《"健康中国"智慧医疗生态体系发展战略研究》参考

2022 年 22 期（总第 62 期）

中国工程科技知识中心医药卫生专业分中心

中国医学科学院医学信息研究所 2022 年 11 月 30 日

[动态信息]

1. Federal Funding to Support Nurse, Rural Public Health Telehealth Training

【mhealthintelligence】A recent grant from HRSA has provided South Dakota-based Avera Health with $2.5 million to support the nursing and rural public health workforce through telehealth and virtual care training.

链接：

https://mhealthintelligence.com/news/federal-funding-to-support-nurse-rural-public-health-telehealth-training

1. Growing Use and Confidence in Artificial Intelligence for Care Delivery

作者：With William Gordon

来源：NEJM catalyst innovations in care delivery.

摘要:A majority of NEJM Catalyst Insights Council members are confident in AI systems' accuracy and say AI has improved patient health. Now including global data. The use of artificial intelligence (AI) and machine learning (ML) in health care delivery is accelerating. Health care organizations are using AI across a wide range of clinical areas, functional applications, and data types, with provider confidence in the accuracy and effectiveness of AI increasing as clinicians and leaders experience its benefits firsthand. In a December 2021 survey of NEJM Catalyst Insights Council members — who are clinicians, clinical leaders, and executives at

organizations around the world that are directly involved in care delivery — 30% of survey respondents globally say that their organization currently uses AI applications, and another 25% report that they will do so within 2 years. Among U.S. respondents, 35% indicate that they currently use AI applications, up eight percentage points over our 2019 survey on the same topic.

链接：

https://pan.ckcest.cn/rcservice//doc?doc_id=107895

2. Impact of artificial intelligence on pathologists' decisions: an experiment

作者：Meyer, Julien;Khademi, April;Tetu, Bernard;Han, Wencui;Nippak, Pria;Remisch, David;

来源：Journal of the American Medical Informatics Association :

摘要：Objective The accuracy of artificial intelligence (AI) in medicine and in pathology in particular has made

major progress but little is known on how much these algorithms will influence pathologists' decisions in practice. The objective of this paper is to determine the reliance of pathologists on AI and to investigate whether providing information on AI impacts this reliance. Materials and Methods The experiment using an online survey design. Under 3 conditions, 116 pathologists and pathology students were tasked with assessing the Gleason grade for a series of 12 prostate biopsies: (1) without AI recommendations, (2) with AI recommendations, and (3) with AI recommendations accompanied by information about the algorithm itself, specifically algorithm accuracy rate and algorithm decision-making process. Results Participant responses were significantly more accurate with the AI decision aids than without (92% vs 87%, odds ratio 13.30, P < .01). Unexpectedly, the provision of information on the algorithm made no significant difference compared to AI without information. The

reliance on AI correlated with general beliefs on AI's usefulness but not with particular assessments of the AI tool offered. Decisions were made faster when AI was provided. Discussion These results suggest that pathologists are willing to rely on AI regardless of accuracy or explanations. Generalization beyond the specific tasks and explanations provided will require further studies. Conclusion This study suggests that the factors that influence the reliance on AI differ in practice from beliefs expressed by clinicians in surveys. Implementation of AI in prospective settings should take individual behaviors into account.

链接：

https://pan.ckcest.cn/rcservice//doc?doc_id=107896

3. The Need for Medical Artificial Intelligence That Incorporates Prior Images

作者：Acosta, Julian N.;Falcone, Guido J.;Rajpurkar,

Pranav;

来源：Radiology

摘要：The use of artificial intelligence (AI) has grown dramatically in the past few years in the United States and worldwide, with more than 300 AI-enabled devices approved by the U.S. Food and Drug Administration (FDA). Most of these AI-enabled applications focus on helping radiologists with detection, triage, and prioritization of tasks b using data from a single point, but clinical practice often encompasses a dynamic scenario wherein physicians make decisions on the basis of longitudinal information. Unfortunately, benchmark data sets incorporating clinical and radiologic data from several points are scarce, and, therefore, the machine learning community has not focused on developing methods and architectures suitable for these tasks. Current AI algorithms are not suited to tackle key image interpretation tasks that

require comparisons to previous examinations. Focusing

on the curation of data sets and algorithm development

that allow for comparisons at different points will be

required to advance the range of relevant tasks covered

by future AI-enabled FDA-ckared devices. (C) RSNA, 2022

链接：

https://pan.ckcest.cn/rcservice//doc?doc_id=107897

4. How to Integrate Artificial Intelligence in Gastrointestinal Practice

作者：Messmann H.;Ebigbo A.;Hassan C.;Repici A.;Mori Y.;

来源：Gastroenterology

摘要：Artificial intelligence (AI) is expected to assist us by mimicking the process of human learning. The hope is that AI will significantly improve our GI-practice from image interpretation to decision-making. AIassisted computeraided detection (CADe) for

colonoscopy is already approved in the United States
for colorectal polyps,1 and similar CADe applications
for upper gastrointestinal (GI) neoplasia, such as the
detection of Barrett dysplasia, are also available in
other areas of the world.2 AI-assisted computer-aided
characterization (CADx) for colonoscopy is already
available in Europe, Japan, and other countries, which
supports the characterization of colorectal polyps,
including differentiation between neoplastic and non-
neoplastic histology,3 as well as prediction of
invasive cancer.4

链接:

https://pan.ckcest.cn/rcservice//doc?doc_id=107898

5. Diagnostic Performance of An Artificial Intelligence System in Breast Ultrasound

作者：O'Connell, Avice M.; Bartolotta, Tommaso V.;

Orlando, Alessia; Jung, Sin-Ho; Baek, Jihye; Parker,

Kevin J.;

摘要：Objectives We study the performance of an artificial intelligence (AI) program designed to assist radiologists in the diagnosis of breast cancer, relative to measures obtained from conventional readings by radiologists. Methods A total of 10 radiologists read a curated, anonymized group of 299 breast ultrasound images that contained at least one suspicious lesion and for which a final diagnosis was independently determined. Separately, the AI program was initialized by a lead radiologist and the computed results compared against those of the radiologists. Results The AI program's diagnoses of breast lesions had concordance with the 10 radiologists' readings across a number of BI-RADS descriptors. The

sensitivity, specificity, and accuracy of the AI
program's diagnosis of benign versus malignant was
above 0.8, in agreement with the highest performing
radiologists and commensurate with recent studies.
Conclusion The trained AI program can contribute to
accuracy of breast cancer diagnoses with ultrasound.
链接：

https://pan.ckcest.cn/rcservice//doc?doc_id=107900

6. Prime Time for Artificial Intelligence in Interventional Radiology

作者：Seah, Jarrel; Boeken, Tom; Sapoval, Marc; Goh, Gerard S.;

来源：Cardiovascular and Interventional Radiology: A Journal of Imaging in Diagnosis and Treatment

摘要：Machine learning techniques, also known as artificial intelligence (AI), is about to dramatically change workflow and diagnostic capabilities in

diagnostic radiology. The interest in AI in Interventional Radiology is rapidly gathering pace. With this early interest in AI in procedural medicine, IR could lead the way to AI research and clinical applications for all interventional medical fields. This review will address an overview of machine learning, radiomics and AI in the field of interventional radiology, enumerating the possible applications of such techniques, while also describing techniques to overcome the challenge of limited data when applying these techniques in interventional radiology. Lastly, this review will address common errors in research in this field and suggest pathways for those interested in learning and becoming involved about AI.

链接：

https://pan.ckcest.cn/rcservice//doc?doc_id=107899

7. Artificial intelligence: opportunities in lung cancer

作者：Kai Zhang； Kezhong Chen；

来源：Current Opinion in Oncology

摘要：Purpose of review In this article, we focus on the role of artificial intelligence in the management of lung cancer. We summarized commonly used algorithms, current applications and challenges of artificial intelligence in lung cancer. Recent findings Feature engineering for tabular data and computer vision for image data are commonly used algorithms in lung cancer research. Furthermore, the use of artificial intelligence in lung cancer has extended to the entire clinical pathway including screening, diagnosis and treatment. Lung cancer screening mainly focuses on two aspects: identifying high-risk populations and the automatic detection of lung nodules. Artificial intelligence diagnosis of lung cancer covers imaging diagnosis, pathological diagnosis and genetic diagnosis. The artificial intelligence clinical decision-support system

is the main application of artificial intelligence in lung cancer treatment. Currently, the challenges of artificial intelligence applications in lung cancer mainly focus on the interpretability of artificial intelligence models and limited annotated datasets; and recent advances in explainable machine learning, transfer learning and federated learning might solve these problems. Summary Artificial intelligence shows great potential in many aspects of the management of lung cancer, especially in screening and diagnosis. Future studies on interpretability and privacy are needed for further application of artificial intelligence in lung cancer.

链接：

https://pan.ckcest.cn/rcservice//doc?doc_id=107901

8. Use of Artificial Intelligence in Clinical Neurology

作者：James M. Hillis; Bernardo C. Bizzo;

来源：Seminars in neurology

摘要：Artificial intelligence is already innovating in the provision of neurologic care. This review explores key artificial intelligence concepts; their application to neurologic diagnosis, prognosis, and treatment; and challenges that await their broader adoption. The development of new diagnostic biomarkers, individualization of prognostic information, and improved access to treatment are among the plethora of possibilities. These advances, however, reflect only the tip of the iceberg for the ways in which artificial intelligence may transform neurologic care in the future.

链接：

https://pan.ckcest.cn/rcservice//doc?doc_id=107902

[科技报告]

1. Developing Specific Reporting Standards in

Artificial Intelligence Centred Research

发表时间：2022 年

摘要：There are several emerging AI technologies that aim to enhance surgical care pathways over the coming decade. In particular, these are related to (1) diagnostics, (2) pre-operative planning, (3) intra-operative guidance and (4) surgical robotics.1 This trend has been mirrored bn the sharp increase in the number of surgical studies evaluating the use of AI.

链接：

https://pan.ckcest.cn/rcservice//doc?doc_id=107903