Biography

Trained in medicine and with a computer science PhD in Artificial Intelligence (AI), Professor Coiera has a research background in both industry and academia and a strong international research reputation for his work on decision support and communication processes in biomedicine.

Coiera spent 10 years at the prestigious Hewlett-Packard Research Laboratories in Bristol UK where he led numerous health technology projects. He has overseen the development and trial of multiple eHealth interventions, including the Healthy.me consumer system as well as clinical decision support systems. Healthy.me technologies underpin a new US health startup called Healthbanc. His textbook *Guide to Health Informatics* is in its 3rd edition, is widely used internationally, and is translated into several languages.

Coiera has won a number of prestigious awards including the 2015 International Medical Informatics Association (IMIA) François Grémy Award for Excellence and the 2011 UNSW Inventor of the year (Information and Communication Technology) for a literature-based computational discovery system.

He was elected Foundation Fellow and first President of the Australian College of Health Informatics, is a foundation member of the International Academy of Health Sciences Informatics, and an International Fellow of the American College of Medical Informatics.

Coiera has also held key appointments on boards, councils and editorial positions on international journals including Associate Editor of the journal 'Artificial Intelligence in Medicine'.

Qualifications

**Dr of Philosophy (PhD)**
The University of New South Wales Randwick Australia

**Bachelor of Medicine and Bachelor of Surgery**
University of Sydney 2006 Australia

Employment

**Director of the Centre for Health Informatics**
Director
Australian Institute of Health Innovation
Macquarie University
3 Nov 2014 → present

**Centre for Health Informatics**
Macquarie University
3 Nov 2014 → present

**Professor of Health Informatics**
Professor
Australian Institute of Health Innovation
Macquarie University
1 Jan 2018 → present

**Associate Editor**
Artificial Intelligence in Medicine
1 Jan 2017 → present

**Foundation Member**
International Academy of Health Sciences Informatics
1 Jan 2017 → present
Research outputs

Patient work from a context and time use perspective: a mixed-methods study protocol

The effect of cognitive load and task complexity on automation bias in electronic prescribing

Measuring user experience in conversational interfaces: a comparison of six questionnaires

Conversational agents in healthcare: a systematic review

Delay in reviewing test results prolongs hospital length of stay: a retrospective cohort study
Ong, M. S., Magrabi, F. & Coiera, E. 16 May 2018 In : BMC Health Services Research. 18, 1, p. 1-8 8 p., 369
Evaluating the usability of speech recognition to create clinical documentation using a commercial electronic health record

A shared latent space matrix factorisation method for recommending new trial evidence for systematic review updates

Unreported links between trial registrations and published articles were identified using document similarity measures in a cross-sectional analysis of ClinicalTrials.gov

Prevalence of disclosed conflicts of interest in biomedical research and associations with journal impact factors and altmetric scores

Does health informatics have a replication crisis?

Predicting 7-day, 30-day and 60-day all-cause unplanned readmission: a case study of a Sydney hospital

Social media interventions for precision public health: promises and risks

The digital scribe

Using a mobile social networking app to promote physical activity: a qualitative study of users' perspectives
Tong, H. L., Coiera, E. & Laranjo, L. 2018 In : Journal of Medical Internet Research. 20, 12, p. 1-13 13 p., e11439

Efficiency and safety of speech recognition for documentation in the electronic health record

Effectiveness of an electronic patient-centred self-management tool for gout sufferers: a cluster randomised controlled trial protocol

STANDING collaboration: a study protocol for developing clinical standards

The forgetting health system
Coiera, E. Oct 2017 In : Learning Health Systems. 1, 4, p. 1-6 6 p., e10023

The role and benefits of accessing primary care patient records during unscheduled care: a systematic review
Linking clinical quality indicators to research evidence - a case study in asthma management for children

Use of a mobile social networking intervention for weight management: a mixed-methods study protocol

Using multiclass classification to automate the identification of patient safety incident reports by type and severity

Mapping information exposure on social media to explain differences in HPV vaccine coverage in the United States

Conclusions in systematic reviews of mammography for breast cancer screening and associations with review design and author characteristics

A systems science perspective on the capacity for change in public hospitals

Automation bias in electronic prescribing

Automation bias and verification complexity: a systematic review

Engineering technology resilience through informatics safety science

Problems with health information technology and their effects on care delivery and patient outcomes: a systematic review

Design and implementation of behavioral informatics interventions

Automating the identification of patient safety incident reports using multi-label classification

Linking quality indicators to clinical trials: an automated approach

Financial competing interests were associated with favorable conclusions and greater author productivity in nonsystematic reviews of neuraminidase inhibitors
A new informatics geography

The unintended consequences of health information technology revisited

Identifying patient safety problems associated with information technology in general practice: An analysis of incident reports

Characterizing twitter discussions about HPV vaccines using topic modeling and community detection
Surian, D., Nguyen, D. Q., Kennedy, G., Johnson, M., Coiera, E. & Dunn, A. G. 1 Aug 2016 In : Journal of Medical Internet Research. 18, 8, p. 1-12 12 p., e232

An e-health strategy to facilitate care of breast cancer survivors: A pilot study

Health IT for patient safety and improving the safety of health IT

Conflict of interest disclosure in biomedical research: a review of current practices, biases, and the role of public registries in improving transparency

Risks and benefits of speech recognition for clinical documentation: a systematic review

Per un’informatica medica basata sulle prove

Measuring the effects of computer downtime on hospital pathology processes

Optimizing digital health informatics interventions through unobtrusive quantitative process evaluations

Real-time prediction of mortality, readmission, and length of stay using electronic health record data

"Why didn't it work?" Lessons from a randomized controlled trial of a web-based personally controlled health management system for adults with asthma
Surgical site infection—a population-based study in Australian adults measuring the compliance with and correct timing of appropriate antibiotic prophylaxis

Technology, cognition and error

Associations between exposure to and expression of negative opinions about human papillomavirus vaccines on social media: An observational study

Bringing cohort studies to the bedside: Framework for a ‘green button’ to support clinical decision-making

Clinical safety of England’s national programme for IT: a retrospective analysis of all reported safety events 2005 to 2011

Citations alone were enough to predict favorable conclusions in reviews of neuraminidase inhibitors

Comparing clinical quality indicators for asthma management in children with outcome measures used in randomised controlled trials: A protocol

Guide to health informatics

Insights into temporal patterns of hospital patient safety from routinely collected electronic data

mHealth technologies for chronic disease prevention and management

Using social connection information to improve opinion mining: Identifying negative sentiment about HPV vaccines on Twitter

Financial conflicts of interest and conclusions about neuraminidase inhibitors for influenza: An analysis of systematic reviews

Should comparative effectiveness research ignore industry-funded data?
Predicting the cumulative risk of death during hospitalization by modeling weekend, weekday and diurnal mortality risks

Systematic review automation technologies

Do variations in hospital mortality Patterns after weekend admission Reflect reduced quality of care or Different patient cohorts’ A population-based study

Communication spaces

Gene-disease association with literature based enrichment

Is biblioleaks inevitable?
Dunn, A. G., Coiera, E. & Mandl, K. D. 2014 In : Journal of Medical Internet Research. 16, 4, p. 1-7 7 p., e112

The effects of industry sponsorship on comparator selection in trial registrations for neuropsychiatric conditions in children

A unified model of patient safety (or "Who froze my cheese?")

The role of electronic health records in comparative effectiveness research

Social and self-Reflective use of a web-Based personally controlled health management system

An internet intervention to improve asthma management: Rationale and protocol of a randomized controlled trial

Social networks, social media, and social diseases

A comparative review of patient safety initiatives for national health information technology

Comparing New Zealand’s ‘Middle Out’ health information technology strategy with other OECD nations
Bowden, T. & Coiera, E. May 2013 In : International Journal of Medical Informatics. 82, 5, p. e87-e95 9 p.

Which bundles of features in a web-based personally controlled health management system are associated with consumer help-seeking behaviors for physical and emotional well-being?
Why e-health is so hard

Communication interventions to improve adherence to infection control precautions: A randomised crossover trial

The automation of systematic reviews

Consumers’ online social network topologies and health behaviours

Industry influence in evidence production

Insights into patterns of healthcare delivery from hospital electronic medical records

Patient safety governance for national and cross-border health information technology

Stasis and adaptation

Syndromic surveillance for health information system failures: A feasibility study

The management of severe hypertension in Australian general practice

Using statistical text classification to identify health information technology incidents

CareTrack: assessing the appropriateness of health care delivery in Australia REPLY

Utilisation and acceptability of an e-health strategy to facilitate care of breast cancer survivors
Last orders: Follow-up of tests ordered on the day of hospital discharge

Impact of a web-based personally controlled health management system on influenza vaccination and health services utilization rates: A randomized controlled trial

CareTrack: Assessing the appropriateness of health care delivery in Australia

Towards the delivery of appropriate health care in Australia

Automated identification of extreme-risk events in clinical incident reports

Learning from hackers: Open-source clinical trials

Industry influenced evidence production in collaborative research communities: A network analysis

The science of interruption

A call for national e-health clinical safety governance

The role and impact of research agendas on the comparative-effectiveness research among antihyperlipidemics

A systematic review of the psychological literature on interruption and its patient safety implications

The dangerous decade

Using FDA reports to inform a classification for health information technology safety problems

CareTrack Australia: Assessing the appropriateness of adult healthcare: Protocol for a retrospective medical record review
Comparative usage of a web-based personally controlled health management system and normal support: A case study in IVF

Exploring the role of pathology test results in the prediction of remaining days of hospitalisation

Nation-scale adoption of new medicines by doctors: An application of the Bass diffusion model

Protocol for a randomised controlled trial examining the impact of a web-based personally controlled health management system on the uptake of influenza vaccination rates

The true meaning of personalized medicine
Coiera, E. 2012 In : Yearbook of medical informatics. 7, p. 4-6 3 p.

Using virtual worlds to train healthcare workers - A case study using second life to improve the safety of inpatient transfers

Viewing pathology results – what is the real turn-around time?

Translational web robots for pathogen genome analysis

Model development for EHR interdisciplinary information exchange of ICU common goals

A systematic review of failures in handoff communication during intrahospital transfers

A simulation framework for mapping risks in clinical processes: The case of in-patient transfers

Computational inference of grammars for larger-than-gene structures from annotated gene sequences

Do we need a national electronic summary care record?
Agreement between common goals discussed and documented in the ICU

Can cognitive biases during consumer health information searches be reduced to improve decision making?

Challenges in measuring the impact of interruption on patient safety and workflow outcomes

Clinician preferences for verbal communication compared to EHR documentation in the ICU

Computational bacterial genome-wide analysis of phylogenetic profiles reveals potential virulence genes of Streptococcus agalactiae

Evaluating the effectiveness of clinical alerts: a signal detection approach.

How online crowds influence the way individual consumers answer health questions: An online prospective study

Patient safety problems associated with heathcare information technology: an analysis of adverse events reported to the US Food and Drug Administration.

Separating drivers from passengers in whole genome analysis: identification of combinatorial effects of genes by mining knowledge sources

Why system inertia makes health reform so difficult

Automated categorisation of clinical incident reports using statistical text classification

An analysis of computer-related patient safety incidents to inform the development of a classification

Safety through redundancy: A case study of in-hospital patient transfers

Errors and electronic prescribing: A controlled laboratory study to examine task complexity and interruption effects
The impact of interruptions on clinical task completion

Beyond patient safety Flatland

Information technology in health care: Socio-technical approaches

Clinician search behaviors may be influenced by search engine design

Three-year longitudinal study of genotypes of Mycobacterium tuberculosis in a low prevalence population

A PubMed-wide associational study of infectious diseases

Discuss now, document later: CIS/CPOE perceived to be a 'shift behind' in the ICU

healthy.me: an online research platform to support consumer health management

Text mining for discovery of host-pathogen interactions

The influence of crowds on consumer health decisions: An online prospective study

Why is it so difficult to measure the effects of interruptions in healthcare?

Computational Reasoning across Multiple Models

Context-driven discovery of gene cassettes in mobile integrons using a computational grammar

Gene cassettes and cassette arrays in mobile resistance integrons: Review article
Building a National Health IT System from the Middle Out

Debating market-based control for patient safety: Response to commentaries

Market-based control mechanisms for patient safety

In silico prioritisation of candidate genes for prokaryotic gene function discovery: An application of phylogenetic profiles

Quality of prescribing decision support in primary care: Still a work in progress

Biosurveillance of emerging biothreats using scalable genotype clustering

Can Cognitive Biases during Consumer Health Information Searches Be Reduced to Improve Decision Making?

Commonly used molecular epidemiology markers of Streptococcus agalactiae do not appear to predict virulence

The changing nature of clinical decision support systems: a focus on consumers, genomics, public health and decision safety.

Towards bioinformatics assisted infectious disease control

Decision support systems for antibiotic prescribing

Clinical Decision Velocity is Increased when Meta-search Filters Enhance an Evidence Retrieval System

Is relevance relevant: user relevance ratings may not predict the impact of internet search on decision outcomes

Impact of an ultrabroadband emergency department telemedicine system on the care of acutely ill patients and clinicians' work

Are decision trees a feasible knowledge representation to guide extraction of critical information from randomized controlled trial reports?
Commentaries on "Informatics and Medicine: From Molecules to Populations"

Developing decision support systems in clinical bioinformatics

Impact of web searching and social feedback on consumer decision making: A prospective online experiment

Long-term patterns of online evidence retrieval use in general practice: A 12-month study

Multimethod Evaluation of Information and Communication Technologies in Health in the Context of Wicked Problems and Sociotechnical Theory

What factors are associated with the integration of evidence retrieval technology into routine general practice settings?

Do People Experience Cognitive Biases while Searching for Information?

In reply [5]

Putting the technical back into socio-technical systems research

Critical incidents and journey mapping as techniques to evaluate the impact of online evidence retrieval systems on health care delivery and patient outcomes

Lessons from the NHS National Programme for IT
Coiera, E. W. 1 Jan 2007 In : Medical Journal of Australia. 186, 1, p. 3-4 2 p.

Are clinicians' information needs and decision support affected by different models of care? experimental study

Building a sustainable health system

How do clinicians search for and access biomedical literature to answer clinical questions?
Preface

The Centre for Health Informatics at the University of New South Wales—a clinical informatics research centre

Using an accident model to design safe electronic medication management systems

Interdisciplinary communication: An uncharted source of medical error?

Protocol for the quick clinical study: A randomised controlled trial to assess the impact of an online evidence retrieval system on decision-making in general practice

Should clinical software be regulated?: New Australian evaluation guidelines will help inform the debate

A Bayesian model that predicts the impact of Web searching on decision making

Communication systems in healthcare

Decision complexity affects the extent and type of decision support use

The safety and quality of decision support systems

Architecture for knowledge-based and federated search of online clinical evidence

Interruptive communication patterns in the intensive care unit ward round

Supporting communication in health care

Handheld computer-based decision support reduces patient length of stay and antibiotic prescribing in critical care
Do online information retrieval systems help experienced clinicians answer clinical questions?  

The impact of an online evidence system on confidence in decision making in a controlled setting  

General practitioners' use of online evidence during consultations  

Measuring the impact of online evidence retrieval systems using critical incidents & journey mapping  

Variation in communication loads on clinical staff in the emergency department  

Use of online evidence databases by Australian public health practitioners  

Four rules for the reinvention of health care  

Do Clinicians Use Online Evidence to Support Patient Care? A Study of 55,000 Clinicians  

e-Consent: The Design and Implementation of Consumer Consent Mechanisms in an Electronic Environment  

Some Unintended Consequences of Information Technology in Health Care: The Nature of Patient Care Information System-related Errors  

Comparative Impact of Guidelines, Clinical Data, and Decision Support on Prescribing Decisions: An Interactive Web Experiment with Simulated Cases  

Clinicians' assessments of the usefulness of online evidence to answer clinical questions  

Evaluating the impact of information communication technologies on complex organizational systems: a multi-disciplinary, multi-method framework.  
Designing interactions

Which clinical decisions benefit from automation? A task complexity approach

Interaction design theory

Variation in the use of online clinical evidence: A qualitative analysis

Communication loads on clinical staff in the emergency department (multiple letters)

Communication loads on clinical staff in the emergency department

Essentials of Telemedicine and Telecare

Health informatics

Treat or test first? Decision analysis of empirical antiviral treatment of influenza virus infection versus treatment based on rapid test results

Which clinical decisions benefit from automation? A task complexity approach

Maximising the uptake of evidence into clinical practice: An information economics approach

Mediated agent interaction

What do physicians think about evidence-based antibiotic use in critical care? A survey of Australian intensivists and infectious disease practitioners
Reinventing ourselves

Information economics and the Internet

When conversation is better than computation

Improving clinical communication: A view from psychology

The impact of culture on technology

Ten essential clinical informatics skills

Information epidemics, economics, and immunity on the internet

Medical informatics meets medical education

Communication behaviours in a hospital setting: An observational study

Communication behaviours in a hospital setting: An observational study

Informality

Learning Qualitative Models of Dynamic Systems

Artificial intelligence in medicine: The challenges ahead

Clinical communications - a new informatics paradigm

Evidence based medicine, the internet, and the rise of medical informatics

AI in medicine: Overview and challenges
Clinical communication: a new informatics paradigm

The Internet's challenge to health care provision - A free market in information will conflict with a controlled market in health care
Coiera, E. 1996 In: British Medical Journal. 312, 7022, p. 3-4 2 p.

Recent Advances: Medical Informatics

Medical informatics

Fax from the future - 2074

What's new? Medical informatics

Intelligent monitoring and control of dynamic physiological systems

Intermediate depth representations

Qualitative superposition

The qualitative representation of physical systems

Incorporating user and dialogue models into the interface design of an intelligent patient monitor

Monitoring diseases with empirical and model-generated histories

Activities
International Academy of Health Sciences Informatics (External organisation)
Coiera, E. (Member)
2017 → …

Journal of Artificial Intelligence (Journal)
Coiera, E. (Reviewer)
2017 → …
Prizes

2011 Best student paper award American Medical Informatics Association Annual Symposium
Enrico Coiera (Recipient) & Mei Sing Ong (Recipient), 2011

Best HSR paper prize from Australian Centre for Health Services Innovation
W. B. Runciman (Recipient), Tamara D. Hunt (Recipient), N. A. Hannaford (Recipient), Peter D. Hibbert (Recipient), Johanna Westbrook (Recipient), Enrico Coiera (Recipient), R.O. Day (Recipient), D. M. Hindmarsh (Recipient), Elizabeth A. McGlynn (Recipient) & Jeffrey Braithwaite (Recipient), 2013

IBM Faculty Award
Enrico Coiera (Recipient), 2005

IMIA François Grémy Award for Excellence
Enrico Coiera (Recipient), 22 Aug 2015

Intel Don Walker award – Health Informatics Society of Australia
Enrico Coiera (Recipient), 2006

UNSW Inventor of the year (Information and Communication Technology)
Enrico Coiera (Recipient), 2011

Press/Media

AI and Patient Safety
Enrico Coiera
8/05/18
1 media contribution

A new informatics geography
Enrico Coiera
9/03/17
1 media contribution
An Overview of eHealth Implementation by Professor Enrico Coiera
Enrico Coiera
26/08/16
1 media contribution

Artificial intelligence will improve our health system
Enrico Coiera
14/05/18
1 media contribution

Artificially intelligent doctors can help Australia lead world in health
Enrico Coiera
15/05/18
1 media contribution

Australian health IT sage looks back to the future and sees what went wrong
Enrico Coiera
29/09/17
1 media contribution

The rise of Artificial Intelligence
Enrico Coiera
16/10/17
1 media contribution

The use of social media in health care
Enrico Coiera
26/08/13
1 media contribution

Awards

Projects

Centre of Research Excellence in Digital Health (CREDiH)
1/01/18 → 31/12/22

Creating safe, effective systems of care: the translational challenge
Braithwaite, J., Westbrook, J. & Coiera, E.
1/11/14 → …

Deed of Standing Offer - Services for Health Economics Services Panel
Cutler, H., Schroeder, L., Pitt, D., Jang, J., Kyng, T., Purcal, S., Braithwaite, J., Coiera, E. & Westbrook, J.
1/07/15 → …

Expert panel for health system performance
4/12/15 → 30/06/17

Health Data Analytics Panel (tender 01/1617)
Cutler, H. & Coiera, E.
Monitoring the gap between evidence and vaccination behaviour by sampling the location-specific consumption of health information from news and social media
16/01/17 → …

NHMRC Partnership Centre on Health System Sustainability
1/07/17 → 30/06/22

Patient-centred eHealth approach to improving outcomes for gout sufferers
1/04/15 → …

Personalised anticoagulant therapy for patients with acute coronary syndrome
Wendling, T., Gallego-Luxan, B., Coiera, E. & Runciman, W.
1/01/17 → …

Preparing Australia for Genomic Medicine, A proposal by the Australian Genomics Health Alliance (AGHA).
(AGPH1113531) NHMRC Targeted Research Call Into Genomics $25 million over 5 years
1/01/16 → 31/12/20

Protecting the public from emerging infectious diseases
23/06/16 → …

Redesigning patient experiences in health service navigation using digital technology
31/03/17 → …

Video Consultation Capability Project (HealthDirect)
Georgiou, A., Coiera, E. & Baysari, M.
1/11/14 → 31/01/16