

# READYING HIV/HCV COINFECTED PATIENTS FOR HCV TREATMENT: OCCURRENCE AND MANAGEMENT OF ANTIVIRAL INTERACTIONS

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# PREVIOUS CHALLENGES FOR TREATMENT OF HIV/HCV COINFECTION



# OBJECTIVE

To assess the frequency and degree of potential drug-drug interactions between antiretroviral agents and DAA drug in HIV/HCV co-infected patients receiving care at an academic medical center.

# METHODS

- Retrospective review of HIV/HCV Coinfected patients in care at University of Colorado Hospital Infectious Disease Group Practice Clinic
  - All patients 18 years of age or older
  - Chronic HCV Infection
  - Active HIV antiviral prescription within last year
- Analysis of possible drug-drug interactions between baseline HIV antivirals and different HCV regimens
- Categories of drug-drug interactions
  - **Severe Interaction:** Unsafe, the medications should not be coadministered
  - **Moderate Interaction:** Requires additional monitoring and/or dose adjustments
  - **No Significant Interaction:** Safe, no adjustments required

# ASSESSMENT OF DRUG-DRUG INTERACTIONS

	Simeprevir <sup>1</sup>	Sofosbuvir <sup>2</sup>	Ledipasvir <sup>3-5</sup>	Daclatasvir <sup>6,7</sup>	AbbVie 3D <sup>8-10</sup>
ATV/r	No data	No data	↑ LDV, ↑ ATV <sup>a</sup>	DCV ↑ <sup>b</sup>	ABT450 ↑; ATV ↑
DRV/r	SIM ↑; DRV ↔	SOF ↑; DRV ↔	↑ LDV, ↔ DRV <sup>a</sup>	DCV ↑	3D ↓/↑; DRV ↓
LPV/r	No data	No data	No data	DCV ↑	ABT450 ↑; LPV ↔
TPV/r	No data	No data	No data	No data	No data
EFV	SIM ↓; EFV ↔	SOF ↔; EFV ↔	LDV ↓; EFV ↓ <sup>a</sup>	DCV ↓ <sup>b</sup>	No PK data <sup>c</sup>
RPV	SIM ↔; RPV ↔	SOF ↔; RPV ↔	LDV ↔; RPV ↔	No data	ABT450 ↑; RPV ↑
ETR	No data	No data	No data	No data	No data
RAL	SIM ↔; RAL ↔	SOF ↔; RAL ↔	LDV ↔; RAL ↔	No data	3D ↔; ↑ RAL
EVG/cobi	No data	SOF ↑; ELV/cobi ↑	LDV ↑; ELV/cobi ↑	No data	No data
DTG	No data	No data	No data	No data	No data
MVC	No data	No data	No data	No data	No data
TDF	SIM ↔; TFV ↔	SOF ↔; TFV ↔	LDV ↔; ↑TFV	DCV ↔; TFV ↔	3D ↔; TFV ↔

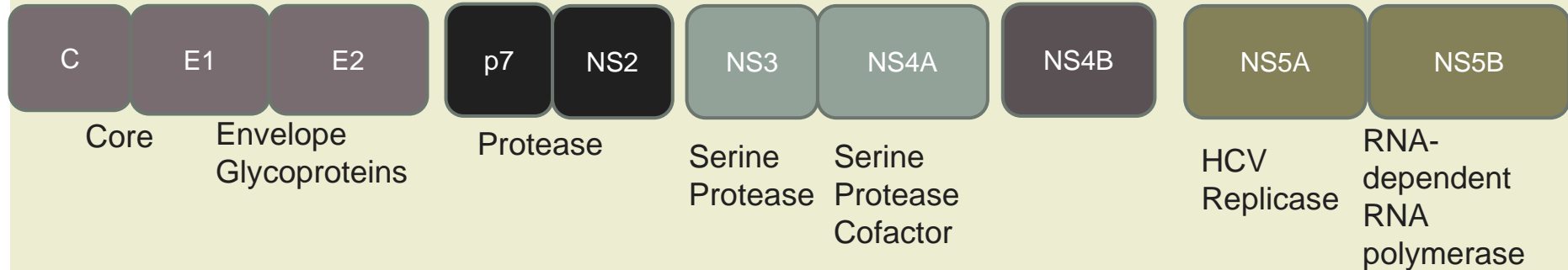
<sup>a</sup>Watch renal function, TFV levels increased, <sup>b</sup>Decrease DCV dose to 30mg QD with ATV, increase DCV dose to 90mg QD with EFV,

<sup>c</sup>3D + EFV led to premature study discontinuation due to toxicities

<sup>1</sup>Ouwkerk-Mahadaven S IDWeek 2012, <sup>2</sup>Kirby B AASLD 2012, <sup>3</sup>Harvoni package insert, <sup>4</sup>German P 15<sup>th</sup> International Workshop on Clinical Pharmacology of HIV and Hepatitis Therapy 2014, <sup>5</sup>German P, CROI 2015, <sup>6</sup>Bifano M, et al. Antivir Ther. 2013;18(7):931-40,

<sup>7</sup>Eley T HIVDART 2014, <sup>8</sup>Khatri ICAAC 2014, <sup>9</sup>Khatri ICAAC 2014, <sup>10</sup>Viekira Pak package insert

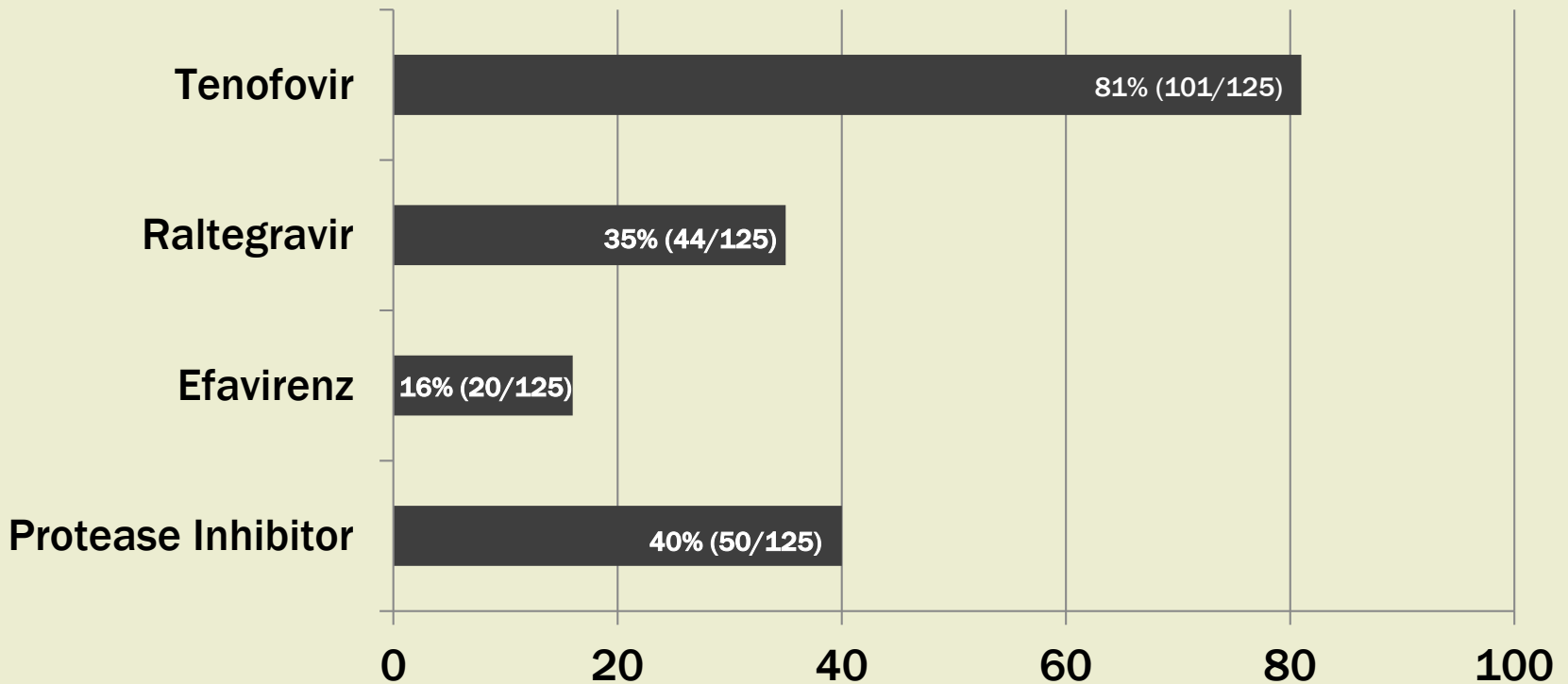
# ASSESSMENT OF 4 POSSIBLE REGIMENS



	<b>NS3/4A</b>		<b>NS5A</b>		<b>NS5B</b>
Function	Serine Protease		Component of HCV Replication Complex		RNA-dependent RNA polymerase
Drugs	1 Simeprevir	4 Paritaprevir/rit	2 Ledipasvir	3 Daclatasvir	Nucleoside analogs Sofosbuvir
				Ombitasvir	Non-nucleoside Dasabuvir
	<b>1. SIM/SOF</b>		<b>2. SOF/LDV</b>		<b>3. SOF/DCV</b>
					<b>4. 3D</b>

# RESULTS

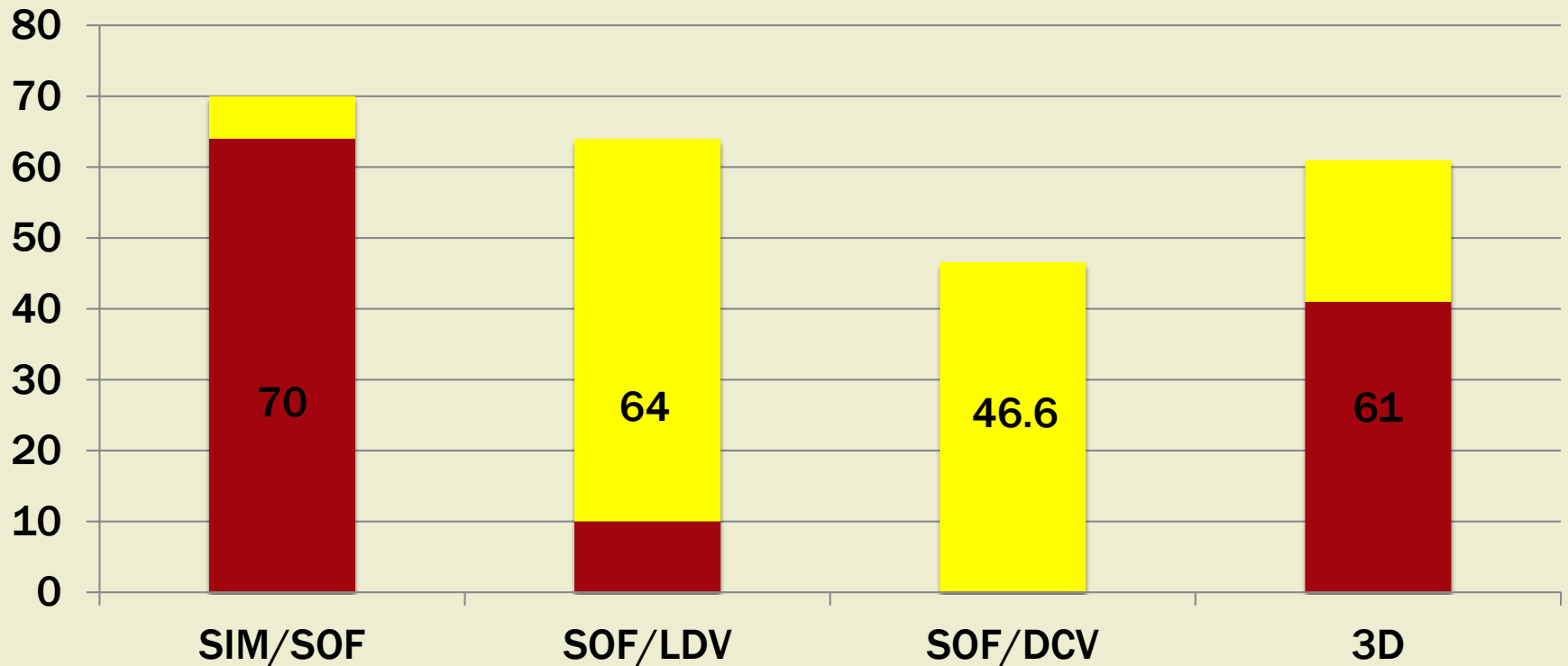
- 125 patients identified and analyzed
- Contained the below medications



\*2 patients (1.6%) were not taking HIV medications at time of analysis

# MODERATE OR SEVERE INTERACTIONS

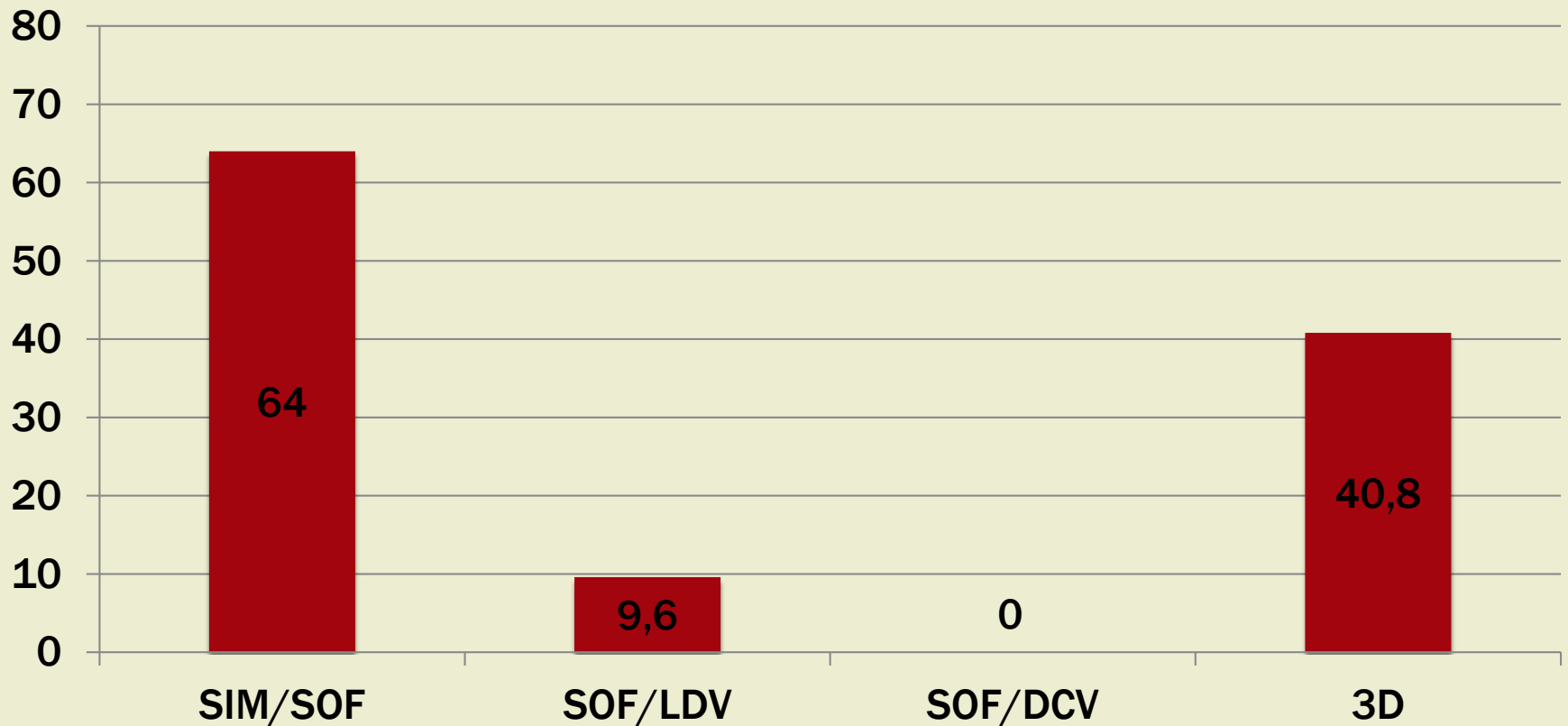
**Percentage of HIV Regimens with Moderate or Severe Interactions**





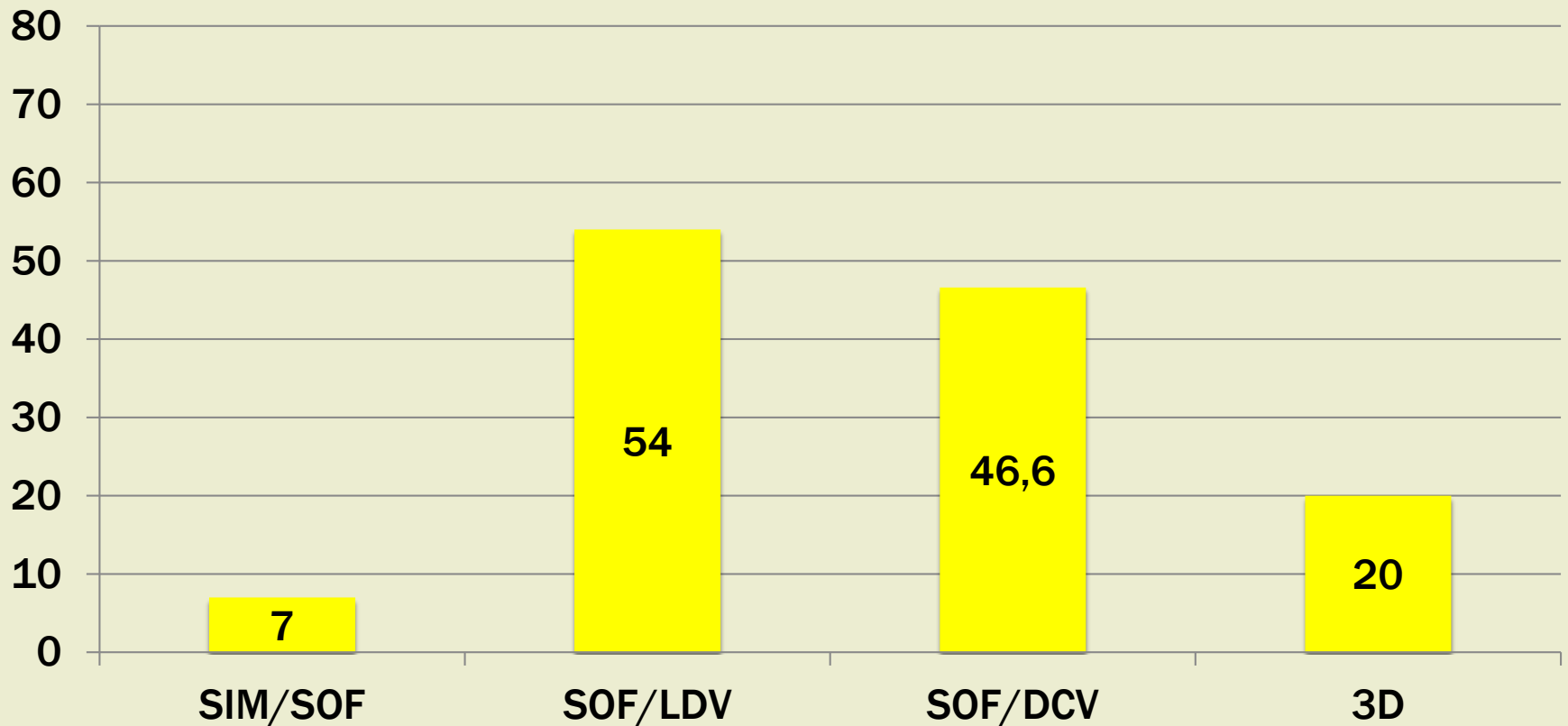
# SEVERE INTERACTIONS

Percentage of HIV Regimens with Severe Interactions



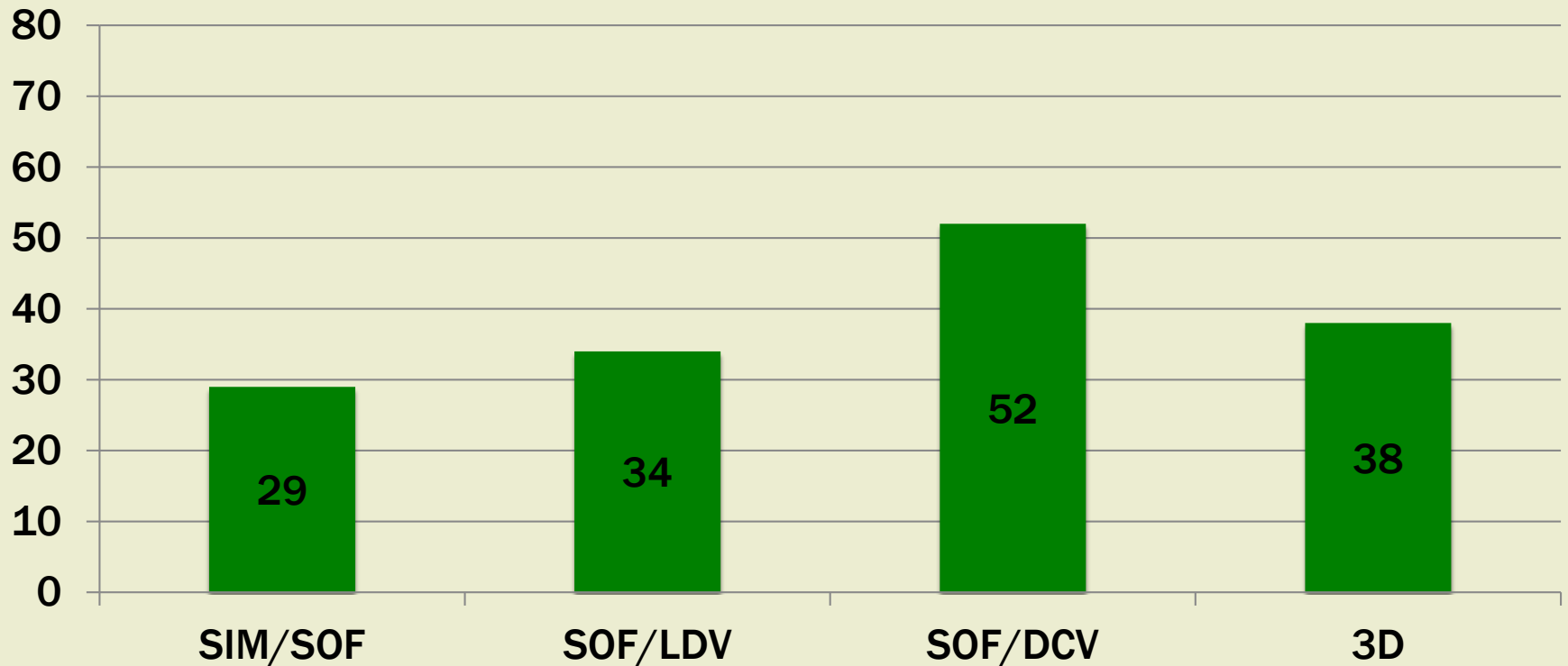
# MODERATE INTERACTION

Percentage of HIV Regimens with Moderate Interactions



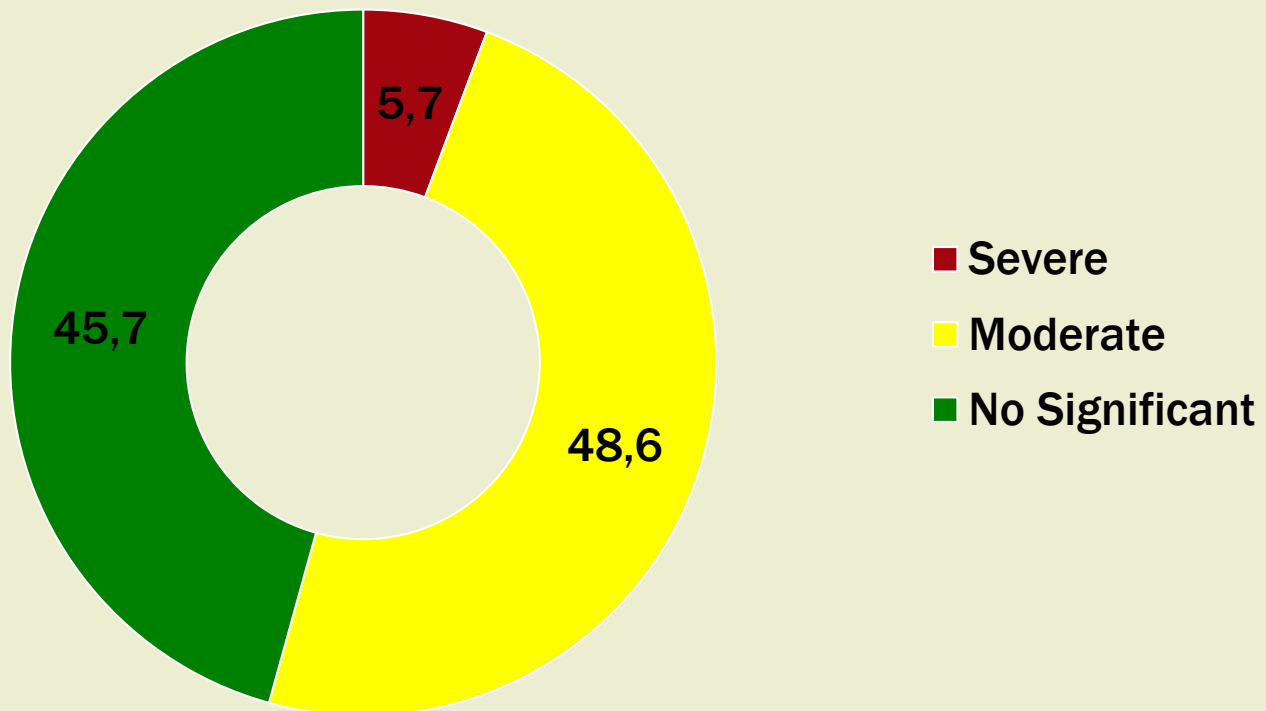
# NO SIGNIFICANT INTERACTION

**Percentage of HIV Regimens with No Significant Interactions**

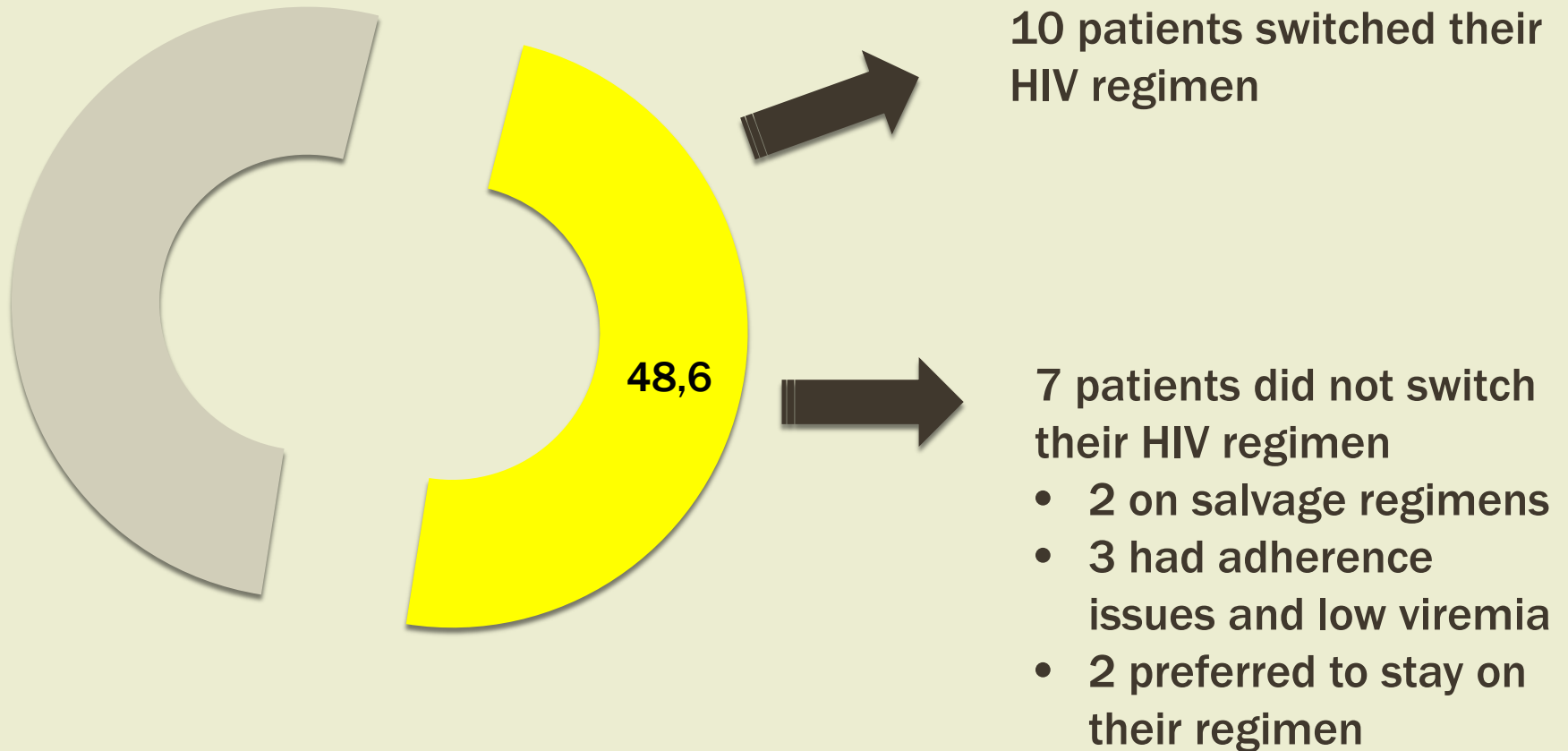


# SUBSET: 35 OF 125 PTS PRESCRIBED SOF/LDV

**Percentage of patients' HIV Antiviral Interactions  
with SOF/LDV**



# 17 (48.6%) PATIENTS WITH MODERATE INTERACTIONS



# CHALLENGE FOR PATIENTS AND PROVIDER

- **Resistance:**
  - Analyzed the resistance profile of all 35 patients
    - All available HIV Genotypes, Phenotypes, and/or Phenosense
  - 7 (20%) of the 35 patients would not be eligible to change their HIV regimen due to resistance
  - 5 did not have significant drug interactions, but 2 had moderate interactions and switching their regimen was not an option
- **Patient Adherence Challenges**
  - Switch from once daily regimen to BID (raltegravir)
- **Regimen Specific Requirements**
  - Food, time of day

# CONCLUSION

- Potential moderate or severe interactions with at least one of the four HCV regimens were identified in 70.4% (88/125) patients.
  - Did not assess any concomitant medications
- This analysis shows that drug-drug interactions between HIV and HCV medications are common.
- Illustrates the need for expertise in management of drug-drug interactions in this population and that many patients will require a change to antiretroviral therapy or increased monitoring.