

Medicine, Nursing and Health Sciences

Pengantar diskusi: pertanyaan apa yang bisa dijawab dengan pemodelan?

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Master of Public Health, Monash University, Indonesia

Peneliti Epidemiologi, Oxford University Clinical Research
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Tujuan Surveilans:

Memberikan masukan untuk kebijakan kesehatan masyarakat:

- Baseline monitoring
- Memahami epidemiologi penyakit (orang, tempat, waktu)
- Mendeteksi perubahan epidemiologi
 - New, emerging, re-emerging
 - Changes in agent or host response (e.g. antibiotic resistance)
- Mendeteksi KLB
- Memandu respons cepat kesehatan masyarakat (investigasi dan respon)
- Memandu pengembangan, implementasi dan evaluasi kebijakan
- Memandu prioritas alokasi sumberdaya kesehatan
- Memberikan dasar untuk penelitian epidemiologis



Contoh penelitian berbasis data surveilans

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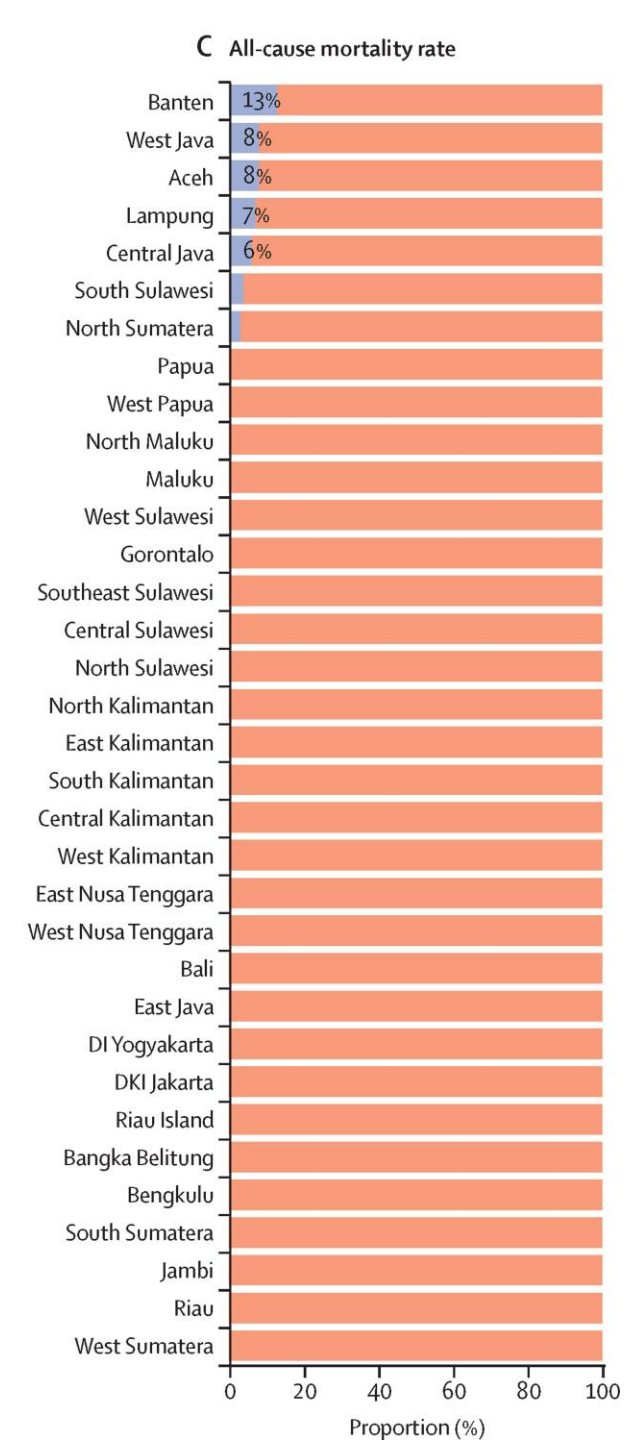
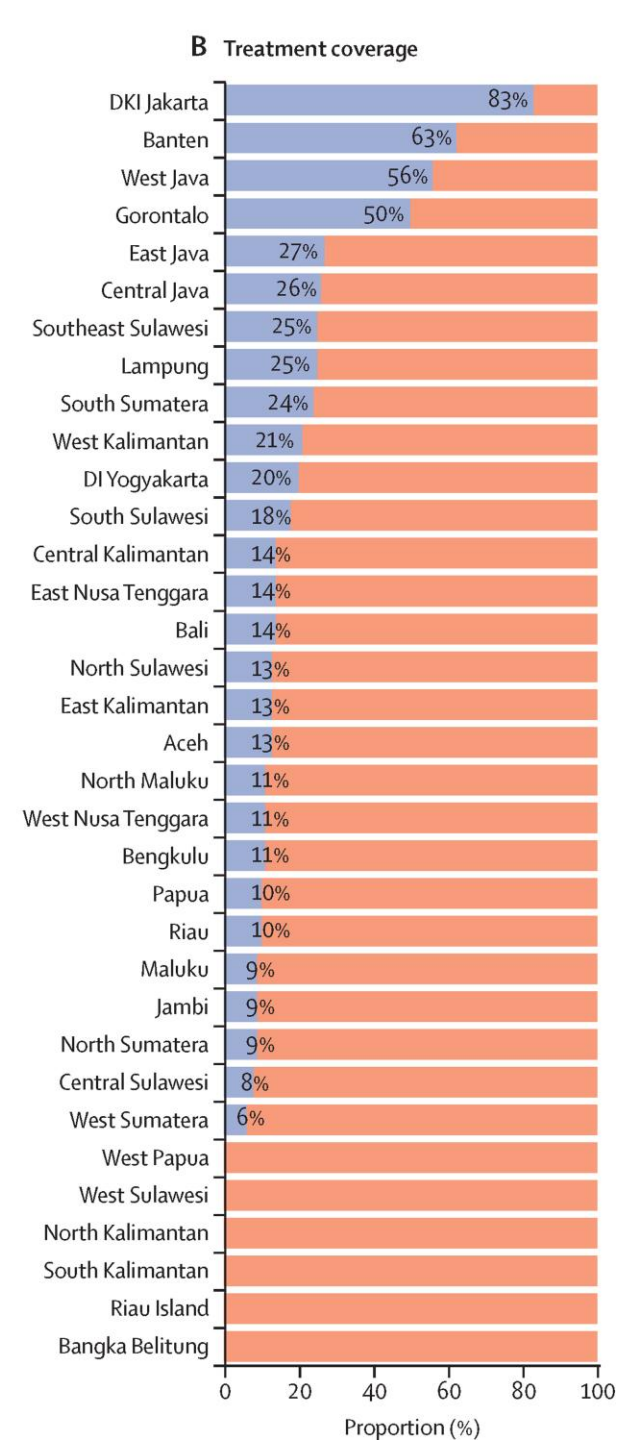
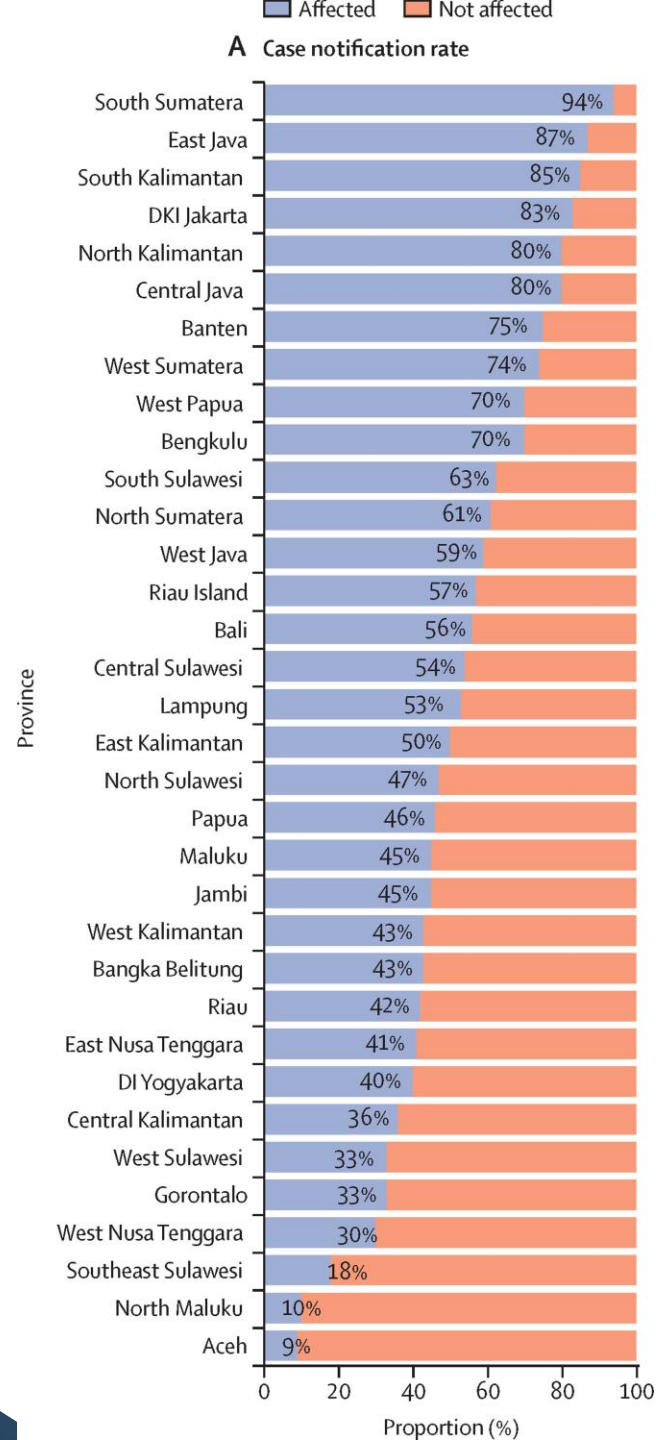
Impact of the COVID-19 pandemic on tuberculosis control in Indonesia: a nationwide longitudinal analysis of programme data

[Henry Surendra, PhD](#)   • [Iqbal R F Elyazar, DPhil](#) • [Evelyn Puspaningrum, BPH](#) • [Deddy Darmawan, BPH](#) • [Tiffany T Pakasi, MD](#) • [Endang Lukitosari, MD](#) • [Sulistyo Sulistyo, MEpid](#) • [Shena M Deviernur, BPH](#) • [Ahmad Fuady, PhD](#) • [Prof Guy Thwaites, MD](#) • [Prof Reinout van Crevel, MD](#) • [Anuraj H Shankar, ScD](#) • [Prof J Kevin Baird, PhD](#) • [Raph L Hamers, MD](#) • [Show less](#)

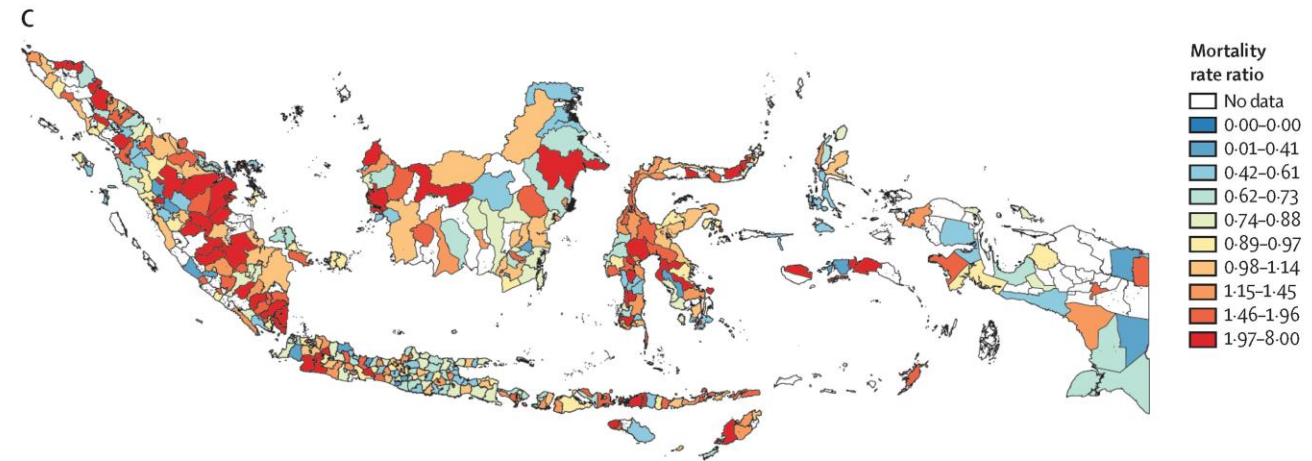
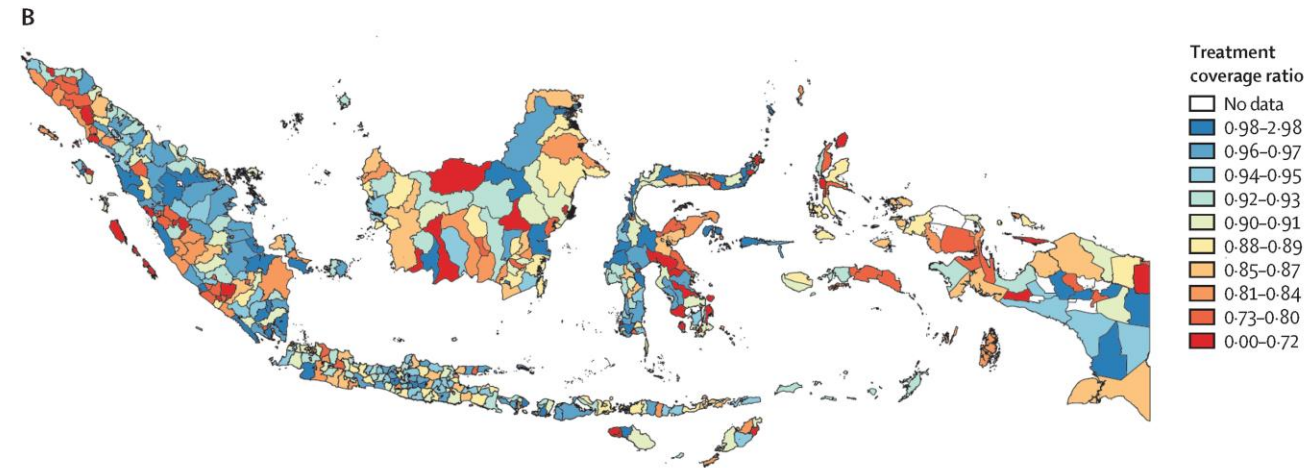
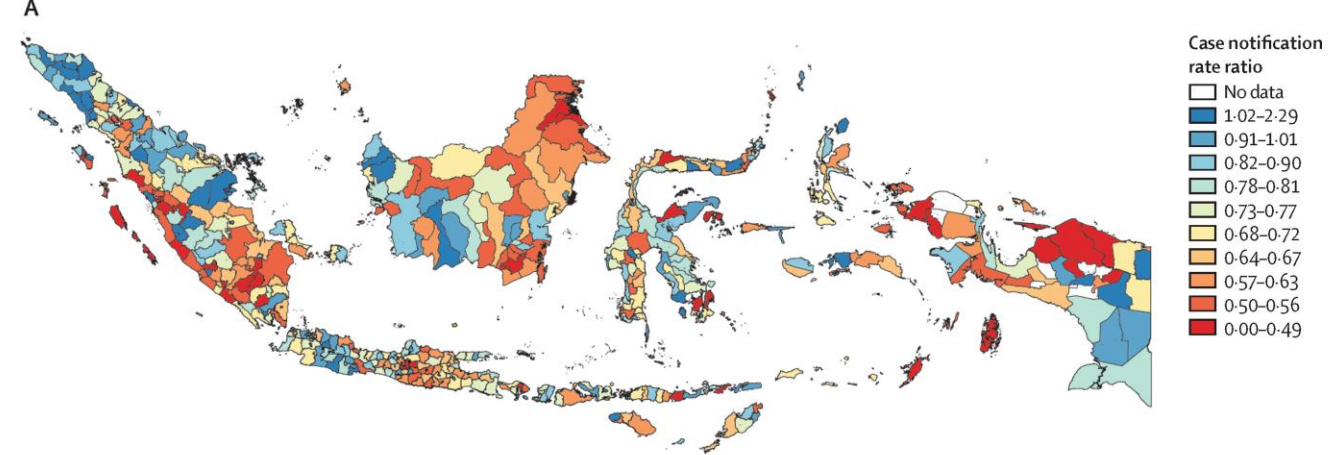
[Open Access](#) • Published: September, 2023 • DOI: [https://doi.org/10.1016/S2214-109X\(23\)00312-1](https://doi.org/10.1016/S2214-109X(23)00312-1)

- Data TB (SITB dan Data Laporan Program)
- COVID-19 (Database Nasional COVID-19)
- Kapasitas sistem kesehatan (Kemenkes RI)
- Indeks Pembangunan Manusia, Indeks Pembangunan Kesehatan Masyarakat, dan Data BPS)

Identifikasi provinsi paling terdampak



Identifikasi kabupaten/kota paling terdampak









Contoh penelitian berbasis data surveilans

Original research

BMJ Global Health























Pandemic inequity in a megacity: a multilevel analysis of individual, community and healthcare vulnerability risks for COVID-19 mortality in Jakarta, Indonesia

Henry Surendra ^{1,2}, Ngabila Salama,³ Karina D Lestari,¹ Verry Adrian,³ Widyastuti Widyastuti,³ Dwi Oktavia,³ Rosa N Lina,¹ Bimandra A Djaafara ^{1,4}, Ihsan Fadilah ¹, Rahmat Sagara ¹, Lenny L Ekawati,^{1,5} Ahmad Nurhasim,⁶ Riris A Ahmad ², Aria Kekalih,⁷ Ari F Syam,⁷ Anuraj H Shankar,^{1,5} Guy Thwaites,^{5,8} J Kevin Baird,^{1,5} Raph L Hamers ^{1,5}, Iqbal R F Elyazar¹

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Western Pacific

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Quantifying spatial heterogeneity of malaria in the endemic Papua region of Indonesia: Analysis of epidemiological surveillance data

Ihsan Fadilah  • Bimandra A. Djaafara  • Karina D. Lestari  • Sri B. Fajariyani  • Edi Sunandar  • Billy G. Makamur  • Beeri Wopari  • Silas Mabui  • Lenny L. Ekawati  • Rahmat Sagara  • Rosa N. Lina  • Guntur Argana  • Desriana E. Ginting  • Maria E. Sumiwi  • Ferdinand J. Laihad  • Ivo Mueller  • Jodie McVernon  • J. Kevin Baird  • Henry Surendra  • Iqbal R.F. Elyazar  • [Show less](#)

[Open Access](#) • Published: August 04, 2022 • DOI: <https://doi.org/10.1016/j.lansea.2022.100051>

Clinical characteristics and mortality associated with COVID-19 in Jakarta, Indonesia: A hospital-based retrospective cohort study















Henry Surendra  • Iqbal RF Elyazar  • Bimandra A Djaafara  • Lenny L Ekawati  • Kartika Saraswati  • Verry Adrian • et al. [Show all authors](#)

[Open Access](#) • Published: March 02, 2021 • DOI: <https://doi.org/10.1016/j.lanwpc.2021.100108>

Analisis statistik untuk mengukur heterogenitas malaria di Papua

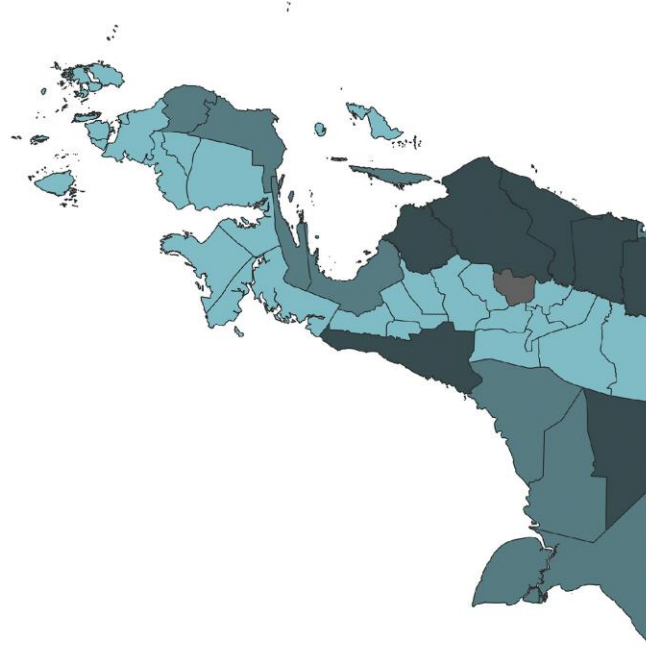
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Southeast Asia

Quantifying spatial heterogeneity of malaria in the endemic Papua of Indonesia: Analysis of epidemiological surveillance data

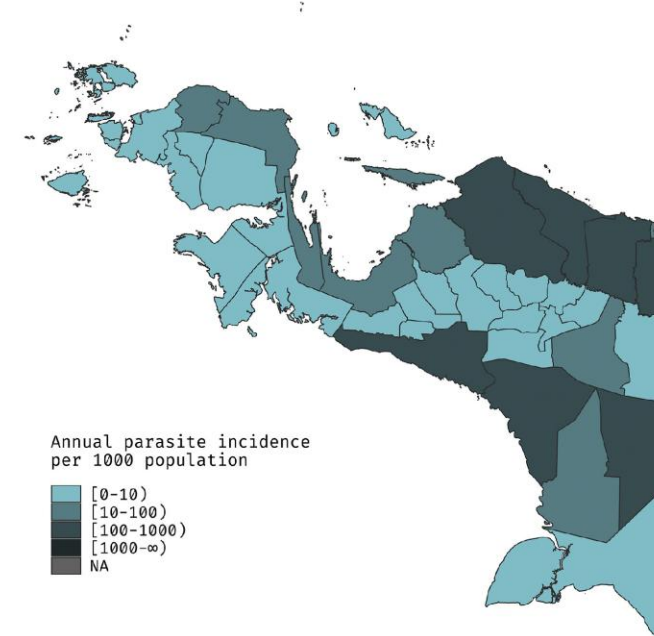
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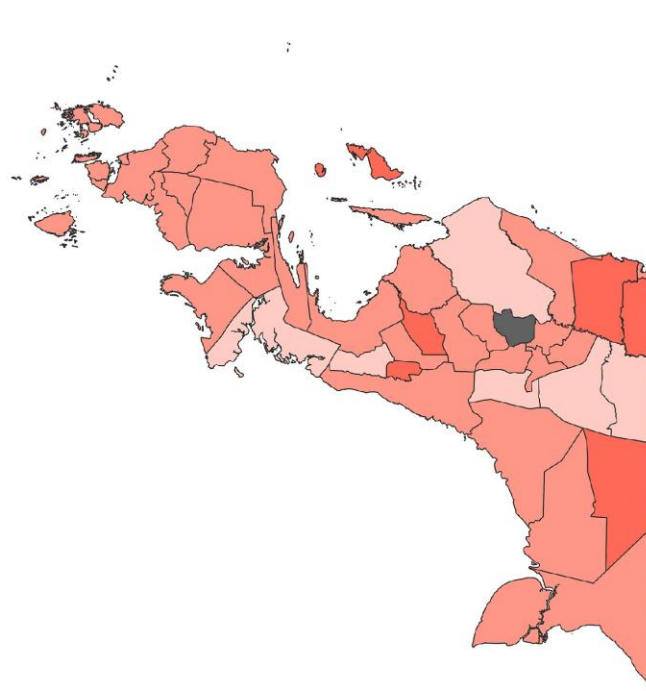
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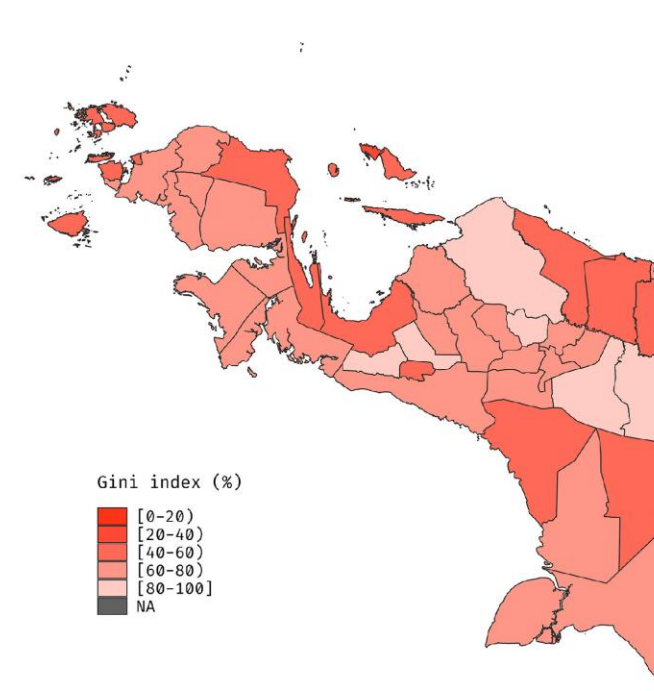
B



C



D






Pemodelan untuk mendukung pengambilan kebijakan eliminasi malaria

Original research

BMJ Global Health

Freedom from infection: enhancing decision-making for malaria elimination

Luca Nelli ,^{1,2} Henry Surendra ,^{3,4} Isabel Byrne,² Riris Andono Ahmad ,^{5,6} Risalia Reni Arisanti,^{5,6} Dyah A S Lesmanawati,⁵ Iqbal R F Elyazar,⁴ Elin Dumont,² Lindsey Wu,² Chris Drakeley,² Jason Matthiopoulos,¹ Gillian Stresman^{2,7}

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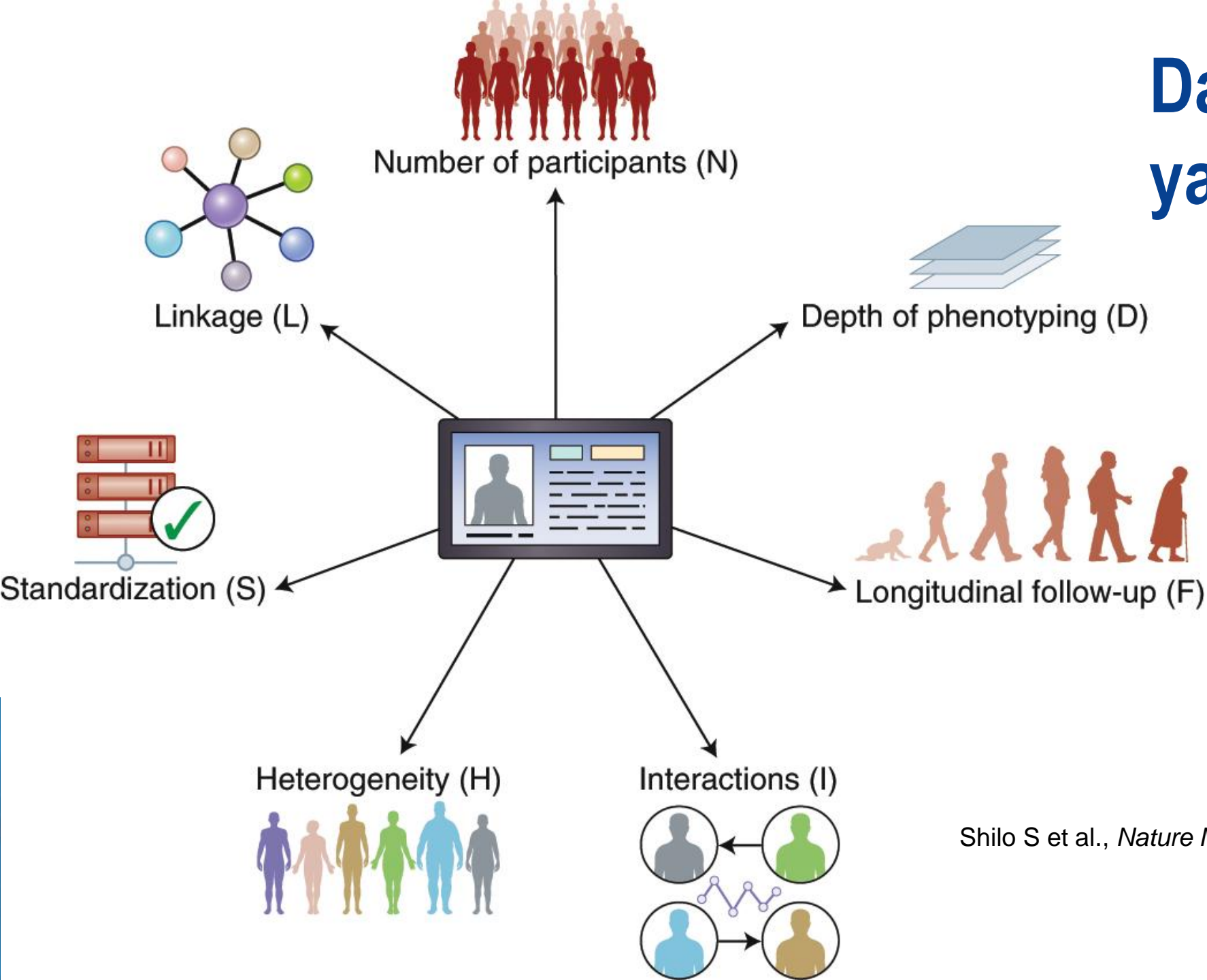
Evidence-based decision making for malaria elimination applying the Freedom From Infection statistical framework in five malaria eliminating countries: an observational study

[Gillian Stresman, PhD](#)  ^{a,b}  · [Luca Nelli, PhD](#) ^c · [Lindsey Wu, PhD](#) ^b · [Isabel Byrne, MSc](#) ^b · [Henry Surendra, PhD](#) ^{d,e} · [Bryan Fernandez-Camacho, BSc](#) ^f · et al. [Show more](#)

Tantangan dan peluang

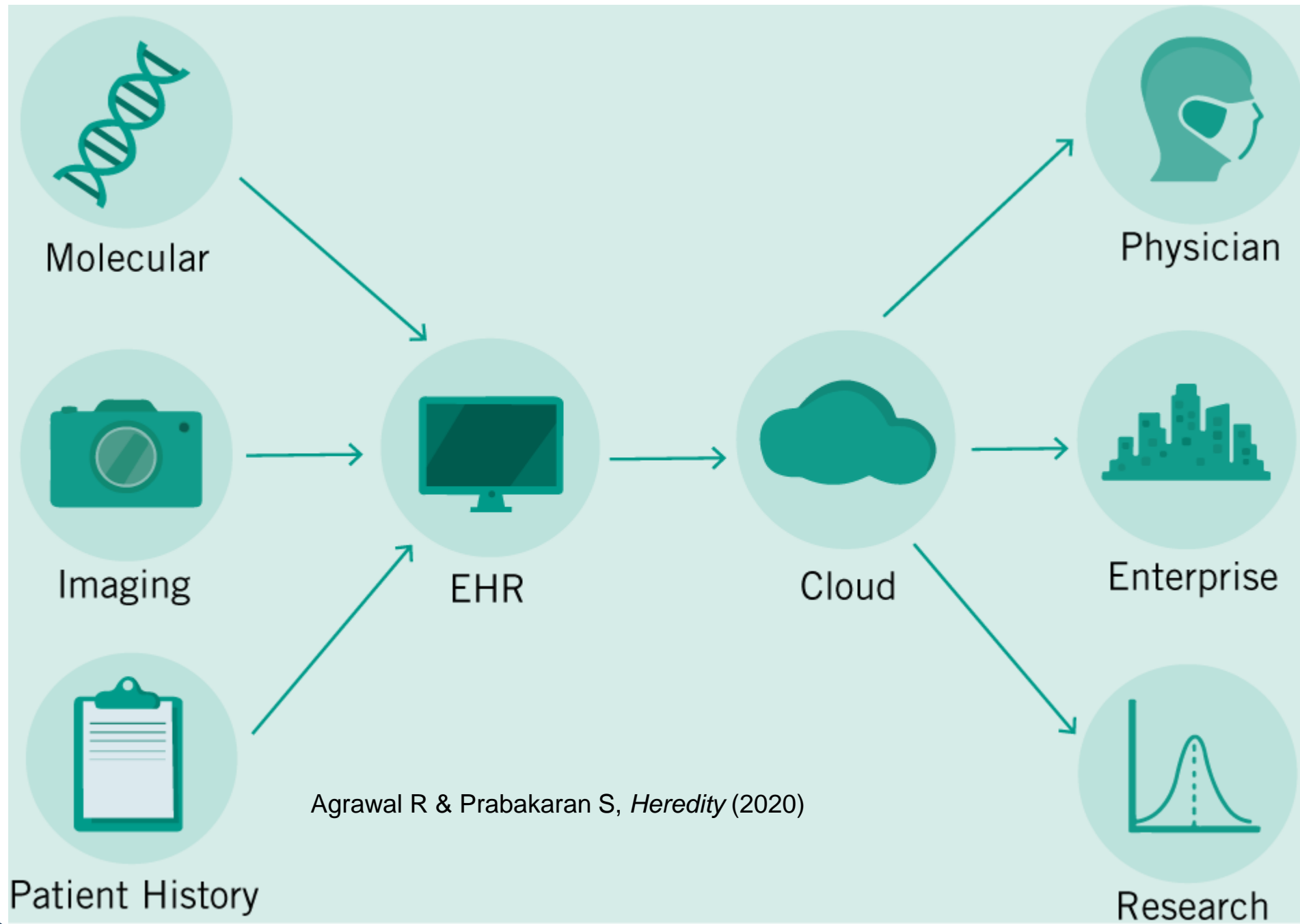


Data kesehatan yang kompleks



Shilo S et al., *Nature Medicine* (2020)

Alur data yang diinginkan

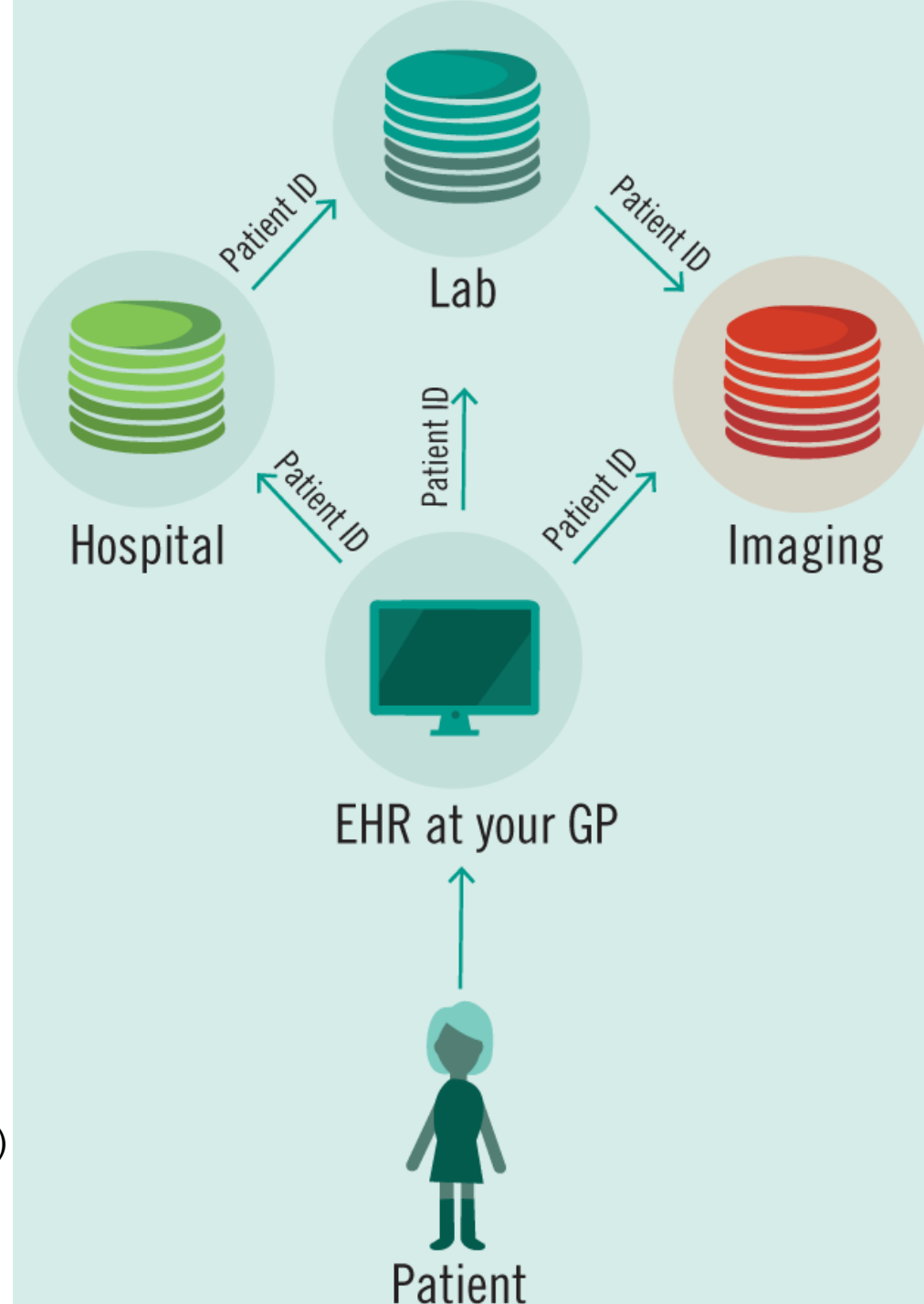


Desain sistem kesehatan yang kita inginkan

Reality check:

Volume data besar namun seringkali tidak terstruktur, berantakan, tidak lengkap dan tidak bisa di-link-an

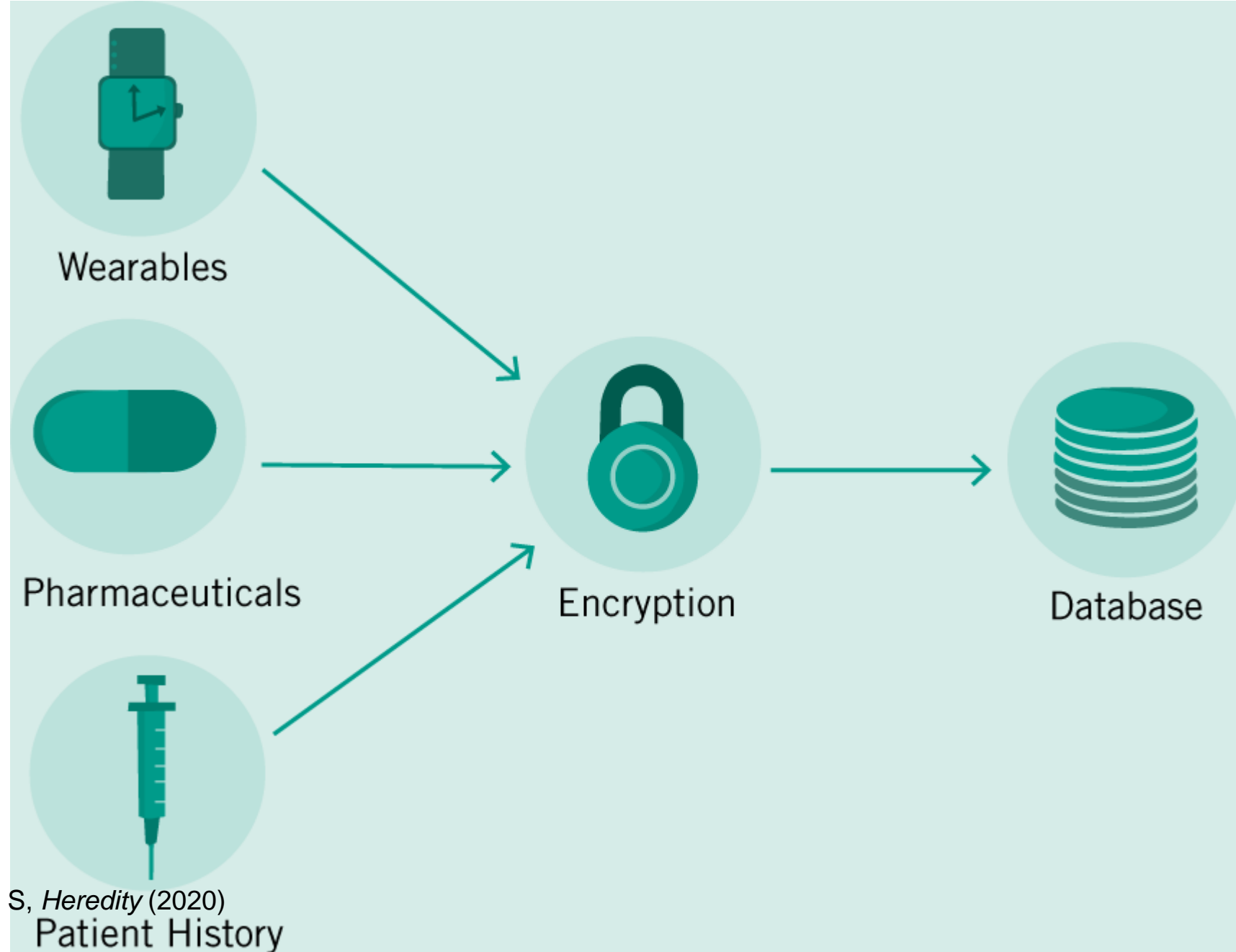
Agrawal R & Prabakaran S, *Heredity* (2020)



Keamanan Data

Reality check:

Volume data besar namun seringkali tidak terstruktur, berantakan, tidak lengkap, tidak bisa di-link-an **dan tidak terproteksi** dengan baik

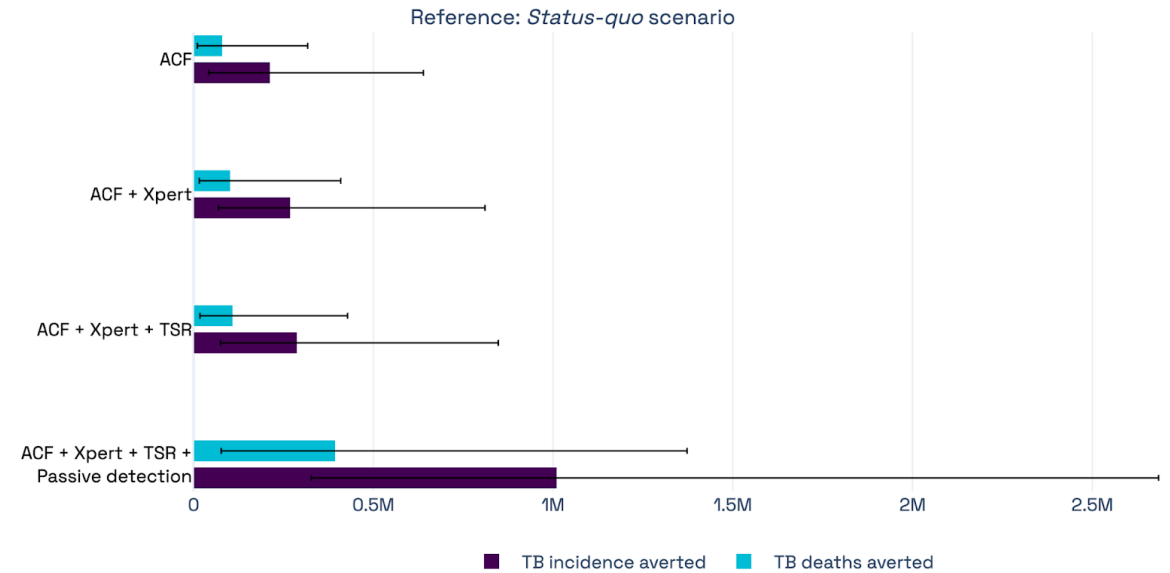
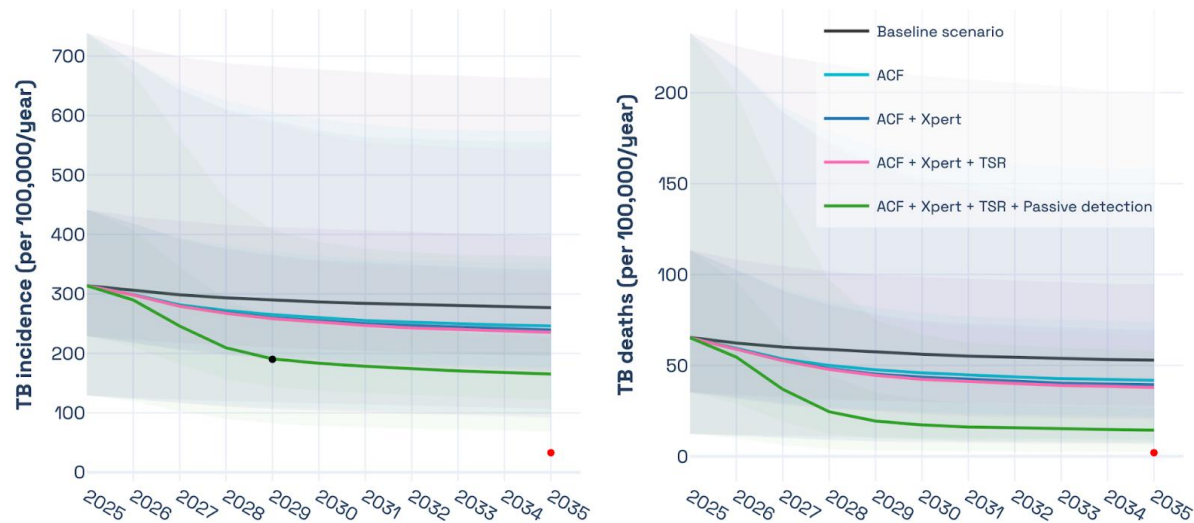


Agrawal R & Prabakaran S, *Heredity* (2020)

Patient History

Contoh pemodelan yang sedang dikerjakan

Data science-integrated modelling to support TB control in Indonesia



Pertanyaan apa yang bisa dijawab dengan pemodelan?

- Memahami dinamika penularan penyakit
- Memprediksi potensi KLB di masa yang akan datang
- Memberikan bukti untuk pencegahan dan pengendalian penyakit
- Identifikasi kesenjangan evidence



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University

Terima Kasih !

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