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Suicide prevention topic 8:
Is there any evidence regarding the
competency of different clinicians to do
adequate suicide risk assessments?

A critical appraisal of the literature

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LIST OF ABBREVIATIONS

c.f.	–	compared with
CI	–	confidence intervals
DSH	–	deliberate self harm
Dx	–	diagnosis
f/u	–	follow-up
HP	–	house physician
Nsd	–	Non statistically different

Scope of systematic review of suicide prevention

The development of this systematic review involved consultation between the NZHTA and the Suicide Working Group.

LITERATURE SEARCH

Main search terms

Medline subject terms (MeSH terms): suicide, suicide attempted, self-injurious behavior, self-mutilation, risk assessment, risk factors, psychiatric nursing, nursing assessment, nurses, nurse clinicians, nurse practitioners, nursing staff hospital, physicians, hospitalists, psychology, psychology clinical, medical staff hospital, exp emergency service hospital.

Psychinfo subject terms: attempted suicide, suicide, suicidal ideation, suicide prevention, self destructive behavior, self inflicted wounds, self mutilation, medical personnel, health personnel, nurses, physicians, psychiatric hospital staff, mental health personnel, clinical psychologists, psychiatric hospital staff, psychiatric nurses, psychotherapists, emergency services, risk analysis, risk management.

Additional keywords: suicid*, parasuicid*, psychologists, (emergency adj (physician* or doctor*)), ((physician* or clinician* or doctor* or nurs* or psychiatrist* or psychologist*) and (suicid* adj3 assessment)).

Principal sources of information

The following databases were searched using the search strategies outlined in **Appendix 1: Search strategies**.

Bibliographic databases

Medline
Embase
Cinahl
Psychinfo
Current Contents
Science/Social Science Citation Index
Index New Zealand

Review databases

Evidence-based medicine reviews
Cochrane Database of Systematic Reviews
DARE
NHS Economic Evaluation Database
Health Technology Assessment Database

The search was restricted to information from 1990 in English. Each research question required a separate literature search. A number of additional references were also obtained from cross-references.

Note: hand searching of journals, or contacting of authors for unpublished research was not undertaken during the search process.

The complete search strategies are given in **Appendix 1: Search strategies**.

INCLUSION AND EXCLUSION CRITERIA

Inclusion and exclusion criteria were firstly applied to the abstracts captured by the literature searches. Those papers considered for inclusion in the literature appraisal were retrieved and this warranted the exclusion of further papers based on the availability of these in full text.

Peer reviewed studies were considered for this review if they used one of the following study designs:

- systematic review or meta-analysis
- randomised controlled trial (RCT)
- controlled clinical trial (CCT)
- cohort study
- case-control study
- quasi-experimental study – e.g., before and after study
- descriptive study – e.g., case series, chart review.

Note: the ‘grey’ literature was included, where appropriate, for New Zealand specific studies looking at special population groups: Maori, Pacific Island, Asian and the elderly.

STUDY INCLUSION CRITERIA

The following criteria was used to **include** studies for appraisal:

- study population are persons presenting following suicide attempt, expressing suicidal ideation, suicide threat
- study set in emergency department
- study set in tertiary mental health service
- study published in 1990 or later
- study written in English
- outcomes considered include:
 - repeat presentations for suicidality
 - repeat suicide attempts
 - mortality from suicide.

STUDY EXCLUSION CRITERIA

The following criteria was used to **exclude** studies from appraisal:

- study population primarily (50% or more) those with deliberate self-harm in the absence of suicide intent
- study population primarily (50% or more) those involved in assisted suicide
- study population primarily (50% or more) presentations for self-mutilation
- study population primarily (50% or more) children 12 years of age and under
- study focus is on the treatment of people with drug/substance abuse or dependence, that is treatment directed to their addiction rather than any suicide attempt
- study population are criminal offenders
- studies on suicide prevention interventions specifically for people with HIV/AIDS
- studies with small numbers of case presentations (one to five cases)
- studies concerned with suicide in homicidal people
- studies concerned with school-based suicide prevention interventions
- studies concerned with economic analyses
- citations which are letters to the editor, comments, editorials, abstract only

- studies where population is primarily a special population – e.g., with affective or underlying personality disorder (and therefore potential confounded of study results and treatments).

STUDY SELECTION

Studies were selected for appraisal using a two-stage process. Initially, the titles and abstracts (where available) identified from the search strategy were scanned and excluded as appropriate. The full text articles were retrieved for the remaining studies and these were appraised if they fulfilled the study selection criteria outlined above.

Sixty-five papers were identified via the search strategy and 23 were sought for retrieval. Seven papers have been formally appraised and included in **Table 1 (pages 7-13)** including one previously reviewed in topic 5 and 16 papers excluded.

EVIDENCE TABLE

Summaries of appraisal results are shown in tabular form and include:

- study reference and country
- study design
- study quality grading and evidence level
- study arm description of intervention, service, treatment, assessment tool, outcomes
- patient inclusion and exclusion criteria
- number of patients included in study sample
- study outcomes and p-values and/or 95% confidence intervals
- comments on the study and its internal validity issues arising from the study appraisal.

P-values unless otherwise stated relate to between group comparisons.

APPRAISAL METHODOLOGY

Articles were formally appraised using the checklist schedules and hierarchy of evidence coding system developed by the Scottish Intercollegiate Guidelines Network (SIGN). Validated criteria were used to appraise the studies selected for review. Key facets of the selected studies (including limitations) were documented in the text. Conclusions were drawn based on the study design and the specific problems associated with individual studies. The evidence presented in the selected studies were assessed and classified according to the SIGN grades of guideline recommendation by the suicide prevention guideline group.

The final grading code was allocated based upon the study design and study quality.

All studies appraised in this review except one (Burn et al. 1990) are descriptive studies (e.g., retrospective chart reviews and case series). These all received a level 3 grading. These were evaluated using internal validity criterion such as subject selection methods and comparability of patient groups, assessment tools, outcome measures and follow-up.

The study by Burn et al. is a prospective experimental design but has considerable methodological weaknesses. This was included due to the lack of specific literature on this topic but has been assigned a 2- grading because of likely bias in the results.

Within each grade, papers are presented in alphabetical order according to first author surname.

Study limitations

This question examines evidence regarding the competency of different clinicians (psychologists, psychiatrists, nurses, ED physicians) to do adequate suicide risk assessment. **Table 1 (pages 7-13)** contains all included, critically appraised papers. There were six descriptive studies (all graded level 3) and one prospective experimental study (graded 2-). Appendices 1-3 contain the search strategy (**Appendix 1**), bibliography of included critically appraised papers and references (**Appendix 2**), and bibliography of retrieved excluded papers and specific reasons for exclusion (**Appendix 3**). Papers were excluded for the following reasons: providing level 4 (expert opinion) evidence only (seven papers), narrative review (three papers), qualitative clinician self-report study (two papers), not relevant to topic (one paper), methodological and generalisability limitations (one paper), and inability to retrieve due to retrieval expense and unavailability from Interloan (two papers).

The evidence from the appraised literature indicates that clinician competency in making suicide risk assessments, in terms of asking the right questions and recording relevant information, improves when some form of structured psychosocial evaluation is used. It also may indicate that assessments by mental health specialists gain a greater ascertainment of critical information than non-specialists. However, there are several significant limitations with the reviewed literature. There was no post-discharge follow-up to determine future suicidality of assessed patients. The use of comparator suicide risk assessments by researchers or psychiatrists as “gold standards” of true risk was not validated. Studies did not generally compare ‘competency’ between clinicians, rather compared ‘competency’ with the reference standard. The term ‘competency’ from the literature reviewed was limited to considering questions asked by assessors, information recorded and patterns of referral. The reliability and validity of study assessment tools were often not documented and are therefore questionable. For example, it was often assumed that because something was not recorded in case notes, it was not asked, which may not have been the case.

There are inherent difficulties in designing research to adequately address this question. The literature reviewed lacked a uniform approach to suicide risk assessment and documentation in inpatient systems. It has been argued that if the right questions are asked and relevant information is obtained, malpractice risk to the clinician may be reduced. However, structured forms do not substitute for clinical judgement and additional clinical comment. This also raises issues related to duty of care, negligence, care standards, clinician communication skills and alliances with clinical staff. Patient competence in understanding questions also is an important factor (Jacobson, 1999). Whilst it is impossible to eliminate risk from work with suicidal patients (Keyes, 2001), there is still the necessity to reduce risk as the underlying objective of the clinician.

The evidence reviewed shows that medical records can provide, or fail to provide, important case information pertaining to the assessment and care of suicidal patients. Medical records provide an important means of communication between care providers. Ideally, these should document a review of previous treatment received, family member concern, relevant suicide risk assessments with each outpatient visit, and risk/benefit assessment of each significant clinical decision (Keyes, 2001).

Individual study limitations are described in the comments column in **Table 1 (pages 7-13)**.

Limitations to the review methodology that need to be considered in developing the suicide prevention guideline, include restriction to:

- articles published from 1990 onwards
- the published literature
- English language articles only
- reviewing each study by one researcher only
- study evaluation criteria did not cover aspects of statistical methodology such as the appropriateness of the data collected and the statistical tests used to analyses this.

In developing a guideline for suicide prevention, consideration will need to be given to studies published pre-1990. Important articles of interest were published in the pre-1990 time period so

methods should be developed by the guidelines group to assess whether the new evidence presented in this review is sufficient to alter any recommendations included in previous evidence-based guidelines. For example, one early study showed that physicians were able to do adequate risk assessments compared with psychiatrists as there were no significant differences after one year follow-up with patients who repeated DSH or suicide (Gardener et al. 1977). Social workers compared with trainee psychiatrists have also been shown to be able to do adequate though cautious suicide risk assessments (Newson-Smith & Hirsch, 1979). Another study comparing trainee psychiatrists/GPs with nurses found no major differences in the assessments of DSH (self-poisoning) patients (Catalan et al. 1980).¹

The following limitations should be kept in mind when interpreting the results of the studies appraised in this systematic review.

Restriction to the published literature is likely to lead to bias since the unpublished literature tends to consist of studies not identifying a significant result.

Restriction to English language and post-1990 literature may result in study bias, but the direction of this bias cannot be determined.

None of the articles appraised were set in New Zealand. Therefore, the generalisability of these studies to the New Zealand setting needs to be considered. It is worth noting that UK studies on this topic are more likely to be applicable to studies done in the USA because of similarities in training and practice for the former group. Only one study included here was done in the UK.

The studies were initially selected by examining the abstracts of these articles. Therefore, it is possible that some studies were inappropriately excluded prior to examination of the full text article.

There is a limitation on space in **Table 1 (pages 7-13)** therefore, study details have been summarised.

This review was carried out by one reviewer over a limited timeframe (April 2002 – May 2002).

¹ Please note that whilst these earlier studies have not been systematically reviewed they have been cited in the reviewed literature as key papers highly relevant to this topic. Hard copies have been provided to the Guidelines Group as background.

Table 1. Evidence table of appraised articles

Title of review: Is there any evidence regarding the competency of different clinicians to do adequate suicide risk assessments?

Study; design type; evidence grading; country	Intervention/ comparison Outcome measure	Criteria for Inclusion/ Exclusion	Results/Outcome	Comments including methodological issues
<p>(Burn et al. 1990)</p> <p>Southampton, UK</p> <p>Randomised controlled trial</p> <p>Grade 2-</p>	<p>Twenty-four House Physicians (HPs) of a standard level of experience and training were randomly divided into two equal groups.</p> <p>One group assessed self-poisoning patients (75) with questionnaire the other control group assessed patients (75) in any other useful alternative way.</p> <p>All patients were also assessed by the researcher (as reference standard) and results compared with the questionnaire and control groups.</p> <p>Questionnaire items used established structured interviews and scales including Present State Examination (PSE) (Wing et al. 1974), CAGE alcoholism screening instrument (Mayfield et al. 1974), Suicide Intent Scale (Beck et al. 1973).</p>	<p>Two general hospitals.</p> <p>Inclusion criteria: N=413 patients admitted with self-poisoning (any during 1984 or 1985) from which 150 included in study, 75 in questionnaire group and 75 in control group.</p> <p>Mean age 29 years, 40% male in questionnaire group, 31 years, 41% male in control group.</p> <p>Exclusion criteria for 263 of 413 patients: Self-discharge, refusal/to ill to participate, under care of consultant not in study, admitted on days researcher unavailable, incomplete assessment.</p>	<p>Proportion of agreements between the researcher and each of the questionnaire (Q) and control groups (C).</p> <p>Purpose of act, 89% (Q) c.f. 31% (C), p<0.001 Suicidal intent, 80% (Q) c.f. 43% (C), p<0.001 Self poisoning contemplated or impulsive, 96% (Q) c.f. 92% (C), nsd Precipitating events and repetition risk in 1 and 6 months, nsd Diagnosis, 89% (Q) c.f. 56% (C), p<0.001</p>	<ul style="list-style-type: none"> ▪ study's main aim is to compare value of structured questionnaire in assessment and management of overdose cases by HPs ▪ reliability and validity of questionnaire assessment items referenced, questionnaire pilot tested ▪ methodological problems with clinician randomisation, allocation bias and lack of concealment ▪ selection bias and generalisability limitation likely as small sample size with only 150/413 cases of original potential sample included. Reasons for reduction in exclusion criteria ▪ demographics of questionnaire and controls groups reported as similar ▪ control group assessment methods not reported, may limit value of comparison ▪ follow-up data on actual suicide re-attempts etc not available, long-term outcomes not measured. Outcomes only measured agreement in assessments between researcher and HPs ▪ researcher assessments performed on day of admission blinded to HPs assessments. Prospective study ▪ no training on using questionnaire was provided to HPs prior to study ▪ few HPs in control group asked correct questions to ascertain level of intent/purpose of act, focusing rather on medical severity of overdose. HPs using structured questionnaire improved risk ascertainment rates compared with the researcher.

Table 1. Evidence table of appraised articles (continued)

Study; design type; evidence grading; country	Intervention/ comparison Outcome measure	Criteria for Inclusion/ Exclusion	Results/Outcome	Comments including methodological issues
(Brown et al. 1995) Descriptive study Grade 3 Dundee, Scotland	Questionnaire completed by receiving physicians for 169/173 episodes recording demographic data, nature of DSH, suicide risk assessment, follow-up offered, psychiatric referral c.f. Questionnaire completed by psychiatrists receiving 119 referrals, response rate 75/119 (63%) supplemented by forms/letters (74 questionnaires and letters) from case notes written by psychiatrists to physicians where assessment of suicide risk available using predetermined criteria.	Admitted patients from one general hospital. Inclusion criteria: N=160 patients (173 episodes) with DSH (self-poisoning) over three months from November 1992 to January 1993. Exclusion criteria: None specified.	Using psychiatric assessment of suicide risk as "gold standard" comparator kappa value measuring strength of agreement between physicians and psychiatrists low, $k=0.17$ for questionnaire agreement, $k=0.14$ for letter and questionnaire agreement. Nsd in proportion of high risk cases determined by the two groups, $p=0.17$. Level of agreement by the two groups for essential psychiatric referral, 38%, Level of agreement by the two groups for non-essential psychiatric referral, 69%. Proportion of cases allocated for referral by physicians (35%) and psychiatrists (55%), $p=0.018$.	<ul style="list-style-type: none"> ▪ study's main aim is to compare physician's and psychiatrist's assessment of suicide risk and need for referral ▪ nature of self-poisoning DSH and patient demographic information not well described ▪ reliability and validity of survey questionnaire not reported ▪ selection bias and generalisability limitation likely as small sample from one hospital. Low response rates (63%) from psychiatrists using questionnaires ▪ additional case note information included to supplement questionnaire data provided by psychiatrists may cause information bias, though this information extracted by blinded investigator ▪ follow-up data on actual suicide re-attempts etc not available ▪ no specific comparison of different staff competency in risk assessments, only level of agreement of degree of suicide risk and referral patterns ▪ assumption made that psychiatric suicide risk assessment reflects near "true risk" not validated.

Table 1. Evidence table of appraised articles (continued)

Study; design type; evidence grading; country	Intervention/ comparison Outcome measure	Criteria for Inclusion/ Exclusion	Results/Outcome		Comments including methodological issues														
(Dennis et al. 1997) Leicester, UK Retrospective chart review Grade 3	Audit assessment forms based on standards of service provision from the Royal College of Psychiatrists. DSH defined as "an intentional self-injury (non-fatal), or deliberate ingestion of more than a prescribed amount of medical substances, or the deliberate ingestion of substances never intended for human consumption".	Emergency department at the Leicester General Hospital. N=854 patients with 934 episodes, aged 16 to 90, mean age 30.5 years, 48% male. Inclusion criteria: All attendance at A&E with a discharge diagnosis of "self inflicted injury" from April 1994 to March 1995 retrospectively identified from PAS (patient activity analysis) system. Exclusion criteria: None specified.	Adequacy of psychosocial assessment recorded by A&E doctor. Adequacy of psychosocial information recorded by A&E doctor.	% of DSH episodes where assessment criteria performed: <table border="0"> <tr><td>Suicide intent</td><td>70%</td></tr> <tr><td>Previous DSH</td><td>47%</td></tr> <tr><td>Risk of further DSH</td><td>46%</td></tr> <tr><td>Threats of DSH</td><td>23%</td></tr> <tr><td>Mental state</td><td>51%</td></tr> <tr><td>Psychiatric history</td><td>67%</td></tr> <tr><td>Recent stresses</td><td>55%</td></tr> </table> Frequency of information recorded and outcome. Mental state (p=0.01), history of threats (p=0.014), suicide intent (p=0.009), suicide risk (p=0.003) were more likely recorded where patient was referred for specialist assessment than discharged directly from A&E department.	Suicide intent	70%	Previous DSH	47%	Risk of further DSH	46%	Threats of DSH	23%	Mental state	51%	Psychiatric history	67%	Recent stresses	55%	<ul style="list-style-type: none"> ▪ study's main aim is an audit of the management of DSH at the A&E department ▪ reliability and validity of audit assessment tools not reported, case notes retrospectively analysed in a standardised fashion ▪ possible investigator bias as only one investigator examined case notes using audit instrument ▪ only cases with discharge dx of "self-inflicted injury" scrutinized for DSH cases ▪ assessment by A&E staff and sent home 31%, referred to MH specialist (DSH team nurse specialist or on-call SHO in psychiatry) 23%, admitted 46% ▪ follow-up data on actual suicide re-attempts etc not available ▪ non-psychiatric medical staff only, no comparison between different staff competency of risk assessments.
Suicide intent	70%																		
Previous DSH	47%																		
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Table 1. Evidence table of appraised articles (*continued*)

Study; design type; evidence grading; country	Intervention/ comparison Outcome measure	Criteria for Inclusion/ Exclusion	Results/Outcome		Comments including methodological issues												
(Dennis et al. 2001) Leicester, UK Retrospective chart review with before and after design Grade 3	Audit assessment forms based on standards of service provision from the Royal College of Psychiatrists. DSH defined as "an intentional self-injury (non-fatal), or deliberate ingestion of more than a prescribed amount of medical substances, or the deliberate ingestion of substances never intended for human consumption".	Emergency department at the Leicester General Hospital. 1359 patient episodes (no demographics provided). Inclusion criteria: All adult (16 years +) attendance at A&E with a diagnosis of "self inflicted injury" and "psychiatric illness" from October 1997 to September 1998 retrospectively identified. Exclusion criteria: None specified.	Service improvements for A&E medical staff: <ul style="list-style-type: none"> ▪ pre-printed checklist for risk assessment (history of DSH, mental state, medical/psychiatric history) ▪ two-hour training seminar on DSH, risk assessment, specialist services for Senior House Officers. 	Checklist attached to 40.4% of episode case notes and fully completed in 73% of cases. Proportion of DSH episodes referred and assessed by MH specialist (clinical nurse specialist and consultant psychiatrist) 26.5% c.f. 16.5% in previous audit, $p < 0.001$. <ul style="list-style-type: none"> ▪ discharged home by A&E doctor, 27% c.f. 26% ▪ admitted to psychiatric ward, 11% c.f. 6% ▪ admitted to medical ward, 35.5% c.f. 45.5% ▪ discharge by MH specialist with psychiatric outpatient appointment, 12.5% c.f. 7%. Excluding cases where checklist present, significant improvement in A&E doctors' documentation of: <table border="0" style="margin-left: 20px;"> <tr><td>Suicide intent</td><td>$p = 0.003$</td></tr> <tr><td>Previous DSH</td><td>$p = 0.002$</td></tr> <tr><td>Risk of further DSH</td><td>$p < 0.001$</td></tr> <tr><td>Threats of DSH</td><td>$p < 0.001$</td></tr> <tr><td>Psychiatric history</td><td>$p < 0.001$</td></tr> <tr><td>All cases</td><td>$p < 0.001$</td></tr> </table> Frequency of information recorded for patients not admitted c.f. previous audit, all $P < 0.01$ except for conscious level and medical history.	Suicide intent	$p = 0.003$	Previous DSH	$p = 0.002$	Risk of further DSH	$p < 0.001$	Threats of DSH	$p < 0.001$	Psychiatric history	$p < 0.001$	All cases	$p < 0.001$	<ul style="list-style-type: none"> ▪ study's main aim was a 12 month audit of the management of DSH at the A&E department compared to previous audit to see if new service initiatives improved the quality of psychosocial assessments. See above study (Dennis, et al. 1997) ▪ reliability and validity of audit assessment tools not reported, case notes retrospectively analysed in a standardized fashion ▪ possible investigator bias as only one investigator examined case notes using audit instrument ▪ possible selection bias as cases with dx of "self-inflicted injury" and "psychiatric illness" scrutinized for DSH cases. Previous audit only included "self-inflicted injury" cases ▪ no patient demographic information provided ▪ follow-up data on actual suicide re-attempts etc not available ▪ non-psychiatric medical staff only no comparison between different staff competency of risk assessments. Some weak inference could be made between increase in psychiatric assessment rates and suicide detection, no data to verify this.
Suicide intent	$p = 0.003$																
Previous DSH	$p = 0.002$																
Risk of further DSH	$p < 0.001$																
Threats of DSH	$p < 0.001$																
Psychiatric history	$p < 0.001$																
All cases	$p < 0.001$																

Table 1. Evidence table of appraised articles (continued)

Study; design type; evidence grading; country	Intervention/ comparison Outcome measure	Criteria for Inclusion/ Exclusion	Results/Outcome	Comments including methodological issues
(Malone et al. 1995) Pittsburgh, USA Retrospective chart review Grade 3	Case notes examined and assessed using checklist of items to assess reporting by physicians, nurses, social workers on admission (psychiatric evaluation form), during treatment, discharge of number of lifetime suicide attempts, suicidal ideation and planning behaviour, most medically lethal attempt, family history of suicidal behaviour c.f. Concurrent and independent patient assessment by research staff covering same information. Includes Scale for Suicidal Ideation (SSI), Suicide Intent Scale (SIS) and The Lethality Scale (LS), Suicide History Form © (NIMH Clinical Research Center).	Inpatients at Western Psychiatric Institute and Clinic. N=50 patients admitted with major depression having at least one suicide attempt during 1990 and 1993. Mean age 34 years, 48% male, mean Hamilton Depression Rating Scale score 29.0. Inclusion criteria: Patients admitted to clinic, assessed by structured interview for DSM-III-R, having major depressive episode, having made at least one suicidal act with the intention of death as a consequence of the act. Exclusion criteria: None specified.	Adequate assessment defined as complete or partial information about suicide indicators. Results relate to differences between clinician and researcher assessments. Clinicians failed to document past suicidal acts for 24% of cases at admission, and 28% at discharge. Clinicians reported fewer lifetime suicidal attempts than research assessment reported, p=0.001. All dimensions of suicidal behaviour in physician's discharge summary significantly less accurate than initial clinical semi-structured assessment (psychiatric evaluation form) at hospitalisation, p<0.01. The physician's discharge summary did not document presence of recent suicidal ideation or planning behaviour in 38% of cases. Adequate accuracy overall (in 4 out of 7 dimensions) for 50% of psychiatric evaluation forms on admission, 12% of admitting nurse's notes, 24% of social worker's notes and physician's discharge summary, 14%. Temporally more remote suicide attempts, less likely to be documented, p<0.05. With suicidal ideation reported in the week prior to admission, less likely chart documentation of past suicide attempts, p<0.05. No discharge summary contained family history of suicidal behaviour.	<ul style="list-style-type: none"> ▪ study's main aim is to test hypothesis that lifetime suicide indicators are underestimated in clinical practice. Compares a systematic clinical assessment with routine clinical assessment and factors influencing assessment such as lethality, axis II comorbidity, recent suicide attempt ▪ chart review assessment tool for routine clinical documentation described but reliability and validity not reported. Systematic clinical assessment tools described and referenced ▪ researchers and staff performed assessments independently ▪ generalisability limitation as small sample with major depressive episode and 53% diagnosed with borderline personality disorder ▪ statistical precision not reported for a number of between clinician comparisons ▪ follow-up data on actual suicide re-attempts post-discharge not available.

Table 1. Evidence table of appraised articles (continued)

Study; design type; evidence grading; country	Intervention/ Comparison Outcome measure	Criteria for Inclusion/ Exclusion	Results/Outcome	Comments including methodological issues														
(McCauley et al. 2001) Republic of Ireland Retrospective chart review Grade 3	Audit assessment of implementation of guidelines (UK Royal College of Psychiatrists, 1994) for management of DSH in general hospital setting. Case notes examined, diagnosis of DSH based on ICD-10 classification system. Data assessed using checklist of items (based on literature) to determine quality of psychiatric assessments.	Emergency department at a rural general hospital. N=147 patients admitted with DSH during 1997 or 1998 from which 100 randomly selected of which 70 included in study. Mean age for males 34 years, females 31, 37% male. Inclusion criteria: Patients admitted after DSH based on ICD-10 codes E950-E959 and E980-E989 from hospital records system. Exclusion criteria: Non-DSH identified from selected charts.	Frequency of recording parameters in the psychiatric assessments (%) of N=65. <table border="0" data-bbox="857 464 1429 616"> <tr> <td>Previous suicidal behaviour</td> <td>48%</td> </tr> <tr> <td>Suicide risk</td> <td>89%</td> </tr> <tr> <td>Circumstances of DSH</td> <td>86%</td> </tr> <tr> <td>Mental state examination</td> <td>74%</td> </tr> <tr> <td>Psychiatric history</td> <td>82%</td> </tr> <tr> <td>Recent stresses</td> <td>75%</td> </tr> <tr> <td>Family psychiatry history</td> <td>40%</td> </tr> </table> 35% of patients seen on day of admission, 33% on day after.	Previous suicidal behaviour	48%	Suicide risk	89%	Circumstances of DSH	86%	Mental state examination	74%	Psychiatric history	82%	Recent stresses	75%	Family psychiatry history	40%	<ul style="list-style-type: none"> ▪ study's main aim is an audit of guideline implementation of DSH management ▪ reliability and validity of audit checklist assessment tool not reported. Limitations with ICD-10 coding reliability as 25% of cases coded with DSH were found not to be DSH ▪ selection bias and generalisability limitation likely as small sample size with only 70% of original sample included ▪ 65% of patients presented with an overdose, 33% of patients experienced adjustment disorder and depressive episode in 29% of assessments ▪ follow-up data on actual suicide re-attempts etc not available ▪ psychiatric assessments requested and performed by psychiatric team in all identified cases ▪ psychiatric medical staff only, no comparison of different staff competency in risk assessments ▪ less than 50% of charts contained patient GP discharge summary indicating communication limitations between GPs and psychiatric team ▪ lack of involvement of other medical staff in assessments despite reputed evidence supporting multi-disciplinary approach.
Previous suicidal behaviour	48%																	
Suicide risk	89%																	
Circumstances of DSH	86%																	
Mental state examination	74%																	
Psychiatric history	82%																	
Recent stresses	75%																	
Family psychiatry history	40%																	

Appendix 1: Search strategies

CINAHL

- 1 suicide/ or suicidal ideation/ or suicide, attempted/ (2003)
- 2 suicid\$.tw. (2219)
- 3 parasuicid\$.tw. (38)
- 4 Injuries, Self-Inflicted/ (224)
- 5 or/1-4 (3061)
- 6 Risk Assessment/ (2337)
- 7 "risk detection (iowa noc)"/ or "risk identification (iowa nic)"/ or risk management/ (1836)
- 8 risk.tw. (29497)
- 9 risk\$.tw. (32843)
- 10 or/6-9 (34718)
- 11 exp Nurses/ (46334)
- 12 health personnel/ or exp physicians/ (12599)
- 13 exp Psychiatry/ (1052)
- 14 exp Psychology/ (1291)
- 15 exp Mental Health Personnel/ (815)
- 16 or/11-15 (59959)
- 17 5 and 10 and 16 (50)
- 18 limit 17 to (english and yr=1990-2002) (47)
- 19 from 18 keep [SELECTED REFERENCES] (4)

CURRENT CONTENTS

- 1 suicid\$.mp. (13460)
- 2 parasuicid\$.mp. (357)
- 3 1 or 2 (13521)
- 4 (doctor\$ or physician\$ or psychiatrist\$ or psychologist\$ nurs\$ or clinician\$).tw. (76180)
- 5 (assess\$ or evaluat\$ or analysis or interview\$).tw. (1660093)
- 6 ((suicid\$ or parasuicid\$) adj3 (assess\$ or evaluat\$ or analysis or interview\$)).tw. and 4 (61)
- 7 from 6 keep [SELECTED REFERENCES] (3)

EMBASE

- 1 suicidal behavior/ or self poisoning/ or suicide/ or suicide attempt/ (12833)
- 2 Automutilation/ (1903)
- 3 suicid\$.tw. (13811)
- 4 parasuicid\$.tw. (276)
- 5 or/1-4 (18775)
- 6 high risk patient/ or high risk population/ or risk assessment/ or risk management/ (80074)
- 7 medical staff/ or nursing staff/ or medical personnel/ or general practitioner/ or hospital physician/ or physician/ or psychiatrist/ or psychotherapist/ or resident/ (34343)
- 8 psychologist/ (1016)
- 9 5 and 6 and (7 or 8) (47)
- 10 limit 9 to (english language and yr=1990-2002) (47)
- 11 from 10 keep [SELECTED REFERENCES] (5)

MEDLINE

- 1 SUICIDE/ or SUICIDE, ATTEMPTED/ (23171)
- 2 exp Self-Injurious Behavior/ (3517)
- 3 suicid\$.tw. (22756)
- 4 parasuicid\$.tw. (401)
- 5 or/1-4 (34268)
- 6 risk assessment/ or risk factors/ (201909)
- 7 risk/ (63349)
- 8 6 or 7 (263760)
- 9 Psychiatric Nursing/ (10126)
- 10 Nursing Assessment/ (14556)
- 11 nurses/ or nurse clinicians/ or nurse practitioners/ or nursing staff, hospital/ (51102)
- 12 physicians/ or hospitalists/ (32358)
- 13 psychologists.ti. (598)
- 14 psychology/ or psychology, clinical/ (8874)
- 15 Psychiatry/ (18014)
- 16 medical staff, hospital/ (12779)
- 17 (emergency adj (physician\$ or doctor\$)).tw. (2346)
- 18 exp Emergency Service, Hospital/ (18718)
- 19 or/9-18 (157985)
- 20 5 and 8 and 19 (185)
- 21 limit 20 to (english language and yr=1990-2002) (130)
- 22 from 21 keep [SELECTED REFERENCES] (26)
- 23 ((physician\$ or clinician\$ or doctor\$ or nurs\$ or psychiatrist\$ or psychologist\$) and (suicid\$ adj3
assessment)).tw. (90)
- 24 23 not 20 (73)
- 25 limit 24 to (english language and yr=1990-2002) (54)
- 26 from 25 keep [SELECTED REFERENCES] (12)
- 27 22 or 26 (38)

PSYCINFO

- 1 attempted suicide/ or suicidal ideation/ or suicide/ or suicide prevention/ (12991)
- 2 self destructive behavior/ or self inflicted wounds/ or self mutilation/ (2453)
- 3 suicid\$.tw. (19372)
- 4 parasuicid\$.tw. (499)
- 5 or/1-4 (21606)
- 6 medical personnel/ or health personnel/ or nurses/ or physicians/ or psychiatric hospital staff/
(15865)
- 7 mental health personnel/ or clinical psychologists/ or psychiatric hospital staff/ or psychiatric
nurses/ or psychotherapists/ (11701)
- 8 emergency services/ (1716)
- 9 (emergency adj (physician\$ or doctor\$ or clinician\$ or nurs\$)).tw. (44)
- 10 or/6-9 (27821)
- 11 risk analysis/ or risk management/ (2154)
- 12 risk.tw. (54476)
- 13 11 or 12 (54640)
- 14 5 and 10 and 13 (166)
- 15 limit 14 to (english language and yr=1990-2002) (108)
- 16 from 15 keep [SELECTED REFERENCES] (17)

Appendix 2: Bibliography of included studies

INCLUDED, CRITICALLY APPRAISED STUDIES

Brown, D. H., Reynolds, N., & Pullar, T. (1995). Assessment and referral patterns of patients admitted after deliberate self-poisoning. *Scottish Medical Journal*, 40, 144-146.

Burn, W. K., Edwards, J. G., & Machin, D. (1990). Improving house physicians' assessments of self-poisoning. *British Journal of Psychiatry*, 157, 95-100.

Dennis, M., Beach, M., Evans, P. A., Winston, A., & Friedman, T. (1997). An examination of the accident and emergency management of deliberate self harm. *Journal of Accident & Emergency Medicine*, 14, 311-315.

Dennis, M., Evans, A., Wakefield, P., & Chakrabarti, S. (2001). The psychosocial assessment of deliberate self harm: using clinical audit to improve the quality of the service. *Emergency Medicine Journal*, 18, 448-450.

Hurry, J., & Storey, P. (2000). Assessing young people who deliberately harm themselves. *British Journal of Psychiatry*, 176, 126-131.

Malone, K. M., Szanto, K., Corbitt, E. M., & Mann, J. J. (1995). Clinical assessment versus research methods in the assessment of suicidal behavior. *American Journal of Psychiatry*, 152, 1601-1607.

McCauley, M., Russell, V., Bedford, D., Khan, A., & Kelly, R. (2001). Assessment following deliberate self-harm: who are we seeing and are we following the guidelines? *Irish Journal of Psychological Medicine*, 18, 116-119.

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Catalan, J., Marsack, P., Hawton, K., Whitwell, D., Fagg, J., & Bancroft, J. (1980). Comparison of doctors and nurses in assessment of deliberate self poisoning patients. *Psychological Medicine*, 10, 483-491.

Gardener, R., Hanka, R., O'Brien, V. C., Page, A. I. F. & Rees, R. (1977). Psychological and social evaluation in cases of deliberate self-poisoning admitted to a general hospital. *BMJ*, ii, 1567-1570.

Keyes, C. (2001). Risk management issues for clinicians who treat suicidal patients in managed care systems. In Ellison, J. M. (Ed), *Treatment of Psychiatric Patients in Managed Care*, pp 153-172, Washington, DC: American Psychiatric Press.

Jacobson, G. (1999). The inpatient management of suicidality. In D. G. Jacobs (Ed.), *The Harvard Medical School guide to suicide assessment and intervention* (pp. 383-405). San Francisco: Jossey-Bass Inc.

Newson-Smith, J. G. B., & Hirsch, S. R (1979). A comparison of social workers and psychiatrists in evaluating parasuicide. *British Journal of Psychiatry*, 134, 335-342.

Appendix 3: Bibliography of excluded studies

EXCLUDED, RETRIEVED STUDIES

The following papers were retrieved and reviewed but rejected for inclusion in the analysis:

Adamek, M. E., & Kaplan, M. S. (2000). Caring for depressed and suicidal older patients: A survey of physicians and nurse practitioners. *International Journal of Psychiatry in Medicine*, 30, 111-125.

Qualitative (self-report) survey of primary care physicians and nurse practitioners to describe patterns of care for depressed and suicidal geriatric patients. Self-rated confidence in assessing and treating depression and suicidality similar between the two groups.

Aschkenasy, J. R., Clark, D. C., Zinn, L. D., & Richtsmeier, A. J. (1992). The non-psychiatric physician's responsibilities for the suicidal adolescent. *New York State Journal of Medicine*, 92, 97-104.

Narrative review article discussing non-psychiatric physicians as being often well placed as trusted allies of children and families for assessment, management, prevention of suicidal behaviour.

Bongar, B. (1992). The ethical issue of competence in working with the suicidal patient. *Ethics & Behavior*, 2, 75-89.

Expert opinion article discussing ethical need for clinician competence in risk assessment/management as routine element of professional practise, training adequacy, self evaluation of personal competencies.

Buzan, R. D., & Weissberg, M. P. (1992). Suicide: risk factors and therapeutic considerations in the emergency department. *Journal of Emergency Medicine*, 10, 335-343.

Expert opinion/narrative review article discussing emergency physician's role in encountering diverse presentations of suicidal patients. Provides detail on assessment of suicide risk, discharge criteria and management criteria.

Eagles, J. M., Klein, S., Gray, N. M., Dewar, I. G., & Alexander, D. A. (2001). Role of psychiatrists in the prediction and prevention of suicide: a perspective from north-east Scotland. *British Journal of Psychiatry*, 178, 494-496.

Commentary and expert opinion article in form of a precis of a survey of Scottish psychiatrists. Article is a qualitative study on clinician views on prediction/prevention of suicide and the limitations of this.

Fawcett, J., Clark, D. C., & Scheftner, W. A. (1991). The assessment and management of the suicidal patient. *Psychiatric Medicine*, 9, 299-311.

Expert opinion article discussing risk assessment and inability of clinician to completely assess risk.

Hughes, D. H. (1996). Suicide and violence assessment in psychiatry. *General Hospital Psychiatry*, 18, 416-421.

Narrative review article arguing that prediction of suicide and violence may not be possible and that conservative clinicians deliberately overpredict suicide or violence for safety and assessment limitation reasons.

Jobes, D. A., Eyman, J. R., & Yufit, R. I. (1995). How clinicians assess suicide risk in adolescents and adults. *Crisis Intervention & Time-Limited Treatment*, 2, 1-12.

Descriptive study, only 23% of sample included in analysis, self-report survey looking at suicide assessment tool use and utility, does not address topic question on clinician competency.

John, D. S. (1996). The suicidal patient: identifying, evaluating, and intervening. *Home Care Provider*, 1, 246-253.

Expert opinion article/guideline on identification, risk factors, assessment and care of suicidal patients.

Kaplan, M. S., Adamek, M. E., & Martin, J. L. (2001). Confidence of primary care physicians in assessing the suicidality of geriatric patients. *International Journal of Geriatric Psychiatry*, 16, 728-734.

Qualitative (self-report) survey of family practise, internal medicine and geriatric physicians examining their confidence levels in assessing the risk of suicide among geriatric patients. All training items were significantly associated with confidence in assessing suicidality.

Kleespies, P. M., Deleppo, J. D., Gallagher, P. L., & Niles, B. L. (1999). Managing suicidal emergencies: Recommendations for the practitioner. *Professional Psychology - Research & Practice*, 30, 454-463.

Narrative review article examining duty of care in medical emergencies and interpersonal engagement in evaluation of risk.

Leenaars, A. A. (1995). Clinical evaluation of suicide risk. *Psychiatry & Clinical Neurosciences*, 49, S61-68.

Expert opinion article/theory with case study.

Roose, S. P. (2001). Suicide: what is in the clinician's mind? *Annals of the New York Academy of Sciences*, 932, 151-157.

Expert opinion article discussing conflict and obstacles with suicidal patient/clinician relationship, medical model, clinician fear of failure, shame.

Uncapher, H., & Arean, P. A. (2000). Physicians are less willing to treat suicidal ideation in older patients. *Journal of the American Geriatrics Society*, 48, 188-192.

Generalisability limitation, with artefact findings based on symptom loaded vignette and primary care setting, methodological issues – e.g., physician interest response bias. Experimental study with randomly selected primary care physicians who assessed a vignette describing either a younger (38 years) and elderly (76 years) depressed suicidal patient with medical problems to determine the influence of age on the recognition of symptoms and willingness to treat. Found physicians recognised depression and suicidal risk in both but were less willing to treat the older patient.

Requested from Interloan but because of high expense, time factors, or non-availability, the following were not included in the review:

Kirschner, E. S. (2001). A survey of primary care physicians' assessment and treatment of depressed older adults with suicidal ideation. *Dissertation Abstracts International: Section B: the Sciences & Engineering*, 61, 4410, US: University Microfilms International (full dissertation not obtained).

Robinson, D. R. (1992). Clinical judgements by mental health professionals in assessing the seriously suicidal adolescent. *Dissertation Abstracts International*, 52, 3913-3914, US: University Microfilms International (full dissertation not obtained).