SACRAL NEUROMODULATION

Information about your procedure from
The British Association of Urological Surgeons (BAUS)

This leaflet contains evidence-based information about your proposed urological procedure. We have consulted specialist surgeons during its preparation, so that it represents best practice in UK urology. You should use it in addition to any advice already given to you.

To view this leaflet online, scan the QR code (right) or type the short URL below it into your web browser.

http://rb.gy/l5ldj

KEY POINTS

- Sacral neuromodulation (SNM) is used for patients with overactive bladder and for some patients who have difficulty passing or retaining urine
- Around 80% of patients with these conditions report significant improvement after SNM
- SNM involves two procedures a few weeks apart
- The first stage consists of a "trial phase" (typically 2-4 weeks) with an external battery delivering pulses to the sacral nerves through a temporary or permanent wire
- If the trial is successful, you will have a permanent battery stimulator & wire implanted during the second stage; if it is unsuccessful, the wire will be removed
- **The most important complication is wound infection; you should contact your medical team immediately if this occurs**
- The use of surgical diathermy (electric current used to cut or stop bleeding) can damage an SNM device
- Newer SNM devices are MRI-compatible, but you should not go into an MRI scanner (other than for a head scan) without confirmation from your surgeon
- You may need a further procedure to change a component of the device if it stops working
- The effect of the stimulator wears off gradually over time, as your body gets used to it; re-programming the stimulator may overcome this
- We may need to replace the stimulator when the battery runs down (typically after 3-15 years); newer batteries may last longer & may be rechargeable using wireless technology

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What does this procedure involve?

Sacral neuromodulation (SNM) is also sometimes called sacral nerve stimulation (SNS). The procedure involves placing a wire in your lower back, near the nerves that control your bladder and bowel. This wire delivers small electrical pulses, generated by an implantable pulse generator (battery), and helps to improve problems with bladder and bowel function.

It is used to treat the following conditions:

- **Overactive bladder** – urgency (the sudden need to pass urine which you cannot put off) with or without urine leakage, frequency (passing urine more often than normal) and nocturia (getting up from sleep to pass urine twice or more at night)
- **Non-obstructive chronic urinary retention** (inability to empty the bladder) or dysfunctional voiding in women
- **Faecal (bowel) incontinence** – and some other bowel problems normally managed by colorectal specialists (not urologists)

For bladder problems, the success rate of SNS is around 80%, meaning that patients report a significant improvement (not cure) in their symptoms. Not all patients, however, are suitable for SNS treatment.

What are the alternatives?

SNM is used to treat two different conditions:

Overactive bladder (OAB)

OAB can be treated without surgery. We recommend that all patients try conservative treatments before having an operation, because it avoids the risks of side-effects or complications of surgery. Treatment options include:

- **Incontinence pads** - if your symptoms are not a bother you may choose to do nothing and use pads for urine leakage
- **Conservative measures** – including weight loss, optimising fluid intake and reducing caffeine & alcohol intake
- **Bladder training** – learning techniques to hold on and over-ride your urge to pass urine
- **Medicines** – these may help if conservative treatment does not work
- **Botulinum toxin-A injections** – into the wall of your bladder using a telescope

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- **Enterocystoplasty**– a major operation that enlarges your bladder using a piece of bowel
- **Posterior tibial nerve stimulation, PTNS** - electrical stimulation of a nerve near the ankle)
- **Ileal conduit urinary diversion** – a major procedure where the ureters (tubes that transport urine from your kidneys to your bladder) are connected to a segment of bowel that opens through your abdominal (tummy) wall into a stoma bag

Non-obstructive urinary retention
If you cannot empty your bladder, SNM sometimes helps but it is not suitable for everyone with this problem. Your urologist can advise you about alternative treatments that:

- **Intermittent self-catheterisation in women** - passing a disposable catheter tube into the bladder through the water pipe to drain the urine
- **Permanent insertion of a catheter**
- **Botox injection into the urethral (waterpipe) sphincter (valve) in** women – this is an "off label" indication for Botox but it can be used with special arrangements following NICE guidelines
- **Mitrofanoff procedure** – a major operation to allow you to pass a catheter into your bladder through your abdomen (tummy) instead of through your urethra (waterpipe)

What happens on the day of the procedure?

You will be seen by the surgeon and the anaesthetist who will go through the plans for your operation with you.

We may provide you with a pair of TED stockings to wear, and we may give you an injection to thin your blood. These help to prevent blood clots from developing and passing into your lungs. Your medical team will decide whether you need to continue these after you go home.

Details of the procedure

The treatment involves two separate stages, several weeks apart. After the first procedure, there is a test phase, which allows the medical team to see if the SNM is working for you.

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During the first stage

Placement of a temporary wire

- we place an electrode (wire) near the nerves using X-rays to make sure it is in the correct place
- we connect this wire to a stimulator box outside your body
- the stimulator box sends electrical signals to the nerves and needs to be worn all the time
- typically, you can go home on the same day but an overnight stay is sometimes needed
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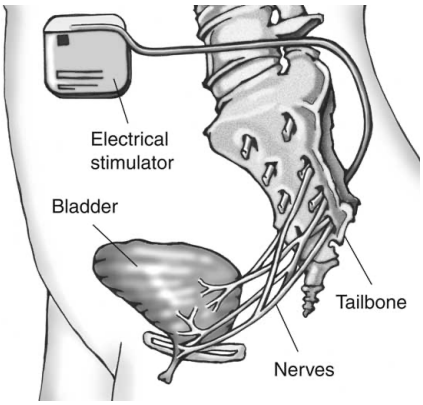
Placement of a permanent wire

- we make a tiny incision (cut) in your lower back & a second 3-4cm incision in your upper buttock
- we place an electrode (wire) near the nerves, using X-rays to make sure it is in the correct place; the wire passes out through the skin at the side of your buttock
- we connect tis wire to a stimulator box outside your body
- the stimulator box sends electrical signals to the nerves & needs to be worn all the time
- typically, you can go home on the same day, but an overnight stay is sometimes needed



During the test phase

- You must keep your dressings clean and dry. This means that you cannot shower or bathe during the test phase. You can keep yourself clean by using a sponge or flannel, providing the dressings remain dry. Please do not remove or change the dressings.
- Once you get home, your urology team will monitor you closely. This is so they can check that the treatment is working well, and make any adjustments needed to the stimulator when needed.
- This phase usually lasts between two and four weeks. It is very important that you complete any bladder diaries and questionnaires given to you during this time, to see objective evidence that the treatment is helping your symptoms.

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During the second stage

If the SNM treatment does not improve your symptoms during the test phase, we will remove the temporary wire during the second procedure. Otherwise, you will have a permanent stimulator put in.

- we re-open the incision in your buttock and place the permanent stimulator under the skin
- depending on the type of wire put in during the first stage, we either replace it with a permanent wire (if it was a temporary one), or use the same wire (if it was a permanent one)
- you may be able to go home on the same day, but an overnight stay is sometimes needed
- you may need to take antibiotics to reduce the risk of infection

We switch your stimulator on after the procedure although, sometimes, we leave this for a few days. When it is switched on, you may feel a tapping sensation near your anus/vagina. We will programme the stimulator so that you get maximum benefit to your bladder without discomfort.

We will show you how to adjust the stimulator strength yourself, using a remote control-type device or smartphone.

Some permanent SNM devices are MRI-compatible, and some have a re-chargeable battery; your surgeon will discuss this with you.

Are there any after-effects?

The possible after-effects and your risk of getting them are shown below. Some are self-limiting or reversible, but others are not. We have not listed very rare after-effects (occurring in less than 1 in 250 patients) individually. The impact of these after-effects can vary a lot from patient to patient; you should ask your surgeon's advice about the risks and their impact on you as an individual:

After-effect	Risk
Failure of the treatment to improve your symptoms significantly	3 in 10 patients (30%)

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Mild discomfort requiring simple painkillers	Between 1 in 2 & 1 in 10 patients (10-50%)
Need for replacement, relocation or removal of the implanted stimulator or electrode (wire)	Around 1 in 4 patients (25%)
Discomfort in your buttock, or lower back, at the site of the stimulator or its lead	Around 1 in 7 patients (15%)
Discomfort in your ankle or foot	Around 1 in 10 patients (10%)
Infection in your wound requiring antibiotics and possible removal of the device	Between 1 in 25 patients (4%)
Stimulation produces an adverse (undesirable) after-effect on your bowel function	Between 1 in 10 & 1 in 50 patients (2-10%)

PLEASE NOTE: Other unwanted effects may include unexpected triggering of shop security alarms or airport security scanners. This is not harmful, but you should inform security staff if your device has triggered alarms in the past

What is my risk of a hospital-acquired infection?

Your risk of getting an infection in hospital is between 4 & 6%; this includes getting *MRSA* or a *Clostridium difficile* bowel infection. Individual hospitals may have different rates, and the medical staff can tell you the risk for your hospital. You have a higher risk if you have had:

- long-term drainage tubes (e.g. catheters);
- bladder removal;
- long hospital stays; or
- multiple hospital admissions.

What can I expect when I get home?

- you will get some mild discomfort which may last several days and can normally be relieved with mild painkillers

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- you will be given a copy of your discharge summary and a copy will also be sent to your GP
- you must keep the dressings clean and dry
- you must not shower or bathe during the test phase
- you must avoid strenuous activities, sports and any stretching of the lower back for 6-12 weeks; these can cause the wire to move out of position so that the SNS stops working
- if you get any redness, discharge or significant pain/throbbing in the wound, you should contact the hospital as soon as possible.
- you may need to "fine-tune" your stimulator using the hand-held remote control or designtaed smartphone
- if you do have problems with the stimulator, please contact your named specialist nurse or surgeon
- you will be asked to complete further bladder diaries during the test phase
- a follow-up appointment will be made for you to review your response to the surgery

Are there any long-term issues with sacral nerve stimulation?

Yes, a few. The important ones are:

- **Battery failure in non-rechargeable devices** - the battery in your stimulator will run down eventually, usually after 3-7 years (longer with newer devices). Battery life depends on the settings you have been using. Changing the battery is relatively simple, and involves a procedure very like the second stage of the original implantation

- **Battery failure in rechargeable devices** – rechargeable systems need to be recharged on weekly or fortnightly basis. If technical failure causes communication problems between the battery and the charger, you should contact your named specialist nurse or surgeon. If it is not possible to resolve the charging fault, surgical revision/battery change may be required

- **Surgical diathermy** - cutting and sealing of blood vessels during surgery is usually done using diathermy (electrical current). After SNM, if you need a surgical procedure whatever the reason, (but especially if it involves your lower back, abdomen or pelvis), your SNM device should be turned off. This is because the current from some types of diathermy equipment can damage your stimulator. Please tell your surgeon about your SNM and they will make sure that

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only safe (bipolar) diathermy equipment is used, and that your device is switched off during the surgery.

- **Electronic devices** - security screening and airport scanning devices can affect your stimulator. Show the security staff your SNM identification card and they may allow you to by-pass the scanner. If not, make sure you turn your simulator off before you pass through the scanner
- **Sports and strenuous activities** - because of the risk of damaging or dislodging the SNS device or the lead, we advise you not to take part in contact sports, extreme sports or horse-riding
- **Magnetic resonance (MR) scanning** - the powerful magnetic field in an MRI scanner can damage your stimulator and cause you harm. Having an MRI scan of your head will cause no problem, but you should not have any other form of MRI scan unless you have been implanted with an MRI-compatible device. Your surgeon will clarify this if you are not sure.

General information about surgical procedures

Before your procedure

Please tell a member of the medical team if you have:

- an implanted foreign body (stent, joint replacement, pacemaker, heart valve, blood vessel graft);
- a regular prescription for a blood thinning agent (e.g. warfarin, aspirin, clopidogrel, rivaroxaban, dabigatran);
- a present or previous MRSA infection; or
- a high risk of variant-CJD (e.g. if you have had a corneal transplant, a neurosurgical dural transplant or human growth hormone treatment).

Questions you may wish to ask

If you wish to learn more about what will happen, you can find a list of suggested questions called "Having An Operation" on the website of the Royal College of Surgeons of England. You may also wish to ask your surgeon for his/her personal results and experience with this procedure.

Before you go home

We will tell you how the procedure went and you should:

- make sure you understand what has been done;

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- ask the surgeon if everything went as planned;
- let the staff know if you have any discomfort;
- ask what you can (and cannot) do at home;
- make sure you know what happens next; and
- ask when you can return to normal activities.

We will give you advice about what to look out for when you get home. Your surgeon or nurse will also give you details of who to contact, and how to contact them, in the event of problems.

Smoking and surgery

Ideally, we would prefer you to stop smoking before any procedure. Smoking can worsen some urological conditions and makes complications more likely after surgery. For advice on stopping, you can:

- contact your GP;
- access your local NHS Smoking Help Online; or
- ring the Smoke-Free National Helpline on **0300 123 1044**.

Driving after surgery

It is your responsibility to make sure you are fit to drive after any surgical procedure. You only need to contact the DVLA if your ability to drive is likely to be affected for more than three months. If it is, you should check with your insurance company before driving again.

Pregnancy

If you get pregnant when you have an SNM device, we would recommend that the device is switched off. If you are planning a pregnancy, SNM is not recommended because its effects on the unborn foetus are not known.

What should I do with this information?

Thank you for taking the trouble to read this information. Please let your urologist (or specialist nurse) know if you would like to have a copy for your own records. If you wish, the medical or nursing staff can also arrange to file a copy in your hospital notes.

What sources have we used to prepare this leaflet?

This leaflet uses information from consensus panels and other evidence-based sources including:

- the Department of Health (England);
- the Cochrane Collaboration; and

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- the National Institute for Health and Care Excellence (NICE).

It also follows style guidelines from:

- the Royal National Institute for Blind People (RNIB);
- the Information Standard;
- the Patient Information Forum; and
- the Plain English Campaign.

DISCLAIMER

Whilst we have made every effort to give accurate information, there may still be errors or omissions in this leaflet. BAUS cannot accept responsibility for any loss from action taken (or not taken) as a result of this information.

PLEASE NOTE: the staff at BAUS are not medically trained, and are unable to answer questions about the information provided in this leaflet. If you have any questions, you should contact your Urologist, Specialist Nurse or GP in the first instance.

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