



# BONE HEALTH IN FOCUS

A REPORT ABOUT  
**PROSTATE CANCER'S**  
IMPACT ON BONES



# BONE HEALTH IN FOCUS

## THE SIGNIFICANCE OF BONE HEALTH IN PATIENTS WITH PROSTATE CANCER

---

TODAY'S PATIENT WITH CANCER FACES A DAUNTING AMOUNT OF INFORMATION. SORTING THROUGH IT ALL AND DECIDING WHAT'S IMPORTANT CAN BE AN IMMENSE CHALLENGE. AND WITH SO MANY IMPORTANT ISSUES TO CONSIDER, *BONE HEALTH* MAY NOT BE AT THE TOP OF A PATIENT'S AGENDA.

BUT PROSTATE CANCER-RELATED BONE DISEASES - RESULTING FROM THE CONSEQUENCES OF CANCER TREATMENT OR FROM METASTASES TO BONE - CAN RESULT IN SIGNIFICANT PAIN AND DISABILITY. STUDIES HAVE ALSO SHOWN A CORRELATION BETWEEN CANCER-RELATED BONE DISEASES AND INCREASED RISK OF MORTALITY.<sup>1</sup> AT THE SAME TIME, IT IS AN UNDER-RECOGNIZED ISSUE THAT MAY NOT RECEIVE ENOUGH ATTENTION FROM PATIENTS - AND SOMETIMES EVEN FROM THEIR HEALTHCARE PROVIDERS.

THIS REPORT AIMS TO FILL THE EDUCATIONAL GAP BY ILLUSTRATING THE SERIOUS CONSEQUENCES OF PROSTATE CANCER-RELATED BONE DISEASES, SPURRING IMPROVED COMMUNICATION BETWEEN PATIENTS WITH PROSTATE CANCER AND THEIR HEALTHCARE PROVIDERS, AND INSPIRING ACTION TO IMPROVE BONE HEALTH IN PATIENTS WITH CANCER.

## PROSTATE CANCER-RELATED BONE DISEASES INCLUDE TWO PRIMARY CONDITIONS:

**CANCER TREATMENT-INDUCED BONE LOSS (CTIBL):** Bone loss due to certain prostate cancer treatments, such as androgen deprivation therapy (ADT).

**BONE METASTASES:** Cancer cells can separate from primary tumors and migrate to bone tissue where they settle and grow. These growing cancer cells then weaken and destroy the bone. The damage the tumor causes to the bone can result in a number of serious complications, collectively called skeletal-related events (SREs).



**Skeletal-related events (SREs) can occur when cancer has spread to the bone (metastasized) and weakened it. SREs include:**

- Pathological fracture
- Spinal cord compression
- Surgery to bone
- Radiation to the bone

Many patients with cancer possess limited knowledge about bone health during the course of their treatment. After being diagnosed with cancer, patients are understandably overwhelmed and often experience fear, anger, frustration, and confusion. They may not hear or understand everything a physician explains about treatment, or messages from their healthcare providers might not be clear. Before their diagnosis, patients may not have heard the words and terms they are now discussing with their doctor, and this lack of understanding may contribute to the communication challenges. The communications cycle can be even more complex in prostate cancer, as many patients are seen by both urologists and oncologists.

Recognizing the importance of addressing bone health in cancer and the need for improved dialogue, a committee of prominent patient advocates and Amgen® formed a multidisciplinary steering committee to address the issue. The committee commissioned a survey in partnership with Harris Interactive to assess the communication between patients with cancer and physicians about bone health in cases involving either non-metastatic or metastatic cancer, and to determine awareness levels and concern about bone health and cancer. The results from the Harris Interactive Survey, along with in-depth interviews with patients with prostate cancer, are included in this report. For more information about the Harris Interactive Survey and the methodology it used, please refer to page 21 of this report. This report aims to raise awareness, empower patients, and encourage a better patient-physician dialogue around the critical issue of bone health.

## CANCER TREATMENT-INDUCED BONE LOSS (CTIBL) IN PATIENTS WITH NON-METASTATIC PROSTATE CANCER

Prostate cancer, which is the second most common newly diagnosed cancer in men worldwide (after non-melanomatous skin cancer)<sup>2</sup>, can be treated by a urologist or an oncologist, or both. Cancer treatment-induced bone loss (CTIBL) can occur as a side effect of cancer treatments, such as androgen deprivation therapy (ADT) in patients with early-stage prostate cancer, that stop the production of specific hormones.<sup>3</sup> ADT has been shown to improve disease-free and overall survival in various clinical settings.<sup>4</sup> However, ADT can also lead to a decrease in bone mass and an increased risk of fractures.<sup>5,6</sup>

Despite the significance of CTIBL, many patients with non-metastatic prostate cancer have relatively low awareness (48 percent) of the potential for bone loss and could benefit from ongoing discussions with their physicians around the risk and consequences of ADT.<sup>7</sup> Results from the Harris Interactive Survey show that about half of urologists (46 percent) and most medical oncologists (58 percent) are concerned or very concerned about possible fractures due to CTIBL among their patients with non-metastatic prostate cancer.<sup>7</sup> Despite their concerns, many do not proactively communicate about bone loss with their patients.<sup>7</sup>

IN THE HARRIS INTERACTIVE SURVEY, LESS THAN HALF OF PATIENTS WITH NON-METASTATIC PROSTATE CANCER (48 PERCENT) WERE AWARE THAT ADT COULD LEAD TO BONE LOSS, AND ONLY 55 PERCENT OF THOSE WHO WERE AWARE DISCUSSED CTIBL WITH THEIR PHYSICIAN.<sup>7</sup> IN CONTRAST, THE MAJORITY OF UROLOGISTS AND ONCOLOGISTS SURVEYED (90 AND 98 PERCENT, RESPECTIVELY) CONSIDERED CTIBL A SERIOUS ISSUE FOR THEIR PATIENTS WITH NON-METASTATIC PROSTATE CANCER.<sup>7</sup>

A BONE MINERAL DENSITY (BMD) TEST, WHICH DETERMINES THE AMOUNT OF MINERALS (CALCIUM, PHOSPHORUS, MAGNESIUM) WITHIN CERTAIN AREAS OF BONE, CAN PREDICT THE RISK OF FRACTURE. THIS TESTING PROCEDURE, CALLED BONE DENSITOMETRY (DEXA SCAN), IS PAINLESS, NON-INVASIVE AND INVOLVES MINIMAL RADIATION EXPOSURE. MEASUREMENTS ARE MOST COMMONLY MADE OVER THE LUMBAR (LOWER PORTION OF SPINE) AND OVER THE UPPER PART OF THE HIP.<sup>8</sup>

## THE IMPACT OF PROSTATE CANCER TREATMENT ON BONES

ADT has been shown to significantly decrease bone mineral density, increasing the risk of fracture.<sup>5,6</sup> In fact, a recent study showed that nearly one in five men (19 percent) receiving ADT experienced a fracture within five years of beginning treatment as compared to only 13 percent of those not treated with ADT.<sup>6</sup>

Fractures in patients with prostate cancer can lead to functional disability and can significantly impair quality of life.<sup>9,10</sup> Pain and disability from a single vertebral fracture can last for several years.<sup>11</sup> Fractures can lead to hospitalization, nursing home admissions, and home care support services.<sup>12</sup> Further, men with prostate cancer who are treated with ADT and experience a fracture are twice as likely to be hospitalized than those who are not on ADT therapy.<sup>6</sup>

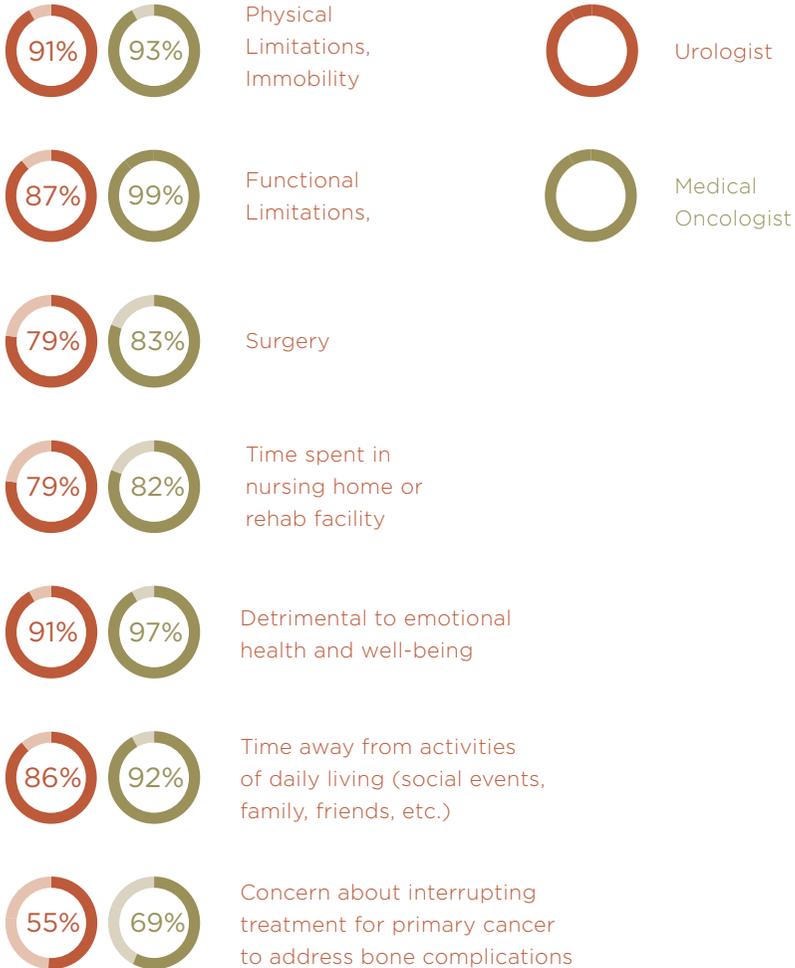
Fractures in men being treated for prostate cancer have been associated with a 39-month decrease in survival compared to those without a history of fracture.<sup>13</sup>

The Harris Interactive Survey reflects these concerns about the serious consequences of fractures. Urologists and medical oncologists, respectively, treating prostate cancer cite the following as primary consequences of CTIBL:

- The need for additional medical intervention (76 and 91 percent)<sup>7</sup>
- Interruption in cancer treatment (43 and 61 percent)<sup>7</sup>
- Changes in treatment regimen (42 and 55 percent)<sup>7</sup>

The majority of urologists also report emotional health and well-being (91 percent) as well as physical (91 percent) and functional (87 percent) limitations as physical consequences of bone fractures due to CTIBL.<sup>7</sup> Oncologists concurred. A majority of them listed functional (99 percent) and physical (93 percent) limitations along with impacts on health and well-being (97 percent) as the most common consequences.<sup>7</sup> These categories are followed by diminished activity, surgery, and time spent in a nursing home or rehabilitation facility.<sup>7</sup>

PERCENT OF UROLOGISTS AND MEDICAL ONCOLOGISTS WHO AGREE THAT THE CONSEQUENCES BELOW CAN RESULT FROM A FRACTURE.<sup>7</sup>



## CURRENT TREATMENT OPTIONS, UNMET NEEDS FOR CTIBL

There are currently no drug therapies approved by the U.S. Food and Drug Administration (FDA) specifically for CTIBL.

The National Comprehensive Cancer Network (NCCN) recommends treatment be aligned with the guidelines set forth for the general population by the National Osteoporosis Foundation.<sup>14</sup> These guidelines recommend several non-pharmacological interventions in addition to existing drug treatments such as intravenous (IV) bisphosphonates. They include the adequate intake of calcium and vitamin D, regular weight-bearing and muscle-strengthening exercise, strategies for preventing falls and the avoidance of tobacco use and excessive alcohol intake.<sup>15</sup>

## BONE METASTASES: BONE IS THE MOST COMMON SITE OF METASTASES IN PATIENTS WITH PROSTATE CANCER

Sixty five to 75 percent of patients with advanced prostate cancer can eventually develop bone metastases throughout the course of their disease.<sup>16</sup> In this process, cancer cells travel from the primary tumor to bone tissue, where they settle and grow. The growing cancer cells weaken and destroy the bone around the tumor and can result in a number of serious complications called skeletal-related events (SREs), which are associated with increased pain, illness and death.<sup>1,9,17,18</sup>

THE MAJORITY OF ONCOLOGISTS ARE CONCERNED ABOUT THEIR PATIENTS DEVELOPING BONE METASTASES (87 PERCENT) AND SRES (94 PERCENT). AMONG UROLOGISTS, 76 PERCENT ARE CONCERNED THE DEVELOPMENT OF BONE METASTASES AND 77 PERCENT ARE CONCERNED ABOUT SRES.<sup>7</sup> HOWEVER, CONVERSATIONS ABOUT THE TREATMENT OF BONE METASTASES ARE NOT FREQUENT. ONLY ONE-THIRD (32 PERCENT) OF PATIENTS WITH PROSTATE CANCER REPORTED DISCUSSING BONE METASTASES TREATMENT WITH THEIR PHYSICIAN.<sup>7</sup>

Bone pain is one of the first signs that metastatic cancer has spread to the bone,<sup>19</sup> and it affects two-thirds of patients whose cancer has spread to the bone.<sup>20</sup> Bone pain can dominate the daily lives of patients with metastatic disease and is often characterized as debilitating to severe.<sup>20</sup>

IT IS IMPORTANT FOR PATIENTS TO COMMUNICATE ANY BONE-RELATED SYMPTOMS TO THEIR DOCTOR AS SOON AS POSSIBLE SO A BONE SCAN CAN BE PERFORMED TO DETERMINE IF BONE METASTASES ARE PRESENT.

## SERIOUS CONSEQUENCES REQUIRE PROACTIVE COMMUNICATION: BONE METASTASES AND SKELETAL-RELATED EVENTS

Bone metastases from prostate cancer and the increased risk of SREs remains an important clinical problem. In one study, nearly 50 percent of patients with bone metastases from prostate cancer who were resistant to some hormone-ablation therapies (such as ADT) *and* who were not treated for bone metastases experienced an SRE within two years. The SRE often resulted in intractable pain and functional impairment.<sup>21</sup> In addition, patients with prostate cancer and vertebral (spine) metastases may experience not only motor impairment and pain, but also neurological complications.<sup>21</sup>

FAMILIARITY WITH “SKELETAL-RELATED EVENTS” IS VERY LOW AMONG PATIENTS WITH METASTATIC PROSTATE CANCER - FEWER THAN 1 IN 10 (7 PERCENT) STATED THEY WERE FAMILIAR WITH THESE CLINICAL CONSEQUENCES OF BONE METASTASES.<sup>7</sup>

The majority of urologists and oncologists express concern about the interruption of primary cancer treatments due to the physical consequences of SREs.<sup>7</sup> However, this concern contrasts with low treatment rates of bone metastases and with the limited amount of treatment discussions between patients and physicians. For example, a retrospective analysis of claims data reported that a significant number of patients with prostate cancer and metastatic bone disease (71 percent) did not receive IV bisphosphonate therapy.<sup>22</sup> The Harris Interactive Survey also showed that 68 percent of patients with metastatic prostate cancer have not discussed bone metastases treatment with their physician.<sup>7</sup> Treating bone metastases to prevent SREs is an important part of managing metastatic disease and can help prevent the significant consequences of no treatment.

- In patients with prostate cancer, a history of previous fracture was associated with a reduction in overall survival of roughly three years when compared to similar patients with no history of fracture.<sup>13</sup>

# BERT

(patient with prostate cancer, diagnosed 1996)

*The day after my surgery, the doctor said he didn't think he got it all, which meant that it probably would metastasize. Now I had a very high Gleason [score], this is another indicator of the aggressiveness of the cancer... and when my pathology report came in with a Gleason 9, the doctors knew that I would get recurrence and metastases. They knew that. I became very alert about it from day one.*

## TREATING BONE METASTASES AND SKELETAL-RELATED EVENTS IN PATIENTS WITH PROSTATE CANCER

Patients with cancer continue to live longer, which may increase the likelihood that they experience an SRE.<sup>23</sup> Moreover, in patients with prostate cancer and bone metastases, SREs are associated with an increase in mortality.<sup>1</sup> Current treatment options are underutilized but offer a positive impact on the skeletal morbidity associated with bone metastases, and improved skeletal health may provide important benefits to patients.<sup>10,22</sup>

Intravenous bisphosphonates have been shown to reduce cancer-related bone complications in specific malignancies by delaying the time to a first SRE and reducing the risk of developing a subsequent bone complication.<sup>21</sup> Intravenous bisphosphonates can benefit patients with bone metastases.<sup>9</sup> Regular monitoring of renal function is recommended when IV bisphosphonates are used for patients bone metastases due to the potential side effect of renal deterioration.<sup>24,25,26</sup>

While this therapy may prove beneficial to patients, based on individual benefit and risk assessments, IV bisphosphonates may not be appropriate for all patients. Therefore, some patients may go untreated, remaining at risk for SREs.

A SUBSTANTIAL PERCENTAGE OF PHYSICIANS WHO TREAT METASTATIC BONE DISEASE ARE NOT SATISFIED WITH CURRENT TREATMENT OPTIONS. AMONG PHYSICIANS WHO TREAT PROSTATE CANCER, 27 PERCENT OF UROLOGISTS AND 25 PERCENT OF ONCOLOGISTS WERE DISSATISFIED WITH OPTIONS TO TREAT OR DELAY SKELETAL COMPLICATIONS DUE TO BONE METASTASES.<sup>7</sup>

## SURGICAL AND RADIATION TREATMENT OPTIONS FOR ADVANCED PATIENTS WITH CANCER

If a bone is at risk of fracture or has already fractured, surgery to the bone is performed to manage or prevent further complications. For patients with advanced-stage cancer, surgery to the bone is a major operation, and recovery can often be challenging and require hospitalization.

When drug treatments are not effective, one option for treating bone pain due to metastases in the spine is the injection of a special kind of cement, a technique called Vertebroplasty, into the bone of the vertebra. Kyphoplasty, another option for cancer that has spread to the spine, repairs fractures and restores the vertebrae to the correct position using a balloon that creates a mold for bone cement.<sup>27</sup>

Two current trends in radiation therapy for bone pain are hypofractionation, in which oncologists administer fewer larger radiation doses rather than many smaller doses<sup>28</sup>, and stereotactic body radiation therapy, in which the dose is focused on a specific portion of bone or other tissue, often over several days.<sup>29,30</sup>

# PATIENTS WITH PROSTATE CANCER SPEAK OUT ABOUT BONE HEALTH

---

The emotional consequences of cancer can be difficult to manage and are only magnified when cancer has metastasized to bone.



## JACK\*

---

Jack, who is 78 years old and lives in the Ft. Worth area of Texas, has a very aggressive form of prostate cancer, which was originally diagnosed in 1992. Even after prostate surgery, when his PSA should have been zero, his numbers were elevated, which indicated potential metastases, though metastases never showed up in his bones.

Starting on hormone therapy in 1994, Jack suffered from bone loss and a high risk of spinal fracture, but he doesn't recall being told about potential side effects. Thanks to bone targeted treatment and calcium supplements, his scans show that his bone density is now within the normal range.

Jack started with an urologist when he was diagnosed, but he switched to an oncologist years later. He says he did not have much awareness of bone complications until he was first tested and treated well after his initial diagnosis. He learned about bone treatments from a doctor presenting at an Us TOO meeting. He asked that doctor to become his oncologist and primary cancer physician.

Jack is very active in Us TOO to stay up to date on the most current information, and he attends meetings once a month. He also says the American Cancer Society has "Man-to-Man" groups that he attends. He also relies on "diet, exercise and prayer."



## JIM\*

Jim's prostate cancer was originally diagnosed in 1989 – more than 20 years ago – when he was 50. He was one of the early users of the PSA test, which, he believes, saved his life. Seven years ago, the cancer recurred and metastasized in Jim's pelvis, ribs and spine, but the Olympia, Washington native has had no bone pain and his cancer has stabilized, thanks to aggressive hormonal treatment. "Stable" means he still has bone metastases but they haven't grown in size or number in all this time. His oncologist says, "whatever you're doing, keep doing it."

While Jim has had some bone loss due to his hormone treatment, his bone density scans are now within the normal range. He attributes this to his bone treatment and to vigorous exercise, which he believes encourages bone cell regeneration. Every time he gets an infusion his doctor also schedules renal and liver tests to make sure there are no potential problems.

Jim says his doctor gives him as much time as he needs. She's "the quarterback," he adds, but he consults with various research centers and programs on his own because of his work as a support group leader. "I can consult with the best and the brightest so I have the whole picture, but everything goes through my oncologist."

Active in Us TOO as a support group leader as well as a patient advocate for the FDA, Jim believes strongly in exercise and uses vitamin and herbal supplements, based on his personal research.

---

\*Patient testimonials were collected separately from the Harris Interactive Survey and are not affiliated with Harris Interactive.

REMAIN ACTIVE IN YOUR CARE. SEEK OUT INFORMATION FROM PATIENT ADVOCACY ORGANIZATIONS AND ASK QUESTIONS OF YOUR HEALTHCARE TEAM.

## ROLE OF EFFECTIVE COMMUNICATION

As with any medical issue, the quality, accuracy and timeliness of communications between physicians and patients are critical to successful outcomes. Patients with prostate cancer may start seeing an urologist and be transferred to an oncologist, or keep seeing both. The importance of communication is even greater when there is more than one physician involved in the treatment. Nurses also play a significant role in effective communications, as they spend a great amount of time counseling the patient about treatments, side effects and overall health issues.

## INFORMATION IS AVAILABLE

Knowledge is power. This is especially true for patients with prostate cancer. So, as the ultimate consumers of healthcare, patients can make the best decisions about their treatment by becoming educated. Information is available to help patients understand their diagnosis and treatment options. In fact, among those patients with prostate cancer surveyed by Harris Interactive, more than half (54 percent) would have liked to learn more about their bone health earlier in their cancer treatment, and many (27 percent) specifically would like to learn this information from their physicians.<sup>7</sup>

Perhaps underscoring low awareness of the severity of the issue, nearly half of the patients with prostate cancer questioned (46 percent) did not actively seek out any information about bone health and cancer.<sup>7</sup> Beyond relying on their physicians, the more active patients cite Internet research as their top resource (46 percent) for information related to bone health.<sup>7</sup>

## THE SUPPORT OF FAMILY AND FRIENDS – A NETWORK OF SUPPORT

Having the support and help of friends and loved ones is also very important. For example, bringing someone along to medical appointments not only provides emotional support, but also gives the patient a critical back-up – someone who can listen carefully to directions, think of questions to ask, and remember details the patient may have forgotten.

When asked, “On a scale of one to five, with one being never and five being always, how often does your wife accompany you to doctor’s appointment?,” David, a patient with prostate cancer, said emphatically, “Always. Five.”

IN THE HARRIS INTERACTIVE SURVEY, 69 PERCENT OF PATIENTS WITH PROSTATE CANCER RELIED ON THEIR SPOUSE OR SIGNIFICANT OTHER ON THEIR PATH TO RECOVERY.<sup>7</sup>

## BERT

**(patient with prostate cancer, diagnosed 1996)**

*I'm a member of the US TOO prostate cancer support group, and I facilitated that for 10 years. We have brought in several speakers on bone mineral health. We've had several talks on it and... the importance of trying to take care of... bone mineral density and also attack prostate cancer of the bone. All of those are still under constant discussions in our support group meetings.... I've been at it for 14 years, and I spend maybe two or three hours a day just reading up on what's happening or what the latest is. I try to keep ahead of the game.*

## KEEP RECORDS

To improve and maintain effective communications, patients should prepare a list of specific questions beforehand and write down responses from their healthcare providers to prevent important concerns from being forgotten during medical appointments.<sup>31</sup> Taking notes also helps the patient review the information later when there is more time to concentrate or do research. It may even make sense for patients to tape-record their visits, with the doctor's consent.<sup>7</sup> (Many of today's "smartphones" have a recording function.) Patients who record their visits can listen to specific information again or share it with family members or friends.

Another way for patients to record information about their specific diagnosis and keep track of details is to keep a journal or notebook. It is a good way to track not just appointments, blood tests, medications and side effects, but everything that is happening, including the patient's feelings.

JIM\*

(patient with prostate cancer, diagnosed 1989)

*My oncologist communicates clearly, without medical jargon. To me, that's critical. I also bring a tape recorder to my appointments, because I can't remember all of the information we discuss, and having it recorded helps a great deal.*

## SPEAK UP

In any conversation with a doctor, patients should feel free to be assertive. If patients don't know what a word means or don't understand the doctor's directions, they have a right to ask. Patients can also request a phone appointment or follow-up visit if more time is needed for discussion.<sup>31</sup>

Bob, a patient with prostate cancer, consults with a nationally recognized oncologist twice a year and shares the information and treatment he receives with his personal oncologist. Explaining why he keeps his original oncologist up to date, Bob says, "I've seen too many friends pass away due to inadequate treatment, so I pass along feedback because it may help them to be better doctors."

## PHILLIP

**(patient with prostate cancer, diagnosed 2001)**

*I've read quite a bit about it, the effects of ADT, and I'm well aware of the impact on bone loss and bone health. Whenever I go to see my doctor, I have a huge list of questions. We just talk about the lab reports and anything that I've read. These are the opportunities to talk about things like side effects and so forth.*



TEAR-OUT FOR YOUR NEXT VISIT

# ASK KEY QUESTIONS

---

**Here are some questions patients with prostate cancer might ask their doctors or nurses about their treatment and follow-up:<sup>31</sup>**

WHAT ARE MY TREATMENT OPTIONS?

WHAT IS THE RECOMMENDED TREATMENT? WHY?

HOW OFTEN WILL I RECEIVE TREATMENT?

WHAT ARE THE POSSIBLE SIDE EFFECTS?

WHAT ARE THE POSSIBLE BENEFITS AND RISKS  
OF THIS TREATMENT?

IF MY DOCTOR IS NOT AVAILABLE, WHO CAN I ASK?  
FOR EXAMPLE, IS A NURSE, SOCIAL WORKER OR OTHER  
SPECIALIST AVAILABLE?

IS THERE ANY INFORMATION THAT I CAN READ ABOUT  
THIS TREATMENT OR PROCEDURE?

IS THERE ANYTHING ELSE I SHOULD KNOW?



**BONE HEALTH**  
IN FOCUS

# RECOMMENDATIONS FOR EFFECTIVE COMMUNICATION BETWEEN CLINICIANS AND PATIENTS

---

## MANAGING COMMUNICATIONS

Some medical centers start things off by arranging a patient meeting with the surgeon, oncologist and radiation oncologist before treatment begins. As a result, a proposed course of treatment can be discussed so everyone understands, thus minimizing confusion along the way.

Providers can continue to collaborate on a course of treatment by having regular multi-disciplinary conferences that could include urologists, oncologists, radiologists and surgeons as well as various supportive specialties. When all doctors are under the same roof (or on the same call) periodically, communication is often easier and better, resulting in clearer information for the patient. This is especially important in treating prostate cancer, where multiple physicians may be co-managing the patient.

Most doctors encourage their patients to equip themselves with facts, providing educational materials and referring them to both local and national support groups. While not everyone wants to participate, support groups can be an important part of recovery.

## PATIENTS NEED TO BE THEIR OWN BEST ADVOCATE

Based on the research and information collected in this report, it is clear that:

- Cancer-related bone diseases are a serious and prevalent problem with a potentially devastating impact on patients.
- The bone complications of metastatic prostate cancer, if left untreated, can make a compromised health situation increasingly more difficult.
- Patient knowledge about bone health is not as high as it should be, and most patients want more information. Even among patients who are satisfied with the amount of information available to them, most would have preferred more information about bone health earlier in the cancer treatment process.
- More and higher quality communication is needed between physicians and their patients, and physicians' staff members have a great opportunity to provide information, while also recommending other information sources.

The data also show that physicians who treat patients with prostate cancer have high levels of awareness and concern about bone health and are interested in learning about various treatment options.

The entire healthcare community must take coordinated action to make cancer-related bone diseases more of a priority throughout the treatment continuum. The effort to understand the science and develop novel therapies to address the root cause of bone loss and bone destruction in patients with cancer is ongoing. In the meantime, patients, physicians, support groups and other advocates can do a great deal more to help alleviate pain and suffering and reduce the clinical and emotional effects of cancer-related bone diseases by prioritizing discussions about this critical topic.

THE EFFECTIVE TREATMENT OF CANCER REQUIRES A CONSIDERABLE EFFORT BY THE PATIENT AND PHYSICIAN. FORMING A STRONG PARTNERSHIP, WHICH SHOULD ALSO INCLUDE FAMILY, FRIENDS, ONCOLOGY NURSES, SOCIAL WORKERS AND PATIENT SUPPORT GROUPS, IS NOT ONLY HELPFUL BUT CRUCIAL TO EFFECTIVE DISEASE MANAGEMENT AND TREATMENT.

Working closely together with this network, patients can and should:

- Achieve the highest standard of care and work with their physicians to develop a treatment plan that is tailored to their needs.
- Comply fully with an agreed-upon treatment plan. If side effects or other issues prevent this, communication is critical.
- Take enough time to exchange relevant information and maintain an ongoing dialogue about their progress and treatment options with their healthcare providers.
- Make sure they get answers to questions they ask their healthcare providers.
- Obtain other professional opinions and use other support services that may benefit recovery.
- Seek out emotional, social and practical support that may help them during cancer treatment.

## SOME RESOURCES CAN PROVIDE A HELPFUL START:

Us TOO ([www.ustoo.com](http://www.ustoo.com))

CURE ([www.curetoday.com](http://www.curetoday.com))

## SELF-REPORTED PATIENT SURVEY METHODOLOGY

The survey of patients with prostate cancer was conducted online within the United States by Harris Interactive between February 17 and March 8, 2010, on behalf of Amgen and in partnership with Us TOO. Respondents included 186 patients with prostate cancer who were recruited from Harris' Chronic Illness Panel. Prostate cancer patient data was weighted to be representative of the respective patient populations. All patient surveys averaged 10 minutes in length.

## SELF-REPORTED PHYSICIAN SURVEY METHODOLOGY

All physicians were interviewed online by Harris Interactive between February 19 and April 16, 2010, on behalf of Amgen and in partnership with Us TOO. Respondents included 113 urologists and 63 medical oncologists. All urologists were recruited by postal mail using the American Medical Association (AMA) master physician list as the sample frame. Medical oncologists were recruited by postal mail using the AMA master physician list, and the sample was supplemented with respondents from Harris' Physician Panel. All physician surveys averaged 10 minutes in length. Physician data was weighted to be representative of the populations of the respective physician populations.

# DEFINITIONS

---

**Skeletal-related events (SREs)** can occur when cancer has spread to the bone (metastasized) and weakened it. SREs include:

**Pathological fracture:** A fracture to bone for a patient with advanced cancer is significant and can require surgery. It can cause serious impairment and disability in addition to pain.<sup>9</sup>

**Spinal cord compression:** If the bone metastasis is in or around the vertebral column, expansion from the bone can put pressure on the spinal cord. This can lead to serious complications such as paralysis, incontinence and numbness.<sup>32</sup>

**Surgery to bone:** If a bone is at risk of fracture or has already fractured, surgery to the bone is performed to manage or prevent further complications. With patients with advanced cancer, surgery to the bone is a major operation, and recovery can often be challenging and require hospitalization.<sup>9,17</sup>

**Radiation to the bone:** Radiation to the bone is performed to treat the bone metastasis and alleviate pain.<sup>33</sup> However, due to the effects of radiation on the bone, it is generally only performed on smaller areas.

**Overall survival rate:** This term refers to the percentage of people in a study or treatment group who are alive for a certain period of time after they were diagnosed with or treated for a disease. The overall survival rate is often stated as a five-year survival rate, which is the percentage of people in a study or treatment group who are alive five years after diagnosis or treatment.<sup>34</sup>

**Gleason score:** Ranges from 2 to 10 and indicates how likely it is that a tumor will spread. A low Gleason score means the cancer tissue is similar to normal prostate tissue, and the tumor is less likely to spread; a high Gleason score means the cancer tissue is very different from normal, and the tumor is more likely to spread.<sup>35</sup>

# REFERENCES

---

- 1 Nørgaard M, Jensen AØ, Jacobsen JB, Cetin K, Fryzek JP, Sørensen HT. Skeletal related events, bone metastasis and survival of prostate cancer: a population based cohort study in Denmark (1999 to 2007). *J Urol*. 2010;184:162-167.
- 2 ACS Global Facts & Figures 2007.
- 3 Brufsky AM. Cancer treatment-induced bone loss: pathophysiology and clinical perspectives. *Oncologist*. 2008;13:187-195.
- 4 Bolla M, Collette L, Blank L, et al. Long-term results with immediate androgen suppression and external irradiation in patients with locally advanced prostate cancer (an EORTC study): a phase III randomised trial. *Lancet* 2002;360:103-8.
- 5 Greenspan SL, Coates P, Sereika SM, Nelson JB, Trump DL, Resnick NM. Bone loss after initiation of androgen deprivation therapy in patients with prostate cancer. *J Clin Endocrinol Metab*. 2005;12:6410-6417.
- 6 Shahinian VB, Kuo YF, Freeman JL, Goodwin JS. Risk of fracture after androgen deprivation for prostate cancer. *N Engl J Med*. 2005;352:154-164.
- 7 Harris Interactive Bone Health Survey. Data on file. Amgen Inc. July 27, 2010.
- 8 BMD testing. National Osteoporosis Foundation website. <http://www.nof.org/osteoporosis/bmdtest.htm>. Accessed August 31, 2010.
- 9 Costa L, Badia X, Chow E, Lipton A, Wardley A. Impact of skeletal complications on patients' quality of life, mobility, and functional independence. *Support Care Cancer*. 2008;16:879-889.
- 10 Saad F, Gleason DM, Murray R, et al. Long-term efficacy of zoledronic acid for the prevention of skeletal complications in patients with metastatic hormone-refractory prostate cancer. *J Natl Cancer Inst*. 2004;96(suppl 11):879-882.
- 11 Ross PD, Davis JW, Epstein RS, Wasnich RD. Pain and disability associated with new vertebral fractures and other spinal conditions. *J Clin Epidemiol*. 1994;47:231-239.
- 12 Burge R, Dawson-Hughes B, Solomon DH, Wong JB, King A, Tosteson A. Incidence and economic burden of osteoporosis-related fractures in the United States, 2002-2005. *J Bone Miner Res*. 2007;22:465-475.
- 13 Oefelein MG, Ricchiutu V, Conrad W, Resnick M. Skeletal fractures negatively correlate with overall survival in men with prostate cancer. *J Urol*. 2002;68:1005-1007.
- 14 The NCCN Clinical Practice Guidelines in Oncology. National Comprehensive Cancer Network website. [http://www.nccn.org/professionals/physician\\_gls/default.asp](http://www.nccn.org/professionals/physician_gls/default.asp). Accessed August 31, 2010.

- 15 Clinicians guide to prevention and treatment of osteoporosis. National Osteoporosis Foundation website. [http://www.nof.org/professionals/pdfs/NOF\\_ClinicianGuide2009\\_v7.pdf](http://www.nof.org/professionals/pdfs/NOF_ClinicianGuide2009_v7.pdf). Accessed September 19, 2010.
- 16 Coleman RE. Skeletal complications of malignancy. *Cancer*. 1997;80(suppl):1588-1594.
- 17 Weinfurt et al. *Annals of Oncology* 16: 579-584, 2005.
- 18 Weinfurt et al. *Annals of Oncology* 17: 986-989, 2006.
- 19 Ripamonti C, Fulfaro F. Malignant bone pain: pathophysiology and treatments. *Curr Rev Pain*. 2000;4:187-196.
- 20 Gralow J, Tripathy, D. Managing metastatic bone pain: the role of bisphosphonates. *J Pain Symptom Manage*. 2007;33:462-472.
- 21 Saad F. Impact of bone metastases on patient's quality of life and importance of treatment. *Eur Urol*. 2006;5(suppl 5):547-550.
- 22 Mortimer JE, Schulman K, Kohles JD. Patterns of bisphosphonate use in the United States in the treatment of metastatic bone disease. *Clin Breast Cancer*. 2007;7:682-689.
- 23 Papagelopoulos P, Savvidou OG, Galanis EC, et al. Advances and challenges in diagnosis and management of skeletal metastases. *Orthopedics*. 2006;29:609-622.
- 24 Lipton A, Uzzo R, Amato RJ, et al. The science and practice of bone health in oncology. *J Natl Compr Canc Netw*. 2009;7:S1-S29.
- 25 Zometa® (zoledronic acid) prescribing information, Novartis.
- 26 Aredia® (pamidronate disodium) prescribing information, Novartis.
- 27 Compression fractures of the back. National Library of Medicine website. <http://www.nlm.nih.gov/medlineplus/ency/article/000443.htm>. Accessed August 31, 2010.
- 28 Dictionary of Cancer Terms—hypofractionation. National Cancer Institute website. <http://www.cancer.gov/dictionary>. Accessed August 31, 2010.
- 29 Dictionary of Cancer Terms—stereotactic body radiation therapy. National Cancer Institute website. <http://www.cancer.gov/dictionary>. Accessed August 31, 2010.
- 30 Down To The Bone. CureToday website. <http://www.curetoday.com>. Accessed August 31, 2010.
- 31 Doctor Can We Talk? Cancer Care website. [http://www.cancercare.org/pdf/fact\\_sheets/fs\\_doctor\\_talk\\_en.pdf](http://www.cancercare.org/pdf/fact_sheets/fs_doctor_talk_en.pdf). Accessed August 31, 2010.
- 32 Dictionary of Cancer Terms—spinal cord compression. National Cancer Institute website. <http://www.cancer.gov/dictionary>. Accessed August 31, 2010.
- 33 Janjan NA. Radiation for bone metastases. *Cancer*. 2000;80:1628-1645.
- 34 Dictionary of Cancer Terms—overall survival rate. National Cancer Institute website. <http://www.cancer.gov/dictionary>. Accessed August 31, 2010.
- 35 Dictionary of Cancer Terms—gleason score. National Cancer Institute website. <http://www.cancer.gov/dictionary>. Accessed August 31, 2010.



# BONE HEALTH IN FOCUS

