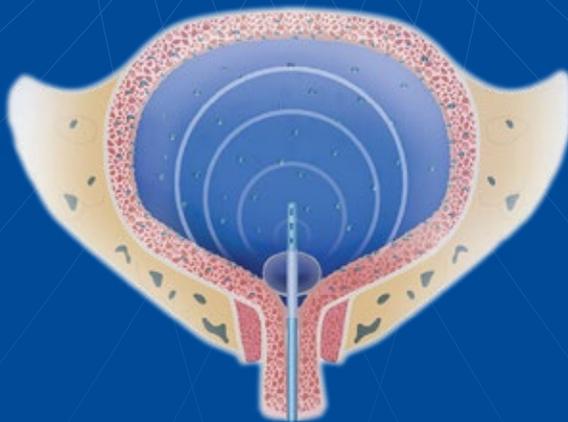




**EMDA**<sup>®</sup>  
Electromotive Drug Administration

# A Patient's Guide to BCG and EMDA Mitomycin-C Treatment





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# 01 Understanding Bladder Cancer

This booklet has been prepared to help you, your family and friends understand more about Non Muscle Invasive Bladder Cancer - NMIBC and the treatment recommended by your Urology Consultant.

Bladder cancer is the 7th most common cancer and around 10,000 people are diagnosed with bladder cancer each year in the UK. Usually bladder cancer takes a long time to develop, so it is most common in older people. Most people with bladder cancer are over 60 years old and it is rare in people under 40. It is also more common in men than women, the reason being, more men than women have smoked or been exposed to chemicals at work in recent decades.

Your bladder is made up of layers.

There are four main layers of tissue in bladder:

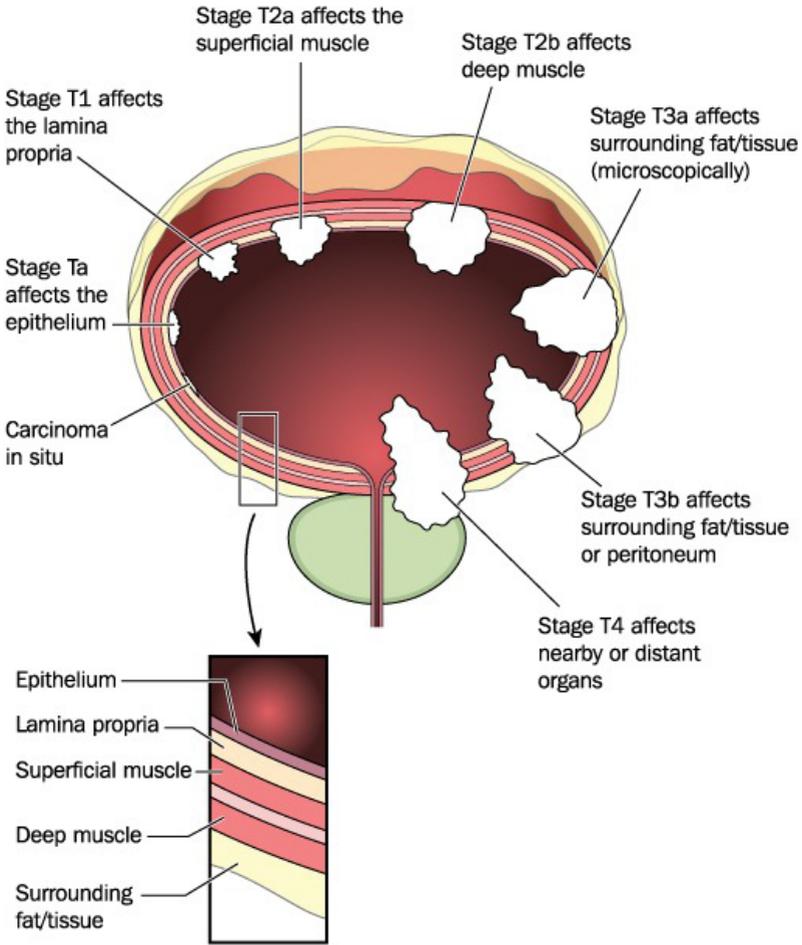
**Urothelium** – The innermost layer. It is lined with cells that stop urine being absorbed into the body. These cells are called urothelial cells.

**Lamina propria** – A layer of tissue and blood vessels surrounding the urothelium.

**Muscularis propria** – The thickest layer. It consists of muscle that contracts to empty the bladder.

**Perivesical tissue** – The outermost layer. It is made up mostly of fatty tissue that separates the bladder from nearby organs.

# 02 Staging of Bladder Cancer



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## 03 Bladder Cancer Treatment

You have, or had, Non-Muscle Invasive Bladder Cancer (NMIBC), which is the most common type of bladder cancer. You have already had a procedure called TURBT (Transurethral resection of bladder tumour) to remove the tumour(s) from your bladder.

When you have a cystoscopy (procedure to investigate your bladder), Non-Muscle Invasive Bladder Tumours are usually visible, sitting on the innermost lining of the bladder – Urothelium. You will now have regular cystoscopies. After each cystoscopy the doctor will inform you if the tumour(s) have come back (recurred) or not.

Although non-muscle invasive bladder tumours can mostly be dealt with surgery alone, your surgeon has suggested an additional form of Intravesical (inside the bladder) treatment using BCG and EMDA MMC and will explain the reasons for their decision to you.

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## 04 Why do I need BCG and EMDA Mitomycin-C treatment?

Your doctor has recommended that you have a course of Intravesical (inside the bladder) therapy using BCG and EMDA MMC. This treatment involves installing (putting) BCG or MMC directly into your bladder.

### **What is BCG?**

BCG (Bacillus Calmette-Guerin) is used to prevent or reduce the reappearance of tumours. It is a vaccine that can destroy cancer cells by stimulating the immune system (part of the body that fights infection and disease) to become active in the bladder. It is also used to protect people from tuberculosis (TB). It appears as a cloudy coloured solution.

### **What is MMC?**

MMC (Mitomycin-C) is designed to stop cancer cells from growing. MMC is a purple coloured solution that can destroy cells. It attacks cancer cells when installed into the bladder, but does little damage to your normal, healthy bladder lining.

### **What is EMDA?**

- EMDA (Electromotive Drug Administration) is a non-invasive method of enhancing local drug penetration (Mitomycin-C) across the urothelium of the bladder. EMDA uses a small electric current to accelerate and actively transport ionized or non-ionized molecules, inside the drug, into the tissue. The two main principals in this treatment are:
- **Lontophoresis** – Transport of ionised molecules into the tissue by applying a current across a solution containing the ions
- **Electro-osmosis** – The transport of non-ionised solutes associated with the bulk transport of water

Improvement in the accumulation of Mitomycin-C in bladder tissue at greater depths has been proven in clinical trials using EMDA

## 05 How is BCG EMDA Mitomycin-C treatment given?

BCG and EMDA MMC treatment is given as an out-patient treatment. It involves coming to hospital once a week for nine weeks. The treatment sequence is as follows:

<b>Week 1 and 2</b>	BCG treatment
<b>Week 3</b>	EMDA MMC treatment
<b>Week 4 and 5</b>	BCG treatment
<b>Week 6</b>	EMDA MMC treatment
<b>Week 7 and 8</b>	BCG treatment
<b>Week 9</b>	EMDA MMC treatment

## 06 What do I have to do before each treatment?

**Before starting your treatment, it is important to inform a member of the staff if you have a pacemaker or if you are taking the drug warfarin.**

Each time you attend for treatment, you will be asked to pass urine to empty your bladder. You should try not to drink very much for three or four hours before you come to the hospital for your treatment, particularly if you tend to pass urine frequently. By restricting the amount you drink, your urine will be concentrated, preventing the drug from being diluted while it is in your bladder. This will make the drug more effective. You are also more likely to be able to hold the drug in your bladder for the full treatment time.

When you attend your appointment, you will be asked to produce a urine sample for us to test. This is because you cannot be given the treatment if you have a urinary tract infection (UTI, which is an infection in your tubes that carry urine) or there is blood visible in your urine. You will need to have the UTI treated or wait until the bleeding has stopped before your treatment can be re-started.

## 07 What will happen at my BCG appointments?

### **At your BCG appointment the following will happen:**

- A nurse will pass a catheter into your bladder via your urethra (tube linked to your bladder that allows urine to leave the body). Local anaesthetic gel will be used to temporarily numb the area. Through the catheter nurse will drain any remaining urine from your bladder.
- The nurse will pass 50ML of BCG solution through the catheter and into your bladder. Generally, the catheter is then removed, but in some cases, it may remain in place until the treatment is finished.
- We will ask you to not pass urine for two hours to keep the drug in contact with the entire lining of your bladder for the full treatment time.
- After two hours we will ask you to pass urine as normal into the toilet. In some cases, the nurse will remove the BCG via the catheter (if this is still in place). Men will be asked to sit down to avoid any of the drug splashing on to their skin.

### **The first time you pass urine after the BCG treatment please:**

- Put 50ML of household bleach into the toilet and leave it to stand for 15 minutes before flushing to neutralise the drug.
- Wash your hands and private parts with soap and water after passing the BCG into the toilet.

For your first BCG treatment, please expect to stay in the out-patient department for over two hours. On following visits, you may be able to go straight home after the drug has been put into your bladder.

## 08 What will happen at my EMDA MMC appointments?

### **At your EMDA MMC appointment the following will happen:**

- We will ask you to lie down on a couch in a treatment room. A nurse will pass a special catheter containing an electrode through the urethra and into the bladder. Local anaesthetic gel will be used to temporarily numb the area.
- The nurse will drain any remaining urine from your bladder through the catheter.
- The nurse will then pass the sterile water containing MMC through the catheter and into your bladder.
- They will place two sponge electrode pads coated with gel on to the skin of your lower abdomen.
- They will then connect the catheter and sponge electrodes to the EMDA generator which will deliver a controlled small electric current and create a closed circuit between the catheter electrode and electrode sponge pads.
- The catheter and electrode pads are left in place for the duration of time the drug is in your bladder.
- The treatment time is 30 minutes and we will ask you to try not to pass urine for to keep the drug in contact with the entire lining of your bladder for the full treatment.
- After 30 minutes, the nurse will drain the drug from your bladder and remove the catheter and the electrode pads.



Please be advised that each treatment session takes about one hour, including preparations related to the patient.

## 09 What do I do after each treatment?

It is important to avoid getting the BCG or MMC solutions on your skin as they may cause a slight rash.

If there is contact with your skin, wash the solution off immediately with warm, soapy water. Please note, BCG and MMC should not cause permanent harm to your skin if you wash it off as instructed.

We recommend that you increase your fluid intake for a couple of days after each treatment (aim to drink two litres a day). This will help to flush any remaining drug out of your bladder and reduce any possible side effects. However, you may want to reduce the amount you drink after 8pm so you don't disturb your sleep by needing to go to the toilet.

If you notice that your urine is smelly or cloudy, you should contact your GP as this may indicate a urine infection. You will need to provide a urine sample for your GP and you may need antibiotics. This is unlikely to be due to the drugs but can happen after catheterisation.

**Please tell your nurse specialist of any side effects you have at the time of your next visit or by telephone.**

To prevent irritation to yourself or your partner, it is best to avoid sexual intercourse for at least 24 hours after each treatment with BCG or EMDA MMC. Please use a condom throughout the course of your treatment and for one week after the treatment ends.

If you have any concerns, please speak to a nurse specialist.

# 10 What are the side effects?

Most patients do not experience any major problems with this treatment, but BCG or EMDA MMC treatment may irritate your bladder.

## **After each treatment you may notice that you:**

- Have discomfort passing urine
- Need to pass urine frequently
- Have blood in your urine

**If your symptoms do not improve after two to three days, please contact your nurse specialist for advice.**

## **Side effects related to BCG treatment**

If you develop any of the following side effects after your BCG treatment, please contact your nurse specialist, urology ward or doctor immediately:

- A high temperature (more than 38.5°C or 101°F) and chills or flu-like symptoms
- Joint pain
- A cough
- A skin rash
- Exhaustion
- Nausea/vomiting

**These symptoms could indicate that you have an allergic reaction or that some of the BCG has entered into your system, giving you tuberculosis (TB) symptoms. These symptoms are rare but if they do occur you will need treatment. Please do not wait until your next visit but contact your nurse specialist immediately.**

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## Side effects related to EMDA MMC treatment

In very rare cases you may notice a rash on the soles of your feet and/or palms of your hands or the trunk of your body. If this happens, contact your Clinical Nurse Specialist for advice. This is a very rare sensitivity (allergic) reaction. It does not mean that the treatment will need to be stopped.

There is also a very small risk of redness or burns occurring on the skin at the sites where the sponge electrodes are applied. We try to ensure good skin contact, and avoid air bubbles between the electrodes and skin to keep this risk to a minimum.

These side effects will either get better within a few days or may need minor treatment to clear them up. To help prevent these problems, it is good to drink plenty of fluids for a couple of days after each treatment, which will help to flush any remaining drug from your bladder.

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## 11 What alternative treatment is there?

Alternative treatment programmes are either a six-week course of BCG or a six-week course of MMC. The combination of the two treatments is more effective, but a course of just one of these drugs may be used if BCG or MMC is not suitable for you.

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## 12 Giving my consent

We want to involve you in all the decisions about your care and treatment. If you decide to go ahead with BCG and EMDA MMC treatment, you will be asked to verbally give your consent that you agree to have the treatment and understand what it involves.

You should have received the leaflet, **Helping you decide: our consent policy**, which gives you more information. If you have not, please ask your nurse for a copy.

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## 13 Treatment outcome

Six to eight weeks after completing the course of BCG and EMDA MMC, we will evaluate how successful your treatment has been. A check cystoscopy will be performed under general anaesthetic (where you are put to sleep for the duration of the procedure).

It is important to remember that your tumour(s) may return. If this happens, you can be given a further course of treatment to your bladder to prevent the progression of your tumour(s). Your doctor will discuss this with you in more detail if relevant.

# 14 Important contacts

**Hospital** \_\_\_\_\_

Name .....

Address .....

Telephone .....

**Urology Nurse Specialist** \_\_\_\_\_

Name .....

Clinic/Ward .....

Telephone .....

**Consultant Urologist** \_\_\_\_\_

Name .....

Telephone (Secretary) .....

**GP** \_\_\_\_\_

Name .....

Address .....

Telephone .....

# 15 Appointments

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# 17 My Notes

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## 18 Useful Contacts

### **Action Bladder Cancer (ABC-UK)**

[www.actionbladdercancer.org](http://www.actionbladdercancer.org)

ABC UK is a charity dedicated to improving the lives of people with bladder cancer and raising awareness of the disease. It is run by Healthcare professionals and patients.

### **Macmillan Cancer Support**

[www.macmillan.org.uk](http://www.macmillan.org.uk)

Tel: 0808 808 0000

### **Fight Bladder Cancer**

[www.fightbladdercancer.co.uk](http://www.fightbladdercancer.co.uk)

Fight Bladder Cancer is a UK-based charity founded and run by bladder cancer survivors and their families.



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