



STOP FLU AT SCHOOL

HAWAII STATE DEPARTMENT OF HEALTH



Dr. Marcie Nagao
Immunization Physician



Dr. Carl Chu
Pharmacist



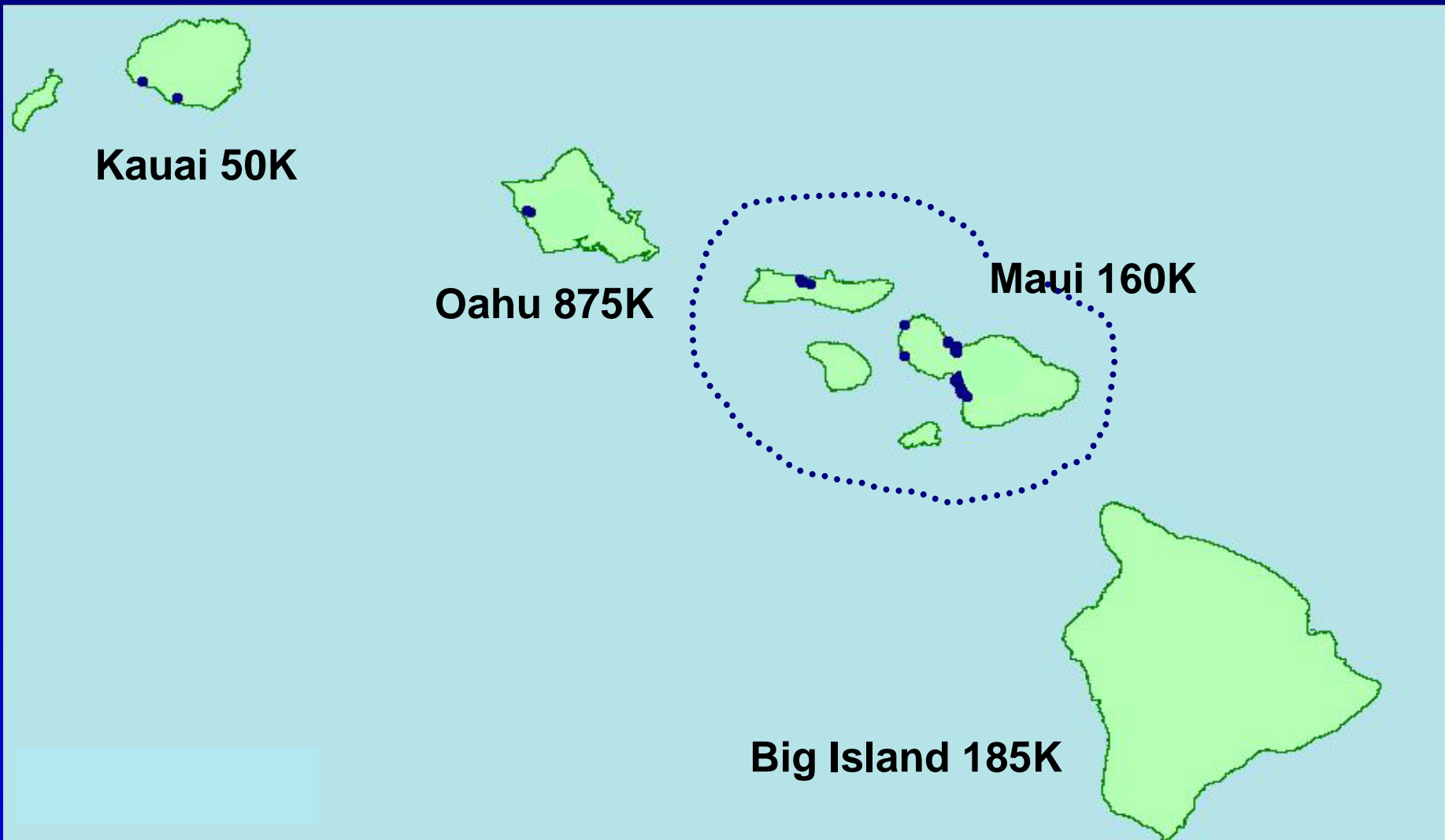
Lisa Mendez

Immunization Program Manager



Dr. Sarah Park

Disease Outbreak Control
Division



Preliminary data – Do not distribute



Children Vaccinated Against Flu

Some promising data in the literature:

- Less medically-attended illness in kids
- Fewer school absences
- Less illness in the student's family
- Limited evidence of reduced illness in the community at large

But most of the studies to date have been small.

Hawaii's rationale for pursuing statewide school-based influenza vaccinations:

1. We have only one public school system statewide
2. We had previous success in implementing other school-based vaccination programs, i.e. hepatitis B for 5th graders

Hawaii's rationale for pursuing statewide school-based influenza vaccinations:

3. We wanted to improve our vaccination coverage among children with conditions that place them at increased risk for flu.

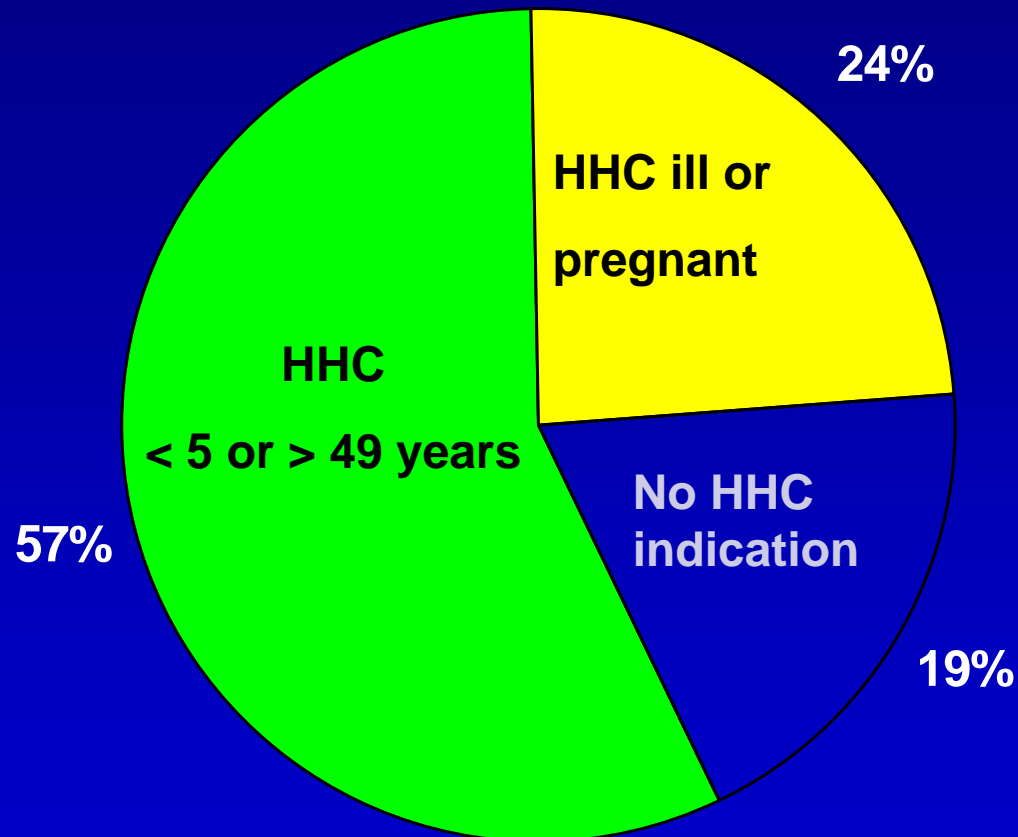
Percentage of Children with **Medical Condition** Vaccinated Against Flu in Hawaii in 2006-07

- Only **40%** of 8,154 privately insured children 5-13 years with **asthma**
- Only **50%** of 68 privately insured children 5-13 years with **diabetes**

Hawaii's rationale for pursuing statewide school-based influenza vaccinations:

5. Available data indicated many school-aged children without a medical condition were already recommended by ACIP to be vaccinated against flu because of the age or health of a household contact.

Percentage of Children with **HHC Indication** to be Vaccinated Against Flu in Hawaii in 2006-07



Hawaii Health Survey – 2005

19,309 Households with weighted responses representing 138,371 children 5-12 years of age.

Preliminary data – Do not distribute



Hawaii's rationale for pursuing statewide school-based influenza vaccinations:

5. We wanted to determine if we can decrease community flu morbidity by decreasing transmission among school children.
6. We wanted to be better prepared for possible mass vaccinations of school children during an influenza pandemic

Hawaii's Stop Flu at School Program

- Grades K-8 (elementary and middle schools)
- All public and private schools in Hawaii invited
- Offered TIV and LAIV – ordered a 50-50 split
- Two clinics held ≥ 6 weeks apart if school had children < 9 years of age needing 2 doses
- Voluntary written consent of parents/guardians

I Kamali 'O STUDENT Influenza Vaccination Consent Form

| | | | |
|-------------------------------|---------|-----------------|--------------------------------|
| STUDENT'S NAME (Last) | (First) | (M.I.) | STUDENT'S DATE OF BIRTH / / |
| PARENT/GUARDIAN'S NAME (Last) | (First) | (M.I.) | STUDENT'S Gender (M/F) |
| ADDRESS | | | |
| CITY | ZIP | PHONE (Daytime) | |
| SCHOOL NAME | | | GRADE |
| HOMEROOM TEACHER NAME (Last) | | | (First) |

The following questions will help us to determine if your child may receive the Inactivated Influenza Vaccine ("Flu Shot") or the Intranasal Influenza Vaccine (FluMist®). Please mark **YES** or **NO** for each question.

| | Yes | No |
|---|--------------------------|--------------------------|
| 1 Has your child ever had a serious allergic reaction to eggs or to a component of any flu vaccine? | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Has your child ever had a serious reaction to a previous dose of flu vaccine? | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Has your child ever had Guillain-Barré Syndrome (GBS, i.e., progressive ascending paralysis) ? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Is your child less than 5 years of age? | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Does your child have a long-term health problem such as heart disease, kidney disease, lung disease such as asthma, metabolic disease such as diabetes, or blood disorders such as anemia? | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Does your child have a weakened immune system caused by, for example, cancer, cancer treatment such as x-rays or drugs, HIV/AIDS, or is your child taking other drugs such as steroids that weaken the immune system? | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Does your child live with or have close contact with anyone with a severely weakened immune system requiring care in a protected environment? | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 Is your child receiving aspirin or other salicylate medication? | <input type="checkbox"/> | <input type="checkbox"/> |
| 9 Is your child taking any prescription medicines to prevent or treat flu? | <input type="checkbox"/> | <input type="checkbox"/> |
| 10 Will your child be receiving a MMR (measles/mumps/rubella) &/or varicella (chickenpox) vaccination after Sept. 8, 2007? | <input type="checkbox"/> | <input type="checkbox"/> |

Note: If you answered YES to questions #1, 2, or 3 or left any of these questions blank your child should **NOT** receive the any influenza vaccine through the school vaccination program.

If you answered YES or left blank any question #4 through #10 your child should **NOT** receive the intranasal influenza vaccine (FluMist®) but they can receive the injectable influenza vaccine (Flu Shot).

CONSENT FOR CHILD'S VACCINATION: I have read the 2007-08 Vaccine Information Statements for the Inactivated Influenza Vaccine ("Flu Shot") and the Live Intranasal Influenza Vaccine (FluMist®). I understand the risks and benefits associated with Inactivated Influenza Vaccine and the Live Intranasal Influenza Vaccine and give consent to the State of Hawaii Department of Health and its authorized staff for my child named at the top of this form to receive:

- PLEASE CHECK ONLY ONE BOX!**
- Inactivated Influenza Vaccine ("Flu Shot") **ONLY**
- Live Intranasal Influenza Vaccine (FluMist®) **ONLY**
- EITHER** Inactivated Influenza Vaccine ("Flu Shot") **OR** Live Intranasal Influenza Vaccine (FluMist®)

Signature/Parent or Legal Guardian _____ Date: ___/___/___

FOR CHILDREN 8 YEARS AND YOUNGER ONLY - CONSENT FOR CHILD'S 2ND DOSE OF VACCINE
My child is 8 years of age or younger and this is the first time he/she is receiving any flu vaccine. I have read the 2007-08 Vaccine Information Statements for the Inactivated Influenza Vaccine ("Flu Shot") and the Live Intranasal Influenza Vaccine (FluMist®), understand the risks and benefits, and give consent to the State of Hawaii Department of Health and its authorized staff for my child named at the top of this form to receive a second dose of:

- PLEASE CHECK ONLY ONE BOX!**
- Inactivated Influenza Vaccine ("Flu Shot") **ONLY**
- Live Intranasal Influenza Vaccine (FluMist®) **ONLY**
- EITHER** Inactivated Influenza Vaccine ("Flu Shot") **OR** Live Intranasal Influenza Vaccine (FluMist®)

Signature/Parent or Legal Guardian _____ Date: ___/___/___

Please send a copy of my child's immunization record to his/her doctor at the following address:

DOCTOR'S NAME (Last, First) _____ ADDRESS _____ CITY _____ ZIP _____

| FOR ADMINISTRATIVE USE ONLY | | | | | | | |
|---|------------------------|---------------|--------------------------|------------|-----------------|--------------|---|
| Vaccine | Date Dose Administered | Route | Vaccine Manufacturer | Lot Number | Expiration Date | VIS Pub.Date | Name, Address, & Title of Vaccine Administrator |
| TIV / LAIV | / / | IM Intranasal | Sanoft Pasteur MedImmune | | | | |
| TIV / LAIV 2 nd dose if needed | / / | IM Intranasal | Sanoft Pasteur MedImmune | | | | |

May 3, 2007

Preliminary data – DO NOT distribute



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| 6 Does your child have a weakened immune system caused by, for example, cancer, cancer treatment such as x-rays or drugs, HIV/AIDS, or is your child taking other drugs such as steroids that weaken the immune system? | <input type="checkbox"/> | <input type="checkbox"/> |
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- EITHER** Inactivated Influenza Vaccine ("Flu Shot") **OR** Live Intranasal Influenza Vaccine (FluMist®)

Signature/Parent or Legal Guardian _____

Date: ____/____/____

Hawaii's Stop Flu at School Program

■ Timeline

Order Vaccines
→

Schools Invited
→

Schools Scheduled
→

Consents Sent
→

Staffing Arranged
→

Consents Due/Review
→

Promotion
→

Clinics
→

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan

59 Working Days

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SIGHT & SOUND STUDIOS, LLC
DIGITAL MEDIA PRODUCTIONS IN HAWAII

Hawaii Department of Health
PCF Virtual
"Soccer Moms" Spot 1 - "...fill out..."
TRT: :30
7/25/07
Mixed Audio

Hawaii's Stop Flu at School Program

School Participation

- 341/377 (90%) of all schools with grades K-8

242/251 (96%) of **public** schools

99/126 (79%) of **private** schools

622 school-based clinics (277 of which were second dose clinics)

Hawaii's Stop Flu at School Program

Student participation:

62,970 (94%) of 67,203 students who consented

45% of 140,636 children at participating schools vaccinated

44% of 142,564 children aged 5-13 years in Hawaii according to 2006 census

Hawaii's Stop Flu at School Program

Student participation (continued):

15,228 children < 9 years old received 2nd dose (24% of all vaccinated children)

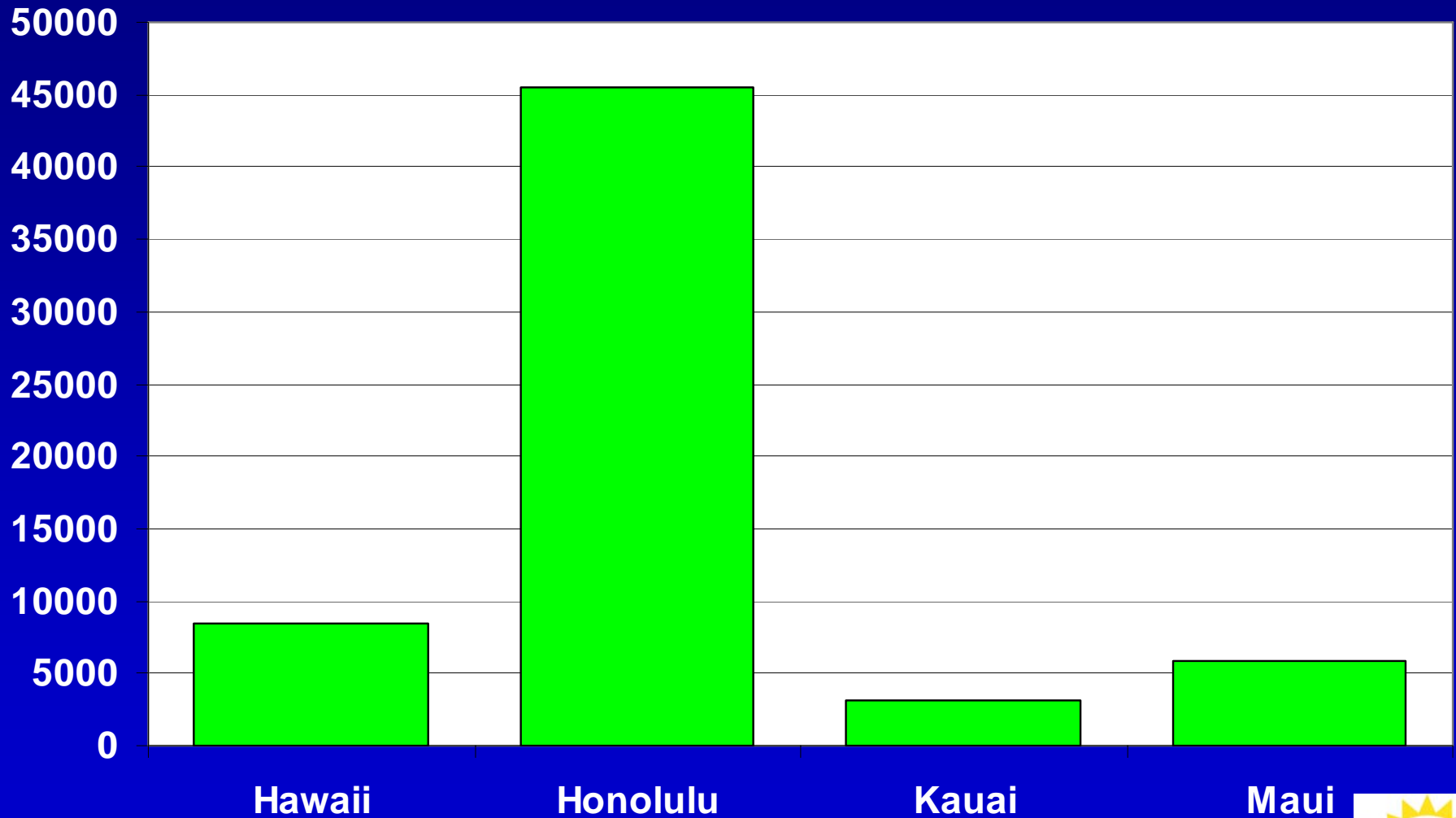
78,198 total flu vaccine doses given to children

Hawaii's Stop Flu at School Program

School staff participation:

9,329 school-based staff vaccinated,
representing approximately 43% of the
workforce cohort

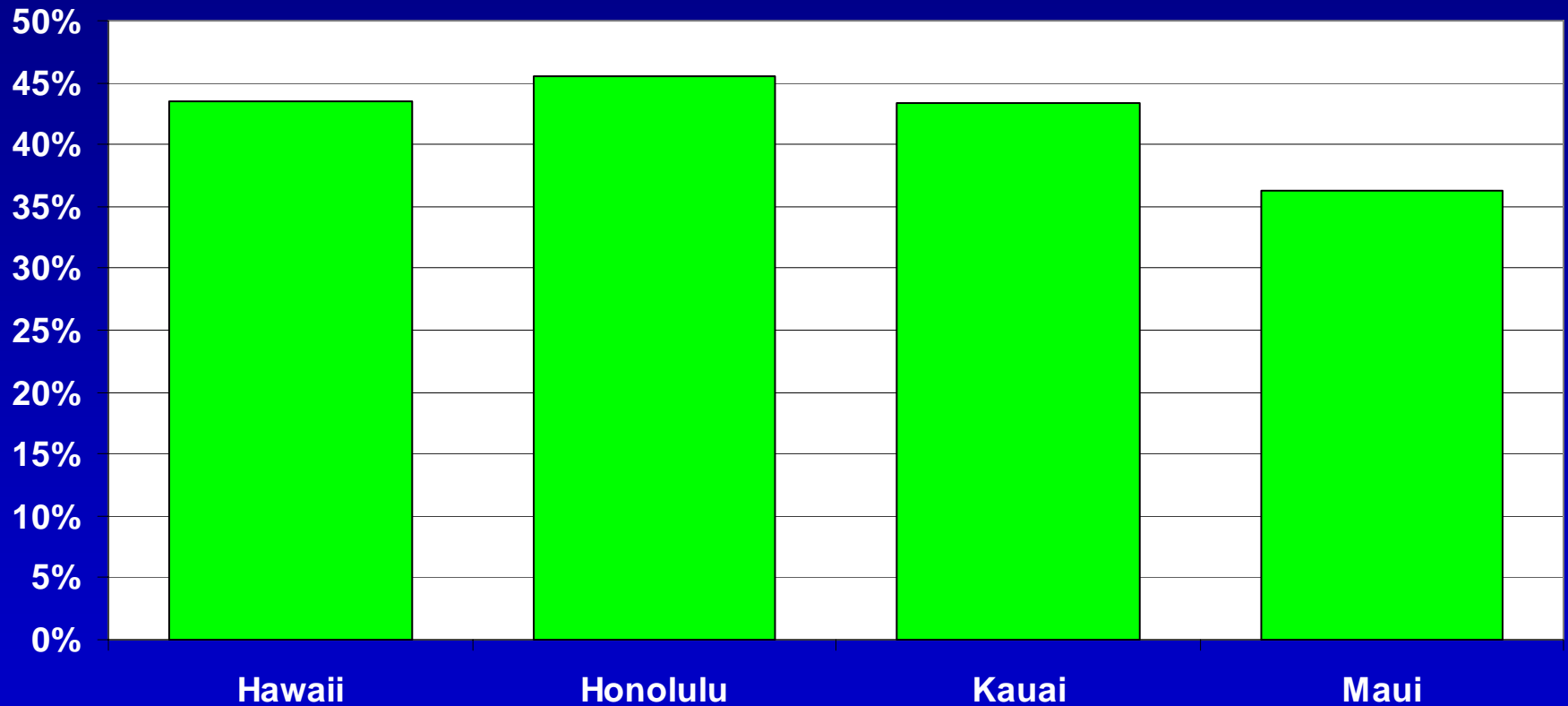
Number of children aged 5-13 years receiving first dose flu vaccine, by county



Preliminary data – Do not distribute



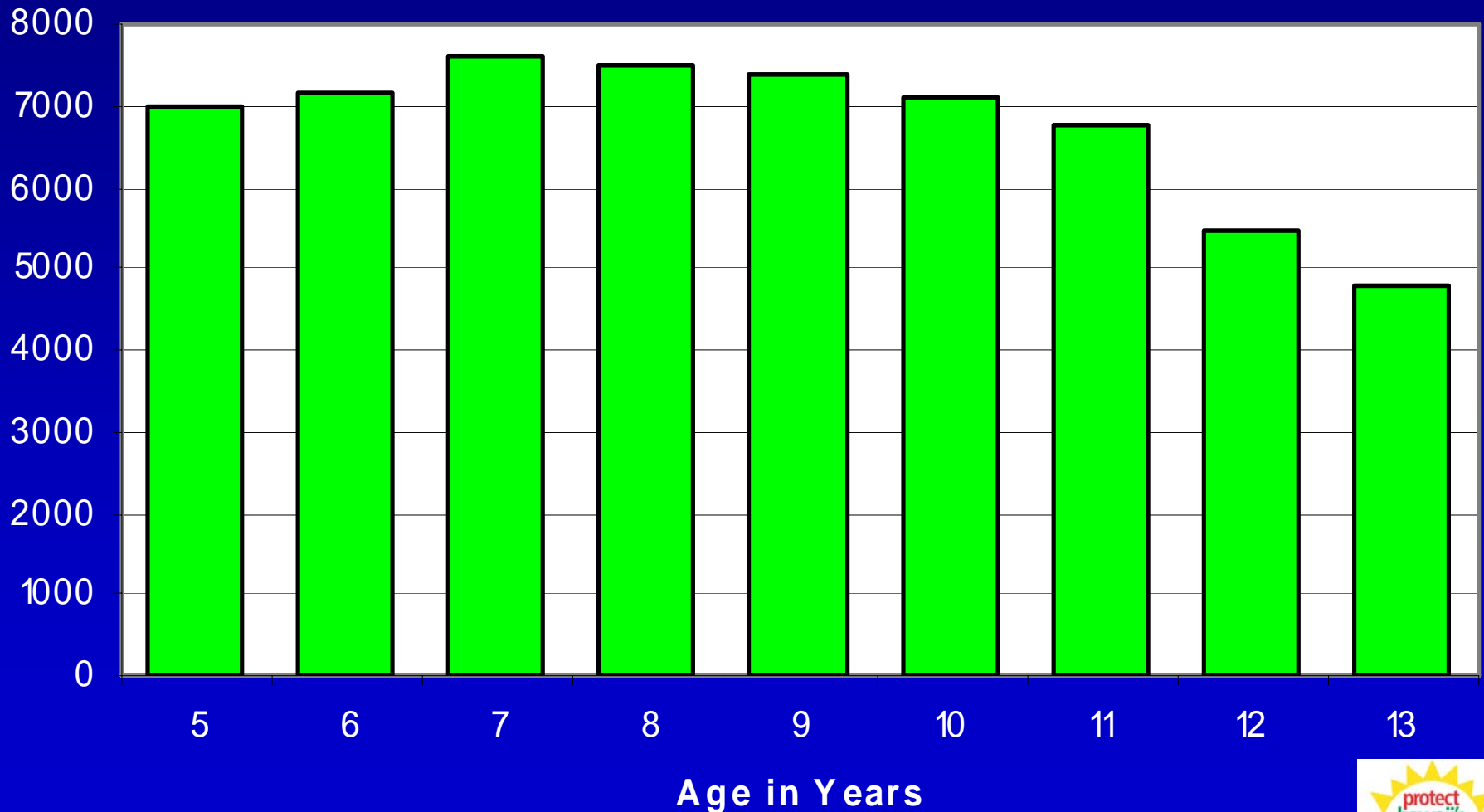
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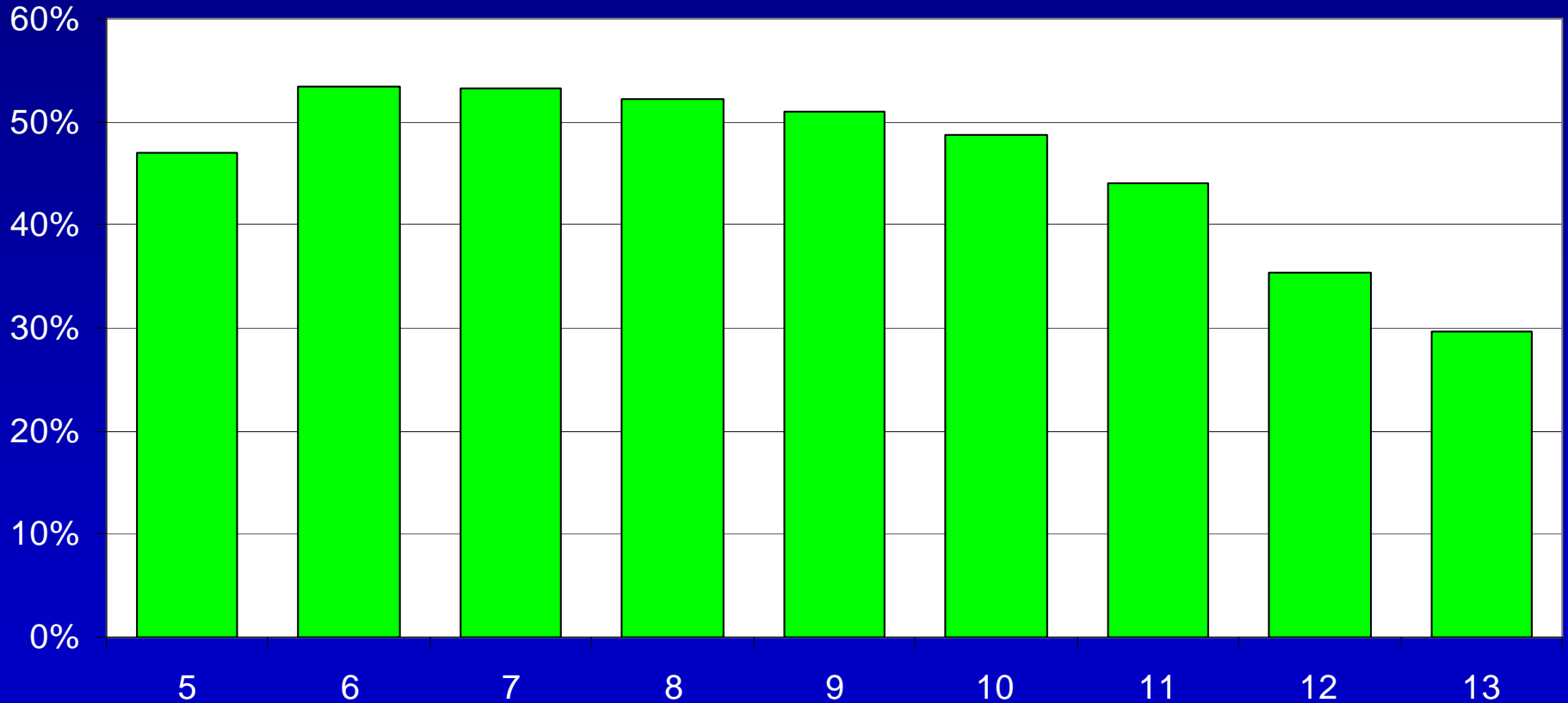
Number of Children receiving first doses of Flu Vaccine, by Age



Preliminary data – Do not distribute



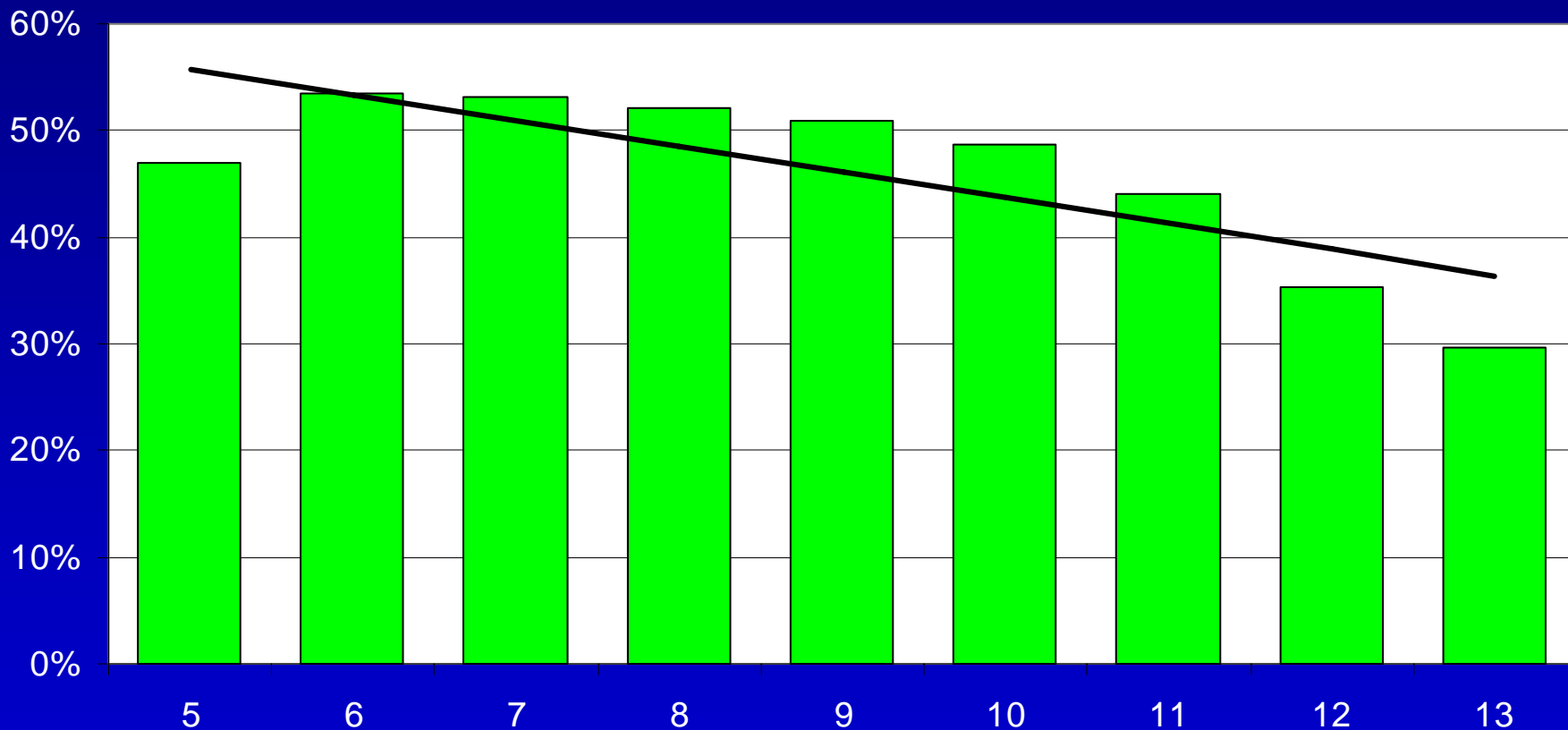
Percent of Children receiving first doses of Flu Vaccine, by Age



Preliminary data – Do not distribute



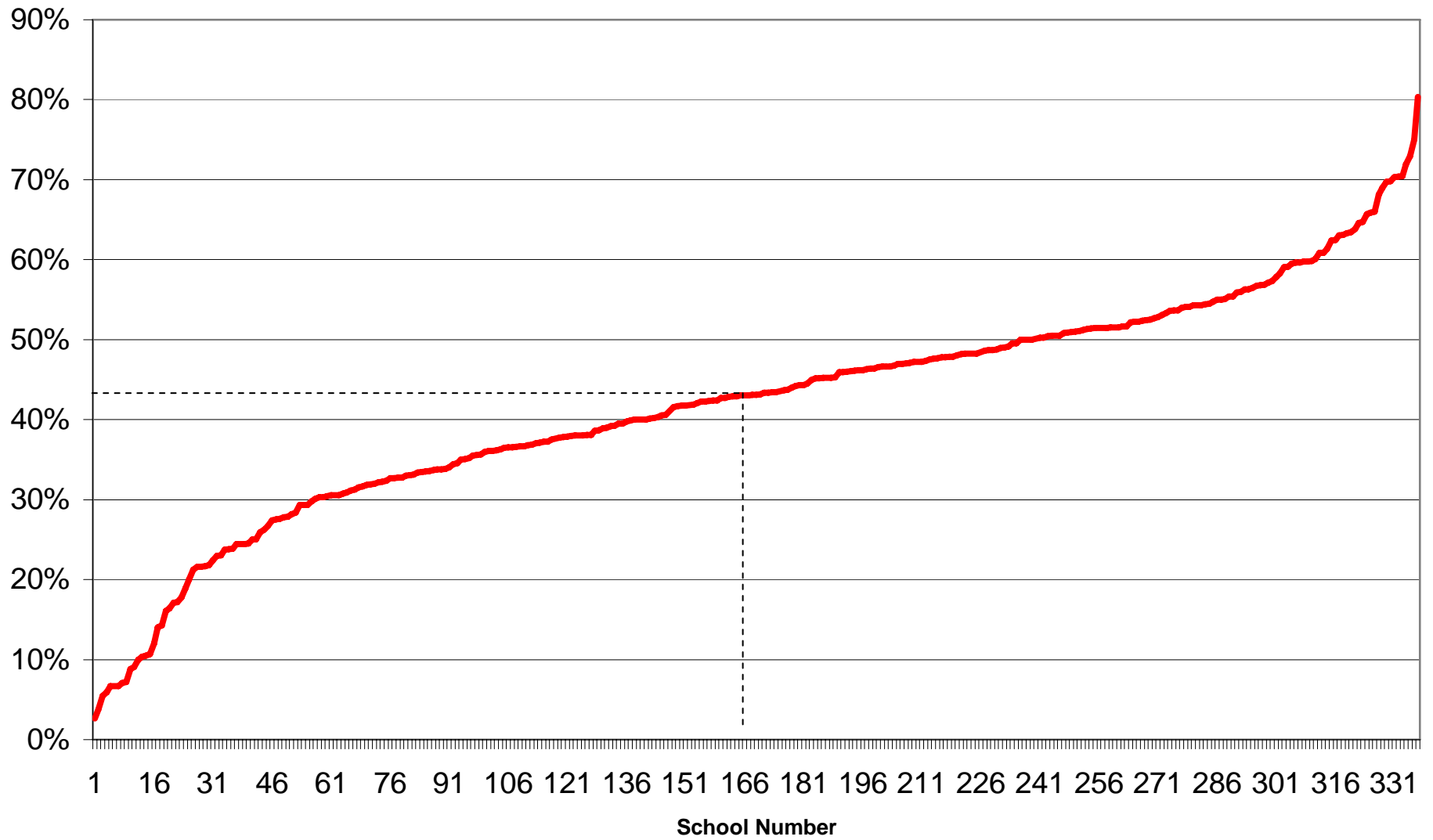
Percent of Children receiving first doses of Flu Vaccine, by Age



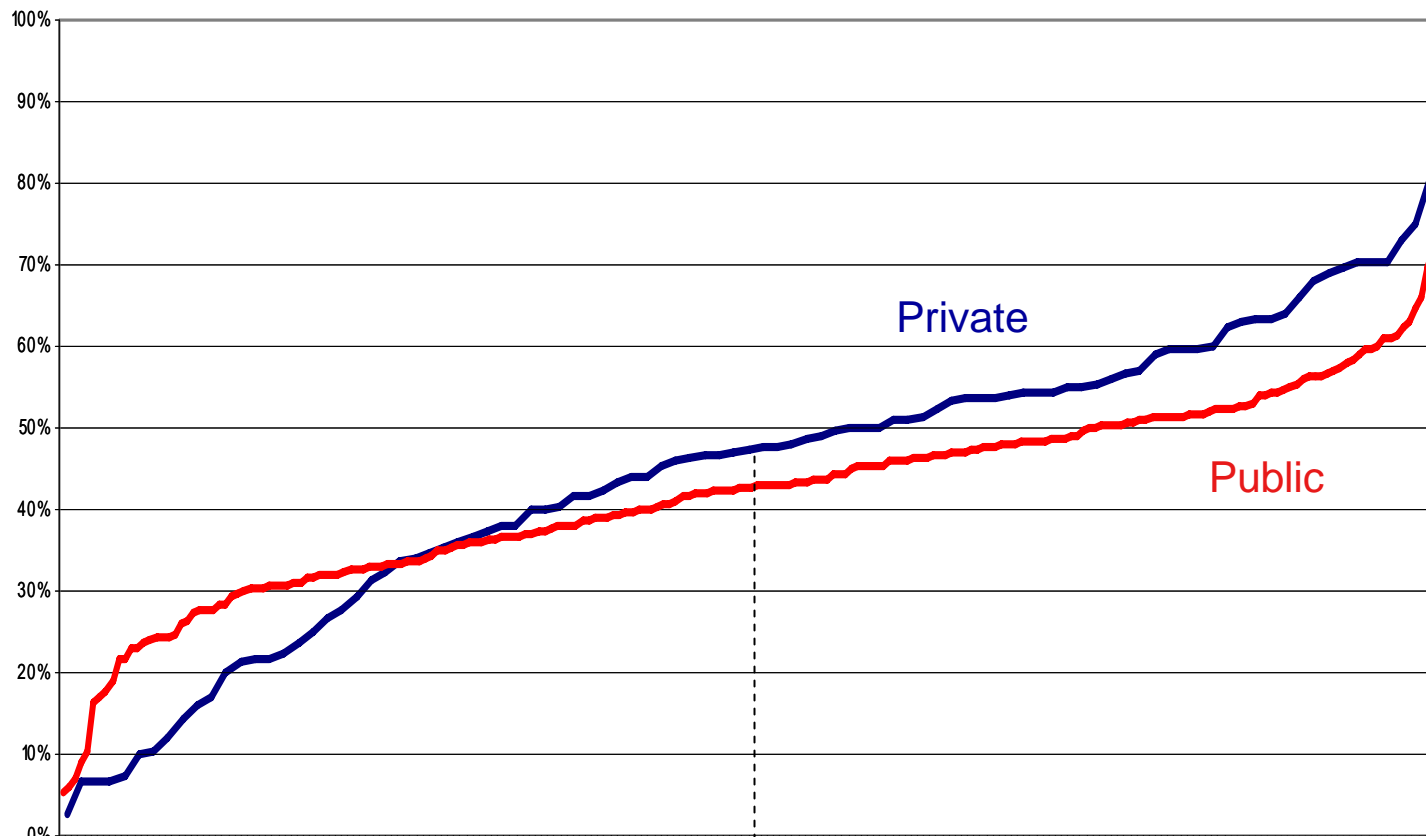
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Proportion of Children Vaccinated by School



Proportion of Public vs. Private students vaccinated

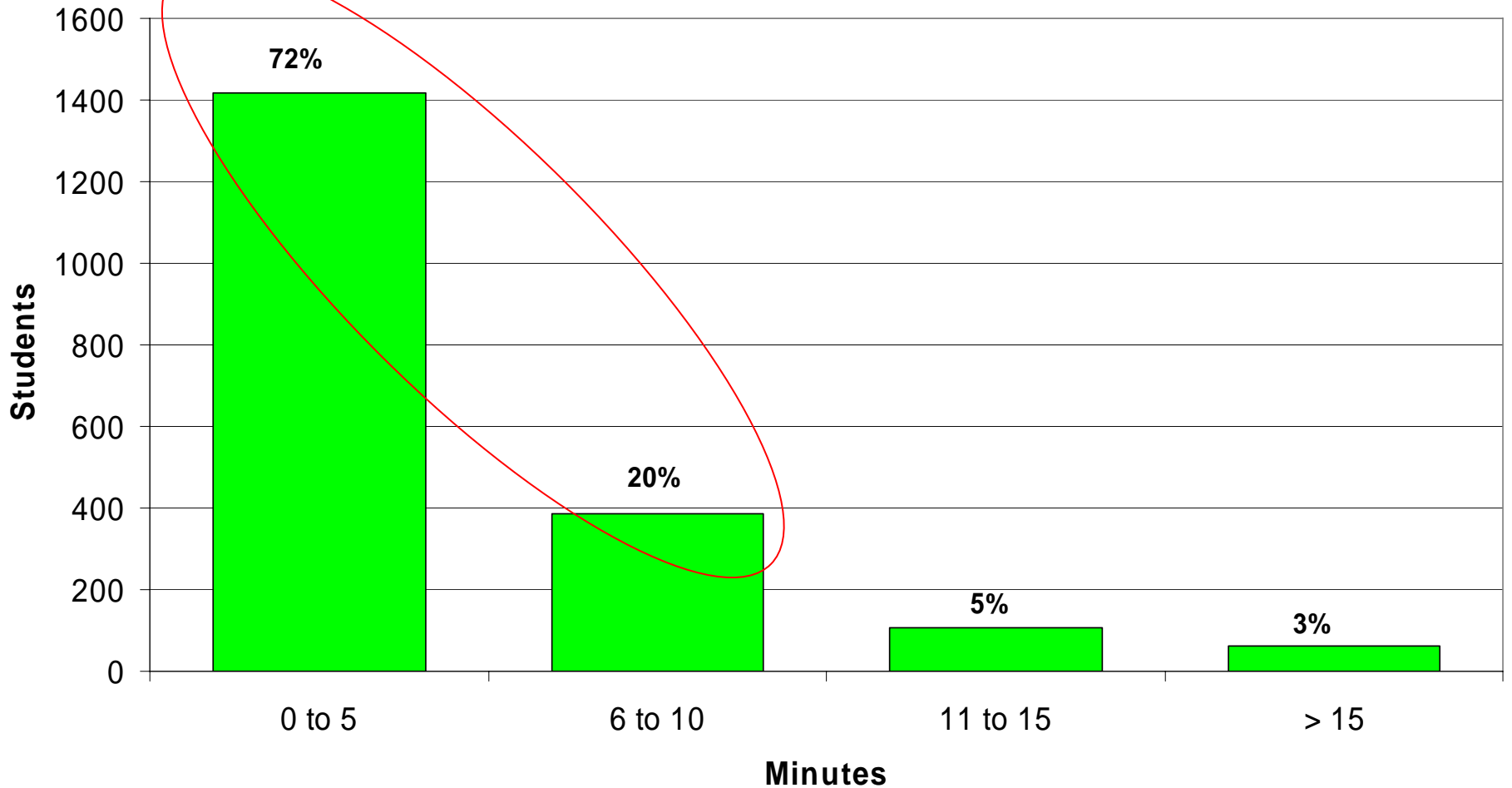


| | Median | Mean |
|---------|--------|------|
| Public | 43% | 42% |
| Private | 47% | 44% |

Preliminary data – Do not distribute



Throughput times at school vaccination clinics, Hawaii 2007-08



Average

0:05

Median

0:04

Mode

0:02

n = 1970 students at 199 schools;
approx. 10 students per school

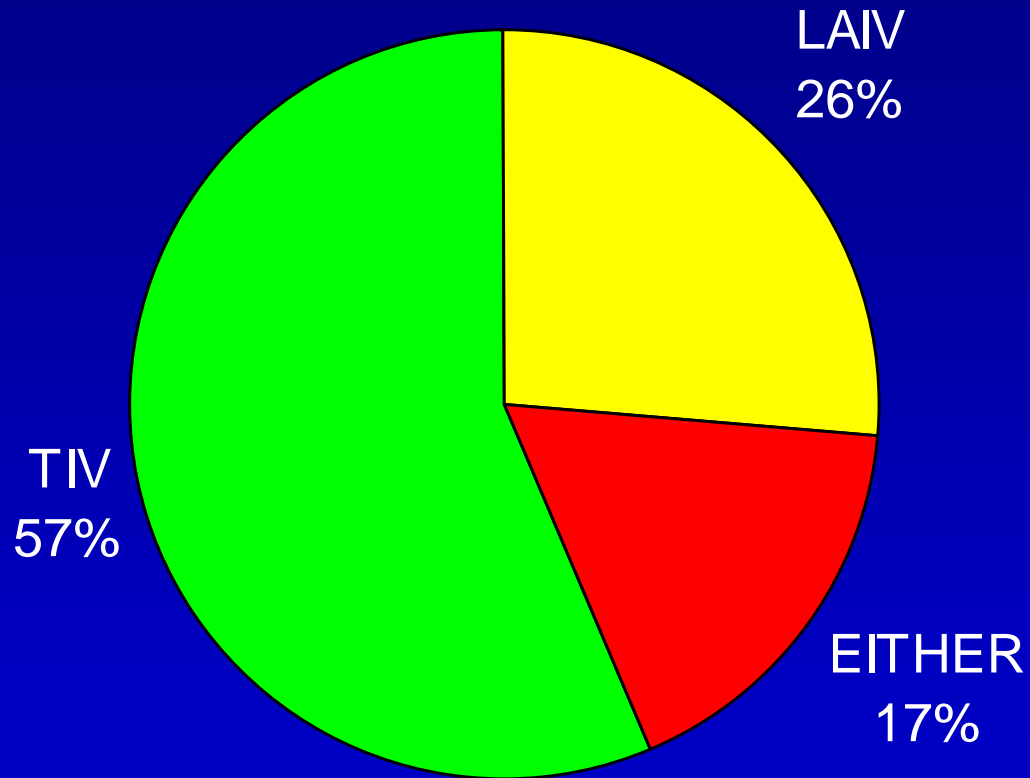
Influenza Vaccine Formulations



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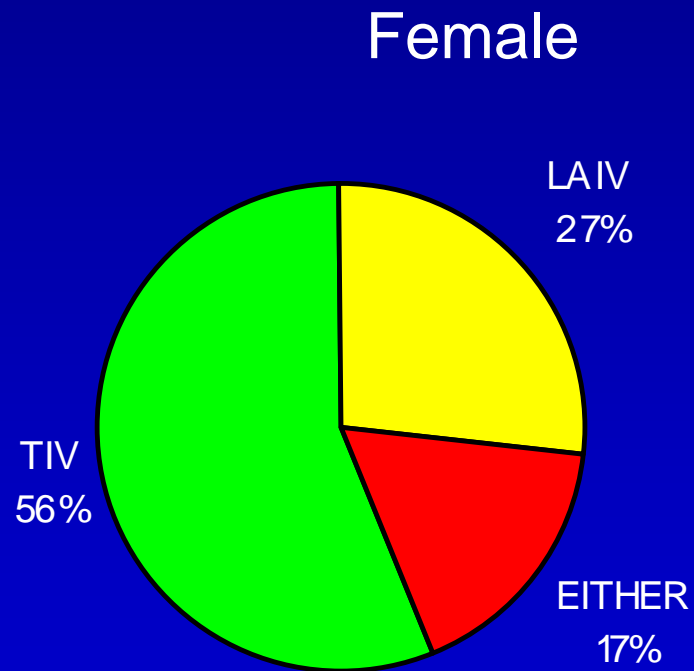
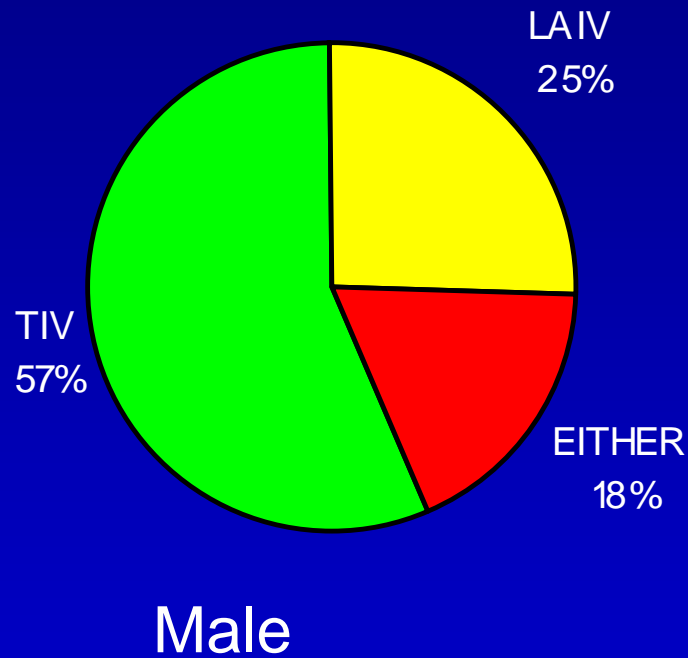
Vaccine Formulation Chosen



Preliminary data – Do not distribute



Vaccine Formulation Chosen, by Gender of Student



Preliminary data – Do not distribute



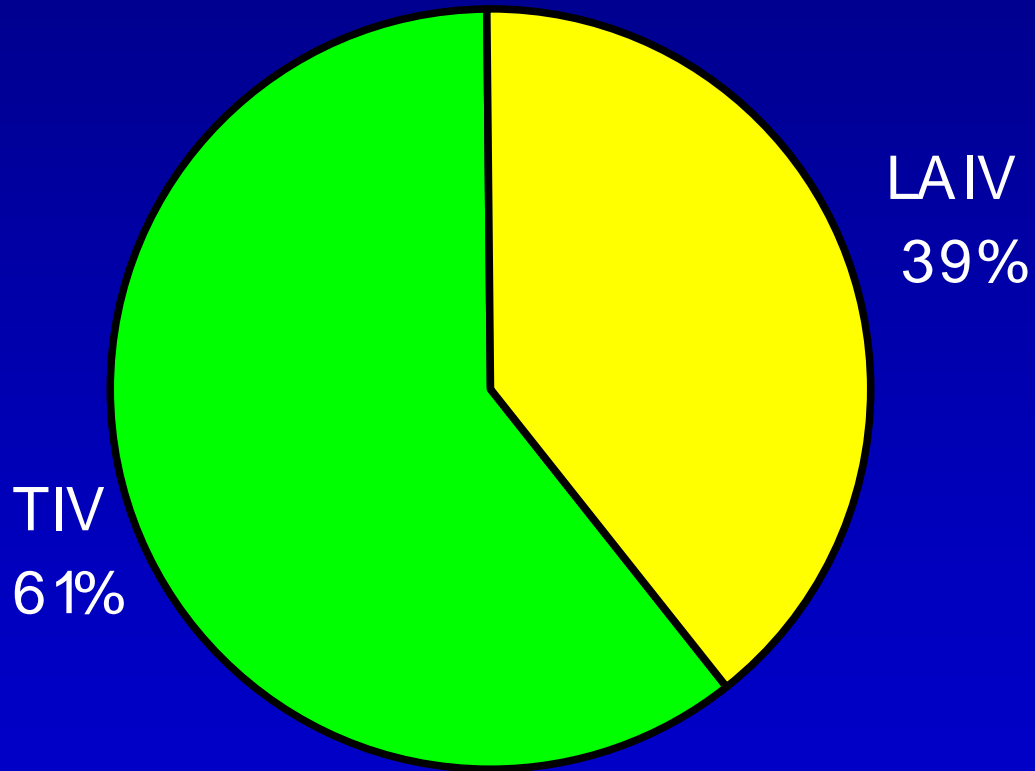
Vaccine Formulation Chosen, by Percent of First doses by Age



Preliminary data – Do not distribute



Vaccine Formulation Actually Administered - First doses



Preliminary data – Do not distribute



Hawaii's Stop Flu at School Program

Adverse events: (All post TIV)

■ VAERS

1. 13 y/o hives at injection site
2. 11 y/o temporarily couldn't move arm
3. 12 y/o fever, vomiting → H/A and malaise for 1 month

■ Other

1. 5 y/o sick one hour p vax – fever 102.4 F
2. 9 y/o syncope after receiving TIV – sent ED
3. 7 y/o syncope and questionable Sz for 5-10 seconds
4. Middle school student with syncopal episode

Hawaii's Stop Flu at School Program

Sources of Staffing

- HDOH
- Nursing Schools
- Medical Reserve Corps
- Contract Nurses
- Military

Clinic Staffing

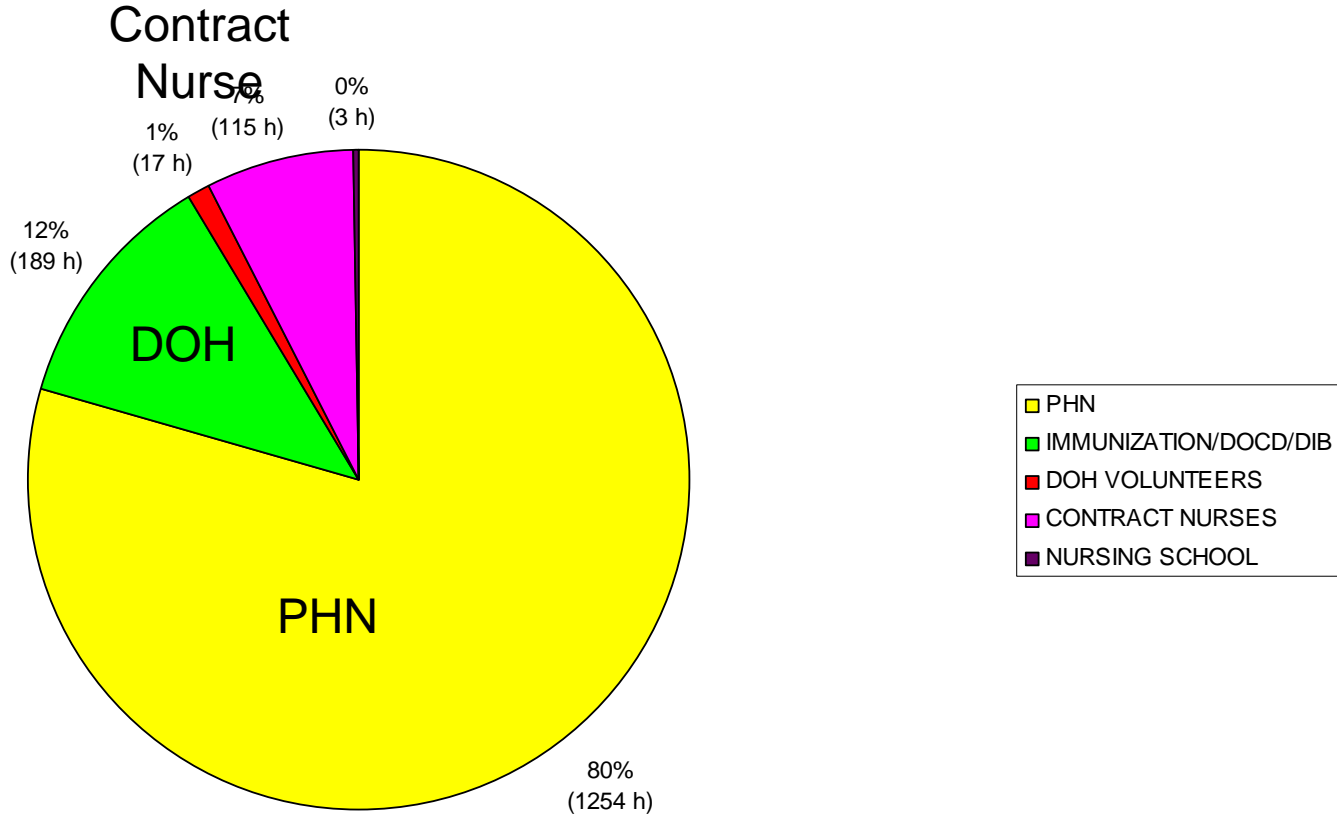
Actual data for ~325 “1st” clinics held between
Oct. 15, 2007 - Dec. 14, 2007

| | | |
|------------------|------------|-------------|
| Clinic Managers: | 1006 hours | 3.1/clinic |
| Vaccinators: | 5947 hours | 18.3/clinic |
| Registration: | 5554 hours | 17.1/clinic |

Translates to approximately 3.5 hour clinic w/
1 manager
5-6 vaccinators
4-5 registration

Clinic Staffing - Clinic Manager

Clinic Manager - 578 Clinics (10/15/07 to 1/31/08)



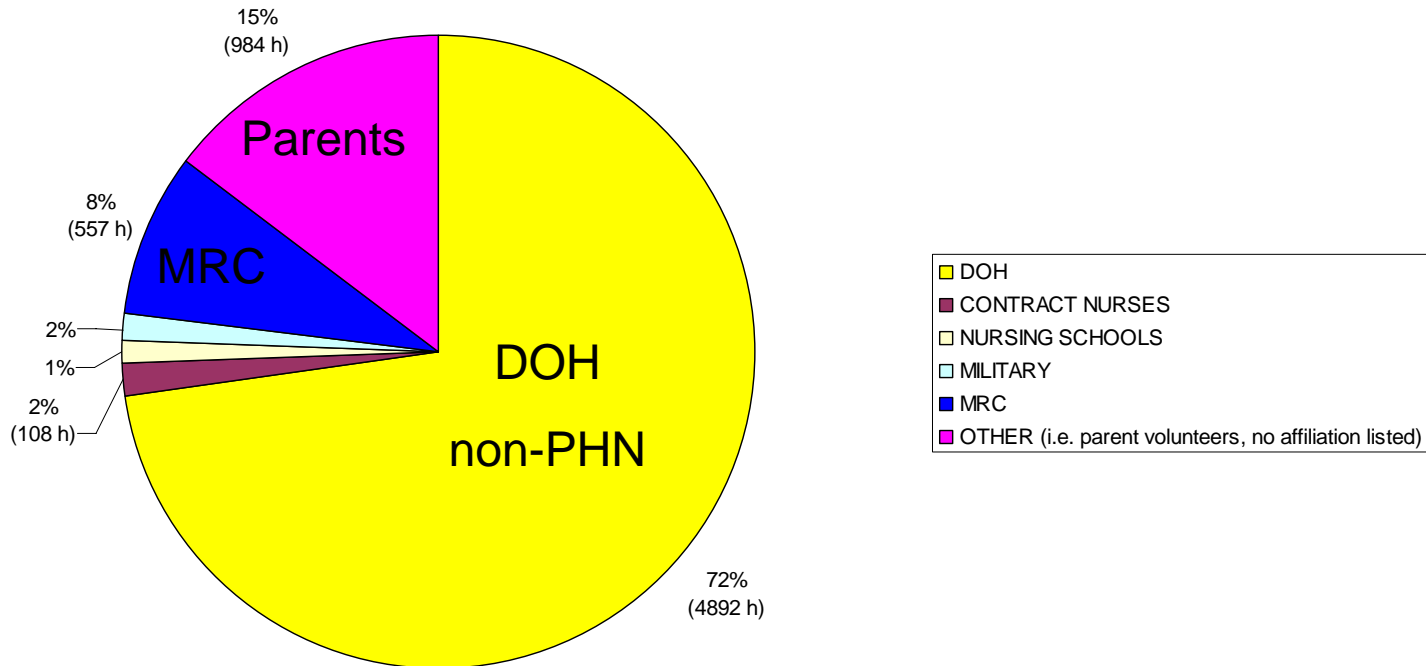
Preliminary data – Do not distribute





Clinic Staffing – Registration

Registration - 578 Clinics (10/15/07 to 1/31/08)



Preliminary data – Do not distribute

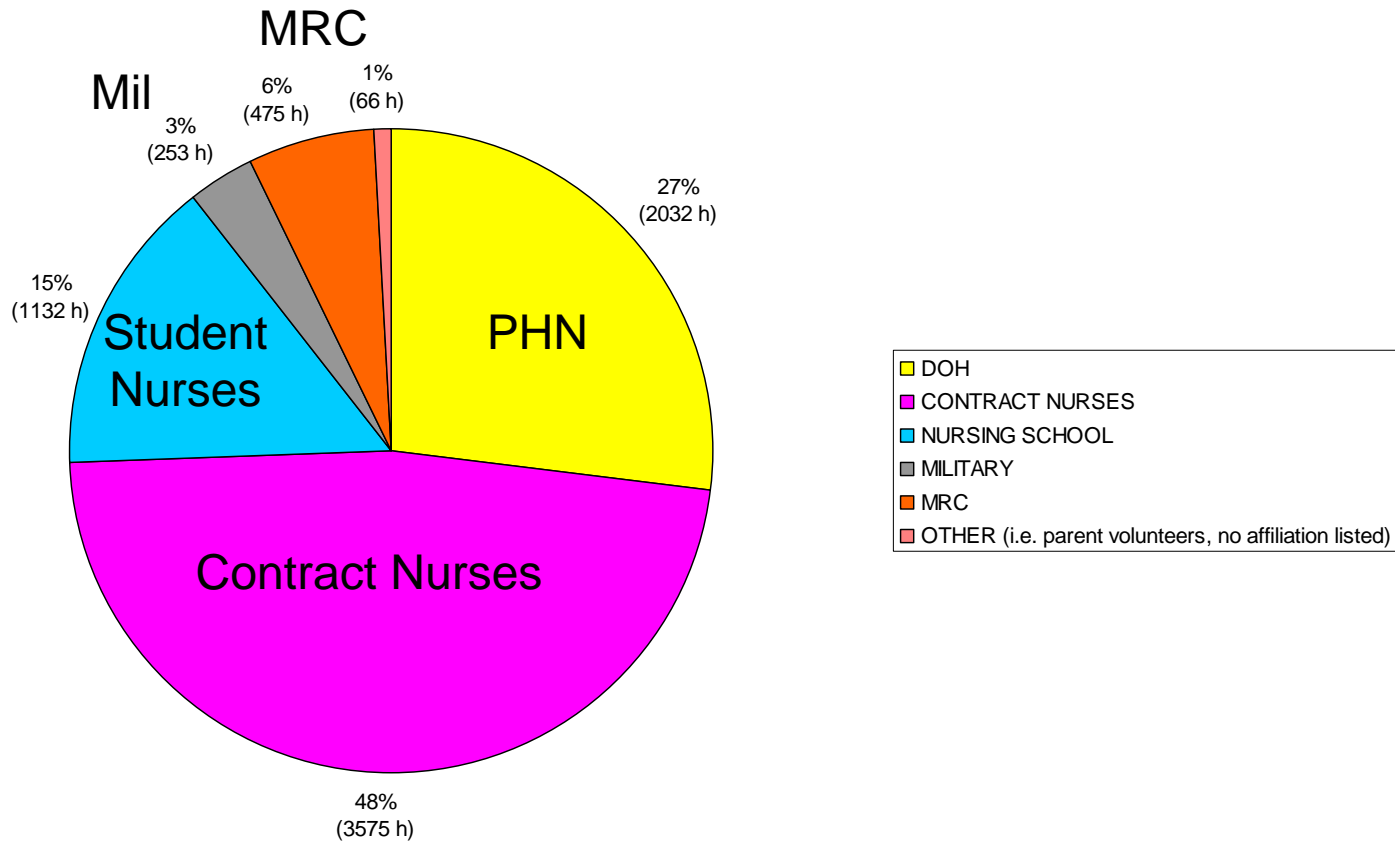






Clinic Staffing - Vaccinators

Vaccinators - 578 Clinics (10/15/07 to 1/31/08)



Preliminary data – Do not distribute















Hawaii's Stop Flu at School Program

What did the program cost:

| | | |
|------------------------------------|-----------|------------------|
| Vaccine: | \$ | 1,049,096 |
| Medical Supplies: | \$ | 135,000 |
| Print Materials: | \$ | 148,278 |
| Data Entry: | \$ | 42,230 |
| Nursing Services: | \$ | 300,000 |
| Staff: | \$ | 130,199 |
| Curriculum & Training: | \$ | 35,300 |
| Public Relations: | \$ | 216,706 |
| Courier: | \$ | 19,300 |
| Promotion & Incentives: | \$ | 7,000 |
| TOTAL | \$ | 2,083,108 |

About \$23 for each dose of vaccine administered.

Preliminary data – Do not distribute



Hawaii's Stop Flu at School Program

What would we do differently next year?

- Plan for close to 100% of all schools
- Hold only 1 clinic per school (45% of all clinics were 2nd clinics - diminishing returns)
- Target 50% vaccine uptake
- Anticipate more LAIV use
- Revise consent forms
- Use different syringes

In summary...

- Demonstrated ability to conduct statewide school-based influenza vaccination program using both TIV and LAIV
- Improved our pandemic preparedness
- Program was well received by parents and both public and private schools
- Foundation laid for comprehensive evaluation
- Need to maintain and expand program so that impact can be assessed over multiple flu seasons

Thank You



Questions & Discussion

Hawaii is an ideal setting for assessing the impact of school-based influenza vaccinations because:

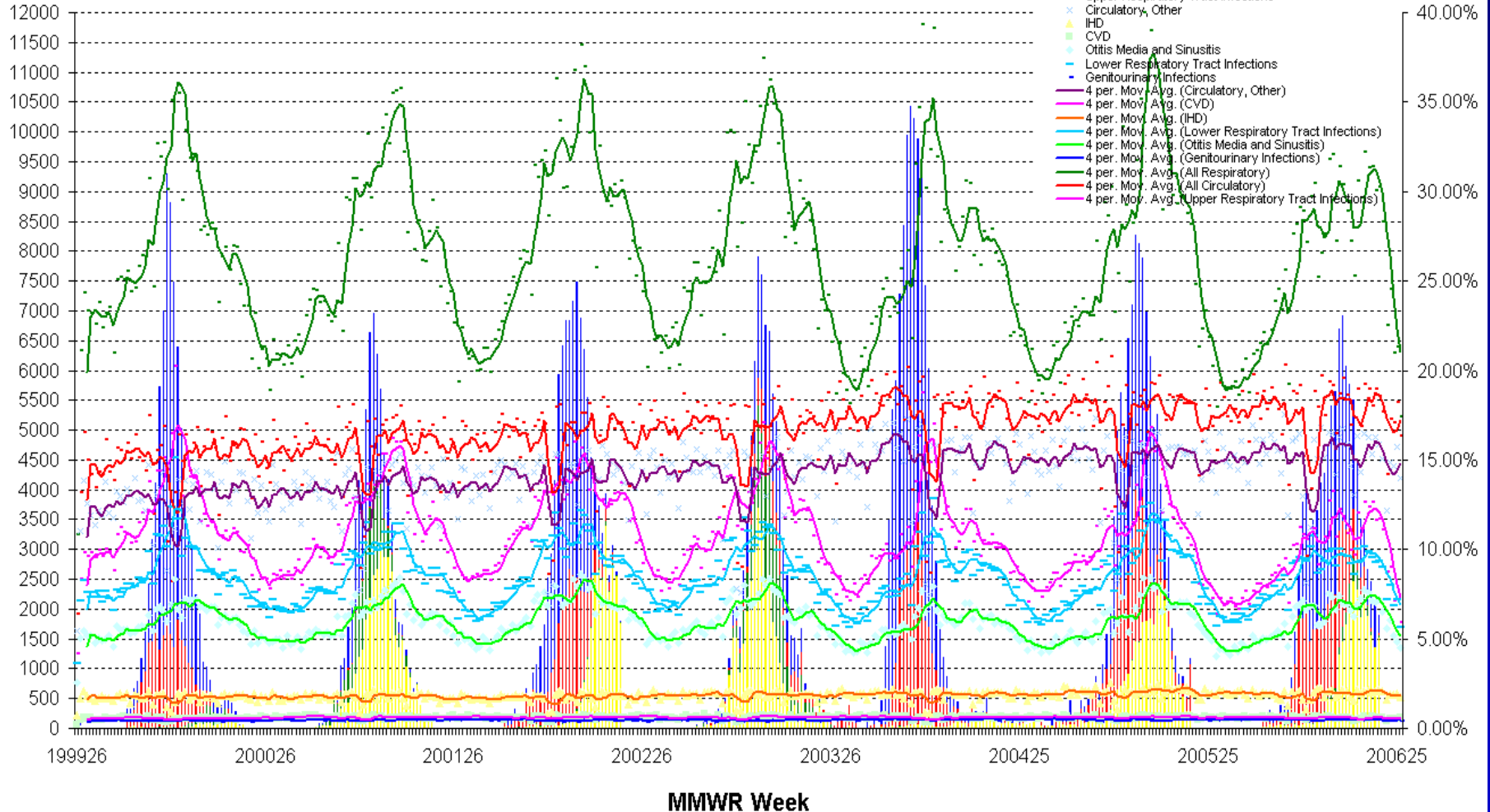
- Hawaii's geographic isolation means that residents usually receive medical care within state.
- Hawaii has a statewide hospital discharge database to capture of hospitalizations due to respiratory illness
- Hawaii has two major health care insurers/payers that together provide coverage for > 70% of the population → comprehensive assessment of impact on outpatient visits is possible.

Evaluation

Multiple options... in progress

1. Historical comparisons of outpatient, inpatient, and death data

Outpatient Data, July 1999 - June 2006

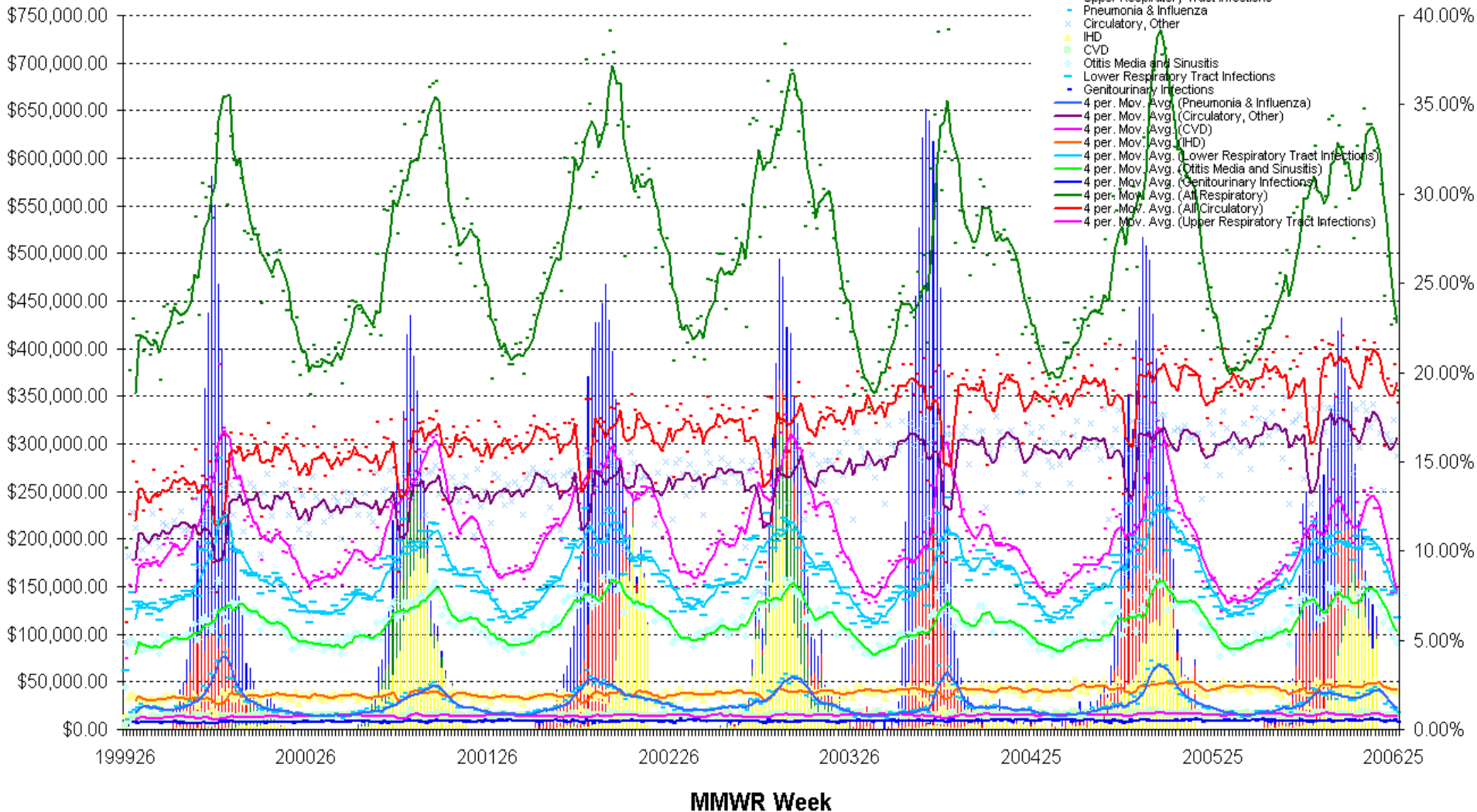


Outpatient Visits: Green = all respiratory

Preliminary data – Do not distribute



Outpatient Data Cost in \$, July 1999 - June 2006

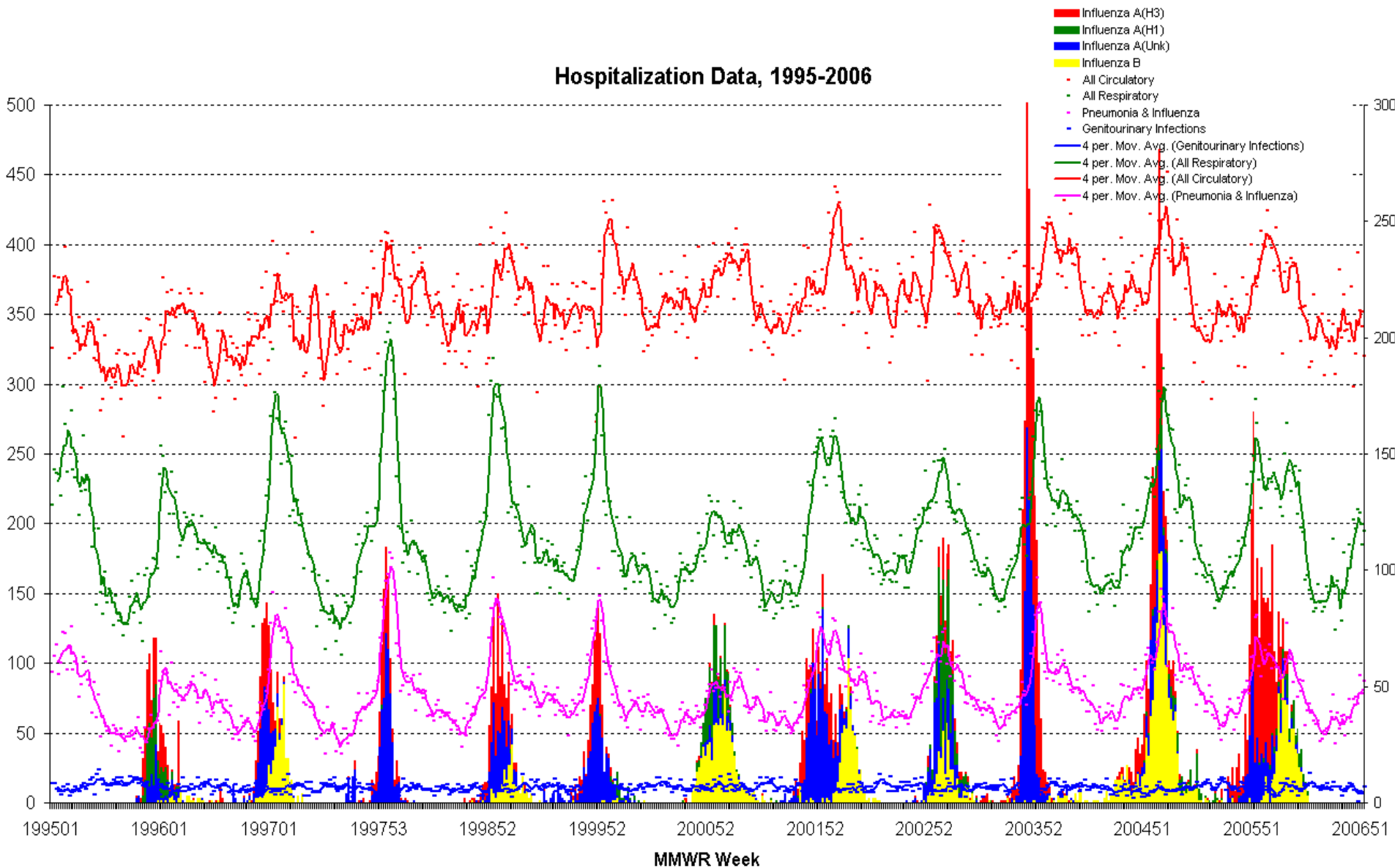


Outpatient Costs: Green = all respiratory

Preliminary data – Do not distribute



Hospitalization Data, 1995-2006

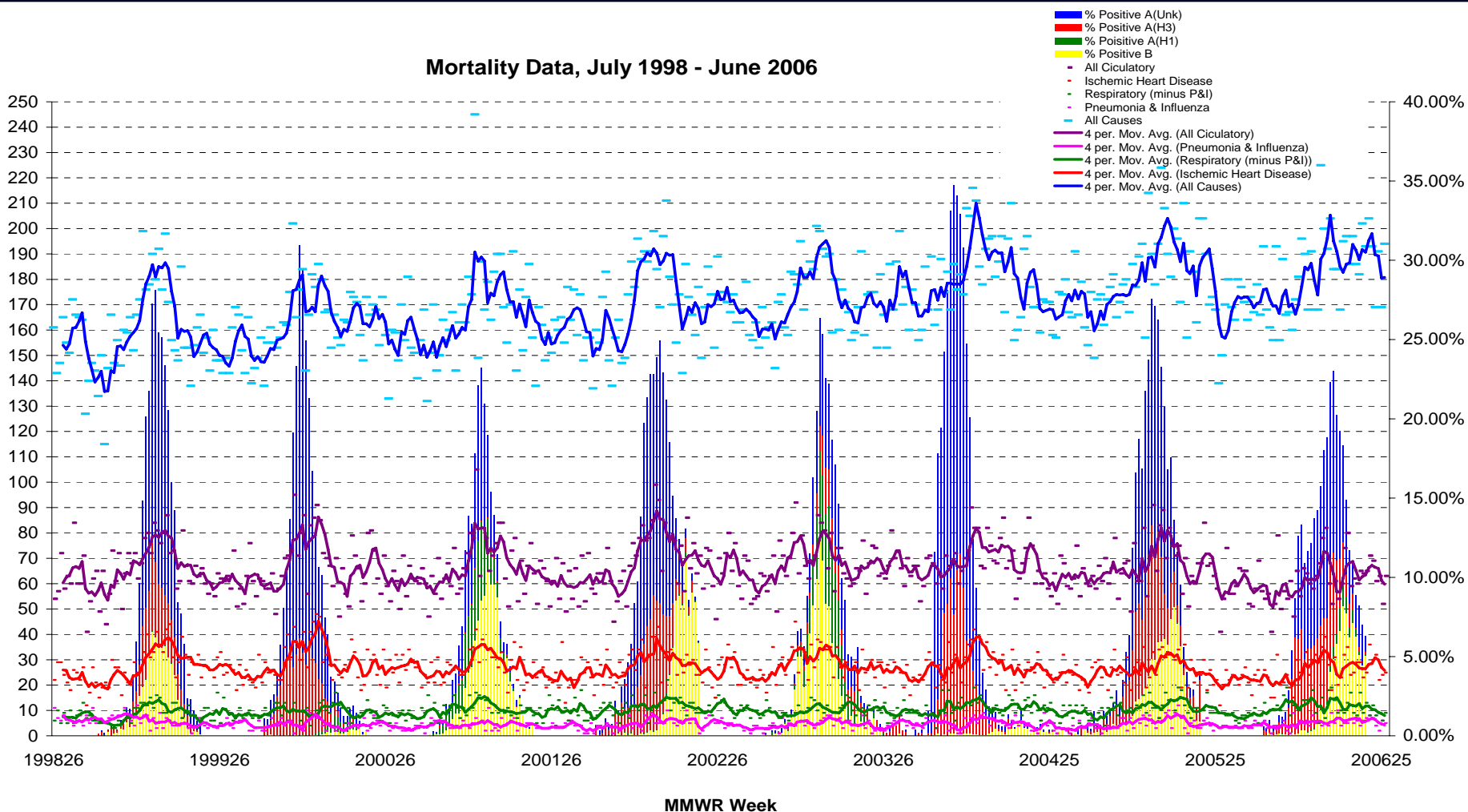


Inpatients: Green = all respiratory

Preliminary data – Do not distribute



Mortality Data, July 1998 - June 2006



Deaths in Hawaii, 1998-2006: Blue = all causes

Preliminary data – Do not distribute



Evaluation

Multiple options... in progress

1. Historical comparisons of outpatient, inpatient, and death data
2. Vaccine effectiveness studies using etiologically confirmed ILI as validation sets
3. Impact of school-based flu vaccinations for children ages 5-13 years on office-based vaccinations in all age groups

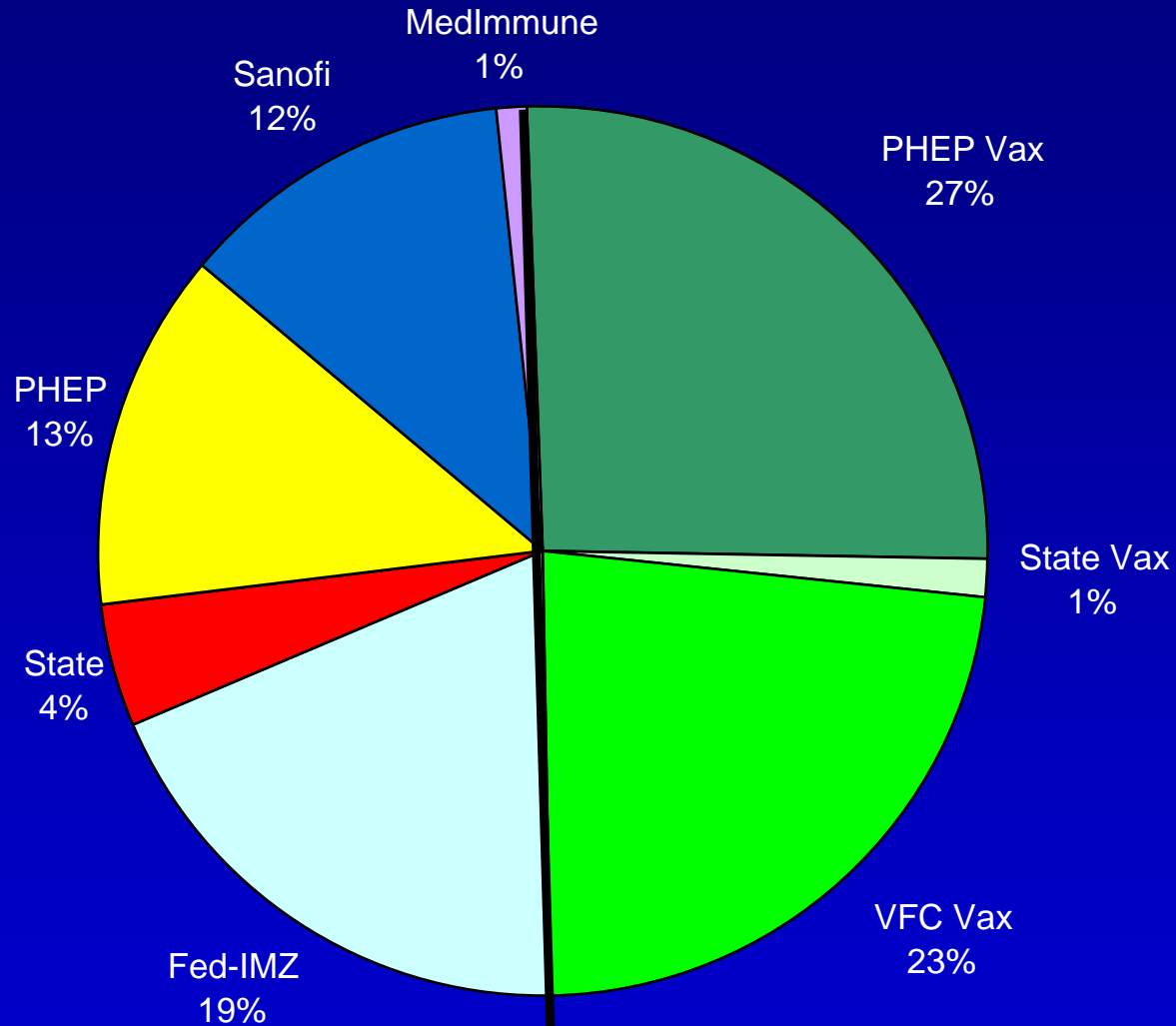
Evaluation

Multiple options... currently being evaluated

4. Characteristics of schools with low vs. high vaccination rates
5. Student absenteeism comparing School low vs. high school vax coverage rates
6. ILI in family members of vax vs. unvax kids
7. Hawaii Kaiser vs. Northern CA Kaiser populations

Hawaii's Stop Flu at School Program

Funding Sources
2007-08



Operational

Vaccine

Preliminary data - Do not distribute

