



Optimizing Healthcare Delivery in Post Pandemic Era

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CONTENT

- Pre-pandemic burden of care
- Lessons learnt from pandemic period
- Moving on (where to begin)
- Prioritizing
- Research in progress
- Conclusion



BURDEN OF CARE- PRE PANDEMIC ERA

- LMIC challenged by rapid increase in NCD and ageing population
- Healthcare services struggle to respond to chronic health conditions
- Cardiovascular diseases, cancers, diabetes & chronic respiratory disorders
- **Existing healthcare service not designed for long term and multiple health conditions.**
- Infectious diseases and acute conditions ongoing presence
 - SARS-CoV
 - MERS-CoV
 - Zika & Ebola
 - **Covid-19**



POST PANDEMIC-ENDEMIC

- Reorientation needed to cater to growing NCD burden i.e. diabetes, stroke, malignancies, mental health
- Increasing work load at PHC- frontliner role + gatekeeper to tertiary services + preventive care



LESSONS LEARNT FROM PANDEMIC

1. Public health surveillance programs and available infrastructures were not consistently optimal. (Paterlinie M, 2020; Nkengasong J, 2020; Hick et al, 2020)
2. Healthcare systems unable to absorb and manage sudden and persistent pressures on workload esp. acute care, despite contingency plans. (Kandel N, 2020; Hafiz H, 2020)
3. Policy delays i.e. Lockdowns in an epidemiologically timely fashion which could significantly impact downstream healthcare outcomes.(Carter M & May PJ, 2020; Ravi SJ, Snyder MR, Rivers C, 2019)
4. The speed at which a global public health issue translated into financial downturn, with global implications was underestimated. (OECD Economic outlook 2019; Ayiteyy FK et al, 2020)

LESSONS LEARNT FROM PANDEMIC

1. Mobilizing patients to remote care
 - Telehealth-healthcare system flow rate and capacity challenges
 - Mental healthcare
 - NCD care
2. Improving emphasis on surveillance systems and ‘quality’ data analysis
 - Data sharing
 - Reliable and representative surveillance systems for ID
 - Laboratory amalgamation
3. Mobile-enabled technologies deployed en masse for monitoring quarantined individual/trace exposed individuals- South Korea & Taiwan
4. International collaboration & data sharing between competent health authorities



LESSONS LEARNT FROM PANDEMIC

5. Legislative, political and healthcare management systems
 - Data protection issues: dangers of downstream data linkage, individual identification
 - Public health vs clinical ethics
6. Communication- technology based approach
 - struggle to keep up with emergencies resulting in response time lags
7. Financial models to support scientific research/cooperation and crisis preparedness
 - Reallocation of staff & services, drop in routine service activity
 - Need for public-private-partnerships (PPP)

Malaysia Seeing 'Worrisome' Rise In Colorectal Cancer Among Under-50s: MOH Official

By CodeBlue | 22 June 2023

While colorectal cancer mainly affects those aged 50 and above, Malaysia is seeing a "worrisome" rise in colon cancer incidence among younger adults, which further compounds the economic burden of the disease in the country, says an MOH official.

CodeBlue
Health is a human right

About Us Malaysia World

MOH Directly Awarded 680 Contracts, One By Tender In 2021

By CodeBlue | 10 January 2023

The Ministry of Health made large numbers of emergency purchases during the Covid-19 pandemic in 2021, including PPEs, test kits, medicines, ambulances, and hybrid ICUs.



Health care workers in personal protective equipment in a public hospital in Sabah. Picture credit anonymous.

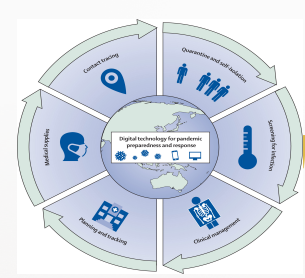
Impact of COVID19

- Additional burden to NCD: Long Covid, mental health
- **Long Covid19:**
 - Symptoms lasting > 4 weeks after initial exposure to SARS-CoV-2 (CDC), or one or > symptoms lasting more than 12 weeks after onset of virus exposure
 - Long Covid symptoms affect CVD, digestive and respiratory systems
 - Former Covid patients more likely to develop NCD cf those not affected
- **Mental health**
 - rise in depression and anxiety prevalence doubled since 2020- worse during lockdown and intensifying Covid 19 death period.
 - Mental health of the unemployed & those experiencing financial insecurity
 - Healthcare workers' wellbeing – The Great Resignation, rise in 'inactive unemployed in Malaysia

Services available at PHC MOH

1. Enhanced diabetic clinic
2. Asthma clinic
3. Mental health clinic
4. Quit Smoking Clinic (QSC)
5. TB clinic
6. Latent TB clinic
7. RVD clinic
8. Methadone Clinic
9. Pre-pregnancy clinic
10. Domiciliary service
11. Geriatric Outreach Program
12. STI Clinic
13. Maternal & Child health clinic

Start a specific clinic at community healthcentres to address long Covid?



MOVING ON

- Integrated whole of society response
- Blended approach to remote care
 - Self help apps (? Population health literacy)
 - Online therapeutic modules in settings with scarce health resources/ geographically disadvantaged
- New technologies-
 - Smartphone enabled monitoring of patient adherence to treatments
 - Drones as delivery vehicles for critical supplies
 - Robotics for contactless care delivery
 - 3D printing for healthcare related items
- Big Data & AI-migration & tracking, healthcare facility capacity, forecasting & projections accuracy

	Functions	Digital technology	Countries	Advantages	Disadvantages
Tracking	Tracks disease activity in real time	Data dashboards; migration maps; machine learning; real-time data from smartphones and wearable technology	China; Singapore; Sweden; Taiwan; USA	Allows visual depiction of spread; directs border restrictions; guides resource allocation; informs forecasts	Could breach privacy; involves high costs; requires management and regulation
Screening for infection	Screens individuals and populations for disease	Artificial intelligence; digital thermometers; mobile phone applications; thermal cameras; web-based toolkits	China; Iceland; Singapore; Taiwan	Provides information on disease prevalence and pathology; identifies individuals for testing, contact tracing, and isolation	Could breach privacy; fails to detect asymptomatic individuals if based on self-reported symptoms or monitoring of vital signs; involves high costs; requires management and regulation; requires validation of screening tools
Contact tracing	Identifies and tracks individuals who might have come into contact with an infected person	Global positioning systems; mobile phone applications; real-time monitoring of mobile devices; wearable technology	Germany; Singapore; South Korea	Identifies exposed individuals for testing and quarantine; tracks viral spread	Could breach privacy; might detect individuals who have not been exposed but have had contact; could fail to detect individuals who are exposed if the application is deactivated, the mobile device is absent, or Wi-Fi or cell connectivity is inadequate
Quarantine and self-isolation	Identifies and tracks infected individuals, and implements quarantine	Artificial intelligence; cameras and digital recorders; global positioning systems; mobile phone applications; quick response codes	Australia; China; Iceland; South Korea; Taiwan	Isolates infections; restricts travel	Violates civil liberties; could restrict access to food and essential services; fails to detect individuals who leave quarantine without devices
Clinical management	Diagnoses infected individuals; monitors clinical status; predicts clinical outcomes; provides capacity for telemedicine services and virtual care	Artificial intelligence for diagnostics; machine learning; virtual care or telemedicine platforms	Australia; Canada; China; Ireland; USA	Assists with clinical decision-making, diagnostics, and risk prediction; enables efficient service delivery; facilitates patient-centred, remote care; facilitates infection control	Could breach privacy; fails to accurately diagnose patients; involves high costs; equipment may malfunction

Table: Digital technology initiatives used in pandemic preparedness and response



Optimising primary healthcare services in post pandemic era

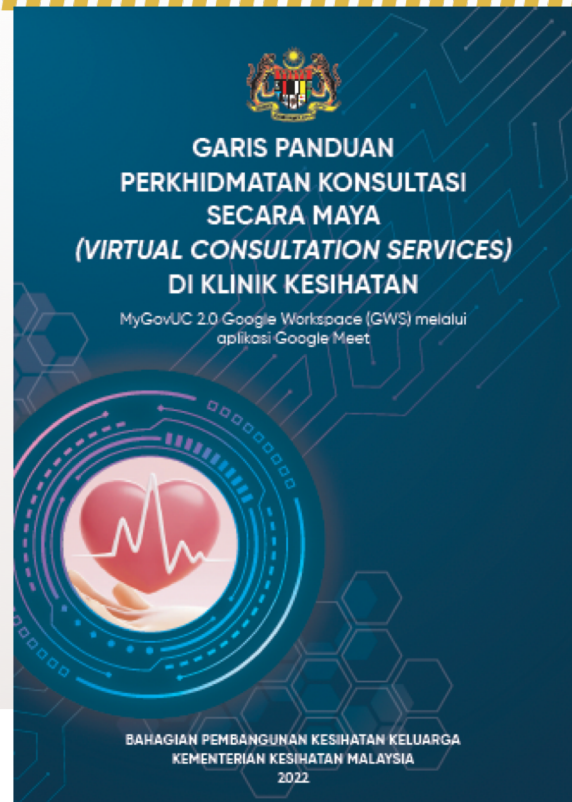
- Improving preparedness to respond to pandemic,
 - Having **pandemic drill** plans ready to be activated
- Optimising gatekeeper role
 - shared care initiatives between tertiary and primary healthcare facilities
 - Data sharing policies, data driven decision making vs 'guesstimates'
 - Infrastructure plans: if targets not achieved, contingency plans must be in place to ensure equity
- Public private partnerships to ensure sustainability of healthcare delivery and equity. Transparent practices, good governance are key.

SHORT COMMUNICATION

Geriatric Telemedicine: Ensuring continuity of healthcare services to the older patients in Kedah, Malaysia during the COVID-19 pandemic

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<https://senyumanis.my>
Web-based app for diabetes patients to optimise oral health practices

Kembali Komplikasi Diabetes Peringkat Akhir

KOMPLIKASI DIABETES

Kerosakan buah pinggang Strok

Penyakit gusi

Kaki Diabetes Atherosclerosis

Kerosakan mata Penyakit jantung

Diabetes yang tidak terkawal boleh menyebabkan pelbagai masalah kesihatan yang lain. Ini kerana diabetes boleh menyebabkan kerosakan kepada saluran darah. Antara komplikasi yang berpunca dari kerosakan saluran darah pesakit diabetes adalah penyakit mata (diabetic retinopathy), penyakit buah pinggang (diabetic nephropathy) dan juga penyakit saraf (diabetic neuropathy).

Selain itu, ia juga boleh mengakibatkan serangan jantung dan strok. Apabila aliran darah ke bahagian kaki terhalang, ia boleh mengakibatkan komplikasi yang dipanggil kaki diabetik di mana kaki pesakit diabetes mudah mengalami masalah luka yang sukar untuk sembuh. Ada masanya, untuk menghentikan penularan, sebahagian dari anggota kaki pesakit terpaksa di potong. Pesakit diabetes dengan bacaan gula yang tidak terkawal juga lebih berisiko untuk mendapat penyakit gusi. Sentiasa patuhi nasihat doktor, makan ubat diabetes anda dengan betul, jaga pemakanan, sentiasa bersenam dan jaga kebersihan bagi mengelakkan komplikasi diabetes.

PRIORITIZING

- Proactive planning for healthcare emergencies
 - Investment in ensuring **health literacy** of the population is key
 - Optimizing healthcare delivery services based **on priority** in pandemic situations, clear policies in place. E.g. Quit smoking clinic vs Home-visits/Domiciliary care vs NCD care.
 - Staff training & preparedness- includes '**pandemic-drill**'
 - **Secure IT connectivity** and **clear policies on virtual care**

Services available at PHC MOH

1. Enhanced diabetic clinic
2. Asthma clinic
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4. ~~Quit Smoking Clinic (QSC)~~
5. TB clinic +
6. Latent TB clinic+
7. RVD clinic %
8. Methadone Clinic
9. **Pre-pregnancy clinic**
10. Domiciliary service*
11. Geriatric Outreach Program*
12. STI Clinic %
13. **Maternal & Child health clinic**

Aging Clinical and Experimental Research (2021) 33:2899–2907
<https://doi.org/10.1007/s40520-021-01922-y>

ORIGINAL ARTICLE



The role of collaborative, multistakeholder partnerships in reshaping the health management of patients with noncommunicable diseases during and after the COVID-19 pandemic

Alessandro Monaco¹ · Amaia Casteig Blanco² · Mark Cobain^{3,4} · Elisio Costa⁵ · Nick Guldmond^{6,7} · Christine Hancock⁸ · Graziano Onder⁹ · Sergio Pecorelli¹⁰ · Mitchell Silva¹¹ · Jos Tournoy¹² · Caterina Trevisan¹³ · Mariano Votta¹⁴ · John Yfantopoulos¹⁵ · Stecy Yghemonos¹⁶ · Vincent Clay¹⁷ · Franco Mondello Malvestiti¹⁸ ·



Research works in progress

- Identifying shared care initiatives between primary care and geriatricians to optimize telemedicine delivery & community geriatric healthcare services
- Identifying the challenges for healthcare delivery of telemedicine for NCD from HCW perspective
- Counseling aid tools for standardised delivery of disease specific healthcare advice- targeted for populations with poor health literacy
 - Premarital HIV screening (PAUSE[©])
 - Erectile Dysfunction (LASTED[©])
 - Post stroke caregiver module (POSTCODE-My[©]) for the home-bound stroke



CONCLUSIONS

- Proactive planning for healthcare emergencies
 - Intensify commitment to public health preparedness- short-, medium- and long-term future
- Technologically empowered solutions as part of routine healthcare design and provision (embed in Clinical Practice Guidelines)
- For optimal outcomes- both patients and healthcare provider must be active participants. Identify patient support groups
 - Measures to improve population health literacy in the age of “socmed myth vs fact confusion”
- Ethical, regulatory and legal concerns must be addressed



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