

NATIONAL COLLABORATING CENTRE FOR NURSING & SUPPORTIVE CARE (NCC-NSC)

National Clinical Guideline: The diagnosis, prevention and management of delirium.

Notes of the Eighth Guideline Development Group Meetings
Commencing at 10.00 a.m., Wednesday 4th March 2009
at the Royal College of Nursing HQ, Cavendish Square, London.

Wednesday 4th March 2009 (Room 218)

PRESENT:

John Young (JY, Chair)	Professor and Honorary Consultant Geriatrician, Bradford Teaching Hospitals Foundation NHS Trust
Melanie Gager (MG)	Sister in Critical Care Follow Up, Royal Berkshire NHS Foundation Trust
Jim George (JG)	Consultant Physician, North Cumbria Acute Hospitals NHS Trust
Anne Hicks (AH,)	Consultant in Emergency Medicine, Plymouth Hospitals NHS Trust
John Holmes (JHo, Day 1)	Senior Lecturer - Liaison Psychiatry of Old Age, University of Leeds (Until 4pm)
Emma Ouldred (EO)	Dementia Nurse Specialist, King's College Hospital NHS Foundation Trust
Rachel White (RW)	Patient/Carer Representative
Matt Wiltshire (MWi)	Patient/Carer Representative

APOLOGIES

David Anderson (DA)	Consultant in Old Age Psychiatry, Mersey Care NHS Trust
Wendy Harvey (WH)	General Manager, Barchester Healthcare
Jane Healy (JH)	Senior Clinical Practice Facilitator, UCLH NHS Foundation Trust
Sue Latchem (SL)	Guideline Commissioning Manager, NICE
Najma Siddiqi (NS)	Consultant Psychiatrist, Bradford District Care Trust

IN ATTENDANCE

Anayo Akunne (AA)	Health Economist, NCC NSC
Ian Bullock (IB)	Chief Operating Officer, NCGC ACC (from 11:40 am onwards)
Andrew Clegg (AC, observer)	Specialist Registrar in General Medicine, Bradford Teaching Hospitals Foundation NHS Trust
Sarah Davis (SD)	Senior Health Economist, NCC NSC
Sarah King (SK)	Consultant reviewer
Lakshmi Murthy (LM)	Research and Development Fellow, NCC NSC
Maggie Westby (MWy)	Senior Research & Development Fellow, NCC NSC

Day 1

1. Welcome, introduction and apologies

GDG Chair, JY welcomed everyone to the meeting. Apologies were received from DA, WH, JH, SL and NS.

JY requested whether the 13th GDG meeting due to be held on 9th September 2009 could be rescheduled for the previous week, preferably 2nd, 3rd or 4th September. GDG members in attendance were in agreement.

Action Point: NCC to check if this is acceptable to senior members of the technical team in the new merged centre. An email to be circulated to all GDG members to confirm date of the September GDG meeting.

2. Minutes, declarations of interest and matters arising

JY reviewed the notes from the 6th and 7th GDG meeting.

- Matt Wiltshire's name was inadvertently left out and was therefore added to the attendance list.
- NCC team requested that the action points on p. 6 [*NCC to cross check NICE nutrition guideline in reference to the hydration review and NCC to send JY a summary of the Naughton (2005) study discussed in the multicomponent treatment review*] will be addressed in the updates.
- AA requested that he would like further clarification on GDG's decision on costing for visual and hearing impairment (p.8)

JY asked if there were any updates to individual Declarations of Interest (DoI). No updates were reported.

3. Risk Factors

SK briefly recapped the risk factors review that was presented at the previous GDG meeting and presented the patient characteristics and methodological quality of the studies identified in the update searches (from 1987 to 1993; and updates from April 2008 to January 2009).

SK presented the characteristics of the included studies in the risk factor review. With reference to the Ranhoff (2006) study, the technical team needed clarification as to whether prevalent and incident delirium can be distinguished in the ICU. The GDG concurred with JY's explanation that as ICU is part of a pathway, and patients from either surgical or A&E wards can arrive into ICU, it is difficult to distinguish when delirium occurred, so all delirium should be considered to be incident.

SK took the GDG through the quality assessment for the updated studies. MWy clarified with the GDG that a study with high proportion of prevalent delirium will be downgraded.

MWy asked the GDG for guidance on rating the quality of a study in relation to the events to covariate ratio. The GDG agreed with MWy's suggestion that a ratio of 2 or 3 events to covariate is possibly confounded and should be downgraded by 2 points (to 'low', if all other quality factors were acceptable) and added that a ratio of 1 or below should be classified as biased (downgraded 3 points). A ratio of between 4 and 8 should be downgraded by 1 point.

SK queried the quality rating of three studies: Lin (2008), Redelmeier (2008) and Schor (1992). The GDG agreed with the quality rating of 'moderate' for the Lin (2008) study as there were only 2 of the 4 key risk factors included and agreed that the Schor (1992) study could be upgraded from 'moderate' to 'high'. With reference to the Redelmeier (2008) study, the GDG expressed concern that the method of assessment was not adequate (classification based on the International Classification of Diseases codes

293.0 to 293.9- in medical chart or case notes) and the study design was retrospective. The GDG agreed that the Redelmeier (2008) study should be excluded from the analysis.

MWy directed the GDG to the risk factors review and queried the method of assessment of cognitive impairment (medical chart) in the Levkoff (1992) study which included patients from the community and institution. The GDG expressed concern about this study as the assessment of cognitive impairment was a poor method.

MWy then presented the results for the risk factors review. The presentation can be found on Claromentis at Root/Delirium/GDG meetings 8/presentations

(a) Age

The GDG considered the evidence from 16 studies presenting data on age as a risk factor for delirium; seven of these evaluated age as a continuous variable.

MWy explained to the GDG that the relationship between the odds ratio and the increase in age is not linear. For example, if the odds ratio was 1.10, for an increase in age of 10 years, the risk of delirium increases by a factor of 1.10^{10} , i.e. 2.59 fold. This 2.5 fold increase in risk is for a 10 year age gap, whereas, if comparing between 30 versus 80, the risk would be much higher. The GDG agreed that for age as a continuous variable, the results were consistent over a range of studies and likely to be valid.

MWy pointed out the significant heterogeneity observed for age over 80 as a risk factor; a sensitivity analysis excluding the low quality studies made no difference to the level of heterogeneity. Of the two studies (Levkoff 1992; Ranhoff 2006) that were not showing a significant effect of age, the GDG agreed that, for the Levkoff (1992) sub-study in which patients came from an institutional setting, the age range was not wide enough to demonstrate if there was an effect of age and JY noted that in cases where the patients are based in ICU (Ranhoff 2006), the physical insult of illness is so great that the effect of age is likely to be swamped. The GDG concluded that age is an important risk factor for delirium.

(b) Cognitive impairment

MWy queried whether cognitive impairment or dementia should be used. The GDG advised that either measure can be used but that cognitive impairment is easier to measure whereas assessment of dementia requires a detailed interview.

The GDG considered the available evidence from 14 studies evaluating cognitive impairment as a risk factor for delirium. The GDG advised that the inadequate method of assessment of cognitive impairment (medical chart review) in one study (Levkoff 1992) and the unreliable definition of cognitive impairment in the Veliz-Reissmuller (2007) study should be taken into account. A sensitivity analysis excluding low quality studies showed no difference, therefore, data from all studies were used.

The GDG requested that Inouye (2007) study reporting on cognitive impairment as a risk factor for persistent delirium to be presented separately. Overall cognitive impairment was a strong risk factor for delirium.

(c) Sensory impairment

The GDG considered the evidence from three low quality studies, one moderate quality study and one high quality study reporting data on visual impairment. The GDG concluded that there was weak evidence for impaired vision as a risk factor for delirium.

(d) Polypharmacy

The GDG considered the evidence from one high quality and one moderate quality study evaluating the number of drugs as a risk factor for the incidence of delirium. JY clarified that it is the type of drugs that may be of more importance than the number of drugs. The GDG concluded that there is limited evidence for polypharmacy as a risk factor for delirium and wished to reconsider this risk factor after the pharmacological risk factor review was presented.

(e) Dehydration

The GDG considered the evidence from four low quality studies and one of moderate quality. JY noted that (on p.24- in the version circulated to the GDG) the statement which reads “increase in BUN level and a decrease in creatinine” should be amended to read “a disproportionate rise in blood urea nitrogen (BUN) to creatinine”. JY summarised that of the 4 studies reporting dehydration as a risk factor, all were low quality studies and GDG should be cautious about the interpretation of the evidence.

(f) Severity of illness

The GDG considered the evidence for severity of illness as a risk factor for the incidence of delirium based on data from one low quality, one moderate and one high quality studies. The GDG noted the paradoxical finding in the Levkoff (1992 institution) study which they partly attributed to the use of a non validated scale (clinician based rating scale) for the assessment of severity of illness. The remaining studies which used the APACHE scale were acceptable. The GDG also considered the evidence from one moderate quality study for severity of illness as a risk factor for duration of delirium. The GDG concluded that severity of illness was an important risk factor for delirium.

(g) Comorbidity

The GDG considered the evidence from two low quality and two moderate quality studies for comorbidity as a risk factor for delirium. The GDG queried whether the Major Diagnostic Categories (MDCs) scale used in Pisani (2007) study was a validated clinically derived scale. The GDG noted the observed heterogeneity may be due to the different types of scales (Charlson Comorbidity; MDC) used to assess comorbidity. The GDG concluded that there is limited evidence for comorbidity as a risk factor for delirium.

(h) Gender

The GDG considered the evidence from one moderate quality and two high quality studies evaluating sex/gender as a risk factor for delirium. The GDG commented on the significant heterogeneity for this risk factor and concluded that the existing evidence is not reliable for male gender as a risk factor.

(i) Depression

The GDG considered the evidence from three low quality studies and one moderate quality study evaluating depression as a risk factor for delirium. MWy highlighted that the studies used a variety of scales. The GDG concluded that, although there is a significant effect of depression in delirium, taking into consideration the heterogeneity and the quality of studies, no conclusions would be drawn on the effect of depression as a risk factor.

(j) Infection

The GDG considered the evidence from one low quality study, one moderate quality and one high quality study for infection as a risk factor for the incidence of delirium and one moderate quality study evaluating infection as a risk factor for the duration of delirium. The GDG examined the evidence and concluded infection is a significant risk factor for delirium.

(k) Mobility

The GDG considered the evidence from one low quality study which showed a non significant effect on the incidence of delirium. The GDG concluded that there is a lack of evidence on mobility as a risk factor for the incidence of delirium.

(l) Incontinence

The GDG considered the limited evidence from one low quality study (Sheng 2006) which showed a non significant effect on incidence of delirium. The GDG concluded that there is a lack of evidence on incontinence as a risk factor for the incidence of delirium.

(m) Type of surgery

The GDG examined the available evidence for cardiac surgery as a risk factor from three moderate quality studies for vascular surgery compared with all other types of surgery in one moderate quality study and emergency hip fracture surgery in one low quality study. JY queried whether there is any evidence for surgery per se as a risk factor. The GDG stated that vascular surgery may be a proxy for other factors and the comparison in the Rudolph (2007) study was not rational in a clinical sense and noted that patients undergoing hip fracture or vascular surgery were particularly high risk patients.

(n) Iatrogenic interventions

The GDG considered the evidence for iatrogenic interventions as a risk factor for delirium from a low quality and a high quality study. The GDG concluded that the evidence from the Andersson (2001) study

should be treated with caution as it is a low quality study and the clinical interpretation of the findings from the Ranhoff (2008) study is difficult because there are many confounders in patients needing catheters.

Overall, the GDG decided the following risk factors should be included in the economic modelling:

- Age
- Cognitive impairment
- Infection
- Severity of illness
- Visual impairment

4. Consequences of delirium

LM presented the consequences of delirium review. The presentation can be found on Claromentis at Root/Delirium/GDG meetings 8/presentations

LM took the GDG through the characteristics of the included studies; highlighting one study (Pautex 2009) was set in a palliative care ward. The GDG decided that this population would not be representative and advised to exclude this study.

The GDG were presented with the outcomes reported in multivariate analyses that have been included in the review:

- dementia;
- admission to institution (new);
- mortality;
- falls; and
- length of stay

LM highlighted there were seven outcomes identified by the GDG at the September GDG meeting for which no studies (with multivariate analyses) were identified:

- progression of dementia;
- hospital admission (who were in a home);
- post discharge care;
- post traumatic stress disorder;
- pressure ulcers;
- impact on carers; and
- quality of life for patients

LM also highlighted that four outcomes were identified which had not been previously highlighted by the GDG. The GDG agreed that three of the four outcomes were of interest and should be included in the review and highlighted the confounding factors for each outcome.

- Cognitive dysfunction

Confounding factors: age, cognitive impairment

The GDG agreed this outcome could be combined with the results for cognitive impairment/dementia.

The GDG clarified that although the cost estimates for cognitive impairment and dementia are different and it is unclear whether people have dementia until they have been cognitively impaired for 6 months, the decision was to present together studies reporting these outcomes.

The GDG decided although age, gender and cognitive impairment have been identified as confounding factors for dementia, they did not consider any clinical reason why gender should be included as an important confounding factor.

- Hospital acquired complications

Confounding factors: age, gender, polypharmacy cognitive impairment [factors for falls] and/or age, gender, immobility [factors for pressure ulcers]

- Loss of independent living; patients institutionalised or needed assistance on 1 of 4 ADL

The GDG felt that for this outcome, patients needing assistance on 1 of 4 ADL may be confounded by stroke. . The GDG indicated that this outcome should not be included in the review.

- Mortality or Admission to institution (new)

Confounding factors: ADL, age, cognitive impairment, comorbidity, severity of illness

The GDG considered the methodological quality of the studies, particularly with respect to method of assessment of delirium. The GDG noted that the Dolan (2000) study should be considered suspect as reliance on review of medical notes and or proxy interview [with family members] with CAM and the Pautex (2008) study which did not specify the method of assessment. The GDG agreed that the Rudolph (2008) study which used DSM III for assessment is acceptable if the method of assessment remained consistent throughout the duration of the study and accepted the Delirium Symptom Interview (DSI) (Levkoff 1992) as an acceptable method.

In relation to types of delirium, the GDG advised that incident and prevalent delirium are sensitive to the type of population and the review should clearly indicate whether the study was set in a hospital, ICU or surgical setting. Furthermore, the GDG advised that subsyndromal delirium (either prevalent or incident) will not need to be evaluated within the review.

The GDG agreed that persistent delirium as defined in the McAvay (2006) study [*patients who met full criteria for delirium at the discharge interview or had full delirium during the hospitalisation and partial symptoms at discharge were classified as having persistent delirium*] would be acceptable.

The GDG also considered the method of assessment of cognitive impairment. The GDG decided the Blessed Rating Scale (Francis 1990; Leslie 2005; Marcantonio 2000; O’Keeffe 1997) was not an adequate method as dementia is assessed based on different cut-off points, medical chart review was inadequate (Drame 2008; Levkoff 1992) and a cutoff point below 20 in the MMSE (Inouye 1998) would not adequately capture patients with dementia/cognitive impairment, this would also include patients with persistent delirium.

The GDG considered the methodological quality of the studies, particularly with respect to outcome of interest at baseline. For the outcome dementia, the GDG required further information on the range of scores in the Blessed Dementia Rating Scale in the Ely (2007) study.

Action Point: LM to clarify the scoring and range for the Blessed scale in the review.

LM took the GDG through the outcomes of interest (dementia, admission to institution (new), mortality, falls, and length of stay) and important confounders taken into account.

The GDG requested the following changes:

- gender should be removed as an important factor for dementia and mortality; and
- depression should be added as an important factor for dementia;

MWy advised that GDG that in studies reporting loss to follow up, if the outcomes presented are in hazard ratios that is acceptable, but not if presenting as an odds ratio.

The GDG were advised that the current assessment of quality would now need to be amended to reflect the above changes.

LM took the GDG through the methodological quality for each. This can be found on Claromentis at Root/Delirium/GDG meeting 8.

The GDG considered the overall quality of the study particularly with reference to method of assessment of delirium, number of confounding factors, the number of patients per covariate and loss to follow up.

The GDG agreed the following:

- downgrade studies with an inadequate method of assessment of delirium (Dolan 2000: MMSE),
- downgrade studies with a high loss to follow-up (Inouye 1998: above 20%)

In relation to the ratio of number of patients per covariate, the GDG provided the following guidelines for this criterion of quality assessment:

- ratio of 0 or 1 should be rated as biased
- ratio of between 2 to 5 would be considered as a low quality
- ratio of between 6 to 9 would be considered as moderate quality
- ratio of 10 and above would be considered as high quality

The above guidance for ratio of number of patients per covariate is not prescriptive and it would need to be considered along with the other quality criteria.

Action Point: LM to amend methodological quality assessment to reflect GDG discussion and post on Claromentis.

LM presented the results for the consequences of delirium review.

(a) Dementia

The GDG considered the available evidence from two low quality studies (Ely 2004; Rockwood 1999) evaluating dementia as a consequence of delirium. The GDG agreed that the Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE) was an adequate method of cognitive impairment at the follow-up period in one study (Rockwood 1999).

The GDG were in agreement with the result which showed a strong effect delirium on subsequent dementia and stated that this is in accordance with their clinical experience.

(b) Admission to institution (new)

The GDG considered the available evidence for new admissions to institution as a consequence of delirium. The quality of the studies and time of assessment were as follows:

- one biased study (Bourdel-Marchasson 1994- results for incident and prevalent); one low quality (Levkoff 1992) and one moderate quality (Inouye 1998) study evaluating admission to institution at discharge.
- one low quality study (Inouye 1998) evaluating at 3 months;
- one low quality study (O'Keeffe 1997) evaluating at 6 months; and
- one low quality study (Pitkala 2005) evaluating at 2 years.

Excluding the evidence from the biased study, the GDG agreed that although the available evidence showing a small effect of delirium on new admissions to institutions are low quality, the results are in alignment with clinical judgement.

(c) Mortality

The GDG considered the available evidence for mortality as a consequence of delirium. The quality of the studies and time of assessment were as follows:

- one low quality (O’Keeffe 1997) and three moderate quality studies (Inouye 1998; Lin 2004 Thomason 2005) evaluating mortality in hospital;
- one biased study (Marcantonio 2000) evaluating mortality at 1 month;
- one moderate quality study (Inouye 1998) evaluating mortality at 3 months;
- one high quality study (Drame 2008) evaluating mortality at 6 weeks;
- one biased study (Francis 1990);one low quality studies (Marcantonio 2000); two moderate quality studies (Ely 2004; O’Keeffe 1997); and one high quality study (Levkoff 1992) evaluating mortality at 6 months;
- two high quality studies (Leslie 2005; Pitkala 2005) evaluating mortality at 1 year;
- one biased study (Dolan 2000), one low quality study (Francis 1992); and one high quality study (Pitkala 2005) evaluating mortality at 2 years; and
- one high quality study (Rockwood 1999) evaluating mortality at 3 years.

Excluding the biased studies, the GDG considered the evidence and stated that:

- of the studies evaluating mortality at discharge only the O’Keeffe (1997) could be considered as it is conducted in the UK;
- there is a trend showing an increased but small effect of delirium on mortality over the time period from discharge to 3 years; and
- the data from the time to event analysis in the Rockwood (1999) study could be used to provide an estimate of mortality.

The GDG concluded that they would expect a higher mortality due to delirium in the hospital but further from the delirium episode they would not expect the occurrence mortality to be causal.

Action Point: SD to consider the Kaplan-Meier graph in the Rockwood (1999) study for mortality estimates.

(d) Length of stay

The GDG considered the available evidence from two high quality studies (Ely 2004; Thomason 2005) evaluating length of stay, one high quality study (Thomason 2005) evaluating length of stay in the ICU and one moderate quality study evaluating length of stay-post ICU (Ely 2004).

The GDG felt that the two studies conducted in the US, would be an underestimate of the effect and agreed that it was a conservative measure.

(e) Falls

The GDG considered the available evidence from one study (Pautex 2008) evaluating falls as a consequence of delirium. The GDG decided that overall quality was biased as it was not considered representative (the study was conducted in a palliative ward setting) and the method of delirium assessment was unclear.

The GDG considered the merits of using the univariate analysis results for falls in or the results from the multivariate analyses for hospital-acquired complications (which included falls, pressure sores, urinary incontinence or any other complications in the O’Keeffe (1997) study), and whether the method of assessment of pressure sores in the study was adequate (Grade 2 of Shea’s classification). Following a lengthy discussion, the GDG concluded that the results for the adjusted odds ratio for hospital-acquired complications in the O’Keeffe (1997) study could be used.

Action Point: LM to amend the *Consequences of delirium* review to reflect all of the GDG discussion on this review and post the updated review on Claromentis.

5. Health Economics

AA presented the economic model for treatment interventions and the cost of multi-component targeted intervention (MTI) for the prevention of delirium. The presentation can be found on Claromentis at Root/Delirium/GDG meetings 8.

AA recapped the GDG’s decisions from the last meeting.

The GDG clarified that:

- it is not the pay rate for a geriatrician, but the ‘unit cost’ per patient related hour; geriatrician and other health professionals may be required for the application of MTI to surgical patients
- The application of MTI in general medical patients may require extra materials such as word games, and relaxation tapes; and
- the ‘screener’ is the half-time geriatric specialist nurse

The GDG agreed that that it is better to classify by what people do rather than job title and requested that a description of the roles recommended in the Elder Life Program staff be made available.

SD highlighted that the unit cost will include training, however, it is not accounted in the cost effective analysis but it is taken into account in the implementation costs.

AH clarified that the NHS costs for low level lighting and quiet rooms are expensive and difficult to achieve and the guideline needs to be explicit that it is not being costed for.

JY stated that some aspects of intervention (e.g. clocks and calendars) in the recommendations from the Inouye (1998) study are not applied in practise so the guideline will not be costing for this.

JY summarised that the model of care (15 minutes of a geriatrician's time) has consequences on nursing time, but not necessarily in the surgical setting, therefore the GDG need to carefully consider the resource implications of implementing the intervention programme in the Marcantonio (2001) study, which is based in a surgical setting.

Action Point: AA to circulate the description of the costing for MTI and staff roles to the GDG for comments. GDG to consider the resource implications within a UK setting in their feedback.

AA presented to the GDG the costs of adverse consequences of delirium for falls, pressure ulcers, long term care, ICU stay, persistent cognitive impairment and new diagnosis of dementia. The presentation can be found on Claromentis at Root/Delirium/GDG meetings 8.

(a) Falls

The GDG considered the evidence for costs associated with falls.

JY highlighted that the evidence the HE team are drawing from could be falls in the community and suggested to the team to consider the evidence on falls in institutions by Oliver (2007) in the *British Medical Journal*.

SD queried whether falls in the community could be treated as a subgroup.

Action Point: AA to consider evidence for falls in hospital or falls in institution.

(b) Pressure Ulcers

The GDG considered the evidence from one study (Clark 1994).

AA asked the GDG whether pressure ulcers will heal differently in delirium patients. The GDG agreed that would be the case.

JY highlighted that the grading of pressure ulcer sores ranged from 1 (indicating erythema) to 4 (profound ulcer) based on the European Pressure Ulcer Advisory Panel (EPUAP)

IB pointed out that if the HE team cost grade 1 pressure ulcers, then it would be a very conservative estimate.

JHo highlighted that as opposed to the severity of the pressure ulcers, duration may be of more importance and the available evidence (Clark 1994) is in a population with cognitive impairment, and in patients with delirium the duration of pressure ulcer can be 4 weeks or more.

MWy and IB suggested the GDG could consider the NICE guideline on Pressure Ulcer Management (PUM) as indirect evidence for any risk factors for delirium.

JY expressed concern that whilst patients in an orthopaedic ward are at a very high risk for delirium and pressure ulcers, the guideline/model could come under criticism if the costings for grade 4 pressure ulcers (£24,000), based on osteomyelitis, is included as it is a very rare condition.

The GDG debated whether Sean O’Keeffe should be contacted to provide the HE team with the pressure ulcers data (results in O’Keeffe 1997), however, decided as the paper does not assess pressure ulcer in accordance with the EPUAP methodology that this would not be an appropriate option.

The GDG decided that a sensitivity analysis should be conducted using the cost for complicated pressure ulcers.

(c) Long term care

AA presented the evidence for long term care and queried whether it is acceptable to use the costs for local authority residential care. The GDG were in agreement with JY who indicated that it is not acceptable and that the costs should be for the Elderly Mentally Infirm (EMI).

AA asked the GDG to forward any references on how long term care is funded by the NHS.

(d) Hospital stay

AA presented the cost per day for patients having inpatient rehabilitation. The GDG did not feel that this was an appropriate proxy for additional length of stay attributable to delirium. They suggested that the HRG for a complex elderly patient with UTI might be a reasonable proxy.

(e) Stay in ICU

AA queried whether using the cost of critical care acceptable. The GDG responded that the costs are acceptable, however, it needs to be appropriated for those who need organ support.

(f) Persistent cognitive impairment

AA queried whether Minimum Data Set (MDS) is a reliable scale for assessing cognitive impairment. The GDG agreed that this was an acceptable method.

JY highlighted that the model must not cost for both a patient admitted to long term care and for cognitive impairment in the facility as this will be result in a double count.

(g) New diagnosis of dementia

AA presented the cost estimate reported in the McNamee et al study (2001). EO suggested that the Alzheimer's Society have recently published a report on the prevalence and cost of dementia in the UK. AA was advised to look at the publication.

Action Point: AA to amend the review to reflect GDG discussion and upload to Claromentis.

6. Diagnostic Reviews

MWy led the GDG through a brief presentation on formulating questions of diagnostic test accuracy. The presentation can be found on Claromentis at Root/Delirium/GDG meetings 8.

MWy outlined the clinical question that is to be addressed by this review:

Practical diagnostic tests for identify patients with delirium in different clinical settings.

MWy asked the GDG to provide information on the following: patients, setting, target condition, types of tests, index test, reference standard, and who does the test.

The results of the GDG discussion are as follows:

(a) Patients

The GDG agreed that patients do not need to have had prior tests.

The GDG suggested that ethnicity, whether English is the first language and writing ability should be considered in the population characteristics. The GDG expressed concern that those with learning disabilities might be excluded.

(b) Settings

The GDG agreed that different tests will be used in different settings the technical team will need to present the reviews separately for hospitals, long term care and the ICU settings.

(c) Target condition

The GDG agreed that the condition would be delirium and were not interested in subsyndromal types of delirium.

(d) Type of test

The GDG stated that at stage 1 the test should screen possible cases of delirium and stage 2 would be diagnosis with an established instrument.

(e) Index test

The GDG stated the following tests for each setting:

- Hospital:
 - Abbreviated Mental test (AMT);
 - Clock drawing;
 - Confusion Assessment Method [long and short version] (CAM);
 - Delirium Rating Scale (DRS-98); and
 - Mini Mental State Examination (MMSE) or other cognitive assessment instrument

The GDG noted that the:

- AMT can be used for patients with profound disability;
 - Clock drawing test has different scoring versions and is less culturally specific;
 - DRS-98 is validated for use across different cultures;
 - MMSE assumes at least 5 years of secondary school education; and
 - MMSE or the Clock drawing test cannot be used in those with wheel chair if patient has suffered a stroke
- ICU:
 - CAM ICU and Richmond Agitation Sedation Scale (RASS) (together)

(f) Reference Standard

The GDG agreed that DSM IV applied by a psychiatrist or ICD-10 were the reference standard tests.

(g) Who does the test?

- Abbreviated Mental test (AMT): any personnel can do this;
- Clock drawing: can be used by untrained nurse or volunteers;
- Confusion Assessment Method (long and short version; ICU): trained doctors and nurses;
- Delirium Rating Scale (DRS-98): trained personnel;
- Mini Mental State Examination (MMSE) or other cognitive assessment instrument: not necessarily trained; and
- DSM IV: psychiatrist.

The GDG stated that these tests are interpreted by the same person who conducts the assessment.

7. Date and time of GDG meeting 9

The next meeting is on Wednesday, 22nd April 2009, commencing at 10:00 am at the Royal College of Physicians, 11 St. Andrew's Place, Regent's Park, London.

Meeting closed at 16:35