilliant chef who can only cook for one table at a time. AI offers us a chance to bridge this gap, supporting specialists while making their expertise more widely available.

But implementation must be thoughtful and measured. We're not looking at a revolution in healthcare, but rather an evolution - one that could help us deliver on the fundamental promise of modern medicine: providing the highest quality care to the greatest number of people possible. It's less "AI will see you now" and more "AI will help your doctor see you sooner."

The findings in this report paint a picture of a healthcare sector ready for change, but rightfully cautious about how that change occurs. Our challenge isn't whether to adopt AI, but how to do so wisely. It's rather like teaching a teenager to drive - you want them to have independence, but you'd prefer they didn't figure it out by crashing into things.

Looking ahead, I believe we'll see AI becoming as natural a part of healthcare as stethoscopes - a tool that augments rather than replaces human expertise. And perhaps most importantly, it might finally free up our healthcare professionals to do what they do best: care for patients, rather than paperwork.

The future of healthcare isn't about robots replacing doctors (though I wouldn't mind one that could handle my email). It's about giving our incredible healthcare professionals the support they deserve, the tools they need, and maybe, just maybe, enough time to finish their coffee while it's still hot.

After all, as this report shows, the true potential of AI in healthcare isn't in replacing the human touch - it's in giving humans more time to touch lives.

P.S. If AI could also figure out doctors' handwriting, that would be a bonus.

Executive Summary

This report explores the transformative potential of AI in healthcare, examining its current adoption, the challenges healthcare professionals (HCPs) face, and the outlook for AI's future role in supporting both HCPs and patient outcomes. Figures in the executive summary are net figures across Denmark, France, Germany and the UK.

The research was conducted among 1,794 healthcare professionals in Europe, with 257 in Denmark, 510 in France, 520 in Germany, and 507 in the UK. Unless otherwise stated, data in the executive summary represents net figures across all territories. The survey was conducted by YouGov, using an online interview administered to members of their panel that previously indicated that they work in the healthcare industry. Data sets from the US are also considered and comparisons made with the European markets in this research.

Section One: The Healthcare Landscape

- The most common problems faced by HCPs are high patient load (40%), feeling overwhelmed with administrative tasks (33%), and struggling to provide optimal patient care (30%)
- 41% of HCPs experience burnout on a monthly basis
- Meanwhile, 40% of HCPs work unpaid several times a month
- A quarter of HCPs (24%) feel like leaving their role at least once a week
- Most HCPs feel they would benefit from more support, whether with assessing patient risk (59%), monitoring patients long-term (59%), decision making (57%), or via second opinions (55%)
- 63% of HCPs say that it would be helpful to have an experienced colleague in the room when working with a patient - could AI be part of the solution?

Section Two: Adoption and Attitudes Towards AI in Healthcare

- A cohort of AI early adopters is emerging - a fifth (21%) are already using AI tools at least once a month
- However, the newness of the technology means most are still unfamiliar - currently, 65% of HCPs say they never use AI as part of their work, increasing to 73% among HCPs in the UK
- Several groups emerge as more likely early adopters - among the more common monthly users are physicians (35%), those aged 25-34 (34%), and HCPs in Denmark (25%) and Germany (25%)
- Overall, 74% of HCPs support the usage of AI in day-to-day practice for at least one use case
- HCPs are most keen for AI to support with saving administrative time (63%), automating patient notes (49%), prompting follow-up care (47%), and prompting questions for patients (46%)

- There is work to be done in building up awareness of AI tools though - even looking at the best known use case, only 30% of HCPs know that AI can be used for patient notes
- Currently, 52% of HCPs say they wouldn't feel confident using AI as part of their work or practice, while 31% feel confident and 16% unsure
- Confidence rises with usage though - 62% of those who have used AI in work at least once report that they are broadly confident doing so again in the future

Section Three: Trust and Ethics

- Around half (49%) of HCPs say they would trust AI with at least one potential function or use case
- HCPs have most trust in AI's ability to take on administrative tasks (36% vs 21% distrust), while there is currently less trust in AI supporting decision-making or diagnosis (27% vs 29% distrust)
- Physicians tend to place more trust in AI than other healthcare groups - 46% trust AI to prompt patient questions vs 27% that don't
- Trust grows as usage increases: rates are significantly higher among HCPs who have previously used AI in their work; net trust positivity is +20% or higher among this group across all applications
- Fear over AI errors is the biggest concern HCPs have over AI adoption (51%)
- Other areas that need to be addressed include AI's potential to replace human roles (38%), difficulty in trusting AI feedback (36%), and worries over patient privacy (35%)

Section Four: Future of AI in Healthcare

- Overall, HCPs most want to see AI applied in the future for saving administrative time (42%) and automating patient notes (29%)
- Aside from admin, physicians were keenest to see AI applied towards decision-making and diagnostic support (32%), diagnostic insights (25%), prompting questions for patients (21%), and giving second opinions (20%)
- When HCPs are asked to imagine using AI tools in their work to reduce workload, most commonly, they would want to put that time towards direct patient care (44%), rising to 59% and 57% among nurses and doctors respectively
- One anticipated by-product of using AI is reduced stress levels (43%), helping in turn to enable better staff wellbeing, care, and relationships with colleagues and patients

Embracing AI to transform patient care

Una Monaghan
Deputy Medical Director and CCIO Hertfordshire Community Trust (HCT)

As healthcare providers, we are eager to embrace AI's transformative potential. We see innovation as a positive force, and we're committed to being proactive in using AI to enhance the care we deliver. However, we recognize that this journey must be carefully navigated. Effective governance and regulation need to be addressed at a national level to ensure AI is implemented safely and responsibly.

AI is often described as an umbrella term, encompassing several core applications, including machine learning, natural language processing, computer vision, robotics, expert systems, and speech recognition. Each of these areas have their own systems and techniques:

- Devices that incorporate AI to interpret tests improving diagnostics and monitoring
- AI tools that generate content based on prompts, such as drafting new policy documents
- Predictive models which help to determine likelihood of someone developing disease or being at risk of admission
- Systems capable of recording patient information by understanding conversations — and this is a domain we are currently exploring

Since I started my career there has been an exponential growth in patient record keeping. This has been driven by a desire to improve patient quality and safety but has also increased the administrative burden for all clinicians. This has, in turn, reduced the time we can spend with patients and limited the number of individuals we can care for.

AI offers a solution. By generating notes and managing administrative tasks, it frees up time for healthcare professionals to focus on clinical work.

> “ We are piloting the use of AI to generate patients' records and to support dental nurses to have more time to spend with patients who have special needs. These patients often struggle in what can be a stressful clinical environment and using AI allows more time to be spent providing compassionate care and less time on paperwork.

Such tools enhance the wellbeing of both patients and staff, creating a more fulfilling healthcare experience and improving patient outcomes.

Confidentiality remains a cornerstone of our work, and we know that AI is an emerging technology where benefit can be realised once a risk-based analysis is undertaken. It's essential to strike a balance – acknowledging the risks while thoughtfully leveraging the benefits. By approaching these opportunities with caution and care, we can ensure AI becomes a trusted partner in transforming patient care for the better.

Section One: The Healthcare Landscape

The big picture: trends in healthcare and demographics

Healthcare provision across Europe is facing a number of serious challenges, affecting healthcare professionals (HCPs) and patients alike - from aging populations to labor shortages and the long-term impact of the COVID-19 pandemic.

Industry leaders have been warning for years that their healthcare systems are at breaking point. To cite some recent examples: in France, a 2023 report from the Organisation for Economic Co-operation and Development (OECD) suggested that doctor numbers had remained largely flat for the past decade, leaving "medical deserts" in some areas of the country[i]. Meanwhile, with around 80,000 doctors in Germany being over the age of 60 and succession planning faltering, the nation is facing its own urgent shortage of medical professionals[ii].

01 Aging populations

Europe's population has been steadily aging for decades, a consequence of declining fertility rates, longer life expectancy and, in some cases, migration trends.

Projections suggest that there will be significant growth in the proportion of older people in the coming years. According to the European Commission, the number of people aged 65 and over in the EU-27 is projected to rise from 91 million in 2019 to 130 million by 2050[iii].

The UK population is also aging. In 2022, around 19% of the population was aged over 65. Projections from the Office for National Statistics (ONS) suggest this figure could increase to 27% by 2072[iv].

Aging populations impact healthcare systems in several ways. Generally, older age is associated with increased need for medical interventions and treatments, requiring more time and resources. Considering that the current EU average retirement age is 64, and UK state pension age is 66, this will mean a smaller proportion of the population in the workplace and a reduced tax base. As such, governments will need to meet these challenges while potentially taking in less revenue.

02 Chronic conditions rising

Another key issue is an increase in chronic health conditions. More than a third (35%) of people in the EU reported having a longstanding health problem in 2023[v]. Meanwhile, a 2024 paper from the Institute for Public Policy Research (IPPR) found that the UK is experiencing a sharp rise in the prevalence of many long-term conditions that goes beyond just aging, reporting that "children, teenagers, and working age people are also getting sicker, as well as people in retirement[vi]."

The legacy of the COVID-19 pandemic is also likely to be playing a role. Not only did the pandemic cause disruption in the continuity of care for existing chronic patients[vii], the SARS-CoV-2 virus has also caused unexplained, chronic, post-infection symptoms in survivors - requiring more medical care as a result[viii].

03 More healthcare workers are needed

The healthcare sector is expected to have the largest growth in labor demand in Europe - with a forecast of almost four million new jobs that need to be filled by 2030[ix]. However, the primary research in this report indicates that even now, workers in the health sector are struggling to meet patient needs, which will only get worse if not addressed.

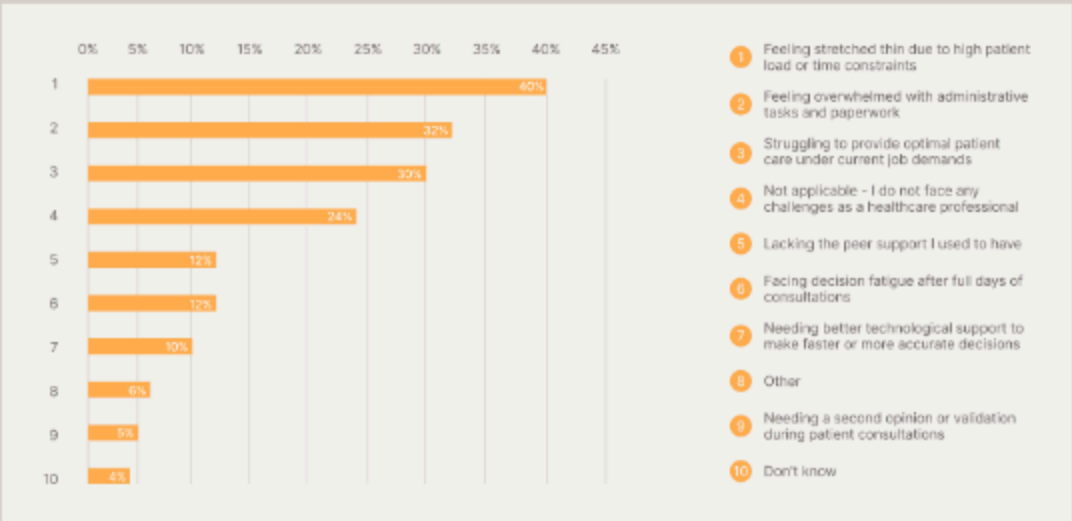
Healthcare professionals facing an array of issues at work

The research shows that healthcare professionals are under significant strain on a day-to-day basis. Based on the aggregated views of HCPs in the UK, France, Germany and Denmark, the single most common issue faced is the volume of patients requiring care and the resulting time constraints (40%).

Other frequently cited concerns point towards a lack of time in the day of the average HCP. Across all countries in the survey, a third (33%) of professionals state that they generally feel overwhelmed with administrative tasks and paperwork, while a similar proportion (30%) are struggling to provide optimal patient care as a result of the competing demands of their role.

Some HCPs highlight a need for greater day-to-day support, whether from peers (12%) or new technology (10%), to enable them to make faster, more accurate decisions. Overall, the vast majority (72%) say they face at least one serious challenge every day.

Biggest challenges

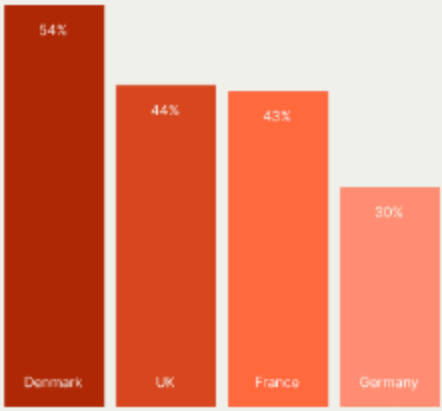


Burnout, overwhelm and the knock-on impact

With so many HCPs indicating that they are stretched too thin due to patient load, it is understandable that self-reported rates of burnout are also high across the territories surveyed. A majority of professionals say they have experienced burnout (58%), which is defined as a state of physical, mental or emotional exhaustion, at least once in the past as a result of their work.

Meanwhile, 41% of HCPs feel burned out on a monthly basis and 23% at least once a week, indicating an ongoing problem - in other words, the workplace stresses that cause these issues aren't going away.

HCP burnout by nation - monthly



However, rates do vary across the territories surveyed. A majority of HCPs in Denmark (54%) say they feel burned out at least once a month, while in Germany, rates fall to 30% - still significant, but representing a sizable difference in severity. HCPs in Denmark are also more worried about providing optimal patient care given their current work demands (38% vs 30% across all territories), suggesting that the issue may be self-fulfilling, with HCPs experiencing more stress due to an inability to meet their own expectations.

When we take a broader look at signs or symptoms of stress, more than three-quarters of HCPs report that they have felt overwhelmed (77%) in the past as a result of the requirements of their job, with 63% feeling this way at least once a month. For some, the struggle is continuous - one in 10 (12%) UK HCPs feel overwhelmed on a daily basis - higher than all three other territories.

Exacerbating problems with burnout and feeling overwhelmed, 45% of healthcare professionals find themselves working unpaid overtime at least once a month. Against a backdrop of increased demand and growing patient numbers, this rises to 68% among physicians - in this survey, this category includes roles such as doctor, general practitioner, surgeon and dentist.

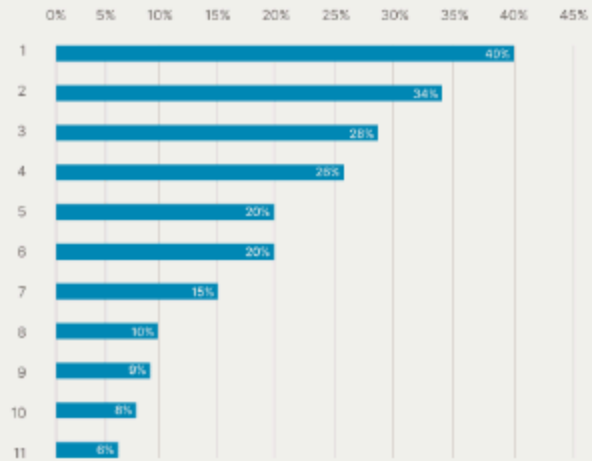
The knock-on effect of burnout can be serious. A US-based study found that the risk of major medical errors was greater in surgeons who scored high in the Maslach Burnout Inventory, a measure of workplace burnout[x].

Furthermore, in our research among HCPs, four in ten (40%) of those who experience burnout or feel overwhelmed report that it leaves them unable to dedicate sufficient time to their patients and similarly, 28% expressed concern that burnout prevents them from delivering the highest standard of care.

Follow-up care, a critical component of effective treatment, is another area that suffers when workloads become unmanageable. Over a quarter (26%) of HCPs who experienced burnout or feeling overwhelmed say that their ability to provide consistent follow-ups is compromised due to unmanageable demands. Physicians, in particular, face additional challenges, with one in six (16%) of those affected acknowledging that time constraints prevented them from seeking second opinions. This lack of collaborative input can affect decision-making and, ultimately, patient outcomes.

> Exacerbating problems with burnout and feeling overwhelmed, 45% of healthcare professionals end up working unpaid overtime at least once a month, rising to 68% among physicians.

Knock-on effect of feeling burnout/overwhelmed



1. Unable to give sufficient time to patients
2. Unrealistic expectations
3. Inability to deliver the best patient care
4. Not enough time for follow-up care
5. Difficulty maintaining colleague relationships
6. Memory issues
7. Difficulty building positive patient relationships
8. Don't know
9. Less time for a second opinion
10. Difficulty with triage decision-making
11. Other

Another clear consequence of widespread, unmanaged burnout is the increased likelihood of HCPs moving roles or leaving the profession altogether. A staggering one in four (24%) HCPs feel like leaving their role at least once a week, according to the YouGov survey, while the perception of healthcare as a field that is high-stress and low support may also have a negative impact on recruiting to meet current staffing shortfalls. If left unchecked, this will have a compounding effect on a healthcare sector also facing stark demographic challenges in the near future.

> “
>
> Unmanaged burnout increases the likelihood of HCPs moving roles or leaving the profession altogether - one in four (24%) think about leaving their role at least once a week.

Healthcare professionals seek support

The high level of stress and burnout in healthcare is mirrored by widespread demand for additional support. A majority of HCPs believe they would benefit from assistance in critical areas of their work. This includes help with assessing patient risk (59%), monitoring long-term patient progress (59%), making decisions (57%), and obtaining second opinions (55%).

The need for support is particularly pronounced among HCPs in France, where 71% say they would benefit from prompts for questions to ask patients, 66% are looking for long-term patient monitoring assistance, and 61% want support with second opinions.

Among all HCPs, physicians in particular crave additional support in long-term patient monitoring (71%), decision-making (66%), and second opinions (62%). These figures point to individual doctors and GPs increasingly having sole responsibility for a patient with little support - and taking on all the pressure that comes with it. Indeed, 63% of HCPs say it would be helpful to have an experienced colleague in the room when working with a patient.

Benefit of additional support

* A tree-like diagram to help with decision making

Time constraints are a significant obstacle to receiving support, creating a vicious cycle where healthcare professionals feel the need for more shared knowledge and expertise but also don't have the time to offer it to others. Among those who want additional support, nearly half (48%) say that peers are too busy to give support, a figure that rises as high as 55% in the UK. Additionally, 38% cite colleague stress levels as a barrier to obtaining the input they need. These findings point to a systemic issue: the networks of human support HCPs rely on are increasingly strained.

As healthcare systems face the challenges of aging populations, financial pressures, and growing fragmentation in medical practices, it is only going to become more difficult to access colleague support. Without intervention, the ability to seek timely advice and second opinions may diminish further as the need for these resources grows.

Could AI provide a solution? By integrating AI tools more consistently into healthcare workflows, it may be possible to alleviate some of these pressures. AI systems can offer real-time decision support, help with risk assessments, and provide second opinions based on comprehensive data analysis, reducing reliance on overstretched colleagues.

Moreover, AI's capacity to capture patient notes and engage in long-term patient monitoring can enhance continuity of care, ensuring that healthcare professionals can focus their time and energy on direct patient interactions.

What is clear, is that as the healthcare landscape continues to evolve, other means of gaining support and freeing up time are needed to break the cycle and help HCPs deliver their best work, dedicating as much time, expertise, and attention to patients as possible.

“

Time constraints are a significant obstacle to receiving support, creating a vicious cycle where healthcare professionals feel the need for more shared knowledge and expertise but also don't have the time to offer it to others - 48% say that peers are too busy to give support...

AI supporting maternity wards

The Capital Region of Denmark

Maria Jeppegaard

MD and PhD student, Hvidovre and Herlev Hospital Maternity Wards

In the demanding and high-pressure world of maternity care, midwives carry significant responsibility. One of their critical roles is assessing whether a woman needs to be invited in for further examination or if her concerns can be safely addressed over the phone. These decisions, frequently made alone, require a careful balance of clinical expertise and intuition.

We are turning to AI as a powerful tool to support midwives in making these crucial judgments and to provide reassurance for expectant mothers. By acting like an experienced colleague sitting alongside the midwife, AI can help identify potential risks during pregnancy and labor. It does this by analyzing patterns in real-time, ensuring they have a clearer picture of the situation at hand.

Telephone consultations can be quite difficult since you cannot physically see or examine the woman. With this project, we hope AI can support us in uncovering which risk profiles are at stake during a given call. As a result, we hope to avoid unnecessary visits and prevent complications that could arise from delayed examinations.

This initiative is about ensuring that every woman and child receives the best possible outcome. By leveraging AI, we aim to enhance the quality and safety of maternity care, empowering midwives with the insights they need to make informed decisions and provide the right care at the right time.

Section Two: Adoption and Attitudes Towards AI in Healthcare

Against the backdrop of the challenges identified in section one, we asked whether AI could form part of the solution to these problems. However, before reaching that point in time, it is important to understand current levels of adoption and attitudes towards AI among healthcare professionals.

An introduction to AI in healthcare: where are we now?

Artificial Intelligence has become a part of everyday life in a remarkably short period of time. Technological advancements have made generative AI tools accessible en masse. Public awareness of the potential uses of AI skyrocketed in late 2022 and early 2023 as a number of Large Language Models (LLMs) were opened up to the general public free of charge.

But of course, AI did not just appear out of nowhere in 2022. And the way that LLMs are used on a day-to-day basis by the public is not necessarily reflective of the wide variety of applications for generative AI that exist.

Large Language Models are trained on vast amounts of information and data with the goal of becoming able to comprehend and generate human language. Through this process, they create their own kind of neural networks and, by understanding the relationship between various types of text and data, can generate responses to questions or summarise information in a way that sounds like a human.

Companies have been working behind the scenes on creating viable LLMs for decades, from the first small models built by IBM in the early 1980s all the way up to the 'tipping point' moment in 2022.

From a healthcare perspective, as advanced AI models have become more readily available, attention has turned to applying these tools to societal challenges. As established in Section One of this report, healthcare is an area where there is an obvious need for improvements to the standard and accessibility of care provision, with or without AI's involvement.

The question is how AI, in such a high stakes environment, can safely be harnessed to address these urgent challenges?

The potential range of applications for AI in healthcare is vast. YouGov's polling amongst healthcare professionals shows that the amount of time taken up by administrative tasks, patient notes, and quality assurance is a source of frequent frustration. Despite the fact that much of this work is important and needs to be done, it diverts time away from directly caring for patients. By extension, it also inhibits efforts to reduce patient backlogs and the associated stress they can cause.

Now, bespoke AI tools are available to help relieve administrative pressures - an issue that hasn't meaningfully been tackled since the introduction of dictation tools and computers in past decades.

However, while these admin-focused use cases are among the most common currently being trialled in healthcare, they are just the tip of the iceberg.

Automated coding has been in usage for some time now, but in recent years as AI technology improved, reliability and accuracy will have improved drastically. Other potential applications of AI include offering real-time decision-making support to HCPs in the room with patients and providing gut-check consultations when needed, aiding in the triage process, prompting follow-up care and much more.

But not all LLMs are created equal. When supporting HCPs in high-stakes day-to-day care, AI needs to be reliable and context aware, in this setting more than most. Furthermore, the intention behind the creation of an AI is key to how reliable its use can be at this early stage in development. The ability to augment the work of HCPs holds far more value than automating it - keeping the expertise of HCPs front and center.

Another crucial component is opting for an AI that is selective with its sources. Ensuring that LLMs are trained only on the most robust healthcare data, rather than trying to synthesize a correct response by drawing from reams of uncurated information, is key to creating accurate AI assistants that HCPs can rely on. Similarly, building trust is the crucial component to ensure that AI technology can help ease some of the issues facing the healthcare sector.

Regular AI users are emerging in healthcare

At this relatively early stage of using AI in a healthcare setting, while most healthcare professionals haven't had the chance to use the technology, a cohort of early adopters is emerging.

Currently, 65% of HCPs say that, at this point in time, they never use AI as part of their work. This increases to 73% among HCPs in the UK. Of course, as with all nascent technologies, there is a possibility that some HCPs are already using tools that are powered by or incorporate elements of AI without actively knowing it, but the evidence points to the healthcare sector being slower than most industries to adopt new technologies[x].

However, the data shows that there is already a cohort that is using AI on a fairly regular basis. Across all territories, one-fifth (21%) of HCPs are using AI at least once a month.

So who are these early adopters? HCPs in Denmark (25%) and Germany (25%) are most likely to be using AI tools on a monthly basis, closely followed by those in France (24%) while just 14% of HCPs in the UK do so.

Looking at job roles, physicians are also more likely than the average HCP to be using AI, with 35% doing so in the workplace at least once a month. This increase reflects the fact that many of the more common use cases of AI are targeted more at physicians, such as AI medical imaging or ambient scribing. At the other end of the scale, nursing and patient care staff are the least likely to say they are regularly working with AI - with just 16% using tools on a monthly basis.

Male HCPs are also significantly more likely to be using AI, with 33% doing so on a monthly basis compared with 17% of women in healthcare. Further illustrating this divide, 69% of female HCPs have never used AI at all in the workplace, compared with 54% of men. Again, this fits with trends in wider AI usage across the board, according to 2024 survey data[xii], and potentially represents another negative side effect of men being generally more socialized to learn and use technology - as seen too in STEM career representation.

Age is also a predictor for which HCPs are likely to be using AI as part of their work. Those aged 25-34 are most likely to be doing so on a monthly basis (34%), closely followed by 18-24 year olds (32%). Those aged 55 and above are the least likely to be using AI tools, with 16% doing so on a monthly basis - while 70% have never used them at all. This reflects the broader societal trend of younger people being more likely to use new technology outside of the workplace too.

Looking at who is currently most likely to be an early adopter of AI tools in healthcare therefore helps to inform sector leaders as to the groups that may need additional information, training, or support if they are to end up benefiting from the advantages of AI tools - and ultimately, using them in a way that positively augments their practice.

The Healthcare AI Divide - in figures

A cohort of "AI converts emerging..."

21% of HCPs are using AI tools at least once a month as part of workflow

...but most are yet to use the technology

65% of HCPs say they have never knowingly used AI in the workplace

UK behind the curve?

HCPs in the UK are most likely to say they never use AI in their work (73%) while just 14% are using it on a monthly basis

Denmark and Germany have most regular users

One in four HCPs (25%) in these nations use AI tools at least once a month in work

Physicians are more likely to be using AI

35% across all territories use tools on a monthly basis

...but nurses don't get the chance

Monthly use of AI tools among nursing and patient care staff drops to 16%

Women are using AI less

69% of female HCPs have never used AI in the workplace, compared with 54% of men

Tentative, but broadly willing: HCP attitudes to AI

Even at this relatively early stage in the application of AI in healthcare, three in four (74%) HCPs support its usage in day-to-day practice, for at least one purpose. Unpacking this, most commonly HCPs are keen for AI to support time-saving measures, such as saving on administrative work (63%) and automating patient notes (49%). Notably, these are the AI use cases that are already most common or familiar in a healthcare setting.

Meanwhile, HCPs are more favourable towards the idea of receiving prompts and reminders via AI, whether for follow-up care (47%) or prompting questions for patients (46%). There is also burgeoning support for more complex uses of AI in healthcare - particularly among physicians. Those in this job role tended to be favourable to receiving real-time feedback via AI, with 48% in favour versus 14% opposing. This correlation tracks with the high proportion of physicians that say they need additional support and are currently regularly working unpaid overtime. Similarly, those in nursing and patient care were particularly keen on patient question prompts, with a slim majority (51%) in favour.

With the current levels of overwork suggesting that greater human support is unlikely to be possible any time soon, having an AI trained upon the previous cases and recorded knowledge of these colleagues could be a viable alternative to explore in order to help augment and enable the more patient-facing element of their role.

AI awareness still needs to be built up

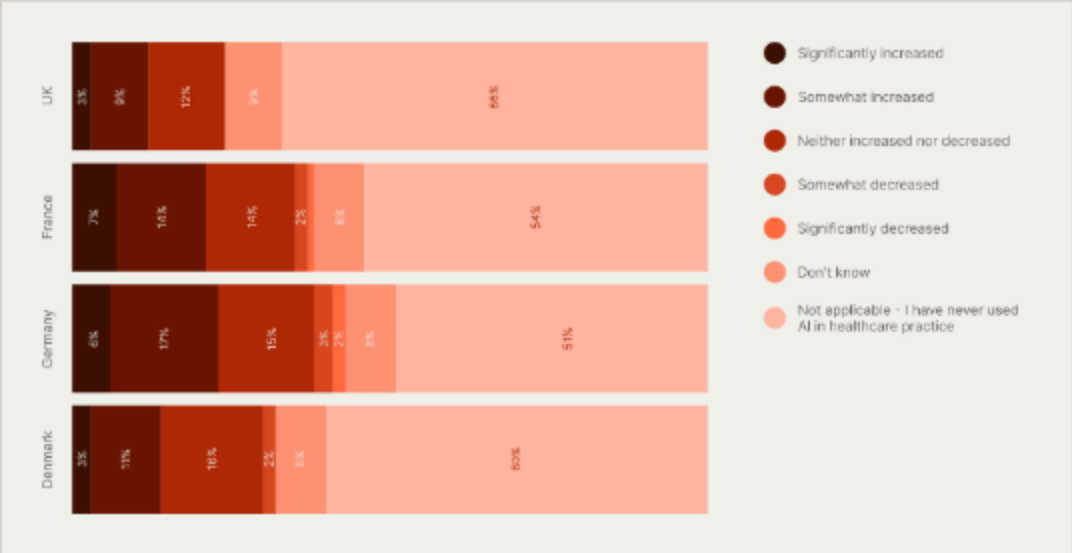
When we look at awareness levels across specific use cases, HCPs are most likely to be aware that AI can be applied to automate patient notes (30%), with one in 10 (10%) having had first-hand experience of doing so. A similar proportion of HCPs are aware that AI can be used for supporting decision-making and diagnosis (29%), or prompting questions (29%). Usage rates follow a similar pattern too, hovering around 9% for each[xii]. On the other hand, HCPs are less aware of AI's applicability for triage support (24%).

Generally, physicians display higher awareness and usage levels, second only to those in specifically technology-focused roles like health information specialist or clinical data analyst. For example, nearly half [47%] are aware that AI can be used to automate patient notes, with a sixth (16%) having done so themselves.

Meanwhile, more than one in 10 physicians have previously used AI to support decision-making or diagnosis (15%), or to get a second opinion (11%) - both of which are higher than the rate for the average HCP, (8% had used AI for decision-making and 8% to get a second opinion).

While usage rates remain relatively low as AI begins to be incorporated into healthcare workflows, they are increasing fairly rapidly from this standing start. Just under a fifth (18%) of all HCPs are using AI more now than they did a year ago, increasing to 22% in France and Germany.

Increase in use of AI in healthcare over the past year



The challenge for healthcare providers is that they may be in a race against time. Many patients are already turning to search engines and the wider proliferation of medical information online to arrive at unqualified diagnoses.

With AI tools already being built into search engines and generative AI now in increasingly common usage, there is a risk that some patients may become more AI-savvy than HCPs in the short term, but based on the use of unspecialized, generalist Language Learning Models that are far more prone to hallucinations because they aren't trained on specialist data, and lack guardrails to keep patients safe. At the very least, it pays for HCPs to become more aware of AI tools and their possible uses to meet this wave of self-diagnosis head-on.

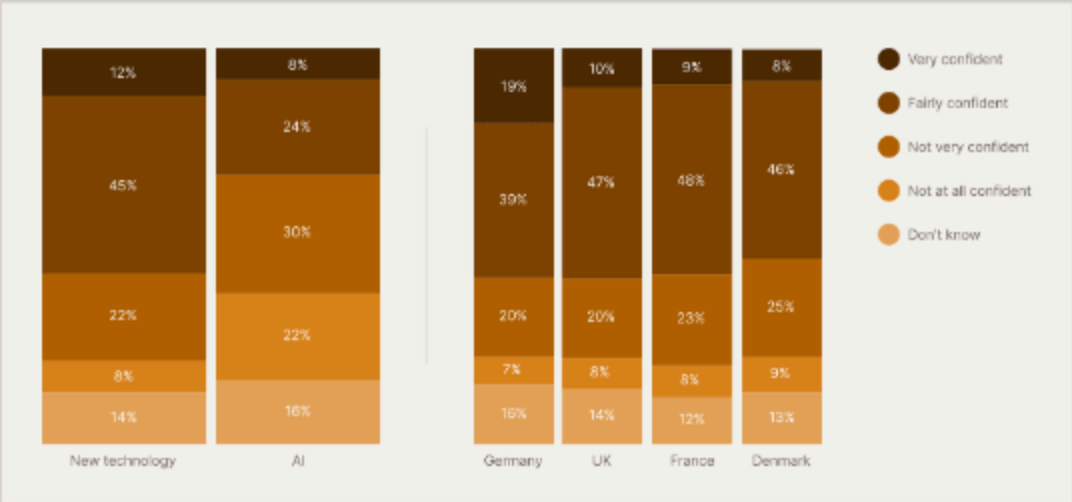
Greater familiarity needed to boost AI confidence

While there is growing recognition of AI's potential in healthcare, confidence among healthcare professionals on how to use it remains limited, driven in part by low levels of usage and familiarity. Over half (52%) of HCPs report that they would not feel confident integrating AI into their work today. Only 31% express confidence in using AI, while 16% are unsure.

Broader comfort levels around adopting new technologies is higher, at 57%. This gap suggests that AI may be seen as distinct from other innovations, potentially representing an intimidating jump in complexity, rather than a natural extension of the tools already aiding clinical practice.

It is worth noting, though, that in some cases, HCPs could already be using AI without realizing it - for example, through diagnostic imaging tools or automated systems - and so not connecting it with the broader concept of AI.

Confidence using new technology/AI



Confidence in technology also grows when people can see how a new tool or platform addresses their specific needs. The data shows that HCPs that have used AI tools at some point in the past are significantly more likely to report that they are confident using AI at work (62% are confident vs 31% among all HCPs).

The key may be starting small. Focusing on clear, real-world applications like scribing or prompting patient questions in real-time can get HCPs to start using AI. This will make it seem less like a futuristic concept and more like a useful, everyday tool in a lineage of helpful advances like dictation, which had a huge positive impact many years ago. Indeed, it is likely that simpler tasks like taking patient notes might open the door to more advanced uses of AI as comfort levels grow.

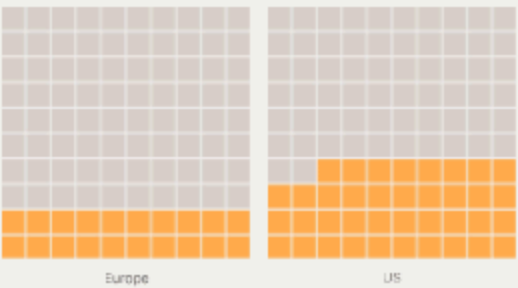
To help shape this process, professionals and healthcare institutions will need to make near-term investments in practical AI training to achieve long-term benefits, such as reducing workloads using AI and allowing more time to be dedicated to patients. They will also need to build up confidence and trust over time rather than making wholesale changes in one go, and choose wisely when selecting AI tools and services, opting for those specialized for medicine.

A comparison: The picture from the US

Corti recently commissioned similar research in the US[xiv] among healthcare professionals, which highlights some of the differences in opinions towards AI across the continents.

HCPs in the US appear to be facing similar problems at similar rates to the European cohort, with the volume of patients (49%) and the amount of admin (41%) still the leading issues. However, broadly speaking, HCPs in the US tended to be more open to applying AI solutions to help them meet the growing and changing needs of their role.

HCPs use AI on monthly basis



In the US study, 38% of HCPs reported that they use AI in their day-to-day work. While the figures are not directly comparable due to structural differences in healthcare provision, this is comfortably higher than the approximately one in five across Europe who use AI on a monthly basis. Further emphasizing the greater sense of enthusiasm in the US, when asked how they felt about using AI at work, the most common sentiment HCPs had were optimistic (49%), excited (46%), and grateful (46%).

The same pattern emerges when looking at the perceived value of AI to support specific job functions. Looking at those who have used AI for their work in the past, significant gaps exist again when asked to gauge whether functions like quality assurance (74% US vs 66% Europe), clinical decision support (75% US vs 56% Europe), or real-time feedback (81% US vs 59% Europe) would be valuable to them.

General awareness also appears to be higher in the US. When HCPs were asked how familiar they were with the type of AI being used in their organization, just 20% claimed to know very little about how AI is used. Meanwhile, in Europe, 33% said that they were not aware of any potential use of AI in healthcare when presented with a shortlist, indicating that the number of less AI-savvy HCPs could be larger.

Yet despite this apparent gap in usage and enthusiasm, HCPs in the US broadly have the same goals for time that could be freed up by AI tools. When asked what they would do if AI could significantly reduce their admin tasks, up to an example threshold of 80%, HCPs in the US (57%), as in Europe (44%), were most likely to say they would dedicate the additional time predominantly to patient care.

With this similarity in mind, what might be influencing the differing overall views of healthcare professionals in Europe and the US? As we will explore, a culture of cautiousness - and, closely linked, regulatory concerns - may be a determining factor.

The recent research from the US also offers valuable lessons for European healthcare professionals about what to avoid as they navigate the integration of artificial intelligence into clinical practice. A concerning finding reveals that 30% of US HCPs who use AI spend 1-3 hours each week correcting AI-generated errors, underscoring that not all AI solutions are suitable for healthcare. General AI models often lack the precision and specialization required for clinical settings, leading to new administrative burdens rather than the anticipated efficiencies. This not only diminishes the impact of AI as a solution to excessive administrative tasks, it also creates a new distraction from patient care. Tailored AI solutions trained specifically on healthcare data are essential to address these challenges effectively. European HCPs can leverage these insights from the US to avoid the pitfalls of implementing unsuitable AI systems, ensuring that the technology becomes a genuine asset rather than an additional source of frustration[xv].

AI regulation: Impact of differences between the EU, UK and US

Taking into account levels of openness, familiarity, and confidence when using AI in a healthcare setting, HCPs in the US may be further along in the process of embracing these tools. Indeed, the North American healthcare AI market represents 45% of the estimated global $19 billion (USD) market - with Europe sitting at 27% despite its higher population[xvi].

From a range of differences at play between territories, two factors could have an outsized impact: the level of privatization and the level of regulation.

An increased level of privatization presents different incentives to incorporate AI into workflows. Arguably, creating operational efficiencies and saving money via AI may be more of a priority in US healthcare institutions due to a greater need to manage profit and loss without as significant a level of government intervention. Thus, AI tools may be incorporated with less hesitation and so HCPs gain familiarity quicker.

However, this does not necessarily explain levels of favorability, particularly as motivations for US healthcare administrators and investors may sometimes differ from HCPs on the ground.

As such, looking at regulation as a by-product and proxy for cultural and systemic differences may be more useful.

Broadly, the EU has been at the forefront of regulating AI, taking a more cautious stance by implementing the AI Act. The Act places AI tools into four risk levels: minimal, limited, high, and unacceptable[xvii]. Healthcare AI systems often fall into the "high-risk" category because of their potential impact on health and safety. While this categorization helps give necessary protections to patients, it also means providers need to invest far more time and money into meeting regulatory requirements before they can go to market - whether they are based in the EU or not.

The US, on the other hand, is still in the process of creating a regulatory framework for the use of AI in healthcare, with the FDA one of several organizations taking the lead on this work in a more decentralized ecosystem. With a new administration coming into power, it could be that there is even more of a focus on profitability and efficiency in the sector, over any appetite to regulate the use of AI in healthcare. Post-Brexit, the UK is in the process of shaping its own framework, with some indications of attempting to strike a middle ground on the strictness of regulation[xviii].

In short, the EU landscape is more dominated by strict accountability - both in its public healthcare infrastructure and regulation. This system will undoubtedly have an impact on familiarity, due to both exposure and cultural openness towards the use of AI tools in healthcare.

But it is also true that many European public healthcare systems are facing severe monetary challenges. Whilst it is debatable whether cost savings should be a primary motivating factor for the use of AI in healthcare, they are relevant in an environment where demand is often outstripping funding for healthcare institutions. One US study by McKinsey and Harvard researchers found that AI could save the nation up to $360 billion annually if adopted more widely in healthcare[xix].

For cash-strapped public healthcare services in Europe, this will undoubtedly be a consideration. But is the better approach to build first and then regulate, or to regulate before building and implementing AI technologies? Andreas Cleve, CEO at Corti, suggests that both may be true, and that over the coming years, the territories will meet more in the middle as it becomes clear that trust is the real lifeblood of AI implementation:

Andreas Cleve
Co-founder and CEO at Corti

“

Compliance is undoubtedly a good thing to protect consumers. We see a real risk of consumers paying the price when AI doesn't meet standards. But Europe has a more rapidly aging population and so the pressures faced by its healthcare systems are arguably more urgent than in the US, which may drive further adoption.

Yet we are also seeing safety practices being adopted from Europe in the US in order to better protect patients. While we can't know what future policy will look like, these existing steps reflect a growing understanding that having more guardrails in place will help instill trust, which is essential for a sustainable marketplace.

Ultimately then, while regulation has had a positive impact on the introduction of AI to healthcare, protecting patients, the growing pressure on the system may necessitate more haste. At a governmental and policy level in Europe, a balance needs to be struck that keeps guardrails in place but allows for AI innovation to help solve the problems faced across the continent, so that familiarity, trust, and confidence can be built up among healthcare practitioners and their patients.

The state of play for AI in healthcare

Mette Kaagaard
General Manager/CEO
Microsoft Denmark and Iceland

"The potential for AI to revolutionize healthcare is profound. In recent years, it has driven more efficient and effective patient outcomes, alleviating the strain on overburdened systems. Aging populations and rising demand for care place tremendous pressure on healthcare providers, while increasing administrative workloads erode the time they can spend with patients."

"AI has already made a significant impact, with some solutions reducing administrative tasks by up to 80%. Now, AI is reaching even further—offering real-time decision-making support while preserving the vital human connection between doctors and patients. For AI to succeed, it must be safe, scalable, and reliable enough to thrive in complex, data-rich environments. By assisting healthcare professionals in their everyday work, AI empowers them to be fully present with their patients, delivering higher-quality, more compassionate care."

Section Three:
Trust and Ethics

With adoption of AI in healthcare clearly growing and attitudes beginning to form among healthcare professionals, one key component that will shape the success of further uptake of AI tools is trust. Adoption and trust must be built hand in hand over time if the technology is to achieve its potential to make positive changes in healthcare. So how much trust do healthcare professionals have in AI tools and what factors have an impact?

Trust in AI varies greatly across groups

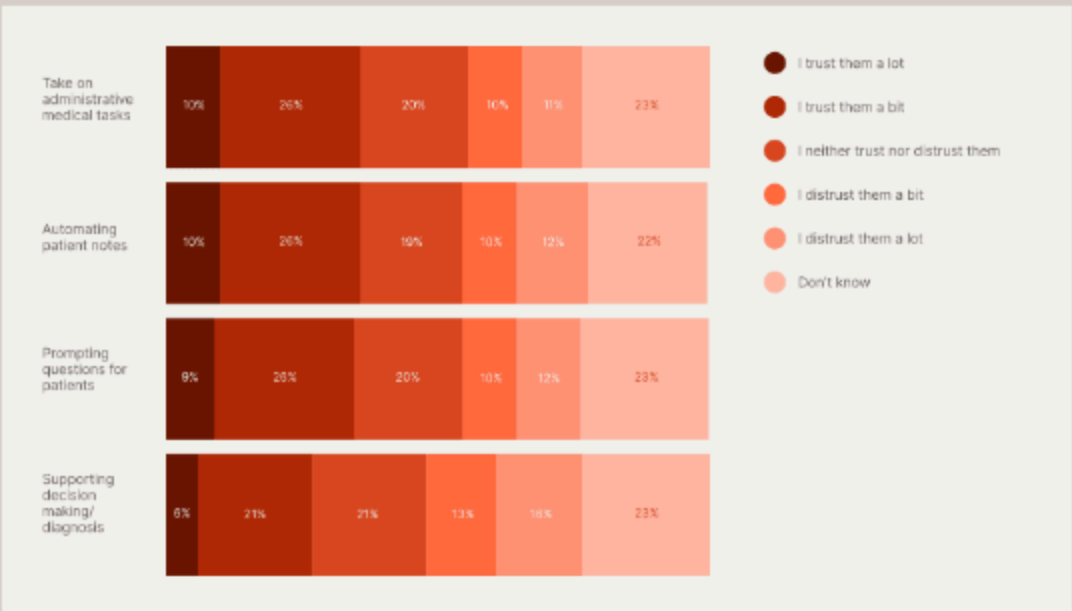
Looking at the overall picture, the level of trust currently held by healthcare professionals in the use of AI for healthcare varies based on job role, nation, and familiarity with AI technology.

At the top level, HCP views are divided, as around half (49%) say that at this moment in time, they would trust AI with at least one potential key use case in their day-to-day role. This includes at least one function from: admin tasks, automating patient notes, supporting decision-making and diagnosis, or prompting questions for patients. Meanwhile, a small group of anti-AI HCPs exist, with 7% strongly distrusting AI for any application in healthcare. However, this falls to 1% among those who have actually used AI in the workplace. This demonstrates that there is a need to reach out beyond the early adopters and tech-savvy HCPs and show that tools aren't as intimidating as might be imagined by those who oppose them - or risk that this group could be left behind.

Looking at specific functions, HCPs have the most trust in AI's ability to take on administrative tasks (36% vs 21% distrust). Conversely, net trust levels in AI are lower when supporting decision-making or diagnosis (27% vs 29% distrust).

It is worth noting that there are still swathes of currently neutral HCPs to be won over, with 44% answering that they neither trust nor distrust AI in supporting decision-making and diagnosis, or that they don't know enough to answer. This aligns with previous statistics showing that awareness of how AI tools can work in healthcare remains fairly low, emphasizing the need for developers and healthcare providers to bring HCPs along on the journey as and when AI is introduced.

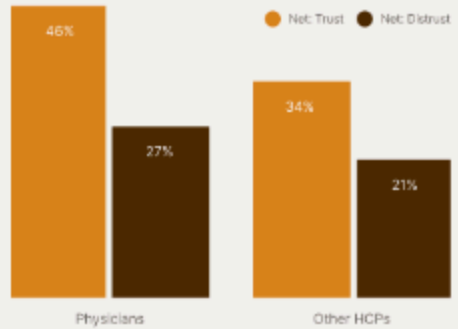
Trust in healthcare tech / AI



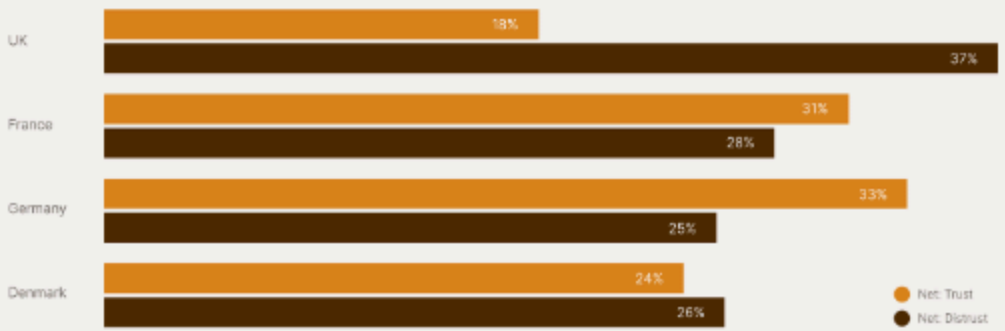
Job role, nation, and familiarity are the differentiators

Trust in AI to prompt questions for patients

Certain HCP groups seem to show more faith in using AI for healthcare than others. Physicians tend to be willing to place more trust in AI than other healthcare roles. To take one example, 46% trust AI to prompt patient questions vs 27% that don't, a net positivity score of +19%. This is compared to +13% across all HCPs. This pattern is broadly replicated across the AI functions respondents were asked about.



Trust in healthcare tech/AI to support decision making



Meanwhile, HCPs in the UK show the least trust in AI of the four nations across all applications and uses, except for prompting patient questions, where France shows a lower level of trust[xx].

Issues with familiarity and confidence could be partly driving this trend, with UK HCPs the least likely of all nations surveyed to feel confident in their ability to use AI as part of their work[xxi]. Those in the UK were also less aware of any potential usage of AI in healthcare (35%) than those in France or Germany when prompted with a list of seven possible functions.

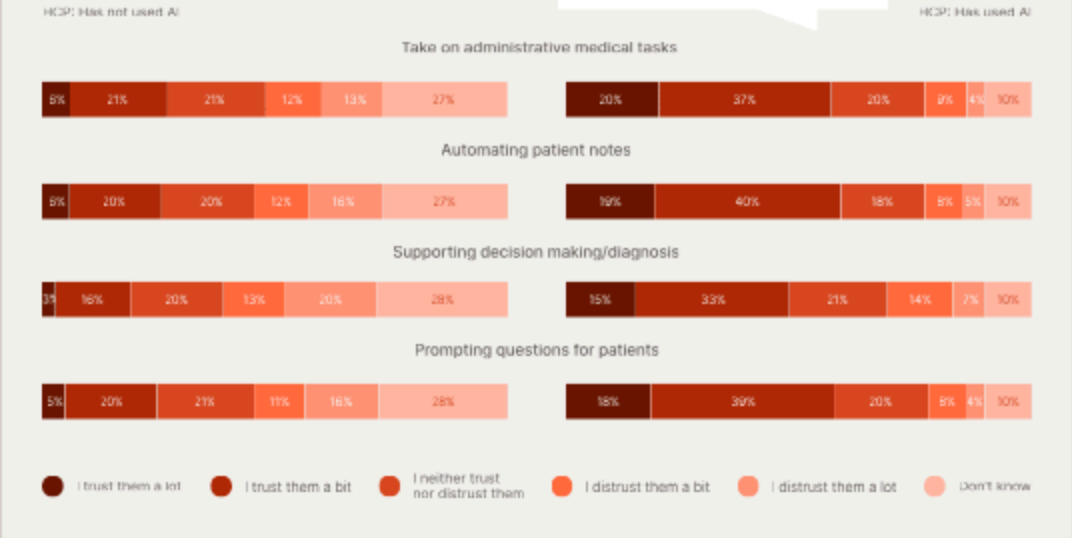
Reinforcing this trend, trust rates in AI are significantly higher amongst HCPs who say they have previously used it in their work, scoring net positivity on trust for +20% or above. This points again to AI being most intimidating for those who haven't experienced using it yet and shows that investing more in education - i.e. getting HCPs to try tools out in a low stakes environment - will be a key step before seeing widespread usage and the associated benefits in terms of time saving, stress reduction, and support.

While there is an element of self-selection - with those who are generally more trusting and positive more likely to have tried out the tools - it seems clear that early adopters haven't been put off by their experiences and have likely seen first-hand how AI can deliver huge benefits around efficiency and easing workloads.

Similarly, it is likely that resistance exists based on the presumption that AI will be trying to replicate the expertise that HCPs have gained from years of training - so AI leaders need to focus on the message that AI is there to augment and support rather than compete or replace. This is particularly the case with healthcare tending to be among the slowest sectors to adopt new technology generally - as shown in Section Two.

Trust rates in AI are significantly higher amongst HCPs who say they have previously used it in their work, scoring net positivity on trust for +20% or above

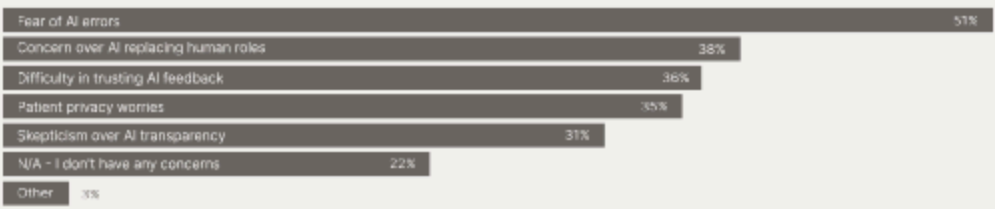
AI users VS all HCPs levels of trust



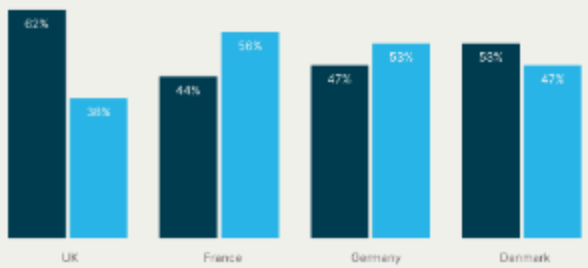
Accuracy and hallucinations the main concerns

Beyond building up familiarity, comfort, and confidence amongst HCPs using the tools, a number of other key concerns persist. Fear over AI errors is by far and away the biggest issue cited regarding AI adoption in a healthcare setting, with 51% saying it is a worry.

Biggest HCP concerns over AI adoption



Fear of AI errors by country



Again, the UK held the highest level of concern over accuracy (62%), while respondents in France (44%) were less concerned

Worries over accuracy - and inconsistent levels of trust in general - are likely to be based on knowledge of more generalist AI large language models in widespread public use, rather than specialist AI healthcare tools.

While some non-specialist generative AI LLMs now have hallucination rates of just 1.3% as of December 2024[xxii], much has been written in the media about high-profile AI hallucinations - from legal cases with invented precedents[xxiii], to lists of the top examples of AI getting things wrong[xxiv]. Healthcare professionals still exist outside of a working context and may be influenced by this discourse - recognizing that the AI stakes are far higher in their occupation.

Similarly, some early AI tools have been of mixed quality as a result of the 'generative AI gold rush' to market, delivering results based on less reliable, generalist sources.

Where specialized AI tools are built and trained on healthcare data, they are increasingly proven to deliver on accuracy to an extremely high level. Based on a performance comparison when performing ambient documentation, Corti's LLM demonstrated improved accuracy and 25% fewer unnecessary facts versus the top performing generalist LLMs[xxv]. The indication is that bespoke healthcare AI tools trained on trusted, robust datasets, will outperform "black box" LLMs, ensuring higher quality and reliability.

Other leading concerns over AI expressed by HCPs include its potential to replace human roles (38%). This reinforces the fact that technology companies and healthcare administrators must reassure staff that AI is being implemented to support doctors, nurses, and patients in their work, rather than take over. Accuracy comes up again, with 36% expressing difficulty in trusting AI feedback (36%), while a similar proportion harbor worries over patient privacy (35%) - one area where time and consistent adherence to regulations will be necessary to reassure practitioners.

> Andreas Cleve, CEO at Corti explains how he views the concept of building trust: "Healthcare AI companies should be looking at trust as a scale rather than binary. The only way to gain trust is to build it over time and remember it is never a completed process. It takes diligence, research, and consistency. This perspective doesn't always fit a private investor paradigm, but we need to work with a long-term perspective for the health of the sector in mind. It only takes a few shortcuts and errors creeping in to eradicate trust and miss this opportunity to improve healthcare for millions. We remain dedicated to taking a careful approach that instills confidence in healthcare professionals."

Views on AI are improving over time

While concerns persist, views among HCPs on using AI have improved across the board during the last 12 months.

Of those who gave an opinion, a sizable minority of HCPs said their perception of AI had improved over time, potentially reflecting increased levels of usage and familiarity. For automating patient notes, 38% of HCPs who gave a view said that their opinion of using AI for this purpose had become more positive in the past year. The pattern was similar for involving AI in decision-making and diagnosis (34%), and prompting questions for patients (33%).

This burgeoning shift may also be driven by a general raising of standards across the various generative AI tools that HCPs might encounter in and out of the workplace.

The necessary steps to ensure ethical outcomes

As AI becomes more integrated into healthcare, both technology companies and healthcare organizations are adopting a number of measures to ensure AI usage meets ethical standards, is secure, and can ultimately continue to build trust among professionals and patients. Examples include:

Compliance and certification

Compliance with stringent standards is a cornerstone of ethical AI implementation. Companies are required to gain certifications and audits, such as the ISAE 3000 for GDPR compliance, and SOC2 Type 2 for robust operational security. As AI healthcare companies scale and develop their products, they will be required to meet a range of security standards that are unique across territories, better ensuring ethical outcomes.

Data security contracts

With every new agreement struck, healthcare organizations and healthcare AI companies are having to put strong data security contracts into place, which will help set standards for the safeguarding of sensitive information. These measures not only protect patient privacy but also reinforce trust in AI systems.

Specialized AI models

The use of tailored AI structures rather than general-purpose AI opens up a range of possibilities. In addition to higher accuracy levels, having more control over the information that an AI model draws from can help providers better safeguard against biases and ensure that the content being drawn on is more likely to meet ethical standards, coming from HCPs rather than drawing from non-expert sources.

Human oversight

Ethical AI doesn't operate in isolation. Tools must be built to empower the expertise of HCPs, acting as an in-the-moment support service, rather than presenting fait accompli resolutions. This means that HCPs remain in control and can apply their own experience to AI suggestions to ensure ethical outcomes. In turn, AI will be able to prompt HCPs with nudges where there is a risk of error and drive quality assurance, creating a better ecosystem for all.

Healthcare is rightly being held to higher standards than other industries. Through these measures and more, the sector is making a foundation for ethical and secure AI usage as the technology evolves.

The role of AI in transforming healthcare delivery

Dr Tom Ratcliffe

General Practitioner, Clinical Lead, Digital Transformation (Modality Group) & Divisional Medical Director (Modality AWC)

Our ambition is to become the "learning front end of the NHS," with AI helping us to address key challenges and enhance the care we deliver to our patients. AI offers transformative potential to improve the quality, efficiency, and personalisation of healthcare delivery by:

- Improving the speed and accuracy of coding and actioning incoming clinical correspondence, reducing administrative bottlenecks
- Streamlining the creation of clinical notes, referral letters, and tailored patient advice leaflets, enabling clinicians to work faster while improving the quality of documentation
- Providing real-time, point-of-care support by surfacing key guidelines and relevant data from electronic health records
- Converting unstructured data into structured, coded formats that facilitate the segmentation of patient populations by need, personalise care, and prioritise interventions based on risk

Realising benefits

By automating administrative tasks and improving data management, AI will help reduce clinician burnout and enhance productivity. This will enable clinicians to be more "present" with patients and focus more fully on consultations, fostering better communication, shared decision-making, and improved patient outcomes.

High-quality, structured data will enable the application of advanced AI-driven analytics, making it possible to tailor care for both individuals and broader populations. This represents a critical step in the NHS's "analogue to digital" transformation, bringing the benefits of personalised, data-driven care to the forefront of our healthcare system.

Addressing concerns

We must navigate concerns around data privacy, clinical safety, and the potential for bias or discrimination. Currently, medicolegal risks remain loosely defined, and both commissioners of healthcare and regulatory agencies are working to keep pace with the rapidly advancing new technology. For AI to be safely and effectively deployed at scale in primary care, significant efforts and resources are needed to enable the "hospital to home" shift in care that the NHS aspires to deliver.

The Future

Looking ahead, we are committed to being at the forefront of AI deployment in primary care. We want to do this in a thoughtful and measured way, balancing enthusiasm for the opportunities AI provides with a steadfast focus on mitigating risks. Privacy, data security, and clinical safety will underpin every stage of AI deployment, ensuring that AI solutions drive meaningful, lasting improvements in healthcare delivery to enhance care for patients while safeguarding their trust.

Section Four:
The Future of AI in Healthcare

With trust and ethics built into the fabric of AI in healthcare, the technology can continue to evolve and innovate in ways we may not have even considered yet. As innovation continues, there are a myriad ways in which future AI technology can continue to improve how healthcare is delivered.

While AI usage in healthcare is growing, increasing familiarity across a significant minority of healthcare professionals in Europe, we are still in the very early stages of access and influence. With a host of AI companies either ready to scale up, and busy navigating the complex compliance requirements to launch to new markets, or still in the process of developing solutions, the coming years will likely see a wave of change as healthcare-specific AI technologies become more widely available.

Where HCPs are keenest to see future AI applications

The overall progress of AI is advancing rapidly. Jensen Huang, the CEO of Nvidia, spoke on a November 2024 podcast of 'Hyper Moore's Law' guiding AI. The original Moore's Law predicted back in 1975 that the number of transistors on a device would double every two years, with a minimal rise in cost[xxvi]. After decades of holding true, AI has upended this assumption. As such, Huang predicted that based on current explosive growth, we could see a doubling of computing power every year[xxvii].

Given the unprecedented rate of change, it is difficult for most people to imagine the potential applications of AI from where we now stand, and see beyond the continuation of the technology as it is today - for example, as an increasingly accurate generative AI helper to which we can pose questions and seek insight.

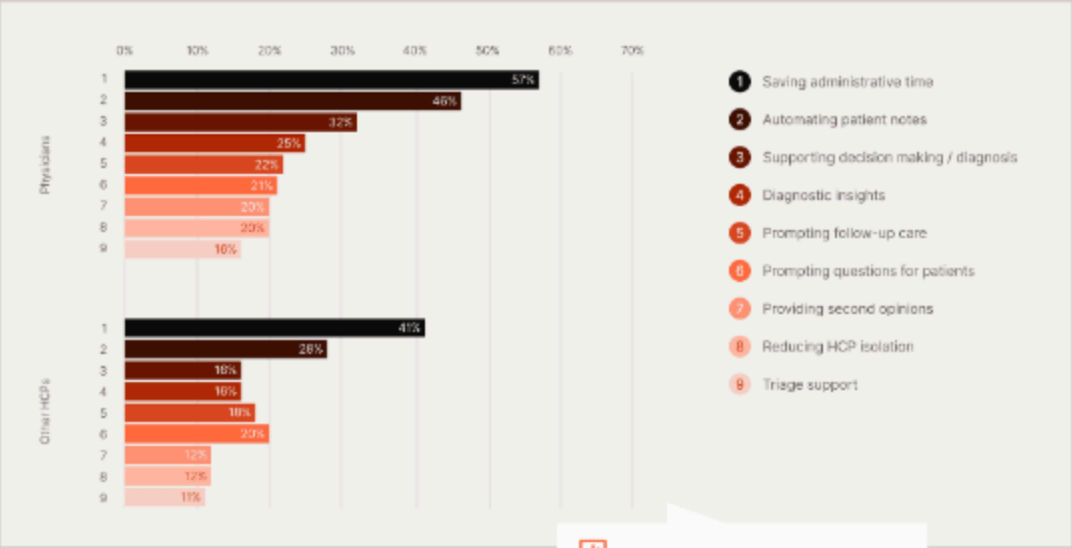
When asked how they most want to see AI applied in the future, HCPs still most commonly want to see it used for saving administrative time (42%) and automating patient notes (29%). These figures rise to 57% and 46% respectively when looking at physicians, who are broadly more in favor of future applications of AI across the board.

This continued focus on administration indicates that for the time being, HCPs want AI technologies to provide a direct path towards solving the most pressing healthcare problems: time, stress levels, and quality of patient interactions.

But given what we know about AI's rapidly advancing capabilities, taking notes and writing summaries is highly unlikely to be the end of the story for AI in healthcare. AI tools already exist that don't just take notes, but also apply them in real-time to quality assure, journal, code, nudge, prompt, and document patient interactions, reducing the margin for error across the whole workflow and increasing quality of care.

Meanwhile, advances in voice and reasoning capabilities have the potential to unlock significant opportunities for patients and healthcare providers - enabling more efficient diagnostics, treatment planning, and communication in the moment of the consultation.

Keenness to apply AI technology to in the future, physicians vs. other HCPs



Indeed, looking again at the physicians surveyed, a significant minority are keen to see AI applied towards support in decision-making and diagnosis (32%), diagnostic insights (25%), prompting questions for patients (21%), and giving second opinions (20%).

Ultimately, it will be challenging for those with low awareness levels around AI to imagine more futuristic use cases at this moment in time. As wider implementation of more admin-focused AI tools progresses and familiarity grows, it is likely to prompt HCPs to think more about what comes next after taking those initial steps.

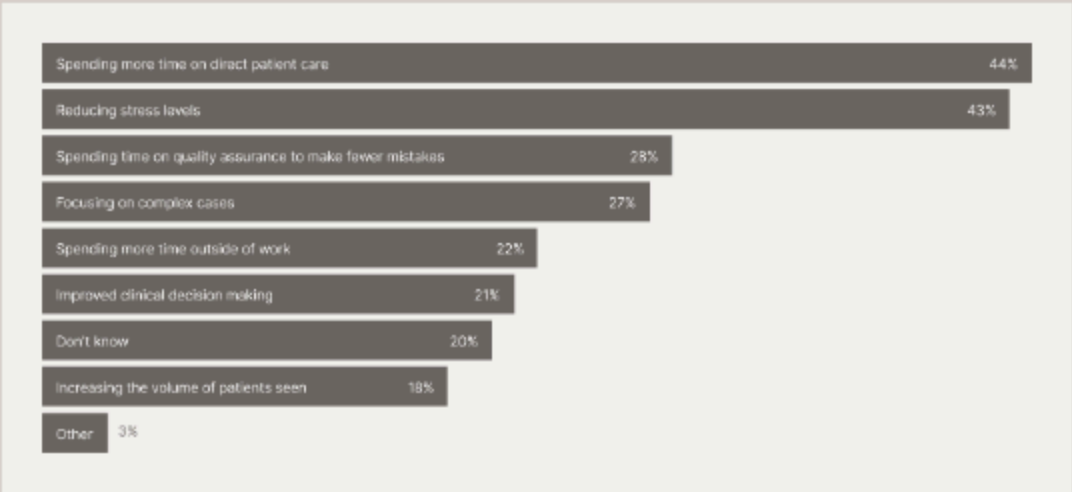
How HCPs would use time freed up by AI

AI technologies already exist that can save up to two hours of documentation time a day on average and reduce admin time by up to 80% for HCPs. With the potential for this to become more of a day-to-day reality as these tools scale up, the HCPs surveyed were asked what they would do if their time could be freed up in this way.

Most commonly, HCPs would want to put their additional time towards direct patient care (44%), rising to 59% and 57% among nurses and doctors, respectively. This reinforces the idea that HCPs feel they are currently unable to apply as much time as they would like towards this key facet of the job, given the ongoing constraints they face.

In fact, a study from 2019 indicated that the vast majority of primary care physicians in the UK and Germany spent less than 15 minutes with patients on average[xxviii] - and it is extremely unlikely that more time has been freed up for HCPs since the data was released, with a global pandemic in the interim.

Result of time back if AI could be used



Another anticipated by-product of workload being freed up by AI would be reduced stress levels (43%), a thread that runs through a number of other concerns and desires for HCPs. This will help in turn to enable additional benefits like better relationships with colleagues and patients, and to help avoid a mass exodus of talent just as demand for healthcare skyrockets.

Meanwhile, 28% would want to spend more time on quality assurance to reduce the risk of errors. This shows a further compounding effect of AI, which in itself can be applied to support, with quality assurance and prompts delivered as part of real-time feedback provided whenever HCPs have doubts about a case.

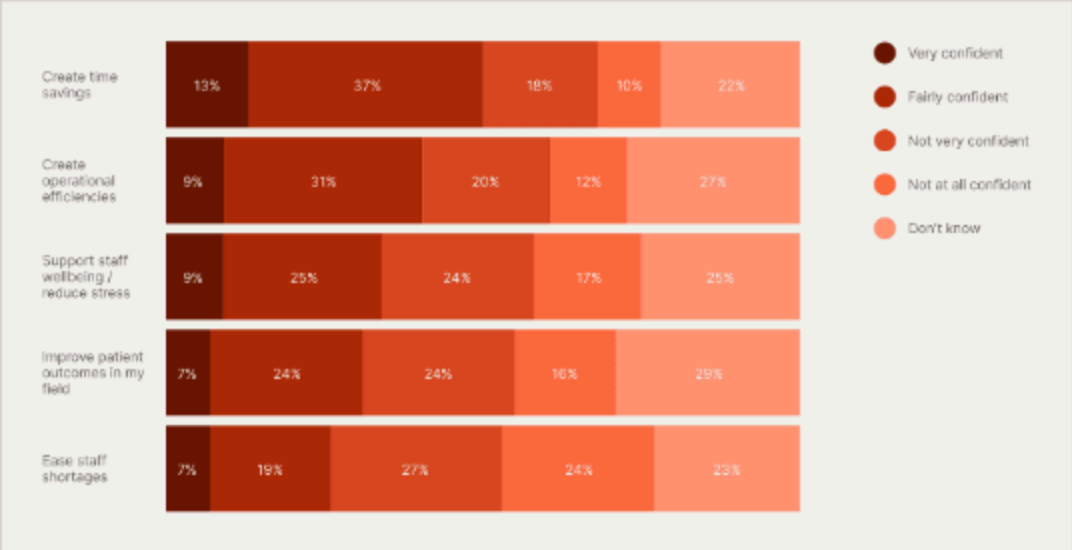
A similar proportion of HCPs (27%) say that they would use the time freed up by AI assistance to focus on more complex cases, again potentially allowing physicians to apply the benefits of increased specialization to improve patient care without reducing access levels.

Mixed confidence levels on the future role of AI in improving working conditions

Mirroring the ways in which they would like future AI tools to be applied, HCPs have the most confidence in AI as a tool to provide time savings, with 49% confident that this will be possible in the future.

Elsewhere, 40% say they believe that AI will create operational efficiencies, though net favorability is narrower here than with time savings, as 32% currently lack confidence that this will be possible. This perhaps reflects HCPs harboring concerns about the amount of time that might be required to get up to speed with new technologies.

AI potential to improve future healthcare provision



There are some doubts as to whether AI has the potential to support staff wellbeing (34% confident vs 41% unconfident) or to ease staff shortages (26% confident vs 51% unconfident). But with the data indicating positive feelings towards the ability of AI to free up time and offer greater support, which would have a knock-on effect of reducing stress and compensating for staffing issues, this indicates that the major doubt amongst HCPs is over whether direct interventions in these areas will be possible (i.e. an AI tool that specifically targets lowering stress levels as its primary function).

Based on the views of HCPs, it will be key for healthcare AI companies to clearly evidence the role that their technology can play in freeing up time and offering support, and also make the case for the associated benefits like reduced stress levels. Governance in healthcare settings will also play a key role here - time freed up via AI will only positively impact HCP stress levels or allow more time for patient care if sufficient levels of investment in staffing and welfare are maintained.

Future AI applications

The rate of advancement in AI means that future technology is almost certain to radically change the healthcare landscape in the next decade, moving well beyond the current capabilities of even the most state-of-the-art tools.

While it is impossible to know exactly what the future holds, several areas of development are likely to emerge in the near future - a mixture of existing but not widely implemented AI technology, and nascent technologies yet to move beyond theory. These may include:

Diagnosis

Near-future AI technologies are likely to continue the onward march towards earlier, more accurate diagnoses that can help drive up survival rates for conditions like cancers and heart disease. Laia Subirats of the Universitat Oberta de Catalunya suggests that new AI-powered sensor and image processing techniques could improve the speed and accuracy of assessments for echocardiograms and that trials are ongoing for AI applications towards early diagnosis and screening to increase survival rates in lung cancer patients[xxix].

Patient satisfaction

The factors that will guide future improvements to patient satisfaction are complex. Beyond the obvious positive effect of receiving correct diagnosis and efficient treatments, communication and perceived care and empathy play a key role, with available time and attention probably the single biggest blocker to improvements. As ambient scribing and real-time feedback via AI become more commonplace, physicians should be able to direct greater attention to patients in a literal sense - not staring at a screen to take notes - and have more time freed up from admin processes.

Another factor that can influence doctor-patient relationships is their individual characteristics[xxx] ,i.e. the personalities of both parties. While this is clearly harder to control for, future advances in AI could lead to patient notes that can detect changes in tone or attitude from patients and potentially use an after-the-event nudge to advise an HCP if the patient is likely to be fragile, evasive, relaxed, or other factors during their next meeting. This could be taken into account to adjust 'bedside manner' - which, with decreased admin levels, may also be easier to implement without becoming another source of stress.

Treatment efficiency

AI tools have huge potential to improve treatment outcomes by helping healthcare professionals better understand how a patient might respond to a medicine. Recent analysis published in Translational Medicine points towards the ability of AI to "recognize sophisticated patterns and hidden structures".
While acknowledging that there is much distance to cover before this becomes a widespread reality, the paper takes immunotherapy as an example, identifying that while immune checkpoint inhibitor treatment is now standard for combating cancer, many patients don't currently respond. Using AI to identify predictive biomarkers could help spot potential issues, meeting this medical need and improving treatment outcomes for cancer patients[xxxi].

Improved safety guardrails

With the potential for a higher flow of patients in the near future and more of their journey being split across specialists, there is a role for AI tools to support HCPs in maintaining consistency and providing a joined-up approach. But in order to support HPCs in achieving rigorous quality assurance in difficult circumstances, the AI tools themselves must have strong safety guardrails in place. Solutions are beginning to emerge that add a layer to 'police' that AI, making sure that the predictions reflect protocols, guidelines and textbooks, and the healthcare providers control the guidelines that the AI needs to stick to. These are likely to become even more sophisticated over time, helping to further build trust with HCPs and patients.

Expanding AI's impact across healthcare

Dr Eva-Maria Hempe
Head of Healthcare & Life Sciences EMEA at Nvidia

AI's journey in healthcare began with applications in radiology and medical imaging, where it demonstrated remarkable capabilities in image and pattern recognition. Today, AI is extending its influence into other areas of healthcare from conversational AI agents that take clinical notes and book patient appointments to generative AI models that accelerate the drug discovery process. Physical AI is also being used in surgery, with robotic systems working alongside surgeons to perform complex surgical tasks with precision.

Unlocking Opportunities Beyond Imaging
Recent developments in AI-driven voice and reasoning technologies go beyond traditional imaging and pattern recognition to enable more natural, contextual, and personalized interactions between humans and AI. These advancements are unlocking significant opportunities for both patients and healthcare providers, enabling more efficient diagnostics, treatment planning, and communication.

Addressing Workforce Shortages
AI offers a promising solution to the critical shortage of healthcare professionals. AI agents, known as agentic AI, can support doctors, nurses, and other medical practitioners by alleviating administrative and operational burdens. This frees up time for medical staff to spend more time on direct patient care and on improving patient outcomes.

Enhancing Standards of Care
The ultimate goal of integrating AI into healthcare is to improve standards of care. Whether through optimizing workflows, reducing errors, or enabling more personalized treatments, AI holds the potential to elevate the quality of healthcare services for all.

Conclusion

A Resilient, Patient-Centered Future for Healthcare

Healthcare systems across Europe are facing extraordinary challenges, from rising patient demand and aging populations to burnout and heavy administrative loads among professionals. Yet, there also exists an unprecedented opportunity to reimagine what healthcare looks like - and AI has the potential to play a central role.

Throughout this report, we've explored how AI is already showing promise in alleviating some of healthcare's most pressing issues. From streamlining administrative tasks to the minute analysis of medical imaging, AI is starting to unlock valuable time for healthcare professionals to focus on patient care. There is also evidence of tentative steps towards AI becoming a true partner for early adopters, whether via real-time feedback, second opinions, or by prompting patient questions.

However, the promise of AI is not without its challenges. Building trust is the key to unlocking its potential. While there is early support among healthcare professionals for using AI, hesitancy persists, particularly around higher-order applications like real-time feedback and diagnosis support. If the benefits of AI are to be felt, then the fear of errors, concerns over data privacy, and worries about AI replacing humans need to be addressed.

This requires a collective effort over time. Healthcare organizations and AI developers must prioritize the highest ethical standards, transparency, and rigorous compliance with data security regulations. By promoting AI models specifically trained on healthcare data, employing robust encryption and strong human oversight, the sector can deliver on AI's promise to serve as a supportive, empowering partner for HCPs. Trust grows with familiarity, and this report shows that HCPs who have used AI report significantly higher levels of confidence and optimism.

Above all, the process of integrating AI into healthcare must keep humans at its heart as we look to improve the lives of the individuals that make up the system and of its recipients. A future where every patient has access to expert, timely and personalized care is possible, but it requires collaboration at a vast scale. The prize on offer is an improved ability to meet the complex challenges of tomorrow and build a more resilient, accessible, and human-centric healthcare system for the future.

Referencing

i OECD, **State of Health in the EU: France Country Health Profile, 2023**.

ii Reported by EuroNews on 5th February 2024. Viewable at **https://www.euronews.com/health/2024/02/05/germanys-health-crisis-why-europes-biggest-economy-is-fending-off-a-chronic-doctor-shortage**

iii European Commission, **Ageing Europe - statistics on population developments, 2020 - updated Feb 2024**.

iv House of Commons Library, **The UK's changing population, July 2024**.

v European Commission, **Self-perceived health statistics, July 2024**.

vi IPPR, **Our greatest asset: The final report of the IPPR Commission on Health and Prosperity, Sept 2024**.

vii The impact of the COVID-19 pandemic on the management of patients with chronic diseases in Primary Health Care. Panagiotis Stachteas et al., Population Medicine, Vol. 4, August 2022.

viii American Society for Microbiology, **From Infection to Chronic Illness: Learning From Long COVID**, 17th May 2024.

ix McKinsey Global Institute, **A new future of work: The race to deploy AI and raise skills in Europe and beyond, May 2024**.

x **Physician burnout and impact of policy.** Sowmya Sharma MD, Jonathan S. Abelson MD, Seminars in Colon and Rectal Surgery, Vol. 35, Iss. 3, September 2024.

xi Survey among chief data officers by Precisely and Corinium Global Intelligence, as reported in Healthcare IT Today on 6th July 2021 at **https://www.healthcareittoday.com/2021/07/06/healthcare-industry-slower-to-adopt-digital-tranformation-than-many-other-industries/**.

xii Survey from Slack, as reported in Forbes on 3rd June 2024 at **https://www.forbes.com/sites/jenamcgregor/2024/06/03/even-among-gen-z-more-men-than-women-use-ai-heres-why-that-matters/**.

xiii 8% of HCPs surveyed by Corti say they have used AI to support decision making and diagnosis, while 9% have used AI for support with diagnostic insights or prompting questions.

xiv Research conducted by YouGov on behalf of Corti, 6th - 12th November 2024 among a sample of 500 doctors, physicians or nurses in the USA.

xv All figures, unless otherwise stated, are from YouGov Plc. Total sample size was 500 doctors, physicians, or nurses in the USA. Fieldwork was undertaken between 6th - 12th November 2024. The survey was carried out online.

xvi Precedence Research, **Artificial Intelligence in Healthcare Market Size, Share and Trends 2024 to 2034**, August 2024.

xvii EU Artificial Intelligence Act, viewable via, **artificialintelligenceact.eu/article/6/**.

xviii Data Art **Healthcare AI Regulations in EU, UK, and US: Comparative Analysis.** Sara Juszczyk, 26 September 2024.

xix McKinsey, **Setting the revenue cycle up for success in automation and AI**, 25 July 2023.

xx Healthcare professionals in the UK are the most likely to say they distrust AI to take on administrative medical tasks (26% in UK vs 21% overall across survey), automating patient notes (29% UK vs 23% overall), and supporting decision making/diagnosis (37% UK vs 29% overall). Those in France are more likely to say they distrust AI to prompt questions for patients (28% in FR vs 22% overall), followed by HCPs in the UK (22%).

xxi Only 24% of HCPs in the UK say they feel confident using AI in their work, the lowest rate of all territories surveyed - the confidence rate overall across the survey was 31%.

xxii Vectara, Public LLM leaderboard computed using Vectara's Hughes Hallucination Evaluation Model. Information pulled on 10th December 2024, based on an update issued on 8th December 2024. Latest data viewable via **https://github.com/vectara/hallucination-leaderboard**.

xxiii Reuters, **New York lawyers sanctioned for using fake ChatGPT cases in legal brief**. Sara Merken, 26th June 2023. **reuters.com/legal/new-york-lawyers-sanctioned-using-fake-chatgpt-cases-legal-brief-2023-06-22**.

xxiv Buzzfeed, **17 Screenshots Of AI Fails That Range From Hilarious To Mildly Terrifying**. Carley Suthers. 14th August 2024, **https://www.buzzfeed.com/carleysuthers/weird-and-wrong-ai-responses**.

xxv Corti Research & Development report, March 2024.

xxvi Intel Press Kit: Moore's Law. Accessed 11th December 2024. **intel.com/content/www/us/en/newsroom/resources/moores-law.html**.

xxvii Forbes, **Can Nvidia's 'Hyper Moore's Law' Spark An AI Revolution?**. Jim Osman. 7th November 2024 **https://www.forbes.com/sites/jimosman/2024/11/07/can-nvidias-hyper-moores-law-spark-an-ai-revolution/**.

xxviii Statista, **Distribution of primary care physicians by average amount of time spent with a patient during a routine visit in select countries worldwide in 2019**, January 2020. Accessed 11th December 2024. **https://www.statista.com/statistics/1097241/proportion-primary-physicians-by-time-spent-with-patient-select-countries-worldwide/**.

xxix UOC.edu, **How will artificial intelligence change the future of healthcare?** Beatriz González. 4th February 2024. **https://www.uoc.edu/en/news/2024/how-will-artificial-intelligence-change-the-future-of-healthcare**.

xxx Framework for factors that contribute to relational issues between physicians and patients taken from: **Exploring the dynamics of physician-patient relationships: Factors affecting patient satisfaction and complaints.** Mehrnaz Mostafapour, Jacqueline H. Fortier, Gary Garber, Journal of Healthcare Risk Management, Vol. 43, Iss. 4, 5th May 2024.

xxxi **Tribulations and future opportunities for artificial intelligence in precision medicine.** Claudio Carini and Attila A. Seyhan, Journal of Translational Medicine, 411, 30 April 2024.