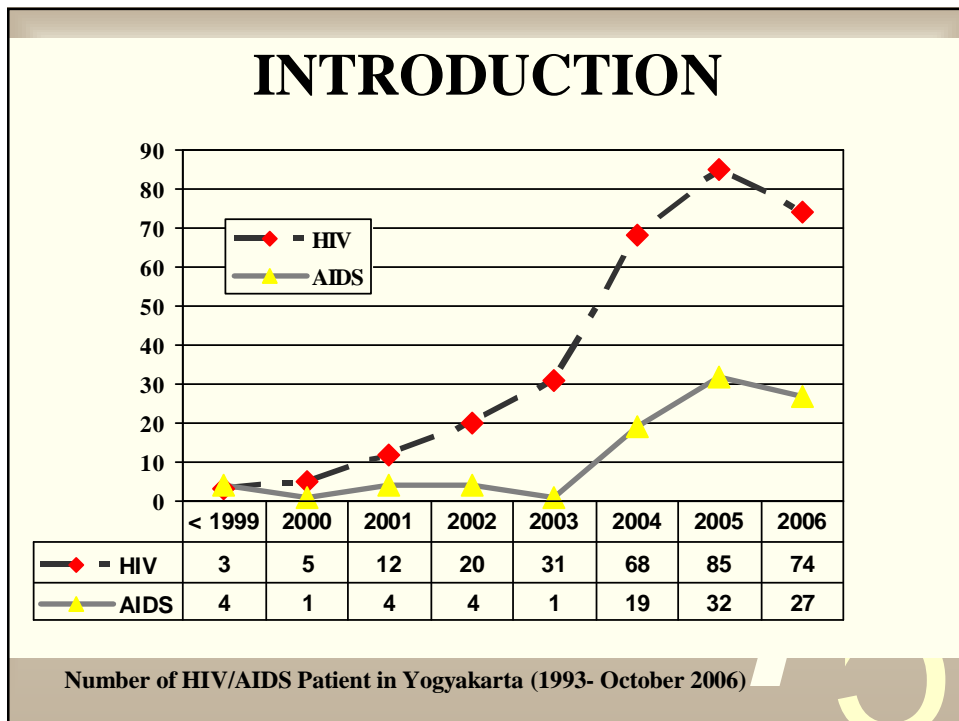




**ANTIRETROVIRAL'S DRUG INTERACTION STUDY  
IN HIV/AIDS PATIENT**

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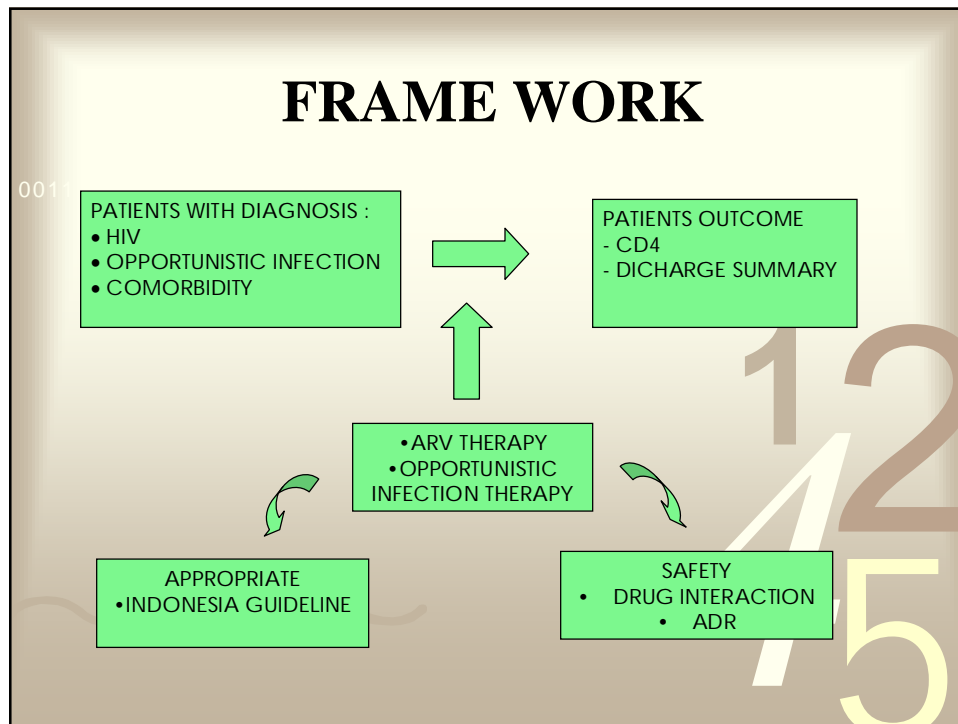


## INTRODUCTION

- HIV/AIDS patient's need combination antiretroviral therapy, anti-infection therapy and supportive therapy to increase quality of life.
- Patient with number of drugs therapy can increase the risk of drug interaction

## OBJECTIVE OF STUDY

- To evaluate patient's safety with antiretroviral therapy in hospital, especially in drugs interaction study.



## METHODS

- The nonexperimental study was done.
- Data were collected retrospectively from 38 inpatients and 55 outpatients who fulfill the inclusion criteria such as completely medical record, including the identity, the diagnostic of HIV/AIDS and patients have antiretroviral therapy during the treatment in X Hospital Yogyakarta during 2004-2006.
- Data analyzed by descriptive method and compared with literatures.

## RESULTS AND DISCUSSION

- The ratio between man and woman was 85:15,
- Most patient was at range of age 25-34 years (53, 75%)
- The highest risk was at injecting drug user (IDU) populations (40%)
- Candidiasis and tuberculosis were the most usual opportunistic infection.

	Characteristic	No of patient	Percentage (%)
<b>Gender</b>	<b>male</b>	<b>68</b>	<b>85,00</b>
	female	12	15,00
<b>Age (years)</b>	15 – 24	19	23,75
	<b>25 – 34</b>	<b>43</b>	<b>53,75</b>
	35 – 44	17	21,25
	No information	1	1,25
<b>Risk Factor</b>	<b>IDU</b>	<b>25</b>	<b>31,25</b>
	Heterosexual	11	13,75
	Homosexual	2	2,50
	IDU/Heterosexual	1	1,25
	IDU/Homosexual	1	1,25
	IDU/Sex	1	1,25
	Analsexual	1	1,25
	Blood Tranfusion	1	1,25
	Not Steril Syringe	1	1,25
	<i>Drug Abuse</i>	4	5,00
	No information	32	40,00

<b>Opportunistic Infection</b>	<b>No of patient (Percentage = %)*)</b>	<b>No of Case (Percentage = %)**)</b>
<b>Candidiasis</b>	<b>24 (63,2)</b>	<b>26 (55,3)</b>
Tuberculosis (TB)	19 (50,0)	21 (41,7)
Sepsis	17 (44,7)	18 (38,3)
Hepatitis	12 (31,6)	13 (27,7)
Pneumonia	12 (31,6)	13 (27,7)
Chronic Diarrhea	8 (21,0)	11 (23,4)
<i>Pneumonia pneumosistis karinii</i> (PCP)	6 (15,8)	6 (12,8)
CMV	4 (10,5)	5 (10,6)
Toxoplasmosis	4 (10,5)	4 (8,5)
UTI	3 (7,9)	3 (6,4)
Micosis	2 (5,3)	2 (4,3)

## RESULTS AND DISCUSSION

- Drugs interaction occurred in 38 in-patients and 19 out-patients.
- The most drug interaction which occurred in patients was lamivudine-cotrimoxazole interaction (50,0%) and most drugs interaction occurred through pharmacokinetic mechanism (58,8%).
- Amount of 44, 7% ADR presented may be related with drugs interaction in HIV/AIDS patient.

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Discharge Summary	Length of Stay (days)						Total (Percentage = %)
	1-10	11-20	21-30	31-40	40-50	50-60	
<b>Cure</b>	<b>16</b>	<b>10</b>	<b>6</b>	<b>2</b>	<b>-</b>	<b>1</b>	<b>35 (74,5)</b>
Patient Needed	3	1	-	-	-	-	4 (8,5)
Death	4	4	-	-	-	-	8 (17,0)
Total (Percentage = %)	23 (49,0)	15 (32,1)	6 (12,8)	2 (4,3)	-	1 (2,1)	47 cases (100)

No.	ARV Therapy (Guideline)	No of Patient (In-patient)	Percentage (%)
<b>1</b>	<b>ZDV+3TC+NVP</b>	<b>16</b>	<b>42,1</b>
2	ZDV+3TC+EFV	3	7,9
3	D4T+3TC+NVP	7	18,4
4	D4T+3TC+EFV	2	5,3
5	Others*	10	26,3
<b>Total</b>		<b>38</b>	<b>100</b>

Note: \* (ZDV+3TC), (d4T+3TC), d4T, + : therapy combination, ARV: antiretroviral  
 ZDV: zidovudine, 3TC: lamivudine, d4T: stavudine, NVP: nevirapine, EFV: efavirenz

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No.	ARV Therapy (Guideline)	No of Patient (Out-Patient)	Percentage (%)
1	ZDV+3TC+NVP	20	36,36
2	ZDV+3TC+EFV	10	18,18
3	d4T+3TC+NVP	9	16,36
4	d4T+3TC+EFV	16	29,09
5	Others*	0	0
<b>Total</b>		<b>55</b>	<b>100</b>

Note: \* (ZDV+3TC) and (d4T+3TC), + : therapy combination . ARV: antiretroviral, ZDV: zidovudine, 3TC: lamivudine, d4T: stavudine, NVP: nevirapine, EFV: efavirenz

MECHANISM	DRUG INTERACTION (IN-PATIENT)		NUMBER
	ARV	OTHER DRUG	Patient (%)
Pharmacokinetic	<b>Lamivudine</b>	<b>Cotrimoksazole</b>	<b>19 (50,0)</b>
	Zidovudine	Paracetamol	15 (39,5)
		Rifampisin	14 (36,8)
		Fluconazole	13 (34,2)
		Cotrimoksazole	12 (31,6)
		Pirazinamide	11 (28,9)
		Itrakonazole	1 (2,6)
		Diazepam	1 (2,6)
		Lorazepam	1 (2,6)
	Nevirapine	Fluconazole	13 (34,2)
		Rifampisin	8 (21,0)
		Ketokonazol	2 (5,3)
		Itrakonazol	1 (2,6)
	Efavirenz	Rifampisin	6 (15,8)
		Fluconazole	4 (10,5)

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MECHANISM	DRUG INTERACTION (IN-PATIENT)		NUMBER (Percentage = %)
	ARV	OTHER DRUG	Patient*
Pharmacodinamic	Nevirapine	Cotrimoksazole	10 (26,3)
		Clindamisin	1 (2,6)
	Efavirenz	Cotrimoksazole	6 (15,8)
		Clindamisin	2 (5,3)
	<b>Total</b>		140

No	DRUG INTERACTION (OUT-PATIENT)	MECHANISM		
		PK	PD	unknown
1	Lamivudine+ Cotrimoksazole	11	-	-
2	Zidovudine+Fluconazole	3	-	-
3	Zidovudine+Rifampicin	1	-	1
4	Nevirapine+Fluconazole	3	-	-
5	Nevirapine+Rifampicin	1	-	-
6	Nevirapine+Cotrimoksazole	-	11	-
	<b>Total</b>	30 patient (54,54%)*	11 patient (20%)*	1 patient (1,82%)*

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No of Drug Interaction	Drug Interaction	No (Case Percentage = %)*	ADR	Action
1 0011	Zidovudine + Fluconazole	2 (4,3)	Anemia, decrease Hb	Stop fluconazole → ketokonazole blood transfusion
	Nevirapine + Fluconazole	3 (6,4)	Rash, ↑ ALT/AST	Stop nevirapine → efavirenz, decrease fluconazole doses (+) antialergi & lotion hepatoprotector
2	Zidovudine + Fluconazole, Zidovudine + Paracetamol	2 (4,3)	Anemia, trombositopenia, neutropenia	Stop zidovudine → stavudine, Stop flukonazol, blood transfusion
	Zidovudine + Cotrimoksazole Lamivudine + Cotrimoksazole	5 (10,6)	Anemia, trombositopenia (4), intoleransi gastrointestinal (1)	Stop zidovudine → stavudine, Stop cotrimoksazol blood transfusion (+) antialergi and analgetik
	Nevirapine + Fluconazole, Nevirapine + Rifampisin	1 (2,1)	Rash, ↑ ALT/AST	Stop nevirapine, Stop flukonazol, (+) antialergi and hepatoprotector

3 0011	Zidovudine + Cotrimoksazole, Lamivudine + Cotrimoksazole, Zidovudine + Paracetamol	1 (2,1)	Anemia, leukopenia	Stop cotrimoksazole, blood transfusion
	Zidovudine + Cotrimoksazole, Lamivudine + Cotrimoksazole, Zidovudine + Flukonazole	3 (6,4)	Anemia, trombositopenia	Stop zidovudine Stop flukonazole, blood transfusion
	Zidovudine + Cotrimoksazole, Lamivudine + Cotrimoksazole, Nevirapine + Cotrimoksazole	1 (2,1)	Anemia, <i>Steven Johnson Syndrome</i>	Stop cotrimoksazole and nevirapine, (+) antialergi and lotion
	Lamivudine + Cotrimoksazole, Nevirapine + Cotrimoksazole, Nevirapine + Flukonazole	1 (2,1)	Anemia, trombositopenia, ↑ ALT/AST	Stop antiretroviral, blood transfusion and trombosit, (+) hepatoprotektor

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5	Zidovudine + Cotrimoksazole, Lamivudine + Cotrimoksazole, Zidovudine + Paracetamol, Zidovudine + Fluconazole, Zidovudine + Itrakonazole	1 (2,1)	Anemia, neutropenia	Stop zidovudine, blood transfusion
	Zidovudine + Cotrimoksazole, Lamivudine + Cotrimoksazole, Zidovudine + Fluconazole, Nevirapine + Fluconazole, Nevirapine + Cotrimoksazole	1 (2,1)	Anemia, rash, ↑ ALT/AST	Stop zidovudine → stavudine, blood transfusion Stop nevirapine, (+) lotion and hepatoprotector
ADR presented may be related with drugs interaction		21 (44,7%)		
Total		47 (100%)		

No.	ADR (In-Patient)	No of Case	Percentage (%)
1.	Bone marrow suppression		
	a) Anemia	18	52,9
	b) Neutropenia	1	2,9
2.	Hepatotoxic	7	20,6
3.	Nausea-vomiting	1	2,9
4.	Pancreatitis	2	5,9
5.	Rash	5	14,8
<b>Total</b>		<b>34</b>	<b>100</b>

No	ARV Therapy (before substitution)	ARV Therapy (after substitution)	No of Patient	Persentase (%)	Reason of Substitution
001 1.	ZDV+3TC+NVP	d4T+3TC+NVP	6	15,8	Anemia (5), Acute pancreatitis (1)
2.	ZDV+3TC+EFV	d4T+3TC+EFV	1	2,6	Anemia
3.	ZDV+3TC+NVP	d4T+3TC+EFV	2	5,3	Rash (1), Anemia and hepatotoxic
4.	d4T+3TC+NVP	d4T+3TC+EFV	1	2,6	Hepatitis and rash
5.	No substitution		28	76,3	
<b>Total</b>			<b>38</b>	<b>100</b>	

## CONCLUSION

001  
The most drug interaction which occurred in patients was lamivudine-cotrimoxazole interaction and most drugs interaction occurred through pharmacokinetic mechanism

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