Supplemental Appendix 1: GPT-3.5 and GPT-4 generated patient information sheets for bone scans with an example of a professionally used version

GPT-3.5 Patient Information Sheet for Nuclear Medicine Bone Scan

What is a Nuclear Medicine Bone Scan?
A nuclear medicine bone scan is a diagnostic imaging test that uses a small amount of radioactive material and a special camera to create images of your bones. It is a safe and painless procedure that can help detect bone problems such as fractures, infections, tumors or arthritis.

Before the Scan:
You may be asked to avoid eating or drinking for a few hours before the scan. You may be asked to wear loose and comfortable clothing, and to remove any metal objects, such as jewellery, watches, or belts.

You should inform your doctor and the technologist if you are pregnant or breastfeeding, or if you have any allergies or medical conditions that may affect the scan.

During the Scan:
A small amount of radioactive material, called a radiopharmaceutical, will be injected into a vein in your arm or hand. The material will travel through your bloodstream and be taken up by your bones.

You may need to wait for a certain amount of time, typically 1-3 hours, to allow the radiopharmaceutical to distribute throughout your body and be absorbed by your bones.

When you are ready for the scan, you will lie down on a table and a special camera will be positioned over your body. The camera will detect the radioactive emissions from the radiopharmaceutical and produce images of your bones.

The scan may take up to 45 minutes to complete, during which you should lie still and breathe normally. You may hear some clicking or buzzing noises from the camera, but you will not feel any discomfort.

After the Scan:
You can resume your normal activities and diet after the scan, unless instructed otherwise by your doctor or the technologist.

You should drink plenty of fluids to help flush the radioactive material from your body. The images from the scan will be reviewed by a trained radiologist or nuclear medicine physician, who will provide a report to your doctor. Your doctor will discuss the results of the scan with you and determine any further tests or treatments that may be necessary.

Potential Risks and Benefits:
The risks of a nuclear medicine bone scan are generally low, as the amount of radiation used is small and the procedure is non-invasive.

Some patients may experience mild discomfort or bruising at the injection site.

The benefits of a nuclear medicine bone scan can include early detection of bone problems, accurate diagnosis, and better treatment outcomes.

Conclusion:
A nuclear medicine bone scan is a safe and effective way to detect bone problems such as fractures, infections, tumors or arthritis. By following the guidelines for the scan and speaking with your doctor or the technologist about any concerns, you can ensure the most accurate and effective results. If you have any questions or concerns about the bone scan, please do not hesitate to speak with your doctor or the technologist.
GPT-4 Patient Information Sheet for Nuclear Medicine Bone Scan

We would like to provide you with information about the Nuclear Medicine Bone Scan that you are scheduled to have. It is essential for you to understand the procedure, its potential benefits, risks, and alternatives so you can provide informed consent.

What is a Nuclear Medicine Bone Scan?
A nuclear medicine bone scan is a type of imaging procedure that allows doctors to examine your skeletal system. This procedure is highly sensitive to any changes in bone and can be used to detect diseases and conditions that affect bone tissue, such as fractures, infections, or tumors.

How is the Bone Scan Performed?
The bone scan involves two primary steps:
1. Tracer Injection: A small amount of a radioactive material, called a radiotracer, is injected into a vein in your arm. This radiotracer travels through your bloodstream and is absorbed by your bones.
2. Imaging: After the tracer is absorbed (usually 2-3 hours post-injection), you will lie on a scanning table, and a special camera will move slowly over your body. This camera detects the radiation emitted from the radiotracer in your bones and creates images of your skeletal system.

The whole process usually takes about 3-4 hours, but the actual scanning time is typically less than an hour.

Benefits and Uses
The bone scan can detect bone diseases and injuries earlier than regular X-ray imaging. This early detection can significantly improve the treatment plan and outcome. It is often used to:
- Detect bone cancer or monitor the response of bone cancer to treatment.
- Diagnose unexplained bone pain or inflammation.
- Detect and monitor conditions like osteoporosis or arthritis.
- Detect bone infections or fractures.

Risks and Side Effects
The risks associated with a bone scan are minimal. The radiotracer used in the scan emits a small amount of radiation. However, the amount is less than or comparable to the radiation exposure from some X-rays or CT scans. Allergic reactions to the radiotracer are rare. You might feel a slight pricking sensation during the injection of the tracer. You may also experience minor discomfort from lying still during scanning.

Preparing for the Bone Scan
You don't need to follow a special diet or fasting before the bone scan. You can take your usual medications unless otherwise instructed by your doctor. On the day of the scan, you are encouraged to drink plenty of fluids to help distribute and eliminate the radiotracer.

Alternatives
Alternatives to the bone scan can include other imaging studies, such as X-rays, CT scans, or MRI scans. The choice depends on your particular situation, the suspected diagnosis, and your doctor's evaluation.

Please do not hesitate to ask any questions you might have regarding this procedure. We are here to make sure you feel comfortable and well-informed about your upcoming bone scan.

NOTE: This information sheet is meant to serve as a general guide. Please consult your healthcare provider for advice tailored to your specific circumstances. It is essential to disclose all health-related information to your provider, including allergies, pregnancy, and existing health conditions, for ensuring your safety.
Clinical Example of Patient Information Sheet for Nuclear Medicine Bone Scan

What is a Nuclear Medicine Bone Scan?
A bone scan is an important diagnostic procedure that uses a small amount of radioactive material and a special scanner to image the function of your bones. It is a very sensitive, non-invasive and safe procedure used to diagnose bone disease, infection, malignant disease, fractures, sports injuries or arthritis.

Before the Scan:
- There is no preparation for this procedure.
- Please inform staff if you have any serious illness, if you are or could be pregnant, or are breast-feeding.
- Please bring a list of your medications and supplements.
- You will need to bring your referral, any relevant test results or x-rays, and your Medicare, health card or pensioner card.

Part 1 of the Scan:
- Your history will be taken and together with your referral, the type of scan will be determined and explained.
- A small amount of radioactive material, called a radiopharmaceutical, will be injected into a vein while you sit in a chair or lie on a bed. The material will travel through your bloodstream and be taken up by your bones.
- There are no side effects from the injection.
- For some patients, the injection will occur lying on the scanner bed and images taken to assess the blood flow to an area of interest (usually an area of pain or concern). Imaging is generally 5-10 minutes in this first part.
- After the injection or imaging if this was undertaken at the time of injection, you will be free to leave and resume normal activities.
- You will return for further imaging 2-4 hours later. A specific appointment time will be provided by staff.
- Patients are generally asked to stay hydrated during this time and this improved the quality of the images. Hydrated means 500ml to 1L of water during the 2-4 hour window.

Part 2 of the Scan:
- 2-4 hours after your injection (you will be given a specific appointment time), you will return for the main imaging.
- You will be asked to empty your bladder to improve image quality.
- You will be asked to remove any metal objects, such as jewellery, watches, or belts.
- When you are ready for the scan, you will lie down on a table and a scanner will be positioned over your body. The scanner will detect the radioactive emissions from the radiopharmaceutical and produce images of your bones.
- Depending on what your doctor is investigating, this could be images of your entire skeleton or just specific bones.
- The scan may take 30-45 minutes to complete, during which you should lie still and breathe normally. You will not feel any discomfort.
- Often, an additional impact called a SPECT or SPECT/CT scan is performed. This collects images from around your body to produce special images that produce more detail. This could take an extra 15-30 minutes.

After the Scan:
- You can resume your normal activities after the scan.
- You should stay hydrated over the next 24 hours to help the kidneys eliminate the radioactive material from your body.
- The images from the scan will be reviewed by a radiologist or nuclear medicine physician, who will provide a report to your doctor. Your doctor will discuss the results of the scan with you.

Safety:
- The amount of radiation used is extremely small and the procedure is non-invasive making it very safe.
- At any stage of the procedure, if you have any concerns or questions please ask staff.