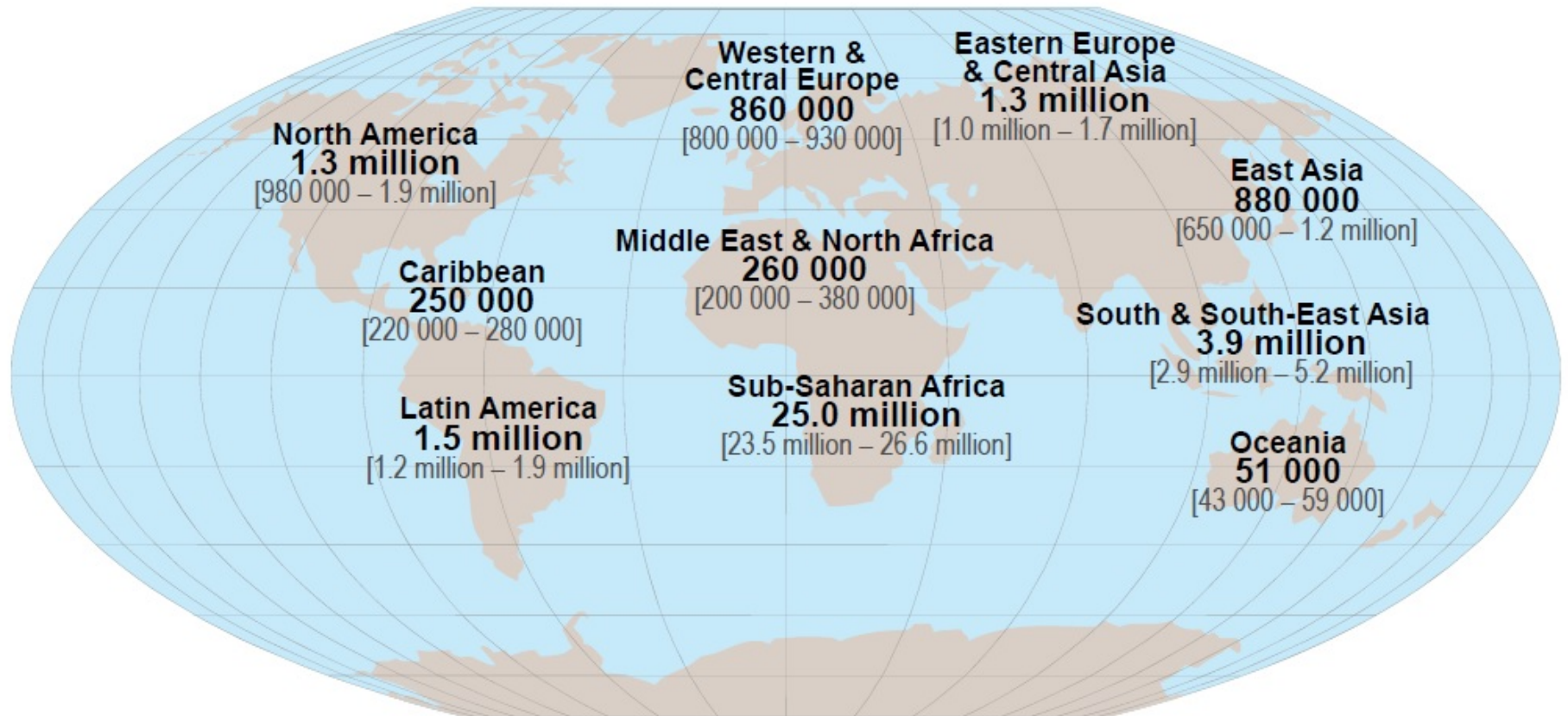


HIV Research in Indonesia: What are still needed?

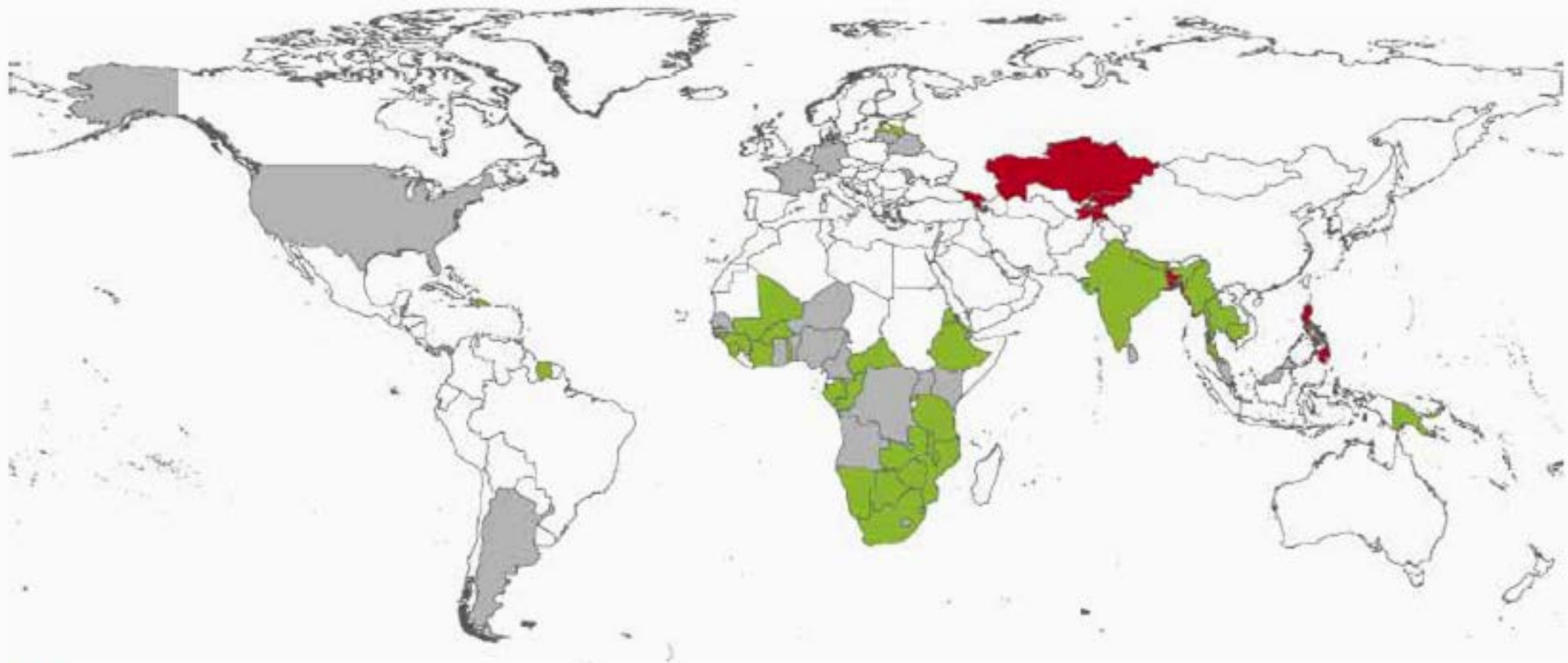
Adults and Children Estimated to be living with HIV (2012)



Source: UNAIDS

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

Source: UNAIDS.



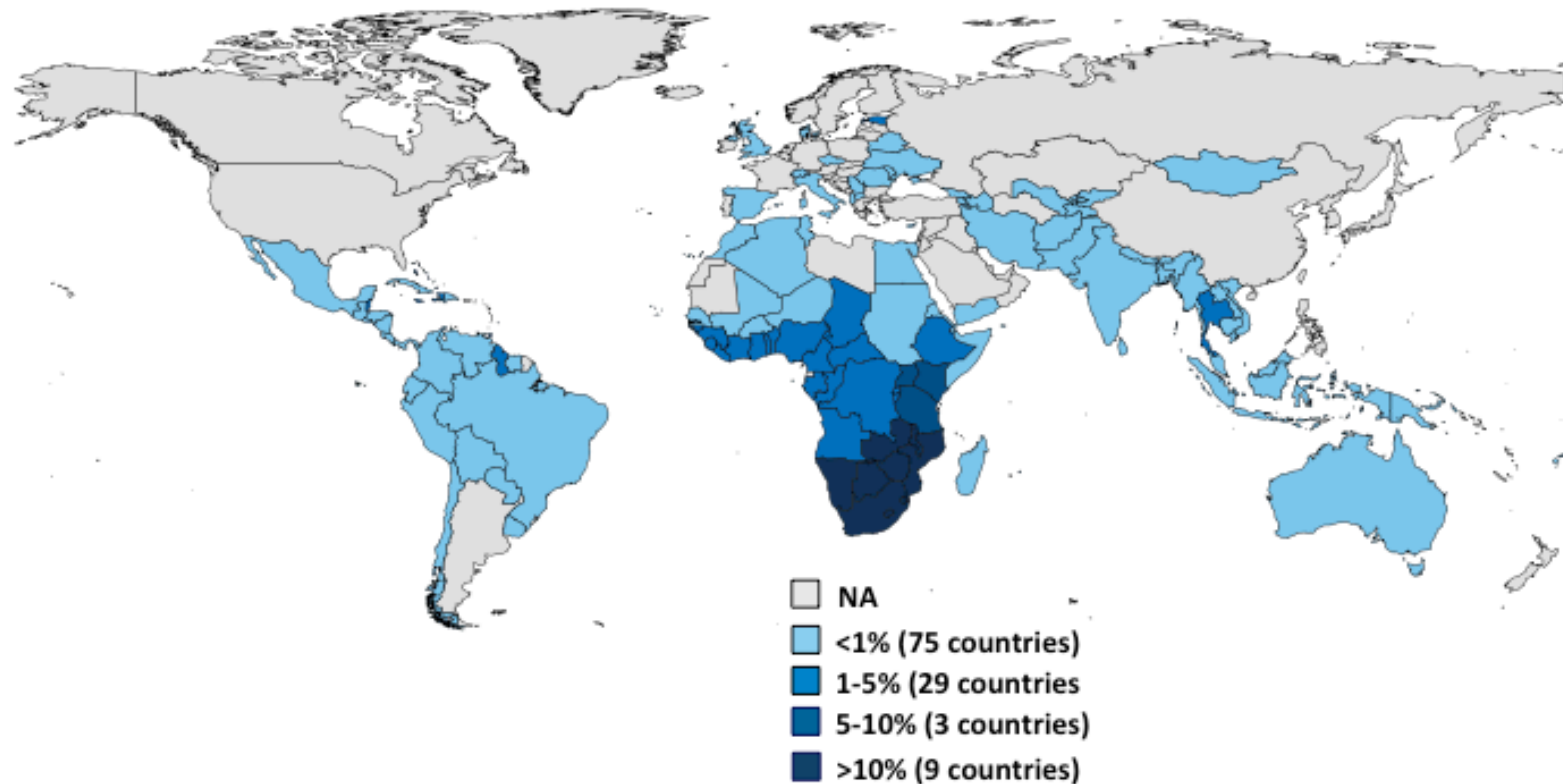
- Increasing >25%**
- Stable**
- Decreasing >25%**
- Not included in analysis**

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%



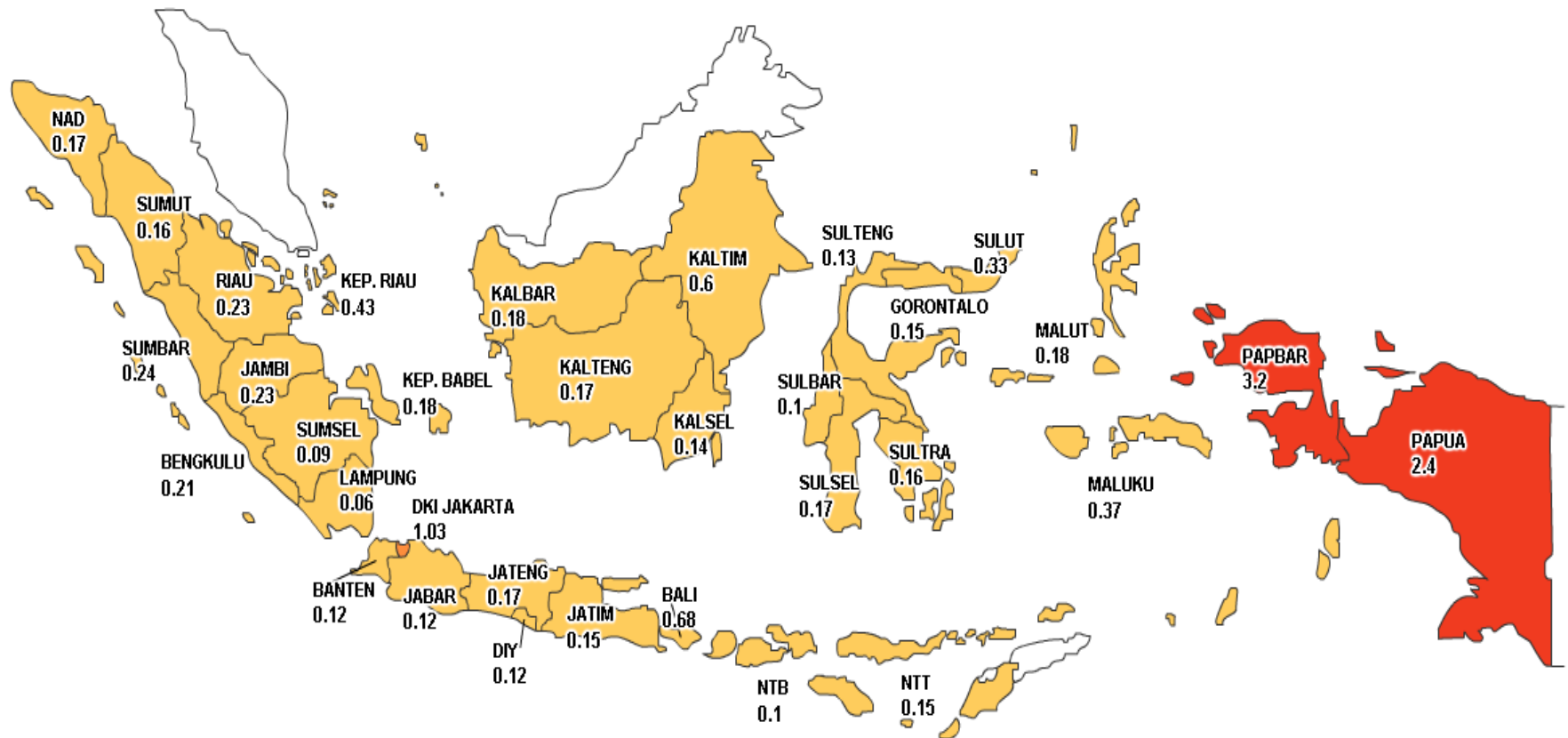
NOTES: Data are estimates. Prevalence rates include adults ages 15-49. The estimate for Sudan represents data for Sudan only. The estimate for South Sudan is 2.2%.

SOURCE: Kaiser Family Foundation, www.GlobalHealthFacts.org, based on UNAIDS, GAP Report; 2014.



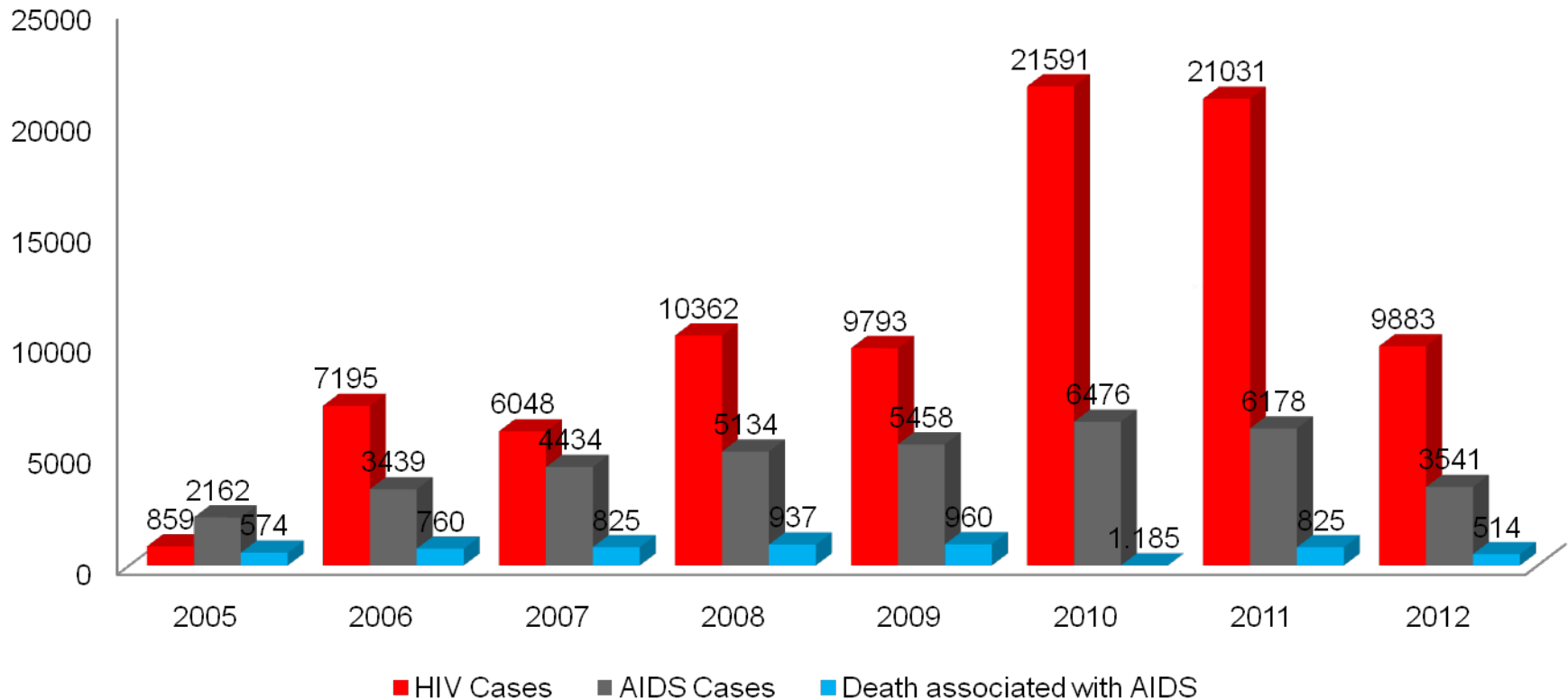
Estimated HIV Prevalence (2012)

Indonesia : Concentrated Epidemic Papua land: *Generalized epidemic*
HIV prevalence 0,4%, while in Papua 2,3%



Source: MoH Republic of Indonesia

HIV Cases, AIDS Cases and death associated with AIDS in Indonesia (2005-Sept 2012)



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 all (2009) and pubmed search: HIV (title) and Indonesia (affiliation)

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 A⁵, Boucher CA⁴.
J Clin Virol. 2014 Apr;59(4):235-41. doi: 10.1016/j.jcv.2014.01.012. Epub 2014 Jan 26.

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

Prasetyo AA, Ariapramuda R, Kindi EA, Dirgahayu P, Sari Y, Dharmawan R, Kageyama S.
Southeast Asian J Trop Med Public Health. 2014 Sep;45(5):1032-47.

Social & Behavioral

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.

J Int AIDS Soc. 2014 Dec 19;17:19343. doi: 10.7448/IAS.17.1.19343. eCollection 2014.

- Sex work venue and condom use among female sex workers in Senggigi, Indonesia

Safika I¹, Levy JA, Johnson TP.

Cult Health Sex. 2013;15(5):598-613. doi: 10.1080/13691058.2013.776112. Epub 2013 Mar 11.

- 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.

Cult Health Sex. 2012;14(5):491-503. doi: 10.1080/13691058.2012.671960. Epub 2012 Apr 2.

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

Yuniastuti E¹, Lee S, Gani RA, Saraswati H, Sundaru H, Lesmana LA, Sukmana N, Price P.
Clin Immunol. 2011 Apr;139(1):32-9. doi: 10.1016/j.clim.2010.12.013. Epub 2011 Feb 5.

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

Wisaksana R¹, Sumantri R, Indrati AR, Zwitter A, Jusuf H, de Mast Q, van Crevel R, van der Ven A.
BMC Infect Dis. 2011 Aug 9;11:213. doi: 10.1186/1471-2334-11-213.

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

Wisaksana R¹, Indrati AK, Fibriani A, Rogayah E, Sudjana P, Djajakusumah TS, Sumantri R, Alisjahbana B, van der Ven A, van Crevel R.
Addiction. 2010 Jun;105(6):1055-61. doi: 10.1111/j.1360-0443.2010.02898.x. Epub 2010 Mar 10.

Intervention & Programmatic Issues

Proportion 22,27%

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.
J Int AIDS Soc. 2014 Jan 3;17:18844. doi: 10.7448/IAS.17.1.18844. eCollection 2014.

- 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.
Health Policy Plan. 2015 Apr;30(3):345-55. doi: 10.1093/heapol/czu020. Epub 2014 Apr 15.

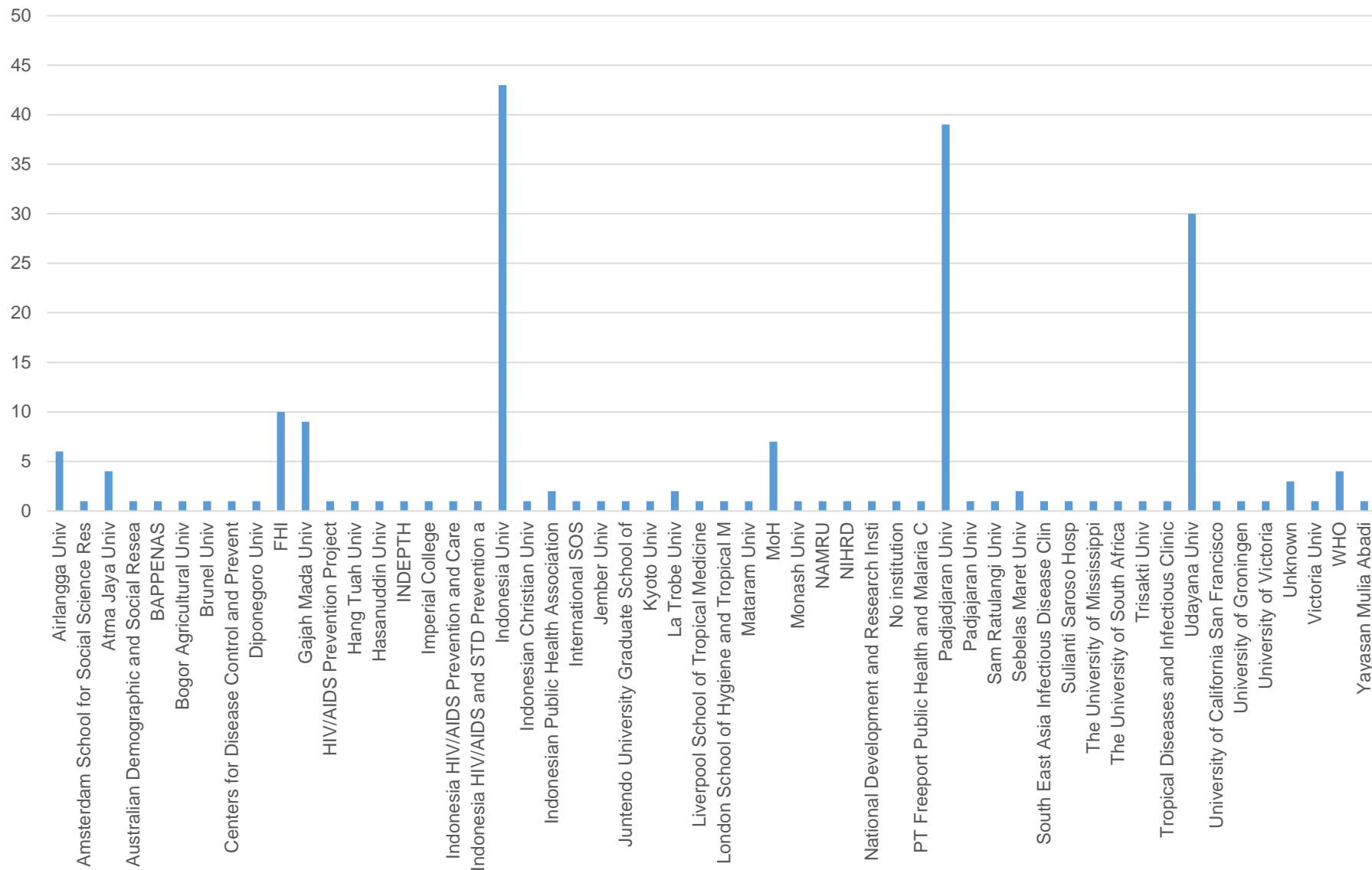
- Virological failure and drug resistance during first line anti-retroviral treatment in Indonesia

Fibriani A¹, Wisaksana R, Indrati A, Hartantri Y, van de Vijver D, Schutten M, Alisjahbana B, Sudjana P, Boucher CA, van Crevel R, van der Ven A.
J Med Virol. 2013 Aug;85(8):1394-401. doi: 10.1002/jmv.23606. Epub 2013 May 30.

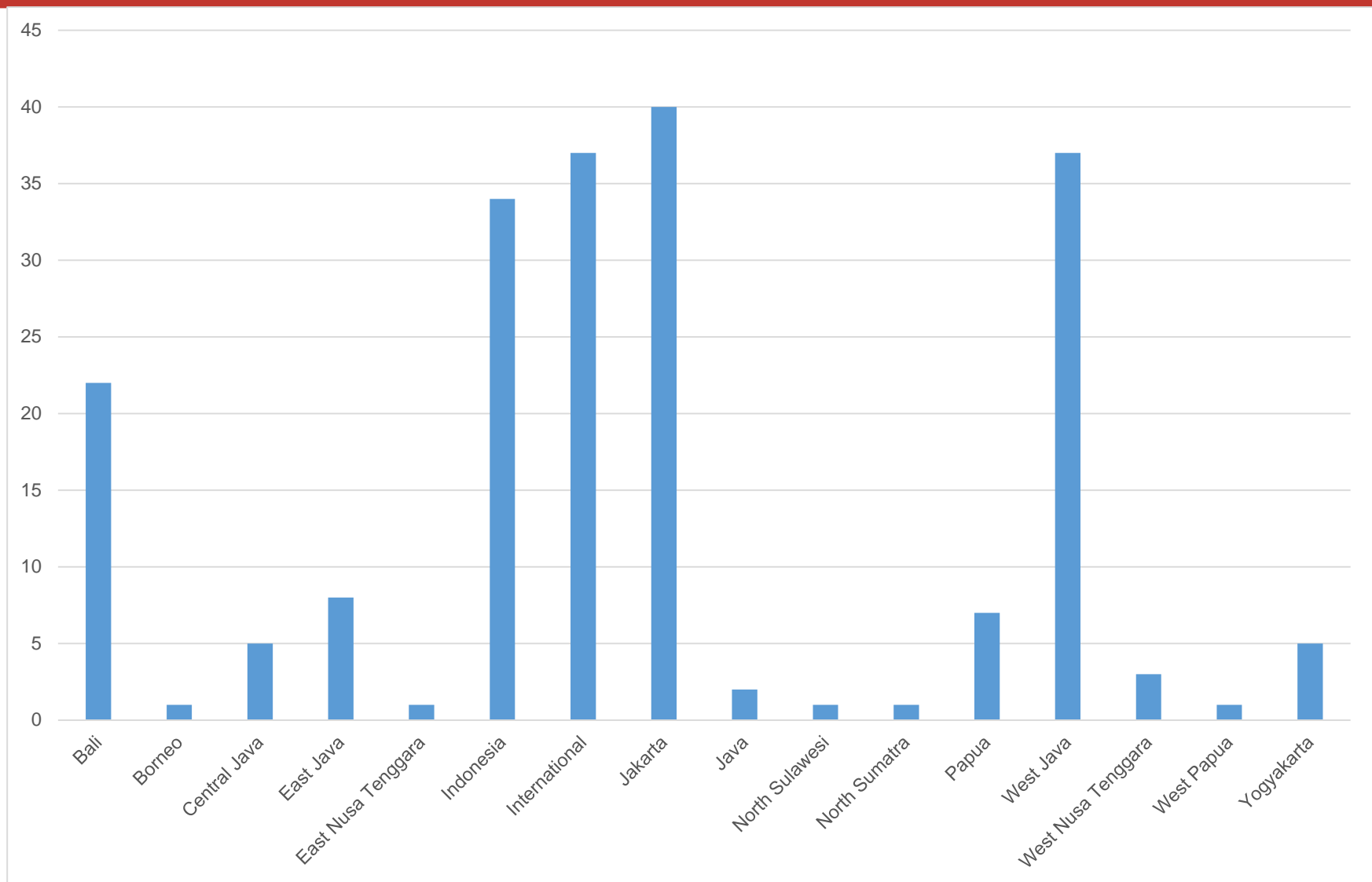
HIV Research Trend in Indonesia

- **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:

- Sex Behavior in Homosexually and its Related with HIV/AIDS in Jakarta, 1991-1992 (Perilaku Seksual Waria dan Hubungannya dengan HIV/AIDS di Jakarta, 1991-1992)

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:

- Study of Sexual Transmitted Disease and HIV/AIDS on Family Planning Center Patients at 4 Community Health Centers in Jakarta and West Java during 1995 (Studi PMS Termasuk HIV/AIDS pada Ibu Pengunjung BP/KIA/KB di 4 Puskesmas DKI dan Jawa Barat, 1995)

Pratomo, Hadi - Daili, Sjaiful F. - Suradi, Rulina; Jurnal Jaringan Epidemiologi Nasional,(3)1995:1-11;1
1995

- 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)
 - Studi derivat catechin sebagai bahan baku antivirus HIV tahap I: derivatisasi isolat catechin dari uncaria gambir Roxb

Agusta, Andria – Chairul; *Majalah Farmasi Indonesia*,6(1)1995:20-29;1995

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

HIV Research in Women, Children and Comorbidities

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