Issue n.1 2026

Vejovis Journal

Vejovis.org.uk/journal

Vejovis Journal

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Published by
SM-LTD ©2022


MEDICAL REPORT
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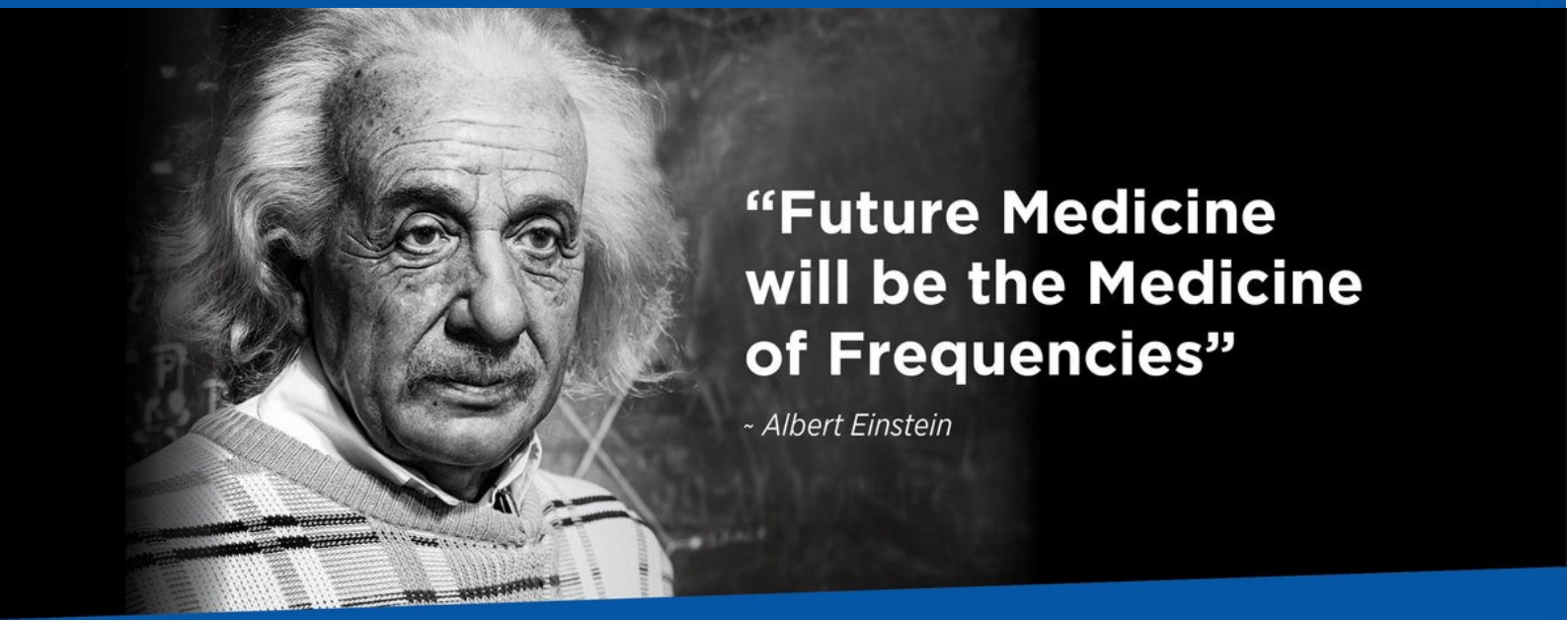
“Future Medicine will be the Medicine of Frequencies”
~ Albert Einstein

Summary

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The Medical Profession in the AI Era: At the Precipice of World War III

Giuseppe Strano

Editorial

The medical profession stands at a historic inflection point. Artificial intelligence (AI) is rapidly transforming how physicians diagnose, treat, and interact with patients, promising unprecedented efficiency, accuracy, and personalization in care. At the same time, escalating geopolitical tensions—marked by ongoing conflicts in Europe, the Middle East, and elsewhere—raise the specter of a potential third world war. In such a scenario, healthcare systems could face mass casualties, disrupted supply chains, cyber threats, and overwhelmed infrastructure. This article explores how AI is reshaping the medical profession amid these dual pressures: a technological revolution that augments human capability and a fragile global security environment that demands resilience.

AI's Transformative Impact on Medical Practice

AI is already augmenting core aspects of clinical work. In diagnostics, machine learning algorithms excel at interpreting medical imaging, often matching or surpassing human performance in fields like radiology and pathology. Tools powered by large language models assist with documentation, reducing administrative burden and combating physician burnout by freeing time for direct patient care.

Beyond efficiency, AI enables predictive analytics for personalized medicine, early disease detection, and optimized treatment plans. It can analyze vast datasets to identify patterns invisible to the human eye, supporting precision oncology, cardiology risk stratification, and population health management. Studies suggest AI could help address global health worker shortages projected to reach 11 million by 2030, potentially improving access in underserved regions.

For the profession itself, AI shifts physicians' roles from routine tasks toward higher-value activities: complex decision-

making, ethical judgment, patient communication, and multidisciplinary collaboration. Qualitative research indicates that while job profiles evolve, physicians will increasingly work in "human-AI teams," focusing on empathy, oversight, and integration of AI outputs rather than being replaced outright. Medical education is adapting, incorporating AI literacy to prepare future doctors for these hybrid workflows.

The Shadow of Global Conflict

Geopolitical instability adds urgency and complexity. Modern warfare—characterized by cyber attacks, hybrid threats, anti-access/area-denial strategies, and potential large-scale combat operations—would severely strain civilian and military health systems. High casualty volumes, delayed evacuations, destroyed infrastructure, and supply disruptions could overwhelm hospitals, as seen in recent conflicts.

In such environments, traditional medical practice becomes extremely challenging. Physicians may face resource scarcity, disrupted electronic health records, and threats to data integrity from cyberattacks. Mental health needs surge among both civilians and combatants, with trauma, displacement, and loss amplifying demand for care that systems are ill-equipped to meet.

AI as a Double-Edged Tool in Crisis

AI offers powerful solutions for healthcare resilience in conflict or near-war scenarios. In humanitarian and battlefield settings, AI supports:

- **Triage and decision support**: Algorithms can prioritize casualties in mass events or austere environments, guiding interventions when human resources are limited.
- **Disease surveillance and early warning**: Predictive models monitor outbreaks, environmental risks, or chemical/biological threats in real time.
- **Logistics and supply chain optimization**: AI helps forecast and allocate scarce medical resources amid disrupted global supply lines.
- **Mental health support**: Chatbots and AI-driven tools provide scalable screening and initial interventions for PTSD, anxiety,

and depression in displaced populations or overwhelmed systems.

- **Surgical and operational aid**: In low-resource conflict zones like Sudan or Syria, AI-assisted tools show feasibility for enhancing clinical care despite infrastructure barriers.

Military medicine is actively exploring AI for prolonged field care, combat casualty management, and extending clinician capabilities in contested domains.

However, risks are significant. Algorithmic bias could exacerbate inequities in resource-scarce or diverse populations. Data privacy concerns intensify when handling sensitive information in unstable regions. Accountability questions arise: who is responsible when an AI-driven recommendation fails in a high-stakes crisis? Ethical deployment in humanitarian settings requires neutrality, transparency, and human oversight to avoid misuse or erosion of trust.

Broader geopolitical dynamics complicate matters. AI development is entangled with military supply chains and great-power competition, raising dual-use concerns where health-focused models could be repurposed for warfare. Supply chain vulnerabilities for AI hardware (e.g., semiconductors) could hinder healthcare AI deployment precisely when it is most needed during conflict.

Navigating the Precipice: Recommendations for the Profession

Physicians and healthcare leaders must prepare for both the AI-driven future and potential systemic shocks:

1. **Build hybrid expertise** — Integrate AI training into medical curricula while emphasizing irreplaceable human elements: empathy, ethical reasoning, and holistic judgment.

2. **Prioritize resilience** — Develop robust, offline-capable AI tools and redundant systems to function amid cyberattacks or infrastructure collapse.

3. **Address ethics proactively** — Establish guidelines for trustworthy AI use in conflict, focusing on bias mitigation, informed consent in crises, and equitable access.

4. **Foster international collaboration** — Support science diplomacy and data-sharing frameworks that transcend borders, even as tensions rise, to advance AI for global health security.

5. **Advocate for policy** — Push for regulations that balance innovation with safety, including protections against weaponization of health AI.

The medical profession cannot control geopolitics, but it can shape how AI is harnessed. In an era of rapid technological change and rising global risks, doctors must evolve into not only clinicians but also stewards of responsible innovation and advocates for resilient health systems.

The precipice is real—technological disruption meets existential threat. Yet history shows that medicine often advances most rapidly under pressure. With thoughtful integration, AI could help the profession not only survive but deliver better care even in humanity's darkest hours.

Giuseppe Strano
Editor-in-Chief
Vejovis Journal

Bibliography

- Faiyazuddin M. The Impact of Artificial Intelligence on Healthcare. *Cureus*. 2025. PMC11702416.
- Bajwa J, et al. Artificial intelligence in healthcare: transforming the practice of medicine. *Future Healthc J*. 2021. PMC8285156.
- Mosch L, et al. The medical profession transformed by artificial intelligence: Qualitative study. *JMIR Med Educ*. 2022. PMC9756357.
- Haykal D, et al. AI in humanitarian healthcare: a game changer for crisis response. *Front Public Health*. 2025. PMC12263676.
- Alkhalil M, et al. AI in conflict zones: the potential to revitalise healthcare in Syria and beyond. *BMJ Glob Health*. 2024. PMC11404241.
- Noorbakhsh-Sabet N, et al. Artificial Intelligence Transforms the Future of Health Care. *Am J Med*. 2019. (Highly cited review).
- Ahuja AS. The impact of artificial intelligence in medicine on the future role of the physician. *PeerJ*. 2019. PMC6779111.

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ECG and Rapid Cardiological Assessment in Ambulatory Care and the Emergency Department (A&E)

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Abstract

Background

The 12-lead electrocardiogram (ECG) is a cornerstone of rapid cardiological assessment, enabling timely detection of life-threatening conditions such as ST-elevation myocardial infarction (STEMI), arrhythmias, and acute coronary syndromes. In the Emergency Department (A&E/ED), guidelines recommend ECG acquisition and interpretation within 10 minutes of arrival for patients with suspected acute coronary syndrome to optimize outcomes. In ambulatory care settings, ECG use supports selective evaluation of symptomatic patients and risk stratification. This review examines the clinical applications, challenges, and the pivotal role of A&E Consultants in ensuring high-quality, efficient cardiological assessment across both environments.

Methods

A narrative synthesis was conducted based on peer-reviewed literature from PubMed, focusing on door-to-ECG (DTE) times, ECG interpretation accuracy by emergency physicians, integration with clinical risk scores (e.g., HEART score), quality improvement initiatives, and the contribution of senior emergency medicine consultants to real-time decision-making and departmental oversight.

Key-Findings

Delays in door-to-ECG time are associated with increased morbidity and mortality in STEMI patients. Quality improvement interventions—including triage nurse-led ECG acquisition, dedicated ECG stations, staff education, and process standardization—have successfully reduced median DTE times and improved compliance with the 10-minute target. Emergency physicians, including senior

residents and consultants, demonstrate moderate accuracy in ECG interpretation, with discordance rates versus cardiologists ranging from 30–58% for abnormal tracings, particularly in subtle ischaemic changes, anterior wall infarction, and arrhythmias. While experienced A&E Consultants achieve higher proficiency and provide critical oversight for ambiguous or high-risk cases, real-time cardiology review or structured quality assurance processes can further enhance diagnostic precision and patient safety. In ambulatory care, targeted ECG and ambulatory monitoring effectively identify intermittent arrhythmias while avoiding unnecessary referrals. Integrated pathways bridging A&E and ambulatory services, supported by Consultant-level coordination, facilitate safe discharge of low-to-intermediate risk patients using multimodal tools (ECG + HEART score + high-sensitivity troponin).

Conclusion

Rapid ECG-based cardiological assessment remains essential in both ambulatory and emergency settings. At the Consultant A&E level, senior emergency physicians serve as key decision-makers, educators, and quality leaders, balancing speed with accuracy under time pressure. Ongoing emphasis on protocol standardization, targeted training, collaborative review processes, and judicious integration of emerging technologies (e.g., AI-assisted interpretation) is required to optimize performance, reduce errors, and improve patient outcomes in an increasingly demanding healthcare environment.

Keywords: Electrocardiogram (ECG), door-to-ECG time, emergency department, A&E Consultant, rapid cardiological assessment, HEART score, STEMI triage, ECG interpretation accuracy

Introduction

The electrocardiogram (ECG) remains one of the most fundamental, rapid, and cost-effective diagnostic tools in cardiological assessment. In both ambulatory care and the Emergency Department (A&E/ED), timely ECG acquisition and accurate interpretation are essential for risk stratification, early diagnosis of life-threatening conditions, and guiding management. This article examines clinical applications, challenges, and best practices, with particular emphasis on the critical role of **A&E Consultants** (Emergency Medicine Consultants) at the senior decision-making level.

The Role of ECG in the Emergency Department (A&E)

In the A&E, patients frequently present with acute symptoms such as chest pain, dyspnoea, palpitations, syncope, or pre-syncope. The ECG functions as a critical "vital sign" that must be obtained and interpreted rapidly. Major guidelines recommend performing a 12-lead ECG within **10 minutes** of arrival for patients with suspected acute coronary syndrome (ACS). Delays in door-to-ECG (DTE) time correlate with worse outcomes, particularly in ST-elevation myocardial infarction (STEMI).

Key applications in the ED include rapid detection of STEMI or ischaemic changes, risk stratification (e.g., using the HEART score), identification of arrhythmias or conduction abnormalities, and efficient triage. Quality improvement initiatives focusing on triage protocols, dedicated ECG resources, and staff education have successfully reduced DTE times in busy departments.

Senior Oversight, Decision-Making, and Quality Assurance

ECG interpretation moves beyond initial screening to high-stakes clinical integration, final decision-making, and system-level oversight. Emergency Medicine Consultants bear ultimate responsibility for patient safety in a high-volume, high-acuity environment where rapid yet accurate decisions directly affect reperfusion strategies, admission/discharge choices, and resource allocation.

Accuracy and Limitations of Interpretation

Studies consistently show moderate concordance between emergency physicians (including senior residents and consultants) and cardiologists when interpreting ED ECGs. Discordance rates for abnormal ECGs can reach 50–58%, with clinically significant misses often involving ischaemia/infarction (especially anterior wall), atrial fibrillation, or subtle ST/T-wave changes. While experienced Consultants generally outperform junior doctors, accuracy remains imperfect, particularly under time pressure. Senior emergency physicians achieve higher proficiency than trainees, but real-time or next-day cardiology review can still identify important discrepancies that alter management in a subset of cases.

Role in Real-Time Decision-Making

A&E Consultants frequently serve as the final gatekeeper for:

- Activating the cardiac catheterisation laboratory for suspected STEMI (or equivalents such as posterior or hyperacute T-wave patterns).

- Interpreting ambiguous or high-risk ECGs in the context of full clinical picture, high-sensitivity troponin, and point-of-care ultrasound.

- Over-ruling or confirming initial interpretations by middle-grade doctors or advanced nurse practitioners.

- Deciding on safe discharge versus observation/admission for intermediate-risk chest pain using integrated scores (HEART, EDACS) plus ECG findings.

In many departments, senior EM residents or Consultants act as primary interpreters for all ED ECGs, escalating only concerning abnormalities to the attending Consultant or cardiology. Formal Consultant review is especially valuable in complex cases (e.g., bundle branch block with suspected occlusion, paced rhythms, or toxin-related changes).

Quality Assurance and Educational Leadership

Consultants play a pivotal role in departmental quality improvement:

- Daily or next-day review of abnormal ECGs against final cardiology reports.

- Feedback loops to reduce interpretation errors and improve documentation.

- Training and competency assessment of junior doctors and nurses in systematic ECG reading.

- Development of local protocols for rapid ECG acquisition and interpretation.

Evidence indicates that structured Consultant-led review processes, combined with targeted education, can significantly shorten interpretation times and improve overall ECG utilisation.

Challenges

Even experienced Consultants face challenges including cognitive overload during peak hours, atypical presentations, and the need to balance speed with diagnostic certainty. Emerging tools such as AI-assisted ECG interpretation are

increasingly used as a "second pair of eyes," but Consultant oversight remains essential to integrate AI outputs with clinical context and mitigate algorithmic bias.

ECG in Ambulatory Care Settings

In ambulatory/outpatient or primary care settings, ECG use is typically more selective and symptom-driven. Indications include evaluation of palpitations, atypical chest pain, syncope, or risk assessment in patients with comorbidities. Ambulatory monitoring (Holter, event recorders, or wearable devices) captures intermittent arrhythmias that a single 12-lead ECG may miss. Routine screening in asymptomatic low-risk patients is generally not recommended.

Bridging Ambulatory Care and A&E: Integrated Pathways

Effective systems link the two settings through rapid-access chest pain clinics, same-day cardiology review, and safe discharge protocols with outpatient follow-up. A&E Consultants often coordinate these pathways, ensuring appropriate patients transition smoothly from acute to ambulatory care.

Best Practices and Future Directions

To optimise ECG and rapid cardiological assessment at all levels, especially Consultant A&E:

1. **Standardise acquisition and initial review** — Achieve DTE <10 minutes through dedicated triage protocols and role delegation.
2. **Ensure Consultant-level oversight** — Mandate timely senior review for high-risk or ambiguous ECGs; maintain robust QA processes involving cardiology collaboration when needed.
3. **Integrate multimodal tools** — Combine ECG with clinical scores, biomarkers, and point-of-care testing.
4. **Invest in education and technology** — Provide ongoing Consultant-led training and judicious use of AI support.
5. **Foster collaboration** — Develop clear escalation pathways between A&E Consultants and cardiology for complex cases.

In summary, while junior and middle-grade staff perform initial ECG acquisition and interpretation, the **A&E Consultant** level provides the critical layer of expertise, accountability, and system leadership that ensures safe, efficient, and high-quality rapid cardiological assessment in the Emergency Department.

Bibliography

- Loh E, et al. Role of rapid 12-lead electrocardiogram in triage initiatives for ST-elevation myocardial infarction... *PubMed* 2025. PMID: 39913187.
- Srivatsa S, et al. Reducing door-to-ECG time in the emergency department. *PMC* 2025. PMC12542574.
- Snoey ER, et al. Analysis of emergency department interpretation of electrocardiograms. *J Accid Emerg Med* 1994. PMC1342419.
- Todd KH, et al. Effect of cardiologist ECG review on emergency department practice. *Ann Emerg Med* 1996. PMID: 8572442.
- Westdrop EJ, et al. Emergency department interpretation of electrocardiograms. *Acad Emerg Med* 1992. PMID: 1570910.
- Bilello LA, et al. Getting to the heart of the issue: senior emergency resident ECG interpretation. *PMC* 2020. PMC7550803.
- Feldman JA, et al. Effects of cardiology review of the electrocardiogram in patients with suspected acute coronary syndromes. *Am J Emerg Med* 2011. PMID: 21109380.
- White T, et al. Improving the interpretation of electrocardiographs in an accident and emergency department. *PMC* 1995.

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Case Report: Laparoscopic Repair of an Incarcerated Spigelian Hernia with Mesh in a 70-Year-Old Male

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Keywords: Spigelian hernia, laparoscopic surgery, intraperitoneal dual mesh, incarcerated hernia, abdominal wall defect

Introduction

Spigelian hernia is a rare type of ventral hernia, accounting for approximately 1–2% of all abdominal wall hernias. It occurs through a defect located between the semilunar line and the lateral edge of the rectus abdominis muscle. Due to its anatomical location, Spigelian hernias are often difficult to diagnose preoperatively and are frequently associated with high rates of incarceration and strangulation.

Case Presentation

A 70-year-old male with a history of BPH (benign prostatic hyperplasia) and CAD (coronary artery disease) presented to the emergency department with acute onset of left lower abdominal pain. Physical examination revealed a tender, partially reducible mass in the left lower quadrant. Contrast-enhanced abdominal CT scan confirmed the diagnosis of an incarcerated Spigelian hernia containing a portion of ascending colon (Figure 1). Given the patient's age and the nature of the hernia, a laparoscopic approach was planned.

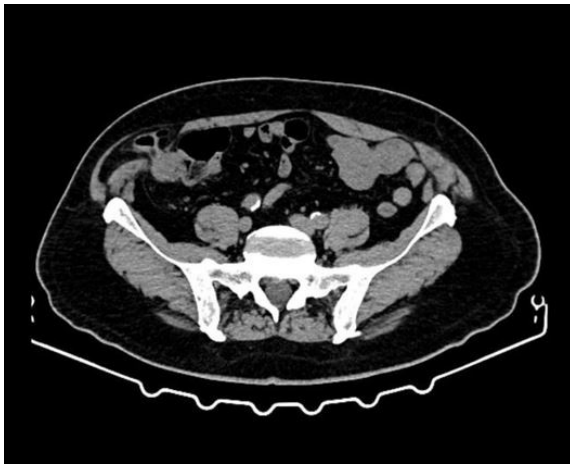

Figure 1 – Spigelian hernia containing a portion of ascending colon

Surgical Intervention

The patient underwent laparoscopic repair under general anesthesia. Three ports were placed: one for the camera and two for the laparoscopic instruments. Upon exploration, a 4 cm defect in the Spigelian fascia was identified, through which a portion of ascending colon was incarcerated. The hernia sac was carefully reduced (Fig.2), and the incarcerated bowel was inspected for viability. No signs of ischemia were noted. The defect (Fig.3) was repaired using an intraperitoneal onlay mesh (IPOM plus) technique, with a continuous laparoscopic self-locking suture and composite mesh placed over the defect, secured with absorbable tacks.

The procedure lasted 80 minutes, and the patient tolerated it well. Postoperative recovery was uneventful, and the patient was discharged on POD#2 (postoperative day 2).

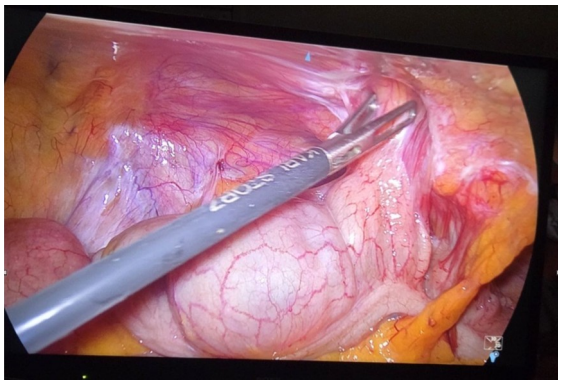

Figure 2 – The hernia sac was carefully reduced

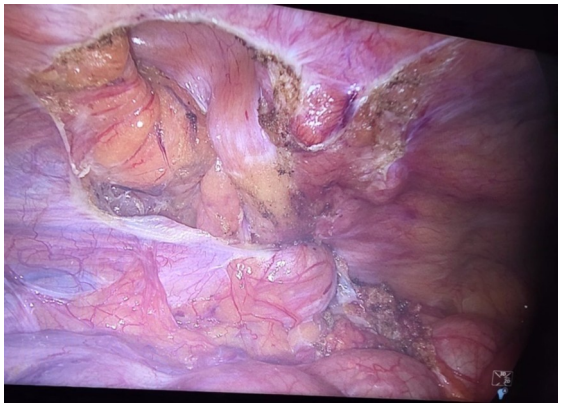

Figure 3 – The defect was repaired using an intraperitoneal onlay mesh (IPOM plus).

Discussion

Spigelian hernias are challenging to diagnose due to their location and the nonspecific nature of symptoms. Imaging studies, particularly contrast-enhanced CT scans, play a crucial role in diagnosis. Incarceration rates are high, and timely surgical intervention is essential to prevent complications such as bowel strangulation. Laparoscopic repair offers several advantages over open surgery, including smaller incisions, reduced postoperative pain, shorter hospital stays, and quicker recovery times. The use of mesh in hernia repair has been shown to reduce recurrence rates. In this case, the IPOM plus technique was chosen due to its effectiveness in reinforcing the abdominal

wall and its suitability for emergency settings.

Conclusion

Laparoscopic repair with mesh is a safe and effective treatment for incarcerated Spigelian hernias, even in elderly patients. Early diagnosis and timely surgical intervention are critical to prevent complications. The laparoscopic approach provides excellent visualization, minimal invasiveness, and favorable outcomes.

Bibliography

1. Lopes, A., Mesquita, H., Pinto, J. P., Santos, A., Fernandes, R., Santos, A., Peixoto, I., Araújo, R., & Alpoim, C. (2024). Incarcerated Spigelian hernia: laparoscopic intraperitoneal onlay mesh plus repair: a case report. *International Surgery Journal*, 12(1), 83–86. https://doi.org/10.18203/2349-2902.isj20243784
2. Suga, A., Seyama, A., Matsuno, Y., Suehiro, Y., Inokuchi, T., & Inoue, T. (2017). Two-port laparoscopic surgery in a case of Spigelian hernia. *Journal of Japanese College of Surgeons*, 41(6), 1017–1021. https://doi.org/10.4030/jjcs.41.1017
3. Martell, E. G., Singh, N. N., Zagorski, S. M., & Sawyer, M. A. J. (2004). Laparoscopic repair of a Spigelian hernia: A case report and literature review. *JSLS: Journal of the Society of Laparoendoscopic Surgeons*, 8(3), 269–274. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3016797/
4. Losanoff, J. E., Richman, B. W., & Jones, J. W. (2003). Laparoscopic extraperitoneal repair of Spigelian hernia. *Surgical Endoscopy*, 17(8), 1328. https://doi.org/10.1007/s00464-003-8102-4
5. Ozturk İnal, Z., Inal, H. A., & Alkan, E. (2018). Spigelian hernia after laparoscopic hysterectomy: Case report. *Journal of Surgery and Medicine*, 2(5), 401–402. https://doi.org/10.28982/josam.444053
6. Webber, V., Low, C., Skipworth, R. J. E., Kumar, S., de Beaux, A. C., & Tulloh, B. (2017). Contemporary thoughts on the management of Spigelian hernia. *Hernia*, 21(3), 355–361. https://doi.org/10.1007/s10029-017-1659-3
7. Mittal, T., Kumar, V., Khullar, R., Sharma, A., Soni, V., Baijal, M., & Chowbey, P. K. (2008). Diagnosis and management of Spigelian hernia: A review of literature and our experience. *Journal of Minimally Access Surgery*, 4(4), 95–98. https://doi.org/10.4103/0972-9941.43216
8. Moreno-Egea, A., Carrasco, L., Girela, E., Martín, J., Aguayo, J. L., & Canteras, M. (2002). Open vs laparoscopic repair of Spigelian hernia: A prospective randomized trial. *Archives of Surgery*, 137(11), 1266–1268. https://doi.org/10.1001/archsurg.137.11.1266
9. Sahoo, P. K., & Rout, S. S. (2015). Spigelian hernia - an unusual abdominal hernia: A case report and review of literature. *International Journal of Scientific Reports*, 1(5), 239–242. https://doi.org/10.18203/issn.2454-2156.IntJSciRep20150503

Keywords: Abdominal Wall Hernia, Postoperative Hernia, Abdominal Wall Reconstruction, Mesh, Laparoscopy

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The Role and Importance of Safety-Critical Medical Certificates for Employees and Employers: Stages of Medical Assessment

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Introduction

Safety-critical medical certificates, also known as fitness-for-duty or fitness-to-work certifications, are formal medical documents that confirm an individual is medically and physically capable of performing high-risk or safety-sensitive tasks without endangering themselves, colleagues, the public, or the environment. These certificates are mandatory or strongly recommended in industries such as transportation (rail, aviation, road), construction (especially work at heights), mining, oil and gas, emergency services, and certain manufacturing or chemical sectors. They play a vital role in occupational health and safety by bridging individual health status with job demands.

Importance for Employees

For employees, a safety-critical medical certificate serves as both a protective and enabling tool. It ensures that workers are not placed in roles that could exacerbate underlying health conditions, thereby reducing the risk of personal injury, sudden incapacitation, or long-term harm. Employees benefit from early detection of medical issues during assessments, which can lead to timely treatment, reasonable accommodations, or adjusted work duties.

A valid certificate also protects employment rights by providing objective evidence of fitness, helping prevent unfair discrimination while supporting safe return-to-work after illness or injury. In safety-sensitive positions, it fosters confidence and reduces anxiety about performing demanding tasks. Studies emphasize that proper fitness assessments balance worker rights with safety obligations, promoting overall well-being and job retention.

Importance for Employers

Employers bear primary legal and ethical responsibility for workplace safety. Safety-critical medical certificates help fulfil duties under occupational health and safety

legislation by demonstrating due diligence in placing suitable workers in high-risk roles. They reduce the likelihood of workplace accidents, incidents, or fatalities that could result from medical impairment, thereby lowering liability, insurance costs, and regulatory penalties.

Certificates also support operational continuity through better workforce planning, reduced absenteeism from preventable health-related events, and informed decisions on accommodations or alternative placements. In many jurisdictions, employers must ensure workers hold current certificates for roles involving public safety or hazardous environments. Failure to do so can lead to significant legal and financial consequences. Evidence shows that tailored fitness assessments are justified particularly when jobs involve high safety risks or legal mandates.

Stages of Medical Assessment for Safety-Critical Certificates

The assessment process is typically structured in clear, sequential stages to ensure objectivity, job-relevance, and fairness. While specifics vary by industry and jurisdiction, the following represent common stages based on occupational medicine practices:

1. **Pre-Placement / Pre-Employment Assessment** This initial evaluation occurs before or at the start of employment. It includes a detailed medical history, physical examination, and targeted tests (e.g., vision, hearing, cardiovascular screening, spirometry, or drug/alcohol testing) matched to job demands. The goal is to determine baseline fitness and identify any conditions that could pose immediate risks.
2. **Periodic / Routine Surveillance Assessments** For ongoing safety-critical roles, regular re-certification (often annually or biennially) monitors changes in health status. This stage may include repeat baseline tests plus job-specific evaluations, such as fitness for work at heights or cardiac risk assessment in transport workers. It helps detect emerging conditions that could affect performance.
3. **Return-to-Work / Post-Incident or Post-Illness Assessment** Following sickness, injury, surgery, or a safety incident, a targeted

fitness-for-duty evaluation assesses readiness to resume duties. This often involves collaboration between the treating physician, occupational health provider, and employer to recommend accommodations if full fitness is not yet achieved. A stepwise return-to-work framework is frequently used.

4. **Fitness-for-Duty Evaluation (Triggered or Ad Hoc)** This occurs when concerns arise about current performance (e.g., observed impairment, near-miss incidents, or self-reporting). It requires objective evidence and focuses on whether the worker can safely perform essential job functions. Senior occupational physicians often lead these assessments.
5. **Certification and Documentation** Upon successful completion, the occupational health practitioner issues a certificate stating the worker is "fit," "fit with restrictions," or "unfit" for the role. Clear documentation, including any recommended accommodations or review dates, protects all parties.

Throughout these stages, assessments must remain job-specific, evidence-based, and respectful of privacy and non-discrimination principles. Baseline medical examinations form the foundation in many high-risk settings, supplemented by additional tests as needed.

Challenges and Best Practices

Challenges include balancing confidentiality with safety disclosure, ensuring assessments are not overly broad or discriminatory, and maintaining consistency across providers. Emerging frameworks distinguish "safety-critical" tasks (where impairment risks immediate harm) from "decision-critical" roles. Best practices involve close collaboration between occupational health specialists, employers, and employees, along with clear policies and regular training.

Conclusion

Safety-critical medical certificates are a cornerstone of modern occupational health, safeguarding lives while supporting productive employment. For employees, they promote personal safety and career sustainability. For employers, they demonstrate regulatory compliance and risk management. A well-structured,

multi-stage assessment process ensures fairness, accuracy, and relevance. As industries evolve and regulatory expectations rise, robust implementation of these certificates remains essential for a safer working environment.

Bibliography (Selected PubMed/PMC Sources)

- Misra N. Fitness for Duty and Return to Work. *StatPearls*. 2024. NCBI Bookshelf.
- Serra C, et al. Criteria and methods used for the assessment of fitness for work: a systematic review. *Occup Med (Lond)*. 2007. PMC2092557.
- Kulkarni GK. Fitness and return to work challenges for occupational health physicians. *Indian J Occup Environ Med*. 2016. PMC5384388.
- Swart L, et al. Mapping the evidence on the assessment of fitness to work at heights: a scoping review. *BMJ Open*. 2025. PMC11956347.
- Cowell JW. Guidelines for fitness-to-work examinations. *CMAJ*. 1986. PMC1491271.
- Pachman J. Evidence base for pre-employment medical screening. *Bull World Health Organ*. 2009. PMC2704034.
- Fan X, et al. “Decision-critical” work: a conceptual framework. *Disabil Rehabil*. 2016. PMC4858878.

This year's Annual General Meeting (AGM) holds particular significance for Vejovis – The International Medical Association of the United Kingdom. Now with nearly six years of active service, our association continues to grow as a dynamic platform that brings together diverse approaches, ideas, and techniques to support the learning and professional development of doctors, medical students, physician associates, advanced nurse practitioners, nurses, biologists, and other healthcare professionals.

Through high-quality events, courses, appraisals, revalidation support, and publications in our peer-reviewed Vejovis Journal, we foster continuous growth and collaboration across the multidisciplinary health workforce.

While virtual meetings have proven extremely valuable in maintaining regular contact and sustaining our worldwide workstreams, they remain an imperfect substitute for in-person interaction. We are therefore delighted that this year's AGM will be held in a hybrid format, allowing both virtual participation and the opportunity for face-to-face engagement. We warmly invite as many Council members, delegates, and members as possible to join us—whether in person or online—and look forward to strengthening the personal connections and international cooperation that are central to our mission.

Vejovis has consistently supported our members in career progression, career guidance, and pathways for migration to the UK or other countries. We also provide health-related support and awards to encourage individual research and innovation in medicine. Our core strategic mission remains unchanged: "To look after the health workforce so they can look after you." By placing our members at the heart of everything we do, we enable them to focus on delivering the highest standard of patient care as a united, multidisciplinary healthcare profession.

At this year's AGM, we will give special

attention to fostering deeper international cooperation and exploring new investments and partnerships. These efforts aim to advance more equitable health outcomes, progress toward Universal Health Coverage, and build a stronger, more resilient global public health infrastructure.

Each year, Vejovis continues to provide vital support services to many members undergoing appraisals and revalidation. We have assisted numerous independent-sector doctors from a wide range of backgrounds, specialties, and scopes of practice by delivering high-quality appraisals and helping them navigate routes to revalidation.

As stipulated in our Articles of Association, the Annual General Meeting of all members must be held in January each year (or as soon as possible thereafter) and is called by the Secretary on at least 14 days' written notice. The notice will state the date, time, and place (or virtual/hybrid platform) of the meeting, along with the business to be conducted. We look forward to a productive and inspiring AGM that will shape the next chapter of Vejovis and further strengthen our collective impact on the global healthcare community.

The business will include:

(a). presentation and summary explanation by the Treasurer of (a) the Association's annual accounts for the financial year last ended and (b) a budget for the Association's current financial year for approval of the members (if they so decide);

(b). consideration of the Executive Committee's annual report;

(c). election of Officers, members of the Council Committee from all the members with the right to vote.

(d). election of Officers, members Executive Committee and Auditors from all the Foundation members with the right to vote.

(e). election of Officers, Chairman (President) from all the Foundation members with the right to vote. Who is appointed in recognition of the merits in the Medical Science.

(f). such resolutions as are stated in the notice of the meeting.

Special General Meeting: At any time the Executive Committee or any 2 members may by a joint written notice request the Secretary to call a meeting of members and the Secretary must then a call a Special General Meeting on no less than 21 days' written notice to all members

stating the date, time and place of the meeting, and the business to be conducted.
The quorum for for the Annual General Meeting and any Special General Meeting is at least 50% of voting members, whichever is larger.
The voting members present elect a chair for any general meeting whenever the Association Chair is not present from a member of the Council Committee.
Minutes of the General Meetings must be taken and made available to all members.

Notices

Any notice required or allowed to be given to any member under these Rules is validly given if: (i) sent by post to that member's address in the Member's Register (in which case it is deemed given to the member 2 days after posting); or (ii) given to him personally; or (iii) sent by email or fax to that member's email address or fax number in the Members' Register.
Any notice required or allowed to be given by any member to the Secretary under these Rules is validly given if sent by post, email or fax to the Secretary at the postal address, email or fax number most recently notified to members by the Secretary. It is deemed given when actually received at that address, email or fax number.

Resolutions and voting

Resolutions and other decisions at all General Meetings, Executive Committee or any sub-committee meetings are passed and made if so voted by a majority of those members present and voting when the vote is taken.
Voting may at the discretion of the Chair be undertaken by show of hands, by ballot or by show of hands followed by ballot.

Proxies are not allowed.

Membership

Being a Vejovis member is the only way to guarantee a combination of approaches, ideas and techniques that will help you manage your own learning and growth. Support all our members to looking for career progression, career guidance , looking to migrate to UK or any other overseas country as a doctor, medical student, physician associates, advanced nurse practitioners, nurse, biologist.

Benefits for the profession

We tirelessly help you with continuing professional development and represent your needs.

- Careers advice in UK
- Case studies and resources.

- A dedicated regional network, providing you with key contacts in your region or devolved nation.
- Wellbeing support service
- Employment advisers
- Help to achieve the Revalidation

Benefits for the career

Tools and advice to support you at every stage of your career.

- Free events
- The Vejovis Juornal
- CPD and training
- Webinars and masterclasses
- Vejovis library
- Annual Appraisal

The object(s) of the Association are as follows:

1) to promote the medical and allied sciences, to maintain the honour and interests of the medical profession and to promote the achievement of high quality health care;

2) to hold or arrange for the holding of periodical meetings of the members of the Association and of the medical profession generally;

3) to circulate such information as may be thought desirable by means of a periodical journal, which shall be the journal of the Association, and by the occasional publication of transactions or other papers;

4) to facilitate access to resources and help promoting the medical and allied sciences in such manner as may from time to time be determined;

5) to do all such other lawful things as may be incidental or conducive to the promotion or carrying out of the foregoing objects or any of them.

Executive Committee

Vejovis

Vejovis Journal

Medical Discoveries & Breakthroughs in 2025: A Year of Precision, Hope, and Transformation

A Year of Precision, Hope, and Transformation

2025 marked a remarkable chapter in medicine, characterized by rapid progress in personalized gene editing, safer pain management, cancer immunotherapy, and the integration of artificial intelligence into diagnostics and treatment. These breakthroughs not only addressed long-standing clinical challenges but also brought personalized and equitable healthcare closer to reality.

From the world's first customized in vivo CRISPR therapy that transformed the life of a newborn with a rare metabolic disorder, to the approval of the first new class of non-opioid analgesic in decades, and compelling evidence linking the shingles vaccine to reduced dementia risk, this year demonstrated medicine's growing ability to intervene earlier, more precisely, and with fewer side effects.

Advances in xenotransplantation, ultra-rapid genome sequencing, and AI-assisted surgical systems further expanded what is possible in organ replacement, rare disease diagnosis, and operative precision.

Meanwhile, innovative approaches to turning “cold” tumors “hot” and regenerative skin grafts for severe genetic conditions offered new hope to patients with previously limited options.

As we stand at the intersection of biology, technology, and global collaboration, these discoveries reinforce Vejovis Journal’s commitment to supporting the multidisciplinary health workforce. By sharing and critically appraising such advancements, we empower doctors, nurses, physician associates, researchers, and students to translate innovation into better patient care worldwide.

Our core mission remains steadfast: “To look after the health workforce so they can look after you.”

1. **Personalized In Vivo CRISPR Gene Editing (Baby KJ Case)** The first fully customized CRISPR base-editing therapy was designed, tested, and delivered in just six months to a newborn with a rare, life-threatening urea cycle disorder (CPS1 deficiency). The treatment corrected the mutation in the liver, dramatically improved ammonia levels, allowed a more normal diet, and reduced the immediate need for a liver transplant. This landmark case opens the door to rapid, on-demand gene therapies for ultra-rare diseases.

2. **Non-Opioid Painkiller for Acute Surgical Pain (Suzetrigine / Journavx)** The FDA approved the first new class of non-opioid analgesic in decades for moderate-to-severe acute pain following surgery. In large phase 3 trials, it provided effective pain relief without the risks of addiction or respiratory depression associated with opioids, marking a major step

in safer postoperative pain management.

3. **Shingles Vaccine Linked to Reduced Dementia Risk** Large real-world studies (including data from Wales) showed that the shingles vaccine reduced the risk of developing dementia by about 20% over seven years and may slow progression in those already affected. This supports the theory that herpes zoster virus contributes to dementia risk and offers a simple preventive strategy.

4. **Advances in Xenotransplantation (Pig Organs in Humans)** Patients received gene-edited pig kidneys (one surviving a record 271 days) and a partial pig liver. New techniques reduced rejection, and trials expanded under compassionate use, bringing xenotransplantation closer to solving the organ shortage crisis.

5. **AI-Powered Ultra-Fast Genome Sequencing** A new world record was set with whole-genome sequencing and analysis completed in under 4 hours (using Roche's SBX workflow). This dramatically speeds up diagnosis of rare genetic diseases and enables faster personalized treatments.

6. **New Targeted Treatments for Hard-to-Treat Cancers** Sevabertinib (an oral drug) showed promise for certain non-small cell lung cancers. Additional progress included turning "cold" liver tumors "hot" with erythropoietin blockade plus immunotherapy (complete regression in mouse models) and new approaches for head and neck cancers.

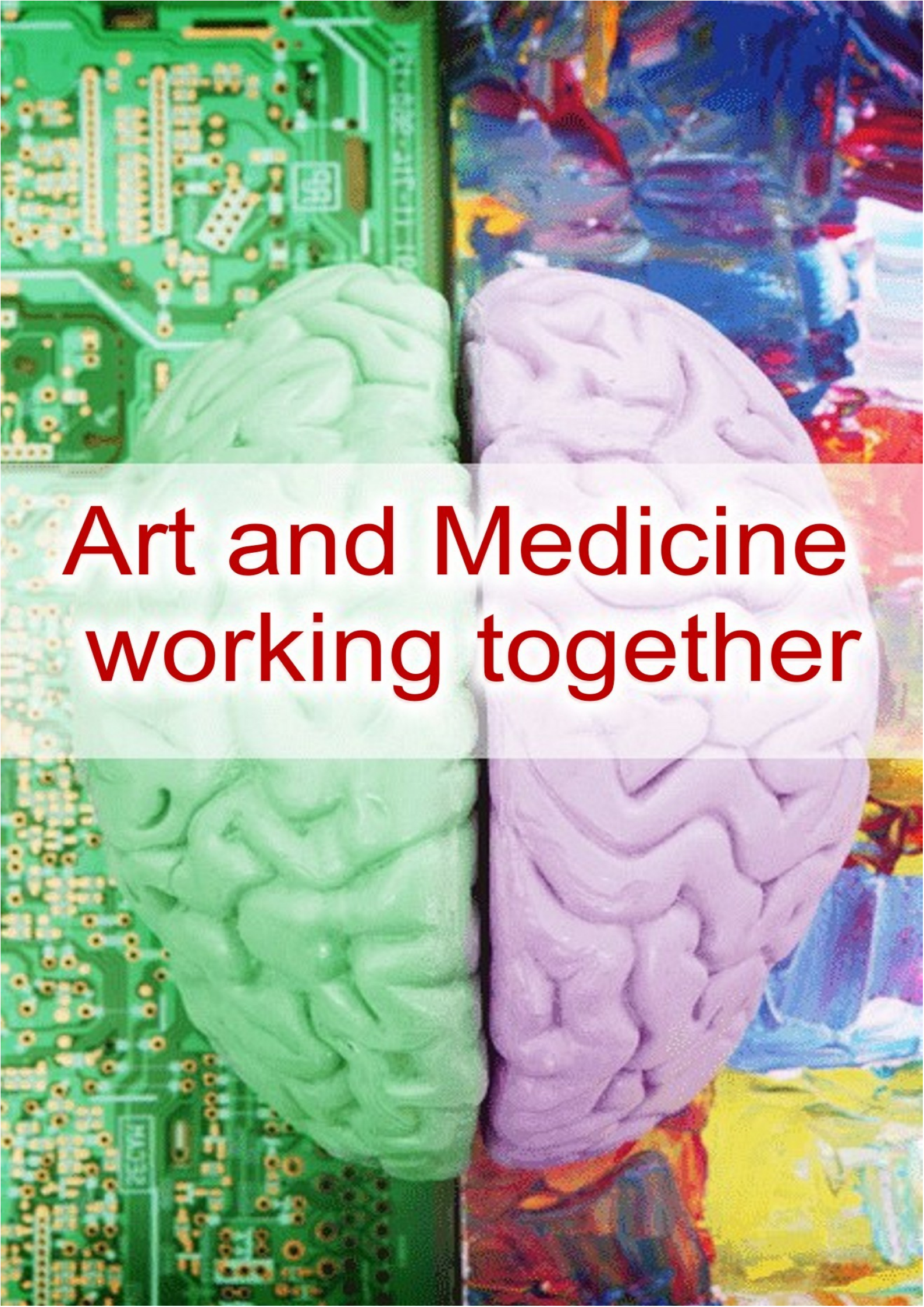
7. **Progress Toward Male Birth Control Pill** A non-hormonal daily pill (YCT-529) successfully passed early human safety trials. It blocks sperm production reversibly by targeting a vitamin A metabolite receptor, offering a long-awaited new contraceptive option for men.

8. **Genetically Engineered Skin Grafts for Epidermolysis Bullosa ("Butterfly Disease")** Patient-derived engineered skin grafts healed chronic wounds and significantly reduced pain in clinical trials for this severe blistering skin condition.

9. **Expanded Robotic Surgery Systems and Telesurgery** New robotic platforms (including CMR Surgical's Versius) gained approvals for additional procedures. AI integration improved preoperative planning, real-time decision support, and training. Early robotic telesurgery trials advanced, allowing remote expert guidance.

10. **Smart Surgical Instruments and AI-Assisted Operating Rooms** Systems that record procedures internally,

analyze thousands of prior cases with AI, and provide real-time tissue/organ insights during surgery became more sophisticated, improving precision, reducing complications, and shortening learning curves for surgeons.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ISBN 979-8-240-64810-6
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