

MAY 2006

# **NATIONAL GUIDELINES FOR SENIORS' MENTAL HEALTH**

## **The Assessment and Treatment of Delirium**



CANADIAN COALITION FOR SENIORS' MENTAL HEALTH  
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# Foreword

## **About the Canadian Coalition for Seniors' Mental Health**

The Canadian Coalition for Seniors' Mental Health (CCSMH) was established in 2002 following a two-day symposium on "Gaps in Mental Health Services for Seniors' in Long-Term Care Settings" hosted by the Canadian Academy of Geriatric Psychiatry (CAGP). In 2002, Dr. David Conn and Dr. Ken Le Clair (CCSMH co-chairs) took on leadership responsibilities for partnering with key national organizations, creating a mission and establishing goals for the organization. The mission of the CCSMH is to *promote the mental health of seniors by connecting people, ideas, and resources*.

The CCSMH has a volunteer Steering Committee that provides ongoing strategic advice, leadership and direction. In addition, the CCSMH is composed of organizations and individuals representing seniors, family members and caregivers, health care professionals, frontline workers, researchers, and policy makers. There are currently over 750 individual members and 85 organizational members from across Canada. These stakeholders are representatives of local, provincial, territorial and federal organizations.

## **Aim of Guidelines**

Clinical practice guidelines are defined as "systematically developed statements of recommendation for patient management to assist practitioner and patient decisions about appropriate health care for specific situations" (Lohr & Field, 1992).

The CCSMH is proud to have been able to facilitate the development of these clinical guidelines. These are the first interdisciplinary, national best practices guidelines to specifically address key areas in seniors' mental health. These guidelines were written by and for interdisciplinary teams of health care professionals from across Canada.

The aim of these guidelines is to improve the assessment, treatment, management and prevention of key mental health issues for seniors, through the provision of evidence-based recommendations. The recommendations provided in these guidelines are based on the best available evidence at the time of publication and when necessary, supplemented by the consensus opinion of the guideline development group.

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Finally, the CCSMH would like to acknowledge the continued dedication of its Steering Committee members.

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# TABLE OF CONTENTS

Overview of Guideline Project .....	2
Guideline Development Process .....	3
Guideline and Literature Review .....	5
Formulation of Recommendations .....	7
Definitions, Abbreviations and Acronyms .....	8
Summary of Recommendations .....	9
<b>Part 1: Background on Delirium .....</b>	<b>22</b>
1.1 Definition of Delirium .....	22
Table 1.1 Differentiating Delirium, Depression, and Dementia.....	23
1.2 Target Population and Audiences .....	23
1.3 Epidemiology.....	23
1.4 Issues.....	24
<b>Part 2: Prevention.....</b>	<b>25</b>
Table 2.1 Reported Risk Factors for Delirium in Hospitalized Older Persons.....	26
Table 2.2 Potential Interventions for the Prevention of Delirium.....	27
<b>Part 3: Detection, Assessment, Diagnosis &amp; Monitoring .....</b>	<b>28</b>
3.1 Detection .....	28
3.1.2 Screening Instruments .....	29
3.2 Diagnosis .....	30
3.3 Assessment and Investigations to Determine the Cause .....	30
Table 3.1 Common Potential Causes of Delirium .....	31
Table 3.2 Historical Information Required During Initial Assessment of a Delirious Patient.....	33
Table 3.3 Modifiable Environmental Factors Potentially Contributing to the Occurrence and/or Severity of Delirium .....	33
Table 3.4 Components of the Physical Examination During Initial Assessment of the delirious Patient .....	33
Table 3.5 Investigations Usually Indicated in Persons with Delirium.....	33
3.4 Monitoring .....	33

<b>Part 4: Management</b> .....	<b>35</b>
4.1 Non-Pharmacological Management .....	35
4.1.1 Non-Pharmacological Management - Care Providers/Caregivers.....	37
4.1.2 Non-Pharmacological Management - Environment.....	37
4.2 Management - Infections, Pain Management, and Sensory Deficits .....	38
4.3 Management – Medications: Precipitating or Aggravating a Delirium .....	38
Table 4.1 High Risk Medications Contributing to Delirium.....	39
Table 4.2 Non-Pharmacologic Sleep Protocol.....	40
Table 4.3 Delirium: Non-Pharmacological Management Flow Chart.....	40
4.4 Pharmacological Management .....	41
4.4.1 General Principles .....	41
4.4.2 Antipsychotics.....	41
4.4.3 Benzodiazepines.....	44
4.4.4 Cholinesterase Inhibitors .....	44
4.4.5 Other Pharmacological Agents.....	44
4.4.6 Management of Alcohol Withdrawal Delirium .....	45
<b>Part 5: Legal and Ethical Issues</b> .....	<b>47</b>
5.1 Capacity.....	47
5.2 Physical Restraints.....	48
<b>Part 6: Education</b> .....	<b>51</b>
<b>Part 7: Systems of Care</b> .....	<b>54</b>
7.1 Therapeutic Alliance .....	54
7.1.1 Alliance with the Patient & Family/Caregivers.....	54
7.1.2 Alliance within the Health Care System.....	54
7.2 Organization & Policy .....	55
7.2.1 Policy & Organization Questions: Considerations for Policy-Makers – Provincial & Federal.....	57
7.3 Implementation of Delirium Best Practices Flow Chart .....	58
<b>Part 8: Research on Delirium – Challenges and Opportunities</b> .....	<b>59</b>
<b>Part 9: Future Considerations</b> .....	<b>61</b>
<b>References</b> .....	<b>62</b>
<b>Appendix A: Process Flow Diagram</b> .....	<b>72</b>

# Overview of Guideline Project

## Background Context

The mission of the CCSMH is to *promote the mental health of seniors by connecting people, ideas and resources*. The primary goals of the CCSMH include:

- To ensure that seniors' mental health is recognized as a key Canadian health and wellness issue
- To facilitate initiatives related to enhancing and promoting seniors' mental health resources
- To ensure growth and sustainability of the CCSMH

In order to meet the mission and goals, a number of strategic initiatives are facilitated by the CCSMH with the focus on the following areas:

- Advocacy and Public Awareness
- Research
- Education
- Human Resources
- Promoting Best Practices in Assessment and Treatment
- Family Caregivers

In January 2005, the CCSMH was awarded funding by the Public Health Agency of Canada, Population Health Fund, to lead and facilitate the development of evidence-based recommendations for best-practice National Guidelines in a number of key areas for seniors' mental health. The four identified key areas for guideline development were:

1. Assessment and Treatment of **Delirium**
2. Assessment and Treatment of **Depression**
3. Assessment and Treatment of **Mental Health Issues in Long-Term Care Homes** (focus on mood and behavioural symptoms)
4. Assessment of **Suicide Risk** and Prevention of **Suicide**

Between April 2005 and January 2006, the four Guideline Development Groups evaluated existing guidelines, reviewed primary literature, consulted with numerous stakeholders, and formulated documents that included recommendations and supporting text.

## Necessity for the Guidelines

The proportion of Canadians who are seniors is expected to increase dramatically. By 2021, older adults (i.e., those age 65+) will account for almost 18% of our country's population (Statistics Canada, 2005). Currently, 20% of those aged 65 and older are living with a mental illness (MacCourt, 2005). Although this figure is consistent with the prevalence of mental illness in other age groups, it does not capture the high prevalence rates seen within health and social institutions. For example, it has been reported that 80%-90% of nursing home residents

live with some form of mental illness and/or cognitive impairment (Drance, 2005; Rovner et al., 1990).

There are currently no interdisciplinary national guidelines on the prevention, assessment, treatment and management of the major mental health issues facing older Canadians, although there are guidelines on the treatment of dementia (Patterson et al., 1999). Given the projected growth of the seniors' population, the lack of an accepted national standard to guide their care is a serious problem.

We have to identify, collaborate and share knowledge on effective mental health assessment and treatment practices relevant to seniors. As such, the CCSMH National Guideline Project was created to support the development of evidence-based recommendations in the four key areas of seniors' mental health identified above.

## Objectives

The overall project goal was to develop evidence-based recommendations for best-practice guidelines in four key areas of seniors' mental health.

### Project Objectives:

1. To identify existing best-practice guidelines in the area of seniors' mental health both within Canada and internationally.
2. To facilitate the collaboration of key healthcare leaders within the realm of seniors' mental health in order to review existing guidelines and the literature relevant to seniors' mental health.
3. To facilitate a process of partnership where key leaders and identified stakeholders create a set of recommendations and/or guidelines for identified areas within seniors' mental health.
4. To disseminate the draft recommendations and/or guidelines to stakeholders at the CCSMH Best Practices Conference 2005 in order to create an opportunity for review and analysis before moving forward with the final recommendations and/or guidelines.
5. To disseminate completed guidelines to health care professionals and stakeholders across the country.

## Principles and Scope

Guiding **principles** included the following:

- Evidence-based
- Broad in scope
- Reflective of the continuum of settings for care
- Clear, concise, readable
- Practical

## Scope

- Must be multi-disciplinary in nature
- Will focus on older adults only
- Must include all health care settings across the continuum
- May acknowledge the variation (i.e., in services, definitions, access issues, etc.) that exists between facilities, agencies, communities, regions and provinces across the country
- Must deal explicitly with areas of overlap between the four National Guidelines for Seniors' Mental Health
- While four independent documents will be created, there will be cross-referencing between documents as need arises
- Gaps in knowledge will be identified and included in the guideline documents
- The existing recommendations of the Canadian Consensus Conference on Dementia (Patterson et al., 1999) will be referred to as appropriate

- Research, education and service delivery issues should be included in the guidelines. For example, the guidelines may address "optimal services", "organizational aspects", "research", and "education."

In addition, each Guideline Development Group identified scope issues specific to their topic.

## Target Audience

There are multiple target audiences for these guidelines. They include interdisciplinary care teams, health care professionals, administrators, and policy makers whose work focuses on the senior population. In addition, these guidelines may serve useful in the planning and evaluation of health care service delivery models, human resource plans, accreditation standards, training and education requirements, research needs and funding decisions.

## Guideline Development Process

### Creation of the Guideline Development Group

An interdisciplinary group of experts on seniors' mental health issues were brought together under the auspices of the CCSMH to become members of one of the four CCSMH Guideline Development Groups. Co-leads for the Guideline Development Groups were chosen by members of the CCSMH Steering Committee after soliciting recommendations from organizations and individuals. Once the Co-leads were selected, Guideline Development Group members and consultants were chosen using a similar process, including suggestions from the Co-leads. One of the goals in selecting group members was to attempt to create an inter-disciplinary workgroup with diverse provincial representation from across the country.

### Creation of the Guidelines

In May 2005, the Guideline Development Groups convened in Toronto, Ontario for a two-day workshop. Through large and small group discussions, the workshop resulted in a consensus on the scope of each practice guideline, and the guideline template, the identification of relevant resources for moving forward, and the development of timelines and accountability plans.

A number of mechanisms were established to minimize the potential for biased recommendations being made due to conflicts of interest. All Guideline Development Group members were asked to complete a conflict of

interest form, which was assessed by the project team. This was completed twice throughout the process. The completed forms are available on request from the CCSMH. As well, the guidelines were comprehensively reviewed by external stakeholders from related fields on multiple occasions.

The four individual Guideline Development Groups met at monthly meetings via teleconference with frequent informal contact through email and phone calls between workgroup members. As sections of the guidelines were assigned to group members based on their area of expertise and interest, meetings among these subgroups were arranged. As well, monthly meetings were scheduled among the Co-leads. The CCSMH project director and manager were responsible for facilitating the process from beginning to end.

### Phase I: Group Administration & Preparation for Draft Documents (April to June 2005)

- Identification of Co-leads and Guideline Development Group Members
- Meetings with Co-leads and individual Guideline Development Groups
- Establish terms of reference, guiding principles, scope of individual guidelines
- Development of timelines and accountability plans
- Creation of guideline framework template
- Comprehensive literature and guideline review
- Identification of guideline and literature review tools and grading of evidence tools

## **Phase II: Creation of Draft Guideline Documents (May to September 2005)**

- Meetings with Co-leads and individual workgroups
- Shortlist, review and rating of literature and guidelines
- Summarized evidence, gaps and recommendations
- Creation of draft guideline documents
- Review and revisions of draft documents

## **Phase III: Dissemination & Consultation (May 2005 to January 2006)**

The dissemination of the draft guidelines to external stakeholders for review and consultation occurred in the following three stages:

### *Stage 1: Dissemination to guideline group members (May to December 2005)*

Revised versions of the guidelines were disseminated to Guideline Development Group members on an ongoing basis.

### *Stage 2: Dissemination to CCSMH Best Practices Conference participants (September 2005)*

In order to address issues around awareness, education, assessment and treatment practices, a national conference was hosted on September 26<sup>th</sup> and 27<sup>th</sup> 2005 entitled “*National Best Practices Conference: Focus on Seniors’ Mental Health*”. Those attending the conference had the opportunity to engage in the process of providing stakeholder input into the development of one of the four national guidelines. The full-day workshops focused on appraising and advising on the draft national guidelines and on dissemination strategies.

The workshop session was broken down into the following activities:

- Review of process, literature and existing guidelines
- Review of working drafts of the guidelines
- Comprehensive small and large group appraisal and analysis of draft guidelines
- Systematic creation of suggested amendments to draft guidelines by both the small and large groups
- Discussion of the next steps in revising and then disseminating the guidelines; this included discussion on opportunities for further participation

### *Stage 3: Dissemination to guideline consultants and additional stakeholders. (October 2005 to January 2006)*

External stakeholders were requested to provide overall feedback and impressions and to respond to specific questions. Feedback was reviewed and discussed by the Guideline Development Groups. This material was subsequently incorporated into further revisions of the draft guideline.

Additional stakeholders included: identified project consultants; Public Health Agency of Canada, Federal/Provincial/Territorial government groups; CCSMH members and participating organizations; CCSMH National Best Practices Conference workshop participants; Canadian Academy of Geriatric Psychiatry; and others.

## **Phase IV: Revised Draft of Guideline Documents (Oct. 2005 to Jan. 2006)**

- Feedback from the Best Practices Conference Workshops were brought back to the Guideline Development Groups for further analysis and discussion
- Feedback from external stakeholders were reviewed and discussed
- Consensus within each guideline group regarding recommendations and text was reached
- Final revisions to draft guideline documents

## **Phase V: Completion of Final Guideline Document (Dec. 2005 to Jan. 2006)**

- Final revisions to draft guideline documents by Guideline Development Groups
- Completion of final guidelines and recommendations document
- Final guidelines and recommendations presented to the Public Health Agency of Canada

## **Phase VI: Dissemination of Guidelines (January 2006 onwards)**

- Identification of stakeholders for dissemination
- Translation, designing and printing of documents
- Dissemination of the documents to stakeholders through electronic and paper form
- Marketing of guidelines through newsletters, conference presentations, journal papers, etc.

See *Appendix A* for the detailed Process Flow Diagram outlining the development of the guidelines.

## Guideline and Literature Review

A strategic and comprehensive review of the existing literature on the assessment and treatment of delirium in older adults was completed.

### Search Strategy for Existing Evidence

A computerized search for relevant evidence-based manuscripts, including guidelines, meta-analysis and literature reviews, and original literature not contained in these source documents, was conducted by librarian consultants to the Guidelines Project and by the CCSMH. The search strategy was guided by the following inclusion criteria:

- English language references only
- References specifically addressed delirium
- Dissertations were excluded
- Guidelines, meta-analyses and reviews were published between January 1995 and May 2005
- Original articles were published between January 1999 and June 2005

### Guideline, Meta-analyses and Literature Reviews Search

The initial search for existing evidence-based summaries (e.g., guidelines, protocols, etc.) examined several major databases, specifically, Medline, EMBASE, PsychInfo, CINAHL, AgeLine, and the Cochrane Library. The following search terms were used: "delirium", "acute confusion", "organic brain syndrome", "alcohol withdrawal", "encephalopathy", "sedative withdrawal", "narcotic withdrawal", "opiates", "benzodiazepine withdrawal", "elderly", "older adult(s)", "aged", "geriatric", "delirium guideline(s)", "elderly delirium guideline(s)", "practice guideline(s) delirium", "practice guideline(s) older adults delirium", "protocol(s) delirium", "clinical pathways", "clinical practice guideline(s)", "best practice guideline(s)", and "clinical guide-line(s)".

In addition, a list of websites was compiled based on known evidence-based practice websites, known guideline developers, and recommendations from the Guideline Development Groups. The search results and dates were noted. The following websites were examined:

- American Medical Association: <http://www.ama-assn.org/>
- American Psychiatric Association: <http://www.psych.org/>
- American Psychological Association: <http://www.apa.org/>
- Annals of Internal Medicine: <http://www.annals.org/>
- Association for Gerontology in Higher Education: <http://www.aghe.org/site/aghewebsite/>

- Canadian Mental Health Association: <http://www.cmha.ca/bins/index.asp>
- Canadian Psychological Association: <http://www.cpa.ca/>
- National Guidelines Clearinghouse: <http://www.guideline.gov/>
- National Institute on Aging: <http://www.nia.nih.gov/>
- National Institute for Health and Clinical Excellence: <http://www.nice.org.uk/>
- National Institute of Mental Health: <http://www.nimh.nih.gov/>
- Ontario Medical Association: <http://www.oma.org/>
- Registered Nurses Association of Ontario: <http://www.rnao.org/>
- Royal Australian and New Zealand College of Psychiatrists: <http://www.ranzcp.org/>
- Royal College of General Practitioners: <http://www.rcgp.org.uk/>
- Royal College of Nursing: <http://www.rcn.org.uk/>
- Royal College of Psychiatrists: <http://www.rcpsych.ac.uk/>
- World Health Organization: <http://www.who.int/en/>

This search yielded eleven potentially relevant guidelines. These were further considered by the Guideline Development Group as to whether they specifically addressed the guideline topic and were accessible either on-line, in the literature, or through contact with the developers. Through this process and after conducting a quality appraisal of these guidelines using the *Appraisal of Guidelines for Research and Evaluation Instrument* (AGREE); (AGREE Collaboration, 2001), seven guidelines were selected and obtained for inclusion as the literature base for the project. These seven guidelines were:

- American Psychiatric Association. Practice guideline for the treatment of patients with delirium. 1999. Available: [http://www.psych.org/psych\\_pract/treatg/pg/Practice%20Guidelines8904/Delirium.pdf](http://www.psych.org/psych_pract/treatg/pg/Practice%20Guidelines8904/Delirium.pdf)
- British Geriatrics Society. Guidelines for the diagnosis and management of delirium in the elderly. 1999-2000. Available: <http://www.bgs.org.uk/Word%20Downloads/delirium.doc>
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- Registered Nurses Association of Ontario. Caregiving strategies for older adults with delirium, dementia and depression. Toronto (ON): Registered Nurses Association of Ontario; 2004. Available: [http://www.rnao.org/bestpractices/completed\\_guidelines/BPG\\_Guide\\_C4\\_caregiving\\_elders\\_ddd.asp](http://www.rnao.org/bestpractices/completed_guidelines/BPG_Guide_C4_caregiving_elders_ddd.asp)

## Supplemental Research Literature Search

The timeframe (1999-2005) for the supplemental research literature search was selected in consideration of the publication dates of the selected guidelines, as it was assumed that these guidelines, collectively, could be relied on as acceptable sources of the prior literature.

Searches were conducted separately for each database (Medline, EMBASE, PsychInfo, CINAHL, AgeLine, Cochrane Library), with necessary variance in controlled vocabulary (i.e., minor differences in search terms as prescribed by each database). The core search strategy for all

databases was to limit it to papers dealing with humans, written in English, and published between 1999 and 2005.

Each search also included the following terms: "delirium", "delirious", "confused", "acute confusion", "organic brain syndrome", "sedative withdrawal", "narcotic withdrawal", "benzodiazepine withdrawal", "qualitative studies", "clinical trial(s)", "controlled clinical trial(s)", "evaluation studies", "meta analysis", and "randomized controlled trial(s)".

An additional five searches were conducted using the following terms: "physical re-strain(s)", "restraint(s) physical", and "re-strain(s)"; "monitoring" and "outcome tools"; "assessment", "diagnosis", "geriatric assessment", and "screening"; "education", "education of staff", "education of patients", and "education of families"; and "system(s) of care", "policy", "policies", and "protocol(s)".

This process yielded 3,708 citations. The abstracts were circulated to the Guideline Development Co-leads and the CCSMH, and 149 recent research articles were selected. Full text articles were obtained and disseminated to the Guideline Development Group. As the development of the guideline document progressed, additional literature (e.g., summaries and research articles) were identified through targeted searches and expert knowledge contributions on the part of the Guideline Development Group. The resultant reference base includes over 270 citations.

## Formulation of Recommendations

The selected literature was appraised with the intent of developing evidence-based, clinically sound recommendations. Based on relevant expertise and interest, the Guideline Development Group was divided into sub-groups and completed the drafting of recommendations for their particular section. The process generated several drafts that were amalgamated into a single document with a set of recommendations confirmed by consensus. Thus, the recommendations are based on research evidence, informed by expert opinion.

The strength of each recommendation was assessed using Shekelle and colleagues' (1999) *Categories of Evidence and Strength of Recommendations*. Prior to the CCSMH Best Practices Conference, the Guideline Development Group Co-leads reviewed the draft documents and approved the recommendations. After the conference, each Guideline Development Group reviewed their recommendations and discussed gaps and controversies. Areas of disagreement were discussed and recommendations were endorsed. A criterion of 80% consensus in support of a recommendation among Guideline Development Group members was required for the inclusion of a recommendation in the final document. In reality, consensus on the final set of recommendations was unanimous.

The evidence and recommendations were interpreted using the two-tier system created by Shekelle and colleagues (1999). The individual studies are categorized from I to IV. The category is given alongside the references and has been formatted as (reference). <sup>Category of Evidence</sup>

### Categories of evidence for causal relationships and treatment

Evidence from meta-analysis of randomized controlled trials	<b>Ia</b>
Evidence from at least one randomized controlled trial	<b>Ib</b>
Evidence from at least one controlled study without randomization	<b>IIa</b>
Evidence from at least one other type of quasi-experimental study	<b>IIb</b>
Evidence from non-experimental descriptive studies, such as comparative studies, correlation studies and case-control studies	<b>III</b>
Evidence from expert committees reports or opinions and/or clinical experience of respected authorities	<b>IV</b>

(Shekelle et al., 1999)

The strength of the recommendations, ranging from A to D (see below), is based on the entire body of evidence (i.e., all studies relevant to the issue) *and the expert opinion of the Guideline Development Group regarding the available evidence*. For example, a strength level of D has been given to evidence extrapolated from literature on younger population groups or is considered a good practice point by the Guideline Development Group.

Given the difficulties (e.g., pragmatic, ethical and conceptual) in conducting randomized controlled trials with older delirious persons, it was important for the Guideline Development Group to assess and use the evidence of those trials that incorporated quasi-experimental designs (Tilly & Reed, 2004).

*It is important to interpret the rating for the strength of recommendation (A to D) as a synthesis of all the underlying evidence and not as a strict indication of the relevant importance of the recommendation for clinical practice or quality of care. Some recommendations with little empirical support, resulting in a lower rating for strength on this scale, are in fact critical components of the assessment and treatment of delirium.*

### Strength of recommendation

Directly based on category I evidence	<b>A</b>
Directly based on category II evidence or extrapolated recommendation from category I evidence	<b>B</b>
Directly based on category III evidence or extrapolated recommendation from category I or II evidence	<b>C</b>
Directly based on category IV evidence or extrapolated recommendation from category I, II, or III evidence	<b>D</b>

(Shekelle et al., 1999)

# Definitions, Abbreviations and Acronyms

## Definitions

**Older Persons:** Refers to individuals aged 65+.

**Screening:** Screening for delirium is defined as a maneuver in which members of a defined population (e.g., all older persons admitted to hospital) undergo a test to identify those individuals who likely have delirium.

**Therapeutic Alliances:** In this document the term means a union formed for the furtherance of either the care of an older person with delirium or the care offered to a population of older persons with delirium. It represents an agreement by the parties of the union to cooperate for this particular purpose. We are not using the term in the sense of its use in psychotherapy where it is “a conscious contractual relationship between therapist and patient in which each agrees to work together to help the patient with his problems” (Dorland’s Illustrated Medical Dictionary, 30<sup>th</sup> Edition, 2003, p. 51).

**Non-regulated Health Care Provider:** These workers may provide non-direct and/or direct patient care under the supervision of Registered Nurses who assume some level of accountability and responsibility for them. Their specific roles and job descriptions are often defined by the individual organization and/or unit on which they work. Their educational preparation varies but often consists of on-site training rather than specialized educational preparation. They are called “non-regulated” as there is no regulatory body for these workers. They are known as patient care assistants, assistive personnel, multi-skilled workers and nurse auxiliaries in addition to other designations.

## Abbreviations/ Acronyms

There are a number of abbreviations/acronyms utilized within this guideline. In alphabetical order, these are as follows:

**AWD:** Alcohol Withdrawal Delirium

**CAM:** Confusion Assessment Method

**CASI:** Cognitive Assessment Screening Instrument

**CHF:** Congestive Cognitive Heart Failure

**CI:** Confidence Interval

**CIWA-Ar:** Revised Clinical Institute Withdrawal Assessment for Alcohol

**CNS:** Central Nervous System

**COPD:** Chronic Obstructive Pulmonary Disease

**CPGs:** Clinical Practice Guidelines

**DFP:** Delirium Free Protocol

**DRS:** Delirium Rating Scale

**DSI:** Delirium Symptom Interview

**DSM-IV:** Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition

**ECG:** Electrocardiogram

**EEG:** Electroencephalogram

**EPS:** Extrapyraxidal Signs

**HELP:** Hospital Elder Life Program

**ICD-10:** International Classification of Diseases, 10<sup>th</sup> edition

**ICU:** Intensive Care Unit

**i.m.:** Intramuscular

**IQCODE:** Informant Questionnaire on Cognitive Decline in the Elderly

**i.v.:** Intravenous

**MMSE:** Mini- Mental Status Examination

**MoCA:** Montreal Cognitive Assessment

**POD:** Post Operative Delirium

**PRN:** Pro Re Nata (as needed)

**RCT:** Randomized Controlled Trial

**SSD:** Subsyndromal delirium

**~ :** Approximately

## Summary of Recommendations

All recommendations are presented together at the beginning of this document for easy reference. Subsequently, in each section we present a discussion of the literature relevant to the recommendations for that section, followed by the recommendations. We strongly

encourage readers to refer to the supplemental text discussion, rather than only using the summary of recommendations. The page numbers for the corresponding text are given with the recommendations below.

### Recommendation: Definition of Delirium (p. 22)

The *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)* criteria for delirium should be used as the standard for establishing the presence of a delirium. [C]

### Recommendations: Prevention (p. 27)

Prevention efforts should be targeted to the older person's individual risk factors for delirium. [D]

Interventions to prevent delirium should be interdisciplinary. [A]

Multicomponent interventions targeting multiple risk factors should be implemented in older persons who have intermediate to high risk for developing delirium. [A]

Older hospitalized persons with pre-existing cognitive impairment should be offered an orientation protocol and cognitively stimulating activities. [B]

Older hospitalized persons who are having problems sleeping should be offered non-pharmacologic sleep-enhancing approaches. Use of sedative-hypnotics should be minimized. [B]

Older hospitalized persons should be mobilized as quickly as possible. The use of immobilizing devices/equipment should be minimized. [B]

Older persons with impairments of vision should be provided with their visual aids and/or other adaptive equipment. [B]

Older persons with impairments of hearing should be evaluated for reversible causes and provided with hearing aid(s) and/or other amplifying devices. [B]

Older persons with evidence of dehydration should be encouraged to increase their oral fluid intake. Other measures may be required depending on the severity of the dehydration and the patient's response to efforts to increase their oral intake. [B]

Environmental risk factors should be modified, if possible (see *Table 3.3*). [D]

Where available, proactive consultations to a geriatrician, geriatric or general psychiatrist, or to a general internist should be considered for older persons undergoing emergency surgery to minimize the risk of post-operative delirium. [B]

Prevention, early detection, and treatment of postoperative complications in older persons are important in preventing delirium. These would include (but are not limited to) the following: myocardial ischemia, arrhythmias, pneumonia, exacerbations of Chronic Obstructive Pulmonary Disease, pulmonary emboli, and urinary tract infections. [B]

Educational interventions directed to hospital staff dealing with delirium and its prevention should be implemented. Also see *Part 6: Education*. [C]

Based on current evidence, psychopharmacologic interventions for unselected older persons to prevent the development of delirium are not recommended. [D]

## Recommendations: Detection (p. 28)

All clinicians working with older persons should be alert to the possibility of delirium developing after surgical procedures (especially cardiopulmonary bypass and surgical repair of a hip fracture), with acute medical conditions (e.g., infections) and/or during exacerbations of chronic medical conditions (e.g., Congestive Heart Failure). [C]

All clinicians working with older persons should be aware that the symptoms of delirium may be superficially similar to those of a dementia and that the two conditions frequently co-exist. Clinicians should be aware of the features that can help differentiate delirium from dementia. (See *Table 1.1*). [C]

All clinicians working with older persons should be aware that delirium can show a fluctuating course with periods of lucidity during which the person's mental/cognitive status can appear unremarkable. Therefore, repeated screening and looking for diurnal variation is recommended. [C]

Due to the fluctuating course of delirium and since many older persons will not be able to provide an accurate history, collateral information should be sought. [C]

All clinicians working with older persons should be aware that intact functional status does not rule out delirium. [C]

All clinicians working with older persons should be vigilant of recent-onset lethargy and unexplained somnolence, which might indicate the development of the hypoactive-hypoalert sub-type of delirium. [C]

All clinicians working with older persons should recognize that while symptoms of delirium typically develop abruptly, an insidious onset can occur. [C]

Older persons should be routinely screened for delirium during their stay in hospital. (See *Section 3.1.2, Screening*). [C]

Delirium should be considered as a potential cause of any abrupt change in the cognition, functional abilities, and/or behaviour of an older person seen in an ambulatory clinic, primary care, or long term care setting. [C]

The evaluation of an older person for the possibility of delirium should include a review of their prior cognitive functioning (e.g., over the previous six months). [C]

Any clinician noticing changes in the mental status or alertness of an older hospitalized person should bring this to the attention of the nurse caring for the individual and/or the person's attending physician. [C]

In response to either observations or reports of changes in mental status/alertness from members of the clinical team, the older person or members of their family, nurses caring for the older person should initiate an assessment searching for evidence of delirium. [C]

The physician responsible for the older person should promptly review the delirium screening results and determine the need for further evaluation. [C]

Older persons with complex presentations such as those with pre-existing neurocognitive decline, cerebrovascular disease and/or aphasia may require referral for assistance in the diagnostic work-up. The referral may be directed to a geriatrician, geriatric or general psychiatrist, neurologist, and/or neuropsychologist. [C]

## Recommendations: Screening Instruments (p. 30)

Any clinician using a screening measure for delirium should be competent in its administration and interpretation. [D]

Screening for symptoms of delirium should be done using standardized methods with demonstrated reliability and validity. [C]

In choosing an instrument for screening or case finding, it is important to ensure that the symptoms surveyed are consistent with the symptoms of delirium as specified in the *DSM IV*, that the tool has met acceptable standards of reliability/validity, and that it is appropriate for the proposed purpose and setting. [C]

While brief neurocognitive measures are often used in the assessment of delirious individuals, clinicians should be aware of their limitations. More broadly based neurocognitive measures may be required in uncertain cases. [C]

Referral to neuropsychology should be considered in complex presentations requiring sophisticated examination of mental status to assist with differential diagnosis, such as ruling out a dementia. [C]

Sensory impairments and physical disability should be considered in the administration of mental status tests and in the interpretation of the findings obtained. [D]

While clinicians use screening tools to identify persons with probable delirium in need of further evaluation and follow-up, the results from these tools must be interpreted within a clinical context and do not in themselves result in a diagnosis of delirium. [D]

It is recommended that clinicians use the *Confusion Assessment Method (CAM)* for screening and as an aid in the assessment/diagnosis of delirium occurring in older persons on acute medical/surgical units and in Emergency Departments. [C]

Ratings on the *CAM* should be informed by an objective mental status examination. [C]

In complex cases, clinicians should use the *Delirium Symptom Interview* to elicit additional information from the point of view of the patient to inform *CAM* ratings. [C]

The *CAM-ICU* is recommended for use with persons in intensive care units who are not able to communicate verbally. [C]

The revised *Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar)* is recommended for monitoring the symptoms of alcohol withdrawal. [C]

The *Delirium Rating Scale-R-98* or the *Delirium Index* is recommended to measure the severity of delirium states. [C]

## Recommendation: Diagnosis of Delirium (p. 30)

The *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)* criteria for delirium should be used for establishing a diagnosis of a delirium. [C]

## Recommendations: Assessment and Investigations to Determine the Cause of Delirium

### Recommendations: Assessment/Investigations – History/Physical Examination (p.32)

The initial history obtained on a delirious older person should include an evaluation of their current and past medical conditions and treatments (including medications) with special attention paid to those conditions or treatments that might be contributing to the delirium. Please see *Table 3.2* for historical information required during initial assessment of a delirious patient. [D]

Many older persons with a delirium will be unable to provide an accurate history. Wherever possible, corroboration should be sought from health records, medical/nursing staff, family, friends, and other sources. [D]

The initial assessment should include an evaluation of the patient's potential for harm to self or others, the availability of means for harm to self or others, and the lethality of those means. [D]

Environmental factors that might be contributing to the delirium should be identified, reduced and preferably eliminated. See *Table 3.3* for a list of modifiable environmental factors that could potentially contribute to the occurrence and/or severity of delirium. [C]

A comprehensive physical examination should be carried out with emphasis on select areas. See *Table 3.4* for the components of the physical examination that require emphasis. [D]

### Recommendations: Assessment/Investigations – Laboratory Investigations (p. 32)

Routine investigations should be conducted on all older persons with a delirium unless there are specific reasons not to perform them. See *Table 3.5* for a list of investigations usually indicated in older persons with delirium. Other investigations would be determined by the findings on history, physical examination, and initial laboratory investigations. [D]

Neuroimaging studies have not been shown to be helpful when done on a routine basis in cases of delirium and should be reserved for those persons in whom an intracranial lesion is suspected. This would include those with the following features: focal neurological signs, confusion developing after head injury/ trauma (e.g., fall), and evidence of raised intracranial pressure on examination (e.g., papilledema). [D]

An Electroencephalogram should not be done routinely. It can be useful where there is difficulty in differentiating delirium from dementia or a seizure disorder (e.g., non-convulsive status epilepticus, partial-complex seizures) and in differentiating hypoactive delirium from depression. [D]

A lumbar puncture should not be done routinely. It should be reserved for those in whom there is some reason to suspect a cause such as meningitis. This would include persons with meningismus/ stiff neck, new-onset headache, and/or evidence of an infection (e.g., fever, high white count) of an uncertain source. [D]

### Recommendations: Assessment/Investigations – Infections (p. 32)

Infections are one of the most frequent precipitants of delirium and should always be considered as a contributing factor. Please note that older persons may not develop typical manifestations of an infection and can present in a muted or non-specific manner. [D]

If there is a high likelihood of infection (e.g., fever, chills, high white count, localizing symptoms or signs of an infection, abnormal urinalysis, abnormal chest exam), appropriate cultures should be taken and antibiotics commenced promptly. Select an antibiotic (or antibiotics) that is (are) likely to be effective against the established or presumed infective organism. [D]

### Recommendations: Assessment/Investigations – Delirium in Terminally Ill Persons (p. 32)

The decision to search aggressively for causes of delirium in terminally ill persons should be based on the older person's goals for care (or the goals of their proxy decision maker if the patient is incapable to consent to treatment), the burdens of an evaluation and the likelihood that a remediable cause will be found. [D]

When death is imminent, it is appropriate to forgo an extensive evaluation and to provide interventions to ameliorate distressing symptoms. [D]

### Recommendations: Monitoring (p. 33-34)

To provide protection for the patient and to ensure the collection of accurate information to guide care, close observation of the delirious older person should be provided. This would include monitoring vital signs (including temperature), oxygenation, fluid intake/hydration, electrolytes, glucose level, nutrition, elimination (including output), fatigue, activity, mobility, discomfort, behavioural symptoms, sleep-wake pattern, and their potential to harm themselves or others. [D]

The environment of the delirious older person should be monitored for safety risks. [D]

Older persons with a delirium should have a pressure sore risk assessment and receive regular pressure area care. Older persons should be mobilized as soon as their illness allows. [D]

Serial cognitive and functional measurements should be done. They will help in monitoring the older person's progress and their need for care. [D]

When the care of an older person with delirium is transferred to another practitioner or service, the receiving practitioner or service must be informed of the presence of the delirium, its current status and how it is being treated. [D]

Because of the long-term consequences of the condition, older persons with a delirium require careful, long-term follow-up. [C]

The revised *Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar)* should be used to quantify the severity of alcohol withdrawal syndrome, to monitor the patient over time and to determine need for medication. [C]

## **Recommendations: Non-Pharmacological Management**

### **Recommendations: Non-Pharmacological Management – General Measures (p. 35-36)**

Treatment of all potentially correctable contributing causes of the delirium should be done in a timely, effective manner. [D]

Strive to establish and maintain cardiovascular stability, a normal temperature, adequate oxygenation, normal fluid and electrolyte balance, normal glucose levels, and an adequate intake of nutrients. Biochemical abnormalities should be promptly corrected. [D]

Older persons with delirium are at risk for micronutrient deficiencies (e.g., thiamine), especially if alcoholic and/or have evidence of malnutrition. A daily multivitamin should be considered. [D]

Strive to maintain a normal elimination pattern. Aim for regular voiding during the day and a bowel movement at least every two days. [D]

Urinary retention and fecal impaction should be actively looked for and dealt with if discovered. [D]

Continuous catheterization should be avoided whenever possible. Intermittent catheterization is preferable for the management of urinary retention. [D]

### **Recommendations: Non-Pharmacological Management – Mobility and Function (p. 36)**

Strive to maintain and improve (where appropriate) the older person's self-care abilities, mobility and activity pattern. Allow free movement (provided the older person is safe) and encourage self-care and other personal activities to reinforce competence and to enhance self-esteem. [D]

The implementation of intensive rehabilitation that requires sustained attention or learning from the delirious older person is not likely to be beneficial and may increase agitation. It should be delayed until the older person is able to benefit from the intervention. [D]

### **Recommendations: Non-Pharmacological Management – Safety (see Section on Restraints) (p. 36)**

Take appropriate measures to prevent older persons from harming themselves or others. The least restrictive measures that are effective should be employed. [D]

Attempt to create an environment that is as hazard free as possible. Remove potentially harmful objects and unfamiliar equipment/devices as soon as possible. [D]

Although it is often necessary to increase supervision during delirium, it would be preferable if security personnel did not provide this unless it is absolutely necessary for safety reasons. Given the older delirious person's difficulties in reasoning and their tendency to see even innocuous behaviours as aggressive, the presence of security personnel may entrench delusional thinking and agitation. If family cannot stay with the older person and staff cannot provide the required degree of surveillance, consider the use of a private-duty nurse (also known as a nurse sitter, personal care attendant or patient companion). [D]

### **Recommendations: Non-Pharmacological Management – Communication (p. 36)**

Given difficulties in sustaining attention, when communicating with a delirious older person ensure that instructions and explanations are clear, slow-paced, short, simple, and repeated. The older person should be addressed face-to-face. [C]

Avoid abstract language/ideas and do not insist that the older person appreciate the information that is being given. Do not engage in discussions that the older person cannot appreciate. [C]

Discuss topics that are familiar and/or of interest, such as hobbies and occupation, with the older person. [D]

Routinely provide orienting information in the context of care. For example, frequently use the older person's name and convey identifying information (e.g., "I'm your nurse"). [D]

When providing care, routinely explain what you are about to do. This is to reduce the likelihood of misinterpretation. [D]

Keep your hands in sight whenever possible and avoid gestures or rapid movements that might be misinterpreted as aggressive. Try to avoid touching the older person in an attempt to redirect him/her. [D]

Evaluate the need for language interpreters and ensure their availability if required. [D]

Reminding older persons of their behaviour during episodes of delirium is not generally recommended. Many older persons with delirium retain memories of the fear they experienced during a time of delirium. Others become embarrassed of their behaviour during delirium. [D]

#### **Recommendations: Non-Pharmacological Management – Behavioural Management (p. 36-37)**

Those caring for a delirious older person should convey an attitude of warmth, calmness and kind firmness. They should acknowledge the older person's emotions and encourage verbal expression. [D]

Strategies for managing the behaviour of a delirious patient should be derived from an understanding of the neurocognitive/neurobehavioural features of delirium and behavioural management principles. [D]

Given difficulties in sustaining attention with delirium, present one stimulus or task at a time to the older person. [D]

If agitation occurs, use behavioural management strategies to identify triggers for agitation. This information should be used to modify the older person's environment and/or delivery of care in order to reduce the incidence of agitation. Any interventions implemented will require evaluation to confirm their effectiveness. [B]

Do not directly contradict delusional beliefs, as this will only increase agitation and not likely orient the person. If there is a question of safety, attempt to use distraction as a way of altering behaviour. [D]

Avoid confrontations with the older person even when they say inaccurate/inappropriate things. Disagreements with the older person can lead to increased agitation and is not likely to be effective in altering perceptions or behaviour. If the older person is becoming agitated, try distracting him/her. If it is important to correct the older person, wait and try offering the required information at another time in a calm, matter-of-fact tone of voice. Ignore the content of their statements when it is not necessary to correct them. [D]

In complex cases, referral to geriatric psychiatry, neuropsychology, psychology and/or psychiatry for behavioural management strategies is recommended. [D]

#### **Recommendations: Non-Pharmacological Management – Care Providers/Caregivers (p. 37)**

Effective care of the delirious older person requires interdisciplinary collaboration. [D]

Request family members, if available, to stay with the older person. They can help re-orientate, calm, assist, protect, and support the older person. As well, they can help facilitate effective communication and advocate for the older person. To fulfill their role in an effective manner, family members do require introductory education about delirium and its management. (See *Part 6: Education*) [D]

If family cannot stay with the older person and staff cannot provide the required degree of surveillance, consider the use of a private-duty nurse (also known as a nurse sitter, personal care attendant or patient companion). Please note that their use does not obviate the need to ensure adequate staffing in health care facilities. Any person engaged in this activity requires appropriate training on the assessment and management of delirium. [D]

As much as possible, the same staff members should provide care to the delirious older person. [D]

#### **Recommendations: Non-Pharmacological Management - Environment (p. 37-38)**

Avoid both sensory deprivation (e.g., windowless room) and sensory overload (e.g., too much noise and activity). The older person's room should be quiet with adequate lighting. Over-stimulation is a common antecedent of agitation. [C]

Implement unit-wide noise-reduction strategies at night (e.g., silent pill crushers, vibrating beepers, quiet hallways) in an effort to enhance sleep. [C]

Check if the older person wants a radio or television for familiar background stimulation and arrange for it, if requested and possible. Allow delirious older persons to listen to music of their choice. If it is felt that these devices are distracting, disorientating and/or disturbing to the older person when used, they should be removed from the room. [C]

Ensure that the older person's room has a clock, calendar and/or chart of the day's schedule. Give the older person frequent verbal reminders of the time, day and place. [C]

Attempt to keep the older person in the same surroundings. Avoid unnecessary room changes. [C]

Obtain familiar possessions from home, particularly family pictures, sleepwear and objects from the bedside, to help orient and calm the older person. [D]

It is generally not recommended to put older persons with delirium (especially if hyperactive-hyperalert) in the same room. Agitation tends to be reinforced by the presence of agitation in other individuals. The exception to this would be if delirious persons are being congregated in order to provide enhanced care. [D]

#### **Recommendations: Management - Infections, Pain Management, and Sensory Deficits**

##### **Recommendations: Management - Infections (p. 38)**

If there is a high likelihood of an infection, antibiotics should be started promptly after appropriate cultures have been taken. [D]

The antibiotic or antibiotics initially selected should be ones that are likely to be effective against the established or presumed infective organism. [D]

##### **Recommendations: Management - Pain Management (p. 38)**

Strive to adequately manage the older person's pain. This can be complicated by the observation that some of the medications used to treat pain can also cause delirium. The treatment goal is to control the older person's pain with the safest available intervention(s). [D]

Non-pharmacological approaches for pain management should be implemented where appropriate. [D]

Local or regional drug therapies (e.g., local blocks, epidural catheters) for pain that have minimal systemic effects should be considered. [D]

For persistent severe pain, analgesics should be given on a scheduled basis rather than administered as-needed ("pro re nata" or PRN). [D]

Non-narcotic analgesics should be used first for pain of mild severity and should usually be given as adjunctive therapy to those receiving opioids in an effort to minimize the total dose of opioid analgesia required. [D]

If opioids are used, the minimum effective dose should be used and for the shortest appropriate time. Opioid rotation (or switch) and/or a change in the opioid administration route may also be helpful. [D]

The opioid meperidine should be avoided as it is associated with an increased risk of delirium. [C]

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The practitioner should be always alert to the possibility of narcotic induced confusion. [D]

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#### **Recommendations: Management - Sensory Deficits (p. 38)**

Sensory deprivation is a frequent contributor to a delirium, especially in an acute care setting. If present, take steps to eliminate or, if not possible, minimize its impact. [D]

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Glasses and hearing aids used by the older person should be available and worn by them. For deaf patients consider the use of a pocket amplifier to facilitate communication. [D]

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#### **Recommendations: Management – Medications: Precipitating or Aggravating a Delirium (p. 39)**

Withdraw all drugs being consumed that might be contributing to the older person's delirium whenever possible (see *Table 4.1* for select high-risk medications). Psychoactive medications, those with anticholinergic effects, and/or drugs recently initiated or with a dosage change are particularly suspect as inciting causes. [D]

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If suspect drugs cannot be withdrawn, the lowest possible dose of the suspected medication(s) should be used or substitution with a similar but lower risk medication should be considered. [D]

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Monitor for potential adverse drug-disease interactions and drug-drug interactions. [D]

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Regularly review the older person's medication regimen in an attempt to simplify it by eliminating those not needed. Avoid adding unnecessary medications. [D]

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Avoid the routine use of sedatives for sleep problems. Try to manage insomnia by taking a nonpharmacologic approach with the patient and modifying the environment so as to promote sleep. Please see the *Table 4.2* for a suggested nonpharmacologic sleep protocol. [C]

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Ensure that medication schedules do not interrupt sleep. [D]

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Diphenhydramine should be used with caution in older hospitalized persons and its routine use as a sleep aid should be avoided. [C]

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Use of anticholinergic medications should be kept to a minimum. [C]

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Restarting a formally consumed sedative, hypnotic or anxiolytic should be considered for a delirium that developed during, or shortly after, a withdrawal syndrome. [D]

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#### **Recommendations: Pharmacological Management - General Principles (p. 41)**

Psychotropic medications should be reserved for older persons with delirium that are in distress due to agitation or psychotic symptoms, in order to carry out essential investigations or treatment, and to prevent older delirious persons from endangering themselves or others. [D]

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In the absence of psychotic symptoms causing distress to the patient, treatment of hypoactive delirium with psychotropic medications is not recommended at this time. Further study is needed. [D]

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The use of psychotropic medications for the specific purpose of controlling wandering in delirium is not recommended. [D]

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When using psychotropic medications, aim for monotherapy, the lowest effective dose, and tapering as soon as possible. [D]

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The titration, dosage, and tapering of the medication should be guided by close monitoring of the older person for evidence of efficacy of treatment and the development of adverse effects. [D]

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## Recommendations: Antipsychotics (p. 43-44)

Antipsychotics are the treatment of choice to manage the symptoms of delirium (with the exception of alcohol or benzodiazepine withdrawal delirium- see *Section 4.3.6, Management of Alcohol Withdrawal Delirium*). [B]

High potency antipsychotic medications are preferred over low potency antipsychotics. [B]

Haloperidol is suggested as the antipsychotic of choice based on the best available evidence to date. [B]

Baseline electrocardiogram is recommended prior to initiation of haloperidol. For prolongation of QTc intervals to greater than 450 msec or greater than 25% over baseline electrocardiogram (ECG), consider cardiology consultation and antipsychotic medication discontinuation. [D]

Initial dosages of haloperidol are in the range of 0.25mg to 0.5 mg od-bid. The dose can be titrated as needed, and severely agitated persons may require higher dosage. [D]

Benztropine should not be used prophylactically with haloperidol in the treatment of delirium. [D]

Atypical antipsychotics may be considered as alternative agents as they have lower rates of extra-pyramidal signs. [B]

In older person's with delirium who also have Parkinson's Disease or Lewy Body Dementia, atypical antipsychotics are preferred over typical antipsychotics. [D]

Droperidol is not recommended in the elderly. [D]

## Recommendations: Benzodiazepines (p. 44)

Benzodiazepines as monotherapy are reserved for older persons with delirium caused by withdrawal from alcohol/sedative-hypnotics (see *Section 4.4.6, Management of Alcohol Withdrawal Delirium*). [B]

As benzodiazepines can exacerbate delirium, their use in other forms of delirium should be avoided. [D]

## Recommendations: Management of Alcohol Withdrawal Delirium (p. 45-46)

Sedative-hypnotic agents are recommended as the primary agents for managing alcohol withdrawal delirium (AWD). [B]

Shorter acting benzodiazepines such as lorazepam are the agents of choice in the elderly. [B]

Antipsychotics may be added to benzodiazepines if agitation, perceptual disturbances, or disturbed thinking cannot be adequately controlled with benzodiazepines alone. [D]

Antipsychotics may be considered when other medical causes of delirium complicate AWD. [D]

The dosage of medication should be individualized with light somnolence as the usual therapeutic end point. [D]

Older persons should be frequently re-evaluated for the control of symptoms and the development of excessive sedation. [D]

Benzodiazepines should be tapered following AWD rather than abruptly discontinued. [D]

Parenteral administration of thiamine is recommended to prevent or treat Wernicke encephalopathy or Wernicke-Korsakoff syndrome. [D]

Older persons with alcohol withdrawal are best treated in closely supervised settings. [D]

## Recommendations: Capacity (p. 48)

As delirium can impair capacity, older persons with delirium who are being asked to provide consent for treatment require a review to ensure they have the capacity to provide informed consent. [C]

Clinicians should be familiar with relevant provincial legislation regarding capacity (including capacity to consent to treatment) and the identification of a substitute decision-maker if the older person is deemed to lack capacity. Capacity assessments must elicit sufficient information to allow for the determination of the older person's capacity as defined by the appropriate provincial legislation. [D]

Measures of neurocognitive functions known to underlie capacity (i.e., attention, language, verbal learning/memory and higher order cognitive functions) should be included as part of an in-depth assessment. [C]

It is recommended that brief measures of neurocognitive functions (e.g., *Mini Mental Status Examination*) be supplemented by other cognitive measures that also assess judgment and reasoning. [C]

The clinician should strive to make the assessment as brief as possible while still obtaining the required information. [C]

In view of the fluctuating nature of delirium, serial evaluations may be necessary as treatment decisions arise. [C]

Screening for psychotic features relevant to decision-making capacity is recommended. [D]

The use of a structured interview with known reliability and validity is recommended for the assessment of capacity when there is uncertainty. [D]

The use of *The MacArthur Competency Assessment Tool – Treatment* is recommended for the assessment of capacity to consent to treatment in cases where there is uncertainty. [D]

The use of *The MacArthur Competency Assessment Tool – Clinical Research* is recommended for the assessment of capacity to participate in research in cases where there is uncertainty. [D]

If uncertainty regarding capacity persists after the clinician in charge has assessed the older person, neuropsychological consultation is recommended. [C]

## Recommendations: Physical Restraints (p. 49-50)

Avoidance of physical restraints is an important component of interdisciplinary interventions to prevent the development of delirium in an older person. [A]

Physical restraints for older persons suffering from delirium should be applied only in exceptional circumstances. Specifically this is when:

- a) There is a serious risk for bodily harm to self or others; OR
- b) Other means for controlling behaviours leading to harm have been explored first, including pharmacologic treatments, but were ineffective; AND
- c) The potential benefits outweigh the potential risks of restraints. [D]

The use of physical restraints to control wandering behaviour or to prevent falls is not justified. [D]

The least restrictive physical restraint that is appropriate for the situation should be attempted first. [D]

Frequent monitoring, re-evaluation, and documentation are necessary to justify the continued use of physical restraints. Restraints should be applied for the least amount of time possible. Restraints should be discontinued when the harmful behaviour(s) is controlled, when there is a less restrictive alternative which becomes viable (e.g., a sitter for constant supervision), or when there are physical complications arising from the continued use of restraints. [D]

## Recommendations: Education (p. 53)

All entry level health care provider training programs (whether regulated or unregulated, professional or non-professional, taking place with community colleges or universities) should include specialized content relevant to the care of the older delirious person. At a minimum this content should include:

- Normal aging;
- Common diseases of older age;
- Differentiation of delirium from other conditions encountered in older persons that affect the older person's mental state (i.e., dementia, depression); diagnostic criteria for delirium;
- Precipitating and predisposing factors;
- Prodromal symptoms; early detection/ screening; prevention;
- The importance of obtaining a baseline personal history;
- Management of delirium (including how to appropriately involve the older person, their family and other disciplines); and,
- An overview of the pharmacological and non-pharmacological measures used in management should be taught. [D]

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Hospital staff should receive training on the use of delirium screening tools with the goal that they will be routinely utilized by front-line health care providers in acute care hospitals. [A]

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Geriatric education of the health care team should incorporate established geriatric care principles and be evidence-based. [A]

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Nurses and physicians require ongoing educational updates on the pharmacological and non-pharmacological management of delirium. [D]

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All levels of health care workers should be aware of the components of a mental status assessment and be able to detect and report changes in behaviour, affect and/or cognition. [D]

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Health care providers require ongoing delirium education that is sustainable in their health care setting. Facility-based educational initiatives will have to address their particular learning needs. [A]

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Health care facilities should consider appointing a delirium resource specialist. Such a resource specialist would be able to provide ongoing educational support to front-line staff regarding specific cases, and monitor adherence to the recommendations made for improving the management of delirium. [D]

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Families of older persons admitted to hospital should be educated about delirium. Written information on delirium, such as a pamphlet, should be available for families and other caregivers. [D]

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The importance of delirium calls for provincial and national initiatives aimed at educating current and potential users of the health care system regarding delirium, its causes, presentation, prevention, and management. [D]

## Recommendations: Alliance with the Patient and Family/Caregivers (p. 54)

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Members of the health care team should establish and maintain alliances with the older delirious person and their family. [D]

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The older person's family and/or other caregivers should be involved appropriately in the care of the older person with delirium. [D]

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Members of the health care team should meet as required with the older person and their family and/or other caregivers to provide education, reassurance and support. [D]

## Recommendations: Alliances within the Health Care System (p. 55)

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Delirium prevention and treatment is best managed by a team of health care professionals. [B]

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Care for older persons with delirium should be coordinated with consultants if they are called upon for assistance. [D]

Team members should be included in the development, selection or modification of protocols and/or tools to be used in the care of older persons with delirium. [B]

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Discharge planning should include family members/other caregivers, health care professionals (as needed) and the community services that will be called upon to manage the older person after discharge. [D]

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Older persons discharged from an acute care setting following the occurrence of delirium should be referred to a community-based clinician with expertise in geriatrics for follow-up care. [D]

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## **Recommendations: Organization and Policy (p. 56-57)**

Institutions should develop a comprehensive strategy to deal with delirium, utilizing what we know about risk factors, prevention, the use of screening instruments, and management approaches. [D]

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Acute care organizations should ensure that brief screening questions for delirium are included in the admission history obtained on older persons. Documentation of the risk level for delirium should include baseline pre-admission information. [D]

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Organizations should consider routinely incorporating delirium management programs, which include screening for early recognition and multi-component interventions, in the care provided to specific populations served by them. This would include, but is not limited to, older persons with hip fractures, undergoing other types of surgery and those with complex medical conditions. [D]

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Routine assessment for the presence of delirium is recommended for older persons cared for in intensive care units. [D]

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Best practice guidelines can be successfully implemented if there is adequate planning, the allocation of required resources and on-going organizational support (i.e., resources and funding). Implementation plans should include:

- Assessment of organizational readiness and barriers to successful implementation;
  - Opportunities for meaningful involvement by all who must support the process;
  - Identification and organizational support of a qualified individual or individuals who will provide clinical leadership for the process;
  - Willingness and the ability to adapt approaches to local organizational circumstances and constraints;
  - Ongoing opportunities for discussion and education that reinforce the rationale for best practices; and,
  - Opportunities for reflection on individual and organizational experience in implementing the guidelines. [D]
- 

Organizations implementing CPGs are advised to consider the means by which the implementation and its impact will be monitored and evaluated. Considerations should include:

- Having dedicated staff who would provide clinical expertise and leadership;
  - Establishing a steering committee of key stakeholders committed to leading the initiative; and,
  - Having ongoing organizational support for evaluating the implementation of the delirium strategy. [D]
- 

Organizations should integrate a variety of professional development opportunities to support health care providers in their acquisition of the knowledge and skills needed to provide optimal care to older persons with delirium. [D]

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Agencies should ensure that the workloads of health care providers are maintained at levels that ensure optimal care for older persons with delirium. [D]

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Health care agencies should ensure care co-ordination by developing approaches to enhance information transfer and collaboration among health care providers while protecting client confidentiality. [D]

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Organizations must consider the well being of the members of the health care team as being vital in the provision of quality care to older persons with delirium. [C]

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Health care agencies should implement a model of care that promotes consistency in the provision of care by the health care team. [B]

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Health care organizations must consider issues like acuity, complexity and the availability of expert resources in devising strategies to provide appropriate care for older persons with delirium. [C]

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Older persons with delirium should be identified as needing special care provided in supportive environments with specialized trained staff using an integrated care plan established and supported by health organizations. This vulnerable population should receive evidence-based and ethical care to facilitate positive outcomes. [D]

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Hospitals should track the diagnosis of delirium (both on admission and occurring during the stay) in their diagnostic coding systems due to its association with an increased length of stay and other cost/ utilization implications. [C]

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Organizations should develop policies to support evidence-based modifications to the environment and in the provision of services to improve the care provided to older persons with delirium. This would include critical care settings. Considerations would include:

- As noise disrupts sleep and is an environmental hazard, earplugs and single room design may be helpful; and,
  - Lighting that reflects a day-night cycle can assist with sustaining normal sleep patterns (e.g., no bright lights at night and care interventions coordinated to minimize night-time interruptions). [D]
- 

Health organizations should implement sustainable, interdisciplinary best practices for the care of older persons with delirium that are integrated into existing systems of care and documentation. [D]

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Sustainable best practices for older persons with delirium require that organizations develop policies and protocols to support implementation across the facility. One option for organizations trying to sustain delirium best practice is through annual staff self-study programs available on-line with 24-hour access and linked to the annual performance appraisal process. [D]

## Part 1: Background on Delirium

Delirium is a common and serious condition encountered in older persons. These guidelines will deal primarily with its prevention and acute management but it is important to note that delirium has long-term consequences. Compared to similarly aged individuals, older hospitalized persons who are delirious have a worse prognosis. They have prolonged lengths of hospital stay, worse functional outcomes, higher institutionalization rates, increased risk for cognitive decline, and higher mortality rates (Leentjens & van der Mast, 2005; Rockwood, 2001). Older persons admitted to an acute care hospital who experience delirium and survive the hospital stay are significantly more likely to die during the next year even after controlling for factors like age, sex, comorbidities and functional status (Leslie et al., 2005). Among hospitalized older persons who survive a delirious episode, most recall it as a highly distressing event (Breitbart et al., 2002a).

In many cases delirium is not recognized or is misdiagnosed as another condition such as dementia or depression (Foreman & Milisen, 2004). Delirium is a marker of an increased risk for the development of a dementia, even in older people without prior cognitive or functional impairment (Rockwood et al., 1999). Under-recognition by clinicians is particularly common for cases of hypoactive delirium occurring in very old (80+) individuals with impaired vision and/or pre-existing dementia (Inouye et al., 2001). When all four of these features are present, the risk of under-recognition is increased more than 20-fold. Non-recognition of delirium was associated with a higher mortality rate among older (mean age 80.1 years) delirious persons seen in Emergency Departments who were discharged home (Kakuma et al., 2003). The presence of delirium is associated with worse rehabilitation outcomes (Dolan et al., 2000; Marcantonio et al., 2000; Olofsson et al., 2005). Delayed recognition of delirium was found to be associated with worse outcomes in a group of older (mean age 78.5 years) hospitalized persons (Andrew et al., 2005).

The occurrence of delirium is not inevitable. Frequently it is precipitated by potentially modifiable factors such as the prescription of medications, development of dehydration and/or malnutrition, immobilization, use of physical restraints, sleep deprivation, and complications of diagnostic or therapeutic procedures. Delirium is a window that allows us to examine the quality of care being provided to older persons (Inouye et al., 1999b).

### 1.1 Definition of Delirium

Although a variety of other words have been utilized for this clinical presentation (e.g., acute confusion, acute brain disorder, acute encephalopathy), we will use the term delirium. Different diagnostic criteria have been proposed for delirium (e.g., *DSM-III*, *DSM-III-R*, *DSM-IV*, *ICD-10*). The *DSM-IV* criteria were designed to be

simple and sensitive for the presence of delirium in different settings (American Psychiatric Association, 1994). Laurila and colleagues (2004)<sup>iii</sup> found that the *DSM-IV* criteria identified a greater number of older persons as delirious and the group identified had a similar prognosis to those fulfilling more restrictive criteria. Cole and colleagues (2003a)<sup>iii</sup> found that the *DSM-IV* criteria were more sensitive than the *DSM-III*, *DSM III-R*, or the *ICD-10* criteria in diagnosing delirium in older persons hospitalized on medical units with or without a dementia.

The core features of delirium as defined by the *DSM-IV* criteria are:

- A. Disturbance of consciousness (i.e., reduced clarity of awareness of the environment) with reduced ability to focus, sustain, or shift attention;
- B. A change in cognition (i.e., memory deficit, disorientation, language disturbance) or the development of a perceptual disturbance that is not better accounted for by a preexisting, established, or evolving dementia; and
- C. The disturbance develops over a short period of time (usually hours to days) and tends to fluctuate during the course of the day.

Delirium can occur as a consequence of a general medical condition, substance intoxication, substance withdrawal or could be due to multiple etiologies. It often arises from an interplay of predisposing and precipitating factors. In general, the greater the vulnerability and/or severity of insult, the higher the likelihood of delirium occurring. Delirium can arise from other causes (e.g., sensory deprivation) and it is not always possible to firmly establish the specific etiology of the delirium in an older person.

While these guidelines deal with delirium, it is important not to ignore those who do not achieve the full syndrome of delirium. Subsyndromal delirium (SSD) is a condition in which a person has one or more of the symptoms of a delirium but does not progress on to a *DSM*-defined delirium. The risk factors for SSD are similar to those of delirium. Their outcomes are intermediate between those with delirium and those without either delirium or SSD (Cole et al., 2003b).

#### Recommendation: Definition of Delirium

The *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)* criteria for delirium should be used as the standard for establishing the presence of a delirium. [C]

The essential features of delirium are a disturbance of consciousness accompanied by a change in cognition that evolves over a short period of time and cannot be accounted for by a preexisting dementia (American Psy-

**Table 1.1 – Differentiating Delirium, Depression, and Dementia**

	Delirium	Dementia	Depression
Onset	Acute	Insidious	Variable
Duration	Days to weeks	Months to years	Variable
Course	Fluctuating	Slowly progressive	Diurnal variation (worse in morning, improves during day)
Consciousness	Impaired, fluctuates	Clear until late in the course of the illness	Unimpaired
Attention & Memory	Inattentive Poor memory	Poor memory without marked inattention	Difficulty concentrating; memory intact/minimally impaired
Affect	Variable	Variable	Depressed; loss of interest and pleasure in usual activities

chiatric Association, 1994). Some characteristics that can help differentiate delirium from uncomplicated dementia and depression are outlined in *Table 1.1*.

Delirium can present in a hyperactive-hyperalert, hypoactive-hypoalert or a mixed manner. Those with the hyperactive-hyperalert subtype are restless, agitated, aggressive, psychotic (delusions, hallucinations) and/or hyper-reactive (Camus et al., 2000a). The patient with the hypoactive-hypoalert variety appears lethargic, drowsy, sluggish, inactive, apathetic, quiet and confused. She/he has a loss of facial expression and responds slowly to questions (Camus et al., 2000a). The hyperactive-hyperalert subtype accounts for 15-47% of cases, while 19-71% of cases are categorized as hypoactive-hypoalert (Camus et al., 2000b; Liptzin & Levkoff, 1992; Marcantonio et al., 2002; Meagher et al., 2000; O’Keefe & Lavan, 1999; Sandberg et al., 1999; Santana et al., 2005). The literature is inconsistent as to which variety has a worse prognosis. The hypoactive-hypoalert type is more often unrecognized and can be misdiagnosed as a depression (Inouye, 2004; Inouye et al., 2001).

## 1.2 Target Population and Audiences

This document will focus on the care of older persons (i.e., those 65+). The assessment, prevention and management of delirium for this age group will be examined in a variety of settings such as the community and acute care hospitals, including intensive care units and long-term care facilities. Delirium from alcohol withdrawal will be covered but we will not deal in detail with other types of substance withdrawal delirium. Our target audiences are nurses, physicians, and other health care pro-

professionals who provide care to older persons and the interdisciplinary teams in which they work. We feel that care of the older delirious person should be provided by interdisciplinary teams, including the older individual and their family, working in an integrated, coordinated manner. Team leadership and roles should depend on the needs of the older patient.

## 1.3 Epidemiology

Few studies report on the epidemiology of delirium in the general population. In a community study of non-demented individuals aged 85+, Rahkonen and colleagues (2001) found that 10% had an episode of delirium over a 3-year period. Among individuals aged 65+ with a dementia followed for 3-years, 13% developed a delirium superimposed on their dementia (Fick et al., 2005).

Most of the published studies on the epidemiology of delirium have focused on in-patient populations. Delirium occurs in up to 50% of older persons admitted to acute care settings (Bucht et al., 1999; Cole, 2004). Reported rates in the studies vary due to differences in the way cases are ascertained, the nature of the insult and/or the underlying vulnerability of the populations studied. Among older persons admitted to medical or geriatric hospital units, most recent studies report prevalence rates of ~ 10-20% and incidence rates of ~ 5-10% (Lindesay et al., 2002b). Among older persons undergoing general surgery the reported frequency of post-operative delirium (POD) is ~ 10-15%. Cardiothoracic surgery (~ 25-35%) and repair of a hip fracture (~ 40-50%) have been consistently associated with higher rates of POD (Lindesay et al., 2002b). A study of persons 65+

seen in an Emergency Department found the prevalence of delirium to be  $\sim 10\%$  (Élie et al., 2000).

Long-term care home residents represent a vulnerable group predisposed to the development of delirium but relatively few studies have been done in this setting. Most reports of the prevalence among residents of long-term care facilities show rates that range from 6-14% (Cacchione et al., 2003), although one small study that followed 36 residents over two weeks found an incidence of 40% (Culp et al., 1997).

Reported rates among select populations are as follows: 70% incidence during the index hospitalization for persons aged 65+ admitted to an intensive care unit (McNicol et al., 2003); 22-89% prevalence of delirium in hospitalized and community populations aged 65+ with a pre-existing dementia (Fick et al., 2002); and, 88% incidence rate of terminal delirium among persons receiving palliative care (mean age 62) with advanced cancer (Lawlor et al., 2000).

Delirium risk factors for older hospitalized persons include pre-existing dementia (this is the factor most strongly associated with the development of delirium), presence of a severe medical illness (second most strongly associated risk factor), increasing age, male sex, depression, alcohol abuse, abnormal serum sodium, hearing impairment, visual impairment, challenges with activities of daily living, and disability (Élie et al., 1998).

Risk factors for alcohol withdrawal delirium in hospitalized persons include concurrent infections, tachycardia (i.e., heart rate above 120 beats per minute) on admission, signs of alcohol withdrawal accompanied by an alcohol concentration of more than 1 gm/L, a history of seizures, and a prior history of delirious episodes (Palm-

sterna, 2001). If none of these factors are present, alcohol withdrawal delirium is unlikely to occur. A report of adults admitted to hospital for alcohol withdrawal found that while alcohol withdrawal severity scores and benzodiazepine requirements were similar across age groups, persons aged 60+ were at increased risk for cognitive and functional impairment during withdrawal (Kraemer et al., 1997). The adjusted odds ratio for delirium was 4.7 for those aged 60+ compared to younger individuals. These findings support the recommendation that older persons with alcohol withdrawal are best treated in closely supervised settings.

## 1.4 Issues

Clinical practice guidelines (CPG) are designed to help practitioners manage specific conditions. CPGs are based on the best available published evidence and expert opinion. A limitation is that they focus on single conditions and may not be applicable to individuals aged 65+ with multiple co-morbid conditions (Boyd et al., 2005; Tinetti et al., 2004). Multiple co-morbid conditions are common among older persons. About 60% of individuals aged 65+ will have two or more chronic conditions while 20-25% will suffer from five or more (Anderson, 2005; Anderson & Horvath, 2002).

A challenge in making general recommendations for the assessment and management of delirium in older individuals is the complex nature of the disorder. Often the "best available evidence" will be expert opinion and/or extrapolations from data obtained on other populations. Significant barriers are encountered in performing controlled trials on older persons with delirium. Translating, disseminating and implementing what is known about "best practices" to care settings in an effective manner can be a daunting task.

## Part 2: Prevention

The primary prevention of delirium is critical if delirium rates and associated morbidity are to be reduced. Unfortunately there are few methodologically sound trials evaluating interventions to prevent delirium in an older population. However, the evidence to date suggests that prevention may be possible.

Pivotal to the prevention of delirium in older persons is an awareness of the precipitating and predisposing factors (Inouye et al., 1999a; Leentjens & van der Mast, 2005). This requires the gathering of baseline data that would include the prodromal symptoms of delirium (see *Part 3: Detection, Assessment, Diagnosis and Monitoring*). Prodromal symptoms would include restlessness, anxiety, irritability, distractibility, or sleep disturbance.

Prospective randomized controlled trials were reviewed for *Part 2: Prevention*. Most trials could not be blinded due to the types of interventions implemented. Trials that did not initially specify prevention as an outcome of interest were not included.

Arguably the most important prevention trial to date involved a multicomponent intervention implemented by an interdisciplinary team (Inouye et al., 1999a).<sup>b</sup> This trial enrolled 850 persons aged 70+ admitted to the general medicine service of a teaching hospital over a three year period. A prospective, individual matching strategy was used. Older persons admitted to the intervention unit were compared to those admitted to two usual-care units. Those eligible for the study were considered to be intermediate to high risk for developing delirium based on the presence of the following risk factors: visual impairment, severe illness, cognitive impairment, and/or a high blood urea nitrogen to creatinine ratio. Intermediate risk was defined as having one or two of the risk factors, while high risk was defined as having three or four of the risk factors. For the intervention, six modifiable risk factors were targeted: cognitive impairment, sleep deprivation, immobility, visual impairment, hearing impairment, and dehydration. The intervention team used standardized intervention protocols for each of the six risk factors targeted. The primary outcome was the development of delirium. In the intervention group the incidence of delirium was 9.9% compared to 15% of the usual care group (matched odds ratio 0.6, 95% confidence interval (CI) = 0.39%-0.92%). The total number of days with delirium and the total number of episodes were also reduced in the intervention group. However, the severity and recurrence rate was not reduced in comparison to the control group. A comprehensive description of the intervention was subsequently published (Inouye et al., 2000).

A follow-up study by Inouye and colleagues (as cited in Bogardus et al., 2003) found that the beneficial effects of the interventions were not evident at six months. However, Rizzo and colleagues (2001) determined that their multicomponent intervention might be cost effective for

older hospitalized persons at intermediate risk for developing delirium.

Programs for the prevention of delirium in older persons undergoing orthopaedic surgery have been examined. Marcantonio and colleagues (2000)<sup>b</sup> conducted a randomized, blinded study of proactive geriatric consultation on 126 persons aged 65+ admitted emergently for surgical repair of a hip fracture. The structured geriatric consultation addressed 10 risk factors: (1) central nervous system (CNS) oxygen delivery; (2) fluid/electrolyte balance; (3) treatment of severe pain; (4) elimination of unnecessary medications; (5) regulation of bowel/bladder function; (6) adequate nutritional intake; (7) early mobilization and rehabilitation; (8) appropriate environmental stimuli; (9) treatment of agitated delirium; and (10) prevention, early detection and treatment of post-operative complications. The prevention, early detection, and treatment of post-operative complications included: (i) myocardial infarction/ischemia – ordering an ECG and/or cardiac enzymes as needed coupled with appropriate therapy if detected (recommended in 34% of assessed persons); (ii) supraventricular arrhythmias/atrial fibrillation – ensuring appropriate rate control, electrolyte adjustment, or anticoagulation (recommended in 5%); (iii) pneumonia/ chronic obstructive pulmonary disease – screening and treatment, including chest therapy (recommended in 44%); (iv) pulmonary embolus – appropriate anticoagulation (recommended in 50%); and (v) screening for and treatment of urinary tract infection (recommended in 52%). The cumulative incidence of delirium during hospitalization was significantly reduced in the intervention group. Delirium occurred in 32% of the older persons who underwent a consultation versus 50% among the older persons who received usual care, for a relative risk of 0.64 (95% CI = 0.37%-0.98%). Secondary outcome measures, such as length of hospital stay or proportion discharged to an institutional setting, showed no significant differences between the two groups. The benefit of this intervention in other older surgical populations has not been substantiated.

Other trials evaluating interventions to prevent delirium in persons admitted to medical and surgical units have been conducted. Many had methodological flaws, such as non-random allocation of subjects or using historical controls, which significantly weakened their conclusions (Cole, 1999; Cole et al., 1998; Cole et al., 1996).

Educational programs targeting health care providers have been used either alone or as part of a multicomponent intervention. There is evidence that as a stand-alone intervention an educational program can reduce the incidence of delirium (Tabet et al., 2005).<sup>iii</sup> However, the format, timing, duration, and content of the material to be presented, as well as, the specific target group(s) of the intervention have not been well defined. The long-term impact of these educational interventions has not been assessed.

Medications have not been adequately studied for their ability to prevent delirium. A recent randomized, placebo-controlled trial investigated the prophylactic use of haloperidol in 430 older individuals admitted for elective or emergent hip surgery (Kalisvaart et al., 2005).<sup>1b</sup> The primary outcome, incidence of post-operative delirium, showed no statistically significant difference between the placebo or haloperidol arms. However, a number of secondary outcomes, including severity of delirium (as determined by the Delirium Rating Scale), the duration of delirium, and the length of hospital stay showed benefit with active treatment. Although the primary outcome was not statistically significant, the significant results seen with a number of the secondary outcomes could be of clinical relevance. This approach requires further study.

Aizawa and colleagues (2002)<sup>1b</sup> also investigated pharmacologic intervention to prevent delirium. They randomized 20 persons to the “delirium free protocol (DFP)” that consisted of an intramuscular injection of diazepam at 20:00 each night, in addition to a continuous infusion of flunitrazepam (this is a benzodiazepine that has potent sedating effects; it is not approved for medical use in Canada) and meperidine over eight hours for the first three nights post-operatively. Twenty other postoperative persons were randomized to a control group. The rate of delirium was significantly lower in those assigned to the DFP group, but there was a significantly higher rate of lethargy. However, other studies have shown diazepam and meperidine to be deleterious in delirium, and their use should generally be avoided.

There have been a few reports of natural health products, such as melatonin, in the prevention of delirium (Hanaia & Kitain, 2002).<sup>1v</sup> However, given the lack of compelling evidence of effectiveness, their use is not currently recommended for this purpose.

A recently reported trial demonstrated that in-home rehabilitation resulted in lower rates of delirium versus hospital based rehabilitation (Caplan et al., 2005).<sup>1b</sup> The participants were any older person referred for geriatric rehabilitation who had been in hospital for longer than six days. The rate of new onset delirium in the in-home group was 0.6%, while the in-hospital group had a rate of 2.6% (p=0.0029). This is the only trial conducted to date that has shown a reduction in the incidence of delirium using home-based rehabilitation. Further investigation is required to confirm the efficacy of this approach.

A number of systematic reviews have concluded that the impact of interventions to prevent delirium was modest at best (Cole, 1999; Cole et al., 1998; Cole et al., 1996). It should be noted that preventive interventions have varied significantly, making it difficult to compare trials. There have been numerous methodological limitations to the studies published to date, and many preventive trials were not adequately powered for subgroup analyses. In addition, it is unclear which specific part or parts of the multicomponent interventions studied may have been responsible for the benefits seen. A number of the known risk factors for delirium and the interventions that may help prevent its development are summarized in *Tables 2.1* and *2.2*.

**Table 2.1 – Reported Risk Factors for Delirium in Hospitalized Older Persons**

Reported Risk Factors for Delirium in Hospitalized Older Persons	
<b>Socio-demographic</b> <ul style="list-style-type: none"> <li>• Advanced age</li> <li>• Male sex</li> <li>• Residence in an institution</li> <li>• Little contact with relatives</li> </ul>	<b>Physical Status</b> <ul style="list-style-type: none"> <li>• Fever</li> <li>• Hypotension</li> <li>• Vision and/or hearing impairment</li> <li>• Pre-existing functional impairments/disability</li> <li>• Limited pre-morbid activity levels</li> </ul>
<b>Mental Status</b> <ul style="list-style-type: none"> <li>• Cognitive impairment (especially dementia)</li> <li>• Depression</li> </ul>	<b>Laboratory Findings</b> <ul style="list-style-type: none"> <li>• High urea/creatinine ratio</li> <li>• Sodium and/or potassium abnormalities</li> <li>• Hypoxia</li> </ul>
<b>Medical Illness and Medications</b> <ul style="list-style-type: none"> <li>• Severe medical illness</li> <li>• Medication use (e.g., narcotics, psychotropics)</li> <li>• Fracture on admission</li> </ul>	<b>Surgery and Anaesthesia</b> <ul style="list-style-type: none"> <li>• Noncardiac thoracic surgery</li> <li>• Aortic aneurysm repair</li> <li>• Unplanned (i.e., emergency) surgery</li> <li>• Immobility after surgery</li> </ul>
<b>Other</b> <ul style="list-style-type: none"> <li>• Alcohol abuse</li> <li>• Urgent admission to hospital</li> <li>• Frequent admissions over the previous two years</li> </ul>	

**Table 2.2 – Potential Interventions for the Prevention of Delirium**

Potential Interventions for Prevention of Delirium	
<ul style="list-style-type: none"> <li>• Discontinuation of inappropriate/unnecessary medications</li> <li>• Early detection and management of post-operative complications</li> <li>• Early mobilization</li> <li>• Early recognition of dehydration coupled with efforts to maintain hydration</li> <li>• Ensuring adequate nutritional intake</li> <li>• Health professional education on delirium and its prevention</li> </ul>	<ul style="list-style-type: none"> <li>• Minimizing the use of restraints</li> <li>• Regulating bowel/bladder function; avoiding indwelling catheters</li> <li>• Reorientation and/or cognitively stimulating activities</li> <li>• Use of sensory aids (e.g. glasses, hearing aids)</li> <li>• Ensuring normal sleep patterns</li> <li>• Taking a standardized approach to pain control</li> <li>• Providing supplemental oxygen for hypoxia</li> <li>• Timely consultations for geriatric, medical and/or mental health expertise</li> </ul>

Recommendations: Prevention
Prevention efforts should be targeted to the older person’s individual risk factors for delirium. [D]
Interventions to prevent delirium should be interdisciplinary. [A]
Multicomponent interventions targeting multiple risk factors should be implemented in older persons who have intermediate to high risk for developing delirium. [A]
Older hospitalized persons with pre-existing cognitive impairment should be offered an orientation protocol and cognitively stimulating activities. [B]
Older hospitalized persons who are having problems sleeping should be offered non-pharmacologic sleep-enhancing approaches. Use of sedative-hypnotics should be minimized. [B]
Older hospitalized persons should be mobilized as quickly as possible. The use of immobilizing devices/equipment should be minimized. [B]
Older persons with impairments of vision should be provided with their visual aids and/or other adaptive equipment. [B]
Older persons with impairments of hearing should be evaluated for reversible causes and provided with hearing aid(s) and/or other amplifying devices. [B]

Older persons with evidence of dehydration should be encouraged to increase their oral fluid intake. Other measures may be required depending on the severity of the dehydration and the patient’s response to efforts to increase their oral intake. [B]
Environmental risk factors should be modified, if possible (see <i>Table 3.3</i> ). [D]
Where available, proactive consultations to a geriatrician, geriatric or general psychiatrist, or to a general internist should be considered for older persons undergoing emergency surgery to minimize the risk of post-operative delirium. [B]
Prevention, early detection, and treatment of postoperative complications in older persons are important in preventing delirium. These would include (but are not limited to) the following: myocardial ischemia, arrhythmias, pneumonia, exacerbations of Chronic Obstructive Pulmonary Disease, pulmonary emboli, and urinary tract infections. [B]
Educational interventions directed to hospital staff dealing with delirium and its prevention should be implemented. Also see <i>Part 6: Education</i> . [C]
Based on current evidence, psychopharmacologic interventions for unselected older persons to prevent the development of delirium are not recommended. [D]

## Part 3: Detection, Assessment, Diagnosis and Monitoring

Please note that while the following is presented in a linear fashion (i.e., detection, assessment, diagnosis, management), these activities will frequently be occurring concurrently. For example, information collected during screening will frequently be used for diagnosis and in deciding on the initial management approach. **Delirium is a medical emergency and management often has to begin before a diagnostic work-up has been completed.**

### 3.1 Detection

Since delirium presents as a disturbance in mental status and behaviour, a standardized review of behaviour and formal examination of mental status (neurocognitive functioning, affect, thinking, and behaviour) are key first steps in the detection, assessment, differential diagnosis and monitoring of delirium. Methods based on standardized review of delirium symptoms and informed by formal examination of mental status are more effective in detecting delirium than are non-standardized clinical observations or interviews.

Due to the fluctuating course of delirium and since many older persons will not be able to provide an accurate history, collateral information should be sought when trying to detect delirium. The *Informant Questionnaire on Cognitive Decline in the Elderly* (IQCODE) is a standardized instrument that may be helpful in the assessment of an older person for delirium (Jorm, 2004, 1994; Jorm & Jacomb, 1989; Jorm et al., 2000, 1996, 1991; Louis et al., 1999). This was developed as a way to measure cognitive decline from a pre-morbid level by using informant reports. A short 16-item version of the self-administered questionnaire is available with each item rated on a 5-point scale (Jorm, 2004, 1994). While it has been mainly used for the detection of dementia, a few studies have reported that it may be useful in detecting delirium (Jorm, 1994; Schurrmans et al., 2003).

#### Recommendations: Detection

All clinicians working with older persons should be alert to the possibility of delirium developing after surgical procedures (especially cardiopulmonary bypass and surgical repair of a hip fracture), with acute medical conditions (e.g., infections) and/or during exacerbations of chronic medical conditions (e.g., Congestive Heart Failure). [C]

All clinicians working with older persons should be aware that the symptoms of delirium may be superficially similar to those of a dementia and that the two conditions frequently co-exist. Clinicians should be aware of the features that can help differentiate delirium from dementia. (See *Table 1.1*). [C]

All clinicians working with older persons should be aware that delirium can show a fluctuating course with periods of lucidity during which the person's mental/cognitive status can appear unremarkable. Therefore, repeated screening and looking for diurnal variation is recommended. [C]

Due to the fluctuating course of delirium and since many older persons will not be able to provide an accurate history, collateral information should be sought. [C]

All clinicians working with older persons should be aware that intact functional status does not rule out delirium. [C]

All clinicians working with older persons should be vigilant of recent-onset lethargy and unexplained somnolence, which might indicate the development of the hypoactive-hypoalert sub-type of delirium. [C]

All clinicians working with older persons should recognize that while symptoms of delirium typically develop abruptly, an insidious onset can occur. [C]

Older persons should be routinely screened for delirium during their stay in hospital. (See *Section 3.1.2, Screening*). [C]

Delirium should be considered as a potential cause of any abrupt change in the cognition, functional abilities, and/or behaviour of an older person seen in an ambulatory clinic, primary care, or long term care setting. [C]

The evaluation of an older person for the possibility of delirium should include a review of their prior cognitive functioning (e.g., over the previous six months). [C]

Any clinician noticing changes in the mental status or alertness of an older hospitalized person should bring this to the attention of the nurse caring for the individual and/or the person's attending physician. [C]

In response to either observations or reports of changes in mental status/alertness from members of the clinical team, the older person or members of their family, nurses caring for the older person should initiate an assessment searching for evidence of delirium. [C]

The physician responsible for the older person should promptly review the delirium screening results and determine the need for further evaluation. [C]

Older persons with complex presentations such as those with pre-existing neurocognitive decline, cerebrovascular disease and/or aphasia may require referral for assistance in the diagnostic work-up. The referral may be directed to a geriatrician, geriatric or general psychiatrist, neurologist, and/or neuropsychologist. [C]

### 3.1.2 Screening Instruments

The under-recognition of delirium in older persons is a major health care issue with important implications. The implementation of systematic screening in populations at risk could increase the rate of early detection and the timely management of delirious older persons. For this section we use a modified version of the definition for “screening” proposed by the United Kingdom National Screening Committee ([http://www.nsc.nhs.uk/whatscreening/whatscreen\\_ind.htm](http://www.nsc.nhs.uk/whatscreening/whatscreen_ind.htm)). We define screening for delirium as a maneuver in which members of a defined population (e.g., all older persons admitted to hospital) undergo a test to identify those individuals who likely have delirium. Older persons so identified should be more likely helped than harmed by further testing if needed (i.e., to confirm the diagnosis and/or determine its contributing causes) and/or by treatment for delirium.

A number of valid and reliable instruments have been developed for non-psychiatric trained clinicians to detect delirium. They are based on a review of select symptoms of delirium informed by systematic clinical observation and formal brief examination of mental status.

The *Confusion Assessment Method (CAM)* is consistent with *DSM-IV* criteria, has been validated in high risk acute care settings, has excellent sensitivity and specificity rates (generally over 90%), and is quick to administer (Inouye et al., 1990; Rolfson et al., 1999; Zou et al., 1998).<sup>iii</sup> This measure includes a standardized algorithm for identifying individuals with probable delirium (Inouye et al., 1990).<sup>iii</sup> The *CAM* has been used as both a screening instrument and as a diagnostic aid in confirming the presence of delirium (Laurila et al., 2002).<sup>iii</sup> Although it is an acceptable screening instrument for delirium, the diagnosis should be confirmed according to the formal criteria of delirium (e.g., the *DSM-IV*). A version for use in intensive care units (the *CAM-ICU*) has also been validated (Ely et al., 2001a, b).<sup>iii</sup>

The *Mini-Mental Status Examination (MMSE)* has been effectively used to inform *CAM* ratings (Inouye, 1990).<sup>iii</sup> However, *CAM* ratings using the *MMSE* can miss cases of delirium that become apparent utilizing more sensitive measures of mental status. In more complex cases, it may be necessary to supplement or replace the *MMSE* with more sensitive neurocognitive measures.

There are brief neurocognitive measures that are more comprehensive than the *MMSE*. They might be considered as either an alternative or as a supplementary assessment. These would include the *Montreal Cognitive Assessment (MoCA)* and the *Cognitive Assessment Screening Instrument (CASI)*. Both of these tools include cognitive domains not assessed by the *MMSE*. The *CASI* detects the presence of severe neurocognitive impairment across a broad range of cognitive abilities (i.e., attention, concentration, verbal and non-verbal

memory, language, visuospatial abilities, executive functioning); (Teng et al., 1994).<sup>iii</sup> It incorporates elements of the *MMSE*, the *Modified Mini-Mental State* examination and the *Hasegawa Dementia Scale for the Aged* (McCurry et al., 1999; Teng et al., 1994).<sup>iii</sup> The *MoCA* was designed as a rapid screening instrument for mild cognitive dysfunction. It assesses attention and concentration, executive functions, memory, language, visuo-constructional abilities, conceptual thinking, ability to calculate, and orientation (Nasreddine et al., 2005).<sup>iii</sup> These measures may identify cases of delirium missed using only the *MMSE*. Both of these instruments, though, have not been validated for their use in detecting delirium.

Direct systematic inquiry of the older person can also serve to inform *CAM* ratings in more complex or subtle presentations. The *Delirium Symptom Interview* provides questions for systematic inquiry of persons suspected of having delirium that are in keeping with the *DSM-IV* criteria for delirium. Inter-rater reliability using research assistants was high. Sensitivity and specificity were 90% and 80%, respectively, in a small sample examined in an instrument development study (Albert et al., 1992).<sup>iii</sup>

Finally, ratings based on more sophisticated measures of neuropsychological functioning conducted by a neuropsychologist may identify persons with delirium not identified using brief cognitive measures like the *MMSE*. The neuropsychological examination can also be used for the differential diagnosis of a cognitive impairment (e.g., to help rule out conditions such as dementia that can have superficially similar affective, neurocognitive and/or behavioural features) (Ballard et al., 1999; Diehl, 2005, Manning, 2004; Swainson et al., 2001).<sup>iv</sup>

Measures have also been designed to measure the severity of delirium states. The *Delirium Rating Scale-R-98 (DRS-R-98)* was adapted from the *CAM* and is based on observation of the delirious person (Trzepacz et al., 2001). It includes three diagnostic items plus thirteen severity items for repeated assessment. The *DRS-R-98* is a valid measure of delirium severity over a broad range of symptoms. The *DRS-R-98* can be used for longitudinal studies (Trzepacz et al., 2001).<sup>iii</sup> The *Delirium Index (DI)* can also be used to measure the severity of delirium (McCusker et al., 2004, 1998). The *DI* includes seven of the ten symptom domains of the *CAM* (attention, thought, consciousness, orientation, memory, perception and psychomotor activity), each scored on a scale of zero to three with operational criteria for each score. The total score can vary from zero to 21 with a higher score indicating greater severity (McCusker et al., 2004).<sup>iii</sup>

The revised *Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar)* is recommended for monitoring the symptoms of alcohol withdrawal. Alcohol withdrawal needs to be closely monitored in older persons as they are at increased risk of developing alcohol withdrawal delirium (Sullivan et al., 1989).<sup>iii</sup>

## Recommendations: Screening Instruments

Any clinician using a screening measure for delirium should be competent in its administration and interpretation. [D]

Screening for symptoms of delirium should be done using standardized methods with demonstrated reliability and validity. [C]

In choosing an instrument for screening or case finding, it is important to ensure that the symptoms surveyed are: consistent with the symptoms of delirium as specified in the *DSM IV*, that the tool has met acceptable standards of reliability/validity, and that it is appropriate for the proposed purpose and setting. [C]

While brief neurocognitive measures are often used in the assessment of delirious individuals, clinicians should be aware of their limitations. More broadly based neurocognitive measures may be required in uncertain cases. [C]

Referral to neuropsychology should be considered in complex presentations requiring sophisticated examination of mental status to assist with differential diagnosis, such as ruling out a dementia. [C]

Sensory impairments and physical disability should be considered in the administration of mental status tests and in the interpretation of the findings obtained. [D]

While clinicians use screening tools to identify persons with probable delirium in need of further evaluation and follow-up, the results from these tools must be interpreted within a clinical context and do not in themselves result in a diagnosis of delirium. [D]

It is recommended that clinicians use the *Confusion Assessment Method (CAM)* for screening and as an aid in the assessment/diagnosis of delirium occurring in older persons on acute medical/surgical units and in Emergency Departments. [C]

Ratings on the *CAM* should be informed by an objective mental status examination. [C]

In complex cases, clinicians should use the *Delirium Symptom Interview* to elicit additional information from the point of view of the patient to inform *CAM* ratings. [C]

The *CAM-ICU* is recommended for use with persons in intensive care units who are not able to communicate verbally. [C]

The revised *Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar)* is recommended for monitoring the symptoms of alcohol withdrawal. [C]

The *Delirium Rating Scale-R-98* or the *Delirium Index* is recommended to measure the severity of delirium states. [C]

## 3.2 Diagnosis

Please see *Section 1.1, Definition of Delirium*, for a review of what standard should be used for the diagnosis of delirium.

### Recommendation: Diagnosis

The *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)* criteria for delirium should be used for establishing a diagnosis of a delirium. [C]

## 3.3 Assessment and Investigations to Determine the Cause of Delirium

Delirium often has a multifactorial etiology with both predisposing (i.e., those making the older person more vulnerable to the development of delirium) and precipitating (i.e., those that act as stressors or insults) factors. Very vulnerable persons may develop a delirium with rather trivial precipitants while those at a low vulnerability would require a more noxious insult. Predisposing factors would include increasing age, dementia, and sensory impairments. Precipitating factors for delirium include medications (including substance withdrawal and intoxication), any severe acute illness, surgery, infections (e.g., pneumonia, urinary tract infection), metabolic abnormalities (e.g., dehydration, electrolyte abnormalities), hypoxemia, severe pain, and problems with elimination (e.g. urinary retention, constipation).

Detection and treatment of the underlying predisposing and precipitating factors is considered established effective therapy for the delirious older person. The search for the factors contributing to the development of delirium is based on a medical history, physical examination, and laboratory investigations. **Not finding a specific cause does not indicate that a delirium is not present – many cases have no definite found cause.** The following is a classification of some of the common potential causes of delirium – *Table 3.1* (Brauer et al., 2000; Rolfson, 2002).

**Table 3.1 – Common Potential Causes of Delirium**

<b>Causes of Delirium</b>	<b>Examples</b>	<b>Consider if:</b>
<b>Drug-induced</b>	Sedative-hypnotics, anticholinergics, opioids, anticonvulsants, anti-parkinsonian agents	The drug in question has central nervous system effects; a toxic level is documented or there is improvement with dose reduction or discontinuation; and, the time course coincides with the use of the drug.
<b>Alcohol and drug withdrawal</b>	Alcohol, benzodiazepines	Recent and long-term use of alcohol or sedative drug; evidence of withdrawal (e.g., autonomic hyperactivity, seizure) or improvement when the same or similar agent given; and, delirium occurs within week of cessation.
<b>Post-operative delirium</b>		Delirium occurs shortly after surgical procedure.
<b>Infectious</b>	Lower respiratory tract infection, urinary tract infection	Signs of infection present; infection is confirmed by cultures or other indicators; and, the temporal course coincides with the infection.
<b>Fluid-electrolyte disturbance</b>	Dehydration/ hypovolemia	Clinical evidence of changes in hydration status present (e.g., history of GI losses, signs of hypovolemia/dehydration, signs of volume overload); abnormal laboratory studies (e.g., abnormal electrolytes, high urea/ creatinine ratio); and, temporal course coincides with the abnormality.
<b>Metabolic endocrine</b>	Uremia, hepatic encephalopathy, hypo/hyperglycemia, hypo/hyperthyroidism, adrenal insufficiency, hypercalcemia	The metabolic abnormality is known to induce a change in mental status; clinical and laboratory confirmation of the disturbance; and, the temporal course coincides with the disturbance.
<b>Cardiopulmonary – hypoperfusion and/or hypoxia</b>	Congestive heart failure/ pulmonary edema, shock, respiratory failure	Clinical evidence of a low cardiac output/ hypotension or pulmonary compromise; laboratory or radiographic evidence of suspected abnormality (e.g., arterial blood gases); and, the time course coincides with cardiopulmonary disturbance.
<b>Intracranial</b>	Stroke, closed head injury, cerebral edema, subdural hematoma, meningitis, seizures	Clinical evidence of an intracranial process has occurred; laboratory or radiological evidence of the suspected abnormality; and, time course coincides with the disturbance.
<b>Sensory/ Environmental</b>	Visual/ hearing impairment, physical restraint use, bladder catheter use, settings (acute care, especially ICU)	There is evidence of a pre-existing dementia and/or significant auditory/visual disturbance; mental status improves with orienting stimuli; and, mental status worsens with recent environmental changes or occurs predominantly at night.

The following recommendations were principally derived from the guidelines selected for detailed review (American Psychiatric Association, 1999; British Geriatrics Society, 1999-2000; Mayo-Smith et al., 2004; Rapp & the Iowa Veterans Affairs Nursing Research Consortium, 1998; Registered Nurses Association of Ontario, 2004, 2003)<sup>ii,iii,iv</sup> and additional literature (Casarett & Inouye, 2001; Koponen et al., 1987; McCusker et al., 2001).<sup>iii</sup> The recommendations are divided into those dealing with the history/physical examination, laboratory investigations, presumed infections and delirium in terminally ill persons.

#### Recommendations: Assessment/ Investigations – History/Physical Examination

The initial history obtained on a delirious older person should include an evaluation of their current and past medical conditions and treatments (including medications) with special attention paid to those conditions or treatments that might be contributing to the delirium. Please see *Table 3.2* for historical information required during initial assessment of a delirious patient. [D]

Many older persons with a delirium will be unable to provide an accurate history. Wherever possible, corroboration should be sought from health records, medical/nursing staff, family, friends, and other sources. [D]

The initial assessment should include an evaluation of the patient's potential for harm to self or others, the availability of means for harm to self or others, and the lethality of those means. [D]

Environmental factors that might be contributing to the delirium should be identified, reduced and preferably eliminated. See *Table 3.3* for a list of modifiable environmental factors that could potentially contribute to the occurrence and/or severity of delirium. [C]

A comprehensive physical examination should be carried out with emphasis on select areas. See *Table 3.4* for the components of the physical examination that require emphasis. [D]

#### Recommendations: Assessment/ Investigations – Laboratory Investigations

Routine investigations should be conducted on all older persons with a delirium unless there are specific reasons not to perform them. See *Table 3.5* for a list of investigations usually indicated in older persons with delirium. Other investigations would be determined by the findings on history, physical examination, and initial laboratory investigations. [D]

Neuroimaging studies have not been shown to be helpful when done on a routine basis in cases of delirium and should be reserved for those persons in whom an intracranial lesion is suspected. This would include those with the following features: focal neurological signs, confusion developing after head injury/ trauma (e.g., fall), and evidence of raised intracranial pressure on examination (e.g., papilloedema). [D]

An Electroencephalogram should not be done routinely. It can be useful where there is difficulty in differentiating delirium from dementia or a seizure disorder (e.g., non-convulsive status epilepticus, partial-complex seizures) and in differentiating hypoactive delirium from depression. [D]

A lumbar puncture should not be done routinely. It should be reserved for those in whom there is some reason to suspect a cause such as meningitis. This would include persons with meningismus/ stiff neck, new-onset headache, and/or evidence of an infection (e.g., fever, high white count) of an uncertain source. [D]

#### Recommendations: Assessment/ Investigations – Infections

Infections are one of the most frequent precipitants of delirium and should always be considered as a contributing factor. Please note that older persons may not develop typical manifestations of an infection and can present in a muted or non-specific manner. [D]

If there is a high likelihood of infection (e.g., fever, chills, high white count, localizing symptoms or signs of an infection, abnormal urinalysis, abnormal chest exam), appropriate cultures should be taken and antibiotics commenced promptly. Select an antibiotic (or antibiotics) that is (are) likely to be effective against the established or presumed infective organism. [D]

#### Recommendations: Assessment/ Investigations – Delirium in Terminally Ill Persons

The decision to search aggressively for causes of delirium in terminally ill persons should be based on the older person's goals for care (or the goals of their proxy decision maker if the patient is incapable to consent to treatment), the burdens of an evaluation and the likelihood that a remediable cause will be found. [D]

When death is imminent, it is appropriate to forgo an extensive evaluation and to provide interventions to ameliorate distressing symptoms. [D]

**Table 3.2 - Historical Information Required During Initial Assessment of a Delirious Patient**

- Known medical conditions (acute and chronic)
- Recent surgeries
- Full drug history including non-prescription drugs
- Thorough history of current patterns of alcohol and other substance use
- Previous cognitive functioning
- Functional abilities (i.e., basic and instrumental activities of daily living)
- Onset and course of the client's delirium
- History of any previous episodes of delirium (and treatment responses)
- Other current psychiatric disorders and symptoms
- Psychosocial history
- Symptoms of suggestive of underlying cause/ precipitant (e.g., infection)
- Sensory deficits and presence/ use of any sensory aids (e.g., hearing aid, glasses)
- Elimination patterns
- Sleep patterns

**Table 3.3 - Modifiable Environmental Factors Potentially Contributing to the Occurrence and/or Severity of Delirium (McCusker et al., 2001)**

- Sensory deprivation (e.g., windowless room, single room)
- Sensory overload (e.g., too much noise and activity)
- Isolation from family/ friends, familiar objects
- Frequent room changes
- Absence of orientating devices (e.g., watch, clock or calendar)
- Absence of visual/ hearing aids
- Use of restraints

**Table 3.4 - Components of the Physical Examination During Initial Assessment of the Delirious Patient**

During the initial assessment of the delirious patient a complete physical examination should be conducted. The following components of the physical examination require emphasis.

- Neurological examination including level of consciousness and neurocognitive function using a standardized instrument (see Section 3.1, Detection)
- Hydration and nutritional status
- Evidence of sepsis (e.g., fever) and potential source (e.g., pneumonia) if present
- Evidence of alcohol abuse (stigmata of chronic alcohol abuse) and/or withdrawal (e.g. tremor)

**Table 3.5 - Investigations Usually Indicated in Persons with Delirium**

- Complete Blood Count (CBC)
- Biochemistry - calcium, albumin, magnesium, phosphate, creatinine, urea, electrolytes, liver function tests (ALT, AST, bilirubin, alkaline phosphatase), glucose
- Thyroid function tests (e.g., TSH)
- Blood culture
- Oxygen saturation or arterial blood gases
- Urinalysis
- Chest X-ray
- Electrocardiogram (ECG)

### 3.4 Monitoring

After the identification of delirium and the initial assessment for the underlying predisposing and precipitating factors, the older person will require on-going monitoring. The following recommendations were primarily derived from the guidelines selected for detailed review (American Psychiatric Association, 1999; British Geriatrics Society, 1999-2000; Mayo-Smith et al., 2004; Rapp & the Iowa Veterans Affairs Nursing Research Consortium, 1998; Registered Nurses Association of Ontario, 2004, 2003)<sup>ii,iii, iv</sup> and additional literature (Reoux & Miller, 2000; Sullivan et al., 1989).<sup>iii</sup> The course of delirium can be protracted and can be associated with serious consequences for the older individual.

#### Recommendations: Monitoring

To provide protection for the patient and to ensure the collection of accurate information to guide care, close observation of the delirious older person should be provided. This would include monitoring vital signs (including temperature), oxygenation, fluid intake/hydration, electrolytes, glucose level, nutrition, elimination (including output), fatigue, activity, mobility, discomfort, behavioural symptoms, sleep-wake pattern, and their potential to harm themselves or others. [D]

The environment of the delirious older person should be monitored for safety risks. [D]

Older persons with a delirium should have a pressure sore risk assessment and receive regular pressure area care. Older persons should be mobilized as soon as their illness allows. [D]

Serial cognitive and functional measurements should be done. They will help in monitoring the older person's progress and their need for care. [D]

When the care of an older person with delirium is transferred to another practitioner or service, the receiving practitioner or service must be informed of the presence of the delirium, its current status and how it is being treated. [D]

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Because of the long-term consequences of the condition, older persons with a delirium require careful, long-term follow-up. [C]

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The revised *Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar)* should be used to quantify the severity of alcohol withdrawal syndrome, to monitor the patient over time and to determine need for medication. [C]

## Part 4: Management

### 4.1 Non-Pharmacological Management

**Please Note:** While the bulk of this section deals with non-pharmacological measures, it does include general recommendations about the use of medications and specific suggestions that incorporate pharmacotherapy in the management of pain. Please refer to *Section 4.4, Pharmacological Management*, for recommendations on pharmacotherapy of the behavioural manifestations of delirium

**Delirium is a medical emergency and requires urgent intervention.** Established effective care of the older person with a delirium includes: addressing the underlying cause or causes; anticipating and taking steps to prevent common complications (e.g., falls, decubitus ulcers, nosocomial infections, functional decline, worsening of mobility, elimination problems, and adverse drug effects); managing behavioural challenges and alleviating patient distress; and attempting to maintain and improve upon functional abilities and mobility. Many of the recommendations in this section are derived from the guidelines selected for review (American Psychiatric Association, 1999; British Geriatrics Society, 1999-2000; Mayo-Smith et al., 2004; Rapp & the Iowa Veterans Affairs Nursing Research Consortium, 1998; Registered Nurses Association of Ontario, 2004, 2003)<sup>ii,iii,iv</sup> and additional literature (Cole et al., 2002; Cole et al., 1994; Inouye et al., 1999a).<sup>iv</sup> The care of the older delirious person is primarily based on what seems reasonable and/or has been extrapolated from what has been shown to work for other conditions and/or patient populations.

Strategies for managing the behaviour of a delirious patient are derived from an understanding of the neurocognitive/neurobehavioural features of delirium and behavioural management principles. A focus is on preventing or compensating for agitated behaviour. As a result of difficulties in the ability to sustain attention, learn, remember, reason, and make thoughtful judgments, the patient with delirium is at risk for misperceptions and fear. At the same time given the propensity to delusional thinking, illusions, hallucinations and increased agitation that can occur with delirium, the patient with delirium is at risk for misperceiving his/her environment and coming to inaccurate and typically fearful conclusions. The goal of behavioural management strategies is to prevent and manage imperceptions and agitation. In order to do so, it is important to examine both the neuropsychological features of delirium and the triggers of agitation. Caregivers should keep systemic observations of the events that occur before and after agitated behaviour (antecedents and consequences of the agitation). These observations should include the fre-

quency and duration of the agitation, as well as, a detailed description of the environmental circumstances (e.g., was the patient in bed, how many people were in the room, did the agitation occur during care, what was the noise level in the room, etc.). A search for a common pattern of triggers and antecedents should be conducted. Over-stimulation is a common antecedent of agitation. Environmental modifications to address identified triggers should be implemented. To evaluate the impact of the environmental changes made, close monitoring of the persons with detailed charting is required. This information can be used to direct further changes if needed.

Though a common problem, once it occurs, delirium is still managed in an empirical manner. There is little evidence in the current literature to support anything in addition to the provision of exemplary clinical care to the delirious older person. This care should be based on the principles of good health care and an understanding of delirium (Milisen et al., 2005). For example, two randomized controlled trials of an intervention (consultation by a geriatrician/geriatric psychiatrist within 24 hours of the detection of delirium, treatment recommendations for probable causes of the delirium and follow-up) for older persons with delirium hospitalized on medical units showed no clinically significant benefits when it was compared to “usual” care (Cole et al., 2002; Cole et al., 1994).<sup>iv</sup>

Sub-sections on general measures, mobility and function, safety, communication, and behavioural strategies are intended for all clinicians who care for a delirious older person.

#### Recommendations: Non-Pharmacological Management – General Measures

Treatment of all potentially correctable contributing causes of the delirium should be done in a timely, effective manner. [D]

Strive to establish and maintain cardiovascular stability, a normal temperature, adequate oxygenation, normal fluid and electrolyte balance, normal glucose levels, and an adequate intake of nutrients. Biochemical abnormalities should be promptly corrected. [D]

Older persons with delirium are at risk for micronutrient deficiencies (e.g., thiamine), especially if alcoholic and/or have evidence of malnutrition. A daily multivitamin should be considered. [D]

Strive to maintain a normal elimination pattern. Aim for regular voiding during the day and a bowel movement at least every two days. [D]

Urinary retention and fecal impaction should be actively looked for and dealt with if discovered. [D]

Continuous catheterization should be avoided whenever possible. Intermittent catheterization is preferable for the management of urinary retention. [D]

**Recommendations: Non-Pharmacological Management – Mobility and Function**

Strive to maintain and improve (where appropriate) the older person's self-care abilities, mobility and activity pattern. Allow free movement (provided the older person is safe) and encourage self-care and other personal activities to reinforce competence and to enhance self-esteem. [D]

The implementation of intensive rehabilitation that requires sustained attention or learning from the delirious older person is not likely to be beneficial and may increase agitation. It should be delayed until the older person is able to benefit from the intervention. [D]

**Recommendations: Non-Pharmacological Management – Safety (see Section on Restraints)**

Take appropriate measures to prevent older persons from harming themselves or others. The least restrictive measures that are effective should be employed. [D]

Attempt to create an environment that is as hazard free as possible. Remove potentially harmful objects and unfamiliar equipment/devices as soon as possible. [D]

Although it is often necessary to increase supervision during delirium, it would be preferable if security personnel did not provide this unless it is absolutely necessary for safety reasons. Given the older delirious person's difficulties in reasoning and their tendency to see even innocuous behaviours as aggressive, the presence of security personnel may entrench delusional thinking and agitation. If family cannot stay with the older person and staff cannot provide the required degree of surveillance, consider the use of a private-duty nurse (also known as a nurse sitter, personal care attendant or patient companion). [D]

**Recommendations: Non-Pharmacological Management – Communication**

Given difficulties in sustaining attention, when communicating with a delirious older person ensure that instructions and explanations are clear, slow-paced, short, simple, and repeated. The older person should be addressed face-to-face. [C]

Avoid abstract language/ideas and do not insist that the older person appreciate the information that is being given. Do not engage in discussions that the older person cannot appreciate. [C]

Discuss topics that are familiar and/or of interest, such as hobbies and occupation, with the older person. [D]

Routinely provide orienting information in the context of care. For example, frequently use the older person's name and convey identifying information (e.g., "I'm your nurse"). [D]

When providing care, routinely explain what you are about to do. This is to reduce the likelihood of misinterpretation. [D]

Keep your hands in sight whenever possible and avoid gestures or rapid movements that might be misinterpreted as aggressive. Try to avoid touching the older person in an attempt to redirect him/her. [D]

Evaluate the need for language interpreters and ensure their availability if required. [D]

Reminding older persons of their behaviour during episodes of delirium is not generally recommended. Many older persons with delirium retain memories of the fear they experienced during a time of delirium. Others become embarrassed of their behaviour during delirium. [D]

**Recommendations: Non-Pharmacological Management – Behavioural Management**

Those caring for a delirious older person should convey an attitude of warmth, calmness and kind firmness. They should acknowledge the older person's emotions and encourage verbal expression. [D]

Strategies for managing the behaviour of a delirious patient should be derived from an understanding of the neurocognitive/neurobehavioural features of delirium and behavioural management principles. [D]

Given difficulties in sustaining attention with delirium, present one stimulus or task at a time to the older person. [D]

If agitation occurs, use behavioural management strategies to identify triggers for agitation. This information should be used to modify the older person's environment and/or delivery of care in order to reduce the incidence of agitation. Any interventions implemented will require evaluation to confirm their effectiveness. [B]

Do not directly contradict delusional beliefs, as this will only increase agitation and not likely orient the person. If there is a question of safety, attempt to use distraction as a way of altering behaviour. [D]

Avoid confrontations with the older person even when they say inaccurate/inappropriate things. Disagreements with the older person can lead to increased agitation and is not likely to be effective in altering perceptions or behaviour. If the older person is becoming agitated, try distracting him/her. If it is important to correct the older person, wait and try offering the required information at another time in a calm, matter-of-fact tone of voice. Ignore the content of their statements when it is not necessary to correct them. [D]

In complex cases, referral to geriatric psychiatry, neuropsychology, psychology and/or psychiatry for behavioural management strategies is recommended. [D]

#### 4.1.1 Non-Pharmacological Management - Care Providers/Caregivers

An interdisciplinary approach is required for the effective management of an older delirious person. The health care team must include the older person's family (if available and willing). The older person should be actively involved in their own care to the greatest extent possible and feasible. The recommendations in this section are derived from the guidelines selected for review (American Psychiatric Association, 1999; British Geriatrics Society, 1999-2000; Mayo-Smith et al., 2004; Rapp & the Iowa Veterans Affairs Nursing Research Consortium, 1998; Registered Nurses Association of Ontario, 2004, 2003)<sup>ib,iii,iv</sup>.

##### Recommendations: Non-Pharmacological Management – Care Providers/Caregivers

Effective care of the delirious older person requires interdisciplinary collaboration. [D]

Request family members, if available, to stay with the older person. They can help re-orientate, calm, assist, protect, and support the older person. As well, they can help facilitate effective communication and advocate for the older person. To fulfill their role in an effective manner, family members do require introductory education about delirium and its management. (See *Part 6: Education*) [D]

If family cannot stay with the older person and staff cannot provide the required degree of surveillance, consider the use of a private-duty nurse (also known as a nurse sitter, personal care attendant or patient companion). Please note that their use does not obviate the need to ensure adequate staffing in health care facilities. Any person engaged in this activity requires appropriate training on the assessment and management of delirium. [D]

As much as possible, the same staff members should provide care to the delirious older person. [D]

#### 4.1.2 Non-Pharmacological Management - Environment

The patient's care environment can function as either an aggravating or an ameliorating factor. When implementing environmental strategies/modification, a flexible approach must be taken due to inter-individual variation in response and the differences between the hyperactive and hypoactive forms of delirium. Many of the recommendations in this section are derived from the guidelines selected for review (American Psychiatric Association, 1999; British Geriatrics Society, 1999-2000; Mayo-Smith et al., 2004; Rapp & the Iowa Veterans Affairs Nursing Research Consortium, 1998; Registered Nurses Association of Ontario, 2004, 2003)<sup>ib,iii,iv</sup> and additional literature (Cole et al., 2002; Cole et al., 1994; Flaherty et al., 2003; McCaffrey, 2004; McCusker et al., 2001; Williams et al., 1979)<sup>ib,iii,iv</sup>.

##### Recommendations: Non-Pharmacological Management - Environment

Avoid both sensory deprivation (e.g., windowless room) and sensory overload (e.g., too much noise and activity). The older person's room should be quiet with adequate lighting. Over-stimulation is a common antecedent of agitation. [C]

Implement unit-wide noise-reduction strategies at night (e.g., silent pill crushers, vibrating beepers, quiet hallways) in an effort to enhance sleep. [C]

Check if the older person wants a radio or television for familiar background stimulation and arrange for it, if requested and possible. Allow delirious older persons to listen to music of their choice. If it is felt that these devices are distracting, disorientating and/or disturbing to the older person when used, they should be removed from the room. [C]

Ensure that the older person's room has a clock, calendar and/or chart of the day's schedule. Give the older person frequent verbal reminders of the time, day and place. [C]

Attempt to keep the older person in the same surroundings. Avoid unnecessary room changes. [C]

Obtain familiar possessions from home, particularly family pictures, sleepwear and objects from the bedside, to help orient and calm the older person. [D]

It is generally not recommended to put older persons with delirium (especially if hyperactive-hyperalert) in the same room. Agitation tends to be reinforced by the presence of agitation in other individuals. The exception to this would be if delirious persons are being congregated in order to provide enhanced care. [D]

Local or regional drug therapies (e.g., local blocks, epidural catheters) for pain that have minimal systemic effects should be considered. [D]

For persistent severe pain, analgesics should be given on a scheduled basis rather than administered as-needed ("pro re nata" or PRN). [D]

Non-narcotic analgesics should be used first for pain of mild severity and should usually be given as adjunctive therapy to those receiving opioids in an effort to minimize the total dose of opioid analgesia required. [D]

If opioids are used, the minimum effective dose should be used and for the shortest appropriate time. Opioid rotation (or switch) and/or a change in the opioid administration route may also be helpful. [D]

The opioid meperidine should be avoided as it is associated with an increased risk of delirium. [C]

The practitioner should be always alert to the possibility of narcotic induced confusion. [D]

#### Recommendations: Management - Sensory Deficits

Sensory deprivation is a frequent contributor to a delirium, especially in an acute care setting. If present, take steps to eliminate or, if not possible, minimize its impact. [D]

Glasses and hearing aids used by the older person should be available and worn by them. For deaf patients consider the use of a pocket amplifier to facilitate communication. [D]

## 4.2 Management - Infections, Pain Management, and Sensory Deficits

Infections, pain (and its management) and sensory deficits can contribute to the delirious state of an older person. The following sub-sections include a number of recommendations for their effective management. Many of the recommendations in this section are derived from the guidelines selected for review (American Psychiatric Association, 1999; British Geriatrics Society, 1999-2000; Mayo-Smith et al., 2004; Rapp & the Iowa Veterans Affairs Nursing Research Consortium, 1998; Registered Nurses Association of Ontario, 2004, 2003)<sup>ib, iii, iv</sup> and additional literature (Davis & Srivastava, 2003; Ersek et al., 2004; Lawlor, 2002; Marcantonio et al., 1994; Morrison et al., 2003).<sup>iii, iv</sup> Please review *Part 3: Detection, Assessment, Diagnosis and Monitoring* for additional information.

#### Recommendations: Management - Infections

If there is a high likelihood of an infection, antibiotics should be started promptly after appropriate cultures have been taken. [D]

The antibiotic or antibiotics initially selected should be ones that are likely to be effective against the established or presumed infective organism. [D]

#### Recommendations: Management - Pain Management

Strive to adequately manage the older person's pain. This can be complicated by the observation that some of the medications used to treat pain can also cause delirium. The treatment goal is to control the older person's pain with the safest available intervention(s). [D]

Non-pharmacological approaches for pain management should be implemented where appropriate. [D]

## 4.3 Management – Medications: Precipitating or Aggravating a Delirium

The following sub-section deals with the principles of medication management. Please refer to the *Section 4.4, Pharmacological Management*, for information on specific drug therapy for the behavioural manifestations of delirium. Drugs can precipitate or aggravate a delirious episode. The clinician must be aware of the possibility of adverse drug-disease and drug-drug interactions contributing to the delirium. Potential mechanisms for their development include: a medical problem that may lead to the development of toxic levels of a medication by altering its distribution, metabolism or elimination; a medication might lead to toxic levels of another medication by adversely altering its distribution, metabolism or elimination; and/or, concurrent use of multiple medications with a similar pharmacological action (e.g., anticholinergic effects) could lead to an adverse cumulative pharmacological effect. Many of the recommendations in

this section are derived from the guidelines selected for review (American Psychiatric Association, 1999; British Geriatrics Society, 1999-2000; Mayo-Smith et al., 2004; Rapp & the Iowa Veterans Affairs Nursing Research Consortium, 1998; Registered Nurses Association of Ontario, 2004, 2003)<sup>iii,iii,iv</sup> and additional literature (Agostini et al., 2001; Han et al., 2001; McDowell et al., 1998).<sup>iii</sup>

**Recommendations: Management – Medications: Precipitating or Aggravating a Delirium**

Withdraw all drugs being consumed that might be contributing to the older person’s delirium whenever possible (see *Table 4.1* for select high-risk medications). Psychoactive medications, those with anticholinergic effects, and/or drugs recently initiated or with a dosage change are particularly suspect as inciting causes. [D]

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If suspect drugs cannot be withdrawn, the lowest possible dose of the suspected medication(s) should be used or substitution with a similar but lower risk medication should be considered. [D]

---

Monitor for potential adverse drug-disease interactions and drug-drug interactions. [D]

Regularly review the older person’s medication regimen in an attempt to simplify it by eliminating those not needed. Avoid adding unnecessary medications. [D]

---

Avoid the routine use of sedatives for sleep problems. Try to manage insomnia by taking a nonpharmacologic approach with the patient and modifying the environment so as to promote sleep. Please see the *Table 4.2* for a suggested nonpharmacologic sleep protocol. [C]

---

Ensure that medication schedules do not interrupt sleep. [D]

---

Diphenhydramine should be used with caution in older hospitalized persons and its routine use as a sleep aid should be avoided. [C]

---

Use of anticholinergic medications should be kept to a minimum. [C]

---

Restarting a formally consumed sedative, hypnotic or anxiolytic should be considered for a delirium that developed during, or shortly after, a withdrawal syndrome. [D]

**Table 4.1 - High-risk Medications Contributing to Delirium**

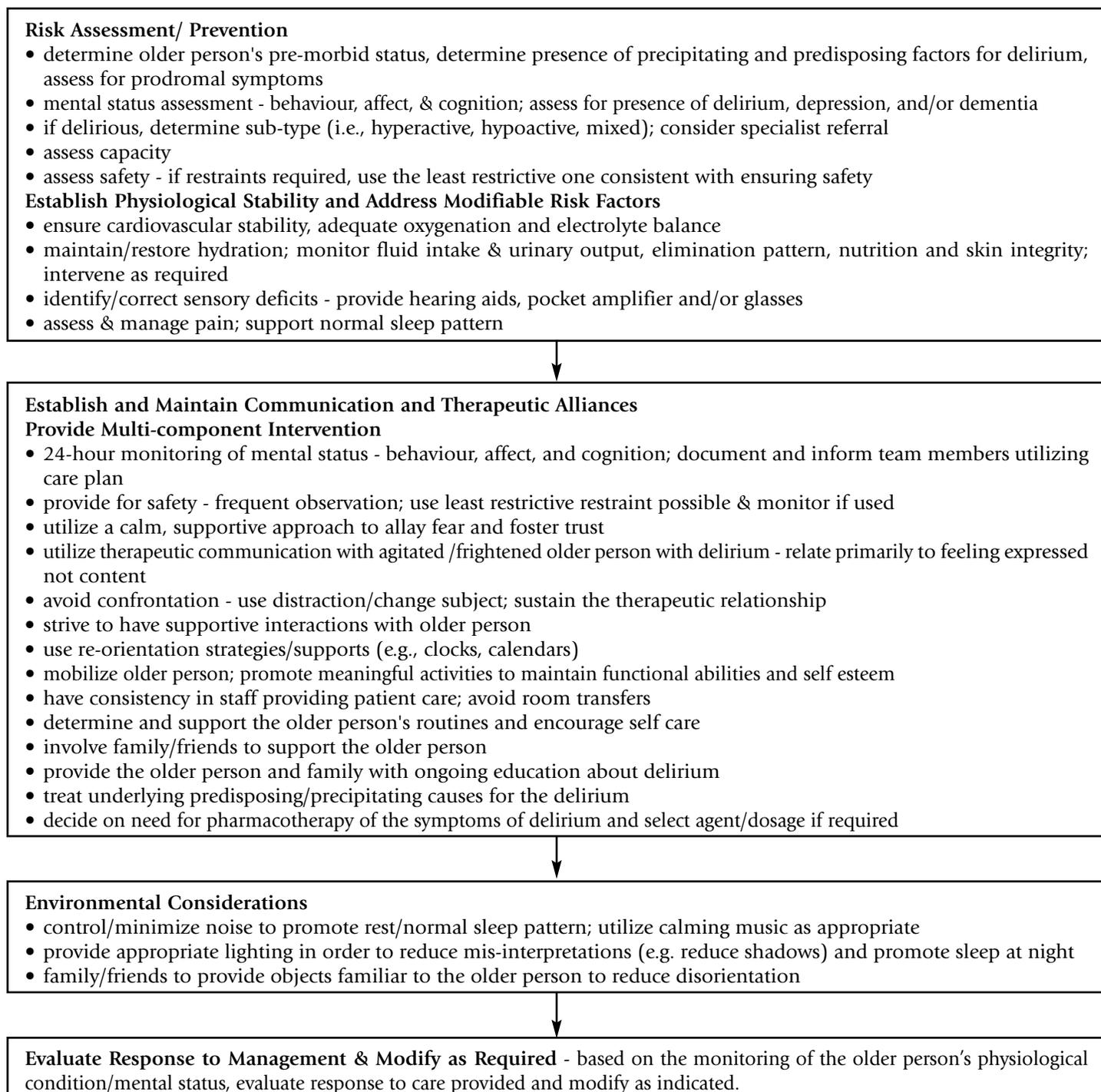
<b>Sedative-hypnotics</b>	<ul style="list-style-type: none"> <li>• Benzodiazepines</li> <li>• Barbituates</li> <li>• Antihistamines (e.g., diphenhydramine)</li> </ul>
<b>Narcotics</b>	<ul style="list-style-type: none"> <li>• Meperidine appears to be particularly likely to precipitate delirium</li> </ul>
<b>Drugs with anticholinergic effects</b>	<ul style="list-style-type: none"> <li>• Oxybutynin</li> <li>• Tolteridine</li> <li>• Antinauseants (antihistamines, antipsychotics)</li> <li>• Promotility agents</li> <li>• Tricyclic antidepressants (especially tertiary amine tricyclic agents such as amitriptyline, imipramine and doxepin)</li> <li>• Antipsychotics (e.g., low potency neuroleptics such as chlorpromazine)</li> <li>• Cumulative effect of multiple medications with anticholinergic effects</li> </ul>
<b>Histamine-2 Blocking agents</b>	<ul style="list-style-type: none"> <li>• Cimetidine</li> </ul>
<b>Anticonvulsants</b>	<ul style="list-style-type: none"> <li>• Mysoline</li> <li>• Phenobarbitone</li> <li>• Phenytoin</li> </ul>
<b>Antiparkinsonian medications</b>	<ul style="list-style-type: none"> <li>• Dopamine agonists</li> <li>• Levodopa-carbidopa</li> <li>• Amantadine</li> <li>• Anticholinergics</li> <li>• Bzotropine</li> </ul>

**Table 4.2 – Non-pharmacologic Sleep Protocol (Flaherty et al., 2003)**

Part 1 – Back Rub	A five-minute slow-stroke back massage consisting of slow, rhythmic stroking on both sides of the spinous processes from the crown of the head to sacral area, with patient in side-lying position.
Part 2 – Warm Drink	Persons choice of either herbal tea or milk.
Part 3 - Relaxation Tapes	Including classical music or native sounds played on either a head set or bedside cassette tape player.

**Table 4.3 Delirium: Non-Pharmacological Management Flow Chart**

The Delirium Management Flow Chart is a summary representation of the management recommendations for delirium.



## 4.4 Pharmacological Management

**Please note:** This section will focus on the pharmacological management of distressing symptoms (such as agitation and distressing psychotic symptoms) and problematic behaviour associated with delirium. Please see the preceding section (4.3, *Management*), which also refers to medication management of the underlying etiologies or precipitating factors of delirium.

Delirium may be associated with agitation or psychotic symptoms, which may put the older person with delirium or others at risk, adversely affect their treatment, or cause significant distress. In addition to environmental and behavioural interventions, pharmacological treatment may be necessary to control the symptoms of delirium while identified causes are simultaneously treated. Unfortunately there is a paucity of rigorous trials to guide the pharmacological treatment of the symptoms of delirium. There is an absence of any placebo-controlled trials in delirium and almost no trials have been conducted specifically in older populations.

### 4.4.1 General Principles

Psychotropic medications should be reserved for older persons with delirium who are in significant distress due to agitation (particularly nocturnal agitation) or psychotic symptoms, in order to carry out essential investigations or treatment and/or to prevent the older person with delirium from endangering themselves or others. An appropriate level of sedation with psychotropic use should result in the control of symptoms, the correction of the sleep-wake reversal, which commonly occurs, and an improvement of alertness during waking hours. In particular, one should avoid medicating delirious older persons with the specific goal of controlling wandering, as psychotropic medications may increase the risk of falls (Leipzig et al., 1999).<sup>1a</sup> Although there have been two positive small prospective trials on the use of antipsychotics (Platt et al., 1994)<sup>1b</sup> and methylphenidate (Gagnon et al., 2005)<sup>1b</sup> in hypoactive delirium (see *Part 1: Background*), more research is needed in this area. With the available evidence we have to date, we would not recommend the use of psychotropic medications for the management of hypoactive delirium in the absence of patient distress or psychotic symptoms.

In order to minimize drug interactions and adverse effects, it is preferable to use monotherapy in treating the symptoms of delirium and to use the lowest effective dose. If psychotropic medications are used, their rationale should be reviewed regularly and they should be tapered as soon as possible. There is no research evidence to guide duration of treatment, however it is suggested that medications should be tapered and discontinued once the patient has stabilized. The characteristics of the older person and their clinical presentation should be carefully assessed in order to individualize medication management.

There have been no trials investigating whether antipsychotic agents should be given on a 'prn' (i.e., as required) or scheduled basis. We would suggest that if 'prn' medications are regularly required to control symptoms, then they should be given on a scheduled basis. If antipsychotics are given on a scheduled basis, additional 'prn' medication may be necessary initially. The frequency and timing of the 'prn' dosages can then be used to guide adjustment of the scheduled medication dosage and timing. Given that nocturnal agitation and insomnia frequently accompany delirium, dosing could be scheduled more toward night time. One must be vigilant to taper scheduled antipsychotic medications for delirium once the patient has stabilized, and avoid the medications being mistakenly continued indefinitely.

#### Recommendations: Pharmacological Management - General Principles

Psychotropic medications should be reserved for older persons with delirium that are in distress due to agitation or psychotic symptoms, in order to carry out essential investigations or treatment, and to prevent older delirious persons from endangering themselves or others. [D]

In the absence of psychotic symptoms causing distress to the patient, treatment of hypoactive delirium with psychotropic medications is not recommended at this time. Further study is needed. [D]

The use of psychotropic medications for the specific purpose of controlling wandering in delirium is not recommended. [D]

When using psychotropic medications, aim for monotherapy, the lowest effective dose, and tapering as soon as possible. [D]

The titration, dosage, and tapering of the medication should be guided by close monitoring of the older person for evidence of efficacy of treatment and the development of adverse effects. [D]

### 4.4.2 Antipsychotics

#### Typical Antipsychotics

**Goals and Efficacy:** Antipsychotics have been the medication of choice in the treatment of delirium. There has been only one small randomized controlled trial (RCT) of typical antipsychotics in delirium, which was conducted in younger adults with Acquired Immune Deficiency Syndrome (AIDS). Haloperidol, chlorpromazine, or lorazepam were the interventions studied (Breitbart et al., 1996).<sup>1b</sup> Improvement was noted with both the chlorpromazine and haloperidol (mean maintenance dose 1.4mg). However, cognitive function decreased

with chlorpromazine, which may be related to its anticholinergic properties. Lorazepam worsened cognition, did not improve other delirium symptoms, and had significant side effects. Although the direct applicability of this study to an older population is uncertain (since this study focused specifically on young adults with AIDS, many of whom had AIDS dementia), generally haloperidol is preferred in the treatment of delirium over low potency antipsychotics (such as chlorpromazine) because it has few anticholinergic side effects, few active metabolites, few sedating side effects, and a range of dosages and formulations available (Meagher, 2001; Vella-Brincat & Maclead, 2004).

There has been one RCT of haloperidol prophylaxis in older persons undergoing hip surgery who were at risk for delirium. There was a decreased severity and duration of delirium in the haloperidol group, although there was no reduction in the incidence of delirium (Kalisvaart et al., 2004). Further study of this area is needed (see *Part 2: Prevention* for further details). Intravenous (i.v.) haloperidol can be used in intensive care settings. A small prospective, blinded study of 6 older persons suggested that i.v. haloperidol is effective and well tolerated (Moulaert, 1989).<sup>1b</sup>

Although there have been some studies suggesting that droperidol has a faster action of onset than haloperidol in agitation (Resnick & Burton, 1984; Thomas et al., 1992)<sup>1b</sup>, due to its adverse cardiac profile it should be avoided in older persons (Health Canada, www.hc-sc.gc.ca).<sup>1v</sup>

Although the research base in older individuals is limited, haloperidol continues to be a first line agent for the treatment of the symptoms of delirium in older persons.

**Side Effects:** Haloperidol (both i.v. and oral forms) can cause a dose-dependant QT-interval prolongation of the electrocardiogram (ECG), leading to an increased risk of ventricular arrhythmias, including torsades de pointes. The estimates of the frequency of torsades de pointe associated with i.v. haloperidol in the treatment of delirium range from 4/1100 (Wilt et al., 1993) to 8/223 (Sharma et al., 1998).<sup>1v</sup> It has been suggested that prolongation of the QTc interval to greater than 450 msec, or to greater than 25% over baseline, may warrant telemetry, cardiology consultation and dose reduction or discontinuation (Crouch et al., 2003; De Ponti et al., 2002; www.torsades.org).<sup>1v</sup> When initiating therapy with haloperidol (i.v. or oral), a baseline ECG is strongly recommended. The use of intravenous haloperidol should be monitored with telemetry.

The use of typical antipsychotic medications is associated with a variety of neurological side effects. Most relevant in the treatment of delirium are those side effects that emerge even after short durations of treatment such as acute dystonia, parkinsonism, akathisia, neuroleptic malignant syndrome, and withdrawal dyskinesias. Older

persons are at increased risk for antipsychotic induced parkinsonism (Maixner et al., 1999; Neil et al., 2003). There is some suggestion that the i.v. delivery of haloperidol results in fewer extrapyramidal symptoms compared to oral haloperidol (Menza et al., 1987).<sup>1a</sup> Additionally, there is some weak evidence that the addition of benzodiazepines to i.v. haloperidol may decrease the risk of developing extrapyramidal side effects (Menza et al., 1988).<sup>1a</sup> However, this is tempered by the potential of benzodiazepines to worsen the symptoms of delirium. In an older person with delirium who also has Parkinson's Disease or Lewy Body Dementia, typical antipsychotics should be avoided. If antipsychotics are required in this population, atypical agents are preferable.

Other side effects of particular concern in the older person include the following: orthostatic hypotension, oversedation, and the risk of falls. Treated individuals should be closely monitored for the development of these side effects.

**Administration/Dosing Strategies:** There have been few studies to determine the optimal doses of antipsychotics in the treatment of delirium. Lower dosages of haloperidol have been suggested for the older person. A suggested initial dosing strategy is 0.25-0.5 mg od-bid, which can be titrated as necessary. Severely agitated individuals may require higher dosages.

Haloperidol has multiple routes of administration, including oral, intramuscular (i.m.), and i.v., which is an advantage over the atypical antipsychotics. The availability of the i.m. form is often essential for treating severely agitated individuals.

The use of benzotropine and related medications should be avoided in delirium due to their anti-cholinergic effects, and should not be instituted as prophylaxis with haloperidol.

With ECG monitoring, a suggested initial dosing strategy for i.v. haloperidol for an older person is 0.25-0.5 mg every 2-4 hours (Canadian Pharmacists Association, 2005).<sup>1v</sup> For those who require multiple bolus doses of antipsychotic medications, continuous intravenous infusion of antipsychotic medication may be useful.

### Atypical Antipsychotics

**Goals and efficacy:** There has been one small randomized, double-blind controlled trial of risperidone compared to haloperidol in the treatment of delirium in 24 persons of mixed ages, including some older persons (Han & Kim, 2004).<sup>1b</sup> There were no statistically significant differences between the groups, although there was a trend towards greater benefit in the haloperidol group. One patient in the haloperidol group had to drop out of the study due to severe sedation and another developed mild akathisia, while no-one in the risperidone group had significant side effects. Risperidone was initiated at

0.5 mg bid and the mean final dosage was 1.02 mg/day. There have been four prospective, open label studies of risperidone with no control groups that included some older persons. They found similar response rates for risperidone. Extrapyramidal signs (EPS) developed in 2/95 of those included in these four different studies and sedation developed in several persons (Horikawa et al., 2003; Mittal et al., 2004; Parellada et al., 2004; Sipahimalani et al., 1997).<sup>ib</sup> A retrospective chart review of the use of haloperidol compared to risperidone in the treatment of delirium found that anticholinergic adjunctive treatment was used in 70% of the haloperidol group versus 7% of the risperidone group, suggesting there may have been higher rates of EPS in the haloperidol group (Liu et al., 2004).<sup>iii</sup>

Olanzapine has been investigated in several prospective controlled trials. In a RCT, Skrobik and colleagues (2004)<sup>ib</sup> found similar rates with haloperidol and olanzapine in a mixed age population. The study had several methodological limitations. A prospective cohort study again found similar efficacy but 45% of those assigned to the haloperidol group developed sedation or EPS while none of the olanzapine group had side effects (Sipahimalani & Masand, 1998).<sup>ia</sup> Additionally, two prospective trials without control groups have found benefit with olanzapine, (Breitbart et al., 2002b; Kim et al., 2001b).<sup>ib</sup> However, Breitbart and colleagues (2002b) found that older persons and those with a history of dementia had a poorer response to olanzapine, and that sedation developed in 30%. The mean dose of olanzapine used in these studies ranged between 4.5 to 8.2 mg/day.

The study of quetiapine in delirium has been limited to quasi-experimental studies. They suggest that quetiapine may be of benefit with no reported extrapyramidal side effects in the studies published to date (Kim et al., 2003; Pae et al., 2004; Sasaki et al., 2003; Schwartz & Masand, 2000).<sup>ib</sup> A prospective trial in older persons with delirium found benefit at a mean dose of 54.7 mg per day (Omura & Amano, 2003).<sup>ib</sup> Excessive sedation and new onset acute confusion have been reported with quetiapine (Pae et al., 2004; Sim et al., 2000).<sup>iv</sup>

There have been no studies looking at the use of clozapine for delirium, and given the possibility of serious hematologic side effects, its use is not recommended. Due to their good EPS side effect profile, atypical antipsychotics would be reasonable alternative agents for older persons with delirium. Although the research base remains very limited, risperidone and olanzapine have the most evidence to date amongst the atypicals in treating the symptoms of delirium in the adult population. Potential side effects should be considered when choosing between agents (see below). Atypical agents are recommended over haloperidol in the treatment of those believed to be sensitive to dopamine blockade, such as the older person with Parkinson Disease and Lewy Body Dementia.

**Side Effects:** The atypical antipsychotics have lower risk of EPS compared to typical antipsychotics. Of particular importance in older persons, risperidone generally produces minimal sedation and negligible anticholinergic effects (Neil et al., 2003), but has higher rates of EPS in non-delirious older populations when compared to olanzapine (Katz et al., 1999; Street, 2000). It is likely that risperidone also has higher EPS potential than quetiapine in this population, based on the known degree of dopamine blockade. Olanzapine can produce oversedation (Breitbart et al., 2002b) and may have anticholinergic side effects, particularly at higher doses. There have been case reports of delirium potentially associated with olanzapine in the elderly (dosages between 5-20mg/day) (Lim et al., 2006; Samuels & Fang, 2004; Simhandl & Kraigher, 2004). Although olanzapine cannot be directly attributable to the etiology of delirium in these cases, low dosage and close monitoring are suggested with any of these agents.

Recent concerns with weight gain, glucose dysregulation, and hypercholesterolemia with the atypical agents is likely of less relevance given the short duration of treatment in delirium. However, they must be used with caution in persons with diabetes mellitus as there is a risk of hyperglycemia and there have been rare reports of ketoacidosis and hyperosmolar coma.

Recent data show a slight increase in the risk of stroke and all-cause mortality with atypical antipsychotics in persons with dementia. (Health Canada, 2002, 2005, www.hc-sc.gc.ca; FDA 2002, 2005, www.fda.gov) The risk in a population that does not suffer from dementia or receives the medication for only a short duration is not known.

**Administration/Dosing Strategies:** There is little evidence to guide dosing strategies in the use of atypical antipsychotics in the older person with delirium. Suggested initial dosing ranges in an older person with delirium include: risperidone initiated at 0.25 mg od-bid, olanzapine at 1.25-2.5 mg per day, or quetiapine at 12.5-50 mg per day.

#### Recommendations: Antipsychotics

Antipsychotics are the treatment of choice to manage the symptoms of delirium (with the exception of alcohol or benzodiazepine withdrawal delirium- see Section 4.4.6, *Management of Alcohol Withdrawal Delirium*). [B]

High potency antipsychotic medications are preferred over low potency antipsychotics. [B]

Haloperidol is suggested as the antipsychotic of choice based on the best available evidence to date. [B]

Baseline electrocardiogram is recommended prior to initiation of haloperidol. For prolongation of QTc intervals to greater than 450 msec or greater than 25% over baseline electrocardiogram (ECG), consider cardiology consultation and antipsychotic medication discontinuation. [D]

Initial dosages of haloperidol are in the range of 0.25mg to 0.5 mg od-bid. The dose can be titrated as needed, and severely agitated persons may require higher dosage. [D]

Benztrapine should not be used prophylactically with haloperidol in the treatment of delirium. [D]

Atypical antipsychotics may be considered as alternative agents as they have lower rates of extra-pyramidal signs. [B]

In older person's with delirium who also have Parkinson's Disease or Lewy Body Dementia, atypical antipsychotics are preferred over typical antipsychotics. [D]

Droperidol is not recommended in the elderly. [D]

#### Recommendations: Benzodiazepines

Benzodiazepines as monotherapy are reserved for older persons with delirium caused by withdrawal from alcohol/sedative-hypnotics (see Section 4.4.6, *Management of Alcohol Withdrawal Delirium*). [B]

As benzodiazepines can exacerbate delirium, their use in other forms of delirium should be avoided. [D]

### 4.4.3 Benzodiazepines

There is strong evidence to support the use of benzodiazepines specifically for alcohol withdrawal delirium. In other types of delirium, there is only one RCT of benzodiazepine monotherapy compared to antipsychotics. In this study, benzodiazepines led to treatment-limiting side effects and a worsening in cognitive impairment (Breitbart et al., 1996). A small methodologically weak study suggested that the addition of benzodiazepines to intravenous haloperidol may lower the risk of EPS (Menza et al., 1988)<sup>ib</sup>, although this benefit is likely outweighed by the risk of worsening cognition.

Psychotic or delirious persons may become more obtunded (i.e., mental state in which reaction to stimuli is dulled or blunted) and confused when treated with sedatives, causing a paradoxical increase in agitation. A recent prospective cohort study found that lorazepam use was an independent risk factor for delirium in ICU patients (Pandharipande et al., 2006). Other than in the treatment of alcohol or sedative withdrawal delirium, avoidance of benzodiazepines in delirium is recommended, and in hepatic encephalopathy their use is generally contraindicated. This is of particular relevance in older persons who are more likely to develop cognitive impairment (including delirium) and falls secondary to benzodiazepines (Leipzig et al., 1999; Swift, 1990).<sup>ia</sup>

### 4.4.4 Cholinesterase Inhibitors

Although the pathogenesis of delirium is not clearly understood, the strongest evidence is for a disturbance of the cholinergic neurotransmitter system (Koponen, 1999). There has been increasing interest in the use of cholinesterase inhibitors for the treatment of symptoms of delirium.

There has been a prospective, randomized, open trial of the use of rivastigmine in the prevention of delirium in vascular dementia (n=115). The rivastigmine group developed significantly fewer episodes of delirium. If delirium occurred, the episodes were of a shorter duration and individuals were less likely to receive antipsychotics and benzodiazepines (Moretti et al., 2004).<sup>ia</sup> Case reports support the use of donepezil in treating delirium in dementia (Wengel et al., 1999; Wengel et al., 1998)<sup>iv</sup> and in a case of hypoactive delirium (Gleason, 2003)<sup>iv</sup> and one of alcohol-related prolonged delirium (Hori et al., 2003).<sup>iv</sup> A retrospective cohort study showed a 71% response rate with the addition of rivastigmine to 21 individuals with chronic, antipsychotic-refractory delirium (Dautzenberg et al., 2004).<sup>iii</sup> Case reports also support the use of rivastigmine in lithium toxicity induced delirium (Fischer 2001)<sup>iv</sup> and in prolonged delirium (Kalisvaart et al., 2004; Kobayashi et al., 2004).<sup>iv</sup>

Although cholinesterase inhibitors are promising as a potential treatment for delirium, more research is needed to guide clinical practice.

### 4.4.5 Other Pharmacological Agents

Other agents which have received limited research attention include: mianserin (Nakamura et al., 1995; Nakamura et al., 1997a; Nakamura et al., 1997b; Uchiyama et al., 1996),<sup>ia, ib</sup> methylphenidate (Gagnon et al., 2005),<sup>ib</sup> trazodone (Okamoto et al., 1999),<sup>iv</sup> melatonin (Hanania & Kitain, 2002),<sup>iv</sup> and valproic acid (Bourgeois et al., 2005).

None of these agents are recommended at this time as treatment for delirium given the limited evidence base.

#### 4.4.6 Management of Alcohol Withdrawal Delirium

Alcohol withdrawal delirium (AWD) is a serious manifestation of alcohol withdrawal. It is also referred to as delirium tremens or 'DTs'. Appropriate management can reduce morbidity and mortality. Initial studies showed mortality rates as high as 15% (Victor & Adams, 1953). These have fallen with advances in treatment to 0-1% (Ferguson et al., 1996). The initial therapeutic goal in persons with alcohol withdrawal is control of agitation, which has been shown to reduce the incidence of adverse events. Careful monitoring of alcohol withdrawal is of particular importance in older persons as the signs and symptoms may differ from the younger adult population and they may be at increased risk for developing delirium (Kraemer et al., 1997). Older persons with alcohol withdrawal are therefore best treated in closely supervised settings. It is also important in older persons that other concurrent physical causes of delirium are vigorously ruled out. Delirium occurring due to other causes can confound the presentation of AWD and would require adjustment of pharmacological treatment, with care taken not to over-treat with sedative-hypnotic agents.

Unfortunately, there have been no studies assessing the efficacy of medication for AWD specifically in older persons, and recommendations are extrapolated from the younger adult population. Sedative-hypnotic agents are recommended as the primary agents for managing AWD. A meta-analysis of five controlled trials has shown that sedative-hypnotic use is more effective than neuroleptic use in reducing mortality from AWD (Mayo-Smith et al., 2004).<sup>1a</sup> The effectiveness of different sedative-hypnotic agents has been explored in five controlled trials (Brown et al., 1972; Chambers & Schultz, 1965; Kaim & Kelett, 1972; Kramp & Rafaelson, 1978; Thompson et al., 1975).<sup>1b</sup> Although there are limitations in the power of the studies, they show no significant difference in efficacy between the agents studied. Agents that have a shorter duration of action and are metabolized by conjugation (such as lorazepam, oxazepam, or temazepam) are preferable in older persons as longer-acting benzodiazepines can cause prolonged and excessive sedation (Fick et al., 2003; Greenblatt et al., 1991; Madhusoodana & Bogunovic, 2004).<sup>1b</sup> Additionally, intramuscular lorazepam has better bioavailability than other intramuscular forms of benzodiazepines, such as chlorthalidone and diazepam (Bird & Makela, 1994).

Although antipsychotic agents are not recommended for monotherapy in alcohol withdrawal, they may be considered in conjunction with benzodiazepines when agitation, perceptual disturbances, or disturbed thinking are not adequately controlled by benzodiazepine therapy. They may also be considered when delirium arising from medical co-morbidity complicates AWD. However, they must be used with caution due to their seizure lowering

effects, in particular the low potency agents. Additionally, cases of neuroleptic malignant syndrome have been reported in persons with AWD.

It is recommended that the dosage of medication be individualized. The dosages should be sufficient to maintain light somnolence (defined as a state where the patient is easily aroused if sleeping or will fall asleep easily without stimulation). In medically ill individuals, particularly those with respiratory compromise, the risks of somnolence must be weighed against the benefits of therapy. The treatment protocol should be adjusted as needed.

Several factors affect the amount of medication required to control agitation including age and medical co-morbidity. Generally, lower doses will be required for older persons. Using lorazepam as an example, doses such as 0.5-2 mg q5-15 min i.v. or q30-60 min intramuscularly (IM) might be used. A dose of 2 mg should not ordinarily be exceeded in persons over 50 years of age (Canadian Pharmacists Association, 2005). The potential benefits of this type of rapid loading need to be weighed against the potential risks such as oversedation, ataxia, and aspiration in the medically ill. An alternative dosing regime is to schedule regular doses of lorazepam with additional 'prns' as needed. Continuous or intermittent i.v. administration is the delivery route with the quickest onset, but this requires intensive monitoring (i.e., admission to an ICU) due to the risk of respiratory depression. Equipment necessary to maintain a patent airway should be immediately available prior to i.v. administration (Canadian Pharmacists Association - Ativan<sup>®</sup> Product Monograph, 2005). I.M. or oral lorazepam can be used in other hospital settings.

Older persons should be re-evaluated 1 hour after each dose of benzodiazepine and for at least 24 hours following the last dose required. Frequent reevaluation is necessary to monitor for control of symptoms and the development of excessive sedation.

Shorter acting agents should be tapered (as opposed to being abruptly discontinued) after AWD resolves to prevent seizures and breakthrough symptoms. Alcohol dependence is associated with low thiamine levels, and those with AWD may be at greater risk for the presence of a deficiency state (Hoes, 1979; Hoes 1981).<sup>11</sup> Thiamine has a low risk of adverse effects and can prevent the development of Wernicke encephalopathy and Wernicke-Korsakoff syndrome. Parenteral thiamine is recommended at a dosage of 100 mg daily for at least three days either i.v. or intramuscularly.

#### Recommendations: Management of Alcohol Withdrawal Delirium

Sedative-hypnotic agents are recommended as the primary agents for managing alcohol withdrawal delirium (AWD). [B]

Shorter acting benzodiazepines such as lorazepam are the agents of choice in the elderly. [B]

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Antipsychotics may be added to benzodiazepines if agitation, perceptual disturbances, or disturbed thinking cannot be adequately controlled with benzodiazepines alone. [D]

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Antipsychotics may be considered when other medical causes of delirium complicate AWD. [D]

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The dosage of medication should be individualized with light somnolence as the usual therapeutic end point. [D]

Older persons should be frequently re-evaluated for the control of symptoms and the development of excessive sedation. [D]

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Benzodiazepines should be tapered following AWD rather than abruptly discontinued. [D]

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Parenteral administration of thiamine is recommended to prevent or treat Wernicke encephalopathy or Wernicke-Korsakoff syndrome. [D]

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Older persons with alcohol withdrawal are best treated in closely supervised settings. [D]

## Part 5: Legal and Ethical Issues

### 5.1 Capacity

Although physicians, neuropsychologists and psychologists may provide clinical opinions pertinent to capacity, it is ultimately a legal determination decided by a judge or his/her representative in accordance with provincial legislation. While the specifics may vary across jurisdictions, consent laws should define:

- the legal requirements of capacity to give consent to treatment;
- the conditions under which capacity should be questioned;
- the legal obligations of clinicians to assess capacity and under what conditions;
- whether the clinician proposing a treatment is him/herself obligated to assess the capacity of an individual;
- the role of expert assessors;
- how the clinician is to consider communication deficits in the assessment of capacity;
- how the clinician is to consider persistent somnolence in the assessment of capacity;
- the clinician's obligations if an individual is found to be incapable;
- who can serve as a substitute decision-maker and the rankings of possible substitute decision-makers; and,
- the patient's options and procedures to be followed if he/she wishes to contest a finding of incapacity.

The most frequently used legal standards for competency include the ability to: communicate a decision; demonstrate an understanding of the information material to the decision; rationally manipulate the information material to the decision; and, demonstrate an appreciation of the nature of the situation including reasonably foreseeable consequences of the decision options, including not making a decision (Roth et al., 1977). Under non-emergent conditions, clinicians are typically obliged to obtain *informed* consent and to respect individual autonomy. In some jurisdictions the presumption is that an individual is capable unless there is reason to suspect otherwise. An individual may be capable with respect to one decision, but may not be capable with respect to another decision. Moreover, an individual's capacity with respect to a particular decision may fluctuate over time. As such, an individual's capacity applies to the person's ability to provide informed consent at a particular time regarding a specific treatment decision. Neither psychiatric illness nor neurocognitive impairment automatically renders an individual incapable. Individuals within a diagnostic group can be heterogeneous with respect to capacity.

If an individual is suspected of not being capable of consenting to health care, the clinician's obligations should be stipulated in the relevant legislation for that jurisdiction. For example, the specifics of the process of conduct-

ing an evaluation of capacity, whether the clinician is obliged to inform the individual of the finding of incapacity, the identification of a substitute decision-maker if the need for one is determined, the individual's right to appeal the finding of incapacity and the process for making such an appeal. The ranking of possible substitute decision-makers can also be stipulated in the legislation. In-depth reviews on the legal, ethical and clinical aspects of capacity are available (Dellasega et al., 1996; Etchells et al., 1996; Ganzini et al., 2005; Grisso, 1997; Grisso & Appelbaum, 1998a, 1995a; Karlawish & Schmitt, 2000; Kim et al., 2002; Marson, 2002; Marson & Ingram, 1996; Palmer et al., 2002; Roth et al., 1977).<sup>IIa, III, IV</sup> National and provincial professional associations and/or colleges may also provide their members with direction and/or guidelines.

Only two studies have examined the capacity of individuals with delirium to provide informed consent (Adamis et al., 2005; Auerswald et al., 1997).<sup>IIa, III</sup> Moreover, no measures have been developed specifically for the assessment of capacity in the context of delirium. Given this absence of direct evidence, we are left to extrapolate from what is known regarding the neurocognitive basis of capacity, the neurocognitive correlates of delirium, and the assessment of capacity in older individuals, and clinical populations with cognitive impairment and/or psychotic features.

Capacity reflects a complex set of cognitive skills, including attention, language (comprehension & expression), learning, memory, and reasoning (Earnst et al., 2000; Freedman et al., 1991; Grimes et al., 2000; Holzer et al., 1997; Marson et al., 1996; Workman et al., 2000).<sup>IIa, III</sup> Incapacity is more likely in individuals with cognitive impairment and/or psychotic features (Buckles et al., 2003; Dymek et al., 2001; Griffith et al., 2005; Grisso & Appelbaum, 1991; Kim et al., 2002, 2001a; Marson et al., 2000, 1996, 1995, 1004; Marson & Harrell, 1999).<sup>IIa, III</sup> Deficits in memory, higher order cognitive functions and/or delusional thinking predict incapacity, but are not synonymous with incapacity (Palmer et al., 2005). Moreover, the technical aspects of a clinical interview (e.g., its structure) can inadvertently compensate for neurocognitive deficits material to capacity (Moye et al., 2004; Rickert et al., 1997; Taub & Baker, 1984; Tymchuk et al., 1986; Wirshing et al., 1998). Fluctuations in alertness and neurocognitive function can further complicate the assessment of capacity in delirium.

Evaluation of neurocognitive functioning can provide important information regarding impairments that underlie capacity and can provide evidence in support of a finding of incapacity. The brief measures of neurocognitive functions most often used in practice (e.g., *Mini-Mental Status Examination*, *MMSE*) do not include important neurocognitive functions central to capacity (i.e., judgement, reasoning, more detailed evaluation of

memory). A normal score on the *MMSE* can be associated with incapacity (Schindler et al., 1995). It may be necessary to replace or supplement the *MMSE* with measures that assess additional neurocognitive domains. Examples of brief cognitive tests that examine a wider range of cognitive domains include the *Cognitive Assessment Screening Instrument (CASI)* (Teng et al., 1994) and the *Montreal Cognitive Assessment (MoCA)* (Nasreddine et al., 2005). A clock drawing can be used to screen for executive cognitive dysfunction (Schindler et al., 1995). In cases where there remains uncertainty or that are more clinically complex (e.g., disturbances in the functional integrity of frontal subcortical circuits due to neurodegenerative disorder or cerebrovascular disease; language impairments; lesions of the right hemisphere associated with impaired awareness of deficits) neuropsychological examination may be required.

Structured interviews/measures have been developed to assist clinicians in eliciting responses regarding abilities that are relevant to the legal standards of capacity (i.e., the patient's understanding, appreciation, reasoning and/or expression of a choice regarding treatment or research participation) (Etchells et al., 1999; Janofsky, 1990; Kim et al., 2002; Sturman, 2005). These instruments vary with respect to the abilities that they probe and as such, may or may not include the legal standard of capacity required in a particular jurisdiction. When clinicians use systematic/structured interviews, judgments of capacity tend to be more reliable than when they use unstructured approaches (Kim et al., 2002; Sturman, 2005). The *MacArthur Competency Assessment Tool – Treatment (Mac-CAT-T)* (Appelbaum & Grisso, 1995; Etchells et al., 1999; Grisso & Appelbaum, 1998b, 1995b; Grisso et al., 1997, 1995; Marson, 2002; Palmer et al., 2002) is a semi-structured interview that can be used to assess capacity to consent to treatment. It is a generic instrument that is sufficiently flexible to permit adaptation to the context of the clinical situation. The measure aims to identify areas of relative capacity and incapacity in the context of other relevant clinical information. Guidance regarding the rating of responses (adequate/partial/inadequate) is provided. The interview requires approximately 15-20 minutes. Both a manual and training video are available (Grisso & Appelbaum, 1998b). The *Mac-CAT-T* has been used in older persons (Palmer et al., 2002) and individuals with dementia (Vollman et al., 2003). The *MacArthur Competency Assessment Tool – Clinical Research (Mac-CAT-CR)* is an analogous tool has been developed to assess capacity to consent to participation in research (Appelbaum & Grisso, 1996).

#### Recommendations: Capacity

As delirium can impair capacity, older persons with delirium who are being asked to provide consent for treatment require a review to ensure they have the capacity to provide informed consent. [C]

Clinicians should be familiar with relevant provincial legislation regarding capacity (including capacity to consent to treatment) and the identification of a substitute decision-maker if the older person is deemed to lack capacity. Capacity assessments must elicit sufficient information to allow for the determination of the older person's capacity as defined by the appropriate provincial legislation. [D]

Measures of neurocognitive functions known to underlie capacity (i.e., attention, language, verbal learning/memory and higher order cognitive functions) should be included as part of an in-depth assessment. [C]

It is recommended that brief measures of neurocognitive functions (e.g., *Mini Mental Status Examination*) be supplemented by other cognitive measures that also assess judgment and reasoning. [C]

The clinician should strive to make the assessment as brief as possible while still obtaining the required information. [C]

In view of the fluctuating nature of delirium, serial evaluations may be necessary as treatment decisions arise. [C]

Screening for psychotic features relevant to decision-making capacity is recommended. [D]

The use of a structured interview with known reliability and validity is recommended for the assessment of capacity when there is uncertainty. [D]

The use of *The MacArthur Competency Assessment Tool – Treatment* is recommended for the assessment of capacity to consent to treatment in cases where there is uncertainty. [D]

The use of *The MacArthur Competency Assessment Tool – Clinical Research* is recommended for the assessment of capacity to participate in research in cases where there is uncertainty. [D]

If uncertainty regarding capacity persists after the clinician in charge has assessed the older person, neuropsychological consultation is recommended. [C]

## 5.2 Physical Restraints

Behaviours endangering self or others can occur in the context of delirium. They may arise from disturbances related to sleep, psychomotor activity, emotional state, orientation, and perception (American Psychiatric Association, 1994). Control of these behaviours by use of a "restraint" may be considered when harm appears imminent or likely. "Restraint" can be defined in various ways,

but one definition, as defined by Ontario's Bill 85, or the *Patient Restraints Minimization Act*, is to "...place the person under control by minimal use of such force, mechanical means or chemicals, as is reasonable having regard to the person's physical and mental condition" (Section 3; Ontario Hospital Association, 2001). Others have broadened the term to include "environmental restraints" on personal freedom such as secure areas or alarms (College of Nurses of Ontario, 2004; Palmer et al., 1999). Only "physical restraint", as defined by any device directly limiting a patient's freedom of movement, will be discussed further in this section.

Physical restraints can be hazardous due to potential complications including functional and cognitive decline, injuries, strangulation, and death (Evans & Strumpf, 1989; Paterson et al., 2003; Sullivan-Marx, 2001). The sequelae of prolonged immobilization, especially in an older person, may lead to a variety of adverse consequences that additionally contribute to morbidity or mortality. Restraint use can be a precipitating factor for the occurrence of delirium. Inouye and Charpentier (1996) found the use of physical restraints increased the risk 4.4-fold for *developing* delirium in a study of older hospitalized persons. Physical restraints include trunk or limb devices, bed rails, or chairs that prevent rising (Palmer et al., 1999).

Several guiding principles should be considered when contemplating the use of physical restraints. Use may be necessary to "prevent serious bodily harm to oneself or others" (Section 5, Bill 85 as cited in Ontario Hospital Association, 2001), and when its benefits outweigh its harm (Reigle, 1996). Such situations may occur when, for example, an agitated delirious patient attempts to pull out a life-sustaining line or device. It should not be used for wandering or to prevent falls, as less restrictive means are available and restraints may actually increase risk of falls (Capezeuti et al., 1996). This leads to the principle of adhering to a "least restraint" guideline, which means "all possible alternative interventions are exhausted before deciding to use a restraint" (College of Nurses of Ontario, 2004). A variety of non-pharmacologic interventions, including a sitter, should be explored first before deciding to use a restraint (Fletcher, 1996; Frengley & Mion, 1998). If restraints have to be used, one should consider "chemical" restraints (i.e., psychopharmacologic treatment) first before deciding on physical restraints. When physical restraints are contemplated, the restraint that is least restrictive physically should be used first. Finally, use of restraints in non-emergency situations should involve obtaining the consent of the delirious patient if deemed "competent" (see *Section 5.1, Capacity*) to make that decision, or the consent of an authorized substitute decision maker if deemed "incompetent" (College of Nurses of Ontario, 2004; Ontario Hospital Association, 2001; Reigle, 1996).

No controlled trial has ever demonstrated a positive outcome when applying physical restraints in the setting of

delirium. Conversely, two controlled prospective trials in hospitalized older persons at risk for delirium or with a delirium looked at interdisciplinary intervention protocols incorporating the *avoidance* of restraints as one of the interventions. Inouye's study (Inouye et al., 1999a)<sup>b</sup> concluded that the intervention group had a lower incidence of developing a delirium than the control group, while Cole's study (Cole et al., 2002)<sup>b</sup> did not find a significant difference in outcomes between the intervention and usual care groups on a medical unit. Given the very limited number of RCTs in this area, and no specific RCT demonstrating a positive outcome solely related to the avoidance of restraints, it is difficult to draw conclusions from the available evidence in the literature. However, since physical restraints can precipitate delirium (Inouye & Charpentier, 1996)<sup>b</sup> and since it can contribute to immobility and subsequent adverse sequelae, it is reasonable to suggest that the avoidance of physical restraints, unless absolutely necessary, can lead to better outcomes for the older person with delirium.

While there are no federal regulations in Canada concerning minimizing restraints such as those found in the United States for nursing facilities (Omnibus Budget Reconciliation Act, 1987) and hospitals (Joint Commission on Accreditation of Healthcare Organizations, 1991, 1999), the aforementioned Bill 85 governs the use of restraints in Ontario (except in those involuntarily detained under the provincial mental health act; Ontario Hospital Association, 2001). Various professional bodies have adopted the "least restraint" principle as part of their practice guidelines including the American Psychiatric Association (1999), the College of Nurses of Ontario (2004), the British Geriatrics Society (1999-2000), and the American Psychiatric Nurses Association (2000). Common law can justify the temporary emergency use of restraints where there is imminent risk of causing serious bodily harm to self or others, as part of an institution's duty to protect (Ontario Hospital Association, 2001). Legislation and guidelines have commented that ongoing physical restraint use should be contingent on frequent monitoring and re-evaluation, as well as appropriate documentation justifying continued use (American Psychiatric Association, 1999; Ontario Hospital Association, 2001).

#### Recommendations: Legal and Ethical Issues - Physical Restraints

Avoidance of physical restraints is an important component of interdisciplinary interventions to prevent the development of delirium in an older person. [A]

Physical restraints for older persons suffering from delirium should be applied only in exceptional circumstances. Specifically this is when:

- a) There is a serious risk for bodily harm to self or others; OR

- b) Other means for controlling behaviours leading to harm have been explored first, including pharmacologic treatments, but were ineffective;  
AND
  - c) The potential benefits outweigh the potential risks of restraints. [D]
- 

The use of physical restraints to control wandering behaviour or to prevent falls is not justified. [D]

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The least restrictive physical restraint that is appropriate for the situation should be attempted first. [D]

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Frequent monitoring, re-evaluation, and documentation are necessary to justify the continued use of physical restraints. Restraints should be applied for the least amount of time possible. Restraints should be discontinued when the harmful behaviour(s) is controlled, when there is a less restrictive alternative which becomes viable (e.g., a sitter for constant supervision), or when there are physical complications arising from the continued use of restraints. [D]

## Part 6: Education

Education plays an important role in efforts to prevent, detect and provide timely care to older persons with a delirium. Health care providers must attain the high level of clinical expertise required to respond effectively to this medical emergency (Inouye et al., 1999a). Lack of knowledge is a fundamental (but modifiable) obstacle to providing better care to older persons with delirium (Milisen et al., 2001). Programs designed to meet the specific educational needs of the older person, their family and other informal caregivers, front-line health professionals, unregulated health care providers, and health care trainees should be implemented.

A number of CPGs dealing with delirium have emphasized the critical role education must play in improving the management of older persons with delirium (American Psychiatric Association, 1999; British Geriatrics Society, 1999-2000; Rapp & the Iowa Veterans Affairs Nursing Research Consortium, 1998; Registered Nurses Association of Ontario, 2003). Distribution of delirium CPGs without any additional effort to foster their adoption will not improve the care provided or the outcomes of delirium (Young & George, 2003). Reinforcement by teaching sessions for nurses, physicians and other clinicians caring for older persons seems to be required. A sustainable education program about delirium is a key requirement for ensuring a broad and continuously renewed base of expertise in a facility. A suggested method for achieving sustainability is linking delirium education to practice and annual performance appraisals (Registered Nurses Association of Ontario, 2004).

Recent reviews have examined trials done to date that either attempted to prevent delirium or manage it after its appearance (Cole, 2004; Foreman et al., 2004; Milisen et al., 2005). A recent Cochrane review also looked at interdisciplinary team interventions for delirium in patients with chronic cognitive impairment (Britton & Russell, 2004). The overall conclusions derived from the literature reviews are:

1. There are few rigorously designed studies in this area (Foreman et al., 2004).
2. Prevention strategies are modestly efficacious (Foreman et al., 2004). The absolute risk reductions ranged from 13% to 19%, with a median reduction of 13% (Cole, 2004).
3. For older persons cared for on medical units, the results of management studies have been disappointing (Cole, 2004; Cole et al., 1994).
4. Systematic detection and treatment may lead to improved outcomes, including better cognitive and functional status at follow-up, a shorter length of hospital stay, and shorter duration of delirium (Cole, 2004; Lundström et al., 2005).
5. Interventions seem to be least efficacious in those who are older with pre-existing cognitive and functional impairments (Foreman et al., 2004).

6. No studies focused specifically on persons with prior cognitive impairment (Britton & Russell, 2004), even though pre-existing cognitive impairment is considered a key predisposing factor to delirium (Inouye et al., 1993).

A number of the recent positive studies for delirium have either been an educational program (Tabet et al., 2005) or included an education component as part of a multifaceted intervention (Bergmann et al., 2005; Lundström et al., 2005; Milisen et al., 2001; Naughton et al., 2005).<sup>10b</sup> For example, Milisen and colleagues' (2001), in a Belgium academic medical centre, developed an educational poster that included information on the core symptoms of delirium, comparative features of conditions that may be mistaken for delirium (i.e., dementia, depression) and the relevance of correct and early recognition. The poster was placed in the emergency department of the hospital and on two trauma units, which were the sites of the study. In another study, Bergmann and her colleagues (2005) provided in-service education sessions for all nursing staff, including certified nursing assistants (CNA), on the content of their Delirium Abatement Program (DAP). Their study was conducted in a post-acute skilled nursing facility. Introductory sessions were offered to each shift with individual sessions conducted for those unable to attend. New staff nurses hired after the start of the project received their training during their orientation sessions. The 50-minute slide presentation for nurses included: rationale for identifying and managing delirium; how to detect and evaluate delirium symptoms (especially in those with a pre-existing dementia); review of care planning for delirium; and, documentation strategies. The 30-minute CNA program dealt with the same key concepts covered in the nurses' program, but was tailored to their educational level and specific care responsibilities. Their role as frontline "delirium symptom detectives" and reporters was emphasized. In addition, the site of the Lundström and colleagues' (2005) study was two general internal medicine wards in Sweden. They offered a two-day course on geriatric medicine for medical and nursing staff from the intervention ward, focusing on delirium, the caregiver-older person interaction, and on-going assistance regarding problems in the nursing care provided to delirious patients, which was on a monthly basis. As well, a tertiary care hospital was the setting for the Naughton and colleagues' (2005) study. The complex educational program they used included: a session for physicians and nurses working in the Emergency Department that focused on their particular responsibilities in the delirium strategy of the hospital; an eight-hour educational program on delirium for the nursing staff on the acute geriatric unit; and, an hour long small group conference for the attending physicians. Finally, Tabet and colleagues (2005) conducted a study on two medical wards in an English teaching hospital. The educational intervention was offered to medical and nurs-

ing staff. It consisted of a formal presentation and small group discussion about delirium. Participants were also given written resource material (e.g., guidelines on the prevention, detection and management of delirium). This was followed by regular one-to-one and small group discussions where staff was encouraged to discuss challenging cases.

Unregulated health care providers are responsible for the bulk of care given to older persons in long-term care settings. A particular concern is the adequacy of the training they receive regarding the detection of changes in mental status (Rapp et al., 2001; Registered Nurses Association of Ontario, 2004; Tabet et al., 2005).<sup>iv</sup> These health care providers have to determine if they believe any detected changes are within the ranges of normality or whether they might represent a medical/psychiatric disorder. The detection of an acute cognitive change is the first step in the process leading to a thorough evaluation and then on to effective management. Knowledge regarding the clinical features of delirium, depression, and dementia are critical to assessing the significance of cognitive change (Insel & Badger, 2002).<sup>iv</sup>

Delirium education for the older person with the condition and their family would be aimed at explaining delirium, its common manifestations, usual course, and principles of management. This would be part of the effort to allay their anxiety and involve them in the person's management. Family caregivers should be instructed on how they can help in the care of the older person with delirium. For those with pre-existing dementia, education may also include how to differentiate dementia from delirium and treat both conditions concurrently (Lundström et al., 2005; Milisen et al., 2001).

Many of the educational programs on delirium include teaching about the use of screening instruments like the CAM. This is to allow for the early identification of those with a delirium. The usefulness of screening tools to identify delirium in newly admitted individuals may be hampered by a lack of knowledge regarding the older person's prior status and/or the presence of prodromal symptoms. We need to collect comprehensive baseline information, which often can be obtained from families and others who have prior detailed knowledge of the older person (British Geriatrics Society, 1999-2000; Tabet et al., 2005).<sup>ib</sup> This information and its documentation is vital for the detection of cognitive change and in designing an individualized care plan. Accurate documentation of relevant information would help in ensuring effective communication between health care providers (Brymer et al., 2001; Registered Nurses Association of Ontario, 2004).<sup>iv</sup>

The Hospital Elder Life Program (HELP) is an example of an initiative designed to integrate the principles of good geriatric care into the routine of a hospital unit. This approach is a way to disseminate these principles throughout an institution. If done correctly, this can lead to improved care for older persons in hospital, which in turn will hopefully lead to improved outcomes and quality of life for these older persons. The specific components of HELP have been shown to lower the incidence of delirium on medical units (Inouye et al., 2000; <http://elderlife.med.yale.edu/public/public-main.php?pageid=01.00.00>).<sup>ib</sup> To successfully implement HELP would require the support of the facility's administration and a carefully thought out implementation plan that would include the training of staff.

One controlled study provided on-going support for staff provided by a dedicated specialist (Tablet et al., 2005).<sup>ib</sup> A resource nurse model approach is one where a resource nurse supports primary nurses in the clinical implementation of new knowledge and skills. However, some studies have indicated that this approach may not be sustainable (Rapp et al., 2001; Rapp & the Iowa Veterans Affairs Nursing Research Consortium, 1998).<sup>iv</sup> In contrast, a delirium self-study education and testing program that was attached to annual performance appraisal did not require follow-up sessions and was self-sustaining (Registered Nurses Association of Ontario, 2004).<sup>iv</sup>

Due to its detrimental effects on communication, cognition and behaviour, delirium typically has a negative impact on the older person's and their family's quality of life. The family can play a key role in the detection and management of delirium in an older person. Improving families' knowledge about delirium may diminish their stress and lessen family burden. However, staff need to be sensitive to older family members who may experience further anxiety when information about delirium is conveyed to them (Gagnon et al., 2002; Registered Nurses Association of Ontario, 2004).<sup>iv</sup>

Inouye and colleagues (1999a) assert that the development of delirium and its associated poor outcomes can represent failures in the health care provided to older persons. A strategy supporting the efforts of hospitals in reducing the incidence of delirium would improve the quality of care provided to older persons. A comprehensive approach that would include provincial and national government policy initiatives to improve the quality of care provided to older persons could, by reducing the incidence of delirium and leading to other beneficial outcomes, have a significant population health impact (Inouye et al., 1999a).<sup>iv</sup>

## Recommendations: Education

All entry level health care provider training programs (whether regulated or unregulated, professional or non-professional, taking place with community colleges or universities) should include specialized content relevant to the care of the older delirious person. At a minimum this content should include:

- Normal aging;
- Common diseases of older age;
- Differentiation of delirium from other conditions encountered in older persons that affect the older person's mental state (i.e., dementia, depression); diagnostic criteria for delirium;
- Precipitating and predisposing factors;
- Prodromal symptoms; early detection/ screening; prevention;
- The importance of obtaining a baseline personal history;
- Management of delirium (including how to appropriately involve the older person, their family and other disciplines); and,
- An overview of the pharmacological and non-pharmacological measures used in management should be taught. [D]

Hospital staff should receive training on the use of delirium screening tools with the goal that they will be routinely utilized by front-line health care providers in acute care hospitals. [A]

Geriatric education of the health care team should incorporate established geriatric care principles and be evidence-based. [A]

Nurses and physicians require ongoing educational updates on the pharmacological and non-pharmacological management of delirium. [D]

All levels of health care workers should be aware of the components of a mental status assessment and be able to detect and report changes in behaviour, affect and/or cognition. [D]

Health care providers require ongoing delirium education that is sustainable in their health care setting. Facility-based educational initiatives will have to address their particular learning needs. [A]

Health care facilities should consider appointing a delirium resource specialist. Such a resource specialist would be able to provide ongoing educational support to front-line staff regarding specific cases, and monitor adherence to the recommendations made for improving the management of delirium. [D]

Families of older persons admitted to hospital should be educated about delirium. Written information on delirium, such as a pamphlet, should be available for families and other caregivers. [D]

The importance of delirium calls for provincial and national initiatives aimed at educating current and potential users of the health care system regarding delirium, its causes, presentation, prevention, and management. [D]

## Part 7: Systems of Care

### 7.1 Therapeutic Alliance

In this document the term “therapeutic alliance” denotes a union formed for the promotion of either the care of an older person with delirium or the care offered to a population of older persons with delirium. It represents an agreement by the parties of the union to cooperate for this particular purpose. We are not using the term in the sense of its use in psychotherapy where it is “a conscious contractual relationship between therapist and patient in which each agrees to work together to help the patient with his problems” (Dorland’s Illustrated Medical Dictionary, p. 51).

A number of therapeutic alliances are necessary in order to provide the best care possible for older persons who are at risk for delirium or are experiencing delirium. The core health care team forms one alliance. In addition, this core team must work effectively with both an extended health care team, including professionals called upon as the need arises, the older person, and their family and/or other caregivers.

There are no RCTs showing the superiority of one type of relationship (or alliance) over another. However, there is support in the literature for strong alliances with a common goal of supporting best practices for those with delirium.

#### 7.1.1 Alliance with the Older Person and Family/ Other Caregivers

The family and/or other caregivers provide essential support to the older hospitalized person with delirium during their hospitalization, and especially once the older person is discharged from the acute care setting. The input of family members may be necessary for detection, diagnosis, providing non-pharmacologic interventions, monitoring, and in the provision of after-care. (American Psychiatric Association, 1999; Casarett & Inouye, 2001)

Calming the older person by being present in their room, bringing in familiar objects, and orienting the older person are important contributions made by family members in the management of an older person with delirium. Family members are also critical in detecting signs of pain or discomfort. They can then communicate these concerns to the health care team (Conn & Lieff, 2001; Meagher, 2001; Jacobi et al., 2002; Miller & Campbell, 2004; Fick et al., 2002). The reader is referred to *Section 4.1, Non-Pharmacological Management*, which addresses with the role of family members in non-pharmacological management. The specific interventions appropriate for particular family members or caregivers should be determined on an individual basis.

Delirium can be a devastating experience for the older person. Following the event, the older person may feel

embarrassed, confused, or upset. The older person and their family may not know how to respond to the situation and will need support and education to effectively cope with it (American Psychiatric Association, 1999; Breitbart et al., 2002a; Jacobi et al., 2002; Meagher, 2001; Miller & Campbell, 2004; Registered Nurses Association of Ontario, 2003). Areas of discussion might include the etiology, prognosis, proposed interventions, goals of care, and monitoring plan. The reader is referred to *Part 6: Education*.

#### Recommendations: Alliance with the Patient and Family/Caregivers

Members of the health care team should establish and maintain alliances with the older delirious person and their family. [D]

The older person’s family and/or other caregivers should be involved appropriately in the care of the older person with delirium. [D]

Members of the health care team should meet as required with the older person and their family and/or other caregivers to provide education, reassurance and support. [D]

#### 7.1.2 Alliances within the Health Care System

##### Team Intervention

A number of studies have used a team to implement interventions to prevent and/or manage delirium. Inouye and colleagues (1999a) found that an interdisciplinary team implementing a multi-component intervention led to a statistically significant decrease in incident delirium episodes. Subsequently, Inouye and colleagues (2000) developed HELP, which includes a geriatric nurse specialist, Elder Life specialists, trained volunteers, geriatricians, and consultants from other disciplines and specialties.

Few studies evaluating an interdisciplinary team in the management of delirium have been conducted. In the 2002 study by Cole and colleagues, there were no significant differences in outcomes between the intervention and the usual care groups. A systematic review could not come to a conclusion about the effectiveness of interdisciplinary teams in managing those with delirium (Britton & Russell, 2004). Due to uncertainty regarding the optimal team structure and interventions, no specific recommendations on either the composition of a team or specific roles of team members were made (Britton & Russell, 2004). However, there is general support for team-based interventions in the management of complex conditions such as delirium (British Geriatrics Soci-

ety, 1999-2000; Cole et al., 2002; Inouye et al., 1999a; Registered Nurses Association of Ontario, 2003; Young & George, 2003).

### Specialist Intervention

A variety of clinicians should be able to recognize delirium and play a part in its management. However, general internal medicine, geriatrics, geriatric psychiatry, psychiatry, neurology, psychology and neuropsychology are the specialties consulted most frequently to help diagnose and/or manage a patient exhibiting behavioural problems that might indicate a delirium. While some guidelines recommend “prompt” consultation (Registered Nurses Association of Ontario, 2003), there is more general support for consulting a specialist if the symptoms or behaviours do not resolve after 48 hours (Rapp & the Iowa Veterans Affairs Nursing Research Consortium, 1998).

### Discharge Planning

Discharge planning for an older person who has experienced delirium can be a complicated exercise. The older person may require significant community support upon discharge. Team members from a variety of disciplines should be involved to ensure that the various aspects of follow-up care are in place prior to discharge (American Psychiatric Association, 1999; British Geriatrics Society, 1999-2000). With increasingly brief hospitalizations, discharge planning to arrange for community support is becoming more important (Meagher, 2001).

Older persons with delirium may require continued monitoring and on-going interventions following discharge. Behaviours may not have completely resolved during the hospitalization. The older person may have been initiated on therapy that was not intended to be carried on long-term (i.e., someone will have to assume responsibility for tapering/stopping treatment when appropriate). Complications should be followed to ensure resolution (British Geriatrics Society, 1999-2000; Meagher, 2001).

### Team Process

It has been noted that if nurses are involved in the CPG development process, rather than solely being passive recipients, they are more likely to incorporate the recommended approaches into their practice (Lacko et al., 1999).<sup>11b</sup> Lack of buy-in has been noted as a barrier to implementing protocols in other settings and/or for other challenges (Pun et al., 2005).

#### Recommendations: Alliances within the Health Care System

Delirium prevention and treatment is best managed by a team of health care professionals. [B]

Care for older persons with delirium should be coordinated with consultants if they are called upon for assistance. [D]

Team members should be included in the development, selection or modification of protocols and/or tools to be used in the care of older persons with delirium. [B]

Discharge planning should include family members/other caregivers, health care professionals (as needed) and the community services that will be called upon to manage the older person after discharge. [D]

Older persons discharged from an acute care setting following the occurrence of delirium should be referred to a community-based clinician with expertise in geriatrics for follow-up care. [D]

## 7.2 Organization and Policy

Despite the adverse outcomes associated with delirium for older persons, their families and the health care system, there has been relatively little research done with respect to the organizational and policy issues that arise with delirium. An organization that is planning to implement a comprehensive delirium strategy should establish a facility-wide interdisciplinary team that will work collaboratively with older persons and their families to improve the assessment and management of delirium. The administrative and clinical leadership of the organization will have to provide on-going support for the education of staff and the implementation of the strategy. Bridges should be built to community resources/agencies (e.g., regional geriatric programs) by developing alliances based on the shared goal of improving the care offered to older persons. A recent report examined the key factors that influenced sustainability of an approach (HELP) designed to improve the care of hospitalized older persons (Bradley et al., 2005). The three identified critical factors were clinical leadership, a willingness to adapt recommendations to local circumstances and long-term organizational support.

Delirium CPGs that outline how to provide efficacious and effective care have been developed and disseminated. However, as Inouye and colleagues (1999b) note, the process of care for delirium and the outcomes obtained remain sub-optimal. There is a need for the development of innovative policies and procedures to deal effectively with the multifaceted challenge of delirium. These approaches will have to span across the continuum of care.

Inouye and colleagues (1999b) note that the management of delirium in older persons provides an indication of the overall quality of care given by an institution. Young and George (2003) found in a study of five hospitals that the existence of CPGs did not improve the

process of care or the outcomes of delirium unless their use was accompanied by a plan for systematic communication within the organization and education of staff. Others have come to the same conclusion (Gill, 2001). Implementation of CPGs for delirium can be difficult due to the transient nature of the problem and the particular challenges of the care environment. Organizational barriers to implementation may pose even greater difficulties than the hesitancy of staff to adopt proposed changes in their practice.

In addition to improving the care of individuals experiencing delirium, system-wide benefits might arise from implementing better care. By preventing its occurrence, effective implementation of delirium CPGs could lead to a reduction in the total number of bed days consumed by older persons with a delirium in acute care settings. Both McCusker and Cole (2003) and Inouye and colleagues (1998) have recommended that hospitals include delirium in their coding and abstraction systems, noting whether it is present on admission or occurs during the hospital stay. Improved documentation of delirium could lead to better predictions of lengths of stay and resource utilization. Due to the increase in resources required to deal with an older delirious person, documentation of delirium could lead to augmented (but appropriate) reimbursement for the hospital. This positive feedback could in turn lead to increased monitoring of mental status and documentation of subsequent changes. Increasing awareness regarding the importance of delirium could lead to wide-spread, systematic improvements in the care provided to older persons in hospitals. Enhanced detection and documentation would also lead to better research conditions, allowing us to measure the impact of interventions on the outcomes of older persons with a delirium.

#### Recommendations: Organization and Policy

Institutions should develop a comprehensive strategy to deal with delirium, utilizing what we know about risk factors, prevention, the use of screening instruments, and management approaches. [D]

Acute care organizations should ensure that brief screening questions for delirium are included in the admission history obtained on older persons. Documentation of the risk level for delirium should include baseline pre-admission information. [D]

Organizations should consider routinely incorporating delirium management programs, which include screening for early recognition and multi-component interventions, in the care provided to specific populations served by them. This would include, but is not limited to, older persons with hip fractures, undergoing other types of surgery and those with complex medical conditions. [D]

Routine assessment for the presence of delirium is recommended for older persons cared for in intensive care units. [D]

Best practice guidelines can be successfully implemented if there is adequate planning, the allocation of required resources and on-going organizational support (i.e., resources and funding). Implementation plans should include:

- Assessment of organizational readiness and barriers to successful implementation;
- Opportunities for meaningful involvement by all who must support the process;
- Identification and organizational support of a qualified individual or individuals who will provide clinical leadership for the process;
- Willingness and the ability to adapt approaches to local organizational circumstances and constraints;
- Ongoing opportunities for discussion and education that reinforce the rationale for best practices; and,
- Opportunities for reflection on individual and organizational experience in implementing the guidelines. [D]

Organizations implementing CPGs are advised to consider the means by which the implementation and its impact will be monitored and evaluated. Considerations should include:

- Having dedicated staff who would provide clinical expertise and leadership;
- Establishing a steering committee of key stakeholders committed to leading the initiative; and,
- Having ongoing organizational support for evaluating the implementation of the delirium strategy. [D]

Organizations should integrate a variety of professional development opportunities to support health care providers in their acquisition of the knowledge and skills needed to provide optimal care to older persons with delirium. [D]

Agencies should ensure that the workloads of health care providers are maintained at levels that ensure optimal care for older persons with delirium. [D]

Health care agencies should ensure care co-ordination by developing approaches to enhance information transfer and collaboration among health care providers while protecting client confidentiality. [D]

Organizations must consider the well being of the members of the health care team as being vital in the provision of quality care to older persons with delirium. [C]

Health care agencies should implement a model of care that promotes consistency in the provision of care by the health care team. [B]

Health care organizations must consider issues like acuity, complexity and the availability of expert resources in devising strategies to provide appropriate care for older persons with delirium. [C]

Older persons with delirium should be identified as needing special care provided in supportive environments with specialized trained staff using an integrated care plan established and supported by health organizations. This vulnerable population should receive evidence-based and ethical care to facilitate positive outcomes. [D]

Hospitals should track the diagnosis of delirium (both on admission and occurring during the stay) in their diagnostic coding systems due to its association with an increased length of stay and other cost/utilization implications. [C]

Organizations should develop policies to support evidence-based modifications to the environment and in the provision of services to improve the care provided to older persons with delirium. This would include critical care settings. Considerations would include:

- As noise disrupts sleep and is an environmental hazard, earplugs and single room design may be helpful; and,
- Lighting that reflects a day-night cycle can assist with sustaining normal sleep patterns (e.g., no bright lights at night and care interventions coordinated to minimize night-time interruptions). [D]

Health organizations should implement sustainable, interdisciplinary best practices for the care of older persons with delirium that are integrated into existing systems of care and documentation. [D]

Sustainable best practices for older persons with delirium require that organizations develop policies and protocols to support implementation across the facility. One option for organizations trying to sustain delirium best practice is through annual staff self-study programs available on-line with 24-hour access and linked to the annual performance appraisal process. [D]

elders (Inouye et al., 1999b). An effective system for tracking cases could lead to the identification of institutions with higher delirium incidence rates and provide an opportunity for targeted research and intervention. Institutions with lower rates can be examined as potential models of effective care. Integrating delirium risk assessment with other risk assessments (e.g., skin breakdown, falls) as part of admission documentation may be a first step in addressing the problem of identification.

2. Most health care organizations arguably lack systematic and sustainable approaches to older persons with delirium. Studies are needed to determine how best practices can be implemented effectively and how facilities can develop and determine appropriate approaches. In delirium care, we need to identify policies and protocols that are cost effective for institutions and user friendly for staff, older persons and families. Further studies could address the barriers and variables that impede implementation of best practice, and suggest ways to address individual institutional cultures.
3. The increasing older population with its attendant increase in the number of anticipated cases of delirium means that we will have to use our available resources efficiently. Pivotal to the identification of delirium is mental status assessment. The limited knowledge base on the part of members of the interdisciplinary team regarding delirium and the mental status components (e.g., behaviour, affect and cognition), coupled with a lack of knowledge about normal aging and the 4 D's (i.e., cognitive decline, delirium, depression and dementia), contribute to ageism and poor patient outcomes. All caregivers of older persons must be alert to the risk for delirium and should regard delirium as a medical emergency. It is vital that future studies examine the role of education in the prevention, identification and management of delirium. Research is needed to determine the most efficacious and cost-effective means of emphasizing to health care providers that delirium is not inevitable. They can play a significant role in preventing delirium and modifying its attendant morbidity and mortality. Additional research is warranted on the best approach to promote mental status assessment by all health care providers. As well, further research is needed to develop and test user friendly documents and documentation systems that would track behaviour changes in light of the fluctuating course of delirium and help measure management effectiveness.

4. Professional development opportunities for delirium education are limited due to both staff inability to leave high acuity areas and lack of educational funding for individual staff. Pedagogical research is needed to develop effective adult learning strategies sensitive to the specific health care environments. Research on the delivery format for educational

## 7.2.1 Policy and Organization Questions: Considerations for Policy Makers - Provincial and Federal

1. Managers of quality assurance/improvement/risk management programs can play a significant role in addressing the high risk for delirium in institutions and care facilities. In order to foster positive care outcomes, they should ensure appropriate identification and management. Research is required to determine how institutions can most efficiently identify at risk

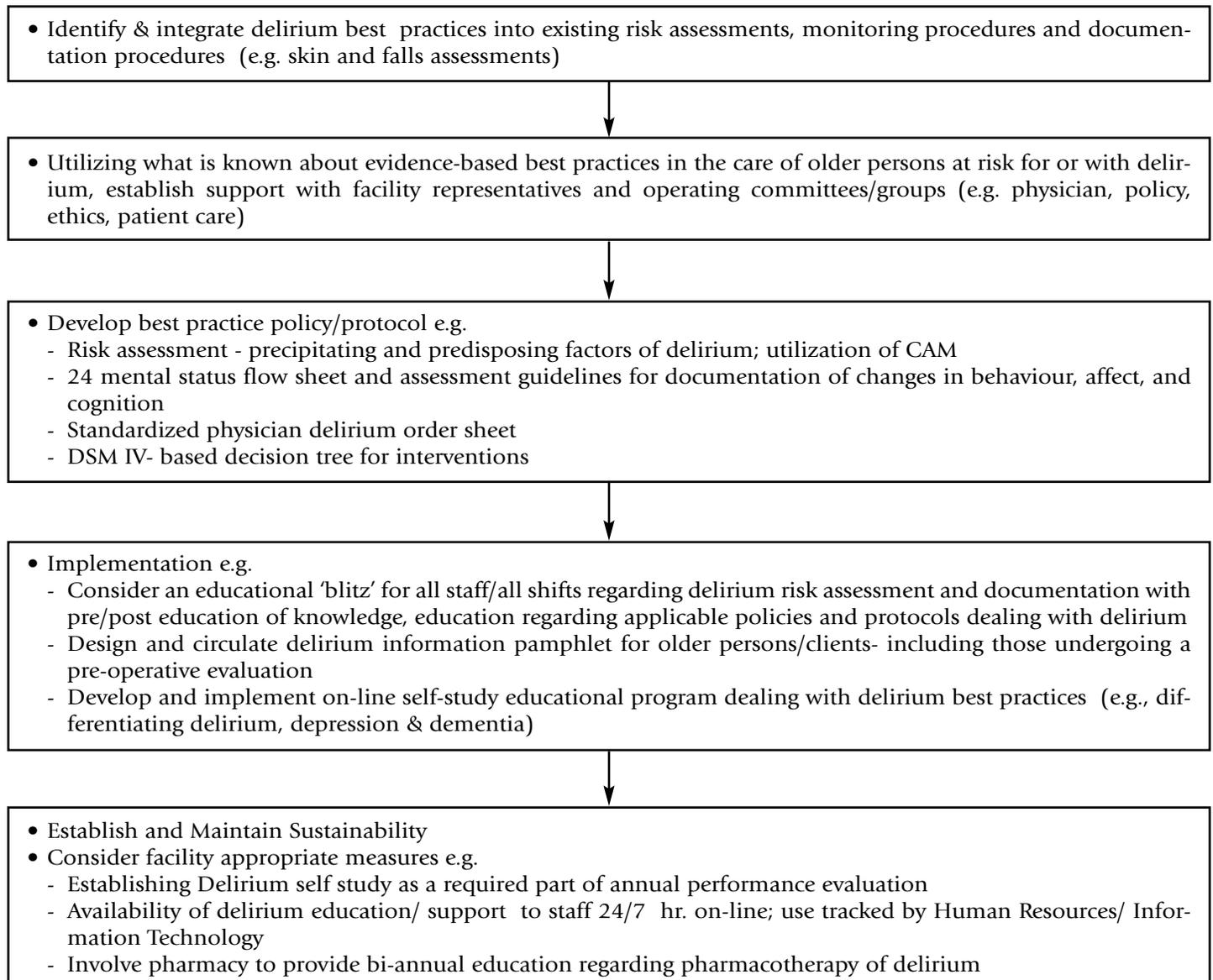
material (e.g. 24-hr. on-line interactive learning) could lead to a more user friendly approach to staff education. The process and benefits of attaching learning to performance appraisal could also be examined and tracked by human resources.

prehensive delirium education, expert practice, and/or a team approach and better delirium outcomes for older persons is needed.

5. There are gaps in the curriculum offered to health care workers by educational institutions on topics such as delirium, depression, dementia, normal aging, caregiver stress, and strategies to assist the coping of families. Research is needed to determine how to equip all levels of care providers with the skills required to identify and intervene in delirium. Further research to establish a clear link between com-

6. Research is needed on which public education formats effectively increase delirium awareness.
7. The problem of delirium is daunting for older persons, their families and health care providers. It contributes to excess disability and death locally, provincially and nationally. Deliberations are needed to establish provincial and national delirium strategies designed to address this common medical emergency that continues to be under-recognized.

### 7.3 Implementation of Delirium Best Practices Flow Chart



## Part 8: Research on Delirium – Challenges and Opportunities

Great strides have been made in delirium research over the last decade but much remains to be done. Unfortunately many of the studies still being done are descriptive in nature, confirming what we know but not moving the field forward. Further work is desperately required on nearly all aspects of delirium such as:

- Conceptualization of delirium as an entity;
- Development and validation of screening tools, rating scales and other standardized measures;
- Epidemiology of delirium focusing on longitudinal studies, settings other than acute care, and more homogenous populations;
- Pathophysiology;
- Approaches to assessment and diagnosis (e.g., simple interventions vs complex specialist-based or multicomponent interventions; cost-effectiveness studies of interventions; research on the timing, frequency, and concurrent use of intervention; role of sitters/volunteers; role of each discipline/health profession; determining when and why specialist consult/referral should be sought and which specialists should be involved in the care of older persons with a delirium);
- Better understanding of casual factors and their interactions;
- Prevention;
- Management including non-pharmacologic and pharmacologic therapies; and,
- Systems of care for delirium that would acknowledge the key role played by families and all the members of the health care team (Cole, 1999; Lindsay et al., 2002a; Litaker et al., 2001; Marcantonio et al., 2001).

There will be an on-going need to distill this information and provide practical, evidence-based guidance for those caring for older individuals with a delirium. We need to know the current and desired level of training/education of each health professional involved in the care of older persons with delirium. The attitudes/perceptions of staff, older persons, and caregivers to delirium and delirious older persons will have to be addressed. Specific issues that will have to be considered include: How do we best get across to staff the urgency of delirium? How do we get them to assume “ownership” of delirium and to accept the key roles they can have in prevention, recognition and management? How do we move delirium from being a “psychiatric problem” to one that is accepted as being the joint responsibility of all those caring for older persons? Efforts to instruct health care workers about the recognition, assessment, prevention, and management of delirium will have to be evaluated with the results being used to continuously improve upon these educational activities. Educational initiatives will have to be modified to fit within the organizational structure of the various settings where seniors receive their care.

There is a need for additional research to gather new knowledge, further our understanding of delirium, and

benefit those with delirium and society as a whole. A number of challenges, though, face those performing studies on delirious older individuals:

- a) Recruitment of subjects into studies can be difficult. Delirium is often unrecognized or misdiagnosed. Those caring for the older person may be unaware that a delirium is present and would not identify the patient as a potential research candidate. Another barrier to recruitment would be the secondary interest delirium may hold for those caring for the patient. Their attention may be focused on the management of the underlying predisposing (e.g., dementia) and/or precipitating (e.g., pneumonia, hip fracture) causal factors. The severity and/or instability of these conditions may interfere with the ability to study older delirious individuals.
- b) The nature of the condition makes it difficult to study. This is a complex neuropsychiatric disorder with multiple potential predisposing, precipitating, sustaining and restorative factors (Lindsay et al., 2002a). Symptoms typically evolve, sometimes quickly, over time. Simple causative models (i.e., A leads to B) usually do not work well with older delirious persons. Trying to control for the complexity of the condition and isolate the effects of a single factor can be a daunting task (Meagher, 2001).
- c) One of the guiding ethical principles for research involving human subjects is respect for free and informed consent (Tri-Council Policy Statement, 2003). Obtaining consent for delirium research studies is difficult for a number of reasons:
  - The disorganized thinking, inattention and altered level of consciousness seen with delirium;
  - The acute and fluctuating nature of the disorder; and,
  - The frequent urgent need to treat the condition and/or the factors that led to it, which can lead to a lack of time to assess capacity and obtain consent (Auerswald et al., 1997).

The specific methods used to obtain consent can significantly influence the type of subject recruited into a delirium study (Adamis et al., 2005). More stringent criteria will exclude possible subjects, which will make the results obtained less generalizable because of selection bias.

- d) Performing placebo-controlled trials for some aspects of the management of delirium would be unethical (Michels & Rothman, 2003; Saunders & Wainwright, 2003). The Fifth Revision of the Declaration of Helsinki states that, “The benefits, risks, burdens and effectiveness of a new method should be tested against those of the best current prophylactic, diag-

nostic and therapeutic method" (World Medical Association, 2000). The World Medical Association (2000) in a clarification stated that placebo controls would be ethically acceptable if there were "compelling and scientifically sound methodological reasons" to justify their use and/or where the therapy was being investigated for "a minor condition and the patients who receive placebo will not be subject to any additional risk." The National Placebo Working Committee (2004) in their final report agreed that as a general rule, research subjects in the control group should receive an established effective therapy. It would be unethical not to offer the effective therapies available for many of the predisposing/precipitating causes of delirium (e.g. antibiotics for a bacterial pneumonia,

fluids for dehydration). It is less clear what we should do with other aspects of the management of delirium (e.g., use of antipsychotics; Ryan, 2002). Because of the vulnerability of this patient population and the serious consequences of delirium, we feel caution should be taken in making use of a placebo control in delirium therapeutic trials. Justification for the study design and choice of comparator should be provided. Delirium studies should receive oversight from research ethic boards (Moran, 2001).

- e) Obtaining funding for studies of delirium can be challenging as it is a syndrome with multiple potential causes. It does not lend itself well to a disease paradigm.

## Part 9: Future Considerations

A number of misconceptions about delirium are commonly held. It is not a trivial event for older persons as it is associated with a number of important adverse outcomes. **Delirium is a medical emergency**, and this should be reflected in our practice. **Its occurrence is not an inevitable complication of illness in older persons. We can modify its incidence and when it occurs we can provide competent, humane care.** An important first step in improving the care provided to older persons with delirium is to correct these and other important misconceptions. It is essential that those providing care to the elderly become aware that we can improve our performance in delirium care in ways that will be of great importance for our older persons, their families, ourselves, and the health care system.

Delirium in older persons, while a common and important problem, is still mainly dealt with in an empirical manner. Unfortunately we have insufficient data on which to make strong recommendations for improvements on good “usual” care in its assessment and management. Further studies are needed in order to determine how to deal with this condition effectively and efficiently. Much of what we can currently recommend is extrapolated from studies that did not deal specifically with older persons. Studies that target specific populations of older persons (e.g., stratifying by pre-morbid levels of cognitive and/or functional abilities, hyperactive vs. hypoactive delirium) are needed.

Resources must be allocated to knowledge transfer and effective educational strategies. This is an essential component to creating effective practice change. Currently this is an area that could be improved upon in most settings and for all the various target audiences of this document.

Rather than dealing with delirium in a piece-meal fashion, a team-based, systematic approach is much more likely to be effective.

An exclusively reductionist, biomedical approach to this condition will not likely work. Effective programs of care will have to incorporate the core components of good basic care (e.g., strategies to orientate older persons with delirium and improve communication with them, therapeutic activities, efforts to maintain and improve ambulation, sleep enhancement, correction of sensory impairment and ensuring adequate hydration and nutrition).

A facility’s performance in delirium care for the elderly is believed to be an important indicator of the overall quality of care provided to older individuals in an institution. It is an important target for quality improvement efforts. Organizations, policy makers, and administrators play a pivotal role in the uptake and sustainability of best practices in delirium care. Without dedicated and persistent leadership, on-going institutional support, and allocation of required resources the likelihood of significantly improving our performance in delirium care will be remote.

Remember that the outcomes of delirium can be catastrophic to the older individual and their family. Its presence complicates the management of a variety of acute medical and surgical conditions and increases health care costs. All of us – older Canadians, their families, clinicians, researchers, educators, health care managers and leaders, policy makers - have a stake in effectively confronting this pervasive problem.

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# Appendix A: Guideline Development Process

