


## CCD® Content Outline

The Body of Knowledge Study identified 5 major topic areas:

- I. Overview of Bone Physiology
- II. Imaging Technologies
- III. Interpretation
- IV. Risk Assessment
- V. Management

|   |  | # of items |
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| <b>Certified Clinical Densitometrist (CCD™®)<br/>2020 Examination Specifications<sup>i</sup></b>   |  |            |
| <b>I. Overview of Bone Physiology</b>  |  | <b>16</b>  |
| <b>A. Bone Development, Structure &amp; Peak Bone Mass</b> <ol style="list-style-type: none"> <li>1. Bone formation and resorption</li> <li>2. Bone microarchitecture and mineralization</li> <li>3. Cellular Mechanisms</li> <li>4. Cortical bone</li> <li>5. Trabecular bone</li> </ol>  |  |            |
| <b>B. Bone Pathologic States and Fractures</b> <ol style="list-style-type: none"> <li>1. Incidence and prevalence</li> <li>2. Morbidity and mortality</li> <li>3. Economic burden</li> <li>4. Fracture Types               <ol style="list-style-type: none"> <li>a. Fragility</li> <li>b. Non-fragility</li> <li>c. Pathologic Fractures</li> </ol> </li> </ol> |  |            |
| <b>II. Imaging Technologies</b>  |  | <b>20</b>  |
| <b>A. Core Concepts</b> <ol style="list-style-type: none"> <li>1. Radiation science and physics</li> <li>2. Safety</li> <li>3. Artifacts</li> </ol>  |  |            |
| <b>B. DXA</b> <ol style="list-style-type: none"> <li>1. Central               <ol style="list-style-type: none"> <li>a. Spine</li> <li>b. Hip</li> </ol> </li> <li>2. Peripheral</li> </ol>  |  |            |
| <b>C. Other Techniques and Modalities</b> <ol style="list-style-type: none"> <li>1. Vertebral Fracture Assessment (VFA, LVA)</li> <li>2. Radiograph</li> </ol>   |  |            |



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| <b>III. Interpretation</b> | <b>33</b> |
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**A. Principles of Interpretation**

1. Study quality (e.g., positioning, artifacts)
2. T-score
3. Z-score
4. BMD
5. Least Significant Change (LSC)

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6. Interpretation Rules:
  - a. Spine
  - b. Hip
  - c. Final Diagnosis
7. Other modalities (e.g., VFA/LVA, TBS, QCT/pQCT)

**B. Reporting**

1. Clinical indication, history, and demographics
2. Procedure (e.g., machine, software)
3. Diagnosis:
  - a. WHO criteria (e.g., premenopausal vs. postmenopausal)
  - b. ISCD Official Positions
  - c. NOF Standards of Care
4. Absolute fracture risk
5. Comparison to prior study (LSC if available)
6. Study limitations

**C. Special Situations**

1. Pediatric
2. Young adult/premenopausal
3. Bariatric
4. Patients with limited mobility

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| <b>IV. Risk Assessment</b> | <b>16</b> |
|----------------------------|-----------|

**A. Epidemiology**

1. Incidence and prevalence
2. Morbidity and mortality
3. Economic impact

**B. Risk Factors**

1. Demographics (e.g., age, ethnicity)
2. Social/lifestyle (e.g., smoking, alcohol, diet)
3. Medical (e.g., chronic kidney disease, endocrine/rheumatological disorders)



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# of items

4. Drugs (e.g., glucocorticoids, chemotherapy, hormonal)

**C. Clinical Evaluation**

1. Evaluation for secondary factors for bone loss (e.g., labs)
2. Fracture and clinical history
3. Imaging assessment (e.g., DXA, other techniques)

**D. Risk Assessment Calculators**

1. FRAX

**V. Management**

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**A. Non-pharmacological/Preventive Interventions**

1. Lifestyle modifications (e.g., diet, exercise, substances)
2. Fall prevention, gait and balance therapy

**B. Pharmacological Interventions**

1. Calcium and vitamin D
2. Antiresorptive (e.g., bisphosphonates, Rank-L inhibitors, SERMS)
3. Anabolic (i.e., teriparatide, abaloparatide)
4. Emerging therapies (e.g., anti-sclerostin Ab)
5. Drug holiday/modification of therapy

**C. Surveillance and Frequency of Testing**

1. Serial DXA testing
2. Testing indication (e.g., special circumstance)

**D. Patient Education**

1. Disease process and fracture risk
2. Prevention (e.g., pharmacological, nonpharmacological)
3. Reevaluation (e.g., monitoring frequency, treatment)

**Total**

**100**