DEMENTIA

National Standard Treatment Guideline

Ministry of Health
Republic of Maldives

ADB

JFPR
Japan Fund for Prosperous and Resilient Asia and the Pacific

From the People of Japan

World Health Organization
Maldives

National Standard Treatment Guidelines

- Acid Peptic Disease
- Acute Anxiety
- Acute Pancreatitis
- Acute Psychosis
- Acute kidney Injury
- Arrhythmia
- Chronic Liver Disease
- Chronic Pancreatitis
- Chronic kidney disease
- Congenital Heart Diseases
- Dementia
- Depression
- Diabetes Mellitus Type 1
- Diabetes Mellitus Type 2
- Gestational Diabetes
- Epilepsy
- Heart Failure
- Hyponatremia
- Hypernatremia
- Hypokalemia
- Hyperkalemia
- Interstitial Lung Disease
- Liver Failure
- Obesity
- Obstructive Sleep Apnoea
- Osteoarthritis
- Ovarian Cancer
- Pneumonia
- Stroke
- Upper Gastrointestinal bleed
- Unstable Angina

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GUIDELINES DEVELOPMENT METHODOLOGY

The development of the Maldives Standard Treatment Guidelines (STGs) followed a structured, evidence-informed, and consensus-driven methodology adapted from internationally accepted guideline-development standards and the Delhi Society for Promotion of Rational Use of Drugs (DSPRUD) model. The process combined systematic evidence retrieval, critical appraisal, contextual adaptation, and multidisciplinary expert review to ensure feasibility, clinical relevance, and national ownership.

1. Determining Scope and Priority Conditions

Priority clinical conditions were identified through consultation with national programme managers, specialty clinicians, and health-system stakeholders. Selection criteria included: (i) major causes of morbidity and mortality, (ii) observed variation in clinical practice or prescribing patterns, (iii) potential to improve patient outcomes, and (iv) the feasibility of implementation across health-facility levels in Maldives. The final list of diseases reflected national epidemiology, service-delivery capacity, and essential-medicine availability.

2. Identification of Existing Evidence and Source Guidelines

A targeted search strategy was used to identify high-quality existing clinical guidelines. Searches were conducted across international guideline repositories (e.g., WHO, NICE, SIGN and other intergovernmental bodies, international and national guideline repositories, specialty societies and professional associations.

3. Quality Appraisal of Source Guidelines

Retrieved guidelines were screened for transparency of development, methodological rigour, clarity of recommendations, applicability to health-system reality, editorial independence. Guidelines were included if they met the Institute of Medicine (IOM) definition of a clinical guideline and addressed treatment or management of priority conditions. Guidelines that did not meet minimum quality standards, review articles, diagnostic criteria, or technical standards were excluded.

4. Adoption, Adaptation, and Contextualization

The guideline-development team employed an adopt–adapt–contextualize model:

- **Adoption**: High-quality recommendations that aligned with Maldivian health-system realities were retained without modification.
- **Adaptation**: Recommendations were modified when local considerations such as diagnostic capacity, medicine availability, workforce skills, referral pathways, or cost constraints affected feasibility.

- **Contextualization**: Where evidence was absent or inconclusive, conditional recommendations were formulated based on expert consensus, with explicit consideration of pragmatism, safety, and local workflows.
  Medicines were selected in alignment with the Maldives National Essential Medicines List (NEML), based on suitability, efficacy, safety, and availability.

5. Expert Consensus and Multidisciplinary Input

Draft recommendations were initially prepared by experts from the DSPRUD, India, providing a strong methodological foundation for the process. Building on this, a collaborative and participatory process brought together clinicians from internal medicine, paediatrics, obstetrics-gynaecology, surgery, emergency medicine, endocrinology, cardiology, general practitioners, and public health representing different levels of healthcare. Consensus was achieved through moderated discussions, iterative revisions, and resolution of divergent views. For topics lacking strong evidence, recommendations were derived from expert clinical judgment grounded in extensive practice experience.

6. Drafting, Peer Review, and Validation

Each guideline section was organized in a standard format including key clinical features, essential investigations, non-pharmacological management, pharmacological therapy (with step-up/step-down options where relevant), referral criteria, paediatric considerations, and follow-up requirements. Drafts were peer-reviewed by senior clinicians and national experts. Reviewer comments were systematically integrated to strengthen clarity, accuracy, and applicability.

7. Addressing Conflicts of Interest

All contributors declared the absence of conflicts of interest. Individuals with potential or perceived conflicts were excluded from authorship or decision-making roles.

8. Updating and Future Revisions

The STGs were conceptualized as a living document. Future updates will incorporate new scientific evidence, changes in essential-medicine availability, national programme priorities, and user feedback from clinicians. Periodic review cycles will ensure the continued relevance and reliability of recommendations.

9. Distinctive Features of the Guidelines

Developed through a collaborative process involving a large group of multidisciplinary experts from different levels of healthcare, the guidelines incorporate the following distinctive features:

- **Diagnostic Assumption and Confirmation**: While assuming that an initial diagnosis has been established by the healthcare provider, the guidelines provide essential information for confirming diagnoses. This includes a comprehensive overview of major signs and symptoms, descriptions of confirmatory tests, and clear guidance on practices that are prohibited, discouraged, or unreliable—promoting evidence-based medicine supported by relevant references.
- **Comprehensive Treatment Approach**: The guidelines offer a systematic, up-to-date framework for managing medical conditions across the continuum of care. They begin at the primary care level and extend to secondary and tertiary care, incorporating protocols for treatment response assessment and referral criteria as integral components.
- **Diverse Treatment Modalities**: Recommendations encompass both non-pharmacological and pharmacological interventions and surgical intervention where applicable, providing flexibility for individualized treatment plans. Cautionary notes are included where necessary to ensure safe and effective use of therapies.
- **Assessment and Referral Criteria**: Clear criteria and goals for evaluating patient response to treatment are provided, along with guidance on when referral to higher levels of care is warranted ensuring continuity and comprehensiveness in patient management.

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The Government of the Republic of Maldives is committed to ensuring universal access to quality health services for all citizens. The Constitution of Maldives mandates the progressive realization of rights, including the right to good standards of health care for the population. In line with this national commitment, standardized quality health services are regarded as the foundation of a strong and equitable healthcare system.

This important work would not have been possible without the cooperation and support of many individuals and institutions. We express our sincere appreciation to the Honourable Minister of Health, Abdullah Nazim Ibrahim, for his leadership, commitment, and continuous guidance throughout the development process. We are grateful to WHO and ADB for their significant contribution, support, and technical assistance.

Our heartfelt gratitude is extended to the technical lead and editor, Dr. Sangeeta Sharma, Professor, Neuropsychopharmacology, IHBAS and President, Delhi Society for Promotion of Rational Use of Drugs (DSPRUD), and her team. We express our deepest appreciation to the Maldivian and DSPRUD experts and contributors who played a pivotal role in this process. Their technical expertise and dedication to adapt the standards to the Maldivian context have been instrumental in the development and finalization of these guidelines. The time, experience, generous sharing of knowledge and insights contributed by all parties have not only enriched the work but also have been invaluable in making these standards practical, locally acceptable, and aligned with the needs of the resident population.

It is important to acknowledge the immense efforts, involvement, timely coordination, collaboration, and dedication of the Quality Assurance and Regulation Division team who made it possible for these Clinical Treatment Guidelines to come into existence.

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DEMENTIA

QUICK REFERENCE GUIDE

Dementia affects over 55 million people globally, with about 10 million new cases annually. Most cases occur in adults over 60 years, though 5-10% are early onset before age 65. It is a major cause of morbidity, leading to progressive loss of independence and high caregiver burden, and outcomes are poor, with average survival after diagnosis ranging from 4-8 years despite supportive care.

Dementia is acquired, progressive decline in one or more cognitive domains (memory, language, visuospatial, executive, social cognition) severe enough to impair independence in daily activities.

Common types: Alzheimer's disease; vascular dementia; dementia with Lewy bodies (DLB); frontotemporal dementia (FTD); Parkinson disease dementia (PDD); mixed dementia; potentially reversible/ secondary causes (e.g., hypothyroidism, vitamin B12 deficiency, normal-pressure hydrocephalus).

Causes, Risk factors & Triggers

- **Non-modifiable:** age, family history, apolipoprotein E (APOE ε4), prior traumatic brain injury.
- **Modifiable**: hypertension, diabetes, dyslipidemia, smoking, physical inactivity, hearing loss, depression, social isolation, alcohol misuse, sleep disorders (obstructive sleep apnoea).
- **Triggers of sudden decline:** infection, pain, dehydration, metabolic disturbance, new drugs (anticholinergics, benzodiazepines), stroke, surgery/anaesthesia, environmental change.

Evaluation for Diagnosis

- **Clinical features**: gradual decline in memory or other domains, functional impairment, behavioral and psychological symptoms of dementia (BPSD) such as agitation or hallucinations.
- **History & informant interview:** onset, tempo, day-to-day impact, fluctuations, hallucinations, parkinsonism, stroke history, medicines.
- **Physical examination:** full neurological and systemic exam; gait, rigidity, focal deficits; vitals; nutrition; vision/hearing.
- **Cognitive testing:**
  - Mini-Mental State Examination (MMSE) or Montreal Cognitive Assessment (MoCA) for baseline and follow-up (use education-adjusted cut-offs).
  - Screen for depression (e.g., Geriatric Depression Scale 15-item, GDS-15) and delirium (e.g., 4AT or Confusion Assessment Method, CAM).
  - Function: Activities of Daily Living (ADL) and Instrumental ADL (IADL) scales.
- **Laboratory investigations (initial):** complete blood count, electrolytes, renal and liver profile, calcium, fasting glucose/HbA1c, thyroid-stimulating hormone (TSH), vitamin B12 (± folate). HIV and syphilis serology only if risk.

- **Neuroimaging:** non-contrast computed tomography (CT) or magnetic resonance imaging (MRI) to assess vascular disease, atrophy pattern, tumour, subdural, normal-pressure hydrocephalus.
- **Advanced tests (specialist):** cerebrospinal fluid (CSF) amyloid/tau, amyloid/tau positron emission tomography (PET) when diagnosis remains uncertain or for atypical/early-onset.

Classification / severity

- **Clinical Dementia Rating (CDR):** 0.5=very mild, 1=mild, 2=moderate, 3=severe.
- **Functional Assessment Staging (FAST**) or **Global Deterioration Scale (GDS)** for staging.
- Use the **type** (e.g., Alzheimer's, DLB) + **severity** (e.g., CDR 1) in all notes.
- Staging based on functional status, cognitive impairment, and behavioral symptoms rather than just test scores.

Differential Diagnosis

Delirium, depression ("pseudodementia"), mild cognitive impairment (MCI), hypothyroidism, B12/folate deficiency, medication effects (anticholinergics, sedatives), major sleep disorder, alcohol-related cognitive disorder, normal-pressure hydrocephalus (NPH), subdural haematoma, tumour, stroke, epilepsy with cognitive impairment, sensory loss (untreated hearing/vision).

Management Goals & principles

- Maintain independence and quality of life; ensure safety; slow decline where possible; prevent/treat BPSD; minimize drug harm; support caregivers; plan ahead (capacity, consent, advance directives).
- Treat comorbidities and vascular risk factors; correct hearing/vision; avoid anticholinergics and unnecessary sedatives; deprescribe where appropriate.

Approach to management

- **Primary care/community:** identify, baseline workup, start non-drug measures, manage risk factors, caregiver education, schedule follow-up.
- **Secondary care (specialist confirmation):** subtype diagnosis, initiate cognitive enhancers when indicated, manage BPSD not responding to non-drug care, address complex comorbidities.
- **Tertiary care:** atypical/early-onset, rapid progression, severe BPSD, advanced biomarker/ neuroimaging, NPH assessment/shunting, complex legal/ethical issues.

Non-pharmacological interventions (first line; low-resource adaptations)

- **Caregiver training** in communication, routines, de-escalation, and meaningful activity; provide simple handouts in local language.
- **Environment:** clocks/calendars, labels, reduce noise/clutter, night-lights, safe wandering paths.

- **Structured day:** regular exercise, sunlight exposure, sleep hygiene.
- **Cognitive stimulation therapy (CST) or simple group activities;** music/ reminiscence therapy.
- **BPSD first steps:** identify triggers (pain, infection, constipation, unmet needs), use "ABC" (Antecedent-Behavior-Consequence) charts.
- **Task-sharing with nurses/CHWs; group caregiver classes;** phone/tele-follow-up; community hearing/vision screening; home-hazard checklist.

Pharmacological therapy

- **General rules:** Start low, go slow. Use for clear indications. Reassess benefit/ harm regularly. Avoid polypharmacy.

Cognitive enhancers (Alzheimer's disease; consider in Parkinson disease dementia/DLB with caution):

Drug	Drug Indication	Starting dose - Usual	Key cautions
Donepezil (oral)	Mild-severe Alzheimer's disease	5 mg nightly; titrate to 10 mg nightly after 4-6 weeks	Bradycardia, syncope, GI upset; interact with beta-blockers
Rivastigmine (oral/patch)	Alzheimer's disease; PDD/DLB	1.5 mg BID; titrate to 3-6 mg BID; Patch 4.6 titrate to 9.5-13.3 mg/24 h	Nausea/weight loss; skin irritation (patch)
Galantamine (ER)	Mild-moderate Alzheimer's disease	8 mg daily; titrate 16-24 mg daily	Avoid in severe renal/hepatic impairment
Memantine (oral)	Moderate-severe Alzheimer's disease; add-on if poor tolerance to cholinesterase inhibitor	5 mg daily; increase weekly to 10 mg BID (20 mg/day)	Dizziness; reduce dose if eGFR <30 mL/min

BPSD (only if severe distress/risk and after non-drug measures):

Symptom target	First choice	Notes/cautions
Agitation/aggression/psychosis	**Risperidone** 0.25-0.5 mg HS; titrate up to 1 mg BID short term	Stroke/mortality warning in elderly with dementia; taper within 6-12 weeks if possible
Parkinsonism/DLB with psychosis	**Quetiapine** 12.5-25 mg HS; titrate to 25-150 mg/day	Avoid risperidone/haloperidol due to sensitivity
Depression/anxiety	**Sertraline** 25 mg daily; titrate to 50-100 mg/day; Citalopram ≤20 mg/ day	Monitor hyponatremia, QT (citalopram)
Sleep-wake disturbance	**Melatonin** 2-5 mg HS; sleep hygiene	Avoid benzodiazepines

Vascular dementia components: strict blood pressure, lipids, glucose control; antiplatelet only if standard vascular indication (e.g., prior stroke/TIA), not for dementia alone.

Assessment of response & follow-up / step-up-step-down

- **At 6-12 weeks after starting/adjusting therapy:** review cognition (same tool), function (ADL/IADL), BPSD, caregiver strain, safety, adherence, adverse effects.
- **Step-up:** worsening function/safety, uncontrolled BPSD, rapid decline, new focal neurology then escalate to specialist.
- **Step-down/stop:** no meaningful benefit after adequate trial (e.g., 3-6 months), intolerable adverse effects, advanced stage with goals focused on comfort - deprescribe gradually.
- **Routine follow-up:** every 3-6 months; sooner after any acute event or medication change.

Referral (tiered criteria)

- **Urgent (days):** suspected delirium, rapid stepwise decline, new focal deficits, severe BPSD with risk of harm, safeguarding concerns.
- **Early specialist review:** age <65 years, atypical features (early language/ behavioral change), diagnostic uncertainty, suspected DLB/FTD/NPH, epilepsy, complex comorbidity/ polypharmacy, capacity/legal issues.
- **Tertiary:** need for advanced biomarkers/PET, NPH shunt evaluation, refractory BPSD, research/clinical-trial consideration.

Complications

Falls and fractures, malnutrition and weight loss, aspiration pneumonia, pressure injuries, wandering/elopement, caregiver burnout and depression, elder abuse/neglect, medication adverse effects (syncope, hyponatremia, extrapyramidal symptoms).

Objectives of Patient education &Instructions to the patient/ caregiver

- Explain diagnosis, expected course, and red flags (new confusion, fever, sudden decline).
- Promote routines, hydration, nutrition, exercise, sunlight, sleep hygiene; maintain hearing aids/glasses.
- Home safety: remove trip hazards, stove safety, ID bracelet, door alarms; driving cessation when unsafe.
- Medicines: purpose, dosing box, single prescriber/pharmacy, bring all drugs to visits; avoid over-the-counter anticholinergics and sedatives.
- Caregiver support: respite options, local support groups, helplines, legal planning (capacity, consent, advance directives, finances).
- Provide simple written plan and contacts; schedule regular reviews and immunizations (influenza, pneumococcal, COVID-19 per policy).

DEMENTIA

INTRODUCTION

Dementia is a progressive decline in cognition that disrupts memory, thinking, behavior, and daily life. It isn't normal aging. Over 55 million people live with dementia worldwide, with 10 million new cases each year; Alzheimer's disease causes 60-70%. In Southeast Asia, 4-8% of adults over 60 are affected, and numbers are rising; dispersed island settings make diagnosis and follow-up harder. About 5-10% of cases are early-onset before 65.

There's no cure, but early detection, risk-factor control, and supportive care can slow decline, prevent complications, and ease caregiver load. Common errors include late recognition, treating decline as normal aging, missing reversible causes, and overusing sedatives or antipsychotics, which raise falls and mortality. Standardized guidelines help drive timely detection, safe treatment, strong non-drug care, and continuity where specialists are limited.

SCOPE OF GUIDELINES

The guidelines cover case-finding, diagnostic workup, and staging; care planning; first-line non-drug strategies; safe, time-bound use of medicines; and management of comorbidities and acute deterioration. They set follow-up schedules, safety checks, and clear referral/escalation criteria across primary, secondary, and tertiary care.

Intended users

They are intended for primary care clinicians, general physicians, nurses, and community health workers who are often the first point of contact, as well as for secondary care teams responsible for confirmation of diagnosis, initiation of treatment, and management of complications, and tertiary care specialists managing complex or atypical presentations.

Applicability at various levels

- At the primary care level, the focus is on early recognition, screening, ruling out reversible causes, initiating basic non-pharmacologic measures, and arranging timely referral.
- Secondary care facilities are expected to confirm the diagnosis, start appropriate pharmacologic therapy, address comorbidities, and coordinate multidisciplinary support.

- Tertiary care centers handle complex, rapid, or atypical cases, carry out advanced diagnostic assessments, and guide management for treatment-resistant symptoms. This tiered structure ensures that patients receive appropriate, timely interventions while making efficient use of limited specialist resources in settings.

DEFINITIONS

Dementia is a progressive syndrome of cognitive and behavioral decline affecting memory, reasoning, communication and personality that significantly impairs a person's ability to perform everyday activities (NICE). Several subtypes are recognized:

- **Alzheimer's Disease (AD):** The most common form, marked by gradual onset and progression of memory loss, language difficulties, and visuospatial disorientation.
- **Vascular Dementia:** Cognitive decline resulting from cerebrovascular disease, often with a stepwise progression and focal neurological signs.
- **Lewy Body Dementia:** Characterized by fluctuating cognition, visual hallucinations, and features of parkinsonism, often with marked sensitivity to antipsychotics.
- **Frontotemporal Dementia:** Presents with early behavioral and personality changes or primary language impairment, while memory may remain relatively intact in the initial stages.
- **Mixed Dementia:** Involves more than one underlying pathology, most commonly Alzheimer's disease with vascular contributions, leading to overlapping clinical features.

CAUSES, RISK FACTORS, AND TRIGGERS

Dementia can result from neurodegenerative diseases, vascular brain injury, or mixed pathologies.

Category	Adults
Neurodegenerative	Alzheimer's, Lewy Body, Frontotemporal
Vascular	Multi-infarct, strategic infarct dementia
Reversible	B12 deficiency, hypothyroidism, normal pressure hydrocephalus
Risk factors	**Non-modifiable risk factors** Age, family history, hypertension, diabetes, smoking, low education **Modifiable risk factors** Hypertension, diabetes, smoking, low education, obesity, physical activity, Excessive alcohol consumption, Social isolation, depression, Air Pollution, Traumatic brain injury , Vision loss , High LDL Cholesterol
Triggers	Stroke, head trauma, severe infection

EVALUATION FOR DIAGNOSIS

Component	What to do	Tools / Examples	Purpose / Notes
History (patient + informant)	Onset, duration, progression; impact on daily activities; behavioral/psychiatric symptoms	Informant Questionnaire, ADLs/ IADLs checklists	Establish pattern, rule out delirium/depression, set baseline function
Physical exam	Full neurological and systemic exam; look for focal deficits, movement disorders, gait, vitals	Neuro exam, UPDRS items if parkinsonism suspected	Identify signs of underlying disease contributing to cognitive decline
Cognitive testing (overview)	Quantify impairment and track change over time	MMSE, MoCA	Provides baseline scores for follow-up and treatment response
MMSE	30-point test: orientation, attention, memory, language, visuospatial	Typical cut-offs adjusted for education	Quick tracking over time; less sensitive for mild cognitive impairment
MoCA	30-point test with executive function, abstraction, complex visuospatial tasks	Version/education corrections available	More sensitive for early/subtle impairment
Using scores	Document baseline; repeat at follow-ups	Same tool each visit	Monitor progression or response to interventions
Laboratory tests	Screen for reversible causes	CBC, electrolytes, TSH, vitamin B12; syphilis serology if at risk	Identify metabolic/endocrine/ infectious contributors
Neuroimaging	Evaluate structural causes	CT or MRI brain first line.	Detect vascular disease, tumors, normal-pressure hydrocephalus, other lesions
Biomarkers	Limited role	CSF, PET, or blood-based	Biomarkers should be reserved for atypical or unresolved cases managed in referral centers, rather than for routine monitoring

CONFIRMATION OF DIAGNOSIS

- A dementia diagnosis requires evidence of a decline in at least two cognitive domains, such as memory, language, executive function, visuospatial skills, or attention. This decline must be sufficient to cause a significant impact on daily functioning, including work, social interactions, or independent living activities (e.g., managing finances, cooking, personal care).
- Before confirming the diagnosis, it is essential to rule out conditions that can mimic or coexist with dementia, particularly delirium (acute onset, fluctuating course, usually secondary to medical illness or drugs) and depression (which can present with pseudo-dementia).
- Collateral history from family members, caregivers, or close contacts is critical to validate the time course, functional impact, and behavioral changes, especially when the patient has poor insight or memory impairment. This multi-source verification helps ensure diagnostic accuracy and guides the choice of management pathway.

CLASSIFICATION/SEVERITY ASSESSMENT

- **Clinical Dementia Rating (CDR):** 0.5=very mild, 1=mild, 2=moderate, 3=severe.
- **Functional Assessment Staging (FAST)** or **Global Deterioration Scale (GDS)** for staging.
- Use the **type** (e.g., Alzheimer's, DLB) + **severity** (e.g., CDR 1) in all notes.
- Staging based on functional status, cognitive impairment, and behavioral symptoms rather than just test scores.

Stage	Functional Status	Cognitive Changes	Behavioral / Psychological Symptoms	Cognitive Test Scores
Mild Dementia	Independent in basic ADLs; needs help with instrumental ADLs (finances, shopping, cooking, meds).	Subtle memory lapses (recent events), word-finding difficulty, mild disorientation in unfamiliar places.	Occasional irritability, mild anxiety, social withdrawal; insight usually preserved.	MMSE 21-26, MoCA 18-25
Moderate Dementia	Need assistance with some basic and most instrumental ADLs (dressing, hygiene, meals).	Frequent memory loss (recent + past), language impairment, impaired judgment, gets lost in familiar places.	Agitation, restlessness, sleep disturbances, suspicion.	MMSE 10-20, MoCA 10-17
Severe Dementia	Fully dependent for all ADLs (feeding, bathing, toileting, mobility); often bedridden late.	Profound memory loss, minimal or absent speech, unable to recognize familiar people.	Aggression, incontinence, swallowing difficulty, apathy, rigidity, seizures.	MMSE <10, MoCA <10

DIFFERENTIAL DIAGNOSIS

Condition	Key Features	Distinguishing Points	Clinical Approach / Next Step
Delirium	Acute onset, fluctuating course, often reversible	Triggered by acute illness, infection, metabolic disturbance, or drugs; impaired attention and consciousness	Identify and treat underlying cause (e.g., infection, metabolic derangement, drug effect); provide supportive care and reorientation; avoid sedatives unless necessary
Depression ("Pseudodementia")	Cognitive complaints linked to low mood	Onset during depressive episode; patients emphasize memory loss but improve with encouragement	Screen for depression; trial of antidepressants or psychotherapy; monitor for cognitive improvement after mood treatment
Mild Cognitive Impairment (MCI)	Measurable cognitive decline without loss of independence	Daily activities intact; increased risk of progression to dementia	Regular follow-up with cognitive testing; manage vascular risk factors; encourage lifestyle interventions (exercise, diet, cognitive training)
Chronic Psychiatric Illness	Long-standing cognitive or functional impairment	Seen in schizophrenia, bipolar disorder, chronic psychosis	Review psychiatric history; optimize psychiatric management; coordinate care with psychiatry; distinguish from superimposed dementia if symptoms progress

MANAGEMENT GOALS

- Slow progression - Use pharmacologic and non-pharmacologic measures to delay decline in cognition and function.
- Manage symptoms - Address behavioral and psychological symptoms such as agitation, depression, or sleep disturbances.
- Support independence - Encourage engagement in daily activities, cognitive exercises, and adaptive strategies to maintain autonomy.
- Reduce caregiver burden - Provide education, coping strategies, and access to respite care or support groups.
- Prevent complications -Implement measures to avoid malnutrition, infections, falls, and medication-related adverse effects.

MANAGEMENT PRINCIPLES

- Treat reversible causes first - Identify and address factors like hypothyroidism, vitamin B12 deficiency, depression, or medication side effects that may worsen cognition.
- Combine pharmacological and non-pharmacological measures - Use cognitive enhancers alongside structured routines, cognitive stimulation, and environmental modifications.
- Engage caregivers in all stages - Involve them in decision-making, daily care planning, and monitoring for changes in symptoms or function.
- Avoid polypharmacy - Minimize unnecessary medications to reduce drug interactions, sedation, and fall risk, prioritizing the safest and most effective agents.

NON-PHARMACOLOGICAL INTERVENTIONS

- **Cognitive stimulation activities** - Engage patients in structured mental exercises such as puzzles, word games, storytelling, or culturally relevant memory recall tasks to maintain cognitive function.
- **Orientation aids** - Place large, easy-to-read clocks, calendars, and visual cues around the home to reduce disorientation and confusion.
- **Physical activity programs** - Encourage daily walking, chair-based exercises, or light household chores to support mobility, cardiovascular health, and mood.
- **Caregiver education & support groups** - Provide training on dementia care techniques, communication strategies, and managing behavioral symptoms; link caregivers to local or online support networks.

Low-resource adaptation: Use community health workers, home visits, radio/TV health segments.

PHARMACOLOGICAL THERAPY

- Start with evidence-based agents for the dementia type (e.g., cholinesterase inhibitors for Alzheimer's and Lewy body dementia, memantine for moderate-severe disease).
- Begin at the lowest effective dose and titrate slowly, especially in frail or elderly patients.
- Address comorbid psychiatric symptoms using the safest possible options (e.g., SSRIs for depression, cautious antipsychotic use only when non-drug measures fail).
- Regularly review treatment every 3-6 months to assess benefit and tolerability, discontinuing ineffective or harmful medications.
- Avoid agents with strong anticholinergic effects that may worsen cognition.

Elderly Dosing Principles

- Always start low, go slow: Begin at ¼ to ½ the adult starting dose. Titrate no faster than every 3-5 days.
- Avoid long-term use unless non-drug measures fail.
- Reassess after 4-6 weeks for possible taper/discontinuation.
- Avoid polypharmacy and sedating drug combinations.
- Limit antipsychotics to shortest duration needed if limited monitoring capacity.

Table: Medicines used in the management of dementia

Indication	Drug	Dose	Route	Duration	Cautions
AD, mild-moderate	Donepezil	5-10 mg daily	Oral	Long-term	Nausea, bradycardia
AD, moderate-severe	Memantine	5-20 mg daily	Oral	Long-term	Dizziness, constipation
Alzheimer's disease; PDD/DLB	Rivastigmine	1.5 mg BID; increase to 3-6 mg BID; Patch 4.6 increase to 9.5-13.3 mg/24 h	Oral/patch	Long-term	Nausea/weight loss; skin irritation (patch)
AD, moderate-severe	Galantamine	8 mg daily increase to 16-24 mg daily	Oral ER	Long-term	Avoid in severe renal/ hepatic impairment
Vascular dementia	Antiplatelets/ statins	As per stroke prevention	Oral	Ongoing	Bleeding risk
Behavioral disturbance	Quetiapine	Start with 12.5-25 mg at night; titrate slowly every ≥3-5 days); ≤200 mg/day	Oral	Ongoing	Watch for orthostatic hypotension

	Risperidone 0.25-1 mg	Oral	Short-term	EPS, stroke risk in elderly	Most evidence for dementia-related agitation, but EPS possible at higher doses
	Olanzapine ≤5 mg/day	2.5 mg at night	Oral		Avoid in high metabolic risk; monitor for sedation & weight gain

Note:

1. Limited efficacy - Current drugs such as donepezil, rivastigmine, and galantamine (cholinesterase inhibitors) and memantine (NMDA receptor antagonist) can slow decline but do not reverse or halt disease progression.
2. Variable response - For example, some patients on donepezil 5-10 mg daily may have modest improvement in memory, while others show no noticeable benefit.
3. Adverse effects - Cholinesterase inhibitors: Donepezil may cause nausea, diarrhea, insomnia, and bradycardia. Memantine may cause dizziness, confusion, and hallucinations in some cases.
3. Worsening of comorbidities - Donepezil can aggravate sinus node dysfunction, causing syncope; rivastigmine patches may cause skin irritation in sensitive patients.
4. Increased sensitivity in elderly - Frail older adults may develop severe orthostatic hypotension with galantamine or sedation with memantine even at standard doses.
5. Polypharmacy risks - Donepezil combined with beta-blockers can increase bradycardia risk; memantine with amantadine may worsen confusion.
6. Antipsychotic caution - Risperidone or olanzapine may be needed for severe aggression or hallucinations but can increase stroke risk and mortality in dementia patients.
7. Monitoring requirements - Patients started on donepezil should be reviewed within 4-6 weeks to assess benefit and tolerability; continued only if functional improvement or stabilization is seen.

Management of Side Effects of Drugs Used in Dementia

Dementia treatment often involves cholinesterase inhibitors (donepezil, rivastigmine, galantamine) and NMDA receptor antagonists (memantine). While these improve cognition or slow decline, they can cause adverse effects that require proactive monitoring and management.

Table: Dementia Drug Side Effects and their management

Drug / Max Dose	Common Side Effect	First-Line Management	Low-Resource Adaptation	When to Refer to Atoll / Tertiary Care
Cholinesterase inhibitors Donepezil ≤10 mg/day Rivastigmine ≤6 mg BID or 9.5 mg patch daily Galantamine ≤12 mg BID	Nausea, vomiting, diarrhea	Give with meals, start low, titrate slowly	Switch to patch if available; bland diet, oral rehydration	Persistent vomiting >48 hours, dehydration, >5% weight loss
	Bradycardia, dizziness, syncope	Check pulse at each visit; reduce dose if HR <50 bpm	If no ECG available, rely on pulse monitoring	Any fainting episode, HR <45 bpm
	Weight loss/anorexia	Nutrient-rich snacks, family-assisted feeding	Coconut milk-based porridges, fish soups	BMI <18.5 with ongoing loss
	Insomnia/vivid dreams	Shift dosing to morning	Calming evening routine, avoid late caffeine	Severe insomnia affecting caregiver
NMDA antagonist Memantine	Dizziness/headache	Hydration, slow titration	Oral rehydration if heat-exposed	New/worsening confusion
	Constipation	Fiber, hydration, mild laxatives	Papaya, island greens	Constipation >5 days despite measures
	Hypertension	BP check monthly	Manual BP cuff monitoring	BP >160/100 mmHg persistently
Antipsychotics (use only for severe behavioral crises)	Sedation	Reduce to lowest dose	Engage family in activity scheduling	Sedation causing falls
Quetiapine	Rigidity, tremor (EPS)	Switch to quetiapine if available, or add short-course trihexyphenidyl (≤6 mg/day)	Massage, stretching	Persistent EPS despite intervention
	Stroke risk	Avoid unless benefits outweigh risks	Caregiver education on sudden neuro signs	Any sudden neurological deficit
SSRIs (for depression/ anxiety) Sertraline Escitalopram Citalopram	GI upset	Take with food	Light traditional diet adjustments	Persistent >2 weeks
	Hyponatremia	Monitor for confusion, weakness	Increase dietary sodium (fish soups)	Confirmed low sodium on labs or severe symptoms
	Bleeding risk	Avoid NSAIDs, monitor bruising	Paracetamol for pain	Signs of GI bleeding

Anti-Amyloid Therapy

Anti-amyloid therapies are a new but limited option in Alzheimer's disease management. They work by reducing amyloid plaques in the brain and are currently indicated only in early Alzheimer's disease (mild cognitive impairment or mild dementia stage).

Two monoclonal antibodies, aducanumab and lecanemab, have received accelerated FDA approval. Their benefits are modest, their availability restricted, and their use requires specialist referral with close MRI monitoring for side effects such as amyloid-related imaging abnormalities (ARIA).

Given the cost, access issues, and uncertain long-term benefit, these drugs are not part of routine dementia care. They may be considered in referral centers for carefully selected patients but remain outside standard treatment in most settings.

DEMENTIA MANAGEMENT WITH COMMON COMORBIDITIES

Managing dementia in the presence of other chronic illnesses requires a coordinated, individualized approach that balances cognitive, physical, and psychosocial needs. The goal is to optimize quality of life while minimizing drug interactions and functional decline.

Table: Dementia Management with Common Comorbidities

Comorbidity	Key Considerations in Dementia	Primary Care Actions (Island Health Centre / Atoll Hospital)	Secondary/Tertiary Actions (Regional / Malé Hospitals)	Notes for Low-Resource Setting
Hypertension & Cardiovascular Disease	BP control prevents vascular dementia progression	Monitor BP monthly; continue antihypertensives with moderate targets (<140/90)	Cardiology review for resistant hypertension or arrhythmia	Avoid overtreatment to prevent hypotension-related falls
Diabetes Mellitus	Hypoglycemia worsens confusion; hyperglycemia accelerates vascular damage	Simplify regimens; target HbA1c 7-8%; caregiver education on hypo signs	Switch to simpler insulin or oral agents if adherence issues	Use glucometers in health posts; teach family members to check
Depression	Can mimic or worsen dementia symptoms	Screen with GDS or PHQ-9; start SSRI if needed	Psychiatry review if suicidal ideation or non-response to SSRI	Group counseling via telehealth if psychiatrist unavailable
Parkinsonism / Lewy Body Dementia	High sensitivity to typical antipsychotics	Avoid haloperidol; use quetiapine if agitation present	Neurology consultation for complex cases	Supply chain to ensure availability of safer antipsychotics
Chronic Kidney Disease	Risk of drug accumulation and toxicity	Adjust doses per eGFR; avoid nephrotoxic drugs	Nephrology review for progressive CKD	Train staff to use eGFR-based dose charts

Hearing/Vision Impairment	Increases social isolation, worsens confusion	Ensure aids are available; environmental modifications	Refer for cataract surgery, hearing aid fitting	Distribute basic vision/ hearing screening kits to islands
Malnutrition & Frailty	Increases mortality, functional decline	Nutritional screening; recommend fortified meals	Dietitian consult; swallowing assessment if aspiration risk	Use locally available high-protein foods (tuna, eggs, coconut)
Polypharmacy	Increases drug-drug interaction and side effects	Review meds quarterly; deprescribe unnecessary drugs	Pharmacy review for complex patients	Use WHO essential medicines list to limit unnecessary prescriptions

Implementation in low resource setting

- **Telepsychiatry & Telemedicine:** Use to connect island health centers with regional and tertiary specialists.
- **Community Health Workers:** Can be trained for basic cognitive screening, BP and glucose monitoring, and caregiver education.
- **Referral Priorities:** Early referral for young-onset dementia, rapid progression, severe behavioral crises, or multiple uncontrolled comorbidities.
- **Integration with NCD Programmed:** Leverage existing national efforts for diabetes, hypertension, and elder health to embed dementia care.

ASSESSMENT OF RESPONSE

Domain	What to Monitor / Action	Follow-up Schedule	Step-up Criteria	Step-down Criteria
Clinical Improvement	Track memory, orientation, daily function, and behavior with MMSE, MoCA, ADL scales.	Initial: every 4-6 weeks after medication start/ adjustment; Maintenance: every 3--6 months; Prompt review after acute events.	Decline despite 3-6 months of adherence.	Stable with minimal decline over 6-12 months.
Caregiver Feedback	Document care needs, mood, social engagement.	Same as above.	New/severe behavioral or psychological symptoms.	Transition to comfort/ palliative care focus.
Safety Monitoring	Check side effects, falls, worsening comorbidities.	Same as above.	Failure of non-pharmacological strategies, need pharmacological augmentation.	Side effects outweigh therapy benefits.
Functional Status	Monitor ADLs and instrumental ADLs.	Same as above.	Requires specialist input for advanced planning or comorbidities.	Transition from active disease control to QoL focus.

PROGNOSIS & PROGRESSION

Dementia is a progressive neurodegenerative condition with a variable course depending on type, age at onset, and comorbidities. Average survival after diagnosis ranges from 4-8 years, though some patients live longer, especially with strong social and medical support. Alzheimer's disease typically has a gradual decline, while vascular dementia may progress in a stepwise pattern due to recurrent strokes.

Early stages often involve mild forgetfulness and reduced complex task performance, progressing to loss of independence, behavioral changes, and complete dependency in later stages. Prognosis is influenced by timely diagnosis, effective management of comorbidities (e.g., hypertension, diabetes), caregiver involvement, and access to supportive services.

Poor prognostic factors include early-onset disease, rapid cognitive decline, severe behavioral symptoms, frequent falls, malnutrition, and recurrent infections. Early recognition and comprehensive management can slow decline, reduce complications, and improve quality of life for both patients and caregivers.

REFERRAL PATHWAY

Level of Care	Role & Responsibilities	Referral Triggers / Next Step
Primary Care	■ Identify suspected dementia via history, cognitive screening, and basic labs. ■ Manage reversible causes. ■ Provide initial caregiver education.	■ Refer to secondary care if: ■ Rapid decline or atypical presentation (early onset <65, focal neurological signs, fluctuating consciousness). ■ Diagnostic uncertainty.
Secondary Care	■ Confirm diagnosis with detailed cognitive testing and imaging (if available). ■ Exclude treatable causes. ■ Initiate pharmacological and non-pharmacological management.	■ Refer to tertiary care if: ■ Rapid progression despite treatment. ■ Severe behavioral/psychological symptoms posing safety risks. ■ Complex comorbidities requiring specialist input.
Tertiary Care	■ Manage rare/complex dementia cases, severe behavioral crises, or patients needing multidisciplinary rehabilitation. ■ Provide advanced interventions and specialist input. ■ Offer guidance back to lower levels and periodic review (including via telemedicine where access is limited).	■ Step back to secondary/primary care for long-term follow-up once stabilized.

COMPLICATIONS AND THEIR PREVENTION STRATEGIES

Complication	Prevention / Management Strategies
Falls and Fractures	■ Install grab bars and non-slip mats. ■ Review medications for sedation or orthostatic hypotension. ■ Encourage supervised physical activity to maintain balance and strength.
Aspiration Pneumonia	■ Screen regularly for swallowing difficulties. ■ Modify food textures. ■ Provide feeding assistance. ■ Ensure upright positioning during meals.
Malnutrition and Dehydration	■ Offer small, frequent, nutrient-dense meals. ■ Encourage hydration with reminders. ■ Involve caregivers in meal preparation and monitoring intake.
Caregiver Burnout	■ Facilitate access to respite services. ■ Promote caregiver peer-support groups. ■ Provide psychoeducation. ■ Arrange community health worker check-ins.

PREVENTION AND HEALTH PROMOTION

Dementia prevention and health promotion efforts can be effectively integrated into existing non-communicable disease (NCD) programs to maximize reach and resources. Strategies should focus on:

- Control of vascular risk factors - Systematic screening and management of hypertension, diabetes, and dyslipidemia at the primary care level to reduce vascular contributions to cognitive decline.
- Promotion of lifelong learning - Community-based adult education programs, literacy initiatives, and mentally stimulating activities to strengthen cognitive reserve.
- Encouragement of social engagement - Organizing community events, group activities, and intergenerational programs to reduce isolation and maintain mental agility.
- Public awareness campaigns - Use radio, television, and social media to raise awareness on early warning signs, healthy lifestyle choices, and the benefits of timely diagnosis.
- Integration with NCD follow-up visits - Incorporate brief cognitive screening into routine check-ups for high-risk adults over 60 years.

PATIENT EDUCATION

Education should equip patients (where possible) and caregivers with the knowledge and skills to manage dementia effectively and safely. Key objectives include:

- Understanding dementia - Clarify that it is a progressive condition, explain the types, and address common myths.
- Treatment expectations - Set realistic goals about symptom control, slowing progression, and the role of medications and non-drug measures.
- Importance of safety-proofing the home - Guidance on fall prevention, removing hazards, securing dangerous items, and adapting the environment for orientation and mobility.
- Recognizing behavioral triggers - Help caregivers identify and manage environmental or emotional factors that can provoke agitation, wandering, or aggression.
- Promoting caregiver self-care - Emphasize the importance of rest, support groups, and seeking help to prevent burnout.

Instructions to patients/caregiver

Do's	Don'ts
Take medicines exactly as prescribed. Keep a written list of medications, doses, and times.	Do not stop or change medicines without consulting the doctor.
Attend all scheduled medical appointments for monitoring and follow-up.	Don't skip check-ups or delay reporting side effects.
Remove trip hazards, ensure proper lighting, label rooms, and lock away harmful substances.	Don't ignore safety risks in the home environment.
Provide a balanced diet, regular light physical activity (adapted to ability), and encourage hydration.	Don't allow prolonged fasting, dehydration, or unhealthy snacking.
Engage patients in simple, enjoyable activities (music, art, gardening, social visits).	Don't overstimulate with complex or stressful tasks.
Report new or worsening symptoms (confusion, aggression, swallowing problems) promptly.	Don't dismiss sudden changes in mood, behavior, or function.
Keep emergency contacts handy and know when to seek urgent care (falls, severe agitation, prolonged confusion).	Don't wait too long before calling for help in emergencies.
Use respite services, caregiver support groups, or community health workers to share responsibilities.	Don't try to manage caregiver burden alone or neglect your own health.

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