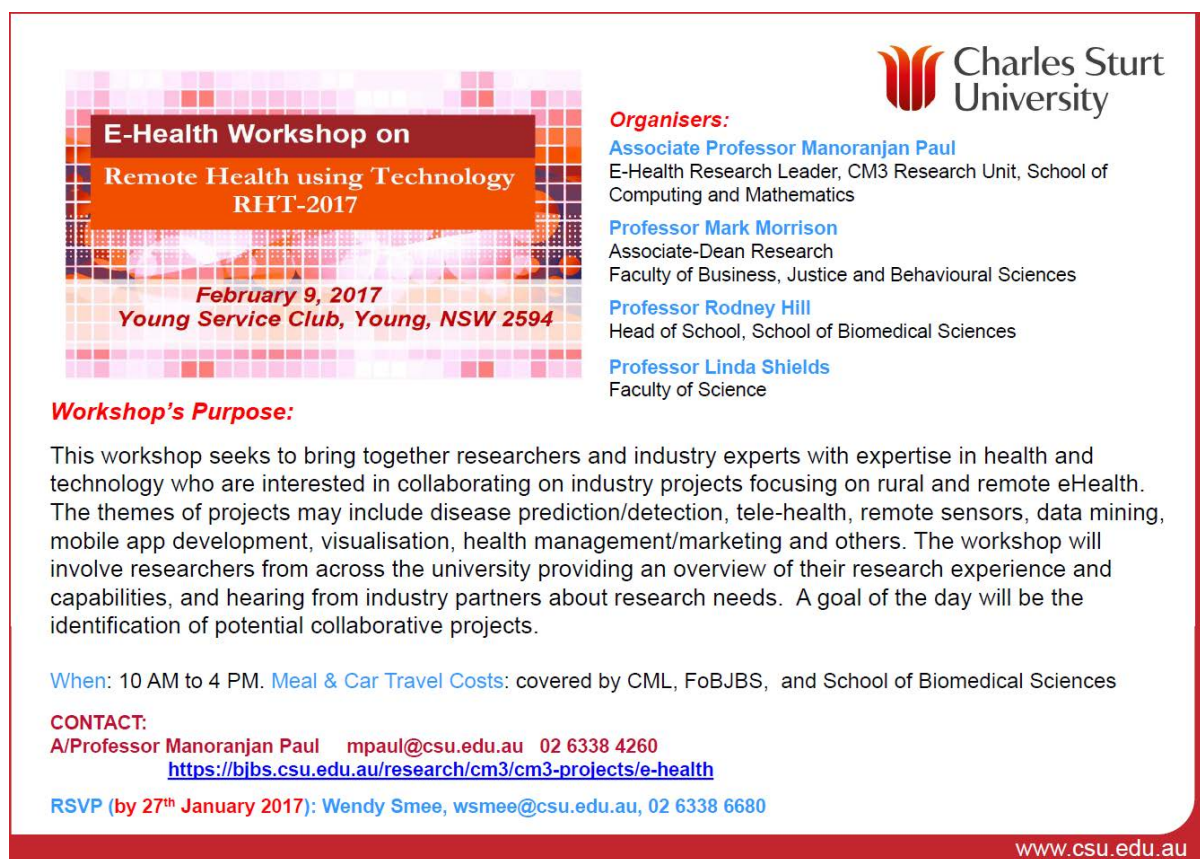


E-Health Workshop Report

Remote Health using Technology (RHT-2017), 2017

-Associate Professor Manoranjan Paul, Email: mpaul@csu.edu.au



**E-Health Workshop on
Remote Health using Technology
RHT-2017**

**February 9, 2017
Young Service Club, Young, NSW 2594**

Organisers:
Associate Professor Manoranjan Paul
E-Health Research Leader, CM3 Research Unit, School of Computing and Mathematics
Professor Mark Morrison
Associate-Dean Research
Faculty of Business, Justice and Behavioural Sciences
Professor Rodney Hill
Head of School, School of Biomedical Sciences
Professor Linda Shields
Faculty of Science

Workshop's Purpose:
This workshop seeks to bring together researchers and industry experts with expertise in health and technology who are interested in collaborating on industry projects focusing on rural and remote eHealth. The themes of projects may include disease prediction/detection, tele-health, remote sensors, data mining, mobile app development, visualisation, health management/marketing and others. The workshop will involve researchers from across the university providing an overview of their research experience and capabilities, and hearing from industry partners about research needs. A goal of the day will be the identification of potential collaborative projects.

When: 10 AM to 4 PM. **Meal & Car Travel Costs:** covered by CML, FoBJBS, and School of Biomedical Sciences

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<https://bjbs.csu.edu.au/research/cm3/cm3-projects/e-health>

RSVP (by 27th January 2017): Wendy Smee, wsmee@csu.edu.au, 02 6338 6680

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Fig.1: Poster of RHT-2017 workshop

E-health is one of the themes within the CSU Machine Learning (CML) Research Unit at CSU. It brings modern IT developments to health practice. Due to geographical distance from capital cities a major portion of regional people cannot access high quality health services, like those in major cities. The aim of the group is to tackle issues related to E-health through technology such as computational intelligence, data analysis, and machine vision research. In the digital era, with easier electronic communications and availability of different body sensor devices, this group is conducting research across four research themes: disease prediction/detection, mobile E-Health, medical imaging, and E-Health security to provide world class health services to more remote people through collaborating with health service professionals, local bodies and government agencies.

To know the issues, our expertise, available resources, and current industry collaborators related to E-Health area, we have organised an E-Health workshop on *Remote Health using Technology* (RHT-2017) from 10:00AM to 4:00PM in 9th February 2017 at Young.

The organisers of the workshop are:

- Associate Professor Manoranjan Paul, E-Health Research Leader, CML Research Unit, School of Computing and Mathematics
- Professor Mark Morrison, Associate-Dean Research, Faculty of Business, Justice and Behavioural Sciences
- Professor Rodney Hill, Head of School, School of Biomedical Sciences
- Professor Linda Shields, Faculty of Science

Professor Tim Wess, Executive Dean, Faculty of Science, has provided necessary guidance to organise the workshop.



Fig. 2: Executive Dean of Science, Professor Tim Wess addressing at RHT 2017 workshop

Program:

9 February 2017	
10:00	Registration/Tea-Coffee
10:10	Opening Program: A/Prof Manoranjan Paul, Prof Mark Morrison, and Prof Linda Shields
10:20	Feedback from previous Industry Meeting: Prof Rodney Hill
10:35	3 minutes presentation by Individual Participant (with/without power point slides). The presentation should include: (i) introduction of the presenter, (ii) Recent eHealth related projects, (iii) Expertise applicable to eHealth related research and (iv) Current eHealth related issues to work on
12:00	Lunch

13:00	Organisers pick 6 areas after discussion with others
13:30	Form 6 groups to work on 6 areas to find a project from each group. Fill up the template for the project
14:15	The group leader presents the project. Invite idea, suggestion to make it doable (10 minutes project presentation and 5 minutes discussion)
15:45	Closing remarks by organisers

Attendance:

A total of 27 academics from three faculties of CSU and industry people from local health service providers attended the workshop.

The following 21 CSU academics attended and provided presentation in the workshop:

1. WESS, Tim (FoS)
2. BURMEISTER, Oliver (SCM)
3. DEBNATH, Tanmoy (SCM)
4. KABIR, Ashad (SCM)
5. LI, Chang-Tsun (SCM)
6. ZHENG, Lihong (SCM)
7. RAHMAN, Azizur (SCM)
8. ANTOLOVICH, Michael (SCM)
9. MAMUN, Quazi (SCM)
10. BORDES, Nicole (CML)
11. HILL, Rodney (BioSc)
12. MORRISON, Mark (SMM)
13. PAILTHORPE, Bernard (CML)
14. PAUL, Manoranjan (SCM)
15. SHIELDS, Linda (Nurs/Mi)
16. ADAMS, Margaret (BioSc)
17. COOPER, Carl (BioSc)
18. LOGAN, Patricia (BioSc)
19. MACQUARRIE, Alexander (BioSc)
20. SUTTON, Clare (BioSc)
21. SIKDER, Shukla (FAE)

Besides the above academics, the following people from local health service providers also attended and provided presentations in the workshop

1. CHIA, Eevon (CareWest)
2. DELVES, Shane (Murrumbidgee Health)
3. GRAY, Skye (Tumut Comm Hlth)
4. MARSDEN, Patrina (NSW Health)
5. OBERSTELLER, Elizabeth (NSW Health)
6. RAHMAN, Anis (Murrumbidgee Health)

Potential Areas:

Based on the feedback from the industry people and academics we have identified the following potential areas to work on:

Potential areas

1. E-record uptake and data integration – internal and external (client) barriers
 - Fed gov. sign up
 - Challenges of Fed versus state programs
 - Regional versus metro access
 - Privacy and security issues (esp for mental health)
 - Need for linking of private and public providers, esp where chronic issues; need for sharing of information
 - Clinicians perceptions of what is needed, plus patients’ perspectives
 - Special Indigenous challenge here
2. Tele-health evaluation
 - who uses it, who doesn’t and why
 - barriers (including remote access issues) and potential solutions
3. Challenges of remote monitoring - confidence in apps and/or sensors – which one? How to design these so they are senior friendly?
4. Prediction from data – asthma? Anything else?
5. Workforce health (including carers) especially first responders – sensors, analytics, remote workers
6. Pharmaceutical prescriptions – geospatial analysis
7. Access of digital information

Power point Slide of Presentation:

Power point slides of the presenters in RHT 2017 workshop are available in the E-Health Research Group Workshop: <https://bjbs.csu.edu.au/research/cm3/cm3-projects/e-health>

Projects:

The following projects are identified by the participants

Projects	Short Description
1. Quality of Data. Filtering – Clinically Relevant. Health/Science Learning – Device Interface	Wearable devices – linking to database – analysis, e.g. cell phone Remote monitoring – clinically appropriate Continuity of signal – wearable devices Linking real life experience to data acquisition System approach
2. Health for Education	Generalist practitioner scope of practise – hubs – specifically to service small populations Barriers to e-health infrastructure Geriatric – chronic disease – efficacy – telehealth consultation (specifically renal/diabetes/COPD) vs face to face Quantifying the effectiveness and quality of telehealth Cost-benefit analysis

	<p>Standardisation of software platforms</p> <p>Knowledge transfer – on the spot – specialist info – to GP diagnostician</p> <p>Multi-cultural diversity (including indigenous) – providing services – e-Health</p> <p>Reducing readmissions</p>
3. e-Medical Record	<p>Redundancy of data protection around eMR</p> <p>How developed is the literature on this topic? UK, little in Australia. Qld.</p> <p>Lack of technology – lack of knowledge about it. Need IT educators on ground. Private practitioners, pharmacies</p> <p>Who are potential industry partners? NSW Health, MCW, AMSs. PHN – GPs nursing (??can't decipher??). CareWest and other orgs WGOs. Pathology services and radiology. Defence. DVA. NSW Ambulance, Royal Far West, private hospitals</p> <p>Who are appropriate collaborators at CSU and elsewhere? Clinician's fear and inability to use Need human models to teach people how to use technology and confidence how to use it. National standardised interfaces Cross-border sharing – ACT, VIC Legislation re eMR – privacy Health spend</p> <p>Who leads the project Linda Shields</p>
4. Prediction from Data	<p>MLHD – Asthma 1, CoPD 2, Heart Failure 3</p> <p>PHN</p> <p>Housing and income data</p> <p>National Health data ABS</p> <p>Together model simulated data = decision we need</p>
5. Creating a baseline of time spent (not with the patient) collecting and collating patient data for home visit care by NPs	<p>Baseline to enable assessment of change/transition to eRecords in regional/rural NSW</p> <p>Add in clinician wellbeing</p> <p>See Mark re academics study of? Satisfaction</p> <p>Who are potential industry partners? Murrumbidgee Health – Nurse Practitioners (Patrina, Skye, Liz)</p> <p>Who leads the project Patrina Marsden and Patricia Logan</p>
6. Workforce health (incl carers) especially first responders – sensors, analytics, remote workers	<p>What is the research need? Consider extending use of hexosluns (?) to specific patient populations – diabetics, obese children, chronically ill</p> <p>Extend to different first responder groups</p> <p>OHS</p> <p>Impact on long term health</p> <p>What is the optimum shift length?</p> <p>Ability to predict and mitigate against short and long term health problems</p> <p>Small v Resilience – how monitoring physiology can contribute to predicting and managing</p>

	<p>Impact of circulating cortisol over time on health</p> <p>How developed is the literature on this topic? Not on physiologic monitoring – this will be the first in paramedics and extended beyond them to early child care workers about to commence</p> <p>Who are potential industry partners? ANSW already partnered Any other Health care providers COPD, DM , child obesity (to determine if interventions have an holistic effect) Who are appropriate collaborators at CSU and elsewhere? Biostatistician Health and Allied health disciplines Dept. of Rural Health Police Academy Who leads the project? Sandy MacQuarrie</p>
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Progressing and Future Actions

Professor Mark Morrison, Professor Linda Shields, and A/Professor Manoranjan Paul have conducted a follow up meeting to finalise workable projects. The following actions have been taken so far:

1. Identify 4 projects to work on immediately
2. Request some budget to Associate Dean Research (FoS)
3. Manoranjan Paul is leading a “prediction of disease” project. A literature survey is being conducted on this area
4. Linda Shields is also leading a project. A literature survey is being conducted on this area.