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VICTORIAN
(DRAFT) AREA MENTAL HEALTH
TRIAGE SCALE PILOT PROJECT
EVALUATION

FINAL REPORT
November 24th 2008

THE UNIVERSITY OF
MELBOURNE
ACKNOWLEDGEMENTS

This evaluation was funded by the Victorian Department of Human Services (DHS), Mental Health and Drugs Division.

The project was conducted by Melbourne Consulting and Custom Programs, The University of Melbourne in collaboration with School of Nursing & Social Work.

Dr Natisha Sands and Dr Marie Gerdtz were the lead investigators.

We wish to acknowledge the contribution of the following people:

- The triage clinicians for assisting us to validate the evaluation instruments and conduct the clinical audit.
- The triage clinicians for participating in the evaluation at the pilot sites.
- LearnPRN for developing and delivering the training intervention.
- Dr Christine Migliorini for assisting with project management, data collection and analysis.
- Ms Marnie Collins (Statistical Consulting Centre, The University of Melbourne) for statistical consulting.
EXECUTIVE SUMMARY

Aims and Scope

The Victorian Area Mental Health Triage Scale (AMHTS) is a seven-tier rating scale for categorising urgency in public Area Mental Health Triage (AMHT) services.

The scale, which is currently in draft form, is intended for use at point of entry to the mental health system by triage clinicians. It defines time to face-to-face assessment from immediate to 14 days from initial triage contact. The AMHTS also includes categories where individuals may be referred to primary care or may be seeking information about their mental health condition and require no further response.

The overall aims of this evaluation were:

1. To determine the reliability and usability of the draft AMHTS.
2. To evaluate the effectiveness and usefulness of the scale guidelines and training.

Setting

Thirteen AMHT services located in metropolitan (n=7) and regional (n=6) Victoria took part in the evaluation. Of the participating AMHT services, six provided adult services, four provided child and adolescent services (CAMHS) and three aged persons mental health services (APMH).

Approach

The evaluation used mixed methods and was comprised of four phases.

Phase One was a focussed review of the published literature on standardized triage systems and AMHT.

Phase Two was a pre and post test evaluation of training sessions that were conducted by an independent training provider on the AMHTS and accompanying guideline.

Phase Three was a qualitative appraisal the content, process and outcomes of the AMHTS training sessions and the utility of the accompanying guidelines.

Phase Four was a retrospective audit of the responsiveness of the AMHTS in practice in two of the 13 sites that participated in this evaluation.
Results

Phase One: Mental health triage is the process of initial assessment through which clinicians determine a person’s need for mental health services and the urgency of the response required. Currently, Victoria’s area mental health services provide a 24 hour, seven day a week telephone triage function. Triage assessments also occur for unplanned presentations to community mental health clinics.

No information was identified in the published literature on the use of seven-tier triage scales in AMHT and no studies have been published on the validity and reliability of AMHTS. A number of commentators have identified the need to improve the consistency and quality of point of entry mental health assessment.

This review identified a number of national and internationally published research papers on emergency department (ED) triage. These studies support the view that five-tier triage scales are more valid and reliable for categorising urgency at point of entry to hospital EDs than three or four tier triage scales. The ED triage studies employed a variety of methods to establish validity and reliability, including: retrospective audit of case files, testing inter-rater reliability using text-based scenarios among multiple raters, and observations of practice. Since 2001 studies measuring agreement for the five-tier Australasian Triage Scale (ATS) have reported moderate to substantial levels of agreement. Notwithstanding these results, recent work carried out by the authors using the ATS noted significantly lower levels of agreement for people presenting to EDs with mental health conditions. The reasons for this finding are unclear, but are believed to be related to, lack of training in mental health assessment for ED nurses, difficulties associated with conducting a rapid mental health assessment in an ED waiting area and categorising behaviour in a three to five minute timeframe.

In the absence of published research on AMHTS, the literature on ED triage scales and the methods used to validate them have been utilised for this evaluation.

Phase Two: involved 82/102 (84.3%) triage clinicians from the 13 pilot sites. Of these, 61/102 (59.8%) completed the Time One (T1) survey and 60/102 (58.8%) the Time Two (T2) survey. Overall agreement for the 42 scenario items included in the survey at T1 was $\kappa=0.36$ and at T2 $\kappa=0.40$. This result indicates a fair level of agreement over chance, with a slight descriptive improvement in agreement at T2. It should be noted that there is no statistical method for comparing $\kappa$. Descriptively the evaluation found the highest levels of agreement in AMHTS category A, to be seen immediately, (T1 $\kappa=0.69$; T2 $\kappa=0.73$) and the lowest in AMHTS category C, to be seen in 2 to12 hours, (T1 $\kappa=0.18$ T2 $\kappa=0.17$). In respect to the level of knowledge participants demonstrated in understanding the AMHTS a single item that measured the theoretical understanding of urgency was included at both T1 and T2. Urgency is the central construct that underpins the AMHTS. Of those participants who completed this item 24.0% recorded a correct response at T1 and 17.9% at T2. In respect to participant perceptions of training, acceptable levels of satisfaction were recorded using a standardized quality of teaching survey. This is a five-
point Likert Scale: a score of 1 indicates the lowest level of satisfaction and a score of 5 the highest level of satisfaction. Overall the participants reported adequate levels of satisfaction with the quality of training ($M=4.00; SD=0.45$), and believed the education sessions were taught well ($M=4.12; SD=0.61$).

Phase Three: The e-learning suite was perceived by participants as a user friendly interface that was developed and maintained by the training provider to support the implementation of the AMHTS training. Observations of one training session showed that the construct of categorising urgency at triage was not clearly articulated. This was further complicated by participants not receiving the written guideline prior to or during training. The decision making model and “rules for triage” included in training related specifically to the ED context and were not considered helpful. There was a lack of peer reviewed literature integrated into the syllabus especially related to classifying urgency and risk in area mental health triage.

Responses to the written guidelines from triage clinicians were positive. Participants found that the guidelines were clear in communicating the background and rational for the scale. Participants identified the need for specific information around triage in special populations and lifespan triage. In addition, more information was requested about how to apply triage principals in complex cases, such as drug and alcohol co-morbidity. A key finding of this analysis was the need for greater clarity in the triage process: that is, clear articulation of the decision points at which an urgency category is assigned. Dissatisfaction with some of the AMHTS categories, in particular F and G, and with the time to face-to-face assessment intervals was expressed. It should be noted that these qualitative comments about the AMHTS categories related to those categories where the lower levels of agreement were found in the T1 and T2 surveys.

Phase Four: There were 503 referrals to Site A AMHS triage from mid-June to mid-July of these, 73/503 (14.5%) were CAMHS referrals, 244/503 (48.5%) were AMHS referrals, and 29/503 (0.57) were APHMS referrals. Of those triage referrals, 66/503 were assigned urgency category F and 89/503 were assigned urgency category G and were therefore excluded; this left 348/503 (69.2%) of triage referrals available for this analysis. However, due to incomplete documentation, only 181/348 (52%) of the remaining triage contact forms had enough data to determine responsiveness. Of these 136/348 (39.0%) definitely met the time to face-to-face assessment criteria, and a further 46/348 (13.22%) potentially met the assigned timeframes but, since only the date and not the time of day was recorded, matching the responsiveness to the urgency category could not be determined. In 45/348 (12.9%) of cases the responsiveness criteria were definitely not met. In a large proportion of the triage referrals 121/348 (34.77%) responsiveness was unknown.

There were 325 triage referrals made to Site B AMHS during August: 256 AMHS, and 69 APHMS. Of the 325 triage referrals sampled, 34/325 (10.5%) were assigned urgency category F and 104/325 were assigned urgency category G and therefore not relevant to the responsiveness analysis. This left 185/325 triage referrals remaining for the responsiveness analysis. Of those triage referrals, 55/185 (29.7%) definitely met the responsiveness criteria, 41/185 (22.16%) had some information that indicated responsiveness was
potentially met. In 3/185 (1.6%), responsiveness criteria were definitely not met and, 86/185 (46.6%) triage referrals did not have any information to indicate responsiveness.

**Limitations**
The evaluation was conducted using a convenience sample. This limitation was minimised by the use of quota sampling for the pilot sites based on service type (CAHMS adult, APMHS). All clinicians working at these sites were provided with an opportunity to participate in training and to complete T1 and T2 surveys.

The use of text-based scenarios in Phase Two is a further limitation. This approach does not include sensory cues that may influence urgency categorisation.

The use of retrospective audit to determine responsiveness and application of the AMHTS does not take into account the dynamic nature of triage decision making.

**Recommendations**
The following key recommendations are made.

1) Revise the AMHTS categories and time intervals.

   a) Collapse the urgency categories from a seven-tier scale to a five-tier scale. This would include collapsing AMHTS categories F and G, which would become administrative codes and sit outside the AMHTS. This approach would allow for tracking contacts and monitoring triage workload for these non-acute contacts.

   b) Make alterations to the urgency time intervals.

   The recommended time intervals for the revised scale are listed below.

   A  immediate,
   B  within 2 hours,
   C  within 8 hours,
   D  within 48 hours
   E  within 7 days.

   The additional option may be called “administrative code - for referral and/or advice”. This code would not include a time to face-to-face assessment objective.

   c) Conduct further reliability testing of the revised scale prior to implementation.

2) Revise the training content.

   a) Clarify the central construct of categorizing urgency.

   b) Include an evidence-base for the application of clinical decision making models and risk assessment processes in mental health triage.
c) Revise the e-learning program to include a greater number of practice scenarios and assessment tasks.

d) Develop interactive learning models, which facilitate the different context of mental triage presentations (telephone and face-to-face) and different service types (CAMHS, adult, APMHS). One possible way to achieve this would be to include the use of online simulations.

3) Enhance the written guidelines.

a) Include evidence-based criteria for categorizing urgency in special populations (age specific groups, vulnerable populations and drug and alcohol).

b) Include decision algorithms that clearly articulate the triage decision points for adult, CAHMS and APMHS presentations.
CONTEXT, AIMS AND SCOPE OF THIS EVALUATION

Background

Mental health triage is the process of initial assessment through which clinicians determine a person’s need for mental health or other services and the urgency of the response required. Currently, Victoria’s area mental health services provide a 24 hour, seven day a week telephone triage function. Triage assessments also occur for unplanned presentations to community mental health clinics.

The Department of Human Services (DHS) plans to introduce a standardized mental health triage scale and associated guidelines for all area mental health services (AMHS).

The purpose of this project was to ensure that decisions made at triage will be appropriate to the person’s level of clinical acuity and risk. The scale will also provide a structured approach to recording outcomes of AMHS triage assessments and a basis for state-wide monitoring.

In 2004–05, the Mental Health Branch provided funding for five triage redevelopment projects involving 11 area mental health services. As part of the projects, services were asked to develop a triage classification scale, or adapt an existing scale, and provide feedback to the Mental Health Branch on its usefulness in practice.

A number of different scales were trialled, and provide the basis for the early version of the draft mental health triage scale by the Mental Health Branch. This triage scale was based largely on the scales developed by the Eastern Health and the North West/Werribee Mercy triage redevelopment projects, and the scale currently used by the Southern Health psychiatric triage service—although elements of scales used by other AMHS were also incorporated.

Setting

Thirteen Area Mental Health Triage Services located in metropolitan (n=7) and regional (n=6) Victoria took part in the evaluation. Of the participating sites, six provided adult AMHT services, four provided CAMHS services and three APMH triage services. Table 1 shows the location and services provided by of the pilot sites.
Table 1. Location and services provided by of the pilot sites.

<table>
<thead>
<tr>
<th>Participating service</th>
<th>Main location</th>
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</thead>
<tbody>
<tr>
<td><strong>Adult area mental health services</strong></td>
<td></td>
</tr>
<tr>
<td>North West</td>
<td>Broadmeadows Health Service</td>
</tr>
<tr>
<td>Inner Urban East</td>
<td>St Vincent’s Hospital, Fitzroy</td>
</tr>
<tr>
<td>North East</td>
<td>The Austin Hospital, Heidelberg</td>
</tr>
<tr>
<td>Central East &amp; Outer East (Eastern Health)</td>
<td>Maroondah and Box Hill Hospitals</td>
</tr>
<tr>
<td>Loddon Campaspe/Southern Mallee</td>
<td>Bendigo Hospital</td>
</tr>
<tr>
<td>Northern Mallee</td>
<td>Mildura Base Hospital</td>
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<tr>
<td><strong>Child/adolescent area mental health services</strong></td>
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</tr>
<tr>
<td>North Western Metropolitan</td>
<td>Royal Children’s Hospital, Flemington</td>
</tr>
<tr>
<td>South East</td>
<td>Southern Health Psychiatric Triage Service, Dandenong</td>
</tr>
<tr>
<td>Loddon</td>
<td>Bendigo Hospital</td>
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<tr>
<td>Goulburn and Southern</td>
<td>Goulburn Valley Base Hospital</td>
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<tr>
<td><strong>Aged persons area mental health services</strong></td>
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<tr>
<td>Goulburn/North East Hume joint project</td>
<td>Goulburn Valley Base, Shepparton</td>
</tr>
<tr>
<td>Loddon Campaspe/Southern Mallee</td>
<td>Bendigo Hospital</td>
</tr>
<tr>
<td>Central &amp; Outer East</td>
<td>Peter James Centre, Burwood East</td>
</tr>
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</table>

**Aims**

The aim of this project was to evaluate the reliability and usability of the (draft) AMHTS and evaluate the effectiveness and usefulness of the associated resources and training.

**Evaluation design**

This evaluation used mixed methods was conducted in four phases.

Phase One: Involved a focused review of the literature on the use of standardized triage systems and AMHT scales.

Phase Two: Was an evaluation of the training intervention. Participants’ levels of knowledge and their satisfaction with training were measured. In addition, consistency of triage using the draft AMHTS was determined for a series of 42 text-based scenarios.

Phase Three: Involved analysis of feedback from training participants and pilot sites on the AMHTS and the written guidelines.
Phase Four: Was a retrospective audit of real occasions of triage to determine consistency of use for the AMHTS and measure responsiveness to the pre-determined time intervals.

**Protection of participants**

This evaluation was deemed a quality assurance activity by DHS.

A technical and ethical review of the evaluation protocol was undertaken by the School of Nursing & Social Work Human Research Advisory Group (SHEAG). Phases Two and Three of the project were deemed by SHEAG to be minimal risk and ethical approval was granted.

For Phase Four of the evaluation a full ethical approval was obtained from the appropriate institutional boards at site A and B.
PHASE ONE: LITERATURE REVIEW

The purpose of this literature review is to provide a background to the development and use of standardized triage scales and to consider the use of triage systems in Area Mental Health Services (AMHS) in Victoria, Australia.

Search strategy

The search strategy for the literature review sought to identify relevant published literature applicable to the use of triage scales in acute and mental health services. This process involved a manual web-search for any published grey literature relevant to the topic, as well as a detailed search of medical, nursing and psychiatric databases (Medline, PsychINFO, CINAHL, EMBASE, Ovid) for relevant peer reviewed journal articles. Key words used both singularly and in combination included ‘mental health triage’, ‘psychiatric triage’, ‘triage scales’, ‘emergency psychiatry’, ‘triage’, ‘mental health’, ‘crisis triage scales’, and ‘emergency department’.

Background

Definition of Area Mental Health Triage Services

Mental health triage is the first point of contact with mental health services for all potential consumers (or people seeking assistance on behalf of a person thought to have a mental illness).

Mental health triage services operate seven days a week, 24 hours a day across Victoria. These services provide assessment, support, and referral for people experiencing mental health problems.

Triage is a clinical function that aims to provide an initial mental health screening assessment to determine whether the person has a mental health related problem, the urgency of the presentation, and the most appropriate service response. Triage may also be used for assessment of current and former service users who make unplanned contact with the mental health service.

Where it is considered that Area Mental Health Services are not the most appropriate option for the person, he/she may be referred to another organisation, or given other advice. Where a mental health triage assessment indicates that specialist mental health services are required, a more comprehensive assessment is provided through the intake assessment service. The intake assessment may result in referral to another organisation and/or in the person being treated within the specialist mental health service. Thus, the triage role encompasses mental health assessment, categorising urgency, facilitating referral, and the provision of health information and/or advice.

Mental health triage services may be located within the emergency department of the general hospital, in the community mental health clinic, co-located at the psychiatric unit, or in a telephone call centre.
centralised triage services offer mental health assessment across the lifespan; this is most common in rural areas. In metropolitan areas there are discreet, specialist services for young people, adults, and the elderly, however, most of these specialist services (youth and aged) operate within business hours, and the after-hours service is provided by adult triage services.\(^7\)

The majority of triage assessments are initially conducted via the telephone, but most triage services in Victoria have the capacity to provide face-to-face assessment as well.\(^2\), \(^7\) In some rural and metropolitan mental health services, triage assessments are conducted entirely via the telephone. Telephone triage services provide access to mental health services for people spread across vast geographical regions, in particular for people living in regions with no access to other health care services.\(^5\), \(^6\)

**Triage systems in emergency medicine**

Triage systems are used at the point of entry to health services to provide a systemic way of classifying the urgency and service response requirements to clinical presentations.\(^8\), \(^9\) The use of triage scales aim to increase the accuracy and consistency of clinical decision-making, thus optimising the potential for appropriate, responsive, service provision.\(^8\), \(^9\) Triage is underpinned by the premise that a reduction in the time taken to access medical care will result in improved patient outcomes.\(^8\), \(^9\) Inaccurate and inappropriate mental health triage can place consumers at greater risk of harm from themselves or others, result in poorer health outcomes, and reduce the likelihood of early intervention, especially in lower acuity cases.\(^10\)

Triage systems are well established in emergency medicine in Australia.\(^8\), \(^9\), \(^11\), \(^12\), \(^13\), \(^14\) The literature reviewed for this project found that five-tier triage scales are valid and reliable in sorting patients based on clinical need to achieve optimal clinical outcomes.\(^7\), \(^8\), \(^9\), \(^10\), \(^11\) Additionally, triage systems are employed as a useful casemix measure, providing opportunities for analyses of a number of performance measures such as resource usage and operational efficiency.\(^7\)

Triage systems have been investigated extensively in emergency medicine\(^12\), \(^13\), \(^14\), and Australia has led the field in the development of Emergency Department (ED) mental health triage guidelines and tools.\(^15\), \(^16\) In 1998 Sutherland Hospital developed mental health triage guidelines for the Emergency Department that identified five dimensions of patient risk, and these guidelines were subsequently introduced into some South Australian Emergency Departments.\(^17\)

In a Tasmanian study, Smart, Pollard and Walpole\(^18\) acknowledged the lack of discreet guidelines for the assessment of mental health presentations to the ED, and introduced into the Royal Hobart hospital a 4-tier mental health triage rating scale to be used in conjunction with the Australasian Triage Scale (ATS). Happell *et al.*\(^19\), \(^20\) critiqued the Tasmanian tool as potentially useful, however lacking in formal testing for reliability and validity.

In 1998 the New South Wales (NSW) Health Department developed guidelines for the management of mental health presentations to the Emergency Department that included recommendations for triage guidelines to be
developed and implemented to improve the triage of people with mental illness. South Eastern Sydney Area Health Services (SESAHS) built on this recommendation and subsequently developed a 5-tier mental health triage scale for use in the emergency department in conjunction with the Australasian Triage Scale.\textsuperscript{21}

The SESAHS tool was further adapted by Broadbent, Jarmen, and Berk\textsuperscript{22} and introduced into an Emergency Department in South Western Victoria (Barwon Health). Broadbent et al\textsuperscript{23,24} demonstrated greater confidence and improved attitudes in triage nurses’ management of mental health presentations, leading to improved patient outcomes through the use of mental health triage scales. Broadbent et al’s adaptation of the SESAHS tool, renamed the Victorian Emergency Department Mental Health Triage Tool, was implemented across all Victorian Emergency departments in 2007 in a joint Department of Human Services Victoria and National Institute of Clinical Studies initiative.\textsuperscript{25,26}

\textit{Triage systems in AMHS}

There is very little peer-reviewed literature that specifically discusses AMHS triage systems. Studies from North America and Europe have tended to focus on triage performed by mental health professionals located in EDs,\textsuperscript{27,28} disaster mental health triage,\textsuperscript{29,30} rating scales pertaining to psychiatric emergencies,\textsuperscript{31} and scales used within community mental health services.\textsuperscript{32,33}

Benglesdorf’s\textsuperscript{33} \textit{Crisis Triage Rating Scale} is a 3-tier rating scale used to rapidly screen emergency mental health presentations to determine whether there is a need for hospital admission, or whether the patient can be treated in the community by outpatient crisis intervention services. This scale is used to assess the patient rapidly on the basis of three factors: ‘dangerousness’, ‘support system’, and ‘ability to co-operate’. The scale utilises numbered clinical descriptors (risk factors) that are summed to achieve a total score. Scores of 9 and under are usually indicative of the need for hospitalisation. Turner and Turner\textsuperscript{37} attempted to validate the reliability of this scale in predicting need for hospital admission in a sample of 500 emergency psychiatric patients. The authors suggest that the scale showed some reliability in predicting which patients may require hospitalisation; however the results were not conclusive.

While Benglesdorf’s\textsuperscript{33} scale may have specific application in determining need for hospitalisation in psychiatric emergencies, it does not provide guidelines for the triage of patients across the spectrum of clinical need, thus its application in AMHS is limited. Additionally, the scale uses outdated language to describe risk (i.e. dangerousness). Bengledorf’s\textsuperscript{33} scale has been adopted by NSW Health and embedded into the state-wide triage documentation suite.

\textit{Background to the development of the (draft) Victorian AMHTS}

Mental health triage services have been operational in area mental health in Victoria and across Australia since the early 1990’s,\textsuperscript{2,3,34} but to date there has been very little research that has investigated triage systems in this context.

Area mental health triage services were established individually across the regional sectors of Victoria, and this has resulted in considerable variation in
the way services have been operationalised, and inconsistencies in triage
performance.\textsuperscript{3,4,35} Victorian AMHS triage systems currently lack uniformity and
standardisation in clinical procedures for conducting risk assessment and
categorising urgency.\textsuperscript{4,35,36} Given the high levels of complexity and acuity seen
commonly in service users seeking assistance from public mental health
services,\textsuperscript{37} this lack of consistency is problematic in terms of effectively
managing risk and preventing harms associated with serious mental illness.

In 2004, Victorian Department of Human Services, Mental Health and Drugs
Division, found that more than half of area mental health services already have
a triage scale as part of their triage assessment/record forms but there were
four significant deficits noted: \textsuperscript{36}

1. there was little consistency in categories used to record triage outcomes
   or service responses associated with the various categories
2. most of the scales had very little information to assist or guide the
   clinician’s decision about what category to use
3. most of the scales were developed at a time when there was little
   guidance from government about the mental health triage function
4. the current inconsistency in triage outcomes record-keeping is the barrier
to the collection of state-wide information about the needs of people
presenting to mental health services and the demands on services.

Personal communications between the chief investigators and area mental
health services during the scale evaluation project indicate that services have
developed triage scales and various risk assessment tools used at point of entry
in an ad hoc manner, and independently from other services. It appears that
these tools were developed in the absence of formal guidelines in an attempt to
bring greater standardization to the triage process. The lack of reliability testing
of triage scales and risk assessment tools currently in use across the state is a
significant problem. The use of invalid triage and risk screening tools to perform
mental health assessment is problematic,\textsuperscript{38, 39} and places services, clinicians,
and service users at risk of medico-legal and other complications related to
misdiagnosis and inappropriate treatment.\textsuperscript{40}

Several authors have identified a need for a more standardized approach to
mental health triage in mental health services.\textsuperscript{2,4} Grigg et al.\textsuperscript{35} identifies that
formal risk assessment is performed inconsistently at triage, even when
structured risk screening is mandated by local mental health services policy. A
recent report by the Auditor General, entitled \textit{Mental Health Services for People in Crisis}\textsuperscript{36} indicated a need for improved and more consistent service delivery at
point of entry to Victorian public mental health services, and stated that triage
processes, such as categorising urgency, require clarification. The Department
of Human Services Victoria’s 2002 policy statement, entitled \textit{New Directions for
Victoria’s Mental Health Services: The Next Five Years}\textsuperscript{41}, supports this view,
and outlines the government’s commitment to improving entry-tier assessment
in AMHS across the state. The Department of Human Services Victoria’s
\textit{Program Circular} on mental health triage\textsuperscript{1} stresses the need for consistency in
triage, and underscores the importance of appropriate documentation,
reporting, and specialist training to improve triage function.

The Victorian Chief Psychiatrist, in consultation with the Mental Health Triage
Scale Advisory Committee, has been instrumental in the development of a
Area Mental Health Service Triage Scale and associated guidelines. The main purpose of this project was to develop an AMHS triage scale that aims to improve the consistency and accuracy of triage decision-making, thereby facilitating service responses appropriate to the clinical urgency of the presentation. The scale will also provide a structured approach to recording outcomes of AMHS triage assessments and a basis for state-wide monitoring.
PHASE TWO: QUANTITATIVE EVALUATION OF AMHTS AND TRAINING

Aim

To evaluate the effect of the training intervention immediately before and four weeks after training

Method

Development of survey instruments

The approach used to develop the survey instrument was based on previous work undertaken by Gerdtz et al. 8, 9 on consistency of triage in Australian EDs.

The instrument included a series of questions that measured participant knowledge and satisfaction with training.

Consistency of scale use was measured at Time 1 (T1: pre training) and Time 2 (T2: post training) using the same set of 42 text based scenarios.

The T1 instrument contained an additional 11 items (T1:11+42=53 items) and Time 2 contained an additional 16 items (T2: 16+42= 58 items).

To minimize the effect participant recall might have on consistency of scale use; the names of the subjects in the scenarios and the presentation order were changed at T2.

1. Knowledge and satisfaction items

The first component of the T1 survey contained 11 items including information about participant’s levels of experience, education and triage training.

A multiple choice question previously devised by Gerdtz et al. 8, 9 was used to assess participant’s understanding of the concept of urgency.

The first component of the T2 survey sought participant’s opinions about the quality of AHMTS, the training in the use of the AHMTS, the utility of the associated supporting resources, and the same multiple choice question that assessed understanding of the concept of urgency.

Participant responses to items related to the quality of teaching and learning were sought using a standard five-point Likert Scale, as described below.

1= strongly disagree
2= disagree
3= neither agree no disagree
4= agree
5= strongly agree
2. Scenario development

Initially 126 hypothetical triage scenarios were developed for inclusion in the survey. This number was chosen to take into account a rejection rate of approximately 30 percent, based on previous triage studies. The scenarios were based on real occasions of triage and presented as a triage note.

The scenario set covered the lifespan and were grouped according to existing service categories: CAHMS, adult and APMH services.

Each scenario was designed to incorporate a number of essential attributes: gender, age, a description of behaviour, mood and symptomatology, mode of referral and a brief history of the presenting problem.

The breakdown of the original scenario set according to service category was: 43 CAMHS, 44 AMHS, and 39 APMHS. For each of the service categories a reasonably even spread of scenarios by urgency rating was achieved. The subject of each scenario was distinguished by a name.

A panel comprising 14 volunteer mental health triage clinicians was used to validate the scenarios and determine reliability. A range of disciplinary backgrounds were represented in this group including: psychology, psychiatry, social work and psychiatric nursing. Table 2 shows the demographic characteristics of the raters.

Each rater received a packet that included 36 scenarios, a copy of the AMHTS and instructions of how to assess the scenarios. The method of distribution ensured that each scenario was reviewed by at least 4 raters, and a minimum of two raters whose speciality matched the service category represented in the scenario.

The raters judged the content validity (relevancy) of each scenario using a one to four point scale:

1 = not relevant,
2 = unable to assess relevance without item revision or item is in need of such revision that it would no longer be relevant,
3 = relevant but needs minor alteration
4 = very relevant.

The raters also categorized each scenario using the AMHTS.

Scenarios with relevancy scores of one or two (not relevant or unable to assess relevance without item revision) were immediately excluded from the scenario set.

Further scenarios were excluded based on the percentage of responses in the modal triage category (concordance) for each scenario until there was the minimal number of three scenarios, evenly distributed within each AMHTS urgency categories. Where levels of concordance were equal then the decision
of which scenario to retain was based on word count with the shortest scenario retained.

The final set was comprised of a total of 42 scenarios in which there were three scenarios in each age group and each AMHTS urgency category. This number was considered the minimum number needed to account for case specific effects of a particular scenario type or urgency category. 9

Agreement for the final scenario set was $\kappa=0.48$ which was a substantial improvement over chance compared to the original set of 103 scenarios and, based on Landis & Koch’s 44 suggested interpretation, represents moderate agreement.

The kappa statistics for each urgency category was: A $\kappa=.850$, B $\kappa=.598$, C $\kappa=.136$, D $\kappa=.422$, E $\kappa=.341$, F $\kappa=.479$ and G $\kappa=.594$. Table 3 shows agreement for both scenario sets by level of urgency.

Table 4 shows a further breakdown of the proportion of scenarios in the modal response category according to the scenario type. Table 5 displays the distribution of scenarios according to number of AMHTS categories within each scenario age grouping and Table 6 records the levels of agreement for scenarios sets by triage category.
Table 2. Demographics Expert Panel

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Gender</th>
<th>Years of Experience in MH</th>
<th>Specific expertise</th>
<th>Qualifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>MH Nursing</td>
<td>Female</td>
<td>15yrs</td>
<td>Aged</td>
<td>RN RPN Diploma</td>
</tr>
<tr>
<td>MH Nursing</td>
<td>Male</td>
<td>29yrs</td>
<td>Aged</td>
<td>RN RPN</td>
</tr>
<tr>
<td>MH Nursing</td>
<td>Male</td>
<td>30yrs</td>
<td>Aged</td>
<td>RN RPN PGDip</td>
</tr>
<tr>
<td>MH Nursing</td>
<td>Female</td>
<td>10years</td>
<td>CAMHS</td>
<td>RN RPN GradCert</td>
</tr>
<tr>
<td>Social Work</td>
<td>Female</td>
<td>13yrs</td>
<td>CAMHS</td>
<td>B Social Work</td>
</tr>
<tr>
<td>MH Nursing</td>
<td>Female</td>
<td>6yrs</td>
<td>CAMHS</td>
<td>RPN BN (Hons) PhD candidate</td>
</tr>
<tr>
<td>MH Nursing</td>
<td>Male</td>
<td>27yrs</td>
<td>Adult</td>
<td>RPN BN GDip Masters research candidate</td>
</tr>
<tr>
<td>MH Nursing</td>
<td>Female</td>
<td>25</td>
<td>Adult</td>
<td>RN RPN</td>
</tr>
<tr>
<td>Psychology</td>
<td>Male</td>
<td>6yrs</td>
<td>Adult</td>
<td>B App Sci, BA (hons), submitted D Psych dissertation</td>
</tr>
<tr>
<td>MH Nursing</td>
<td>Female</td>
<td>25yrs</td>
<td>Adult</td>
<td>RPN BN PGDip Masters candidate</td>
</tr>
<tr>
<td>MH Nursing</td>
<td>Male</td>
<td>16yrs</td>
<td>Aged</td>
<td>RN RPN PG Cert</td>
</tr>
<tr>
<td>MH Nursing</td>
<td>Female</td>
<td>25years</td>
<td>Adult</td>
<td>RPN BN Ba. Nursing</td>
</tr>
<tr>
<td>Psychiatrist</td>
<td>Male</td>
<td>15yrs</td>
<td>CAMHS</td>
<td>Bachelor of Medicine &amp; Bachelor of Surgery, Doctor of Medicine, Master of Medicine M Medicine (Psychiatry)</td>
</tr>
</tbody>
</table>

Table 3. Levels of agreement (κ) for scenario sets as determined by a panel of raters

<table>
<thead>
<tr>
<th>Set</th>
<th>Scenario type</th>
<th>CAMHS</th>
<th>AMHS</th>
<th>APMHS</th>
<th>Total set</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>m</td>
<td></td>
<td>37</td>
<td>33</td>
<td>33</td>
<td>103</td>
</tr>
<tr>
<td>κ b</td>
<td></td>
<td>0.290</td>
<td>0.301</td>
<td>0.295</td>
<td>0.304</td>
</tr>
<tr>
<td>2 c</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>m</td>
<td></td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>42</td>
</tr>
<tr>
<td>κ a</td>
<td></td>
<td>0.386</td>
<td>0.545</td>
<td>0.505</td>
<td>0.479</td>
</tr>
</tbody>
</table>

mc = total number of scenarios.

a Set 1: all 103 scenarios with content validity = 1.00, that is, endorsed by each expert rater [126-23, exclusions because of content validity <1.00 as per (Lynn, 1986)].

b κ = Kappa statistic. c Set 2: 42 scenarios with highest concordance across the 7 AMHTS categories (plus a little more selection criteria)
Table 4 Percentage in modal responses to total scenario set by scenario type, as ranked by panel of raters.

<table>
<thead>
<tr>
<th>Modal Response %</th>
<th>CAHMS</th>
<th>AMHS</th>
<th>APMHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>5</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>99-70%</td>
<td>12</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>69-50%</td>
<td>12</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>&lt;50%</td>
<td>8</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>37</td>
<td>33</td>
<td>33</td>
</tr>
</tbody>
</table>

$m = \text{total number of scenarios.}$

Table 5 Distribution of scenarios according to number of AMHTS categories within each scenario age grouping (panel of raters)

<table>
<thead>
<tr>
<th>Spread of Category</th>
<th>CAHMS scenarios</th>
<th>AMHS scenarios</th>
<th>APMHS scenarios</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>14</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>3</td>
<td>15</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>37</td>
<td>33</td>
<td>33</td>
</tr>
</tbody>
</table>

Table 6. Levels of agreement for scenarios sets by triage category

<table>
<thead>
<tr>
<th>Set $m$</th>
<th>Overall</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>$m=103$</td>
<td>0.304</td>
<td>0.744</td>
<td>0.292</td>
<td>0.047</td>
<td>0.229</td>
<td>0.142</td>
<td>0.199</td>
<td>0.336</td>
</tr>
<tr>
<td>$m=42$</td>
<td>0.479</td>
<td>0.850</td>
<td>0.598</td>
<td>0.136</td>
<td>0.422</td>
<td>0.341</td>
<td>0.301</td>
<td>0.479</td>
</tr>
</tbody>
</table>

$m = \text{total number of scenarios.}$
**Procedure**

The T1 and T2 surveys were available to participants over the internet.

A link for the survey and plain language statement was placed within the website of the education provider who was employed by DHS to conduct the AMHTS training.

The plain language statement and the surveys themselves were hosted on The University of Melbourne’s server.

Each participant of the AMHTS training was invited to complete the survey by the Area Mental Health Service’s team leader before and after the training.

Due to a variety of difficulties accessing the web-based survey, some surveys were also made available as paper-based surveys. These difficulties included the following issues:

- The education provider experienced difficulties password protecting the site
- As the education provider use Mozilla Firefox interface, this was at times incompatible with other browsers leaving some participant unable to access the survey
- AMHS staff did not have ready access to computers
- Some AMHS reported difficulties getting time away from work to complete the survey
- Site project officers shifted positions (roster rotations etc) and communication about the need to complete the pre-training survey prior to the training was compromised
- The decision by AMHS to send staff to training was make tat the last minute (day before) which left insufficient time/pre notification to complete the pre-training survey

**Analysis**

The electronic survey results were downloaded into SPSS (version 16.0 SPSS Inc, Chicago IL USA). Results that were provided by participants in the paper based surveys were manually were entered into the same program.

Descriptive analysis was performed including calculation of frequencies, means and standard deviations for demographic variables.

Concordance (percentage of responses in the modal category) and spread were determined.

The formula for calculating agreement using kappa was that provided by Fleiss et al.\(^4,5\) This formula was entered into Microsoft Office Excel (2003, Microsoft Corporation, Redmond WA USA) as per our previous studies.\(^8,9\)
Results

Demographics

Overall, 102 triage clinicians took part in the AMHTS training conducted by the education provider. Of those 102 clinicians, 86 also contributed to this evaluation project, resulting in a participation rate of 84.3% overall. Table 7 and 8 provide a demographic description of participants by continuous and categorical variables.

A number of participants contributed in one phase of the project only: T1 participant \( n = 61 \) and T2 participant \( n = 60 \). Thirty-six participants contributed to both T1 and T2 surveys. The phase of participation however, was not influenced by the participant’s age, \( F(2, 82) = 0.29, p = .75 \), gender \( \chi^2(2, N = 85) = 1.96, p = .38 \), years of working in the mental health field in general, \( F(2, 71) = 1.04, p = .36 \), years of working in mental health triage specifically \( F(2, 71) = 1.28, p = .29 \), or age specialty of their MHS employment site, i.e., CAMHS, AMHS or APMHS \( \chi^2(2, N = 68) = 2.15, p = .34 \). But geographic location of their MHS employment site was significantly different \( \chi^2(2, N = 75) = 7.61, p = .02 \). See Table 9.

Table 7. Demographic descriptors of the participants for continuous variables (\( n = 85 \))

<table>
<thead>
<tr>
<th></th>
<th>AGE (years)</th>
<th>MH EXPERIENCE (years)</th>
<th>TRIAGE EXPERIENCE (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>( M )</td>
<td>44.42</td>
<td>14.43</td>
<td>4.92</td>
</tr>
<tr>
<td>( SD )</td>
<td>10.07</td>
<td>10.05</td>
<td>3.87</td>
</tr>
<tr>
<td>Range</td>
<td>23-63</td>
<td>1-40</td>
<td>&lt;1-18</td>
</tr>
</tbody>
</table>
Table 8. Demographic descriptors of the participants by categorical variables \( (n = 85) \)

<table>
<thead>
<tr>
<th>Variable</th>
<th>( n )</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENDER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>34</td>
<td>40.0</td>
</tr>
<tr>
<td>Female</td>
<td>51</td>
<td>60.0</td>
</tr>
<tr>
<td>EDUCATION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital-based Training</td>
<td>12</td>
<td>14.1</td>
</tr>
<tr>
<td>Certificate/Diploma</td>
<td>4</td>
<td>4.7</td>
</tr>
<tr>
<td>Undergraduate Degree</td>
<td>15</td>
<td>17.6</td>
</tr>
<tr>
<td>Postgraduate</td>
<td>43</td>
<td>50.6</td>
</tr>
<tr>
<td>Unknown</td>
<td>11</td>
<td>12.9</td>
</tr>
<tr>
<td>DISCIPLINE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing</td>
<td>51</td>
<td>60.0</td>
</tr>
<tr>
<td>Occupational Therapy</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>Psychology</td>
<td>7</td>
<td>8.2</td>
</tr>
<tr>
<td>Social Work</td>
<td>15</td>
<td>17.6</td>
</tr>
<tr>
<td>Unknown</td>
<td>11</td>
<td>12.9</td>
</tr>
<tr>
<td>MHS LOCATION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metro</td>
<td>32</td>
<td>37.6</td>
</tr>
<tr>
<td>Rural</td>
<td>43</td>
<td>50.6</td>
</tr>
<tr>
<td>Unknown</td>
<td>10</td>
<td>11.8</td>
</tr>
<tr>
<td>MHS AGE SPECIALITY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAMHS</td>
<td>17</td>
<td>20.0</td>
</tr>
<tr>
<td>AMHS</td>
<td>26</td>
<td>30.6</td>
</tr>
<tr>
<td>APMHS</td>
<td>25</td>
<td>29.4</td>
</tr>
<tr>
<td>Unknown</td>
<td>17</td>
<td>20.0</td>
</tr>
<tr>
<td>Formal MH Triage Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>16</td>
<td>18.8</td>
</tr>
<tr>
<td>no</td>
<td>58</td>
<td>68.2</td>
</tr>
<tr>
<td>unknown</td>
<td>11</td>
<td>12.9</td>
</tr>
</tbody>
</table>

Table 9. Participation according to geographic location of AMHS \( (n = 75) \)

<table>
<thead>
<tr>
<th>Location</th>
<th>T1 only</th>
<th>T2 only</th>
<th>T1 and T2 participation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metro MHS</td>
<td>4</td>
<td>14</td>
<td>14</td>
<td>32</td>
</tr>
<tr>
<td>Rural MHS</td>
<td>15</td>
<td>8</td>
<td>20</td>
<td>43</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>22</td>
<td>34</td>
<td>75</td>
</tr>
</tbody>
</table>

NOTE. 10 participants did not provide enough information regarding their MHS employer location
Time 1 survey results

The T1 survey results provide the baseline for comparison with the time two post-training survey results. There was a moderate level of concordance across the 42 scenarios ($M = 58.79\%$ concordance per scenario). There was a wide spread of AMHTS category selection ($M = 4.9$, $SD = 1.49$). The spread of the AMHTS categories chosen by participants for each scenario provides one component of agreement in decision making of the participants. At T1, there was modest consensus in the judgement of urgency where 17 scenarios or approximately 40% of the scenario set was spread across four categories or less. (Table 10)

Table 10 Spread of categories assigned to each scenario at T1 ($m = 42$ scenarios)

<table>
<thead>
<tr>
<th>Spread of categories for each scenario</th>
<th>Number of scenarios</th>
<th>Proportion of the scenario set</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>4.76</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
<td>16.67</td>
</tr>
<tr>
<td>4</td>
<td>8</td>
<td>19.05</td>
</tr>
<tr>
<td>5</td>
<td>9</td>
<td>21.43</td>
</tr>
<tr>
<td>6</td>
<td>8</td>
<td>19.05</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
<td>19.05</td>
</tr>
</tbody>
</table>

A number of participants did not complete the surveys fully so Fleiss’ unequal raters’ kappa was calculated and therefore confidence intervals are unavailable. The overall AMHTS kappa was .36; Category A = 0.69, Category B = 0.34, Category C = 0.18, Category D = 0.24, Category E = 0.34, Category F = 0.37, Category G = 0.30. The mean number of raters = 60, $m$ items/scenarios = 42. Post-hoc visual exploration of the results found that the age-speciality of the participants made no impact on the urgency category allocated to each scenario. This was not determined statistically since there are no methods available to compare kappa statistics statistically however it can be seen that the differences between kappa statistics were small and not systematically different. (Table 11)
Figure 1 Concordance of modal response category for each T1 CAMHS scenario ($m = 14$ scenarios)

Figure 2 Concordance of modal response category for each T1 AMHS scenario ($m = 14$ scenarios)
The multiple-choice question that gauged the clinicians’ theoretical understanding of the term ‘urgency’ was included in the survey. Fourteen participants (24%) nominated the correct response of clinical features of the patient’s condition. The distribution of incorrect responses was complexity of the patient’s condition at a particular point in time ($n = 21$ or 36%), severity ($n = 22$ or 38%) and complexity ($n = 1$ or 2%).

**Post hoc exploration**

Participants were required to assign the AMHTS urgency category to 42 scenarios that involved subjects representing each of the three age groups – child & adolescents, adults, and aged persons. The mental health services that employed the clinicians also focused their services on those age groups. There was a potential confound that was introduced by requiring clinicians to rate scenarios that included subjects whose age group does not match the age group that the clinician normally triaged. There is not a statistical method to compare kappa statistics however a visual examination revealed no evidence of systematic patterning of kappa statistics. This suggests that the risk of confound is minimal.
Table 11 Post hoc exploration of responses for CAMHS subset

<table>
<thead>
<tr>
<th>KAPPA</th>
<th>CAMHS scenario subset rated by CAMHS Clinicians ((\bar{x} = 10) raters)</th>
<th>CAMHS scenario subset rated by NON-CAMHS Clinicians ((\bar{x} = 34) raters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>.77</td>
<td>.60</td>
</tr>
<tr>
<td>B</td>
<td>.22</td>
<td>.49</td>
</tr>
<tr>
<td>C</td>
<td>.24</td>
<td>.26</td>
</tr>
<tr>
<td>D</td>
<td>.22</td>
<td>.26</td>
</tr>
<tr>
<td>E</td>
<td>.50</td>
<td>.30</td>
</tr>
<tr>
<td>F</td>
<td>.39</td>
<td>.37</td>
</tr>
<tr>
<td>G</td>
<td>.24</td>
<td>.44</td>
</tr>
<tr>
<td>OVERALL</td>
<td>.39</td>
<td>.39</td>
</tr>
</tbody>
</table>

Table 12 Post hoc exploration of responses for AMHS subset

<table>
<thead>
<tr>
<th>KAPPA</th>
<th>AMHS scenario subset rated by AMHS Clinicians ((\bar{x} = 14) raters)</th>
<th>AMHS scenario subset rated by NON-AMHS Clinicians ((\bar{x} = 30) raters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>.61</td>
<td>.35</td>
</tr>
<tr>
<td>B</td>
<td>.20</td>
<td>.36</td>
</tr>
<tr>
<td>C</td>
<td>.15</td>
<td>.09</td>
</tr>
<tr>
<td>D</td>
<td>.33</td>
<td>.13</td>
</tr>
<tr>
<td>E</td>
<td>.39</td>
<td>.23</td>
</tr>
<tr>
<td>F</td>
<td>.53</td>
<td>.45</td>
</tr>
<tr>
<td>G</td>
<td>.26</td>
<td>.12</td>
</tr>
<tr>
<td>OVERALL</td>
<td>.37</td>
<td>.33</td>
</tr>
</tbody>
</table>

Table 13 Post hoc exploration of responses for APMHS subset

<table>
<thead>
<tr>
<th>KAPPA</th>
<th>APMHS scenario subset rated by APMHS Clinicians ((\bar{x} = 19.4) raters)</th>
<th>APMHS scenario subset rated by NON-APMHS Clinicians ((\bar{x} = 22.6) raters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>.77</td>
<td>.72</td>
</tr>
<tr>
<td>B</td>
<td>.31</td>
<td>.30</td>
</tr>
<tr>
<td>C</td>
<td>.24</td>
<td>.22</td>
</tr>
<tr>
<td>D</td>
<td>.17</td>
<td>.17</td>
</tr>
<tr>
<td>E</td>
<td>.37</td>
<td>.25</td>
</tr>
<tr>
<td>F</td>
<td>.25</td>
<td>.29</td>
</tr>
<tr>
<td>G</td>
<td>.39</td>
<td>.35</td>
</tr>
<tr>
<td>OVERALL</td>
<td>.37</td>
<td>.34</td>
</tr>
</tbody>
</table>

NOTE. No method available to statistically compare Kappa
**Time 2 survey results**

There was a modest improvement in concordance across the 42 scenarios ($M = 62.39\%$ agreement on assignment of the urgency category per scenario). Overall, there was a modest reduction in the spread of AMHTS categories assigned to each scenario ($M = 4.64$, $SD = 1.70$). Table 14 displays the spread of responses to the 42 scenario items across the seven AMHTS categories at T2.

Table 14 Spread of categories assigned to each scenario at T2 ($m = 42$ scenarios)

<table>
<thead>
<tr>
<th>Spread across AMHTS categories</th>
<th>Scenario n</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>2.38</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>11.90</td>
</tr>
<tr>
<td>3</td>
<td>8</td>
<td>19.05</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>4.76</td>
</tr>
<tr>
<td>5</td>
<td>9</td>
<td>21.45</td>
</tr>
<tr>
<td>6</td>
<td>12</td>
<td>28.57</td>
</tr>
<tr>
<td>7</td>
<td>5</td>
<td>11.90</td>
</tr>
</tbody>
</table>

The kappa statistic for the overall AMHTS at T2 was $\kappa = 0.40$ which represents a moderate improvement over chance in agreement of urgency across the scenarios ($M = 55.33$ raters, $n = 42$ scenarios). The kappa statistic for each of the AMHTS categories are Category A = 0.73, Category B = 0.39, Category C = 0.17, Category D = 0.25, Category E = 0.40, Category F = 0.40, Category G = 0.39. The highest level of agreement of urgency belonged to the scenarios given the AMHTS category A. The lowest level of agreement (or maximum uncertainty) belonged to the few scenarios given the AMHTS category C. The kappa statistic for Category C however, still represents a slight increase over chance in agreement in the category assignment.
Figure 4 Concordance of modal category within each T2 CAMHS scenario \((m = 14 \text{ scenarios})\)

![Graph showing concordance of modal category within each T2 CAMHS scenario]

Figure 5 Concordance of modal category within each T2 AMHS scenario \((m = 14 \text{ scenarios})\)

![Graph showing concordance of modal category within each T2 AMHS scenario]
Figure 6 Concordance of modal category within each T2 APMHS scenario ($m = 14$ scenarios)

AT T2, ten participants (17.9%) nominated the correct response for the multiple-choice definition of the ‘urgency’ question. This represents an increase in number of incorrect responses. Arguably, this could reflect some the differing cohorts who participated in T1 and T2 however there was also an increase (albeit one only) in incorrect responses within those participants who participated in both T1 and T2. This suggests that the training may not have improved the clinicians’ knowledge of a basic component necessary for the effectual use of the AMHTS.
Figure 7 Comparisons of agreement at T1 and T2

Table 15. Post-hoc exploration of T2 responses CAMHS scenario sub set

<table>
<thead>
<tr>
<th>AMHTS category</th>
<th>CAMHS scenario subset rated by CAMHS Clinicians ((\bar{x} = 13) raters) Kappa</th>
<th>CAMHS scenario subset rated by NON-CAMHS Clinicians ((\bar{x} = 33) raters) Kappa</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>.55</td>
<td>.83</td>
</tr>
<tr>
<td>B</td>
<td>.24</td>
<td>.45</td>
</tr>
<tr>
<td>C</td>
<td>.19</td>
<td>.19</td>
</tr>
<tr>
<td>D</td>
<td>.45</td>
<td>.21</td>
</tr>
<tr>
<td>E</td>
<td>.62</td>
<td>.41</td>
</tr>
<tr>
<td>F</td>
<td>.48</td>
<td>.42</td>
</tr>
<tr>
<td>G</td>
<td>.49</td>
<td>.43</td>
</tr>
<tr>
<td>OVERALL Scale</td>
<td>.45</td>
<td>.44</td>
</tr>
</tbody>
</table>

\(M\) spread of categories assigned to each scenario

3.43

4.14
Table 16 Post-hoc exploration of T2 responses AMHTS scenario sub set

<table>
<thead>
<tr>
<th>AMHTS category</th>
<th>AMHS scenario subset rated by AMHS Clinicians ((\bar{x} = 18) raters) Kappa</th>
<th>AMHS scenario subset rated by NON-AMHS Clinicians ((\bar{x} = 30) raters) Kappa</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>.77</td>
<td>.66</td>
</tr>
<tr>
<td>B</td>
<td>.51</td>
<td>.36</td>
</tr>
<tr>
<td>C</td>
<td>.13</td>
<td>.15</td>
</tr>
<tr>
<td>D</td>
<td>.21</td>
<td>.25</td>
</tr>
<tr>
<td>E</td>
<td>.28</td>
<td>.24</td>
</tr>
<tr>
<td>F</td>
<td>.40</td>
<td>.38</td>
</tr>
<tr>
<td>G</td>
<td>.18</td>
<td>.20</td>
</tr>
<tr>
<td>OVERALL Scale</td>
<td>.40</td>
<td>.35</td>
</tr>
<tr>
<td>M spread of categories assigned to each scenario</td>
<td>3.57</td>
<td>3.64</td>
</tr>
</tbody>
</table>

Table 17 Post-hoc exploration of T2 responses APMHS scenario sub set

<table>
<thead>
<tr>
<th>AMHTS category</th>
<th>APMHS scenario subset rated by APMHS Clinicians ((\bar{x} = 16) raters) Kappa</th>
<th>APMHS scenario subset rated by NON-APMHS Clinicians ((\bar{x} = 31) raters) Kappa</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>.66</td>
<td>.40</td>
</tr>
<tr>
<td>B</td>
<td>.36</td>
<td>.73</td>
</tr>
<tr>
<td>C</td>
<td>.12</td>
<td>.28</td>
</tr>
<tr>
<td>D</td>
<td>.22</td>
<td>.16</td>
</tr>
<tr>
<td>E</td>
<td>.31</td>
<td>.23</td>
</tr>
<tr>
<td>F</td>
<td>.35</td>
<td>.48</td>
</tr>
<tr>
<td>G</td>
<td>.30</td>
<td>.31</td>
</tr>
<tr>
<td>OVERALL</td>
<td>.35</td>
<td>.54</td>
</tr>
<tr>
<td>M spread of categories assigned to each scenario</td>
<td>3.76</td>
<td>4.43</td>
</tr>
</tbody>
</table>

NOTE. No method available to statistically compare Kappa statistics

Wilcoxon Signed Ranks Test was used on matched scenario pairs to look for any significant changes in the urgency categorisation made by clinicians who contributed to both T1 and T2 surveys. P values of <.10 was deemed statistical significant since this is a pilot study and there were only 36 participants who completed both T1 and T2 surveys. There were no categories of the AMHTS assigned at pre training that were more likely to be changed post training. The test revealed significant changes of category assignment was associated with 14 scenario pairs. There were no systematic differences in urgency categorisation according to the age speciality of the clinician (not shown) and/or the age group of the scenario subject, for example, CAMHS clinicians were not
more likely to change their assignment of urgency of CAMHS subject scenarios or APMHS subject scenarios and so on. There were no systematic differences according to the starting and finishing point in the AMHTS, for example, scenarios assigned category C at T1 were not more likely to have their assigned urgency category changed compared to any other category. There were no categories of the AMHTS assigned at T1 that were more likely to be changed T2. Table 18. These results concur with the kappa statistic comparisons above.
Table 18

<table>
<thead>
<tr>
<th>Scenario Pair</th>
<th>$P$ value</th>
<th>Tied n</th>
<th>Tied n</th>
<th>Reduced urgency</th>
<th>Increased urgency</th>
<th>Modal $n$ category change</th>
<th>Scenario subject age group</th>
<th>Direction of change in AMHTS $^a$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joel/Yani</td>
<td>.004</td>
<td>16</td>
<td>17</td>
<td>✓</td>
<td></td>
<td>1</td>
<td>AMHS</td>
<td>Mid-end</td>
</tr>
<tr>
<td>Bailey/Jonah</td>
<td>.020</td>
<td>24</td>
<td>9</td>
<td>✓</td>
<td></td>
<td>1</td>
<td>CAMHS</td>
<td>End-end</td>
</tr>
<tr>
<td>Hannah/River</td>
<td>.039</td>
<td>25</td>
<td>5</td>
<td>✓</td>
<td>✓</td>
<td>1</td>
<td>CAMHS</td>
<td>Start-start</td>
</tr>
<tr>
<td>Isabella/Alana</td>
<td>.018</td>
<td>6</td>
<td>27</td>
<td>✓</td>
<td></td>
<td>1</td>
<td>CAMHS</td>
<td>Mid-mid</td>
</tr>
<tr>
<td>Michael/Harvey</td>
<td>.026</td>
<td>20</td>
<td>13</td>
<td>✓</td>
<td></td>
<td>1</td>
<td>APMHS</td>
<td>End-end</td>
</tr>
<tr>
<td>Oliver/Rex</td>
<td>.020</td>
<td>10</td>
<td>23</td>
<td>✓</td>
<td>✓</td>
<td>2</td>
<td>CAMHS</td>
<td>Mid-mid</td>
</tr>
<tr>
<td>Ruby/Edna</td>
<td>.052</td>
<td>13</td>
<td>20</td>
<td>✓</td>
<td></td>
<td>1</td>
<td>AGED</td>
<td>Mid-start</td>
</tr>
<tr>
<td>Aiden/Brendon</td>
<td>.083</td>
<td>18</td>
<td>12</td>
<td>✓</td>
<td></td>
<td>1</td>
<td>ADULT</td>
<td>End-end</td>
</tr>
<tr>
<td>Joy/Vivien</td>
<td>.066</td>
<td>25</td>
<td>4</td>
<td>✓</td>
<td></td>
<td>5</td>
<td>AGED</td>
<td>End-start</td>
</tr>
<tr>
<td>Harrison/Jude</td>
<td>.083</td>
<td>21</td>
<td>12</td>
<td>✓</td>
<td></td>
<td>1</td>
<td>CAMHS</td>
<td>End-end</td>
</tr>
<tr>
<td>Christian/Allistair</td>
<td>.084</td>
<td>24</td>
<td>6</td>
<td>✓</td>
<td></td>
<td>1</td>
<td>ADULT</td>
<td>Start-start</td>
</tr>
<tr>
<td>Charlie/Giovanni</td>
<td>.052</td>
<td>21</td>
<td>14</td>
<td>✓</td>
<td></td>
<td>3</td>
<td>ADULT</td>
<td>End-mid</td>
</tr>
<tr>
<td>Tony/Trevor</td>
<td>.090</td>
<td>18</td>
<td>17</td>
<td>✓</td>
<td></td>
<td>1</td>
<td>AGED</td>
<td>End-end</td>
</tr>
<tr>
<td>Amelia/Amber</td>
<td>.066</td>
<td>9</td>
<td>25</td>
<td>✓</td>
<td></td>
<td>1</td>
<td>CAMHS</td>
<td>Mid-mid</td>
</tr>
</tbody>
</table>

Note.

$^a$ AMHTS category A and B = start
$^b$ AMHTS category C, D and E = mid
$^c$ AMHTS category F and G = end
Table 19 Change in theoretical perception of the ‘urgency’

<table>
<thead>
<tr>
<th>Urgency definitions</th>
<th>T1</th>
<th>T2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complexity of patient’s condition at a particular time</td>
<td>22 (37.9%)</td>
<td>27 (48.2%)</td>
</tr>
<tr>
<td>Clinical features of a patient’s condition</td>
<td>13 (22.4%)</td>
<td>10 (17.9%)</td>
</tr>
<tr>
<td>Severity</td>
<td>22 (37.9%)</td>
<td>18 (21.2%)</td>
</tr>
<tr>
<td>Total</td>
<td>n = 58</td>
<td>n = 56</td>
</tr>
</tbody>
</table>

NOTE. A reasonable proportion but not all of the respondents participated at T1 and T2 therefore the responses are not totally independent.

*Satisfaction with the quality of teaching provided in training session*

Overall the participants reported satisfaction with the quality of training ($M=4.00; SD=0.451$) and believed the education session was taught well ($M=4.12; SD =0.613$).

Satisfaction scores ≤ 3 included items that measured the of electronic resources (see Table 19 items 7-8). Questions regarding the material supporting the AMHTS and guidelines also had lower satisfaction scores (see items 9-10).

Also items that elicited responses about participants expectations of training and feedback did not achieve scores of 4.00 (see items 1 and 3). Table 19 Shows participant responses to questions about training.

Table 20. Responses to training evaluation questions

<table>
<thead>
<tr>
<th>Abbreviated item</th>
<th>M</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Clear idea of what was expected</td>
<td>3.95</td>
<td>.565</td>
<td>3</td>
<td>5</td>
<td>60</td>
</tr>
<tr>
<td>2. Training was taught well</td>
<td>4.12</td>
<td>.613</td>
<td>3</td>
<td>5</td>
<td>60</td>
</tr>
<tr>
<td>3. Received helpful feedback</td>
<td>3.67</td>
<td>.705</td>
<td>2</td>
<td>5</td>
<td>60</td>
</tr>
<tr>
<td>4. Training made clear ‘urgency’</td>
<td>3.90</td>
<td>.706</td>
<td>2</td>
<td>5</td>
<td>60</td>
</tr>
<tr>
<td>5. Clear how will use AMHTS within clinical practice</td>
<td>4.08</td>
<td>.530</td>
<td>3</td>
<td>5</td>
<td>60</td>
</tr>
<tr>
<td>6. Confident in use of AMHTS within clinical practice</td>
<td>4.07</td>
<td>.578</td>
<td>3</td>
<td>5</td>
<td>60</td>
</tr>
<tr>
<td>7. Effective tuition in use of computer resources</td>
<td>3.47</td>
<td>.754</td>
<td>1</td>
<td>5</td>
<td>58</td>
</tr>
<tr>
<td>8. Web-based material helpful</td>
<td>3.41</td>
<td>.622</td>
<td>2</td>
<td>5</td>
<td>58</td>
</tr>
<tr>
<td>9. Printed guidelines readily available</td>
<td>3.67</td>
<td>.735</td>
<td>2</td>
<td>5</td>
<td>58</td>
</tr>
<tr>
<td>10. Printed guidelines helpful</td>
<td>3.81</td>
<td>.576</td>
<td>3</td>
<td>5</td>
<td>58</td>
</tr>
<tr>
<td>11. Overall satisfaction with training</td>
<td>4.00</td>
<td>.451</td>
<td>3</td>
<td>5</td>
<td>60</td>
</tr>
</tbody>
</table>

Note: Not all Time two participants completed each question. Also, as a guide $M \geq 4$ represents high satisfactory, $M = 3 – 4$ represents moderate satisfaction but could be improved, and $M \leq 3$ represents low satisfaction requiring significant improvement.
PHASE THREE: QUALITATIVE EVALUATION OF THE AMHTS TRAINING AND GUIDELINES

Aim

The aim of this phase of the evaluation was to explore participants’ perceptions of training, the AMHTS and guidelines.

A qualitative approach was taken to generate findings that contribute to the interpretation of results attained from the quantitative components of the project, and to provide greater depth of understanding to issues pertinent to the uptake of the AMHTS in clinical practice.

The following section of the report presents discussion on:

1. Qualitative evaluation of observations made of the LearnPRN face-to-face training program that was developed to support the implementation of the AMHTS within the Pilot Sites

2. Qualitative evaluation of the e-Learning suite (online training package) developed by LearnPRN to support the implementation of the AMHTS within the Pilot Sites

3. Qualitative evaluation of participant feedback on the Department of Human Services written guidelines that accompany the AMHTS

4. Qualitative evaluation of the written comments on the AMHTS provided by participants in the Time 1 and Time 2 survey (Pre and Post Test Training)

Method

Content analysis was employed in the evaluation of qualitative data derived from the four sources described above. Content analysis provides a systematic way of determining the frequency, order or concentration of words or phrases as they appear in text, providing a meaningful organization of the core content present in the data.

Within this qualitative framework, procedures of inductive category development were employed, which were oriented to a reductive procedure of text processing, in which the emphasis was on developing categories that accurately reflect the core content of the data. The intention here was not to interpret this data (e.g. thematic analysis), but rather to systematically collate and concisely present these findings. The units of analysis in this approach included frequently used terms and comments that participants used to provide feedback about the training, the scale, and the written guidelines accompanying the scale. Qualitative data were organized into specific units or categories, and inter-rater reliability was established through member checking (two investigators checking and confirming content).
1. LearnPRN face-to-face training program

As part of the evaluation of the training provided by LearnPRN to support the piloting of the AMHTS, Dr Natisha Sands, attended the LearnPRN one-day training program conducted onsite at Bendigo Health on 27/5/08.

The purpose of this site visit was to make qualitative observations of the training, which may assist in interpreting the quantitative analysis of pre and post training data. Additionally, the comments and feedback provided by participants involved in piloting the scale may be useful to consider in future planning for the implementation of the scale. Extensive field notes were taken throughout the training which were subject to content analysis, and summarised for inclusion in this report.

1.1 Description of the training

A one day face-to-face workshop was provided for triage clinicians within the participating pilot sites. The workshop was attended by 30 clinicians; predominantly from Bendigo Health. Two senior clinicians from North Western Mental Health and one senior clinician from Psychiatric Consultation Liaison, Royal Women’s Hospital also attended the training.

Note: The DHS written guidelines for use of the AMHTS were not circulated to workshop participants (or the pilot sites) prior to commencement of the training, and were not included as part of the workshop training materials.

At the commencement of the training the facilitator gave a brief overview of the aims of the training and the workshop content, and provided a printed handout of the workshop presentation. A background overview to the development of the AMHTS was provided.

1.2 Defining triage in AMHS

Following the introduction and overview to the workshop, the facilitator provided a brief definition of triage derived from the French term ‘trier’, meaning to sort or classify. The facilitator then led a “brainstorming session” where participants were encouraged to define triage in AMHS. The following section uses verbatim quotes to summarise comments made by participants in relation to defining triage:

- Assessing risk
- Understanding key concerns
- Clarifying mental health issues
- Determining mental health responses
- Prioritising resources
- Crisis intervention
- Gathering information
- Deescalating distress
- Crisis counselling
This discussion was followed up by the facilitator providing the definition of triage as outlined in the DHS AMHTS written guidelines. The facilitator made clear distinctions between ‘intake’ and triage function.

1.3 Defining urgency

The definition of ‘urgency’ provided by the facilitator was unclear. In particular, the definition provided did not clearly articulate the concept of categorising urgency in AMHS triage, nor differentiate it from other related concepts such as acuity or complexity.

The ‘formula’ for classifying urgency provided by the presenter was “risk – plus- need- plus potential for further deterioration = urgency” (pg. 7 Workshop Handout). There was some confusion evident in participants’ understandings of the process of classifying urgency, which the facilitator attempted to correct. The focus of this definition of urgency was on identifying ‘need’, as in ‘needs for service’. No mention was made of the optimal timeframe in which patients should be seen (i.e. time to treatment objectives, or time to face to face assessment).

The main strength of the group discussion on defining urgency was the emphasis the facilitator placed on underpinning triage categorisation of urgency on assessment of the clinical presentation of the patient, as opposed to the clinician’s perceived availability of resources.

The facilitator highlighted the recent shift in emphasis at point of entry to AMHS from the ‘gate-keeping role’ to one of promoting access and inclusive service delivery. Additionally, a useful discussion ensued regarding the importance of assessing for co-morbidities, drug and alcohol problems, social supports, and functional status.

1.4 Clinical application of the AMHS triage scale

This component of the training focussed on providing information about the clinical application of the AMHTS. The facilitator commenced this session by describing “what the scale is and what it is not” (pg. 8 Workshop Handout). The facilitator stated that the scale is not “prescriptive”, and qualified this by comparing the utilisation of the AMHS triage scale to approaches used in call centre triage (e.g. Nurse on Call), adding that the scale does not rely on algorithms or rigid protocols, but rather relies on clinicians individual judgement on a case by case basis. This information was well received by participants; however, some confusion was evident in understandings of the application of the scale in practice.

The facilitator then commenced a discussion on the application of the individual components of the scale. The components (columns) of the scale were discussed, and participant feedback was sought. Note: The facilitator did not include column 3 (Typical Presentations) in the presentation or discussion, no explanation was given for this omission. Additionally, the facilitator stated that the scale “can be adapted to services”, and no further qualifying information was given.
Participant feedback on the clinical application of the scale is summarised below, including verbatim quotes where possible:

- A significant proportion of the group (n=11) were dissatisfied with the terminology used in column 2 (Response type/time to face-to-face assessment). In particular, the term ‘crisis’ was identified by the group as problematic. Several participants noted that the term ‘crisis’ is inconsistent with terminology used elsewhere in the scale (i.e. urgent), and has potential for misinterpretation due to its subjectivity.

- CAMH clinicians noted that the term ‘crisis mental health response’ typically involves a response within a 7 days within CAMH, which is inconsistent with the time frame (to face-to-face assessment) outlined in the scale.

- Category A and B are “straightforward” – i.e. classifying urgency in emergencies and acute crises was not perceived as difficult. Conversely, participants unanimously stated that triage in the “lower end of the scale is more difficult”

- The majority of participants expressed concerns about the feasibility of the service response (column 4) for category C (i.e. “CATT, continuing care or equivalent face-to-face assessment within 12 HOURS AND CATT, continuing care or equivalent telephone follow-up within ONE HOUR of triage contact”). The participants were confused as to whether both responses were required at all times. There were particular concerns expressed about the medico-legal ramifications of not providing telephone follow-up within one hour, particularly as this response is prescribed /documented in the scale. Clinicians noted that in many instances triage is performed by one staff member only, who may be involved with another call thus unable to meet the one hour call back deadline.

- Several participants (n=6) commented that Category E (within 14 days) was too long for an AMHS response, and stated that consumers who were “safe/well enough” to wait 14 days to be seen/assessed may not require an acute public mental health service response. Several clinicians (n=4) commented that a “within 7 days” category should replace the within 14 days time-frame (category E).

- Two participants raised concern about the action statements in the scale, commenting that in many cases it is not appropriate to “automatically refer all callers to mental health triage”

- Rural clinicians stated that Category B (within two hours) response times were often very difficult to achieve due to distances /travel times and resources

- Several participants (n=3) observed that “there is no difference between Category F and G, they are the same thing”. Additionally, clinicians stated that they may avoid assigning an urgency disposition altogether by choosing Category G on the basis of ‘more information required’.
• A number of participants (n=5) expressed confusion about Category G (advice/information only), stating that it is unclear if an ‘information only’ response constitutes an actual triage. Further to this, several clinicians queried the role of giving general information at triage, stating it was “too subjective” and “not our role”

• Several participants (n=3) had concerns about the statement “Keeping caller on line until emergency services arrive” (column 5, Actions to be considered). Clinicians noted that triage telephone systems frequently have only one input line, thus keeping the caller on the line would effectively “block” the triage service

• The AMHTS provides “greater structure for assessment”

• AMHTS provides a “baseline to work from”

• AMHTS provides greater “continuity” for service responses

1.5 Decision-making

A decision-making model derived from Crouch (2003) was put forward by the facilitator as an exemplar for of triage decision-making (the full reference for Crouch was not supplied to participants). Some discussion ensued on how to apply this model in conjunction with the AMHTS. A number of participants made the point that the model seemed complex, and added that time-pressured environment of triage often impacts on decision-making processes. Crouch’s article refers to emergency department telephone triage and may not be the most suitable decision-making model for AMHS triage.

The facilitator also put forward nine “Golden Rules of Triage”. The source of these ‘rules’ was an outdated publication (Turner, 1981), and no indication was given as to the evidence base from which they were derived. Of particular concern was rule number 7, which states “All psychoneurotic patients ultimately die of organic diseases”. This ‘rule’ uses outdated terminology and conveys an inappropriate, unclear. It may have been more appropriate to include the ‘triage principles’ of access, responsiveness, consistency and accountability (as outlined in the written DHS guidelines) in this section of the training.

Legal considerations in relation to decision-making were also covered in this session. Some useful discussion on documentation of risk occurred, and participants were given the opportunity to ask questions on the topic. It was clear that the majority of participants were concerned about their legal position in relation to the AMHTS. Common issues raised by participants included:

• Legal ramifications of not meeting the time to face-to-face assessment requirements (due to high work load and issues associated with travel times in rural locations)

• Legal issues associated with the AMHS not being resourced enough (e.g. no CATTs available) to meet the timeframes assigned at triage.
• Individual liability associated with making an incorrect determination of risk (assigning the “wrong category”).

• Medico-legal issues associated with the inherent inaccuracies of conducting Mental Status Examination via the telephone (no visual or other empirical cues)

1.7 Application of the scale using (hypothetical) scenarios

The final component of the training involved participants dividing into groups and utilising the scale on hypothetical scenarios. The main observation made of this component of the training was the level of disagreement within the groups on the application of the scale to the scenarios. The facilitator was able to clarify many of the points raised; however, there was a considerable amount of confusion evident within the group, particularly in the triage of children and young people with complex needs.

1.8 General observations of face-to-face teaching methods

• The facilitator was able to engage the participants in the training program.

• The facilitator was knowledgeable about the topic.

• The Workshop Handout contained minimal information.

• The DHS written instructions accompanying the AMHTS were not distributed to participants.

• The model for triage decision-making presented to participants may not be appropriate for AMHS triage.

• The “Golden rules for triage” presented were outdated and may not be appropriate for AMHS triage.

• The workshop content utilised metaphors that were subjective in nature with potential to be misinterpreted.

2. LearnPRN e-learning suite

Qualitative analysis of the LearnPRN online AMHTS training program was undertaken by the investigators as part of the overall evaluation of the training developed to support the piloting of the scale.

The following standard measures for evaluating educational curricular were employed in this evaluation:

• Relevance (to the core content of the AMHTS)

• Clarity (of content e.g. key terms, definitions, expression).
• Utility (time taken to read and complete assessment items, functionality of the e-learning interface).

• Learning resources (access to/availability of resources to support learning).

2.1 Relevance

Overall, the online training content was assessed as being relevant to the core content of the AMHTS. There are four learning modules within the e-learning program, comprising a total of 15 questions. The response options provided for these questions are a combination of true/false and multiple choice response options. The four modules include:

1. Introduction and background
2. Apply the triage scale
3. Decision-making factors
4. Program completion

The introduction and background section includes 15 pages of information on the background and aims of triage, as described in DHS circulars and written guidelines for the scale. This information is highly relevant to understanding the purpose and clinical application of the scale. This information is presented to users prior to completing the assessment questions within the learning modules.

The main weakness of the e-learning program is its lack of depth in terms of assessment questions. Module 2 would have benefited significantly by the inclusion of a number clinical scenarios with which to ‘practice’ the application of the scale. In addition, there was some repetition of themes (e.g. clinician experience) and some illogical sequencing of questions in Module 2.

2.2 Clarity

The curricular content was presented in a clear, easily understood format. Key terms were defined, and relevant contextual information was supplied to facilitate uptake of knowledge.

2.3 Utility

The e-learning suite is a ‘user friendly’ educational platform that is easily accessible to both novice and expert computer users. The directions for using the program are clear, and the system functions smoothly.

2.4 Learning resources

The LearnPRN website provides a brief list of references and further reading options. Hyperlinks to some of the relevant peer reviewed articles, or PDF versions for download from the site would have improved this section of the program considerably. Additionally, it would be appropriate to have a PDF version of the DHS written guidelines to the scale available for download from this section of the website.
2.5 Summary and recommendations

The LearnPRN training package includes a face-to-face training program and an online learning package that has potential to support the implementation of the AMHTS. Modifications to improve this package may include improving the evidence base of the face-to-face training package by including relevant findings from the peer reviewed literature, clarifying the definitions and examples used to define clinical urgency, and disseminating the DHS written guidelines to training participants. The e-learning suite could be enhanced by increasing the number of assessment questions, including practice scenarios to support both the decision-making and the application of the scale Modules, and providing hyperlinks and PDFs to relevant literature.

3. Participant feedback on the written guidelines that accompany the AMHTS

The DHS written guidelines for the AMHTS were not disseminated to training participants by LearnPRN and were not available on the LearnPRN website. The University of Melbourne investigators subsequently circulated the guidelines for comment (feedback) via email to the AMHS participating in the pilot, and LearnPRN.

A summary of the evaluation of this feedback is provided below. This information is presented under the relevant subheadings within the written guidelines to which the feedback specifically refers. Recommendations for improving the written guidelines (based on participant are also included.

3.1 Context for the triage scale

Feedback from mental health triage clinicians involved in the pilot indicate that there is a perception among other mental health clinicians working in CATT and Continuing Care Teams that the application of the triage category is open to negotiation with other clinicians based on service protocols and available resources. The context and appropriate use of the AMHTS may require further clarification in the guidelines.

Several CAMHS clinicians indicated that in situations where they are awaiting school reports or other health assessments, they often take up to two weeks before deciding that the child/adolescent will be accepted for service and allocating a triage category – thus the category is not routinely assigned at the actual time of triage. Similarly, APMHS clinicians indicated that they may wait for the results of organic screening before determining if someone is “accepted for service”. This feedback indicates that there is confusion amongst CAMHS and APMHS clinicians as to whether the application of a triage category should be ‘held over’ for this period of time or allocated a category “G”. Clinicians noted that there is no clarification in the guidelines regarding how to manage these situations.

Clinicians acknowledge that the DHS definition of triage and intake within the guidelines (page 4) is helpful, but have suggested that more information
(direction) is needed to further clarify when an episode of triage is completed, and when intake begins, that is, at what point in the process the triage category is assigned. This issue was particularly pertinent to clinicians working in blended team settings, where triage and intake roles may overlap.

3.2 The implementation process

Although the guidelines identify that the AMHTS will be incorporated in the Mental Health Branch’s data collection and service monitoring processes, the method of data collection and service monitoring is not identified, and this gave rise to some confusion amongst clinicians as to how this would be done. Clinicians raised concerns about what the implications (consequences) would be for mental health services, and for individual clinicians, if the optimal time frames for face-to-face assessment assigned at triage (urgency categories) were not met.

3.3 About Triage in area mental health services

The guidelines do not provide a clear definition of urgency that is reflective of the clinical needs of the potential or existing client or carer.

Further clarification is required within the guidelines on how to categorise urgency using the AMHTS. This may require additional definitions of key terms (e.g. risk, acuity, complexity, and urgency), information aimed at distinguishing between these terms, and discussion on the use of such terms in relationship to classifying clinical urgency.

3.4 Triage clients and roles

Clinicians’ working within adult mental health services suggested that it would be “disempowering to the client to link them to other services rather than just providing them with a contact number for an alternative and more appropriate service”.

3.5 Special considerations in triaging CAMH and APMH

Several clinicians expressed concern about their ability to effectively use the AMHTS in Aged and CAMH presentations, as the following quote illustrates: “There is not enough specific information on what strategies the triage clinician should adopt to inform their decision as to the need for service and categorising urgency in youth and aged cases”.

3.6 Triage decision-making factors

The guidelines state that as part of implementing the state-wide mental health triage scale, triage resources developed by AMHS will be made available on a project website. Clinicians noted that “it is not stated what these resources are or how to access them”.

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The guidelines stress that triage clinicians must consider the impact of other complex problems (physical, intellectual, addictive, social, and/or accommodation) in addition to mental health problems. Of particular note is the emphasis in the guidelines that it is the clinician’s responsibility to seek this information. Clinicians identified problems related to accessing patient information systems across services, especially after hours.

In the presence of social/environmental vulnerabilities and supports, the guidelines advocate the triage worker to consider a higher-level triage disposition than that would have been assigned based on mental illness symptoms alone. Clinicians indicated some confusion about this point, noting that “this statement would seem to apply to all vulnerabilities rather than just social/environmental vulnerability”. It was evident from this feedback that clinicians require further information on this point.

3.7 Alcohol and other drug problems

The guidelines identify that of the co-occurrence of mental health disorders and problems alcohol and other drugs (dual diagnoses) requires an integrated approach to assessment and treatment. Where this screening indicates that the person may have AOD problems in addition to a serious mental health problem, the mental health service is required provide a dual diagnosis assessment that results in integrated treatment of both problems (page 13). Clinicians commented on the lack of timely access to AoD services (especially after hours), long wait lists for services, and identified their own lack of specialist skills in performing this function at triage.

3.8 Other vulnerabilities addressed in the guidelines

The guidelines recommend that where specialist mental health services are not suitable for a person who is otherwise highly vulnerable, particular effort should be made to connect the person with more appropriate services, (page 13). As previously mentioned, many clinicians hold the view that it is beyond the scope of the triage role to facilitate a referral to other services for such clients.

3.9 Supply factors

The guidelines state that the targeting of mental health services is based on relative need with priority being given to people most severely affected by mental illness. Feedback from clinicians participating in the pilot project suggests that mental health clinicians’ responses to individual triage contacts are often based on the availability of resources.

3.10 Urgency

The guidelines identify issues that affect decisions about the urgency of the response needed by mental health or other services. Clinicians pointed out that assessment of urgency and decisions regarding service response overlaps to a large extent with the assessment of risk and need, especially when considering how to categorise urgency in short-term risks versus long term risks.
 Clinicians working within CAMHS were particularly concerned that the terminology used in the scale is too adult focused. One example given to support this point was “…a child consistently missing school at the age of 7 would be regarded as a ‘crisis’ but not usually regarded as ‘urgent’ by CAMHS”. Several clinicians felt the terms crisis, urgent, and semi-urgent were distracting and confusing as the terms mean different things to different groups of people.

The guidelines identify a list of ‘typical presentations’ (in the third column) and prescribed actions or responses for the triage clinician (the fourth column) relating to each category. Some clinicians expressed concern that the typical presentations referred to in the scale are not reflective of the clients seen within their service, and that this could cause difficulties in decision-making. These comments were predominantly from CAMH and APMH clinicians.

The last column of the AMHTS lists additional actions that may assist in optimising the mental health service’s management of the situation and/or outcomes for consumers and carers. Several clinicians did not think the service-specific actions were inclusive enough. Of note was the suggestion by several clinicians that for each category (after A), “the service response should include a recommendation for the caller to call triage again if the situation changed”.

Several clinicians felt that the order of categories F and G should be reversed. The view held by clinicians was that the point at which it is decided there will be no service response should be the last option.

Several clinicians commented that the Action/Response for Category A is problematic, as the following quote illustrates: “It is not always appropriate for triage to be the notifier to emergency services. Many times we advise family/neighbours/GP’s etc to contact the Police on 000 in situations where they feel threatened and want an emergency response. It’s a bigger waste of time for us to gather all the info needed by emergency services, make the call and pass on the info 2nd hand than it is to transfer the call to 000. I personally think transferring the call is often the most appropriate course”.

One clinician provided feedback on the Typical Presentations for Category B as follows: “Should the first point read ‘Acute suicidal ideation or risk of harm to others with clear plans and means with/without history of self harm or aggression’. Currently it reads and/or - my question is really about the need for a 2/24 response solely due to a history of self harm/aggression. Many times we take note of the history but each circumstance is weighted on its own merits...Would be concerned if triage felt ‘obliged’ to refer to CATT due to history rather than current facts”.

Clinician feedback indicated that there is some confusion in relation to categorising urgency in cases where other agencies have already ‘intervened’. The following quotes illustrate the types of clinical scenarios identified as problematic for clinicians: “Where the patient is already restrained and therefore technically not in danger”, “The police are already in attendance”, and “A person suffering from a delirium and is in need of an organic screen is acting aggressively.”
3.12 When to apply the scale
The guidelines distinguish triage from other contacts with Area Mental Health Services and identify the process of allocating a category after the triage clinician has collected sufficient information to make a decision about what actions, if any, are required. The allocation of a triage category is completed only once in the triage episode—at the end of the process (page 18). Some clinicians stated that there is a lack of clarity in the guidelines about when to apply the scale if further information is required that will take some time to gather, e.g. in organic screening.

3.13 RAPID screening register
Several clinicians stated their service did not use the RAPID/CMI screening register for conducting triage, and raised questions as to how the AMHTS will be incorporated into their individual AMHS databases.

3.14 When to revise a scale code
The guidelines clearly identify when it is appropriate to revise a triage code, and when additional information should be regarded as a new triage. Several clinicians from services that operate on a paper-based triage system expressed concern about the time it would take to duplicate information for the “new referral”. Additionally, feedback suggested that services may be inclined to revise the triage code if the mental health service cannot respond in the prescribed timeframe.

4. Qualitative evaluation of the written comments on the AMHTS provided by participants in the Time 1 and Time 2 surveys (Pre and Post Test Training)
Survey participants were given the opportunity to provide written comment on the AMHTS on completion of the scenarios set. The following discussion presents the evaluation of the qualitative items in the Time 1 and Time 2 surveys.

4.1 Time 1 Survey
There were a total of 21 written responses provided by the Time 1 survey participants. Of the 21 responses, 10 were discarded from the analysis as the feedback referred specifically to the design of the survey tool (length, time to complete), rather than the AMHTS.

One participant commented on the length of the time between Category D and E. “The rating scale is too far apart between the 48hrs and 2 weeks. This is a very long gap. The majority of our clients need to be seen between 3-5 days. I have put the ‘E’ category even if I think they should be seen within 3-4 days. We would never wait 2 weeks to see anyone except in exceptional circumstances”. This feedback is consistent with comments made by training participants (described in section one).

Some confusion was apparent in the participant understandings of how to categorise urgency using the scale, for example, if the caller states they are ‘seeking advice only’, yet the clinical presentation indicates an AMHS response is required, should it be documented as ‘advice only’? The following quote
illustrates this: “Many of the scenarios warranted emergency services responses or urgent MHS response despite the caller only wanting advice/information”

One participant identified that triage is not consistent across different services, in particular aged and CAMHS, and noted problems associated with triage taken between business hours and after hours. The following quote illustrates this issue: “The service in which I currently work covers CAMHS, adult, and aged after hours, whereas each service services those people within their age bracket during business hours. This would then suggest to me that if an "urgent" mental health response was required for a CAMHS or aged client, it would then be classified by myself as a referral if occurring 9-5, but an urgent response outside those times. I feel this may confound some response categorisation”.

One participant identified the triage process as being generally quite subjective, however, noted that the AMHTS provides some structure e.g. “I find the triage process to be largely open for interpretation in terms of outcome responses. In many senses what would worry others may not worry me and vice versa. Having the framework is useful with mindfulness of not being too prescriptive by allowing for some flexibility in responses. The same participant stressed the importance of having access to information to assist decision-making, with is consistent with feedback given by training participants (described in section 1).

Three participants made comment about the complexities associated with triaging for CAMHS and APMHS, and one added that the AMHTS does not provide specific guidelines for lifespan triage.

4.2 Time 2 Survey

There were a total of 23 written responses provided by the Time 2 survey participants. Of the 23 responses, 14 were discarded from the analysis as the feedback referred specifically to the design of the survey tool (length, time to complete), rather than the AMHTS.

Two participants implied that all CAMH and APMH contacts should be referred to the specialist services, who would then be responsible for assigning a triage category. Further to this point, another clinician stated that they would select the triage category timeframe that fit best with business hours of specialist service. This clearly indicates that in spite of having participated in training on the use of the scale, some clinicians are unclear about the process of assigning a triage category at the point of initial triage.

One participant stated that time of day would influence the triage category assigned: “Using the current triage system we have, some of these scenarios were difficult to assess, as time of day call is received effects the outcome for those over 65yr i.e. we may refer to APMHS, we may give phone support at 9pm and ask APMHS to f/u the next day”. This feedback also indicates a lack of understanding about the need to assign a triage category based on patient clinical urgency, rather than service related factors such as time of day and resource availability.
One (rural) participant observed that meeting the time to face-to-face assessment timeframes would be problematic within their CATT service: “It will be interesting to see how other parts of the service deal with departmental time frames. Certainly this CATT will struggle”.

One participant suggested that more written information was needed (a reference guide) to assist in developing greater consistency in the use of the AMHTS: “With reference to the tool and the training, to increase inter-rater reliability I do believe a reference guide providing some definition and explanation about the clinical indications and the timeframe interpretation may be useful”.

One participant expressed the view that the type of clinical setting may influence the allocation of a triage category: “Given that my area is that of an integrated mental health team my responses may at times be seen as delayed” This feedback also indicates a lack of understanding about the need to assign a triage category based on patient clinical urgency, rather than service related factors.

One CAMHS participant identified the high level of complexity involved in conducting CAMH triage assessments, in particular children with behavioural disorders, and suggested that AMHTS training could incorporate more information specific to CAMH triage. “I am a CAMHS worker and often have to consider referrals of children with severe behaviour issues. These are tricky to identify. Increasing knowledge of these complex referrals would be important in future training”.

Two participants commented that the function of categories F and G need further clarification. In particular, one clinician noted that where more information is required, triage clinicians may choose this category as a default: “Some comments on 'G' code - advice / information only & more information needed. There seems to be some risks in having these together. More information needed could apply to situations that require immediate follow-up. I would tend to triage a higher category rather than risk a 'G' code”.

One participant expressed concern about the AMHS ability to respond within designated timeframes, and indicated a lack of clarity about service response types. This indicates that the training may not have adequately informed participants about the functionality of the scale in terms of using it with existing levels and types of AMH service responses: “I am concerned about the jump between D and E although I realise it is within the 14 days. I feel that after rating a call with the new scale, the resources available would not be able to support this. For example, my service cannot respond within 2 hours, and I know you would then upscale the call to an A. I think every call rated with the new scale would then require a clarification of what service or response would occur”

4.3 Summary

Training participants provided some useful comments that contribute to understandings of the quantitative results of the pre and post test. Additionally, the feedback provided by training participants indicates that adjustments may
need to be made to the training content to ensure an adequate understanding of the function and scope of the scale. Comments made about the structure of the AMHTS, in particular the specific references to the timeframes may be useful to consider if modifications are required to improve reliability.
PHASE FOUR: EVALUATION OF THE AMHTS IN TWO SERVICES

**Aim**

1. To determine the consistency of use of the AMHTS by triage clinicians in two of the pilot sites.

2. To determine levels of responsiveness of the AMHTS in two pilot sites.

**Method**

This was a retrospective audit of real occasions of triage in a consecutive series of de-identified completed triage contact forms from two sample pilot sites.

This phase of the project was approved by HREC at site A and B.

*Procedure*

The chief investigators reviewed the clinical documentation (case sheets, progress notes, and triage contact forms) prior to dissemination to the raters and made observations of the quality of the documentation. The documentation was found to be incomplete on many occasions, with fields of enquiry left blank, and minimal clinical information recorded.

A set of photocopied, completed triage contact forms were aggregated.

These forms were de-identified, that is, the name of the patient, the patient’s date of birth, Unit Record number, date of presentation, and name of the clinician were removed.

The forms represented all the mental health triage referrals made over a four week period since the AMHTS training at two AMHS that participated in the AMHTS pilot: one being a rural MH service (Site A) and the other a metropolitan MH service (Site B).

Each service of Site A participated in this phase of the project whilst only adult and aged services of Site B participated.

Data collection was consecutive during June to August 2008.

Responsibility for the collection, replication and de-identification of contact sheets was taken by the AMHS project officer before being submitted to the researchers.

Initially, all the forms were examined for concordance of responsiveness, i.e., whether the MHS responded within the assigned urgency category timeframe.

Next, a smaller randomly sampled subgroup of the forms was prepared for dissemination to an expert panel.
In this subset each day of the week and weekend was represented. Therefore four blocks of Monday to Friday (i.e., M-F 1, M-F 2, M-F 3, and M-F 4) were shuffled to achieve random assignment using the computer program The Hat.

The same procedure was used for the four blocks of weekends (i.e., S-S 1, S-S 2, S-S 3, and S-S 4). The result was week 3 M-F and week four S-S were selected from the four week triage referrals sourced from both sites and used for part (b) in this audit phase.

An expert panel was convened to appraise the random sample of the de-identified triage contact forms for the appropriate categorisation using the AMHTS.

The inclusion criteria for participation within the expert panel included significant clinical experience in triage (≥5yrs) that covered the lifespan, not currently employed by either of the prospective audit AMHS pilot sites, and preferably had post-graduate level education.

The expert panel consisted of 6 triage clinicians whose modal average level of experience was 10 years. Four clinicians were females. Four clinicians have post-graduate qualifications: three Masters, one Graduate Diploma. One clinician was in the process of completing their Masters. Each member of the expert panel was required to attend the training in the use of the scale conducted by the educational provider and an additional master class conducted by Dr. N. Sands and Dr. M. Gerdtz. This approach was undertaken to ensure appropriate use of the scale and to promote consistency of appraisal across the panel.

**Results**

There were 503 referrals to Site A AMHS triage from mid-June to mid-July of these, 73/503 (14.5%) were CAMHS referrals, 244/503 (48.5%) were AMHS referrals, and 29/503 (0.57) were APHMS referrals.

Of those triage referrals, 66/503 were assigned urgency category F and 89/503 were assigned urgency category G and were therefore excluded; this left 348/503 (69.2%) of triage referrals available for this analysis. However, due to incomplete record keeping, only 181/348 (52%) of the remaining triage contact forms had enough data to determine responsiveness.

Table 21 shows the responsiveness data in the random sample of triage referrals from Site A AMHS. From these data it can be noted that 46/348 (13.22%) potentially met the assigned timeframes but, since only the date and not the time of day was recorded, matching the responsiveness to the urgency category cannot be determined. In a large proportion of the triage referrals (34.77%) responsiveness was unknown.

The vast majority of those unknown referrals (71%) were assigned urgency category E and more than half of those came from the CAMHS section of the service. This is thought to be because of the way CAMHS is required to
operate rather than reflecting the responsiveness of the service directly. Most of the triage referrals concerning CAMHS and, to a lesser extent, APHMS come from health professionals and the like rather than directly from the clients themselves. Due to legal/privacy requirements, the AMHS require contact from parents or guardians to contact them directly before they approach families. Furthermore, in many cases, children and adolescents and the aged will already be being cared for by others which tend to mitigate the urgency of attendance that might otherwise be required. Still other triage referrals (n=9) were not assigned a category, and some were likely given a category in error.

Table 21 Responsiveness in a random sample of triage referrals from Site A AMHS (N=348)

<table>
<thead>
<tr>
<th>Type of service</th>
<th>Time met (%)</th>
<th>Time not met (%)</th>
<th>Time potentially met (%)</th>
<th>Unknown (%)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAMHS</td>
<td>13 (3.7)</td>
<td>3 (0.9)</td>
<td>2 (0.6)</td>
<td>53 (15.2)</td>
<td>71 (20.4)</td>
</tr>
<tr>
<td>AMHS</td>
<td>122 (35.1)</td>
<td>42 (12.0)</td>
<td>44 (12.6)</td>
<td>42 (12.0)</td>
<td>250 (71.8)</td>
</tr>
<tr>
<td>APMHS</td>
<td>1 (0.3)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>26 (7.4)</td>
<td>27 (7.7)</td>
</tr>
<tr>
<td>Total</td>
<td>136 (39.0)</td>
<td>45 (12.9)</td>
<td>46 (13.2)</td>
<td>121 (34.9)</td>
<td>348 (100.00)</td>
</tr>
</tbody>
</table>

Time met: time, date and disposition recorded and time to face-to-face assessment met.

Time not met: time, date and disposition recorded and time to face-to-face assessment not met.

Time potentially met: date and disposition recorded and face-to-face assessment occurred but time was not recorded.

Unknown: Insufficient data to determine responsiveness.

There were 325 triage referrals made to Site B AMHS during August: 256 AMHS, and 69 APHMS. Table 21 shows responsiveness in a random sample of triage referrals from Site B AMHS.

Of the 325 triage referrals sampled, 34/325 (10.5%) were assigned urgency category F and 104/325 were assigned urgency category G and therefore not relevant to the responsiveness analysis. This left 185/325 triage referrals remaining for the responsiveness analysis.

Of those triage referrals, 41 (22.16%) had some information that indicated responsiveness was potentially met. A further, 86 (46.59%) triage referrals did not have any information connected to responsiveness. Unknown responsiveness was not as associated with one category at Site B. Category E was still strongly associated with the aged and children/adolescents, accounting for 58% (40/58) of the aged referrals and 38% (5/13) of the children/adolescent referrals. Note: triage referrals for Site B CAMHS services were not available.
for audit since their triage clinicians did not participate in the scale training but some children and adolescents were seen in the adult services.

Table 22 Responsiveness in the randomly sampled triage referrals from Site B (N=185).

<table>
<thead>
<tr>
<th>EH MHS age group</th>
<th>Time met</th>
<th>Time not met</th>
<th>Time potentially met</th>
<th>Unknown</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child &amp; Adol a</td>
<td>1 (0.5)</td>
<td>0 (0.0)</td>
<td>3 (1.6)</td>
<td>6 (3.2)</td>
<td>10 (5.4)</td>
</tr>
<tr>
<td>Adult</td>
<td>19 (10.3)</td>
<td>2 (1.1)</td>
<td>36 (19.5)</td>
<td>70 (3.8)</td>
<td>127 (68.6)</td>
</tr>
<tr>
<td>Aged</td>
<td>35 (18.9)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>9 (4.7)</td>
<td>44 (23.8)</td>
</tr>
<tr>
<td>Unknown age</td>
<td>0 (0.0)</td>
<td>1 (1.1)</td>
<td>2 (1.1)</td>
<td>1(0.5)</td>
<td>4 (2.16)</td>
</tr>
<tr>
<td>Total</td>
<td>55 (29.7)</td>
<td>3 (1.6)</td>
<td>41 (22.1)</td>
<td>86 (46.6)</td>
<td>185 (100.00)</td>
</tr>
</tbody>
</table>

a Triage referrals for Site B CAMHS services were not available for audit since their triage clinicians did not participate in the scale training but some children and adolescents were seen in the adult services (after hours).

Time met: time, date and disposition recorded and time to face-to-face assessment met.

Time not met: time, date and disposition recorded and time to face-to-face assessment not met.

Time potentially met: date and disposition recorded and face-to-face assessment occurred but time was not recorded.

Unknown: Insufficient data to determine responsiveness.
Overall agreement among the five expert raters for 187 cases was fair ($\kappa=0.30$). For this reason, it was not possible to determine if the AMHTS was initially applied in an “appropriate manner” as we were unable to achieve a satisfactory level of agreement among the expert raters as to the “correct” or “expected” triage category. Table 22 shows the kappa statistic for each of the seven categories of the AMHTS.

Table 23 Agreement among expert for a random sample of AMHT contacts ($N=5; m=187$).

<table>
<thead>
<tr>
<th>AMHT Category</th>
<th>$m$</th>
<th>$\kappa$</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>29</td>
<td>0.50</td>
</tr>
<tr>
<td>B</td>
<td>121</td>
<td>0.36</td>
</tr>
<tr>
<td>C</td>
<td>146</td>
<td>0.22</td>
</tr>
<tr>
<td>D</td>
<td>168</td>
<td>0.23</td>
</tr>
<tr>
<td>E</td>
<td>141</td>
<td>0.35</td>
</tr>
<tr>
<td>F</td>
<td>151</td>
<td>0.30</td>
</tr>
<tr>
<td>G</td>
<td>179</td>
<td>0.33</td>
</tr>
</tbody>
</table>

$m$ number of cases/scenarios

$\kappa$ agreement (kappa)
SUMMARY OF FINDINGS

This evaluation found no evidence in the published literature to support the use of a seven-tier urgency scale for area mental health triage. A number of commentaries provided the rationale for the development and standardization of triage categorization and processes.

Using mixed methods, this evaluation found that overall the draft AMHTS was found to demonstrate a fair level of inter-rater reliability. However, the T2 survey results revealed that one category showed substantial levels of agreement (AMHTS A), while two other categories only achieved slight agreement over chance (AMHTS D and E). Table 24 summarises the levels of agreement for the AMHTS across the various phases of this evaluation. It should be noted that while individual measures may differ, similar patterns may be observed in levels of agreement at different stages of the evaluation.

Table 24 A summary agreement measures recorded in this evaluation for AMHTS by urgency category

<table>
<thead>
<tr>
<th>Phase/description</th>
<th>m</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two/instrument validation</td>
<td>103</td>
<td>0.74</td>
<td>0.29</td>
<td>0.05</td>
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AMHTS Categories: A immediate  B within two hours  C two-12 hours  D 12-48 hours  E within 14 days  F referral or advice  G advice, or information only or more information needed.

Interpretation of kappa: 
- $< 0$ Poor agreement
- $0.0 – 0.20$ Slight agreement
- $0.21 – 0.40$ Fair agreement
- $0.41 – 0.60$ Moderate agreement
- $0.61 – 0.80$ Substantial agreement
- $0.81 – 1.00$ Almost perfect agreement

m number of scenarios/cases
In respect to the validity of the draft AMHTS, the qualitative evaluation found that, despite inclusion of a precise definition of urgency in the AMHTS guidelines and discussion of this construct in training, individual interpretations varied.

Urgency is the central construct that the AMHTS seeks to classify. An inability to differentiate the concept from other related terms, such as severity and complexity, was supported by the findings of the T1 and T2 surveys. These data showed that less than one quarter of all of the participants were able to correctly define urgency. In addition, the T2 results recorded no significant improvement in understanding urgency, despite inclusion in the training intervention.

A further aspect contributing to problems with validity identified in the evaluation relate specifically to the time intervals specified in the AMHTS. These intervals are defined as time to face-to-face assessment. Some participants commented that the intervals specified in the scale are problematic. For example, strong opinions were expressed that the time interval between category D and category E were too long (i.e. 12 days). In addition, category E was found to be clinically inappropriate by Adult triage clinicians who believed that service users able to wait 14 days did not require an acute response from a public mental health service. In such situations, participants commented that service users would be better managed by primary health services such as a general practitioner.

In terms of utility, it was noted that the time intervals outlined in the AMHTS did not match shift times and this was thought to be problematic in terms of capacity to respond.
LIMITATIONS

The evaluation was conducted using a convenience sample. This limitation was minimised by the use of quota sampling for the pilot sites based on service type (CAHMS adult, APMHS). All clinicians working at these sites were provided with an opportunity to participate in training and to complete T1 and T2 surveys.

The use of text-based scenarios in Phase Two is a further limitation. This approach does not include sensory cues that may influence urgency categorisation.

The use of Fleiss’s kappa \(^{45}\) for measuring reliability among multiple raters is the approach adopted in most triage studies, but it is not without its limitations. Kappa provides a single overall measure of interrater agreement which is a weighted average of the individual kappa values calculated for each category of the scale.\(^8\) The kappa value represents the proportion of agreement above which will occur by chance, with 0 representing chance agreement and 1 perfect agreement. However there is some debate about the use of the magnitude of a kappa value for the purpose of comparison. Landis and Koch’s interpretation is what has been adopted in this evaluation, but this interpretation is not universally accepted. This is because the number of categories, subjects and items will all influence the final value. This is particularly pertinent to this evaluation as a reduction in the number of scale categories will possibly improve scale agreement simply by virtue of reducing the number of categories in the scale.

The use of retrospective audit to determine responsiveness and application of the AMHTS does not take into account the dynamic nature of triage decision making.

Poor documentation of triage contacts in Phase Four of this evaluation limited the scope of recommendations in respect to the responsiveness component of the project. It did however highlight the need for a minimum standard for documentation of triage contacts and outcomes in area mental health triage services.
RECOMMENDATIONS

The following discussion puts forward the key recommendations arising from the results attained in the AMHS Triage Scale Evaluation Project. The recommendations are set out under three subheadings:

1. Recommendations for improving the reliability and validity of the (draft) AMHS Triage Scale
2. Recommendations for improving the usability of the DHS Written Guidelines that accompany the AMHTS
3. Recommendations for improving the AMHS Triage Scale training program

1. Recommendations for improving the reliability and validity of the (draft) AMHS Triage Scale

Both the quantitative and qualitative results of the project indicate that, in its present form, the AMHTS lacks sufficient levels of reliability and validity. As previously discussed in the literature review, the use of invalid triage scales and risk assessment tools places health services, clinicians, and service users at risk in respect to issues associated with misdiagnosis and inappropriate treatment planning and care. Hence, it is imperative that triage scales are subject to rigorous evaluative and developmental processes to ensure that they are able to meet their fundamental aim of optimising clinical outcomes for service users. To this end, the following recommendations are suggested to improve the current AMHTS:

1. Consider collapsing the urgency categories in the (draft) AMHTS from a seven-tier scale into five-tier scale.

There are two main reasons for this recommendation. Firstly, there is a very strong evidence base to support the efficacy and reliability of five-tier triage scales in other clinical settings, as identified previously in the literature review. The original (draft) AMHS triage scale was developed from expert opinion, and while the input from clinical experts into the development of the AMHTS is highly valued, expert opinion alone is insufficient evidence upon which to develop and implement the scale.

Mental health triage decision-making is inherently complex, and this must be taken into consideration in the design of triage scales and other clinical tools. In terms of utility, a triage scale should be designed with a view to reducing the amount of decision-tasks clinicians are asked to perform. Reducing the number of categories may result in more streamlined decision-making.

2. Consider collapsing categories F and G into one “administrative” code, which sits outside the AMHTS.
This recommendation follows from the previous recommendation to collapse the seven-tier scale into a five-tier scale. Lack of criteria to differentiate categories F and G appear to confound agreement.

Furthermore, categories F and G do not require the clinician to make dispositional determinations on time requirements for face-to-face assessment, thus the process of categorising urgency, as it pertains to the clinical application of triage scales, is redundant. A ‘drop down box’ embedded in the information system that allows the clinician to ‘check’ (one of these) options (e.g. referral or advice only) could be considered. This system would enable AMHS to effectively track triage activity, in particular telephone contacts and clinician workload.

Feedback attained in the qualitative evaluation of the AMHTS indicated that clinicians may avoid assigning an urgency disposition altogether by choosing Category G on the basis of ‘more information required’.

As a final point, combining the two categories would further reduce clinicians’ decision-making burden

3. Alterations to the urgency frameworks (timeframes for face-to-face assessment)

The recommendations for optimal timeframes for face-to-face assessment are derived from both quantitative and qualitative results.

a. The Kappa achieved for Category A in the evaluation indicates acceptable performance, and thus it should be retained as it.

b. Category B showed fair to moderate agreement, and while there is room for improvement to this result, a within two-hour time frame is clinically viable.

c. Category C performed poorly at every phase of the quantitative analysis. Clinician feedback indicated a high level of dissatisfaction with the clinical descriptor ‘crisis’, which may have impacted on performance. The term ‘crisis’ was also considered incongruent within the context of a 12-hour response time. Other feedback about category C indicated that the two to 12-hour framework was problematic, as it falls outside routine shift times. The recommended response time-frame for Category C is within eight hours, which is congruent with routine shift times.

d. Category D also achieved consistently poor levels of agreement. It is difficult to identify the factors that may have contributed to this result, as there was no participant feedback relevant to this category. The clinical descriptors may require revision to facilitate effective triage for using this category. The recommended response time frame for category D is within seven days.

e. Category E attained only slight to fair agreement. Participant feedback about Category E unanimously indicated dissatisfaction with a two-week urgency framework for face-to-face assessment. Clinicians were united in their view that the time lag between Category D and E was inappropriate, and several suggested changing the time to face-to-face assessment to within seven days.
The recommended response time frame for category E is within seven days.

4. Revision of Clinical descriptors used in the AMHTS.

Further investigations aimed at determining the validity of the clinical descriptors used in the AMHTS needs to be undertaken. Clinical research is required to develop the evidence base to confirm whether the descriptors are accurate for guiding decision-making around categorising clinical urgency.

Consider including age specific clinical descriptors in the AMHTS where appropriate.

5. Revision of the Action Statements used in the AMHTS

The statement “Keeping caller on line until emergency services arrive” (column 5, Actions to be considered) was also found to be problematic. Clinicians noted that triage telephone systems frequently have only one input line, thus keeping the caller on the line would effectively “block” the triage service. This actions statement requires revision.

Include an Action/AMHS response for Category A that advises direct transfer of the call to emergency services, where the service recipient agrees with this intervention.

A recommendation for the triage clinician to advise the caller to phone triage again if their situation changes could be included in the AMHTS guidelines.

The service response (column 4) for category C was found to be problematic (i.e “CATT, continuing care or equivalent face-to-face assessment within 12 HOURS AND CATT, continuing care or equivalent telephone follow-up within ONE HOUR of triage contact”). It is recommended that this service response be clarified further.

6. Further reliability testing

Any modifications to the AMHTS require further reliability testing prior to implementation. It is recommended that the methodology and instrument developed for this project be employed for further evaluation of the AMHTS.

2. Recommendations for improving the usability of the DHS Written Guidelines that accompany the AMHTS

The following recommendations are listed under the subheadings used in the DHS Written Guidelines to which the recommendations refer.

2.1 Context for the triage scale

A flowchart could be included within the written guidelines to articulate the triage decision points.
A flowchart demonstrating the triage decision points, including the point whereby triage ends and intake commences would provide greater clarity. The flowchart could also include the triage decision point at which a category is assigned.

A flowchart specific to CAMH and APMH could be used within the written guidelines clearly demonstrating the decision point at which to apply a triage category.

2.2 The implementation process

The AMHTS implementation process should include dissemination of information to AMHS about the purpose and outcomes of state-wide triage data collection, including specific discussion on the potential consequences of not achieving time-to-assessment parameters set at triage.

Resources should be made available on the DHS website to support the implementation of the AMHTS.

2.3 About Triage in area mental health services

To ensure the scale is being optimally utilised, further clarification is required within the written guidelines on how to categorise urgency using the AMHTS. This may require additional definitions of key terms (e.g. risk, acuity, complexity, and urgency), information aimed at distinguishing between these terms, and discussion on the use of such terms in relationship to classifying clinical urgency.

2.4 Triage clients and roles

The concept of the triage worker actively linking the caller to more appropriate services may require further emphasis and articulation within the written guidelines.

2.5 Special considerations in triaging CAMH and APMH

The written guidelines could include age specific clinical case studies that exemplify triage in special populations. Additionally, more emphasis could be placed on the need to refer the case to specialist services for further assessment.

2.6 Triage decision-making factors

AMHS currently use a variety of triage information systems. Mandating the use of an accessible state-wide reporting system that contains a minimum data set (e.g. RAPID) for triage screening may improve access to information.

The written guidelines could include triage clinical case studies that exemplify how to classify urgency in vulnerable populations.
2.7 Alcohol and other drug problems

The guidelines could include clinical case studies that exemplify triage dual diagnosis assessment, and pathways for accessing specialist input for complex needs cases.

2.8 Other vulnerabilities addressed in the guidelines

The concept of the triage worker actively linking the caller to more appropriate services may require further emphasis and articulation within the written guidelines.

2.9 Supply factors

Further emphasis within the guidelines may be required to promote consistency in triage decision-making by guiding triage clinicians to categorise urgency based on clinical need rather than resource availability.

2.10 Urgency

Further clarification within the guidelines may be required help to clarify the concepts of short term risk and longitudinal risk, and how to classify urgency accordingly. This point could also be further addressed in face-to-face training.

2.11 The triage scale

To promote greater consistency in triage, the terminology used within the guidelines to describe urgency should be uniform. Consider removing the term crisis and replacing it with urgent.

For greater clarity, consider reviewing the language usage in Typical Presentations for Category B. Alternatively, the AMHTS written guidelines could further explain the importance/significance/purpose of this descriptor.

The written guidelines that accompany the MHTS could include clinical case studies that exemplify how to classify urgency when the patient is currently receiving treatment (intervention) from emergency services other providers.

2.12 When to apply the scale

To ensure the scale is being optimally utilised, further clarification is required within the guidelines on how to categorise urgency using the AMHTS. Consider including a flow chart that identifies how to classify urgency when insufficient clinical information is available (i.e at what point is the category assigned).

2.13 RAPID screening register

Consider mandating the use of RAPID as the state-wide triage screening interface.
2.14 When to revise a scale code

Consider mandating the use of RAPID as the state-wide triage screening interface. This would reduce the duplication inherent in a paper-based system and potentially reduce time taken for repeat triage.

3. Recommendations for improving the AMHS Triage Scale training program

1. The DHS written guidelines for use of the AMHTS should be circulated to workshop participants (or the pilot sites) prior to commencement of the training, and included as part of the workshop training materials.

2. The definition of ‘urgency’ provided by the facilitator should clearly articulate the concept of categorising urgency in AMHS triage, and differentiate it from other related concepts such as acuity or complexity.

3. The decision-making model (derived from Crouch, 2003) may need revision, as it was intended for use in emergency department and may not be the most appropriate model for AMHS triage.

4. The nine “Golden Rules of Triage” put forward in the training require revision. The source of these ‘rules’ was an outdated publication (Turner, 1981), and no indication was given as to the evidence base from which they were derived. It may be more appropriate to include the ‘triage principles’ of access, responsiveness, consistency and accountability (as outlined in the written DHS guidelines) in this section of the training.

5. The training participants should be exposed to all components of the scale.

6. Modifications to improve the training package include improving the evidence base of the face-to-face training package by including relevant findings from the peer reviewed literature, clarifying the definitions and examples used to define clinical urgency, and disseminating the DHS written guidelines to training participants.

7. Training participants should be supplied with a workshop manual that includes relevant literature, the written guidelines, the AMHTS, relevant web-links and resources, and a workbook.

8. The e-learning suite could be enhanced by increasing the number of assessment questions, including practice scenarios to support both the decision-making and the application of the scale Modules, and providing hyperlinks and PDFs to relevant literature.

4. Additional recommendation

Clinicians require further support and training to improve triage clinical documentation. This would improve communication at triage, and reduce the likelihood of medico-legal complications associated with poor record keeping.
REFERENCES


APPENDICES
HREC Approvals
Time One Survey
Time Two Survey