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Definitions of enuresis

- Definitions vary
  - ICD 10 & DSM-V: incontinence – child age >5years,

Definitions – types of enuresis

- Frequent enuresis: at least four times a week
- Monosymptomn9orin

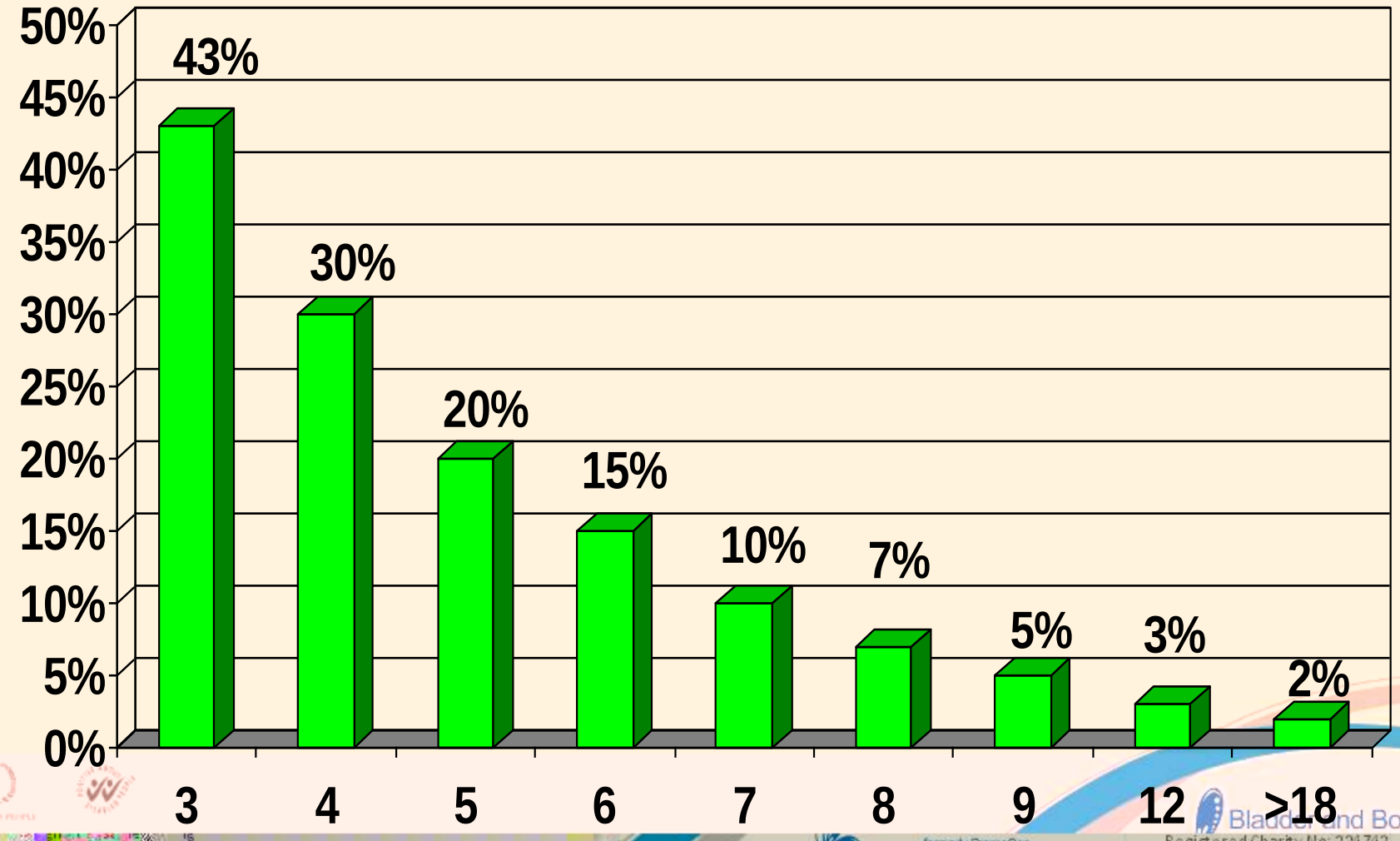
Definitions - more types of enuresis

- Primary enuresis : child has never been dry at night for 6 months or more
- Secondary enuresis: child has had period of being dry at night for more than 6 months -

There are more likely to be behavioural co-morbidities that require investigation

(Austin et al 2014)

Incidence of Bedwetting



Risk factors

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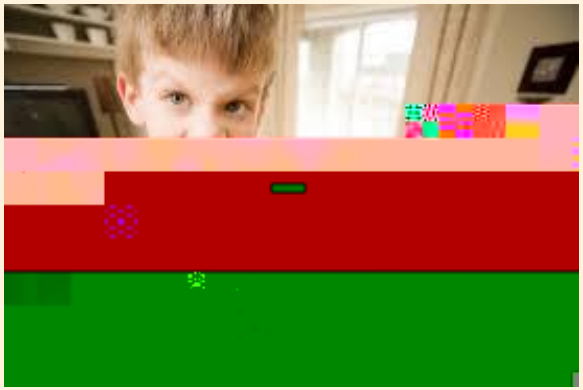
Children with ADHD and similar issues are more difficult to treat, show lower compliance and have less favourable treatment outcomes



Treatment

- Papyrus scrolls – hare testicles and red wine
- Africa – tying a frog to the child's waist
- 1897 Holt's textbook of paediatrics: Circumcision, make urine sour, avoid tea and coffee, no beer. Do not punish the child, it does more harm
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Why treat?

- Children recognise the problem (Butler & Heron 2008)
- Social impact (Butler et al 1990)
- Reduced self-esteem (Norfold & Wootton 2011)
- Psychological and emotional problems (Joinson et al 2016)
- Poor school performance (Sarici et al 2015)
- Financial cost (Fleming 2012)
- Negative impact on quality of life (Kilicoglu et al 2014)
- Link with sleep problems and psychological dysfunction (van Herzeele et al 2016)

When treat?

- If there is parental intolerance – immediately
- Impact and severity of symptoms
- Family situation
- When the child and family present
  - Presenting at a younger age
  - ? more children presenting in the winter months

(Kushnir et al 2013)

NICE NE Guidelines (2010)
Principles of care

- Inform children and young people with bedwetting and their parents or carers that it is not the child or young person's fault and that punitive measures should not be used in the management of bedwetting

- Offer tailored support, assessment and treatment to all children and young people with bedwetting and their parents or carers

- Do not exclude younger children (for example, those under 7 years) from the management of bedwetting on the basis of age alone

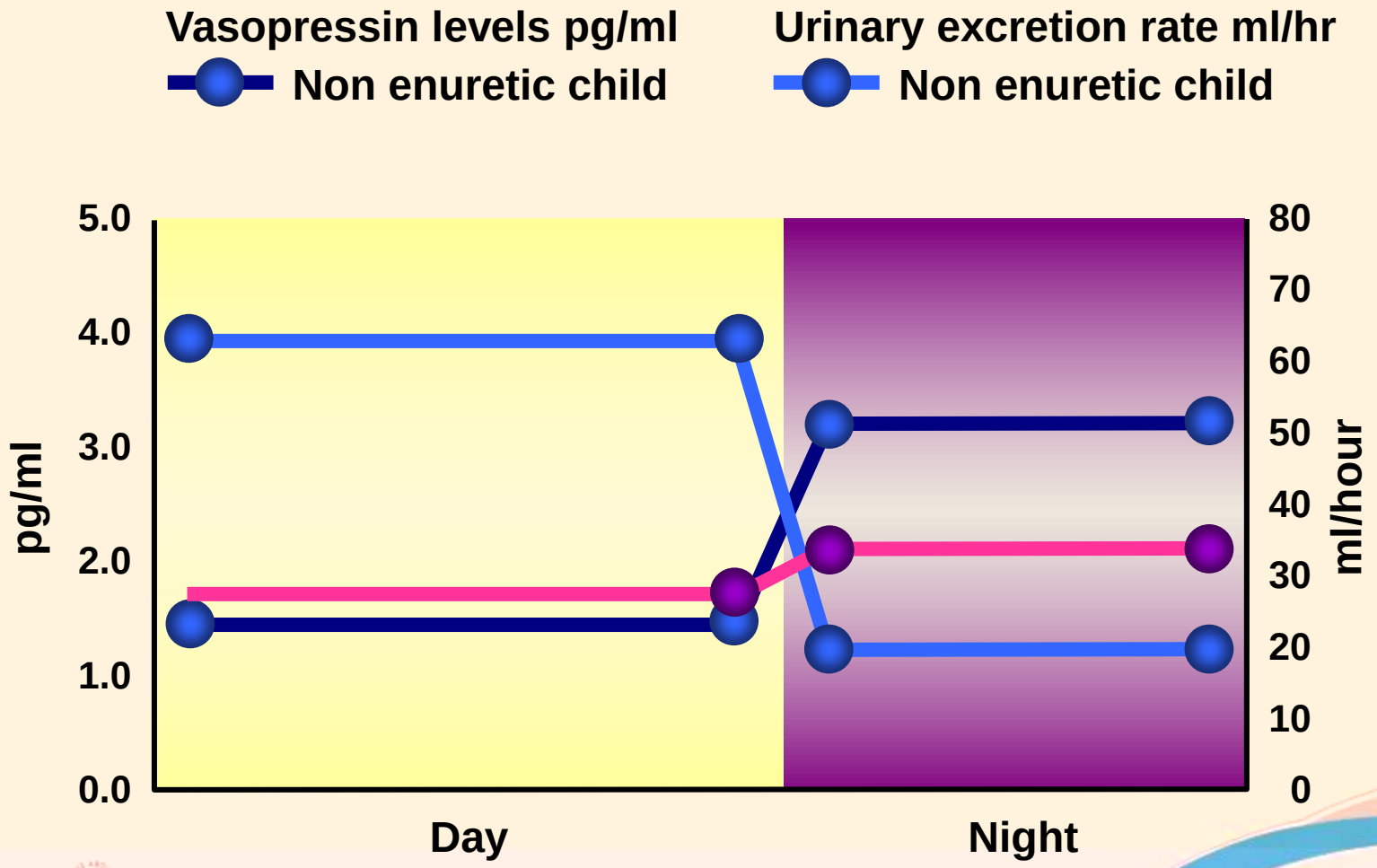
Explanations

Three systems approach

- Systematic approach to understanding causes
- Model for providing explanations to families
- A means to facilitate assessment
- Aids appropriate treatment selection and compliance
- Emphasizes wetting outside the child's control

(Butler & Holland 2000)

Diurnal variation in plasma vasopressin and urine production



Rittig S et al. *1997*

Overactive bladder

- Detrusor overactivity
  - Frequent daytime voiding (> 7 times /day)

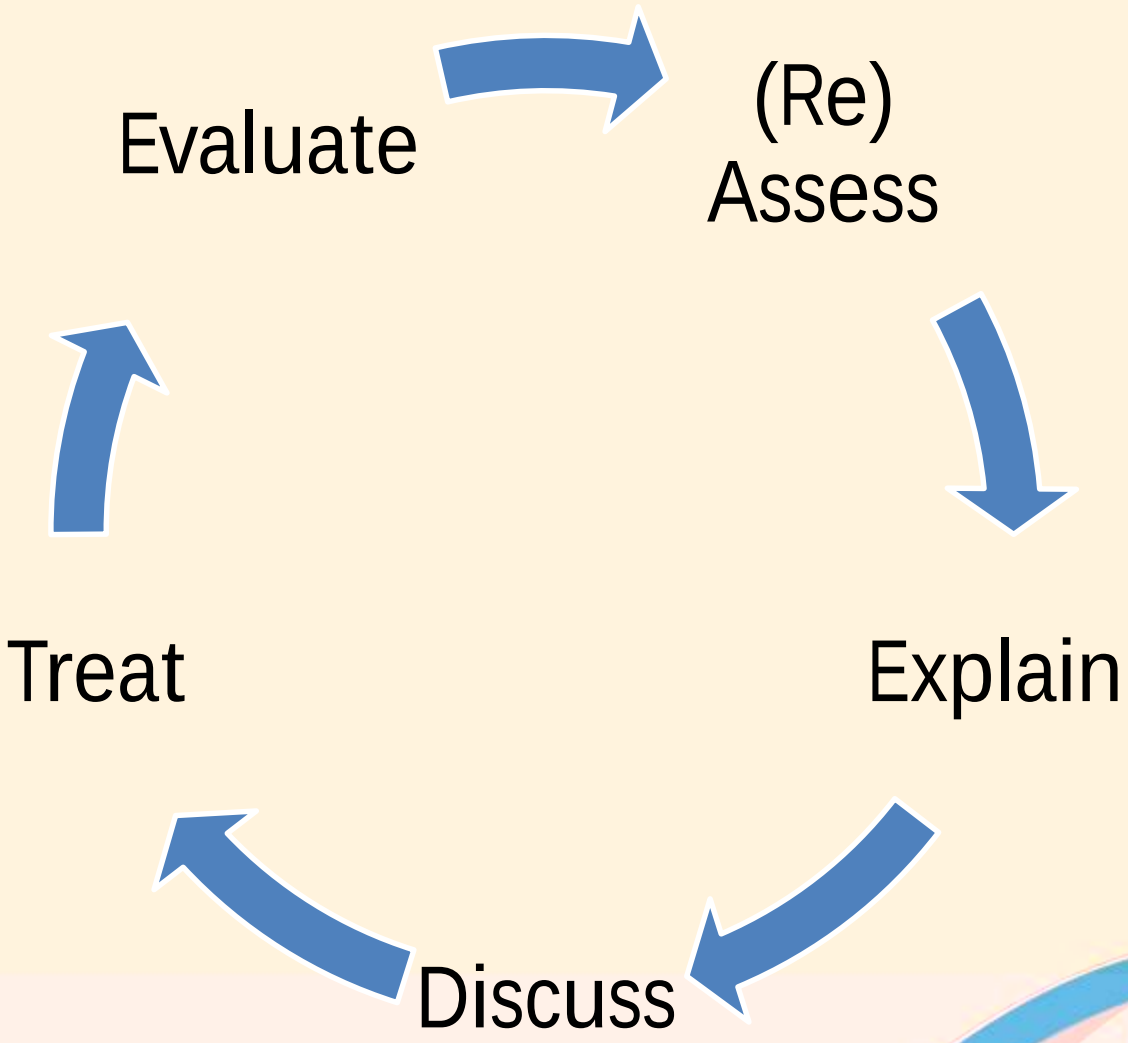
Overactive bladder

- There may be normal daytime bladder function and reduced night time bladder capacity (Yeung et al 2002)
- Some complete and some incomplete bladder emptying during enuretic episodes (Hagstroem et al 2004)
- The incidence of LUT dysfunction is higher than previously thought (Dossche et al 2016)

Lack of arousal from sleep

- There is increased cortical arousal and higher incidence of PLMS in enuretic children (Dhondt et al 2014)
- Coritical arousal – problem is not deep sleep
- Enuresis: shorter periods of continuous sleep
- Sleep deprivation – difficulty in arousing
- Role of the CNS not clear
- Treatment can improve sleep (Dossche et al 2016)

How to treat



Assessing wellbeing - safeguarding

- Wetting may be caused or exacerbated by emotional problems
- Punitive reactions by v(r)11(ding)]TJETQ EMC /P

Parental intolerance

- Must be assessed
- What is the cause of the wetting
  - Child lazy / not trying / defiant
- What is the effect of the wetting
  - Effect on the parent v effect on the child
- How do you cope with the wetting?
  - Punitive measures, humiliation, threats, abuse

(Butler 2006)

Addressing intolerance

- Maintain contact and provide:
  - Education and explanations
  - Empathy and support
- Need to foster understanding that the wetting:
  - is not in the child's control – it is not their fault
- Parents need help
  - Parents need to be helped to empathise with their child and to learn how to encourage their child with their efforts to remain dry (Butler & McKenna 2002)

Treatment principles

- Link treatment recommendations to assessment
- Tailor to individual needs and preferences
- Recognise expertise of child and family

Assessment

- History
- Frequency volume chart
- Assess for constipation
- Assess for parental intolerance
- Assess impact on child/family
- Exclude UTI if daytime symptoms

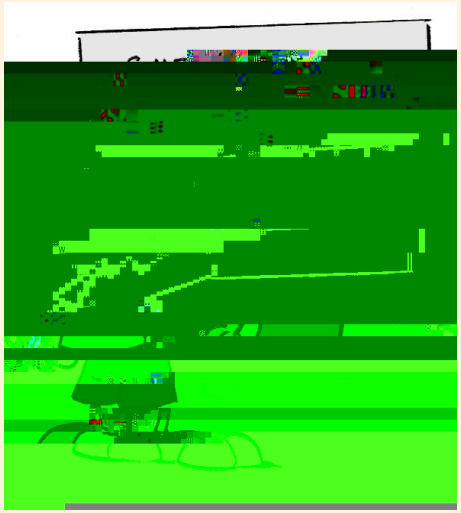
Frequency volume chart

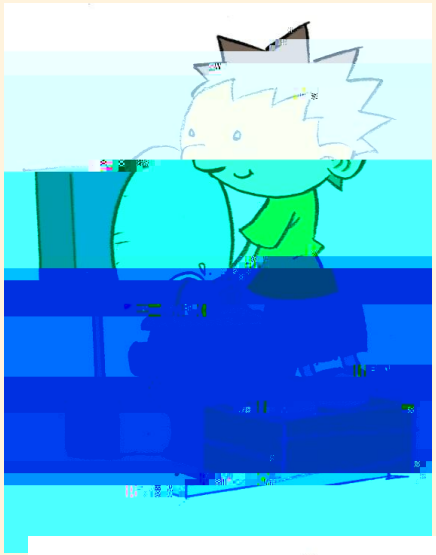
- Gives detailed information about:
  -

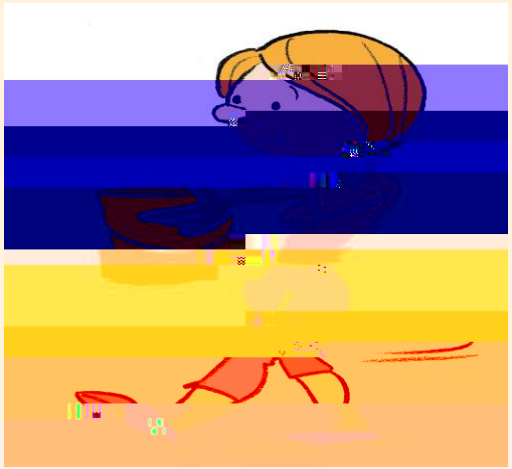
Constipation

- Rate of associated constipation is often underestimated in children with bladder problems such as nocturnal enuresis and daytime bladder problems
- Children and adolescents with LUTS symptoms have a higher rate of bowel disorders, including constipation and soiling, and vice versa (Halachmi & Farhat, 2008)
- Parents are often unaware (McGrath et al 2008)

Treatment: Simple measures should always be introduced first







Initial advice

- Adequate daytime fluid intake
- Avoid caffeine, fizzy drinks
- Avoid excessive fluids in the evening
- Empty bladder before sleep
- Avoid high protein diet in the evening
- Avoid high salt diet in the evening
- No food or drink in hour before bed

(Van de Walle et al 2012)

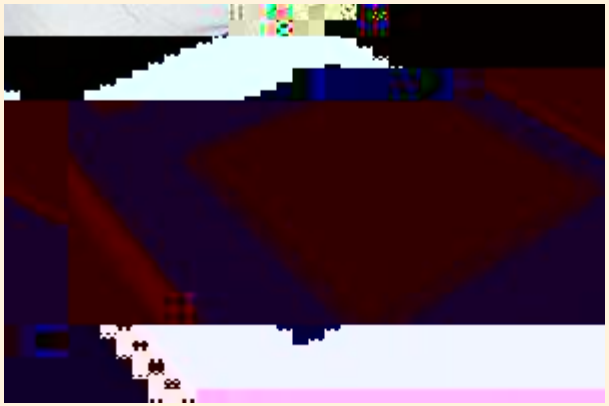
Fluid intake

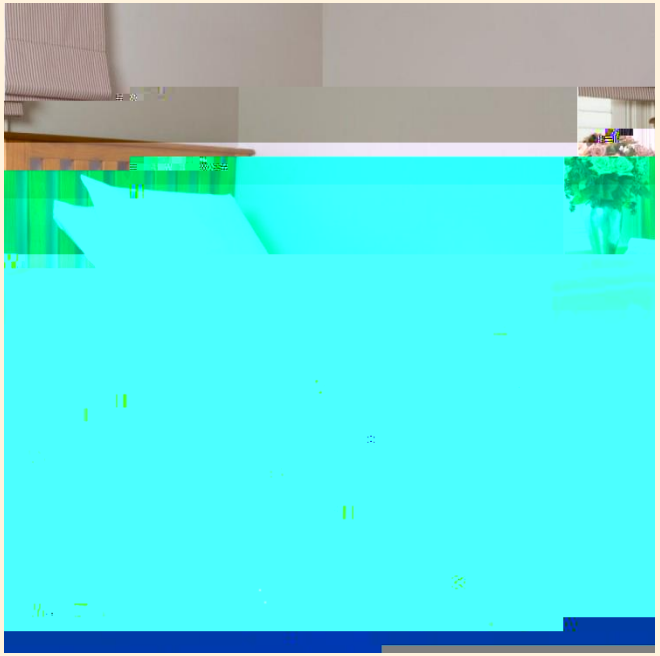
• 4-8 years		1000 – 1400mls
• 9-13 years	Female	1200 – 2100mls
	Male	1400 – 2300mls
• 14 – 18 years	Female	1400 – 2500mls
	Male	2100 – 3200mls

(NICE 2010)

- Drinks evenly spaced through the day
- Half of fluid intake during school day

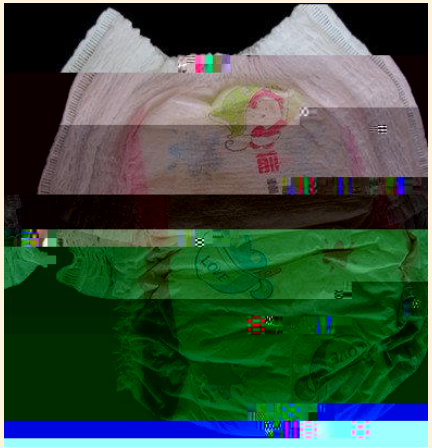
Bedding protection





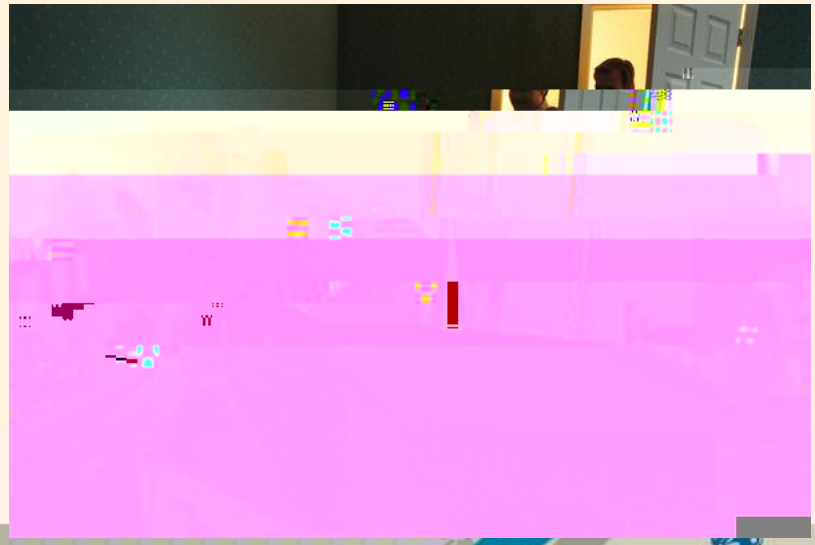
A word about nappies

- Can help in management
- Can be used by the child when awake
- Trial without for three or four nights



Bedtime routines

- Consistency
- Appropriate times
- Avoid light in the room
- Avoid computer games, electronic devices, TVs



If no or limited success

- What are the options?

Which one to use?

- Desmopressin:
  - Nocturnal polyuria
  - Parental intolerance
- Alarm
  - small mean voided volumes
  - Arousal problems
- Combination of both if polyuria and small voided volumes
- Many children will respond to either, some to neither

(Vande Walle et al 2017)

Desmopressin

- Desmopressin – synthetic analogue of arginine vasopressin – reduces diuresis
- 200mcg tabs or 120/240mcg melts
- Nasal spray not licensed for enuresis
- Overdose or fluid consumption prior to taking can cause hyponatremia
- Few side-effects (abdominal pain, nausea, headache, emotional disturbance)

Treatment - desmopressin

- Take up to one hour before last bedtime void
- No dp207w7>]T9-

Treatment - desmopressin

- Well tolerated and easy to take
- Quick results
- Ensure family understand instructions
- 60% success rate in MNE
- No response in 20 – 60% of children (Dossche et al 2016)
- Only 70% of children are treatment compliant (Van Herzeele et al 2009)

Tablet or melt?

- Melt is preferred formulation for children who:
  - Are under the age of 12 years (Lottmann et al 2009)
  - Have difficulties with tablets and require up to 200

Desmopressin withdrawe341 t

Poor response to Desmopressin?

- Check bladder capacity
- Consider if polyuria due to osmotic diuresis - trial exclusion high salt/protein foods
- Consider if night time OAB

  - refer

Treatment - alarm

- Sensor detects wetting – alarm makes noise
- Bed mat or body worn alarms
- Child wakes, stops voiding, toilets
- Child has to learn to wake
- Should be worn every night (Van de Walle et al 2012)
- Continue until dry for 14 consecutive nights then overlearning until dry for further 14 nights (Brown et al 2010)

Using the alarm

- Provide written and verbal instructions
- Establish routine
  - Set up and test alarm
  - Final toilet visit
- Child takes responsibility where possible
  - Turns off alarm and goes straight to the toilet
  - Help remake the bed
  - Complete progress chart

Using the alarm

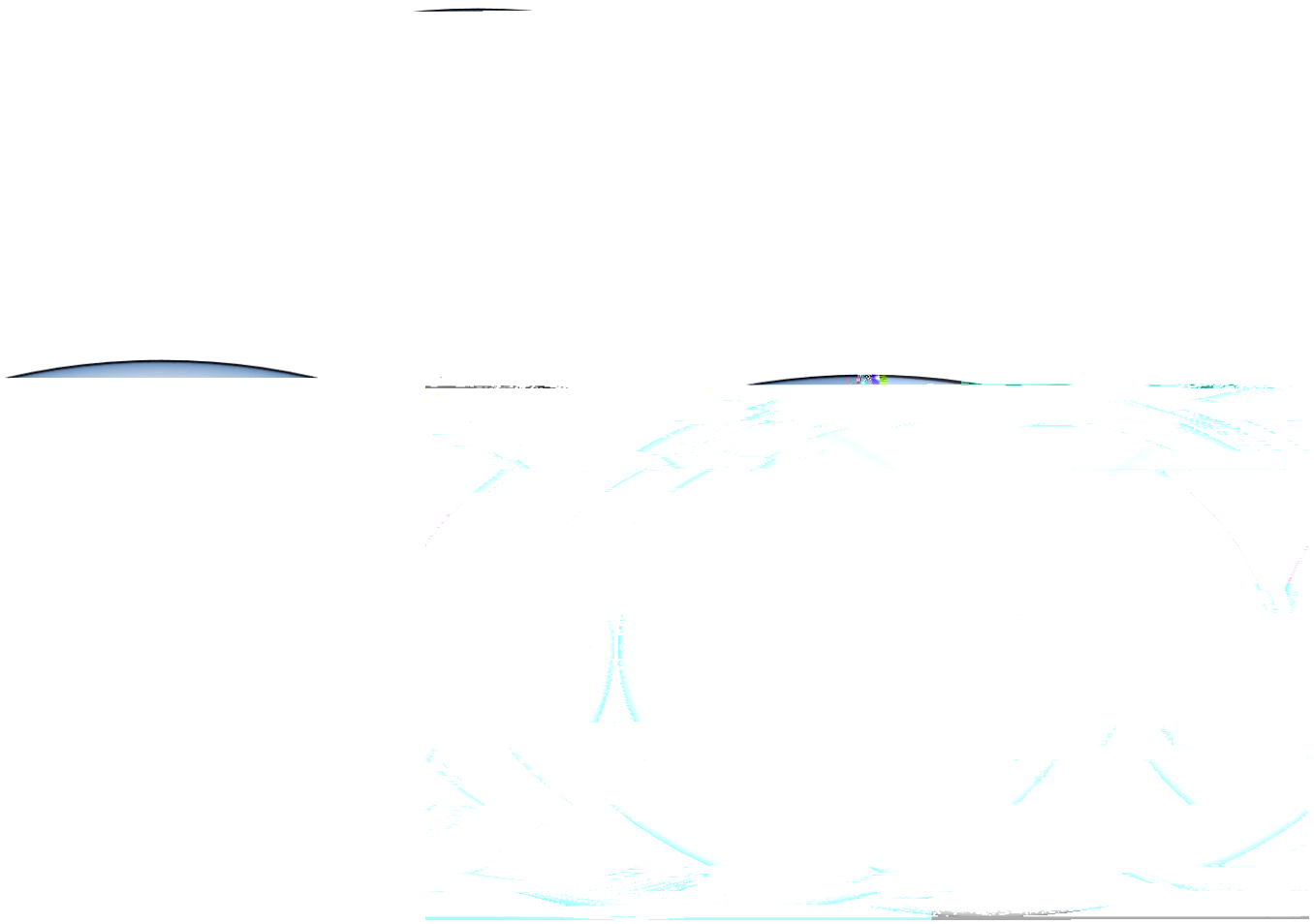
- Parental support
  - Parents need to encourage and praise efforts
  - May need to assist with setting alarm, waking child, making bed, monitoring progress
- Signs of progress:
  - Child waking to alarm consistently
  - Smaller wet patches / larger voids in toilet
  - Later alarm triggering
  - Dry nights

Improving response to alarm

When to refer on?

- Treatment resistance
- Daytime wetting
- Constipation that is not resolving
- Poor compliance
- Child may require

Three systems model - treatment



Evaluation

- Non response: less than 50% reduction
- Partial response: 50 -89% reduction
- Response: greater than 89% reduction
- Full response: 100% or max 1 wet bed/month
- Relapse more than two wet in per two weeks
- Continued success: no relapse in 6 months with no treatment
- Complete success: no relapse in two years

Predictive factors for success

- Motivated child
- Tolerant parents
- Supportive families
- No comorbidities
- No daytime symptoms
- Not wet more than once a night

Predictive factors for drop out

- Parental intolerance

- Behaviour problems
- Poor self-esteem

Food for thought...

- Many children have some treatment resistance
- Specialist input required
- What about children with additional needs?
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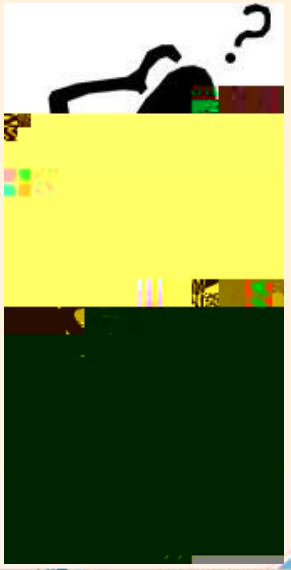

- Enuresis is a symptom
- Enuresis is increasingly recognised as a heterogeneous condition
- Enuresis has a significant impact on the child and family
- Holistic assessment is essential
- Treatment takes time and perseverance and must be based on assessment

Resources

- NICE guidance CG111 (2010): https://www.nice.org.uk/guidance/cg111?unlid=7377427920162916134 2
- NICE quality standard QS70 (2014):
- https://www.nice.org.uk/guidance/qs70?unlid=8575342042016101971 0
- Bladder and Bowel UK publications on bedwetting: http://www.disabledliving.co.uk/Promocon/Publications/Children/Bladder

  Helpline: 0161 607 8219

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