Bedwetting

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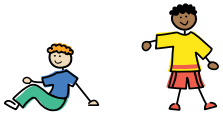

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Introduction

- Bedwetting or ***Primary Nocturnal Enuresis*** **(PNE)** is common.
- PNE occurs in 7% of children between the ages of 6 and 12 years
- Although rare, specific medical or surgical conditions can be found in children whose concern is bedwetting
- 98% of the time no specific cause is identified, and treatment choices are similar
- By the age of 16, all but 1-2% of bedwetting resolves
- Hiding and hoping, has the potential to make too many kids and families miserable, for too many years
- So…

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Goal of this Presentation

- This presentation is designed to honestly present what I believe, as a Pediatric Urologist in 2014, to be true about bedwetting. I hope that it will provide helpful information that will allow kids and families to choose an approach to this problem that:
  - Is based on current knowledge
  - Allows them to seek support, guidance or care from the medical community only as it "fits" their needs, concerns, or preference
  - Fosters caring, optimism and humor
  - Builds a dryer community through the sharing of "lessons learned"
  - Makes kids the "captain" of a successful team

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Inconvenient Truths?

- Kids who wet the bed are deep sleepers?
  - Some are and some are not. In sleep studies through questionnaires and actual observation children with PNE are more likely to have many forms of sleep disturbance, but cause and effect (which caused which) is still a matter of some debate.
  - That said, some problems (SBD-sleep breathing disorders) if addressed can yield remarkable results in resolving PNE.
  - Not every child will benefit from sleep studies, but it is nice to know that some will, particularly if other findings on history or physical exam are suggestive of a sleep disturbance.
  - Bed-wetting alarms, not infrequently, wake-up an entire family not the kid who is wetting. This may explain why 50% of families give up on alarms even though they "cure" the most kids of PNE-statistically.

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Inconvenient Truths?

- PNE is inherited, so treatment is not helpful?
  - Bedwetting does tend to run in families with some reports showing 90% of kids with a family history
  - Certain causes of bedwetting may be linked to genes on certain chromosomes (12q and 22 for example)
  - It is remarkable, but when family history reports an age of resolution this often is the age that the child resolves without intervention or if active treatment is not successful
  - The response to treatment is the same in kids with a family history as it is without
  - There is no genetic test for common causes of PNE at this point in time

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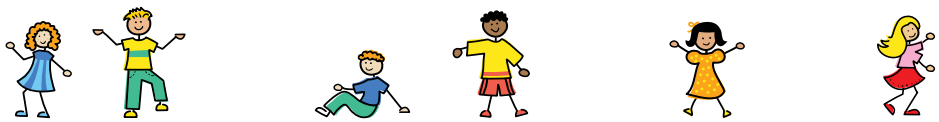
Inconvenient Truths?

- Bedwetting is a "delay in maturation" and therefore growing out of it is the only treatment needed?
  - 98% of kids will resolve bedwetting by 16
  - If a child is distressed or embarrassed some management or discussion is needed
  - "Delayed maturation" does not mean that we understand the causation of PNE, it means that we observe it to go away as kids get older (maturation)
  - Some authors have linked PNE to ADHD neurologically. ADHD can also resolve with increasing age. Unfortunately there is limited success treating PNE with medications that treat ADHD such as SSRIs, SNRIs, or NRIs (the latter may be promising, but further study is needed)
  - The PNE association with ADHD has not yielded a "magic' treatment and many pediatric urologists feel this is a distraction from the real cause of PNE which is bladder behavior in relation to filling
  - Medications, alarms, and behavioral treatments all focus on modifying bladder storage (filling) and emptying at some level. Figuring the sequence and/or duration of treatment, as well assuring compliance requires an adult. Working the plan, that requires the kid.



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Supply and Storage

KIDNEY

- Kidneys produce urine primarily in response to hydration- more fluid on board, more urine at night
- At night, blood pressure decreases. The heart and kidneys produce hormones to decrease urine output and maintain normal blood pressure and blood volume
- Obesity, medicines, diet, and certain unusual conditions can alter the normal nighttime regulation of urine production in various ways

BLADDER

- Normal Bladder Volume (NBV) is 30 x (age +1) in milliliters
- Urine production during sleep is less than 130% NBV and only 6.5% of non-bedwetting kids awaken at night to empty an "overfull" bladder, others pee in the morning
- Most kids, who wet, empty their bladders at night most commonly when NBV is achieved not because of a small or overfull bladder

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Working on Supply Side

- Excess fluids in the evening causes increased urine production overnight
- Vasopressin is secreted by the pituitary at night and decreases urine output overnight.
- Desmopressin (dDAVP, a medication, can act to further decrease urine output to create dry nights, even if normal Vasopressin secretion occurs.
- Obesity can alter the efficacy of Desmopressin and even alter Vasopressin activity in some children.
- Caffeinated and high sugar beverages an increase urine production
- 1-2 hours after lying down for bed, most kids can empty a nearly full bladder if normally hydrated
- Conditions exist where the kidney is resistant to the effects of Vasopressin or where Vasopressin is not produced. These are rare.

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Working on Storage

- Bladders that work normally during the day work better at night
- Most often, hydration determines how often you pee
- Frequent small voids can be small bladder, or incomplete emptying
- Anticholinergic and Antimuscarinic medications (Oxybutinin, Tolteradine, etc.) help bladders fill to capacity before needing to empty
- Constipation can impact bladder storage and emptying and often goes unnoticed
- Cognitive behavioral therapy and self-awareness/relaxation can be highly successful in management of bedwetting with or without other treatment.
- Alternative treatments (acupuncture, biofeedback) report success beyond "placebo"

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Working on your own

- ***I*dentify with the goal, not with the problem!**
- ***W*ork out the plan**
- ***E*ducate yourself**
- ***T*eambuild**
- ***T*rack progress**
- ***H*umor is essential**
- ***E*xpect bumps**
- ***B*uild on success**
- ***E*liminate doubt**
- ***D*o or not do, there is no try.** ***Yoda, 1980 The Empire Strikes Back***

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Working with a CareTeam

- Understand that rare problems occupy more of the view as physician's specialization increases
- Negative testing is not the same as unnecessary testing
- Knowledge expands each day of the week, but contracts back down over the weekend after a thorough review.
- We grow old ever learning, keep the lines of communication open.
- Motivation can require coaches (fitness, weight loss, AA, cigarette cessation)
- Empowerment comes with learning to manage things that are "beyond" your control (hypnosis, cognitive behavioral therapy)
- Even though a parent cares, their caring does not always help solve a problem (this can be a liberating realization)
- Its your kid, its not your problem!

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Conclusion

- Bedwetting is beatable, but always requires effort
- Every treatment has its downside, its simple arithmetic:
  - Benefit-risk > 0
- Choose a path you can live with, don't blame the messenger if the going gets tough.
- Failure is not an endpoint, there are always options (but sometimes the option is "try something again"
- 12 Slides, 12 Steps, 12 years old 99% resolve….coincidence?

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