

# Chart Review, New Directions: Primary Care of the Aging HIV Population & Issues of Pharmacotherapy

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# Disclosure Forms

Jeffrey Beal, MD and Joanne Orrick have no financial interest or relationships to disclose.

- HRSA Education Committee Disclosures

HRSA Education Committee staff have no financial interest or relationships to disclose.

- CME Staff Disclosures

Professional Education Services Group staff have no financial interest or relationships to disclose.

# Learning Objectives

By the end of this session participants will be able to:

1. Provide a practical method of identifying clinician training needs.
2. Improve patient outcomes by objectively reviewing key clinical indicators of an aging HIV population.
3. Identify possible drug-drug interactions and/or contraindications by reviewing patient charts and pharmacy records.

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## Ryan White HIV/AIDS Program

The Ryan White HIV/AIDS Program funds outpatient primary care, HIV/AIDS drugs, and supportive services for low income persons. It pays for care only when other public or private sources are not available. Visit the TARGET Center [Community page](#) for Ryan White Part B state program contact information to learn more.

## Programs That Pay For HIV/AIDS Medications

HEALTH RESOURCES AND SERVICES ADMINISTRATION. The HIV/AIDS Programs: Find HIV/AIDS Care: Learn More About Health Care: Public Health Care Programs. U.S. Department of Health and Human Services. 2010-08-15. URL:<http://hab.hrsa.gov/findcare/learnmore.htm>. Accessed: 2010-08-15. (Archived by WebCite® at <http://www.webcitation.org/5s0uEYsrD>)

The majority of Ryan White funds support primary medical care and essential support services. A smaller but equally critical portion funds technical assistance, clinical training, and research on innovative models of care.

HEALTH RESOURCES AND SERVICES ADMINISTRATION. The HIV/AIDS Programs: About the Ryan White HIV/AIDS Program: Learn More About Each Program. U.S. Department of Health and Human Services. 2010-08-15. URL:<http://hab.hrsa.gov/aboutus.htm>. Accessed: 2010-08-15.

**Part A** provides emergency assistance to Eligible Metropolitan Areas and Transitional Grant Areas that are most severely affected by the HIV/AIDS epidemic.

**Part B** provides grants to all 50 States, the District of Columbia, Puerto Rico, Guam, the U.S. Virgin Islands, and 5 U.S. Pacific Territories or Associated Jurisdictions.

**Part C** provides comprehensive primary health care in an outpatient setting for people living with HIV disease.

**Part D** provides family-centered care involving outpatient or ambulatory care for women, infants, children, and youth with HIV/AIDS. Learn more...

HEALTH RESOURCES AND SERVICES ADMINISTRATION. The HIV/AIDS Programs: About the Ryan White HIV/AIDS Program: Learn More About Each Program. U.S. Department of Health and Human Services. 2010-08-15. URL:<http://hab.hrsa.gov/aboutus.htm>. Accessed: 2010-08-15.

are still needed. Additionally, we need to better understand how to manage the clinical complications and consequences of HIV infection and long-term use of antiretroviral drugs—including issues related to accelerated heart disease, kidney disease, cancers, and premature aging.<sup>115,116</sup> More work is also needed to understand differences in treatment response between women and men and among racial and ethnic minorities. Public and private insurers and health care providers must also take steps to ensure

The Office of National AIDS Policy. National HIV/AIDS Strategy for the United States. The White House. July 13, 2010: p.24. URL:<http://www.aids.gov/federal-resources/policies/national-hiv-aids-strategy/nhas.pdf>. Accessed: 2010-08-15. (Archived by WebCite® at <http://www.webcitation.org/5s0xatD4C>)



Co-infection with HIV and Hepatitis C occurs in 50-90 percent of HIV-infected injection drug users.<sup>127</sup> As people age, the likelihood of having multiple chronic illnesses increases, even among people who do not have HIV. HIV disease itself, as well as long-term use of HIV therapies may also contribute to common chronic conditions, such as heart disease and kidney disease.<sup>128</sup> Additional research is needed to better understand, prevent, and treat these co-infections and complications of HIV disease.

The Office of National AIDS Policy. National HIV/AIDS Strategy for the United States. The White House. July 13, 2010: p.27. URL:<http://www.aids.gov/federal-resources/policies/national-hiv-aids-strategy/nhas.pdf>. Accessed: 2010-08-15. (Archived by WebCite® at <http://www.webcitation.org/5s0xatD4C>)

**Step 3: Support people living with HIV with co-occurring health conditions and those who have challenges meeting their basic needs, such as housing.**

To support the provision of quality care for people living with HIV, it is important to reduce barriers that impede access to services. The concept of a medical home is a model for the provision of coordinated, person-centered care for individuals with chronic or prolonged illnesses requiring regular medical monitoring, care management, and treatment. The Ryan White HIV/AIDS Program has supported the development of medical homes for people living with HIV and has experience to share, which can be valuable to other providers including community health centers and private physicians in their provision of HIV care.<sup>125</sup>

The Office of National AIDS Policy. National HIV/AIDS Strategy for the United States. The White House. July 13, 2010: p.27. URL:<http://www.aids.gov/federal-resources/policies/national-hiv-aids-strategy/nhas.pdf>. Accessed: 2010-08-15. (Archived by WebCite® at <http://www.webcitation.org/5s0xatD4C>)

20 Years of Leadership  
A LEGACY OF CARE



2010 RYAN WHITE ALL GRANTEE MEETING AND 10TH ANNUAL CLINICAL CONFERENCE

Should we be concerned whether or not our HIV patients are monitored per standard prevention care guidelines?  
Does the data support such a need?



# HIV/AIDS Among Persons Age 50+

- In 2007, individuals 50 and over at diagnosis made up approximately 20% of the estimated 37,041 AIDS cases reported in the United States.
- In 2007, persons age 50+ accounted for 27% of all people living with HIV/AIDS in the U.S. among those states that report living data to the CDC.
- Of the 14,561 estimated number of deaths of persons with AIDS in 2007, 5,562 (38%) were among people 50 years old and above.
- In 2008, those aged 50+ made up 25% of AIDS cases and 19% of the HIV cases reported in Florida.
- Through 2008, persons at the current age 50+ accounted for 27% of all people living with HIV/AIDS in Florida.
- Of the 2,497 HIV/AIDS case deaths in 2008, 46% were among people 50 years old and above.



# Comorbidities

## D:A:D Causes of Death

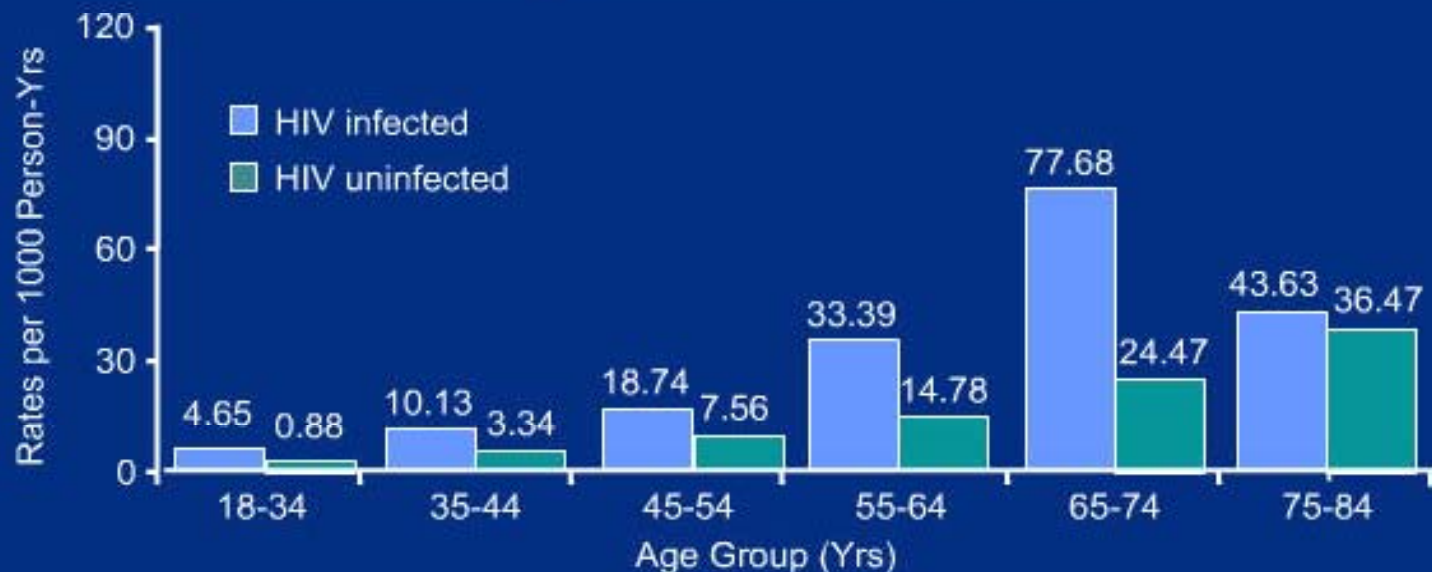
AIDS-Related	32%
Bacterial Infection	7%
CVD-Related*	11%
Lactic Acidosis/Pancreatitis	1%
Liver-Related	14%
Non-AIDS Cancers	12%
Non-Natural	9%
Other/Unknown	13%
Renal	1%

\*CVD = Cardiovascular Disease

Adapted from Colette Smith and D:A:D Study Group. CROI 2009; abstract 145.

# MI Rates by Age Group in HIV-Infected and HIV-Uninfected Patients

- Acute MI rates determined in 3851 HIV-infected and 1,044,589 HIV-uninfected patients from 1996-2004
  - Overall rates per 1000 person-years higher in HIV-infected vs HIV-uninfected patients: 11.13 vs 6.98

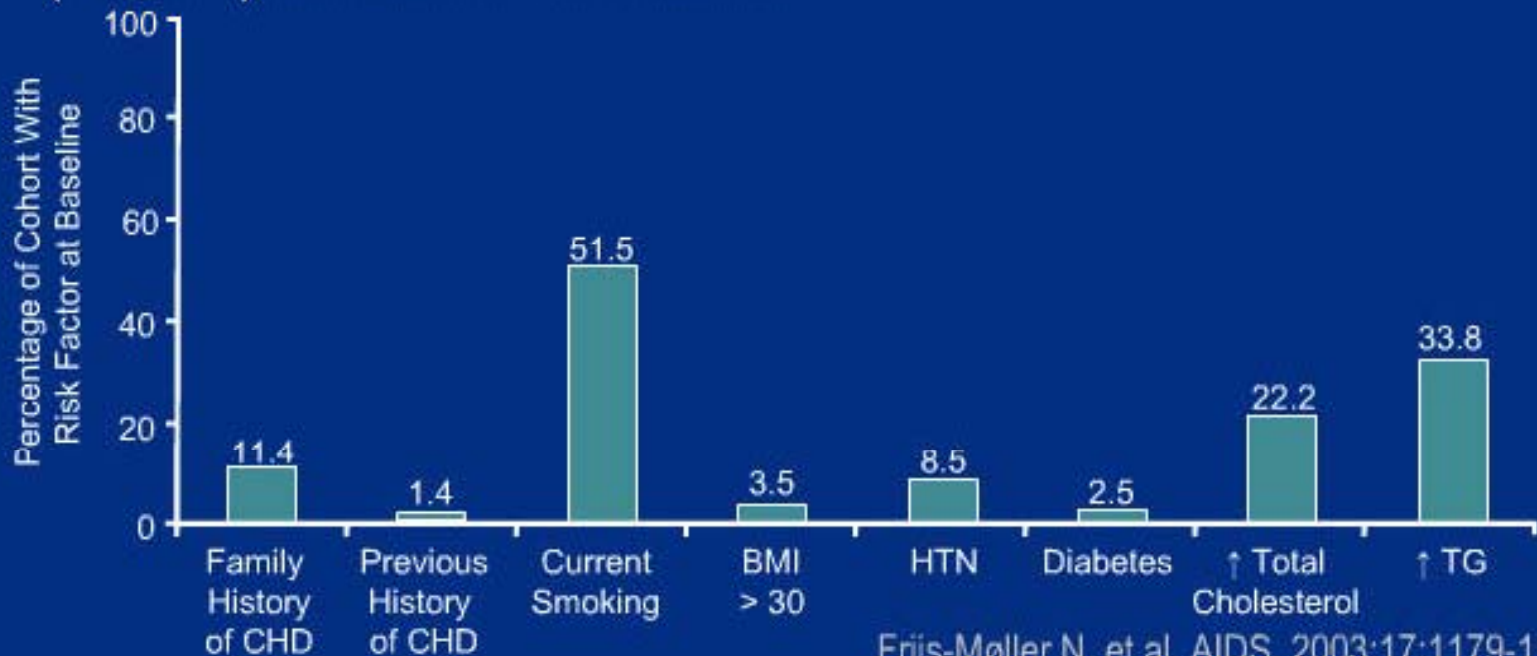


Triant VA, et al. J Clin Endocrin Metab. 2007;92:2506-2512.



# Prevalence of Traditional Cardiac Risk Factors at Baseline in the D:A:D Study

- Large cohort of HIV-infected patients on HAART followed longitudinally (N = 23,468)
- 18,962 (80.8%) with previous ART exposure; 4506 (19.2%) antiretroviral naive



Friis-Møller N, et al. AIDS. 2003;17:1179-1193.



# Increased Risk of Malignancy in HIV+ Patients

MALIGNANCY	INCREASED RELATIVE RISK
Ano-genital squamous cell carcinomas	30-40
Hodgkin's lymphoma	8-18
Prostate cancer	12-20
Squamous cell carcinoma of head/neck	5-13
Multiple myeloma	5-7
Lung cancer	4-5
Leukemias (AML, ALL)	5-7
Brain malignancies (Non-lymphoma)	4-5
Testicular cancer (Non-seminoma)	4-5
Hepatocellular carcinoma	3-4





# HIV Infection & Risk of Diabetes Mellitus

## Increased Risk of DM Secondary to:

- Increasing age
- Male sex
- Minority Race
- BMI
- Hepatitis C co-infection
- NRTI & NNRTI treatment

## Conclusion

- HIV infection itself is not associated with increased risk of diabetes.
- Future studies will need to determine whether incidence of diabetes mellitus differs by HIV status.

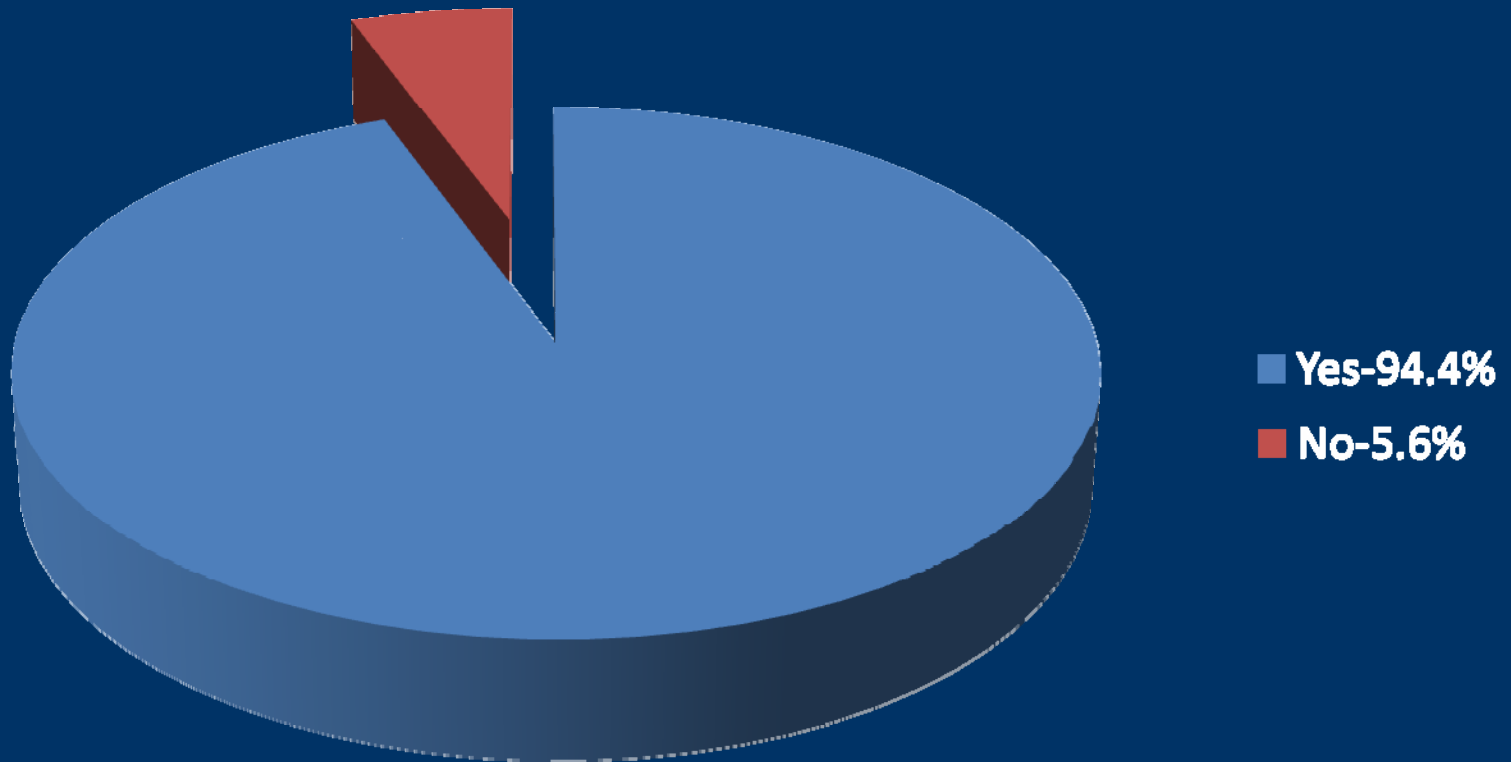
HIV Infection and the Risk of Diabetes Mellitus, Butt,A, et al, AIDS: 19 June 2009 - Volume 23 - Issue 10 - p 1227-1234,

[http://journals.lww.com/aidsonline/Abstract/2009/06190/HIV\\_infection\\_and\\_the\\_risk\\_of\\_diabetes\\_mellitus.5.aspx](http://journals.lww.com/aidsonline/Abstract/2009/06190/HIV_infection_and_the_risk_of_diabetes_mellitus.5.aspx), accessed 7/5/10.

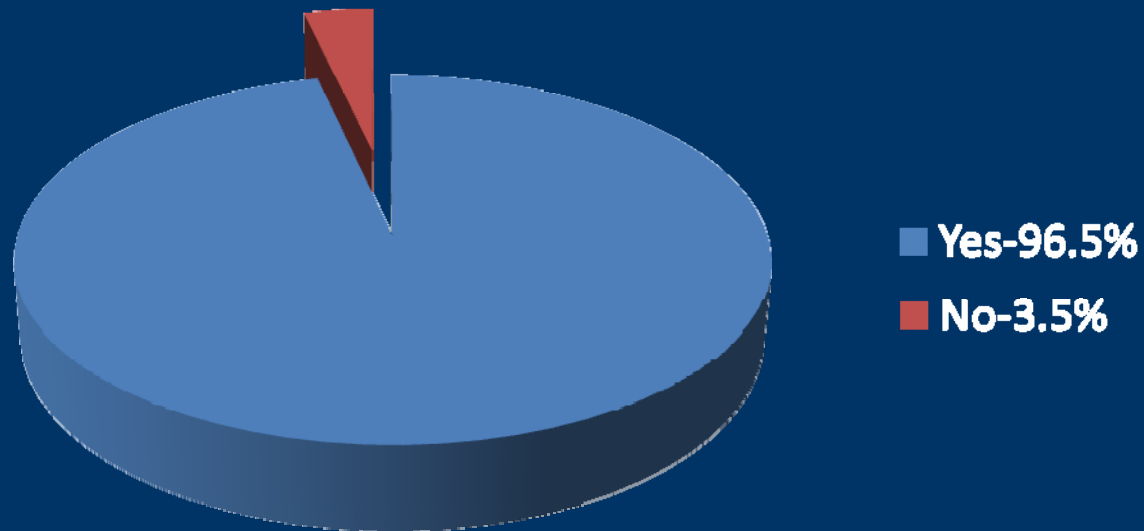
# Sample from 12 chart reviews performed in Florida in 2009 at HIV clinics

Sample size=230,  $\geq 50$  years old=65, <50  
years old=165, females=79, males=151

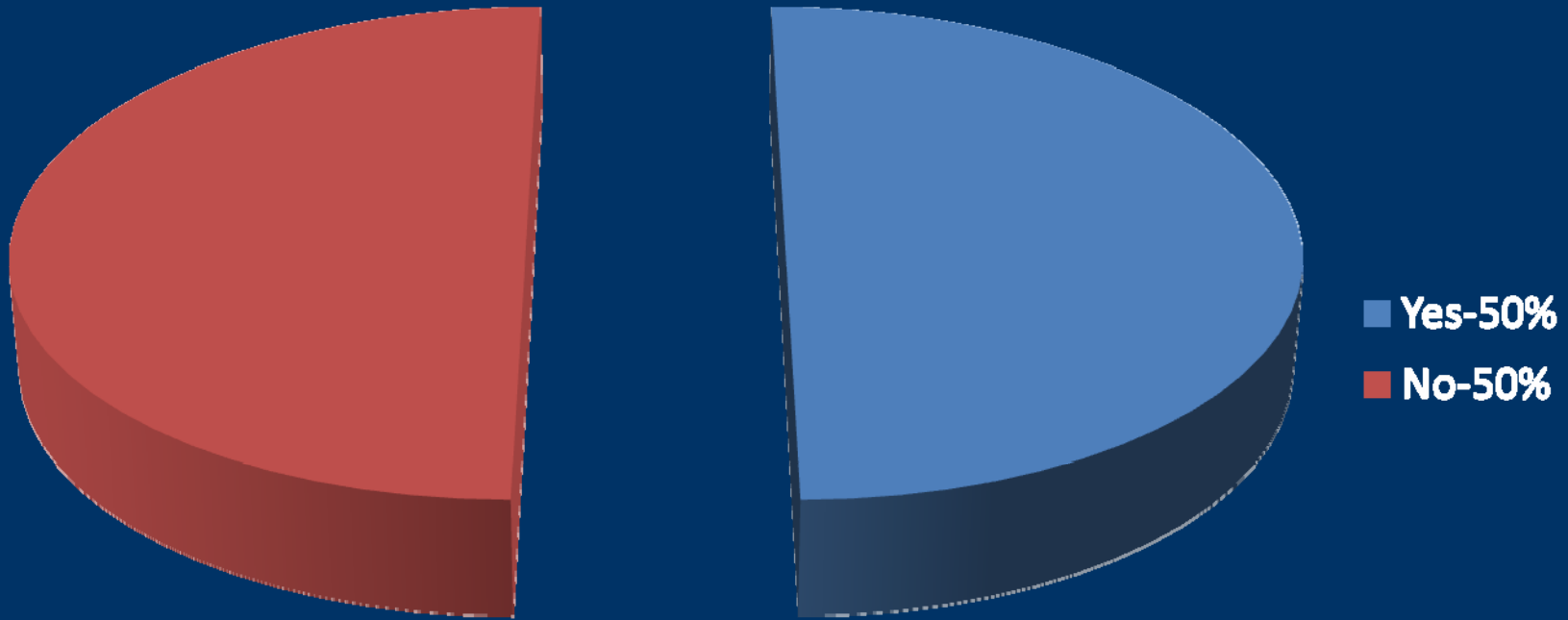
# ART Regimen Consistent with Current DHHS Guidelines



## All Medications Correctly Dosed & Combined

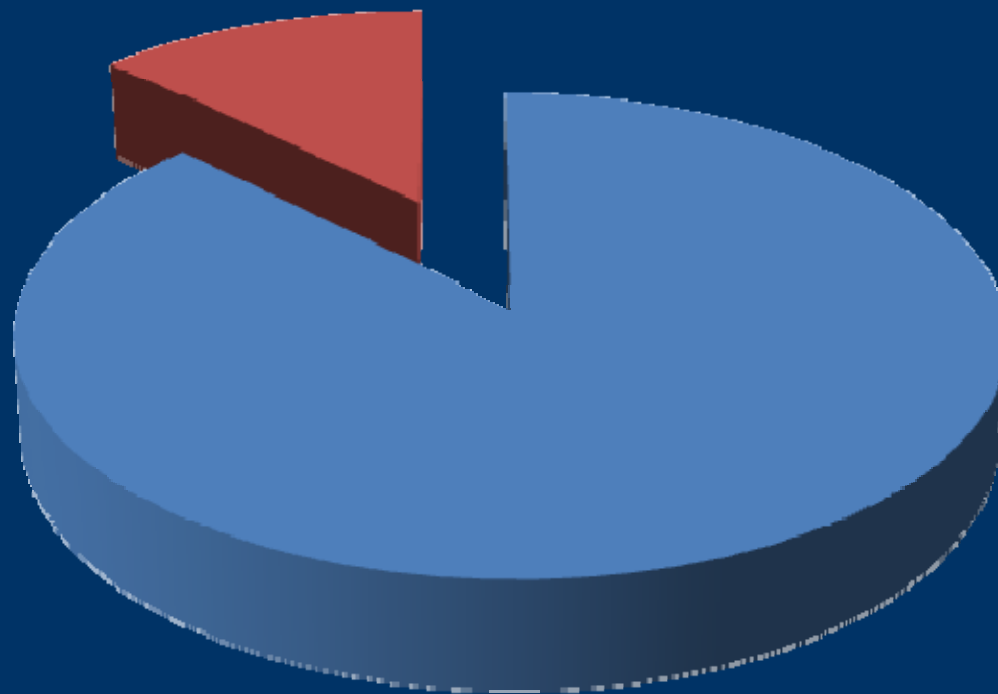


# Genito-rectal Exam in the Past 12 Months





## Oral Exam in past 12 months



■ Yes-87.4%

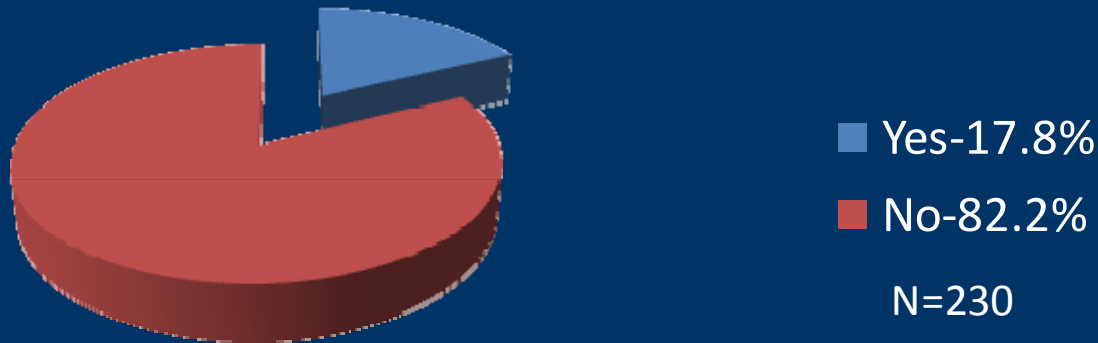
■ No-12.6%

N=230

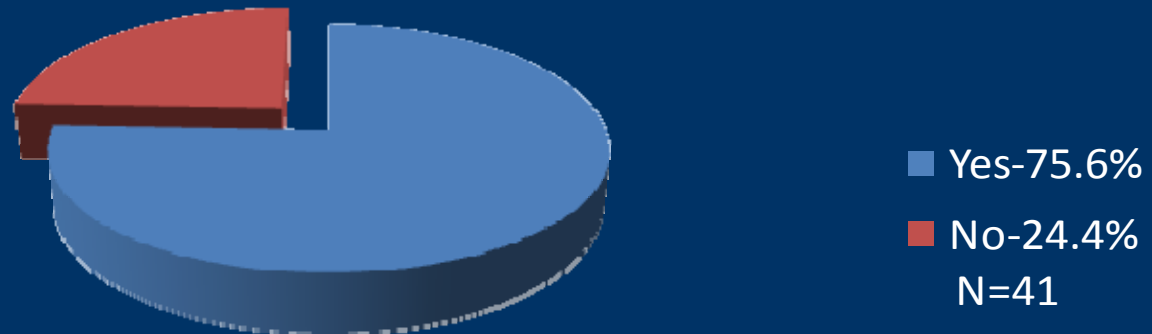


# Screening for Diabetes

Glucose elevated in past 12 months

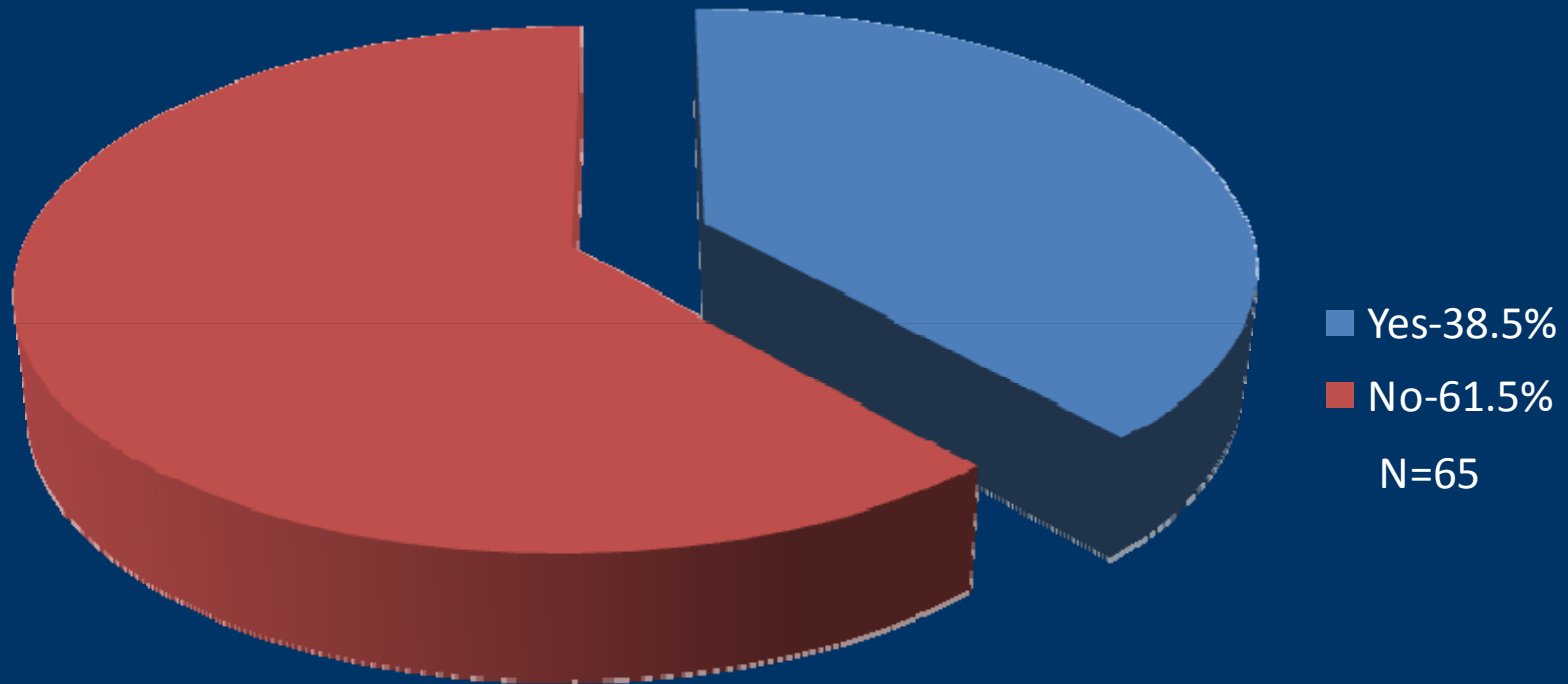


If glucose elevated, was HgbA1C or 2 hr GTT done



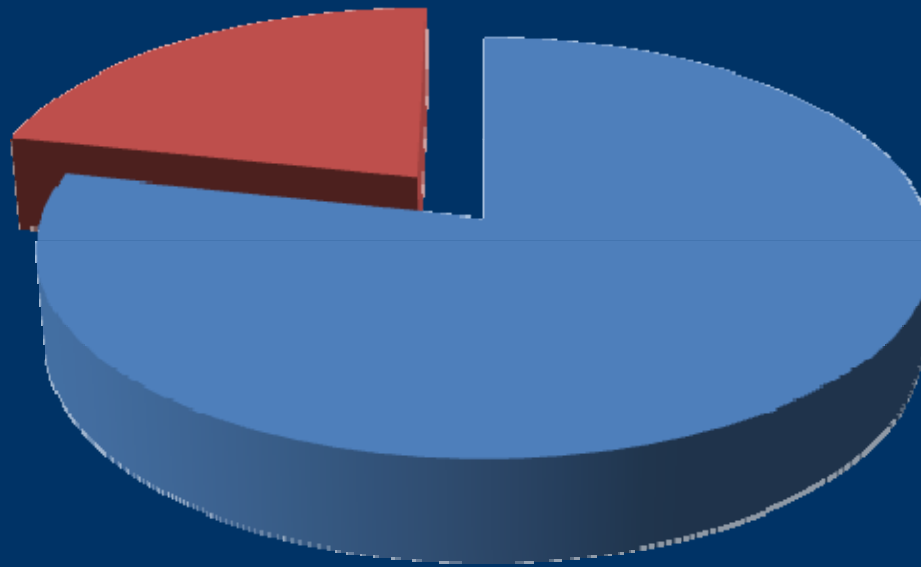
# Cancer Screening

## Colon cancer screening referral (50+ years old)



# Cancer Screening

## Pap smear in the past 12 months (female)



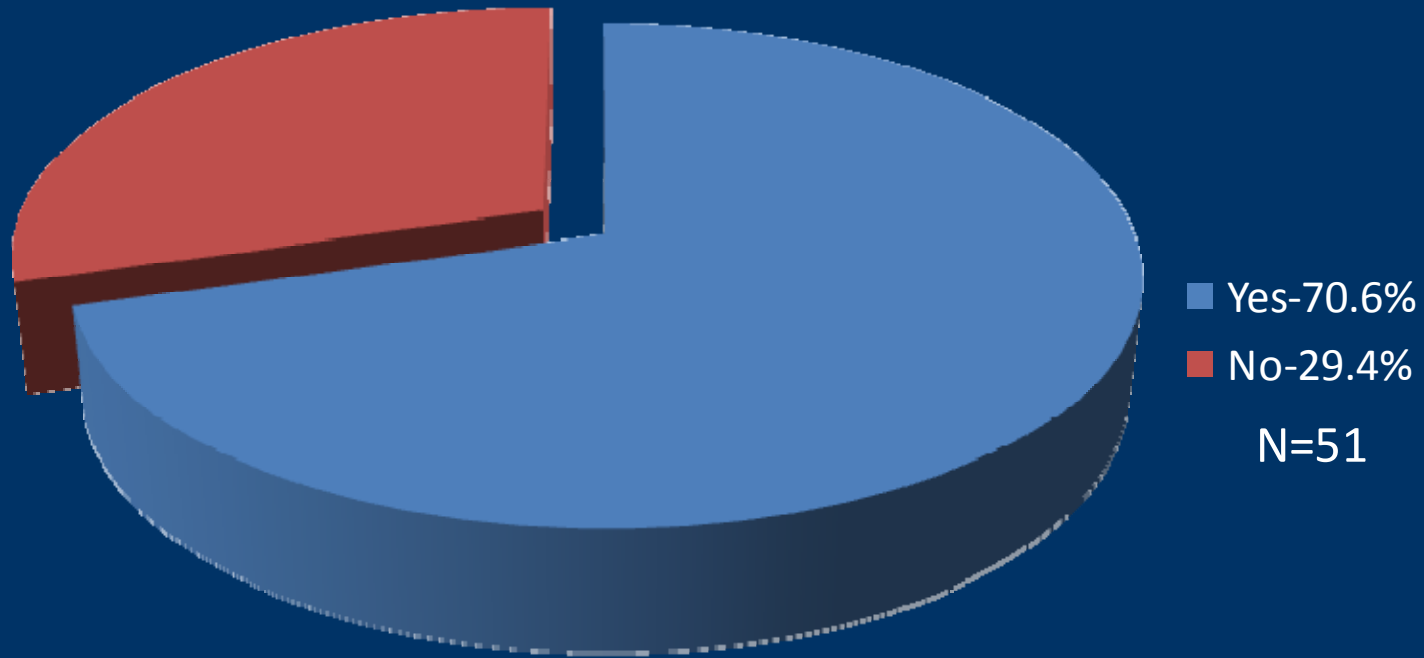
■ Yes-78.5%

■ No-21.5%

N=79

# Cancer Screening

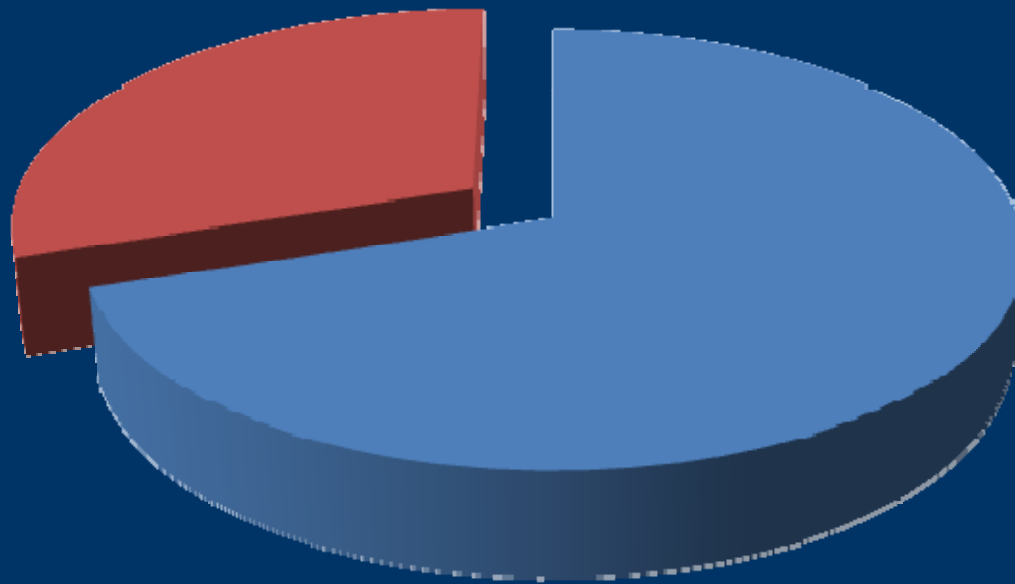
## Age appropriate mammograms





# Cancer Screening

PSA at frequency recommended in current guidelines (male)

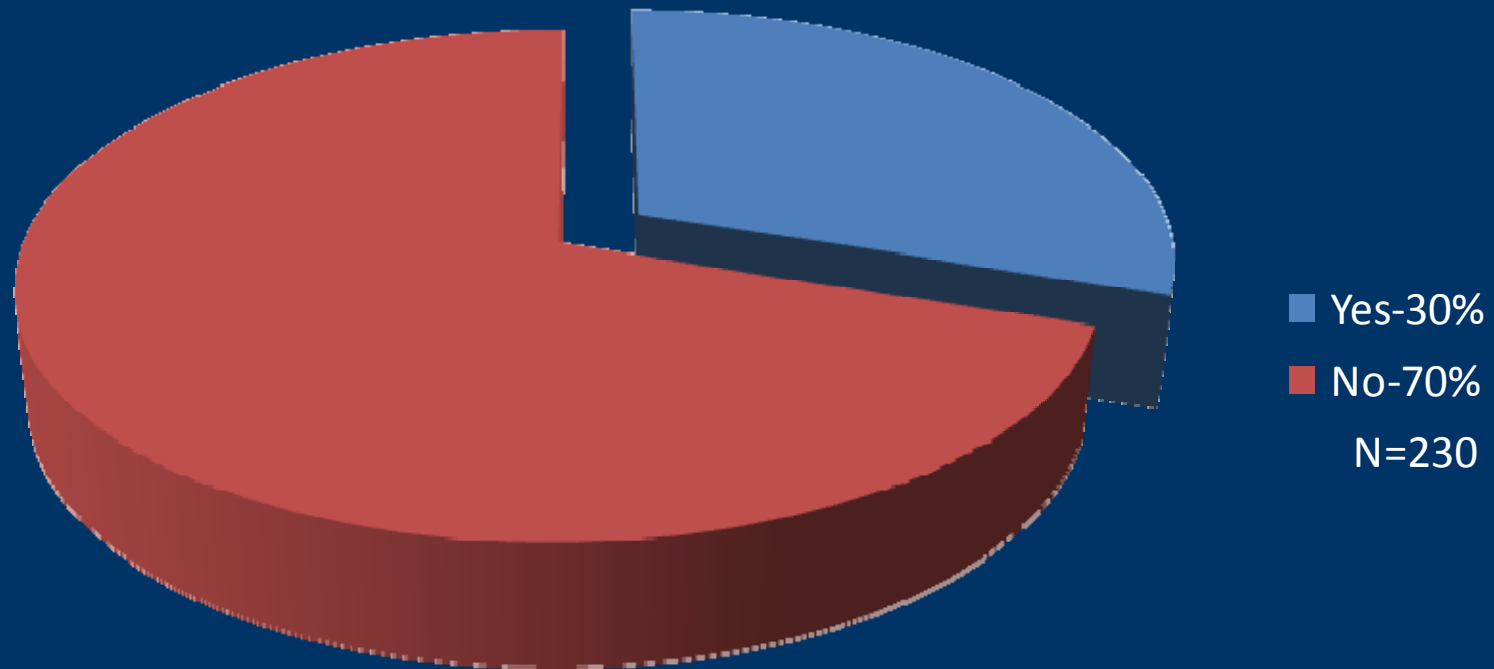


■ Yes-70.1%  
■ No-29.9%  
N=87



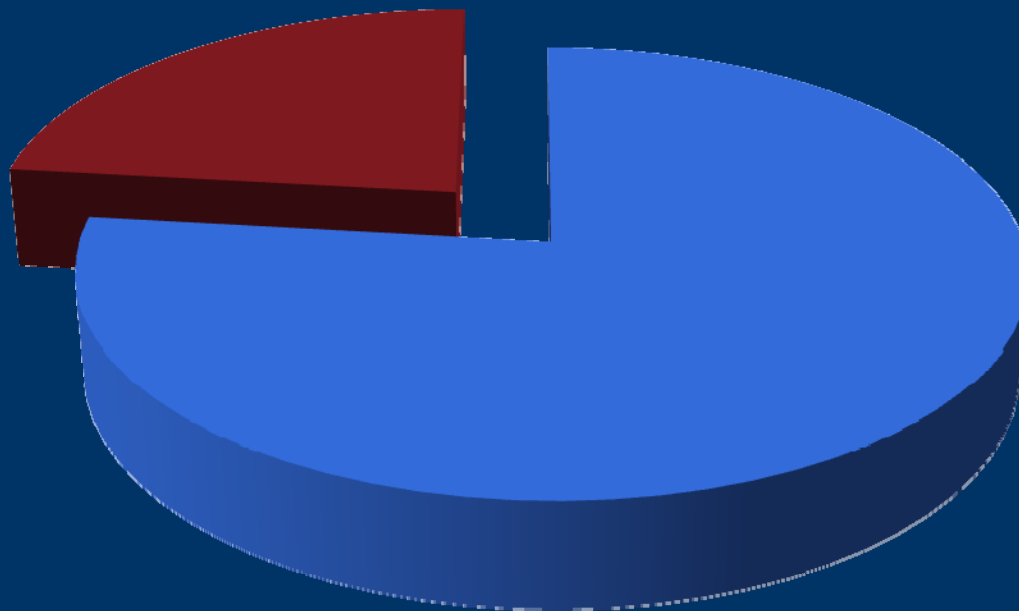
# Cardiovascular Screening

Cholesterol/triglycerides elevated in past 12 months



# Cardiovascular Screening

If cholesterol/triglycerides elevated were National Cholesterol Education Program (NCEP) guidelines followed?



■ Yes-76.8%

■ No-23.2%

N=69



# Chronic Disease Assessment Tool

- First Round Peer review completed
- Initial pilot completed
- Tool refinement in process and then broader peer review planned
- Development of training modules to accompany tool in process

# Raising the bar for our expert HIV Clinicians – Advanced Chart Review

Lipid therapy

CAH - c

Testosterone therapy

TB

Kidney disease

Breast

Diabetes

Prostate

Hypertension

Bone

Cardiovascular

Substance Use

CAH – B

Mental Health





# Review and Comment Welcome

- <http://www.fcaetc.org/chronic>

# Pharmacy Chart Reviews

- Chart reviews conducted at 6 pharmacies contracted to dispense medications for Ryan White Part A program in Florida
- Reviewed pharmacy records including a subset of original prescriptions as well as information from the patient's medical record (when available)
- 286 records reviewed, 96 original prescriptions reviewed

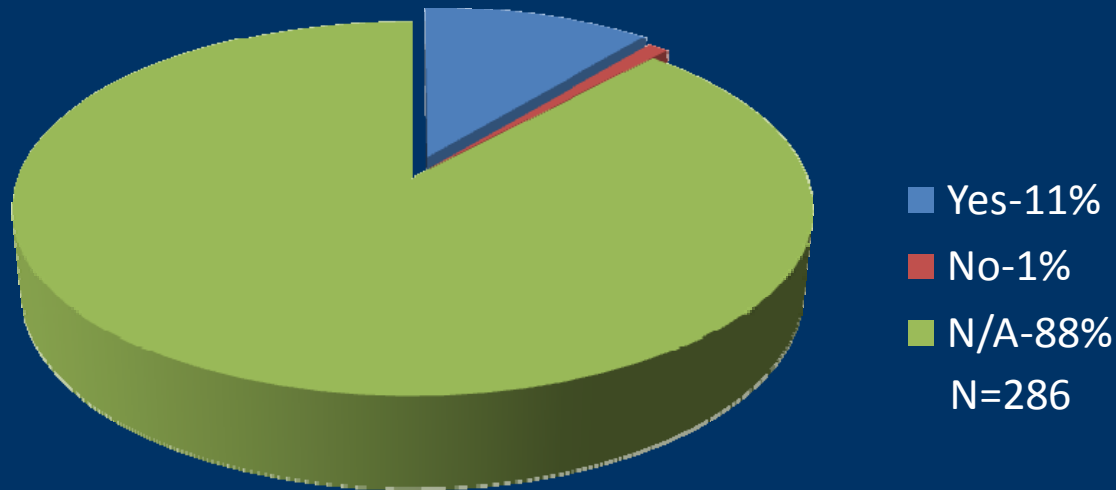
# Pharmacy Chart Reviews

- Antiretroviral Therapy
- Accuracy
- Therapeutic Duplication
- Drug-Drug Interactions
- Allergies



# Antiretroviral (ARV) Therapy

ARVs Dispensed at Same Time?



- Majority of cases of not applicable (N/A) were cases where patients were not receiving ARVs through the Ryan White Part A program

# Accuracy

- 96 original prescriptions were reviewed to make sure that medications were dispensed with appropriate:
  - Drug
  - Dose
  - Directions
  - Quantity
- 100% of prescriptions reviewed were filled and dispensed appropriately (as verified by review of pharmacy electronic record and not actual medication bottles)

# Therapeutic Duplication

- All pharmacy records were reviewed to assess whether there was any inappropriate therapeutic duplication (e.g. use of 2 statin medications, use of lamivudine with emtricitabine)
- Of the 286 records reviewed, there was 1 instance of inappropriate therapeutic duplication identified:
  - Patient prescribed and dispensed maximum doses of around the clock (i.e. not prn dosing) of ibuprofen and naproxen)
  - Patient had renal insufficiency which worsened following the time that these medications were started

# Drug-drug Interactions

- All pharmacy records and medical records (when available) were reviewed to assess for drug-drug interactions
- Of the 286 records reviewed, there were 6 significant drug-drug interactions identified:
  - NNRTI efavirenz (Sustiva<sup>®</sup>) with standard dose lopinavir/ritonavir (Kaletra<sup>®</sup>)
  - Ritonavir-boosted protease inhibitor with standard dosing of sildenafil (Viagra<sup>®</sup>)-2 patients
  - Ritonavir-boosted protease inhibitor with fluticasone (Flonase<sup>®</sup>)-2 patients
  - Atazanavir (Reyataz<sup>®</sup>) with a proton pump inhibitor

# Allergies

Allergies listed in pharmacy system?



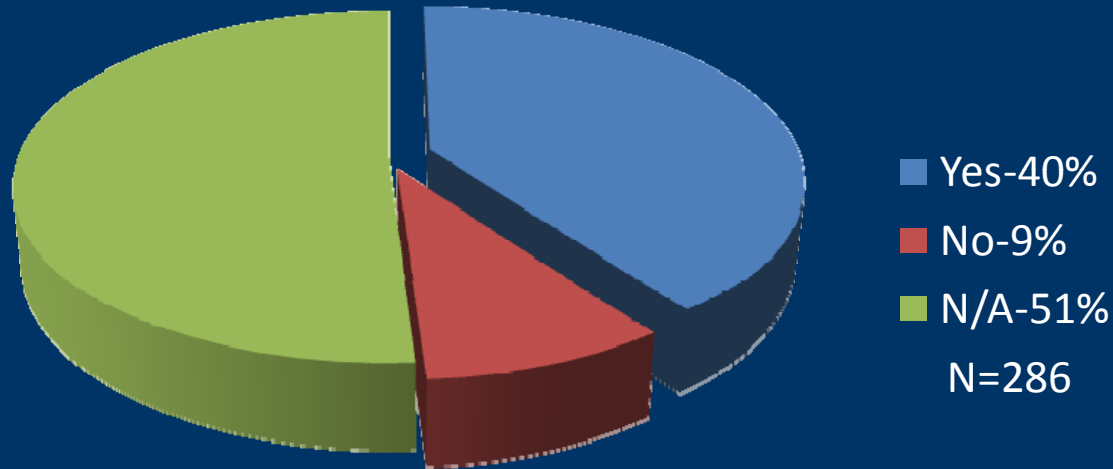
■ Yes-57%  
■ No-43%  
N=286





# Allergies

Are allergies listed in the pharmacy system consistent with those listed in medical record?



- Majority of cases of not applicable (N/A) were cases where allergies were not listed in the pharmacy system so they could not be compared to those in the medical record

# Lessons Learned

- Reviewing original prescriptions added minimal information to the review and a smaller subset will be reviewed in the future (if any at all reviewed)
- Therapeutic duplication did not appear to be an issue
- Some avoidable drug-drug interactions identified
  - Educate pharmacists and providers regarding drug-drug interactions
    - Return visits planned with pharmacy case conference
    - Review of Ryan White Part A formulary planned to recommend alternative medications when possible (e.g. inhaled/intranasal corticosteroid with less potential to interact with protease inhibitors)

# Lessons Learned-Allergies

- Some pharmacies had very low rates of documentation of patient allergies.
- Even when allergies provided on electronic prescriptions generated from the medical record, allergies not consistently entered.
- Providers do not consistently notify the patient's pharmacy when new allergies identified.
- Next steps
  - Allergy documentation needs to be a joint effort between the pharmacy, the patient, and the medical provider
  - Pharmacies with low allergy documentation rates have been asked to describe their plan for improving allergy documentation