



Launching the Tidal Model: evaluating the evidence

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This paper reports on two evaluations of the Tidal Model, in the context of two separate acute admission wards, one in Birmingham (2004) and the other in Newcastle (2001), and makes recommendations concerning the criteria and type of reasoning appropriate to evaluating the evidence the two projects have generated. In the Birmingham study, results showed that in the year following the introduction of the Tidal Model, the total number of serious untoward incidents such as physical assault, violence and harassment, decreased by 57%. Nurse satisfaction with their work also improved with nurses rating the model superior to their previous way of working. Inpatient service user assessment of the overall quality of their care was also positive. These findings are then compared with the positive results of an earlier study of the Tidal Model undertaken in Newcastle in 2001. That study was criticized, however, for not showing conclusively that the positive results of the evaluation correlated with the introduction of the Tidal Model. This criticism is briefly examined in the light of both ancient (Aristotle) and modern (Charles Peirce) understandings of the nature of evidence and suggests that such criticism begs the question of the nature of proof. The paper concludes by arguing that, according to both Aristotle and the procedures of abductive reasoning advocated by Charles Peirce, inferring a positive correlation between the results of both studies and the introduction of Tidal Model is a good example of reasonable inference to the best explanation. The available evidence suggests that the results of both studies render the conclusion probable and thus 'good enough' to warrant serious consideration for implementing the Tidal Model more widely within and across Mental Health NHS Trusts.

Keywords: abductive inferential reasoning, criticism, evaluation, mental health care, milieu toxicity, Tidal Model

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Introduction

Acute problems and the origin of the Tidal Model

Bowers & Park (2001) argue that since the expansion of community care, acute inpatient treatment has been relegated to the margins of mental health services. In their view, economic and philosophical objections to hospitalization

have resulted in great uncertainty about the contemporary purpose of inpatient services and thus of the role of psychiatric and mental health nursing within that context.

Research by Quirk & Lelliot (2001) indicates that over the past few decades, acute psychiatric admission wards in England and Wales have become places of risk, violence, restraint and custodial care where the quality of care has become badly compromised or is under threat. Problems

include poor planning, inadequately trained staff with low morale and a crisis management style of operations.

According to a Sainsbury Centre for Mental Health report (1998) – *Acute Problems: A Survey of the Quality of Care in Acute Psychiatric Wards*, patients tend to experience their stay in acute wards as non-therapeutic. There is little individual care planning and the environment tends to be custodial in nature with little quality. According to Quirk & Lelliot (2001, p. 1565), nurse–patient contact has declined; ‘*and patients are critical of conditions on the ward and view life there as both boring and unsafe*’.

In addition to this, they state that acute wards are characterized by rapid staff turnover, extensive use of bank and agency staff and low staff morale. The improvement of the quality of care on acute admission wards is thus a major ongoing concern for the DoH (1999a, 2002, 2003), which, in a recent Policy Implementation Guide (2002), openly admits that: ‘*Inpatient services are not working to anyone’s satisfaction*’. In the context of these growing concerns, the Mental Health Programme of the Newcastle City Health Trust, England commissioned the Tidal Model in 1997. The model was developed by Barker *et al.* (1998) and Stevenson *et al.* (2002), from an extensive 5-year study of ‘the need for nursing’.

Although the emerging model focuses on the unique aspects of the mental health nursing contribution to care, it acknowledges the complementary standing of nursing in relation to the other mental health disciplines (medicine, psychology, etc.) The model is based on a philosophically informed meta-theory (or theory of theories) of the proper ethical domain of interpersonal care, which has been developed over a number of years and described by Barker (1996, 1999, 2000, 2001) and Barker & Reynolds (1997).

The model is proving to be increasingly popular not only with nurse clinicians and managers but also with other mental health professionals who are struggling to deliver good care within many different types of settings. As a result, according to Buchanan-Barker (2004), at least 100 Tidal Model initiatives and pilot projects are underway within the UK and in several other countries – Australia, Ireland, Japan, Canada and New Zealand, all of which are in the process of being evaluated (see Stevenson *et al.* 2002 and Cook *et al.* unpublished report). These include projects in addition (residential and outpatient) in Canada, forensic (UK and abroad) and old-age settings.

Aims of this study

This paper seeks to contribute to current discussions about what kind of evidence is needed in order to know enough to warrant a decision to implement the Tidal Model (or any specific model of care) within an NHS Mental Health

Trust. Essentially the issue is about the nature of rationality, argument and decision making in relation to evidence. Some forms of evidential reasoning produce knowledge by showing conclusively why a conclusion must be true. Other types, because of the nature of the inquiry and the evidence available, can only show that it is probable or likely that a conclusion is true.

Research studies into mental health issues and into evaluating different models of care, by their very nature, are, according to Horsfall (1997), Barker (1999), Hall (1996), Nolan (1999), Sullivan (1998), May (1990), Olthuis (2001), Griffiths (2002), Rix & Shepherd (2003) and Gordon *et al.* (2004), highly complex and inherently contextual, sometimes political in nature, subject to financial considerations and always value-driven as they are often about the ‘meaning’ of care itself.

In pursuit of a clearer understanding of these issues, this paper is divided into two parts; first of all it will report on a recent evaluation of the Tidal Model undertaken in Birmingham (see Gordon *et al.* 2004); second it will then compare these outcomes with an earlier study undertaken in Newcastle by Fletcher & Stevenson (2001).

Criticism of the Newcastle findings given by Noak (2001) will then be examined and discussed. It will be suggested that Noak’s criticism begs the question of the nature of proof and that a more practical and realistic procedure of inferential reasoning appropriate to evaluating the Newcastle and Birmingham projects can be found in Charles Sanders Peirce’s (1839–1914) conception of abduction.

Part one: launching the Tidal Model in the Birmingham and Solihull NHS Mental Health Trust

Methodology

Whilst building upon the original methodology of Fletcher & Stevenson (2001), this present study was undertaken in 2004 as part of a 3-year action research project within the Birmingham and Solihull NHS Mental Health Trust (BSMHT). The Tidal Model was introduced on one acute admission ward (Tolkien Ward) at the Queen Elizabeth Psychiatric Hospital (QEPH) during 2002–2003. The model was then evaluated after one year on the basis of both *quantitative* and *qualitative* evidence obtained in the course of the model’s implementation (see Gordon *et al.* 2004, pp. 36–37). The eight stages of the emergent Birmingham action research project were as follows:

1. Approval of the research project called *Identifying Key Factors that will Improve the Therapeutic Effectiveness of Admission Wards in the Queen Elizabeth Hospital*, was obtained by the Birmingham and Solihull Mental

- Health NHS Trust's Research Ethics Committee. This included approval of the overall aims and methodology of the project as well as approval of the various interview schedules used and access to the Trust's databases.
2. A multidisciplinary literature review was undertaken.
 3. Current nursing practices and the quality of nursing care plans on QEPH acute admission wards as perceived by nurses was elicited and examined.
 4. The Tidal Model was implemented on Tolkien Ward in an attempt to address the problems identified through the nursing interviews.
 5. Tidal Model implementation was evaluated after the first year by way of interviews with service users, clinical staff and senior management evaluations and by means of statistical data obtained with the help of the Trust's Research Department.
 6. A report was prepared concluding with specific recommendations to the Director of Nursing and other Executive Directors of the BSMHT to consider the evidence of the report with a view (1) to implementing the Tidal Model more widely across the Trust; and (2) to influencing the content of pre- and post-registration nurse training.
 7. The report was disseminated widely within the Trust and beyond.
 8. A Tidal Model Implementation Steering Group was set up with approval of its terms of reference by the Trust's Clinical Governance Committee

Initial nursing interviews

A thematic analysis of the nursing interviews established that the nursing care on acute inpatient wards at the QEPH did not reflect, on the whole, principles of good nursing practice. The consensus of those interviewed was that patient care plans 'were not working', were 'more or less the same for each patient' and 'just a paper exercise'. The nurses interviewed realized this, but felt there was little or nothing they could do about it because of the busy and often chaotic nature of the wards, lack of time, the way in which inpatient treatment was dominated by medical staff, and because of nursing administrative activities, which kept them away from meaningful patient contact.

All of these factors, when brought together, clearly precluded genuinely therapeutic conversations taking place between nurses and their patients on the acute wards (see Gordon *et al.* 2004, also Cambell 1999).

The concept of milieu toxicity

The metaphor of *milieu toxicity* as described by Kurtz (1979/1991), Friel & Freil (1990), Kellogg (1990), Davenport (2002) and Hammersley (2004) aptly describes those

environments that foster an essentially anti-therapeutic culture of denial, depersonalization, defensiveness, manipulation, scapegoating, blame, insecurity and resistance to change. The following categories of untoward incidents were used in this study as indicators of milieu toxicity:

- intended or actual self-harm;
- absconsion/AWOL (absent without official leave);
- physical restraint;
- threat of physical violence against staff or other patients;
- actual physical assault;
- sexual assault;
- verbal abuse;
- disorder/intimidation;
- sexual harassment;
- racial harassment.

Such a 'toxic' or anti-therapeutic relational environment is evidenced on acute wards, current evidence suggests (Ehlert & Griffiths 1996, Goodwin *et al.* 1999, Cambell 1999, Quirk & Lelliot 2001 and Davenport 2002), when nurses do not engage with their patients, and service users feel powerless and abandoned on the wards within a basically containment or custodial style inpatient system of care.

Of special concern to nurses and nurse managers at the QEPH were the rates of patient self-harm, patient absconding, 'acting out' behaviour, the need for physical restraint, as well as low staff morale, the number of staff suspensions, a high staff turnover, the number of patients on one-to-one observations and a constant 'fire-fighting' style of managing the acute inpatient service. These indicators of milieu toxicity, other research suggests, are all interrelated (see Barker & Davidson 1998 and Davenport 2002).

Serious untoward incidents at the Queen Elizabeth Psychiatric Hospital

In the 12 months prior to the launch of the Tidal Model in October 2002, a total of 308 untoward incidents were reported to have taken place on Tolkien Ward. This compared with 258, 215 and 180, respectively, on the other three acute other wards.

Tolkien Ward therefore accounted for 32% of the 961 incidents that were recorded on the four acute admission wards. Of the total number of incidents, 403 were categorized on the Safecode database as clinical incidents (incidents directly related to treatment or care which did or could, have a detrimental outcome), 145 as security incidents and 413 as violence/abuse/harassment.

Figure 1 shows the number of incidents within each category that occurred on the four wards.

In the 12 months following the introduction of the Tidal Model in October 2002, the total number of unto-

ward incidents reported for Tolkien Ward changed from 308 to 140, a decrease of 55%. This decrease in untoward incidents on Tolkien Ward, when compared with the slight decrease on Owen Ward (9%) and the rise in untoward incidents on both Tennyson and Bronte Wards is of interest. Tolkien Ward, in the year 2002–2003 accounted for only 14% of the 990 untoward incidents reported across all the acute admission wards, now the lowest percentage. This means Tolkien Ward, which had the highest number of untoward incidents in the hospital in the first year, had the lowest number in the second year.

When the two years (pre- and post-Tidal Model implementation) are compared, this amounts to a decrease on Tolkien Ward from 32% to 14% of the total number of untoward incidents reported across all wards.

Figure 2 shows the total number of incidents that were reported *within each category of incident* for all acute wards during that second year.

Of the 990 incidents recorded in this second year, 375 were categorized as clinical incidents, 269 as security incidents and 346 as violence/abuse/harassment. The *percent-*

age of incidents within these categories that occurred on each of the four wards is shown in Table 1.

Untoward incidents on Tolkien Ward

One aspect of this study was to look at Tolkien Ward in more detail prior to and following the introduction of the Tidal Model to see if there were any significant changes between the two periods. The data obtained from the Safe-code database were analysed in more detail to determine the exact nature of these incidents. For example, the ‘clinical incident’ category was further subdivided into what was considered to be serious in contrast with minor incidents. This allowed the incidents to be placed in more specific and meaningful categories for the purpose of a more rigorous evaluation (see Fig. 3). Once minor incidents are removed, we find that the remaining serious incidents reduce across the two years by 57%, as opposed to the 55% when no distinction is made between minor and serious incidents.

As Fig. 3 indicates, the numbers of incidents of all types were reduced dramatically following the introduction of

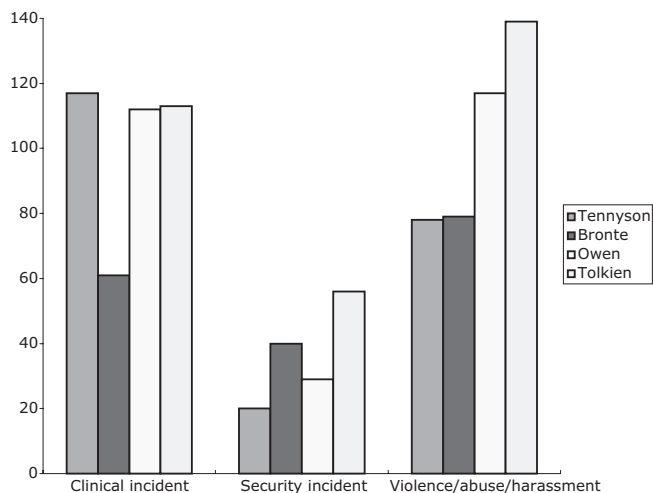


Figure 1
Number of reported incidents within each category on all QEPH acute admission wards, October 2001–September 2002. QEPH, Queen Elizabeth Psychiatric Hospital

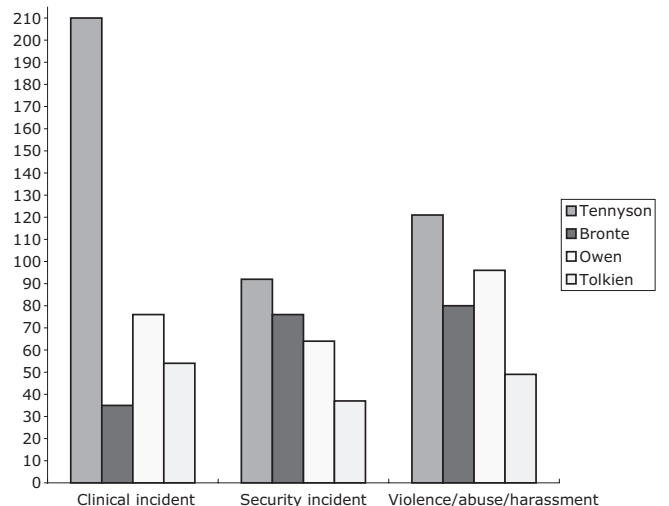


Figure 2
Number of reported incidents within each category of incident for all the acute wards October 2002–September 2003

Table 1
Percentage of untoward incidents occurring on each of the admission wards, October 2002–September 2003

Category of incidents	Percentage (%) of the total number of incidents in each category				Total (%)
	Tennyson	Bronte	Owen	Tolkien	
Clinical incident	56	9	20	15	100
Security incident	34	28	24	14	100
Violence/abuse/harassment	35	23	28	14	100

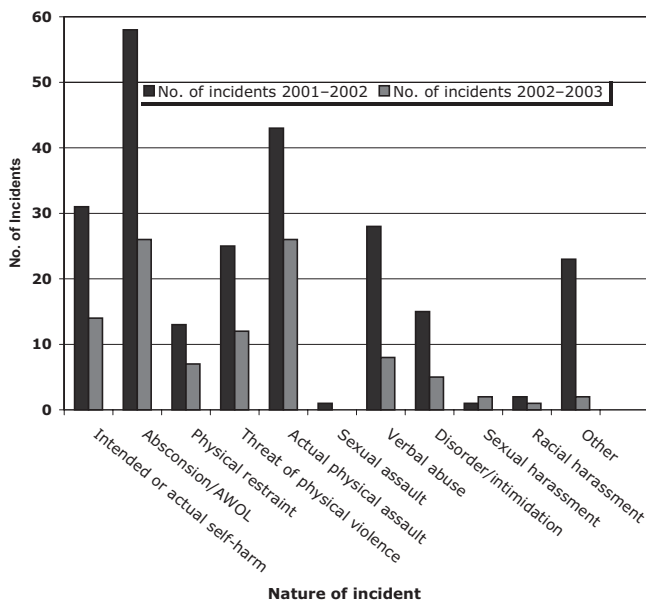


Figure 3
Comparison of the number of each type of incident on Tolkien Ward before and after the introduction of the Tidal Model. AWOL, absent without official leave

the Tidal Model, with the exception of sexual harassment where the increase was minimal.

Patient characteristics

Significantly, the patients admitted to Tolkien Ward in the year prior to the implementation of the Tidal Model had similar characteristics in terms of age, diagnosis, ethnicity, and methods of admission and discharge to those admitted after the Tidal Model was introduced (see Gordon *et al.* 2004, pp. 90–97). This suggests that the reduction in untoward incidents was not related to any significant changes in the characteristics of patients admitted to Tolkien Ward during the two periods. The only slight difference was the overall number of patients admitted following the implementation of the Tidal Model. This was lower than in the previous 12 months and there were slightly less repeated admissions.

Complaints

With respect to complaints, the total number of complaints remained about the same, but the nature of complaints against nursing staff changed somewhat. Following the introduction of the Tidal Model, there were far fewer complaints with respect to patient supervision and less complaints against nurses using unnecessary force against patients.

Service user evaluation

Four inpatient service users were interviewed on Tolkien Ward and asked about their view of the Tidal Model (see Gordon *et al.* 2004, pp. 65–67). The interview schedule was designed to reflect the principles of the Tidal Model nursing holistic assessment. In other words, the answers given to the questions by the service users were written down verbatim and the wording checked with the person in care to ensure that it accurately expressed that person’s view and opinion. All four persons had been inpatients on at least one other occasion in the past.

Comparison with previous inpatient experience

All four patients interviewed indicated that they appreciated the Tidal Model emphasis on collaborative care planning and said that this was very different from the kind of nursing they had received previously at the QEPH or elsewhere within the NHS (see Gordon *et al.* 2004, pp. 66–67). One patient said:

When I was here before the nurses never talked to me, but only the doctor. I think (the Tidal Model) is a lot better. The communication is a lot better.

Another said:

I was here five years ago. Nothing was in place then. It was all just a fog for me. This time the fog cleared up quickly by meeting up with the nurses and talking about specific things.

Another said:

I think the Tidal Model is more organised and focused than what I had before. I feel better treated this time around (it’s my fifth admission).

Nursing staff evaluation

Questionnaires were sent out to 11 qualified nurses. Seven were returned (response rate 64%). Of the seven who completed them, one was an F grade (deputy ward manager), four were E grades and two were D grades. The questionnaire consisted of 21 questions with space for comments on each question. Nursing staff average rating of the Tidal Model, using a scale from 1 (much worse) to 5 (much better), was as follows:

In terms of overall satisfaction with the model of care staff rated the Tidal Model as ‘better’ (4) or ‘much better’ (5) than their previous way of working. In terms of comparison with other models or ‘no nursing model at all’ the Tidal Model was rated ‘better’ (4) or ‘much better’ (5) than previous experiences.

Part two: what is adequate evidence and for what purpose?

Launching the Tidal Model in Newcastle City Health Trust

Fletcher & Stevenson (2001) undertook the first published evaluation of the model as part of a pilot project within the acute mental health services in Newcastle City Health Trust. One ward was evaluated for 6 months before and 6 months after the introduction of the model. Both nurses' and patients' perceptions of the model were then assessed using questionnaires. Initial results indicated that the Tidal Model not only resulted in improvements in patient care and staff satisfaction but also resulted in significant reductions in the rates of violence, restraint and self-harm on the ward. Following is a brief summary of Fletcher & Stevenson's (2001) evaluation of the Tidal Model:

- an increase in the number of people admitted on an informal basis;
- a reduction in the number of people subject to sections of the Mental Health Act;
- length of stay decreased by 24%;
- number of violent incidents decreased by 40%;
- episodes of self-harm decreased by 6%;
- use of restraint decreased by 67%;
- interval between admission and full initial assessment reduced to an average of 1.3 days (from 3 days);
- positive evaluations of the model by both service users and nurses.

Comparison of the Newcastle and Birmingham studies

Methodology

The methodology used in the Birmingham study (Gordon *et al.* 2004), although based on the methodology of Newcastle study (Fletcher & Stevenson 2001), differed from it in significant ways. First of all, prior to the model's implementation in Birmingham, 10 qualified nurses (three nurses from Tolkien Ward and seven from other acute wards) were interviewed in order to determine the quality of care, as perceived by these nurses, especially the quality of nurse-patient interactions, nursing assessments and care planning. This not only established a benchmark of nursing perceptions (lacking in the Newcastle study) but also determined the need within the Trust for specific changes in nursing practice. Second, the time scale for comparing the pre- with the post-Tidal Model period was 12 months rather than the 6 months of the Newcastle study. Third, the data obtained in the Birmingham study were compared with three other wards not using the Tidal Model. The

other three wards were thus able to function, with qualifications, as a control group. Fourth, the testimonies of service users and nurses were elicited along with their perception of how using the model compared with their previous experience of inpatient care. Fifth, in the Birmingham study the written testimonies of senior nursing management was obtained and used as part of the evaluation, including a detailed narrative account by the Tolkien Ward manager of the difficult change management issues that were encountered as part of the implementation of the model (see Gordon *et al.* 2004, pp. 38-44; 52-64).

Outcomes

Legal status

It was not possible in the Birmingham study to determine if there was any difference between the two years in terms of the percentage of people admitted on an informal basis in comparison with those admitted under a section of the MHA. This was due to difficulties with the database.

Mean length of inpatient stay

In the Newcastle study the length of inpatient stay was reported to have decreased by 24% following Tidal Model implementation. In the Birmingham study the mean length of inpatient stay remained basically the same, although the range was lower (from 1 day to 314 days) following Tidal Model implementation than in the previous year (1 day to 482 days).

Untoward incidents

In the Newcastle study there was a decrease in reported violent incidents of 40%. For Birmingham study the reduction was the same. In Newcastle there was a decrease in episodes of self-harm of 6%. In Birmingham the decrease was 55%. In Newcastle there was a 67% reduction of the use of restraint. In Birmingham the reduction was 46%.

Staff evaluation of the model

Staff evaluation in both studies was positive although the staff response rate for the Birmingham study was disappointingly low (qualified nursing staff 64%, nursing assistants 10%, medical staff 30%).

Criticism of methodology and reported outcomes

Following the publication of Fletcher & Stevenson's (2001) study, Noak (2001) contested both their methodology and their findings. The substance of his criticism was as follows (see Noak 2001):

- problem of research bias not discussed;
- need for a new model of nursing not established;

- impact of ‘Hawthorne effect’ not considered;
- contextual aspects of ward environment not described;
- findings required more information for adequate interpretation;
- the ‘meaning’ of reductions of reported untoward incidents not clear;
- characteristics of patient’s pre- and post-Tidal model not given;
- inconclusive evidence that the results of the study were positively correlated with the Tidal Model and not with other factors.

Despite the initial cogency of these criticisms, on reflection it is clear that Noak begs the question of the nature and meaning of proof. He says:

It might be that the results are positively correlated with the introduction of the Tidal Model, but the paper did not show this conclusively. (Noak 2001, p. 35)

But what, does ‘showing conclusively’ such a correlation actually mean? For example, by ‘conclusive’ does Noak mean ‘*rigorous to the point of being able to prove*’? Yet even within the empirical natural sciences ironclad concepts of ‘proof’ are no longer considered appropriate because they are unachievable.

Popper (1959) famously discussed ‘the problem of induction’ and came to the conclusion that even ideas in the natural sciences can never be proven to be true, because no matter how many observations appear to agree with it, it may still be wrong. On the other hand, a single contrary experiment can falsify or prove any theory to be forever false.

Abductive inferential reasoning

Such conundrums, according to Clouser (1991), Polanyi (1958) and Kuhn (1996), have vexed the philosophy of science since the time of ancient Greek philosophy. In fact, according to Allan (2001) it was Aristotle who in the *Prior Analytics* and the *Rhetoric* first drew the distinction between signs that yield an irrefutable conclusion (Noak’s instance on absolute proof) and signs that are sufficient to render a conclusion highly ‘probable’ or very likely and thus rationally persuasive. Noak fails to make this all-important distinction. He simply assumes (wrongly) that there is one and only one model of scientific knowledge. He also does not appear to appreciate the fact that any scientific conclusion understood as the critical sifting of data, leading to cumulative generalizations, can always be later refuted and usually is. Therefore NO research is ever finally conclusive (see Kuhn 1996 and Silverman 2000).

For this reason, the American philosopher Charles Peirce (1839–1914) argued for the development of a more

pragmatic method of inferential reasoning that he called an ‘abductive method’ of reasoning (see Fann 1970 and Honderich 1995). This type of pragmatic reasoning is prepared to provisionally accept a conclusion on the grounds that it appears to satisfactorily explain whatever evidence is emerging or available at the time.

Abduction is the pattern of ‘common sense’ reasoning we all use on a regular basis in practical everyday life and decision making. It is also used within both contemporary action research and grounded theory as pioneered by Glaser & Strauss (1967).

Modern philosophy of science has for many years denied the possibility of arriving at any ‘pure’ type of exclusively inductive or deductive method of reasoning or hypothesis testing (see Popper 1959 and Kuhn 1996). Abductive inferential reasoning does not seek to prove ‘conclusively’ any thing at all. It does not seek to demonstrate beyond the shadow of doubt that (A) ‘causes’ (B). In fact, abductive reasoning insists that the complexity of social systems as well as some phenomena in nature prohibit any strict ‘proof’ of this type.

Peirce calls this more deeply contextual type of reasoning ‘*inference to the best explanation*’. This type of reasoning claims no more than to be *adequate* or *good enough* to most purposes in life (see Kinach 1995) including, it could be argued, the identification of those nursing practices, and core therapeutic skills which, according to Rogers (1951, 1957, 1961, 1980), foster mental health and good decision making, attitudes and practices that are healing and recovery-oriented rather than anti-therapeutic.

Glaser (1992) gives two basic criteria for judging the adequacy of any abductive theory (or explanation): first that it fits the situation; and that it works in practice – and second that it helps the people in the situation to make sense of their experience and to manage the situation better.

Abductive reasoning in relation to evaluations of the Tidal Model

Following Josephson (1997), *Abduction* or *Inference to the Best Explanation* follows a pattern like this:

D is a growing collection of data (facts, observations, testimonies of people of what works and does not work for them, current research findings and accepted or negotiated ‘givens’ which emerge as part of an ongoing enquiry).

H is a hypothesis, which appears to explain or give a good account of **D** (would, if true, **explain D**).

No other hypothesis appears to explain **D** as well as **H** does.

Therefore, **H** is **probably** correct.

Applied to the evaluation of the Tidal Model, such inferential reasoning would proceed in the following way:

D = the various types of reported positive outcomes, both qualitative and quantitative, evidenced in several evaluations of the Tidal Model in various pilot sites within the UK and in other countries.

H = The 'simple hypothesis' is that these outcomes are *positively correlated* with the introduction of the Tidal Model in those places.

The **strength** of any abductive conclusion will, in general, **depend** on a number of interrelated factors, including:

- **How good** is **H** by itself, independently of considering the other alternatives?
- **How decisively** does **H** surpass currently available alternatives?
- **How thorough** was the search for alternative explanations of **D**, and
- Pragmatic considerations, including:
 - The **costs** of being wrong and the **benefits** of being right;
 - How **strong or urgent** is the need to come to any conclusion at all, especially considering the possibility of seeking further evidence (**D**) before making any decision to act, allocate resources, make decisions on the emergent truth of **H**, etc.

According to Josephson (1997):

When it is said that the strength of an abductive conclusion will, in general, depend primarily on these factors, it is meant that it should depend on these factors, and that insofar as we are rational, our conclusions will actually depend on these factors.

Discussion

A few issues remain, however, especially about the interpretation of the decrease in untoward incidents reported in the Birmingham study. For example, that there may have been significant changes in reporting behaviour in the second year, rather than any real reduction in the number of incidents *per se*. However, this is unlikely as during the year of Tidal Model implementation there was a general 'tightening up' of nursing professionalism, within the nursing team as a whole in all areas (see Gordon *et al.* 2004, pp. 52–61). In addition to this, staff were not aware that their reporting of incidents was going to be part of any evaluation. Therefore it is possible that the reduction of incidents *could be even greater, not less*, than the data suggest. But there is no way to prove this.

It is also theoretically possible that just one or two difficult patients were causing all the disturbances in the year prior to Tidal Model implementation and that this was the reason the number of incidents was so high. On further

analysis of the Safecode database, however, it was determined that four patients were responsible for a high proportion of the incidents reported in the pre-Tidal Model year. During the year following Tidal Model implementation, two of these patients were readmitted to the ward, but without incident.

One could argue theoretically that simply better nurse delegation with stricter accountability (without any change in nursing ethos or practice) would have produced exactly the same results without the Tidal Model. One could also argue that these positive results may be simply the result of paying more attention to the staff, the so-called 'Hawthorne effect' (see Noak 2001 and Gordon *et al.* 2004, p. 101). But this kind of discounting is not real 'argument' at all. It is simply speculation. It studiously ignores the evidential weight of the personal testimonies of service users and nursing staff in both studies, which positively and explicitly correlate with the practices of the Tidal Model.

Conclusion and recommendation

This study, when compared with the research undertaken by Fletcher & Stevenson (2001), shows very similar outcomes. On the basis of the abductive inferential reasoning outlined above, it is therefore reasonable to suppose that the results of both studies are positively (not indifferently or negatively) correlated with the introduction of the Tidal Model.

To say that the evidence of the two studies just does not warrant or support any such conclusion begs the question of the nature and meaning of proof. Thinkers from Aristotle onwards have always made a distinction between signs (or evidence) that yield an unambiguous irrefutable conclusion and those signs, which render a less certain conclusion that is only probable and yet good enough to warrant a rational course of action. Noak fails to make this all-important distinction. He thus gives the misleading impression that because no conclusive irrefutable evidence has been produced by the Newcastle and Birmingham studies that no reasonable interpretation of the evidence can be made at all.

The Tidal Model is receptively reconstructive of the history of good nursing practice. It provides the tools and the needed structure to help facilitate needed reforms on acute admission wards today such as advocated by the Sainsbury Report, reforms which are in accord with good evidence-based nursing practice, recent DoH guidelines and directives and it fits the specific recommendations of the National Service Framework (DoH 1999b).

It is therefore the conclusion of this paper that it is entirely reasonable for nurse clinicians and managers to consider promoting the introduction of Tidal Model within

their own NHS Mental Health Trusts in conjunction with appropriate nurse retraining programmes and the adoption of good management principles to help facilitate the model, and thus major improvements in nursing care, in as many clinical areas as possible.

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