



*Knowledge is the key to a better life!*



# Spina Bifida CIC booklet

A practical guide for nurses and health workers  
to do clean intermittent catheterization (CIC)

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# Importance of CIC in children with Spina Bifida

Clean Intermittent Catheterization (CIC):

1. helps to avoid urinary tract infections
2. helps to avoid dangerously high bladder pressure and kidney damage (keeps bladder and kidneys in a healthy condition)
3. is necessary to become (social) continent

## **IMPORTANT**

- **Tell the parents that CIC does not harm the genitals or affect fertility**
- **but that CIC helps to avoid bladder and kidney damage!**
- **If there is also constipation, CIC will need to be combined with bowel training from the age of 2.**

(see bowel booklet)

# When to start CIC

1. In the case of bladder retention : seen by inspection of the abdomen and a bladder palpable up to the umbilical level
2. In the case of more than one proven urinary tract infection
3. A desire to become continent

# What to do before starting CIC

1. Assess how the child is peeing:

- a. is there urine retention (by feeling)
- b. is the child dribbling when handled
- c. does the child pee with a high pressure

2. Do a urine analysis using a dip stick (Combur-2 sticks)

Analyze twice weekly when the child is an in-patient and at every visit in the outpatient clinic

3. Plan a renal/ bladder ultrasound if possible to screen for high bladder pressure

4. In the case of a proven urinary tract infection start nitrofurantoin or co-trimoxazole for 5 days and control the urine after treatment (see page 8)

5. If the child is a boy, assess the need for circumcision

6. If a second infection is proven, start CIC

# What to do when starting CIC

1. Give a clear explanation of the importance of CIC to parents and children
2. Use the largest size of catheter that can enter the urethra without force
3. Do a good CIC and empty the bladder completely (see technique of CIC)
4. Instruct the parents how to do the CIC themselves and show them how to assess the urine:
  - clear = OK**
  - no smell = OK**
  - cloudy = infection**
  - bad smell = infection**
5. Note the volume removed at every CIC on a special volume chart (see volume chart)
6. Start with CIC 3 times (3 times is enough to reduce infection) but increase frequency to **5 times a day** as soon as possible

**If necessary and if CIC technique is well known by the parents, start Oxybutynin**

(see manual of Oxybutynin)

# How to do a good CIC

**CIC is only well done when the bladder is totally empty after CIC.** Even a few drops of urine left in the bladder can cause a bladder infection.

1. Wash your hands or use gloves (parents only have to wash their hands)
2. Wash the genitals (open the labia) of the child once a day or when there is stool in the diapers
3. Use the largest catheter that can enter the urethra without force
4. Use gel for boys (put a little bit on the back of your hand and put the top of the catheter in it), girls do not require it
5. Put the catheter into the urethra until you obtain urine
6. Advance the catheter 2cm deeper to make sure both holes are into the bladder
7. Let the urine flow
8. When the urine stops to flow, apply pressure above the pubis
9. Withdraw by turning the catheter slowly and stop when there is no more urine coming out
10. Put the catheter again a little bit deeper and withdraw again until the bladder is empty
11. Remove the catheter and wash your hands

## To check after CIC

1. Measure the urine volume obtained and note it on a chart
2. Parents have to note the volumes a few days before coming to the next consultation
3. When you always measure small amounts of urine **DO NOT stop CIC but start to use Oxybutynin** (the bladder muscle is too active)
4. When the urine smells and is cloudy, the urine is infected. Encourage the child to drink more often and ensure correct CIC technique.
5. Start, if necessary nitrofurantoin/ trimetoprim or co-trimoxazole for 5 days. It's not necessary to treat all infections with antibiotics, do a good CIC technique ensuring to completely empty the bladder

### Doses

#### **Newborns / 6 weeks to 5 months:**

Nitrofurantoin ( not before 3 months) 1mg/kg x 3times a day  
Trimethoprim 20mg BD or Co-trimoxazole 120mg BD

#### **6 months until 5 years:**

Nitrofurantoin 1mg/kg x 3times a day  
Trimethoprim 40mg BD or Co-trimoxazole 240mg BD

#### **6 years until 12 years:**

Nitrofurantoin 1mg/kg x 3times a day  
Trimethoprim 80mg BD or Co-trimoxazole 240mg BD

#### REMARKS :

Co-trimoxazole = trimethoprim 1/5 + sulfamethoxazole 5/5  
Look for the local used names of these medications



## **Why to start Oxybutynin**

Oxybutynin prevents bladder overactivity

## **When to start Oxybutynin**

1. When the urine volumes are always very small
2. If there are still urinary tract infections after starting CIC
3. To improve social continence

## **When to stop Oxybutynin**

**There is no reason to stop Oxybutynin, the child will require to take it his/her whole life.**

# What to check before starting Oxybutynin

1. Be sure that parents and/or the child are able to do a good CIC
2. Assess the size of catheter; the largest size which enters the urethra easily, without force is the best.
3. Check the urine for infection (cloudy and bad smell) by using urine control sticks (urine-10 sticks)
4. Start to use  
**0.2 mg Oxybutynin/kg bodyweight BD**  
(see page 11)
5. Measure the volumes and assess whether they are increasing
6. The child should be dry for longer periods in between CIC and/or bigger volumes should be obtained.

## IMPORTANT

**The solution of Oxybutynin has to be stored in the dark!**

**Put it in a towel and keep it in a closet!**

## **Dose of intravesical Oxybutynin 500mg in 500ml NaCl 0.9%**

**0.2 mg/kg bodyweight BD (+ extra volume staying in the catheter as in following guideline)**

Body weight	Dose morning	Dose evening
Up to 5 kg	1.5 ml	1.5 ml
5-6 kg	2.0 ml	2,0 ml
7-8 kg	2.5 ml	2.5 ml
9-10 kg	3.0 ml	3.0 ml
11-14 kg	3.5 ml	3.5 ml
15-18 kg	4.0 ml	4.0 ml
19-21 kg	4.5 ml	4.5 ml
22-25 kg	5.0 ml	5.0 ml
26-30 kg	6.0 ml	6.0 ml
>30 kg	7.5 ml	7.5 ml
>40 kg	10 ml	10 ml

**extra volume staying in the catheter**

**short CH 08 = 0.8ml short CH 10 = 1.2ml**

**short CH 12 = 1.5ml short CH 14 = 1.8ml**

**long CH 10 = 2ml long CH 12 = 2.5ml**

**long CH 14 = 3ml**

**You can use the solution for 2 months.**

**DON'T give a whole bottle to children under 7kg!!**

**Put 250ml in a separate brown bottle!**

**Protect it from the light.**

# What to do in case of urinary tract infection

- Infected urine is cloudy and has a bad smell. Teach the parent that they have to assess this at home
- When in doubt, you can assess leucocytes level using a dip stick (Combur-2 sticks)
- Ensure a good catheterization technique during the first 24 hours and encourage the child to drink extra
- **Do not stop the Oxybutynin**
- Try to empty the bladder by holding the child in a upright or standing position (if possible) for 1 or 2 times a day
- After 24 hours you have to assess the urine again using a leucocytes stick (Combur-2 sticks)
- If the stick is negative, the infection has cleared. If it is still positive you can start nitrofurantoin or trimethoprim/ co-trimoxazole for 5 days (see page 8)

## What to do on follow-up visits

1. Check the urine for infection
2. Does the child have bigger volumes of urine than before the start of Oxybutynin?  
(look at the volume chart)
3. Ask the mother if the child is able to remain dry for longer periods

The urine volume chart is a very important instrument to follow the success of the treatment.

Explain the parents how they can measure and note these volumes.

They have to learn it in the hospital.

They have to note it on the chart during 3 days in the week before they come to outpatient clinic.

## Example of a urine volume chart

Year : 2008	Name : Anna Gabona Age : 8 years CIC : 5 times a day			
<b>date</b>	<b>local time</b>	<b>volume</b>	<b>dry or wet</b>	<b>urine cloudy/smelling</b>
Monday	12:30 asubuhi	250 ml	wet	no
	4:00 asubuhi	185 ml	dry	Cloudy + bad smell
	7:30 mchana	150 ml	dry	no
	11:00 jioni	305 ml	wet	no
	2:30 usiku	280 ml	wet	no
Tuesday	12:30 asubuhi	220 ml	wet	Cloudy + bad smell
	4:00 asubuhi	210 ml	dry	Cloudy + bad smell
	7:30 mchana	150 ml	dry	no

# What can be wrong when you have problems after the start of CIC

## I. The child is still wet

- Assess if there is a urinary tract infection, increase fluid intake and do a good CIC. If the infection does not clear, start nitrofurantoin or co-trimoxazole (see page 8)
- Assess whether the frequency of CIC is adequate
- Assess whether the child would benefit from Oxybutynin (if not already on it)
- If the child is constipated, start bowel washout
- If all above do not improve continence, further assessment and review by a specialist is necessary as surgery may be required.

## **2. Still a lot of urinary tract infections after starting CIC**

- Check if the child uses the correct size of catheter, assess if a bigger size of catheter is possible (do not force)
- Assess if the parents perform CIC technique correctly (see page 7)
- Assess the frequency of CIC (5 times a day)
- Check if the child is already on Oxybutynin and if the parents give it on a regular base. Start it if necessary.
- Assess if you have to raise the dose of Oxybutynin (see page 11)
- Assess if the child uses bowel training and start it if necessary
- If the infection does not clear ask the doctor for a renal and bladder echo or RX cystography, if possible, to assess for vesico-urethral reflux



### **3. A few drops of blood into the catheter after CIC**

- A few drops of blood after CIC does not give problems if it disappears after 2 or 3 catheterizations
- Look if the catheter is damaged and so you have to change the catheter
- If there is a lot of blood, there can be a wound inside. Ask a doctor if you have doubts

### **4. Problems with inserting the catheter**

- Check if you use the good size of catheter, you have to use the biggest one who can enter the urethra but you cannot force it!!!!
- Use lubrication gel for boys (girls do not need it)
- Look if the catheter is damaged and change it if necessary
- If you still have problems in boys, ask the doctor to assess if there is trauma

## **5. Feeling pain when using Oxybutynin solution**

- The child can have a painful sensation if the catheter tip is not inserted deep enough
- Insert the catheter deeper in the bladder before the instillation and do not instill the solution too fast