

newsletter

Institute for Medical Research



Visit from YB Minister of Health and YB Deputy Ministers at New IMR Covid-19 Laboratory >PG04



.....
Appreciation to
Healthcare
frontliners from the
Deputy
Minister of Health
> PG 06



.....
Our
Heroes behind
the Scene
> PG 07

.....
Visit to IMR
by Medical
experts from
China
> PG 08



.....
Forecasting
COVID-19 cases
in Malaysia
> PG 13



IMR DIRECTOR'S MESSAGE

Greetings!

This second issue of the IMR Newsletter for 2020, we would like to share our experiences faced by the Institute during the challenging efforts undertaken by our dedicated front liners to combat the spread of the COVID-19 pandemic in Malaysia.

We were privileged to have the YB Minister of Health to officiate the IMR COVID-19 laboratory, at NIH complex Setia Alam on 5th May 2020, which highlighted the significant contributions of IMR in the fight against COVID-19.

IMR was also pleased to welcome our YB Deputy Minister of Health, who visited IMR Jalan Pahang during "Program YBTMK Menyantuni Petugas Barisan Hadapan IJN, HKL & IMR", as a sign of recognition and appreciation to the healthcare front liners who devoted their time and energy to contain this pandemic.

We highly appreciated the working visit of the COVID-19 Expert Medical Team from People's Republic of China, who shared their experiences gained in combating the COVID-19 pandemic. This visit from the medical expert team has been an invaluable learning experience for the IMR medical professionals to better understand the pandemic.

In addition, IMR is excited to announce the initiation of research since 25th March 2020 in the testing of existing vaccines against the Covid-19 disease in collaboration with Universiti Malaya Tropical Infectious Diseases Research and Education Centre (TIDREC) and the Malaysian Vaccines and Pharmaceutical Sdn Bhd (MVP).

Furthermore, we are proud that the NIH modelling team in collaboration with public and private universities was able to develop several Forecast Statistical Models which assisted in decision making in the prevention and control measures for the COVID-19 pandemic in Malaysia.

I am thankful to the Almighty as the commitment and dedication of the IMR staff has brought our Institute to greater heights. We are inspired with the hope that more achievements will be attained by this Institute in the future.

Dr. Hj Tahir Aris
Director
Institute for Medical Research (IMR)

30th June 2020



Published by:

Institute for Medical Research
Block C, NIH Complex, Seksyen U13 Setia Alam,
40170 Shah Alam, Selangor
Tel: 03-2616 2666
Website: www.imr.gov.my

Printed by:

CETAK JITU SDN. BHD. (574632)
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CO-EDITOR-IN-CHIEF MESSAGE

On behalf of the Editorial Board, we are pleased to present the second edition of the IMR Newsletter for the year 2020. The editorial board and staff editors dedicated a monumental amount of time and energy towards improving the newsletter, and their tireless efforts have made this year's edition a great success. While there were many challenges to overcome especially this year with the unprecedented Covid-19 pandemic, this experience was remarkably challenging and rewarding. We received a number of excellent submissions and it was wonderful to see the diverse topics and activities to which IMR staff have devoted themselves. The editorial board made the decision to devote a significant portion of this edition to the Covid-19 crisis and IMR's battle to combat the pandemic. In our spotlight piece, this edition gives us a glimpse of the YB Minister of Health and his Deputy's visit to the IMR Covid-19 laboratories. This was followed by an inaugural working visit by the medical experts from China to understand Malaysia's measures and response to the COVID-19 outbreak. On the home front, the NIH modelling team had worked tirelessly to develop forecasting models to assist policy decisions for Covid-19 control strategies in Malaysia. In pursuit of joining the global race in creating a vaccine for the novel coronavirus, IMR was quick in its heels to get involved and potentially have a human vaccine to go into clinical trials soon. We would like to thank our Institute Director, Dr Hj Tahir bin Aris, where without his support and guidance, this year's newsletter under the current challenging times would never have become a reality. Lastly, we would like to thank you, the reader, for your continued support and interest in the IMR Newsletter. We hope that you enjoy the fruits of our labour and that the activities and efforts undertaken by IMR can assist Ministry of Health and the country in the combat against Covid-19. Stay Safe!!

Dr. Bala Murali A/L Sundram

Head of Biomedical Epidemiology Unit,
Special Resource Centre (SRC)

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Visit to IMR COVID-19 Laboratory, NIH by the Minister of Health Malaysia, YB Dato' Sri Dr. Adham Baba

5th May 2020

The COVID-19 laboratory in IMR Jalan Pahang was relocated to Block C3, NIH Setia Alam and officially commenced operations from 5th May 2020. This was to enhance the diagnostic capacity of COVID-19 in view of the increased demand in testing. We were honoured to have the Minister of Health Malaysia visit IMR and showed his appreciation towards IMR's hard work in the fight against COVID-19. The Covid-19 Laboratory of IMR, NIH Setia Alam is directly involved in the COVID-19 diagnostic testing to ensure preparedness in the COVID-19 response in Malaysia. This laboratory is equipped with the most advanced technology and is able to cater to a capacity of 5,000 COVID-19 tests per day. This visit was also attended by YB Dato' Dr Haji Noor Azmi bin Ghazali, Deputy Minister of Health I, YB Datuk Aaron Ago Dagang, Deputy Ministry of Health II and YBrs Dr Hishamshah bin Mohd Ibrahim, Deputy Director General (Research and Technical Support).



Briefing by Dr Hj Tahir bin Aris, Director of IMR to the Minister, Deputy Ministers and the Deputy Director General (Research and Technical Support), during the COVID-19 laboratory visit.



The Minister of Health was impressed by the advanced technology and capacity at the new laboratory facility.



Dr Ravindran Thayan, Head of Virology Unit briefed our Minister and Deputy Ministers on the standard operating protocols involved in the laboratory testing of COVID-19 specimens



The Minister and Deputy Ministers congratulating IMR for its high level of professionalism in managing the laboratories services during the COVID-19 pandemic.



The laboratory personnel maintaining the quality assurance of COVID-19 testing.



The IMR lab team maintaining standards in testing and validation of tests to ensure that all equipment and standards are followed accordingly and accurately.

Recognition and Appreciation to the Healthcare Frontliners : A Visit from the Deputy Minister of Health Malaysia, YB Dato' Haji Dr Noor Azmi Ghazali

4th May 2020

The Deputy Minister of Health Malaysia, YB Dato' Haji Dr Noor Azmi Ghazali conducted a visit to the COVID-19 laboratory, IMR Jalan Pahang during fasting month on 4th May 2020. This meaningful visit was part of the "Program YBTMK Menyantuni Petugas Barisan Hadapan IJN, HKL & IMR", in recognition and appreciation for all healthcare front liners involved in COVID-19 response. The COVID-19 pandemic has caused significant pressure on the healthcare system, nevertheless, our frontlines healthcare workers has shown extreme resilience by continuing to devote their efforts to contain this pandemic. We are humbled by their immense commitment, invaluable dedication and unwavering focus in the fight against the COVID-19 pandemic, and at times risking their own lives for the health of the nation.



YB Deputy Minister of Health arriving at IMR



YB Dato' Haji Dr Noor Azmi Ghazali performing the "doa" before breaking fast



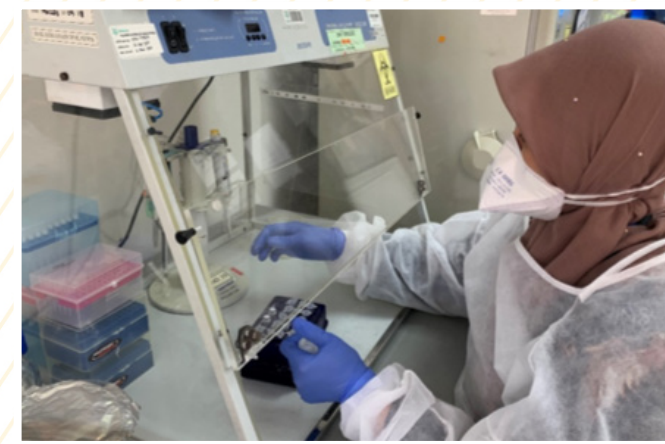
Deputy Minister of Health delivering food contributions as a token of appreciation to the frontline healthcare workers



OUR HEROES BEHIND THE SCENE: IMR Rapid Response in Diagnostic Capacity for COVID-19 in Malaysia

IMR is the biomedical research arm for the Ministry of Health Malaysia, which also provides training to laboratories nationwide while conducting over 300,000 specialized diagnostic tests annually. The Virology Unit of IMR has been on standby since early January 2020 in anticipation of a potential COVID-19 outbreak in Malaysia, following the outbreak in Wuhan, China. After scientists from China shared the coronavirus full genome sequences on 11th January 2020, IMR successfully developed a RT-PCR diagnostic protocol, a week before it was developed by the World Health Organisation (WHO).

The optimization of the real time RT-PCR was subsequently carried out and the testing reagents were provided to the National Public Health Laboratory (MKAK) Sungai Buloh to commence diagnostic testing for COVID-19 from 24th January 2020. Subsequently on 25 January 2020, IMR reported the first laboratory confirmed case of COVID-19 in Malaysia.



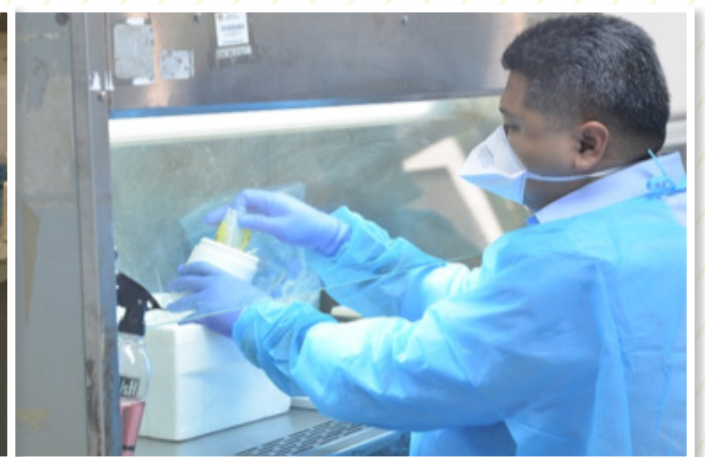
IMR Virology Officer conducting Real time RT-PCR Optimization Test for COVID-19.



Officers testing and validating the appropriate DNA sequencing for the "primers and probes" specific for COVID-19.



Strict infection control guidelines were adhered by all laboratory personnel, who had completed competency in Personal Protective Equipment (PPE) usage in the COVID-19 laboratory tests.





Medical Experts from China sharing their experiences on the COVID-19 Pandemic

• 22nd April 2020

Medical experts from the People's Republic of China which comprised of eight medical professionals, visited 13 medical institutes, public universities and research facilities in Malaysia to share experiences on measures against the COVID-19 pandemic. This medical expert team was organized by the China's National Health Commission which included experts in infectious disease, respiratory medicine, intensive care medicine, psychiatry and Traditional Chinese Medicine (TCM).

These experts were directly involved in the management of COVID-19 outbreak in Hubei Province, and it was indeed a privilege for IMR to engage them during their experience sharing session on 22nd April 2020. As international cooperation is essential in the fight against the Pandemic,

shared experiences and knowledge gained from the expert team have been invaluable, and provided a better understanding of the Covid-19 pandemic.

During the dialogue session, the medical experts shared their achievements on the surveillance, diagnosis, treatment and prevention during the COVID-19 pandemic in China. They also explained the Standard Operating Procedures used in their virus testing laboratories. During the session, personnel from IMR showed keen interest in learning from the expert experiences including the application of TCM in treating COVID-19 patients in China. In addition, both parties agreed to explore further cooperation in addressing the COVID-19 epidemic. The expert team was impressed by the professionalism

and dedication by IMR and Malaysia's capacity in containing the spread of COVID-19.

After the dialogue session, the medical experts visited the IMR Biomedical Museum where they were given a brief presentation on Dr Wu Lien Teh's roles in controlling the pneumonic plague outbreak in Manchuria, Northern China (1912-1931) by introducing public health measures similar to that of COVID-19, such as disinfection, contact tracing, quarantine, movement restriction and the use of face mask.



Welcome address and briefing on the COVID response was given by the director of IMR.



The medical experts responding to the questions raised during the dialogue session.



The Director of IMR presenting a token of appreciation to Dr Luo Xiao Dan, Associate Chief Physician of the Infection Department, Guangdong Provincial's People Hospital



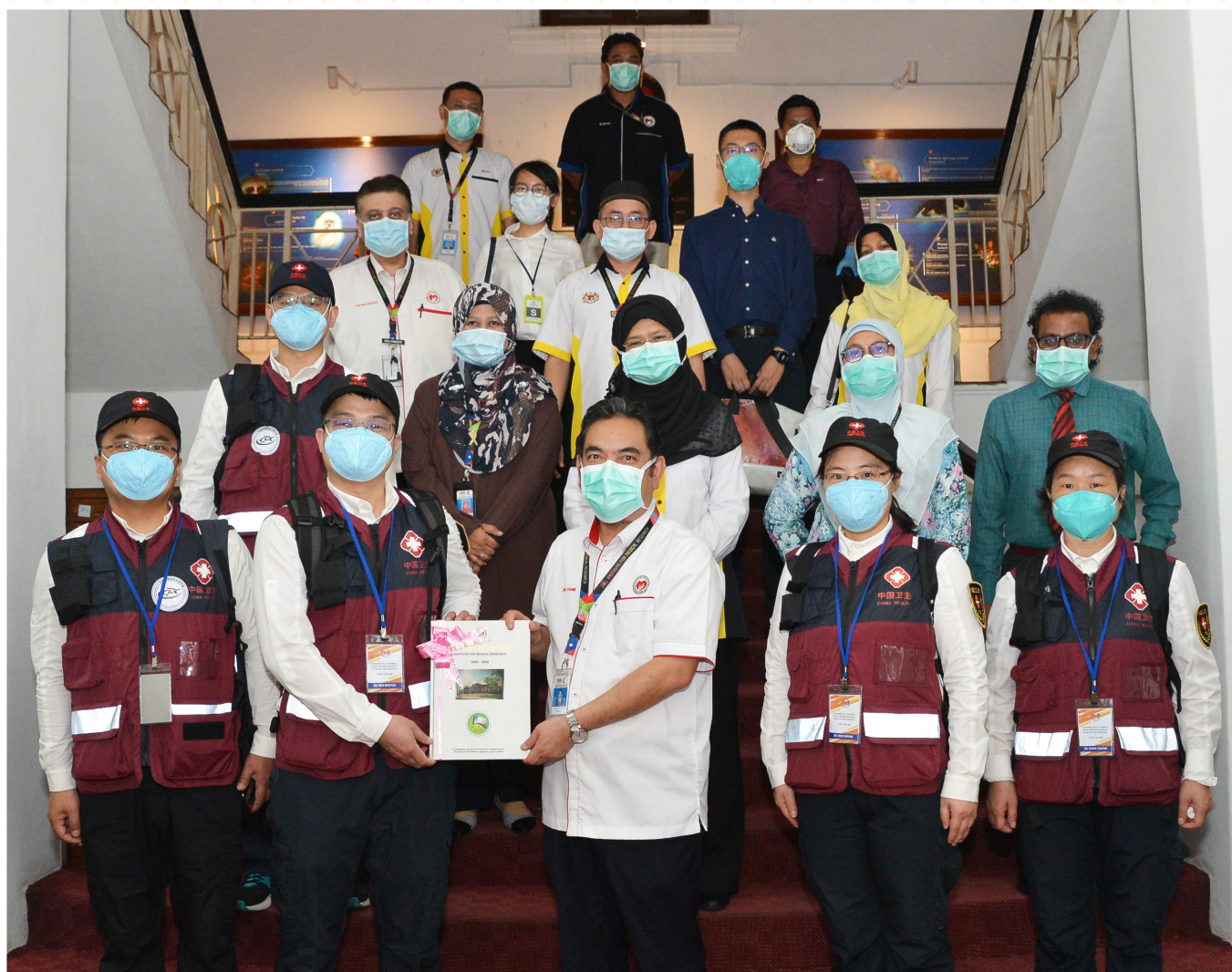
The team visiting Dr Wu Lien Teh's Gallery in IMR Biomedical Museum.



The China medical experts signing the guest book.



The Director of IMR presenting souvenir to the expert team.



Building National Capacity in COVID-19 Diagnostics

IMR is the premier institute in conducting researches, consultation, trainings and diagnostics that are essential to combat infectious disease outbreaks in Malaysia. Initially, IMR was the only laboratory capable of conducting COVID-19 diagnostic tests. Subsequently, IMR developed a capacity building program to provide COVID-19 diagnostic capacity to the MOH laboratories.

Training sessions and continuous technical consultations were provided by IMR to the 5 public health and 12 hospital laboratories throughout Malaysia to establish their capacity to provide COVID-19 diagnostics.

malaymail

FOLLOW

Malaysia's lab capacity for Covid-19 tests to hit 30,000 per day soon, says Dr Noor Hisham

MALAYSIA

By R. Loheswar
27 May 2020 at 19:07 • 1 MIN READ



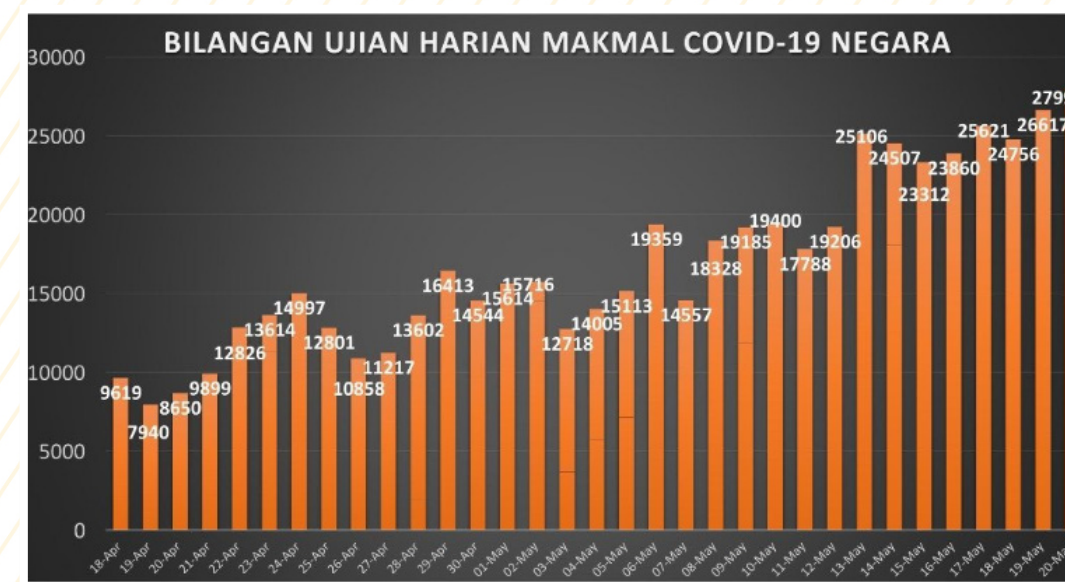
Health director-general Datuk Dr Noor Hisham Abdullah said there will be an increase of five more labs to boost the current turnover of 25,000 tests in case of a worst-case scenario. — Reuters pic



These initiatives undertaken by IMR have improved the diagnostic capacity of COVID-19 nationwide. The increased diagnostic capacity enabled MOH to accommodate to higher numbers of samples for testing. Apart from the training provided to public health and hospital laboratories, the increased in laboratory testing capacity was further strengthened through training provided by MKAK Sungai Buloh to 7 private laboratories in Malaysia.

As of 16th June 2020, the number of diagnostic laboratories was increased from the initial 6 to 43 laboratories nationwide, that include public health, hospital, university, armed forces, institute and private laboratories.

In addition, as of 27th May 2020, the COVID-19 testing capacity in Malaysia stands at 28 thousand tests per day.



The national diagnostic capacity for COVID-19 was significantly increased to 28 thousand tests daily from April to May 2020, after the intensive training provided by IMR to other laboratories since January 2020

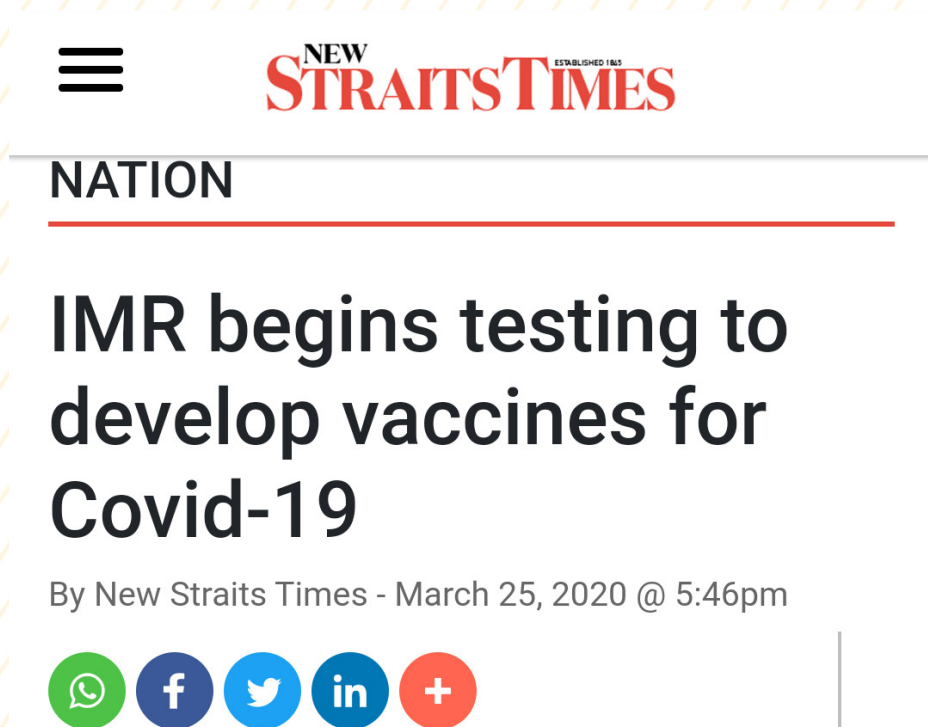
IMR joins the global race in COVID-19 vaccine development

IMR, in collaboration with the Malaysian Vaccines and Pharmaceutical Sdn Bhd (MVP) and University Malaya Tropical Infectious Diseases Research and Education Centre (TIDREC), has commenced to test existing potential vaccines against the SARS-COV2 virus since 25th March 2020. The 2 candidate vaccines being tested are namely Infectious Bronchitis virus (IBV) and avian coronavirus vaccine.

This collaborative work is evidently based on research previously conducted by scientists from other countries who reported the IBV in poultry has a high genetic similarity compared to human coronavirus. Therefore, it is hoped that a human vaccine can be developed from the poultry IBV vaccine against the Covid-19 pandemic.

Laboratory testing has commenced and is currently conducted at University Malaya's TIDREC, one of Malaysia's modular biosafety level 3 (BSL3) facility, previously used to study highly pathogenic agents such as MERS- Coronavirus and Nipah Virus.

Vaccine development essentially takes many years, nevertheless, this initiative is a valuable step forward to enable an accelerated development of the vaccine in the fight against this deadly pandemic.



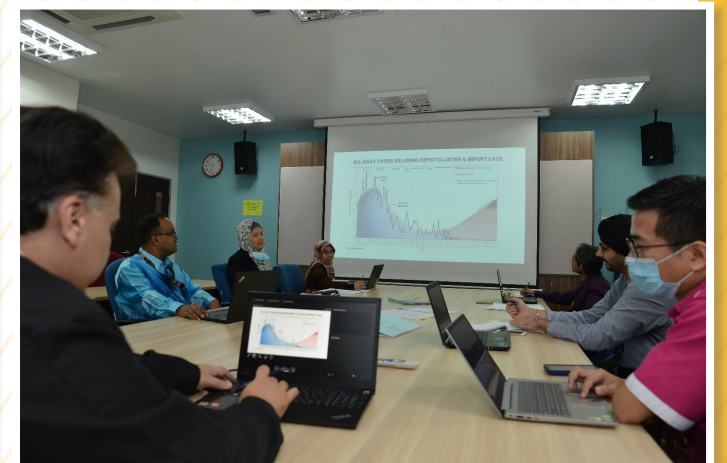
Forecasting COVID-19 trends in Malaysia using Statistical Models

The NIH modelling team headed by Dr Balvinder Singh Gill, which include officers from Special Resource Centre (SRC), IMR, Institute for Clinical Research (ICR), public and private universities, was established to develop models for the COVID-19 pandemic in Malaysia in order to forecast the disease trends and to determine the effectiveness of epidemic control measures especially the Movement Control Order. The forecast models developed includes the Susceptible-infectious-removed (SIR), Susceptible-exposed-infectious-removed (SEIR), Autoregressive Integrated Moving Average (ARIMA) and Bayesian models. The models were used to forecast daily, active and cumulative COVID-19 cases in Malaysia. Model updates were presented weekly at the National COVID-19 Operational Room, CPRC MOH to assist in decision making for the epidemic control measures to be undertaken.

In addition, the officers from SRC, IMR were assigned to provide technical assistance on the COVID-19 database, which includes cleaning and processing of the case dataset at CPRC MOH. Furthermore, daily 14-day COVID-19 moving map and cluster analysis were successfully developed to monitor the Districts Risk Reduction Program (DRRP). The zone mapping allowed CPRC to monitor changes in the COVID-19 cases in each district, therefore to assess the effectiveness of the MCO.



The NIH Statistical Modelling Team brainstorming in the conceptualization and exploration of different forecasting models



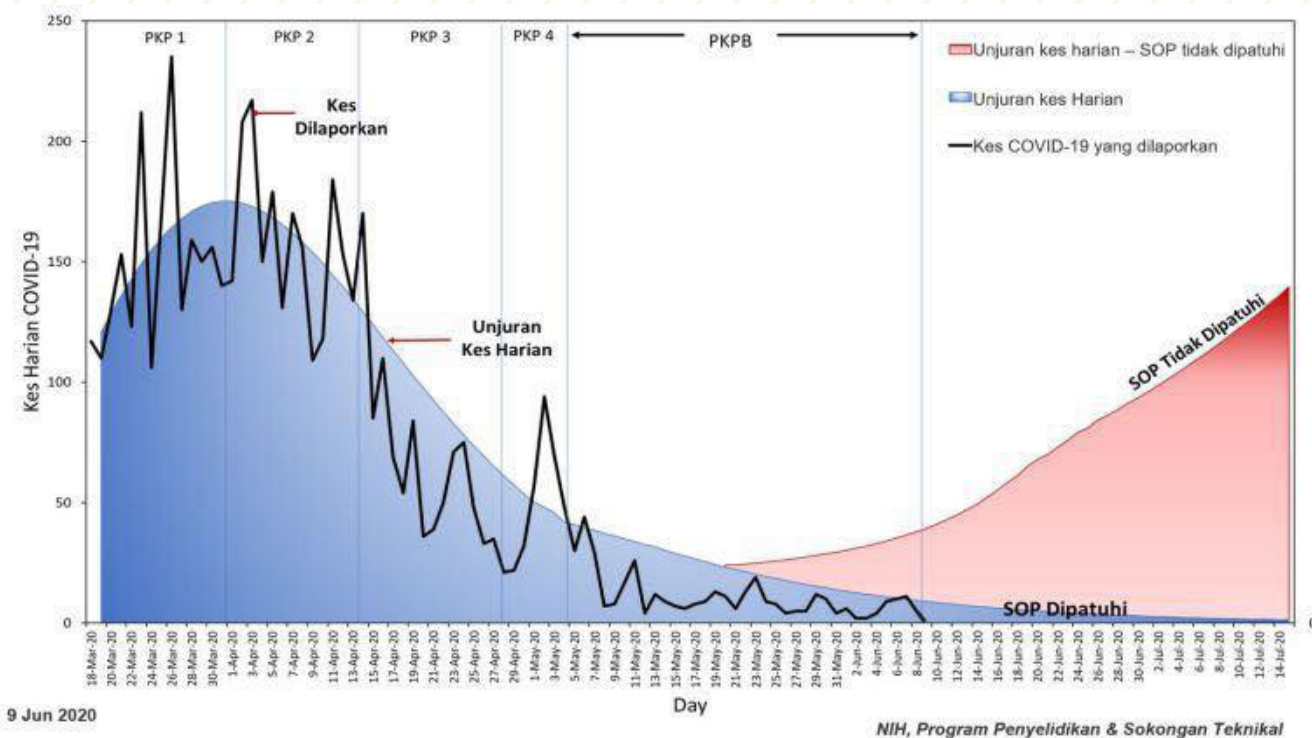
The statistical modelling was impactful in assisting the policy decisions for Covid-19 Control Strategies.



Dr Balvinder Singh Gill, the Head of COVID-19 Modelling Team of NIH, presenting and discussing with Dr Hj Tahir Aris, the IMR Director on the Susceptible-infectious-removed (SIR) models.



The COVID-19 Modelling predictions are employed to project the distribution of cases in the future. "Flattening the Curve" has shown the reduction in the number of cases which allows the healthcare services to better cope with the pandemic.



Article

Modelling the Effectiveness of Epidemic Control Measures in Preventing the Transmission of COVID-19 in Malaysia

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Received: 28 April 2020; Accepted: 2 July 2020; Published: 30 July 2020



Appreciation for the PPE Donations from the Co-op Bank Pertama (CBP)

The Co-op Bank Pertama (CBP) Volunteers, led by En. Mohd Nor bin Abd Razak, the Chief Executive Officer, provided donations of critically needed personnel protective equipment (PPE) to our frontline healthcare responders at IMR. The donation of Personal Protective Equipment was handed by En Mohd Nor bin Abd Razak, Chief Executive Officer of CBP to the IMR Director, Dr. Haji Tahir bin Aris. A total of 1,000 units Face Shield, 200 units Face Mask and 200 pairs of Glove were delivered to IMR, NIH Setia Alam as the great efforts from the Co-op Bank Pertama (CBP).

We wish a very special thank you to CBP who have come to support us on 28 April 2020.



The IMR director receiving PPE donations from the Chief Executive Officer of CBP



The representatives from CBP discussing with the IMR director

RM 3.1 million fund by Permodalan Nasional Berhad (PNB) to IMR

The Permodalan Nasional Berhad (PNB) contributed RM3.1 million fund to IMR on 15th May 2020, as part of their efforts in supporting eligible government agencies to finance healthcare equipment during COVID-19 pandemic. The funding was committed for the purchase of over 40 medical laboratory equipment including the fluorescent microscope, water purification system, thermal cycler, centrifuge concentrator, automated cell separator and biosafety cabinet to improve the performance and quality in IMR's laboratory services.

IMR thanks and appreciates PNB for their gracious support towards the fight against COVID-19.



The IMR Director, Dr. Haji Tahir Aris presenting certificate of appreciation to Encik Mohd Razaleigh Zainal, the Head of the Public Affairs Division PNB.



The group photo of Dr Tahir, the Representatives from IMR and PNB