Evidence Based Parenting

Common Anticipatory Guidance from Physicians
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Objectives

Intro
Anticipatory Guidance
Infant Sleep
Car Seats
Screen Time

• To understand
  • The impact of anticipatory guidance from physicians
  • Evidence behind sleep training for infants
  • The importance of car seats, booster seats, and seatbelt laws
  • The controversy about young children and screen time

Anticipatory Guidance

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Future
Parents Like It

- More topics (up to 6) increase parental satisfaction
- 1/3 of parents would be willing to pay more to get more anticipatory guidance
  - 25 min telephone survey of 2k parents of 0-3 yo in 1995-96

Does It Work?

- Maybe, but outcomes are intermediate
  - Parents know more about development but no change in development
  - Better safety behavior, no change in major injuries or trips to the ED
    - More seat belt use
  - Lots of data for “Reach Out and Read”
    - Improves language development in children

Does It Work?

- Fewer well child visits = no health impact
  - 2 trials with 700 randomized children, half as many well child visits: no difference in health, parental satisfaction, parental anxiety
  - Additional nurse visits for vaccinations
Parents Forget Advice

• More than 8 topics per visit – parents start to forget
  • When asked by phone 1 month later

Lots of Recommended Topics

• 8 might seem like a lot, but Bright Futures recommends
  • 21 topics to be discussed at first newborn visit
    https://brightfutures.aap.org/Bright%20Futures%20Documents/CoreTools2-5DayVisit.pdf
  • 16 different topics at next visit
    https://brightfutures.aap.org/Bright%20Futures%20Documents/CoreTools1MonthVisit.pdf
We’re not counseling on all topics

- Survey of 900 pediatricians
  - 11% were counseling on all 6 topics in the survey.
  - Less than half regularly counseled on more than 2 topics.
- 2 medical students observed 500 well child visits
  - Clinicians addressed 42% of BF anticipatory guidance topics, took 8.6 min of a 20 min visit (mean)

The Take-Home

- Parents like it.
- There are too many things for us to talk about or for them to remember.
- It doesn’t have a large impact on child health, but it can impact knowledge and behaviors.

Sleeping

http://www.someecards.com/usercards/unsubmitted/56jAaMy21OTqoMT4oNWZ2M2Ux00Dm
Sleep: Normal or Problem?

42% of 9 month olds awaken regularly at night.  

Up to 46% of parents report infant sleep problems.  

Bedtime problems and frequent night waking are highly prevalent... occurring in approximately 20-30% of infants, toddlers, and preschoolers.  
*Sleep. 2006 Oct;29(10):1263-76.*

For infants and toddlers, night wakings are one of the most common sleep problems, with 25% to 50% of children over the age of 6 months continuing to awaken during the night.  
*Sleep. 2006 Oct;29(10):1263-76.*

Drowsy But Awake

Placing your baby in the crib when he is drowsy but not asleep will help your baby learn that he can go to sleep on his own. Then, when he awakens at night, he will be more likely to be able to go back to sleep without your help.  

https://brightfutures.aap.org/Bright%20Futures%20Documents/15-Infancy.pdf

Recommended guidance at 1, 4, and 6 month visit

Internet forums

Internet Forums

http://community.babycenter.com/post/a9055075/put_baby_down_drowsy_but_awake....wtf

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Drowsy But Awake: Evidence?

- Never studied alone
- Part of many multi-component sleep interventions
- Studies generally involve
  - Initial face-to-face intervention
  - Printed information (book/handout)
  - Regularly scheduled supportive visits or phone calls
  - Parents keep detailed diaries
  - Full time caregiver at home for first 12 weeks.

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Sleep Counseling: Evidence?

- Studies usually limited by
  - Small size (n=11 to n=200)
  - Difficult recruiting subjects (¼-½ of recruited families actually enroll)
  - Short follow up periods
  - Don’t evaluate for sleeping vs feeding difficulties
  - The printed information is not published or freely available
Systematic Review

- 43 studies (1993-2013); infants <6mo
- 2 larger RCT showed small increase in sleep duration, but no decrease in crying time
- Overall, no significant benefit to sleep programs.

Metaanalysis

- Subject: postnatal parental education
- Measurable outcome = sleep
- 4 studies met their inclusion criteria
- 2 studies showed benefit; 90% weighted results from one study
  - Showed 29 min more nighttime sleep at 6 weeks
  - No difference in crying time
  - 20% attrition
- 1 study with no benefit showed more maternal anxiety in intervention group

Recent Evidence

- RCT; n=123
- Actigraph for objective maternal/infant sleep measurement
- Intervention similar to other studies
- No statistically significant difference
  - Amount of maternal/infant sleep at 6, 12 wks
  - Number of nighttime awakenings
  - Subjective morning fatigue
  - Depressive symptoms on Edinburgh scale
  - BMJ. 2013 Mar 20;346:f1164.
Recent Evidence

- 60% in both groups sought information from other sources:
  - 41% books
  - 35% internet
  - 35% other mothers
  - 14% physician

BMJ. 2013 Mar 20;346:f1164.

Good news: It Gets Better

- 483 first-borns; prospective trial
- 2 wks through 24 months.
- Prevalence of sleep problems at 8, 12, 18, and 24 months was 21, 16, 10, and 12%, respectively
- 6.4% had a problem at > or =3 of these ages.


The Take-Home

- No data to support drowsy-but-awake or other sleep hygiene counseling for infants
- It's normal, but it gets better
Car Seats

“If I had to choose the single worst aspect of parenting in the first year of a baby’s life, I have a very simple answer: the f***ing car seat. Every aspect of it—choosing one, buying it, installing it, removing it, putting it into another car, strapping a screaming baby into it—is totally maddening and utterly exhausting.”

http://www.theawl.com/2015/03/the-car-seat

Rear Facing Until Age 2

“Parents wrestle with rear facing car seat advice”

• The Washington Post, Sept 24, 2011

• “Do any of the folks who studied this have small children?”
• “Have they tried to keep a squirrelly, anxious and frustrated 18-month-old rear-facing?”
• “This is silly...It would also increase safety to wrap kids in bubble wrap.”

Car Accidents = Common Cause of Death in Children

Causes of Unintentional Injury Death in Children, 2009

[Table showing causes and percentages of deaths by age group.]

http://www.cdc.gov/safechild/NAP/backround.html
**Common but Declining**

- In children < 16 yo
  - 1500 deaths/yr
  - >50% are completely unrestrained
  - 1998-2008 deaths declined 45%
- For each fatality
  - 18 children hospitalized
  - 300 receive medical treatment

http://pediatrics.aappublications.org/content/pediatrics/early/2011/03/21/peds.2011-0215.full.pdf

**Restraint Use Increasing Since 1995**

- Restraint use for adults was 60%; now 87%
- Also increasing for children:

http://www.childtrends.org/?indicators=seat-belt-use

**Patterns of restraint use**

- We’re good about putting kids in restraints
  - 99% restraint use among infants<1y
  - 92% 1-3 yo
  - 89% 4-7 yo
- Restraint use children driven by
  - belted driver = 92%
  - Unbelted = 54%

http://pediatrics.aappublications.org/content/early/2011/03/21/peds.2011-0215
We’re Good At Wearing Seatbelts

Primary Enforcement Works

• Non-use of restraints by 13–15 year olds
  • 10.8% in secondary enforcement states
  • 3.6% in primary enforcement states

Primary Laws vs Secondary Laws

http://www-arend.nhtsa.dot.gov/Pubs/812113.pdf

http://www.iihs.org/iihs/topics/laws/safetybeltuse/mapbeltenforcement
Car Seats Help

- Compared with no restraints:
  - Car seats reduce the risk of death by
    - 71% for infants
    - 54% for toddlers ages 1-4 years.
  - Booster seats reduce the risk for serious injury by
    - 45% for children ages 4-8 years.


Rear Facing Until Age ___

- BMJ: 4 yo
  - BMJ. 2009 Jun 11;338
- Sweden: 4 yo
  - Don’t actually have forward facing car seats, only FF booster seats
    - BMJ. 2009 Jun 11;338
- AAP: 2 yo
- US State Laws: 1 yo
  - Except NJ, OK; CA 1/2017

Rear Facing - Theory

- Most car accidents = forward collisions
- Rear facing seats distribute force over greater surface area
- Support head and neck better
- Children have relatively bigger heads, weaker necks
**Crash Test Dummies**

- 12mo, 18mo, 36mo size dummies
- US and Euro forward and rear facing car seats, forward collision at 30 mph
- RF Euro seats: lowest risk of injury
- US designs:
  - RF US seats had the worst head and chest injury measures, but only significant compared to Euro RF seats
  - FF US seats worse for neck measures, but this has been shown to be inconsistent in dummies and real bodies
  - Huge discrepancy between US designs

**Europe vs US Car Seats**

- US: 2 point belt attachment (LATCH); European = 3 point rigid (ISOFIX)
- European RF seats have a floor prop, US seats optional: have to pass crash tests without it
- Some European countries and Canada require a tether to limit rebounding, US does not
- US car seats go through testing for front end collisions at 30 mph (NHSTA considering side-impact testing)
- European seats are tested for front, rear, and overturning
- US car seats have to “pass” testing, but results do not have to be posted.
Rear Facing

- "A 2007 article in Injury Prevention showed that 1-2 year olds were 5 TIMES SAFER riding rear facing than forward facing."
- www.thecarseatlady.com

Rear Facing Evidence

  - Retrospective cohort chart review – NHTSA representative sample 1988-2003
  - Accident victims: <1 yo or 1-2 yo; rear or front facing
  - Injury severity score (iss) </> 9 (moderate injury)
  - N = 60 kids 1-2 yo RF
  - Weighted data = RF 86% vs FF 69% effective for preventing ISS >9 compared with no restraints (OR 1.7) in 1-2 yo; benefit was from side crashes, not significant when looking at frontal crashes
  - weighted data showed more likely to have very serious/life threatening injury with rear facing, although this is most likely an artifact of the small dataset

Rear Facing - Crash Dummies

- 6m infant: LATCH v seat belt installation with rear collisions
- LATCH installation had higher measures of head injury risk
- Seat belt installation more stable
- Convertible seat was okay
Rear Facing – Crash Dummies

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Car Seats

• Take home:
  • Everyone in the vehicle should wear restraints.
  • Laws correlate with increased restraint use.
  • Lots of room for improvement in
    • car seat design
    • car seat testing and regulations
  • Rear facing might be safest
  • Move to Sweden

Screen Time

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"She thinks it's a touchscreen."
Screen Time – AAP Recs

• 1999, 2011, and 2013 AAP recommendations
  • discourage any screen use for children <2 yo
  • limit entertainment screen time to <1-2 hours per day for older children
  • http://www.pediatrics.org/cgi/doi/10.1542/peds.2011-1753

Screen Time

• 2011: 10% of children under 2 had used a smartphone or tablet
  • 2013: 38%
  • https://www.commonsensemedia.org/sites/default/files/research/zero-to-eight-2013.pdf
2007 Survey TV/DVDs <2 yo

- Random phone survey 1000 English speaking parents in MN and WA. Response rate = 20%

2007 Survey: TV/DVD <2 yo

Television is Terrible?

- Infants and toddlers who watch lots of TV are potentially at risk in later childhood for
  - deficits in attention
  - poorer language development
  - diminished cognitive achievements

- The following 3 studies were all cited by the AAP in their 2011 guidelines.
### Television and Attention Deficits

- **Longitudinal survey 1300 children**
- **Average TV viewing/day:**
  - 1 yo = 2.2 hours (SD: 2.91)
  - 3 yo = 3.6 hours (SD: 2.94)
- 10% had attention ‘problems’ at age 7
  - >1.2 SD >mean on hyperactivity questions
  - Not diagnostic of ADHD but similar prevalence
- **Regression analysis:** hours of television per day at ages 1 and 3 were associated with attention probs at age 7 (OR 1.09).
  - Pediatrics. 2004 Apr;113(4):708-13
- **But…**
  - Maternal depression when child young was also correlated with attention problems (OR 1.03)
  - Low maternal self-esteem prior to birth of child was more strongly assd than TV (OR 1.36).
  - Pediatrics. 2004 Apr;113(4):708-13
  - 2010 reanalysis original data
    - Adding 2 covariates eliminated any effect
      - maternal skills/achievement
      - early poverty status
    - Child Dev. 2010 Jan-Feb;81(1):368-75
  - Retesting in Danish cohort: no effect
    - Danes watch less TV overall
    - Only had data for 3 yo and 7 yo (no 1 yo data)
    - Pediatrics. 2004 Nov;114(5):1372-3

### Television and Reading/Memory

- **Longitudinal survey 1800 children**
- **Outcome = math, reading, short term memory test scores at age 6**
- Modest decrease in reading/memory scores at age 6 correlated with each hour television watched <3 yo.
- **BUT…** each hour of television in the 3-5 yo age range was associated with modest *increase* in reading scores.
Television and Language Development

- Telephone survey of 1000 parents who also completed a survey of language development
- In children 8-16mo each daily hour of baby DVDs was associated with a significant decrease in language development
- No effect of other educational or non-educational television viewing.
- 17-24mo no effect for any media.

BUT...

- Reanalysis did not confirm findings
- Raw data did not show statistical significance, only when 20 covariates were added.
  - Unclear rationale for all covariates
  - Nonnormal distribution for most variables (a few extreme outliers in baby videos)

TV and Adolescent Test Scores

- 6-12th grade test scores in 300k children who had/didn't have access to TV when they were young (in the 1940s-1950s)
  - Variable television roll-out to different markets e.g. Seattle had TV before Denver
  - Compared children in different markets
  - Compared children in same market, different years (before/after TV)
- Test scores from Coleman Report:
  - Study of educational opportunity commissioned by Civil Rights Act.
  - http://www.brown.edu/Research/Shapiro/pdfs/tv.pdf
TV and Adolescent Test Scores

- Gentzkow et al, contd.
  - By 1950s kids in houses with TV were watching 4 hours/day
    - Data are for school aged kids. Scant data for younger kids. Small surveys = 30-60 min for 3 yo, no data for <2 yo.
  - Showed a slight benefit to having television during pre-school years

TV and Language/Motor Skills

- 872 children in MA
- Mothers reported TV use at 6, 12, 24 months.
- At 3 years no difference in a verbal/language test nor a fine motor/spacial skills test.
- Kids watched less TV than in other studies.
  - Mean: 0-2y was 1.2 h

What We Know About Screen Time

- Toddlers and pre-schoolers can learn from TV
- Babies <2y learn more from people
  - Psychol Rev. 2010 Nov 21;117(4)
- Background TV makes adults and kids talk less
  - Infant Behav Dev. 2010 Apr;33(2):176-86.
  - http://www.newyorker.com/magazine/2015/01/12/talking-cure
## What We Know About Screen Time

- Childhood obesity is positively associated with amount of TV
- Interventions can reduce screen time and obesity
  - School or community-based
  - Involve parental support
  - Technology to track screen time and turn off screens
  - [http://www.thecommunityguide.org/obesity/behavioral.html](http://www.thecommunityguide.org/obesity/behavioral.html)
- Physician anticipatory guidance not shown to be effective for reducing screen time
  - [Curr Opin Pediatr. 2003 Dec;15(6):630-5.](http://www.aappublications.org/content/36/10/54)

## Beyond “Turn It Off”

- 2015: Beyond “Turn It Off”: How to Advise Families on Media Use
- Lots of recommendations, no hard numbers

## Beyond “Turn It Off”

- Media is just another environment
- Parenting has not changed
- Role modeling is critical
- We learn from each other
- Content matters
- Curation helps
- Co-engagement counts
- Playtime is important
- Set limits
- It’s okay for your teen to be online
- Create tech-free zones
- Kids will be kids
  - [http://www.aappublications.org/content/36/10/54](http://www.aappublications.org/content/36/10/54)
Screen Time – Take Home

- Screens are here to stay
- There may be risks and benefits –
  - Conflicting data for TV
  - Less data for newer technologies
  - Kids < 2yo learn better from people
  - More screen time correlates with more obesity
- New AAP rules
  - More nuanced
  - Counseling may take longer

Conclusion

- Anticipatory Guidance:
  - Don’t do it all
    - pick a few high yield topics
    - Consider “Reach Out and Read” and seat belts
  - consider your population
- Infant Sleep:
  - No data for any particular method
- Car Seats:
  - Counsel about use of car seats and seat belts
- Screen Time:
  - Impact on cognition/behavior not clear
  - Adverse impact on childhood weight

The end!

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