Study Protocol:

A multicentre, qualitative evaluation of the impact of advertised Emergency Department (ED) wait time on ED patients, potential patients and other stakeholders.

**Project Summary:**

The decision to seek out emergency medical care is complex and nuanced. Many factors influence what care to seek and when. Once a facility or provider is chosen, there will be expectations for care competency and timeliness. Acutely unwell or distressed patients hope to see a Health Clinician or Doctor immediately on arrival at an Emergency Department (ED), however this is rarely achievable for a variety of reasons. The reality for most patients is that they join a queue for care and wait to be treated. Previously, community health providers and patients have been blinded to the length of those queues.

In the era of expanding Information Technology (IT) capabilities, advertised ED wait times to see a doctor (real-time, available on the internet) have recently been posted in some Australian EDs, including Cabrini. There is a paucity of information regarding the impact of this on patients, paramedics and community members and also a lack of literature on the consumer perspective regarding access to this type of information. Through this explorative study, we hope to provide insight into the positive and negative aspects of this tool, allowing health administrators to determine whether and how to deploy the information.

The goal of the study is to qualitatively explore patient and health community perspectives regarding advertising ED wait times. This will be done by gathering thoughts regarding what constitutes a wait time, whether the community would like access to wait times and safety and risk information regarding displaying predicted wait times for emergency departments. It will also explore how and where consumers of the wait time information would like to receive this information. The barriers and enablers to being able to obtain and display this data will be explored. We may be able to compare consumer thoughts between those who are and aren’t exposed to this information as one ED currently displays predicted wait times online and in their waiting room.

This study will be a prospective, multicentre, qualitative study collecting data via semi-structured interviews with patients (or guardians), paramedics and community members. It will be conducted over 3 months at Cabrini Hospital, St Vincent’s, Monash Medical Centre and Box Hill emergency departments. Community members (Bolton Clarke consumer group, sports club members and community representatives) will be interviewed either face to face or via telephone. The interviews will be recorded and transcribed.

Interviews will analysed using grounded theory methodology and NVivo by a minimum of 2 investigators, until theme saturation is obtained. Major and minor themes will be established and presented qualitatively. Information will be disseminated to our community in various ways, including academic publication and presentation, but also through various media streams and at consumer forums as the opportunities arise.

This study aims to explore the concept of advertised ED wait times which may influence future policy decisions, the structure and deployment of wait time information and ongoing wait time and IT metadata application research.

**General Information:**

**Title:**

A multicentre, qualitative evaluation of the impact of advertised Emergency Department (ED) wait time on ED patients, potential patients and other stakeholders.

Investigators:

**Student Investigator:**

Dr Melanie Stephenson MBBS, emergency medicine advanced trainee, research registrar

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Responsibilities:

Project Management, Study protocol and design, Ethics application, Trial registration, Data collection, Data analysis, Write up, Information dissemination

**Supervising principal investigator:**

A/Prof Katherine Walker FACEM

Director Emergency Medicine Research

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Department of Epidemiology and Preventive Medicine, Monash University

Email: [katie\_walker01@yahoo.com.au](mailto:katie_walker01@yahoo.com.au)

Responsibilities:

Funding; Study concept; Project management; Study protocol; Ethics applications; Data analysis; Write up; Revision of manuscript; Information dissemination

A/Prof Keith Joe FACEM

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Department of Engineering & MADA, Monash University

Ph 95081550

Responsibilities:

Study concept; Provision of technical expertise; Revision of study protocol; Revision of manuscript

Dr Michael Ben-Meir FACEM

Cabrini Hospital Malvern

Director Emergency Department

181 Wattletree Rd, Malvern 3144

Ph 95081550

Responsibilities:

Study sponsor; Funding; Revision of study protocol; Revision of manuscript

Consumer representative:

Ms Ella Martini

[ella\_martinii@hotmail.com](mailto:ella_martinii@hotmail.com)

Ph 0450300872

Responsibilities:

Consumer input into study protocol; Opportunity to contribute to data analysis; Manuscript write-up

Opportunity to contribute to information dissemination

Stakeholder representatives:

A/Prof Michael Stephenson, Ambulance Victoria

Responsibilities

Stakeholder input into study protocol

Stakeholder input into manuscript write-up

Adjunct Prof Judy Lowthian & Dr Amber Mills, Bolton Clarke

Site chief investigators for Bolton Clarke consumer group

Responsibilities:

Stakeholder input into study protocol, assistance with recruitment of community participants, revision of manuscript

Dr Jennie Hutton FACEM

St Vincent’s public emergency department

Responsibilities:

Technical/ED medical interface advise and research expertise

Possible site chief investigator/coordinator should St V’s ED wish to participate

Dr Rachel Rosler FACEM and Dr Gabriel Blecher FACEM

Monash Health

Casey, Dandenong, Clayton, Monash Children’s Hospital

Responsibilities:

Potential site chief investigators/coordinators should Monash Health wish to proceed with the collaboration; input into study protocol and write-up

Dr Hamish Rodda FACEM

Eastern Health

Box Hill, Maroondah, Angliss Hospitals

Responsibilities:

Potential site chief investigator/coordinator should Eastern Health wish to continue with the collaboration; input into study protocol and write-up; provision of technical expertise

Dr Kim Hansen FACEM

Emergency Medicine Events Registry and patient safety experts (St Andrew’s War Memorial Hospital, Qld)

Responsibilities (if available):

Contribute to study protocol and write up, particularly with respect to question development regarding aspects of risk

Dr David Rankin

Clinical Informatics Director

Cabrini Hospital

Responsibilities:

Contribute to study protocol and write up, providing expertise in IT and wait time algorhithms

Dr Paul Buntine

FACEM

Eastern Health

Responsibilities:

Contribute to study protocol and write up, Site investigator

Dr John Papatheohari

Group Director, Information Technology and Digital Transformation

Cabrini Hospital

Responsibilities:

Contribute to study protocol and write up, providing expertise in IT and wait time algorhithms

**Background information:**

The decision to seek out emergency medical care is complex and nuanced. Many factors influence what care to seek and when. Once a facility or provider is chosen, there will be expectations for care competency and timeliness. Acutely unwell or distressed patients hope to see a provider immediately on arrival, however this is rarely achievable. The reality for most patients is that they join a queue for care and wait to be treated. Previously community health providers and patients have been blinded to the length of those queues.

Previous research suggests that ED proximity and wait times have major influence on patient choice of facility(1)(2). From previous Australian work, we know that when deciding between a private or public emergency department some patients will choose to pay out-of-pocket fees for their care and a large part of this decision is based on a perception of shorter waits in private facilities(3). While perceived emergency wait times are not always accurate (4)(5)(6), longer wait times were associated with lower patient satisfaction(7).

IT capabilities within medicine are expanding rapidly and there is an explosion of information potentially available to hospitals with Electronic Medical Records (EMRs). Time-based patient metadata is now being collected continuously in most high-income country emergency departments. Patients and community-based healthcare providers are increasingly IT literate and some seek mobile information to enable decision-making. There is also increased consumer advocacy, seeking greater transparency of clinical information. We don’t yet fully understand how to integrate all this available information, nor the impact the information will have on patients and their families.

Cabrini hospital ED (a not-for-profit/private, tertiary, urban facility) now has a real-time, mobile wait-time app displayed on their hospital website, that is also streamed to their waiting room and in the future will be streamed to Ambulance Victoria. While advertised ED wait times have been utilized for some time in the US, Australian emergency departments are only now starting to deploy this concept, with several Victorian hospitals launching wait-time platforms in the last year (eg RCH, Geelong, Cabrini). Many other hospitals are interested in the concept.

Ambulance paramedics in Victoria currently make decisions regarding a patient’s destination hospital based on time taken to transfer preceding patients from the ambulance stretcher to the ED bed (verbal communication, A/Prof Stephenson, Amb Vic). This information is provided in real time, though is only provided for ambulances currently at any given hospital and does not include the expected time to be seen by a clinician.

The need for information transparency and shared-decision making must be partnered with safe conveying of information. Wait-time information could potentially be used to facilitate appropriate load spreading across acute care facilities at times of strain (by paramedics and general practitioners) if advanced knowledge of capacity was available. However, it may also allow someone with a treatable illness to self-divert to an inappropriate facility or decide not to seek help at all if queues seem prolonged(8) There has been limited research into which patients are utilizing advertised ED wait times however a single study suggested that younger populations are willing to access this information most frequently (9).

Previous studies suggest that while decreased overall time in ED is associated with increased patient satisfaction (6) actual patient wait-times may not solely cause patient dissatisfaction (10). Reduced satisfaction may be due to expected versus actual wait-times. It may be the communication (or lack of) around these times that is more valued by patients. It is also unclear how accurate advertised ED wait times are (11)and whether this impacts on patient or community perspective. To our knowledge, there is no clinical research into patient expectation of advertised wait time accuracy, or understanding of wait time context.

**Study goals and objectives:**

The goal of the study is to qualitatively explore patient and health community perspectives regarding ED wait times.

We will explore consumer/potential consumer, Health administrators and Paramedic perspectives on what constitutes an ED wait time, the potential impact of advertised ED wait times (on the patient experience, on staff experience, on load spreading amongst facilities), the safety/potential risk profile of advertised ED wait times and how information should be displayed to mitigate any risks identified.

We will also investigate how and where consumers of the wait time information would like to receive this information. The barriers and enablers to being able to obtain and display this data will be explored. We may be able to compare consumer thoughts between those who are and aren’t exposed to this information as one ED currently displays predicted wait times online and in their waiting room.

**Study design:**

Study type: This study will be a prospective, qualitative study, using face-to-face and phone interviews. We will collect data for 2-3 months (until theme saturation is achieved) in 2019 on a date to be determined once ethics approval is obtained.

Population:

Consumers of emergency medicine care and potential consumers of wait time information in Melbourne, Australia. The hospital settings will be Cabrini (currently has wait times advertised online and at triage), Monash Clayton (adults and children), St Vincent’s Hospital and Box Hill emergency departments (controls, with no advertised wait-times). The non-acute care settings will be consumers of Bolton Clarke services (ex-RDNS), sports clubs, school groups and health administrators/stakeholders.

Acute hospital setting:

Inclusion:

* Convenience sample based on researcher availability, with purposive sampling of a variety of times and days of the week.
* Patients: Current emergency medicine patients waiting for care or waiting for completion of emergency medicine care (at facilities that have published wait times and those that don’t)
* Paramedics: Paramedics waiting to offload patients from ambulance stretchers to beds in emergency departments
* All patients (or their guardians/support persons) and paramedics who are potentially eligible for inclusion in the study will be invited to participate.

Exclusion:

* Any patient/paramedic or community representative who does not consent
* Any patient deemed incapable of consent due to illness, capacity or communication barriers (as judged by the patient/family, interviewer or clinical staff)
* Any patient who exhibits significant distress
* Any patient whose treatment would be impeded or delayed by the interview (as judged by the patient/family, interviewer or clinical staff)
* Any paramedic who is required to attend to a patient rather than undertake the interview, based on patient needs (note 2 paramedics accompany a patient, usually one attends to the patient whilst the other is available to talk for short periods of time).

Community settings

A convenience sample of sports club members will be taken. A sports facility similar distance to participating Emergency Departments will be chosen randomly. Sports clubs utilizing this facility will approached. Sports club members (or their parents if appropriate) will be approached via the club administration for potential recruitment for interviews. Depending on the feedback from the club, members (or their parents) may be approached by phone or on a sports’ field.

Bolton Clarke consumer representatives will be approached via letter to seek expressions of interest in participating in a phone interview. For those who consent to participate, a telephone interview will be undertaken at a time mutually suitable for both the researcher and the consumer.

Two schools will be approached via their Parents’ Association. One primary and one secondary school. If parents are willing to be interviewed, they will be contacted via email or telephone. Interviews will be held face to face or via telephone.

Health administrators:

Health administrators will be contacted via phone or face to face. Interviews will be held either via telephone or face to face.

**Methodology:**

Interviewer:

The investigator (MS) will be the interviewer.

The investigator will attend each location at various intervals for face-to-face recruitment and interviews. This will include emergency departments with and without published wait times. These will be single interviews without follow up interviews/contact.

The interviewer will be dressed in office attire (for hospital settings) and casual attire (for sports settings) with a researcher ID/name-tag (not aligned to the health service). For phone interviews, the interviewer will also introduce him/herself as a researcher. They will make it clear that they are not part of the patient’s health-care team or representing a particular health care facility, but are a from a Research Institute.

Interviews:

Consent will be obtained (written in face-to-face settings, verbal preceding phone interviews). Semi-structured interviews will be undertaken, using open-ended questions (see attached). Approximate interview duration is 15 minutes per interview. There will be no interruption or delay to treatment or clinician workflow. The interview can be cancelled at any time at the request of the patient, interviewer or clinical staff. Each interview will be recorded.

**Data Collection:**

Data to be collected via semi-structured interviews:

Demographics:

Age

Gender

Triage category (if in an ED)

Time/Day of attendance (if in an ED)

Actual patient wait time prior to the interview commencing (if in an ED)

People present at interview (relationships rather than names, eg mother/friend)

Where the interview is being held (will be de-identified but will allow investigators to ensure they have sampled a broad spectrum of community representatives and to compare intervention and control site data)

Presence or absence of advertised wait times for the ED the Paramedic or patient is attending

**Questions for Patient/Accompanying persons in Emergency Department:**

Wait times actual vs expectation:

When do you think the ED wait time should begin?

When do you think the ED wait time ends?

What do you think about waiting times to see an emergency doctor?

Prompts:

How long have you been waiting in this ED today?

What wait time were you hoping for when you arrived?

Were you given any information on your arrival about the approximate wait time today?

Do you know how long it will be from now until you see the doctor?

Would you have liked any information about your likely wait time?

Advertised wait times – awareness/impact:

What do you think about being able to see how long the wait time is for emergency departments?

When did you decide to attend this ED?

Did you know that Internet wait time information or waiting room wait time information exists for some EDs?

Do you have access to the Internet via a computer or mobile phone?

Did you look for wait-time information before choosing this ED?

Would this be important to you next time you are unwell?

Would you like to see this before you get to the ED? Would you like this information when you arrive at the ED?

Type/Accuracy information

What do you think about the accuracy of wait time information?

Prompts:

How important is accuracy of the wait time to you?

What impact would waiting longer than the advertised wait time have on you?

What impact would waiting less than the advertised wait times have on you?

How would you like times presented? (use actual examples from the web in Victoria)

What sort of approximation of the wait time prediction would be acceptable to you?

Prompts:

Accurate to within 5 minutes/30 minutes/1 hour or >1 hour?

Would you like to be given the time to seeing a doctor or time to seeing a nurse or both?

Would you like to have other information available?

Prompts:

Advice that critically unwell patients get seen immediately, despite the advertised wait

Wait times may change whilst you are waiting

Other places that care can be sought for various conditions

That a triage nurse will start your treatment when you arrive

Stratification/understanding of severity?

Who do you think advertised ED wait times apply to?

Would wait times influence your decision regarding which facility to attend?

Prompt: If there is a long wait, will this alter your decision-making? How? Please expand?

How long are you prepared to wait to be seen by a clinician today?

Prompt:

5 mins/15 mins/30 mins/1 hour/2 hours or >2 hours?

Would you consider leaving without being seen? When? Why or why not?

Would you seek alternate medical help? Why or why not?

Any other comments?

**Questions for Paramedics:**

Wait times actual vs expectation:

When do you think the ED wait time should begin?

When do you think the ED wait time ends?

How long have you been waiting in this ED today?

Were you given any information on your arrival about the approximate patient wait time today?

Would you have liked any information about the patient’s likely wait time? Ambulance offload time? Or both?

(Picture)

Advertised wait times – awareness/impact:

Did you know that Internet wait time information or waiting room wait time information exists for some EDs?

Do you have access to the Internet (on your phone) when choosing an emergency department?

Did you look for wait-time information before choosing this ED?

Would you like to see this before you get to the ED? Would you like this information when you arrive at the ED?

How important is accuracy of the ED wait time to you?

What impact would waiting longer than the advertised wait time have on you?

What impact would waiting less than the advertised wait times have on you?

How would you like times presented? (use actual examples from the web in Victoria)

What sort of approximation of the wait time prediction would be acceptable to you eg accurate to within 5 minutes/30 minutes/1 hour or >1 hour?

What sort of wait time information would you like to see? Time to offload/time to see a nurse/time to see a doctor or something else?

Decision making:

Would ED wait times influence your decision regarding which facility to attend?

If there is a long ED wait, will this alter your decision-making? How? Please expand? Any further comments?

**For AV controllers/Diversion Officer only:**

What do you think the barriers and enablers are to distribute patients to departments with capacity?

**Questions for Health administrators:**

1. When do you think the ED wait time should begin?
2. When do you think the ED wait time ends?
3. What do you think the positive and negative impacts of advertised Emergency Department wait times are on:
4. Patients
5. Ambulance services
6. Emergency departments
7. Individual Hospitals
8. State wide health service

Prompts:

Health Transparency

Patient Safety

Shared decision making

Any perceived barriers

1. What sort of approximation of the wait time prediction would be acceptable to you eg accurate to within 5 minutes/30 minutes/1 hour or >1 hour?
2. Would you like to have other additional information available?
3. How do you feel this information is best presented?
4. Would you like to advertise the time to seeing a doctor, time to seeing a nurse or both?
5. What potential issues would you have with your service publishing wait times to the following groups:

* Ambulance Victoria
* Emergency Department waiting rooms
* Internet

1. Any further comments?

**Questions for Community members:**

Advertised wait times – awareness/impact:

Did you know that Internet wait time information or waiting room wait time information exists for some EDs?

When do you think the ED wait time should begin?

When do you think the ED wait time ends?

Do you have access to the Internet via a computer or mobile phone?

Did you look for wait-time information before choosing your last attendance at an Emergency Department?

Would this be important to you next time you are unwell?

Would you like to see this before you get to the ED?

Would you like this information when you arrive at the ED?

How important is accuracy of the wait time to you?

What impact would waiting longer than the advertised wait time have on you?

What impact would waiting less than the advertised wait times have on you?

How would you like times presented? (use actual examples from the web in Victoria)

What sort of approximation of the wait time prediction would be acceptable to you eg accurate to within 5 minutes/30 minutes/1 hour or >1 hour?

Would you like to be given the time to seeing a doctor or time to seeing a nurse or both?

Would you like to have other information available?

Prompt if required, potential discussion points below:

* Advice that critically unwell patients get seen immediately, despite the advertised wait
* Wait times may change whilst you are waiting
* Other places that care can be sought for various conditions
* That a triage nurse will start your treatment when you arrive

Stratification/understanding of severity?

Who do you think advertised ED wait times apply to?

Would wait times influence your decision regarding which facility to attend?

If there is a long wait, will this alter your decision-making? How? Please expand.

Any other comments?

**Data analysis:**

Interviews will be conducted and recorded, usually at the bedside or in the waiting room (if applicable); no extra ED office space/interview rooms will be required. Each transcribed interview will be read and analysed by a minimum of two researchers.

All data will be analysed using grounded theory and axial coding using NVivo. Interviews will be analysed until theme saturation achieved (3 consecutive interviews with no new theme introduction) for each demographic group.

**Data management:**

All data will be de-identified. Data will be stored on the voice recording device by the interviewer. It will be handed physically to the transcription service. Once transcribed it will be collected by the interviewer and stored on Cabrini’s password protected hospital server and will available to the study team. Any paper notes associated with this study will be kept in a locked filing cabinet at the Cabrini Institute. No identifiable data will be presented or published. At the completion of the study all the data will be removed from the server and placed on a memory stick to be stored in a locked cabinet in the office of A/Prof Walker for seven years.

**Safety considerations:**

Adverse events are unlikely to occur during or as a result of this study. Patients and consumer reps will have a single interaction with the investigator. Data will be stored in a protected manner.

**Study follow up:**

Longitudinal follow up will not be performed for this study. There will be a single interview with every patient, health administrator or community representative

**Quality assurance:**

Patients/interviewees will only be contacted once. They will not be provided with copies of their interviews nor asked for feedback regarding corrections/amendments. There will not be an independent verification of the content of the discussions other than the digital recording. Independent, professional transcriptionists will be employed to undertake transcription. Two researchers will independently review and code each interview. Each researcher will determine themes and then a consensus meeting will be held to determine a final list of major and minor themes. A third researcher, who will make a final decision on the intent of the communication, will review any discrepancies in data-extraction.

**Dissemination of Results and Publication Policy:**

Information will be disseminated by publication and presentation.

General public forums (media or oral presentations) may also be sought, depending on the public level of interest in the manuscript. Patients will be able to access results via the ANZCTR and on publication, via the Cabrini Emergency Medicine Research website.

The manuscript will be submitted to emergency medicine and health IT journals, possibly general medical journals.

Presentation will be at emergency, health IT and administrator forums.

Author order:

Katie Walker first author

Melanie Stephenson

Other collaborators in alphabetic order

**Duration of project:**

This project is anticipated to take around 10-12 months to achieve manuscript submission at a journal.

Study development: 4 weeks

Ethics approval: 2-3 months

Data collection: 3 months

Data analysis: 2 months

Write up: 4-6 weeks

This will be followed by manuscript submission for publication

**Ethics and informed consent forms:**

This study will be a low to negligible risk project. Supervision of this project will be sought from Monash Health Human Research Ethics Committee with governance oversight from the other relevant ethics committees and research committees as required.

Patients (or their guardian) and Paramedics interviewed in an Emergency Department will have informed consent obtained face-to-face and in writing.

Treatment of patients will not be affected or delayed – this includes interviewing Paramedics. Patient movement throughout their emergency stay will not be affected or delayed.

Patients or Paramedics will only be offered the interview if there is no effect or delay on patient treatment. Interviews can be terminated at any time by hospital clinical staff, the patient (or guardian) or the interviewer.

The interviewer is a senior emergency medicine (ACEM) trainee and therefore capable of assessing potential impedance or treatment delay by an interview.

Bolton Clarke consumers, other community consumers and Health administrators will have informed consent obtained either face to face or via the telephone.

**Budget:**

Interviews and data collection will be performed by the Cabrini Emergency Department Research registrar (MS) during paid work days. In addition, medical student researchers may contribute to the research on a voluntary basis, provided they have adequate Cabrini Institute governance in place (confidentiality agreements, Good Clinical Practice certification etc). The Cabrini Emergency Medicine Research department will pay for transcription fees. As an investigator initiated study, we hope that research infrastructure costs such as ethics committee fees at each site, will be waived.

Site governance will be facilitated by Cabrini, there will be in-kind donations of time from each site researchers, there is no budget for payment of research staff.

Patients and paramedics will not be paid for their time, nor will their participation achieve any extra medical treatment, such as shorter queues for treatment. This will be explicitly explained in the PICF.

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