



# Immunizations for Patients with Diabetes

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# Overview

- Immunization recommendations
  - Adults
  - Persons with diabetes
  - Adolescents
- Current Immunization Coverage
- Educational resources
- RPMS/EHR Tools to improve immunization coverage



# Routine Adult Immunization Recommendations

## Advisory Committee on Immunization Practices (ACIP)

- Human Papillomavirus Vaccine (HPV)
  - Females 19-26 years
  - Males 19-21 years
- Td
  - Booster every 10 years
- Tdap
  - 1 dose, regardless of interval with Td
- Zoster
  - 60 years
- Influenza
  - Annually
- Pneumococcal polysaccharide, 23-valent (PPSV23, a.k.a. Pneumovax®)
  - 65 years
  - May start earlier for certain high risk populations – e.g., AI/AN in certain geographic regions)

Adult Vaccine Schedule: <http://www.cdc.gov/vaccines/schedules/easy-to-read/adult.html>

**WHAT ABOUT THE COST?**



# To Provide or Not to Provide?

- Under Healthcare Reform and the Affordable Care Act, new health plans are required to cover all ACIP recommended vaccines at no cost
- Provision of recommended adult vaccines is a standard of care <sup>1</sup>
- All ACIP recommended vaccines are included on the IHS Core Formulary
- Per the IHS National Pharmacy and Therapeutics Committee Charter, all products on the National Core Formulary will be made available for patient use when requested by practicing providers within all Federal facilities

1. Standards for Adult Immunization practice:

<http://www.cdc.gov/vaccines/hcp/patient-ed/adults/for-practice/standards.html>



# Covering the Cost

- Patient Assistance Programs
  - Merck Vaccine Patient Assistance
  - <http://www.merckhelps.com/VPAP/>
  - Replacement of vaccines for uninsured, low income patients
    - Patients with IHS care only are considered uninsured
    - Requires pre-approval
- Immunization clinics (e.g., pharmacy)
  - Walk-in immunization clinics
    - If staffed by a billable provider, may help recoup costs of vaccinating those without insurance



# Immunizations for those with Diabetes

- PPSV23
- Influenza
- Hepatitis B



# Pneumonia and Influenza


- American Indian and Alaska Native people are almost 2 times more likely to die from pneumonia and influenza than non-Hispanic whites <sup>1</sup>
  - Significant variation by region and age group
- During the 2009 H1N1 influenza pandemic, AI/AN people were 4 times more likely to die from influenza-related complications than other race groups <sup>2</sup>
- Reasons for this disparity include a higher rate of chronic medical conditions, including DIABETES

1. Pneumonia and Influenza Mortality Among American Indian and Alaska Native People, 1990–2009. <http://ajph.aphapublications.org/toc/ajph/0/0>

2. Deaths Related to 2009 Pandemic Influenza A (H1N1) Among American Indian/Alaska Natives --- 12 States, 2009

<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5848a1.htm>






# Pneumococcal and Influenza Immunization Recommendations

- Influenza – annual influenza vaccine for everyone 6 months and older
- PPSV23
  - People with risk factors should receive a dose upon diagnosis
  - Diabetes is a risk factor for invasive pneumococcal disease
  - Patients who receive PPSV23 before 65 years of age should receive one booster dose at 65 years of age, at least 5 years after last dose

Influenza: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6207a1.htm>

PPSV23: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5934a3.htm>



# Pneumococcal Conjugate Vaccine (PCV13) for Adults

- Licensed for use in adults 50 years and older; only recommended for adults with immunocompromising conditions. These include:
  - Cerebrospinal fluid leak
  - Cochlear implant
  - Sickle cell disease/other hemaglobinopathy
  - Congenital or **acquired asplenia**
  - Congenital or acquired immunodeficiency
  - HIV
  - Chronic renal failure
  - **Nephrotic Syndrome**
  - Leukemia
  - Lymphoma
  - Hodgkins Disease
  - Generalized malignancy
  - Iatrogenic immunosuppression
  - **Solid organ transplant**
  - Multiple myeloma
- Diabetes is NOT considered an immunocompromising condition for this vaccine

PCV13 recommendations for adults:

<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6140a4.htm>

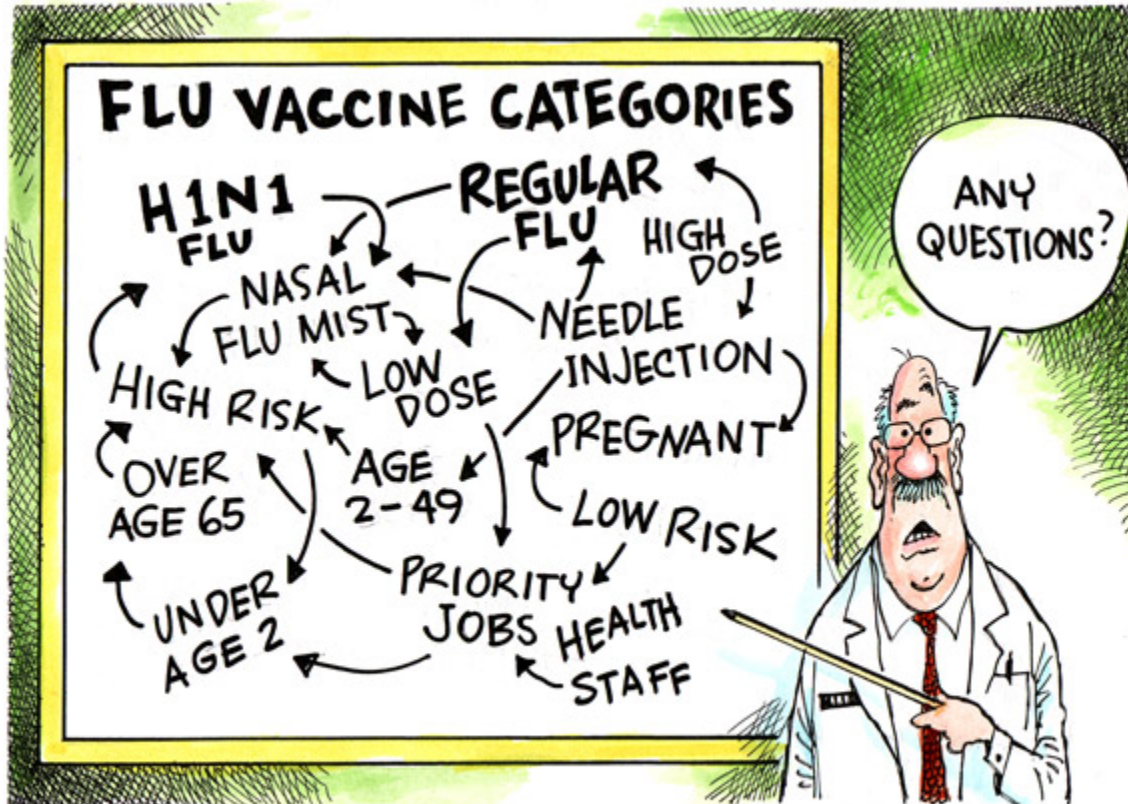


# PCV13 for Immunocompromised Adults

- For immunocompromised ONLY:
  - **If the patient has never received a pneumococcal vaccine:**
    - Should receive a dose of PCV13 first, followed by a dose of PPSV23 at least 8 weeks later.
    - Revaccination with PPSV23, if indicated, should occur at least 5 years after previous PPSV23
  - **If the patient has already received a dose of PPSV23:**
    - a dose of PCV13 dose should be administered  $\geq 1$  year after the last PPSV23 dose was received.
    - For those who require additional doses of PPSV23, the first such dose should be given no sooner than 8 weeks after PCV13 and at least 5 years after the most recent dose of PPSV23.

PCV13 recommendations: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6140a4.htm#tab>

# Influenza Vaccine



DAVE GRANLUND © [www.davegranlund.com](http://www.davegranlund.com)

# Influenza Vaccines - Egg-based

- Standard dose Inactivated Influenza vaccines (IIV3 and IIV4)
  - Trivalent and Quadrivalent
  - Licensed for those 6 months and older
  - Contraindicated in people with severe allergic reaction to vaccine component, including egg protein
- Intradermal Inactivated vaccine
  - Trivalent only
  - Licensed for those 18 – 64 years
  - Contraindicated in people with severe allergic reaction to vaccine component, including egg protein
- High dose (inactivated)
  - Trivalent only
  - Licensed for those 65 years and older
  - Contraindicated in people with severe allergic reaction to vaccine component, including egg protein
- Live-attenuated quadrivalent influenza vaccine (LAIV4) (FluMist®)
  - Quadrivalent only
  - Licensed for HEALTHY people 2 – 49 years
  - Contraindicated in people with severe allergic reaction to vaccine component, including egg protein, and those with chronic medical conditions (e.g. diabetes, asthma), pregnant women, immunosuppressed, caregivers of those with severe immunosuppression (e.g. protective environment)

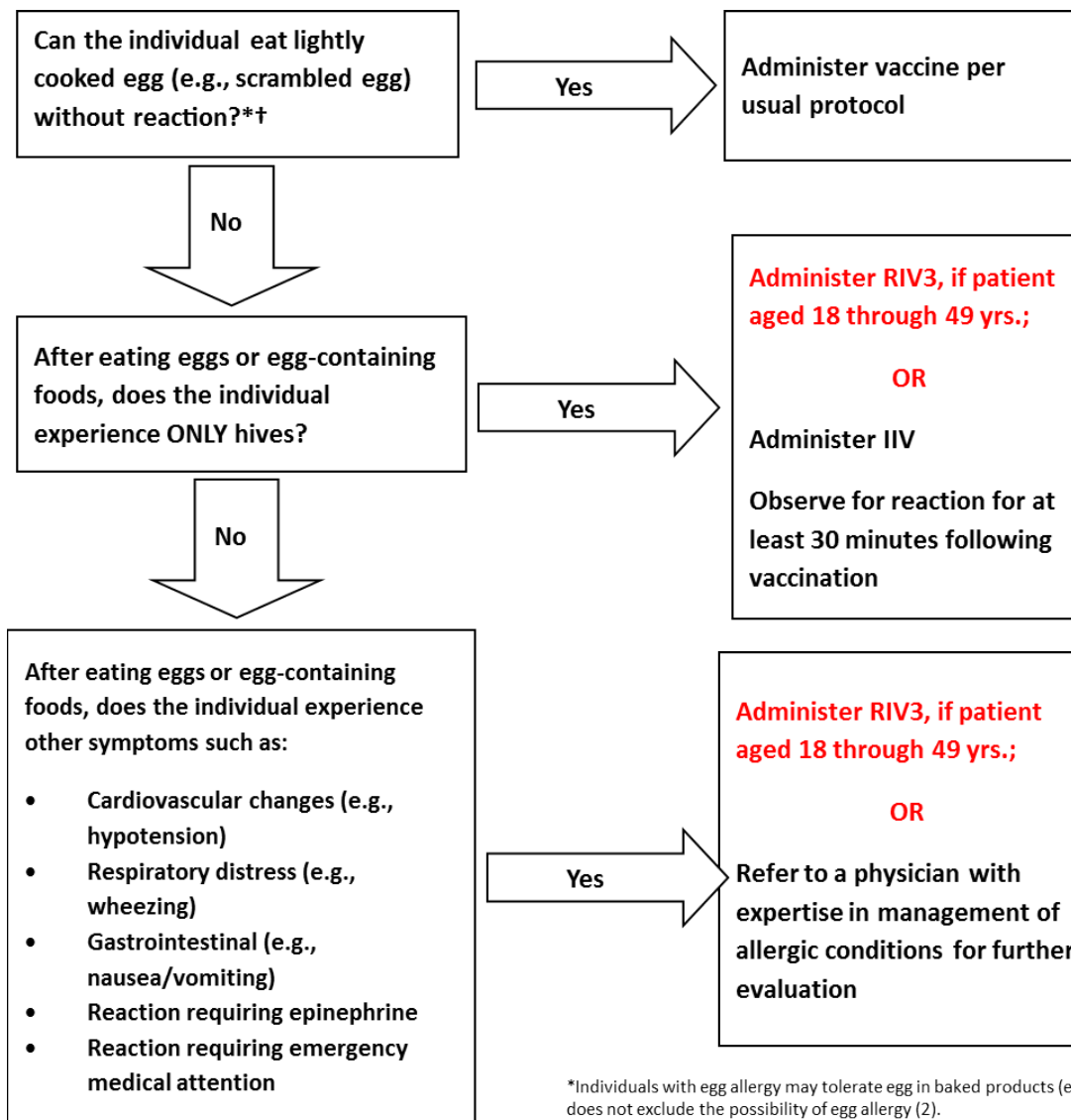


# Influenza Vaccines - Non-Egg-based

- Cell-culture based IIV (ccIIV3)
  - Trivalent only
  - Licensed for 18 years and older
  - Initial reference strains propagated in eggs, therefore cannot be considered egg-free
  - Contraindicated in people with severe allergic reaction to vaccine component, including egg protein
- Recombinant influenza vaccine (RIV3)
  - Trivalent only
  - Licensed for 18 – 49 years
  - Egg-free
  - Contraindicated in people with severe allergic reaction to a vaccine component

# Influenza Vaccination for Persons with Egg Allergies

## 2013-2014



\*Individuals with egg allergy may tolerate egg in baked products (e.g. bread, cake). Tolerance to egg-containing foods does not exclude the possibility of egg allergy (2).

† For individuals who have no known history of exposure to egg, but who are suspected of being egg-allergic on the basis of previously performed allergy testing, consultation with a physician with expertise in the management of allergic conditions should be obtained prior to vaccination. Alternatively, RIV3 may be administered if the recipient is aged 18 through 49 years.



# Hepatitis B in Patients with Diabetes

- Hepatitis B virus (HBV) causes acute and chronic infection of the liver
- Outbreaks in long term care facilities related to adults with diabetes receiving assistance with glucose monitoring
- Risk of acute hepatitis b infection 2.1 times higher among adults with diabetes vs. those without
- Higher seroprevalence of antibody to hepatitis B core antigen (indicative of past or present HBV infection) among adults with diabetes compared with those without diabetes

Hepatitis B recommendations for people with diabetes:

<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6050a4.htm>





# Hepatitis B

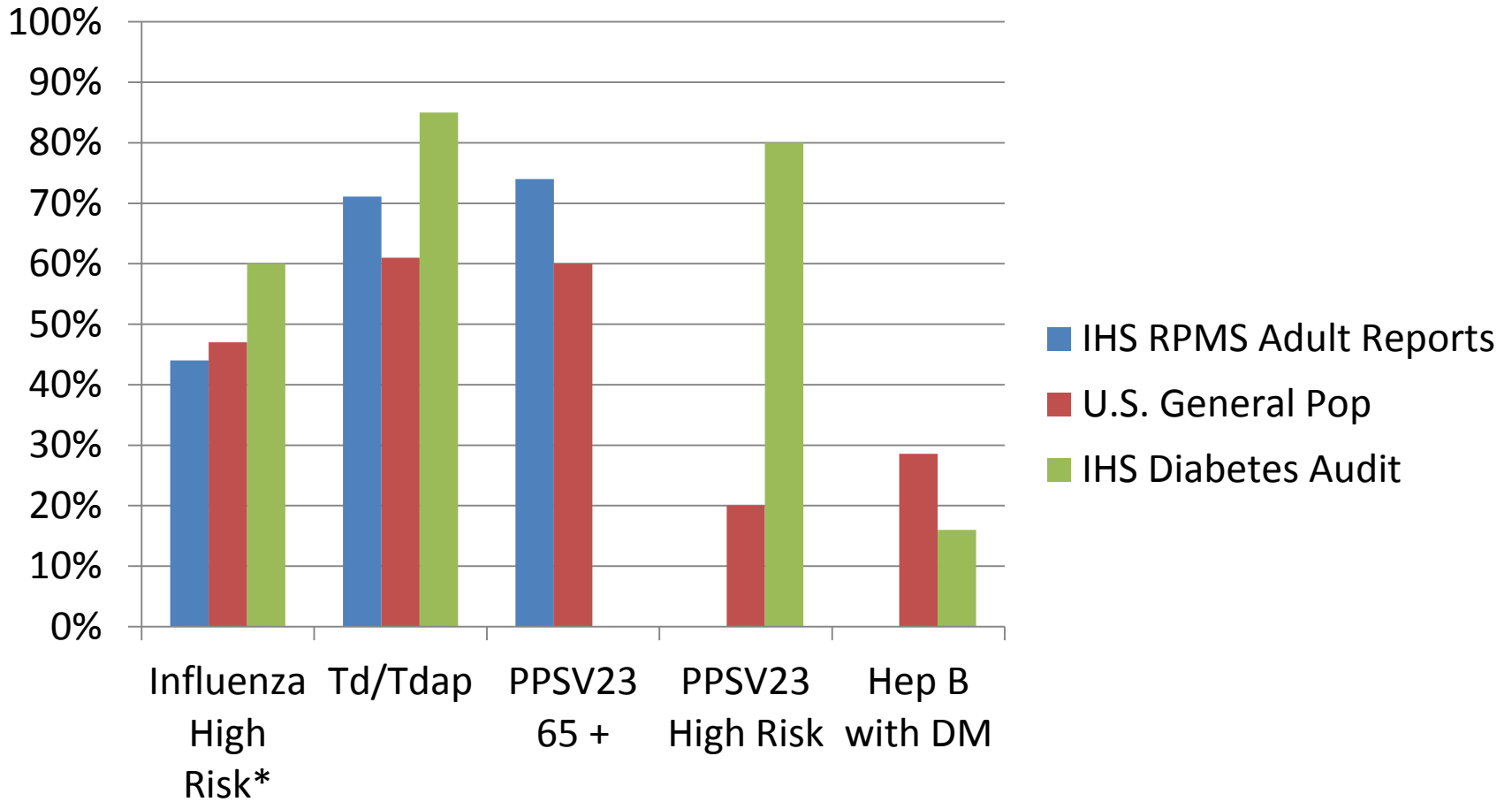
## Immunization Recommendation

- Hepatitis B vaccination should be administered to unvaccinated adults with diabetes mellitus who are aged 19 through 59 years
- Hepatitis B vaccination may be administered at the discretion of the treating clinician to unvaccinated adults with diabetes mellitus who are aged  $\geq 60$  years

Hepatitis B recommendations for people with diabetes:

<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6050a4.htm>

# 2012 Adult Vaccine Coverage



Data sources may not be directly comparable



# What about Adolescents?

- May have younger patients with diabetes presenting for care
- Adolescents should get vaccines recommend for persons with diabetes (PPSV23, Hep B) AND recommended adolescent vaccines
  - HPV
    - Recommended at 11-12 years
    - 3 doses series - 0, 2 and 6 months
  - Tdap vaccine
    - Recommended at 11-12 years
    - 1 dose, REGARDLESS of INTERVAL FROM Td
  - Meningococcal Conjugate vaccine
    - Recommended at 11-12 years
    - Booster at 16 years
  - Influenza
    - Annual influenza vaccination
- Provider Reminders for all routinely recommended vaccines
  - IHS RPMS/EHR
  - State Immunization Information Systems



# Educational Resources

- Immunization Action Coalition
  - [www.immunize.org](http://www.immunize.org)
  - Patient Handouts, Personal stories, Provider resources
- CDC - [www.cdc.gov/vaccines](http://www.cdc.gov/vaccines)
  - Recommendations, Patient handouts, Adult Schedules, Screening tools, etc.

## What You *Need* To Know About Diabetes and Vaccines

The CDC wants you to know that vaccines are an important part of managing your type I or type II diabetes. Certain diseases that can be very serious for people with diabetes can be prevented by vaccines. Staying up to date with vaccines is part of your regular diabetes management.

People with type I or type II diabetes should get:

- ❑ Influenza "flu shot" vaccine each year
- ❑ Pneumococcal vaccine
- ❑ Hepatitis B vaccine series
- ❑ Zoster "shingles" vaccine\*
- ❑ Vaccine to prevent whooping cough and tetanus (Tdap)



Your doctor, pharmacist or other healthcare provider may recommend other vaccines based on your age, vaccines you have had, and other considerations. Take charge of your health. Talk to your healthcare provider about including vaccines as part of your diabetes management.

\*for adults 60 years and older

You can find more information at [www.cdc.gov/vaccines](http://www.cdc.gov/vaccines)

### Your Flu Vaccine Protects Me My Flu Vaccine Protects You

- The flu vaccine is safe. You can't get the flu from a flu vaccine.
- Pneumonia and flu are a leading cause of death among Native elders.
- Please get a flu vaccine each year to protect you and your family.

## Vaccinations for Adults with Diabetes

The table below shows which vaccinations you should have to protect your health if you have diabetes. Make sure you and your healthcare provider keep your vaccinations up to date.

Vaccine	Do you need it?
<b>Hepatitis A (HepA)</b>	<b>Maybe.</b> You need this vaccine if you have a specific risk factor for hepatitis A virus infection** or simply want to be protected from this disease. The vaccine is usually given in 2 doses, 6 months apart.
<b>Hepatitis B (HepB)</b>	<b>Yes!</b> If you are younger than 60 and have never received or completed a series of HepB vaccine, you need to be vaccinated now. If you are 60 or older, discuss your need for HepB vaccine with your healthcare provider.
<b>Human papillomavirus (HPV)</b>	<b>Maybe.</b> You need this vaccine if you are a woman age 26 or younger or a man age 21 or younger. Men age 22 through 26 with a risk condition** also need vaccination. Any other man age 22 through 26 who wants to be protected from HPV may receive it, too. The vaccine is given in 3 doses over 6 months.
<b>Influenza</b>	<b>Yes!</b> You need a flu shot every fall (or winter) for your protection and for the protection of others around you.
<b>Measles, mumps, rubella (MMR)</b>	<b>Maybe.</b> You need at least 1 dose of MMR if you were born in 1957 or later. You may also need a second dose.*
<b>Meningococcal (MCV4, MPSV4)</b>	<b>Maybe.</b> You need this vaccine if you have one of several health conditions, or if you are 19–21 and a first-year college student living in a residence hall and you either have never been vaccinated or were vaccinated before age 16.*
<b>Pneumococcal (PCV13, PPSV23)</b>	<b>Yes!</b> People with diabetes need to get vaccinated with the pneumococcal polysaccharide vaccine (PPSV23). If you are younger than 65, you will need to get another dose when you are 65 or older, as long as it's been at least 5 years since your previous dose. Adults with certain high risk conditions also need vaccination with PCV13. Talk to your healthcare provider to find out if you need this vaccine.*
<b>Tetanus, diphtheria, and whooping cough</b>	<b>Yes!</b> All adults need to get Tdap vaccine (the adult whooping cough vaccine) and women need to get a dose during each pregnancy. After that, you need a Td booster dose every 10 years. Consult your healthcare provider if you haven't had at least 3 tetanus- and diphtheria-containing shots sometime in

Having type 1 or type 2 diabetes can mean you are also at risk for serious complications from the flu.

When you get your flu shot, you protect yourself and those around you.

My doctor just told me I have diabetes.

She also said, "Get a flu shot!"

I heard her loud and clear. I'll get vaccinated.

For more information, visit: <http://www.flu.gov>

**CDC** U.S. Department of Health and Human Services  
Center for Disease Control and Prevention

Vaccine Information You Need

VACCINE BASICS INFANTS / CHILDREN PRE TEENS TEENS ADULTS VIGILANCE

Home > Adult Vaccines

### Adult Vaccines Immunization Information for Adults

**Vaccines You Need**  
When do adults need vaccines?

**Personal Testimonies**  
Stories of suffering and loss.

**What's New**

**Videos**  
Immunization videos for adults

**Resources**  
Brochures, webinars, blogs & more

**Vaccine-Preventable Diseases**

- Hepatitis A
- Hepatitis B
- HPV
- Influenza (flu)
- Meningococcal
- Pneumococcal
- Rubella
- Shingles
- Tetanus
- Whooping cough

**Vaccine Basics**

How Vaccines Work  
The basic and body of vaccines and immunology

Importance of Vaccines  
Vaccines are one of the greatest public health advances in history. Research and health

Paying for Vaccines

CDC: [www.cdc.gov/vaccines](http://www.cdc.gov/vaccines) and [www.cdc.gov/flu](http://www.cdc.gov/flu)

Immunization Action Coalition: [www.immunize.org](http://www.immunize.org)

**SO WHAT CAN WE DO TO IMPROVE  
OUR COVERAGE RATES?**



# Assess, Recommend, Vaccinate, and Document

- Assess vaccination status at every visit
  - Provider Reminders
- Recommend
  - Make a STRONG recommendation
- Vaccinate
  - Standing orders
  - Pharmacy-based immunization clinics
  - Community-based clinics (flu)
- Document and Follow up
  - Ensure patient return for additional doses if needed
    - Letters, postcards, phone calls, home visits
  - Document vaccines given elsewhere

# EHR/RPMS Tools

- Clinical Decision Support for Immunizations
  - Shows which vaccines patients are due for
    - Takes into account minimum intervals and ages
  - All routine, AGE-BASED recommendations
  - PPSV23 for high risk
  - Hepatitis B vaccine for adults only supported for patients who receive a dose
    - If an adult has received a previous dose of Hep B vaccine, the system will automatically generate reminders for dose 2 and 3.
- The Challenge: How do we identify patients with diabetes to ensure they receive hepatitis B?
  - RPMS Immunization Package
  - EHR Reminders

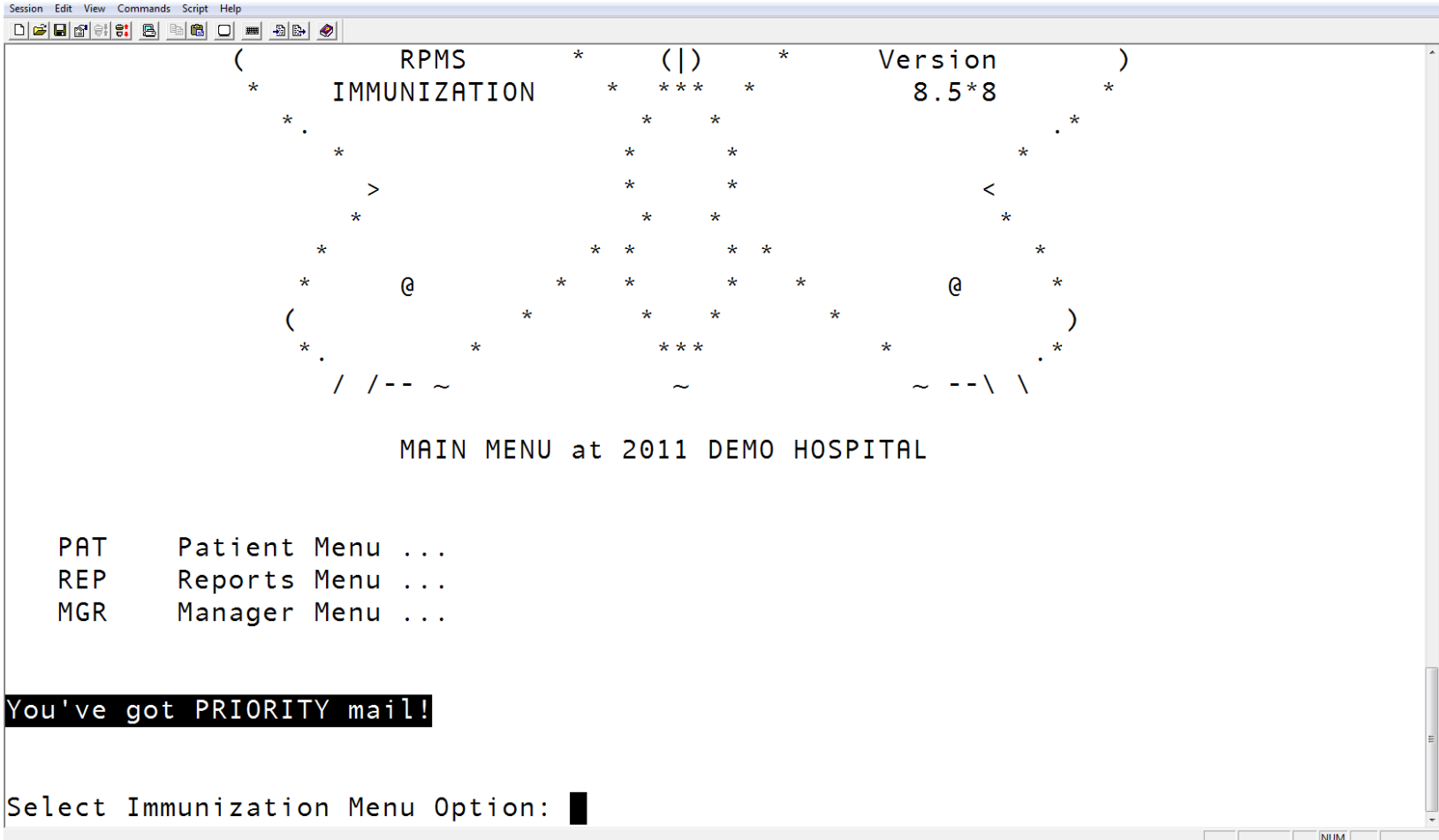




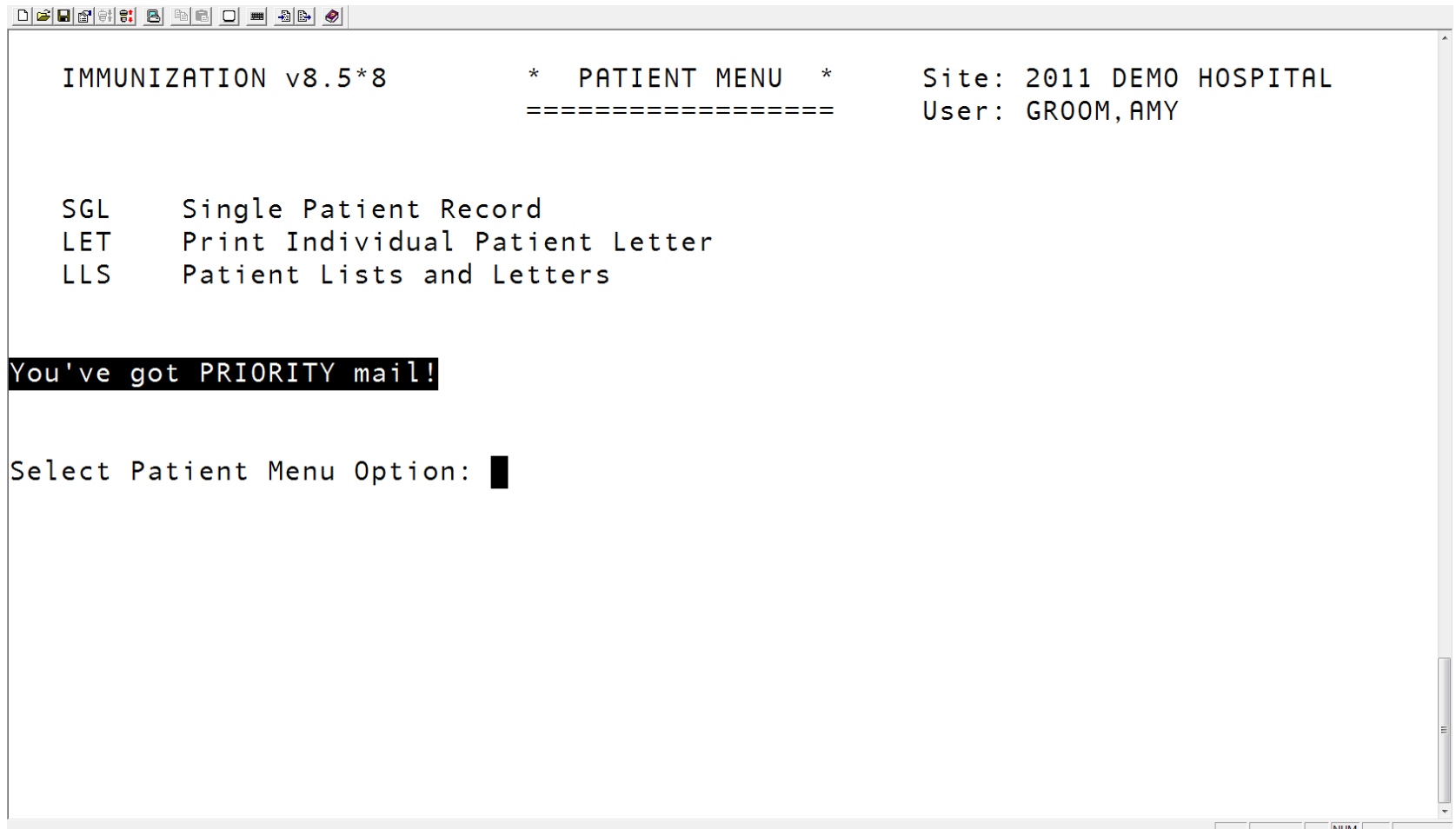
# RPMS Immunization Package

- Lists and Letters in the RPMS Immunization package
  - Only available in the roll and scroll environment (NOT EHR)
  - Can be used to generate lists of patients who received or are due for specific vaccines for reminder/recall efforts
  - Can be used in conjunction with QMAN

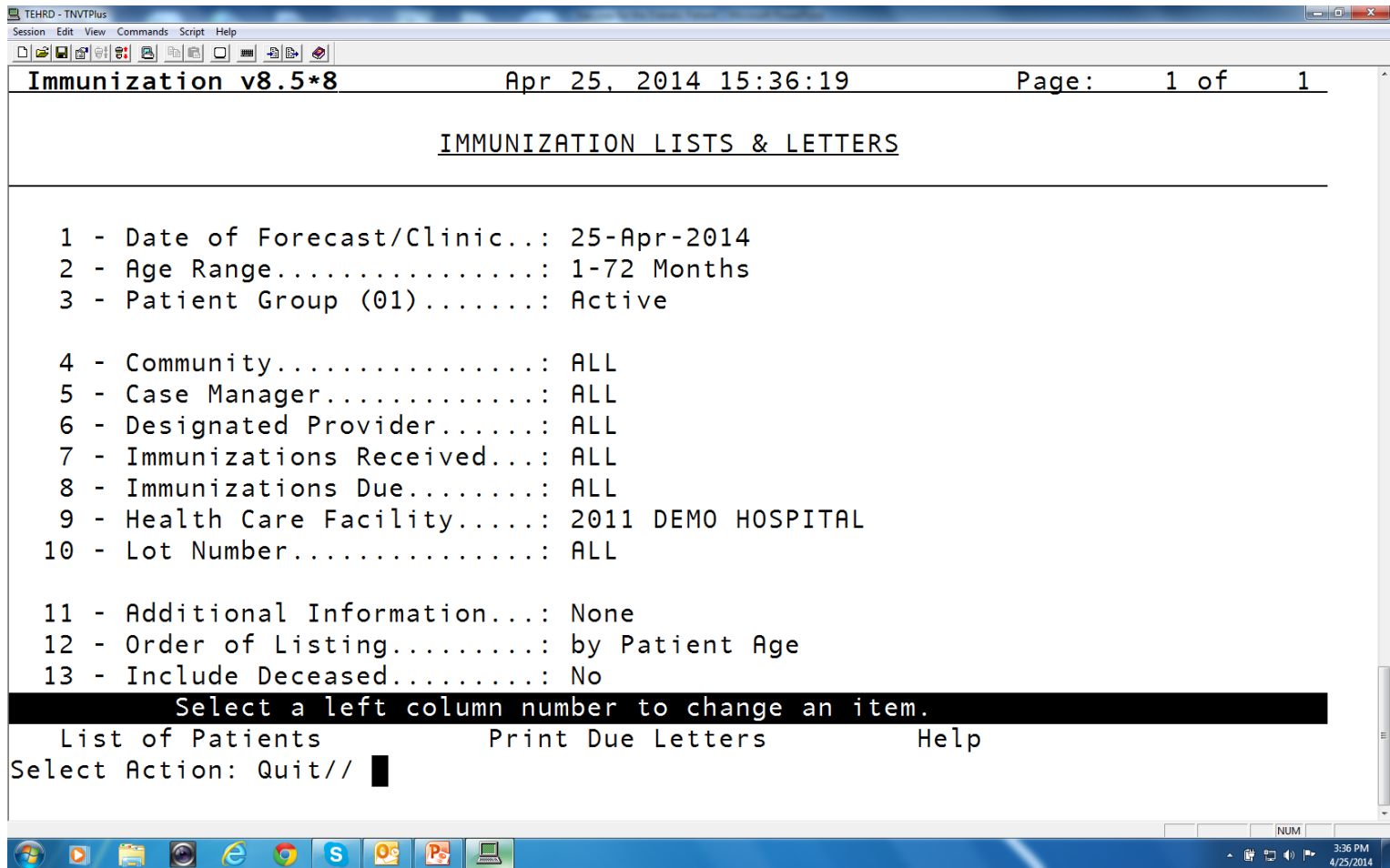
# RPMS Immunization Main Menu



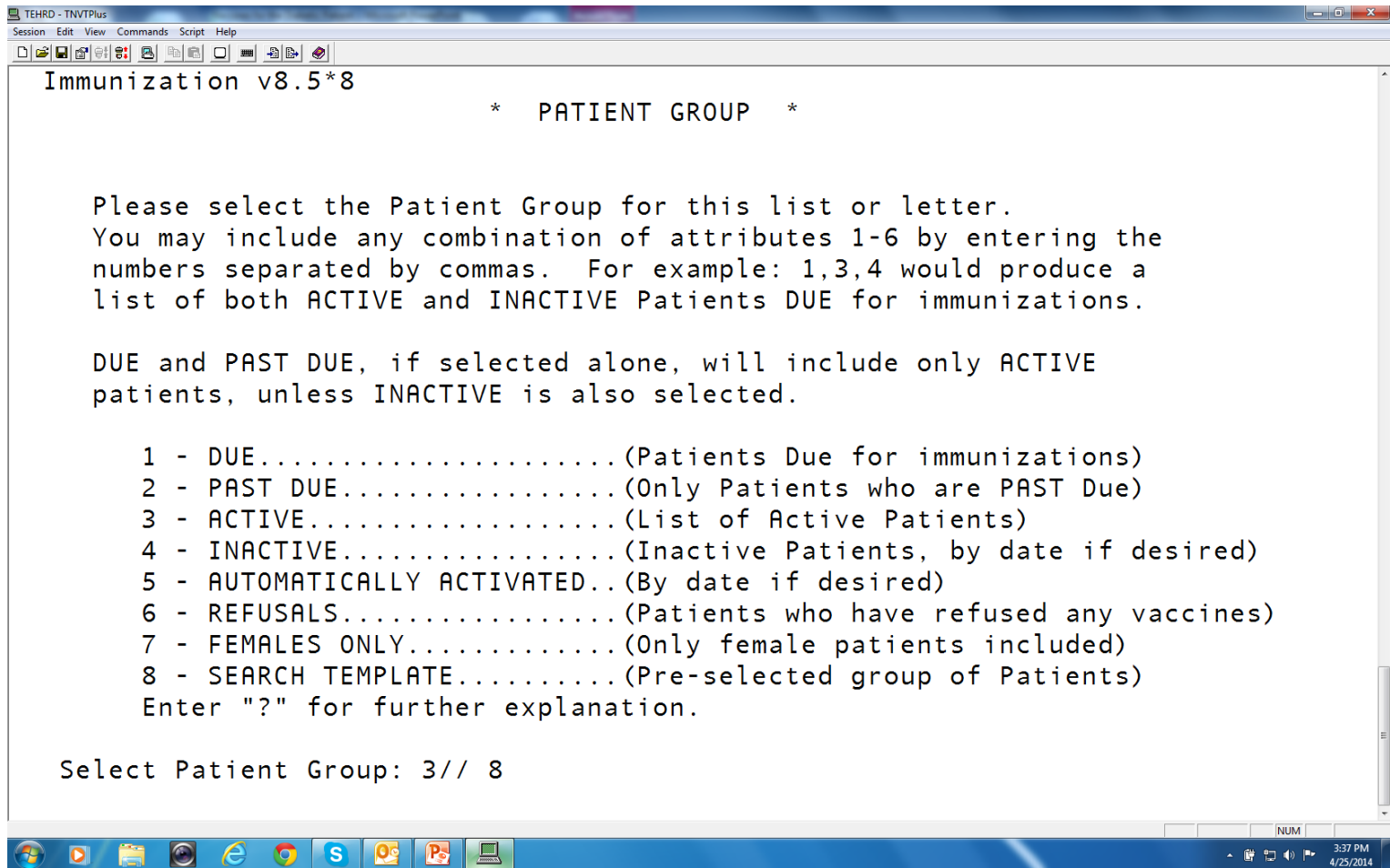
# Patient Menu



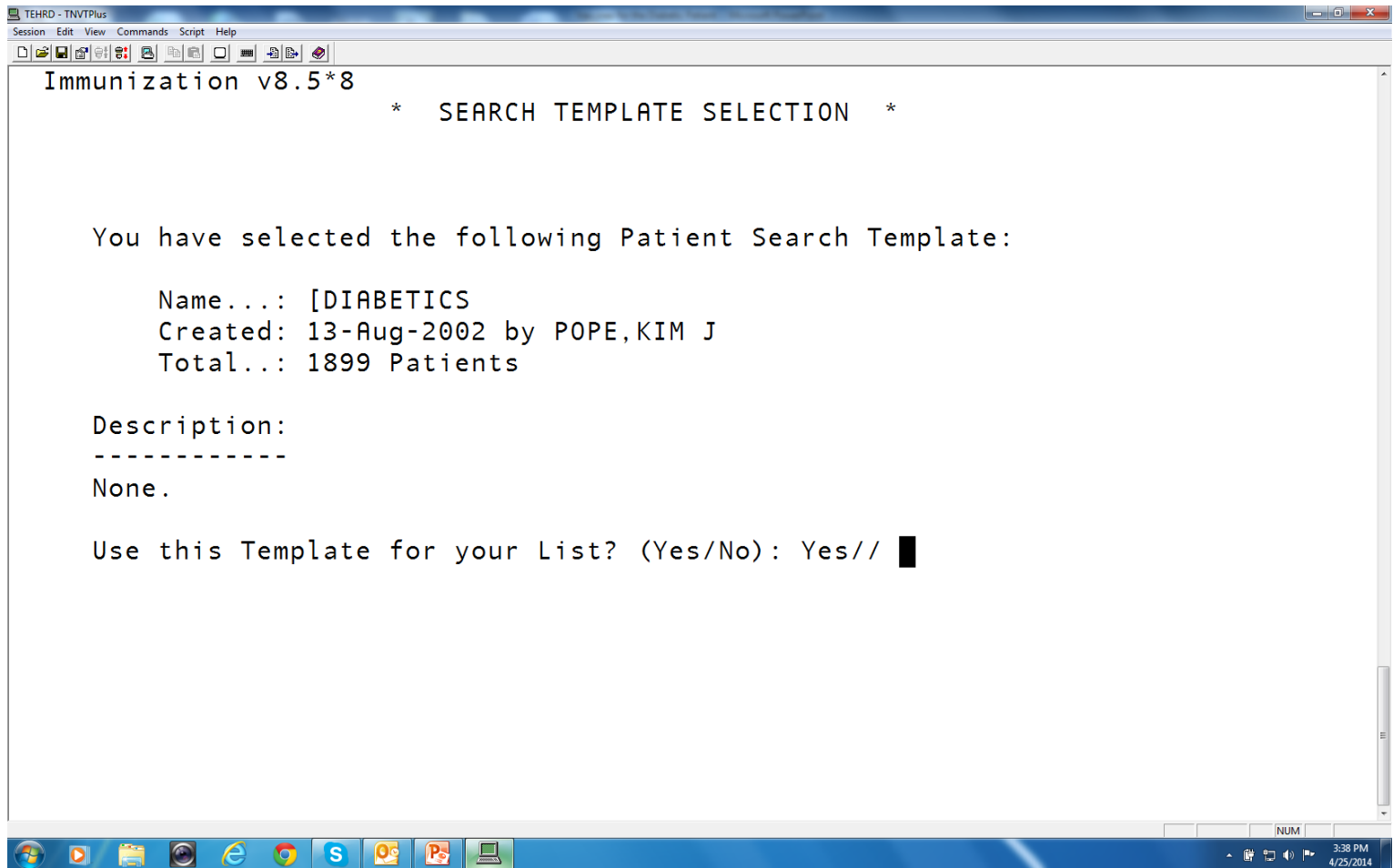
# Immunization Lists and Letters



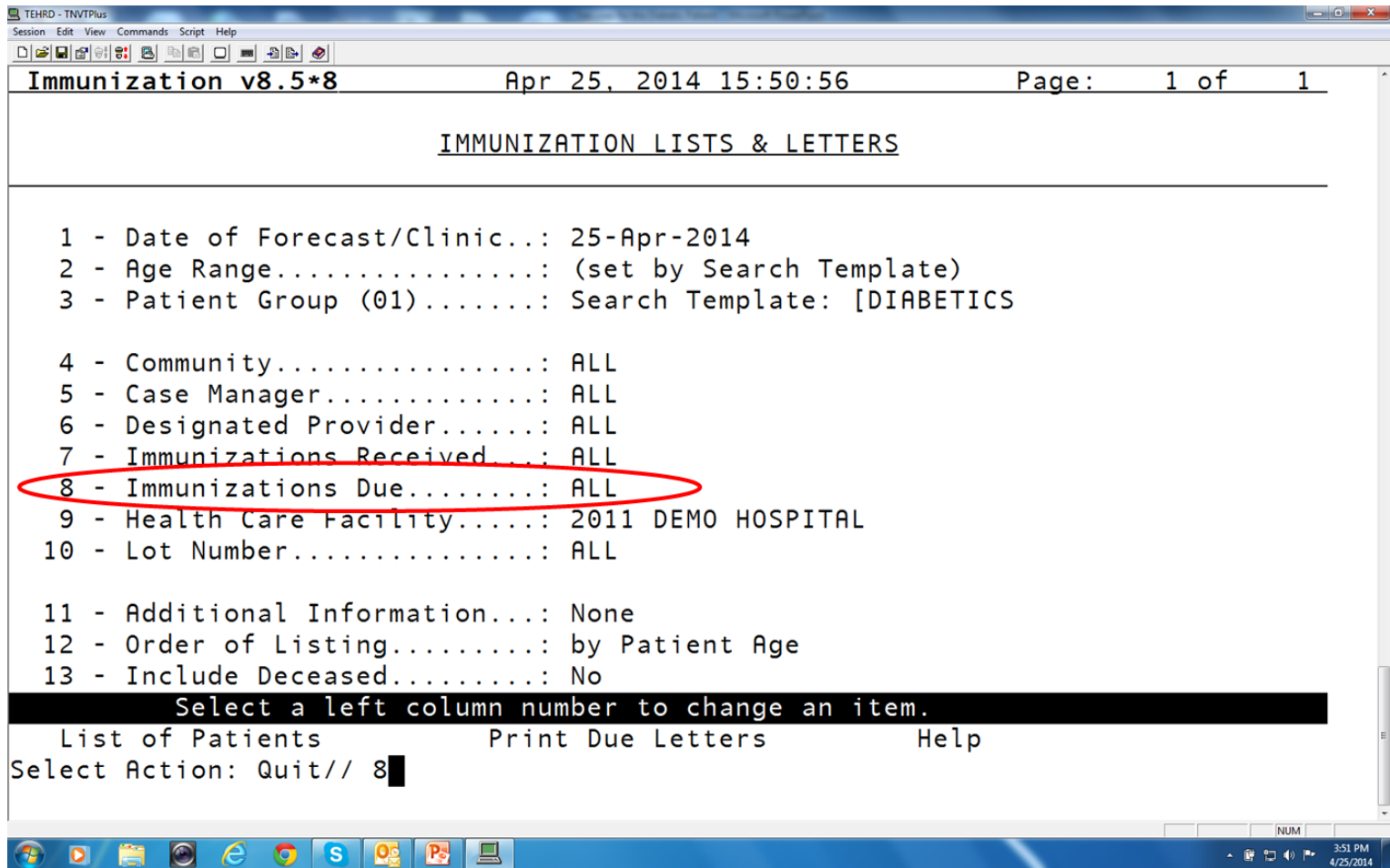
# Patient Group



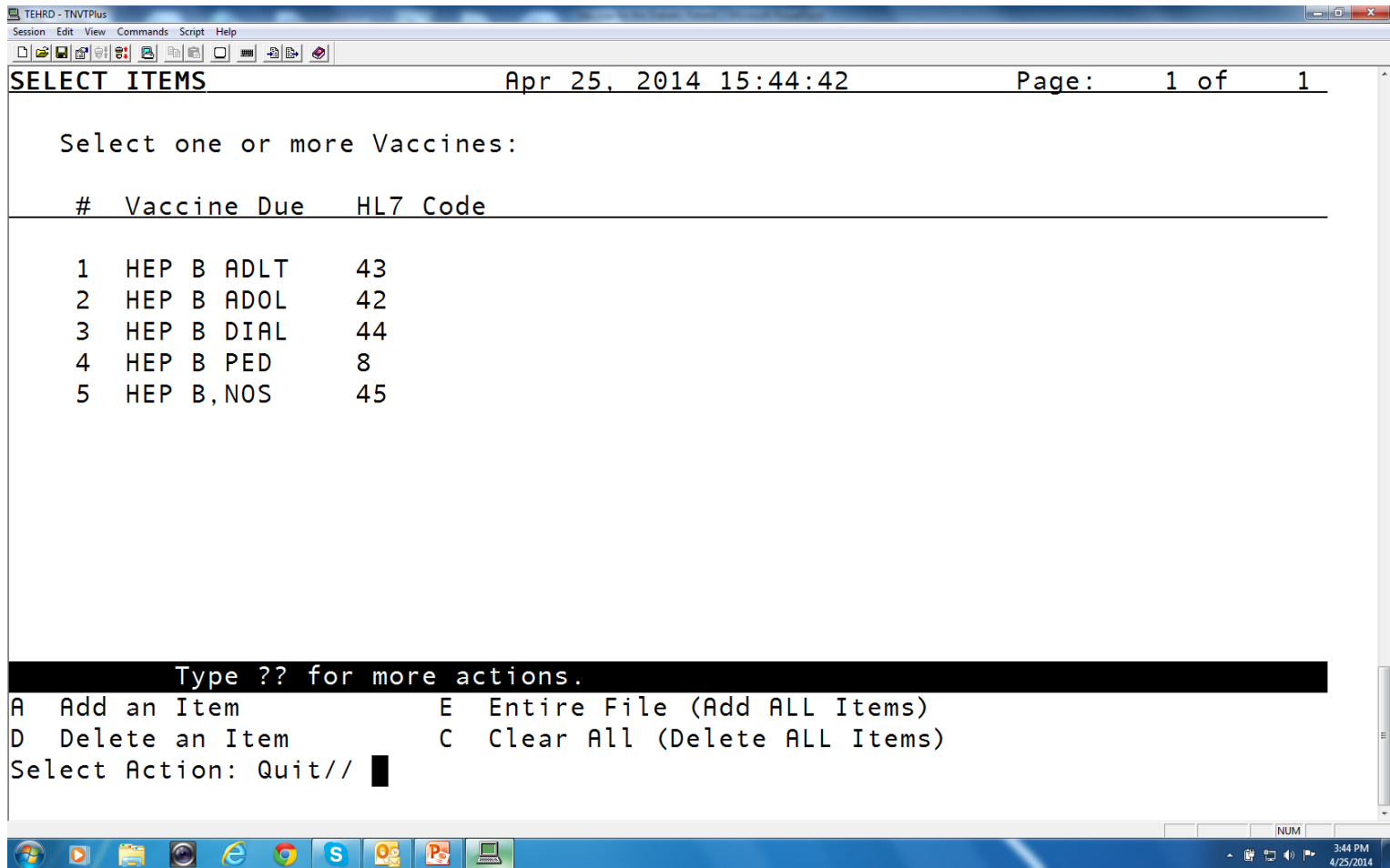
# Search Template Selection



# Generating Reminder Letters

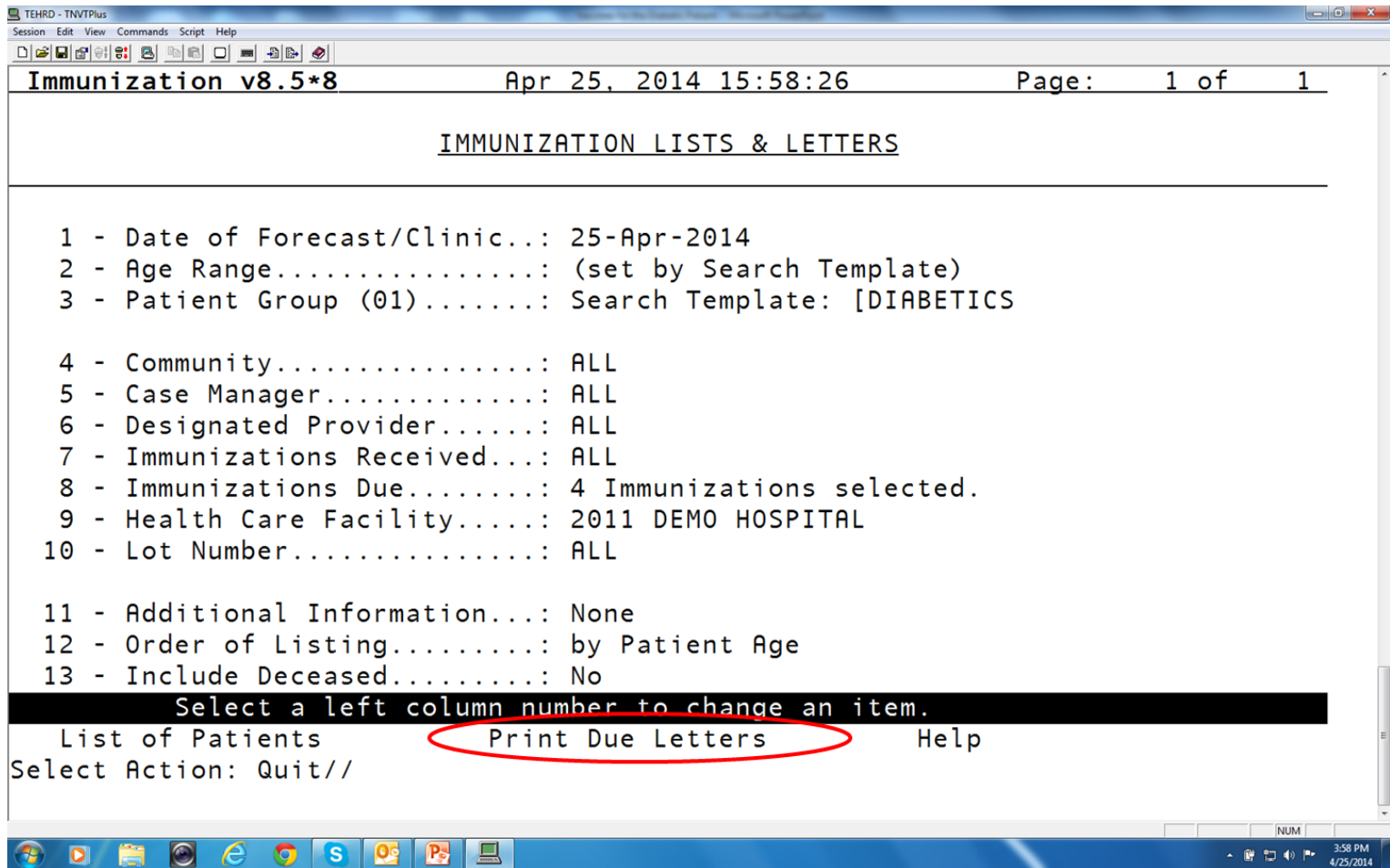


# Selecting One or More Vaccines





# Immunization Lists and Letters – Print Due Letters



# Example Report

TEHRD - TNVTPlus  
 Session Edit View Commands Script Help

**Immunization v8.5\*8** Apr 25, 2014 15:42:26 Page: 1 of 432

WARNING: Confidential Patient Information, Privacy Act applies.

DEMO HOSPITAL  
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Report Date: 25-Apr-2014 Total Patients: 1295  
 Patient Group: Search Template: [DIABETICS]

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Facility: 2011 DEMO HOSPITAL

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Name	HRCN#	DOB	Age Today	Sex	Current Community
GODERSTAD, ROY E	160667	10/27/2000	(13 yrs)	M	PAINTTOWN
BRADLEY, DEBORAH LEE	158294	12/08/1999	(14 yrs)	F	NORTH CAROLINA UNK
SHIRLEY, RAYMIUS	154997	09/11/1998	(15 yrs)	M	NORTH CAROLINA UNK

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+ Enter ?? for more actions

Edit Patient Print List (no queuing)

Select Action: Quit//

NUM 3:42 PM 4/25/2014

# Summary of RPMS Tools and Resources

- Clinical Decision Support/Reminders in EHR
  - Will remind for 2<sup>nd</sup> and 3<sup>rd</sup> doses of Hep B vaccine
- RPMS Immunization package
  - List and Letters to identify patients due for vaccines
  - Send reminder letters
- QMAN
  - Develop a template to identify patients with diabetes
    - 19-59 years with no previous hx of Hep B vaccine
- EHR Reminders
  - Develop a reminder in EHR for 1<sup>st</sup> dose Hep B in patients with diabetes



# Resources

- CDC Vaccine Resources
  - [www.cdc.gov/vaccines](http://www.cdc.gov/vaccines)
- Immunization Action Coalition
  - [www.immunize.org](http://www.immunize.org)
- IHS RPMS Immunization Package Resources
  - [http://www.ihs.gov/epi/index.cfm?module=epi\\_vaccine\\_resources](http://www.ihs.gov/epi/index.cfm?module=epi_vaccine_resources)