

Decision support from NICE

Bisphosphonates for treating osteoporosis

Information to help people with osteoporosis and their health professionals discuss the options

What does NICE recommend?

People with osteoporosis are more likely to break (fracture) bones than people who don't have osteoporosis. Bisphosphonate treatment can reduce the chance (risk) of fracture by strengthening bones. There are 4 different bisphosphonates for treating osteoporosis.

NICE recommends who should have their risk of fracture assessed, and how this should be done, in its [osteoporosis](#) guidance. In its guidance on [bisphosphonates](#) NICE recommends that, for people who have had their fracture risk assessed by a health professional:

- A bisphosphonate taken by mouth is an **option** if your risk of having a fracture in the next 10 years is 10 in 1,000 (1%) or greater.
- A bisphosphonate given by injection is an **option** if your risk of having a fracture in the next 10 years is 100 in 1,000 (10%) or greater. It is also an **option** for people whose risk is 10 in 1,000 (1%) or greater who have problems taking a bisphosphonate by mouth.

You do not have to have a bisphosphonate. There are pros and cons, which this information will help your health professional to explain.

How likely am I to benefit?

Taking a bisphosphonate:

- reduces the chance of you fracturing bones in your spine (vertebral fractures)
- reduces the chance of you fracturing your hip
- has not been shown to make a difference to the chance of you fracturing your wrist or arm.

Whether you have a bisphosphonate by mouth or injection, all 4 bisphosphonates are thought to work as well as each other. However, it is important to remember that:

- Some people with osteoporosis will **avoid** having a vertebral or hip fracture **because** they have bisphosphonate treatment.
- Some people with osteoporosis will still **have** a vertebral or hip fracture, **even though** they have bisphosphonate treatment.
- Many people with osteoporosis **will not have** a vertebral or hip fracture, whether they have bisphosphonate treatment or not.

It is not possible to know what will happen to any individual person. The chance of you benefitting depends on how likely you are to have a fracture anyway (your 'baseline risk'). The diagrams on pages 4 and 5 show the effects of bisphosphonates on the risk of vertebral or hip fractures for some different baseline risks.

What are the side effects of bisphosphonate treatment?

The most common side effects include: heartburn and indigestion; pain or stiffness in your muscles, joints or back; headache; and feeling tired. These may affect about 100 people per 1,000 or more. Even so, not everyone gets these side effects. People who have bisphosphonate injection can get symptoms like 'flu for a few days, especially after the first injection. Less common but serious side effects include ulcers of the stomach and oesophagus (gullet); rarely, unusual fracture of the thigh bone and, very rarely, damage to the bone in the jaw and ear.

Other things to think about

How long does treatment last?

It is not known how many years it is best to have bisphosphonate treatment for. But there is no clear evidence that carrying on treatment for more than 3 years will protect you against breaking a bone any more than if you stop treatment after 3 years.

Will I need any other treatment?

Most people with osteoporosis who have bisphosphonate treatment are advised to take calcium and vitamin D supplements every day. These might also be recommended if you decide not to have bisphosphonate treatment.

Taking bisphosphonates

Bisphosphonates taken by mouth can be taken as tablets once a day, once a week or once a month; or as a liquid taken once a week (this depends on the particular medicine and the dose).

- You have to take your bisphosphonate tablet or liquid immediately after getting up, on an empty stomach with a full glass of plain water at least 30 minutes before any other food, drink or medicine. You must take the tablets standing or sitting up. You must not lie down for at least 30 minutes afterwards, and then only after you have had something to eat and drink.
- Taking your bisphosphonate tablet or liquid once a week or once a month might be more convenient than taking it every day. But you might forget to take it, which means that it won't work so well.

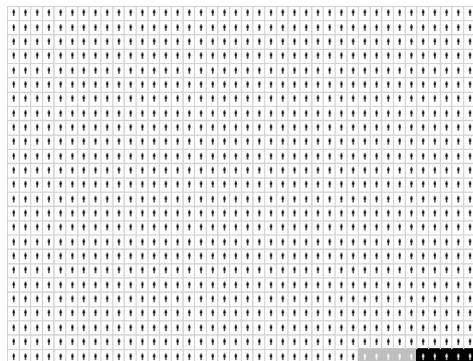
Bisphosphonates given by injection can be given every 3 months or once a year (this depends on the particular medicine and the dose).

- You may have to go to hospital as an outpatient or to a clinic to have the injection.
- The bisphosphonate injection given every 3 months is injected in less than a minute. The bisphosphonate injection given once a year is injected as a drip over at least 15 minutes.

This information supports implementation of NICE technology appraisal guidance 464, August 2017. It is **not official NICE guidance**.

Effect of bisphosphonates on the risk of vertebral fractures over 10 years

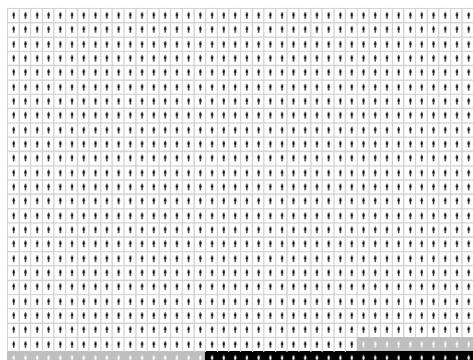
10 in 1,000 (1%) baseline risk



Over 10 years, in every 1,000 people at this baseline risk who have bisphosphonate treatment, **on average**:

- 📉 990 people do not have a vertebral fracture, but would not have had one anyway
- 📊 5 people avoid having a vertebral fracture because they have bisphosphonate treatment
- 📈 5 people have a vertebral fracture, even though they have bisphosphonate treatment.

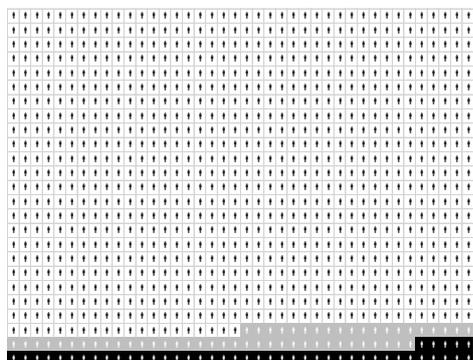
50 in 1,000 (5%) baseline risk



Over 10 years, in every 1,000 people at this baseline risk who have bisphosphonate treatment, **on average**:

- 📉 950 people do not have a vertebral fracture, but would not have had one anyway
- 📊 27 people avoid having a vertebral fracture because they have bisphosphonate treatment
- 📈 23 people have a vertebral fracture, even though they have bisphosphonate treatment.

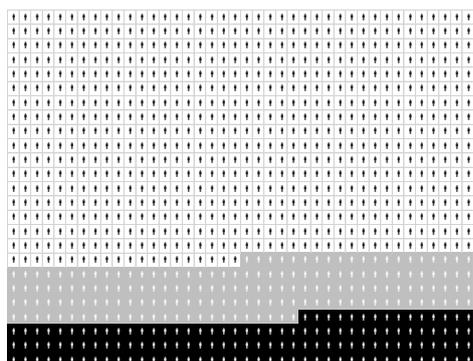
100 in 1,000 (10%) baseline risk



Over 10 years, in every 1,000 people at this baseline risk who have bisphosphonate treatment, **on average**:

- 📉 900 people do not have a vertebral fracture, but would not have had one anyway
- 📊 55 people avoid having a vertebral fracture because they have bisphosphonate treatment
- 📈 45 people have a vertebral fracture, even though they have bisphosphonate treatment.

300 in 1,000 (30%) baseline risk

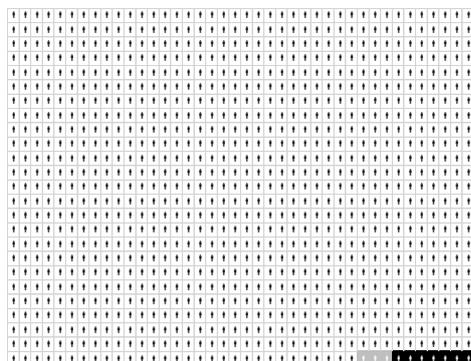


Over 10 years, in every 1,000 people at this baseline risk who have bisphosphonate treatment, **on average**:

- 📉 700 people do not have a vertebral fracture, but would not have had one anyway
- 📊 165 people avoid having a vertebral fracture because they have bisphosphonate treatment
- 📈 135 people have a vertebral fracture, even though they have bisphosphonate treatment.

Effect of bisphosphonates on the risk of **hip fractures** over 10 years

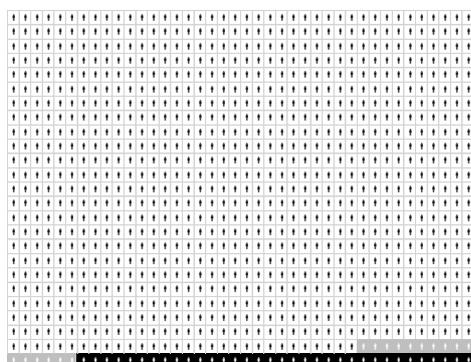
10 in 1,000 (1%) baseline risk



Over 10 years, in every 1,000 people at this baseline risk who have bisphosphonate treatment, **on average**:

- ▣ 990 people do not have a hip fracture, but would not have had one anyway
- 3 people avoid having a hip fracture because they have bisphosphonate treatment
- 7 people have a hip fracture, even though they have bisphosphonate treatment.

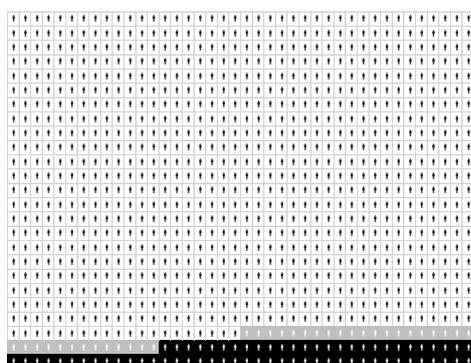
50 in 1,000 (5%) baseline risk



Over 10 years, in every 1,000 people at this baseline risk who have bisphosphonate treatment, **on average**:

- ▣ 950 people do not have a hip fracture, but would not have had one anyway
- 16 people avoid having a hip fracture because they have bisphosphonate treatment
- 34 people have a hip fracture, even though they have bisphosphonate treatment.

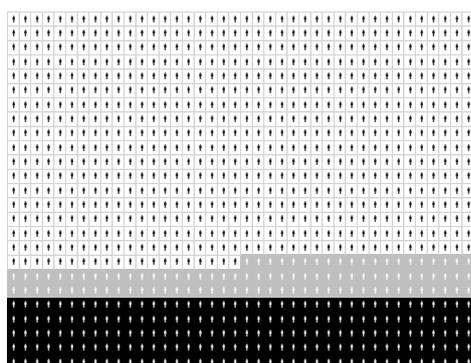
100 in 1,000 (10%) baseline risk



Over 10 years, in every 1,000 people at this baseline risk who have bisphosphonate treatment, **on average**:

- ▣ 900 people do not have a hip fracture, but would not have had one anyway
- 33 people avoid having a hip fracture because they have bisphosphonate treatment
- 67 people have a hip fracture, even though they have bisphosphonate treatment.

300 in 1,000 (30%) baseline risk



Over 10 years, in every 1,000 people at this baseline risk who have bisphosphonate treatment, **on average**:

- ▣ 700 people do not have a hip fracture, but would not have had one anyway
- 100 people avoid having a hip fracture because they have bisphosphonate treatment
- 200 people have a hip fracture, even though they have bisphosphonate treatment.