Pelaksanaan PSBB & Dampaknya Terhadap Pandemi Covid19 di Indonesia

Webinar Fakultas Kesehatan Masyarakat UI, 6 Mei 2020

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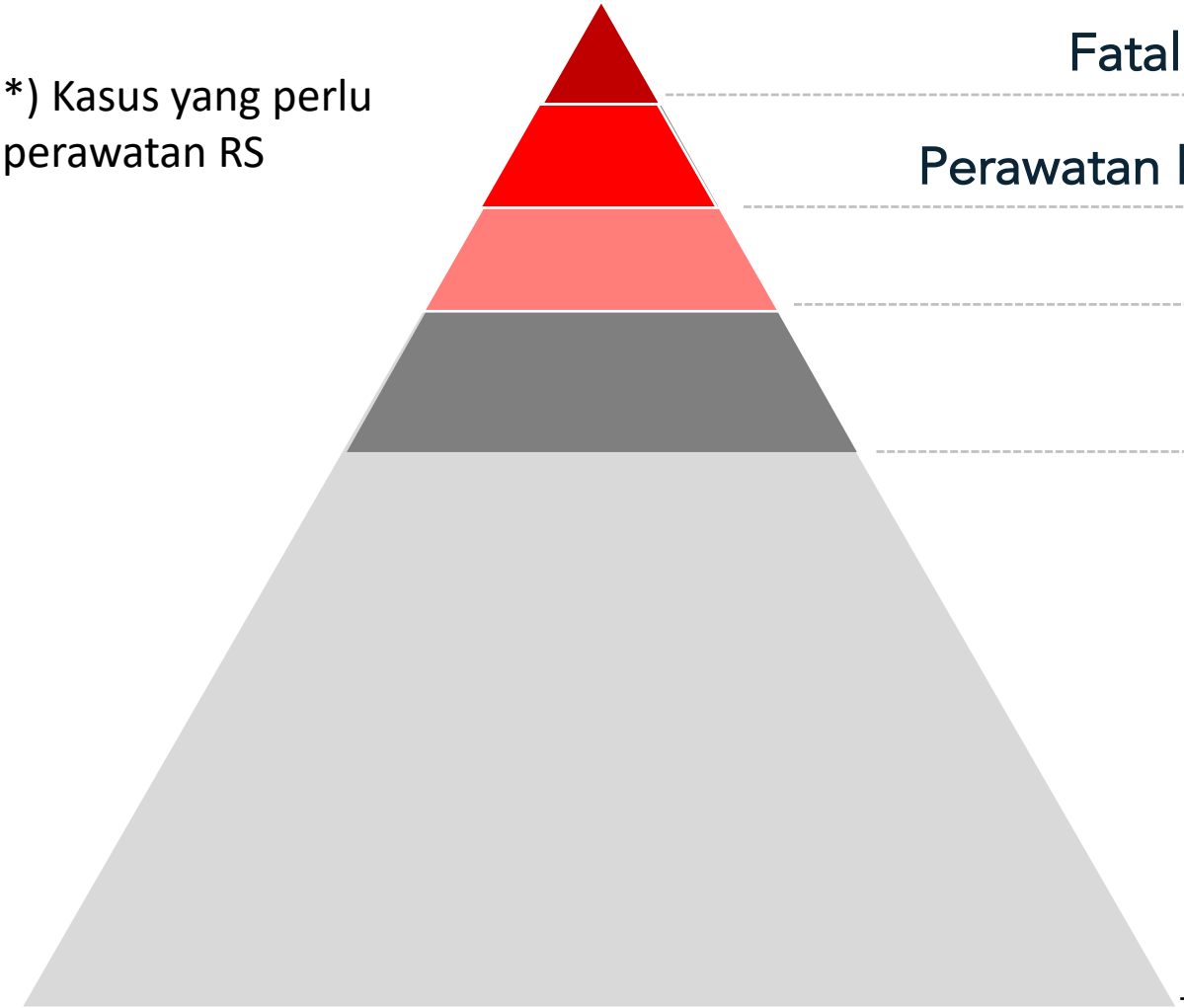
Universitas Indonesia

COVID-19 Indonesia

Profil epidemi Covid19

*) Kasus yang perlu perawatan RS



Fatalitas (# kematian/# terinfeksi)	0.32%
Perawatan kritikal (perlu perawatan ICU)	0.36%
Pneumonia*	1.93%
Kasus ringan (tidak perlu perawatan RS)	11.4%
Tidak bergejala tapi tetap menular	86%

Kasus*)

Terinfeksi

* ***Source***: *China CDC Weekly, The Epidemiological Characteristics of an Outbreak of 2019 Novel Coronavirus Diseases (COVID-19), Feb 2020*

** ***Source***: *Li R, et al. Substantial undocumented infection facilitates the rapid dissemination of novel coronavirus (SARS-CoV2), Science, March 16,2020*

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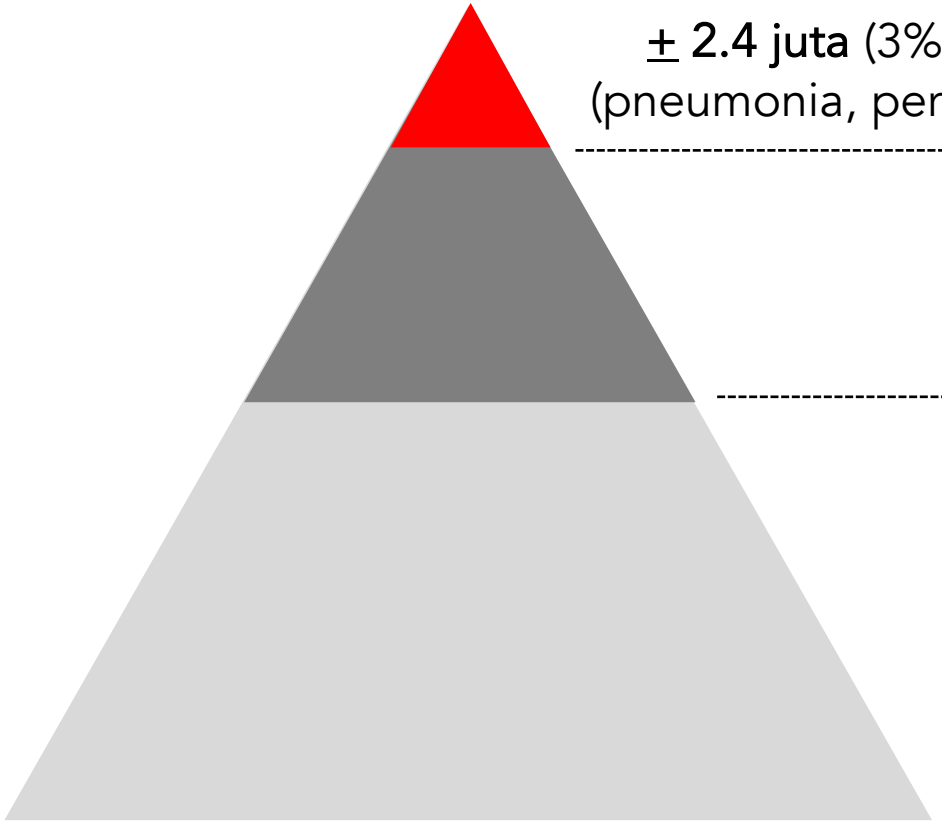
Estimasi orang yang terinfeksi di Indonesia

Jika tidak ada intervensi, apa yang akan terjadi?



± 2.4 juta (3%) kasus yang memerlukan perawatan RS (pneumonia, perawatan kritis dan risiko tinggi kematian)

± 8.8 juta (11%) kasus ringan (tidak memerlukan perawatan RS, cukup isolasi mandiri)

± 68.8 juta (86%) kasus tidak terdeteksi/ tidak bergejala namun menular

Sekitar 80 juta terinfeksi

Asumsi: seluruh populasi dewasa berisiko (≥ 15 th), R_0 = 2,5, waktu penggandaan 5 hari, mulai epidemi minggu ke 3 Januari 2020, herd immunity 50% populasi, tidak ada intervensi sama sekali (worst case scenario)

Sumber: Iwan Ariawan, Pandu Riono, Muhamad N Farid, Hafizah Jusril. Covid19 in Indonesia: Modelling Scenario, April 2020. Fakultas Kesehatan Masyarakat Universitas Indonesia.

Indonesia: efek beberapa intervensi

Deteksi kasus rutin
Contact tracing
Self-isolation
+
Intervensi rendah

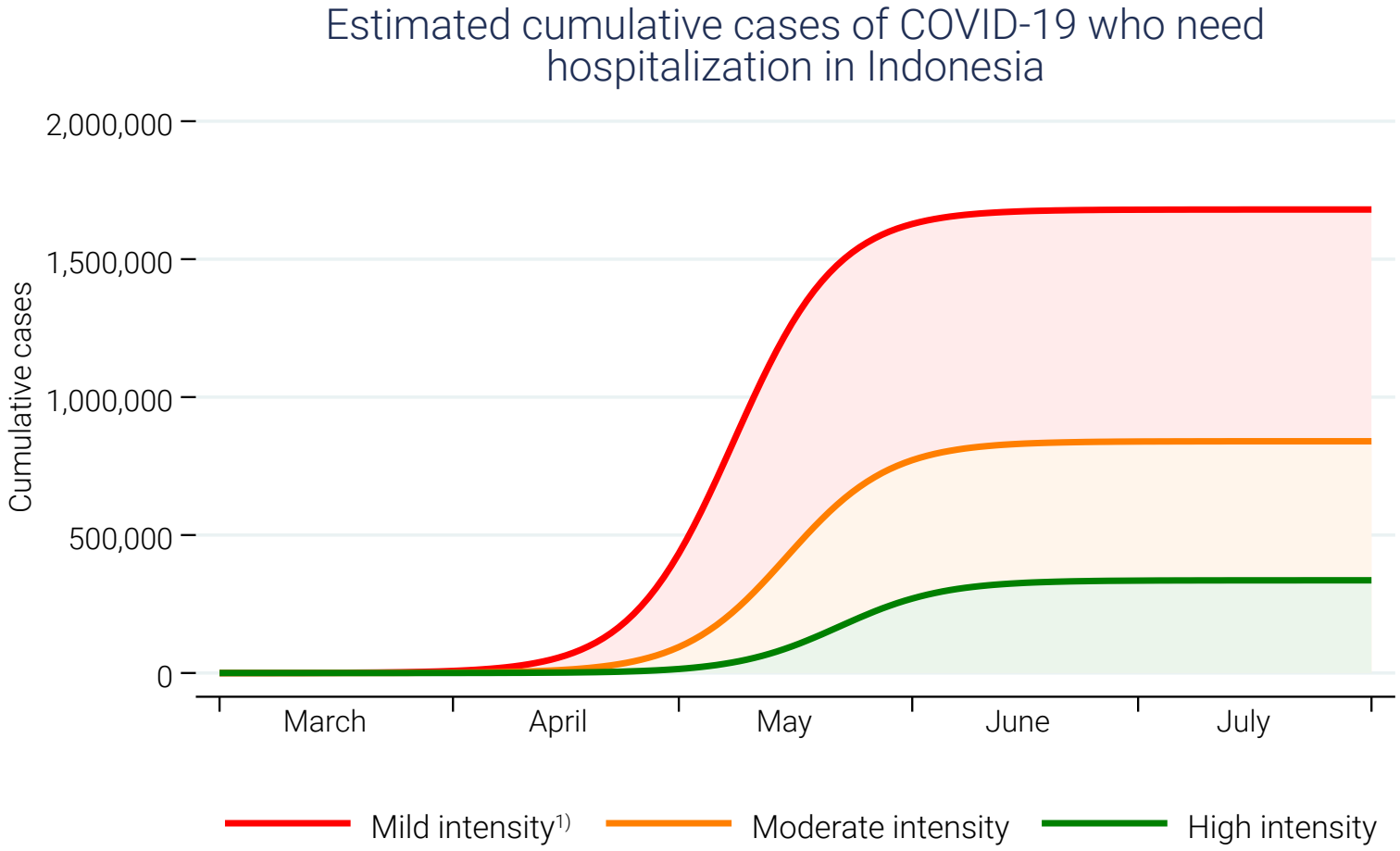
- Jaga jarak sosial secara sukarela
- Membatasi kerumunan massa

Intervensi moderat

- Tes massal – cakupan rendah/
- Mengharuskan pembatasan sosial (penutupan sekolah/bisnis) /

Intervensi tinggi

- Tes massal – cakupan tinggi dan mewajibkan pembatasan sosial berskala besar



Note:
Estimated cases is based on assumptions:
R0=2.5, doubling-time=5 days, and disease onset=3rd week of January 2020
1) As a proxy for current situation

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Indonesia: efek terhadap kasus harian

Deteksi kasus rutin
Contact tracing
Self-isolation
+
Intervensi rendah

- Jaga jarak sosial secara sukarela
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Intervensi moderat

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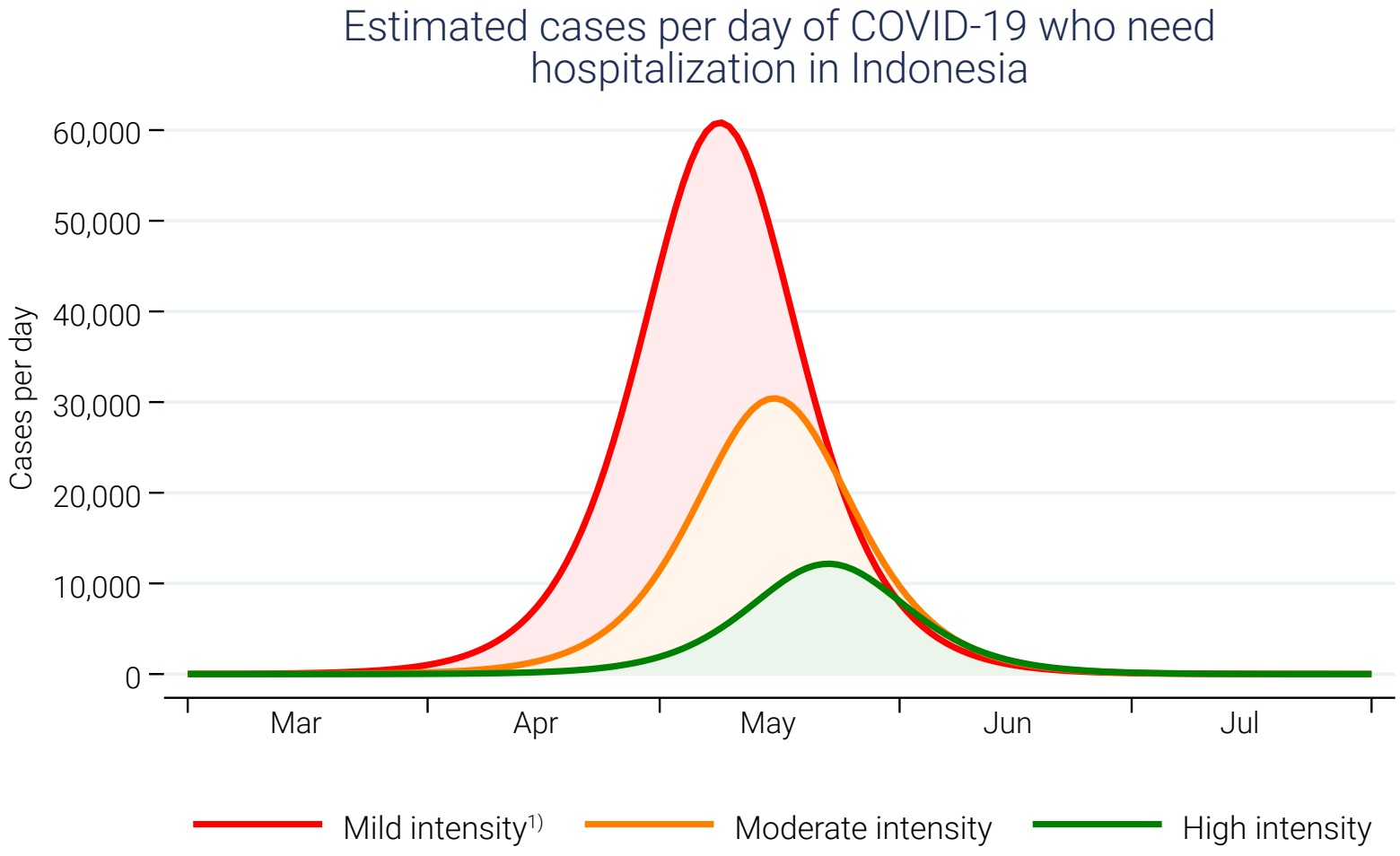

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Indonesia: efek terhadap kematian - kumulatif

Deteksi kasus rutin
Contact tracing
Self-isolation
+
Intervensi rendah

- Jaga jarak sosial secara sukarela
- Membatasi kerumunan massa

Intervensi moderat

- Tes massal – cakupan rendah/
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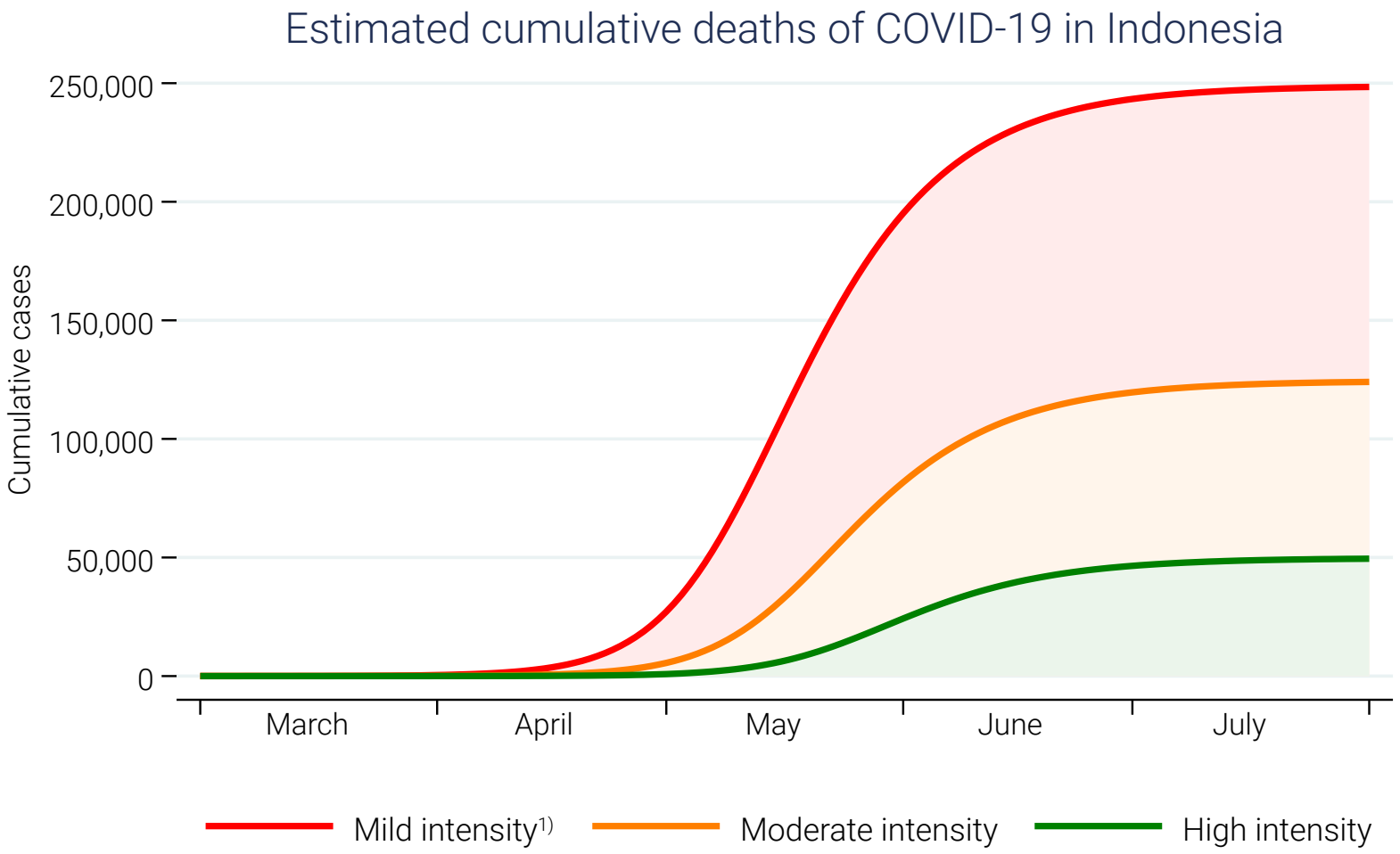
Intervensi tinggi

- Tes massal – cakupan tinggi dan mewajibkan pembatasan sosial berskala besar

Belum memperhitungkan intervensi medis & obat



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Indonesia: efek terhadap kematian - harian

Deteksi kasus rutin
Contact tracing
Self-isolation
+
Intervensi rendah

- Jaga jarak sosial secara sukarela
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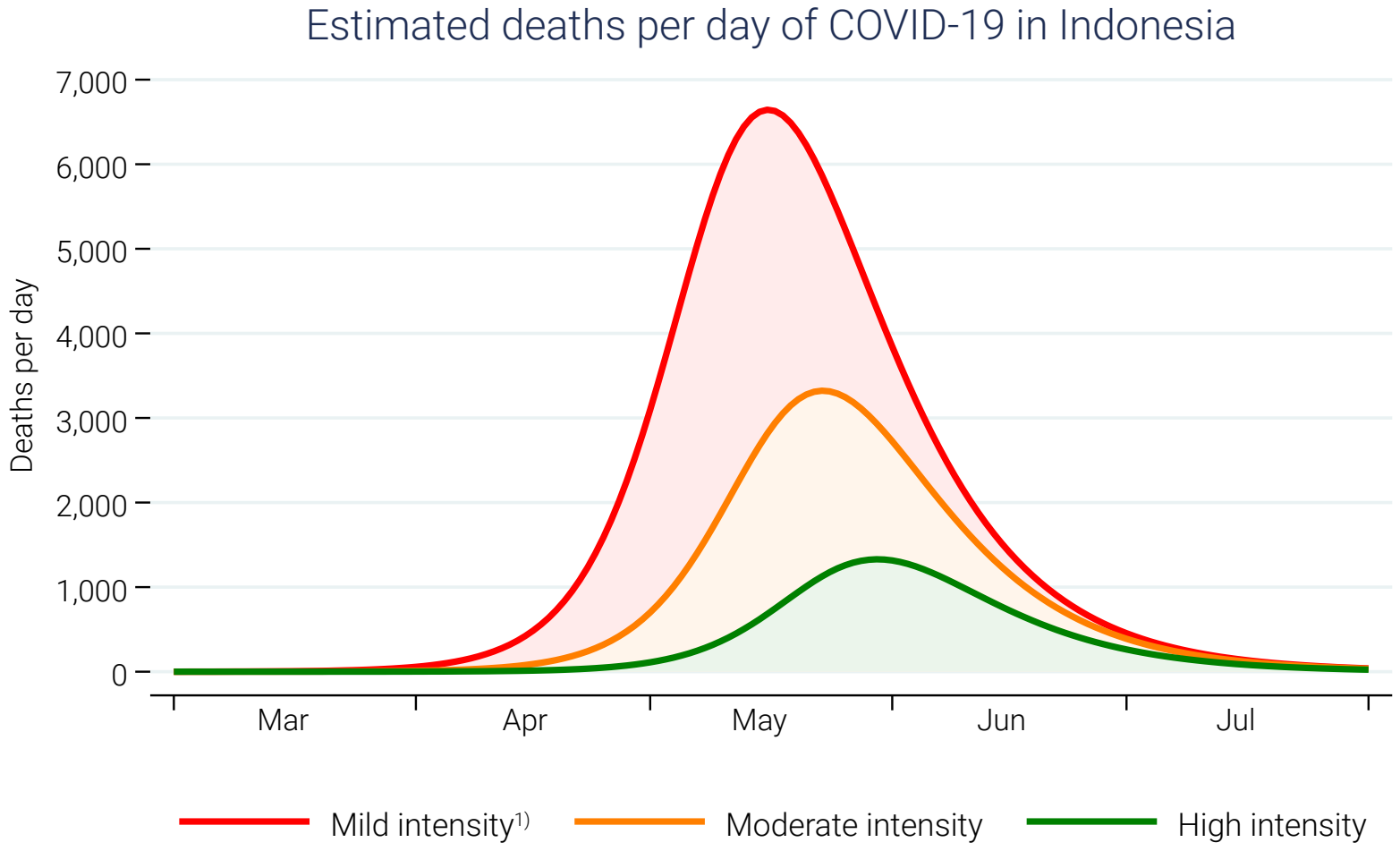

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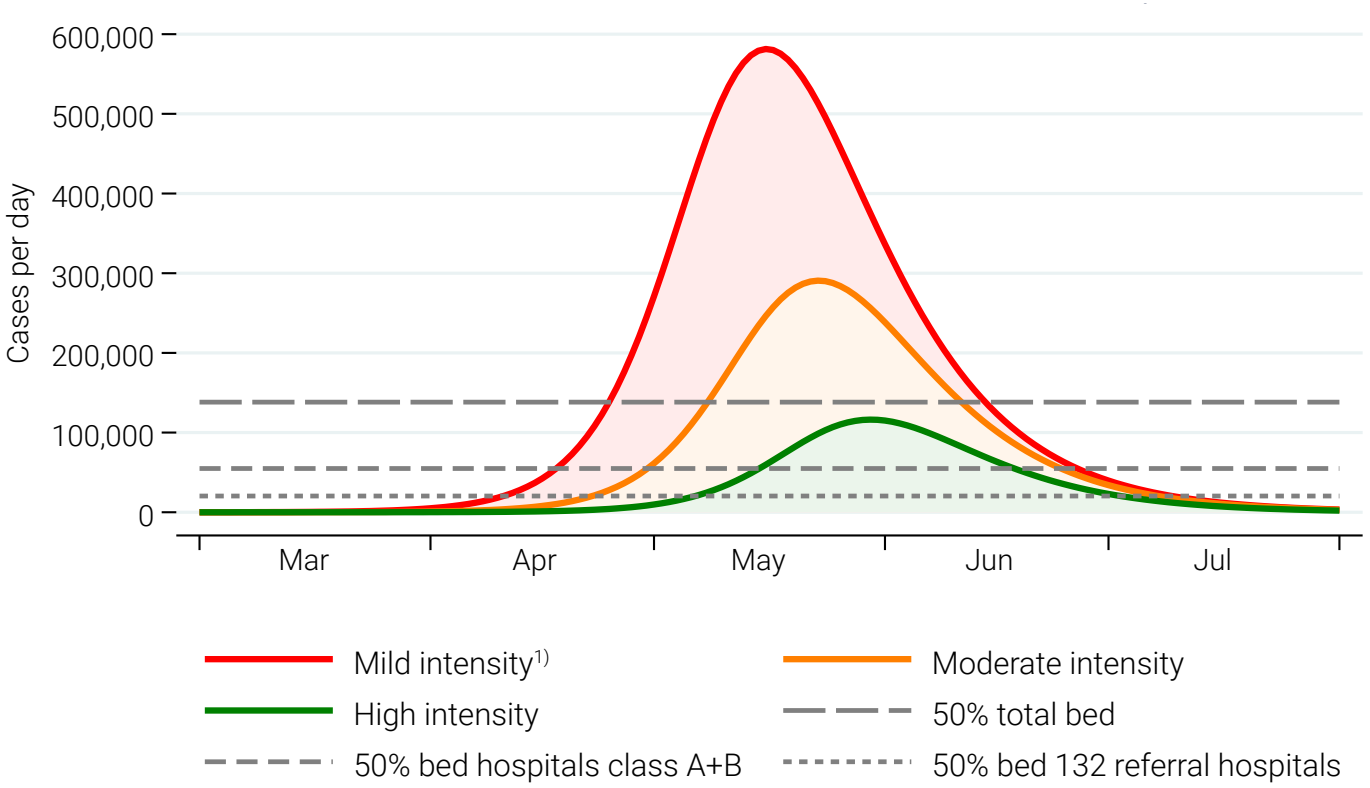
Kebutuhan sistem kesehatan

Prediksi jumlah kasus yang perlu perawatan RS per hari dengan pertimbangan durasi rawat di RS



Note:
Estimated cases is based on assumptions:
Average days of hospitalization among death is 7 days and cured cases is 14 days
1) As a proxy for current situation

Ketersediaan Sarana, Prasarana, dan Alat Kesehatan per 24 Mar 2020

• Isolasi ICU	1,063
• Isolasi dengan ventilator (kelas N)	157
• Isolasi rawat inap (kelas S)	1,477
• Tabung oksigen	4,155
• Ventilator	8,158
• Isolasi UGD	2,032

Sumber: Iwan Ariawan, Pandu Riono, Muhamad N Farid, Hafizah Jusril. Covid19 in Indonesia: Modelling Scenario, April 2020. Fakultas Kesehatan Masyarakat Universitas Indonesia.

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Efek PSBB terhadap pergerakan penduduk

Kebijakan PSBB menunjukkan efek berkurangnya pergerakan penduduk

Catatan:
Lowess smoothing dengan bandwith 0.1
Sumber data: Google

Sumber: Iwan Ariawan, Pandu Riono, Muhamad N Farid, Hafizah Jusril. Covid19 in Indonesia: Efek PSBB. Fakultas Kesehatan Masyarakat Universitas Indonesia.

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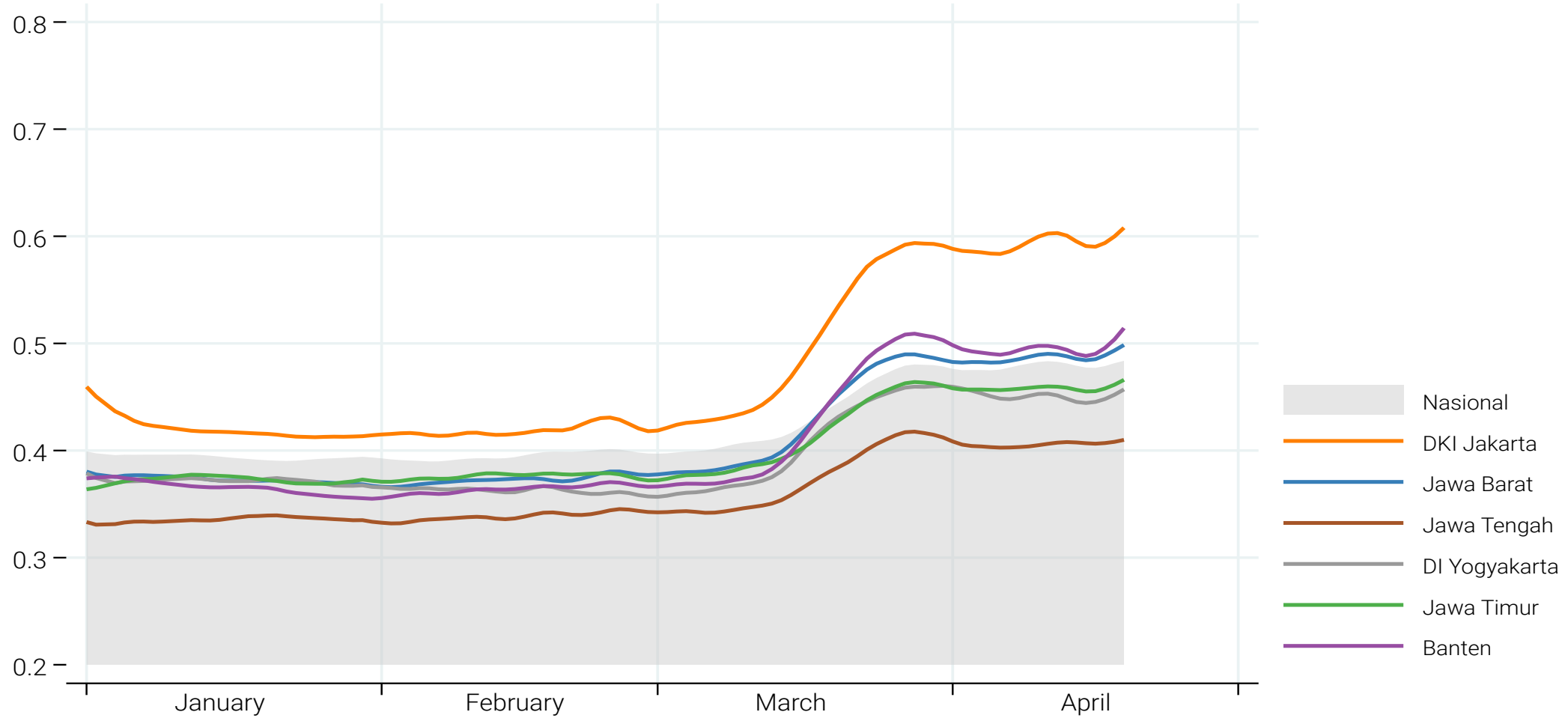
Efek PSBB terhadap pergerakan penduduk

Proporsi penduduk yang tetap di rumah atau bergerak dalam radius sekitar 200 m^2 dari rumah di Pulau Jawa



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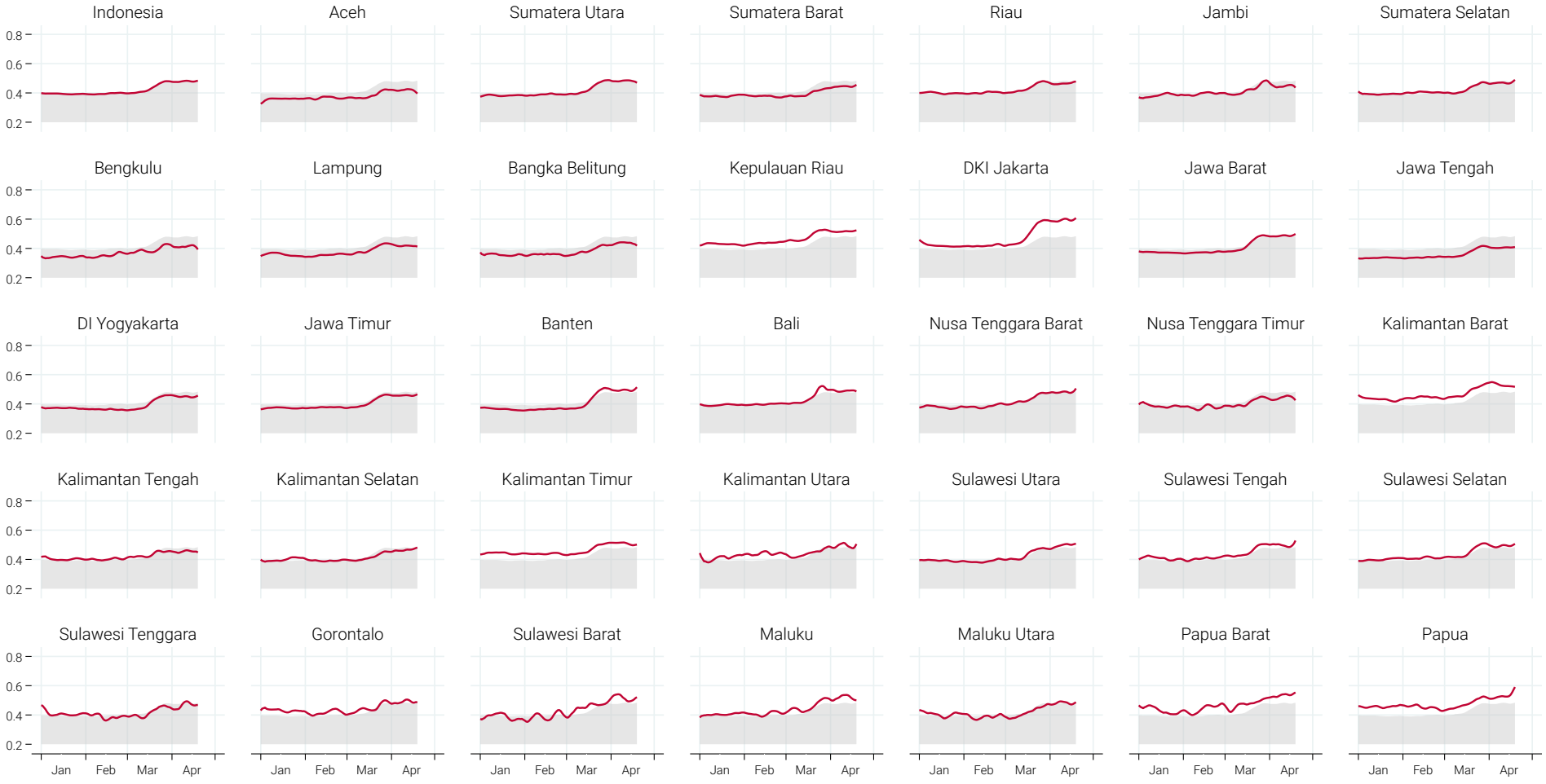
Efek PSBB terhadap pergerakan penduduk

Proporsi 'di rumah saja'

Proporsi yang di rumah/ ± 200m dari rumah
Google data



Note: Lowess smoothing dengan bandwith 0.1

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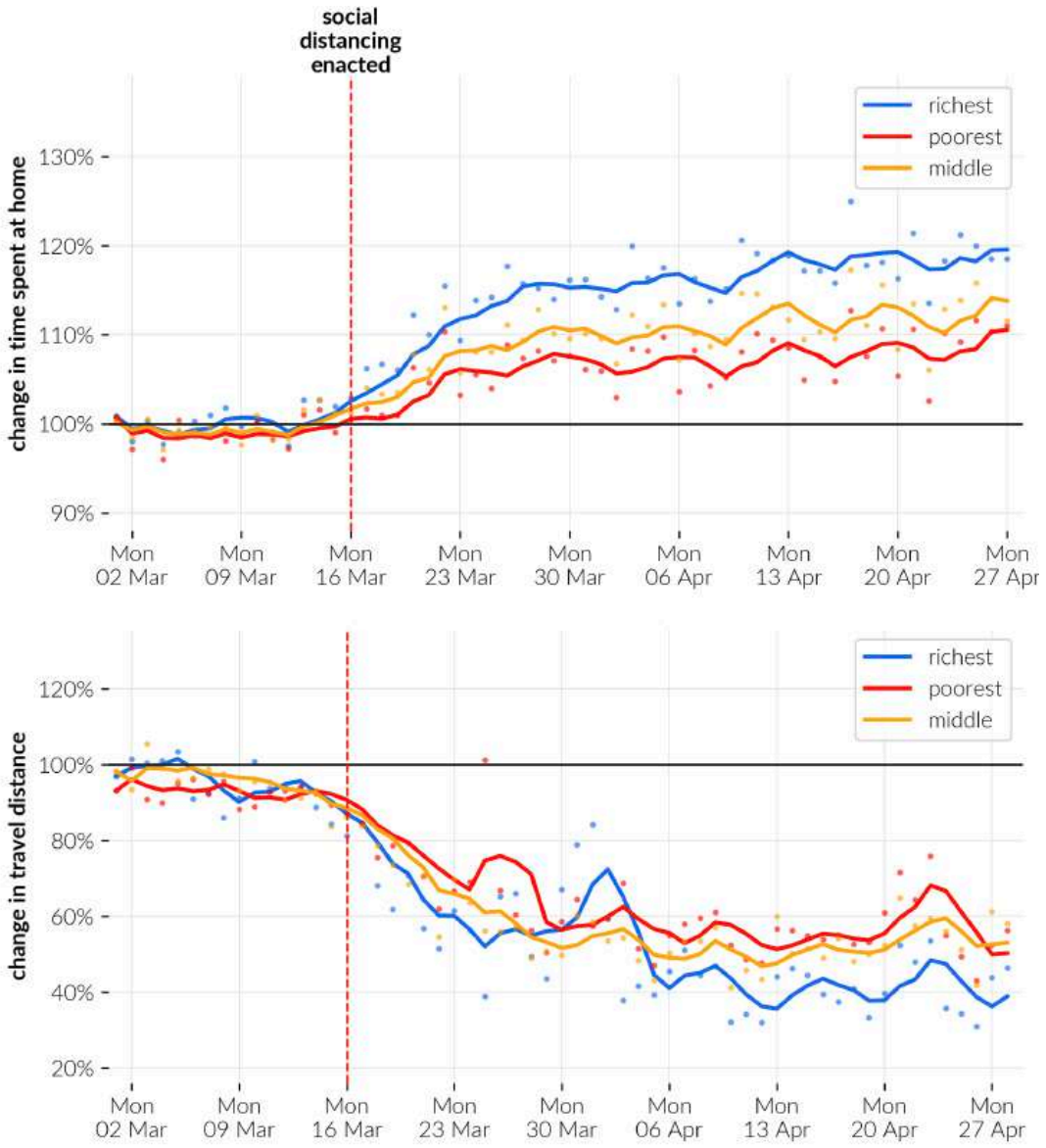
Pelaksanaan PSBB menurut tingkat sosio-ekonomi

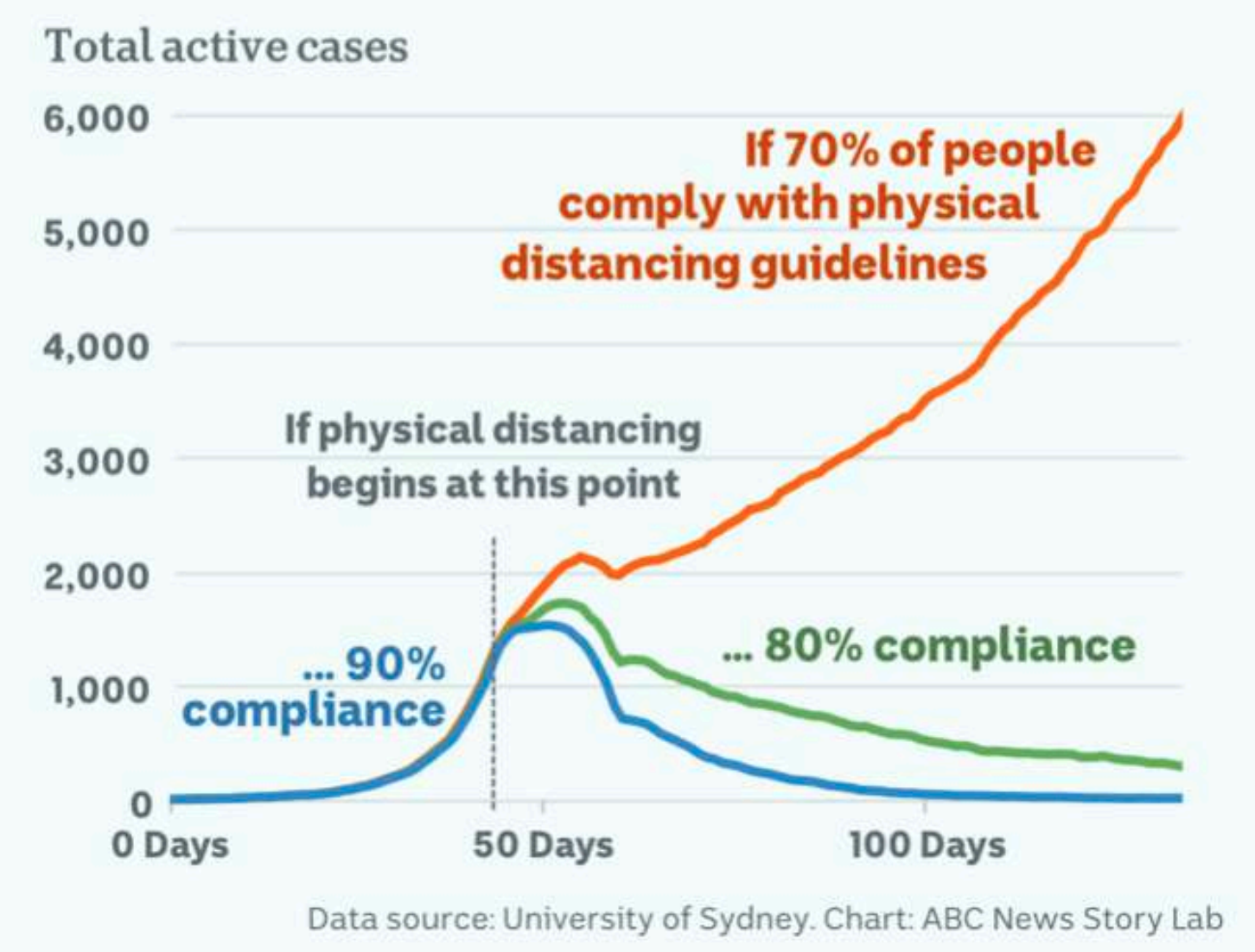


Kepatuhan terhadap PSBB berbeda menurut tingkat sosio-ekonomi penduduk.

Penduduk yang tinggal di daerah dengan sosio-ekonomi rendah (>20% penduduk miskin) lebih sedikit tinggal di rumah saja & perubahan jarak perjalanannya paling kecil dibandingkan penduduk yang tinggal di daerah dengan sosio-ekonomi sedang & tinggi (<5% penduduk miskin).

Data from: Cuebig + Worldpop
Analysis from: UNICEF MagicBox

Bagaimana PSBB dapat mengatasi Pandemi Covid19



Modelling transmission and control of the COVID-19 pandemic in Australia

Sheryl L. Chang[1], Nathan Harding[1], Cameron Zachreson[1], Oliver M. Cliff[1], and Mikhail Prokopenko[1,2,*]

[1] *Centre for Complex Systems, Faculty of Engineering, University of Sydney, Sydney, NSW 2006, Australia*
[2] *Marie Bashir Institute for Infectious Diseases and Biosecurity, University of Sydney, Westmead, NSW 2145, Australia*
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Abstract

We develop an agent-based model for a fine-grained computational simulation of the ongoing COVID-19 pandemic in Australia. This model is calibrated to reproduce key characteristics of COVID-19 transmission. An important calibration outcome is the age-dependent fraction of symptomatic cases, with this fraction for children found to be one-fifth of such fraction for adults. We apply the model to compare several intervention strategies, including restrictions on international air travel, case isolation, home quarantine, social distancing with varying levels of compliance, and school closures. School closures are not found to bring decisive benefits, unless coupled with high level of social distancing compliance. We report several trade-offs, and an important transition across the levels of social distancing compliance, in the range between 70% and 80% levels, with compliance at the 90% level found to control the disease within 13–14 weeks, when coupled with effective case isolation and international travel restrictions.

PSBB akan menurunkan jumlah kasus Covid19 jika 80% penduduk tinggal di rumah saja

https://arxiv.org/pdf/2003.10218.pdf

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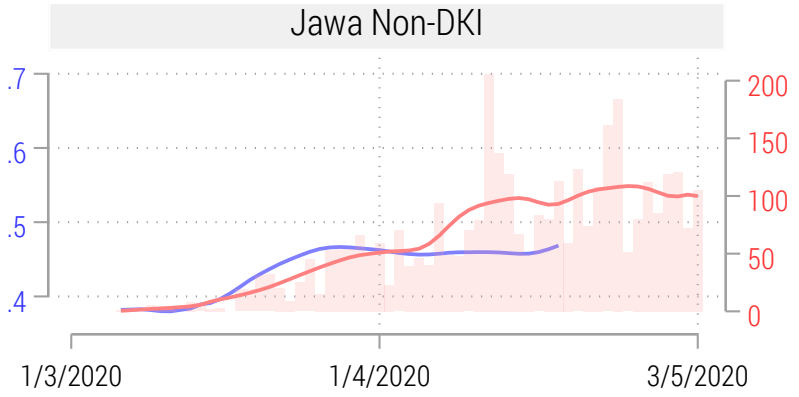
Dampak PSBB terhadap pandemi Covid19

Laporan kasus per hari dan proporsi di rumah saja



Baik di Jawa selain DKI Jakarta dan di luar Jawa, masih terlihat kecenderungan kenaikan jumlah kasus per hari yang dilaporkan.

Proporsi penduduk yang tetap tinggal di rumah saja di kedua wilayah ini masih sekitar 50%.

Proporsi di rumah saja (Lowess smoothing)

Laporan kasus per hari

Laporan kasus per hari (Lowess smoothing)

>> Tim FKM-UI

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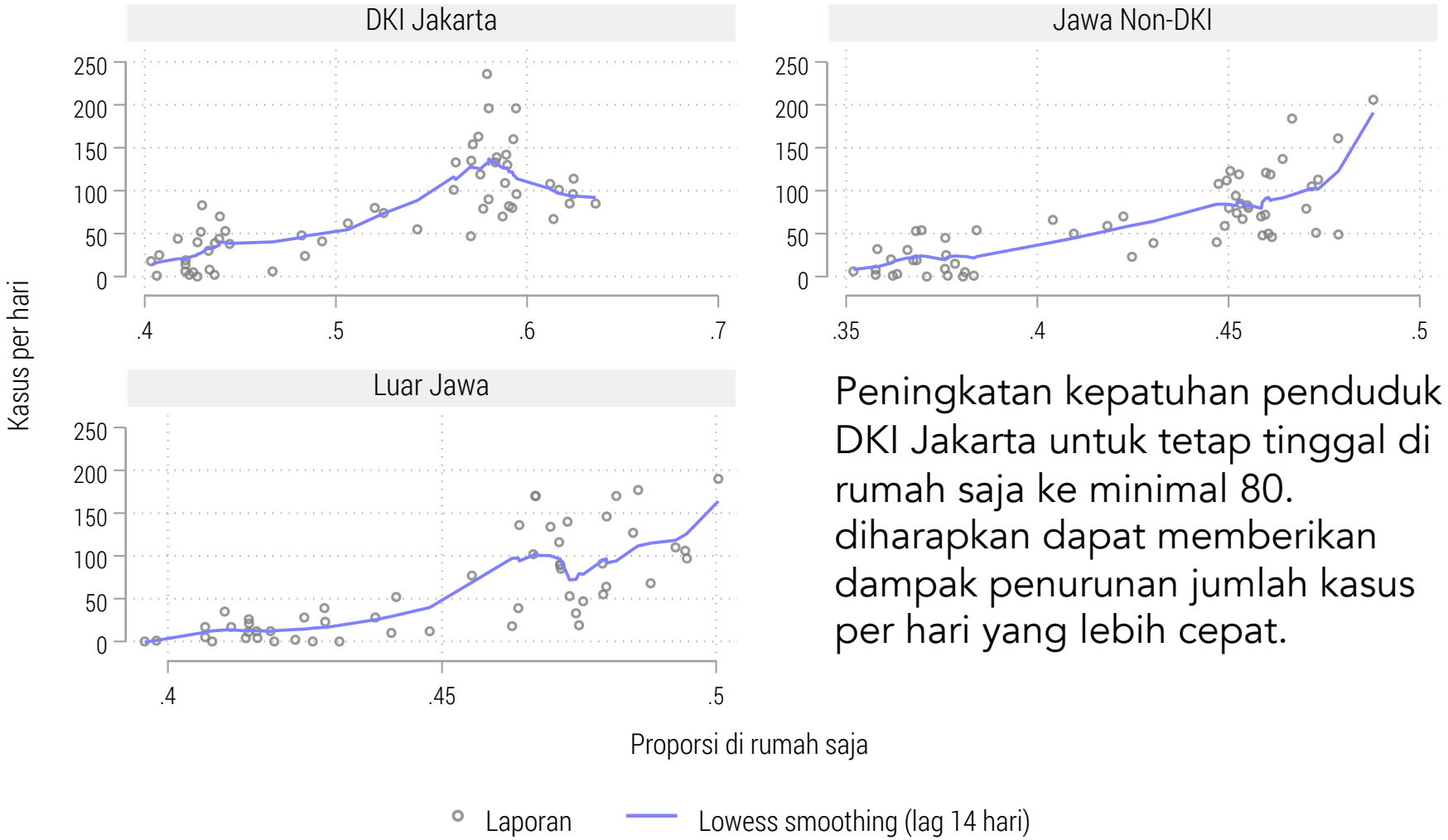
Dampak PSBB terhadap pandemic Covid19

Hubungan jumlah laporan kasus per hari dan proporsi di rumah saja



Peningkatan kepatuhan penduduk DKI Jakarta untuk tetap tinggal di rumah saja ke minimal 80. diharapkan dapat memberikan dampak penurunan jumlah kasus per hari yang lebih cepat.

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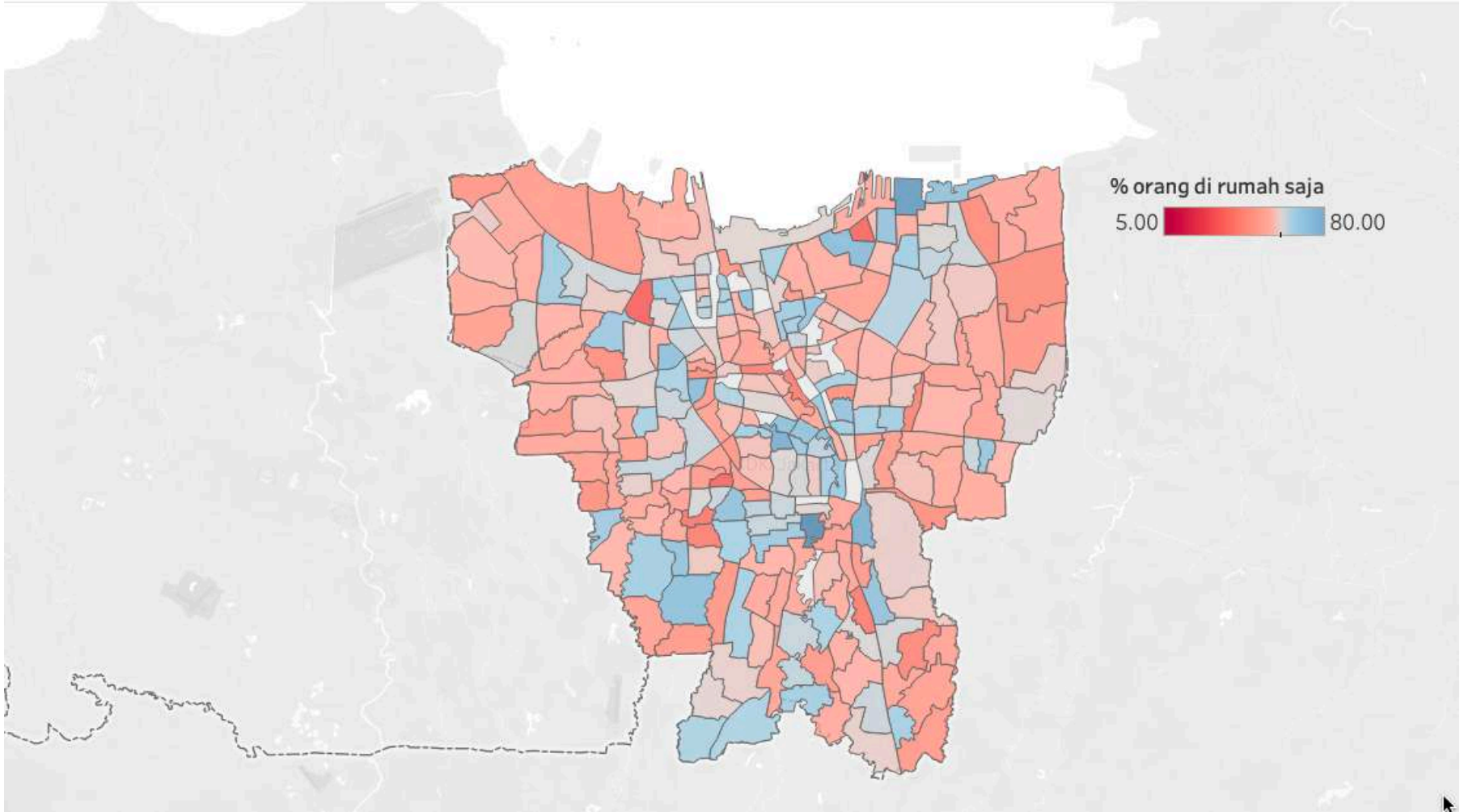
Dampak PSBB – Bagaimana Jakarta?

Proporsi orang tinggal di rumah saja menurut kelurahan/desa di Jakarta pada 27 April 2020 berdasarkan data Google



Kepatuhan terhadap PSBB sangat bervariasi antar kelurahan

Kelurahan dengan PSBB yg minim berpotensi menjadi sumber penularan Covid19

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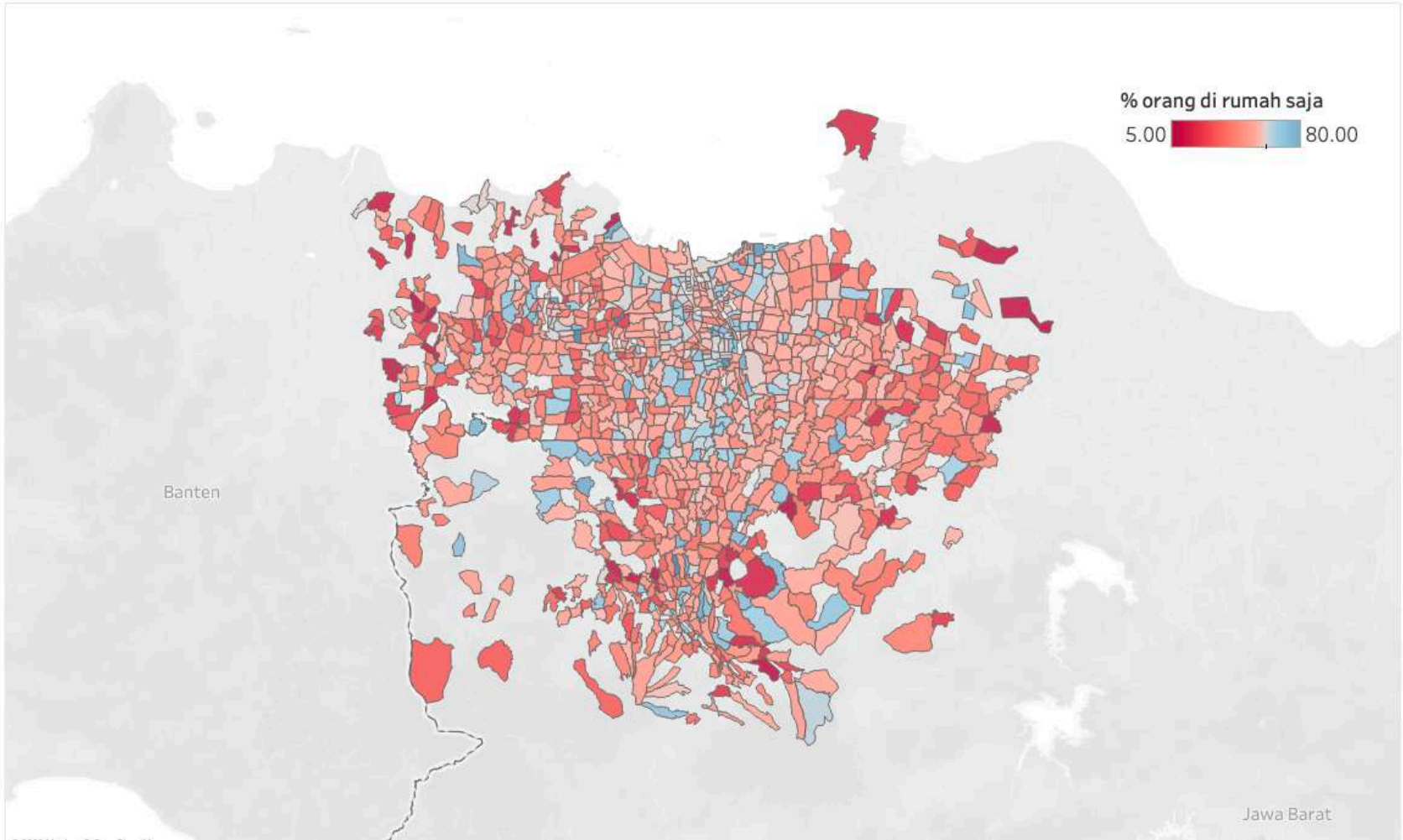
Dampak PSBB – Bagaimana Jakarta?

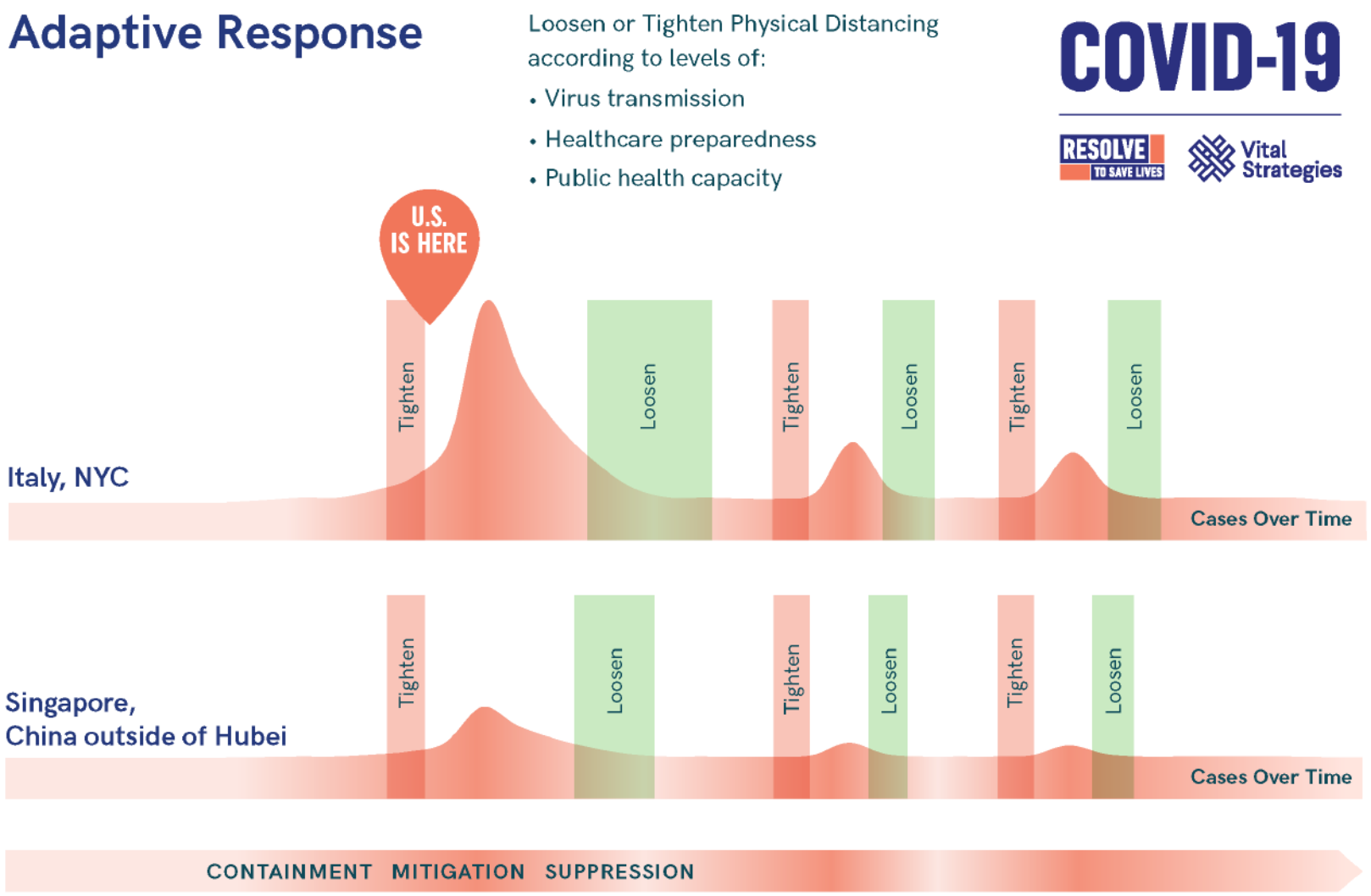
Proporsi orang tinggal di rumah saja menurut kelurahan/desa di Jabodetabek pada 27 April 2020 berdasarkan data Google



Kepatuhan terhadap PSBB masih rendah di Botabek

Tanpa PSBB yg baik di daerah Botabek, jumlah kasus di Jakarta berpotensi untuk meningkat kembali

Kapan PSBB dapat ~~berakhir~~ dilonggarkan?



Sumber: https://resolvetosavelives.org

PSBB **tidak dapat** langsung diakhiri dan kita kembali ke kondisi sebelum ada pandemi Covid19.

PSBB dapat dilonggarkan (bukan diakhiri) tergantung dari kondisi epidemi & dapat diketatkan kembali.

Selama vaksin belum ditemukan, kondisi inilah yang akan terjadi. Kita harus hidup dalam kondisi normal baru (the new normal).

Kapan PSBB dapat ~~berakhir~~ dilonggarkan?

COVID-19 PHYSICAL DISTANCING MEASURES CAN BE LOOSENED WHEN ALL OF THE FOLLOWING CRITERIA ARE MET:

Epidemiology	Health Care	Public Health
✔ Decreasing cases in the context of increasing testing (or stable testing with decreasing positivity) for at least 14 days	✔ Ability – including staffing – to double number of patients treated in intensive care units from current census	✔ All cases interviewed for contact elicitation
✔ Decreasing numbers and proportions of cases not linked to a source case (goal less than 3 unlinked cases per 2-week period)	✔ Ability – including staffing – to screen large numbers of symptomatic patients safely (e.g., outdoor tents, drive through)	✔ Contacts elicited for at least 90% of cases
✔ Steady decrease in ILI in syndromic surveillance for at least 14 days	✔ Sufficient PPE for all health care workers even if cases double	✔ 100% of symptomatic contacts and others with symptoms undergo testing within 12 hours of identification of symptoms
✔ Decline in deaths for at least 14 days	✔ Sufficient face masks to provide to all patients seeking care even if cases double	✔ Enough hand sanitizer to place at entry and strategically placed in buildings including workplaces
✔ Decreasing health care worker infections such that infections are now rare	✔ More discharges than admissions for COVID-19	✔ Designated facilities for non-hospitalized covid-infected people who can't be safely cared for at home (e.g., because of space constraints, homelessness, medically vulnerable household members, or otherwise)
	✔ Ensure at least baseline capacity in general health services, including through expansion of telemedicine for Covid-19 and usual care	✔ Demonstrated ability to convey physical distancing recommendations that change behavior in most residents
	✔ Health care facilities enforce policies and redesign to minimize possibility of exposure at triage and all other locations	

Usulan kriteria pelonggaran PSBB dari dari Resolve To Save Life (https://resolvetosavelives.org).

Pemerintah Indonesia perlu membuat kriteria kapan PSBB dapat dilonggarkan & indikator penilainnya sehingga tidak terjadi penghentian PSBB sepihak oleh Propinsi/Kab/Kota/Kec/Kel yang akan berakibat muculnya kembali epidemi Covid19.

Kapan PSBB dapat ~~berakhir~~ dilonggarkan?

ONCE THE LOOSEN CRITERIA ARE MET, THE FOLLOWING ACTIONS CAN HAPPEN OVER TIME TO REOPEN:

Action	Initial re-opening only if all criteria above met	4-8 weeks later if no significant increase in cases and criteria remain met	8-16 weeks later if no significant increase in cases and criteria remain met
Wash hands often	Continue	Continue	Continue
Cover coughs	Continue	Continue	Continue
Don't go out if ill	Continue	Continue	Continue
Face mask if ill persons go out	Continue	Continue	Continue
Surface and object cleaning	Continue	Continue	Continue
Enhanced ventilation	Continue	Continue	Continue
Isolation of cases	Continue	Continue	Continue
Quarantine of contacts of cases	Continue	Continue	Continue
Physical distancing to 6 feet when possible – avoid crowding	Continue	Pause physical distancing	Pause physical distancing
Stop visits to nursing homes, hospitals, congregate facilities	Continue	Continue	Continue
Ban all gatherings including religious (above 10, 50 people)	Continue - 10	50	Allow all gatherings
Restaurant closures	Reopen with physical distancing*	Reopen	Reopen
Bar closures	Continue	Reopen with physical distancing*	Reopen
General business closures	Partial reopening*	Additional phased reopening	Reopen
Special situation business closures**	Partial reopening*	Reopen	Reopen
Post-secondary ed closures	Continue	Consider reopening	Reopen
K-12 in-person closures	Reopen*	Reopen*	Reopen
Day care closures	Reopen*	Reopen*	Reopen
Quarantine of travelers from high-prevalence areas	Continue, informed by data on spread	Continue, informed by data on spread	Continue, informed by data on spread

Usulan tahapan pelonggaran PSBB dari dari Resolve To Save Life (https://resolvetosavelives.org).

Pemerintah Indonesia perlu membuat tahapan pelonggaran PSBB agar tidak terjadi penghentian PSBB secara menyeluruh yang akan berakibat munculnya kembali epidemi Covid19.

Kesimpulan

1. Epidemi Covid-19 di Indonesia saat ini dalam masa akselerasi dan diprediksi akan mencapai puncak pada pertengahan-akhir Mei 2020.

2. Intervensi yang sudah dilakukan seperti PSBB, peningkatan jumlah test, pelarangan mudik serta peningkatan fasilitas kesehatan harus semakin komprehensif untuk menekan & memperlambat puncak epidemi.

3. Tanpa intervensi yang komprehensif, fasilitas kesehatan di Indonesia akan kekurangan tempat tidur & ventilator untuk merawat pasien Covid19 yang akan mengakibat tingginya angka kematian.

4. Dampak kebijakan PSBB terhadap pergerakan orang sudah terlihat dari big data Google, namun informasi ini mungkin bias ke masyarakat dengan sosio-ekonomi menengah & atas (pengguna Google/Android).

Kesimpulan

5 PSBB di Jakarta dengan proporsi orang yang tinggal di rumah saja mencapai 60% sudah mulai menunjukkan dampak terhadap penurunan kasus Covid19, namun proporsi tersebut diharapkan meningkat ke minimal 80% untuk memberikan dampak penurunan jumlah kasus per hari yang lebih cepat.

6 PSBB di propinsi lain dengan proporsi orang yang tinggal di rumah saja belum mencapai 50% belum menunjukkan dampak terhadap penurunan kasus Covid19. Pelaksanaan PSBB harus dilakukan lebih cepat & intensif agar pandemi Covid19 di Indonesia dapat segera teratasi.

7 Perlu dibuat persyaratan kapan PSBB dapat dilonggarkan, tahapan yang harus dilakukan dan kapan PSBB harus diperketat lagi. Indikator praktis untuk mengukurnya perlu disepakati, dikembangkan & dikumpulkan datanya.

Terima Kasih