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Report of the Senate Ad Hoc Committee on Osteoporosis

November 2004

Committee Members

Senator Toni Hellon, Chair
Senator Robert Cannell
Ms. Jane Canby
Ms. Renea Gentry
Dr. Jeffrey Lisse
Dr. Timothy Lohman
Ms. Margie Tate
Ms. Terri Verason

Report of the Senate Ad Hoc Committee on Osteoporosis

INTRODUCTION

This report summarizes the efforts of the Senate Ad Hoc Committee on Osteoporosis. This report is being submitted to the Governor, the Speaker of the House of Representatives and the President of the Senate.

PURPOSE

The Senate Ad Hoc Committee on Osteoporosis, established by the President of the Senate on December 2, 2002, was charged with the following:

(1) Research and collect information on osteoporosis;
(2) Evaluate the various approaches used by the state and local governments to increase public awareness of the risk, treatment and prevention of osteoporosis;
(3) Identify areas where public awareness, public education, research and coordination about osteoporosis need improvement; and
(4) Study ways to:
    (a) Increase the number of individuals in this state who are regularly screened for osteoporosis,
    (b) Increase research and funding at state institutions that are studying osteoporosis, and
    (c) Improve coordination between state agencies and institutions that are involved in research and treatment of osteoporosis.

The Committee is repealed from and after December 1, 2004.

MEMBERSHIP

Senate — Two members of the Senate, from different political parties and one designated as Chair, appointed by the President of the Senate:
Hellon (Chair), Cannell

Other — Seven members of the public, appointed by the President of the Senate:
Ms. Jane Canby
Ms. Renea Gentry, Arizona Osteoporosis Coalition, Executive Director
Dr. Jeffrey Lisse, Arizona Arthritis Center
Dr. Timothy Lohman, University of Arizona
Ms. Margie Tate, Office of Chronic Disease Prevention and Nutrition Services
Ms. Terri Verason, Director of Nutrition Services, Dairy Council of Arizona
Vacant

COMMITTEE ACTIVITIES

The Committee held two meetings during the past two years. The following provides a summary of each meeting, but please see the attached minutes and handouts for the Committee discussions and testimony.

December 16, 2002
The first meeting of the Committee began with introductions and a review of the committee charge and concluded with discussions of a plan of action for the following 12 months. There were two presentations given to the Committee:

- Overview of osteoporosis and its effect on the population of Arizona – Jennifer Koslo, M.S., R.D., Arizona Department of Health Services, Nutrition and Chronic Disease Prevention Services

- Overview of costs and projections over the years 2000 to 2025 and osteoporosis programs in Arizona and other states – Kathy Brewer, PT, GCS, Med, Arizona Osteoporosis Coalition

September 22, 2004
The second meeting of the Committee began with introductions. There were two presentations given to the Committee:

- Presentation on the research commissioned by the Arizona Osteoporosis Coalition entitled Arizona Hip Project – Dr. Jeffrey Lisse, Arizona Arthritis Center

- Presentation on the various resources for information about osteoporosis across Arizona, including its disparities and challenges, and recommendations regarding services – Renea Gentry, Arizona Osteoporosis Coalition

The Committee did not adopt any recommendations. Senator Cannell, who chaired the meeting in Senator Hellon's absence, stated that there are still outstanding issues, and felt that this meeting should not be the final meeting. Senator Cannell stated that he will meet with the President of the Senate to request a continuance of the Committee into next session.

ATTACHMENTS

- Meeting agenda/minutes/handouts – December 16, 2002
- Meeting agenda/minutes/handouts – September 22, 2004

Agendas can be obtained via the Internet at http://www.azleg.state.az.us/iagenda/iagenda.htm

ARIZONA STATE LEGISLATURE

INTERIM MEETING NOTICE
OPEN TO THE PUBLIC

SENATE AD HOC COMMITTEE ON OSTEOPOROSIS

Date: Monday, December 16, 2002

Time: 1:30 p.m.

Place: Senate Hearing Room 1

AGENDA

1. Introductions
2. Presentation by the Department of Health Services
   Jennifer Koslow
3. Presentation by the Osteoporosis Coalition
   Kathy Brewer
4. Review Committee Charge and Begin Developing a Plan for the Next 12 Months
5. Call to the Public
6. Adjourn

Members:

Senator Virginia Yrun, Chair
Kathy Brewer
Oscar Gluck
Timothy Lohman
Terri Verason
Senator Toni Hellon
Jane Canby
Jeffrey Lisse
Margie Tate

Persons with a disability may request a reasonable accommodation such as a sign language interpreter, by contacting the Senate Secretary's Office: (602)542-4231 (voice). Requests should be made as early as possible to allow time to arrange the accommodation.

JK/cd 12/09/02

Research

ARIZONA STATE LEGISLATURE

AD HOC COMMITTEE ON OSTEOPOROSIS

Minutes of Meeting
Monday, December 16, 2002 – 1:30 p.m.
Senate Hearing Room 1

Members Present:
Senator Virginia Yrun, Chair
Oscar Gluck
Timothy Lohman
Terri Verason
Kathy Brewer
Jane Canby
Margie Tate

Members Absent:
Senator Toni Hellon
Jeffrey Lisse

Staff: Julie Keane, Senate Health Analyst
Brandy Martin, Senate Assistant Analyst

Chair Yrun called the meeting to order at 1:40 p.m., and attendance was noted. She asked the members to introduce themselves and to comment and identify the outcomes that they would like to see for the Committee.

Jennifer Koslo, M.S., R.D., Arizona Department of Health Services (DHS), Nutrition and Chronic Disease Prevention Services (NCDPS), presented an overview of osteoporosis and its effect on the population of Arizona. She provided an outline of her presentation to the Committee (Attachment A). She emphasized that osteoporosis is a pediatric disorder that manifests itself in the aging process; however, it is never too early to begin prevention efforts. She said after age 30 a gradual decline in bone mass occurs, and a healthy lifestyle is critically important to maintaining strong bones. She commented that bone fractures significantly increase health care costs and decrease the quality of life. She said osteoporosis is known as the "silent disease" because the loss of bone occurs over a long period of time. She noted that while there are treatments for osteoporosis, there currently is no cure. The four important steps in the prevention of osteoporosis are diet, activity, lifestyle and bone density testing.

Ms. Koslo identified the risk factors as modifiable and non-modifiable. The modifiable factors are calcium intake, weight-bearing exercise, smoking and medications. The non-modifiable factors are age, gender, ethnicity and genetics. She indicated that certain medications used in treating other chronic conditions could also contribute to the thinning of bones.

Ms. Koslo commented on the prevalence and incidence data outlined on page 2 of the handout.

Presentation by the Osteoporosis Coalition

Kathy Brewer, PT, GCS, MEd, Arizona Osteoporosis Coalition, presented an overview on Item II of Attachment A pertaining to costs and projections for the years 2000-2025. She noted that the role of bone mineral testing is critical. She commented on the human factor statistics regarding bone fractures as highlighted in the handout. Ms. Brewer reviewed the findings of surveys taken of various health plans regarding insurance reimbursement issues.

In response to Senator Yrun's inquiry regarding bone replacement therapy, Dr. Gluck outlined the various treatments currently available.

Ms. Brewer stated that there are various programs in other states, which are listed in the handout. She said Arizona is involved in several programming activities that have been successfully implemented throughout the country. She addressed three osteoporosis program efforts currently underway in Arizona:

- Maricopa County Office of Nutrition Services
- Healthy Women for a Lifetime
- Arizona Osteoporosis Coalition

Ms. Brewer noted that web site resources are available as listed on the handout. She stated that proposals have been submitted to various sources of funds for expansion of the public awareness programs.

Senator Yrun asked whether any data is available on the number of eligible women in Arizona who actually receive Medicare-sponsored screening. Ms. Brewer responded that information could possibly be extrapolated from a national database through the Medicare system. She suggested that the percentage is probably fairly low, which indicates there is room for improvement.

In response to Ms. Verason, Ms. Brewer presented an overview on the programs in Arizona regarding possible continuance and funding.

Senator Yrun asked whether a medical standard exists to indicate that bone screening should begin prior to age 65. Dr. Gluck responded that the National Prevention Task Force published two months ago that all women over 65 should be screened. Also, women 60 years of age or older with a risk factor should be screened. Dr. Lohman stated that it is preferable for screening to occur sooner because women at 65 have already lost 10% to 25% of bone density during their late twenties.

Ms. Verason commented on the importance of having bone density testing. She stated that the Academy of Pediatrics has emphasized the importance of teenagers to exercise

and to have enough calcium in their diets to help prevent osteoporosis and related costs later in life.

Review Committee Charge and Begin Developing a Plan for the Next 12 Months

Senator Yrun asked the members to comment on the outcomes they would like to see on this issue during the next twelve months. Ms. Canby responded that the issue of data collection needs to be addressed, and the best way to use the available resources to collect the data. Senator Yrun asked Ms. Koslo to address the issue of collecting incidence data and to distinguish the differences between prevalence and incidence data. Ms. Koslo responded that prevalence data indicates the portion of population that has the disease obtained through available data. Incidence data indicates new cases within a period of time, which involves screening and re-screening. She noted that data is very costly to collect. Ms. Canby remarked a previously-funded program that could possibly be expanded is the Behavioral Risk Factor Survey. She indicated new questions could be added to the survey regarding osteoporosis risk factors. Ms. Koslo noted that the added cost would amount to $1,200 per question on the survey, and she described some examples of questions. In response to Senator Yrun, Ms. Tate said the survey is administered by DHS, but is nationally sponsored by the Center for Disease Control (CDC). She noted that CDC provides some funding to the states for a core module of the survey, and the cost for any additional questions would have to be funded by the states.

Ms. Brewer added that a data research committee conducted a study in 2000. She indicated it was an attempt to capsulate the issues related specifically to Arizona, and said it would be the intention to repeat and update the study every two to three years.

Dr. Gluck stated a primary outcome that would be helpful is to partner with Arizona hospitals in accumulating data on routine bone fractures. He said it would be helpful to have a baseline of knowledge regarding the patients who experience bone fractures along with intervention with other partnering entities. He stated that the Center of Medicare and Medicaid Services (CMS) would likely be interested in partnering.

Ms. Verason stated that Dr. Gary Chan at the University of Utah is currently conducting research on children and bone density, and similar research is underway in other parts of the country. She commented that the issue of children and adolescence leads to the topic of primary and secondary prevention. Primary prevention is building strong bones and appropriate health behaviors. Secondary prevention is the prevention of fracture. She said there are many approaches and perspectives to address this issue through public and private means.

Ms. Tate stated that osteoporosis is perceived as a disease of the elderly; however, it is important to note that it is a life-spaning disease. She said primary prevention takes place with elementary and school-age children, and then evolves into a secondary and treatment-type prevention.

Dr. Lohman stated statistics indicate that those treated with fractures are not generally tested for bone density at the time of the treatment. Dr. Gluck stated it could be feasible within a year to collaborate with other entities to conduct a study on patients treated for bone fractures. He said data gathering could be undertaken in the form of a questionnaire at the time a patient receives treatment for a common bone fracture.

Senator Yrun stated that a representative from the Hospital Association should be included on the Committee when Senator Bennett reappoints the members. Dr. Gluck suggested that Anita Murcko would also be a welcome addition to the Committee.

Dr. Gluck indicated that the cost of the project would depend on the amount of data obtained. He suggested including women over age 50 and men over age 60, and anyone who is treated for a bone fracture at a hospital facility would be given the questionnaire. Senator Yrun wanted to know if data exists regarding the percent of all fractures that are treated at a hospital versus another facility. Dr. Gluck responded that approximately 90 percent of hip fractures are treated at hospitals, and only a third of spine or vertebrae fractures are discovered clinically. He said the focus should be based on hip fractures or those fractures that require intervention by a surgeon.

Senator Yrun commented another factor to consider is lost productivity as a result of fractures. She asked whether any data is available on loss of work due to fractures. Dr. Gluck responded such data exists, but may not be available in Arizona. He indicated that if the hospital project is successful, the study could also be expanded at a later date to include children and other age groups.

Ms. Canby noted that the Committee report is due in November 2004. Dr. Gluck stated there is enough time to conduct the project before the report is due.

Dr. Lohman stated that screening is one of the most important factors, and he suggested examples of how to conduct the screening.

Senator Yrun suggested that the members could be divided into two groups. One group would focus on the hospital study, and another group could handle the screening issue.

Liana Martin, Legislative Liaison, DHS, responded to Senator Yrun regarding the hospital project and costs. She said depending on how the project is handled, any possible federal funding to Arizona would be a decision of CMS.

Senator Yrun commented that the screening survey would be an expensive undertaking, but perhaps private grants may be available. She said it is doubtful that any State funds would be available due to the current budget deficit. Ms. Canby said perhaps some private funding sources may be interested, such as pharmaceutical companies. She said another issue to consider is who would be analyzing the data, writing the report and duplicating the report.

Dr. Gluck stated that the project would include data gathering, intervention and other issues, which would require certain expertise. He said the results of the project could be divided into certain geographical areas, and the ultimate results would improve the quality of care for the State.

Ms. Verason referred to the screening portion of the project. She said many groups handle screenings throughout the State. She asked whether there is a way to survey those groups with respect to the data being collected.

Dr. Lohman said although he is not sure how comprehensive it would be, but certainly those groups would have data that could be useful to this project.

Dr. Gluck commented that a recent nationwide Nora Project sponsored by certain pharmaceutical companies worked in conjunction with physicians' offices to measure patient bone density. He said 300,000 women were screened and the bone density findings were published in the Nora Project report, which is available. He noted that Arizona is unique in terms of population and needs. He added there is a significant elderly population, and he is interested in knowing how Boswell Hospital data compares with that of other hospitals regarding the required information for this project.

Senator Yrun suggested dividing the Committee into two groups. One group would consist of Dr. Gluck, Ms. Tate, Dr. Lisse, and Dr. Anita Murcko. Dr. Gluck indicated he would contact Dr. Murcko. He would also like input from the University of Arizona. Dr. Gluck also suggested adding Dr. Michael Maricic to the group, and said he would contact him. Ms. Koslo would also be a member of that group.

Senator Yrun said she will also contact the Hospital Association to find out how to proceed. Ms. Keane indicated she will have a representative from the Hospital Association contact Dr. Gluck. Senator Yrun asked Ms. Keane to provide a directory of Committee members, their telephone numbers and email addresses for the Committee's use.

The other group will include Dr. Lohman, Ms. Canby, Ms. Brewer, and Ms. Verason. Senator Yrun stated that Senator Hellon will probably be chairing the full Committee henceforth. When Senator Bennett reappoints the Committee, a suggestion will be made to include the additional names of Dr. Anita Murcko and Dr. Michael Maricic.

In response to Senator Yrun, Ms. Liana Martin stated that today's meeting provided a good discussion on the issue. She said as progress develops, DHS could provide some advice on funding needs and other issues for the Committee. Senator Yrun asked Ms. Martin to check with the Director of DHS to see if partnering could be provided as needs are identified and developed in this project regarding epidemiology input.

Dr. Lohman asked whether an interim report would be available as the project moves along. Senator Yrun stated that the Committee is required to submit a final report, but is not prohibited from issuing an interim report. Dr. Lohman suggested an interim report

would be very helpful, and Senator Yrun agreed. She said as most of the survey work will be completed in the first year, it could lead to suggestions for revisions or initiating public policy in the second year. Therefore, an interim report would be very beneficial as back-up data.

At Senator Yrun's request, Ms. Keane introduced herself and explained her role with the Committee. Senator Yrun explained that the groups would meet at their convenience.

Public Testimony

There was no public testimony.

There being no further business, the meeting adjourned at 3:10 p.m.

Respectfully submitted,

Nancy L. DeMichele

Nancy L. DeMichele, Committee Secretary

(Tapes and attachments on file in the Secretary of the Senate's Office/Resource Center, Room 115)

Arizona State Legislature
AD HOC Committee on Osteoporosis
Monday December 16, 2002

Contacts:

Jennifer Koslo, M.S., R.D., Arizona Department of Health Services, NCDPS
Kathy Brewer, PT, GCS, MEd, Arizona Osteoporosis Coalition

I. OSTEOPOROSIS AND ITS EFFECT ON THE PEOPLE OF ARIZONA

Objectives:

1. To better understand the scope and impact of osteoporosis in Arizona
2. To define osteoporosis
3. To state several risk factors
4. To identify the ethnic populations at the highest risk
5. To understand the value of prevalence and incidence data
6. To gain information on programs in other states
7. To describe current programming in Arizona
8. To understand the scope of cost and reimbursement issues related to the disease

Disease Overview:

Definition: Osteoporosis is a chronic disease characterized by decreased bone mass with decreased density and enlargement of bone spaces producing porosity and fragility resulting from a disturbance in nutrition and mineral metabolism.

- Bone Mineral Density (BMD) achieved when an individual reaches twenties
- After this point a gradual decline occurs
- Both modifiable and non-modifiable factors affect this process
- Decreased BMD associated with increased risk of fracture, especially in the elderly
- Most common sites of fractures include hip, spine, forearm, or wrist
- Fractures significantly decrease quality of life and increase health care costs
- Also known as the "Silent Disease"
- **This disease is thought to be preventable for most people. While there are treatments for osteoporosis, there is currently no cure**
- Four important steps in the prevention of osteoporosis: diet, activity, lifestyle, bone density testing

Pathology:

First step in prevention is to determine risk factors.
Risk factors: Can be categorized as both modifiable and non-modifiable.
Non-modifiable factors:

- Age
- Gender
- Ethnicity
- Genetics

Modifiable factors:

- Calcium intake
- Weight bearing exercise (WBE)
- Smoking

Etiology: Disturbances in nutrition and bone metabolism related to the occurrence of one or more risk factors results in a gradual loss of bone which occurs over a long period of time. The disease is generally asymptomatic until fractures occur.

Prevalence and incidence data:

Prevalence data: Tells us the proportion of the population that has the disease

2002 Prevalence Data for Arizona

Totals:	Total Women with Osteoporosis and Low Bone Mass	Total Men with Osteoporosis and Low Bone Mass	Grand Total for Men and Women
State of Arizona	543,800	263,900	807,700
By Congressional District:			
District 1	65,900	31,300	97,200
District 2	64,400	30,800	95,200
District 3	131,200	65,300	196,500
District 4	76,100	36,000	112,100
District 5	99,200	47,900	147,100
District 6	107,500	54,000	161,500

Incidence data: Indicates new cases within a period of time. Important because it assess how quickly the disease is developing among the population at risk showing the trend. This type of data is very costly to collect which has resulted in a dearth of osteoporosis incidence data.

II. COSTS

Arizona Projections for 2000-2025:

Data source: Agency for Healthcare Policy Research and Quality
Analysis: Pharmacoeconomics Department, Procter and Gamble Pharmaceuticals

Hospitalization (1977)

- 1997 – 6,077 patients identified by primary diagnosis fracture by ICD-9 coding for hosp admission
- $97 million in charges
- 31,000 hospital days
- 51% discharge to long term care

Total medical costs (2000)

- Inpatient - $136 million (acute care, physician costs, acute rehab)
- Outpatient - $18.4 million (home care, physician visits, out patient therapy and services)
- Long term care - $83 million
- Total: $237 million for all fracture types, both male and female

Projections

	2000	2005	2010	2025
COST	$237 mill	$275 mill	$309.3 mill	$438.2mill
FRACTURES	19k	22k	25k	35.5k

Role of Bone Mineral Density (BMD) Testing:

(presented 10/02 – American College of Rheumatology)

- Based on BMD testing done in 2001 on women age 65 and older with osteoporosis or osteopenia
- Cost and fracture outcomes were assessed over 3 years (2001-2003)
- 10% increase in BMD testing (an additional 180,000 women) could reduce the incidence of hip, spine and wrist fracture by 6,683
- Reduction in direct medical costs of fractures estimated at $32.3 million
    - $12.1 million in testing costs
    - $4.7 million in costs for medical therapy initiated
    - resultant $15.5 million Medicare savings

The Human Factor:

- One woman in 2 and 1 in 8 men over age 50 will have an osteoporotic fracture in their lifetime
- For women, thissk is greater than for breast, uterine and ovarian cancer combined
- An osteoporosis fracture occurs every 20 seconds in the US
- 1 in 5 women who sustain an osteoporotic fracture will have a second fracture within one year

- 75% of women aged 45 – 75 have never discussed osteoporosis with their physician
- 24% of hip fracture patients die within one year
- 28% of patients with hip fracture will require institutionalization

Insurance Reimbursement Issues:

Source: Healthy Women for a Lifetime Coalition – 2000-2001 Health Plan Survey of Women's Health Services ins AZ Health Plans

- 7 health plans surveyed: BC/BS, Cigna, Health Choice, Maricopa County Heatlh System, Mercy Care, Pacificare
- All offer BMD screening, 1 limited to specific age group (over 60)
- Initial referral and frequency of repeat testing is determined by physician and/or prior authorization for all (not criteria driven)
- Factors include family history, over age 60, specific benefit coverage
- None of the 7 were able to report the % of women who receive BMD in their plan
- Drug therapy availability:
    - HRT covered by all, most SERMs and bisphosphonates require prior authorization
    - 2 plans - all drugs prescribed at physician discretion, no limitations.
    - 5 plans - formulary drugs must be tried first. Prescriber must then submit patient's clinical information for review by Medical Director showing need for non-formulary and failed trials of formulary equivalents.

III. PROGRAMS IN OTHER STATES

2000 report from Women's Health Council of the Association of State and Territorial Chronic Disease Program Directors

- National legislation has required Medicare Part B to cover BMD testing since July 1, 1998
- 50% of states require the state to conduct public education; in 1998 14 states had earmarked separate funds and 7 states used existing health department dollars
- 8 states have passed laws requiring private insurance to cover BMD testing
- Federal funds have supported osteoporosis via grants under various units of the CDC

2002 report from the Elder Floridians Foundation

- 24 states programs listed: housed under various departments
    - State DHS
    - Health and Human Services
    - Office of Nutrition Services
    - Older Adult Health
    - Department of Aging
    - Office of Women's Health
    - Department of Public Health

    - Department of Agriculture
- Other partners integrating osteoporosis programs
    - Worksite wellness programs
    - Cooperative extension networks
    - Fall prevention programs
    - State Medical Association and other health professions groups
    - Arthritis centers
    - Women's health groups
    - Cancer centers
    - Maternal and child and family health
    - Physical activity initiatives
    - Anti-smoking initiatives
- State programming
    - Media campaigns
    - PSA's for radio and TV
    - Toll free information lines
    - Written public awareness and educational materials
    - Screening programs
    - Consumer education programs
    - Healthcare provider and physician education
    - Web sites
    - Support groups
    - Pre-adolescent curriculum
    - Older adult exercise classes
    - Surveillance systems – BRFSS

IV. ARIZONA OSTEOPOROSIS PROGRAMS

Maricopa County Office of Nutrition Services:
"Building Better Bones" curriculum for 5th and 6th graders

- Arizona Nutrition Network and state health department funding currently provides for programming in low-income schools, in 6 AZ counties
- Arizona Osteoporosis Coalition – collaboration for development of a kids interactive website www.buildingbetterbones.org
- After school and community based programming in Maricopa County provided by grant funding

Healthy Women for a Lifetime:

- 4 issues: Depression, Heart Health, Breast Cancer and Osteoporosis
- Health Plan Survey information
- Collaboration with Cigna – professional staff inservice training on osteoporosis
- Planning May event on osteoporosis

Arizona Osteoporosis Coalition:
Mission: To raise awareness of the impact of osteoporosis on residents of Arizona through education, communication and public activity.

The coalition has been in existence since 1998, begun with a small seed-grant from the American Public Health Association. Membership is comprised of more than 650 interested organizations and individuals. AzOC is incorporated in Arizona and received federal nonprofit status in 2001.

AzOC developed many of its programs recently under a two-year contract (7/99-6/01) with the Arizona Department of Health Services. Through this work, AzOC established the following resources and programs:

- Through a partnership with the Maricopa County Cooperative Extension, the Bone Builders train the trainer prevention education program for young adult individuals was expanded to 8 AZ counties
- A health care provider curriculum designed to address the issues of osteoporosis prevention, diagnosis and management in more than 15 disciplines
- The first data monograph about osteoporosis in Arizona
- A public awareness message and plan for a campaign including a professional brochure in both Spanish and English, a 30-second television advertisement along with a radio version for public service announcements
- A statewide directory of prevention, screening and treatment resources
- A web site for osteoporosis information and coalition activities, feature articles and documents such as the monograph and resource directory listed above (www.fitbones.org)
- A toll free number of taped information on 13 osteoporosis topics in both English and Spanish (1-800-611-3410 or 602-470-0961)

The design and implementation of these projects were the first steps in establishing a presence in the AZ public health community regarding the critical issue of osteoporosis.

Current projects and programs in addition to those stated above.

- Development of a kids interactive website www.buildingbetterbones.org, expanding and enhancing the classroom curriculum, in collaboration with the Maricopa County Office of Nutrition Services
- Bone Builders trained 80 volunteers in the past year. Statewide, Bone Builders staff and volunteers taught 403 classes to 9724 people, participated in 72 health fairs, taught 2335 individuals and provided BMD screening to 2346 people, reaching a total of 28,161 people with an osteoporosis message.
- A health care provider training program was presented in July 2002 utilizing videoconferencing and telemedicine networks across the state. The target audience was physician assistants, nurse practioners, physical therapists and dieticians
- The "fitbones" web site continues to receive apx. 1000 visits per month
- The Foundation for Osteoporosis Research and Education (FORE) was awarded a grant from the Administration on Aging to develop an action plan for a national osteoporosis awareness campaign for post-menopausal women. AzOC will be a participating partner on the planning committee, council and final report.

Proposals have been submitted to various funders for expansion of our public awareness campaign, distribution of brochures and written information, additional Bone Builders volunteer training and additional opportunities to present osteoporosis education to health care providers across Arizona.

V. WEB SITE RESOURCES

1. www.nof.org (National Osteoporosis Foundation)
2. www.fitbones.org (Arizona Osteoporosis Coalition)
3. www.bonebuilders.org
4. www.fore.org (Foundation for Osteoporosis Research & Educ)
5. www.4women.gov
6. www.obgyn.net/osteoporosis
7. www.endocrineweb.com
8. www.osteorec.com
9. www.osteo.org (NIH osteoporosis and related bone diseases)
10. navigator.tufts.edu (nutrition information)
11. nutritiononestop.com (nutrition information)
12. www.asbmr.org (Am Society of Bone and Mineral Research)

Osteoporosis and its Effect on the people of Arizona

Prepared by:

Arizona Osteoporosis Coalition

Data Committee

Chair - Linda Larkey, PhD

Ralph Renger, PhD

Omar Passons, BA, MPH candidate

Jody Carver, BS MPH candidate

Executive Summary

- In 1996, 14% of Arizona's population, age 50 and over was diagnosed with osteoporosis.

- Conservative estimates using 1998 Arizona hospital discharge data place the cost of osteoporosis in the state at about $177 million. This does not include the costs after being discharged, which can include significant costs for long-term care and/or health care. It also does not account for the significant impact on quality of life. Given the projected population growth and the rising cost of health care it appears that efforts need to be directed toward prevention and early detection.

- The few prevention and education programs currently operating in the state focus on adults. Much greater effort must be directed toward youth education programs.

- Education programs for adults need to focus on the importance of screening and early detection. Programs targeting older adults should include a fall prevention component. A reduction in falls is likely to minimize the number of fractures.

- Bone mineral density screening should be mandatory for all post-menopausal women under 65 and all women over 65 regardless of the number of risk factors.

- Better data is needed about modifiable risk factors of osteoporosis. It is recommended that a question pertaining to calcium intake be added to the BRFSS, perhaps in the women's health section. It is suggested that the physical activity data gathered in the BRFSS be recoded to delineate weight-bearing from non-weight bearing exercise.

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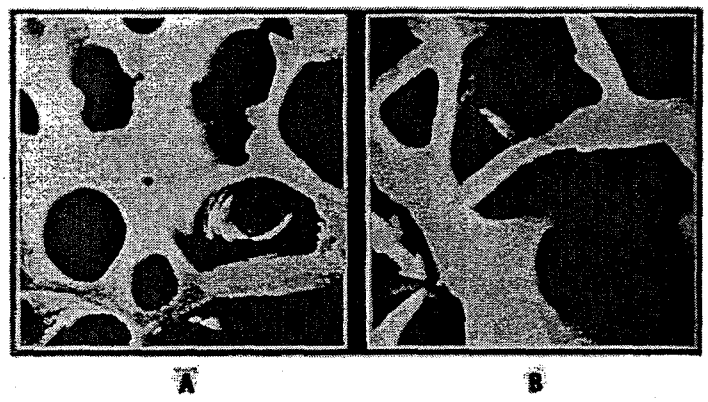
Introduction:
Osteoporosis Defined and its Importance

Osteoporosis is the technical name for a disease in which bones become extremely thin and frail.[1] The body typically has fully developed skeletal (bone) mass by the time an individual has reached the early twenties.[2] After this point, a gradual loss of bone mass (known as bone mineral density or BMD) occurs throughout the rest of natural life. There are several factors that scientists believe affect this process. These include smoking, excessive alcohol consumption, calcium and vitamin D intake, presence of appropriate exercise, and family history.

The figure on the next page is taken from the Physician's Guide to Prevention and Treatment of Osteoporosis and published by the National Osteoporosis Foundation (NOF). The figure shows the difference between a healthy bone and an osteoporotic bone. Once a person's BMD has decreased below a certain level, the risk of breaking a bone increases dramatically. Even the slightest slip or fall in a person with osteoporosis can result in fractures of the hip, spine, forearm, or wrist. These fractures decrease mobility, functionality and independence in the person suffering the fracture. In short osteoporosis can significantly degrade one's quality of life. The fact that most osteoporosis related fractures occur in the elderly also places tremendous burden on the caregivers who are often immediate family.

FIGURE 1. MICROGRAPHS



Micrographs of biopsy specimens of normal and osteoporotic bone. Panel A is from a 75-year-old normal woman. Panel B is from a 47-year-old woman who had multiple vertebral compression fractures. From Dempster DW, et al. *J Bone Miner Res.* 1986;1:15–21.

Osteoporosis is often undetectable because loss of bone mass typically occurs over a long period of time and is asymptomatic until fractures occur. Thus osteoporosis is referred to as "the silent disease".

The bones most frequently broken are the hip and spine. Breaks of this type often require costly hospital stays. In 1995 approximately $14 billion, or 1.5% of the nation's health care budget, was spent caring for those with the osteoporosis.[3] Such fractures also have long lasting and debilitating effects on those afflicted. The good news is that the disease is thought to be preventable. This means that increased prevention efforts could result in both a significant cost savings and improvement in quality of life.

The purpose of this report is to better understand the scope and impact of osteoporosis in the state of Arizona. To meet this goal the report is divided into six sections. Section 1 presents the available prevalence (number of cases at any one time) and incidence (number of new cases) data at a national and state level.

Section 2 presents the factors that place individuals at risk for thinning bones. These risk factors include age, gender, ethnicity, genetics, calcium intake, weight-bearing exercise, and smoking.

This report pieces together existing data to show the estimated number of Arizonans with these risk factors. Since our current data collection vehicles for statewide health information do not currently focus on osteoporosis as a critical disease risk, the data fro Arizonans are sporadic. The report will make recommendations for a more systematic data collection vehicle for tracking osteoporosis risk and potential impact.

In Section 3 the report documents the financial impact of osteoporosis related health care to the state. Arizona hospital discharge data from 1998 is used in conjunction with empirically based attribution probabilities to arrive at a conservative estimate of the cost of the disease in Arizona. Again recommendations are made for improving methods of data collection statewide to help us better assess the impact of osteoporosis.

Section 4 reports data collected from a survey of managed care organizations to understand the range of osteoporosis prevention, screening and treatment services available to those covered under the top 12 plans in Arizona. These are compared to the physician's guide to prevention and treatment of osteoporosis published by the National Osteoporosis Foundation (NOF).

Section 5 focuses on the breadth and depth of osteoporosis services available in Arizona. Members of the Arizona Osteoporosis Coalition (AZOC) representing academia, health services, government, public health nursing and others, were contacted about their knowledge of programs currently operating in the state. Information is provided about the location and type programs running in the state. This data together with the information provided in Section 4 provides a comprehensive overview of the number and types of programs in the state targeting osteoporosis.

In Section 6 the report provides concluding recommendations based on an analysis of the previous sections.

Section 1: Prevalence and Incidence Data

Prevalence data tells us the proportion of the population that has the disease. Incidence data indicates new cases within a period of time. It is valuable because it assesses how quickly the disease is developing among the population at risk showing the trend. Unfortunately, incidence data is very costly to collect. This is because the population at risk must be screened and followed over time to discover new cases. This may explain why there is a dearth of osteoporosis incidence data.

- It is estimated that in 1996 approximately 10 million Americans had osteoporosis.[4]

- Approximately 20 million Americans have low bone mass, placing them at risk for osteoporosis.[5]

- In 1996, estimates of the percent of American men and women with osteoporosis range from 12% (AK) to 15% (IA, ME, NE, NDRI, SD, WV). Comparable figures are reported for Arizona where 14% of the population age 50 and over was diagnosed with osteoporosis.[6]

- The National Institutes of Health (NIH) report that 50% of all women will suffer from an osteoporosis-related fracture during their lifetime.[7] This is equal to a woman's risk of having breast cancer *and* uterine and ovarian cancers.

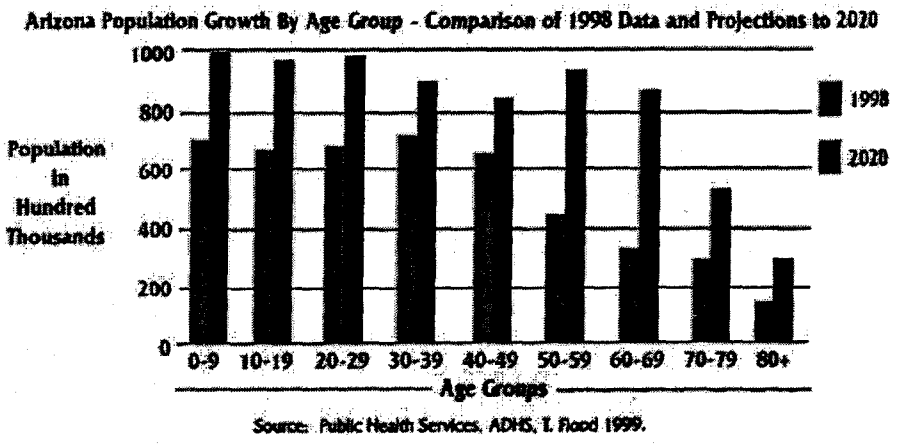
- Hip fractures result in five to 20 percent higher mortality rates compared to uninjured women of the same age group.[8]

Section 2: Risk of Developing Osteoporosis Among Arizona Residents

There are many risk factors that contribute to osteoporosis. Risk factors can be categorized as being either modifiable or non-modifiable. Modifiable factors are those related to your lifestyle that you can presumably change if so motivated. Non-modifiable factors are characteristics of the individual that cannot usually be changed. A brief explanation of each risk factor and its impact in Arizona is included below.

Non-Modifiable Factors

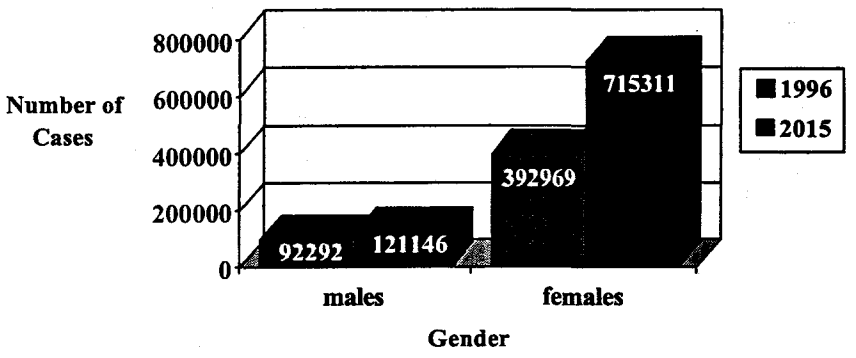
Age — An individual's risk for developing osteoporosis increases with age. The increased risk is most dramatic after menopause for women and past age 50 for men.



- From the above figure it can be seen that Arizona's elderly population is expected to rise significantly in the next twenty years. Projections have the population in Arizona between 50 and 59 years doubling and between 60 and 69 years almost tripling. This means that about two to three times as many people as there are now will be at risk for osteoporosis in 2020.

Gender Women possess a significantly greater risk of developing osteoporosis than men.

Projected Number of Cases of Osteoporosis by Gender in Arizona



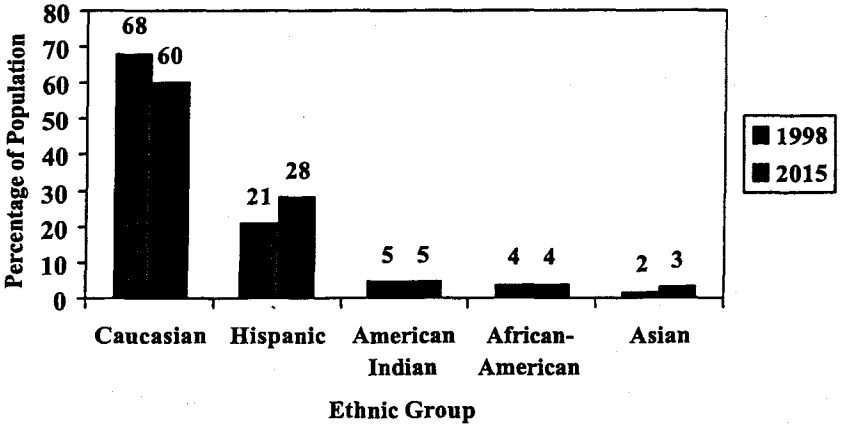
- The number of women, aged 50 and over, who have osteoporosis or are at risk for developing the disease will increase at least an estimated 80% in the next ten years.[9]

- The number of men, aged 50 and over, who have osteoporosis or are at risk for developing the disease will increase at least an estimated 30% in the next ten years.[10]

Ethnicity

The primary risk group is women of Caucasian/Northern European decent followed by Asian American, then Hispanic populations. Recent data, however, is showing that even the group of women considered to be at lowest risk, African American, is still experiencing alarming rates of osteoporosis incidence.

Projections of Ethnic Breakdown for Arizona



- The U.S. Census Bureau provides the data above. Although the proportion of Hispanics is expected to increase the largest proportion of Arizona's population in 2015 is expected to be Caucasian. Thus the majority of Arizona's population is and will be in the highest risk category for osteoporosis.

Genetics

Genetic heritage is a strong determinant of bone mass accumulation during youth.[11] Thin women or those with small frames have a greater risk for developing the disease.[12] While genetics is a strong determinant of the accumulation of bone mass it is not the only determinant. Bone mass can be significantly affected by changes in lifestyle factors too. These are now discussed.

Modifiable Factors

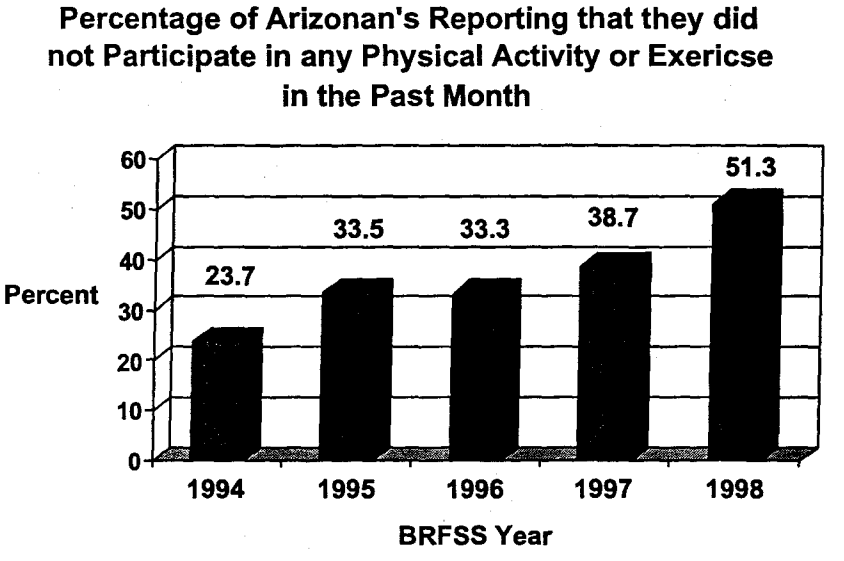
Calcium Intake A strong relationship exists between diet/ calcium intake and risk for osteoporosis. People who do not consume calcium-rich foods during childhood, adolescence and early adulthood are at much greater risk for developing the disease. This is because calcium intake affects bone mass development. The average woman acquires 98% of skeletal mass by approximately age 20.[13] National surveys show that young girls and women consume less than half the recommended amount of calcium needed to grow and maintain healthy bones.[14]

- In Arizona, only 22.5% of the population in 1995 consumed greater than or equal to the United States Recommended Daily Allowance (USRDA) of calcium.[15]

- Within the 45-54 year old age group, nearly one third of Arizonans consumed only 33-65% of the USRDA.[16]

WBE

Weight Bearing Exercise (WBE) during childhood and adolescence contributes to obtaining peak bone mass. "Weight-bearing exercise (in which bones and muscles work against gravity as feet and legs bear the body's weight) includes walking, jogging, stair climbing, dancing, and tennis. Weight lifting improves muscle mass and bone strength".[17]



- In 1998 Arizona's population was the most sedentary in the nation. About 49% of Arizona's adult population, over 18 years old, was physically active. The alarming trend shown in the figure above holds across age and gender.

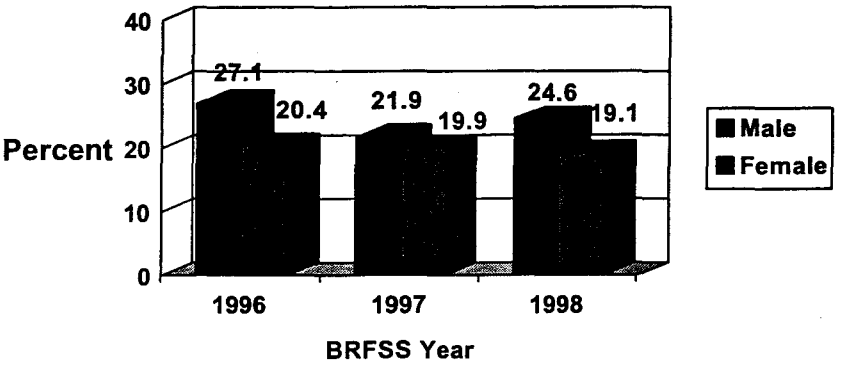
- Dr. Timothy Flood, medical director of the Arizona Department of Health Services Bureau of Public Health Statistics declared a statewide "epidemic of sedentary lifestyle".[18]

Smoking

Studies have shown that people who smoke tend to have a lower bone density and increased risk of hip and wrist fracture than their non-smoking counterparts.

- A person who has ever smoked has as much as a 50% greater risk of developing a hip fracture due to a decrease in bone density related to smoking than those who have never smoked.[19]

Percentage of Males and Females Indicating that they Currently Smoke



- Smoking rates differ across age groups. There are slightly larger percentages of younger smokers than older smokers.

- The data suggests that a significant percentage of Arizonans are self-reported smokers and at increased risk for osteoporosis.

Section 3: Cost to the State - Arizona Hospital Discharge Data (1998)

This section of the report uses 1998 Arizona Hospital discharge data to estimate the cost of Osteoporosis to the state of Arizona. Hospital discharge records include data about a patient's diagnoses (often more than one), medical procedures/ laboratory tests performed, cost of treatment to the patient, expected source of payment, and demographic data. Diagnoses are coded using the International Classification of Diseases, or ICD9 codes. The difficulty with using these codes is that they often do not represent the true reason or underlying cause for the visit. For example, consider an elderly woman presenting with a hip fracture. If a bone mineral density screening is done it may uncover that the underlying cause for the fracture was brittle bones due to osteoporosis. However, if the bone mineral density screening is not completed then the visit may not be coded as osteoporosis. The result is that the cost attributable to osteoporosis is underestimated.

Using the Delphi technique an expert physician panel developed osteoporosis attribution probabilities that are a consensus about the percentage of cases coded as fractures that could be "attributed" to osteoporosis. The probabilities vary as a function of age, ethnicity, and fracture type (e.g., hip, spine, forearm, wrist). The attribution probabilities can be found in Appendix A.

The attribution probabilities were applied to the 1998 Arizona Hospital Discharge Data base. Tables detailing the cost as a function of gender, age, and fracture type are located on Appendix A.

- The total cost attributable to osteoporosis in 1998 alone is estimated at $177 million.

- The estimate is conservative, as it does not include some cases for which attribution probabilities could not be applied and does not include costs after being discharged

- 60% ($103 million) of the cost represents the age range of 65 to 84.

- The amount covered by Medicare varies as a function of fracture type and ranges between 40% and 60%. These are denoted in parentheses under total cost in each table in Appendix A.

Section 4: Prevention, Screening and Treatment of Osteoporosis under Arizona's Managed Care

The purpose of this section of the report is to examine the types of osteoporosis-related services provided by Arizona's Health Care Providers. In 1999 the Healthy Women for a Lifetime coalition completed a survey of the 12 major health care providers in Arizona.[20] The survey asked about prevention and treatment of several postmenopausal women's health issues such as breast and cervical cancer, heart disease, depression, and osteoporosis.

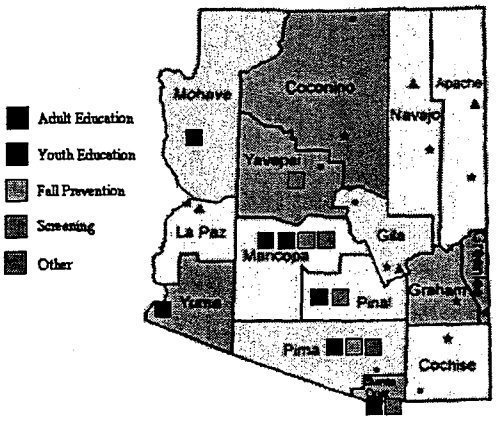
The table below compares the survey findings to the recommendations in the Physician Guide published by the National Osteoporosis Foundation.

Recommendations in NOF Physician Guide	Results from survey of Arizona health care providers
Counsel all women on • risk factors for osteoporosis • adequate calcium intake • weight-bearing exercise • avoiding tobacco and alcohol use	Eight of the 12 plans have limited education programs for osteoporosis prevention.
Bone mineral density screening should be done: • all postmenopausal women under 65 who have one or more risk factors • all women over 65, regardless of risk factors	Bone mineral density screenings for women over 40 are available with a range of restrictions in all plans. Screenings are provided when • the Primary Care Physician makes a referral or • prior authorization criteria are met, after requiring "medical indications". Women with risk factors may still be prevented from receiving screenings in some plans when the PCP does not consider it medically indicated.
FDA approved pharmacologic options for osteoporosis prevention and/or treatment are Hormone Replacement Therapy, alendronate, calcitonin, and raloxifene	Most plans provide coverage for most estrogen-based medications, but the other drugs of choice are sporadically covered. This limits the options for women in some plans who have medical reasons to avoid Hormone Replacement Therapy.

Section 5: Survey of Services Provided Statewide

The purpose of this section is to gain an understanding of the number and types of osteoporosis related programs and services provided by organizations and agencies other than the health plans examined in Section 3. Each of the 250 members of the Arizona Osteoporosis Coalition was contacted about their knowledge of osteoporosis programs in the state. The Coalition consists of members in health service/delivery and education, public health nursing, private health-related associations, state legislators and academic institutions. A one-page survey was mailed to members representing all 15 counties asking them to document any osteoporosis related programs of which they were aware.

- 40 of the 100 responders provided information about osteoporosis related programs and services



- Adult education activities are concentrated in Maricopa, Pima, Pinal, Santa Cruz, and Yuma counties primarily through the Bone Builders Program.

- There are limited numbers of youth education, fall prevention, and screening activities.

Note: An extensive inventory of educational programs and osteoporosis services in the state is being prepared in a Resource Directory, available in the fall of 2000 through ADHS and AZOC.

Section 6: Conclusions and Recommendations

- Conservative estimates using hospital discharge data place the cost of osteoporosis in 1998 at about $177 million. This does not include the costs after being discharged, which can include significant costs for long-term care and/or health care. It also does not account for the significant impact on quality of life. Given the projected population growth and the rising cost of health care it appears that efforts need to be directed toward prevention and early detection.

- The few prevention and education programs currently operating in the state focus on adults. Much greater effort must be directed toward youth education programs. This recommendation is based on the following fact:
    - Maximum bone density is reached by twenty years of age.
    - Many of the modifiable behaviors that affect the accumulation of bone bass are shaped during adolescents (e.g., smoking, weight-bearing exercise, calcium intake).
    - Survey results of members of the Arizona Osteoporosis Coalition indicate that there is only one youth education program in Mohave county.

- Education programs for adults need to focus on the importance of screening and early detection. Programs targeting older adults should include a fall prevention component. A reduction in falls is likely to minimize the number of fractures.[21]

- Bone mineral density screening should be mandatory for all post-menopausal women under 65 and all women over 65 regardless of the number of risk factors. The National Osteoporosis Foundation (NOF) has already made this recommendation.[22] However, in many health plans women will only receive screening if referred by the primary care physician. Early detection through routine screening and appropriate subsequent intervention will significantly decrease the number of fractures.

Better data are needed about modifiable risk factors of osteoporosis. It is recommended that a series of questions pertaining to calcium intake be added to the BRFSS, perhaps in the women's health section. The BRFSS does collect data about the types of physical activity in which people engage. It is suggested that this data be recoded to delineate weight-bearing from non-weight bearing exercise.

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[4] 1996 and 2015 Osteoporosis Prevalence Figures, State-by-State Report. National Osteoporosis Foundation, 1/1997 (p 1)

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[11] Genetic Studies in Osteoporosis. M Shiraki. Nippon Rinsho 56 (6): 1374-81 6/98

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[14] ibid.

[15] Dietary Profile of the State: Nutrition Intake and Fruit and Vegetable Consumption. Taren, D. Arizona Department of Health Services and the University of Arizona College of Public Health (table III.B.1) 1995

[16] ibid (table III.B.3)

[17] Physician's Guide to Prevention and Treatment of Osteoporosis. National Osteoporosis Foundation. (p. 17) Excerpta Medica, Inc: Belle Meade, NJ 1999

[18] Arizona's Health Paradox: We're Sedentary Yet Slim. The Arizona Daily Star, p. 1a January, 28, 2000

[19] The Effect of Cigarette Smoking on the Development of Osteoporosis and Related Fractures. Molly T. Vogt, Ph.D. Medscape Orthopaedics and Sports Medicine 3(5) 1999

[20] Healthy Women for a Lifetime: Summary of Managed Care Organization Survey Results. Larkey and Keller. Arizona Cancer Center/Arizona Prevention Center. University of Arizona. Draft 1/20/99.

[21] Osteoporosis International. National Osteoporosis Foundation, Supplement 4, 1998

[22] Physician's Guide to Prevention and Treatment of Osteoporosis. National Osteoporosis Foundation. (p 1) Excerpta Medica, Inc: Belle Meade, NJ 1999

Appendix A – Detailed Analysis of 1998 Arizona Hospital Discharge Data

OSTEOPOROSIS ATTRIBUTION PROBABILITIES

			Median attribution probability** by Age group		
Sex	Race	Fracture Site	45-64 years	64-84 years	85+ years
Women	White	Hip	0.80	0.90	0.95
		Spine	0.80	0.90	0.95
		Forearm/wrist	0.70	0.70	0.80
		Other	0.45	0.50	0.60
		Hip	0.65	0.80	0.95
		Spine	0.65	0.80	0.90
		Forearm/wrist	0.55	0.60	0.70
		Other	0.35	0.40	0.45
	Other *	Hip	0.75	0.85	0.95
		Spine	0.75	0.85	0.95
		Forearm/wrist	0.60	0.70	0.70
		Other	0.35	0.40	0.45
Men	White	Hip	0.60	0.80	0.85
		Spine	0.70	0.90	0.90
		Forearm/wrist	0.40	0.45	0.45
		Other	0.15	0.30	0.45
	Black	Hip	0.30	0.65	0.75
		Spine	0.55	0.75	0.85
		Forearm/wrist	0.20	0.30	0.35
		Other	0.15	0.15	0.25
	Other *	Hip	0.55	0.75	0.85
		Spine	0.60	0.75	0.85
		Forearm/wrist	0.30	0.35	0.40
		Other	0.15	0.20	0.30

Notes:

* Includes Asian/Pacific Islanders, American Indians, and other races.

** Attribution probabilities serve as adjustment factors to the total number of events. For example, if there were 1,000 spine fractures in white women age 45-64, the probability of 0.80 would be multiplied by 1,000 to yield 800 (80%) cases that were due to underlying osteoporosis. Intuitively, attribution probabilities increase with age.

Attribution probabilities were derived from an expert physician panel with broad experience treating and diagnosing osteoporosis fractures based on a three-round Delphi process. See Melton et al., 1997 for methodological details.

Source: Tables 2, 3 and 4 from Melton, LJ, et al., "Fractures Attributable to Osteoporosis: Report from the National Osteoporosis Foundation," *Journal of Bone and Mineral Research* 12(1): 16-23. 1997.

Only one type of osteoporosis related diagnosis	14,739
Two different types of osteoporosis related diagnoses	1,168
Three different types of osteoporosis related diagnoses	94
Four different types of osteoporosis related diagnoses	1
Total Cases	16,002

Note: Since discharge records include up to nine diagnoses for any individual patient, methods were used to ensure that each patient was counted only once.

Only one type of osteoporosis related diagnoses

Hip	6,609
Spine/Vertebrae	2,528
Forearm/Wrist	474
Other	5,128
Total	14,739

Number of Cases

Hip

AGE	45-64	65-84	85+	
Women				Total
White	175	2,017	1,385	3,577
Black	4	9	3	16
Other	38	368	243	649
Sub Total	217	2,394	1,631	4,242
Men				
White	96	806	335	1,237
Black	2	7	1	10
Other	25	150	79	254
Sub Total	123	963	415	1,501
Total	340	3,357	2,046	5,743

Spine

AGE	45-64	65-84	85+	
Women				Total
White	133	818	371	1,322
Black	--	8	3	11
Other	29	93	32	154
Sub Total	162	919	406	1,487
Men				
White	109	429	110	648
Black	2	--	--	2
Other	23	48	11	82
Sub Total	134	477	121	732
Total	296	1,396	527	2,219

Number of Cases

Forearm and Wrist

AGE	45-64	65-84	85+	
Women				Total
White	46	106	30	182
Black	–	–	–	–
Other	11	19	7	37
Sub Total	57	125	37	219
Men				
White	25	19	6	50
Black	1	–	–	1
Other	10	2	1	13
Sub Total	36	21	7	64
Total	93	146	44	283

Other – Number of Cases

AGE	45-64	65-84	85+	
Women				Total
White	324	688	285	1,297
Black	7	8	–	15
Other	60	98	26	184
Sub Total	391	794	311	1,496
Men				
White	117	192	62	371
Black	5	–	–	5
Other	60	32	12	104
Sub Total	182	224	74	480
Total	573	1018	385	1,976

Total Cost

Hip

AGE	45-64	65-84	85+	
Women				Total
White	3,098,464	37,087,324	24,399,248	64,585,036
Black	140,650	154,468	54,882	350,000
Other	579,437	6,426,305	3,574,763	10,580,505
Sub Total	3,818,551	43,668,097	28,028,893	75,515,541
Men				
White	1,742,847	16,683,261	5,951,149	24,377,257
Black	14,283	108,329	15,217	137,829
Other	1,109,864	2,930,462	1,347,143	5,387,469
Sub Total	2,866,994	19,722,052	7,313,509	29,902,555
Total	6,685,545	63,390,149	35,342,402	105,418,096 (61,103,040-58%)

Spine

AGE	45-64	65-84	85+	
Women				Total
White	3,006,792	11,856,397	4,175,275	19,038,464
Black	*	59,315	25,547	84,862
Other	816,945	1,178,354	328,052	2,323,351
Sub Total	3,823,737	13,094,066	4,528,874	21,446,677
Men				
White	2,876,370	7,383,984	1,159,521	11,419,875
Black	59,232	*	*	59,232
Other	783,152	1,091,266	225,364	2,099,782
Sub Total	3,718,754	8,475,250	1,384,885	13,578,889
Total	7,542,491	21,569,316	5,913,759	35,025,566 (20,102,084-57%)

* Not enough cases to apply attribution probabilities

Total Cost

Forearm and Wrist

AGE	45-64	65-84	85+	
Women				Total
White	635,056	1,178,665	365,578	2,197,299
Black	*	*	*	-
Other	118,544	176,974	59,332	354,850
Sub Total	771,600	1,355,639	424,910	2,552,149
Men				
White	466,072	189,696	68,151	723,919
Black	13,142	*	*	13,142
Other	121,351	21,291	5,394	148,036
Sub Total	600,565	210,987	73,545	885,097
Total	1,372,165	1,566,626	498,455	3,437,246 (1,388,635-40%)

* Not enough cases to apply attribution probabilities

Other

AGE	45-64	65-84	85+	
Women				Total
White	6,343,755	10,754,360	3,875,778	20,973,893
Black	136,358	114,270	*	250,628
Other	1,189,158	1,483,527	275,297	2,947,982
Sub Total	7,669,271	12,352,157	4,151,075	24,172,503
Men				
White	2,428,156	3,472,559	755,708	6,656,423
Black	93,061	*	*	93,061
Other	1,666,929	687,825	106,509	2,461,263
Sub Total	4,188,146	4,160,384	862,217	9,210,747
Total	11,857,417	16,512,541	5,013,292	33,383,250 (1,3246,406-40%)

* Not enough cases to apply attribution probabilities.

Average Cost Per Case

Hip

AGE	45-64	65-84	85+
Women			
White	17,706	18,387	17,617
Black	35,162	17,163	18,294
Other	15,248	17,463	14,711
Men			
White	18,154	20,699	17,765
Black	7,191	15,476	15,217
Other	44,395	19,536	17,052

Spine

AGE	45-64	65-84	85+
Women			
White	22,607	14,494	11,254
Black	*	7,414	8,516
Other	28,171	18,477	10,252
Men			
White	26,389	17,212	10,541
Black	29,616	*	*
Other	34,050	22,735	20,487

* Not enough cases to apply attribution probabilities

Average Cost Per Case

Forearm and Wrist

AGE	45-64	65-84	85+
Women			
White	13,806	11,119	12,186
Black	*	*	*
Other	10,777	9,314	8,476
Men			
White	18,643	9,984	11,358
Black	13,142	*	*
Other	12,135	10,646	5,394

* Not enough cases to apply attribution probabilities

Other

AGE	45-64	65-84	85+
Women			
White	19,579	15,631	13,599
Black	19,480	14,284	*
Other	19,819	15,138	10,588
Men			
White	20,753	18,086	12,189
Black	18,612	*	*
Other	27,758	21,495	8,876

* Not enough cases to apply attribution probabilities

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ARIZONA STATE SENATE

INTERIM MEETING NOTICE
OPEN TO THE PUBLIC

SENATE AD HOC COMMITTEE ON OSTEOPOROSIS

→ **Date:** **Wednesday, September 22, 2004**

Time: **10:00 a.m.**

Place: **Senate Hearing Room 1**

AGENDA

1. Opening Remarks
2. Presentation and Committee Discussion of Final Report on the State of Osteoporosis in Arizona – Jeff Lisse, M.D. and Renea Gentry, M.C.
3. Presentation and Committee Discussion on Legislation Ideas for Next Session - Tim Lohman, Ph.D.
4. Adoption of the Final Report
5. Closing Remarks
6. Adjourn

Members:

Senator Toni Hellon, Chair Absent
Senator Robert Cannell
Jane Canby Absent
Renea Gentry
Dr. Jeffrey Lisse
Dr. Timothy Lohman
Margie Tate
Terri Verason

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Persons with a disability may request a reasonable accommodation such as a sign language interpreter, by contacting the Senate Secretary's Office: (602)926-4231 (voice). Requests should be made as early as possible to allow time to arrange the accommodation.

Research

CORRECTED CORRECTED CORRECTED

ARIZONA STATE LEGISLATURE

AD HOC COMMITTEE ON OSTEOPOROSIS

Minutes of Meeting
Wednesday, September 22, 2004 – 10:00 a.m.
Senate Hearing Room 1

Members Present:
Senator Robert Cannell
Renea Gentry
Margie Tate
Dr. Jeffrey Lisse
Dr. Timothy Lohman
Terri Verason

Members Absent:
Senator Toni Hellon, Chair
Jane Canby

Staff: Julie Keane, Senate Health Analyst

In the Chair's absence, Senator Cannell called the meeting to order at 10:00 a.m., and attendance was noted. Introduction of the members took place.

Dr. Jeffrey Lisse gave a presentation on the research commissioned by the Arizona Osteoporosis Coalition (Coalition), and distributed a handout entitled "Arizona Hip Project" (Attachment A). Dr. Lisse described osteoporosis and indicated it is an important issue that warrants further attention. He pointed out the various types of bone fractures and highlighted statistical results of the study conducted at the University Medical Center in Tucson as outlined in the handout. He said the key to osteoporosis is prevention and is best treated in the pediatric age group. He emphasized that education of patients and health care providers as well as screening for early detection are critical issues in the prevention of osteoporosis.

Renea Gentry commented on the following charges to the Committee:

- To conduct research, which has been ongoing at the Medical Center at the University of Arizona in Tucson.
- To look at what has been accomplished in the State to date on osteoporosis and determine the goals on this issue.

Ms. Gentry distributed a report on the survey conducted entitled "Senate Ad Hoc Committee on Osteoporosis," and highlighted key segments of that report (Attachment B). She said that the research involved various agencies, and the unfortunate result was that very little work is being accomplished in the area of osteoporosis. She noted that despite scientific advances in the prevention, diagnosis and treatment of osteoporosis, there are significant disparities in both recognition and dedicated

resources to effectively impact the prevalence of osteoporosis and its serious implications for the aging population, Arizona communities and the healthcare system statewide. She highlighted some of the challenges facing the Coalition and the State of Arizona as outlined in the handout.

Ms. Gentry referred to page 4 of the handout and pointed out that the Coalition and other individuals have suggested key recommendations as follows:

- A "clearinghouse" is needed for the integration of resources statewide.
- Funding is needed for a statewide screening program, especially in the rural areas.
- There is a need to gather more osteoporosis specific data at the State level.
- It is important to combine osteoporosis with other major initiatives, such as obesity and falls prevention.
- There is a need for managed care reform.
- There is a need for a pediatric standard of care for early prevention of osteoporosis.

Margie Tate, Arizona Department of Health Services (DHS), commented there is a financial impact on many of the recommendations that would need to be discussed with the Director of DHS prior to any support.

Dr. Lisse stated that the recommendations would be costly; however, prevention is less expensive than therapy.

Dr. Lohman commented on prevention, and stressed the importance of good nutrition and exercise. He said that the message is not getting out either at the child or adult level regarding the critical importance of proper nutrition and proper exercise to help prevent osteoporosis.

Ms. Tate stated she believes that progress is being made in the arena of good nutrition and physical activity with the development of a State plan to address those issues.

Senator Cannell stated that it appears that there are still outstanding issues, and he does not believe the final report is ready for approval today. He said he discussed the matter with Chair Hellon and she is willing to continue to chair these efforts. He commented that he needs to discuss this issue with the President of the Senate and believes the Committee should meet with DHS before making any final recommendations. He suggested that the Committee could undertake some steps, such as inviting physicians from the Arizona Medical Association and the Academy of Pediatrics on how to educate their members. He said discussions could take place with the Director of the Arizona Health Care Cost Containment System (AHCCCS) regarding managed care plans for preventing osteoporosis. He noted that DHS is a key player in this issue. He indicated that pending approval of the President, the Committee may want to extend its work into the next session and undertake additional work prior to submitting the final report.

Ms. Gentry responded that it is a good idea to bring in more people so that the Coalition can be as effective as possible with the recommendations.

Dr. Lohman stated that the Surgeon General's Report on Osteoporosis is due to be out within the next couple of weeks, which would lend major support to the Committee's goals.

In response to Senator Cannell, Wendy Baldo, Senate Senior Policy Advisor, stated that it would be in order to request President Bennett to extend the Committee.

Terri Verason commented that the National Institute for Child Health and Human Development has recognized osteoporosis as a problem and has instituted a campaign called "Milk Matters" targeted at parents of teenagers and pediatricians to educate them about the incidence of osteoporosis and the need for pediatric intervention for prevention. She said there is a clearinghouse and educational materials that are available for parents, families and health professionals.

Senator Cannell stated that based on these discussions, if everyone agrees, the final report would be tabled for approval at a future date. He said the Committee will hold at least one additional meeting to discuss these issues and to adopt the final report. He suggested meeting with Director Eden of DHS within the next couple of months to discuss the recommendations and funding needs as outlined today.

Ms. Verason emphasized the need for statewide screening programs that are available at grocery stores and other facilities. She explained the screening procedures and stressed the need for women and men to be educated regarding osteoporosis.

Senator Cannell stated that osteoporosis is an important issue and commended Senator Yrun for initiating this topic. He said he is willing to continue working on this issue and Chair Hellon has indicated her desire to continue as well. He said he would meet with President Bennett to request a continuance of the Committee into the next session.

There being no further business, the meeting adjourned at 10:39 p.m.

Respectfully submitted,

Nancy L. DeMichele
Committee Secretary

(Tapes and attachments on file in the Secretary of the Senate's Office/Resource Center, Room 115)

ARIZONA HIP PROJECT

RESEARCH COMMISSIONED BY

The Arizona Osteoporosis Coalition for

THE ARIZONA STATE SENATE
AD HOC COMMITTEE ON OSTEOPOROSIS

Principal Investigator: Jeffrey R. Lisse, M.D.
Sub-Investigators: Deborah Jane Power, D.O., Isidro Villanueva, M.D., Timothy Lohman, Ph.D., Scott Going, Ph.D., B Austin Vaz, M.D., Ph.D., Janet Campion, M.D., M.P.H., Belinda Botzong, R.T., Michael Maricic, M.D., Oscar Gluck, M.D.

9/22/04

AZ Hip Project
09/17/2004

During the five year time period 1998 – 2003 there were 729 patients treated for fractures at the University Medical Center in Tucson, Arizona. At this time, 473 of the 729 patient charts with ICD-9 diagnostic codes for fractures have been reviewed. 150 of the 473 charts meet the non-traumatic fragility fracture inclusion criteria for the AZ Hip Study. This means that the fractures were not incurred as a result of trauma more forceful than falling from a standing height. 118 medical charts have been screened. The collected information has been entered into a database.

Of the 118 screened patient charts, 82 are female and 36 are male; 69.5% are female and 30.5% are male. The mean age of the patients is 74.6 years old. There are 8 (6.8%) American Indians, 2 (1.7%) Asians, 3 (2.5%) African American and 104 (88.1%) Caucasians. 93 (78.8%) of the patients are retired. Fractures that occurred prior to the indexed fracture are categorized into 5 groups: prior trochanter fractures, prior femoral neck fractures, prior vertebral fractures, prior wrist fractures and prior other fractures. Prior to their indexed fracture, 5.1% of patients had a trochanter fracture, 8.4 % of patients had a femoral neck fracture, 36% of patients had at least one prior vertebral fracture, 5.1% of patients had a wrist fracture and 20% of patients had other fractures. 52% of patients had at least one other (vertebral, hip or other) fragility fracture before the indexed fracture date. 48% had no prior fragility fracture of any kind. Prior to their indexed fracture, 12.7% of patients had DXA (the accepted way to diagnose osteoporosis) examinations. After their indexed fracture, 4.2% of patients had DXA examinations.

Frequencies

Statistics

		SEX	EMPLOYMENTSTATUS	RACE	ETHNICITY	MARTIAL STATUS
N	Valid	118	118	117	115	118
	Missing	0	0	1	3	0

Frequency Table

SEX

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	82	69.5	69.5	69.5
	Male	36	30.5	30.5	100.0
	Total	118	100.0	100.0	

EMPLOYMENTSTATUS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	.8	.8	.8
	Full-Time	2	1.7	1.7	2.5
	House-person	4	3.4	3.4	5.9
	Part-Time	1	.8	.8	6.8
	Retired	93	78.8	78.8	85.6
	Self-Employed	3	2.5	2.5	88.1
	Student	1	.8	.8	89.0
	Unemployed	13	11.0	11.0	100.0
	Total	118	100.0	100.0	

RACE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	African American	3	2.5	2.6	2.6
	Native American	8	6.8	6.8	9.4
	Asian	2	1.7	1.7	11.1
	White	104	88.1	88.9	100.0
	Total	117	99.2	100.0	
Missing	System	1	.8		
Total		118	100.0		

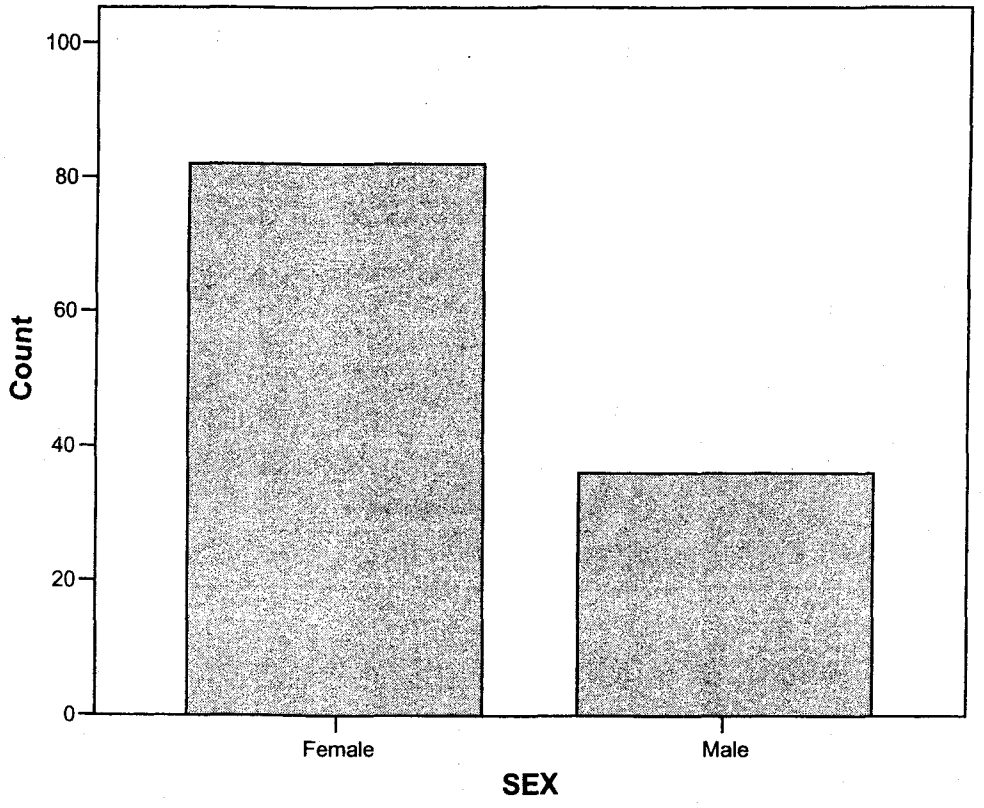
ETHNICITY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Hispanic	100	84.7	87.0	87.0
	Hispanic	15	12.7	13.0	100.0
	Total	115	97.5	100.0	
Missing	System	3	2.5		
Total		118	100.0		

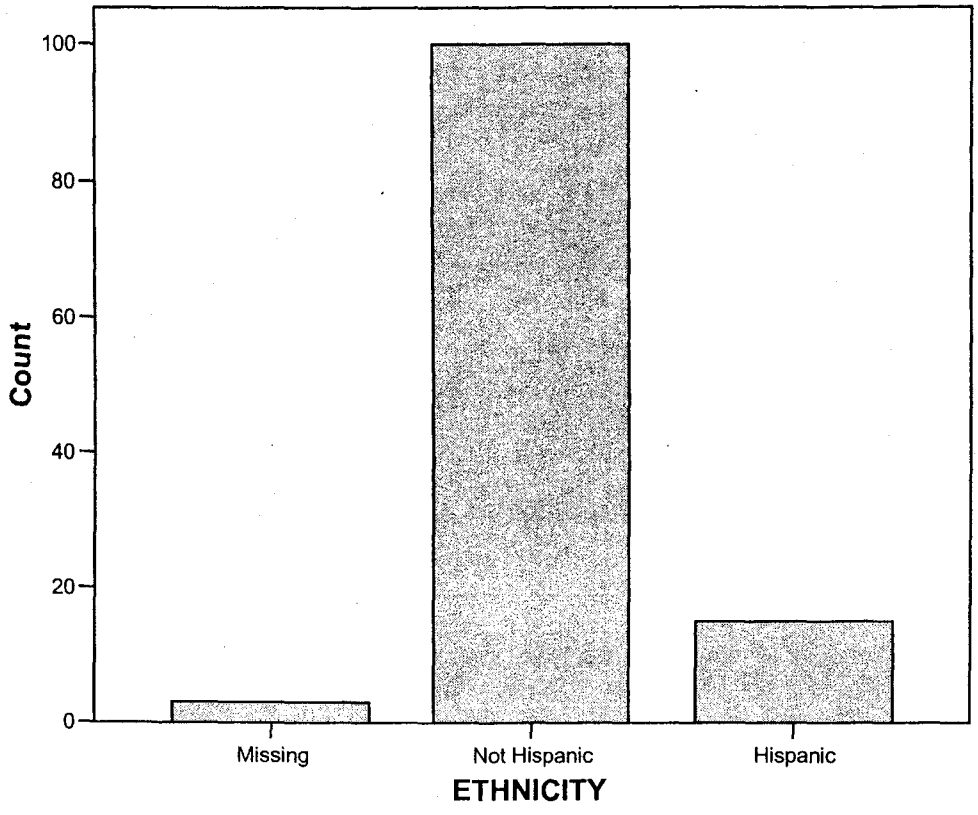
MARTIALSTATUS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Divorced	5	4.2	4.2	4.2
	Married	53	44.9	44.9	49.2
	Separated	1	.8	.8	50.0
	Single	20	16.9	16.9	66.9
	Widowed	39	33.1	33.1	100.0
	Total	118	100.0	100.0	

Subjects by Sex



Subjects by Ethnicity



Frequencies

Statistics

		TOBACCO STATUS	ALCOHOL STATUS
N	Valid	115	115
	Missing	3	3

Frequency Table

TOBACCOSTATUS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Currently	12	10.2	10.4	10.4
	In the past	53	44.9	46.1	56.5
	Never	50	42.4	43.5	100.0
	Total	115	97.5	100.0	
Missing	System	3	2.5		
Total		118	100.0		

ALCOHOLSTATUS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	104	88.1	90.4	90.4
	Yes	11	9.3	9.6	100.0
	Total	115	97.5	100.0	
Missing	System	3	2.5		
Total		118	100.0		

ZOLMETAREC

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N/A	1	.8	.8	.8
	No	117	99.2	99.2	100.0
	Total	118	100.0	100.0	

ZOLMETAPOST

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N/A	39	33.1	33.1	33.1
	No	79	66.9	66.9	100.0
	Total	118	100.0	100.0	

HORMONESREC

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N/A	1	.8	.8	.8
	No	116	98.3	98.3	99.2
	Yes	1	.8	.8	100.0
	Total	118	100.0	100.0	

HORMONESPOST

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N/A	39	33.1	33.1	33.1
	No	78	66.1	66.1	99.2
	Yes	1	.8	.8	100.0
	Total	118	100.0	100.0	

AREDIAPRE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	116	98.3	98.3	98.3
	Yes	2	1.7	1.7	100.0
	Total	118	100.0	100.0	

AREDIAREC

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N/A	1	.8	.8	.8
	No	111	94.1	94.1	94.9
	Yes	6	5.1	5.1	100.0
	Total	118	100.0	100.0	

AREDIAPOST

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N/A	40	33.9	33.9	33.9
	No	75	63.6	63.6	97.5
	Yes	3	2.5	2.5	100.0
	Total	118	100.0	100.0	

ZOLMETAPRE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	118	100.0	100.0	100.0

FORTEOREC

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N/A	1	.8	.8	.8
	No	116	98.3	98.3	99.2
	Yes	1	.8	.8	100.0
	Total	118	100.0	100.0	

FORTEOPOST

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N/A	39	33.1	33.1	33.1
	No	79	66.9	66.9	100.0
	Total	118	100.0	100.0	

EVISTAPRE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	116	98.3	98.3	98.3
	Yes	2	1.7	1.7	100.0
	Total	118	100.0	100.0	

EVISTAREC

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N/A	1	.8	.8	.8
	No	116	98.3	98.3	99.2
	Yes	1	.8	.8	100.0
	Total	118	100.0	100.0	

EVISTAPOST

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N/A	39	33.1	33.1	33.1
	No	79	66.9	66.9	100.0
	Total	118	100.0	100.0	

HORMONESPRE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	116	98.3	98.3	98.3
	Yes	2	1.7	1.7	100.0
	Total	118	100.0	100.0	

FOSAMAXREC

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N/A	1	.8	.8	.8
	No	100	84.7	84.7	85.6
	Yes	17	14.4	14.4	100.0
	Total	118	100.0	100.0	

FOSAMAXPOST

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N/A	38	32.2	32.2	32.2
	No	73	61.9	61.9	94.1
	Yes	7	5.9	5.9	100.0
	Total	118	100.0	100.0	

MIACALCINPRE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	106	89.8	89.8	89.8
	Yes	12	10.2	10.2	100.0
	Total	118	100.0	100.0	

MIACALCINREC

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N/A	1	.8	.8	.8
	No	104	88.1	88.1	89.0
	Yes	13	11.0	11.0	100.0
	Total	118	100.0	100.0	

MIACALCINPOST

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	39	33.1	33.1	33.1
	Yes	79	66.9	66.9	100.0
	Total	118	100.0	100.0	

FORTEOPRE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	118	100.0	100.0	100.0

VITAMINDREC

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N/A	1	.8	.8	.8
	No	81	68.6	68.6	69.5
	Yes	36	30.5	30.5	100.0
	Total	118	100.0	100.0	

VITAMINDPOST

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N/A	39	33.1	33.1	33.1
	No	61	51.7	51.7	84.7
	Yes	18	15.3	15.3	100.0
	Total	118	100.0	100.0	

ACTONELPRE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	115	97.5	97.5	97.5
	Yes	3	2.5	2.5	100.0
	Total	118	100.0	100.0	

ACTONELREC

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N/A	1	.8	.8	.8
	No	114	96.6	96.6	97.5
	Yes	3	2.5	2.5	100.0
	Total	118	100.0	100.0	

ACTONELPOST

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N/A	39	33.1	33.1	33.1
	No	77	65.3	65.3	98.3
	Yes	2	1.7	1.7	100.0
	Total	118	100.0	100.0	

FOSAMAXPRE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	107	90.7	90.7	90.7
	Yes	11	9.3	9.3	100.0
	Total	118	100.0	100.0	

ESTROGENREC

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N/A	1	.8	.8	.8
	No	97	82.2	82.2	83.1
	Yes	20	16.9	16.9	100.0
	Total	118	100.0	100.0	

ESTROGENPOST

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N/A	39	33.1	33.1	33.1
	No	70	59.3	59.3	92.4
	Yes	9	7.6	7.6	100.0
	Total	118	100.0	100.0	

CALCIUMPRE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	91	77.1	77.1	77.1
	Yes	27	22.9	22.9	100.0
	Total	118	100.0	100.0	

CALCIUMREC

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N/A	1	.8	.8	.8
	No	79	66.9	66.9	67.8
	Yes	38	32.2	32.2	100.0
	Total	118	100.0	100.0	

CALCIUMPOST

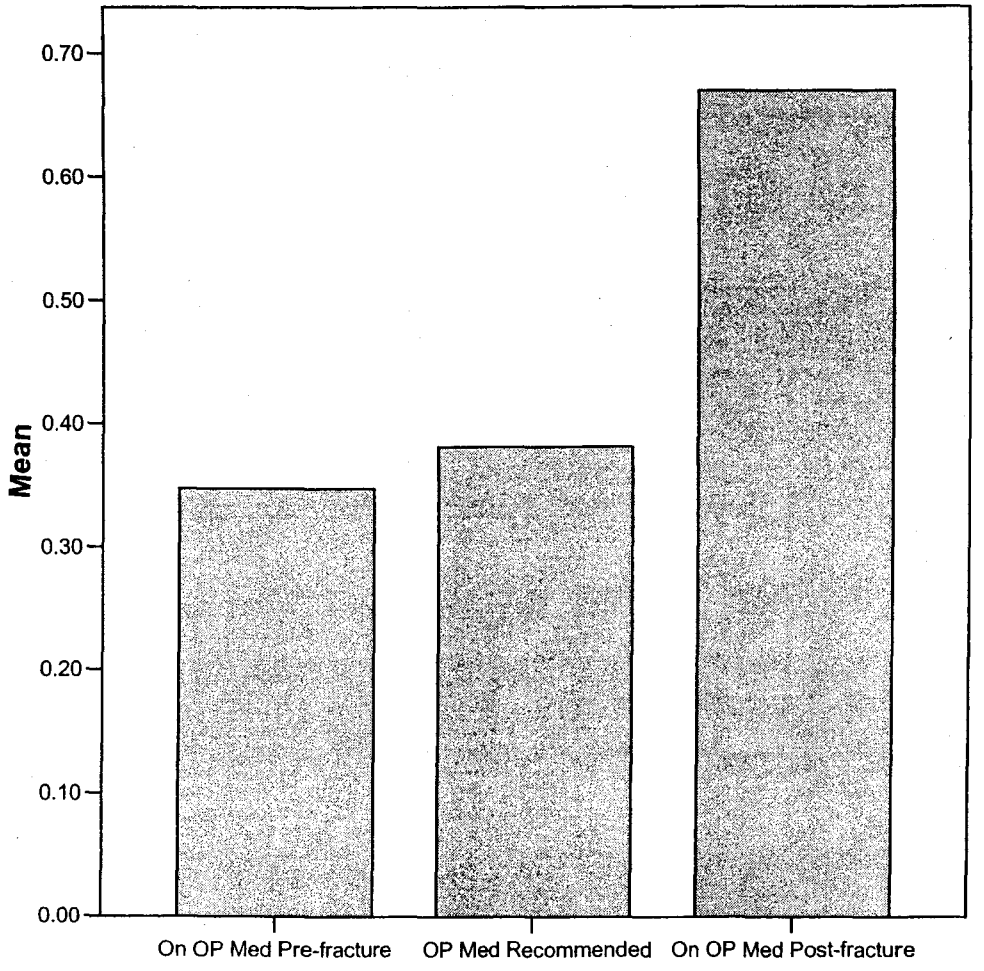
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N/A	39	33.1	33.1	33.1
	No	58	49.2	49.2	82.2
	Yes	21	17.8	17.8	100.0
	Total	118	100.0	100.0	

VITAMINDPRE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	89	75.4	75.4	75.4
	Yes	29	24.6	24.6	100.0
	Total	118	100.0	100.0	

 # OP Meds Post-fracture

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	39	33.1	33.1	33.1
	1.00	61	51.7	51.7	84.7
	2.00	14	11.9	11.9	96.6
	3.00	4	3.4	3.4	100.0
	Total	118	100.0	100.0	



Frequency Table

ESTROGENPRE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	97	82.2	82.2	82.2
	Yes	21	17.8	17.8	100.0
	Total	118	100.0	100.0	

Frequency Table

On OP Med Pre-fracture

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	77	65.3	65.3	65.3
	1.00	41	34.7	34.7	100.0
	Total	118	100.0	100.0	

 # OP Meds Pre-fracture

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	77	65.3	65.3	65.3
	1.00	31	26.3	26.3	91.5
	2.00	8	6.8	6.8	98.3
	3.00	2	1.7	1.7	100.0
	Total	118	100.0	100.0	

OP Med Recommended

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	73	61.9	61.9	61.9
	1.00	45	38.1	38.1	100.0
	Total	118	100.0	100.0	

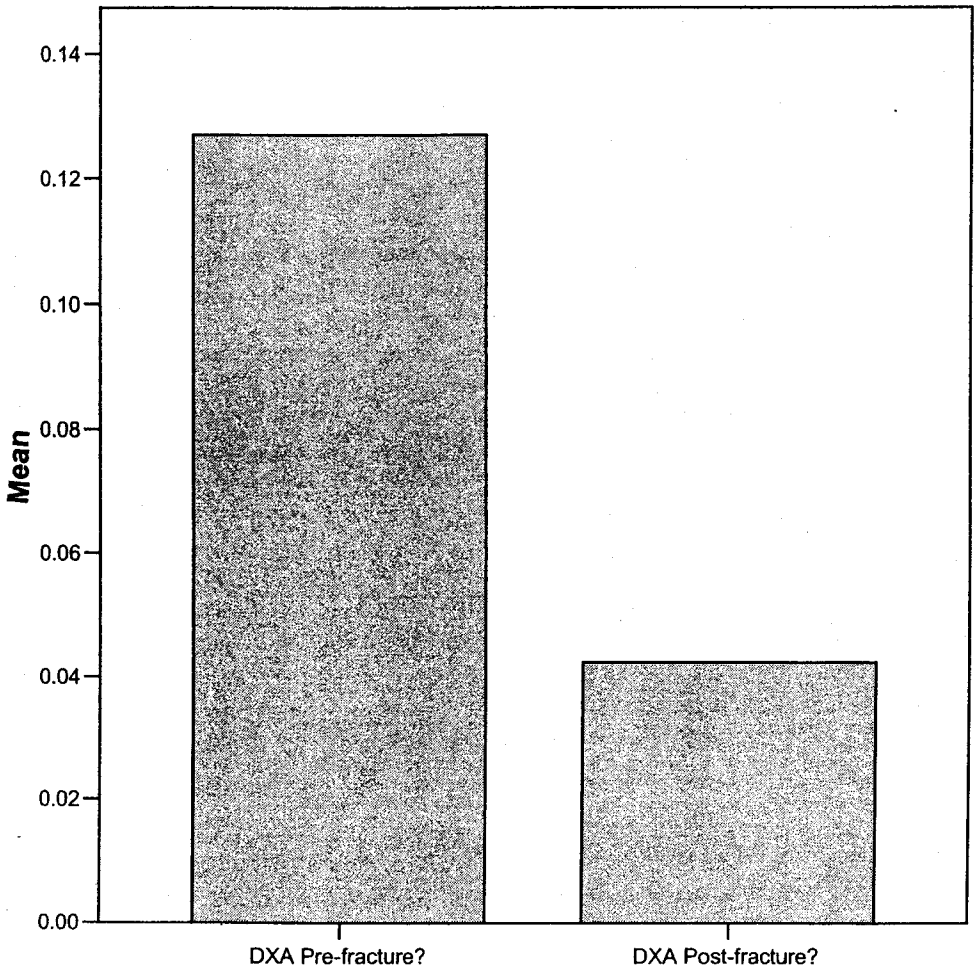
 # OP Meds Recommended

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	73	61.9	61.9	61.9
	1.00	29	24.6	24.6	86.4
	2.00	15	12.7	12.7	99.2
	3.00	1	.8	.8	100.0
	Total	118	100.0	100.0	

On OP Med Post-fracture

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	39	33.1	33.1	33.1
	1.00	79	66.9	66.9	100.0
	Total	118	100.0	100.0	

Arizona Hip Project- Fracture and DXA History



PRIORFRACTURESWRIST

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	112	94.9	94.9	94.9
	1	4	3.4	3.4	98.3
	2	2	1.7	1.7	100.0
	Total	118	100.0	100.0	

PRIORFRACTURESOTHER

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	94	79.7	79.7	79.7
	1	15	12.7	12.7	92.4
	2	3	2.5	2.5	94.9
	3	4	3.4	3.4	98.3
	4	1	.8	.8	99.2
	5	1	.8	.8	100.0
	Total	118	100.0	100.0	

 # Prior Fractures

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	57	48.3	48.3	48.3
	1.00	20	16.9	16.9	65.3
	2.00	6	5.1	5.1	70.3
	3.00	17	14.4	14.4	84.7
	4.00	5	4.2	4.2	89.0
	5.00	4	3.4	3.4	92.4
	6.00	4	3.4	3.4	95.8
	7.00	3	2.5	2.5	98.3
	8.00	1	.8	.8	99.2
	9.00	1	.8	.8	100.0
	Total	118	100.0	100.0	

Graph

 # DXA Pre-fracture

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	103	87.3	87.3	87.3
	1	7	5.9	5.9	93.2
	2	5	4.2	4.2	97.5
	3	1	.8	.8	98.3
	4	2	1.7	1.7	100.0
	Total	118	100.0	100.0	

 # DXA Post-fracture

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	113	95.8	95.8	95.8
	1	4	3.4	3.4	99.2
	2	1	.8	.8	100.0
	Total	118	100.0	100.0	

PRIORFRACTURESFEMORALNECK

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	108	91.5	91.5	91.5
	1	9	7.6	7.6	99.2
	2	1	.8	.8	100.0
	Total	118	100.0	100.0	

PRIORFRACTURESVERTEBRAL

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	75	63.6	63.6	63.6
	1	14	11.9	11.9	75.4
	2	10	8.5	8.5	83.9
	3	8	6.8	6.8	90.7
	4	4	3.4	3.4	94.1
	5	2	1.7	1.7	95.8
	6	2	1.7	1.7	97.5
	7	2	1.7	1.7	99.2
	8	1	.8	.8	100.0
	Total	118	100.0	100.0	

PRIORFRACTURESTROCHANTER

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	112	94.9	94.9	94.9
	1	6	5.1	5.1	100.0
	Total	118	100.0	100.0	

Admission Fracture Vertebra

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	112	94.9	94.9	94.9
	1.00	6	5.1	5.1	100.0
	Total	118	100.0	100.0	

Admission Fracture Collapsed Vertebra

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	70	59.3	59.3	59.3
	1.00	48	40.7	40.7	100.0
	Total	118	100.0	100.0	

Admission Fracture Lumbar Vertebra

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	108	91.5	91.5	91.5
	1.00	10	8.5	8.5	100.0
	Total	118	100.0	100.0	

Admission Fracture Stress Fracture

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	118	100.0	100.0	100.0

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
# DXA Pre-fracture	118	0	4	.24	.724
DXA Pre-fracture?	118	.00	1.00	.1271	.33453
# DXA Post-fracture	118	0	2	.05	.256
DXA Post-fracture?	118	.00	1.00	.0424	.20230
PRIORFRACTURESF EMORALNECK	118	0	2	.09	.320
PRIORFRACTURESV ERTEBRAL	118	0	8	1.00	1.744
PRIORFRACTUREST ROCHANTER	118	0	1	.05	.221
PRIORFRACTURES WRIST	118	0	2	.07	.313
PRIORFRACTURESO THER	118	0	5	.36	.872
# Prior Fractures	118	.00	9.00	1.5678	2.11417
Prior Fractures?	118	.00	1.00	.5169	.50184
Hip Fracture ICD	118	.00	.00	.0000	.00000
Vertebral Fracture ICD	118	.00	1.00	.0678	.25247
Valid N (listwise)	118				

Frequency Table

Frequency Table

Admission Fracture All Hip (femur, trochanter, closed hip)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	66	55.9	55.9	55.9
	1.00	52	44.1	44.1	100.0
	Total	118	100.0	100.0	

Admission Fracture All Vertebral (Vertebra, dorsal, collapsed, lumbar)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	52	44.1	44.1	44.1
	1.00	66	55.9	55.9	100.0
	Total	118	100.0	100.0	

Admission Fracture Femur

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	110	93.2	93.2	93.2
	1.00	8	6.8	6.8	100.0
	Total	118	100.0	100.0	

Admission Fracture Closed Hip

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	83	70.3	70.3	70.3
	1.00	35	29.7	29.7	100.0
	Total	118	100.0	100.0	

Admission Fracture Trochanter

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	109	92.4	92.4	92.4
	1.00	9	7.6	7.6	100.0
	Total	118	100.0	100.0	

Admission Fracture Dorsal Vertebra

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	114	96.6	96.6	96.6
	1.00	4	3.4	3.4	100.0
	Total	118	100.0	100.0	

Senate Ad Hoc Committee on Osteoporosis

I. Executive Summary: Trends, Challenges and Recommendations page 2

II. Background page 6

- Senate Ad Hoc Committee on Osteoporosis
- Osteoporosis defined
- National Statistics about Osteoporosis
- Arizona Data
- Recent national attention
- Evidence supporting the need for aggressive statewide action

TRENDS

There are good resources for information about osteoporosis across the state, but efforts to educate and communicate about this condition are fragmented and the consumer has no pathway to connect from one resource to another. They will either be left with incomplete information or become frustrated and stop investigating.

Information and services appear to be grouped according to the following resources.

- ***State:*** BRFS surveillance, minigrants supporting mandated initiatives from CDC (i.e. Obesity), no direct program for bone health at this time.
- ***County:*** Nutrition education usually available.
- ***Cooperative Extension:*** Funding dependent, nutrition and exercise information by Bone Builders (classes, toll free phone information, newsletters, community events) and some screening.
- ***Cities:*** (Department of Parks & Recreation) – General exercise classes, many include strength training and classes indirectly addressing balance (tai chi).
- ***Area Agencies on Aging (federal, by state region = multiple counties)*** – Do not provide services such as screening. By phone interview, staff was unaware of where to make referrals for bone health information. Units on Aging/ Senior Centers provide social services & oversight of nutrition programs (disease mgt – DM, heart) w/ guidelines. There is no physical activity programming. They provide more of a facilitative/supervisory role than providing any direct care or education. Supported primarily by federal and corporate funds. Seniors have aged in place… centers are not effectively recruiting younger elders.
- ***Arizona Association of Community Health Care Centers*** – nonprofit centers provide healthcare for underserved populations in rural and outlying areas around the state. Recently surveyed, 31 out of 33 centers do not have screening equipment nor much access to this service. Only a few of the centers even refer patients out for diagnostic osteoporosis tests.
- ***Private Agencies:*** Education and awareness materials – minimal funding for programs.
- ***Hospital/Healthcare Systems***: Provide direct patient services for screening, provide educational materials and programming to target populations.
- ***Health related consumer organizations***: AzOC is the only organization dedicated to a focus of ONLY osteoporosis, others include osteoporosis as one of several initiatives (Arthritis Foundation, Healthy Women for a Lifetime). Funding dependent. Provide consumer and provider education, public awareness materials and occasional screening.

CHALLENGES

In spite of scientific advances in the prevention, diagnosis and treatment of osteoporosis, there are significant disparities in both recognition and dedicated resources to effectively impact the prevalence of osteoporosis, and its serious implications for the aging population, AZ communities and the healthcare system statewide.

- Bone health is not recognized as a compelling issue among policy makers, healthcare professionals and the general public. Priorities for underserved and disadvantaged women are many and urgent due to lack of resources, barriers to services and care and cultural issues. Osteoporosis is a disease with less immediate consequences and may therefore be less of a priority for action and designation of resources.
- Competition with other healthcare issues exists for both public and private dollars
- There is a lack of coordination or integration of resources across public and private organizations /agencies across the state (as described in "trends").
- There is a lack of a single entry point into the osteoporosis network for the public (consumers) (i.e. AZ Heart Association for heart disease information, Arthritis Foundation for joint conditions, etc.).
- Insurance coverage for screening/DXA is variable and inconsistent among 3rd party payers.
- Insurance coverage for pharmaceutical and rehabilitative treatment is variable and inconsistent among 3rd party payers.
- Transportation/access to community programs for seniors is often unavailable
- Data suggests that osteoporosis is more common in Hispanics than previously believed. More than a quarter of Arizona's population is Hispanic. Demographic, ethnic, and economic assessment of Arizona's population tells us that we are not currently reaching the state's minority populations with a message of osteoporosis prevention.
- Guidelines on Bone Mineral Density by credible organizations are inconsistent.
- There is inadequate access to preventative services and treatment across the state.
- Variable knowledge and priority is placed on issues and conditions related to bone disease by health care providers.
- At the national level, there is limited collaboration between the CDC (responsible for public health services) and the Administration on Aging (responsible for elder services). State health departments often focus on specific at-risk populations, however these programs rarely target older adults. Units on Aging often engage in health promotion activities and referral, but rarely collaborate with their public health counterparts.
- Variables that would further increase the magnitude of the bone health issue for Arizona would be:
  1. a higher fracture incidence rates (esp. hip fx) than currently measured
  2. a higher population growth (esp. in the 65+ population) than presently anticipated
  3. a higher cost of treating fractures than estimated at this point in time

RECOMMENDATIONS

Identify a coordinating agency/clearinghouse of osteoporosis programs, research and initiatives statewide for referral, collaboration, and integration of services.

Key Points:

a) The Arizona Osteoporosis Coalition, in collaboration with ADHS, shall be designated as the state clearinghouse for education and prevention of osteoporosis and for implementation of the recommendations of the Surgeon General's report on osteoporosis, 2004.
b) AzOC, in collaboration with ADHS, shall develop a statewide network for conducting osteoporosis screening, especially in rural counties and outlying areas, using DXA mobile units.
c) AzOC with ADHS shall develop a pediatric prevention standard of care to be implemented statewide in conjunction with pediatricians throughout the state.
d) ADHS will add the CDC module for osteoporosis to Arizona's Behavioral Risk Factor Survey.
e) AzOC will pursue the need for managed care reform to reflect appropriate screening, diagnosis and treatment for osteoporosis, including mandatory screening for all women over 65.

STATE GOVERNMENT ACTIONS

- Ask the Arizona legislature to provide leadership regarding appropriate legislation: 1) for funding for statewide screening, *(see AzOC Actions below)*; 2) for Managed Care reform that provides patients with appropriate screening, diagnosis and treatment options. Bone mineral density screening should be mandatory for all post-menopausal women under 65 and all women over 65 regardless of the number of risk factors. *(The National Osteoporosis Foundation (NOF) has already made this recommendation. (Physician's Guide to Prevention and Treatment of Osteoporosis. National Osteoporosis Foundation. (p 1) Excerpta Medica, Inc: Belle Meade, NJ 1999) However, in many health plans women will only receive screening if referred by the primary care physician. Early detection through routine screening and appropriate subsequent intervention will significantly decrease the number of fractures. (statement from AzOC monograph 2000)*
- Add CDC osteoporosis module to state BRFSS to improve surveillance, *(as found in the Inventory of State Osteoporosis Activities by Maryland Department of Health and Mental Hygiene 2004)*
- Ask ADHS to provide ongoing collection of statewide data on osteoporosis prevalence and burden of the disease, including data on non traumatic fractures in individuals of all ages, utilizing ADHS, managed care organizations and other routine data collection systems and sources within the state.
- Ask ADHS to combine osteoporosis with their major initiatives such as Obesity and Falls Prevention in elderly.

AzOC ACTIONS

- The Arizona Osteoporosis Coalition will develop a statewide osteoporosis screening/scanning program to reach rural and outlying areas with little access to healthcare, in conjunction with the County Health Departments and the Arizona Association of Community Health Centers during the 2004-'06 fiscal years. The project will also involve an education/information component for the rural areas visited by the screening teams.
- Plan network structure with the Arizona Department of Health Services to support coordinating agency functions and bring ADHS to the planning table.
- Agency will become a key player in osteoporosis information at gatherings such as the Governor's Office for Women and Children meetings, ADHS, Advisory Council on Aging, Council on Health, Physical Fitness and Sports, etc.
- Utilize existing materials
    1. Bilingual Brochures
    2. AzOC Newsletter
    3. AzOC list serve
    4. AzOC website, www.fitbones.org
    5. AzOC website for children, www.buildingbetterbones.org
    6. Toll-free # for information (Cooperative Extension)
    7. Statewide PSA's – organized by ADHS (AzOC tape)
        a. Local Radio and TV
    8. Latino/Native American stations (see below)
    9. Provide osteoporosis information at other health focus events/programs (i.e. Women's Expo, Well Woman Health Check, other health and wellness venues)
- New materials/targets
    1. Primary care: Messages for healthcare professionals are focused on their desire to provide appropriate and thorough care to their patients. Provide information to key support staff that prompt screening for risk factors such as height loss and fractures.
        a. Communicate through existing associations (AzMA, Family Practice etc.)
        b. Partner with physician's offices and health clinics in Hispanic and Native American communities.
    2. Reaching the AZ Hispanic and Native American Communities:
        a. Distribution of print materials placed at locations where these target populations acquire other forms of health services and information. (chain and grocery pharmacies in target neighborhoods, local food banks, Maricopa County AHCCCS health plan quarterly member newsletter, etc.) This will require developing an alliance with key resources in the community.
        b. Spanish radio is a cost efficient way to reach the target of Hispanic women in AZ. Negotiate PSA spot time on the key radio outlets.

Background

I. **Senate Ad Hoc Committee on Osteoporosis**
II. **Osteoporosis defined**
III. **National Statistics about Osteoporosis**
IV. **Arizona Data**
V. **Recent national attention**
VI. **Evidence supporting the need for aggressive statewide action to support osteoporosis programs, research and initiatives for referral, collaboration and elimination of barriers to appropriate screening, diagnosis and treatment options:**
   - –Osteoporosis is under diagnosed and under treated
   - –Bone Loss, T-Scores and Height Loss
   - –Bone Mineral Density Scores provide motivation for behavior change
   - –Guidelines for BMD screening/testing available
   - –Current healthcare coverage for diagnosis and treatment

I. Senate Ad Hoc Committee on Osteoporosis

PURPOSE: To : (1) research and collect information on Osteoporosis; (2) evaluate the various approaches used by the Senate and local governments to increase public awareness of the risk, treatment and prevention of Osteoporosis; (3) identify areas where public awareness, public education, research and coordination about Osteoporosis need improvement; and (4) study ways to (a) increase the number of individuals in this State who are regularly screened for Osteoporosis, (b) increase research and funding at State institutions that are studying Osteoporosis, and (c) improve coordination between State agencies and institutions that are involved in research and treatment of Osteoporosis. The Committee shall submit a written report of its findings to the Governor, the Speaker of the House of Representatives and the President of the Senate, and provide a copy of this report to the Secretary of State and the Director of the Arizona State Library, Archives and Public Records by November 15, 2004.

MEMBERSHIP:
Senate Two members of the Senate, from different political parties and one designated as Chair, appointed by the President of the Senate:

(Chair) Toni Hellon (R – district 26)
Robert Cannell (D – district 24)

Other: 7 members of the public, appointed by the President of the Senate:

Ms. Jane Canby
Ms. Renea Gentry, Arizona Osteoporosis Coalition
Dr. Jeffrey Lisse, Arizona Arthritis Center, University of AZ
Dr. Timothy Lohman, University of Arizona
Ms. Margie Tate, Arizona Department of Health Services
Ms. Terri Verason, Dairy Council of Arizona

Contact: Julie Keane, Senate Research staff; Pete Wertheim, House Research staff
Report Date: _____
Expiration Date: 12/01/2004
Statutory Cite: Created by the President of the Senate in November 2002.

II. Osteoporosis defined

Osteoporosis is the technical name for a disease in which bones become extremely thin and frail. The body typically has fully developed skeletal (bone) mass by the time an individual has reached the early twenties. After this point, a gradual loss of bone mass (known as bone mineral density or BMD) occurs throughout the rest of natural life. Once a person's BMD has decreased below a certain level, the risk of breaking a bone increases dramatically. Even the slightest slip or fall in a person with osteoporosis can result in fractures of the hip, spine, forearm, or wrist. These fractures decrease mobility, functionality and independence in the person suffering the fracture. Consequently,

osteoporosis can significantly degrade one's quality of life. In fact, 25% of patients die during the first year after a hip fracture. The fact that most osteoporosis related fractures occur in the elderly also places tremendous burden on the caregivers who are often immediate family.

FIGURE 1. MICROGRAPHS

A B

Micrographs of biopsy specimens of normal and osteoporotic bone. Panel A is from a 75-year-old normal woman. Panel B is from a 47-year-old woman who had multiple vertebral compression fractures. From Dempster DW, et al. *J Bone Miner Res.* 1986;1:15–21.

Osteoporosis is often undetectable because loss of bone mass typically occurs over a long period of time and is without symptoms until a fracture occurs. Thus osteoporosis is referred to as "the silent disease". (excerpts from the Arizona Osteoporosis Coalition monograph titled "Osteoporosis and its effect on the people of Arizona", 5/00 www.fitbones.org/facts)

III. National Statistics about Osteoporosis

- 44 million people in the United States are affected by osteoporosis and low bone mass, according to the National Osteoporosis Foundation: 80% are women
- 33% of men over age 75 are affected
- 50% of women & 13% men older than 50 will have an osteoporosis related fracture in their lifetime
- ~1 of 5 (19.2 %) of women who suffered a vertebral fracture sustained a second fracture within 1 year (even with 1000mg Calcium and Vitamin D supplements)
- Patients with vertebral fracture have nearly double the risk for fractures at other sites
- Medicare beneficiaries significantly underutilize routine BMD testing, a covered benefit since 7/98 under the 1997 Balanced Budget Act. It is estimated that only 12% of women age 65+ received a Medicare reimbursed BMD test in 2001.
- Hispanic and Native American Populations: Osteoporosis Issues
    - Latino/Hispanic Population National Stats
        1. There are 36 million Latinos in the US
        2. Latinos are the 2nd largest ethnic group in the US
        3. The main immigrant group is Latino

- Incidence of Osteoporotic Fractures in the Hispanic Community
  "Differences in fracture incidence according to racial/ethnic group were observed in NORA. Although the prevalence of osteoporosis was higher among Asian and Hispanic women than among whites, the likelihood of fracture was no different for Hispanics and was lower for Asians."
  Siris E, Miller P, Barrett Conner E., et al. Identification and Fracture Outcomes of Undiagnosed Low Bone Mineral Density in Postmenopausal Women. JAMA. 2001;286:2815-2822.
- NHANES III Study results for Hispanic Women: Key Point - Osteoporosis is more common in Hispanics than previously believed

Age Criteria	>50
White Women	59%
Hispanic Women	49%
BMD site	Total Hip

Looker AC, Wahner HW, Dunn WL, et al. Updated data on proximal femur bone mineral levels of US adults. Osteoporos Int. 1998;8:468-489.

IV. Arizona Data

- Arizona has one of the nation's fastest growing populations of people over age 50. Over the next 10 years, the size of the age-50 population will increase by 40% (from 1.3 million to 1.9 million). By 2025, there will be an increase of nearly 85%. The population over age 65 also will show rapid growth from its year 2000 total of 634,500, with increases of 27% by 2010, 52% by 2015, 82% by 2020, and 116% by 2025.
- The National Osteoporosis Foundation (NOF) estimates that 810,000 women and men had osteoporosis or low bone mass in 2003. By 2025, the NOF predicts AZ will have 1.1 million people with osteoporosis and low bone mineral density.
- 1997 Arizona Hospital Admissions for Osteoporosis Fractures:
  - 6,000 osteoporosis fractures
  - 31,000 hospital bed days
  - 4.6 days mean Length of Stay for vertebral fracture patients
  - 41% of vertebral cases and 60% of hip fracture cases were discharged to a long term care facility
- Conservative estimates using 1998 Arizona hospital discharge data place the cost of osteoporosis in the state at about $177 million. This does not include the costs after being discharged, which can include significant costs for long-term care and/or additional rehabilitation and health care. It also does not account for the significant impact on quality of life.
- 2002 American Community Survey Profile, US Census Bureau AZ Population:
  5 % American Indian and Alaska Native
  27% Hispanic. (People of Hispanic origin may be of any race.)

Among people at least five years old living in Arizona in 2002, 26 percent spoke a language other than English at home. Of those speaking a language other than English at home, 77 percent spoke Spanish (20% of total AZ population)

- Demographic, ethnic, and economic assessment of Arizona's population tells us that we are not currently reaching the state's minority populations with a message of osteoporosis prevention. More than a quarter of Arizona's population is Hispanic. Inadequate nutritional intake of calcium and inactivity are two primary lifestyle behaviors which increase risk for osteoporosis.
    - The 1999 Arizona Hunger Advisory Council reported 65% of those requesting emergency food boxes are women. Other populations identified most likely to be hungry and therefore lacking in adequate nutrition include the working poor and minorities. 82.2% of Hispanics in Arizona consume less than the RDA for calcium.
    - The Arizona BRFSS demonstrates that 50.3% of Hispanic adults have a greater risk for sedentary lifestyle as do low income individuals (<10,000/year) at a prevalence of 45.6% .
    - Issues of language barriers, low wages and lack of health insurance make these populations less likely to access healthcare system and services. Therefore, they are not in the mainstream of health information.

V. Recent national attention

- Healthy People 2010 has set an objective to reduce the proportion of adults with osteoporosis, reduce hospitalization rates and falls.
- The Surgeon General workshop on Osteoporosis and Bone Health. 12/2002, began preliminary work for the Surgeon General's Report on Bone Health to be released in the fall of 2004.
- NIH consensus Development Conference on Osteoporosis Prevention, Diagnosis and Therapy was held 3/2000.
- US preventative Services Task Force, 2002 prepared a review of indications for screening.
- The Maryland Department of Health and Mental Hygiene's Osteoporosis Prevention and Education Task Force released in June 2004 a survey of all 50 states and their legislative and service activities related to osteoporosis. Thirty-two states have osteoporosis laws on the books; *Arizona is not among them.*
- The Administration on Aging recently (2002) requested an action plan to implement an osteoporosis awareness campaign, specifically targeting women age 65 and older. The Foundation for Osteoporosis Research and Education headed the project convening osteoporosis and aging services experts and stakeholders from around the country in a consensus building process in order to formulate this plan. The Arizona Osteoporosis Coalition was a member of the planning committee for this national effort.

VI. Evidence supporting the need for aggressive statewide action to support osteoporosis programs, research and initiatives for referral, collaboration and elimination of barriers to appropriate screening, diagnosis and treatment options

Osteoporosis is under diagnosed and under treated.

The vast majority of women do NOT receive drug treatment for osteoporosis following a fracture of the hip, wrist or vertebra.

1. Journal of Bone and Joint Surgery 82-A, No. 8 1063-1070; 2000.
   - Retrospective cohort study w/ use of claims database including over 3 million patients from 30 states
   - Identification of ALL women age 55+ w/ distal radial fracture w/in 12 mo period: N=1162
   - 2.8% received a bone density scan
   - 22.9% received a pharmacological intervention
   - = ONLY 24% received evaluation or treatment for osteoporosis
2. Arch Internal Medicine Vol 162, 421-426; Feb 2002
   - Retrospective cohort study, 343 postmenopausal women mean age 70.5, Olmstead County, MN w/ minimal trauma distal forearm fracture 1993-1997.
   - ONLY 18% had any evidence of intervention for osteoporosis within the following 12 month period
3. Osteoporosis International 11:577-582, 2000
   - Review of chest X-rays obtained for women age 60+ from routine hospital admissions (N=943)
   - 130 had a vertebral fracture present
   - 52% were mentioned in the radiology report
   - 23% mentioned in the report summary
   - 17% mentioned osteoporosis in the medical record
   - only 7% received Treatment
4. Archives of Internal Medicine, 9/22/03
   - Retrospective study of 7 HMO databases
   - N= 3492 women age 60+ with fx of the hip, wrist or vertebra
   - Only 24% received a drug for osteoporosis during the 1 yr period post-fracture
   - Increasing age was correlated with a <u>decreased</u> likelihood of receiving osteoporosis treatment
5. NHANES III 1997
   - only 19% of people over 50 with osteoporosis are diagnosed and treated.
6. Archives of Internal Medicine, 2003; 163: 2237-46
   - 4.6% of older population received osteoporosis treatment after fracture
7. Am Journal of Public Health, 2002; 92:271-3
   - PCPs identify less than 10% of women with osteoporosis or vertebral fractures and of those diagnosed, fewer than 36% are prescribed medication

Bone Loss, T-Scores and Height Loss. Understanding the objective measures which describe bone health support the need for early detection and intervention.

1. Bone loss with age

- Genetic influences account for ~75% of variation in peak bone mass and rate of bone loss
- Rapid bone loss of 2-3%/year over the 5-10 years after menopause
- This results in up to 20% bone loss in the first 5-7 years post menopause
- Bone mass continues to decline w/ age but at a slower rate than during the early menopausal years. (female more = to male)

2. Risk of fracture
   - T score = a unit of measure expressing the variation from peak bone mass as a standard deviation score.
   - Fracture threshold = standard deviation of 2 (T score –2)
   - 2 fold increase in fracture risk for every standard deviation of reduction in bone mass (T score –3 = 8x fracture risk)
   - Necessary to establish baseline to assess response to treatment, and enhance compliance w/ interventions
   - Baseline at age ~35 gives best predictive risk
3. What about height?
   - Normal aging of the intervertebral discs results in 1-1.5" loss of height
   - More than 1.5" loss – suspect silent vertebral compression fracture
   - Each compression fracture causes an additional ~1.5" loss of height
   - Height should be included in every primary care physical exam.
4. The Vertebral Fracture Cascade
   - 3 large clinical trials, 2725 postmenopausal women in control groups
   - ~1 of 5 (19.2 %) of women who suffered a vertebral fx sustained a second fracture within 1 year (even <u>with</u> 1000mg Calcium and Vitamin D supplements)
   - Patients with vertebral fx have nearly double the risk for fractures at other sites
   - Emphasis on the need to prevent the first fracture!

     World Congress on Osteoporosis 6/00
5. Pre-menopausal fractures increase risk of subsequent fractures
   - Study population 24 years post menopause
   - Independent of age, bone density, body weight, alcohol intake and history of smoking
   - Incidence of ANY fracture between the age of 20-50 increases risk of fracture after age 50 by 74% (not including motor vehicle accidents)

   <u>Arch Intern Med Vol 162, 33-36, 2002</u>

"Despite the accumulated evidence showing the importance of prevalent fractures in predicting future fracture risk,...most physicians fail to take diagnostic or therapeutic steps. Now is the time for the osteoporotic fracture to assume its rightful importance and signal an appropriate evaluation and treatment" *Elliott Schwartz, MD & Risa Keegan, MD, Foundation for Osteoporosis Research and Education*

Bone Mineral Density Scores provide motivation for behavior change. Studies demonstrate that to decrease osteoporosis prevalence and the related consequences by

changing bone health behaviors and seeking treatment, we must increase the number of men and women who are tested, diagnosed and informed about preventive measures.

1. J Bone Min Res Vol 14:12; 2143-2149; 1999
   - 669 healthy premenopausal women age 18-35
   - Interview questionnaire assessing lifestyle behaviors
   - Received BMD testing (20% were low) and written education
   - Repeat questionnaire 1 year later
   - Results – Those women with low BMD:
     - More likely to report increase milk intake and supplement Calcium
     - Less likely to smoke, consume alcohol and drink >3 caffeinated beverages/day
2. Calcif Tissue Int 66:113-118, 2000
   - 701 women age 50+ referred to community osteoporosis prevention program, followed for 3 years
   - 58% - normal bone mass
   - 24% - moderately low bone mass
   - 18% severely low bone mass
   - Behaviors after bone densitometry
     - Started HRT
     - Increased exercise
     - Decreased caffeine intake
     - Stopped smoking
     - Increased dietary calcium and calcium supplements
     - Increased fall prevention & safety behaviors
   - Greater % change w/ lower bone density

Guidelines for BMD screening/testing available (*See Appendix 1)

- International; Society for Clinical Densitometry position 2003
- National Osteoporosis Foundation 2002
- Foundation for Osteoporosis Research and Education 2002
- US preventative Services Osteoporosis Screening Recommendations, 2002
- American Association of Clinical Endocrinologists
- American College of Rheumatology
- Surgeon General's Report on Bone Health (pending) 2005

Current healthcare coverage for diagnosis and treatment

- Medicare criteria (*See Appendix 1 - #8)
- Healthplan Survey of Women's Health Services in AZ Health Plans (*See Appendix 2 - #7)