Australian Government
Australian Research Council

EI 2018 ENGAGEMENT AND IMPACT

Engagement and Impact 2018

The University of Western Australia

UWA08 (ST) - Impact

Overview

Title

(Title of the impact study)

MMEx e-Health Clinical Platform

Unit of Assessment

08 - Information and Computing Sciences

Additional FoR codes

(Identify up to two additional two-digit FoRs that relate to the overall content of the impact study.)

11 - Medical and Health Sciences

Socio-Economic Objective (SEO) Codes

(Choose from the list of two-digit SEO codes that are relevant to the impact study.)

92 - Health

89 - Information and Communication Services

97 - Expanding Knowledge

Australian and New Zealand Standard Industrial Classification (ANZSIC) Codes

(Choose from the list of two-digit ANZSIC codes that are relevant to the impact study.)

85 - Medical and Other Health Care Services

Keywords

(List up to 10 keywords related to the impact described in Part A.)

MMEx

e-Health

medical

aboriginal health

indigenous

rural health

clinical management

allied health

healthcare

ISA Technologies

Sensitivities

Commercially sensitive

No

Culturally sensitive

No

Sensitivities description

(Please describe any sensitivities in relation to the impact study that need to be considered, including any particular instructions for ARC staff or assessors, or for the impact study to be made publicly available after EI 2018.)

Aboriginal and Torres Strait Islander research flag

(Is this impact study associated with Aboriginal and Torres Strait Islander content?
NOTE - institutions may identify impact studies where the impact, associated research and/or approach to impact relates to Aboriginal and Torres Strait Islander peoples, nations, communities, language, place, culture and

knowledges and/or is undertaken with Aboriginal and Torres Strait Islander peoples, nations, and/or communities.)

Yes

Science and Research Priorities

(Does this impact study fall within one or more of the Science and Research Priorities?)

Yes

Science and Research Priority	Practical Research Challenge
Health	Better health outcomes for Indigenous people, with strategies for both urban and regional communities.
Health	Effective technologies for individuals to manage their own health care, for example, using mobile apps, remote monitoring and online access to therapies.
Health	Improved prediction, identification, tracking, prevention and management of emerging local and regional health threats.
Health	Better models of health care and services that improve outcomes, reduce disparities for disadvantaged and vulnerable groups, increase efficiency and provide greater value for a given expenditure.

Impact

Summary of the impact

(Briefly describe the specific impact in simple, clear English. This will enable the general community to understand the impact of the research.)

The MMEx platform is an award winning, evidence based and fully shareable web-based electronic health record system. MMEx was developed at UWA's Centre for Software Practice and delivered to market by ISA Technologies. It provides practitioners with a patient management system that allows care teams to share information and be guided by risk-based decision support and other tools. Initially developed to manage healthcare for Aboriginal people in the Kimberley, MMEx has since been used to support the health care of large indigenous populations throughout Australia as well as highly specialised care in urban settings. MMEx has been used to collect research data for projects looking at chronic disease management practices, approaches to telehealth, and sexually transmitted infections.

Beneficiaries

(List up to 10 beneficiaries related to the impact study)

Aboriginal Community Controlled Health Services in the Kimberley and Queensland

Department of Health WA

Queensland Department of Health

Australian indigenous populations

Australian public

IHMS providing clinical services to the detention centres

Renal dialysis patients managed by Fresenius

Wounds West

Lions Eye Tele ophthalmology project for remote retinal screening

Remote dentistry programs

Countries in which the impact occurred

(Search the list of countries and add as many as relate to the location of the impact)

Australia

Details of the impact

(Provide a narrative that clearly outlines the research impact. The narrative should explain the relationship between the associated research and the impact. It should also identify the contribution the research has made beyond academia, including:
- who or what has benefitted from the results of the research (this should identify relevant research end-users, or beneficiaries from industry, the community, government, wider public etc.)
- the nature or type of impact and how the research made a social, economic, cultural, and/or environmental impact
- the extent of the impact (with specific references to appropriate evidence, such as cost-benefit-analysis, quantity of those affected, reported benefits etc.)
- the dates and time period in which the impact occurred.

NOTE - the narrative must describe only impact that has occurred within the reference period, and must not make aspirational claims.)

Medical Message Exchange (MMEx) is a web-based e-health record platform that allows patient records to be mobile and accessible amongst service providers and locations. It is a clinical notes record and communication platform with disease-specific modules. It allows referral for specialist care, a high level of diagnostic review, and a centralised mechanism for appointments and reminders, whilst ensuring the data is kept secure and confidential.

MMEx was developed in 2008 by Professor David Glance and his team, at The University of Western Australia's (UWA) Centre for Software Practice (CSP) in partnership with the Great Southern GP Network, Kimberley Aboriginal Medical Services Council (KAMSC) and the Kimberley Division of General Practice. It has been developed into Australia's hospital systems and has been a key infrastructure component of the Australian Government's e-Health platform.

ABORIGINAL AND RURAL COMMUNITIES
MMEx was developed to coordinate specialised care plans for KAMSC, which collectively represents four independent regionally based Aboriginal Community Controlled Health Services throughout the Kimberley: Broome regional Aboriginal Medical Service, Derby Aboriginal Health Service, Ord Valley Aboriginal Health Services and Yura Yungi Medical Service. In 2015, there were 19,000 medical records in the MMEx platform for the Kimberley region, accounting for 13,500 patients (total regional population is 50,000) who had received care in the previous two years. The Kimberley Renal Unit estimated that 30% of patients were suitable for virtual consultations, resulting in reduced travel burden on patients in a region where attracting health professionals is challenging.

"The shared record was developed essentially to support local Indigenous community medical centres where their patients were wandering and seeing another centre 100, 200 or 300 kilometres up the road… the share was an extension of the local record system, and from there it was built into a state-wide system to support Indigenous healthcare delivery, and it worked really well for that specific requirement." Dr Nathan Pinskier, e-Health and Practice Systems, Royal Australian College of General Practitioners, Hansard.

In 2011, Puntukurnu Aboriginal Medical Services (PAMS) rolled out MMEx to four remote central WA desert communities. "Having an accessible health record facilitates cultural sensitivity for the Martu and without question is an eHealth risk management safety factor in the delivery of safe informed healthcare." "Real-time eHealth shared care is paramount in the continuity of care for the Martu and is considered gold standard in risk management and best practice in the delivery of healthcare." Ms Ewing, PAMS. Published in Pulse+IT, 2013.

By December 2016, MMEx had been used by over 6,500 health professionals for the care of 200,000 West Australians and had become one of the biggest platforms providing medical health to about 35,000 indigenous people in the Kimberley.

ISA HEALTHCARE SOLUTIONS
In December 2013, UWA negotiated the sale of the MMEx software to ISA Healthcare (ISA) under a Software Sale Agreement. ISA had previously been the main distributor of MMEx throughout Australia. After the sale, ISA

became solely responsible for delivering the software to market. Dr Glance has remained active in MMEx through consulting.

In 2013, MMEx was listed on the Australian Digital Health Agency register as compliant with the Secure Message Delivery standard. Since 2013, MMEx has been used by many Aboriginal Medical Services to produce data for the National Key Performance Indicators for Aboriginal and Torres Strait Islander primary health care. This key data set is used across government and the health sector to inform policy and monitor activities in Indigenous health. MMEx conforms to the Healthcare Identifiers (HI Service) and the MyHealth Record (previously PCEHR) standards and incorporates the latest technical standards from the Australian Digital Health Agency.

Designed from research undertaken in collaboration with clinical service providers MMEx has the capacity to incorporate research projects into clinical management. “The key differentiator between MMEx and other solutions is that MMEx is centralised, internet-based Electronic Health Record System. This has allowed me to perform my duties anytime and anywhere” Dr Trevor Lord, General Practitioner.

Continual reviews by government consultancies including the Department of Heath WA and ISA clients have cultivated an atmosphere whereby Dr Glance and ISA can directly engage with clients to ensure MMEx meets changing industry needs.

GOVERNMENT AGENCY PLATFORM
In 2013, Queensland Health commenced a $35 million project to roll out MMEx to 28 hospitals and clinics in far north Queensland. The Institute of Urban Indigenous Health, who use MMEx to provide care to more than 30,000 patients in Queensland, has provided evidence that their services have resulted in a measurable improvement in health adjusted life expectancy for its patients.

MMEx has been rolled out to Medicare Locals as part of the Australian Department of Health’s 2015 Care Coordination and Supplementary Services Program to support activities to improve the prevention, detection, and management of chronic disease in Aboriginal and Torres Strait Islander people.

MMEx has been used as the clinical platform by the International Health and Medical Services to provide clinical services to Australia’s immigration detention services. It was chosen over other providers due to the mental health module which provides proactive management to support severely traumatised residents.

At the launch of the Australian Government’s PCEHR in Melbourne in 2011, MMEx operating at the Beagle Bay Aboriginal Medical Service was used as a case study to highlight the benefits of a shareable e-health record. It was recognised with a WA Univation WApp Award of $15,000 in 2011 as the best mobile phone application.

Associated research

(Briefly describe the research that led to the impact presented for the UoA. The research must meet the definition of research in Section 1.9 of the EI 2018 Submission Guidelines. The description should include details of:
- what was researched
- when the research occurred
- who conducted the research and what is the association with the institution)

MMEx is a shareable electronic health record with evidence-based decision support for clinical health management including chronic disease management, mental health, primary care and procedures, patient administration and emergency medicine. Each module was created based in consultation with key bodies such as Great Southern GP Network, Kimberley Aboriginal Medical Services Council (KAMSC), the WA Department of Health and the WA Cancer Care Network.

A novel, shareable wounds management system was implemented and documented in research jointly conducted by Wounds West, Curtin University and UWA in 2010 [1].
Chronic disease management was implemented via configurable electronic care plans and the research on this area published as a collaboration with KAMSC in 2011 [2].
A national project investigating STI detection and management in remote aboriginal communities was published [4] in 2013 as part of an NHMRC funded research collaboration between UWA, Aboriginal Community Controlled Health Services, Baker IDI, Kirby Institute, University of Melbourne and the University South Australia.

Various projects [3, 4] were conducted at UWA to investigate methods of creating structured data from clinician inputted free text using machine learning and other approaches.
A collaboration with the Rural Clinical Health School of WA [6, 7] examined the application of decision support in

the assessment of diabetic foot risk in aboriginal communities to avoid unnecessary amputations.

FoR of associated research

(Up to three two-digit FoRs that best describe the associated research)

08 - Information and Computing Sciences
11 - Medical and Health Sciences

References (up to 10 references, 350 characters per reference)

(This section should include a list of up to 10 of the most relevant research outputs associated with the impact)

Santamaria, N., Glance, D., Prentice, J., Fielder, K. 2010, 'The development of an electronic wound management system for Western Australia', Wound Practice and Research, 18, 4, pp. 174-179.

Glance, D., Metcalf, S., Nelson, C. 2011, 'Management of care through computerised protocol-based care plans', Communications and Strategies, 83, 3rd Quarter 2011, pp. 59-70.

Wong, W., Glance, D. 2011, 'Statistical semantic and clinician confidence analysis for correcting abbreviations and spelling errors in clinical progress notes', ARTIFICIAL INTELLIGENCE IN MEDICINE, 53, pp. 171-180.

Ward, J., Mcgregor, S., Guy, R., et al. 2013, 'STI in remote communities: Improved and enhanced primary health care (STRIVE) study protocol: A cluster randomised controlled trial comparing 'usual practice' STI care to enhanced care in remote primary health care services in Australia', BMC INFECTIOUS DISEASES, 13, 1, pp. 9pp.

Liu, W., Sweeney, H., Chung, B., Glance, D. 2014, 'Constructing consumer-oriented medical terminology from the web a supervised classifier ensemble approach', LECTURE NOTES IN COMPUTER SCIENCE, 8862, pp. 770-781.

Schoen, D., Glance, D., Thompson, S. 2015, 'Clinical decision support software for diabetic foot risk stratification: development and formative evaluation', Journal of Foot and Ankle Research, 8, 73, pp. 1-10.

Schoen, D., Gausia, K., Glance, D., Thompson, S. 2016, 'Improving rural and remote practitioners' knowledge of the diabetic foot: findings from an educational intervention', Journal of Foot and Ankle Research, 9, 1

Additional impact indicator information

Additional impact indicator information

(Provide information about any indicators not captured above that are relevant to the impact study, for example return on investment, jobs created, improvements in quality of life years (QALYs). Additional indicators should be quantitative in nature and include:
- name of indicator (100 characters)
- data for indicator (200 characters)
- brief description of indicator and how it is calculated (300 characters).)