

Review: commonly recommended well-child care interventions are not supported by evidence

Moyer VA, Butler M. Gaps in the evidence for well-child care: a challenge to our profession. *Pediatrics* 2004;114:1511–21.



This article contains extra text on the EBM website

Clinical impact ratings GP/FP/Primary care ★★★★★☆ Paediatrics ★★★★★☆

Q What is the evidence base for commonly recommended clinical preventive services for children?

METHODS



Data sources: Medline, CINAHL, *Cochrane Library*, *ACP Journal Club*, PsycINFO, reference lists, proceedings of the Pediatric Academic Societies (1997–2003), internet, and contact with experts.



Study selection and assessment: high quality systematic reviews were sought. Randomized and controlled clinical trials published after a review's search dates were then sought. If no reviews existed, clinical trials were sought for all dates. Studies and reviews had to evaluate a well-child care intervention in healthy children between birth and 18–21 years of age. Exclusion criteria: studies assessing only change in health knowledge and attitudes, studies in non-clinical settings (eg, schools), and studies using tests for diagnosis or management rather than screening.



Outcomes: prevention of disease/disability, improvements in health/wellbeing, developmental and behavioural outcomes, and healthy behaviours.

MAIN RESULTS

A table on the website summarises the evidence (www.evidence-basedmedicine.com). *Behavioural counselling.* Several high quality systematic reviews and trials evaluated injury prevention. A modest benefit was seen for counselling about car restraints, bicycle helmet use, safe road crossing behaviour, smoke alarm use, and safe tap water temperature. Modest effects were found for intensive multimodal interventions for prevention of violence and exposure to passive smoking; brief interventions were not effective. Counselling to prevent alcohol use was not effective. Intensive counselling but not office-based counselling reduced sexually transmitted diseases and pregnancy. A multimodal intervention modestly increased physical activity. One on one health education increased the initiation of breast feeding among low income women, but multifaceted interventions plus changes in hospital procedures had greater effects. No effect was seen for infant sleep position counselling or oral health counselling. No trials evaluated counselling to prevent motorcycle crashes, drowning, pedestrian injuries, alcohol related injuries, choking, lead poisoning, sun related injuries, obesity, or baby bottle tooth decay.

Screening. An intensive visual screening protocol led to less amblyopia and better visual acuity at 7.5 years of age in the intensively screened group. Chlamydia and HIV screening were effective. No evidence exists for newborn physical examinations; periodic complete examination; repeated hip examination; growth monitoring; blood pressure monitoring; assessment for physical and sexual abuse; or screening for scoliosis, visual acuity, tuberculosis, urine infections, hyperlipidaemia, anaemia, lead poisoning,

gonorrhoea, human papillomavirus, cervical cancer, or hearing after the newborn period.

Prophylaxis. Folate supplementation in women of childbearing age reduced neural tube defects. Iron supplementation reduced iron deficiency but did not clearly change developmental outcomes; the long term effect is unknown. No trials evaluated oral fluoride treatment or ocular prophylaxis in newborns at risk of gonococcal or chlamydial infection.

CONCLUSIONS

Among commonly recommended clinical preventive services for children, some evidence exists to support counselling for changing some behaviours. Intensive counselling is mostly effective, whereas brief office-based interventions are not. Only 2 screening interventions (amblyopia and chlamydia/HIV) were evaluated in trials. Folate supplements reduced neural tube defects, and iron supplements reduced iron deficiency but did not clearly change developmental outcomes. Other prophylactic interventions were not evaluated rigorously in trials.

Commentary

The review by Moyer and Butler is a good summary of the evidence for current well-child care interventions. In an increasingly evidence-based practice environment, there is a need to identify the most efficient means to identify problems in children and families for which a paediatrician and other office staff can make a real difference. It has become quite clear that child health screening has a relatively minor part to play in preventive care and that proactive health promotion using multimodal methods has a much greater effect. An important question not answered by this review is "How should practice be best organised to achieve this?" Increasing evidence from the UK, Australia, Canada, and the US shows that paediatricians need to see themselves as very much part of a health promoting community resource network. This involves keeping up to date with local social services, educational, and voluntary staff; developing good local relationships; and providing high quality parent information. Parenting support programmes have been successful in primary care settings, although it is often difficult to engage those most in need of these. Domiciliary home visiting has an important part to play in supporting "hard to reach" groups. Although the evidence base does not support certain procedures and tasks, it is important to look more closely at the actual context of how preventive interventions are delivered (ie, the value of the actual "relationship" between parent and practice staff and how this might mediate the efficacy of these). More research using varied methodologies and whole multidisciplinary teams may enable us to discover whether regular contact with the child and family has an independently beneficial effect. The social and environmental factors that determine child health and wellbeing are clearly the most important and require us to be more aware of their causal pathways and act as "upstream" clinicians who can help influence these factors through advocacy and research.

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Source of funding: Agency for Healthcare Research and Quality.

WELL-CHILD CARE INTERVENTIONS

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Abstract of: Moyer VA, Butler M. **Gaps in the evidence for well-child care: a challenge to our profession.** *Pediatrics* 2004;**114**:1511–21.

| BEHAVIOURAL COUNSELLING | | | |
|--------------------------------|------------------------------------|---|---|
| FINDING | COUNSELLING OBJECTIVE | EVIDENCE | NOTES |
| Modest benefit | | | |
| | Safe road crossing behaviour | Not reported. | Relative risk (RR) 1.6 to 1.7 |
| | Smoke alarm use | Not reported. | RR 1.14 to 1.72 |
| | Safe tap water temperature | Not reported. | OR 2.3 |
| | Breast feeding | 4 systematic reviews; 1 RCT. | One on one health education increased initiation of breast feeding among low income women. Multifaceted interventions plus changes in hospital procedures had greater effect. Breastfeeding support programmes extended duration of breast feeding. |
| Mixed evidence | Bicycle helmet use | 1 systematic review; 1 randomised controlled trial (RCT). | Odds ratio (OR) 0.76 in RCT. Not significant in systematic review.. |
| | Prevention of exposure to violence | 1 systematic review. | Intensive multimodal interventions were modestly effective, particularly home visit-based programmes. Office-based interventions were not |

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| | | | effective. |
| | Prevention of exposure to passive smoking. | 1 systematic review; 1 RCT. | Intensive interventions showed modest effect (number needed to treat [NNT] ~25). Office-based interventions were not effective. |
| | Sexually transmitted disease (STD) prevention. | 2 systematic reviews; 3 RCTs. | Intensive multifaceted counselling reduced STDs (NNT 14); brief office-based counselling was not effective. |
| | Pregnancy prevention. | 1 systematic review. | Only intensive multifaceted programs reduced pregnancy rates (OR 0.4). |
| | Physical activity promotion | 1 RCT; 1 controlled clinical trial. | Brief advice not effective. Multimodal interventions (tailored counselling, use of written materials, focus on physical activity rather than multiple preventive aims, and use of other healthcare professionals) had modest effect (effect size ~0.1 SD). |
| | Seat belt use | 1 systematic review; 1 RCT. | Modest effect found in 1 systematic review (RR 1.3). 1 RCT showed no benefit for brief counselling. |
| No effect | Prevention of poisoning | 1 systematic review; 2 RCTs; 1 controlled clinical trial. | No benefit for counselling families; Mr. Yuk warning stickers increased exposure to poisons. |
| | Firearm safety | Not reported. | |
| | Alcohol use | 2 systematic reviews; 1 RCT. | 2 systematic reviews showed evidence of ineffectiveness in educational and community group settings. 1 RCT showed an increase in alcohol drinking in the office-based intervention group (OR 1.3 at 36 mo). |
| | Dietary education to prevent anaemia | 1 RCT. | Specific dietary counselling at preventive visits was not more |

| | | | effective than standard health education. |
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| | Infant sleep position counselling | 1 systematic review. | |
| | Oral health counselling | 2 systematic reviews. | Systematic reviews noted that currently available evidence is not conclusive. |
| No trials or reviews found | Motor cycle crash prevention | | |
| | Smoking prevention | | No trials of office-based interventions for smoking in youth. |
| | Drowning prevention | | |
| | Alcohol related injury prevention | | |
| | Choking prevention | | |
| | Lead poisoning prevention | | |
| | Sunburn or skin cancer prevention | | |
| | Obesity prevention | | 1 RCT is ongoing. |
| | Prevention of baby-bottle tooth decay | | |
| SCREENING | | | |
| FINDING | SCREENING PROCEDURE | EVIDENCE | NOTES |
| Benefit | Amblyopia screening | 1 RCT. | Repeated screening led to small decrease in amblyopia and improved visual acuity (NNT = 100). |
| | Chlamydia screening in sexually active adolescents | 1 systematic review; 3 RCTs. | Screening reduced the rate of pelvic inflammatory disease. |
| | HIV screening | 1 RCT. | |
| No effect | Multiple newborn physical | 1 RCT. | No difference in healthcare use for 1 |

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| | examinations | | v 2 examinations. |
| No evidence | Periodic complete examination | | |
| | Repeated examination of the hips | | |
| | Growth monitoring | 2 systematic reviews. | These aspects have not been rigorously evaluated in trials. |
| | Blood pressure monitoring | | |
| | Scoliosis screening through examination | 1 systematic review. | |
| | Assessment for physical and sexual abuse | 1 systematic review. | |
| | Visual acuity screening | 2 systematic reviews. | No trials of office-based screening. |
| | Tuberculosis screening | | |
| | Urine screening (infection) | | |
| | Hyperlipidaemia screening (>2 y of age) | 1 systematic review. | |
| | Anaemia screening | 1 systematic review. | |
| | Lead poisoning screening | 1 practice guideline. | |
| | Gonorrhoea screening | | |
| | Human papillomavirus screening | 1 systematic review. | |
| | Cervical cancer screening | 1 systematic review. | |
| | Hearing screening after newborn period | | |
| PROPHYLAXIS | | | |
| FINDING | INTERVENTION | EVIDENCE | NOTES |
| Benefit | Folate supplementation for women of childbearing age | 1 systematic review. | 4 RCTs showed that supplementation led to a substantial decrease in neural tube defects. |

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| Mixed evidence | Iron supplementation | 3 systematic reviews; 8 RCTs. | Supplementation decreases iron deficiency; no change in developmental outcomes; and no evidence on long term outcomes. Infectious illnesses were not increased with supplementation. |
| No evidence | Oral fluoride treatment | 1 systematic review; 1 guideline. | |
| | Ocular prophylaxis for newborns at risk of gonococcal/chlamydial infection | 1 systematic review; 3 controlled clinical trials. | Trials compared different agents but not prophylaxis with placebo or no prophylaxis. |