

**Report to the Texas State Legislature
October 1, 2005**

**Raising Immunizations Thru Education (RITE)
Pilot Program**

Pilot Project Conducted By:

**The Texas Pediatric Society in Conjunction with Baylor College of Medicine
and Texas Children's Hospital**

Funding Provided by:

**Centers for Disease Control and Prevention
The Texas Department of State Health Services
Immunization Branch**

Raising Immunizations Thru Education (RITE) Pilot Program

Senate Bill (SB) 43 of the 78th Legislature requires the Texas Department of State Health Services (DSHS) to report on the results of a physician education pilot program conducted by the Texas Pediatric Society (TPS). The final report must be provided to the Texas Legislature no later than October 1, 2005.

Background

The Educating Physicians in their Communities (EPIC) program conducted by the Pennsylvania Chapter of the American Academy of Pediatrics (AAP) was the model used by the Texas Pediatric Society (TPS) to provide immunization information to physicians in the Houston/Harris County region in an effort to raise vaccine coverage levels. The EPIC program is a physician education program based on academic detailing. The academic detailing approach presents evidence based information in physicians' offices and was shown to increase vaccine coverage levels in Pennsylvania.

The pilot project in Texas was titled *Raising Immunization Thru Education (RITE)*. The Immunization Branch of the Texas Department of State Health Services (DSHS) contracted with the TPS for the pilot project. With TPS subsequently sub-contracting with the Baylor College of Medicine and Texas Children's Hospital to conduct the project. Funding for the project was provided through the Centers for Disease Control and Prevention (CDC). The curriculum contained three major components:

1. The scientific basis of immunizations,
2. Barriers to vaccination, and
3. Practical steps to changing provider and staff attitudes, skills, and knowledge.

The RITE project was evaluated in three domains:

1. A behavioral analysis,
2. Vaccine coverage level analysis, and
3. Cost analysis.

The RITE pilot project began in 2001 and the following activities took place during 2001 and 2002:

- An advisory board of consultants to the project was selected.
- A project name and logo were selected.
- A training curriculum based on the EPIC program was developed.
- A packet of materials to be used during educational sessions was compiled.
- A timeline and work plan were developed.
- The first RITE training was provided in November 2002.

The RITE project consisted of a team of professionals who went to pediatric and family practice physician offices to provide education on immunizations to the physicians and their staff. The teams consisted of a physician, a nurse, and a practice or office manager. Each team member participated as a presenter in the four-hour training session and continuing education credits were available for physicians.

The RITE project identified 1,674 physicians representing 852 individual pediatric and family practices in the Houston area. Invitations were sent to all 1,674 physicians inviting them to participate in the pilot and 189 providers agreed to participate. These were randomly divided into a control group of 94 and an intervention group of 95. Twelve practice sites withdrew from the intervention group resulting in 83 practices that received the program training. Thirty sites in the control group were lost to follow-up.

Training provided by the RITE project followed an established curriculum, reference materials, and a presentation. A pre-training chart review and a survey of staff behaviors and beliefs related to immunizations was conducted. A six-month follow-up immunization assessment questionnaire and another chart review was conducted one year after the training using a standardized CDC tool called Clinic Assessment Software Application or CASA. In the intervention group, 61 CASAs were conducted at one-year follow-up and 62 CASAs were completed in the control group.

The RITE project conducted analysis of provider behaviors and beliefs about vaccines according to: (1) the type and size of the practice, (2) whether the provider was enrolled with the Vaccines for Children Program, and (3) job titles. Staff was given a pre-intervention questionnaire with eleven questions related to immunization behaviors. The same questionnaire was used for the six-month follow-up survey.

Pilot Findings

Effect on Behaviors

Analysis was conducted on multiple factors. A Likert scale was used for responses and then collapsed into 'correct' and 'incorrect.' Percentile changes for each behavior are not given but the final RITE report states that scores increased from pre-questionnaires to post-questionnaires for the following behaviors:

- (1) Using the recommended childhood immunization schedule,
- (2) Giving the maximum number of vaccine doses at one visit,
- (3) Screening immunization records at sick and injury visits,
- (4) Using minimum intervals for children delayed in receiving vaccines or at risk for delay, and
- (5) Not requiring written immunization records before giving vaccines.

Effect on Vaccine Coverage Levels

Vaccine coverage levels for 19-23 month old children increased for the intervention group from 51% to 52% after one year. Levels decreased in the control group from 44% to 41%.

Cost Analysis

Direct expenses for each presentation are estimated at \$1,700.00. The cost to change one of the eleven immunization-related behaviors was estimated at \$498.47. The project estimates a cost of over \$2000.00 to raise immunization rates by 5% per provider office.

Texas Department of State Health Services Conclusions

SB 43 of the 78th Legislative Session requires the Texas Department of State Health Services (DSHS) to report:

1. An analysis of the program’s effect on vaccine coverage levels,
2. A statement regarding the cost-effectiveness of the program,
3. Recommendations for expanding the program, and
4. A list of possible sources to fund the program.

Analysis of the program’s effect on vaccine coverage levels

The RITE project analysis of vaccine coverage levels reports an overall increase in coverage levels for the intervention group of 1%.

Cost effectiveness of the program

The RITE project estimates the following costs to raise immunization rates 1% for children 12-23 months at \$424.80 and \$565.73 for children aged 19-23 months. For this study, the up-to-date (UTD) status included:

12 Months	3 DTaP (diphtheria, tetanus and acellular pertussis), 2 polio vaccines, 3 Hib (<i>Haemophilus influenzae type b</i>) and 2 HBV (<i>hepatitis B</i>)
23 Months	4 DTaP, 3 polio vaccines, 1 MCV (<i>measles containing vaccine</i>), 4 HIB, 3 HBV and 1 varicella (<i>chickenpox</i>)

The Texas Pediatric Society has received the following amounts from DSHS for the RITE project:

Project Year	Reimbursed Amount
2001	\$120,054.84
2002	\$204,700.92
2003	\$251,881.64
2004	\$258,644.63
2005	\$95,258.80
Total	\$930,540.83

*Total as of August 5, 2005

Recommendations for expanding RITE

The TPS continues to be a major partner with DSHS and the Immunization Branch in promoting the delivery of services to children in Texas. DSHS does not recommend expanding the RITE program at this time. The following factors were considered in making this recommendation:

1. The RITE pilot project in Texas showed no effect from the provider intervention on client immunization levels.
2. The CDC Immunization grant requires DSHS to conduct Texas Vaccines for Children (TVFC) QA site visits of at least 25% of TVFC enrolled provider offices annually. The site visits include provider education and technical assistance as well as an assessment of a clinic's vaccine coverage level. DSHS contracts with the Texas Medical Foundation (TMF) to conduct quality assurance assessments of private provider practices across the state. A registered nurse employed by TMF completes a QA tool and conducts a CASA for each provider practice to estimate the vaccine coverage level for that practice. The nurse also provides technical assistance to the provider if deficiencies are found during the visit.

The cost of a TMF site visit is \$737.00 plus travel that averages \$19.72 per visit. Although not done as a research project, between 2002 and 2004, the trend for vaccine coverage levels for the 4:3:1 series for providers reviewed by TMF increased from 58% to 77%.

This vaccine series reported by TMF (4 DTaP, 3 Polio and 1 measles containing vaccine or 4:3:1) is different from the series used by the RITE project. Finally, TMF did not study other factors that may have influenced the upward trend in CASA levels such as media campaigns and local outreach efforts.

Possible Funding Sources

DSHS is not recommending the continuation of funding for the RITE project. The American Academy of Pediatrics Website provides information and resources that could be used by a group that wished to undertake a similar project. The Centers for Disease Control and Prevention may be another possible funding source.

Acknowledgement: The Immunization Branch of the Department of State Health Services wishes to express its appreciation to the Texas Pediatric Society, Baylor College of Medicine, Texas Children's Hospital and the City of Houston for its support for immunization services in the state and its dedication to the health and well-being of the children of Texas.

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AN ACT

relating to certain immunization programs.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF TEXAS:

SECTION 1. Not later than October 1, 2005, the Texas Department of Health shall report to the legislature the results of the educating physicians in your community pilot program operated by the Texas Pediatric Society. The report must include:

- (1) an analysis of the program's effect on immunization rates;
- (2) a statement regarding the cost-effectiveness of the program;
- (3) recommendations for expanding the program; and
- (4) a list of possible sources to fund the program.

SECTION 2. This Act takes effect September 1, 2003.

DOCUMENT NO. -
ATTACHMENT NO.

PERFORMING AGENCY:

RECEIVING AGENCY PROGRAM:

TERM: THRU:

SECTION I. SCOPE OF WORK:

Through sub-contracts with Baylor College of Medicine and University of Texas Medical Branch at Galveston, the PERFORMING AGENCY shall implement a physician-to-physician education program, modeled after the Pennsylvania Pediatric Society's successful *Educating Physicians In their Communities* (EPIC) project. The mission of EPIC is to improve the health of children through practical, community-based, quality medical education delivered to all members of the provider office including the provider, nursing staff, and office personnel. The curriculum focuses on three (3) major components:

- Scientific basis of immunization;
- Barriers to vaccination; and,
- Practical steps to changing provider and staff attitudes, skills, and knowledge.

Presentation teams consisting of a physician or other primary care provider, immunization nurse, and office manager were trained to deliver the program in specific regions of Pennsylvania.

PERFORMING AGENCY shall implement a modified version of the Pennsylvania EPIC program for the State of Texas. The EPIC immunization education program will be delivered at provider offices in small group settings throughout the community and may also be presented as part of Grand Rounds at the various academic centers in the greater Houston area. Participants shall include all staff at the provider offices including physicians, other clinical staff, and support staff. Continuing Medical Education credits and Continuing Education Units shall be made available to individuals participating in the presentations. Initially, the EPIC program shall be piloted in the greater Houston area with plans for expansion to other urban areas in Texas.

Implementation Plan

PERFORMING AGENCY program director, working under the guidance of the **PERFORMING AGENCY'S** Principal Investigator, shall assist the Baylor College of Medicine Principal Investigator, with implementation of the pilot project in the greater Houston area. **PERFORMING AGENCY** shall select a consultant group and advisory board and current EPIC materials will be modified for use in the greater Houston area. **PERFORMING AGENCY** staff shall perform a mini-pilot of the materials, with revisions made based upon evaluations conducted. After the mini-pilot period, **PERFORMING AGENCY** shall develop an implementation plan for the entire community.

PERFORMANCE MEASURES:

- Identify and select a consultant group and advisory board. Consultant group shall consist of five (5) representatives from various peer professional health care organizations in the greater Houston area. Consultant group shall: 1) review/modify education materials; 2) recruit presenters through their various organizations; 3) promote EPIC through their organizations. Advisory board shall review recommendations of the Consultants;
- Modify current Pennsylvania EPIC materials for use in the greater Houston area. Perform a mini-pilot of the materials, with revisions made based upon evaluations conducted;
- Present the final version of the education packet of materials to RECEIVING AGENCY for approval by 12/31/2001;
- Send four (4) staff members to Pennsylvania to train with EPIC program staff (Fall, 2001);
- Submit timeline and implementation work plan for project by December 31, 2001;
- Develop methodology for selecting physician practices and sites for delivery of services by 12/31/01; and,
- Identify and select peer educators for delivery of services by 12/31/01.

SECTION II. SPECIAL PROVISIONS:

General Provisions, **Program Income** Article is not applicable.

Executive Summary, Results, Conclusions

Introduction:

This study evaluated the effectiveness of the Raising Immunization Thru Education (RITE) pilot program in Houston, Texas. The program is based on academic detailing, a form of continuing medical education that allows for greater interaction in the one-on-one or small group setting and has been shown to improve immunization behaviors and immunization coverage levels.

The evaluation of RITE occurred in three parts. Pre-intervention and post-intervention questionnaires were used to assess the RITE program's impact on healthcare workers' knowledge and behaviors. Chart audits for practices in the intervention group and the control group were conducted to assess the program's ability to increase immunization coverage levels. Furthermore, a cost-analysis was done to evaluate the cost-effectiveness of the RITE program for future decision making regarding funding for such education outreach programs.

Methods:

Immunization Behaviors

Knowledge and behaviors of healthcare workers were assessed for physicians, nurses and office staff in the intervention group. Confidential immunization assessment questionnaires evaluating eleven immunization behaviors were distributed to all RITE participants prior to the intervention presentation at their offices to assess baseline immunization attitudes and behaviors. Six months after the presentation, identical post-intervention immunization assessment questionnaires were mailed to the practices for completion. Analysis compared matched pre-and-post questionnaires.

Immunization Coverage Levels

Immunization coverage levels for children ages 12-23 months were assessed using chart audits for practices in the intervention and control groups. Both pre-intervention and one-year-post-intervention chart audits were done one year after the intervention presentation for each practice in the intervention group and for a corresponding practice in the control group. Analysis compared pre-and-post intervention immunization rates between study groups and subgroups, which include practices size, practice specialty, and Vaccine for Children provider status, using two sets of minimum up-to-date (UTD) criteria.

Cost Analysis

The costs of the intervention are computed using the direct expenses for the intervention and the time costs associated with implementing the intervention.

Results and Conclusions:

- Immunization behaviors improved overall for all participants as a group and for subgroups. Healthcare workers in small practices, pediatric practices, VFC-participating practices and non-VFC participating practices showed significant improvement for all eleven immunization behaviors.
- When evaluating the eleven behaviors individually, those behaviors related to knowledge and office policy improved. All types of practices showed an increase in giving the maximum number of vaccinations at one visit after the intervention.
- Immunization behaviors requiring greater effort for implementation, such as using reminder and recall systems, generally did not show as much improvement as

other types of behaviors, although small and pediatric practices showed an increase in using these tools.

- Small, pediatric and VFC provider practices displayed improvement for more immunization behaviors than did large, family and non-VFC provider practices.
- Physicians and physician assistants showed increases in immunization behaviors after the intervention more often than nurses, MA's and office staff. Improvement that occurred for each job position corresponded to their usual clinical involvement with immunizations.
- Immunization coverage levels for 19-23 month old children increased for practices in the intervention group one-year after the intervention (from 51% to 52%), but did not increase for controls (from 44% to 41%), using minimum UTD criteria II. At one-year follow-up, the mean percentages UTD differed significantly between the intervention (52%) and control group (41%) ($p < 0.05$).
- For 12-23 month old children, 58% of practices in the control group met the minimum UTD criteria II at baseline compared to 59% of practices in the intervention group. At one-year follow-up to the intervention, 55% of practices in the control group and 60% of practices in the intervention group met the minimum UTD criteria II.
- At on-year follow-up, multivariate analyses showed practice size and clinical specialty had a significant association with immunization status. Large-sized practices were 1.3 times more likely to meet the UTD criteria as compared to small-sized practices. Pediatric practices had a 55% increased odds to meeting the UTD criteria as compared to family medicine practices
- Using minimum UTD criteria I, 47% of practices in the control group met the minimum UTD criteria as baseline compared to 44% of practices in the

intervention group. At one-year follow-up to the intervention, 44% of practices in the control group and 45% of practices in the intervention group met the minimum criteria for UTD status.

- No significant difference in immunization coverage level was found between the control and intervention groups when minimum UTD criteria I was used to determine UTD status.
- Direct expenses per presentation averaged \$1,534. The largest cost component consisted of the direct expenses for the presentation itself, \$1,293.56, of which \$750 were the payments to the presenters.
- The estimated time costs for the training sessions averaged \$311.29 per session or \$11.12 per presentation. The estimated time costs for the presentations averaged \$152.77 per presentation and the estimated time costs for the reinforcements averaged \$2.41 per presentation.
- The total cost per presentation was estimated at \$1,700 consisting of \$1,534 in total direct expenses and \$166 in total time costs.
- The cost for one additional correct answer to the 11 behaviors in the immunization assessment questionnaire was estimated at \$498.47.
- The costs to increase by 5% the immunization rates are summarized below:
 - \$2,124.01 for UTD immunization rates (criteria 1) for children aged 12-23 months.
 - \$2,217.86 for UTD reduced Hib vaccine (criteria 2) for children aged 12-23 months.
 - \$2,828.67 for UTD immunization rates (criteria 1) for children aged 19-23 months.
 - \$2,121.50 for UTD reduced Hib vaccine (criteria 2) for children aged 19-23 months.