

Times have **changed...**
have **you?**



OptiFlo[®]

IRRIGATION SOLUTION

**Foley Catheter
Maintenance Solutions**

BARD | **CARE**
Care. Comfort. Choice.

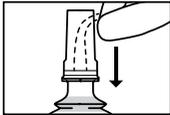
Contents

1. Introduction
Causes of Catheter Blockage
2. Recurrent Blockage
Causes of Encrustation
3. Investigating Encrustation
4. Managing Encrustation Care Strategies
Fluid Intake
5. Catheter Maintenance Solutions
6. Catheter Maintenance Solutions Continued
7. Which Catheter Maintenance Solution?
8. Patient Review
Limiting Risks
9. OPTIFLO® Irrigation Solution Instructions For Use

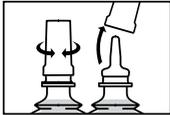
Instructions For Use



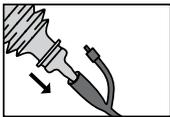
1. Check that the contents are clear and that the flexible container is intact. Do not use if there is any evidence of leakage or interference with the tamper evident feature of the cap.



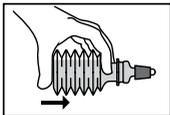
2. Grip tear tab of cap firmly and pull to remove. Do not attempt to remove the shrink wrap around the bottle, this is designed to control agitation.



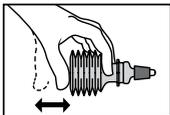
3. Twist cap in either direction to break the seal and remove cap.



4. Insert the nozzle of the container into the catheter.



5. Hold container neck between first and second fingers and squeeze the bottle by pressing on the base with the thumb to provide a controlled flow into the catheter without the introduction of excess air.



6. A controlled flushing action can be achieved by gently compressing and releasing the bellows continuously for approximately one minute. Allow the fluid to gently drain back into the container after the agitation period.



7. Discharge the contents of the container down a toilet, sluice or equivalent and dispose of the container. NOTE. Studies* have suggested that the application of 2 solutions used sequentially will dissolve significantly more encrustation than a single application. If 2 solutions are to be administered, repeat steps 1-7.

Please refer to Patient Information Leaflet supplied with the product before use

*IMPORTANT NOTES

“Studies have shown that two sequential solutions are far more effective than either a single solution of 50mL or 100mL.”³ So if you are having to do frequent procedures e.g. three weekly, consider two sequential solutions less frequently

Patient Review

Nurses need to monitor and record the characteristic length of catheter life of individual patients before introducing any change of regime. They then need to carefully record any increase in catheter life and be prepared to reassess the need for catheter maintenance solutions and to increase or decrease the dose used.



To order record cards please call: 01903 875055

Limiting Risks (NICE Guidelines – 139 for Healthcare Professionals)

Healthcare personnel must decontaminate their hands and wear a new pair of clean, non-sterile gloves before manipulating a patient's catheter, and must decontaminate their hands after removing gloves.⁵

Carry out a full patient assessment to ensure a catheter maintenance solution is required – catheters block for a variety of reasons.³ Patient safety and comfort is paramount when undertaking this treatment.

Introduction

Urinary catheterisation is rarely completely free of complications and catheter problems are a significant proportion of emergency callouts.¹ Management of long term indwelling catheters is mainly the responsibility of community nurses and recurrent blockage is a commonly experienced problem with 40 - 50% of long term catheterised patients experiencing catheter blocking.³

Patient must seek advice from their doctor, nurse or healthcare professional to determine which treatment option is most appropriate.

Causes of Catheter Blockage

When looking for causes of catheter blockage, or failure to drain, look for the simple things first:

- ▶ Is the drainage bag above the level of the bladder?
- ▶ Is the drainage bag more than two thirds full?
- ▶ Is the tubing twisted or kinked?
- ▶ Bladder spasm* (which is caused by irritation of the lining of the bladder)
- ▶ Time of blockage?
Does the catheter always block at a certain time?
This may be due to a possible problem when the patient is lying or sitting down or due to lack of urine production at night
- ▶ Constipation is a major cause of blockage with a full bowel causing pressure on the urethra

If the patient has diarrhoea, they may be dehydrated and producing little urine.

When a catheter blocks regularly the most common cause is the build up of mineral deposits or encrustations precipitated from the urine.

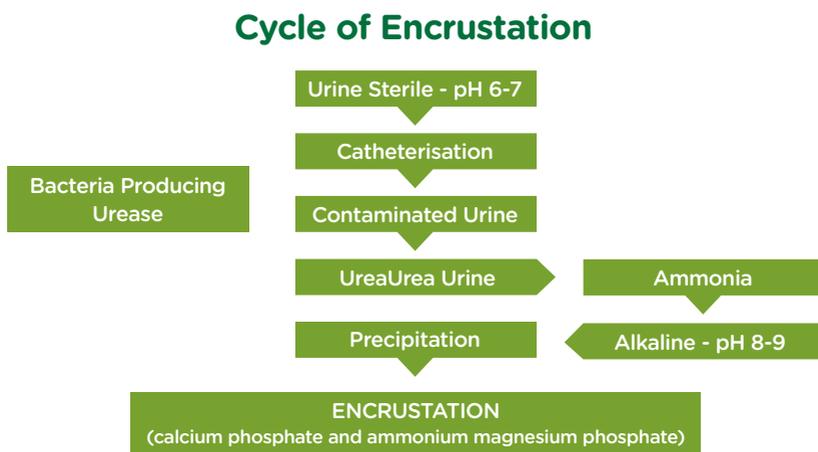
* Certain patients are more likely to suffer from bladder spasm e.g. Patients with MS, Spina Bifida, Stroke, Parkinson's, Diabetes.

Recurrent Blockage

Recurrent blockage is distressing for both the patient and carer as they have to cope with urine bypassing the catheter and soaking clothes and furniture or pain from urine retention. Unscheduled visits are also costly for the health service so catheter maintenance programmes are easier to manage than crisis visits to change a catheter.

Causes of Encrustation

The cycle of encrustation stems from infection of the urine by a urease-producing bacteria. When the urine and catheter are colonised by bacteria capable of producing the enzyme urease, urinary urea is split resulting in the release of ammonia, which causes a rise in the urinary pH.³ As the micro-organisms colonise the catheter surface they multiply and form a living layer or 'biofilm', which thickens as the multiplication continues.



Under these conditions crystals of calcium phosphate and magnesium ammonium phosphate form and become trapped in the catheter surface and can eventually block the catheter. The main cause of catheter encrustation is the formation of Struvite (magnesium ammonium phosphate) and calcium phosphate deposits. This process can happen very quickly (34 - 48 hours in vitro).²

Which Catheter Maintenance Solution?



OPTIFLO® G

(Suby G - 3.23% citric acid)

Citric acid solution; cleanses catheter length, counteracting alkaline deposits. With magnesium oxide to reduce tissue irritation.

Product	Description	Code
OPTIFLO® G	3.23% Citric Acid 50mL	CSG50
OPTIFLO® G	3.23% Citric Acid 100mL	CSG100



OPTIFLO® R

(Solution R - 6% citric acid)

Increased citric acid solution; dissolves blockages. May be used to smooth away large, gritty deposits prior to catheter removal.

Product	Description	Code
OPTIFLO® R	6.0% Citric Acid 50mL	CSR50
OPTIFLO® R	6.0% Citric Acid 100mL	CSR100



OPTIFLO® S

(0.9% saline)

Saline solution ideal for gently flushing away debris after surgery. (Not effective against encrustation.)

Product	Description	Code
OPTIFLO® S	0.9% Saline 50mL	CSS50
OPTIFLO® S	0.9% Saline 100mL	CSS100

Available on prescription.

Catheter Maintenance Solutions

An understanding of the causes of the blockage and awareness of appropriate management may reduce the frequency of blockage and reduce unnecessary interruptions to the closed urinary drainage system.



Saline 0.9% - is used for the removal of small blood clots and debris following surgery. It is not effective against encrustation. It is also useful for patients who produce thick and debrisous urine.

Citric Acid 3.23% - Suby G works by dissolving the crystals formed by urease producing bacteria. Suby G contains magnesium oxide, which has been incorporated to minimise bladder irritation due to the acidic nature of the solution. It is intended for routine catheter management.

Citric Acid 6% - Solution R is effective at dissolving severe encrustation due to its acidic nature. It can also be used prior to catheter removal if external encrustation on the catheter tip and balloon is present, potentially causing pain and tissue trauma when the catheter is withdrawn. Solution R also contains magnesium carbonate to minimise bladder irritation.

Following catheterisation bacteria gain access to the catheterised bladder either via the inner lumen of the catheter or the periurethral space outside the catheter. Maintaining a continuous sterile closed drainage system is vital to minimise bacterial migration through the catheter lumen.

The use of hydrophilic catheter coatings and more recently Silver Alloy coatings can also minimise bacterial migration and adherence as Silver ions inhibit bacterial adherence to the catheter surface, minimising the migration of pathogens into the bladder.

Recurrent blockage of urinary catheter is a common problem in around 40 – 50% of long term catheterised patients.³

Investigating Encrustation

Once the simple causes have been ruled out it is important to thoroughly examine the blocked catheter once it has been removed.

Examination of the catheter may reveal deposits within the catheter lumen, on the outer surfaces of the tip or on the balloon, where it is in contact with urine. These deposits on the outer surface of the catheter can cause pain and trauma when the catheter is removed.

If the catheter is rolled between the forefinger and thumb the catheter may feel gritty. If a horizontal cross section of the catheter is cut length ways up the catheter, encrustation can be seen.

Micro organisms colonise the catheter surface and multiply forming a layer or biofilm, which rapidly becomes thicker. Biofilms are highly resistant to treatment. As the encrusting material is precipitated from the urine, the biofilm continues to grow over the mineral deposits, cementing them firmly to the catheter surface.

Patients whose catheters may block frequently can be identified by recording the pattern of blocking. Careful record keeping of when catheter blockage occurs and observation of visible signs of encrustation usually allows such a classification to take place. Although some patient's catheters block more quickly than others, the majority of blockers can identify a characteristic pattern of catheter life. This facilitates proactive care so that catheter change can be planned to take place before the blockage occurs. Monitoring the "lives" of three catheters will establish a good pattern, but sometimes patients require earlier intervention. This should be documented in the patient's catheter diary.

Managing Encrustation

Care Strategies

Once the cause and severity of blockage due to encrustation has been established then a treatment regime can be planned. The catheter record card will give an indication of when the catheter is likely to block allowing the carer to either plan a catheter change prior to the next blockage or introduce a catheter maintenance regime using catheter maintenance solutions.

Patients can be classed broadly as “blockers” or “non-blockers”. Blockers are identified as patients who consistently and repeatedly develop extensive encrustation within a few days to a few weeks, resulting in a shorter catheter life because of diminished flow and leakage.

Fluid Intake

All catheterised patients need to maintain adequate hydration, some nurses attempt to manipulate their patient’s urine acidity, to keep their catheter working, and will encourage patients to drink the appropriate level of water a day*, or to drink cranberry juice⁴ or vitamin C. There is little evidence that this will prevent catheter encrustation, as any attempt to eliminate urease-producing bacteria is unlikely to be successful given the constant supply of urea in the urine.³

* According to the patients weight and requirements

Catheter Maintenance Solutions

The need for frequent catheter changes to avoid blockage can be unacceptable to some patients and can be costly in terms of health service resources.

The regular use of an acidic catheter maintenance solution e.g. OPTIFLO[®], can reduce the build up of encrustation by dissolving mineral deposits thereby extending the life of the catheter. Catheter maintenance solutions are not bladder washouts; they clean out the catheter, not the bladder. Catheter maintenance solutions are prescription only medicines (POM) and should be prescribed for each individual patient.

Studies have shown that the use of 50mL Suby G is as effective as 100mL at reducing encrustations. In a concurrent experiment it was shown that two sequential uses of 50mL Suby G were more effective than a single instillation with either 50 or 100mL Suby G.³

The instillation of any solution into a urinary catheter carries a risk of infection; careful attention to the principles of catheter care and use of sterile pre-packed solutions is essential to minimise the risk of introducing infection.

OPTIFLO[®] solutions are pre-packed in a “bellows” design device, which allows gentle, controlled agitation of the solution and actively resists excessive force to minimise undue pressure in the bladder.

It is sensible to start with a regime once or twice a week and to adapt this on the basis of its effectiveness for the patient. It may be more effective to administer two sequential solutions once a week than one solution twice a week.³ This has the added benefit of reducing the number of times the closed system is open.

References

1. Naish W, Hallam M (2007) Urinary tract infection: diagnosis and management for nurses. *Nursing Standard*. 21, 23, 50-57. Date of acceptance: October 4 2006
2. Williams C, Tonkin S, Blocked urinary catheters: solutions are not the only solutions. *British Journal of Community Nursing* 2003; Vol 8 no. 7; 321-326
3. Getliffe KA 2002 Managing Recurrent Urinary Catheter Encrustation. *BJCN* Vol. No 11 574-580
4. Lavender R. Cranberry Juice the Facts, *NT Plus* October 2000, Vol 96, No.40 pp 11-12
5. NICE Clinical Guidelines 139 Infection March 2012



FREEPHONE Health Care Professionals
0800 470 1930

Fax: 01903 875 085

Email: ukcustomer care@crbard.com

Web: www.scrip teasy.co.uk

NURSE ADVICE LINE FREEPHONE 0808 168 4048

OptiFlo®
IRRIGATION SOLUTION

DISTRIBUTED BY

BARBARD

MANUFACTURED BY

IS Pharmaceuticals Ltd, Chester, CH4 9QZ, UK

Bard Limited, Forest House, Tilgate Forest Business Park, Brighton Road, Crawley, West Sussex, RH11 9BP
Tel: +44 (0)1293 527888 Fax: +44 (0)1293 552428 Customer services: customer.services@crbard.com

This guideline is not intended for distribution in US and Japan

Please consult product labels and inserts for any indications, contraindications, hazards, warnings, cautions and instructions for use. Bard, OptiFlo and Script-easy are trademarks and/or registered trademarks of C. R. Bard, Inc. or an affiliate.

© 2016 C. R. Bard Inc. All Rights Reserved. 0516/4867 16-036

BARBARD | **CARE**
Care. Comfort. Choice.

www.bardcare.uk