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SCIENCE MEDICINES HEALTH

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## Guideline on core SmPC and Package Leaflet for sodium fluoride ( $^{18}\text{F}$ )

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# Guideline on core SmPC and Package Leaflet for sodium fluoride (<sup>18</sup>F)

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## Executive summary

This guideline describes the information to be included in the Summary of Products Characteristics (SmPC) and Package Leaflet for sodium fluoride (18F).

### 1. Introduction (background)

The purpose of this core SmPC and Package Leaflet is to provide applicants and regulators with harmonised guidance on the information to be included in the Summary of product characteristics (SmPC) for sodium fluoride (18F)<sup>1</sup>. This guideline should be read in conjunction with the core SmPC and Package Leaflet for Radiopharmaceuticals, the QRD product information templates and the guideline on Summary of Product Characteristics.

This sodium fluoride (18F) Core SmPC has been prepared on the basis, and taking into account the available published scientific literature dated from more than 10 years. The indications mentioned in section 4.1 of the SmPC are supported by this literature.

However, any new application for a radiopharmaceutical product containing sodium fluoride (18F) should be submitted with all the needed and adequate data in order to be valid.

### 2. Scope

This core SmPC and Package Leaflet covers sodium fluoride (18F).

### 3. Legal basis

This guideline has to be read in conjunction with Article 11 of Directive 2001/83 as amended, and the introduction and general principles (4) and part I of the Annex I to Directive 2001/83 as amended.

### 4. Core SmPC and Package Leaflet for sodium fluoride (<sup>18</sup>F)

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<sup>1</sup> Concept paper on the harmonisation and update of the clinical aspects in the authorised conditions of use for radiopharmaceuticals and other diagnostic medicinal products (EMA/CHMP/EWP/12052/2008)

**CORE SmPC and Package Leaflet for sodium fluoride (<sup>18</sup>F)**

**ANNEX I**

**SUMMARY OF PRODUCT CHARACTERISTICS**

<▼ This medicinal product is subject to additional monitoring. This will allow quick identification of new safety information. Healthcare professionals are asked to report any suspected adverse reactions. See section 4.8 for how to report adverse reactions.>

## 1. NAME OF THE MEDICINAL PRODUCT

{(Invented) name strength} solution for injection

## 2. QUALITATIVE AND QUANTITATIVE COMPOSITION

One mL contains xxxx <GBq><MBq> of sodium fluoride ( $^{18}\text{F}$ ) at date and time of calibration.

The activity per vial ranges from <XXX> <GBq><MBq> to <XXX> <GBq><MBq> at the date and time of calibration.

Fluorine ( $^{18}\text{F}$ ) decays to stable oxygen ( $^{18}\text{O}$ ) with a half-life of 110 minutes by emitting a positronic radiation of maximum energy of 634 keV, followed by photonic annihilation radiations of 511 keV.

Excipient(s) with known effect:

Each mL contains XXX mg of sodium ions.

For the full list of excipients, see section 6.1.

## 3. PHARMACEUTICAL FORM

Solution for injection.

Colourless solution.

## 4. CLINICAL PARTICULARS

### 4.1. Therapeutic indications

This medicinal product is for diagnostic use only.

Sodium fluoride ( $^{18}\text{F}$ ) positron emission tomography (PET) is indicated for functional imaging in diseases where abnormally altered osteogenic activity is the diagnostic target. The following indications have been particularly documented:

- Detection and localisation of bone metastases in case of cancer in adults.
- As an aid in the evaluation of back pain of ambiguous origin in adults, when conventional imaging modalities are not conclusive.
- As an aid in the detection of the presence of bone lesions related to suspected child abuse.

### 4.2. Posology and method of administration

#### Posology

##### Adults

The mean recommended activity for an adult weighing 70 kg is 370 MBq but can vary from 100-400 MBq depending on the body mass, the type of camera used, PET/CT (computer tomography), and

acquisition mode. The image could vary from 100-400 MBq), administered by direct intravenous injection.

If required, sodium fluoride (<sup>18</sup>F) PET examinations can be repeated within a short period of time.

### Special populations

#### *Patients with renal impairment*

In case of renal impairment, exposure to ionising radiation can be increased. This must be taken into account when calculating the activity to be administered.

#### Paediatric population

The use in children and adolescents has to be considered carefully, based upon clinical needs and assessing the risk/benefit ratio in this patient group. The activities to be administered to children and adolescents may be calculated according to the recommendations of the EANM paediatric task group Dosage Card {include date of dosage card}; the activity administered to children and to adolescents may be calculated by multiplying a baseline activity (for calculation purposes) by the body-mass-dependent coefficients given in the table below.

$$A[\text{MBq}]_{\text{Administered}} = \text{Baseline Activity} \times \text{Coefficient}$$

A minimum activity of 14 MBq is recommended in case of acquisition with 3D PET system and 26 MBq in the case of acquisition with 2D PET system. In children images acquisition in 3D mode should be preferred.

<b>Weight [kg]</b>	<b>Coefficient</b>	<b>Weight [kg]</b>	<b>Coefficient</b>	<b>Weight [kg]</b>	<b>Coefficient</b>
<b>3</b>	1	<b>22</b>	5.29	<b>42</b>	9.14
<b>4</b>	1.14	<b>24</b>	5.71	<b>44</b>	9.57
<b>6</b>	1.71	<b>26</b>	6.14	<b>46</b>	10.00
<b>8</b>	2.14	<b>28</b>	6.43	<b>48</b>	10.29
<b>10</b>	2.71	<b>30</b>	6.86	<b>50</b>	10.71
<b>12</b>	3.14	<b>32</b>	7.29	<b>52-54</b>	11.29
<b>14</b>	3.57	<b>34</b>	7.72	<b>56-58</b>	12.00
<b>16</b>	4.00	<b>36</b>	8.00	<b>60-62</b>	12.71
<b>18</b>	4.43	<b>38</b>	8.43	<b>64-66</b>	13.43
<b>20</b>	4.86	<b>40</b>	8.86	<b>68</b>	14.00

#### Method of administration

The injection of sodium fluoride (<sup>18</sup>F) must be intravenous in order to avoid irradiation as a result of local extravasation, as well as imaging artefacts.

#### Precautions to be taken before handling or administration of the medicinal product

For instructions on dilution of the medicinal product before administration, see section 12.

For patient preparation, see section 4.4.

The activity of sodium fluoride (<sup>18</sup>F) has to be measured with an activimeter immediately prior to injection.

## Image acquisition

The emission scans are usually started 60 minutes after the injection of sodium fluoride ( $^{18}\text{F}$ ). Provided a sufficient activity remains for adequate counting statistics, sodium fluoride ( $^{18}\text{F}$ )-PET can also be performed up to two or three hours after administration, thus reducing background activity. Voiding immediately prior to imaging is recommended in order to reduce the activity in the pelvis.

### 4.3. Contraindications

- Hypersensitivity to the active substance or to any of the excipients listed in section 6.1.
- Pregnancy (see section 4.6)

### 4.4. Special warnings and precautions for use

#### Individual benefit/risk justification

For each patient, the radiation exposure must be justifiable by the likely benefit. The activity administered should in every case be as low as reasonably achievable to obtain the required diagnostic information.

#### Renal impairment

Careful consideration of the benefit risk ratio in these patients is required since an increased radiation exposure is possible.

#### Paediatric population

For information on the use in paediatric population, see section 4.2.

Careful consideration of the indication is required since the effective dose per MBq is higher than in adults (see section 11)

#### Patient preparation

The patient should be well hydrated before the start of the examination and urged to void just before the image acquisition as often as possible during the first hours after the study in order to reduce radiation exposure.

#### Interpretation of sodium fluoride ( $^{18}\text{F}$ ) PET images

Sodium fluoride ( $^{18}\text{F}$ ) has a higher sensitivity for the detection of bone lesions than other “bone-seeking” tracers ( $^{99\text{m}}\text{Tc}$ -labelled phosphate and phosphonic acid derivatives). Since sodium fluoride ( $^{18}\text{F}$ ) does not show secondary cancerous processes directly, but notifies cancer effects (osteogenic activity following osseous lesions), sodium fluoride ( $^{18}\text{F}$ ) is less effective for the detection of early stages of bone metastases, like bone marrow metastases without substantial bone damage.

Hardware fusion of the functional sodium fluoride ( $^{18}\text{F}$ ) PET images with morphologic images e.g. PET-CT can lead to an increased sensitivity and specificity in bone diagnostics.

As there is no significant difference in uptake by malignant or benign lesions, the differentiation between bone metastases and non-malignant bone lesions benefits from the analysis of PET and CT image fusion, better obtained from hybrid PET-CT imaging, or if not available from supplemental diagnostic procedures (MRI, CT).

#### After the procedure

Close contact with infants and pregnant women should be restricted during the initial 12 hours following the injection.

#### Specific warnings

Depending on the time when you administer the injection, the content of sodium given to the patient may in some cases be greater than 1 mmol (23mg). This should be taken into account in patient on low sodium diet.

Precautions with respect to environmental hazard are in section 6.6.

#### **4.5. Interaction with other medicinal products and other forms of interaction**

No interaction studies have been performed.

#### **4.6. Fertility, pregnancy and lactation**

##### Women of childbearing potential

When an administration of radiopharmaceuticals to a woman of childbearing potential is intended, it is important to determine whether or not she is pregnant. Any woman who has missed a period should be assumed to be pregnant until proven otherwise. If in doubt about her potential pregnancy (if the woman has missed a period, if the period is very irregular, etc.), alternative techniques not using ionising radiation (if there are any) should be offered to the patient.

##### Pregnancy

The use of sodium fluoride ( $^{18}\text{F}$ ) is contraindicated in pregnant women due to the radiation exposure to the foetus (see section 4.3.)

##### Breastfeeding

Before administering radiopharmaceuticals to a mother who is breastfeeding consideration should be given to the possibility of delaying the administration of radionuclide until the mother has ceased breastfeeding, and to what is the most appropriate choice of radiopharmaceuticals, bearing in mind the secretion of activity in breast milk. If the administration is considered necessary, breastfeeding should be interrupted for 12 hours and the expressed feeds discarded.

Close contact with infants should be restricted during the initial 12 hours following injection.

##### Fertility

No studies on fertility have been performed.

#### **4.7. Effects on ability to drive and use machines**

Not relevant.

#### **4.8. Undesirable effects**

Exposure to ionising radiation is linked with cancer induction and a potential for development of hereditary defects. As the effective dose is 6.8 mSv when the maximal recommended activity of 400 MBq is administered for an adult of 70 kg, these adverse reactions are expected to occur with a low probability.

##### Reporting of suspected adverse reactions

Reporting suspected adverse reactions after authorisation of the medicinal product is important. It allows continued monitoring of the benefit/risk balance of the medicinal product. Healthcare professionals are asked to report any suspected adverse reactions via the national reporting system listed in [Appendix V](#)\*

*[\*For the printed material, please refer to the guidance of the annotated QRD template.]*

## 4.9. Overdose

In the event of administration of a radiation overdose with sodium fluoride ( $^{18}\text{F}$ ) the absorbed dose to the patient should be reduced where possible by increasing the elimination of the radionuclide from the body by forced diuresis and frequent bladder voiding. It might be helpful to estimate the effective dose that was applied.

## 5. PHARMACOLOGICAL PROPERTIES

### 5.1. Pharmacodynamic properties

Pharmacotherapeutic group: Diagnostic radiopharmaceuticals, other diagnostic radiopharmaceuticals for tumour detection, ATC code: V09IX06

#### Mechanism of action

Due to its affinity to bone mineral sodium fluoride ( $^{18}\text{F}$ ) becomes 3 – 10 times more incorporated into bone regions affected by malignant processes with resulting osteoblastic activity or osteolytic defects than in non-affected recumbent bone. Non-cancerous traumatic, erosive or inflammatory lesions of bone structure are also connected with increased osteogenesis. Sodium fluoride ( $^{18}\text{F}$ ) therefore is a marker of bone reactive processes of cancerous or traumatic affliction. It detects non-malignant regions of physiologically or pathologically enhanced bone metabolism as well.

#### Pharmacodynamic effects

At the chemical concentrations used for diagnostic examinations, sodium fluoride ( $^{18}\text{F}$ ) does not appear to have any pharmacodynamic activity.

### 5.2. Pharmacokinetic properties

#### Distribution

Following intravenous administration, about 50% of the sodium fluoride ( $^{18}\text{F}$ ) is rapidly taken up by the skeleton where it remains during the time period of its radioactive decay. The remainder of the sodium fluoride ( $^{18}\text{F}$ ) is distributed into the extracellular fluid and eliminated by renal excretion within a few hours. The extent of binding of sodium fluoride ( $^{18}\text{F}$ ) to plasma proteins is not known.

#### Organ uptake

About 50% of the sodium fluoride ( $^{18}\text{F}$ ) is rapidly taken up by the skeleton where it remains during the time period of its radioactive decay. Sodium fluoride ( $^{18}\text{F}$ ) normally accumulates in the skeleton symmetrically, with greater deposition in the axial skeleton and in the bones around joints than in the appendicular skeleton and shafts of long bones. Increased deposition occurs around fracture sites and in bones affected by osteomyelitis, fibrous dysplasia, spondylitis tuberculosis, Paget's disease, hyperostosis frontalis interna, myositis ossificans or tumours, and in rapidly growing epiphyses.

#### Elimination

Elimination of sodium fluoride ( $^{18}\text{F}$ ) is chiefly renal, with 20 % of activity being excreted in urine in the 2 hours following injection.

### 5.3. Preclinical safety data

Toxicological studies with Sprague-Dawley rats have demonstrated that with a single intravenous injection of sodium fluoride ( $^{18}\text{F}$ ) and 5 mL/kg no deaths were observed. This product is not intended for regular or continuous administration.

Mutagenicity studies and long-term carcinogenicity studies have not been carried out.

## **6. PHARMACEUTICAL PARTICULARS**

### **6.1. List of excipients**

[*Product specific*]

### **6.2. Incompatibilities**

<In the absence of compatibility studies, this medicinal product must not be mixed with other medicinal products.>

<This medicinal product must not be mixed with other medicinal products except those mentioned in section 12.>

### **6.3. Shelf life**

[*Product specific*]

Product specific [*It should be indicated at the end of the fabrication time*]

### **6.4. Special precautions for storage**

[*Product specific*]

Storage of radiopharmaceuticals should be in accordance with national regulation on radioactive materials.

### **6.5. Nature and contents of the container**

[*Product specific*]

Pack size: One <single use><multidose> vial contains <X> to <XXX> mL of solution, corresponding to <XXX> to <XXX> <GBq><MBq> at calibration time.

<Not all pack size may be marketed>

### **6.6. Special precautions for disposal and other handling**

#### General warnings

Radiopharmaceuticals should be received, used and administered only by authorised persons in designated clinical settings. Their receipt, storage, use, transfer and disposal are subject to the regulations and/or appropriate licences of the competent official organisation.

Radiopharmaceuticals should be prepared by the user in a manner which satisfies both radiation safety and pharmaceutical quality requirements. Appropriate aseptic precautions should be taken.

The administration of radiopharmaceuticals creates risks for other persons from external radiation or contamination from spill of urine, vomiting or other biological fluids . Radiation protection precautions in accordance with national regulations must therefore be taken.

If the integrity of the vial is compromised, it should not be used. Administration procedures should be carried out in a way to minimise risk of contamination of the medicinal product and irradiation of the operators. Adequate shielding is mandatory.

Any unused medicinal product or waste material should be disposed of in accordance with local requirements.

## 7. MARKETING AUTHORISATION HOLDER

## 8. MARKETING AUTHORISATION NUMBER(S)

## 9. DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

## 10. DATE OF REVISION OF THE TEXT

## 11. DOSIMETRY

Data listed below are from ICRP 53 Publication fourth addendum and ICRP 80 Publication, and are calculated according to the following assumptions:

Organ	Adult	15 year	10 year	5 year	1 year
Adrenals	0.0067	0.0088	0.013	0.020	0.039
Bladder	0.15	0.19	0.28	0.39	0.54
Bone surfaces	0.094	0.075	0.12	0.21	0.48
Brain	0.0066	0.0075	0.011	0.016	0.025
Breast	0.0029	0.0037	0.0060	0.0095	0.018
Gall bladder	0.0042	0.0051	0.0082	0.012	0.023
GI tract					
Stomach	0.0037	0.0046	0.0079	0.011	0.020
SI	0.0058	0.0075	0.011	0.017	0.030
Colon	0.0068	0.0084	0.013	0.019	0.030
(Upper large intestine	0.0051	0.0063	0.010	0.015	0.026
(Lower large intestine	0.0091	0.011	0.017	0.025	0.037
Heart	0.0042	0.0051	0.0079	0.012	0.022
Kidneys	0.013	0.016	0.024	0.036	0.067
Liver	0.0040	0.0052	0.0078	0.012	0.023
Lungs	0.0045	0.0058	0.0086	0.013	0.026
Muscles	0.0058	0.0071	0.011	0.016	0.028
Oesophagus	0.0037	0.0048	0.0072	0.011	0.022
Ovaries	0.0083	0.011	0.015	0.022	0.036

Pancreas	0.0050	0.0061	0.0092	0.014	0.027
Red marrow	0.037	0.039	0.076	0.18	0.44
Skin	0.0041	0.0049	0.0077	0.012	0.022
Spleen	0.0042	0.0055	0.0084	0.013	0.026
Testes	0.0061	0.0083	0.014	0.020	0.032
Thymus	0.0037	0.0048	0.0072	0.011	0.022
Thyroid	0.0049	0.0057	0.0081	0.012	0.020
Uterus	0.013	0.015	0.024	0.035	0.050
Remaining organs	0.0059	0.0073	0.011	0.017	0.028
<b>Effective dose (mSv/MBq)</b>	<b>0.017</b>	<b>0.020</b>	<b>0.033</b>	<b>0.056</b>	<b>0.11</b>

If PET with sodium fluoride ( $^{18}\text{F}$ ) is acquired in 2D mode, the effective dose resulting from the administration of a recommended activity of 400 MBq for an adult weighing 70 kg is about 6.8 mSv. For an administered activity of 400 MBq, the typical radiation dose/doses to the critical organ/organs (bladder, bone surfaces, red marrow, kidneys and uterus) are 60, 38, 15, 5 and 5 mGy, respectively.

If PET with sodium fluoride ( $^{18}\text{F}$ ) is acquired in 3D mode, the effective dose resulting from the administration of a recommended activity of 200 MBq for an adult weighing 70 kg is about 3.4 mSv. For an administered activity of 200 MBq the typical radiation dose/doses to the critical organ/organs (bladder, bone surfaces, red marrow, kidneys and uterus) are 30, 19, 8, 3 and 3 mGy, respectively.

## 12. INSTRUCTIONS FOR PREPARATION OF RADIOPHARMACEUTICALS

The pack must be checked before use and the activity measured using an activimeter.

The medicinal product may be diluted with sodium chloride 9 mg/mL solution for injection.

Withdrawals should be performed under aseptic conditions. The vials must not be opened. After disinfecting the stopper, the solution should be withdrawn via the stopper using a single dose syringe fitted with suitable protective shielding and a disposable sterile needle or using authorised automated application system.

As with any pharmaceutical product, if the integrity of this vial is compromised, the product should not be administered.

The solution should be inspected visually prior to use. Only clear solutions, free of visible particles should be administered.

Detailed information on this medicinal product is available on the website of <the European Medicines Agency <http://www.ema.europa.eu>> <{name of MS/Agency}>.

## **B. PACKAGE LEAFLET**

## PACKAGE LEAFLET: INFORMATION FOR THE PATIENT

{(Invented) name strength pharmaceutical form}  
sodium fluoride (18F)

**Read all of this leaflet carefully before you will be administered this medicine.**

- Keep this leaflet. You may need to read it again.
- If you have any further questions, ask your referring doctor or the nuclear medicine doctor who will supervise the procedure.
- If you get any of the side effects, talk to your nuclear medicine doctor. This includes any possible side effects not listed in this leaflet. See section 4.

**What is in this leaflet:**

1. What X is and what it is used for
2. What you need to know before X is administered
3. How X is used
4. Possible side effects
5. How X is stored
6. Contents of the pack and other information

### **1. What is X and what it is used for**

X contains the active substance sodium fluoride (18F).

This medicine is a radiopharmaceutical product (radioactive medicine) for diagnostic use only.

X is used for diagnosis in Positron Emission Tomography (PET) examinations and is administered prior to such an examination.

The radioactive substance in X (to show bone metabolism) is detected by PET and is shown as a picture.

Positron Emission Tomography is an imaging technology used in nuclear medicine that produces pictures of cross-sections of living organisms. It works with a minute amount of radioactive pharmaceutical to produce quantitative and precise images of specific metabolic processes in the body. This examination is carried out to help decide on how to treat the illness you are suffering from or you are suspected of suffering from.

The use of X does involve exposure to small amounts of radioactivity. Your doctor and the nuclear medicine doctor have considered that the benefit of this procedure with the radiopharmaceutical outweighs the risk of being exposed to radiation.

### **2. What you need to know before X is administered**

**X must not be administered**

- if you are allergic (hypersensitive) to sodium fluoride ( $^{18}\text{F}$ ) or any of the other ingredients of X listed in section 6.
- if you are pregnant or think you may be pregnant inform your nuclear medicine doctor.

### **Warnings and precautions**

Take special care with X.

Inform your nuclear medicine doctor before X is administered in the following cases;

- if you are pregnant or believe you may be pregnant
- if you are breast-feeding
- if you have kidney problems

**Before X administration you should:**

- drink plenty of water and to be well hydrated before the start of the examination in order to urinate as often as possible during the first hours after the study

**Children <and adolescents>**

Talk to your nuclear medicine doctor <if you are under 18 years old>.

**Other medicines and X**

Tell to your nuclear medicine doctor if you are taking or have recently taken any other medicines, including medicines obtained without a prescription since they may interfere with the acquisition of the images.

**Pregnancy and breast-feeding**

If you are pregnant or breast-feeding, think you may be pregnant or are planning to have a baby, ask your nuclear medicine doctor for advice before taking this medicine.

**If you are pregnant**

**X must not be administered to you.**

You must inform the nuclear medicine doctor before the administration of X if there is a possibility you might be pregnant or if you have missed your period.

When in doubt, it is important to consult your nuclear medicine doctor who will supervise the procedure.

If you are breast-feeding, breast milk may be drawn off before injection and stored for subsequent use. Breast-feeding should be stopped for at least 12 hours. Any milk produced during this period should be discarded.

Please ask your nuclear medicine doctor when you can resume breast-feeding.

It is recommended that you avoid close contact with infants in the initial 12 hours following the injection.

**Driving and using machines**

It is considered unlikely that X will affect your ability to drive or to operate machinery.

**X contains sodium.**

This medicine contains sodium ( X mg/mL). If the content of sodium is greater than 1 mmol (up to 23 mg per dose), this should be taken into account if you are with a low sodium diet.

**3. How X is administered**

There are strict laws on the use, handling and disposal of radiopharmaceutical products. X will only be used in a hospital. This product will only be handled and given to you by people who are trained and qualified to use it safely. These persons will take special care for the safe use of this product and will keep you informed of their actions.

The nuclear medicine doctor supervising the procedure will decide on the quantity of X to be used in your case. It will be the smallest quantity necessary to get the desired information.  
The usual amount recommended for an adult is 100-400 MBq. Megabecquerel (MBq) is the unit used to express radioactivity.

### **Use in children**

In children and adolescents, the quantity to be administered will be adapted to the child's body mass.

### **Administration of X and conduct of the procedure**

X is administered by single intravenous injection.

### **Duration of the procedure**

Your nuclear medicine doctor supervising the procedure will inform you about the usual duration of the procedure. A PET examination is usually taken about 60 minutes and up to 3 hours after the injection, depending on the procedure.

After injection, you will be offered a drink and asked to urinate immediately preceding the test.

### **After administration of X, you should:**

- avoid any close contact with young children and pregnant women for the 12 hours following the injection
- urinate frequently in order to eliminate the product from your body
- If you come into contact with infants: It is recommended that close contact be avoided between the patient and infants in the initial 12 hours following the injection.

The Nuclear medicine doctor will inform you if you need to take any special precautions after receiving this medicine. Contact your Nuclear medicine doctor if you have any questions.

### **If you have been administered more X than you should**

An overdose is almost impossible because you will only receive a single dose of X precisely controlled by the nuclear medicine doctor supervising the procedure. However, in the case of an overdose, you will receive the appropriate treatment. The elimination of the radioactive constituents should be increased as much as possible. You should drink as much as possible and frequently empty your bladder. It may become necessary to take diuretics. If you have any further question on the administration of X, please ask your nuclear medicine doctor who supervises the procedure.

Should you have any further question on the use of X, please ask if the nuclear medicine doctor who supervises the procedure.

## **4. Possible side effects**

Like all medicines, X can cause side effects, although not everybody gets them.

No serious adverse effects have been observed to date.

This administered radiopharmaceutical will deliver low amounts of ionising radiation with very low risk of cancer and hereditary abnormalities.

<Additional side effects in children <and adolescents>>

If you get any side effect, please tell your nuclear medicine doctor. This includes any possible side effects not listed in this leaflet.

### **Reporting of side effects**

If you get any side effects, talk to your nuclear medicine doctor . This includes any possible side effects not listed in this leaflet. You can also report side effects directly via the national reporting system listed in

[Appendix V](#)\*. By reporting side effects you can help provide more information on the safety of this medicine.

[\*For the printed material, please refer to the guidance of the annotated QRD template.]

## 5. How X is stored

You will not have to store this medicine. This medicine is stored under the responsibility of the specialist in appropriate premises. Storage of radiopharmaceuticals will be in accordance with national regulation on radioactive materials.

The following information is intended for the specialist only.

<This medicine must not be used after the expiry date which is stated on the label {DD MM YYYY at hh:mm}.>

## 6. Contents of the pack and other information

### What X contains

- The active substance is sodium fluoride (18F). One mL contains X <GBq><MBq> of sodium fluoride (18F) at date and time of production
- The other ingredients are water for injection, sodium chloride and potassium dihydrogen phosphate.

### What X looks like and contents of the pack

The total activity of the vial at that time is therefore between X<GBq><MBq> and Y <GBq><MBq>.

### Marketing Authorisation Holder and Manufacturer

{Name and address}

<{tel}>

<{fax}>

<{e-mail}>

<For any information about this medicine, please contact the local representative of the Marketing Authorisation Holder:>

#### **België/Belgique/Belgien**

{Nom/Naam/Name}

<{Adresse/Adres/Anschrift }>

B-0000 {Localité/Stad/Stadt}>

Tél/Tel: + {N° de téléphone/Telefoonnummer/  
Telefonnummer}

<{e-mail}>

#### **Luxembourg/Luxemburg**

{Nom}

<{Adresse}>

L-0000 {Localité/Stad}>

Tél/Tel: + {N° de téléphone/Telefonnummer}

<{e-mail}>

#### **България**

{Име}

<{Адрес}>

{Град} {Пощенски код}>

Тел.: + {Телефонен номер}

<{e-mail}>

#### **Magyarország**

{Név}

<{Cím}>

H-0000 {Város}>

Tel.: +Telefonszám}

<{e-mail}>

**Česká republika**

{Název}  
<{Adresa}>  
CZ {město}>  
Tel: +{telefonní číslo}  
<{e-mail}>

**Danmark**

{Navn}  
<{Adresse}>  
DK-0000 {by}>  
Tlf: + {Telefonnummer}  
<{e-mail}>

**Deutschland**

{Name}  
<{Anschrift}>  
D-00000 {Stadt}>  
Tel: + {Telefonnummer}  
<{e-mail}>

**Eesti**

{Nimi}  
<{Aadress}>  
EE - (Postiindeks) (Linn)>  
Tel: +(Telefoninumber)  
<{e-mail}>

**Ελλάδα**

{Όνομα}  
<{Διεύθυνση}>  
GR-000 00 {πόλη}>  
Τηλ: + {Αριθμός τηλεφώνου}  
<{e-mail}>

**España**

{Nombre}  
<{Dirección}>  
E-00000 {Ciudad}>  
Tel: + {Teléfono}  
<{e-mail}>

**France**

{Nom}  
<{Adresse}>  
F-00000 {Localité}>  
Tél: + {Numéro de téléphone}  
<{e-mail}>

**Hrvatska**

{Ime}  
<{Adresa}>  
{Poštanski broj} {grad}>

**Malta**

{Isem}  
<{Indirizz}>  
MT-0000 {Belt/Raħal}>  
Tel: + {Numru tat-telefon}  
<{e-mail}>

**Nederland**

{Naam}  
<{Adres}>  
NL-0000 XX {stad}>  
Tel: + {Telefoonnummer}  
<{e-mail}>

**Norge**

{Navn}  
<{Adresse}>  
N-0000 {poststed}>  
Tlf: + {Telefonnummer}  
<{e-mail}>

**Österreich**

{Name}  
<{Anschrift}>  
A-00000 {Stadt}>  
Tel: + {Telefonnummer}  
<{e-mail}>

**Polska**

{Nazwa/ Nazwisko:}  
<{Adres:}>  
PL – 00 000{Miasto:}>  
Tel.: + {Numer telefonu:}  
<{e-mail}>

**Portugal**

{Nome}  
<{Morada}>  
P-0000–000 {Cidade}>  
Tel: + {Número de telefone}  
<{e-mail}>

**România**

{Nume}  
<{Adresă}>  
{Oraş} {Cod poştal} – RO>  
Tel: + {Număr de telefon}  
<{e-mail}>

Tel: + {Telefonski broj}  
<{e-mail}>

### **Ireland**

{Name}  
<{Address}  
IRL - {Town} {Code for Dublin}>  
Tel: + {Telephone number}  
<{e-mail}>

### **Ísland**

{Nafn}  
<{Heimilisfang}  
IS-000 {Borg/Bær}>  
Sími: + {Símanúmer}  
<{Netfang }>

### **Italia**

{Nome}  
<{Indirizzo}  
I-00000 {Località}>  
Tel: + {Numero di telefono}>  
<{e-mail}>

### **Κύπρος**

{Όνομα}  
<{Διεύθυνση}  
CY-000 00 {πόλη}>  
Τηλ: + {Αριθμός τηλεφώνου}  
<{e-mail}>

### **Latvija**

{Nosaukums}  
<{Adrese}  
{Pilsēta}, LV{Pasta indekss }>  
Tel: + {Telefona numurs}  
<{e-mail}>

### **Lietuva**

{pavadinimas}  
<{adresas}  
LT {pašto indeksas} {miestas}>  
Tel: +370{telefono numeris}  
<{e-mail}>

### **Slovenija**

{Ime}  
<{Naslov}  
SI-0000 {Mesto}>  
Tel: + {telefonska številka}  
<{e-mail}>

### **Slovenská republika**

{Meno}  
<{Adresa}  
SK-000 00 {Mesto}>  
Tel: + {Telefónne číslo}  
<{e-mail}>

### **Suomi/Finland**

{Nimi/Namn}  
<{Osoite/Adress}  
FIN-00000 {Postitoimipaikka/Stad}>  
Puh/Tel: + {Puhelinnumero/Telefonnummer}  
<{e-mail}>

### **Sverige**

{Namn}  
<{Adress}  
S-000 00 {Stad}>  
Tel: + {Telefonnummer}  
<{e-mail}>

### **United Kingdom**

{Name}  
<{Address}  
{Town} {Postal code} – UK>  
Tel: + {Telephone number}  
<{e-mail}>

**This leaflet was last revised in {MM/YYYY} {month YYYY}**

**<Other sources of information>**

Detailed information on this medicine is available on the <European Medicines Agency web site: <http://www.ema.europa.eu>> < on the website of {name of MS/Agency}>. <There are also links to other websites about rare diseases and treatments.>

<This leaflet is available in all EU/EEA languages on the European Medicines Agency website.>

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<The following information is intended for medical or healthcare professionals only:>

The complete SmPC of {(Invented) name} is provided <as a separate document> <as a tear-off section at the end of the printed leaflet> in the product package, with the objective to provide healthcare professionals with other additional scientific and practical information about the administration and use of this radiopharmaceutical.

Please refer to the SmPC [SmPC should be included in the box].