



UNIVERSITI PUTRA MALAYSIA
AGRICULTURE • INNOVATION • LIFE

Program Bulan Pendidik UPM 2021

COVID-19: From Disruption to Innovation



Zamberi Sekawi

October 2021

Disclaimer

- I am **not an expert in education** or **IT**
- I am a **clinical microbiologist** focusing in **virology**
- I am a (temporary) **administrator/ leader**



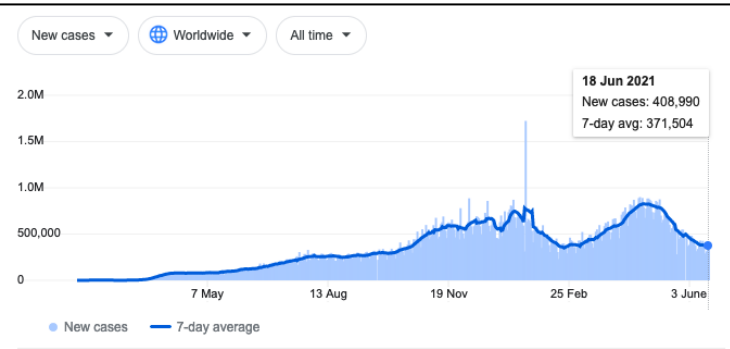
NASIONAL

Terus patuh SOP elak dijangkiti varian Delta

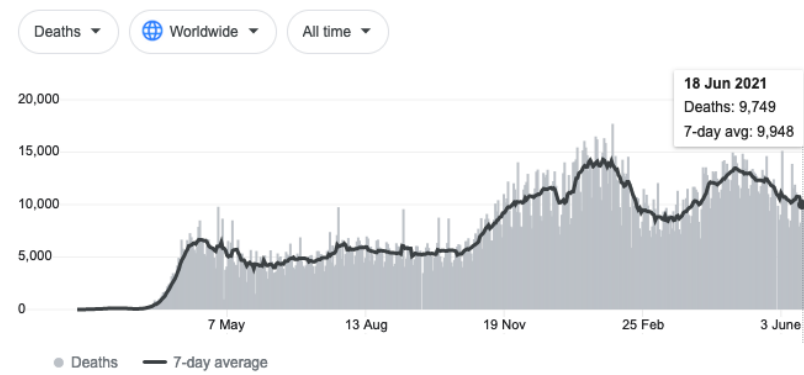
Oleh Tuty Haryanti Ahmad Rodzi
Ogos 22, 2021 @ 10:30pm
bhnews@bh.com.my



COVID-19 Global statistic

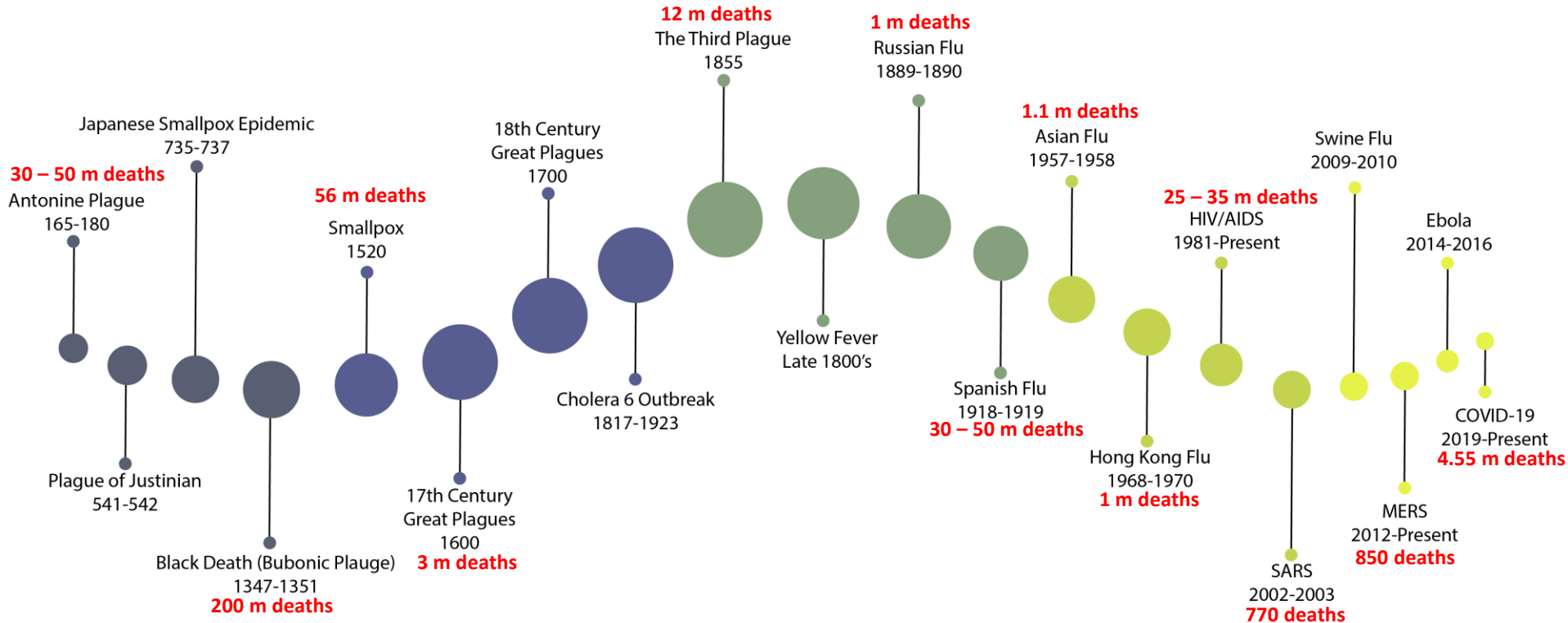


219 million cases
4.55 million deaths
CFR 2.08%



Coronavirus (COVID-19)

Pandemics in history





MYSTERY VIRUS SPREADS IN WUHAN, CHINA



CHINA IDENTIFIES VIRUS IN WUHAN OUTBREAK

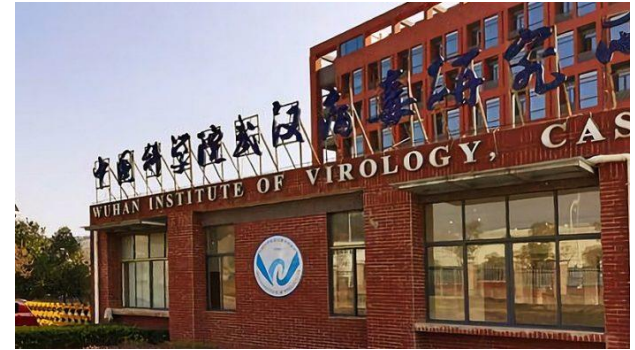
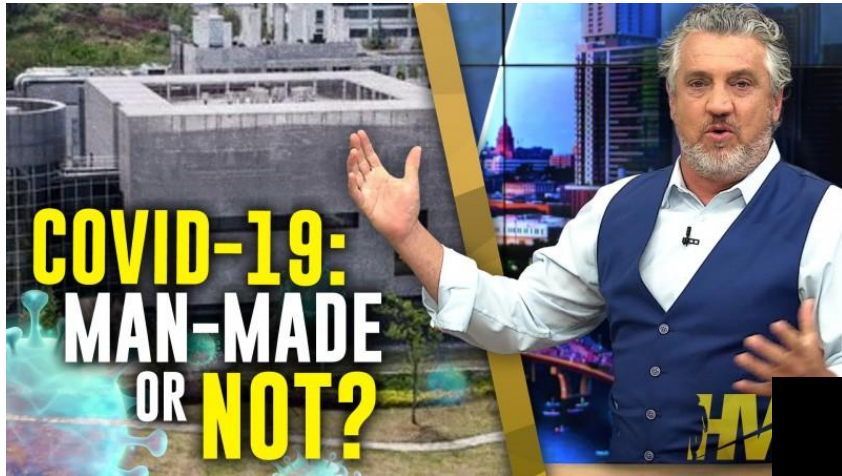
Virus: flights from Wuhan, China

More than 2,300 flights planned from January 20-27

- Domestic flights (2,105)
- International (231)



The proximal origin of SARS-CoV-2



Is pangolin the intermediate host?



Is the origin from bats?



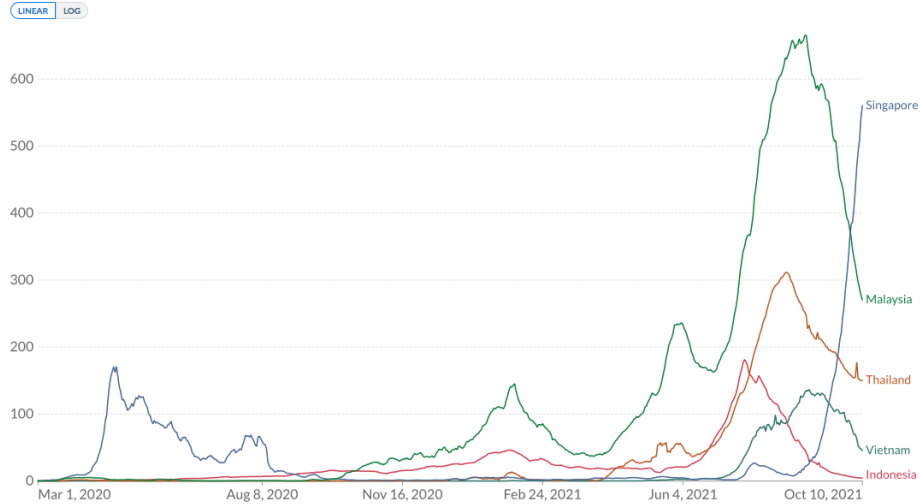
1. SPILLOVER THEORY?
2. LAB LEAK THEORY?

COVID-19 Malaysian statistics

Daily new confirmed COVID-19 cases per million people

Shown is the rolling 7-day average. The number of confirmed cases is lower than the number of actual cases; the main reason for that is limited testing.

Our World in Data

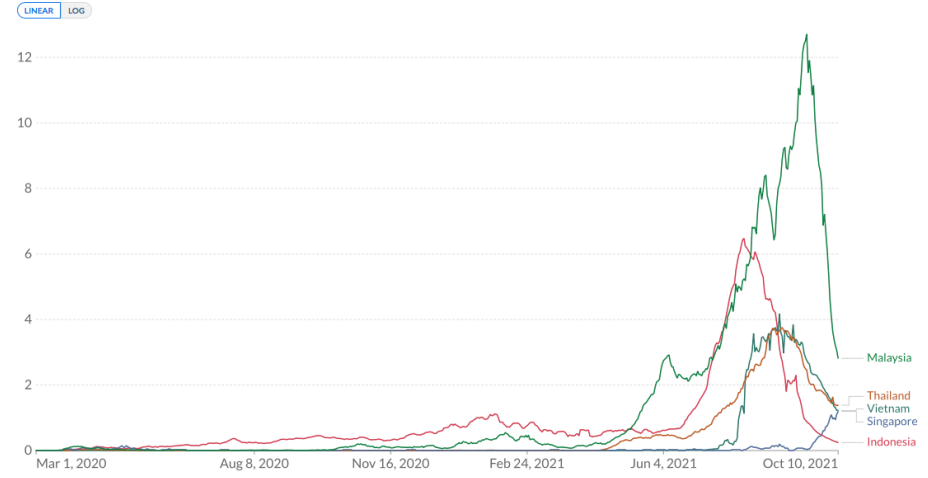


CC BY

Daily new confirmed COVID-19 deaths per million people

Shown is the rolling 7-day average. Limited testing and challenges in the attribution of the cause of death means that the number of confirmed deaths may not be an accurate count of the true number of deaths from COVID-19.

Our World in Data



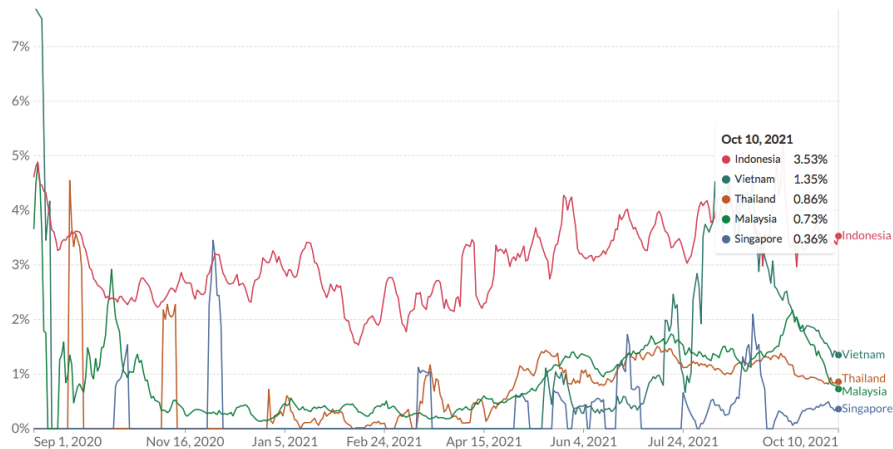
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COVID-19 Malaysian statistics

Moving-average case fatality rate of COVID-19

The case fatality rate (CFR) is the ratio between confirmed deaths and confirmed cases. Our moving-average CFR is calculated as the ratio between the 7-day-average of the number of deaths and the 7-day-average of the number of cases 10 days earlier.

LINEAR LOG



Source: Johns Hopkins University CSSE COVID-19 Data

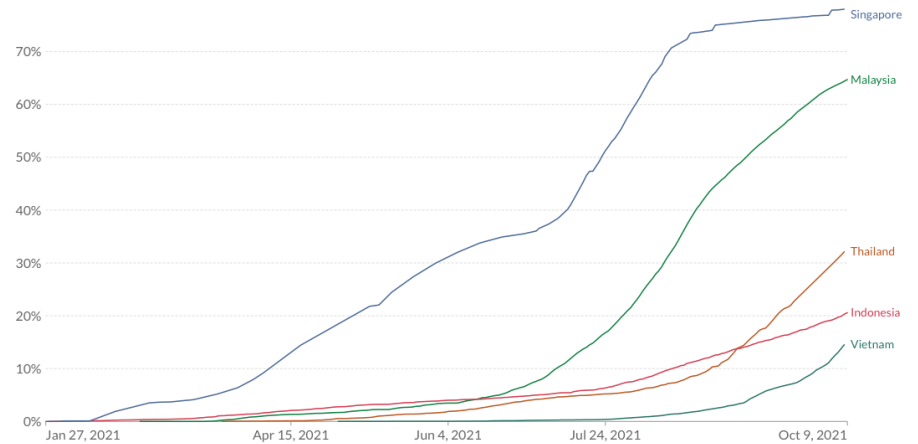
Our World In Data

Share of the population fully vaccinated against COVID-19

Total number of people who received all doses prescribed by the vaccination protocol, divided by the total population of the country.

Our World In Data

LINEAR LOG



CC BY

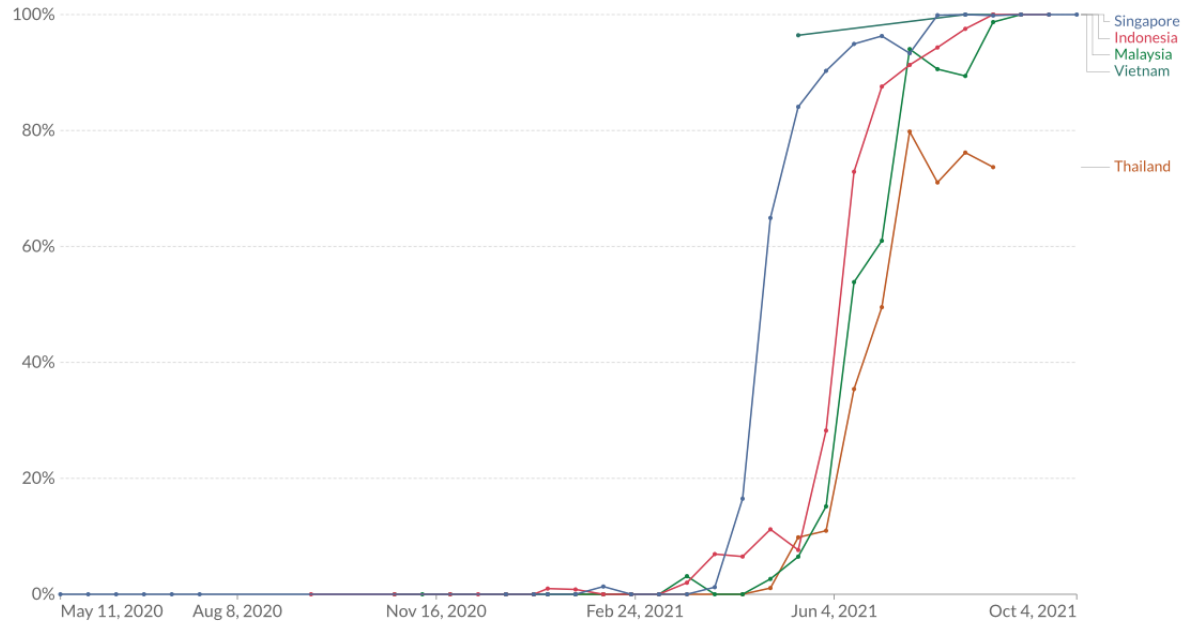


COVID-19 Malaysian statistics

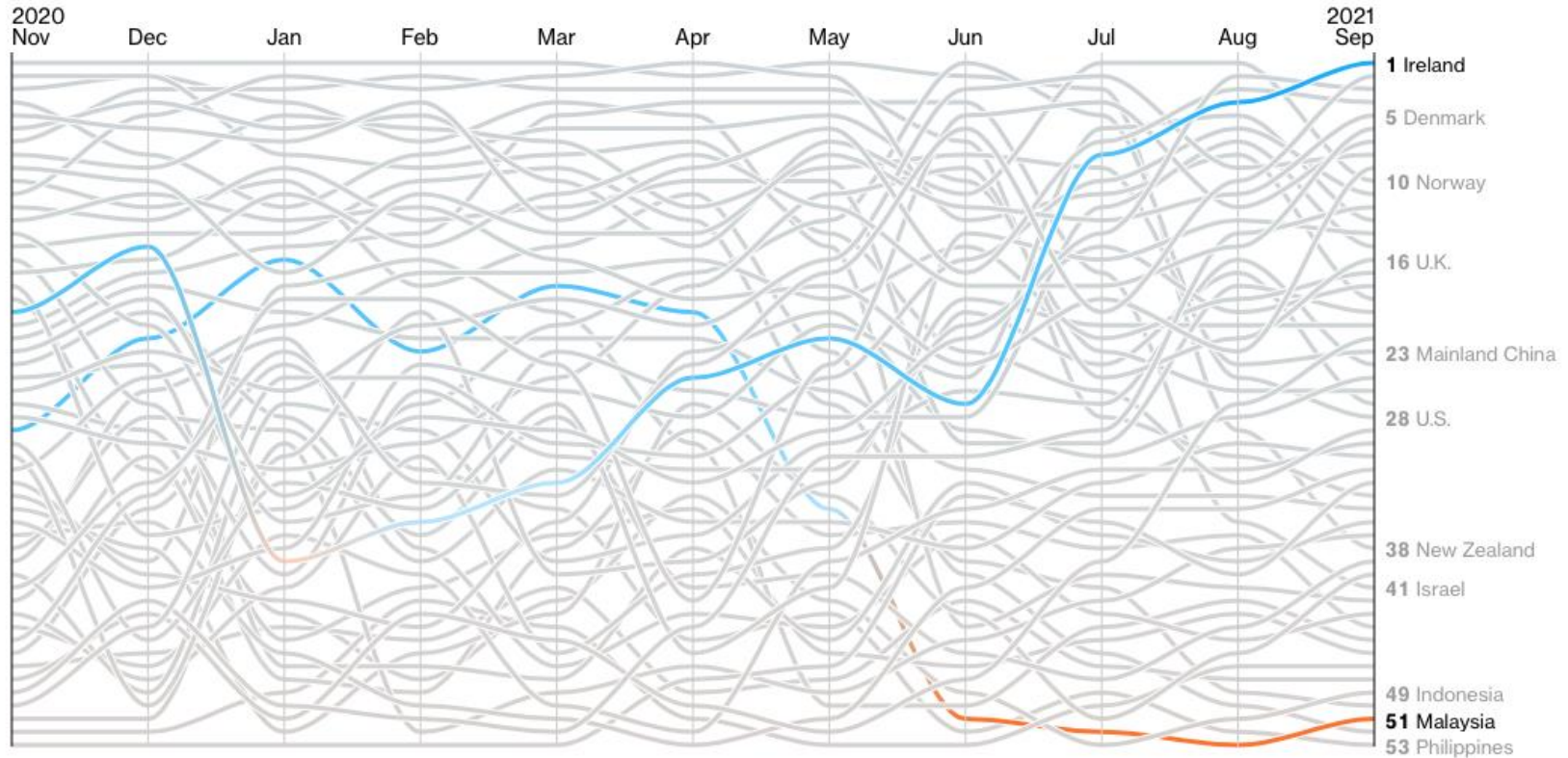
Share of SARS-CoV-2 sequences that are the delta variant

Shown is the delta variant's share of total analyzed sequences in the last two weeks. This share may not reflect the complete breakdown of cases, since only a fraction of all cases are sequenced.

Our World
in Data



Bloomberg's COVID-19 Resilience Ranking



Bloomberg's COVID-19 Resilience Ranking

RANK	CHANGE	ECONOMY	BLOOMBERG RESILIENCE SCORE	PEOPLE COVERED BY VACCINES	LOCKDOWN SEVERITY	FLIGHT CAPACITY	VACCINATED TRAVEL ROUTES
1	▲3	Ireland	79.4	72.5%	44	-48.7%	392.5
2	▲8	Spain	78.2	75%	42	-27.6%	392.5
3	▼1	Netherlands	76.4	68%	42	-34.5%	395
4	▼1	Finland	76.1	67.9%	37	-66.1%	394.5
5	▲6	Denmark	75.3	75.8%	24	-43%	204.5
6	▲9	U.A.E.	74.7	92.3%	39	-47.4%	381
7	▲5	France	73.9	72.4%	67	-38.2%	394
8	▲1	Switzerland	73.8	60.1%	44	-44.5%	394.5
9	▲14	Canada	73.8	74.3%	68	-44%	395.5
10	▼9	Norway	73.6	72.1%	39	-32.2%	187
11	▼5	Belgium	73.5	72.3%	43	-34.4%	305
12	▲2	Czech Republic	72.6	55.3%	32	-56%	395.5
13	▼8	Austria	71.8	60.9%	60	-39.6%	389.5
14	▼1	Turkey	71.8	64.7%	64	-15.7%	381.5
15	▼8	Germany	71.5	64.3%	56	-47.6%	395
16	▲6	U.K.	71.1	69.9%	41	-48.4%	332.5
17	▲2	Saudi Arabia	71	60.9%	56	-29.2%	386
18	▲2	Sweden	70.1	65.9%	37	-51.2%	192.5
19	▼11	Singapore	70	80.8%	50	-81.4%	159
20	▼2	Hong Kong	69.8	56.8%	59	-82.2%	262

40	▲6	South Africa	59.1	16.1%	45	-48.4%	359
41	▼5	Israel	57.7	82.2%	56	-57.3%	154.5
42	▼1	Taiwan	56.5	30%	40	-84.9%	154
43	▲2	Iraq	56.3	9.5%	76	-26.9%	363
44	▼7	Nigeria	56.3	1.6%	47	8.5%	260.5
45	▼3	India	56.2	31.3%	71	-24.4%	123
46	▼3	Pakistan	56.1	18.6%	55	-58.9%	360.5
47	-	Argentina	55.5	56.3%	76	-62.2%	136
48	-	Iran	54	26%	70	-18.9%	272
49	▲2	Indonesia	52.4	25.2%	69	-53.8%	255
50	▼1	Thailand	47.6	33.1%	55	-81.2%	219
51	▲2	Malaysia	44.1	64.6%	81	-86%	144
52	▼2	Vietnam	43.7	19.1%	73	-79.9%	144.5
53	▼1	Philippines	40.2	20.1%	75	-73.9%	139

COVIDNOW in Malaysia

The official Malaysia government website for data and insights on COVID-19.

Last updated: 11 Oct 2021, 4:45 pm



Vaccinations

Population Vaccinated

Data for Malaysia

Daily - Administered

+129,518

Daily - Partially Vaccinated

+31,932

Daily - Fully Vaccinated

+97,586

Total - Administered

45,650,714

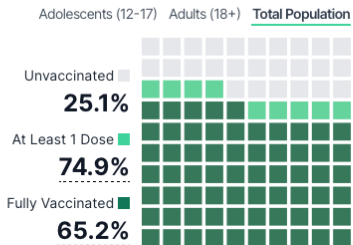
Total - At Least 1 Dose

24,457,378

Total - Fully Vaccinated

21,305,196

Data as of 10 Oct 2021, 11:59 pm



Healthcare

Data as of 10 Oct 2021, 11:59 pm

Utilisation

Data for Malaysia

Ventilators

42.5%

ICUs

61.6%

Hospital Beds

67.7%

PKRC

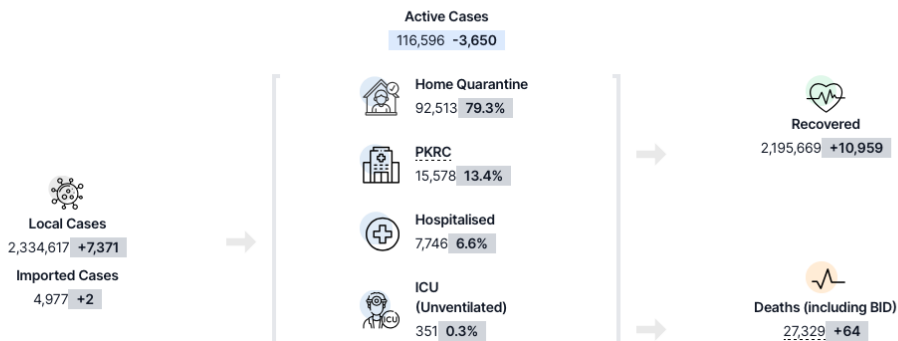
51.3%

Cases

Active COVID-19 Cases

Data for Malaysia

Data as of 10 Oct 2021, 11:59 pm

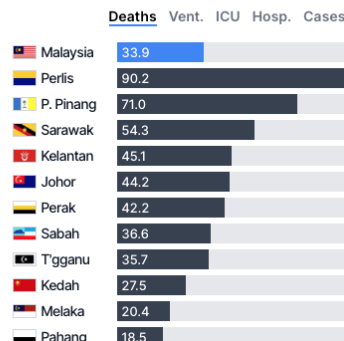


Deaths

Data as of 10 Oct 2021, 11:59 pm

Deaths per 1M People

Data for past 2 weeks



How long is the pandemic?

What's the difference between an endemic, epidemic and pandemic disease?



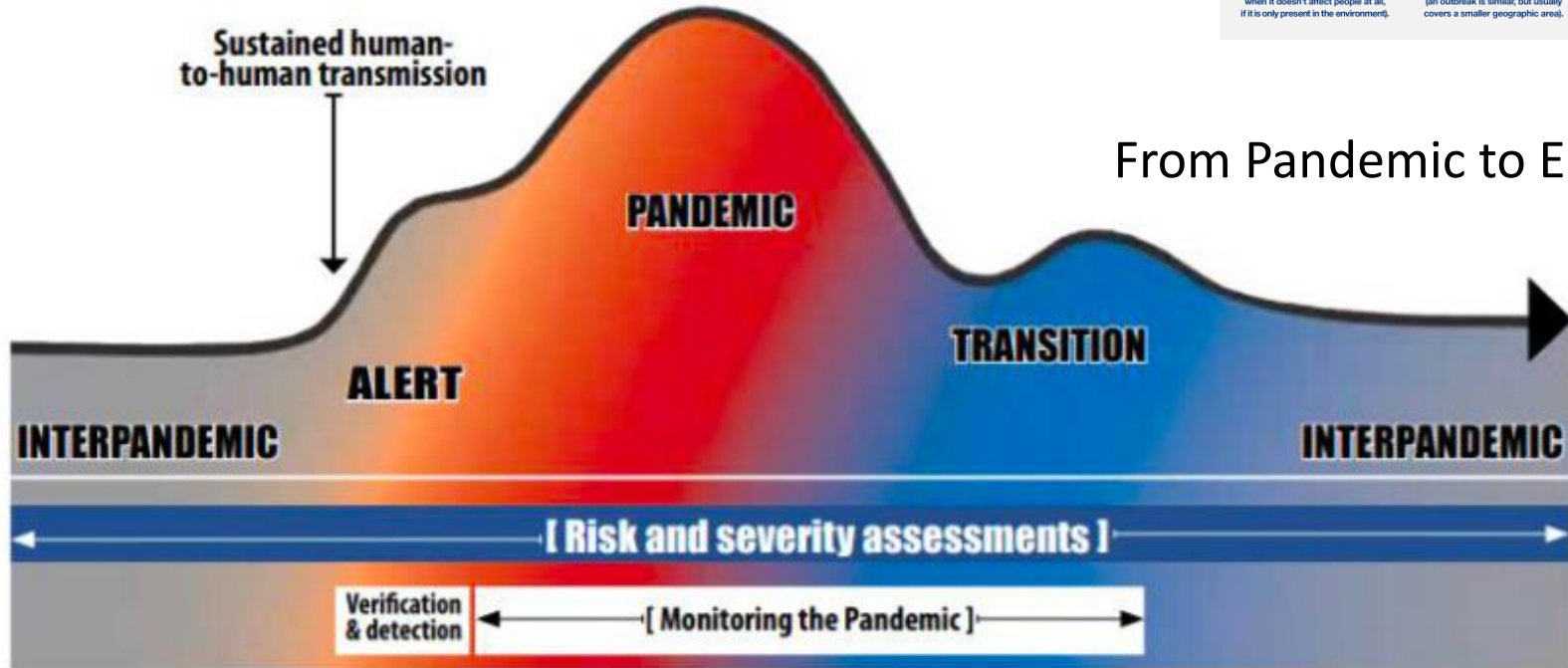
ENDEMIC DISEASE
is constantly present in a certain population or region, with relatively low spread or there may be periods when it doesn't affect people at all, if it is only present in the environment.



EPIDEMIC DISEASE
is when there is a sudden increase in cases spreading through a large population like a country (an outbreak is similar, but usually covers a smaller geographic area).



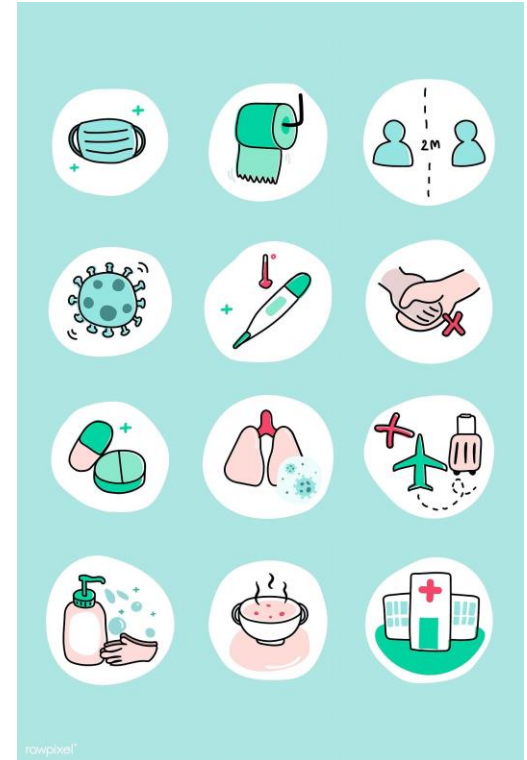
PANDEMIC DISEASE
is when there is a sudden increase in cases spreading through several countries, continents, or the whole world.



From Pandemic to Endemic

What I learnt from the pandemic?

- It is **not another bad flu**
- Everything is **unpredictable**
 - Signs and symptoms involving multi-organs
 - Long covid
 - Autoimmune
 - Durability of vaccines
 - “Fast” evolution of variants.
- We are in for a **long haul**



INAUGURAL LECTURE SERIES

Professor Dr.
Zamberi Sekawi



LIVING DANGEROUSLY
IN A VIRUS WORLD

ARE WE AT THE
LOSING END?

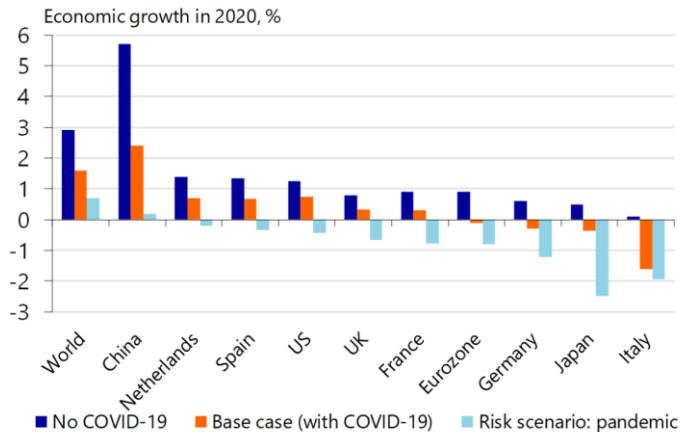


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Living dangerously in a **virus world**: Are we at the losing end?

20 April 2018





Everyone is affected!

Covid-19 impacts all aspects of society

Education

50%
of students still affected by school closures*

Climate

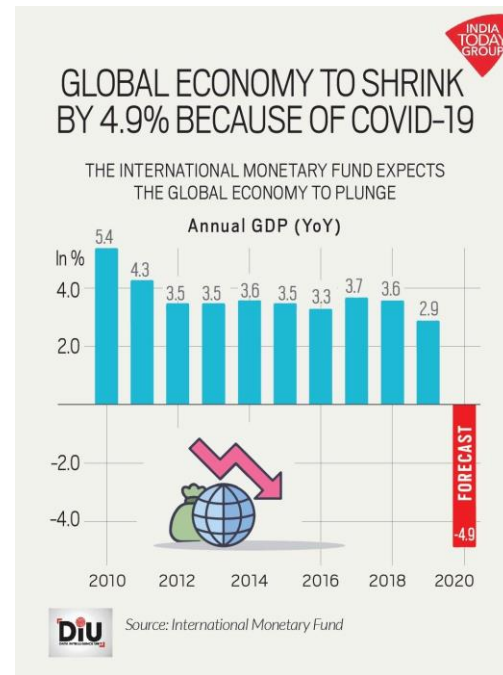
-30%
investment in clean energy transition

Poverty

+135m
people pushed into poverty by 2030

*one year into the pandemic

Source: ACT-Accelerator, data from market intelligence and the United Nations: <https://www.who.int/publications/m/item/act-accelerator-plan-and-investment-opportunity-presentation>
UNESCO: <https://en.unesco.org/covid19/educationresponse>



Lives vs livelihoods

**THE IMPACT OF COVID-19 ON
HIGHER EDUCATION AROUND THE WORLD**

IAU Global Survey Report

Giorgio Marinoni, Hilligje van't Land, Trine Jensen



Fig. 2: HEIs in WHED - 4 regions

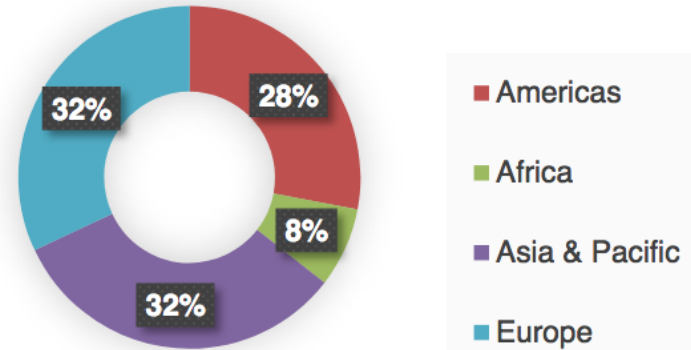
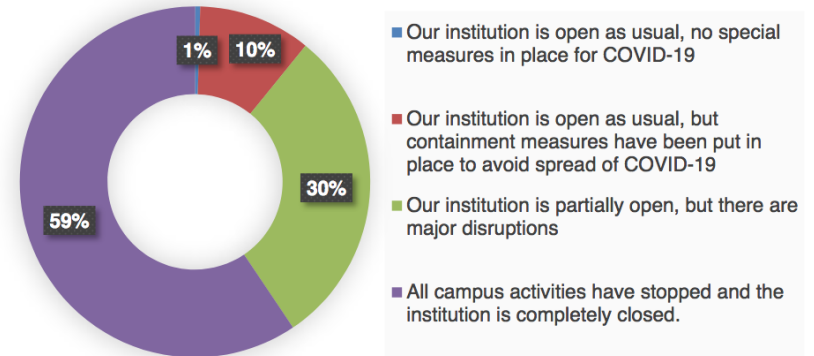


Fig. 5: How has COVID-19 pandemic affected your institution?



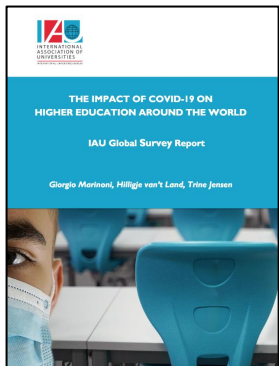


Fig. 7: Do you believe COVID-19 will affect enrollment numbers for the new academic year?

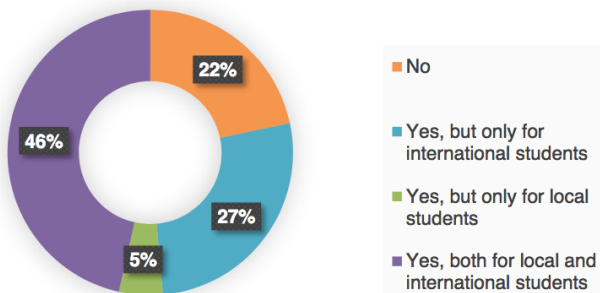


Fig. 13: How has COVID-19 affected teaching and learning?

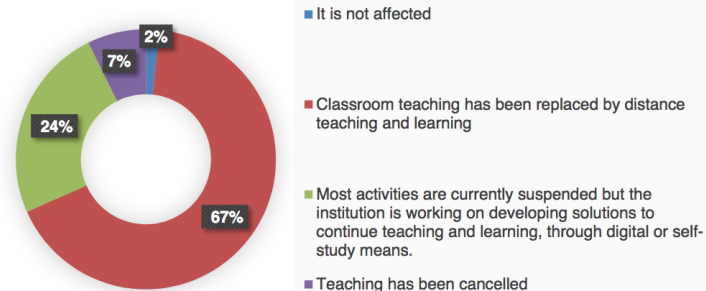


Fig. 6: Do you have infrastructure in place to easily communicate with students (and staff) for updates and information?

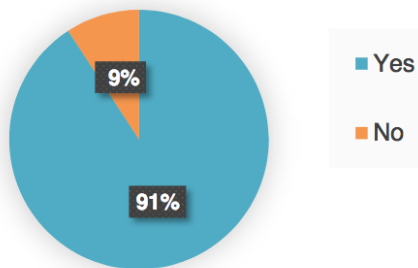


Fig. 24: How has COVID-19 impacted on your community engagement?

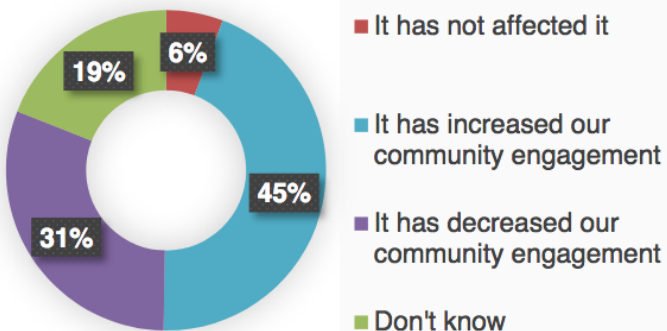
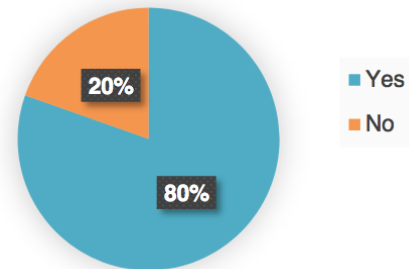


Fig. 20: Has COVID-19 affected research at your institution?



Article
Exploring the Impact of the COVID-19 Pandemic on University Students' Learning Life: An Integrated Conceptual Motivational Model for Sustainable and Healthy Online Learning

Nabil Hasan Al-Kumaim ^{1,*}, Abdulsalam K. Alhazmi ², Fathey Mohammed ³, Nadhmi A. Gazem ⁴, Muhammad Salman Shabbir ⁵ and Yousef Fazea ⁶

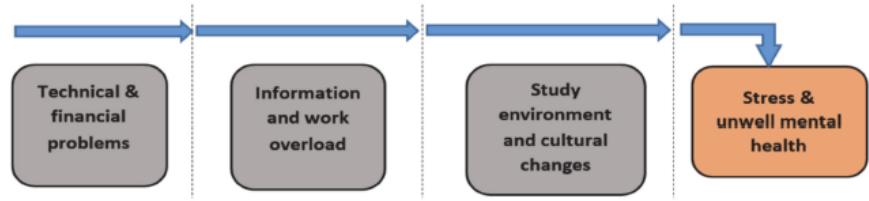
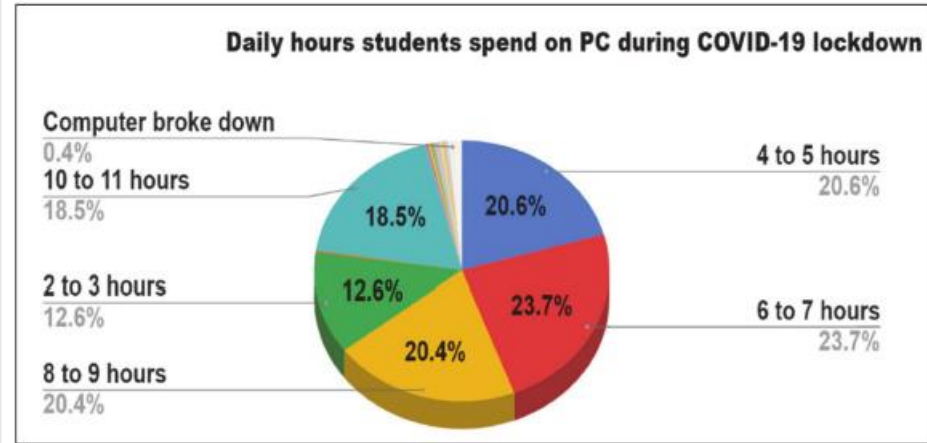
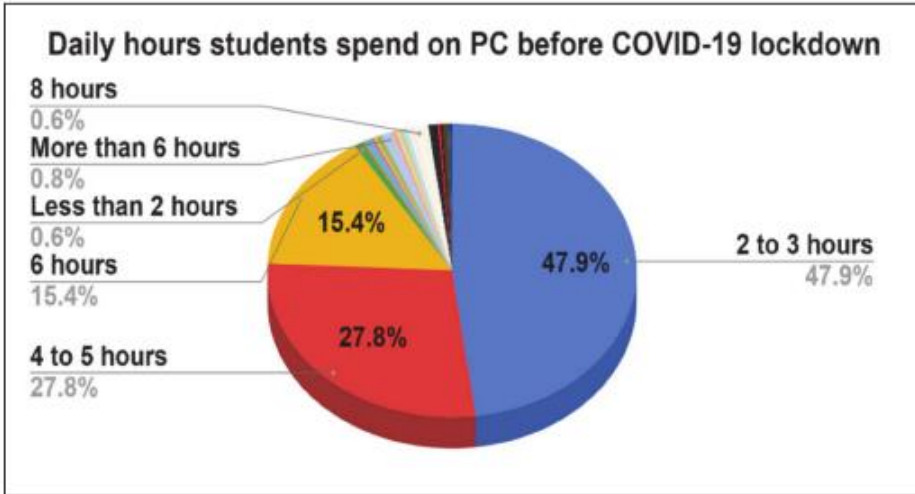


Figure 1. Summary of challenges due to the COVID-19 pandemic on university students.



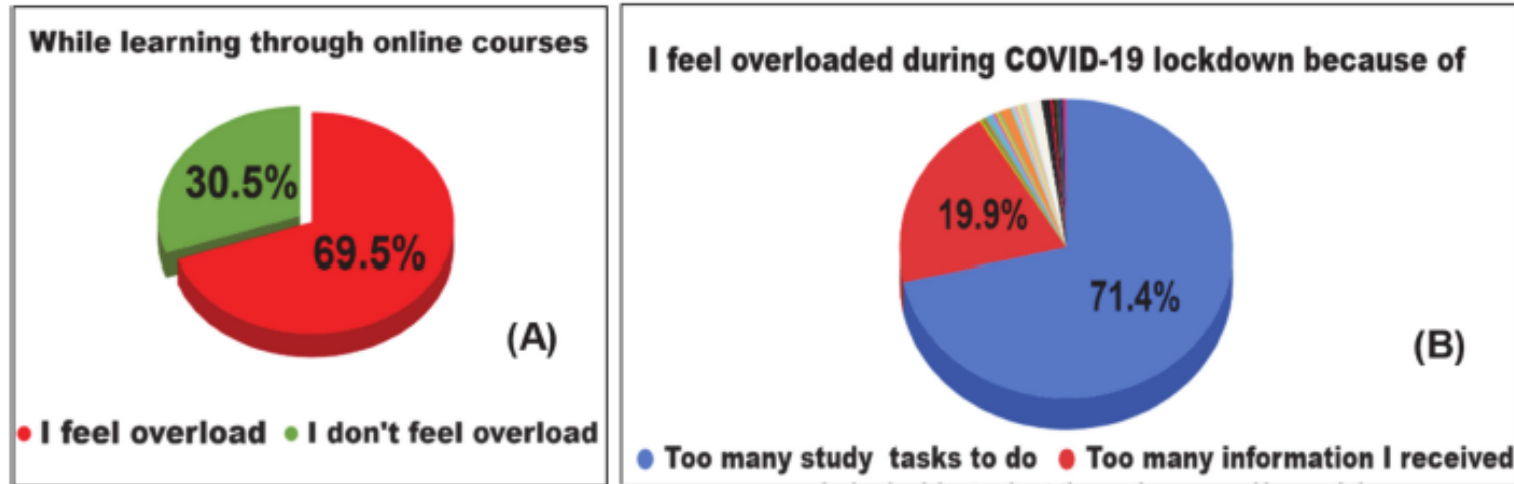


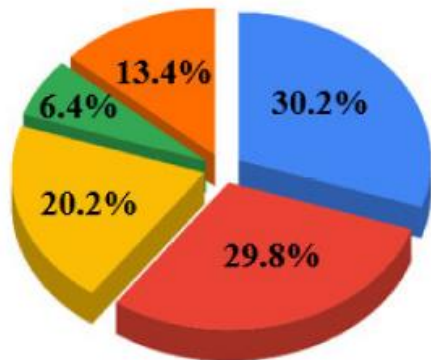
Figure 2. Students overload feeling and causes during online courses. A: Students' overload feeling; B: Causes of information overload during online courses.

Article

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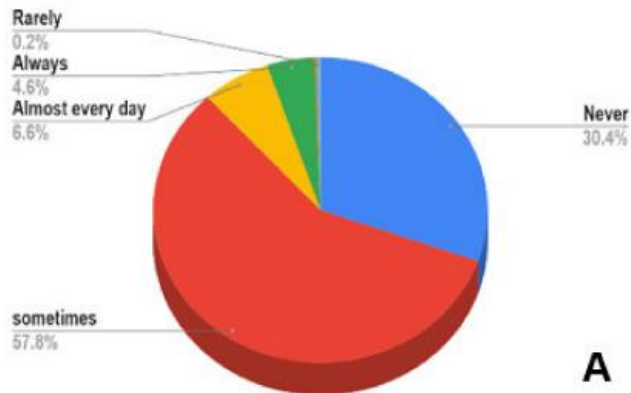
During COVID-19 lockdown, I got angry and I lose my temper easily



C

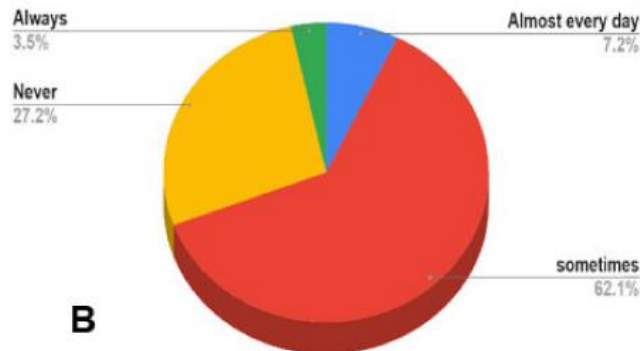
● Sometimes (30% - 40%) of my time
 ● rarely (10% - 20%) of my time
● often (50% - 70%) of my time
 ● Always (80% - 90%) of my time
 ● Never

During COVID-19 lockdown, I picture some future misfortune



A

During COVID-19 lockdown, I'm unable to control my stress

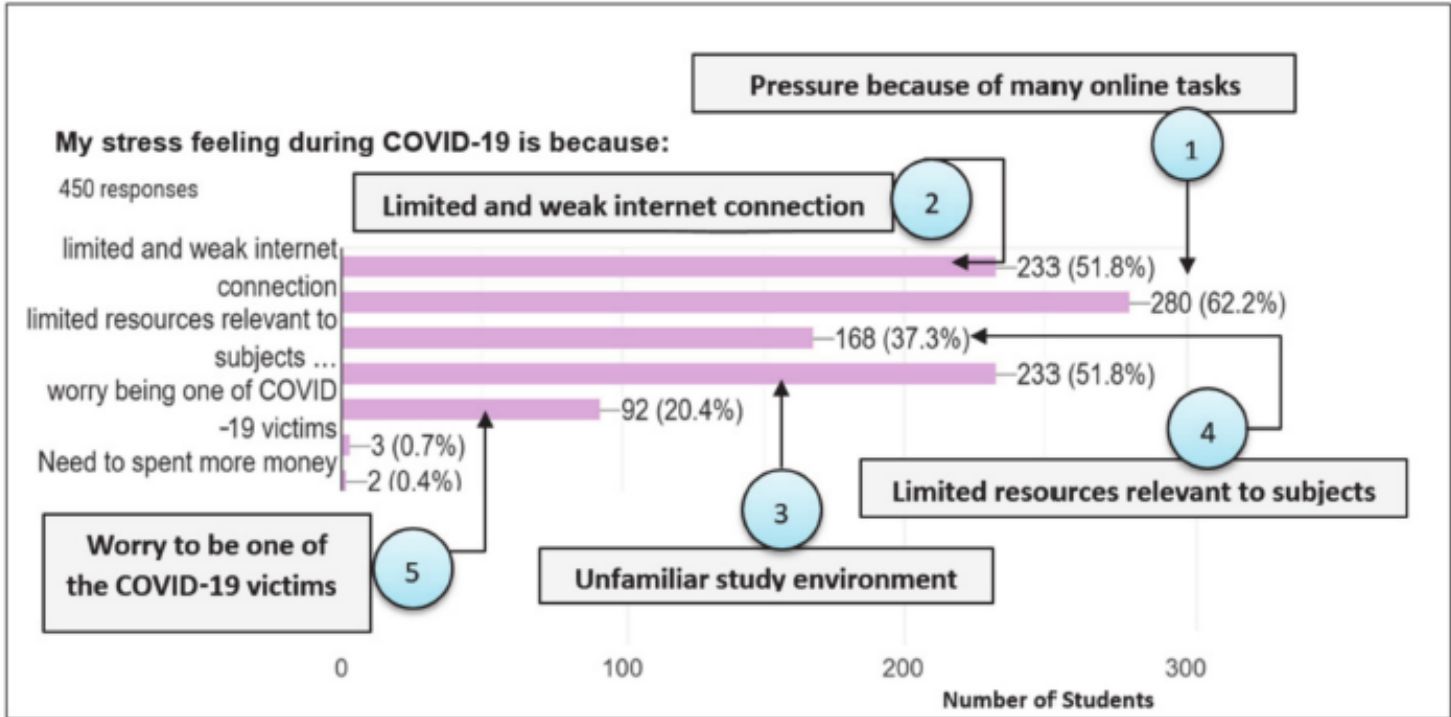


B

Article

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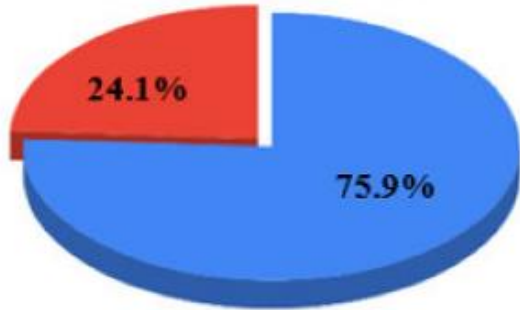


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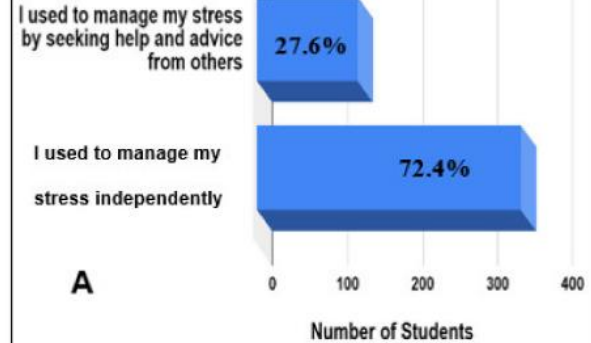
Students' responses of being motivated by university during COVID-19 lockdown



- I receive motivation programs and support from my University
- I never receive motivation and support from my University

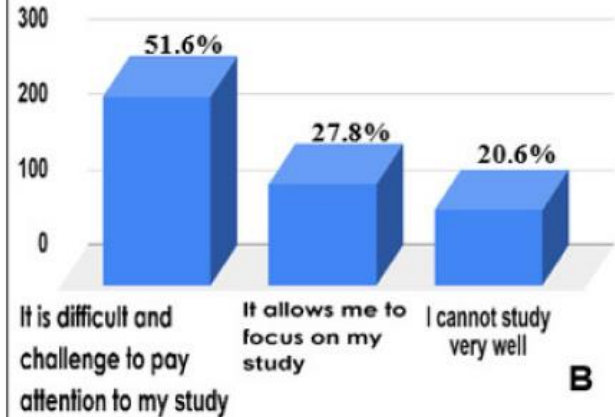
C

Students' responses on managing stress during COVID-19 lockdown



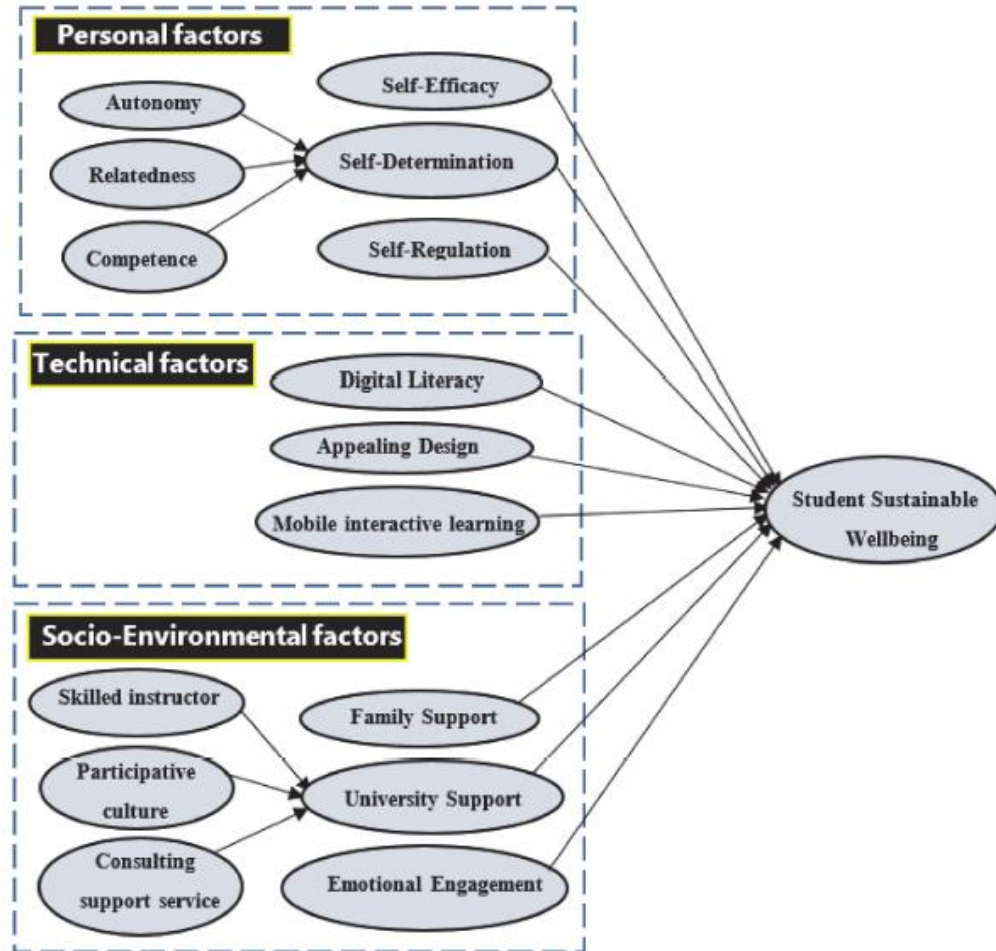
A

Being with my family during COVID-19 lockdown



B

1. Motivate students to develop **self-confidence** and **solve** any technical problem.
2. Focus more on **quality of online learning platform interface** (interactivity, ease of use, and students' enjoyment for completing learning tasks)
3. **Assist teachers** in updating and redesigning teaching plans.
4. **Important role of students' families** to assist students in getting a better learning environment.
5. **Reduce online tasks** provided to students to decrease students' stress level and increase level of sustainable and healthy online learning.



Need to adapt swiftly!

- The current scenario has involved a rapid pedagogical shift;
 - from traditional to **online class sessions**
 - from personal to **virtual instruction**
 - From seminars to **webinars**
- Higher education institutions are undergoing **radical transformations** driven by the **need to digitalize education** and training processes in record time with **academics who lack innate technological capabilities** for online teaching.



Disruptive educational innovation

- Replaces existing methodologies and modes of knowledge transmission by opening **new alternatives for learning**.
- New advances in education systems through information and communication technologies.
 - **Innovation in teaching methods**
 - New learning materials, mechanisms, and spaces;
 - **Transformation of students' role**
 - The way they absorb and use educational knowledge.



INNOVATION

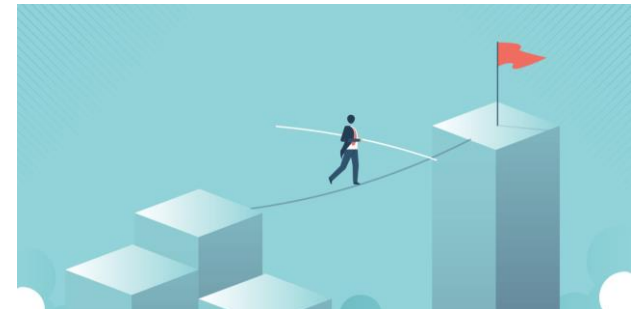
New things to learn and re-learn (quickly!)

- Giving lectures by **videoconference**, sharing material (e.g., slides, videos, presentations), interacting through chats, creating debate forums or workgroups, supervising practical activities, evaluating and tutoring students, recording explanations and making them available to students, etc.
- **Synchronously** or **asynchronously**?
- How to maintain **students' attention** and keep them involved in the course.
- What are the methodologies for the interaction of students and professors, and that engage students in **peer collaboration**?
- How to make sessions **dynamic**? Collaborative and formative tools?
- Instructors must **design** the audiovisual material, plan students' work time, and use the right tools for each activity.

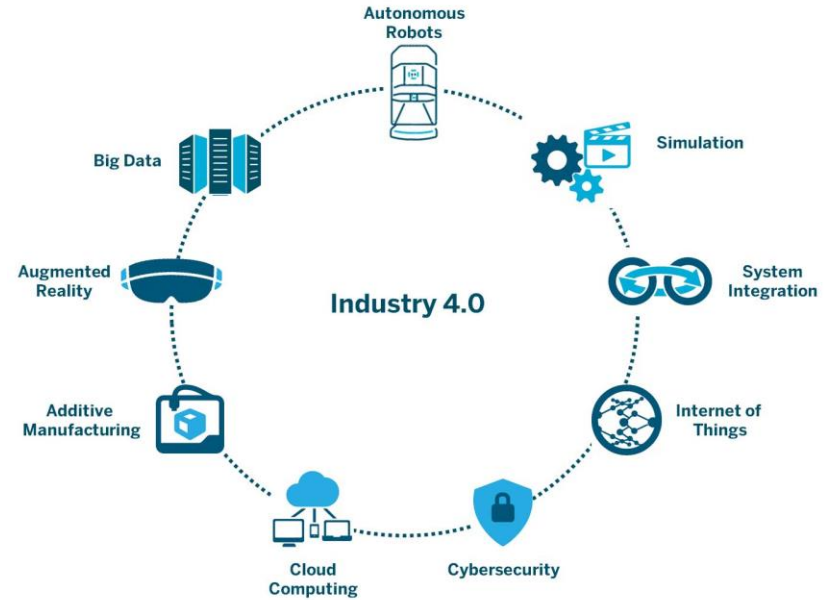
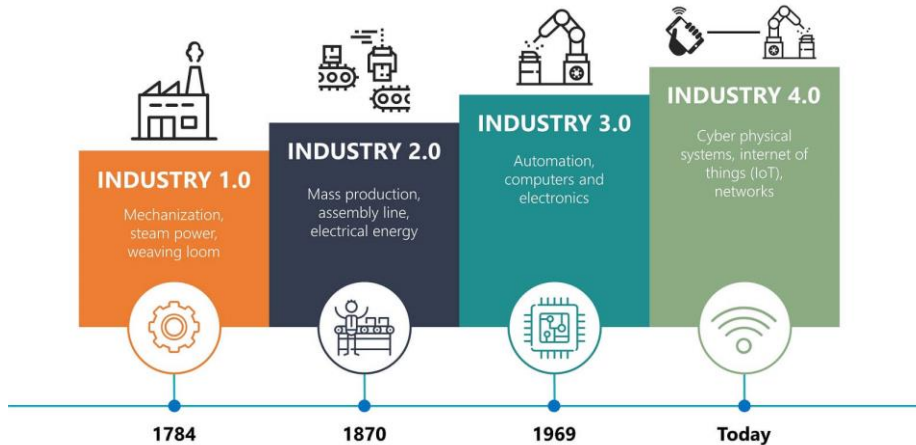


Barriers and Challenges

- **Technical problems!**
- **Stressful** for professors!
- Online education can **amplify digital divide** (including academics).
- Difficult to **maintain attention**: distractions, boredom, sense of isolation, lack of time to follow different subjects, and lack of self-organizing capabilities.



Higher Education was already **ripe for disruption**. Then, COVID-19 happened.



RESEARCH BRIEFS

[Industries](#) ▾[Geographies](#) ▾[Technologies & Topics](#) ▾[Infographics](#)[Reports](#)[Webinars](#)[Request A Demo](#)[Expert Intellig](#)

Education In The Post-Covid World: 6 Ways Tech Could Transform How We Teach And Learn

September 2, 2020

Take a look at 20+ other industries and technologies that will shape the post-pandemic world [here](#).[Consumer Products](#)[Covid-19](#)[Education Tech](#)

WHERE IS THIS DATA
COMING FROM?

Start your free trial today

CBINSIGHTS



The Post-Covid World

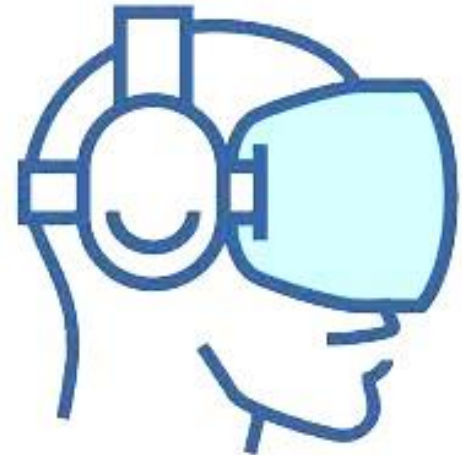
Online learning increases access and invites a wide array of learners

- Online learning will be a **core component** of education and teaching.
- Learning management systems (**LMS**) help teachers deliver online lessons, share reading materials, and grade assignments; all in one platform.
- Massive Open Online Courses (**MOOCs**) are seeing renewed interest as a means of gaining higher education.
- **After-school learning and tutoring** is picking up.



Virtual and augmented reality increase engagement by bringing learning to life

- VR and AR **enhance learning and engagement.**
- VR creates immersive 3D environment that a user can explore.
- AR superimposes digital elements such as visuals, sound, and text onto a user's surroundings.
- VR and AR work particularly well for highly technical fields like medicine or military.



Biometrics and facial recognition could help students stay focused and improve safety

- Scans body parts like eyes, fingerprints, and facial features can help **identify an individual**.
- Applications include ensuring students are paying attention in class, **security** and safety of students on campus.
- Facial recognition tech can help track a student's **attentiveness** through their facial expressions.
 - Students may lose focus, it alerts the students and gives them a pop quiz!
 - When students get bored during a lecture, style of teaching can be modified.



Gamification uses game elements to make learning interactive

- Increase learners' **motivation and engagement** by incorporating game design elements such as storytelling, problem-solving, badges, levels, and points in educational environments.
- Educators encourage students to face and accomplish various challenges and goals. This promotes higher student engagement and could help students **retain knowledge** more effectively.
- Students receive **instant feedback** and foster a spirit of **healthy competition** among students.



Artificial intelligence enables data-driven decisions to increase efficiency and save costs

- Help **personalize learning**, improve memory retention, teach languages, or increase accessibility to lessons.
- AI-enabled chatbots can **increase student engagement**.
- Chatbots can double as **teacher's virtual assistant**, helping by answering frequently asked questions for students, giving personalized feedback to students, and providing additional learning materials based on a student's individual progress.



Smart campus tech leverages devices and data for a connected experience

- Smart campus is a **digitally connected space**, where devices and data come together to provide a more intuitive learning experience to students.
- All devices are connected into a **single network**.
- Immense technological preparation and planning on the part of the educational institution is required.
- **Privacy and tracking** are major concerns.



Traditional way of learning Medicine

- Face-to-face lectures and practical sessions
- Real anatomy dissection – skeleton in the closet!
- Textbook
- Real patients
- Go to library to borrow books and search for journals.
- It's a pain to write a dissertation.

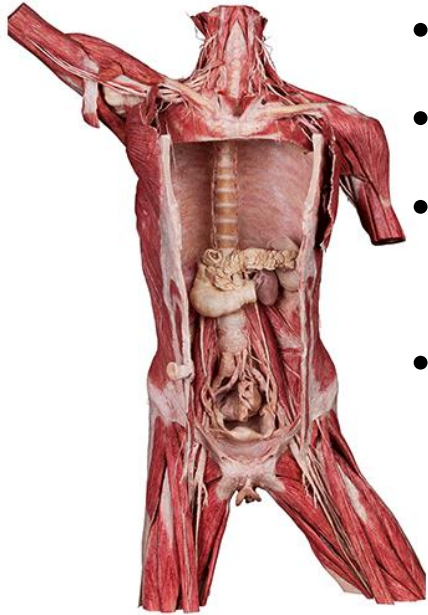


“New norm” way of learning Medicine

- Plenty of educational resources – a finger click away. Force us to rethink medical training.
- Virtual anatomy
- Virtual physiology etc
- Virtual clinical sessions
- Clinical simulations
- Standardized patient/ simulated patient
- Webinar for all
- Virtual community engagement



Teaching anatomy without cadavers



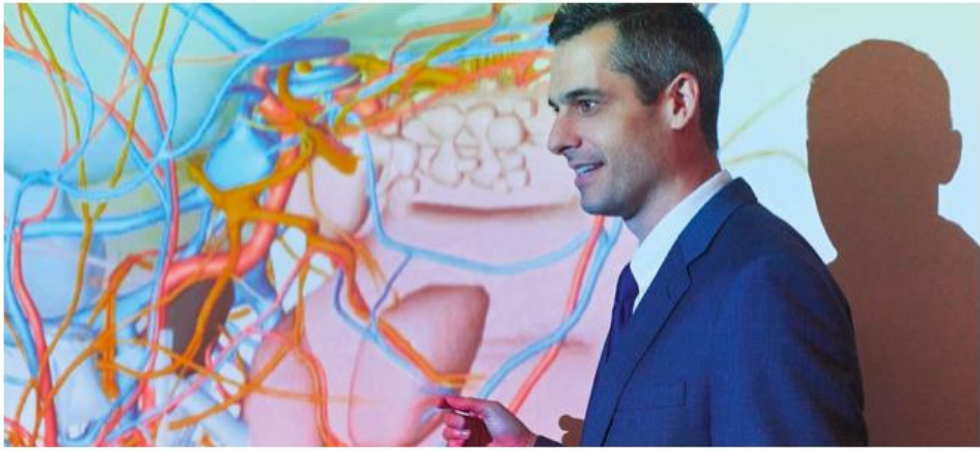
- Using VR and AR.
- 3-D cinematic renderings of CT and MRI scans.
- Plastinations—human cadavers preserved with plastic resins.
- Help students learn anatomy in the context of diseases and clinical practice.



EDUCATION, INNOVATION | NYU LANGONE HEALTH MAGAZINE, NYU LANGONE HEALTH MAGAZINE SUMMER/FALL 2018

Using Big Data to Strengthen the Connection Between Medical Education & Patient Care

NYU School of Medicine Analyzes Big Data to Track Graduates' Performance in the Real World

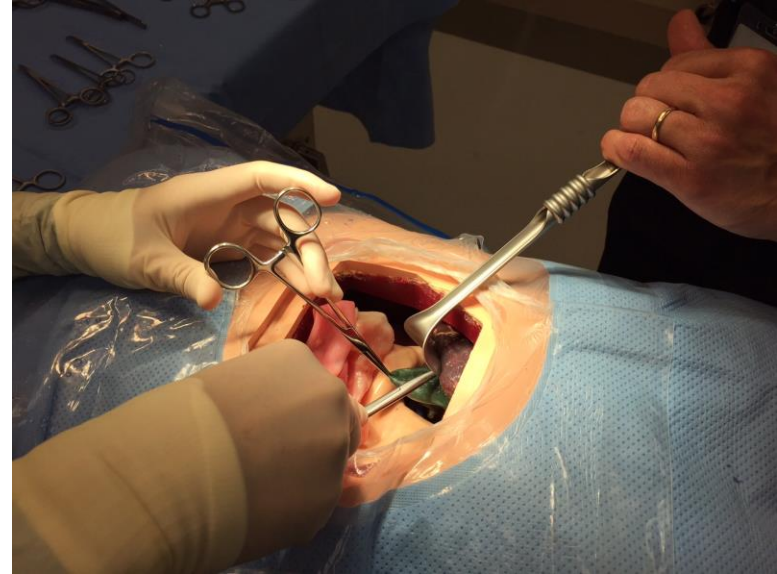
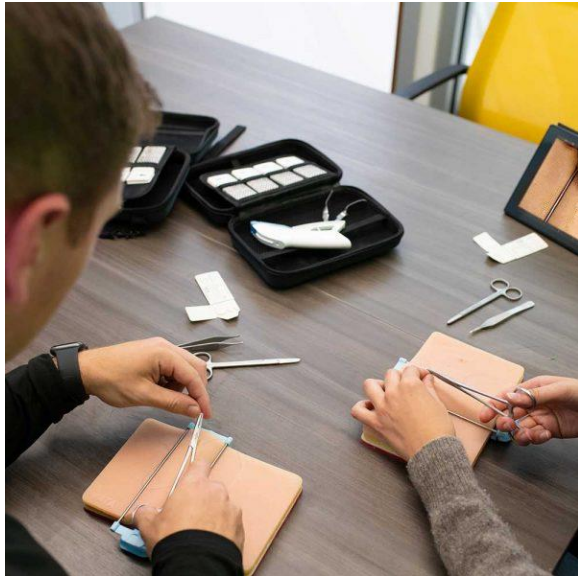


Marc M. Triola, MD, director of the Institute for Innovations in Medical Education and associate dean for educational informatics at NYU Langone. PHOTO: SASHA NIALLA

- Gaining broad access to patient-care data
- Connecting curriculum reforms to physician practice
- Data may change the future of residency training

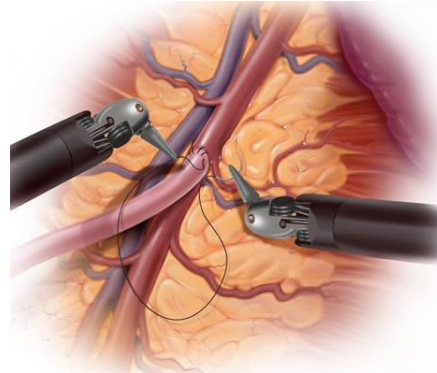


Simulations – way to go!



Digitalisation – health services, training

- Digital health transformation
- Telemedicine and Virtual Consultation
- Role of AI
- MySejahtera
- Global sharing of data
- Remote robotic surgery
- Ease of webinar



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12 Innovations that will change Health Care and Medicine in the 2020s

- **Drone-delivered medical supplies**



12 Innovations that will change Health Care and Medicine in the 2020s

- The biggest Big Data and AI

AI in Healthcare

Patient-Facing
AI Chatbots: buoy, med what, YouMD, Dr.AI, GYANT, YourMD
Wearables & Devices: physIQ, QARDIO, sano, kiwi.ai, Jodytrak, kiwi.ai, kinsa, Jodytrak, Magnea, kinsa, ClinCloud, AliveCor, Labs, ClinCloud, AliveCor

Telehealth
Telemedicine: ada, ISENSELY, babylon, Remedy pager, spruce, Z
Lifestyle Management: AiCure, MedAware, ovia, next IT, health, Catalia Health, Lucina, Health, Next Gen, Doctella, cardiogram, Wellframe, Welltok, CardAngel

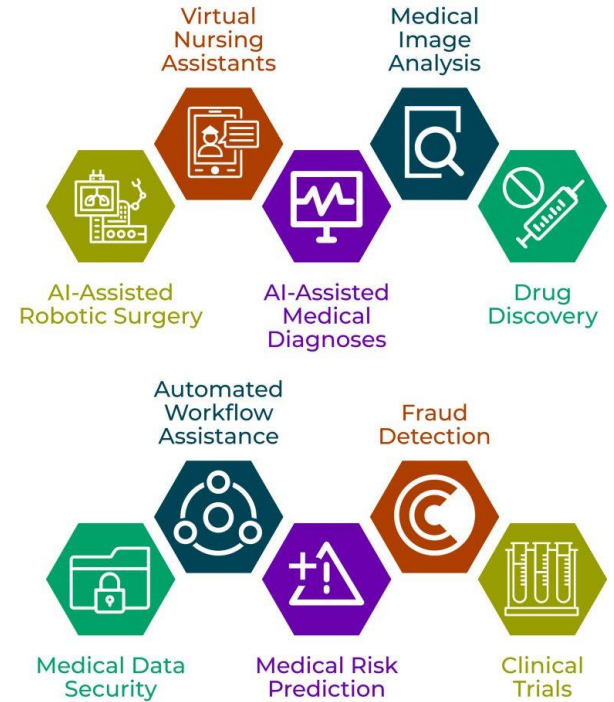
Doctor-Facing
Medical Records: APIXIO, AUGMEDIX, clinithink, nimble, saykara, emr ai, patientory, SANSORO, PROTENUS, BloomAPI
Data Analytics: ZEPHYR, bust IQ, MD.ai, Infomedica, CLOUDMEDX, ivion, CareSkore, ROAM, Hindsait, Oncora, MEDALOGIX, sensodata, pulseData, healthcare.ai, LYtics, CLowmatics, impacthealth, LYtics

Medical Imaging
AMARA, enlinc, zebra, CureMetric, BAYLABS, VUNO, ADVENIO, koios, ARTERYS, Mindshare, aidoc, Lunit, Cardialogs, Genetis, Dila, SemanticMD, Blackford

Research
Drug Discovery: Mind the Gate, Standigm, TBERG, RECURSION, BenevolentAI, CYCLICA, Mendel.ai, Exscientia, NuMedii, twoAR, Atomwise, iOLEXUS, Numerate, nference, Globavir
Information & Clinical Trials: trials.ai, BenchSci, VERGE, NURITAS, freemove, FDNA, PATHWAY GENOMICS, deep genomics
Genetic Research: MotecularMatch, Blueprint Genetics, SCOPHA GENETICS, JIMANA GENETICS

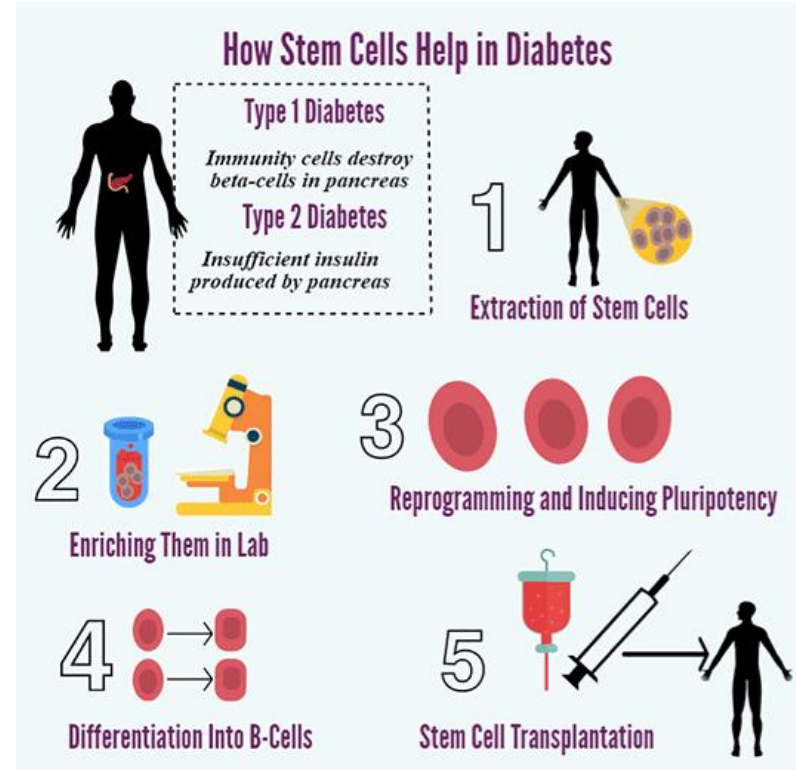
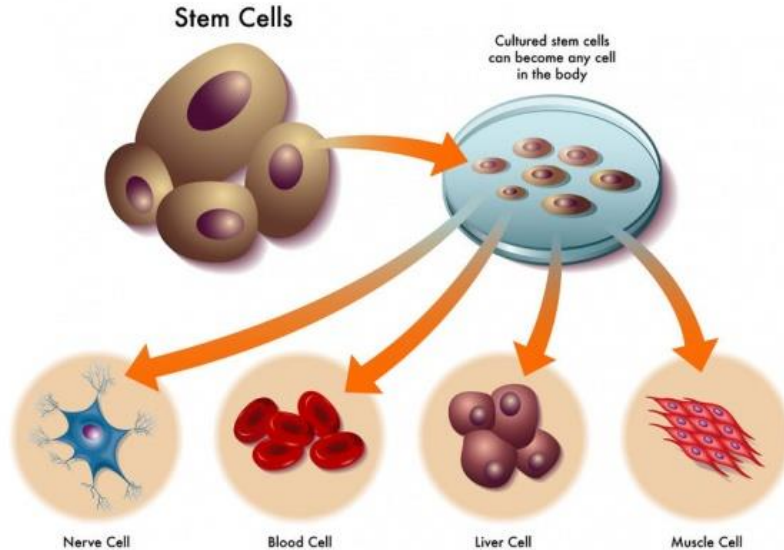
Other Categories:
Disease Management: prognos, HealthReveal, DIABNEXT, TEMPUS, Healint, WIKAYA, Ra PREDICT, BELONG
Medical Records: nimble, saykara, emr ai, patientory, SANSORO, PROTENUS, BloomAPI
Data Analytics: ZEPHYR, bust IQ, MD.ai, Infomedica, CLOUDMEDX, ivion, CareSkore, ROAM, Hindsait, Oncora, MEDALOGIX, sensodata, pulseData, healthcare.ai, LYtics, CLowmatics, impacthealth, LYtics
Medical Imaging: AMARA, enlinc, zebra, CureMetric, BAYLABS, VUNO, ADVENIO, koios, ARTERYS, Mindshare, aidoc, Lunit, Cardialogs, Genetis, Dila, SemanticMD, Blackford

10 Applications of AI in Healthcare



12 Innovations that will change Health Care and Medicine in the 2020s

- **Stem-cell cure for diabetes**



12 Innovations that will change Health Care and Medicine in the 2020s

- **Personalised medicine**

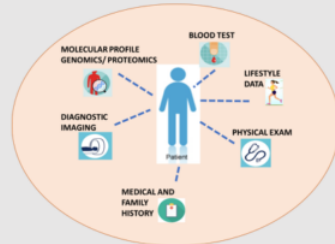
PERSONALISED MEDICINE

PREVENTION



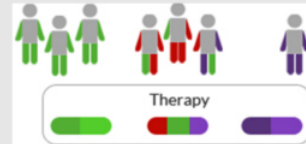
Early detection of patients at risk, Improve preventive measures (individual/collective)

DIAGNOSIS



Accurate disease diagnosis enabling individualized treatment strategy

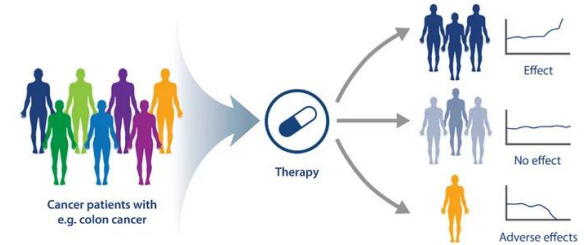
TREATMENT



Improved outcomes through targeted treatments and reduced side effects

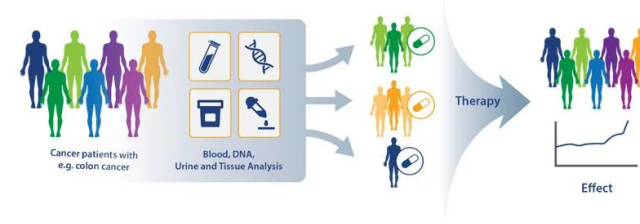
Current Medicine

One Treatment Fits All



Future Medicine

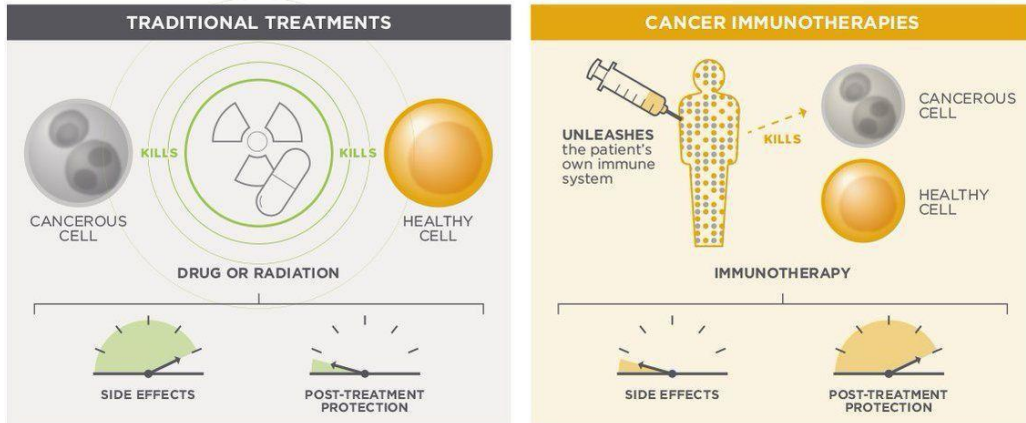
More Personalized Diagnostics



12 Innovations that will change Health Care and Medicine in the 2020s

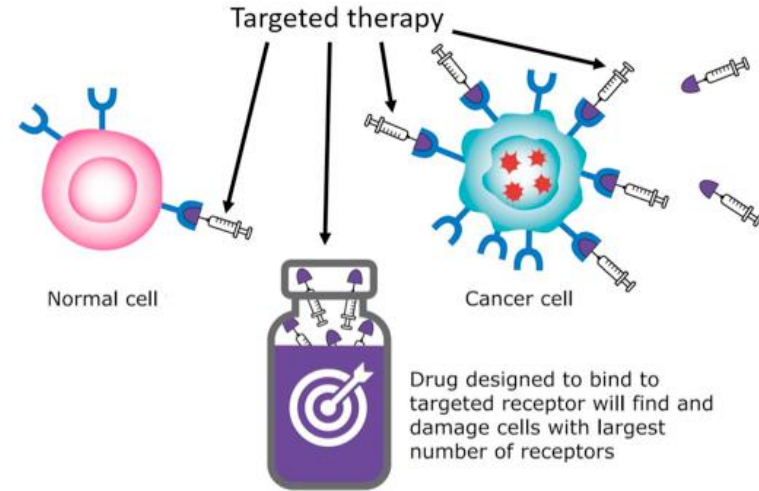
- **Disruptive approach to cancer therapy**

IMMUNOTHERAPY VS. CHEMOTHERAPY



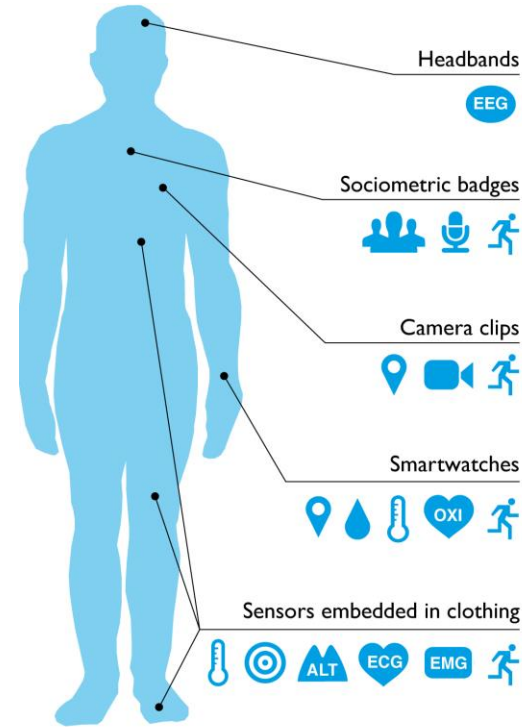
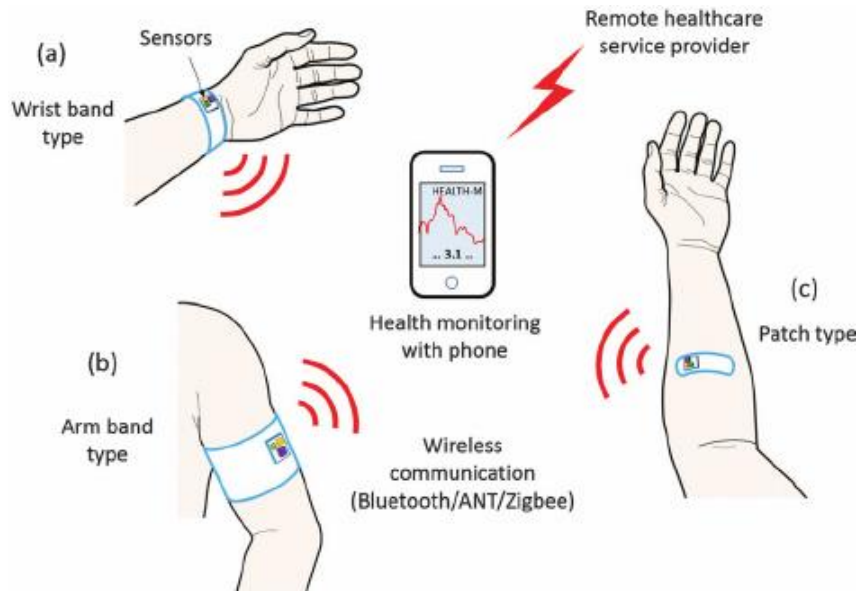
© 2016, Adaptive Biotechnologies. All rights reserved. Source: Cancer Research Institute

Adaptive biotechnologies®



12 Innovations that will change Health Care and Medicine in the 2020s

• Wearables



- Accelerometer
- Altimeter
- Digital camera
- Electrocardiogram
- Electromyograph
- Electroencephalogram
- Electrodermograph
- Location GPS
- Microphone
- Oximeter
- Bluetooth proximity
- Pressure
- Thermometer

12 Innovations that will change Health Care and Medicine in the 2020s

- **Pocket-sized ultrasound**

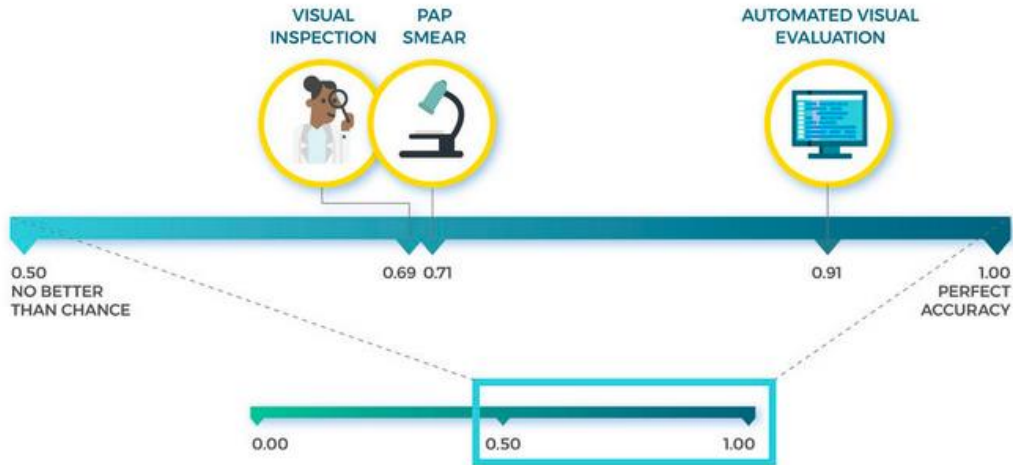


12 Innovations that will change Health Care and Medicine in the 2020s

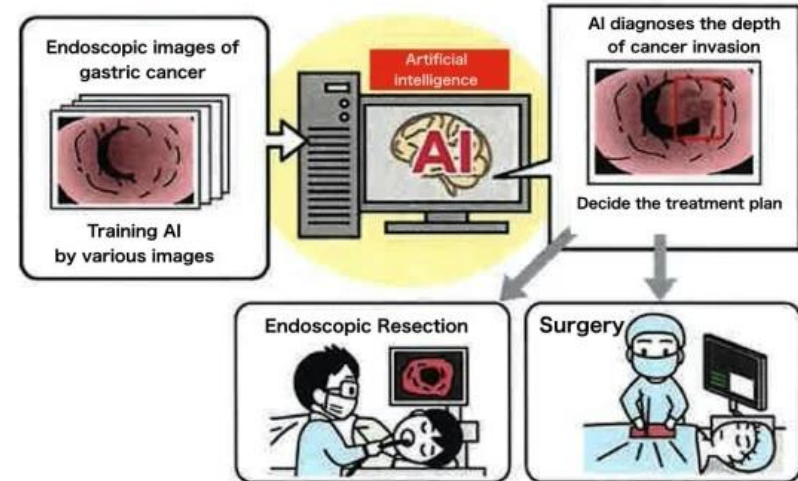
• Cancer-diagnosing AI

The AI-Based Approach Was More Accurate than Other Methods

The proportion of precancers or cancers that developed over the subsequent 7 years that were correctly identified at baseline (the beginning of the study) by each method:

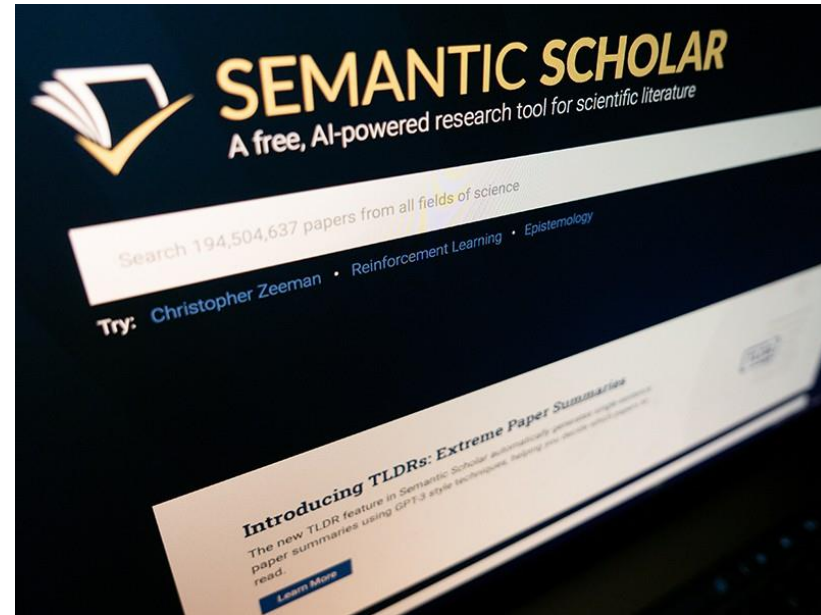
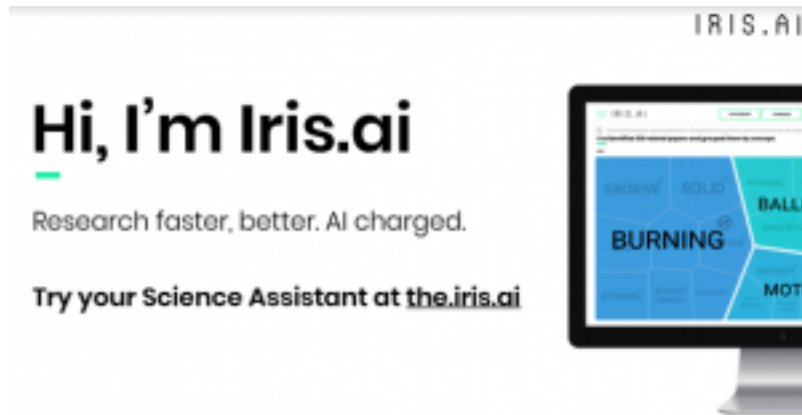


Early gastric cancer endoscopic diagnosis system using artificial intelligence



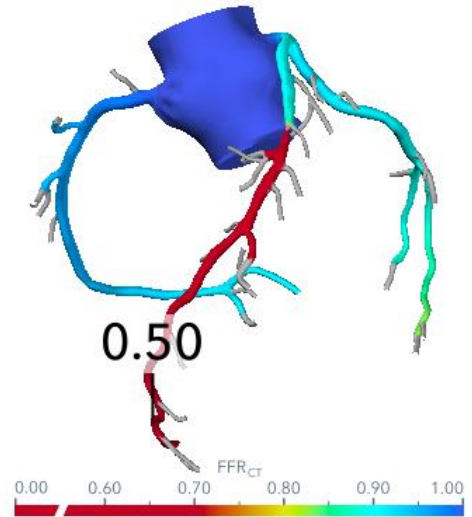
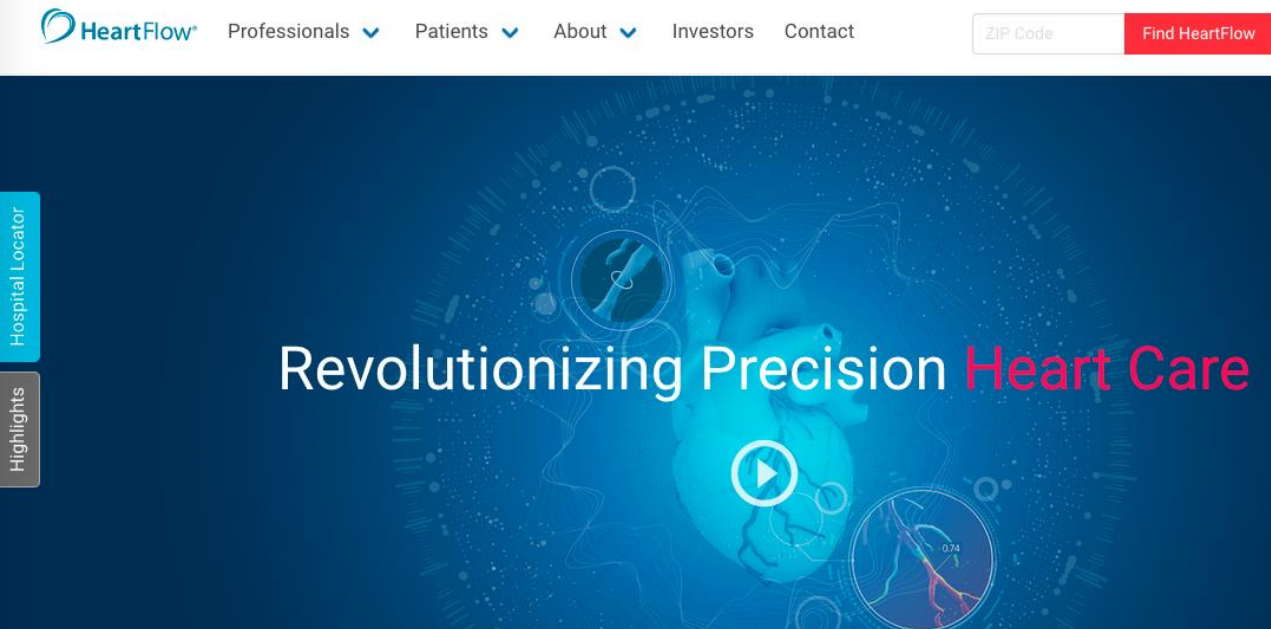
12 Innovations that will change Health Care and Medicine in the 2020s

- AI to read every science paper



12 Innovations that will change Health Care and Medicine in the 2020s

- **3-D digital hearts**



12 Innovations that will change Health Care and Medicine in the 2020s

- **Neurorehabilitations and VR**



Digital Therapeutics NeuroRehabilitation Programs

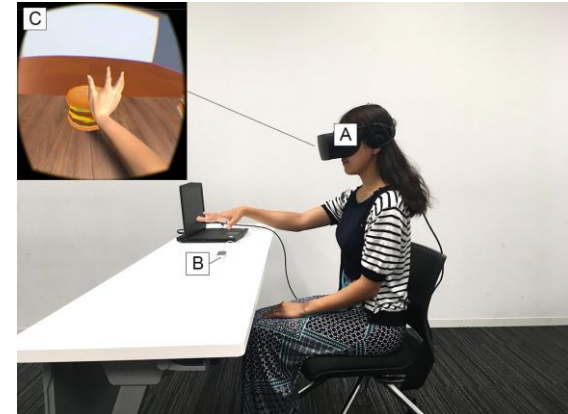


Paralympic athlete and spinal injury patient David Smith is trialling Immersive Rehab's Digital Therapeutics Neurorehabilitation platform.

- "Fun Fair Towers"



- "Time for Jazz"



<https://time.com/5710295/top-health-innovations/>

INFOGRAPHIC

Malaysians need to upskill to face digitalisation

Many employees are threatened by digitalisation, concerned that automation will make them redundant. However, 89% of Malaysian employees surveyed by Randstad say digital technology provides them with new opportunities. But are they equipped with the right skillsets to take on the fourth industrial revolution?

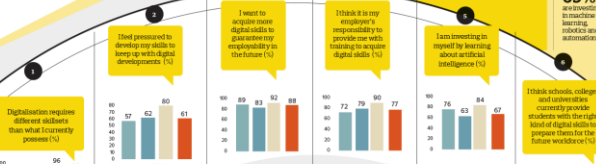


What do Malaysian workers think about digitalisation?

- 81%** agreed that new digital technologies would have a positive impact on their jobs in the next three to five years
- 63%** felt an interest in developing their skills to keep up with digital developments
- 89%** thought that digitalisation requires different skillsets than what they possessed
- 93%** were willing to acquire skills to guarantee employability in a digital environment
- 89%** felt they needed to acquire new skills to work in a digital environment

Are Malaysian companies investing in new technology?

- 82%** of Malaysian employees thought that their employers should provide them with adequate training in new digital skills
- 80%** of Malaysians think the education system provides students with the right kind of digital skills to prepare them for the future workforce
- 63%** of employees said their employers are doing so
- 76%** of them practised their artificial intelligence (AI) to substitute their employability
- 69%** are investing in machine learning, robotics and automation



What employees in other countries think about preparing for the digital era



Digital transformation could boost USD100-136bil in GDP by 2025

3 key fundamentals that must be addressed

Fast affordable broadband



Broadband speed is 3 times slower than frontrunners

Talent tailored for digital progress



Only 1 in 5 graduates are in STEM

High digital adoption



< 40% of the population use internet banking and e-commerce

Modernising regulations, empowering talent and universal access to infrastructure will accelerate Malaysia's digitalisation

Source: Bank Negara Malaysia

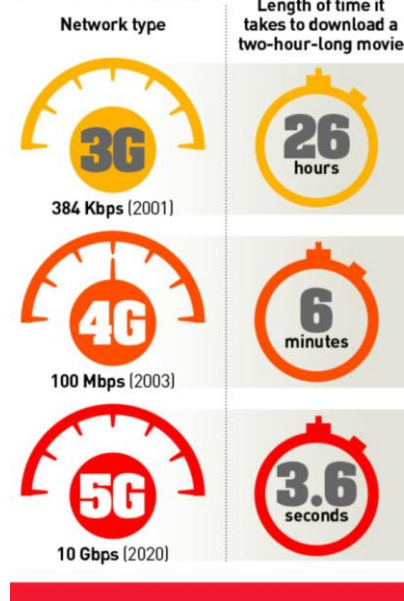
Malaysia's digitalisation speeding up, experts say





5G





INTERNET SPEED



5G TECHNOLOGY

Fifth generation (5G) connectivity is more than just greater speed and network capacity, it is about the linking of millions of devices, building new services and supporting a broader adoption of applications which will transform the way we live and, how businesses and governments are run.



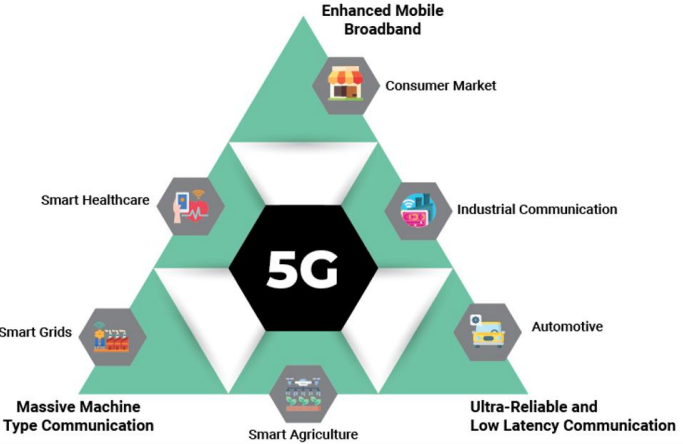
-  Greater network capacity
-  Greater reliability
-  Extremely fast data speed
-  Facilitates the creation of innovative services

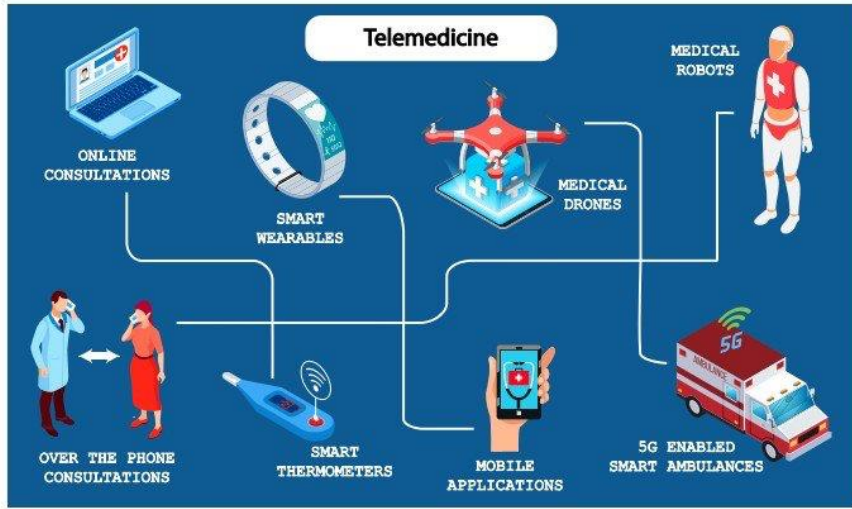
SPHERES THAT WILL BENEFIT FROM 5G TECHNOLOGY



-  Agriculture: Precision farming
-  Automotives: Self-driving vehicles
-  Education: Virtual Reality classrooms
-  Healthcare: Remote diagnosis and consultation services
-  Manufacturing: Robotics
-  Media and Entertainment
-  Public safety
-  Smart cities

Malaysia's adoption of 5G technology is in tandem with the National Fibreisation and Connectivity Plan (NFCCP) which aims to provide high-quality and affordable digital connectivity.





Elements of a Smart Hospital



Data Gathering & Analytics

- Data is automatically gathered on machines, integrated and analysed
- Machine Learning Software (AI) can extract patterns and predict behaviours



Interconnected Access to Data

- Real-time access to analysed data
- Connecting multiple agents through diverse platforms (phones, tablets, wearables, desktop...)



Autonomous Actions

- Big Data analysis
- Pattern recognition
- Optimized autonomous actions



2021 Digital Quality of Life Index

Global research on the quality of a digital wellbeing in 110 countries (90% of the global population). This study indexes the countries by looking at five fundamental pillars that define the digital quality of life.

[Explore ranking](#)

[Find a country profile](#)

1st

0.8313
index



2nd

0.7608
index



3rd

0.7562
index



4th

0.7387
index



5th

0.7360
index



6th

0.7192
index



7th

0.7128
index



8th

0.7093
index



9th

0.7071
index



10th

0.7065
index



11th

0.7060
index



12th

0.6983
index



Global rank

31st

Global ranking out of 110 countries

Ranking index 0.61

Rank in Asia

6th

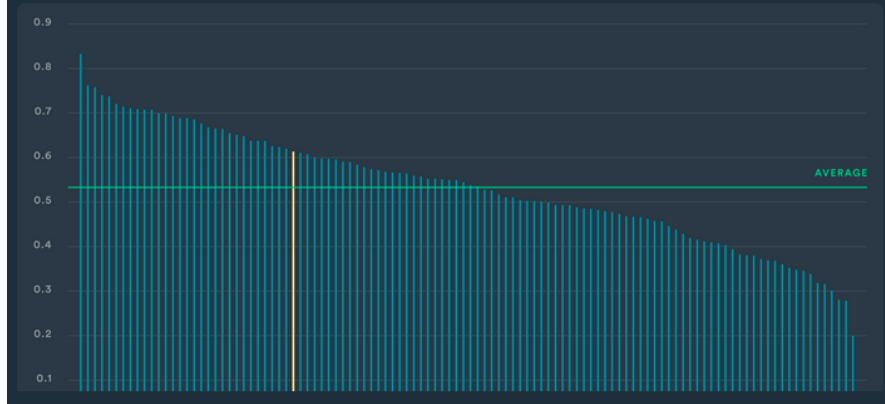
Asia ranking out of 32 countries

10 

DQL rank jumped up

Compared to 2020

Malaysia in DQL global ranking



Internet Affordability

rank / index

69th / 0.04

Internet Quality

rank / index

47th / 0.52

Electronic Infrastructure

rank / index

31st / 0.82

Electronic Security

rank / index

21st / 0.88

Electronic Government

rank / index

24th / 0.80

Best criteria rankings

Cybersecurity Index

21st

Online Services Index

24th

Artificial Intelligence
Readiness Index

28th

Worst criteria rankings

Broadband Speed
Growth

87th

Mobile Speed

74th

Broadband Internet
Affordability

71st

Digital Educational Learning Initiative Malaysia (DELIMa)

- MOE's digital education platform aiming at making education **accessible for all**.
- **Free software** for all teachers and students supported by Google, Microsoft and Apple.
- Empower and prepare pupils for **life-long learning** and **future skills** and **competencies** that they need to be employable in Malaysia and in the global market.



Malaysia Towards
Digital Learning in
the New Normal



Moving forward

- Preparing today's students for **tomorrow's world**.
- Producing health professionals of tomorrow requires **re-thinking**.
- Should we think of **radical transformation** of curriculum?
- How do we get our graduates to be **tech-ready**?
- Technological innovations to be taught in universities?
Techpreneurs?



Moving forward



UPM
UNIVERSITI PUTRA MALAYSIA



5 STRATEGI UTAMA MEMACU UPM SEBAGAI MENARA ILMU

- 1 MEMACU PERTANIAN BERTEKNOLOGI TINGGI
- 2 MEMBANGUN KAREKTOR GRADUAN UPM
- 3 MELAGANG KAMPUS PINTAR DAN PENDIGITALAN
- 4 MENDUKUNG KELESTARIAN INSTITUSI MAPAN
- 5 MENATANG PEMBUDAYAAN NORMA BAHARU



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Naratif
Naib Canselor
Prof. Dr. Mohd Roslan Sulaiman

Menggemakan Seruan AL-FALAH dari Menara Ilmu



UNIVERSITI PUTRA MALAYSIA
AGRICULTURE • INNOVATION • LIFE

COVID-19 endgame



**“Common cold”
coronavirus infection...
in children**

Herd immunity

Infect –
reinfect circle

Protect the
high risk

Decreased hospitalization
Decreased deaths
Virus still circulate and mutate

Therapeutic



Prophylaxis

COVID-19
Vaccine



Vaccine
Catch up

Booster dose

Immune
escape
Variants



Permanently
established in
human



Conclusion

- Silver lining of the pandemic
 - The great reset
- Innovations at lighting speed
 - The great digital transformation
- ~~“Publish or perish”~~ “Innovate or perish”
 - The great mindset reset





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