HIV Research in Indonesia: What are still needed?
Adults and Children Estimated to be living with HIV (2012)

- North America: 1.3 million (980,000 – 1.9 million)
- Caribbean: 250,000 (220,000 – 280,000)
- Latin America: 1.5 million (1.2 million – 1.9 million)
- Western & Central Europe: 860,000 (800,000 – 930,000)
- Eastern Europe & Central Asia: 1.3 million (1.0 million – 1.7 million)
- Middle East & North Africa: 260,000 (200,000 – 380,000)
- South & South-East Asia: 3.9 million (2.9 million – 5.2 million)
- Sub-Saharan Africa: 25.0 million (23.5 million – 26.6 million)
- East Asia: 880,000 (650,000 – 1.2 million)
- Oceania: 51,000 (43,000 – 59,000)

Source: UNAIDS
Changes in the incidence rate of HIV infection, 2001 to 2009, selected countries

Source: UNAIDS.
TREND OF GLOBAL HIV EPIDEMIC

• UNAIDS 2010: globally, new infection decreased by 19%

• The number of PLWHA still increased, as mortality decreased (2010 estimation 33.3 millions)

• Of 15 millions PLWHA who need ART, 5.2 juta are on ARV
Adult HIV Prevalence Rate, 2013

Global HIV/AIDS Prevalence Rate = 0.8%

NOTES: Data are estimates. Prevalence rates include adults ages 15-49. The estimate for Sudan represents data for Sudan only. The estimate for South Sudan is 2.2%.
Indonesia: Concentrated Epidemic Papua land: *Generalized epidemic*

HIV prevalence 0.4%, while in Papua 2.3%

Source: MOH. Republic of Indonesia
HIV-AIDS Publication from Indonesia in categories

- Epidemiology (24.09%)
- Social and Behavioral (29.09%)
- Clinical and Biomedical (24.54%)
- Intervention and Programmatic Issues (22.27%)

Gunawan S, et al (2009) and pubmed search: HIV (title) and Indonesia (affiliation)
Epidemiology

Proportion 24.09%

Examples:

- Hepatitis B virus prevalence, risk factors and genotype distribution in HIV infected patients from West Java, Indonesia
  
  Fibriani A¹, Wisaksana R², Alisjahbana B², Indrati A³, Schutten M⁴, van Crevel R⁵, van der Ven A⁶, Boucher CA⁴.

- Men having sex with men in Surakarta, Indonesia: demographics, behavioral characteristics and prevalence of blood borne pathogens

Proportion 29,09%

Examples:

- Preparatory behaviours and condom use during receptive and insertive anal sex among male-to-female transgenders (waria) in Jakarta, Indonesia
  Prabawanti C¹, Dijkstra A², Riono P³, Hartana Tb G⁴.

- Sex work venue and condom use among female sex workers in Senggigi, Indonesia
  Safika I¹, Levy JA, Johnson TP.

- Boyfriends and injecting: the role of intimate male partners in the life of women who inject drugs in Central Java
  Lazuardi E¹, Worth H, Saktiawati AM, Spooner C, Padmawati R, Subronto Y.
Clinical & Biomedical

Proportion 24.54%

Examples:

- Antibody and markers of T-cell activation illuminate the pathogenesis of HCV immune restoration disease in HIV/HCV co-infected patients commencing ART

- Anemia and iron homeostasis in a cohort of HIV-infected patients in Indonesia

- Response to first-line antiretroviral treatment among human immunodeficiency virus-infected patients with and without a history of injecting drug use in Indonesia
Examples:

- Injecting drug use is associated with a more rapid CD4 cell decline among treatment naive HIV-positive patients in Indonesia
  
  Meijerink H1, Wisaksana R2, Iskandar S3, den Heijer M4, van der Ven AJ1, Alisjahbana B2, van Crevel R5.
  

- Priority setting in HIV/AIDS control in West Java Indonesia: an evaluation based on the accountability for reasonableness framework
  
  Tromp N1, Prawiranegara R2, Subhan Riparev H2, Siregar A3, Sunjaya D2, Baltussen R2.
  

- Virological failure and drug resistance during first line anti-retroviral treatment in Indonesia
  
  
HIV Research Trend in Indonesia

- 1988-1992: Policy (66.6%)
- 1993-1997: Behavior (56.5%)
- 1998-2002: Behavior (78.6%)
- 2003-2007: Epidemiology (38.7%)
- 2008-2012: Clinical and Biomedical (49.5%)
- 2013-2015: Clinical and Biomedical (53.6%)
Number of HIV Research in Indonesia by Institution (1988-2015)
Number of HIV Research in Indonesia by Region (1988-2015)
HIV Research Condition in Indonesia

- Research has been done, but the publications have been lacking

- Research registered in NIHRD Library → Online Public Access Catalog (OPAC):
  - Epidemiology research → 4
  
  Examples:
  - Analisis kecenderungan prevalensi HIV/AIDS di propinsi Jawa Timur (laporan penelitian)
    Prajoga, Puslitbang Yantekkes, Badan Litbangkes 1998
  
  - HIV/AIDS di Indonesia : Fenomena Gunung Es dan Peranan Pelayanan Kesehatan Primer
    Jurnal Kesehatan Masyarakat Nasional: 3(5):236- 24; 2009
HIV Research Condition in Indonesia

• Social and Behavioral → 37

Examples:

  Lubis, Imran, Cermin Dunia Kedokteran, (98):13-17

– Persepsi pekerja seks dan pelanggan terhadap risiko penularan HIV/AIDS (studi atas pekerja seks dan pelanggannya di Surabaya)
  Made Asri Budisuari; Setia Pranata; Pusat Humaniora, Kebijakan Kesehatan dan Pemberdayaan Masyarakat 2013
HIV Research Condition in Indonesia

- Clinical and Biomedical → 30 Examples:
  - Gambaran Infeksi Oportunistik pada Penderita HIV/AIDS di Kota Jayapura
    Yunita Y.R. Mirino  Balai Litbang Biomedis Papua 2012
HIV Research Condition in Indonesia

- Intervention and Programmatic Issues → 13
  - Plants and its Bioactive Substances which having Anti HIV (Tumbuhan dan Senyawa Bioaktif yang Memiliki Potensi sebagai Anti Virus HIV)
    Agusta, Andria – Chairul; Majalah Farmasi Indonesia, 6(1)1995:20-29; 1995
  - Studi derivation catechin sebagai bahan baku antivirus HIV tahap I: derivatisasi isolat catechin dari uncaria gambir Roxb
    Lina Ristanti; Pusat Biomedis dan Teknologi Dasar Kesehatan; 2012
HIV Research Condition in Indonesia

- Short of standardized epidemiological, clinical, and laboratory data
- The need for research in several aspects including:
  - Observational study
  - Clinical trial
  - Biomedicine study
  - Social and Behavioral study
HIV Research Needs in Indonesia

• **Observational study**
  - Collecting HIV-AIDS data from big centers in Indonesia, same data collection form, cohort
  - To determine: opportunistic infection, CD4 level, therapeutic response, treatment failure, etc
HIV Research Needs in Indonesia

- **Clinical trial: a qualified laboratory is a must**
  - Dosage of several new drugs (mg/kg) for Indonesian people
  - Management of co-infection
  - Third line dan fourth line HIV drugs
  - New Drugs
- Drug Interaction
  - ARV drug level in simvastatin users with chronic ARV after 10 year usage
  - Polypill trial in patients on anti-retroviral therapy (ART)
Polypill trial in patients on anti-retroviral therapy (ART)

**ART has decreased HIV-associated morbidity and mortality**

- However, metabolic changes, risk factor for cardiovascular disease (CVD), are reported in patients on ART
- Myocardial infarction (MI) is 3.5 events/1,000 person years, 17% increase risk of MI in 5-6 y treatment → longer maybe higher

Law, 2006
Polypill trial in patients on anti-retroviral therapy (ART)

Polypill
- Aspirin 75 mg
- HCT 12.5 mg
- Lisinopril 10 mg
- Pravastatin 40 mg

Patients on ART may be expected to benefit from a polypill intervention
- As there may be adverse effects on HIV disease outcomes and treatment interactions: the risks and benefits of a combination polypill treatment require evaluation in a large randomized trial……..

(Law, 2006)
HIV Research Needs in Indonesia

- **Biomedicine Research → molecular**
  - HIV virus subtypes in Indonesia:
    - MSM (men who have sex with men)
    - IVDU (Intravenous drug users)
    - Female sex workers

- **Social & Behavioral Research**
  - Stigma
  - Discrimination
Knowledge Gaps in Six Key pre-defined areas of TB and HIV coinfection:

1. TB prevention;
2. Intensified TB case finding;
3. TB treatment in people living with HIV;
   • Duration of therapy
   • Variation of therapy
4. Drug-resistant TB and HIV;
5. Childhood and maternal TB and HIV;
6. Integration of TB and HIV services
Impact of HCV- HIV Co-Infection

Short-term

- Poorer ART outcomes
  - More ARV-related hepatotoxicity
  - “Flares” of disease during immune reconstitution
  - Less tolerant of treatment interruptions*
- Reduced response to hepatitis treatment

Long-term

- Increases risk of disease progression
  - Higher hepatitis viral loads
  - Cirrhosis
  - Hepatocellular carcinoma
  - Death

SMART study and INSIGHT. Tedaldi E, CID, Dec 08.
Hepatitis C dan HIV

- Epidemiology, Transmission and Prevention
- Pathogenesis and Natural History
- Diagnostics
- Care and Treatment
- Key Treatment Questions in HIV/HCV Coinfection
- Basic Research and Drug Development.

Tracy Swan, Treatment Action Group:  
**Research and Policy Recommendations for HCV/HIV Coinfection**
Clinical Research:

• Prevention of Mother-to-Child Transmission (PMTCT) and Pediatric Treatment
• Treatment for Women and Girls

Operational Research:

• Treatment for Women and Girls
• PMTCT and Pediatric Care, Treatment and Support
Thank You