

Specification for community management of osteoporosis

Chinese Society of Gerontology and Geriatrics (✉)

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Preface*

This document is drafted in accordance with the provisions of GB/T 1.1—2020 "Guidelines for Standardisation Work Part 1: Structure and Drafting Rules for Standardised Documents".

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1 Scope

This document sets out the general requirements for the community management of osteoporosis, the establishment of a profile, screening, categorical preventive interventions, follow-up, evaluation and improvement.

This document applies to the community management of osteoporosis in primary health care settings.

Note: Health management services departments and organisations, as well as operational organisations providing home community health management and elderly care services, and other organisations may refer to the use.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 Osteoporosis

A systemic skeletal disease characterised by low bone mass and microarchitectural deterioration of bone tissue, with a consequent increase in bone fragility and susceptibility to fracture.

3.2 Screening

Activities and efforts to promote the early detection, diagnosis and treatment of people with osteoporosis by using quick and easy tests or other measures to distinguish those who may have osteoporosis in the general population and by referring or referring them to medical institutions for further examination and testing.

3.3 High risk group

People with a high risk of developing osteoporosis or osteoporotic fracture as determined by screening for osteoporosis or osteoporotic fracture.

4 General requirements

4.1 Purpose of management

Through the establishment of records, screening, classified preventive interventions and follow-up visits, we will identify people at high risk of osteoporosis in a timely manner, raise residents' awareness of osteoporosis prevention and control and knowledge of prevention and control, improve their relevant health behaviours, make referrals when necessary, and promote timely diagnosis and treatment of osteoporosis patients, thereby improving their bone health and reducing the occurrence of osteoporotic fractures and the harm they bring.

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4.2 Management objects

Permanent residents of the district, including household and non-household residents who have lived there for more than six months.

4.3 Management content

It should include the establishment of a file, screening, categorical preventive interventions, and follow-up visits.

Note: The establishment of a file can be based on community health records, chronic disease management health records, etc., with the addition of content related to osteoporosis management, or the creation of a specific disease file for each managee.

5 Creating a profile

5.1 Basic information

Includes name, gender, ID number, date of birth, ethnicity, marital status, education level, occupation, address of residence, travel history, contact details, etc.

5.2 Osteoporosis-related health information

5.2.1 General conditions

Height, weight, body mass index (BMI), history of menopause (female), history of falls.

5.2.2 Lifestyle

Smoking status, alcohol consumption, dietary habits, physical activity, and time spent outdoors.

5.2.3 Past history

Past history of osteoporosis, history of osteoporotic fractures, past history of other major chronic diseases and history of surgery.

5.2.4 Family history

Parental history of osteoporosis and osteoporotic fractures, etc.

5.2.5 Risk screening

Screen people at high risk of osteoporosis and osteoporotic fractures as per 6.

5.2.6 Bone density screening

Bone densitometry by dual-energy X-ray absorptiometry (DXA).

Note: The test results include the measurement site, T-value (post-menopausal women, men aged 50 years and above) and Z-value (pre-menopausal women and men under 50 years).

5.2.7 Recommendation for guidance on categorical prevention interventions

Includes specific advice on health education and healthy lifestyle guidance, recommendations for referrals, etc.

6 Screening

6.1 Screening methods

The risk of osteoporosis and osteoporotic fracture can be

assessed using one or more of the following, one of which is considered to be at high risk if it meets the determination criteria

- a) The International Osteoporosis Foundation One-Minute Osteoporosis Risk Test (see Appendix A).
- b) The Osteoporosis Self-Assessment Tool for Asians, OSTA (see Appendix B).
- c) Quantitative ultrasonography (see Appendix C).
- d) Risk prediction for osteoporotic fractures (see Appendix D).
- e) Screening for osteoporotic vertebral compression fractures (see Appendix E).

6.2 Screening department

- a) Primary health care facilities.
- b) Health management services sectors and organisations.
- c) Agencies that provide community health management.
- d) Aged care providers.

Note: Screening can be managed under primary health care after completion.

6.3 Screening pathways

- a) Those attending outpatient clinics at primary health care facilities.
- b) People receiving regular health examination.
- c) Community residents for the establishment of health records.
- d) Other means of opportunistic screening, such as epidemiological surveys, health education campaigns, etc.

6.4 Priority screening populations

Screening should be done for post-menopausal women, men aged 50 years or older, and those with risk factors for osteoporosis.

Note: Osteoporosis predominates in post-menopausal women and in the elderly population.

7 Categorical prevention interventions

7.1 General population management

For screened non-high risk groups, health education is provided in accordance with 7.4 to advise them to develop and maintain a healthy lifestyle.

7.2 Management of high risk groups

7.2.1 People at high risk of osteoporosis

Based on the management of the general population, the management targets are recommended to undergo regular DXA bone density testing and timely referral if they meet the referral criteria; regular follow-up visits are made.

7.2.2 People at high risk of osteoporotic fracture

Falls prevention and intervention based on general population management; regular DXA bone density testing recommended for management; timely referral if eligible for referral; regular follow up.

7.3 Management of patients with osteoporosis/osteoporotic fractures

The general population is managed according to 7.5 and

patients are regularly followed up for treatment, fall prevention and intervention.

7.4 Health education

7.4.1 Educational methods

The following educational methods can be used.

- a) Science popularization in the community.
- b) Promotional posters/building projection advertising.
- c) Health science knowledge competition.
- d) Forum/salon.
- e) New media health knowledge dissemination.

Note: The process of carrying out health education can cultivate a team of volunteers; give full play to the organising and coordinating role of the administrative village (neighbourhood committee).

7.4.2 Educational content

The following should be included.

- a) Definition and harms of osteoporosis.
- b) Risk factors for osteoporosis.
- c) Prevention of osteoporosis and healthy lifestyles.
- d) General knowledge of the treatment of osteoporosis.
- e) The harms of osteoporotic fractures.
- f) Fall prevention.

The following points should be focused on:

- a) Enhance nutrition and eat a balanced diet. A balanced diet rich in calcium, low in salt and moderate in protein is recommended.
- b) Adequate sun exposure. Exposure of the skin to the sun for 15-30 minutes between 11am and 3pm.
- c) Regular exercise. Weight-bearing exercise and resistance exercise.
- d) Quit smoking, limit alcohol and avoid excessive coffee and carbonated drinks.
- e) Avoid or minimize the use of drugs that affect bone metabolism, or use them as prescribed by your doctor.
- f) Avoid a sedentary lifestyle.

Note: Adolescence is the period of peak growth and development, and BMD levels at this time have a significant impact on peak bone mass and the incidence of osteoporosis in adulthood.

- g) Women should take care to ensure adequate calcium intake during pregnancy and lactation.
- h) Post-menopausal women can consult their doctor to initiate oestrogen therapy around the time of menopause.

Note: Estrogen deficiency can lead to an increased risk of osteoporosis. Menopause or bilateral oophorectomy can cause a rapid decline in oestrogen concentrations in women, followed by a significant increase in the rate of bone loss, osteoporosis and fracture incidence.

- i) Patients with osteoporosis should receive regular anti-osteoporosis medication in addition to lifestyle modifications, calcium and vitamin D supplements.
 - 1) Calcium and vitamin D supplements are only the basic measures for the treatment of osteoporosis; medication is also required.
 - 2) Anti-osteoporosis drugs can be classified according to their mechanism of action as bone resorption inhibitors, bone formation promoters, other

mechanism-based drugs and traditional Chinese medicine.

- 3) Patients with osteoporosis should seek prompt medical attention and improve compliance.
- j) Fall prevention is an important measure to prevent osteoporotic fractures.
 - 1) Early symptoms of osteoporosis are insidious and are often not detected until an osteoporotic fracture occurs.
 - 2) Osteoporotic fractures are a serious complication of osteoporosis.
 - 3) Fall prevention is an important measure to prevent osteoporotic fractures, including moderate exercise, lifestyle modification, rational use of medication, improvement of living and housing environment, psychological counselling and active treatment of common diseases in old age.
 - 4) The most common place for older people to fall is at home. An age-appropriate home environment can effectively reduce the likelihood of falls in the home.
 - 5) It is recommended to keep your home brightly lit with an even distribution of light and to retain night lighting; to keep the floor flat and non-slip and to place non-slip mats in the bathroom; to keep items not too high for easy access; to keep bathroom facilities and stairs safe and practical, to have sitting toilets with handrails in the bathroom, and to make beds and seats high and low for the elderly.

Note: Fall risk assessment, other specific measures to prevent falls, etc. may follow administrative or other relevant guidelines.

7.5 Triage and referral

7.5.1 Graded care

Primary health care institutions are mainly responsible for establishing records, screening, classifying preventive interventions and follow-up visits, and, where possible, carrying out diagnosis, basic treatment and rehabilitation of osteoporosis under the guidance of higher-level hospitals. Secondary hospitals and above are responsible for diagnosis of osteoporosis, identification of the cause, formulation of individualised treatment plans, treatment of serious complications and evaluation of treatment effects.

7.5.2 Referrals

In the following cases, primary health care institutions should promptly refer patients to higher-level hospitals for a clear diagnosis and treatment plan, and after the condition has stabilized or conditions are available, refer them back to primary health care institutions for long-term standardized follow-up treatment and management, and regularly (usually 0.5-1 year) visit higher-level hospitals to assess the effectiveness of treatment and management of patients.

- a) Primary health care providers who do not have a confirmed diagnosis of osteoporosis after initial screening.
- b) Patients with a first diagnosis of osteoporosis, but with an unknown cause or suspected secondary osteoporosis.
- c) Patients with severe osteoporosis or with significant

symptoms of generalized pain.

- d) Patients with secondary osteoporosis whose cause cannot be identified or is untreatable
- e) Patients with osteoporosis whose symptoms and signs have not improved after standard treatment.
- f) Patients with osteoporosis who have complications such as cardiovascular, cerebrovascular and other endocrine metabolic diseases, or who have new special conditions that are difficult to manage in primary health care.
- g) Those who need to be referred for treatment in primary health care facilities due to limitations in treatment drugs and other conditions.
- h) Other situations requiring referral as defined by clinical guidelines or administrative authorities.

8 Follow-up visits

8.1 General population

Annual follow-up visits, including a history of osteoporotic fractures in the last year, lifestyle and behavioural changes, bone density checks, and screening and assessment to update health records as appropriate.

8.2 High risk groups

Follow-up visits are conducted at least twice a year, including history of osteoporotic fractures in the last year, changes in lifestyle and behaviour, bone density tests, and diagnosis at a higher hospital, to update the health record.

8.3 Patients with osteoporosis/osteoporotic fractures

Follow-up visits are carried out at least twice a year to understand medication use, signs and symptoms, bone density checks and changes, and history of osteoporotic fractures, to promote and improve patient compliance with treatment and to adjust the follow-up schedule in a targeted manner.

9 Evaluation and improvement

9.1 Evaluation system

An evaluation system for the community management of osteoporosis should be established.

It should include self-evaluation, evaluation by service users and evaluation by higher (competent) authorities. Evaluations should be carried out at least once a year.

9.2 Evaluation approach and content

9.2.1 Quantitative analysis

The process, outcome and satisfaction indicators of osteoporosis management are evaluated by means of indicator statistics and questionnaires.

Process indicators: e.g. number of people screened for osteoporosis (number of people), number of people managed, number of health education activities, number of people reached by health education activities, number of referrals (number of people), etc.

Outcome indicators: e.g. community management rate of osteoporosis in the district, knowledge rate, bone density

testing rate, awareness rate of osteoporosis disease, treatment rate, etc.

Satisfaction indicators: e.g. satisfaction with services provided by management clients, satisfaction with staff in primary health care institutions, etc.

9.2.2 Qualitative analysis

Individual or group interviews were conducted with primary care staff and management clients to understand the process of community management of osteoporosis and the problems, comments and suggestions in specific services.

9.3 Continuous improvement

Based on the evaluation results, corrective measures and continuous improvement should be formulated, and staff training should be conducted regularly (annually) to continuously improve service capacity and service quality.

Appendix A

(informative)

International Osteoporosis Foundation One-Minute Osteoporosis Risk Test

A.1 International osteoporosis foundation osteoporosis risk minute test questions

- 1) Have either of your parents been diagnosed with osteoporosis or broken a bone after a minor fall ?
- 2) Did either of your parents have a "dowager's hump"?
- 3) Are you 60 years old or older?
- 4) Have you ever broken a bone after a minor fall, as an adult ?
- 5) Do you fall frequently (more than once in the last year) or do you have a fear of falling because you are frail?
- 6) After the age of 40, have you lost more than 3 cm in height?
- 7) Are you underweight (is your Body Mass Index less than 19 kg/m²?
- 8) Have you ever taken corticosteroid tablets for more than 3 consecutive months?
- 9) Have you ever been diagnosed with rheumatoid arthritis?
- 10) Have you been diagnosed with a gastrointestinal condition such as hyperthyroidism or hyperparathyroidism, type 1 diabetes, Crohn's disease or celiac disease or malnutrition?
- 11) For women: Did your menopause occur before the age of 45?
- 12) For women: Have your periods ever stopped for 12 consecutive months or more (other than because of pregnancy, menopause or hysterectomy)?
- 13) For women: Were your ovaries removed before age 50, without you taking Hormone Replacement Therapy?
- 14) For men: Have you ever suffered from impotence, lack of libido or other symptoms related to low testosterone levels?
- 15) Do you regularly drink alcohol in excess of safe drinking limits (more than 2 units a day)?
- 16) Do you currently, or have you ever, smoked cigarettes?
- 17) Is your daily level of physical activity less than 30 minutes per day (housework, gardening, walking, running etc.)?

- 18) Do you avoid, or are you allergic to milk or dairy products, without taking any calcium supplements?
- 19) Do you spend less than 10 min per day outdoors (with part of your body exposed to sunlight), without taking vitamin D supplements?

A.2 Determination of results

Subjects answered "yes" to one of the questions, suggesting a risk of osteoporosis.

Appendix B

(informative)

The Osteoporosis Self-Assessment Tool for Asians, OSTA

B.1 Screening methods

Screening was performed using the Osteoporosis Self-Assessment Tool for Asians, OSTA. OSTA index = [body mass (kg) – age (years)] × 0.2.

Note: OSTA has too few indicators, is not very specific, is combined with other risk factors and is only applicable to postmenopausal women.

B.2 Determination of results

Those with an OSTA < -1 suggest a risk of osteoporosis, as detailed in Table B1.

Table B1 OSTA index to assess osteoporosis risk level

Risk level	OSTA Index
Low	>-1
Medium	From -1 to -4
High	<-4

Appendix C

(informative)

Quantitative ultrasonography

C.1 Screening methods

Quantitative ultrasound (QUS) is used, usually to measure the heel bone. It can partially reflect the material and biomechanical characteristics of the bone.

Note: The measurements cannot be used as diagnostic criteria for osteoporosis or to determine the efficacy of drugs, but can be used for screening of people at risk of osteoporosis and for risk assessment of osteoporotic fractures.

C.2 Determination of results

Refer to the information provided by the manufacturer of the QUS device for determination. When the results suggest a possible osteoporosis patient, a further recommendation for DXA BMD testing is required.

Appendix D

(informative)

Predicting the risk of osteoporotic fracture

D.1 Risk forecasting tools

The risk of hip and major osteoporotic fractures (vertebral, forearm, hip or shoulder) over the next 10 years was assessed using the fracture risk detection tool FRAX®^{1,2}.

D.2 Determination of results

See Table D1 for details of the determination method.

Table D1 FRAX® calculation for fracture risk determination

Risk of osteoporotic fracture	FRAX® results
Low	Probability of any major osteoporotic fracture <10%
Medium	Probability of any major osteoporotic fracture 10% to 20%
High	≥ 3% probability of hip fracture or ≥ 20% probability of any major osteoporotic fracture

Appendix E

(informative)

Screening for osteoporotic vertebral compression fractures

E.1 Screening methods

Early screening using lateral x-ray of the thoracic and lumbar spine. Routine lateral X-rays of the thoracic and lumbar spine should include the T4-L1 and T12-L5 vertebrae.

E.2 Indications for screening

A lateral X-ray of the thoracic and lumbar spine and its fracture determination is recommended if any of the following are met.

- 70+ years for women and 80+ years for men with a vertebral, total hip or femoral neck BMD T-value ≤ -1.0.
- Women aged 65–69 years and men aged 70–79 years with a vertebral, total hip or femoral neck BMD T-value ≤ -1.5.
- Postmenopausal women and men over 50 years of age with any of the following specific risk factors.
 - Non-violent fracture in adulthood (≥50 years);
 - A shortening of ≥4 cm in height from younger age.
 - Progressive shortening of ≥2 cm in height within 1 year.
 - Recent or ongoing treatment with a long course (>3 months) of glucocorticoids.

E.3 Outcome determination

Vertebral compression fractures, including wedge, biconcave or compression deformities, are determined on the basis of lateral X-ray of the thoracic and lumbar spine and using the Genant visual semi-quantitative method, see Fig. E1.

¹FRAX® is a trademark of a product supplied by the University of Sheffield. This information is given for the convenience of the user of this document and does not imply an endorsement of the product. If other products have the same effect, then those equivalents may be used.

²The FRAX® for the Chinese population is available at: <http://www.sheffield.ac.uk/FRAX/tool.aspx?country=2>

			Normal
Wedge fracture	Biconcave fracture	Crush fracture	
			Mild fracture (Grade 1, 20%~25% loss of height)
			Moderate fracture (Grade 2, 26%~40% loss of height)
			Severe fracture (Grade 3, >40% loss of height)

Figure E1 Genant visual semi-quantitative determination method

Conflict of interests

The author declares no conflict of interests.

Electronic supplementary material

Supplementary material (the Chinese version of specification for community management of osteoporosis) is available in the online version of this article at <https://doi.org/10.26599/AGR.2023.9340003>.

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