

THE NATIONAL VACCINE PROGRAM OFFICE

**VACCINATION IN THE
END-STAGE RENAL DISEASE
MEDICARE BENEFICIARY POPULATION**

May 2017

Angela K. Shen, ScD, MPH
CAPT, US Public Health Service
National Vaccine Program Office



U.S. DEPARTMENT
OF HEALTH AND
HUMAN SERVICES

COLLABORATORS

CMS

- Jeffrey A. Kelman
- Chris Worrall
- Steve Chu

Acumen

- Rob Warnock,
- Weiwei Zhang
- Stephaeno Brereton
- Stephen McKean

*Bruce Gellin (formerly NVPO)

This presentation includes unpublished data that is currently under review for publication.

DO NOT DISTRIBUTE

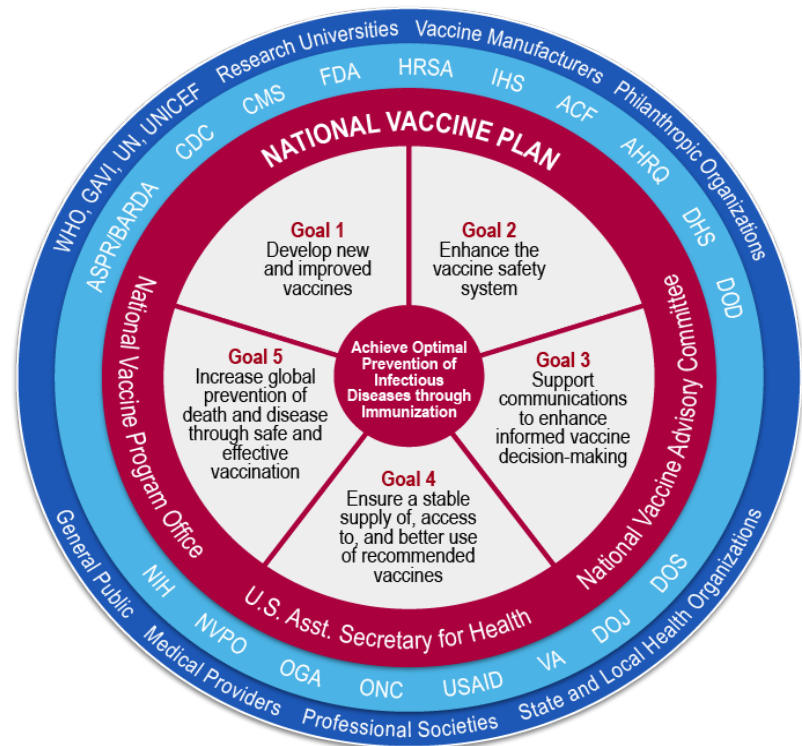
OUTLINE

- I. Background and Objective**
- II. Methods**
- III. Select Results**
- IV. Conclusions and Relevance**

NATIONAL VACCINE PROGRAM OFFICE (NVPO)

NVPO coordinates the National Vaccine Plan (NVP), the overall purpose of the plan is to guide and facilitate coordination and planning for federal vaccine and immunization system efforts.

- 17 federal agencies within and beyond HHS
- 10 non-federal organizations and stakeholder groups
- NVPO is responsible for coordinating stakeholders and monitoring NVP activities
- NVPO reports to the Assistant Secretary for Health (ASH) on achievements and areas for improvement



End Stage Renal Disease (ESRD) and Utilization of Vaccines

I. BACKGROUND AND OBJECTIVE

BACKGROUND: POPULATION

- Immunocompromised population
- High-risk group for developing infectious diseases
- Infection is common and leading cause of death and contributes to hospitalizations
- Additional susceptibility due to frequent exposure to multiple pathogenic agents from dialysis

BACKGROUND: VACCINES AND PATIENTS WITH ESRD

- Advisory Committee on Immunization Practices (ACIP), American Academy of Pediatrics (AAP) routinely recommends
 - Inactivated influenza
 - Hepatitis B
 - Two different products (3 dose, 4 dose)
 - Pneumococcal vaccines
 - PPSV23, PCV13

ACIP

- Serologic testing after hepatitis B vaccination is also recommended to determine response to vaccine
- Testing recommended 1-2 months after administration of the last dose of the vaccine series
- Persons anti-HB levels of $<10\text{mIU/mL}$ after primary series should be revaccinated with a second series

BACKGROUND: MEDICARE

- ESRD is a medical condition that confers eligibility to Medicare
- Federal health insurance that covers care for dialysis treatment through the CMS ESRD program – created in 1972
- Covers all services, not only those related to the kidney failure conditions

OBJECTIVE

- To assess vaccination coverage in the ESRD dialysis population covered under Medicare
- For pneumococcal vaccines, we documented first dose of PPSV23 and capture 2012 introduction of PCV 13 in this population
- Vaccinations given prior to entry into Medicare were not explored

Design, Outcome Measures

II. METHODS

DESIGN

- Fee for service Medicare beneficiaries who receive Part B dialysis services at any point from Jan 1, 2006 – Dec 31, 2015
- Influenza season: Those who were continuously enrolled throughout the 12 months of that season
- Hepatitis B/Pneumococcal: Enrollment in part A/B for at least 1 month from the point of enrollment of that year

ANALYSIS

- All vaccines: Descriptive statistics relative to demographic makeup of the ESRD population
- Covariates
 - Age
 - Race
 - Medicaid dual eligibility status
 - State of residence (geographic regions)
 - Rural
 - National provider identifiers (physician and facility characteristics)

ANALYSIS - CONTINUED

- Influenza: Annual vaccination rates
- Hepatitis B/Pneumococcal
 - Kaplan-Meier survival analysis: Probability of receiving vaccine following the start of dialysis (censored for death, unenrollement, end of study period)
 - Series completion of a Hepatitis B vaccination series, timeliness of doses
 - First dose of PPSV23 vaccine
 - 2012 introduction of PCV13 vaccine

Influenza, Hepatitis B, Pneumococcal Vaccines

III. SELECT RESULTS

INFLUENZA

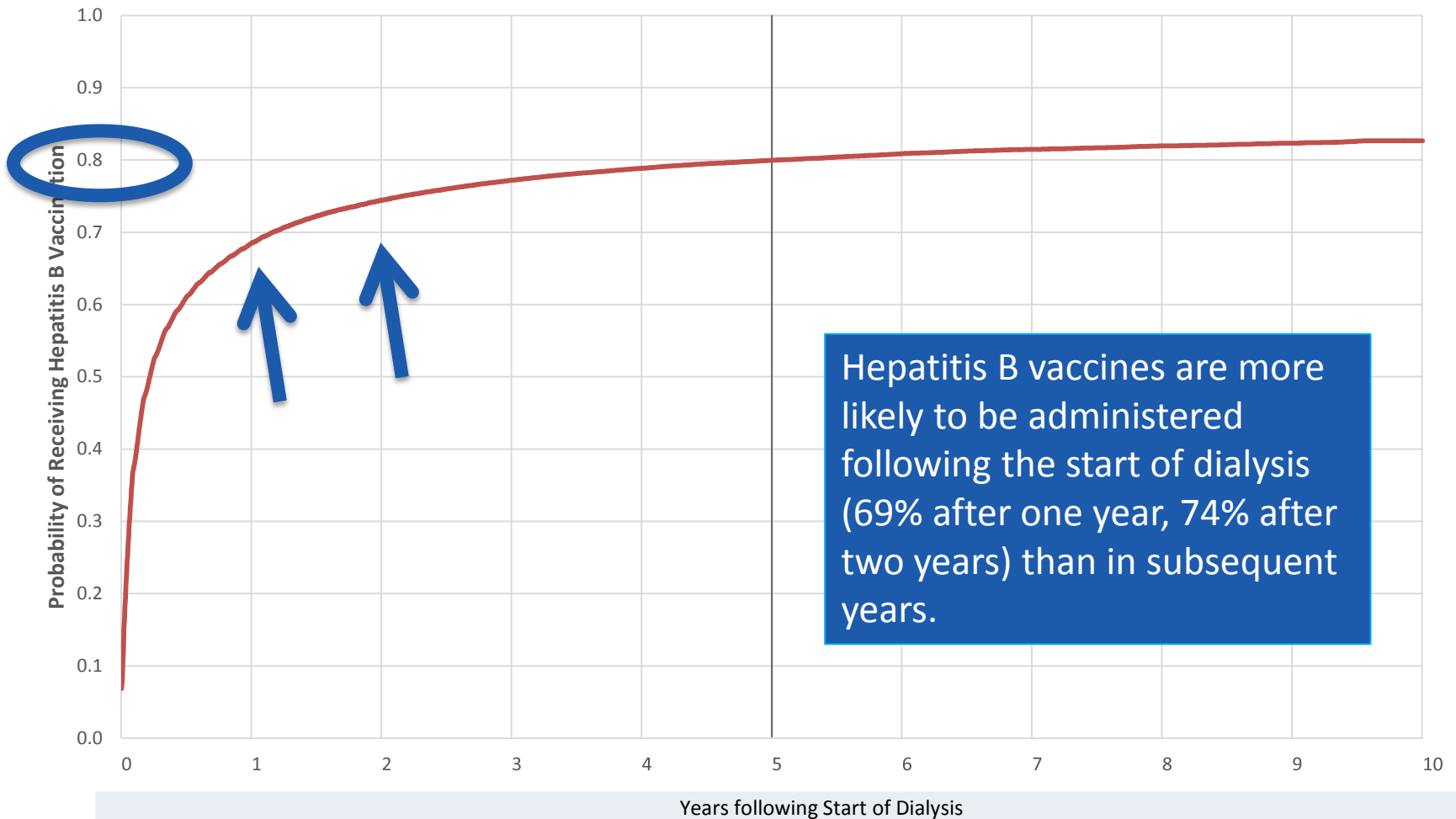
- Vaccination reached 71% (2015-16) from 52% (2006-07)
- Greatest increases and highest coverage non-white beneficiaries



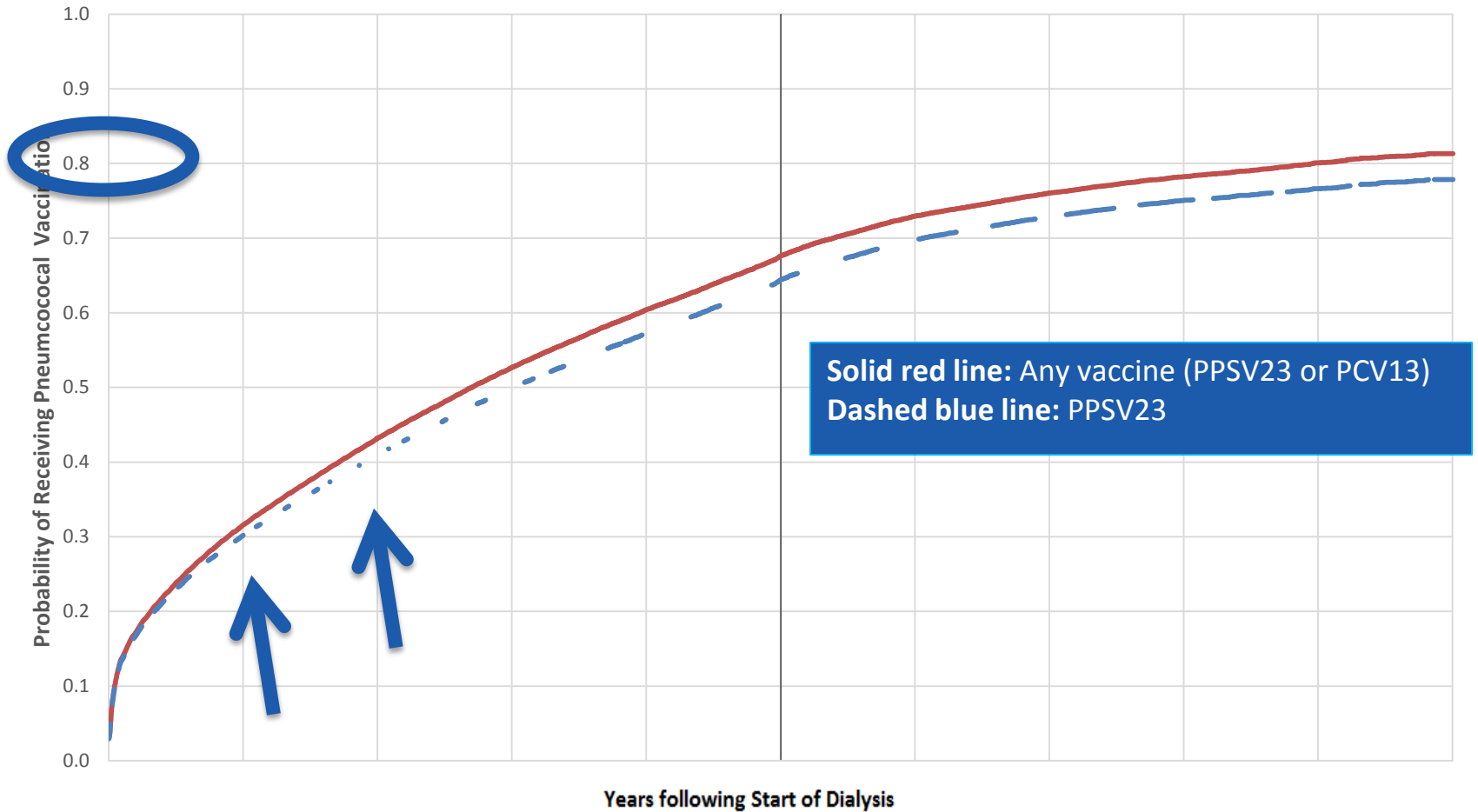
HEPATITIS B

- Virtually all (97%) vaccinated patients were testing before receipt of first dose
- 68% received at least 1 administration
- 45% completed a vaccine series (3-dose or 4-dose formulation)
- Few patients received precisely according to the ACIP-recommended dosing schedule
- 5% of patients on the 3-dose series received an extra “fourth” dose administered on the 4-dose schedule

PROBABILITY OF RECEIVING HEPATITIS B VACCINE



PROBABILITY OF RECEIVING ANY PNEUMOCOCCAL VACCINE (SOLID LINE)



PCV 13

- Recommended immunocompromised adults Jun 20, 2012
- Increased utilization
 - 2012, 2013 <1%
 - 2014 1.7%
 - 2015 6.9%* majority of vaccinations
- Higher proportion of whites received PCV13 than other races

LIMITATIONS

- Data set captures those enrolled in Medicare only; some patients may not have been indicated for vaccine prior to entry into ESRD
- Non-reported claims are not reflected
- Due to the complexity of the vaccination schedule, we define pneumococcal vaccine as first ever receipt of PPSV23 or PCV13 and assume appropriate recommendations would be followed

IV. CONCLUSIONS

CONCLUSIONS

- Vaccination is essential to preventing infectious and complications from vaccine-preventable diseases. This study highlights robust opportunities to improve coverage and dose completion
- 18 ESRD Network service areas provide quality oversight and care to over 6,000 dialysis facilities. With frequent access to health care facilities and complete insurance coverage there are opportunities to increase compliance with ACIP recommendations

MANY THANKS

Contact information

- **Email:** angela.shen@hhs.gov
- **Phone:** 202.503.6325

Related links:

- **Medicare and End Stage Renal Disease**
<https://www.cms.gov/Medicare/Coordination-of-Benefits-and-Recovery/Coordination-of-Benefits-and-Recovery-Overview/End-Stage-Renal-Disease-ESRD/ESRD.html>
- **United States Renal Data System**
<https://www.usrds.org/Default.aspx>

