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FACULTY
OF
MEDICINE

Tackling Indonesia's Health Challenges Through Collaboration of Healthcare Service, Medical Education, and Research

Presented in QS-SFS Medicine in Taiwan, October 2017.

Ratna Sitompul

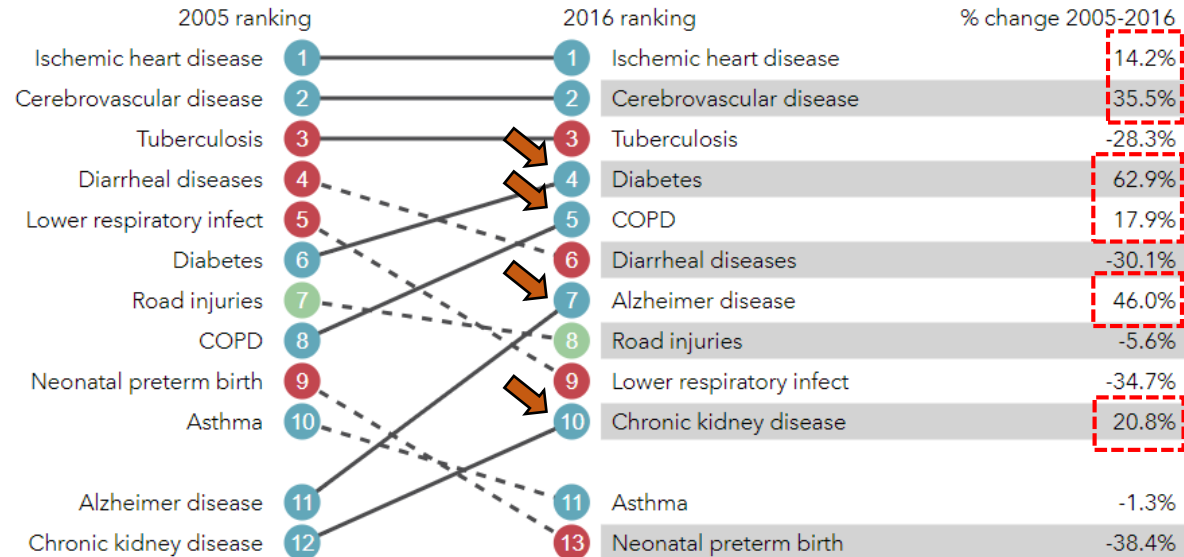
Dean of Faculty of Medicine Universitas Indonesia



Double Burden of Disease

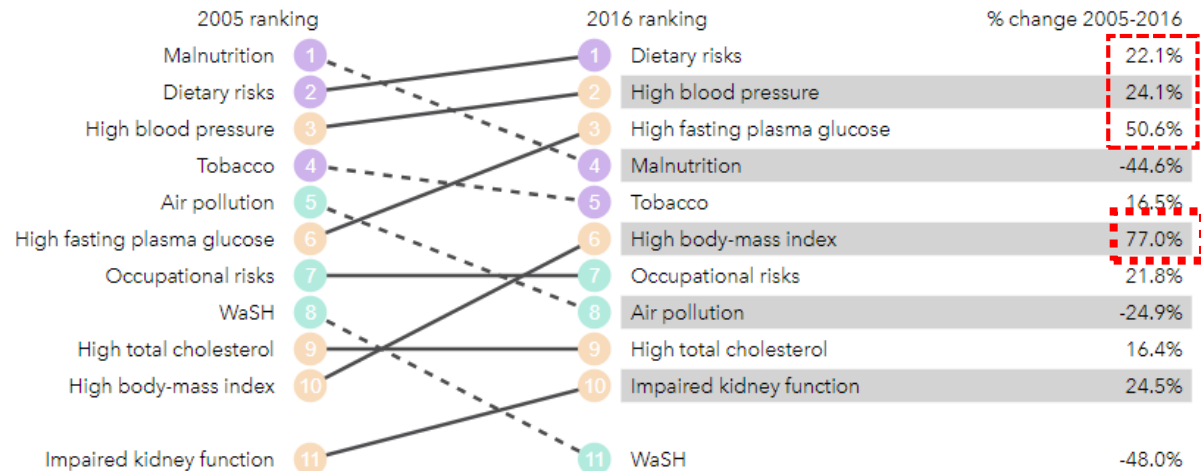
- Indonesia is undergoing rapid changes as a number of health indicators improve steadily
- Non-communicable diseases (CVDs, metabolic diseases) emerges as a prominent health burden alongside infectious diseases (TB, NTDs, malaria)

What causes the most deaths?



What risk factors drive the most death and disability combined?

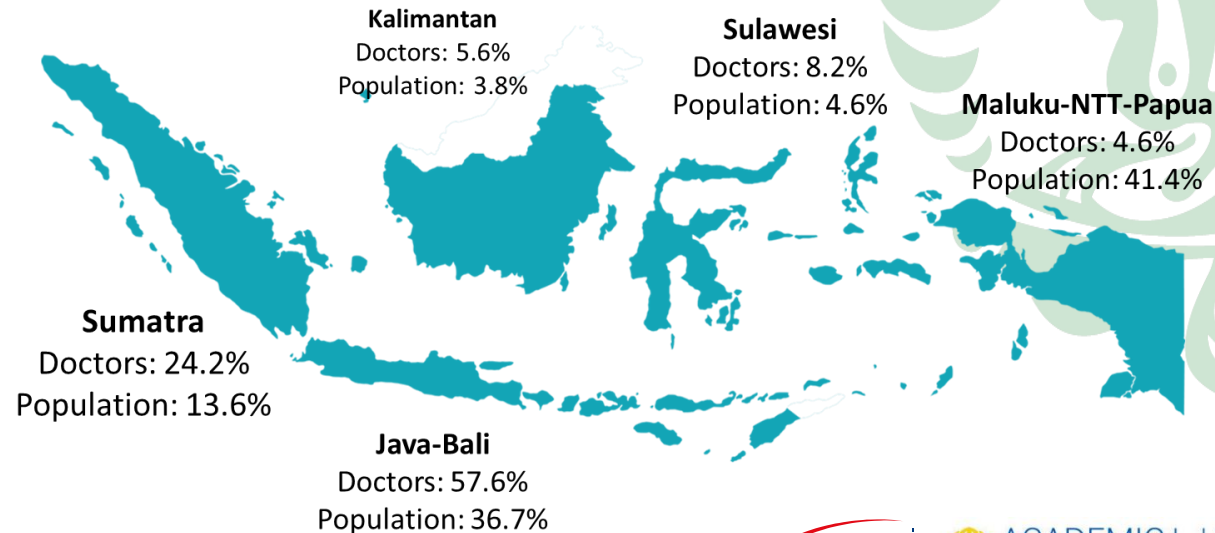
- Metabolic risks
- Environmental/occupational risks
- Behavioral risks



Uneven distribution of Doctors

- Ratio of doctors to population in Asian Region is lower than other Asian countries
- Most Indonesian doctors (57.4%) were concentrated on Java and Bali (36.7% total population, 6.9% total area) while very lacking in eastern region.

“there is an inequality of healthcare service across islands of Indonesia”



Impact of National Health Coverage

- Implemented in 2014 with the focus of general health, intended to bring quality healthcare services at an affordable cost
- Challenges:
 - High spending on curative treatment
 - “Free healthcare service” increases patient visit, but administrative and referral system are inefficient
 - Doctors and medical facilities are overstretched by the amount of patients, especially on secondary level healthcare service



Patient queue in one of Secondary Level Healthcare facilities in Jakarta, Indonesia

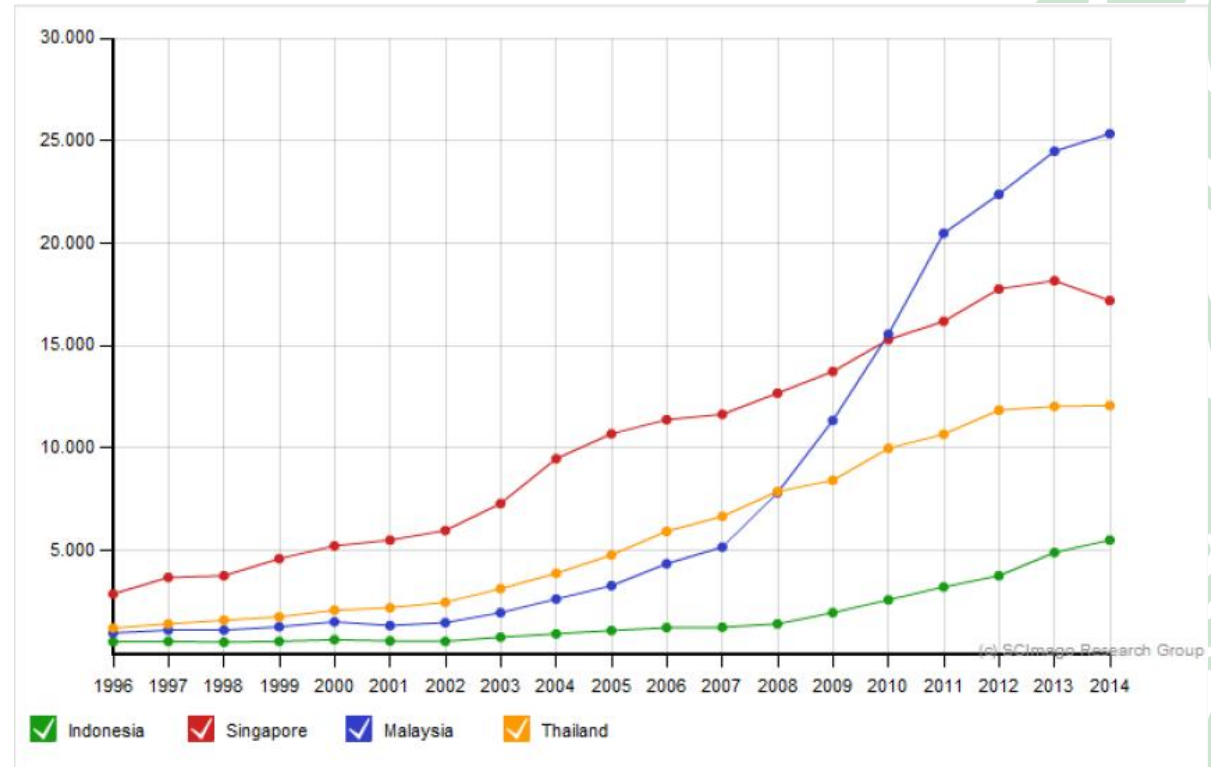
“There is an urgent demand on better utilization of primary care service”

Problem of Innovation and Development Culture in Indonesia

Indonesia has not yet develop a strong culture of innovation and development, and it results in :

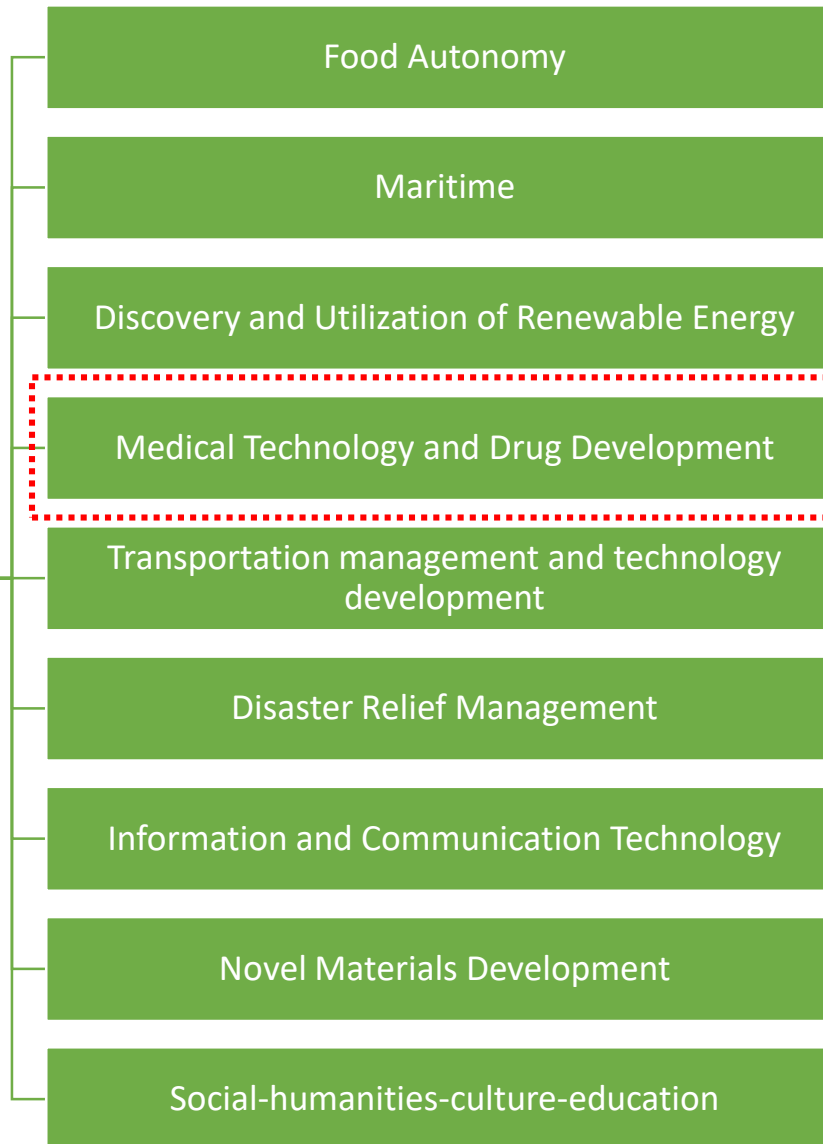
- Dependency to import in manufacture and technology
- Low publication
- Low export capacity

This results in high expenditure on imported medical facilities and medical drugs.



Overall publication count from Indonesia compared to different countries (1996-2014)

National Development Priority Subjects



National Commitment on Innovation

Biopharmaceutical Technology

Medical Equipment and Diagnostic Technology

Independent Drug Raw Material Technology

Government Strategies to Increasing Human Resources of Research and Development

- Provision of scholarships for high-achieving graduate students
- Recruitment of international researchers and research institute
- Open recruitment of post-doctorate researchers in universities and research agency
- Encouraging collaboration between universities and research agency in form of research-based postgraduate education
- Provision of funding for global conferences and/or short-term research fellowship
- Provision of public research infrastructure

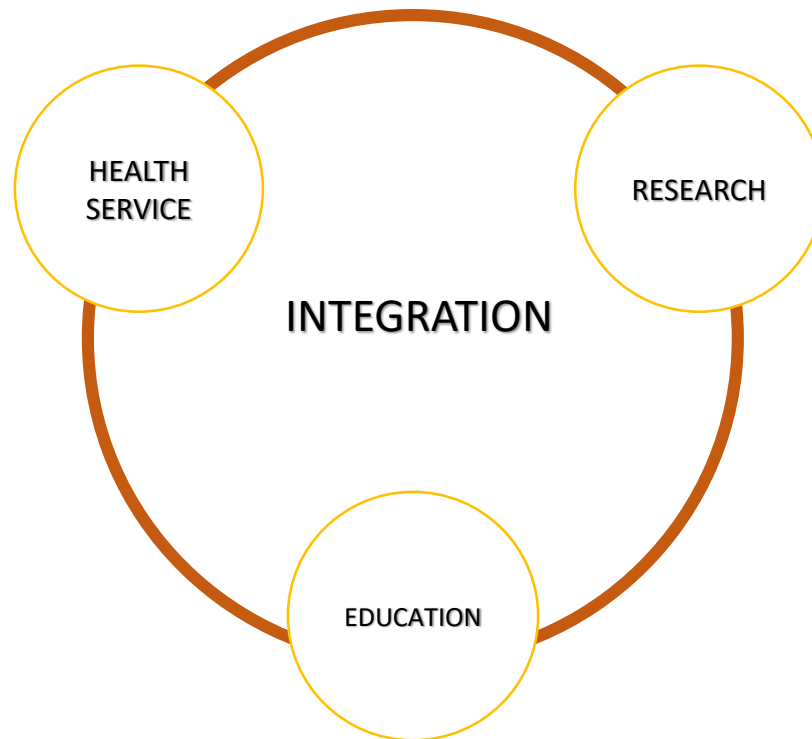


National Commitment on Quality Improvement of Medical Education

- HPEQ
- Government Law on Medical Education
- Accreditation of Higher Education Institute
- National Competence Exams
- Opening of new medical faculties

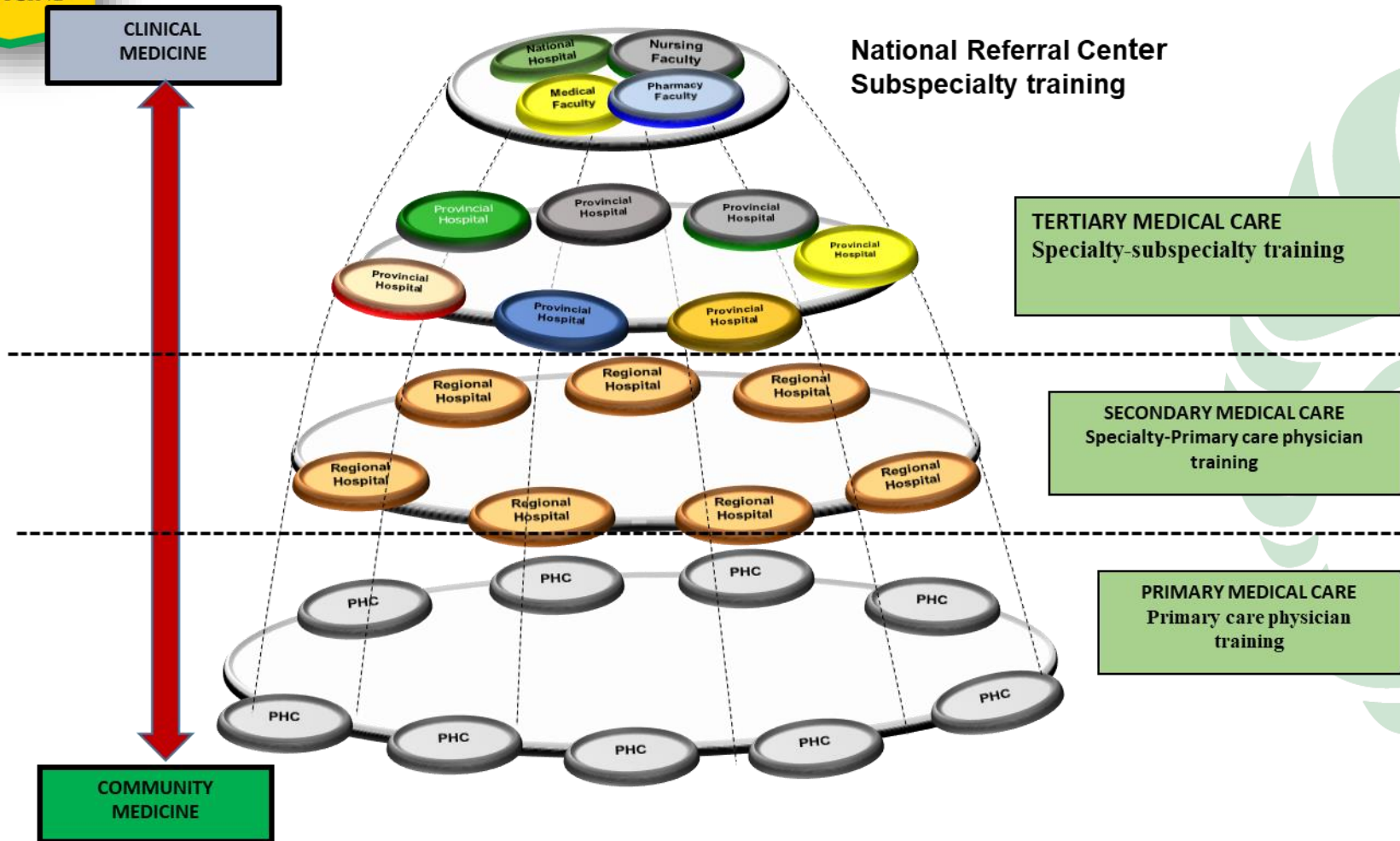


ACADEMIC HEALTH SYSTEM UI



“Academic innovation through collaborative outstanding health care for people and communities”

Hirerarchical Model of AHS-UI



"Health-system based education = Academic-based health system"

JAKARTA SEHAT

Collaborative program between FMUI/RSCM and the government of DKI Jakarta.



Programs:



*Primary
Care Level
intervention*



*Secondary
Care Level
intervention*



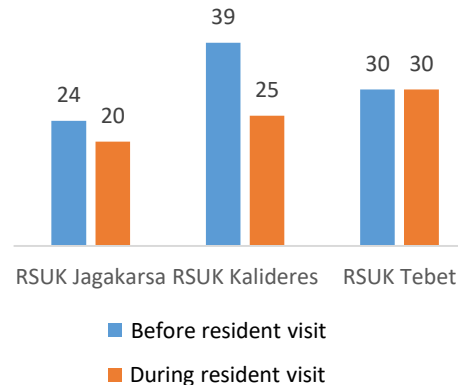
*Jakarta
Kuratif*

JAKARTA SEHAT

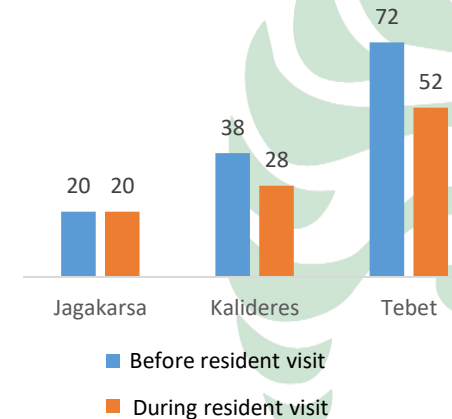
Collaborative program between FMUI/RSCM and the government of DKI Jakarta.



Referred case from district hospitals (October 2016)



Referred cases from district hospitals (November 2016)



“The collaborative program benefits medical education by providing a learning platform for residents, and the government by improving quality of healthcare service and referral system”



IMERI
INDONESIAN MEDICAL RESEARCH INSTITUTE



INDONESIAN MEDICAL EDUCATION AND RESEARCH INSTITUTE

*Academic Health System Universitas Indonesia
Jakarta - Indonesia*

*“Leading disruptive innovation in medical education & research
for better healthcare and quality of life”*

RESEARCH FOCUS



Infectious disease
and immunology



Cardiovascular,
metabolic and aging



Human cancer



Human reproduction
and fertility

RESEARCH FUNDING



FACULTY
OF
MEDICINE



UNDER
THE AUSPICES OF
AIPI
Asosiasi Ilmu Pengajaran Indonesia



lembaga pengelola dana pendidikan

**BILL & MELINDA
GATES foundation**



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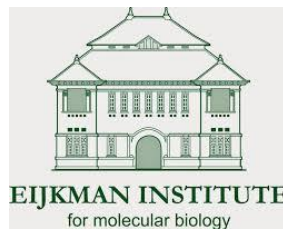
PUBLIC-PRIVATE-PARTNERSHIP



International Pharmaceutical Manufacturers Group



KEMENTERIAN KESEHATAN
REPUBLIK INDONESIA



Diagnostic and Research Center
Faculty of Medicine
UNIVERSITAS INDONESIA

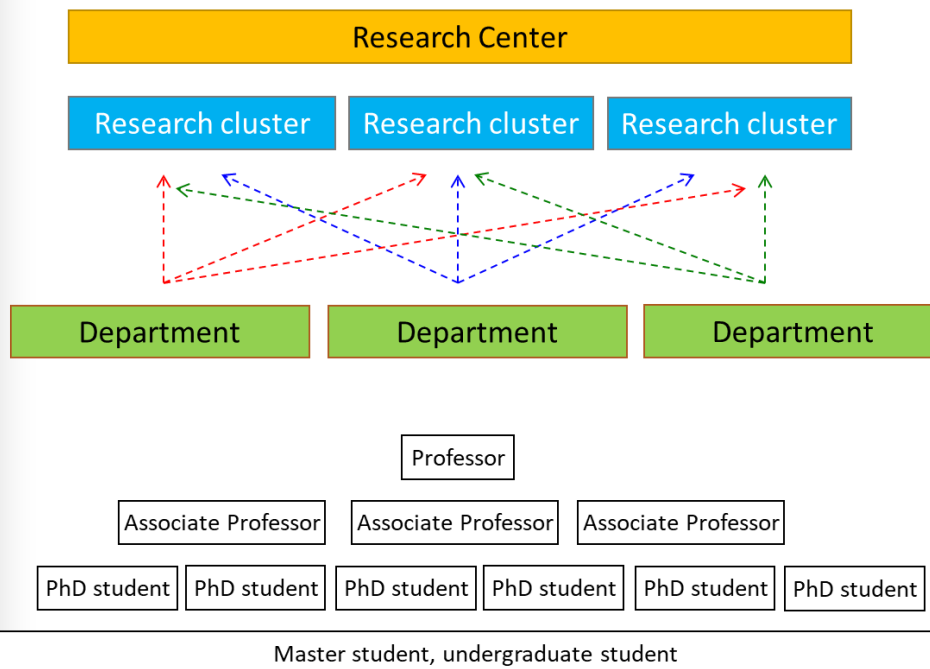
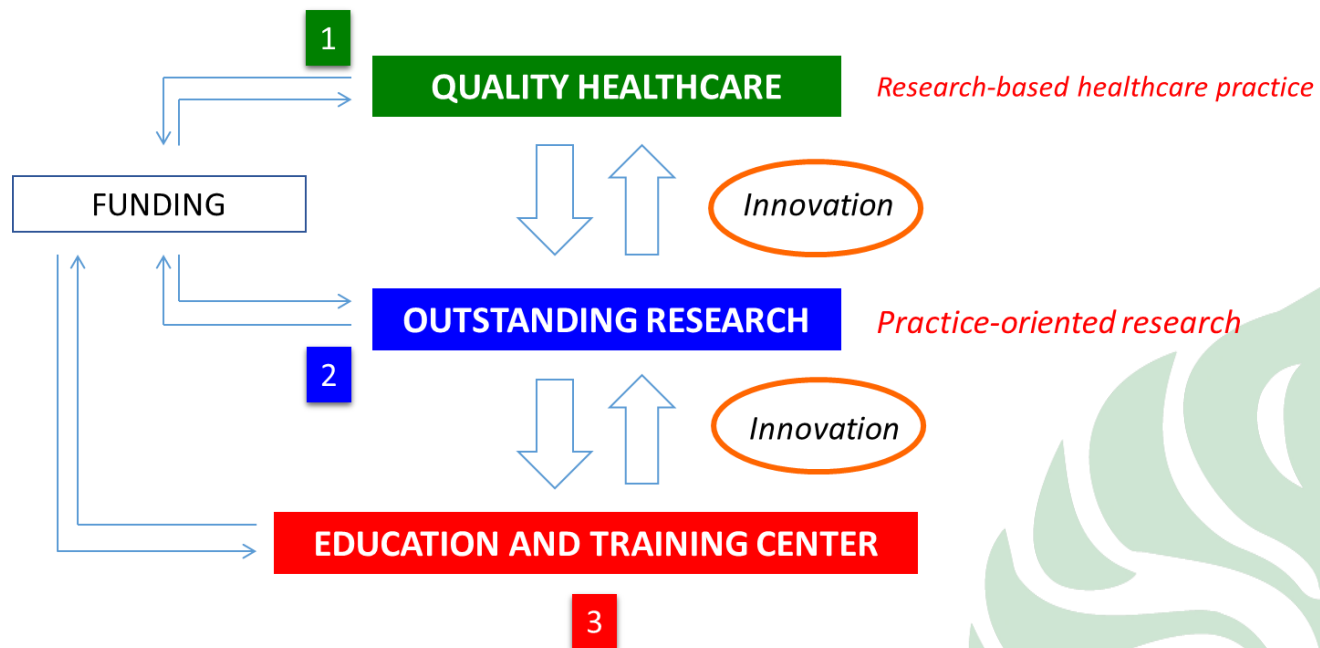


WRITINGCENTER

Faculty of Medicine Universitas Indonesia 



“IMERI serves as an integrated research facility and support center for researchers of Indonesia.”



**Concept of Integrated
Development of Clinical Care,
Medical Education, and Research in
AHS-UI and IMERI**

Research Workshops, Conferences, and Competitions



10th Jakarta Meeting on Medical
Education 2017





INOVATE <http://inovate.fk.ui.ac.id>



Anti-hVDAC3ex5^{A8} antibodi sebagai Vaksin Kontrasepsi Pria

Deskripsi Inovensi

Anti-hVDAC3ex5^{A8} antibodi dapat menurunkan motilitas sperma. Protein rekombinan hVDAC3ex5^{A8} dan antibodi terhadap protein tersebut berpotensi untuk pengembangan vaksin kontrasepsi pria

Asmarinah, Endang Winiati Bachtiar
Fakultas Kedokteran Universitas Indonesia

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Inovasi Bidang Kesehatan, Universitas Indonesia


INOVATE <http://inovate.fk.ui.ac.id>

Promotor Pembentuk Partikel Virus Hepatitis C dan Metode untuk Memproduksi Partikel Virus Hepatitis C




Prof. dr. Pratiwi Sudarmono, Ph.D, Sp.MK, Dr. dr. Ratna Sitampul, Sp.M(K) / Prof. Hak Hotta, MD, Ph.D, Chie Aoki, Ph.D, Takaji Wakita, Prof. Lukman Hakim, M.Sc, Ph.D, Apt, Prof. (Ris).
Dr. Leonardus Broto Sugeng Kardono (Alm.)
Fakultas Kedokteran Universitas Indonesia

22 Inovasi Bidang Kesehatan: Universitas Indonesia



INNOVATE <http://inovate.ik.u-i.ac.id>



PRELIB- HPV High Risk

Dr. Andi Yasmon S.Pi, MBIomed, Marialina Rosilawati
Fakultas Ilmu Komputer Universitas Indonesia

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Inovasi Bidang Kesehatan, Universitas Indonesia

The diagram illustrates the system architecture and user interface. The top section shows a flow from 'Pengguna' (User) to 'Aplikasi' (Application), which then connects to 'Database' and 'Server'. The bottom section shows a smartphone displaying the application interface, which includes fields for 'Nama', 'Jenis Kelamin', 'Umur', 'Tinggi Badan', 'Berat Badan', 'Lingkar Kepala', 'Lingkar Perut', 'Lingkar Lengan', 'Lingkar Pinggul', 'Lingkar Betis', 'Lingkar Lengan Atas', 'Lingkar Lengan Bawah', 'Lingkar Pinggul Atas', 'Lingkar Pinggul Bawah', 'Lingkar Betis Atas', 'Lingkar Betis Bawah', and a 'Simulasi' button.

INNOVATE | http://www.innovate.ac.id

Deskripsi

Cryosurgery yang berbasis termoelektrik ini dikembangkan oleh Prof Dr-ing, Nandy Putra bersama tim di *Applied Heat Transfer Research Group*. Alat ini merupakan alat bedah beku yang dikembangkan sebagai alternatif dari metode Cryosurgery yang pada umumnya memakai metode penyempytan cairan nitrogen, argon, atau atas helium pada sel kanker, dimana terkadang metode ini mengalami permasalahan pada kontrol temperatur dan ketika cairan mengenai sel yang masih sehat juga dapat merusak sel tersebut. Atas dasar hal ini, maka digunakanlah termoelektrik sebagai pendingin yang dapat mengontrol kelemahan tersebut.

A cross-sectional diagram of a cryosurgery probe. The central shaft is labeled 'Surgical Tip' at the top and 'Probe' along its length. It features a 'Peltier' module near the tip, which is connected to a 'Heat Sink'. A 'Coolant Line' runs through the side of the probe. The entire assembly is housed within a 'Cryostat Chamber'.

Fig. 3. Schematic of Peltier-based cryosurgery

Keunggulan Inovensi

Termoelektrik Cryosurgery menggunakan metode termoelektrik sebagai pendingin sehingga sehingga memberikan suatu kemudahan dalam pengontrolan temperatur dan bahaya semprotan cairan yang mengenai sel sehat. Temperatur kerja alat ini mencapai -50° .

A schematic diagram showing the components of the cryosurgery system. It includes a 'Compressor' connected to a 'Condenser' and an 'Evaporator'. The evaporator is linked to a 'Cryostat Chamber' containing the surgical probe. A 'Control Unit' with a digital display is connected to the system via wires. A 'Gas Outlet' is also shown at the bottom right.

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Spesifikasi

metode PRELIP (PRELIP adalah penamaan oleh peneliti sendiri sebagai produk lokal) adalah menggunakan membran yang telah ditempelkan dengan 14 pelacak DNA. Masing-masing pelacak tersebut spesifik terhadap 14 HPV high risk (HPV-16, -18, -31, -33, -35, -39, -45, -51, -52, -56, -58, -59, -66 dan -68). Membran yang sudah ditempel dengan 14 pelacak DNA direaksikan dengan hasil amplifikasi PCR yang menggunakan primer konvensional. Oleh karena itu, satu kali pemeriksaan dapat mendeteksi sekaligus ke 14 HPV high risk dan menjadikan metode ini sebagai metode yang sesuai diterapkan untuk pemeriksaan rutin.

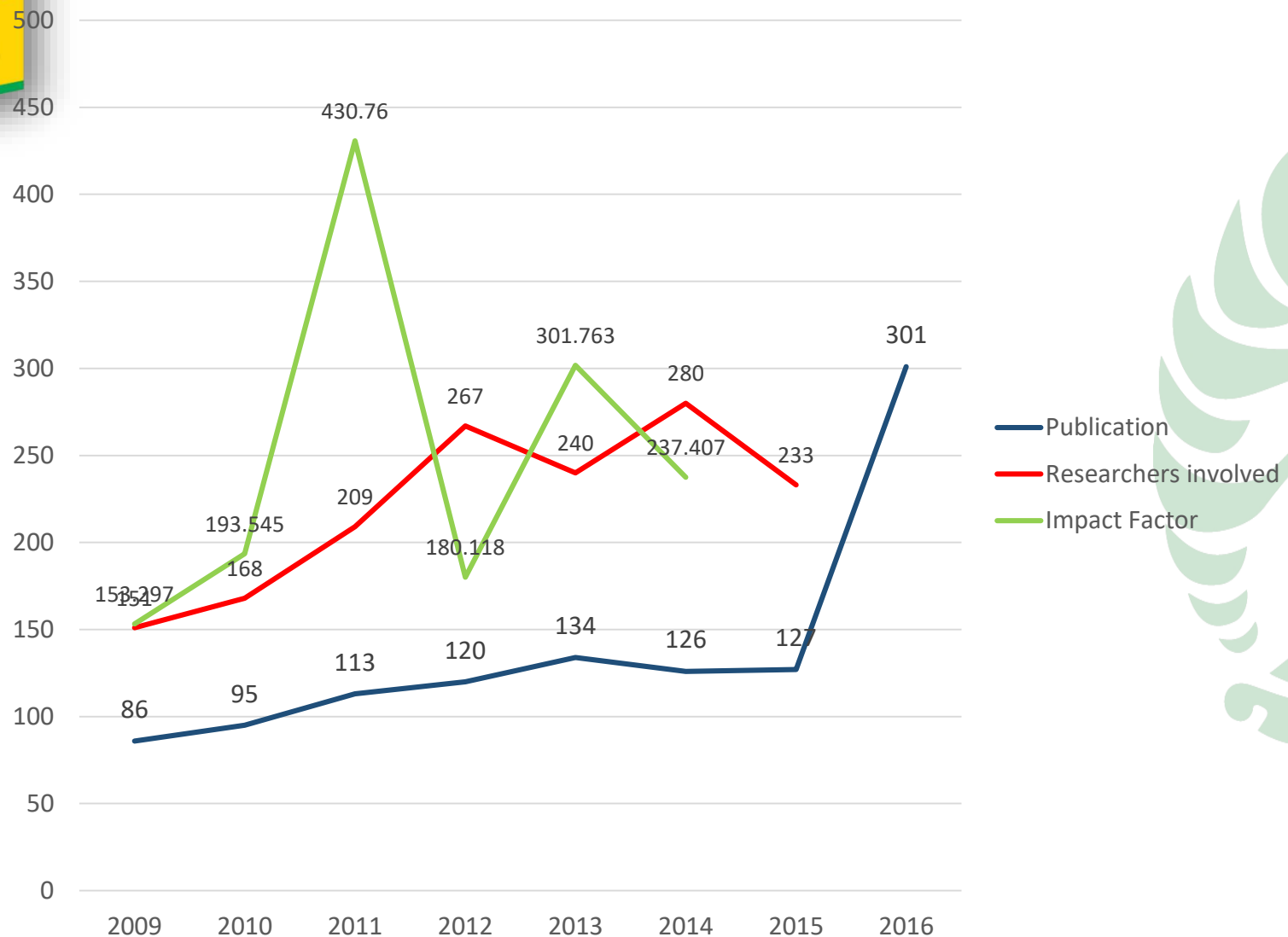
Keunggulan Inovensi

Dibandingkan dengan metode sejenis yang menggunakan pewarna kromogenik, metode PRELIP mendeteksi secara lebih sensitif. Menggunakan sistem deteksi kemiluminesen, Pita DNA yang terbentuk akan ditransfer pada film.

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graph TD
    A[14 oligonucleotides specific for 14 high-risk HPV  
HPV-16, -18, -31, -33, -35, -39, -45, -51, -52, -56, -58, -59, -66, -68] --> B[Hybridized with nitrocellulose membrane]
    B --> C[PCR using primer GP1 and GP2+ labeled with biotin]
    C --> D[The PCR products are hybridized with membrane have been attached with oligonucleotide]
    D --> E[Add the conjugated POD]
    E --> F[Data are detected by Autograph/Enhance chemiluminescence]
  
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International Publication from FMUI



Role of University

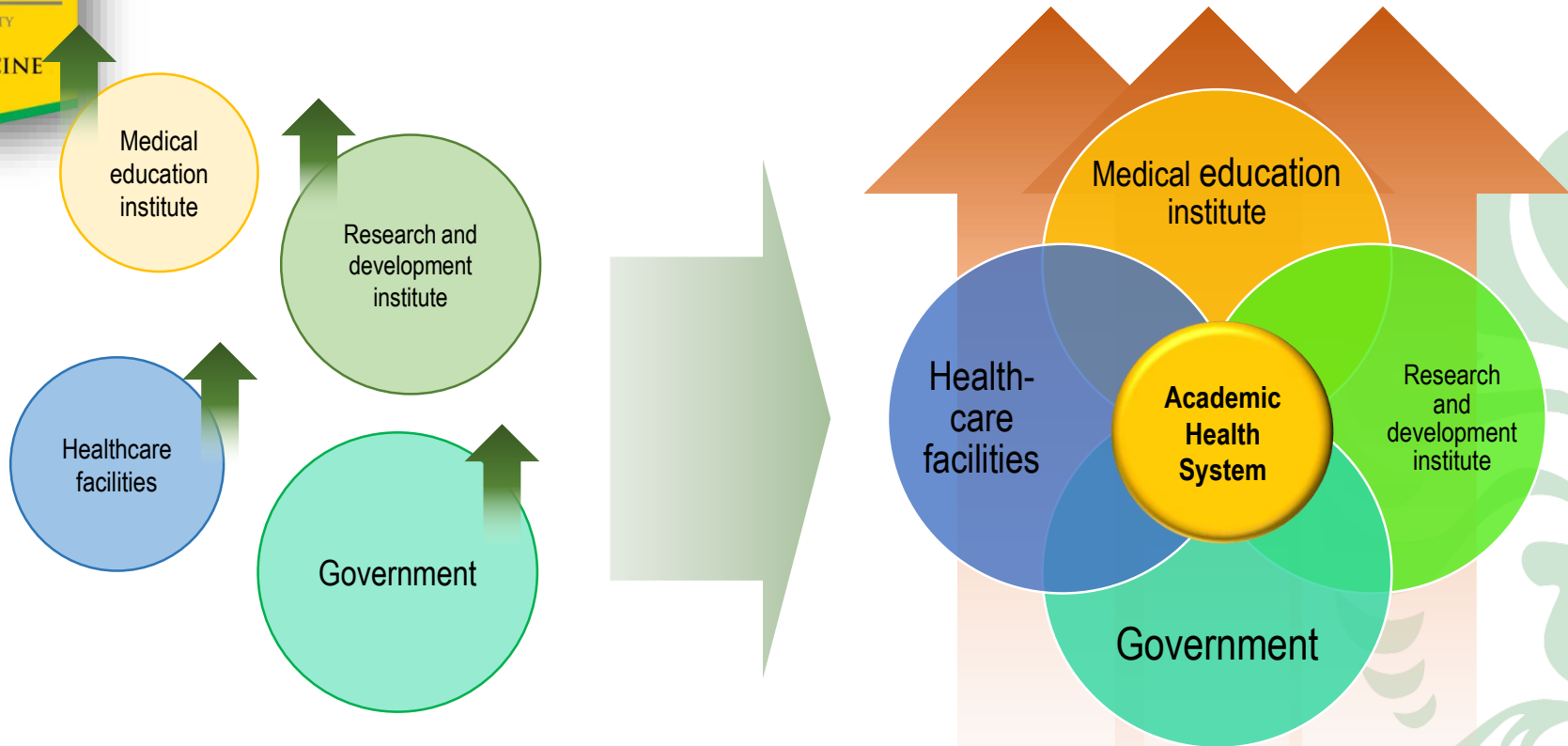
Agent of
Education

Agent of
Research and
Education

Agent of Culture
and Technology
Transfer

Agent of
Economic
Development

NATIONAL HEALTH WELFARE



“To boost national health development, medical education institute must act as the visionary leader to align and integrate the missions and strategic plan of healthcare facilities, research agencies, and government in anticipating health challenges of the nation.”



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Thank you for your attention

