Return of school forms and nurse home visits increased adherence with follow up reading of tuberculosis tests in children

Cheng TL, Ottolini MC, Baumhaft K, et al. *Strategies to increase adherence with tuberculosis test reading in a high-risk population. Pediatrics* 1997 Aug;100:210-3.

Question

In high risk children, can strategies of verbal and written instructions, telephone follow up, transportation tokens and a toy, education, or withholding school forms (proof of immunisation status) improve the rate of adherence with follow up reading of tuberculosis tests?

Design

Randomised controlled trial.

Setting

Outpatient department of an urban children's hospital in Washington, DC, USA.

Participants

627 consecutive children aged 1 to 12 years (91% African-American, 74% Medicaid recipients) who were healthy and had no recent history of tuberculosis contact. 45% of participants had ≥ 1 risk factor for tuberculosis (born in a country with a high prevalence of tuberculosis or contact with people who were homeless, street drug abusers, incarcerated, from high prevalence areas, or had HIV infection).

Intervention

Participants and their families were given routine verbal and written instructions and randomised by day of the week to 1 of 5 strategies to improve adherence to follow up tuberculosis test reading at 48-72 hours after the Mantoux test: (1) no additional intervention (control group) (n = 121); (2) a reminder telephone call (n = 125); (3) transportation tokens and toy on return (posi-

tive reinforcement) (n = 121); (4) withholding of school forms until time of reading and information that the test would be repeated if not read within 48-72 hours (negative reinforcement) (n = 162); (5) parents taught to read the induration and a nurse home visit was scheduled to verify the results (n = 98). All children did not have school forms to complete; and for those who did, the form was not necessary for school attendance.

Main outcome measure

Rate of adherence with follow up reading of tuberculosis test.

Main results

The adherence rates in the 5 groups were 58%, 70%, 67%, 70%, and 72%, respectively. Withholding school forms and advising parents that the test would be repeated (group 4, $p = 0.03$) and nurse home visits (group 5, $p = 0.04$) improved adherence for test reading compared with routine instructions alone (group 1). A reminder telephone call (group 2) showed a trend towards improvement and transportation tokens plus a toy (group 3) did not increase adherence for test reading compared with routine instructions alone.

Conclusion

Withholding school forms until the time of tuberculosis test reading and nurse home visits were effective strategies for increasing the rate of adherence with follow up reading of tuberculosis tests in high risk children.

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Commentary

The study by Cheng *et al* is timely given the increasing incidence of tuberculosis in North America and the limited amount of research on adherence issues in tuberculosis testing. Of the 4 adherence strategies tested, only 2 resulted in a significant increase in rates of compliance: (a) telling parents that school forms would be withheld until the time of the reading and that the test would be repeated if not read within 48-72 hours and (b) providing a nurse home visit with teaching parents how to read induration.

Despite the fact that a nurse home visit increased rates of adherence for test readings, the authors described this approach as impractical and demanding a large investment in resources. These conclusions are made without evidence that a cost ben-

efit analysis was done. It can be argued that although the cost of a nurse home visit may be large initially, the cost to society in the long term may be reduced by an improvement in case finding, case management, and prevention of spread of this serious disease. Longitudinal research designed to test this theory is warranted.

It may be more appropriate to address this problem by first using qualitative methods to explore parents' perceptions of factors influencing their ability to return with their children for tuberculosis test readings. After these data have been collected and analysed, an intervention study could then be designed to address parents' perceived barriers and solutions to tuberculosis test follow up.

Practising nurses and policy makers

alike should be made aware of this study because it provides evidence that nurse home visits increase adherence with follow up readings of tuberculosis tests among children at high risk. Although the strategy of withholding school forms and informing parents of the possible need for retesting was also successful, the more negative nature of this strategy is antithetical to current healthcare philosophies such as primary health care and community development, which promote full participation, empowerment, and mutual respect among providers and recipients of health care.

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