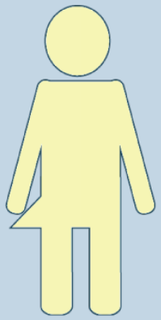
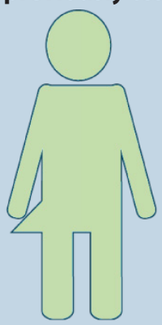
ERN GENTURIS patient journey: non-*NF2*-related schwannomatosis

Person with schwannoma(s) and unknown genetic status

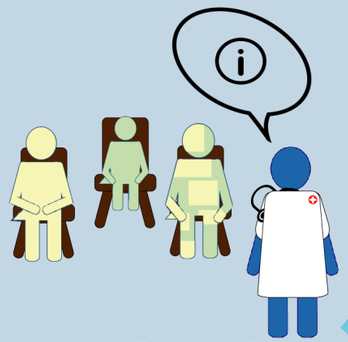


Asymptomatic person with non-*NF2*-related schwannomatosis in the family, not previously tested



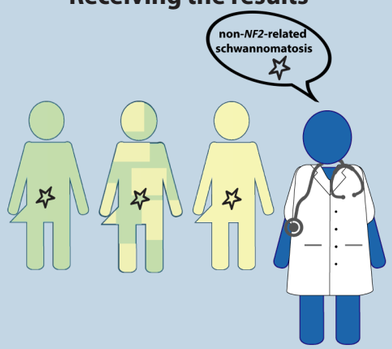
Eligible for germline genetic and tumour DNA testing

Genetic counselling

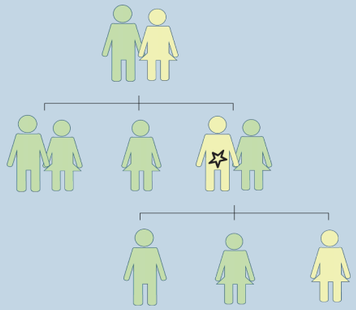


Germline genetic and possible tumour DNA testing

Receiving the results

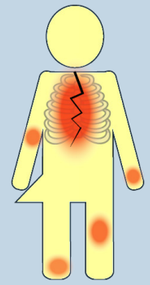


Cascade testing (testing of blood relatives)

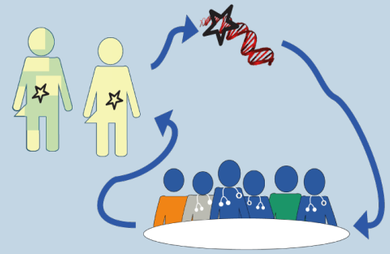


Surveillance of tumours

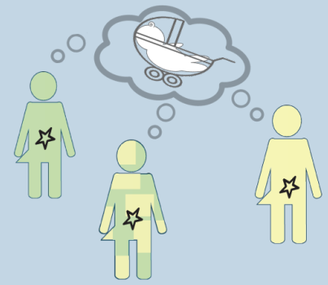
Pain management



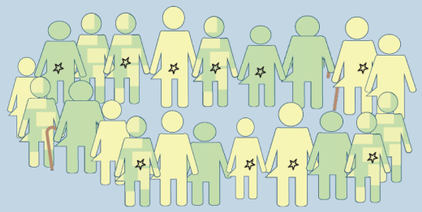
Personalised tumour treatment, including surgery to remove schwannoma

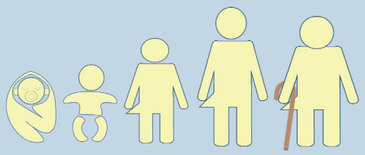


Genetic counselling regarding family planning

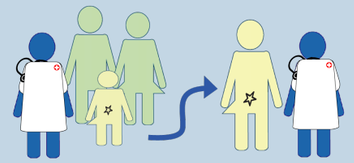


Psychosocial support for patients and families, peer support





Lifelong care for non-*NF2*-related schwannomatosis, including transition to adult care



* *It is advised that the patient case is discussed in a multidisciplinary team with relevant experts before any management is offered/advised.*

European Reference Network

Genetic Tumour Risk Syndromes (ERN GENTURIS)

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the granting authority (European Health and Digital Executive Agency (HaDEA)). Neither the European Union nor the granting authority can be held responsible for them.

www.genturis.eu

08-05-2026, version 2.0
accepted 03-06-2026

Disclaimer: TThis patient journey is intended as a general overview of the clinical and diagnostic pathway for non-*NF2*-related schwannomatosis or suspected diagnosis. It should not replace an individual clinical and genetic counselling at an expert centre. It also does not intend to address all specific challenges of the complex condition of non-*NF2*-related schwannomatosis. Specific clinical guidelines, diagnostic criteria and nomenclature may change at short notice and therefore are only referred to in this patient journey.

Person with schwannoma(s)and unknown genetic status

This refers to someone who has one or more schwannomas — these are non-cancerous growths that form on the nerves. The person has not yet had genetic testing, so it's not known whether the condition is inherited. Symptoms usually start after the age of 20.

Hallmark: pain related to the affected nerves.
Sometimes surgery needs to happen before the genetic counselling, DNA testing, and discussion of the results can be completed. Caution is warranted as sporadic tumours and schwannomas are treated differently.

Asymptomatic person with non-*NF2*-related schwannomatosis in the family, not previously tested

This refers to someone who currently has no symptoms, but non-*NF2*-related schwannomatosis is known to run in their family. They have not had genetic testing yet, so it's not known whether they carry the same genetic variant.

Eligible for germline genetic and tumour DNA testing

Testing for non-*NF2*-related schwannomatosis should be considered when a person has one or more of the following:

- multiple schwannomas (non-cancerous nerve sheath tumours) a known diagnosis of non-*NF2*-related schwannomatosis in the family
- a family history that includes both of nerve-related pain and multiple nerve sheath tumours in first degree relatives.

If a doctor thinks someone may have non-*NF2*-related schwannomatosis, they are eligible for germline genetic testing. If possible, tumour DNA testing can also be done to provide more information.

Genetic counselling

Individuals who are offered genetic testing — and their families — should receive clear information before and after genetic testing. This includes:

- What non-*NF2*-related schwannomatosis is, what symptoms it can cause, and how it usually develops over time
- What happens during genetic counselling, and what genetic testing could mean for them and their biological relatives
- The different possible results of genetic testing and what each one means
- How doctors will monitor their health and what follow-up care may be needed
- Treatment options for any specific symptoms or complications
- Family planning options, including how the condition may affect future children
- How a diagnosis might affect legal, social, insurance, or financial matters
- Access to emotional support, including support groups or others with similar experiences.

Germline genetic and possible tumour DNA testing and receiving the results

General information about germline genetic testing can be found here: https://www.coe.int/en/web/bioethics/information-brochure-on-genetic-tests-for-health-purposes Germline genetic testing can help to:

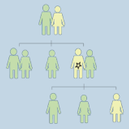
- Confirm the diagnosis and rule out other conditions
- Provide useful information for family members, who may also be at risk
- Support decisions about future pregnancies

It is best for this testing to be carried out in a schwannomatosis expert centre, where specialists have experience with this condition. Testing usually includes the genes known to be linked to schwannomatosis, such as *NF2, SMARCB1* and *LZTR1*. If these tests do not find a genetic change, doctors may check the tumour tissue for changes on chromosome 22q. Only about half of patients have a detectable change in *LZTR1* or *SMARCB1*. Not all genes involved in schwannomatosis have been identified yet. If available, tumour DNA testing is recommended because it can be more informative than germline testing as it can help detect mosaic schwannomatosis, where only some cells carry the genetic change.
The most up-to-date diagnostic criteria for non-*NF2*-related schwannomatosis (Plotkin et al., 2022 and ERN GENTURIS clinical practice guidelines for the diagnosis, treatment, management and surveillance of people with schwannomatosis) are available on the ERN GENTURIS website.

A non-*NF2*-related schwannomatosis diagnosis may be classified as:

- *SMARCB1*-related schwannomatosis
- *LZTR1*-related schwannomatosis
- 22q-related schwannomatosis

If genetic testing does not find a specific diagnosis but rules out *NF2*-related schwannomatosis and the clinical signs clearly point to non-*NF2*-related schwannomatosis, doctors use the broader term 'schwannomatosis, not otherwise specified (NOS)' or 'not elsewhere classified (NEC).'
Test results should always be discussed as part of genetic counselling, so patients understand what the results mean for themselves and their family.
Once non-*NF2*-related schwannomatosis is confirmed, patients can be referred to a schwannomatosis expert centre for more detailed information about the condition, guidance on surveillance and follow-up, advice on treatment options and information about who will be their main contact person or case manager, for both themselves and their children.



Cascade testing (testing of blood relatives)

Cascade testing means offering genetic counselling and genetic testing to family members, who may have inherited non-*NF2*-related schwannomatosis. A genetic specialist will decide which relatives should be offered testing. They may invite these family members directly or give the first diagnosed person (the "index patient") a family letter to share with relatives. **Testing relatives — and providing follow-up care when needed — can improve health outcomes and quality of life.**

- Cascade testing for *LZTR1*-related schwannomatosis can be complicated, because not everyone who carries the variant will develop symptoms (this is called incomplete penetrance).
- First degree relatives have 50% chance of having the same genetic variant (*LZTR1*, *SMARCB1*).
- Second degree relatives have 25% chance of having the same genetic variant (*LZTR1*, *SMARCB1*).
- The risks of passing on the genetic variant on may be significantly lower in mosaic persons.
- Cascade testing is not generally recommended for relatives of a patient with confirmed 22q-related schwannomatosis.

Family members who choose to have genetic testing will be tested only for the specific gene variant already found in the family.

Surveillance of tumours

There are specific surveillance programs for individuals with schwannomatosis. These programs can vary from one country to another. Patients should ask their doctor about the recommendations that apply in their country. Current European recommendations are available on the ERN GENTURIS website (ERN GENTURIS clinical practice guidelines for the diagnosis, treatment, management, and follow-up of people with schwannomatosis).
After a diagnosis of non-*NF2*-related schwannomatosis, and discussion in a multidisciplinary team, doctors will create a plan to regularly check for tumours and monitor existing ones.
Soon after diagnosis, patients should have an initial check-up that includes a full MRI of the brain and spine, and sometimes a whole-body MRI, to get a complete picture of any tumours.
This is usually done soon after the diagnosis, starting from around age 12, or earlier if symptoms suggest it's needed.
For most people, routine follow-up MRIs are usually done every 2-3 years, unless their symptoms change.
MRI is the preferred method for tumour surveillance because it gives clear images without radiation.
After every scan, doctors weigh the risk of the tumour against the risk of surgery. They consider:

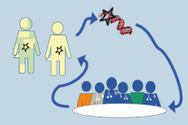
- Where the tumour is located
- How big it is
- How quickly it is growing
- Whether it is causing symptoms or nerve problems

This helps guide decisions about whether to continue monitoring or consider treatment.

Pain management

There are specific surveillance programs for individuals with schwannomatosis. These programs can vary from one country to another. Patients should ask their doctor about the recommendations that apply in their country. Current European recommendations are available on the ERN GENTURIS website (ERN GENTURIS clinical practice guidelinesfor the diagnosis,treatment, management, and follow-up of people with schwannomatosis).
Schwannomas can cause nerve-related pain, which may lead to physical limitations and emotional stress. Pain is best managed by a multidisciplinary team. This means different specialists work together to reduce symptoms, improve daily functioning and address the physical, emotional, and social impact of pain (a "bio-psychosocial", multimodal approach).

Medicines for nerve-related pain can be helpful, but sometimes side effects limit how much or how long they can be used. Long-term use of opioids is not recommended because they usually do not work well for nerve-related pain; the body can become tolerant, meaning higher doses are needed; they can lead to dependence; they may cause increased sensitivity to pain (hyperalgesia).



Personalised tumour treatment, including surgery to remove schwannoma

There are specific surveillance programs for individuals with schwannomatosis. These programs can vary from one country to another. Patients should ask their doctor about the recommendations that apply in their country. Current European recommendations are available on the ERN GENTURIS website (ERN GENTURIS clinical practice guidelines for the diagnosis, treatment, management, and follow-up of people with schwannomatosis).
The best treatment plan should be discussed by a team of different specialists so it can be tailored to the patient's individual needs.Treatment for schwannomas is tailored to each person. Surgery is the main option, but it is only recommended when truly necessary. Doctors may recommend surgery based on:
- Where the tumour is located, - How big it is, - How fast it is growing, - Whether it is causing symptoms or nerve problems.
A surgeon with special experience in nerve sheath tumours should assess the chances of success and the risks of nerve damage after surgery. Persistent or severe pain that does not improve with other treatments — especially when the tumour is easy to reach and surgery carries low risk — can be a reason to consider surgery.
If surgery does not improve pain or other symptoms, repeated operations on the same area are usually avoided, because they tend to help less over time and may even worsen pain.

Radiation therapy is not recommended because it may increase the risk of developing another type of tumour later. It should only be considered for schwannomas that are growing and cannot be treated with surgery or other available treatments.
Medication treatments may be considered, especially for people with: - Multiple tumours that are growing quickly - Tumours causing pain or nerve problems - Tumours that cannot be removed with surgery Individuals with *SMARCB1*-related schwannomatosis have a small risk that a tumour could become cancerous, so careful monitoring is important.

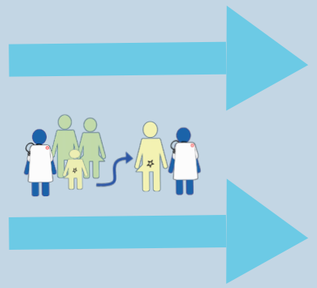
Genetic counselling regarding family planning

People of reproductive age should be offered a genetic consultation to learn about their options for having children (ERN GENTURIS guideline on counselling on reproductive options for individuals with a cancer predisposition syndrome (including genturis)).
During this appointment they can discuss family planning choices, prenatal testing and preimplantation genetic testing.
The availability of these options can vary between countries because of legal and ethical differences.

Psychosocial support for patients and families, peer support

Individuals diagnosed with non-*NF2*-related schwannomatosis — and parents of affected children — often need help understanding the condition, accepting the diagnosis, and coping with treatment decisions.
This type of support is called psychoeducation, and it should be offered early and proactively by a psychologist who is part of the care team. Support may be needed at different moments, such as:
- When a new tumour is found - When making decisions about treatment or preventive care - When thinking about family planning - Areas where psychosocial and peer support can help - Coping with ongoing medical treatment
- Deciding whether to have genetic testing - Talking to family members about their possible genetic risk - Managing anxiety about tumour risk - Handling social or practical issues, such as insurance or mortgage concerns

Patient groups and associations can provide emotional support, shared experiences, and practical advice. A list of organisations is available at: https://www.genturis.eu/l=eng/patient-area/patient-associations.html



Lifelong care for non-*NF2*-related schwannomatosis, including transition to adult care

Non-*NF2*-related schwannomatosis can look different from person to person, and symptoms may change over time. As people get older, the condition can become more complex and the risk of medical problems may increase.
Because of this, teenagers and young adults need support when moving from children's healthcare to adult healthcare. This process is called healthcare transition. It's especially important because many symptoms become more noticeable after this transition.
A smooth transition helps ensure that:
- Care continues without interruption - Young people learn to manage their health more independently- Quality of life is supported - Medical complications are identified and managed early
A dedicated healthcare professional and a well-organised transition program are essential to guide young people and their families through this change.

European Reference Network

Genetic Tumour Risk Syndromes (ERN GENTURIS)

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the granting authority (European Health and Digital Executive Agency (HaDEA)). Neither the European Union nor the granting authority can be held responsible for them.

www.genturis.eu

08-05-2026, version 2.0
accepted 03-06-2026