

---

# **"KITS" for Improved Immunization of Kauai Children**

Sally Jo Manea BSN, GCPH; State of Hawaii Department of Health, Kauai District Office

*Kauai physicians and District Health Office staff established a computerized tracking system in 1993 to improve immunization rates in Kauai-born infants. Comparison of 1995 and 1996 audit results of 1993- and 1994-born children showed completion rates for 9 antigens rose from 76% to 86%. Evolution and improvement of the tracking system are discussed. Recommendations for physicians are offered.*

## **Introduction**

A state-wide retrospective immunization survey in 1993 showed an average of 61% of Hawaii kindergartners completely immunized with 4 diphtheria-tetanus-pertussis (DTP), 3 oral polio vaccine (OPV), and 1 measles-mumps-rubella (MMR) by the age of 24 months.<sup>1</sup> National Year 2000 Health Objectives include the objective of having series-complete immunizations for 90% of two-year-olds.<sup>2</sup> To accomplish this objective for Kauai, an intervention project was designed and implemented by Kauai District Health Office (KDHO) staff in 1993. The computerized Kauai Immunization Tracking System (KITS) initiated an immunization record on each child born on Kauai based on birth certificate data. Immunization data from physicians and clinics were entered into the system. Computer-generated reminder letters were sent to parents of children determined by KITS to be due for immunizations. Periodic reports identifying overdue children were sent to physicians. KDHO staff manually audited provider records and recommended strategies for improving immunization levels. The 1995 and 1996 audits of 1993 and 1994 born children, respectively, are reported in this paper, and the evolution and improvement of the tracking system are discussed.

## **Methods**

Children born in 1993 followed through the KITS database were analyzed in November of 1995 in the following way:

- 1) Lists of overdue children were distributed to each physician.
- 2) Immunization records were reviewed by KDHO epidemiology and nursing staff. Children who had moved away or died were removed from tracking, and records were updated for those who had been immunized.
- 3) Each physician was sent a report on audit results which included a chart of all physicians with immunization levels of the children in each practice.
- 4) Individual worksheets on overdue children were included in the physician's report to facilitate immunizing delinquent children. Staff were asked to send updated information to KITS.
- 5) Data were re-analyzed 3 months after physicians were notified of their overdue patients and an additional report was generated.

Children born on Kauai in 1994 were analyzed in November of 1996 by the same method noted above in numbers 1 and 2. The results reported here are a comparison of the November 1995 and 1996 audits.

## **Results**

The November 1995 audit of 1993-born children reported 927 births, 114 (12%) of whom had moved away or died, leaving 813 residents. A total of 617 (76%) were completely immunized with 9 antigens, including 4 DTP/ HiB, 3 hepatitis B/OPV and 1 MMR. The November 1996 audit of 1994-born showed 885 births, 117 (13%) of whom had moved away or died. Of 768 residents, 660 (86%) were completely immunized with 9 antigens (Figure 1). Figures 2 and 3 show comparisons of 1995 and 1996 audit results with physicians grouped according to the number of children tracked in KITS.

## **Discussion**

Several changes implemented during 1995 and early 1996 streamlined and improved KITS. The power of physician audits was recognized and utilized. To improve efficiency, the parent letter was changed from a reminder sent to all parents to a recall for only those who were overdue. Physicians requested assistance with notification of parents who missed appointments, and asked to be sent KITS worksheets on individual patients to assist in their efforts. Physicians were unaware of the extent of missed opportunities among their patients and responded to information presented at audit report sessions by reducing missed opportunities.

The November 1995 audit report notified physicians of overdue

Send requests for reprints to:  
Sally Jo Manea  
Kauai District Health Office  
Epidemiology Branch  
3040 Umi Street  
Lihue, HI 96766

**Fig. 1—Number of Kauai Births, Residents, and Percent of Infants Completely\* Immunized for Birth Years 1993 and 1994**

	11/95 audit, 1993-born	3/96 audit, 1993-born	11/96 audit, 1994-born
Births	927	927	885
Number moved/died	114	120	117
Residents	813	807	768
Number Complete	617	674	660
Percent Complete	76%	84%	86%

\* 4 DTP/HiB, 3 Hep B/OPV, 1 MMR

patients by name, and subsequent efforts to immunize these children brought the overall level from 76% to 84% complete, as documented by a post audit dated 3/96 (see Figure 1). Physicians requested regular KITS worksheets showing child's name, birth date, phone number and "due" and "done" date spaces for each immunization. They returned worksheets to KDHO with updated data. These worksheets were sent periodically during 1996 as overdue children were discovered during data entry. The KITS worksheets became routine, and may be one factor that improved immunization levels.

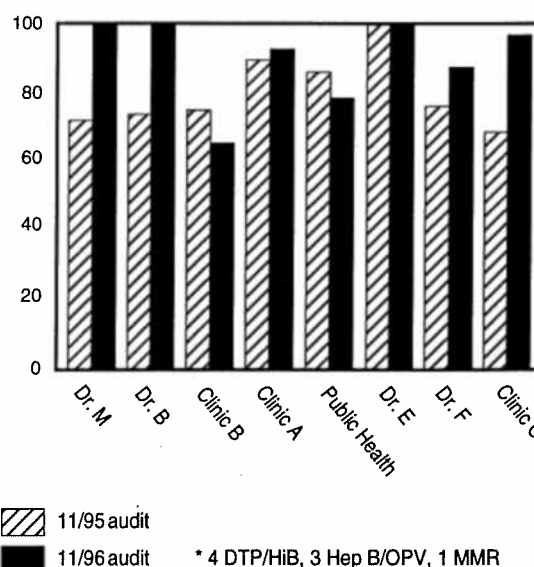
In 1995, KITS changed from a reminder to a recall system. Previously, personalized reminder letters were sent to parents when children reached age 2, 4, 6 and 12-15 months stating "your child will be due for the following immunizations on the date shown". This was determined to be inefficient, as most parents kept well baby appointments.<sup>3</sup> Physicians preferred that KITS assist by notifying parents who missed appointments, so the letter format was changed to read "your child was due...on the date shown" and letters were generated monthly for children who were overdue by 60 or more days.

During physician record audits, information was recorded about missed immunization opportunities. During 1996, presentations were made to physicians and nurses at Kauai's largest clinics at which immunization status and visit records of overdue children were displayed and discussed, and recommendations made for reducing missed opportunities. These presentations, along with the annual audit report stimulated actions to improve immunization levels.<sup>4</sup>

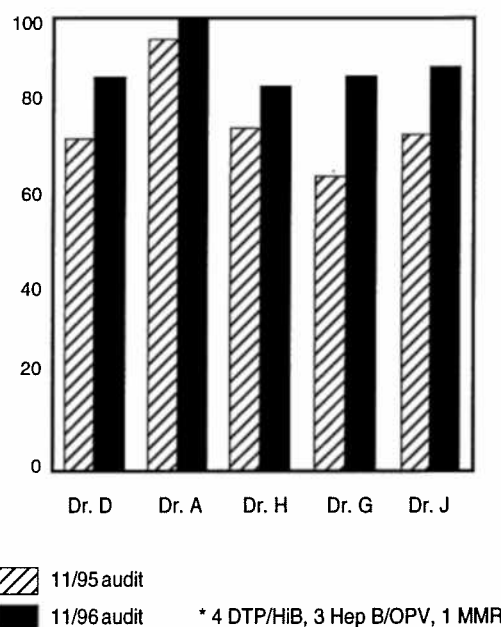
There were various reasons for children not being immunized. Parents' and physicians' lack of awareness that immunizations were overdue was a significant factor. Of the 768 residents in the 1996 audit, there were 82 under-immunized children. For 49 (60%) of these, one visit to the physician was all that was required for completion. Immunizing these children would result in an overall level for this birth cohort of 93%!

What remained was a small group of children whose parents either refused (4%) or appeared to have social or behavioral problems that required special outreach efforts. Kauai Public Health Clinic records reviewed for the 1996 audit revealed 6 overdue children. Five of the 6 families had been contacted by phone or letter from 3 to 8 times and informed that the child was overdue, and provided with the date

**Fig. 2—Percent of 1993 and 1994 Kauai-born infants completely\* immunized by provider (10-50 infants in KITS)**



**Fig. 3—Percent of 1993 and 1994 Kauai-born infants completely\* immunized by provider (>50 infants in KITS)**



and times of the next free clinic in their area, yet none attended.

## Conclusion and Recommendations

A combination of interventions, conducted over an extended period of time, and remodeled based on the community, improved immunization levels of Kauai children.<sup>3,4,5</sup> Admirable progress was

*Continued on Page 128*

## "Kits" for Improved Immunization of Kauai Children

Continued From Page 123

made toward the National Year 2000 Objective of 90% series-complete immunization by age 2 years. Kauai physicians and nurses deserve special recognition and congratulations for their efforts during 1996. Additional effort is needed to reach the 90% goal, and the following recommendations are intended to assist in focusing that effort.

1) All clinics should initiate their own recall systems to determine which infants have missed immunization appointments, and reschedule appointments to catch-up missed immunizations.<sup>3,5,6</sup>

2) The most frequently missed immunizations are the 12-15 month MMR, DTP and HiB.<sup>1,7</sup> Physicians should initiate a reminder system to parents for this visit.

3) Children should be immunized at appropriate times unless the child is seriously

ill. If the physician chooses not to immunize a child who comes for a "sick" visit, the reason should be documented, an appointment for the immunization made for a few days later, and a staff member designated to follow through if the child misses the appointment.

### References

1. Immunization survey at PHN clinics. Communicable Disease Report, May-June, 1993, Hawaii Department of Health.
2. Public Health Service: Healthy people 2000: national health promotion and disease prevention objectives. USDH Publication No. (PHS) 91-50212. U. S. Government Printing Office, Washington, D. C., 1990.
3. Young, S. A., et al.: Effectiveness of a mailed reminder on the immunization level of infants a high risk of failure to complete immunizations. *Am J Public Health* 70: 422-424, 1980.
4. Evaluation of vaccination strategies in public clinics-Georgia, 1985-1993. *MMWR Morb Mortal Wkly Rep* 44: 323-25, April 28, 1995.
5. Stehr-Green, P. A., et al.: Evaluation of telephoned computer-generated reminders to improve immunization coverage at inner-city clinics. *Public Health Rep* 108: 426-430, 1993.
6. Public Health Service: Standards for Pediatric Immunization Practices. USDHHS. U. S. Government Printing Office, Washington, D. C., 1992.
7. The Minnesota Immunization Action Plan. Minnesota Department of Health Disease Control Newsletter, August, 1993.

## VOICE OPERATE YOUR COMPUTER



**CERTIFIED  
DRAGON  
RESELLER™**

**Dragon  
Dictate**

The Premier PC  
Dictation Program by  
Dragon Systems, Inc.

- Voice recognition program that operates your computer.

Word processing  
Graphic

Spreadsheets  
Games

- Computer will dictate/read existing documents back to you
- Hands Free (No keyboard or mouse needed)
- Slash your costs
- Increase productivity and efficiency
- Macintosh & PC compatible

For a Free On-Site Demonstration call

**The Byting Edge (808) 523-6888**

*"We leave the others Speechless."*

## Classified Notices

To place a classified notice:

**HMA members.**—Please send a signed and typewritten ad to the HMA office. As a benefit of membership, HMA members may place a complimentary one-time classified ad in *HMA* as space is available.

**Nonmembers.**—Please call 536-7702 for a nonmember form. Rates are \$1.50 a word with a minimum of 20 words or \$30. Not commissionable. Payment must accompany written order.

### Office Space

**Liliha Medical Bldg.**—1397 sq ft medical office, 4 exam rooms, 2 offices, nurse's station, free parking. Chaney, Brooks & Company 544-9557.

**Aia Moana Bldg.**—Oral Surgery office adaptable for MD., 680 sq ft., 3 treatment rooms/recovery. Opposite Lab/X-ray. Any reasonable cash offer. 949-8187.

**Ka Waena Lapa'au Medical Center.**—Prime medical facility in Hilo, HI, completely furnished, most suitable for surgical specialist, available immediately, for sale or rent, best offer, call 808-935-8190.

### Services Available

**Bookkeeping, Taxes, Payroll,** design **Quickbooks** and **Peachtree Accounting Systems.** Very **knowledgeable** and **reasonable rates.** Call Rose Chan, CPA at 262-0877 for free consultation.

**Choice and Dignity in Dying.** The Hemlock Society USA. 800-247-7421. <http://www.hemlock.org/hemlock> e-mail: [hemlock@privatel.com](mailto:hemlock@privatel.com). **Join Today!**

### For Sale

**Misc for sale.**—Canon copier model 4050 \$2,950; desk 60" x 30" \$50.; Credenza 71" x 18" \$100. Ask for Nelson 536-7702.

**Zeiss Operating Microscope.**—Body w/240 mm objective lens. Magnification changer 6x to 40x. Straight binocular tube, f=160 mm. Focusing eye piece 12.5x. Carrying case. \$1,500 or best offer. Call H. Oshiro MD at 536-6993.

**For Sale.**—Sandhill 24 hr ambulatory pH monitoring equipment. Used only 3xs. Single channel recording. Includes LES locator and software for complete report/analysis. Ask for Jody (Hilo) at (808) 969-3979.

**For Sale.**—Examination table in mint condition. \$500. For more information, please call Anne at 677-7400.

### Wanted

**Photography equipment.**—Sunpack GX8R, ring light flash with battery pack, a discontinued model. Call Liz 735-0063.

### Locum Tenens

**Family Practice/Urgent Care.**—FPBC physician available for short term Locum Tenens coverage. Please contact: Vadim Braslavsky, MD., 7800 England Dr., #101, Overland Park, Kansas 66204. Phone (913) 383-3285.

**Locum Tenens available.**—Board-certified family practice, 14yrs clinical experience in Hawaii. Office coverage, Deborah C. Love MD; home Oahu: (808) 637-8611; cell ph: (808) 295-2770.