Use of a mental health emergency care-rural access programme in emergency departments

Emily Saurman[1], David Lyle[1], Sue Kirby[1] and Russell Roberts[2]

Summary

Hospital emergency departments (EDs) are common providers of emergency mental health care. Access to specialist expertise can affect and improve patient outcomes. The Mental Health Emergency Care-Rural Access Programme (MHEC) provides access to mental health specialists for rural and remote communities in western New South Wales. In 2011, 46 of the 48 EDs used the MHEC programme, which provided 1487 clinical services, an average of 29 services per week. This represented 60% of all MHEC activity. A video assessment was conducted during 571 (38%) of these MHEC contacts. Patients attending a non-base hospital (<50 beds) were twice as likely to receive a video assessment as those attending the larger base hospitals, and video was used more with increasing remoteness. Patients from non-base hospitals were also more likely to be admitted locally after a video assessment. When a decision to admit was made, patients from non-base hospital EDs assessed by video were less likely to be transferred out of their community to a mental health inpatient unit than those assessed by telephone triage only (46% vs 62%; $P = 0.016$). The MHEC programme is a practical, relevant and responsive solution that was designed for the Australian health system, but the same model could be adapted for implementation in other countries.

Introduction

Hospital Emergency Departments (ED) are common providers of emergency mental health care in Australia and overseas.[1,2] In the US, ED attendance for mental health related visits was about 6% or 24 visits per 1,000 population.[2] In New South Wales (NSW), Australia, approximately 2–3% of ED activity is mental health related, most of which requires urgent response.[1]

The usual model for providing integrated emergency mental health care in Australia is face-to-face from specialists in the EDs. The specialists include mental health liaison nurses or staff in co-located psychiatric emergency care centres.[3,4] However, mental health specialists are readily available only in urban and regional communities. In rural and remote regions, most specialist care is provided by visiting clinicians and access to that care is limited, making the provision of emergency mental health care difficult.[5,6] A well serviced rural town might have a psychiatrist visit once a month with occasional visits from a psychiatric nurse, but many towns have no regular mental health specialist expertise. Patients presenting with a mental health emergency can pose diagnostic and management challenges for local clinicians who may lack specific mental health training, confidence, or time to care for mental health patients whose needs are different to those with physical ailments.[7]

In 2005, the health authority in NSW provided funding for rural health services to increase community access to emergency mental health care and improve patient outcomes. After consultations, the Mental Health Emergency Care-Rural Access Programme (MHEC) was established. This is an emergency telepsychiatry programme to improve access, safety and coordination of specialist emergency mental health care for rural and remote communities in western NSW. The MHEC programme has been operating since February 2008. Health care providers use it to obtain specialist assistance and care for their patients, and most of this use (79%) is initiated through an ED.[8]

We examined the use of the MHEC clinical services by EDs. There were three questions: What was the pattern of use by hospital EDs? How did usage differ by hospital classification and remoteness category? How was video assessment used?

[1]University Department of Rural Health, University of Sydney - Broken Hill, Broken Hill, New South Wales, Australia
[2]University of Sydney, Orange, New South Wales, Australia

Corresponding author:
Emily Saurman, University Department of Rural Health, University of Sydney - Broken Hill, Corrindah Court Morgan Street, PO Box 457, Broken Hill, New South Wales 2880, Australia.
Email: emily.saurman@sydney.edu.au

Methods

We conducted a descriptive analysis of routinely-collected activity data. The analysis was limited to clinical service activity for contacts from hospital EDs in 2011. This represented 60% of all MHEC activity; the other 40% of activity was from other users such as patients, family members, community teams, police and ambulance officers.[8] The study was approved by the appropriate ethics committee.

Study setting and population

The MHEC telepsychiatry programme provides 24-hour access to specialist emergency mental health advice and support for anyone in western and far west NSW, a population of approximately 300,000 (Figure 1).[9] The majority of the region is classified as remote or very remote.[10]

The MHEC team includes mental health nurses and psychiatrists, and is based in Orange, NSW. There are always two nurses on duty and a psychiatrist is available on-call when he is not on site. They are supported by a nurse unit manager, a clinical nurse consultant and an administration officer. The team provides information and clinical services, and helps to coordinate transfers of care when required. Staying appraised of local services and resources throughout the region ensures that the care is contextually appropriate.

The MHEC team can be contacted via a freecall number (Figure 2). Calls that proceed to a clinical service result in telephone triage, and in some instances will include a video assessment. A triage is a brief assessment that classifies patients according to their clinical risk and severity of symptoms. The video assessment is a more comprehensive assessment of the patient and the situation. A local ED provider may be present during the assessment. Video links between MHEC and the EDs take place through an existing and secure telehealth system.

At the completion of each MHEC clinical service, information from the assessment is shared with local providers so that appropriate management and transfer of care for the patient can be arranged (Figure 2). Patients are managed locally as an inpatient or outpatient, or transferred, possibly out of their community, to a Mental Health Inpatient Unit (MHIPU) for specialist care.

Hospitals in western NSW include base hospitals, district hospitals, multi-purpose health services (MPSs) and other health services. There are four base hospitals which are located in the larger regional communities and operate as rural referral centres. The base hospitals have 80–200 beds and offer inpatient and outpatient services, emergency, medical and surgical, maternity and a MHIPU. There are 16 district hospitals which are smaller rural hospitals with less than 50 beds and provide a restricted range of emergency and medical services. The 22 MPSs offer some inpatient services including aged care, emergency, medical and primary care services. There are also a few communities with 'other health services' that provide emergency and primary care services.[11]
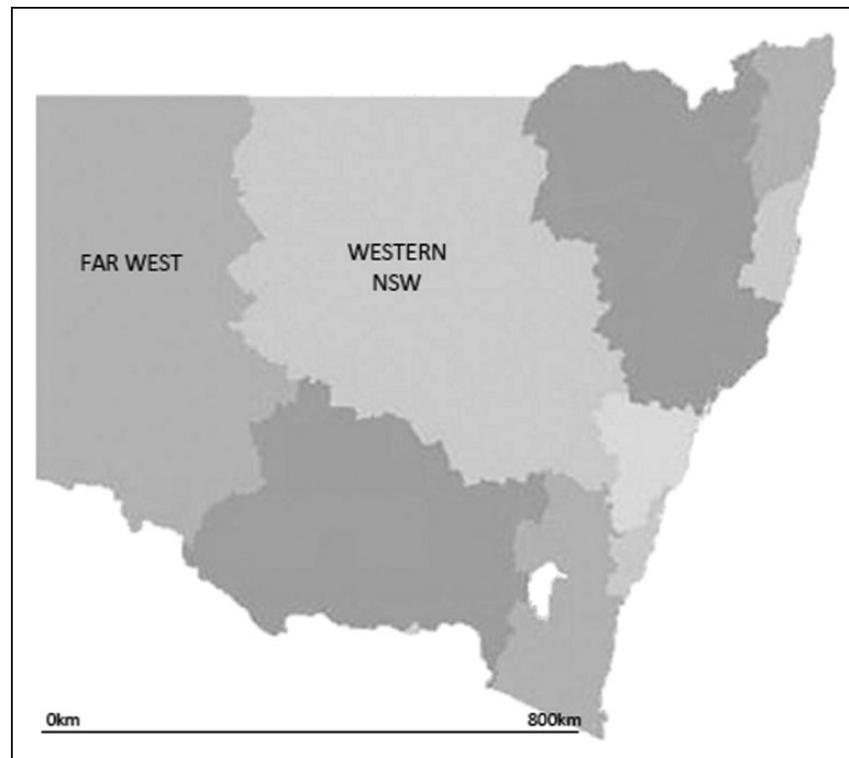

Figure 1. NSW local health districts where MHEC provides services.

Study protocol

Hospital classifications were identified by caller location and confirmed via the NSW Health website and by contacting each health district.[11] Out of Area or unknown ED contact locations were excluded from the analysis (8 clinical services; <1%). Other variables included were: clinical service activity, date of contact, town, patient presentation, age group, indigenous status, transfer of care and remoteness.

The Non-Admitted Patient Performance Reports from the relevant health districts were accessed to obtain the number of non-admitted presentations to each ED in the region and to calculate the number of MHEC clinical services per 1000 ED non-admitted presentations. Non-admitted patient activity from one district hospital, one MPS and one other health service were not recorded in the non-admitted patient reports for 2011. Therefore the 69 MHEC clinical services related to those three hospitals were excluded from the subsequent analysis.

Data were analysed using a spreadsheet (Excel, Microsoft) and an online statistics package (Wessa[12]). Chi-square tests were used to examine the differences between variables. Spearman's rank correlation coefficient was used to examine the association between use of the MHEC programme and ED activity.

Figure 2. Flow of service in the MHEC programme.

Results

In 2011, 46 of the 48 EDs used the MHEC programme, which provided 1487 clinical services, an average of 28.6 services per week. A video assessment was conducted in 571 (38%) of these contacts (Table 1).

Nearly half the calls to MHEC came from the four base hospitals; 36% of calls were from district hospitals and 15% from MPSs and other health services (Table 1). The patients referred to MHEC presented most commonly with suicidal thoughts, threatening self-harm, or harm to others (54%) followed by those with anxiety and mood disorders (17%) or displaying bizarre or psychotic behaviour (15%). The MHEC programme provided services to ED patients in all age groups, most commonly for those aged 25–44 years (41%). Patient characteristics did not affect use as these patterns were similar across hospital category and remoteness. One-fifth of the patients self-identified as indigenous. As expected, indigenous identification increased with remoteness. Only one-third of the patients were admitted to hospital after a clinical service.

There were 7.7 MHEC clinical services per 1000 non-admitted ED presentations. Base hospitals received more clinical services than other hospitals, with the fewest (1.3 per 1000) to Other Health Services which operate in smaller, more isolated communities (Table 2). Overall, there was a moderate positive correlation ($r = 0.37$, $P = 0.013$) between the number of MHEC clinical services per 1000 presentations and non-admitted patient ED activity levels in western NSW.

MHEC patients presenting to a non-base hospital were nearly twice as likely to have a video assessment than those attending a base hospital (50% vs 26%; $P < 0.001$) (Table 3). This difference was due to one ED that used video assessment only once in 331 MHEC calls (<1%). Approximately half (47%) of MHEC patients at the other base hospital EDs had a video assessment, which was similar to the non-base hospital rate.

For the non-base hospital EDs, there was no significant variation in the use of video assessment by hospital classification (Table 3). However, the proportion of MHEC clinical services incorporating a video assessment increased with remoteness for all hospital EDs ($P < 0.001$), ranging from 24% (95% CI 21–27%) at inner regional EDs to 67% (95% CI 37–89%) at very remote EDs (Table 3). The difference remained significant after the outlier base hospital was excluded from the analysis ($P < 0.001$) (Table 3).

MHEC patients from non-base hospitals assessed by video were more likely to be admitted to hospital than those assessed by telephone triage only (48% vs 28%; $P < 0.001$). Furthermore, when a decision to admit was made, patients from non-base hospital EDs assessed by video were less likely to be transferred out of community to a MHIPU than those assessed by telephone triage only (46% vs 62%; $P = 0.016$) (Table 3).
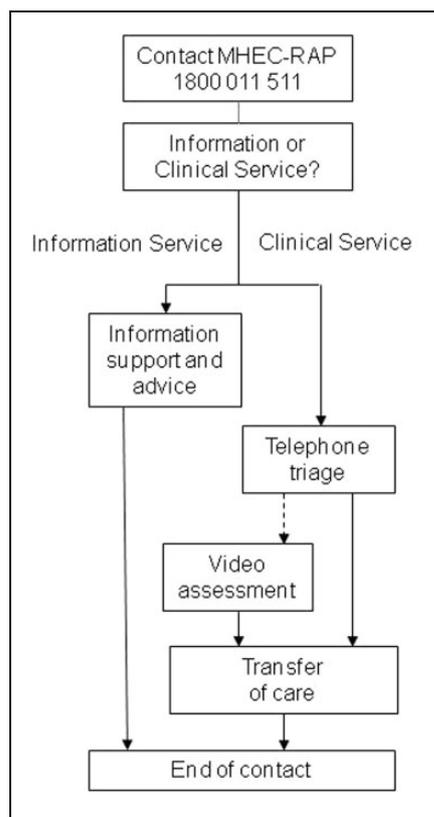
Table 1. Use of MHEC clinical services by hospital emergency departments in 2011.

	Number	%
Total	1487	
Clinical service		
Telephone triage only	916	62
With video assessment	571	38
Hospital classification		
Base Hospital (4 EDs)	733	49
District Hospital (16)	539	36
Multi-Purpose Service (22)	205	14
Other Health Service (6)	10	0.7
Remoteness category		
Inner regional (10 EDs)	770	52
Outer regional (22)	520	35
Remote (11)	188	13
Very remote (5)	9	0.6
Transfer of care		
Local outpatient	986	66
Local inpatient	177	12
MHIPU[‡]	299	20
Unknown	25	2
Indigenous status		
Indigenous	290	20
Not indigenous	841	57
Not identified	356	24
Age group		
0–17 years	237	16
18–24	276	19
25–44	608	41
45–64	287	19
65+	65	4
Unknown	14	0.9
Presentation[†]		
Suicide/Harm	810	55
Anxiety/Mood	259	17
Bizarre/Psychotic	219	15
Other	115	8
Aggression	52	4
Drug and alcohol	32	2
Day of the week		
Monday	198	13
Tuesday	183	12
Wednesday	198	13
Thursday	198	13
Friday	176	12
Saturday	275	18
Sunday	257	17
Unknown	2	0.1

[†]Presentation categories were created and confirmed in consultation with the MHEC nurse unit manager and psychiatrist.
[‡]Mental Health InPatient Unit, located in the Base Hospitals.

Discussion

Health care providers were the main users of the MHEC programme and most of this use was initiated through an ED.[10] In 2011, all but two of the EDs across the region consulted MHEC on a range of emergency mental health presentations.

The overall usage rate of 7.7 services per 1000 non-admitted ED attendances suggests that a MHEC service was requested for about 25–33% of mental health presentations to ED, based on 2–3% of ED activity being attributable to primary diagnoses of mental health. While we were not able to assess the need for the service from available data, nor whether that need was being met, our findings suggest that the MHEC programme provides a relevant, responsive service that is generally accepted in the region.

As the rationale of the MHEC programme was to provide specialist services when none were available locally, we had anticipated that its use would be greater in the more remote and smaller EDs where specialist mental health care is irregular. However, base hospitals, with co-located MHIPUs and resident mental health teams, were major users of MHEC, and on average, had the highest usage rate based on services per 1000 non-admitted ED attendances (7.6 times more than for other health services). The other health services were the least frequent users though they were anticipated to have the greatest need due to small population size, limited resident services and distance from larger centres. This variation of use across the region and the moderate correlation for greater use of the MHEC programme in EDs with higher activity levels suggest that it serves different roles for different EDs. For those with resident mental health services and inpatient units, the MHEC programme supplements local specialist services, either when they are not readily available (out-of-hours presentations) or prior to calling the resident specialist. For other EDs, it provides access to expertise that would not otherwise be available. Further clarification of the different roles that the MHEC programme can play would assist the continuing development of the service and the establishment of similar services in other regions.

The variable usage rates suggest that local factors may affect awareness, relevance and acceptability of the programme.[13] For example, access to remote consultations provided by the Royal Flying Doctor Service in far west NSW or local knowledge about resident patients may make the programme less relevant in those settings. In addition, staff turnover and the use of agency staff, particularly in the more remote and smaller communities, where recruitment and retention of health professionals is an issue, could affect awareness, acceptability and use of the programme.

Understanding and managing variability of use aids the effective provision of mental health care.[14] For the MHEC programme, this could be achieved through regular contact with EDs to promote the service to existing and new

Table 2. Non-admitted patient emergency department presentations and MHEC clinical services† in 2011.

	Non-admitted ED presentations	MHEC clinical services	Clinical services per 1000 non-admitted ED presentations	
			Mean	Range
Base Hospital (4 EDs)	76,270	733	9.6	4.5–17.8
Inner Regional	55,314	582	10.5	4.5–17.8
Outer Regional	20,956	151	7.2	7.2
District Hospital (15)	64,654	483	7.5	2.1–18.0
Inner Regional	21,347	159	7.5	4.4–9.8
Outer Regional	33,007	220	6.7	2.1–18.0
Remote	10,300	104	10.1	8.0–15.4
Multi-Purpose Service (21)	36,245	193	5.3	0–14.5
Inner Regional	4693	29	6.2	2.0–13.1
Outer Regional	12,799	77	6.0	0–14.5
Remote	16,149	81	5.0	2.1–9.4
Very Remote	2604	6	2.3	2.3
Other Health Service (5)	7085	9	1.3	0–1.8
Outer Regional	2485	4	1.6	1.6
Remote	2143	3	1.4	1.4
Very Remote	2457	2	0.8	0–1.8
Total	_184,254_	_1418_	_7.7_	

†Excludes three hospitals not included in the non-admitted patient performance report and their associated 69 MHEC clinical services.

Table 3. MHEC video assessments in 2011.

	Total clinical services	Video assessment	
		Number	%
Total	1487	571	38
Hospital classification			
Base Hospital (4 EDs‡)	733	191	26
District Hospital (16)	539	265	49
Multi-Purpose Service (22)	205	111	54
Other Health Service (6)	10	4	40
Remoteness category			
Inner Regional (10 EDs)	770	183	24
Base Hospital (3)	582	102	18
Non-Base Hospital (7)	188	81	43
Outer Regional (22)	520	271	52
Base Hospital (1)	151	89	59
Non-Base Hospital (21)	369	182	49
Remote (11)	188	111	59
Very Remote (5)	9	6	67
Transfer of care†			
Local Outpatient	986	296	30
Base Hospital	530	108	20
Non-Base Hospital	456	188	41
Local Inpatient	177	116	66
Base Hospital	45	24	53

(continued)

Table 3. Continued.

	Total clinical services	Video assessment	
		Number	%
Non-Base Hospital	132	92	70
MHIPU§	299	134	45
Base Hospital	153	54	35
Non-Base Hospital	146	80	55

†Excludes 25 cases for which transfer of care was not recorded.
‡Emergency Department.
§Mental Health Inpatient Unit, co-located in the Base Hospitals.

staff, and provide feedback on service relevance, acceptability and improvement. One strategy to ensure that the service is aligned to patient need is continuing review of service use, to monitor activity from each community and identify outlier EDs for follow-up.

Access to video assessment is a feature of the MHEC programme. Each clinical service begins with a telephone triage. For some patients, the triage indicates that they require urgent admission to a MHIPU. For those with less urgent problems, follow-up as an outpatient is appropriate, and for others, a more detailed clinical assessment is warranted. Excluding one base hospital, about half the MHEC patients had a video assessment. The data suggest that the detailed assessment contributed to decisions about managing patients, particularly whether to transport a patient or not. This is reflected in the increasing

use of video assessment in the more remote locations where options for providing care locally are limited and a decision to transfer the patient can have significant implications for patients and their families, as well as the local providers, emergency services and the health services. With a video assessment, a more informed decision can be made about where to manage the patient and what care is required. The finding that patients assessed by video were more likely to be hospitalised, and that the majority were admitted to the local hospital rather than being transferred to a MHIPU, suggests effective collaboration between the MHEC programme and local hospitals. While it is not possible to determine whether the MHEC programme reduces the number of unnecessary inter-hospital transfers from this data, the evaluation demonstrates that the key elements to achieving that are well established.

The MHEC programme was designed for the Australian health system. The same model could be adapted for implementation in other countries with similar health systems. There are few effective programmes to improve access to specialist emergency mental health care for rural communities and one that is used and improves access and provision of such care is invaluable.

Limitations

The use of routinely collected activity data did not include all possible variables of interest, such as the time of day a call was received. The explanation for service activity levels and patient management is speculative.

Conclusions

The MHEC programme can improve access to specialist emergency mental health care. It is the first programme that combines a dedicated and regionally-based specialist team with 24-hour access and availability through telepsychiatry for patients and providers in rural and remote communities in western NSW. The video assessment is an integral aspect that contributes to clinical decision-making. The programme is a relevant, practical solution for providing emergency mental health care and support to local providers, such as EDs in Australia or even overseas.

References

1. Australian Institute of Health and Welfare. *Mental Health Services Provided in Emergency Departments*. Canberra: AIHW, 2012.
2. Larkin GL, Claassen CA, Emond JA, Pelletier AJ, Camargo CA. Trends in U.S. emergency department visits for mental health conditions, 1992 to 2001. *Psychiatr Serv* 2005;**56**:671–7.
3. Wand T, White K. Examining models of mental health service delivery in the emergency department. *Aust N Z J Psychiatry* 2007;**41**:784–91.
4. Wand T, Fisher J. The mental health nurse practitioner in the emergency department: an Australian experience. *Int J Ment Health Nurs* 2006;**15**:201–8.
5. Rajkumar S, Hoolahan B. Remoteness and issues in mental health care: experience from rural Australia. *Epidemiol Psichiatr Soc* 2004;**13**:78–82.
6. Roberts LW, Battaglia J, Epstein RS. Frontier ethics: mental health care needs and ethical dilemmas in rural communities. *Psychiatr Serv* 1999;**50**:497–503.
7. Sivakumar S, Weiland TJ, Gerdtz MF, Knott J, Jelinek GA. Mental health-related learning needs of clinicians working in Australian emergency departments: a national survey of self-reported confidence and knowledge. *Emerg Med Australas* 2011;**23**:697–711.
8. Saurman E, Lyle D, Perkins D, Roberts R. Successful provision of emergency mental health care to rural and remote New South Wales: an evaluation of the Mental Health Emergency Care-Rural Access Program. *Aust Health Rev* 2014;**38**:58–64.
9. Australian Bureau of Statistics. *2011 Census Quick Stats*. Canberra: ABS, 2011.
10. Australian Bureau of Statistics. Remoteness Structure. See http://www.abs.gov.au/websitedbs/D3310114.nsf/home/remoteness+structure (last checked 15 June 2014).
11. NSW Health. Find Your Health Service. See http://www0.health.nsw.gov.au/hospitals/search.asp (last checked 30 June 2014).
12. Wessa P. Free Statistics and Forecasting Software. See http://www.wessa.net/ (last checked 15 June 2014).
13. Standing Council on Health. National Strategic Framework for Rural and Remote Health. See http://docs.health.vic.gov.au/docs/doc/60915940406D8D40CA257A06001B3012/$FILE/FINAL%20-%20NSF%20web%20accessible%20pdf.pdf (last checked 15 June 2014).
14. Ghobadian A, Speller S, Jones M. Service quality: concepts and models. *International Journal of Quality and Reliability Management* 1994;**11**:43–66.