ANALISIS EPIDEMIOLOGI SUDAH EFEKTIFKAH PENANGANAN PANDEMI COVID-19 DI INDONESIA?

Dr. dr. Tjatur Sembodo, MS

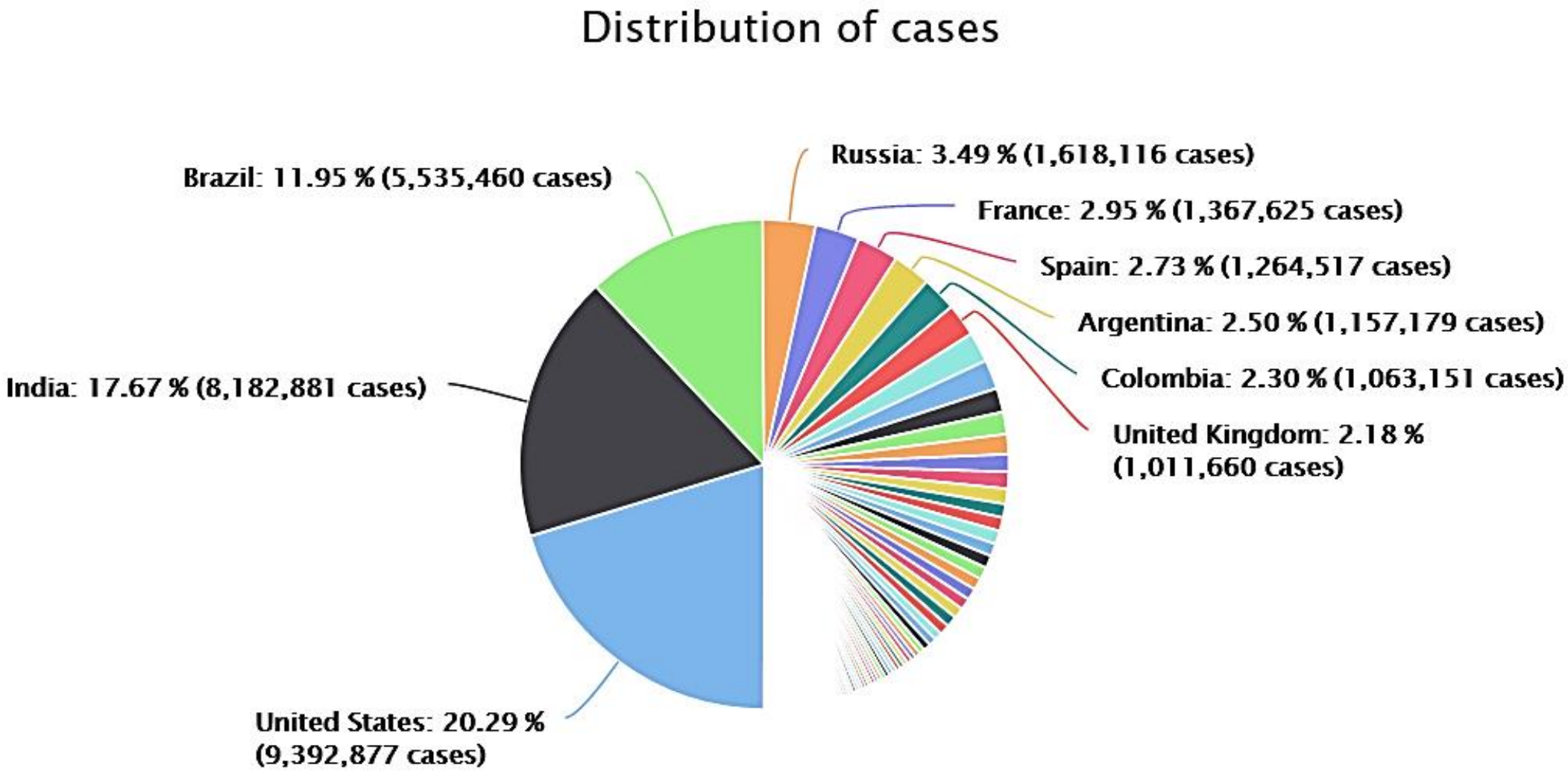
Fenomena ← dr. Badril

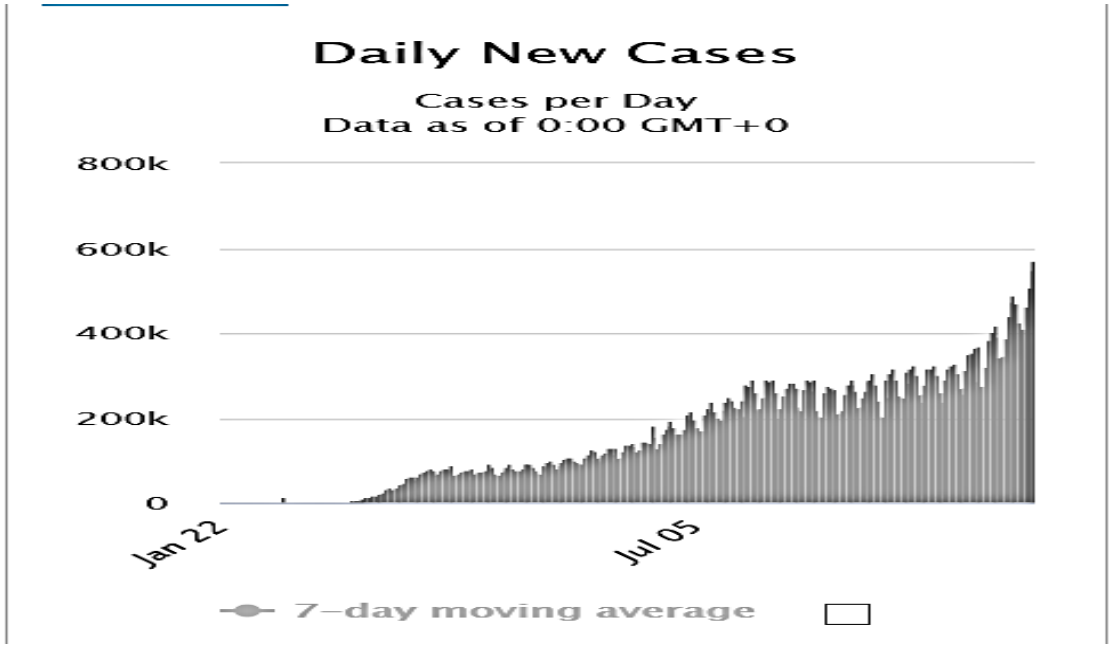
- Periksa Takut
- Masalah di Hulu – Hilir
- Protokol Kesehatan
- Penularan Rumah Tangga dll
- Isolasi Mandiri Efektif ???

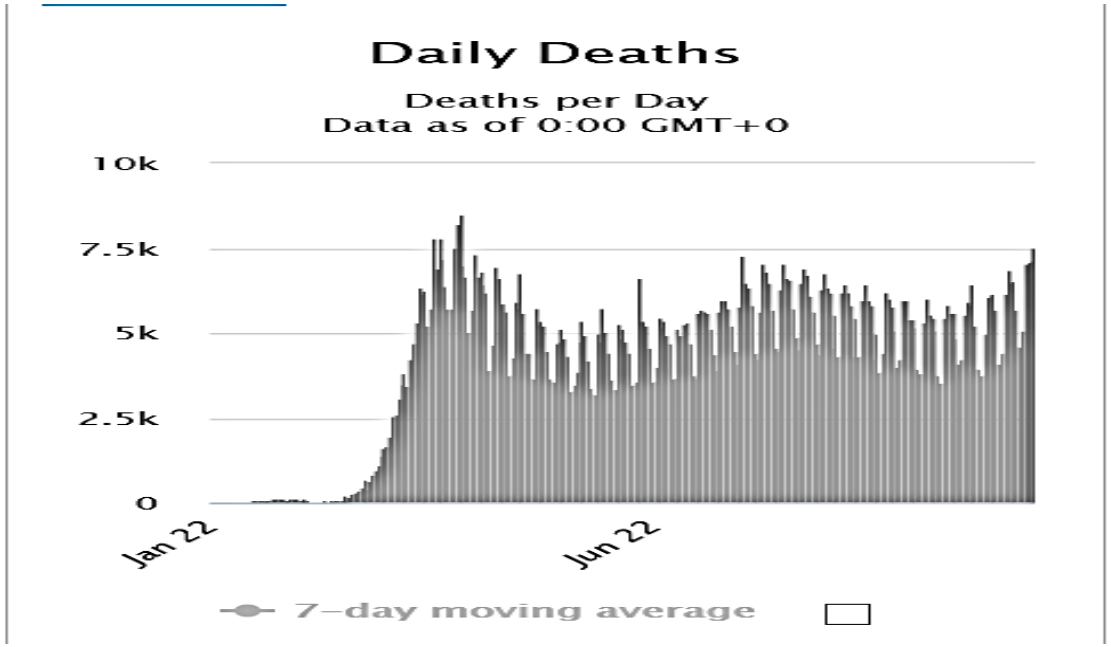
FENOMENA ← dr. Masrifan

- Pelibatan Sistem
- Perilaku pencegahan Covid-19

Countries cases distribution

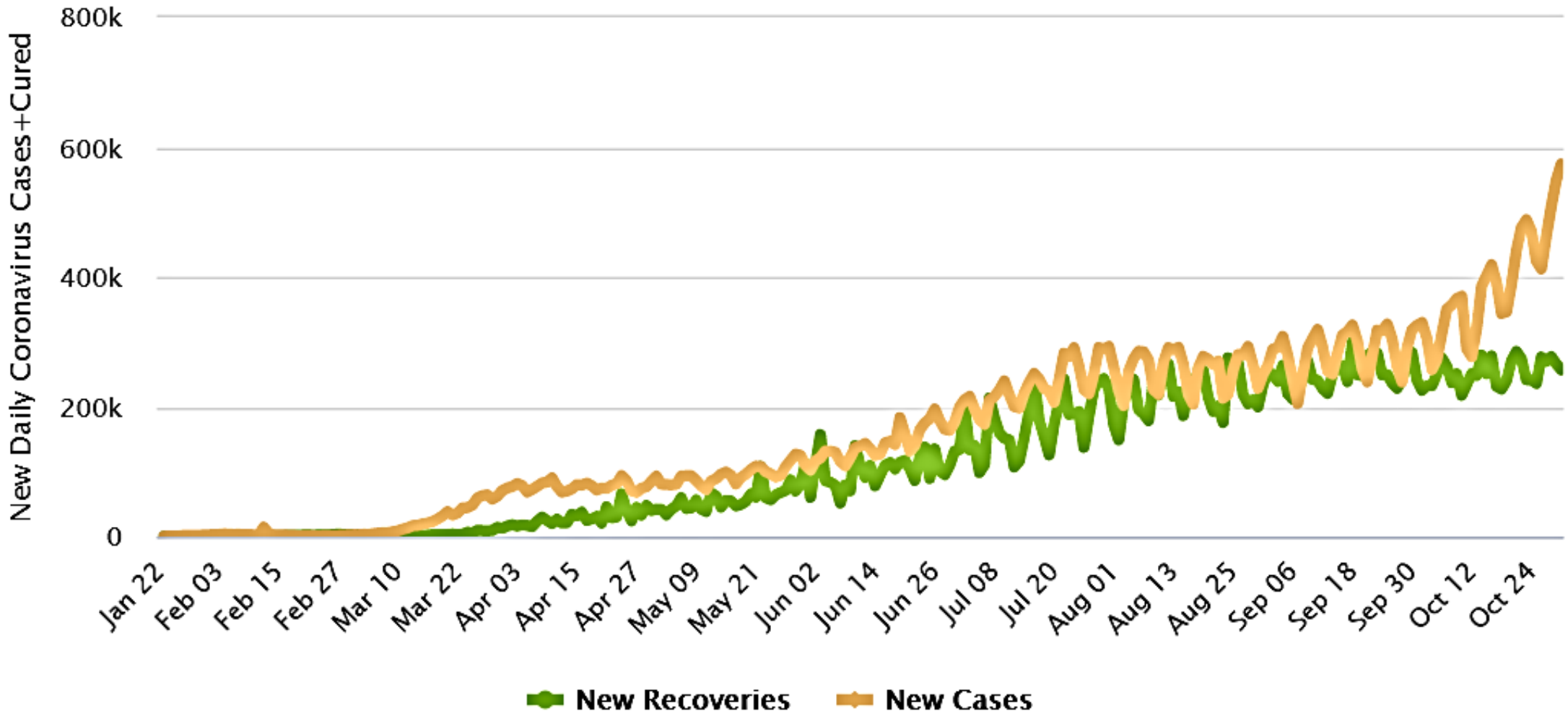



Daily New Cases
Cases per Day
Data as of 0:00 GMT+0
800k
600k
400k
200k
0
Jan 22
Jul 05
7-day moving average

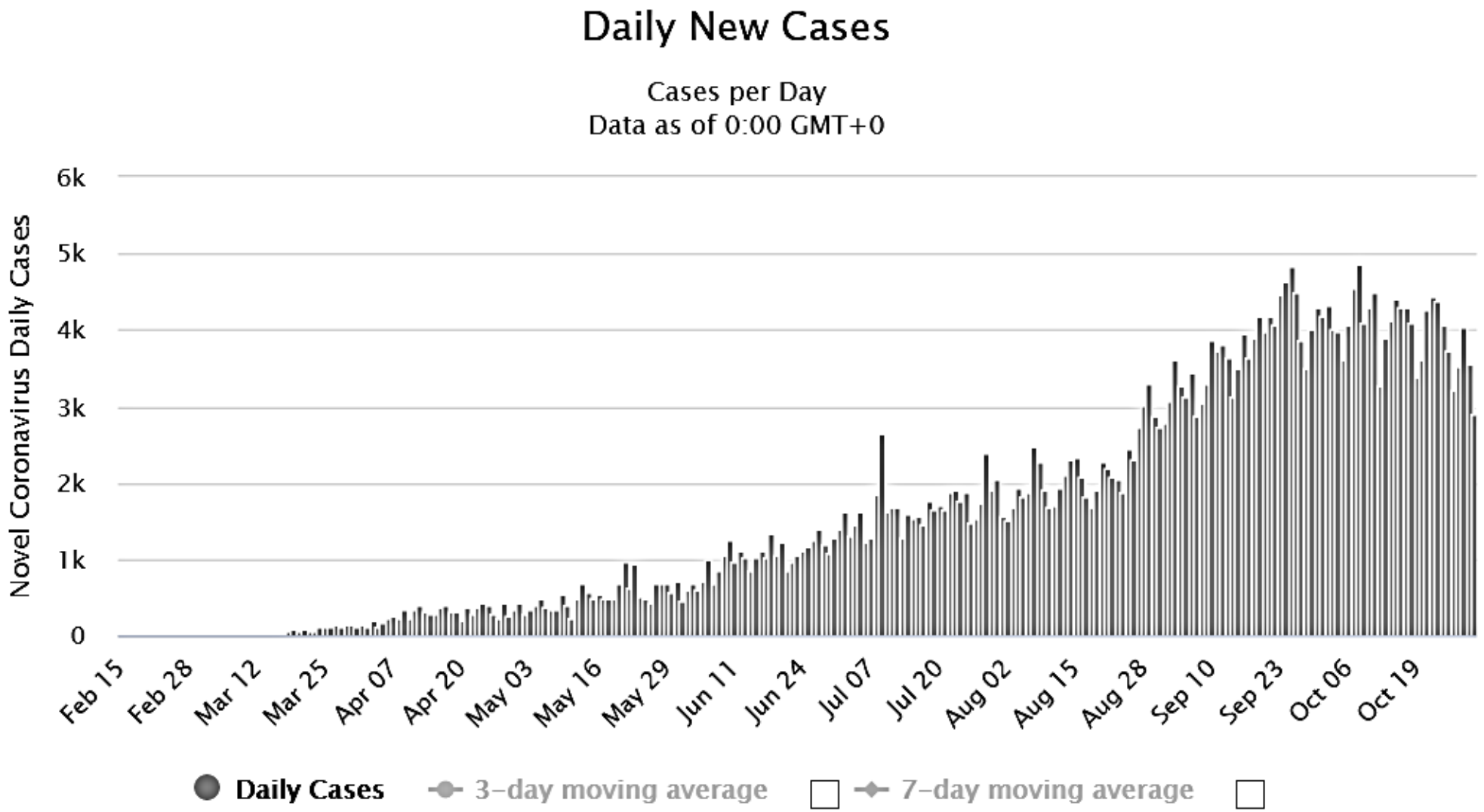

Daily Deaths
Deaths per Day
Data as of 0:00 GMT+0
10k
7.5k
5k
2.5k
0
Jan 22
Jun 22
7-day moving average

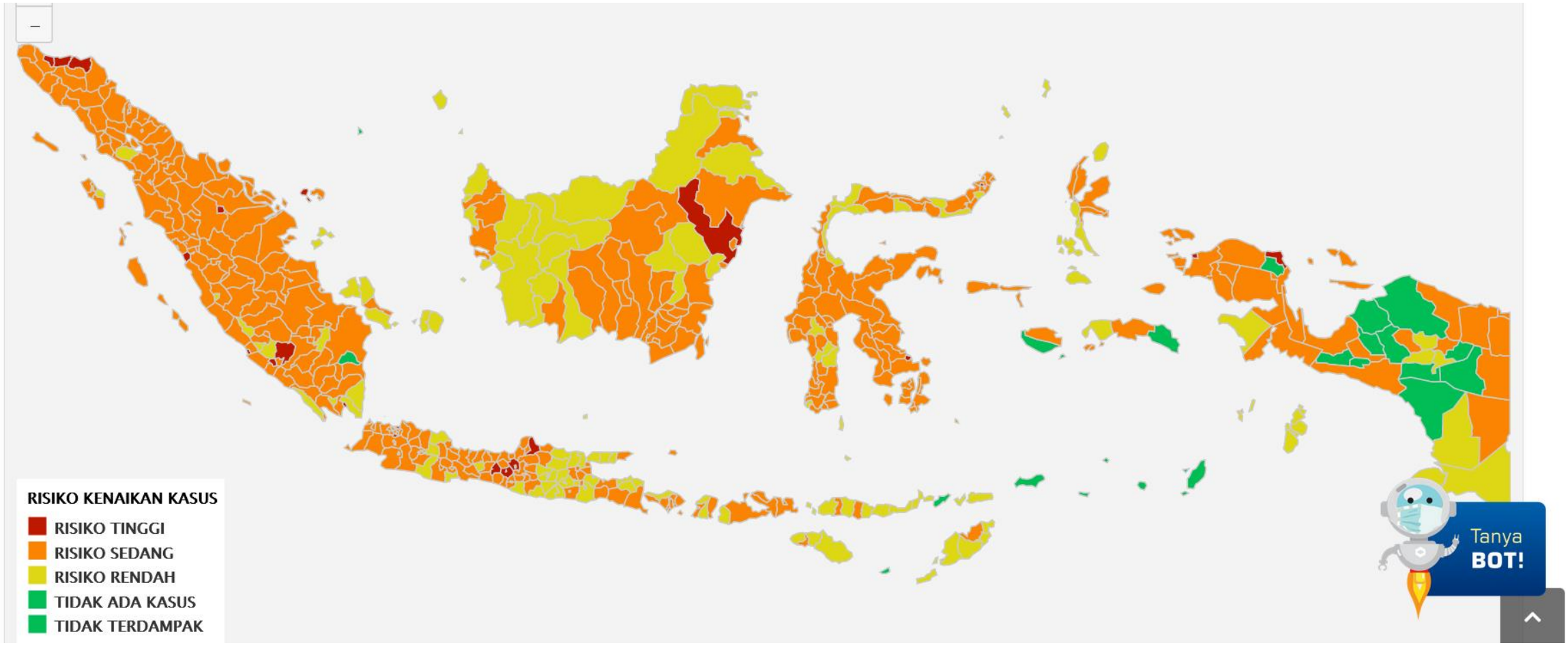
New Cases vs. New Recoveries

(Number of newly infected vs. number of recovered and discharged patients each day)



Daily New Cases in Indonesia



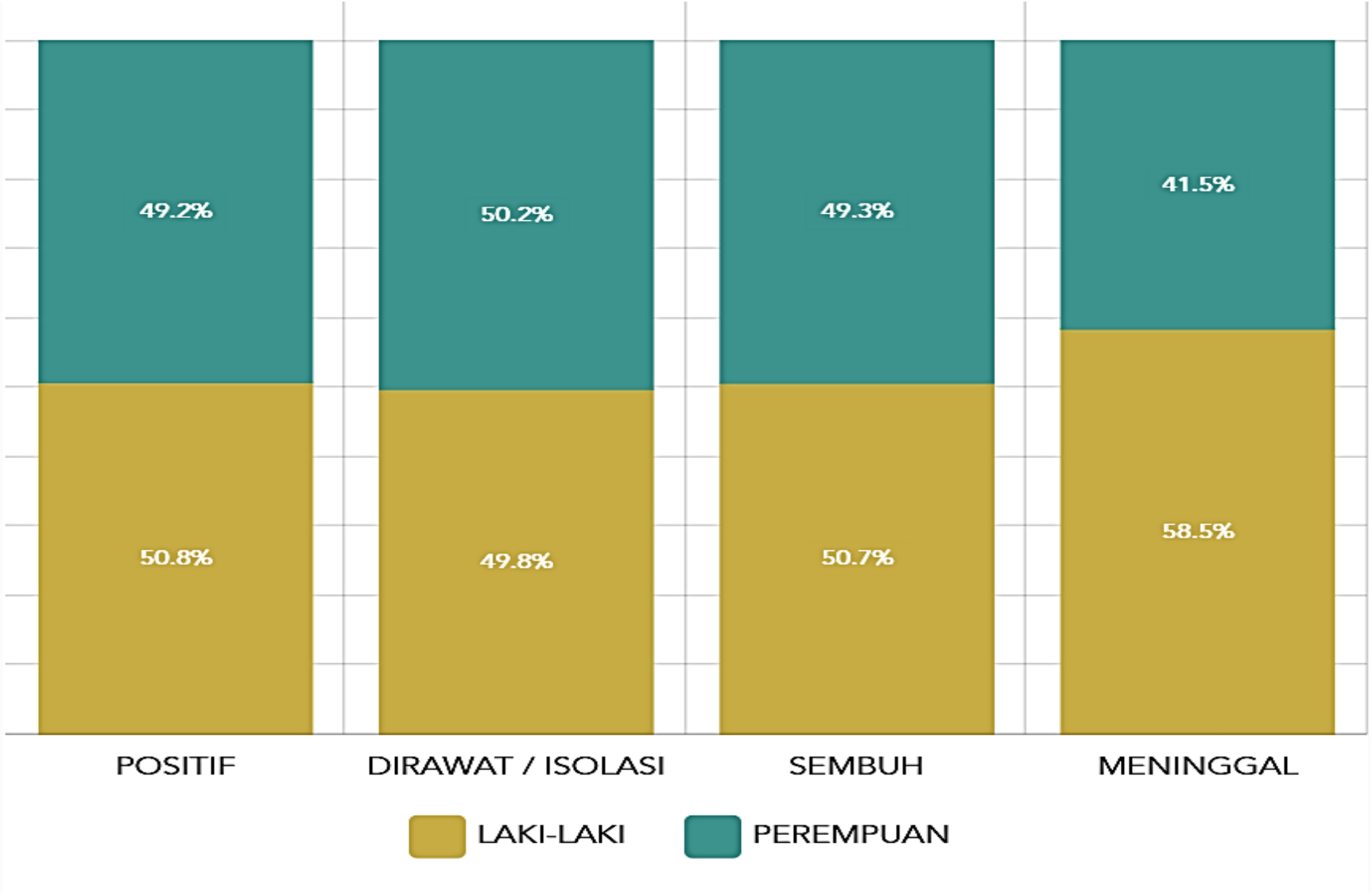

RISIKO KENAIKAN KASUS
RISIKO TINGGI
RISIKO SEDANG
RISIKO RENDAH
TIDAK ADA KASUS
TIDAK TERDAMPAK
Tanya
BOT!

Merah : Pati, Semarang, Magelang, Wonosobo
Kuning : Purbalingga

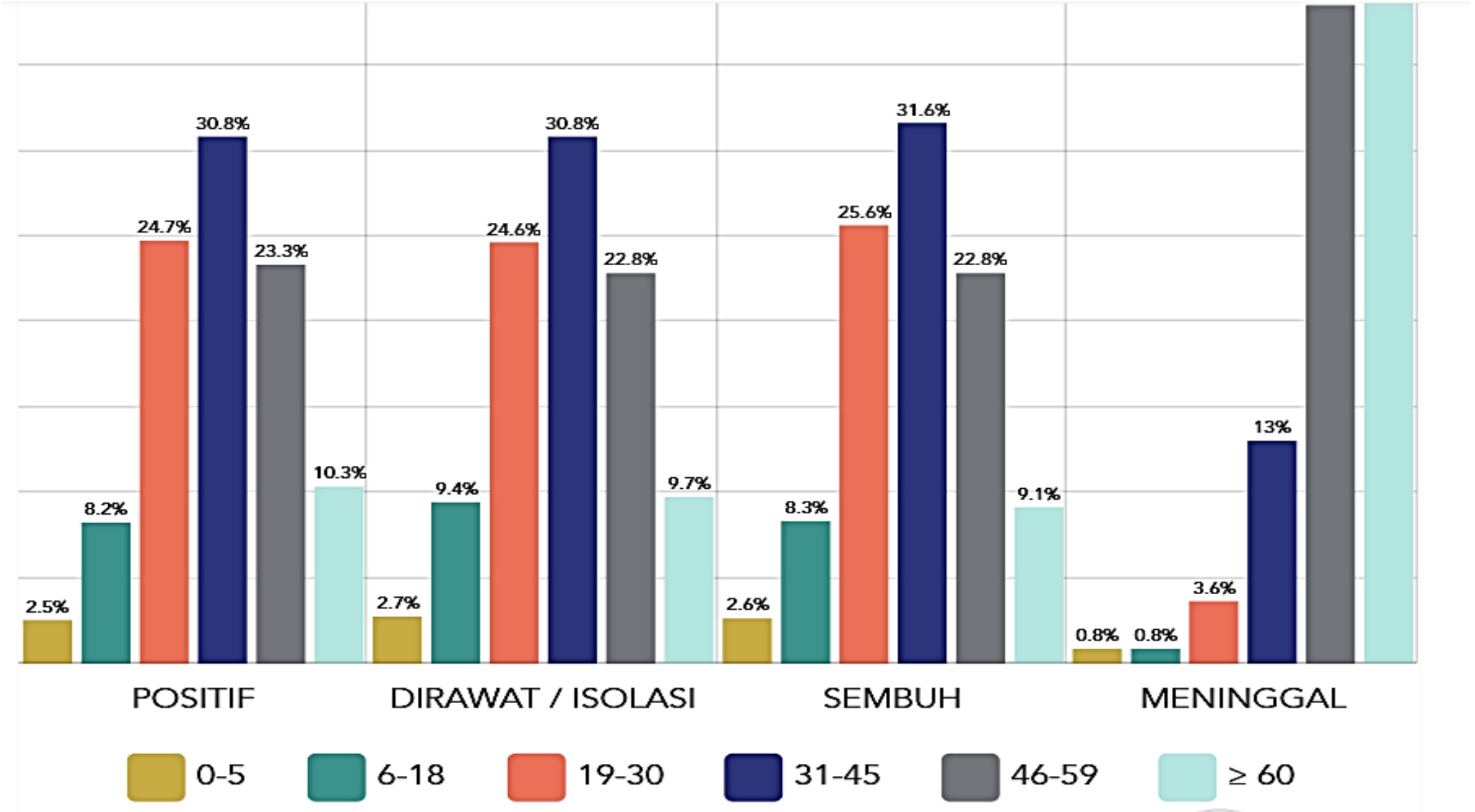
RISIKO KENAIKAN KASUS

- RISIKO TINGGI
- RISIKO SEDANG
- RISIKO RENDAH
- TIDAK ADA KASUS
- TIDAK TERDAMPAK

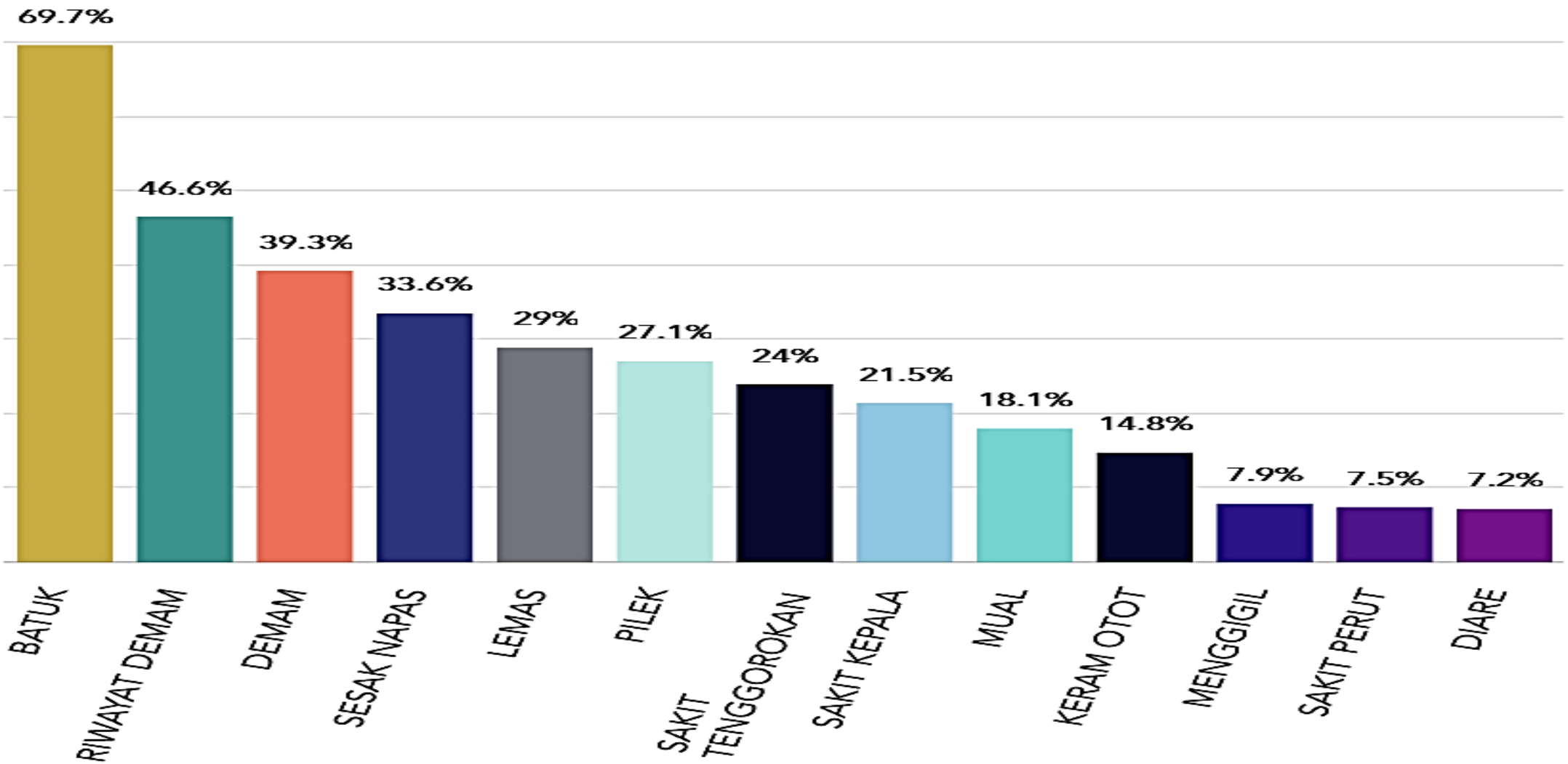
Jenis Kelamin



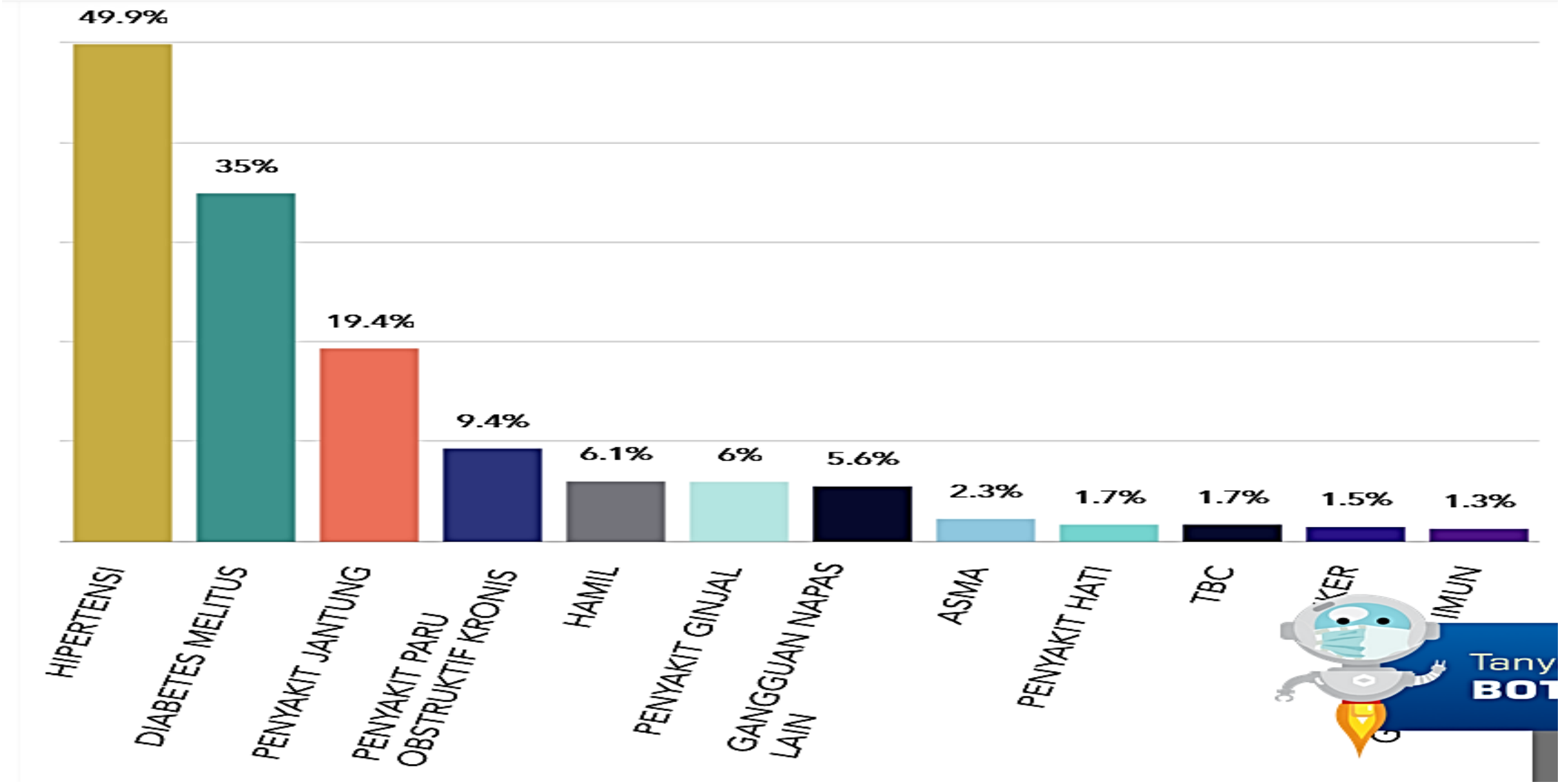
Kelompok Umur



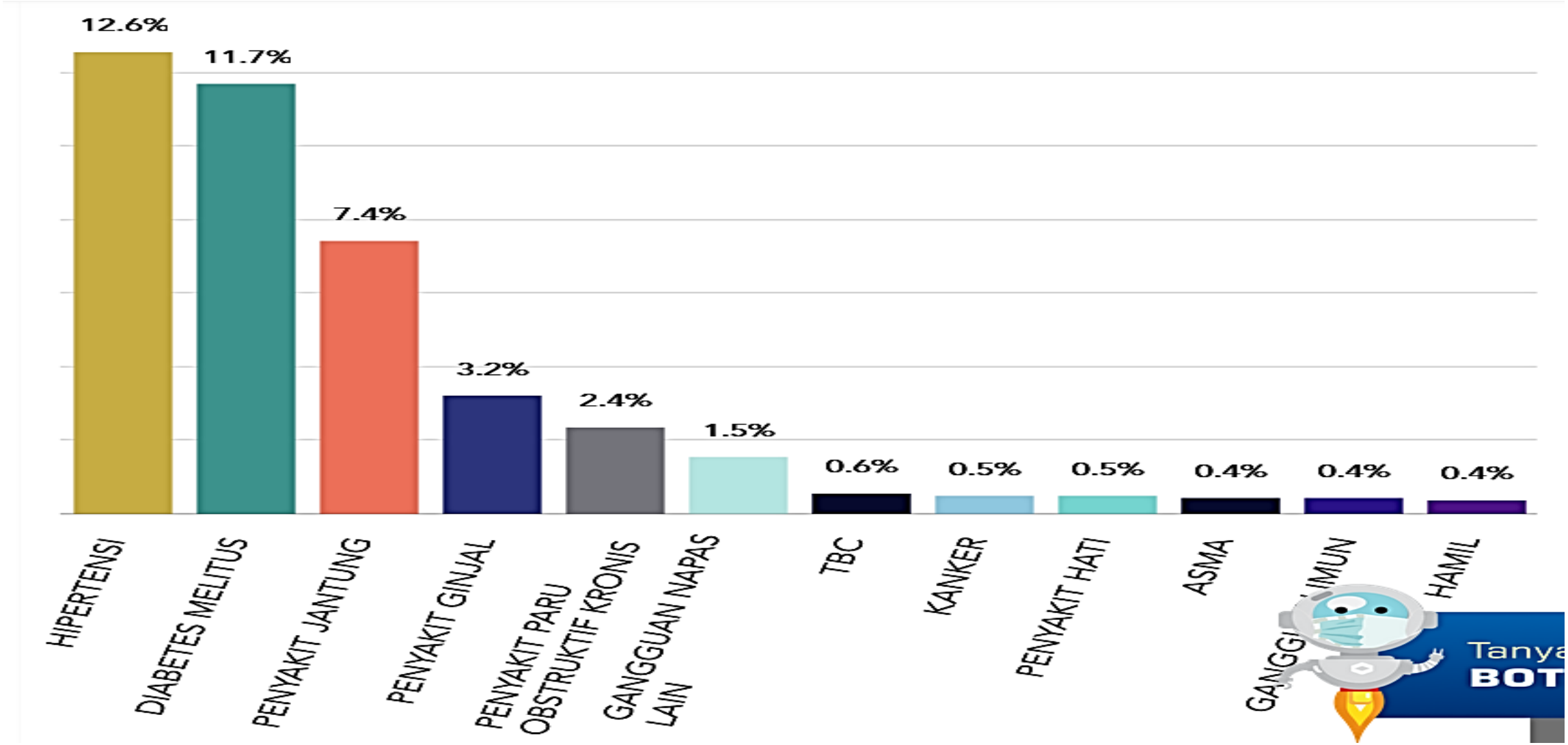
Gejala Positif Covid-19 (98,9 % Data tidak lengkap)



Kondisi Penyerta Positif Covid-19 (99,6 % Data tidak lengkap)



Meninggal dg kondisi Penyerta Positif Covid-19



- Program mengendalikan wabah

"trace, test and treat (jejak, tes, dan pengobatan)"

CARA PENULARAN PENYAKIT

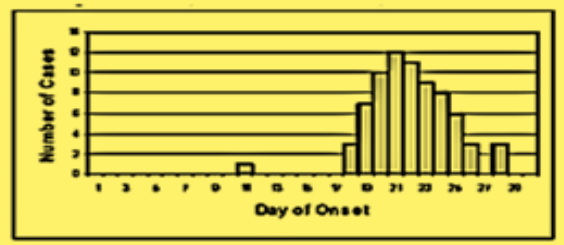
1. **Point source epidemic**,
   Pemaparan bersumber tunggal dan waktu yang singkat

2. **Continuous common source epidemic**:
   Periode pemaparan memanjang dengan kurve berpuncak tunggal & datar

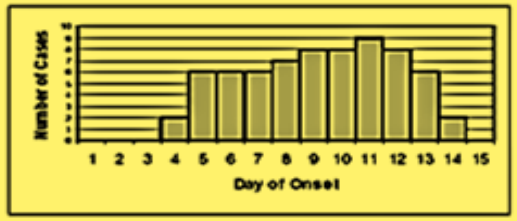
3. **Intermitent common source epidemic**:
   Lama pemaparan dan jumlah orang yang terpapar tak beraturan besarnya, Kurve bergerigi tak beraturan

4. **Propagated epidemic**:
   Penularan dari orang ke orang, berpuncak banyak, berjarak 1 masa Inkubasi

Example of an Epi Curve for a Point Source Outbreak

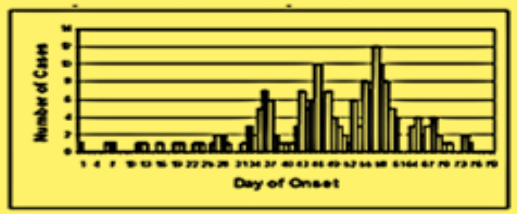


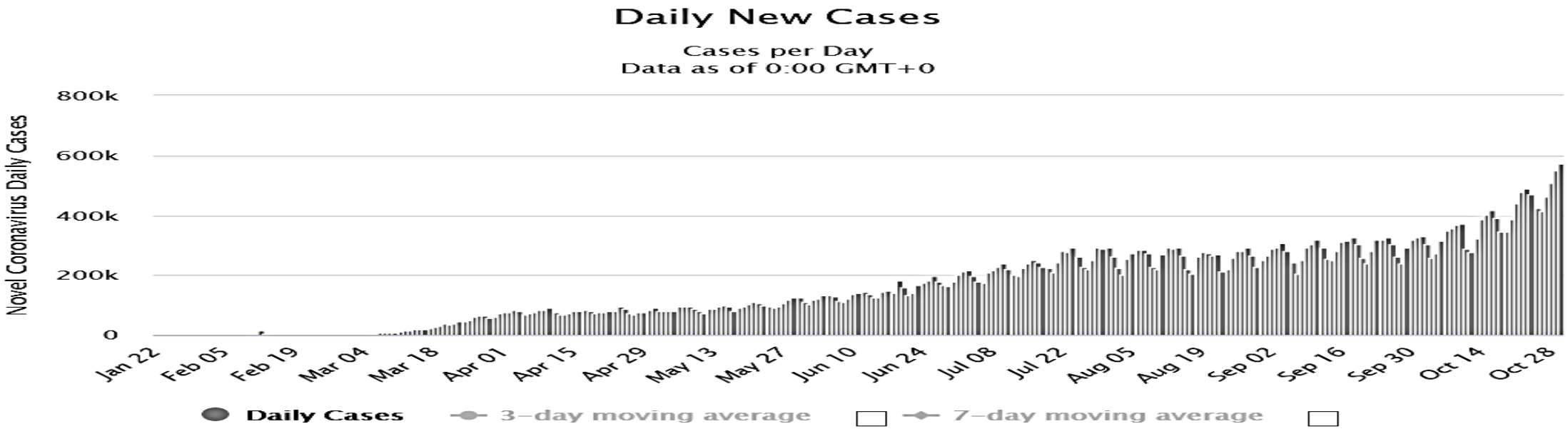
Example of an Epi Curve for a Common Source Outbreak with Continuous Exposure



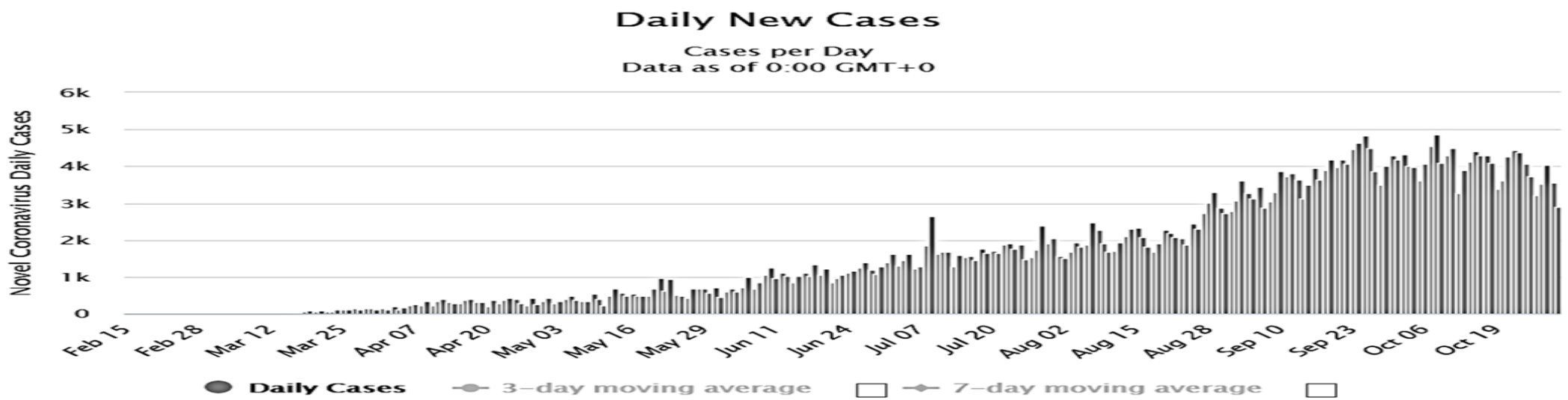
Example of an Epi Curve for a Common Source Outbreak with Intermittent Exposure

Example of an Epi Curve for a Propagated Outbreak





Daily New Cases in Indonesia



Public health criteria to adjust public health and social measures in the context of COVID-19

Annex to Considerations in adjusting public health and social measures in the context of COVID-19
12 May 2020

World Health Organization

Table 1. Epidemiological Criteria

Epidemiological Criteria*	Explanation
Decline of at least 50% over a 3-week period since the latest peak and continuous decline in the observed incidence of confirmed and probable cases °	This indicates a decline in transmission equivalent to a halving time of three weeks or less since the latest peak, when the testing strategy is maintained or strengthened to test a greater % of suspected cases.
Less than 5% of samples positive for COVID-19, at least for the last 2 weeks, ° assuming that surveillance for suspected cases is comprehensive	The % positive samples can be interpreted only with comprehensive surveillance and testing of suspect cases, in the order of 1/1000 population/week

Kurang dari 5% sampel positif COVID-19, minimal selama 2 pekan terakhir, ° dengan asumsi bahwa surveilans kasus suspek sudah komprehensif

Persentase sampel positif dapat diinterpretasikan hanya dengan surveilans dan tes terhadap kasus suspek yang komprehensif, dengan laju 1/1000 jumlah penduduk/pekan

Test = 51,44 %,

Sembuh=4,11 %(World=3,58 %)

Mati=3,38 (World=2,59 %)

	Negara	Total Kasus	Total Mati	Sembuh	Prosen Sembuh	Kasus per sejuta	Mati per sejuta	Prosen Mati	Total Test	Test32 Minggu	Test per sejuta	ProsenTest 32 Minggu	Populasi
1	USA	9.396.570	236042	6057201	3.90	28.333	712	2.51	144.077.557	10.612.738	434.429	1.357.59	331.648.064
2	India	8.182.881	122149	7489203	1.63	5.910	88	1.49	108.796.064	44.303.789	78.582	245.57	1384.493.422
3	Btasil	5.535.460	159883	4966264	3.22	25.981	750	2.89	21.900.000	6.817.953	102.787	321.21	213.061.062
4	Rusia	1.618.116	27990	1215414	2.30	11.086	192	1.73	60.400.000	4.670.573	413.825	1.293.20	145.955.407
5	Mexico	918.811	91289	673457	13.56	7.102	706	9.94	2.386.284	4.140.177	18.444	57.64	129.380.561
6	Indonesia	410.088	13869	337801	4.11	1.494	51	3.38	4.517.739	8.783.349	16.459	51.44	274.479.674
7	Banglades	407.684	5923	324145	1.83	2.467	36	1.45	2.336.262	5.287.429	14.139	44.19	165.232.159
8	Pilipina	380.729	7221	331046	2.18	3.459	66	1.90	4.784.960	3.521.967	43.475	135.86	110.061.476
9	Pakistan	332.993	6806	314066	2.17	1.498	31	2.04	4.431.225	7.113.395	19.934	62.29	222.293.606
10	Jepang	100.392	1755	92475	1.90	795	14	1.75	2.706.168	4.043.082	21.419	66.93	126.346.336
11	Etiopia	96.169	1469	52517	2.80	830	13	1.53	1.481.369	3.708.386	12.783	39.95	115.887.075
12	Cina	85.973	4634	80984	5.72	60	3	5.39	160.000.000	4.6058.360	111.163	347.39	1.439.323.776
13	Nigeria	62.691	1144	58430	1.96	302	6	1.82	620.758	6.649.486	2.987	9.34	207.796.448
14	Irak	107.376	6258	99353	6.30	1.043	61	5.83	135.000	3 294 894	1.311	4.10	102.965.454
	World	46461696	1201232	33540246	3.58			2.59					

DATA COVID-19 SAMPAI TANGGAL 1 NOPEMBER 2020 (SUMBER : https://www.worldometers.info/coronavirus/#countries

ABOUT THE AUTHORS

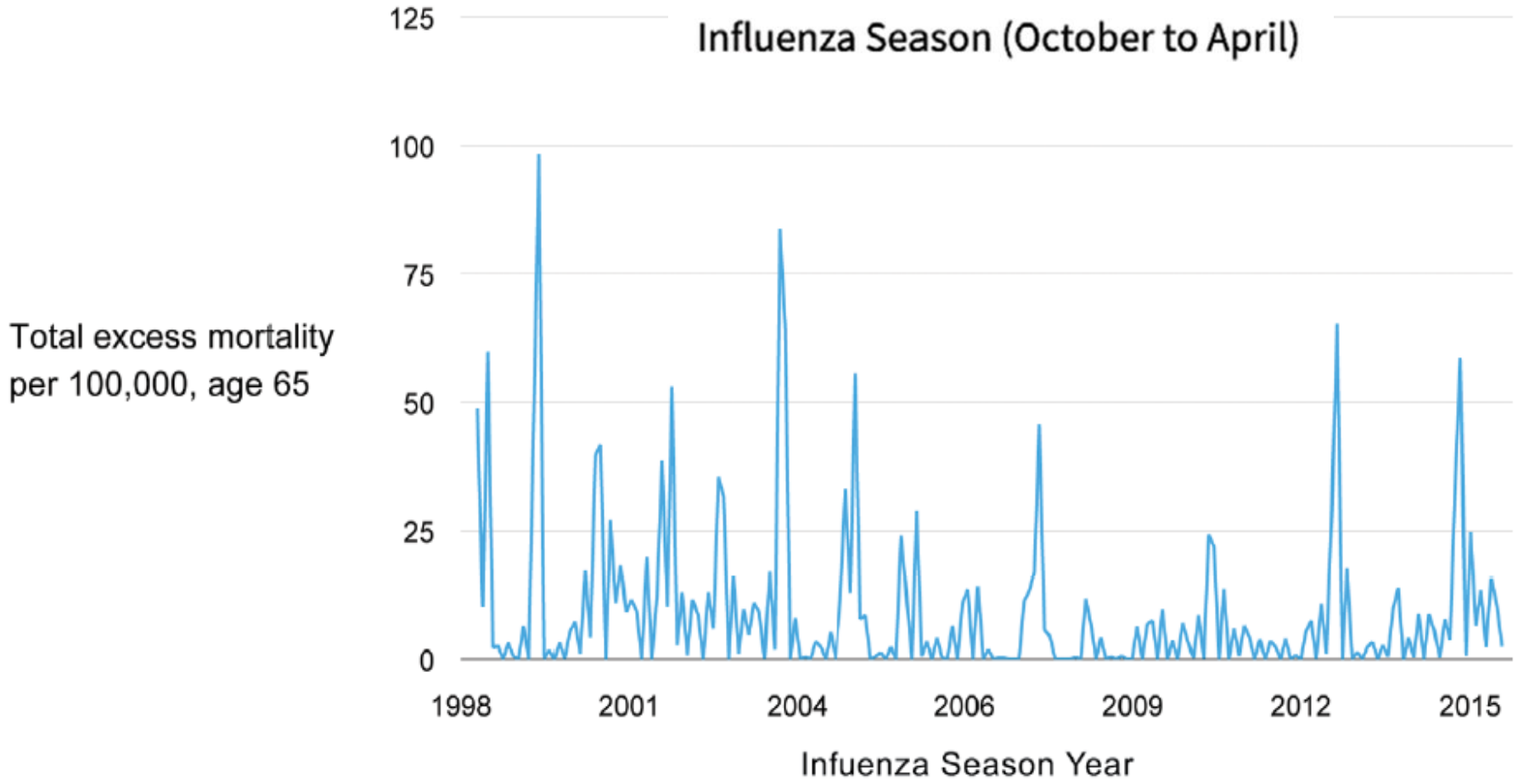
Hezhong (Mark) Ma, FSA, MAAA
hma@rgare.com

Hezhong (Mark) Ma is a Vice President and Actuary with RGA Reinsurance Company, and a member of RGA's U.S. Mortality Markets team. He is responsible for experience and data analytics as well as general mortality research. Prior to joining RGA, Mark was with Willis Towers Watson, where he provided consulting services to life and health insurance companies. Mark has published several articles in actuarial newsletters and speaks frequently at industry meetings.

Kamran M. Khan, M.D., M.P.H., FRCPC
Kamran@Bluedot.global

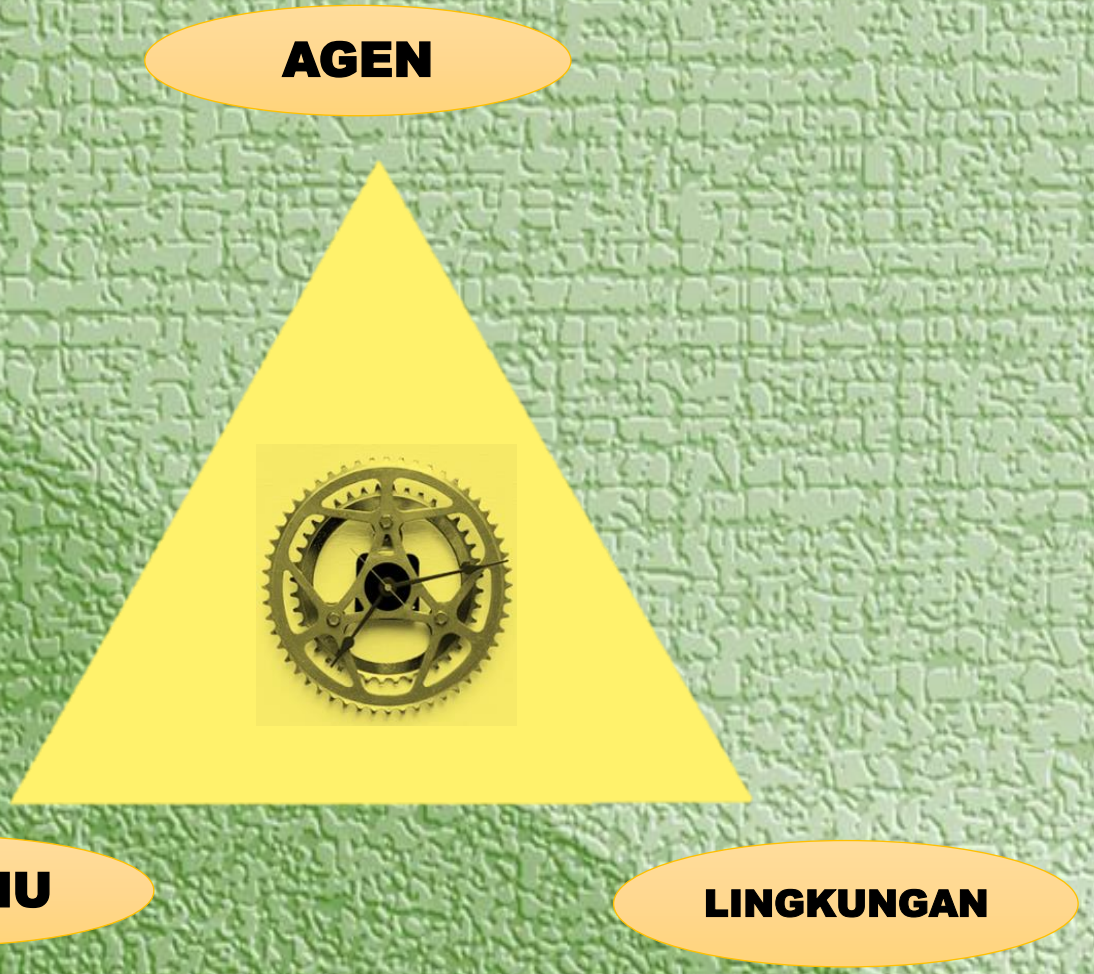
Dr. Kamran M. Khan is a practicing infectious disease physician and scientist. He is also the founder of BlueDot, a Toronto, Canada-based company that studies how infectious diseases disperse worldwide. Dr. Khan's M.D. degree is from the University of Toronto, and his Masters in Public Health is from Columbia University in the City of New York. He is a Fellow of the Royal College of Physicians and Surgeons of Canada.

Figure 1: Total observed excess mortality rates by month, age 65 and over, 1999-2000 to 2014-2015



PROSES TERJADINYA PENYAKIT

SEGITIGA EPIDEMIOLOGI



PENGELOLAAN

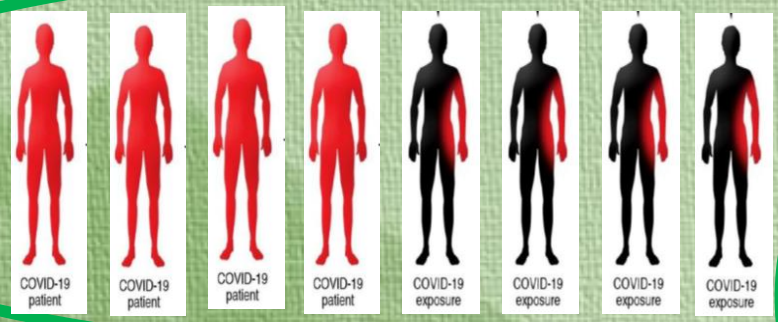
PROSES wabah

1. Terjadi perubahan kualitas lingkungan
   - Transmisi penyakit berjalan cepat
   - Masyarakat terpapar sekaligus dlm jumlah banyak
   - Kepadatan penduduk
2. Ada agent baru, shg semua orang sangat peka
3. Kepekaan host berubah

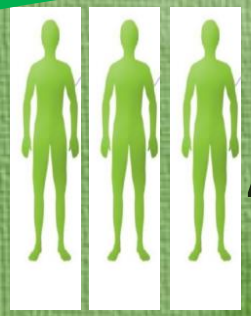
SYARAT wabah

1. Agent dapat keluar dari reservoir (portal of exit)
2. Agent dpt bertahan di dalam lingkungan untuk beberapa waktu
3. Ada media yang membawa ke host lain

DIOBATI



Disiplin memakai masker, Jaga jarak, kontak minimal sepanjang waktu



4. Agent dapat memasuki host (portal of entry)

- PERILAKU PENCEGAHAN PENYAKIT

TEORI HEALTH BELIEF MODEL

MATURNUWUN