BC Cancer Agency
CARE & RESEARCH

Subject Information and Consent Form

^{18}F-Sodium Fluoride Positron Emission Tomography / Computed Tomography (^{18}F-NaF PET/CT) Imaging as a Replacement for ^{99m}Technetium Bone Scintigraphy

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Funding Support: Canadian Institutes for Health Research

For emergencies, 24 hours a day / 7 days a week: Call your local hospital or the cancer centre nearest you and ask for your usual oncologist or, if he or she is not available, the oncologist on-call.

Vancouver Centre	(604) 877-6000
Vancouver Island Centre	(250) 370-8000
Fraser Valley Centre	(604) 581-2211
Centre for the Southern Interior	(250) 862-4000
Abbotsford Centre	(604) 851-4710
Centre for the North	(250) 565-2000

Non-Emergency contact numbers are noted at the end of this document under the section heading "Contact".

INVITATION

You are being invited to participate in this research study because your doctor has ordered a bone scan to look for possible cancer in your bones. Before consenting to participate in this study, please take time to carefully read the following information which describes the purpose and procedures, the possible risks and benefits, and other information about the study. Please discuss any questions you have with your treating doctor (doctor currently treating your cancer) and research staff. You may also discuss this study with your family, friends, and family doctor.

YOUR PARTICIPATION IS VOLUNTARY

Participation in this study is voluntary. You may decide that you do not want to participate or that you would like to withdraw from the trial later. You can withdraw at any time without any negative consequences to the medical care, education, or other services you are entitled to.

WHO IS CONDUCTING THE STUDY?

The study is being conducted by the Medical Imaging Trial NEtwork of Canada (MITNEC) and is funded by the Canadian Institutes of Health Research (CIHR).

BACKGROUND

You are being invited to participate in this study because your treating doctor has requested a bone scan to determine if there is cancer in your bones or not.

If you agree to participate in this clinical trial, you will have a whole body bone scan with Single Photon Emission Computed Tomography (SPECT), using a radiotracer (a radioactive compound) called Technetium-99m medronate (^{99m}Tc-MDP). The whole body bone scan is a test that you would normally receive as part of your regular care, however the bone SPECT portion of the scan is an added procedure specific to this study. You will also receive a Positron Emission Tomography / Computerized Tomography (PET/CT) scan, using a radiotracer called ^{18}F-Sodium Fluoride (^{18}F-NaF) as part of this study.

^{99m}Tc-MDP is the most widely used radioactive tracer in imaging studies such as whole body bone scans. ^{99m}Tc is used in 20 million diagnostic procedures worldwide annually, for purposes ranging from detecting bone metastases from cancer to detecting coronary artery disease.

An alternative for ^{99m}Tc-MDP in bone imaging is using the radioactive tracer ^{18}F-NaF. Like ^{99m}Tc-MDP, ^{18}F-NaF also accumulates within the bone tissue if there are abnormal physical and chemical changes, and this will help to distinguish between normal and abnormal bone. Some studies have shown that ^{18}F-NaF PET/CT is a possible alternative to the current bone scan procedures. The purpose of this study is to compare the accuracy of ^{18}F-NaF PET/CT to that of the ^{99m}Tc-MDP whole body bone scan with SPECT.

The ^{18}F-NaF made at the BC Cancer Agency (BCCA) is considered investigational. However, this tracer has been used safely at various institutions around the world for many years. There are no serious side effects associated with ^{18}F-NaF that have been reported in the medical literature to date. The radio-labeled tracers that will be used in this clinical trial will be made by the BCCA for the purposes of this study.

PURPOSE

This is a phase III clinical trial. The purpose of this study is to compare the accuracy of ^{18}F-NaF PET/CT scans to ^{99m}Tc-MDP whole body bone scans with SPECT for the detection of bone cancer in subjects with breast or prostate cancer. 286 subjects total with breast cancer or prostate cancer, will take part in this study at trial centres across Canada.

WHO CAN PARTICIPATE IN THIS STUDY?

You may participate in this study if:

- You fully understand the study and give your consent to participate, as demonstrated by signing this consent form.
- You are 18 years of age or older.
- You require a bone scan to look for bone metastasis from breast or prostate cancer.
- You will be able to tolerate the physical and logistical requirements of completing one PET/CT scan and one whole body bone scan with SPECT. You will be required to lay flat for 45 – 50 minutes for the bone scan with SPECT and 45 – 60 minutes for the PET/CT scan, and have an IV injection of the radioactive tracers into a vein in your arm.

WHO SHOULD NOT PARTICIPATE IN THE STUDY?

You cannot participate in this study if:

- You are pregnant.
- You are too unwell in the opinion of the study doctor.

- You have already been diagnosed with bone metastasis.

WHAT DOES THE STUDY INVOLVE?

If you agree to join this study you will receive a standard ^{99m}Tc-MDP whole body bone scan, with an additional bone SPECT portion for extra views of the bone. You will also receive an ^{18}F-NaF PET/CT scan for the purposes of this study. The whole body bone scan with SPECT will be performed at Vancouver General Hospital (VGH). The PET/CT scan will be performed at the BCCA – Vancouver Centre. These two scans will occur on two different days most convenient to you. You may also receive other diagnostic imaging, such as MRI, at a later date if your treating doctor feels more information is required, and a biopsy of the abnormal bone sites seen on your PET/CT scan. You will be followed on this study for two years after completion of your PET/CT scan.

STUDY PROCEDURES

^{99m}Tc-MDP whole body bone SPECT scan:

Prior to the procedure
- You may eat and drink normally and take any medications as prescribed by your doctor.
- You will be instructed to drink 3 to 4 glasses of water within two hours of your scan.
- If you are a female who is breast-feeding, you will be instructed to stop breast-feeding for 24 hours after your scan. You may elect to express milk prior to your scan for use during the 24 hours after your scan or you may choose to formula-feed during this period.

During the Procedure:
- You will have an intravenous (IV) catheter inserted into a vein in your arm and you will receive an IV dose of the ^{99m}Tc-MDP. The injection volume will be very small and it will only take a few seconds to give through your IV.
- You will be allowed to leave the nuclear medicine department for two to three hours after your injection, depending on the normal procedures at VGH. During this time you may eat and drink, and use the washroom as needed.
- You will return to the nuclear medicine department after two hours and you will undergo the ^{99m}Tc-MDP whole body bone scan with SPECT, which will take a total of 45 – 50 minutes. During this time, you will need to lie still on the scanner bed.

After the Procedure:
- After the procedure is complete you are free to leave the nuclear medicine department and carry on with your normal activities.

^{18}F-NaF PET/CT scan:

Prior to the procedure
- You may take your usual medications as prescribed and eat normally.
- You will be instructed to drink 3 to 4 glasses of water within two hours of your scan.
- If you are a female who is breast-feeding, you will be instructed to stop breast-feeding for 8 hours after your scan. You may elect to express milk prior to your scan for use during the 8 hours after your scan or you may choose to formula-feed during this period.

When you arrive for the procedure
- The study doctor and/or a technician will meet with you to answer any questions.
- If you are a female of child-bearing potential, you will be asked to undergo a urine pregnancy test. The urine pregnancy test is done whether you think you might be pregnant or not, regardless of

birth control procedures. You will be weighed and your vital signs will be measured (blood pressure, heart rate and blood oxygen saturation).

During the Procedure

- You will have an IV inserted into your arm and you will receive a dose of ^{18}F-NaF. The injection volume will be very small and it will only take a few seconds to give through your IV.
- You will again have your vital signs measured 5 to 15 minutes after the ^{18}F-NaF injection.
- You will rest in a private quiet room for 60 minutes so the tracer can circulate throughout your body, and your vital signs will be measured again.
- You will be taken to a designated washroom and asked to void prior to being scanned in order to clear excreted ^{18}F-NaF from the urinary tract.
- You will undergo the PET/CT scan, which will take about 30 minutes. You will need to lie still on the scanner bed during this time.
- During the scan, a technician monitors you by direct vision, by video camera and with a pulse oximeter (small clip that grips your finger to measure blood oxygen saturation and heart rate).

After the Procedure:

- After the scan is complete, you can leave the BCCA. You will be encouraged to drink 3 to 4 extra glasses of water by the end of the day.
- A doctor will provide a more in-depth assessment if there are any concerns that your health status has changed during the PET/CT scan. We do not expect that any subjects will experience any side effects.
- Your PET/CT scan will be reviewed by a BCCA doctor specialized in PET/CT. The results of the scan will be sent to your referring doctor.
- Your PET/CT scan will also be reviewed by central readers for study purposes only and this information will not be available to you or your referring doctor. No personal information will be transferred to the central readers, you will only be identified by your unique patient code.

Possible additional procedures:

Targeted MRI scan or other scan procedure:

Your treating doctor may decide that you require a further scan with an MRI after your PET/CT scan. This could occur if the PET/CT scan shows results that require further clarification. If an MRI is requested by your treating doctor, the procedures will be carried out according to the normal practices of BCCA. If your doctor feels that a different scan is preferred to MRI, or if you are unable to undergo an MRI scan, a different type of scan (plain x-rays or a CT scan) may be ordered for you.

Bone biopsy:

After your PET/CT scan your treating doctor may also order a biopsy of your bone. A biopsy is not required as part of this study, however your doctor may feel that it will help to better determine whether you have cancer in your bones or not.

Follow-up Visits:

You will be asked to return for two short clinical examinations by your oncologist at 12 months and 24 months after the date of your PET/CT scan. These visits can be scheduled to occur at the same time as your regular follow-up visits with your oncologist or if you are unable to return to the clinic when the visits are due, a study team member may call you by telephone to inquire about any symptoms you may have. At the clinical examinations with your treating physician, any available scans or laboratory tests will be reviewed with you to determine if new cancer has formed in your bones since your PET/CT scan or whether there has been progression of any diagnosed bone cancer. A review of your symptoms and a physical examination will also be performed.

Time:

The extra amount of time that will be required of you if you participate in this study is approximately 25 minutes extra for the additional bone SPECT portion of your whole body bone scan. The PET/CT scan will take about 2 hours of your time. The two additional clinical visits at 12 and 24 months after your PET/CT will take 15 minutes per visit. In total, there will be about 3 hours of extra time required of you to participate in this study.

WHAT ARE THE POSSIBLE HARMS AND DISCOMFORTS?

A standard whole body bone scan exposes you to a small amount of radiation from the ^{99m}Tc-MDP tracer. You would receive this type of scan regardless of your participation in this trial. The addition of the bone SPECT to your standard whole body bone scan has no risk of harm or discomfort. The addition of the bone SPECT to your scan does not increase your exposure to radiation.

^{18}F-NaF PET/CT scans are considered very safe procedures with few associated risks. There have never been any serious reported side effects because of the ^{18}F-NaF tracer. You might experience some minor pain when the IV is inserted into your arm. This will be very similar to having a needle for a routine blood test. You may develop a small bruise, but significant bleeding is extremely rare. Some people feel anxious in the narrow PET/CT scanner. If necessary, your doctor can prescribe you medication to manage this anxiety.

The PET/CT scan will expose your body to additional radiation. This radiation exposure is not necessary for your medical care and is for research purposes only. The additional radiation dose will range from 7 to 15 mSv. This amount is well within the standard guidelines issued by Health Canada for this type of study, and slightly lower than the radiation dose you would receive from a standard CT scan of the chest and abdomen. This radiation exposure is also similar to the amount your body would receive from 3 to 6 years of exposure to naturally occurring radiation from everyday life. The effects of exposure to such low levels of radiation are expected to be minimal, as your risk level is calculated over your entire lifetime. The main potential risk from exposure to radiation is a second cancer. This would appear decades from now, if it were to happen at all. The increased risk associated with your participation in this study is felt to be very low and acceptable for these kinds of studies.

There is also a risk that your treating physician will order additional tests due to the results of the PET/CT scan, such as the MRI or bone biopsy. The additional time from these tests may place an additional burden on you, and the biopsy may cause some discomfort and a short period of recovery.

WHAT ARE THE POTENTIAL BENEFITS OF PARTICIPATING?

There is no guarantee you will benefit from participating in this study. The PET/CT scan may more accurately detect bone cancer in the patients studied. Your participation in this study will allow researchers to gain valuable knowledge of the potential benefits of using ^{18}F-NaF PET/CT for studying bone cancer.

WHAT ARE THE ALTERNATIVES TO THE STUDY TREATMENT?

Participating in this study is your choice. You can decide if you do not want to participate or if you want to withdraw from the study at any time. Your doctors will continue to provide the best available treatment whether you participate in the study or not. The alternative to joining this study is to have a standard ^{99m}Tc-MDP whole body bone scan, with or without the bone SPECT component. The addition of the bone SPECT component is your treating doctor's choice.

WHAT IF NEW INFORMATION BECOMES AVAILABLE THAT MAY AFFECT MY DECISION TO PARTICIPATE?

If you choose to enter this study and a more effective scanning method becomes available, your doctor will talk with you about it. You will also be told if any new information becomes available that may affect your willingness to stay in this study.

WHAT HAPPENS IF I DECIDE TO WITHDRAW MY CONSENT TO PARTICIPATE?

You can leave the study at any time without giving reasons. If you choose to enter the study and then decide to withdraw later, all data collected about you during your time on the study will be kept for analysis. It is legally required by Health Canada that this information cannot be destroyed.

WILL MY TAKING PART IN THIS STUDY BE KEPT CONFIDENTIAL?

Your confidentiality will be respected as required by federal and provincial privacy laws. Research and health records identifying you may be inspected by representatives from Health Canada and the UBC-BCCA Research Ethics Board to monitor the study. Information or records that reveal your identity will not be made public without your consent. Also, no revealing information or records will be removed from the study site or released without your consent, unless required by law.

You will be assigned a unique study code as a subject in this study. Only this code will be used on forms collected that leave the site during the course of this study. Your identity will be kept confidential. Information that contains your identity will remain only with the Principal Investigator and/or designate.

Your family doctor will be notified of your participation in the trial so that your referring doctor and your family doctor can provide you with proper medical care. A complete report of your PET/CT scan results will be sent directly to your referring doctor.

Your rights to privacy are protected by federal and provincial laws that require safeguards to ensure your privacy is respected. You also have the right to access the information about you that has been provided to the study sponsor and have an opportunity to correct any errors in this information. Further details about these laws are available on request to the study doctor.

WHAT HAPPENS IF SOMETHING GOES WRONG?

Signing this consent form does not limit your legal rights against the sponsor, investigators, or anyone else. You do not release the study doctors or participating study sites from their legal and professional responsibilities.

WHAT WILL THE STUDY COST ME?

Reimbursement:

You will not be paid for participating in this study. There will be no costs to you during the study for medical services or laboratory tests that are needed for the study. However, taking part in the study may result in added costs to you, such as travel, parking and meal costs while away from home, a reimbursement of up to $50 is available for each participant in this study, when receipts are provided

Compensation:

If you are injured due to the study drug or study procedures, your medical condition will be assessed and medical care will be provided to you, or you will be sent for the appropriate treatment. If you are

injured as a result of participating in this study, the costs of your medical treatment will be paid for by your provincial medical plan to the extent that it is available.

No funds have been set aside as part of this study to compensate you in the event of injury or illness related to study treatment or procedures. However, you do not waive any of your legal rights to compensation by signing this consent form.

The investigators conducting this clinical trial will not receive any personal payments for conducting this study. In addition, neither the BCCA, any of the investigators, or any staff conducting this study will receive any direct financial benefit from conducting this study.

WHO DO I CONTACT IF I HAVE QUESTIONS ABOUT THE STUDY DURING MY PARTICIPATION?

If you have any questions or desire further information with respect to this clinical trial, or if you experience any adverse side effects, you can ask your doctor, who is:

Dr. _____ Telephone: _____

In the event of a research related injury, please speak to your doctor (indicated above). If it is after hours, call the hospital or cancer centre nearest you and ask for your doctor or, if he or she is not available, the oncologist on call.

You can also speak to the study doctor who is the principal investigator of the study, Dr. François Bénard. He can be reached at, telephone: 604-707-5979.

WHO DO I CONTACT IF I HAVE ANY QUESTIONS OR CONCERNS ABOUT MY RIGHTS AS A SUBJECT?

If you have any concerns or complaints about your rights as a research subject or your experiences while participating in this study, contact the Research Subject Information Line in the University of British Columbia Office of Research Services by e-mail at RSIL@ors.ubc.ca or by phone at 604-822-8598 (Toll Free: 1-877-822-8598).

SUBJECT CONSENT TO PARTICIPATE

^{18}F-Sodium Fluoride Positron Emission Tomography / Computed Tomography (^{18}F-NaF PET/CT) Imaging as a Replacement for ^{99m}Technetium Bone Scintigraphy

SIGNATURES

I understand that participation in this study is entirely voluntary. I may choose not to participate or I may withdraw from the study at any time and I will continue to be offered the best available medical care. I understand that I may ask questions about this study at any time in the future.

I authorize access to my medical records as explained in this consent form.

I will receive a signed copy of this consent form for my own records.

I have read and understood the subject information and consent form. I consent to participate in this study.

Subject's Signature	Printed name		Date
Signature of Person Obtaining Consent	Printed name	Study Role	Date

If this consent process has been done in a language other than that on this written form, with the assistance of an interpreter/translator, indicate:

Language:_____

Was the subject assisted during the consent process in one of ways listed below?

☐ Yes ☐ No

If yes, please check the relevant box and complete the signature space below:

☐ The consent form was read to the subject, and the person signing below attests that the study was accurately explained to, and apparently understood by, the subject (**please check if subject is unable to read**).

☐ The person signing below acted as an interpreter/translator for the subject, during the consent process (**please check if an interpreter/translator assisted during the consent process**).

Signature of Person Assisting in the Consent Discussion	Printed Name	Date