

Changing the face of mental health care through needs-based planning

Gavin Andrews and Nickolai Titov

Abstract

Mental disorders contribute to the burden of human disease. The National Survey of Mental Health and Wellbeing revealed low participation in treatment. The Tolkien II report provided evidence that a mental health service that utilised needs-based stepped care was likely to be effective and affordable to the point that a 30% increase in budget would treat 60% more people and produce a 90% increase in health gain.

Five priorities were identified:

- Solve the crisis in psychosis by providing more step-down beds for people with schizophrenia who need long-term accommodation.
- Educate the workforce by providing a nationwide web-based basic curriculum.
- Use clinician guided, step-down web-based therapy for patients who are mild or moderate, and web-based education to enhance clinical treatment for patients who are more severe.
- Educate patients and their families about treatments that work and about lifestyle changes that facilitate these treatments.
- Reduce the onset of common mental disorders by using proven web-based prevention programs in schools.

With resources such as these in place, changing the face of mental health care might just be within our reach.

Aust Health Rev 2007: 31 Suppl 1: S122–S128

MENTAL DISORDERS RANK third after cardiovascular disorders and cancers as contributors to the burden of human disease.¹ While a small cause of mortality, mental disorders are the largest single cause of morbidity. In the 1997 Australian national mental health survey, 22% of adults met criteria for one or more mental disorders during the year, and 14% met criteria in the month of the

What is known about the topic?

Recognising the need to address the growing burden of mental health conditions the Australian Commonwealth and state governments have announced investment in mental health services. The authors suggest that this funding will not be used effectively if the current top-down approach is continued.

What does this paper add?

The authors discuss the results achieved with Tolkien II, a needs-based, costed stepped-care model for mental health services. The analysis suggests that with the number of people receiving treatment held constant, evidence-based care was no more expensive than current care. The new funds for mental health should allow a 60% increase in the number treated and produce a 90% increase in health gains.

What are the implications for practitioners?

The authors identified five priorities:

- provide more step-down beds for people with schizophrenia
- develop a nationwide web-based curriculum for health professionals
- use clinician-guided, step-down web-based therapy where appropriate
- educate patients and their families about lifestyle and treatments
- use proven web-based prevention programs in schools.

Gavin Andrews, MD, FRANZCP, Professor, Research Unit for Anxiety Disorders

Nickolai Titov, PhD, Senior Research Fellow, School of Psychiatry

University of New South Wales at St Vincent's Hospital, and World Health Organization Collaborating Centre for Classification in Mental Health, Sydney, NSW.

Correspondence: Professor Gavin Andrews, St Vincent's Hospital, 299 Forbes Street, Sydney, NSW, 2010.
gavina@unsw.edu.au

survey.² Half of the current cases were moderately or severely disabled by their mental disorder and only half of these disabled people had consulted about their disorder. Of those that did not consult, 60% said they had no need for medicines or counselling and preferred to manage themselves, and 40% said they had a need, had visited the doctor, but had not had a consultation for their mental disorder.

People disabled by a disorder should feel able to consult and get effective treatment. If half the people disabled by a disorder do not receive an appropriate consultation then we have a problem in educating doctors about the recognition and management of mental disorders. If half the people say they do not want treatment, then we have a serious problem in mental health literacy about the benefits of treatment.³

Tolkien II: a needs-based, costed, stepped-care model for mental health services

When health care resources are allocated, we traditionally take into account the budget available and the needs and demands of the stakeholder groups, and try for the most beneficial compromise. The Council of Australian Governments agreement, whereby the Commonwealth and the states and territories are committing some three billion dollars over 5 years, follows this pattern. This is a top-down status-quo approach.

The Tolkien II report was a modelling exercise that took a radically different approach.^{4,5} First the report identified the number of people with each mental disorder who sought treatment, identified the evidence as to what treatments could be of benefit, and then asked experts to describe the best intervention, at each level of severity, in terms of the staff and facilities required. It was a bottom-up approach — who is in need and how could that need for direct treatment be met in the most efficient fashion?

As a preliminary step before completing the Tolkien model, we explored the cost of increasing the proportion of people being treated in accordance with evidence-based medicine protocols.

Increased coverage appeared to be affordable largely because the additional cases tended to be of disorders that were easier and less expensive to treat.⁶ The Tolkien II report went further and described the details: the clinical pathways of such treatment, the demand for professional services, the facilities required and the costs. The method included a research-based synopsis for the 15 disorders that accounted for 95% or more of the workload, with calculation of the number of people with each disorder, controlling for comorbidity, and deciding on an optimal level of coverage. An expert group described evidence-based treatment for people with the disorder, resulting in 15 clinical pathways that specified clinician roles for patients at each level of severity, utilising a stepped-care concept. The workforce, bed-day and medication activity for the pathways was then costed.

Stepped care presumes that the least intensive and expensive treatment is used in place of a more expensive treatment of equal effectiveness that might become appropriate if the first treatment fails. Though widely used, there is little empirical research evidence about stepped care in mental health, hence the need to rely on the opinions of experts. The usual sequence of a stepped-care pathway runs from a least cost of “general practitioner advice coupled with guided patient self-management”, to GP treatment, to allied mental health staff treatment, to psychiatrist in ambulatory care, to inpatient admission. The care pathway was different for each of the 15 adult disorders studied.

According to the Tolkien report, if the coverage (proportion of people with a disorder being treated) had been held constant at 40% then the cost of evidence-based stepped-care treatment in 1997 dollars would have remained around the cost of services in 1997, but would have produced greater health gain. For the purposes of the Tolkien II exercise the proportion of people receiving ideal stepped-care treatment was increased to what is believed to be an attainable average coverage level of 65% (25% for alcohol dependence and bulimia nervosa; 30% for borderline personality disorder; 50%

for post-traumatic stress disorder, anorexia nervosa, neurasthenia and alcohol abuse; a notional 100% for schizophrenia; and 70% for the other 7 disorders). The cost of ideal stepped care at increased coverage was \$2617 million 1997 dollars for the same set of ten disorders as in Andrews et al,⁷ and \$2810 million if five additional disorders are added (Box). Compared with the data on the ten disorders in Andrews et al,⁷ a 30% increase in budget would treat 60% more people and produce a 90% increase in health gain.

The crisis in mental health care in Australia is often expressed as the difficulty in obtaining a bed for someone who is acutely psychotic. Acute-unit beds are usually full because there is nowhere to transfer patients once the acuity has lessened. Services that can't discharge can't admit. When acute-unit beds are full, patients who should be admitted have to be managed in the community, the workforce has to function in crisis mode, and staff burn-out, absenteeism and resignation are the consequences.

In 2003, Australia had a total of 25 public sector beds for adult general psychiatric patients per 100 000 population; comprising 15 acute beds, 6 fully staffed rehabilitation beds in hospital or community, and 4 visited community beds.⁸ In the stepped-care Tolkien model for the 15 adult disorders we estimate that, for a catchment area of 100 000, and leaving aside the role of the private hospitals, there would be a need for 15 acute-unit beds, 10 rehabilitation beds, and 30 visited community beds, totalling 55 beds/100 000. One disorder, schizophrenia, would account for most of these places. Transition out of the system would be to housing commission accommodation or other lodging, with the health service continuing oversight of rehabilitation and return-to-work of patients. The shift in emphasis from dependence on acute units as the major resource, to rehabilitation units plus good community accommodation coupled with exemplary community care as the major resource, is virtually cost neutral in respect to recurrent expenditure given that we already treat virtually everyone with schizophrenia.

Managing change

In late March 2006, the Commonwealth announced a substantial increase in funds for mental health with state funds to follow. The total may exceed 3 billion over the 5 years and is directed to solve the problem as perceived by the governments. Changing systems is always difficult and, like research, is the art of the possible. The advent of substantial additional funds means that a number of the problems listed above could be solved, but none can be solved the day that the money becomes available. In Tolkien II the authors attempted to prioritise the issues unlikely to be solved by the new funding, namely solving the crisis in psychosis, educating the workforce, improving coverage, and educating patients and their families. We now add a fifth goal — rolling out a school-based program aimed at preventing the onset of the common mental disorders, because this now appears to be possible and could make a material difference.

1 Solving the crisis in psychosis

Until the crisis in psychosis is solved, the conditions for patients and staff will remain intolerable. Therefore, if we want to attract staff to mental health we need to solve the psychosis problem quickly by ensuring that step-down accommodation and other resources become available. We need four times the number of rehabilitation beds and community places that presently exist. Establishing those places would cost a one-off \$500 million because the states already provide the recurrent services.

2 Educating the workforce

The workforce consists of GPs and their practice nurses, community mental health staff (mainly nurses), clinical psychologists, and psychiatrists. There is no agreed curriculum and, without education, performance and staff satisfaction will remain poor. A taskforce of all the stakeholders will need to identify the content of the relevant educational programs, the mode of delivery and the level of supervision required.

3 Improving coverage

Improving coverage from an average of 40% to an average of 65% is probably attainable, whereas 80% coverage, as exists for physical disorders, is not. This will be a slow process, for to do it too quickly will mean recruiting untrained or difficult-to-train staff. Increasing staff by 5% per annum over the 5-year period is probably attainable. Increased staff education should facilitate this process.

4 Educating patients and their families

There is good evidence that patient education improves outcome. For milder variants of some disorders patient education is sufficient to alleviate the disorder, and for other variants it reduces the need for hospital care or facilitates the treatment program prescribed by the GP or mental health specialist. For example, family and patient education programs in schizophrenia can reduce service use by 40% without reduction in clinical

The Tolkien II estimates of cost and effectiveness of treatment given ideal coverage and ideal mix of interventions

	N to be treated*	Coverage† (%)	Burden averted‡ (%)	Cost per case§ (AUD)	Total cost¶ (AUD [millions])
Affective disorder					
Depression	447940	70	26	1327	594
Dysthymia	54246	70	27	972	53
Bipolar disorder	47810	70	35	4008	192
Anxiety disorder					
Panic disorder/agoraphobia	120376	70	21	876	105
Social phobia	143676	70	34	564	81
Generalised anxiety disorder	257865	70	48	1111	286
Post-traumatic stress disorder	161987	50	17	1444	234
Alcohol use disorder					
Alcohol harmful use	127525	50	14	474	60
Alcohol dependence	59480	25	8	1917	114
Schizophrenia	41197	100	22	15778	650
Any study mental disorder	1462102	65	25	1627	2379
Additional disorders					
Anorexia nervosa	6731	50	-	4456	30
Bulimia nervosa	20195	25	-	1319	27
Neurasthenia	59050	50	-	322	19
Obsessive-compulsive disorder	23922	70	-	1899	45
Borderline personality disorder	15400	30	-	4367	67
Any additional disorder	125298	-	-	1500	188
Grand total	1587400			1611	2557

Note: Estimates in disorder groups (any affective, anxiety, substance use or mental disorder) may be different to summed estimates across individual disorders due to rounding up or down of numbers for presentation.

* Calculated from the number of adults in Australia with this disorder as a principal complaint adjusted for increased coverage. The number treated with current coverage can be obtained from columns 1 & 2 in table 1.

† The maximum proportion likely to seek treatment

‡ See Andrews 2006⁶

§ Cost per case: the total cost divided by the estimated number treated

¶ Total cost: the cost of all services, drugs and accommodation days recommended by the expert panels – 1997 costs and dollars. Amended from Andrews 2006⁶ with permission.

status. Education about self-management should be widely available.

5 Prevention of mental disorders

Mental disorders are diseases of the young: the median age of onset is 22. School prevention programs can be effective,⁹ but there are two problems. The first is scalability, the difficulty of training staff to deliver the programs, whether the prevention is targeted to children at risk or given to all children. The second is fidelity, the gradual degradation of proven programs as successive teachers modify them to fit the demands of the particular school situation.

Web-based resources

Since the publication of the Tolkien II report, considerable activity has gone into making the stepped-care model viable; specifically in producing the web-based tuition required. Sixty per cent of Australians have internet access at home, and all can obtain access from their local library. In the United States, 80% of adults using the web use it for health information.¹⁰ As is usual with new developments, it is the poor who are disenfranchised, this time by culture but not by cost. Tuition for GPs and their patients is in place, prevention programs embedded in the high-school curriculum are succeeding, and tuition for mental health staff will commence in 2007. Tuition for patients of specialist mental health services is yet to be developed. One supplier of web-based resources is the not-for-profit Clinical Management and Treatment Education (Climate) system from St Vincent's Hospital, Sydney.

Climategp.tv began as a patient education system in which cartoon-based recovery stories were used to encourage people with chronic diseases to work towards being well. Eventually, 16 programs for 8 diseases, the major health priority diseases, were developed and the system was launched, with GPs prescribing coupons for Climate to their patients. The system measures wellbeing at each visit, displays the correct episode of the recovery story, sets homework and reports on patient wellbeing to the doctor. Some

500 GPs are enrolled, with numbers growing steadily. The average patient who completes a module makes a 26% improvement in functioning (effect size = 0.6) but completion is dependent on the GP providing encouragement and advice. *Climategp.tv* is a supplement, but no substitute for good clinical care. We do not know of other web-based, clinician-mentored programs for a broad range of disorders common in primary care.¹¹

Climategp.tv contains a "doctors club" that provides tuition, allows the doctor to examine the patient education material, see the progress of their patients, and complete continuing education over the web. The continuing education modules are one of the principal attractions for the GP to subscribe to www.climategp.tv. They are available for the three anxiety disorders and for depression, and will be available for a number of other chronic disorders. The doctors database is being enlarged to provide a flexible patient registry. The alcohol module is waiting to be installed. We are funded to develop modules for dementia carers and we need to develop modules for falls in the elderly, smoking, pain, weight loss and exercise. At present there are some 68 lessons for patients, and there are plans and resources for 100 lessons for patients and doctors. There is already a need to begin to revise programs to keep them up to date.

Climatemh.tv is envisaged as a set of 144 lessons that provide in situ web-based continuing education for all mental health staff, public and private. There is agreement in principle from the state and territory governments and from New Zealand for the production of appropriate lessons that cover knowledge about the recognition and treatment of the major mental disorders, and then provide instruction in clinical skills and service issues. The lessons could be backed by a "tutors club" that contains extra resource material and provides support for each lesson. We already produce the dominant texts in the area.^{12,13} The web-based programs would be an amplification of this material. We do not know of other web-based professional development curricula for mental health staff.

Climateschools.tv is a school-based program for prevention of emotional disorders. It is built upon the premise that if we produce lessons that match the current high-school curriculum then teachers, who have difficulty teaching the “health and personal development” curriculum, will be pleased, and so will the students. At present we have six lessons for reducing stress and six for reducing alcohol use (www.climateschools.tv). All lessons are backed by a web-based “teachers club” that offers continuing professional education and provides lesson-by-lesson background information and supporting classroom materials. We are unaware of other web-based school prevention programs that were designed to replace curriculum lessons.¹⁴

The alcohol course takes a harm minimisation approach. Most Year 8 students are familiar with alcohol. While it recommends abstinence as the safest option, it acknowledges that alcohol use is a reality for many young people in a society where alcohol use is commonplace. By doing so, it deliberately seeks to engage those young people who have already embarked on harmful patterns of alcohol use or who, for a range of reasons, will do so despite the best attempts to encourage abstinence. A randomised controlled trial in 16 schools (where the control was health and personal development classes as usual) found that the alcohol course was effective in increasing knowledge of alcohol-related harms (significant in boys and girls); reducing the perceptions of the social and emotional benefits of alcohol consumption (significant in boys and girls); and decreasing average alcohol consumption, excess alcohol consumption and related harms (significant in girls only). Both boys and girls agreed that the cartoon story and skills were equally relevant to current and future experiences in their lives.¹⁵ The cannabis and drug misuse courses that are being prepared will begin by reinforcing the harm minimisation message of the alcohol module.

The stress course is different. Year 8 students are not familiar with ideas about stress, and many lack a language to describe their stress-related feelings and behaviours. The course uses an interactive style. Students learn about stress,

about helpful and unhelpful ways of coping, that our thoughts influence our feelings and our actions, about a good technique for solving problems, about ways to cope in times of high stress, and about the connection between mental wellbeing and lifestyle factors. Data from a cohort trial in 12 schools showed that students in the Climate cohort improved their active coping skills, reduced their scores on the strengths and difficulties emotion sub-scale, and improved their knowledge about coping with stress.¹⁴ The anxiety and depression courses that are in preparation will build on this knowledge.

Conclusions

The new funding of three billion dollars over 5 years for mental health announced by the Commonwealth and states and territories is a significant top-down approach to the demands of the stakeholders and the perceived problems in mental health services. Tolkien II, a needs-based, costed stepped-care model for mental health services is different. It is a bottom-up approach that begins by identifying those in need and determines how good medicine could be provided in the most efficient fashion.

With the number of people receiving treatment held constant, evidence-based care was no more expensive than current care. The new funds for mental health should allow a 60% increase in the number treated and produce a 90% increase in health gains.

One major problem remains. The shortfall in rehabilitation accommodation for people with schizophrenia means that the acute psychiatric units will remain overloaded and the crisis in mental health will continue. Establishing those places would cost a one-off \$500 million, as the states already provide the recurrent clinical services required.

One opportunity has opened up. Provision of web-based educational programs has a number of advantages. They are affordable, fidelity is assured, and they are both scaleable and sustainable. Courses to educate the workforce, to educate patients and their families, and to provide

classroom lessons to prevent mental disorders either exist or are rapidly coming on line.

With these resources, changing the face of mental health care might just be within our reach.

Competing interests

The authors declare that they have no competing interests.

References

- 1 Mathers C, Vos T, Stevenson C. The burden of disease and injury in Australia. Canberra: Australian Institute of Health and Welfare, 1999. (AIHW cat no. PHE17).
- 2 Andrews G, Henderson S, Hall W. Prevalence, comorbidity, disability and service utilisation. Overview of the Australian National Mental Health Survey. *Brit J Psychiatry* 2001; 178: 145-53. [Erratum in: *Br J Psychiatry* 2001;179: 561-2.]
- 3 Andrews G, Henderson S (editors). Unmet need in psychiatry. Cambridge: Cambridge University Press, 2000.
- 4 Andrews G, Tolkien II Team. Tolkien II: a needs-based, costed, stepped-care model for Mental Health Services (2nd edition). Sydney: World Health Organization Collaborating Centre for Classification in Mental Health, 2007.
- 5 Duckett SJ. Investing in sound mental health [book review]. *Med J Aust* 2006; 185: 386.
- 6 Andrews G. It would be cost-effective to treat more people with mental disorders. *Aust N Z J Psychiatry* 2006; 40: 613-15.
- 7 Andrews G, Issakidis C, Sanderson K, et al. Utilising survey data to inform public policy: comparison of the cost-effectiveness of treatment of ten mental disorders. *Br J Psychiatry* 2004; 184: 526-33.
- 8 Australian Government Department of Health and Ageing. National Mental Health Report 2005. Canberra: Commonwealth of Australia, 2005.
- 9 Andrews G, Wilkinson D. The prevention of mental disorders in young people. *Med J Aust* 2002; 177 Suppl; S97-S100.
- 10 Anderson JG. Consumers of e-health: patterns of use and barriers. *Soc Sci Comput Rev* 2004; 22: 242-8.
- 11 Titov N. Status of computerized cognitive therapy for adults. *Aust N Z J Psychiatry* 2007; 41: 95-114.
- 12 Treatment Protocol Project. Acute inpatient psychiatric care. A source book. (2nd ed). Sydney: World Health Organization Collaborating Centre for Mental Health and Substance Abuse, 2003.
- 13 Treatment Protocol Project. Management of Mental Disorders (4th ed). Sydney: World Health Organization Collaborating Centre for Mental Health and Substance Abuse, 2004.
- 14 Van Vliet H, Newton N. CLIMATE schools: the development and evaluation of a computer-based prevention program for adolescents. 5th Australian and New Zealand Adolescent Health Conference, Sydney, 2006 Nov 13-15: 64.
- 15 Vogl L, Teesson M. The efficacy of a computerised school-based prevention program for problems with alcohol misuse: climateschools. *Alcohol Clin Exp Res* 2006; 30 (6 Suppl 2): 198a.

(Received 31/10/06, revised 7/12/06, accepted 23/01/07) □