Reviewing the learning organisation model in a child and adolescent mental health service

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Abstract

From 1995 onwards, a child and adolescent mental health service (CAMHS) applied Senge's learning organisation model. This review compared service performance with that of peer services 5 years later and explored whether any differences were associated with the application of this model. The comparison methodology used quantitative analysis of external data from the Department of Human Services, together with qualitative analysis of material including interviews with CAMHS directors and service managers.

Results showed high evaluation activity and high quality, efficiency and efficacy of care compared with other services. Several restraints to the optimal application of the model were identified, including inadequate training of new managers, service overload, major external organisational change and limited investment in information systems. Other outcomes are discussed.

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IN THE 1990S, the management literature was stimulated by the concept of organisations that learned and adapted to their environments.[1,2] The "learning organisation" model seemed suitable for health services expected to continuously improve quality to meet health care accreditation requirements, attract and retain skilled clinical staff to provide evidence-based treatments at lowest cost,

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What is known about the topic?

The concept of a learning organisation that has processes and structures to facilitate continuous learning has been a feature of the management literature since the 1990s. The learning organisation model seems particularly suitable for health services that are looking to continually improve service quality, but there are few reported evaluations of the application of this model in the Australian literature, particularly in the mental health field.

What does this paper add?

In 1995, a Melbourne child and adolescent mental health service applied the learning organisation model, using a template developed from a review of the literature. The template focused on the 8 organisation dimensions of leadership and vision, organisational design, culture, work design, perception, information processing, communication and motivational systems. This paper provides an evaluation methodology and describes the major outcomes of the learning organisation model.

What are the implications for practitioners?

The evaluation suggested that the learning organisation model provided an effective approach to enhancing service delivery and service quality within this mental health service. For continuing high performance, it requires ongoing maintenance of a learning culture and training of service leaders and managers in the skills of dialogue, group learning, personal mastery and surfacing mental models. ◆

while being innovative and adaptive in service delivery. Learning organisations need tools for data gathering; structures and processes for decision making and coordinated action; cultures of honest inquiry and mental models for group learning; and a major emphasis on evaluation and use of evidence.[3] From 1995 onwards, Maroondah Hospital Child and Adolescent Mental Health Service, now Eastern Health Child and Adolescent Mental Health Service (EH CAMHS), applied this model during a period of service expansion. The learning organisation concept, the rationale for its use, and the application have been

described in two previous articles.[3,4] Positive outcomes were observed by 1997. EH CAMHS was the first Australian CAMHS to introduce routine outcome measurement, which was linked with a patient satisfaction monitoring system, a performance guidance system to support regular clinical reviews, and specialist clinical programs for specific disorders. The service formalised linkages with two academic institutions and had high staff morale.[4]

However, it is not uncommon in the organisational literature to observe positive outcomes from the introduction of any new project. The "Hawthorne effect" was first noticed in 1927 during research in an Illinois electric plant, and this term is still used to describe the improved team performance when an organisation is studied. In the light of this, the positive preliminary impressions of the learning organisation model in EH CAMHS were considered to be tentative.[4] It was important to formally review the organisation 8 years after the learning organisation project began, to examine whether or not its promise had been sustained.

The context

Victorian CAMHS provide mental health services to people under 18 years of age with serious psychiatric disorders.[5,6] These problems are common — 14% of Australian children and adolescents suffer from mental health difficulties that adversely affect their health and development.[7] While people under 18 years form 27% of the population and national mental health policy espouses early intervention,[8] there has been under-investment in services, so that CAMHS receive only 8% of public specialist mental health funding in Victoria.[9,10] In order to focus scarce resources, the Victorian Department of Human Services (DHS) applies a tiered model of service provision, and specialist CAMHSs prioritise clients with severe, complex and high risk problems.[6] Services are encouraged to use focal treatment planning and to apply evidence-based treatment approaches. The catchment population of EH CAMHS includes 187 000 children and

adolescents aged between 0 and 17 years.[11,12] Current planning estimates are that 2.5% of the 0–17-year age group have serious difficulties,[13] which means that 4675 individuals annually in the EH CAMHS catchment are likely to need help.

In practice, the service intake receives some 1500 referrals per year and uses telephone pre-assessment to determine severity, complexity and risk. There is capacity to accept about 900 new referrals each year, in addition to seeing clients whose care continues from previous years. Referrals are triaged to urgent or routine client status, or redirected to other services if these are available and appropriate. EH CAMHS is well connected to its referral network and attempts to enhance accessibility for clients through two main strategies. First, it has a well-developed community program where clinicians provide secondary consultation to major partners and high referral sources and offer mental health education so community partners can assist their clients more effectively. Second, it delivers multidisciplinary outpatient services through three geographically separate clinics based in major conurbations, with each team containing between 6 and 10 full-time-equivalent (FTE) staff. A service procedure manual emphasises the value of rapid assessment, collaborative service planning and review, and using data for decision-making.[14]

The learning organisation model in Eastern Health CAMHS

An initial paper[4] described how the literature was used to develop a template, with eight core organisational dimensions, which would support evaluation, learning and adaptation:

- Leadership and vision (to align direction);
- Organisational design (how structures and processes can support group learning);
- Culture (how questions are raised and explored);
- Work design (how learning is built into jobs);
- Perception (how data are collected and used);
- Information processing (how knowledge is built and turned into action);

- Communication (how information and knowledge is transferred); and
- Motivational systems (why anyone bothers).

From the start, it was anticipated that it might not be easy to build or maintain a learning organisation. In addition to the intrinsic obstacles of any organisational change and entropy over time, mental health service clinicians who serve stressed and traumatised clients are themselves vulnerable to the emergence of defensive behaviour patterns driven by strong emotions.[15,16,17] While the primary purpose of these is to manage work-related stresses, they also reduce communication, openess to learning, team efficiency and effectiveness.[17] The external environment of EH CAMHS was also expected to affect the service. Its characteristics included a suburban and semi-rural location; not being linked to major teaching hospitals; geographically separate outpatient clinics and inpatient programs; a limited academic budget and a funding formula based on estimates of need for adults with schizophrenia rather than on child and adolescent needs.[18,19] The auspice health service has undergone major organisational change since becoming integrated into the Eastern Health metropolitan health care network in 2000.

The review project aimed to answer the following questions:

- Was there a measurable difference in general performance and in specific learning and evaluation activity between EH CAMHS and other metropolitan CAMHS?
- Were any differences associated with particular aspects of the core organisational dimensions?
- With what fidelity had EH CAMHS applied the learning organisation model and were there identifiable restraints to its application?

Methodology

This project used formative and summative evaluation strategies to:

- Review the extent that the original organisational aims had been met.
- Quantitatively compare organisational performance on service activity data submitted by

all metropolitan CAMHS to the Department of Human Services (DHS) in 1999–2000.

- Examine the quality of clinical care recorded in external review reports by the Chief Psychiatrist and the Australian Council on Healthcare Standards (ACHS).
- Qualitatively analyse responses to a structured interview with directors of all metropolitan CAMHS about the performance of their organisations.
- Qualitatively analyse de-identified responses to a structured interview with EH CAMHS management team members about the functioning of the organisation.

The DHS provided de-identified quantitative data from its RAPID information system, together with quantitative and qualitative data from two independent reviews conducted by the DHS Mental Health Branch. The first of these was the 2001 Victorian CAMHS Service Improvement Initiative, which examined staff levels and activity data from every service, using comprehensive data from the 1999–00 financial year.[12] This is the quantitative dataset used to compare EH CAMHS with peer services, unless otherwise specified. Quantitative analysis was carried out using the Statistical Package for the Social Sciences (SPSS, Version 11.0, Chicago, Ill, USA), to compare EH CAMHS with other CAMHS on outpatient and inpatient service activity.

The Office of the Chief Psychiatrist, DHS Mental Health Branch, carried out the second independent audit of EH CAMHS in 2003. This body has conducted clinical reviews of all Victorian mental health services since 1998, and as its report makes some reference to relative performance, this is cited where relevant. An ACHS mental health in-depth review was conducted in 2004, and this also provided some quality feedback.

In addition, all Directors of other metropolitan CAMHS were contacted in 2004. All agreed to be interviewed about their own services, and a semi-structured interview (available from the principal researcher (P Birleson) was used to gather qualitative data about the organisational dimensions described earlier. This identified organisational

1 Managers' interview response in 2005, assessing achievement of original aims of service development in Eastern Health Child and Adolescent Mental Health Service	
Original aims (described in 1996)	**Achieved (Yes/No)**
Consumer feedback and client satisfaction will be sought by several means	Yes
Specific clinical programs will be designed for particular patient populations	Yes
A research program will be established to measure outcomes and improve services	Yes
Routine outcome measurement and feedback mechanisms will be established	Yes
Clinical services will be evidence-based and open to ongoing evaluation	Yes
Research program reports will occupy part of staff development activity	Yes
Staff development will include focus on dialogue and teamwork skills	Yes
Peer review of clinical work will be introduced	Yes
Staff will be actively involved in clinical review processes and continuous quality improvement activities	Yes
Discipline and sub centre interests will be secondary to service goals	Yes
Staff meetings will be characterised by questioning, debate and dialogue	Yes
Service assumptions will be surfaced and be open to question and exploration	Yes
Clinical and research work outputs will compare well with other CAMHS	Yes
Unplanned staff turnover will be low	Yes until 1999/2000

strengths and weaknesses. To ensure accuracy, interview data were returned to the Directors for review and correction if required. The verbatim interview data were de-identified and summarised to extract major themes for each metropolitan service. The second author (P Brann) compared these summary data with the summary interview data about EH CAMHS provided by the EH CAMHS Director.

To examine the internal functioning of EH CAMHS, an external research assistant used a similar questionnaire to interview all EH CAMHS managers about their perceptions of service performance in the eight key organisational dimensions. Interviewees were guaranteed anonymity. The research assistant conducted a thematic analysis of de-identified manager interview data to summarise managers' perceptions of current organisational functioning as well as their views about how this functioning could be improved. These summary data were then re-examined by the second author for factors thought to influence the effectiveness of evaluation, learning and improvement activity in EH CAMHS. All the review and evaluation activity undertaken in EH CAMHS in the past 5 years was gathered, and this material was also examined for information about facilitators and restraints to learning in the service.

Results

The original 1995–1996 service aims were developed from our understanding of the learning organisation model, and their application was described in 1998.[4] These are listed in Box 1. Manager interview data confirmed that all the original aims had been achieved, and were still being met until 2001 when staff turnover increased. This followed changes in the managers of two community teams. The teams then required periods of rebuilding under new leaders who were only briefly oriented to the learning organisation model and were not specifically trained in learning organisation leadership skills, including dialogue and skilful discussion. Despite these changes, the service continued its commitment to evaluation and continual improvement with a steady series of internal review projects (Box 2).

2 Evaluation and development projects in Eastern Health Child and Adolescent Mental Health Service (CAMHS) between 1999 and 2004
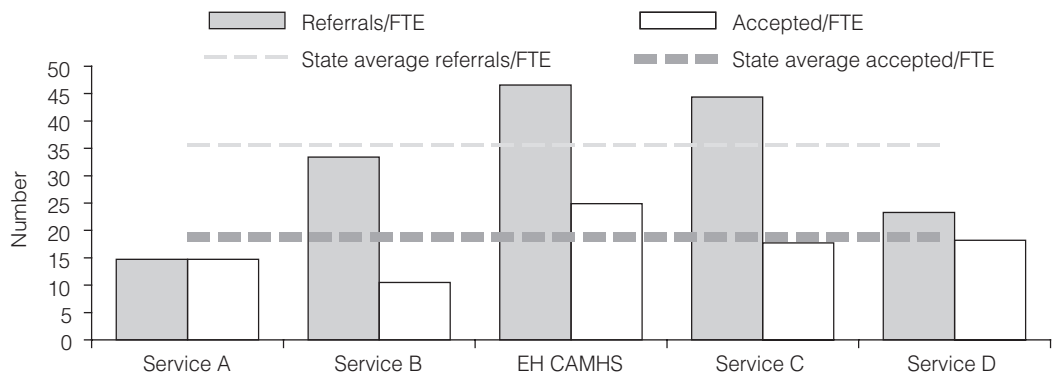
Period	Project
1999–2000	Collaborative Care Project Eastern Metropolitan Region — Maroondah Hospital CAMHS, child protection and juvenile justice Project to automate outcome measurement in Maroondah Hospital CAMHS
2000–2001	Review of Maroondah Hospital adolescent inpatient psychiatry unit Review of need for a day program for school-aged children GP shared care project for child and adolescent mental health
2001–2002	Collaboration project between Maroondah Hospital CAMHS and the Eastern Metropolitan Region Department of Education Review of key performance indicators and development of program theory for CAMHS key performance indicators
2002–2003	Review of mobile adolescent team Review of intake data and submission for supplementary funding for child and adolescent mental health services in the Yarra Valley
2003–2004	Review of homelessness agencies resource project Review of clinician workloads: (outcome: workload report and guidelines for managing work stress) Review of group programs
2004–2005	Review of clinical supervision Review of specialist clinical programs ◆

Statistical comparisons are reported where EH CAMHS appears to be an outlier to the mean of the comparison CAMHS and single sample t-tests were used. Inter-service comparison of referrals per FTE and accepted cases per FTE is shown in Box 3. Other metropolitan CAMHSs have been labelled A to D to prevent identification of other services. EH CAMHS was the busiest service in 1999–2000, with the highest number of referrals per FTE and cases accepted per FTE. EH CAMHS accepted significantly more cases per FTE than the mean rate for other services ($t = 5.4$, df = 3,

3 No. referrals and accepted cases per full-time-equivalent (FTE) staff member, 1999–2000

EH CAMHS = Eastern Health Child and Adolescent Mental Health Service ◆

4 Average and maximum waiting times between referral and first appointment, 1999–2000

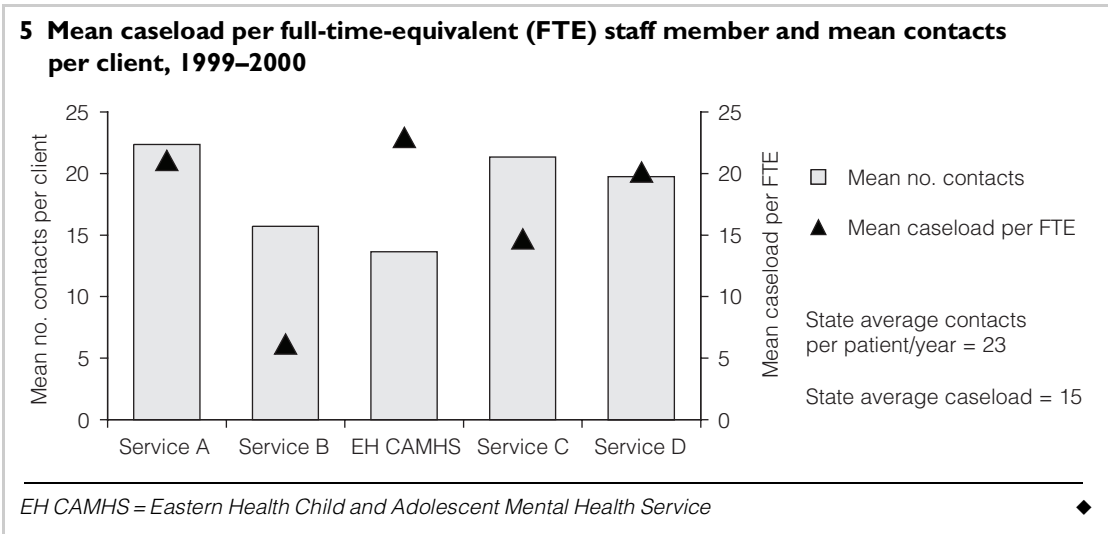CAMHS = Eastern Health Child and Adolescent Mental Health Service
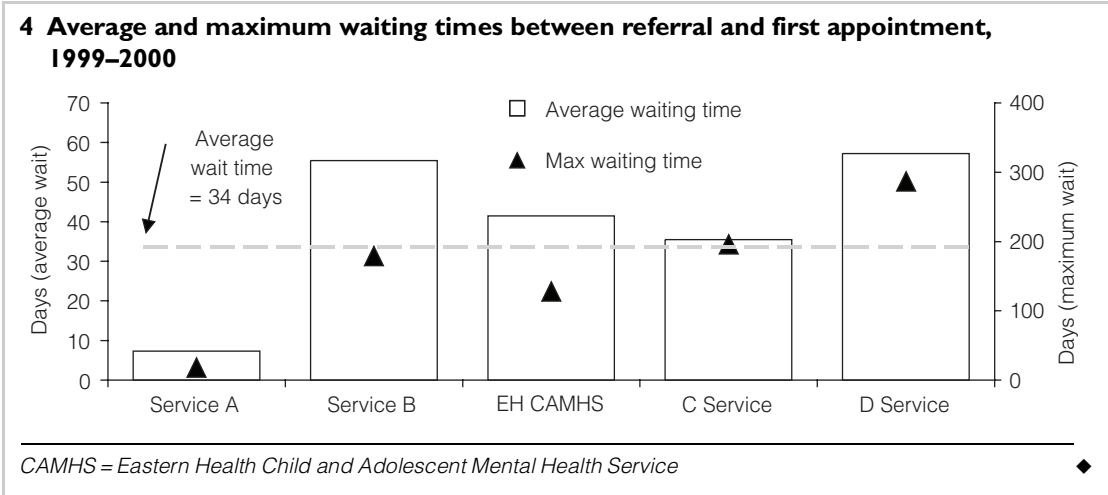
$\alpha < 0.05$). This is not to conclude that EH CAMHS had a higher rate than every other service, simply that the acceptance rate was higher than average.
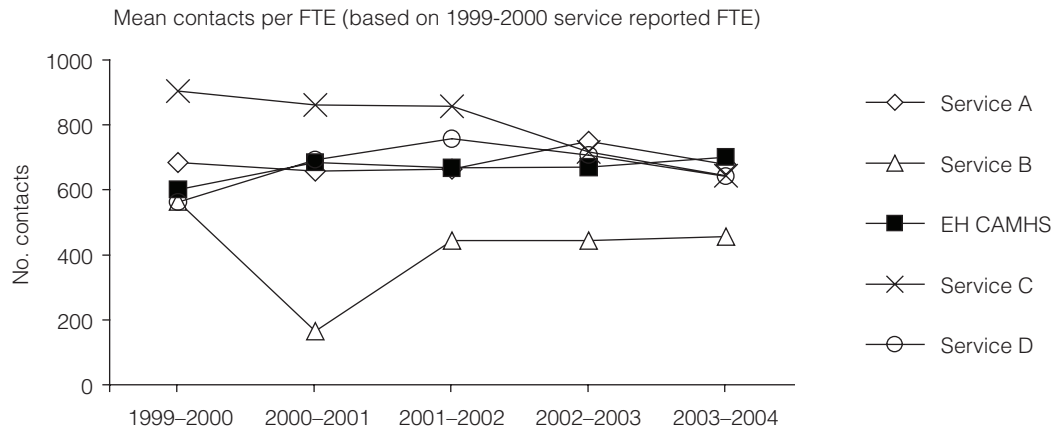
The annual rate of referred clients peaked at 1800 per annum in 1999, some 4 years after the introduction of the learning organisation model, although the referral rate has since fallen to 1500. The acceptance rate is about 50%. The mix of diagnoses of accepted cases was similar across all Victorian CAMHSs.[12]

The waiting time from referral to assessment for non-urgent cases is a major issue for most CAMHSs. Box 4 shows that during this period, the waiting time in EH CAMHS was slightly above the metropolitan average, although it was within the metropolitan range. The left axis shows mean waiting period before appointment, while the right axis shows the maximum wait. EH CAMHS was not significantly different from other CAMHSs in average or maximum waiting time. While EH CAMHS had the highest caseload per FTE, this did not differ significantly from the mean caseload of the other CAMHSs (Box 5). However, EH CAMHS did have significantly

5 Mean caseload per full-time-equivalent (FTE) staff member and mean contacts per client, 1999–2000

EH CAMHS = Eastern Health Child and Adolescent Mental Health Service

6 Number of community contacts per full-time-equivalent (FTE) staff member, 1999–2004

Mean contacts per FTE (based on 1999-2000 service reported FTE)

EH CAMHS = Eastern Health Child ad Adolescent Mental Health Service. ◆

fewer contacts per case than the mean of the other CAMHSs ($t = 4.21$, df $= 3$, $\alpha < 0.05$).

The volume of community assessments, treatment and liaison activity provided is shown in the number of recorded contacts (Box 6). EH CAMHS was in the middle of metropolitan CAMHSs in the number of contacts provided in 1999–2000. DHS activity data for the period 1999–2000 to 2003–2004 showed that the service output of EH CAMHS gradually increased during this period, but was not significantly different to other services. Higher caseloads mean that each patient must receive fewer contacts, as the available staff hours change little. Contact duration is also likely

7 Mean duration of clinical contacts per client for 2002–03 and 2003–04
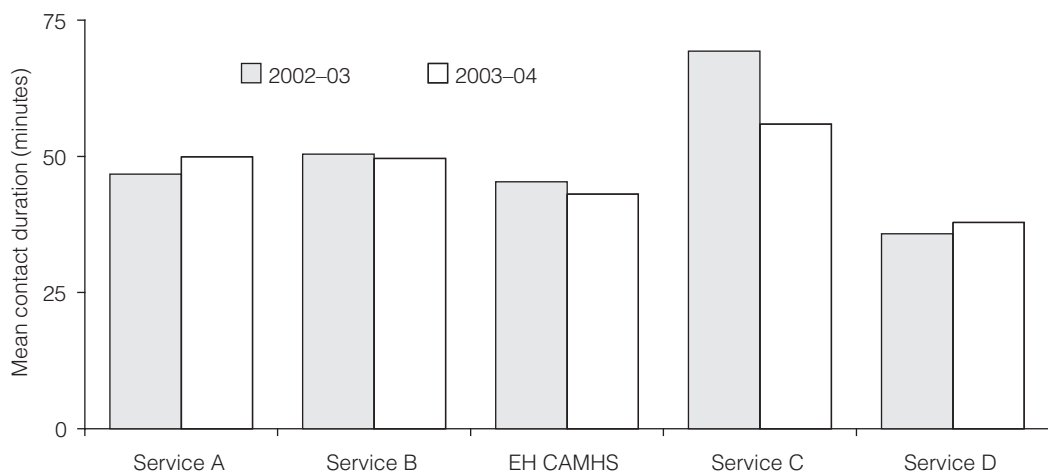
EH CAMHS = Eastern Health Child ad Adolescent Mental Health Service ◆

8 Number of inpatient admissions, 2000–04
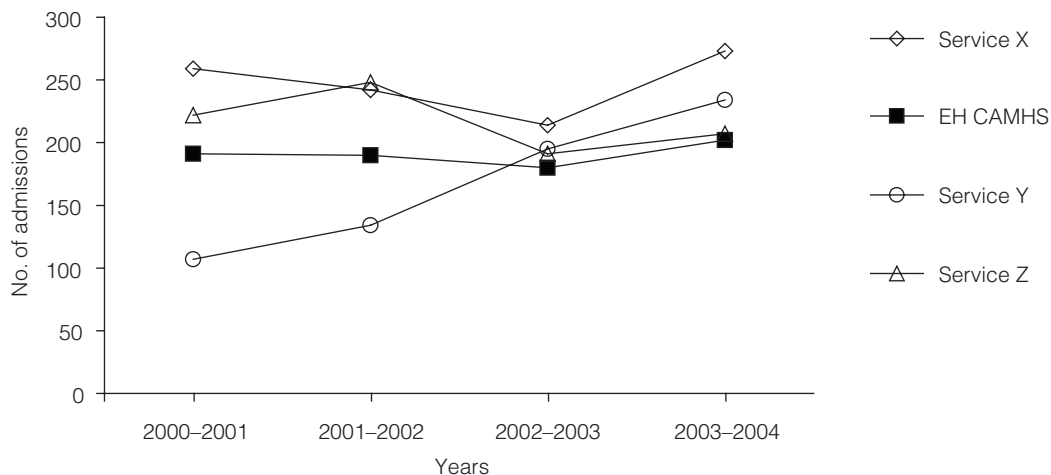
EH CAMHS = Eastern Health Child ad Adolescent Mental Health Service ◆

to be shorter. Box 7 shows the mean duration of contacts for the two financial years that these data were available. While not significantly different to the mean of the other services, EH CAMHS sat at the lower end of contact duration, with a slight decrease over the 2 years.

The numbers of inpatient admissions are seen in Box 8 and the length of stay is shown in Box 9. The EH CAMHS inpatient unit had a relatively low admission rate compared with peer services, and length of stay remained in the lower half of the service variation range between 1999–2000 and 2003–2004. The meaning of this is not known.

All CAMHS directors agreed to be interviewed. All reported that service workloads were high, and that reflection and evaluation activity was limited by preoccupation with clinical care and managing clinical demand. Most believed opportunity for whole-service learning was reduced by distance between dispersed community teams. Other barriers to learning were difficulty in attracting full-time psychiatrists, absence of academic staff and poor information technology support. Inter-team communication and change management presented significant difficulties for all other CAMHSs. While some research was

occurring in other CAMHSs, no alternative model was being used for integrating findings into service development or practice.

Service director interview data showed that EH CAMHS was perceived to use evaluation more readily, share information more effectively and conduct more review activity than other services. A striking cultural difference was that EH CAMHS clinicians were considered to be less cynical than others about outcome measurement. No other CAMHS had used the learning organisation model, although all had structures to support quality and performance improvement and all valued their linkages with community agencies. Other CAMHS had invested less in service review and had less well developed outcome evaluation systems, although the latter was beginning to change from 2003, when the National Outcomes and Casemix Classification (NOCC) project mandated the use of outcome measures in all publicly funded CAMHS.[20]

Implementation of routine outcome data collection in EH CAMHS had started 5 years earlier. Box 10 shows the mean assessment and discharge score for the clinician-rated Health of the Nation Outcome Scales for Children and Adolescents (HoNOSCA) during the 1999–2000

9 Mean duration of inpatient admissions
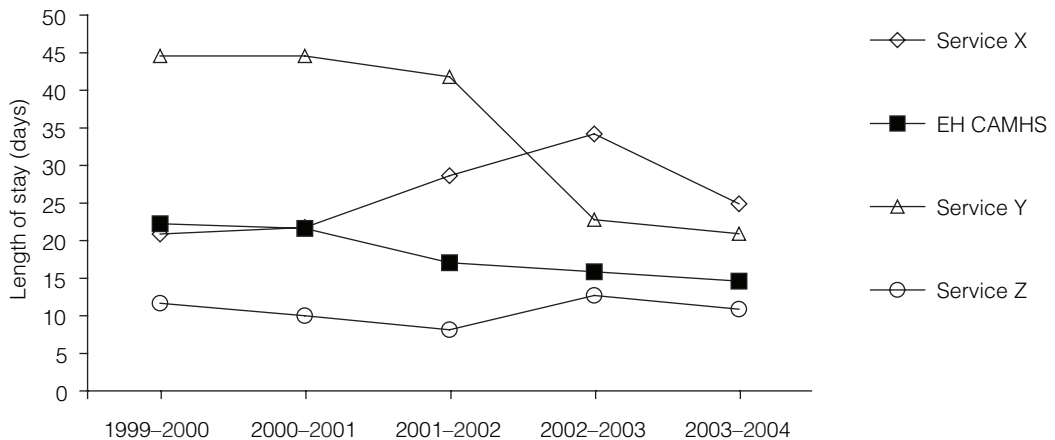
EH CAMHS = Eastern Health Child ad Adolescent Mental Health Service ◆

period. This showed a significant decrease in symptoms for clients seen in the service for both years (F = 99.10; df = 1, 984; α < 0.05). Nationally aggregated data became available during 2005. These show EH CAMHS having very similar means to the current national figures (assessment, 13.2; discharge, 8.7),[21] despite tending to have fewer contacts per patient than Victorian peers.

The external reviews provided validation of the quality of clinical care. The Report of the Chief Psychiatrist[22] stated that "The review team was very impressed with the standard of treatment and care being delivered", and notably made "fewer recommendations for service improvement than in other services reviewed". Care was thought to be appropriate and "no substantive practice issues of concern in the service" were identified. "A greater consistency of key practices was seen than seen in many other services reviewed". The ACHS Mental Health in Depth Review report also commented positively on the quality of clinical care being provided.

The EH CAMHS manager interview participation rate was 80%. Managers believed that the learning organisation model had promoted service learning and innovation through systems that delivered data feedback to clinicians and manag-

ers and structures that supported data utilisation. The research and evaluation unit was thought to be the key driver for this, through contributing to a learning culture in the management team. Using data aided communication between managers and teams, and also focused dialogue between clinicians and consumers. While communication and information sharing within the service was generally thought to be good, four major restraints to optimal learning and effective decision making were identified by managers:

10 Clinician-rated outcome scores for all clients at assessment and discharge for a 2-year period
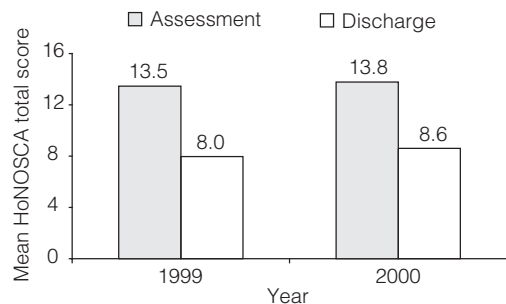
HoNOSCA = Health of the Nation Outcome Scales for Children and Adolescents ◆

- Insufficient training in the theory and practice of a learning organisation for new managers;
- Communication blocks or confusion about responsibility, power or authority that was associated with staff stress;
- The gap between service demand and supply that stressed clinicians; and
- Limited information technology and decision-support infrastructure.

A relationship was seen between the first two of these. Newer managers were less trained in dialogue, team learning and personal mastery, and had less commitment to the vision of a learning organisation. In the absence of a satisfactory induction to the model, there was a tendency to see evaluation in terms of accountability and persecution, and to identify with their "besieged" team rather than with the whole organisation. Service demand and work stress also limited opportunities for reflection within the service, unless specifically scheduled for important issues. Managers wanted greater investment in information infrastructure and decision support systems to increase the utility of information provided to clinicians and managers.[23]

Discussion

Was there a measurable difference in general performance and in specific learning and evaluation activity between EH CAMHS and other metropolitan CAMHS?

Activity data showed that EH CAMHS accepted relatively more cases for treatment and had the highest caseload per FTE of Victorian metropolitan CAMHS. Perhaps consequent to this, it provided a lower number of clinical contacts per patient per year, or saw these clients less frequently or for a shorter duration, and therefore at lower cost than did other services. The quality of care was good, significant decreases in patient symptoms were achieved, and external reviewers perceived patient outcomes to be as good as those in peer services. These findings are being further explored and relative drop-out rates and re-

referral rates are being examined. However, EH CAMHS work processes seemed to be relatively efficient and effective.

Over time, relative referral load and acceptance rates had fallen from 1999–2000 to become more comparable with other CAMHS. The impact of a high waiting list is later discussed and it is possible that the previously high caseloads may have simply been unsustainable for clinicians. On the other hand, the reduction in clinical caseloads seemed to be associated with changes in team leaders. New team leaders who joined the service after 1999–2000 received less orientation to the learning organisation model and were more challenged by the demanding environment without being given a conceptual framework for managing this. Sustaining high performance in teams requires particular skills to understand work stress and coordinate the efforts of others.[9,24]

Service activity levels were adversely influenced by staff turnover, which can happen to any service, regardless of its organisational structure, culture or espoused model. This demonstrates one risk from establishing decentralised community teams to increase consumer accessibility, as CAMHS teams are relatively small and lack the critical mass needed to ensure continuity of client care during periods of staff change. During re-establishment periods, team and service activity levels were reduced while new clinicians were less able to accept new referrals while they became oriented and took up "handover cases". We hypothesise that better manager induction may have stabilised teams and restored performance more quickly.

As staffing consolidated, activity levels gradually increased between 1999–2000 and 2003–2004. The learning organisation model had no apparent impact on the admission rate to the inpatient unit, which remained at about 200 per year, or 3 per 1000 adolescents per year in the area served. The mean length of stay fell from 22 days in 1999–2000 to 15 days in 2003–2004 but the meaning of this was unclear. The factors that influence utilisation of CAMHS inpatient episodes, the relationships between community and inpatient care, and the impact of discharge plan-

ning on wellbeing are complex and under-researched areas, which were not explored in this study.

Specific learning and evaluation activity in EH CAMHS was more extensive than other services as judged by internal managers and external CAMHS directors. The internal reviews have aimed to improve the systems that underpin quality clinical practice, and this had been successful.[25] Any emphasis on evaluation and learning had not reduced the volume of service activity per FTE as a proxy for efficiency, nor led to reduced functioning compared with other services. At this stage, the effectiveness of care cannot strictly be compared with other services, as EH CAMHS was the only service routinely measuring outcomes. However, the 2005 reports from the Australian Mental Health and Outcomes Classification Network show mean current change at a national level between assessment and discharge is equivalent to that measured in EH CAMHS in 1999–2000. In future, the relative efficacy of different organisational arrangements can be explored through inter-service comparison of standard outcome measures.[21]

Were differences associated with the specific structural and cultural elements of a learning organisation?

The CAMHS Director interview data confirmed a perceived differentiation between services. In particular, the learning organisation model in EH CAMHS had supported the introduction and utilisation of client outcome measurement, the use of internal review projects for quality improvement and the development of key performance indicators for management decision making. The other directors regarded EH CAMHS as a leader in these activities. The commitment to ongoing review and evaluation had supported continuous quality improvement activity in all service teams, which was reflected in quality clinical care.

Internal management feedback showed that all managers had a positive view of the learning organisation model and the structures that supported data feedback. However, interviews also showed that several new managers had found the experience of ongoing evaluation, review and continuous improvement activity to be stressful or even persecutory. This emphasises the importance of continual orientation of new managers and building leadership competencies, in order to more effectively manage demands for continual evaluation and quality improvement in a stressful high demand context. Maintaining high performing teams requires continuing maintenance and development of the leadership skills described by Senge.[1]

With what fidelity was EH CAMHS able to apply the learning organisation model, and were there identifiable restraints to its application?

There was a high degree of fidelity of application of the original model, as reflected in the establishment of all of the elements of the initial service template. The effectiveness of the application did decline when key manager personnel left, but this has since stabilised. External feedback showed that EH CAMHS has been perceived to be more purposive and adaptive than other CAMHS that had an equal commitment to clinical care but did not use the learning organisation model. It has been reassuring to find that an investment in feedback and learning has not reduced the quality of care but instead seems to have enhanced it. The study itself has also renewed awareness of the value of the model within the service itself, through providing feedback on our current strengths and weaknesses.

However, several restraints to the optimal application of the model or which had reduced its effectiveness were identified. First, new managers need induction to the learning organisation model and coaching to help them develop the practice skills of dialogue, systemic thinking and commitment to self-mastery in order to build a culture of reflective practice in their teams.[2] In the absence of this, managers are more vulnerable to confusion about responsibility, power and authority and find it hard to provide effective leadership under conditions of stress. As a result

of the project, the service has invested in time-limited coaching for its managers to enhance their core learning skills.[1]

Second, most Victorian CAMHSs are stressed by referral demands that exceed their capacity to provide services. Child and adolescent mental disorders are associated with lower socio-economic status, single parents and reconstituted family structures.[7] These are found especially in outer metropolitan areas.[26] While intake screening and triage can maintain waiting lists at a manageable level, this practice is only ethical when alternate service options are available for clients with less severe disorders. Interpreting intake acceptance criteria more strictly from 2000 had reduced the workload and the ratio of accepted to referred cases began to fall before the number of referrals reduced. Local general practitioner feedback suggests that client non-acceptance had increased referrer threshold for referral. The high exclusion rate is concerning because we do not know what happens to the children we do not accept, but we do know they are at risk of adverse consequences if they do not receive services.[9,27] This group merits further research.

Third, the service has become a part of a larger integrated mental health program within Eastern Health, and is now called EH CAMHS. This has required considerable adaptation to the new organisational environment. The literature is relatively quiet about the impact on a unit using the learning organisation model of being integrated into a larger structure that does not use the same paradigm. The experience here suggests that the learning organisation model had assisted this adaptation, but that the requirement for greater investment in externally driven activities and increased external accountabilities added significantly to the stress experienced by managers.

Fourth, quality and improvement activity requires measurement and feedback, so information systems or decision-support structures are vital elements of the learning cycle. As CAMHS are small programs within resource-deprived mental health services, lack of investment in information infrastructures limits most services. While information systems can be built cheaply using commercial database software, the feedback arrangements themselves require continued development, and specific expertise is needed for maintenance. Small health service organisations struggle to develop or maintain systems. Most look forward to increased investment in health information technology through the Victorian HealthSMART strategy.[28]

Limitations of the study

Comprehensive benchmarking data are rarely available, so clinical service evaluation is difficult.[20] The mix of quantitative and qualitative strategies used here represented our best efforts to use what was accessible. The methodology used external data sources where possible, supplemented with data gathered by questionnaires to identify perceptions of key personnel, and validated where possible with service documentation. Service data only included staffing figures from all services for a single financial year, which meant that a comprehensive longitudinal view was not available. The quantitative analysis used cross-sectional material gathered at different times over the last 6 years, which was the major weakness of the study.

Qualitative research is thought to be less "objective" than quantitative research and more open to reporting bias, although it is the better window into understanding processes.[25] The depth and variety of material used does help to triangulate or strengthen confidence in the findings. Bias was reduced by drawing on external data, by using a research assistant to collect and condense raw interview data, by de-identifying data sources, and by using the second author (P Brann) to conduct thematic analyses and comparisons. Future studies will have the benefit of increased investment in benchmarking data, including comparative outcome measurement data being gathered in the National Outcome and Casemix Classification project.[20,21]

EH CAMHS has adopted modern management practices for many years and continues to train and support its managers in these, so it was not possible to specifically isolate the influence of the

learning organisation model from that of others. Nonetheless, this study did focus on how the organisation has performed in evaluation, learning and adaptation, as well as on clinical activity. Evaluation and quality were enhanced, consistent with the predictions of the model.

Conclusion

This study confirmed that the learning organisation model does support evaluation and quality improvement activity, improves communication, and has assisted the service to adapt to a changing environment. Critically, the quality of clinical services was high and the relative efficiency of service delivery was also high. It is not possible to isolate which elements of EH CAMHS have enhanced this efficiency, but an embedded commitment to learning has made a major contribution to the adoption of routine outcome measurement and the use of evaluation in ongoing service improvement and development. Investment in learning has not reduced performance but has enhanced the clinical service. This model is applicable to other services.

While the model is not complicated, it requires ongoing maintenance of a learning culture and training of service leaders and managers in the leadership skills identified by Senge.[1,2] These include commitment to a shared vision and shared practice in dialogue, personal mastery and surfacing mental models. Other identified restraints that reduced fidelity to the model included the large gap between demand for services and supply in child and adolescent mental health, externally driven organisational change and limited investment in information technology and informatics. The study itself has encouraged further commitment to the learning organisation model and helped the service to realign its priorities, strengthen internal training in learning organisation leadership skills, and share its experience.

Acknowledgements

Competing interests

Both authors work in the service studied and have a strong interest in the ongoing improvement of Child and Adolescent Mental Health Services.

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