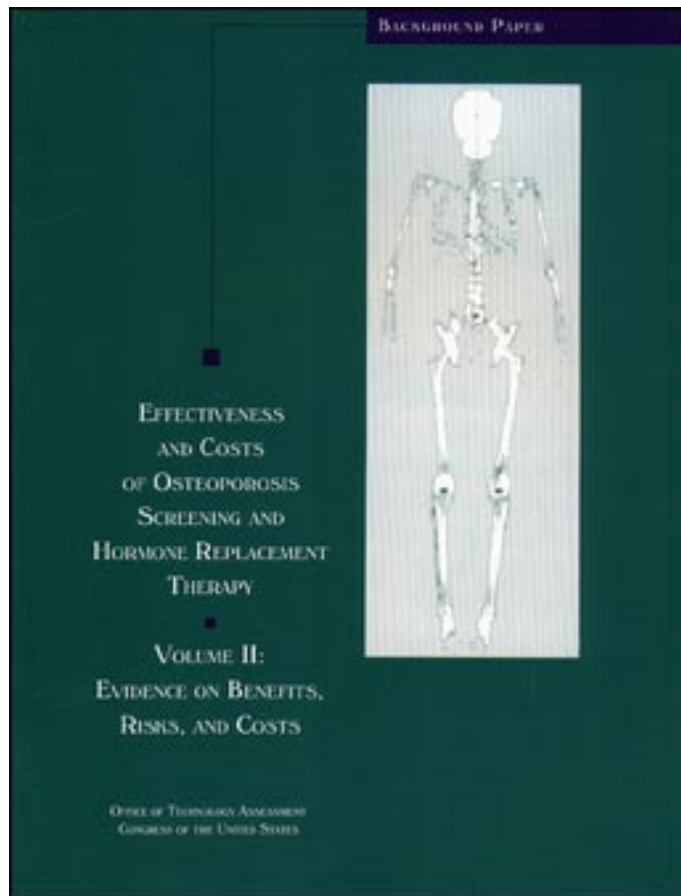


*Effectiveness and Costs of Osteoporosis  
Screening and Hormone Replacement  
Therapy, Vol. II: Evidence on Benefits,  
Risks, and Costs*

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# Foreword

**M**enopause typically occurs in women around age 50. Accompanying this life event is a decline in estrogen levels and an increase in the rate of decline in women's bone density. This rapid bone loss increases women's subsequent risk of developing osteoporosis, a disease characterized by low bone density and increased bone fragility. Among the most serious consequences of osteoporosis is fracture of the hip, which may result in substantial morbidity, prolonged hospitalization, and death. Estrogen can prevent bone loss after menopause by replacing the body's own estrogen. Given the serious consequences of osteoporosis, some osteoporosis experts have recommended that women have their bone mineral density measured at the time of menopause and those with the lowest bone mineral density be offered *hormone replacement therapy*, comprising estrogen given alone or in combination with the hormone progestin.

This background paper, *Effectiveness and Costs of Osteoporosis Screening and Hormone Replacement Therapy*, assesses the medical benefits and costs of both screening and hormone replacement therapy. It is divided into two volumes. The first volume, *Cost-Effectiveness Analysis*, presents the results of a model that estimates the cost per year of life gained from osteoporosis screening and hormone replacement therapy in postmenopausal women. The second volume, *Evidence on Benefits, Risks, and Costs*, provides the basis for the assumptions about the costs and effects of screening and hormonal replacement therapy used in the cost-effectiveness model.

This background paper is one of three documents resulting from OTA's assessment of policy issues in the prevention and treatment of osteoporosis. This assessment was requested by the Senate Special Committee on Aging, Senator Charles Grassley and Senator John Glenn, and the House Select Committee on Aging, Representative Olympia J. Snowe, Representative Benjamin A. Gilman, and former Representatives Brian J. Donnelly, Thomas J. Downey, and Patricia F. Saiki. Two background papers in this series have been issued, both in July 1994: *Public Information about Osteoporosis: What's Available, What's Needed?*, and *Hip Fracture Outcomes in People Age Fifty and Over*.



**ROGER C. HERDMAN**  
Director

# Preface

This volume, “Evidence on Benefits, Risks, and Costs of Hormonal Replacement Therapy,” is a companion to the volume “Cost-Effectiveness Analysis” of the OTA background paper “Effectiveness and Costs of Osteoporosis Screening and Hormone Replacement Therapy.” This volume reviews evidence on the impact of hormonal replacement therapy (HRT) on bone density, fractures, breast cancer, endometrial cancer, gallbladder disease, and heart disease that underlies the assumptions used in OTA’s cost-effectiveness analysis. This volume also includes information about hormonal replacement therapy dosage regimens; reviews the relationship between bone mineral density and hip fracture; and summarizes the costs of bone mineral density screening, intervention, and diseases affected by HRT.

This volume is organized as a series of appendices. Several appendices review HRT’s impacts on disease, including:

- Appendix B: “Evidence on Hormonal Replacement Therapy and Fractures,”
- Appendix F: “Evidence on Hormonal Replacement Therapy and Breast Cancer,”
- Appendix G: “Evidence on HRT and Endometrial Cancer,”
- Appendix H: “Evidence on HRT and Gallbladder Disease,” and
- Appendix I: “Evidence on HRT and Coronary Heart Disease.”

Appendix D, “Summary of Hip Fracture Prediction Methods,” details the method for predicting the number of hip fractures used in OTA’s cost-effectiveness analysis. The appendix describes the specific parameter assumptions and sources of data regarding the longitudinal distribution of bone mass in menopausal women from ages 50 to 90. The appendix also describes the specific parameter assumptions and sources of data regarding the short-term relationship of bone mass to fractures at each age.

Appendix E, “Hormonal Replacement Therapy Regimens,” describes the types of estrogens and progestins used for hormonal replacement therapy, their doses, and their administration. The appendix also describes the impact of hormonal replacement therapy on menopausal symptoms, and adverse effects of HRT, such as bleeding and premenstrual-tension-like symptoms. The appendix also describes the impact of these various dosage regimens on compliance with HRT.

Appendix J, “Methods for Estimating Costs,” provides the basis for OTA’s assumptions concerning the costs of bone mineral density measurement, hormone replacement therapy, heart disease, hip fractures, gallbladder disease, endometrial cancer, and breast cancer.

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**Note:** OTA appreciates and is grateful for the valuable assistance and thoughtful critiques provided by the panel members. The panel members do not, however, necessarily approve, disapprove, or endorse this report. OTA assumes full responsibility for the report and the accuracy of its contents.

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