

Specimen Collection, Handling and Transportation of MPOX

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MAKMAL KESIHATAN AWAM KEBANGSAAN

26 SEPTEMBER 2024

CONTENT

- 1. Personal Protective Equipment (PPE)**
- 2. Specimen Collection**
- 3. Specimen Packaging and Transportation**
- 4. Laboratory Request Form**
- 5. Laboratory Turn Around Time (LTAT)**
- 6. Rejection Criteria (example)**

Reference - Annex G

MANAGEMENT OF SUSPECTED/PROBABLE MPOX CASES IN OUTPATIENT SETTING

NO	CONTENT
1	Flowchart for Patient Management of Suspected/Probable mpox Case in Outpatient Setting
2	Annex A: Checklist on Screening Questions at Triage Counter Flowchart for Sampling of Suspected/Probable mpox Case in Outpatient Setting
3	Annex B: Differences between mpox and other Diagnosis
4	Annex C: mpox Clerking Guide
5	Annex D: Criteria for Hospital Admission
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Ministry of Health Malaysia
13 September 2024

LABORATORY TESTING (Real time PCR)

Specimen collection, Handling and Transportation

- 1.1 Collection of specimen
- 1.2 Specimen transportation
- 1.3 Request form
- 1.4 Laboratory Biosafety Guideline
- 1.5 Waste Disposal Management

PERSONAL PROTECTIVE EQUIPMENT (PPE)



- Risk Group 3 – high individual risk, low community risk. A pathogen that usually causes serious human or animal disease but does not ordinarily spread from one infected individual to another. Effective treatment and preventive measures are available.
- Route of transmission - Mpox can be transmitted through **close contact** with someone who has mpox, with **contaminated materials**, or with **infected animals**. During pregnancy, the virus may be passed to the fetus, or to the newborn during or after birth.
- PPE to protect respiratory, mucosal membrane and contact route :
 - i. **Disposable gown**
 - ii. **Double gloves**
 - iii. **Respirator N95**
 - iv. **Goggles / Face shield**

Selection of Specimen to Collect

Case Category	Disease Phase	Signs / Symptoms	Specimens to Collect	Remark
Suspected or probable case	Rash	Vesicles or Pustules	Lesion fluid	Swab two separate lesions using different swabs and place both swabs into the same vial containing VTM (preferred) OR sterile container
		Scabs or Crusts	Lesion scab or crust	Two specimens taken from different locations and put into the same sterile container
Contact	Prodrome	Early stage of fever	Tonsillar swab	Each tonsillar swab and NPS should be collected into separate VTM tubes
			Nasopharyngeal swab	

Note :

Serum / blood is not recommended for the viral detection by PCR (low viral load) and not useful for diagnosis of acute illness

Specimen Collection

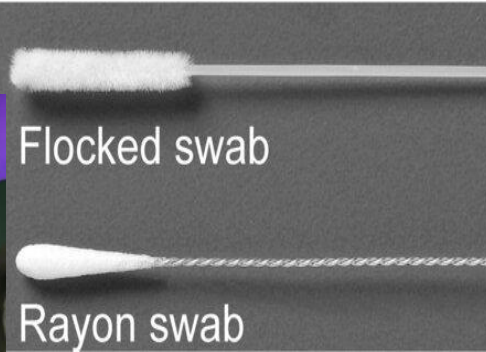
Test Method	Type of Specimen	Materials / Container	Method
Realtime PCR	Lesion fluid swab (2 lesion)	<ol style="list-style-type: none"> 1. Sterile synthetic / Dacron swab (DO NOT use cotton swab) 2. Sterile screw-capped tube with 1.5 – 3 ml of VTM 3. Sterile screw-capped container 	<ol style="list-style-type: none"> 1. Do not clean lesion prior to swabbing 2. Hold the swab with a firm grasp 3. Swab the lesion surface back and forth 2 to 3 times then rotate and repeat on the other side of the swab at least 2 to 3 times 4. Repeat using another sterile swab at different lesion (preferably different location) 5. Place in the VTM tube/sterile container 6. Screw capped properly
	Scab / Crust (2 scab/crust)	<ol style="list-style-type: none"> 1. Forceps or other blunt-tipped sterile instrument. 2. Sterile screw-capped container 	<ol style="list-style-type: none"> 1. Do not clean skin surface prior to swabbing 2. Use forceps or other blunt-tipped sterile instrument to remove the crust at least 4mm x 4mm 3. Place the crust into a dry, sterile container 4. Repeat by taking another scab/crust at different location. 5. Cover expose skin with band aid 6. Screw capped properly

Note : Lesion fluid MUST NOT be put in same container with Lesion Scab/crust

Specimen Collection

Test Method	Type of Specimen	Materials / Container	Method
Realtime PCR	Tonsillar swab	<ol style="list-style-type: none"> 1. Sterile synthetic / Dacron swab (DO NOT use cotton swab) 2. Sterile screw-capped tube with 1.5 – 3 ml of VTM 	<ol style="list-style-type: none"> 1. Swab or brush posterior tonsils with a sterile dry polyester or Dacron swab 2. Place in the VTM tube/sterile container 3. Screw capped properly
	Nasopharyngeal swab	<ol style="list-style-type: none"> 1. Sterile synthetic / Dacron swab (DO NOT use cotton swab) 2. Sterile screw-capped tube with 1.5 – 3 ml of VTM 	<ol style="list-style-type: none"> 1. Swab the nasopharynx with a sterile dry polyester or Dacron swab 2. Place in the VTM tube/sterile container 3. Screw capped properly

SWAB TO USE



Synthetic tipped swaps (polyester, nylon, Dacron, etc.) with plastic, wood, or aluminum shafts are recommended



1. Use the cap as barrier to prevent recoil when breaking the swab's shaft



2. Carefully bend the shaft few times to break it

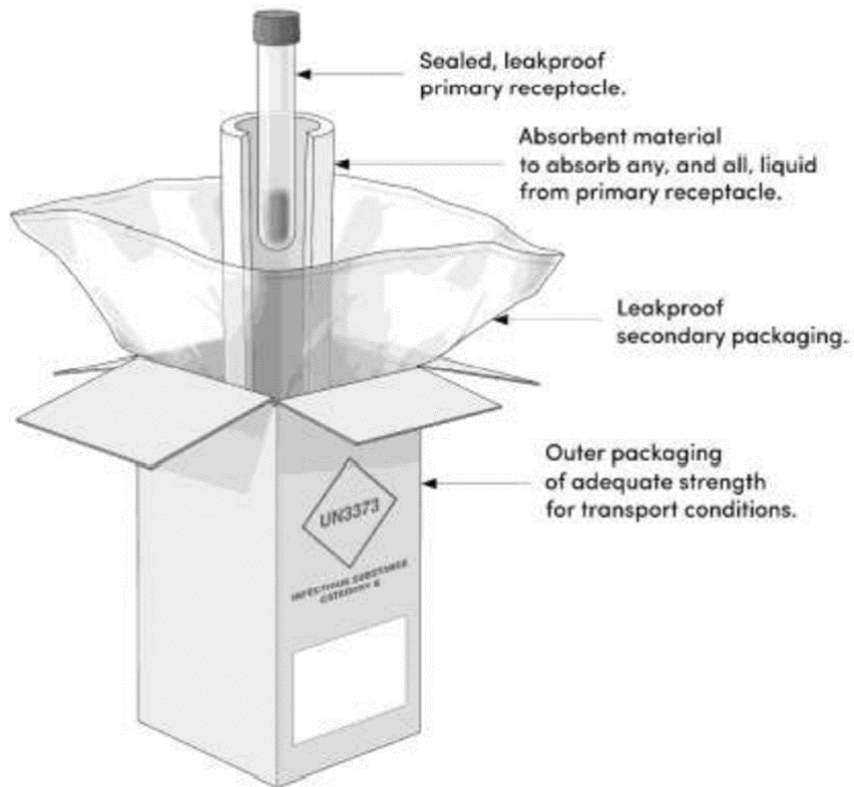


3. Tight the cap properly and decontaminate the surface of tube

SPECIMEN STORAGE

- Must be kept at 2°C to 8°C within 1 hour after collection
- If the specimen cannot be transported within 48 hours, it should be stored at -20°C or lower
- Repeated freeze thaw should be avoided because it can reduce the quality of specimens

SPECIMEN PACKAGING & TRANSPORTATION



1. Label specimen with the patient's name, identification number, collection date, type of specimen, and body location for lesion specimens.
2. Pack the tube or specimen container individually into biohazard ziplock plastic bag and seal by pressing fingers along the zipper line. This will push the interlocking tracks together and close the bag.
3. Put the specimen into polystyrene/Styrofoam box. It is important to secure the specimen in an upright position.
4. Place sufficient ice packs/gels surrounding the specimen container to maintain the temperature 2°C to 8°C throughout the transportation.
5. Seal or close tight the polystyrene/styrofoam box
6. Keep laboratory request forms inside a sealed plastic bag and paste on the outside of the box.
7. Mark the box:
 - a) name and address of requestor
 - b) name and address of receiving laboratory
 - c) Category B, Biological substance
 - d) 24-hour emergency contact number
 - e) MPOX (risk assessment)
8. **Contact and communicate with the testing lab prior to transportation.**

TRIPLE PACKAGING SYSTEM



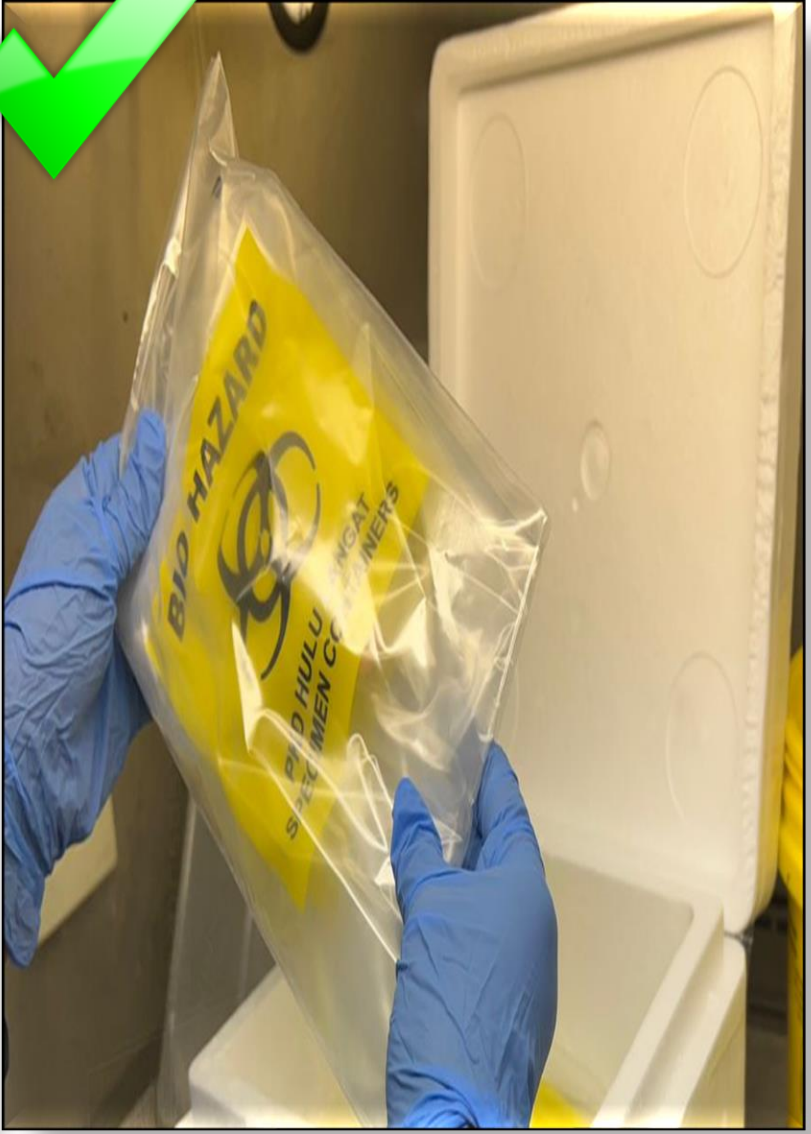
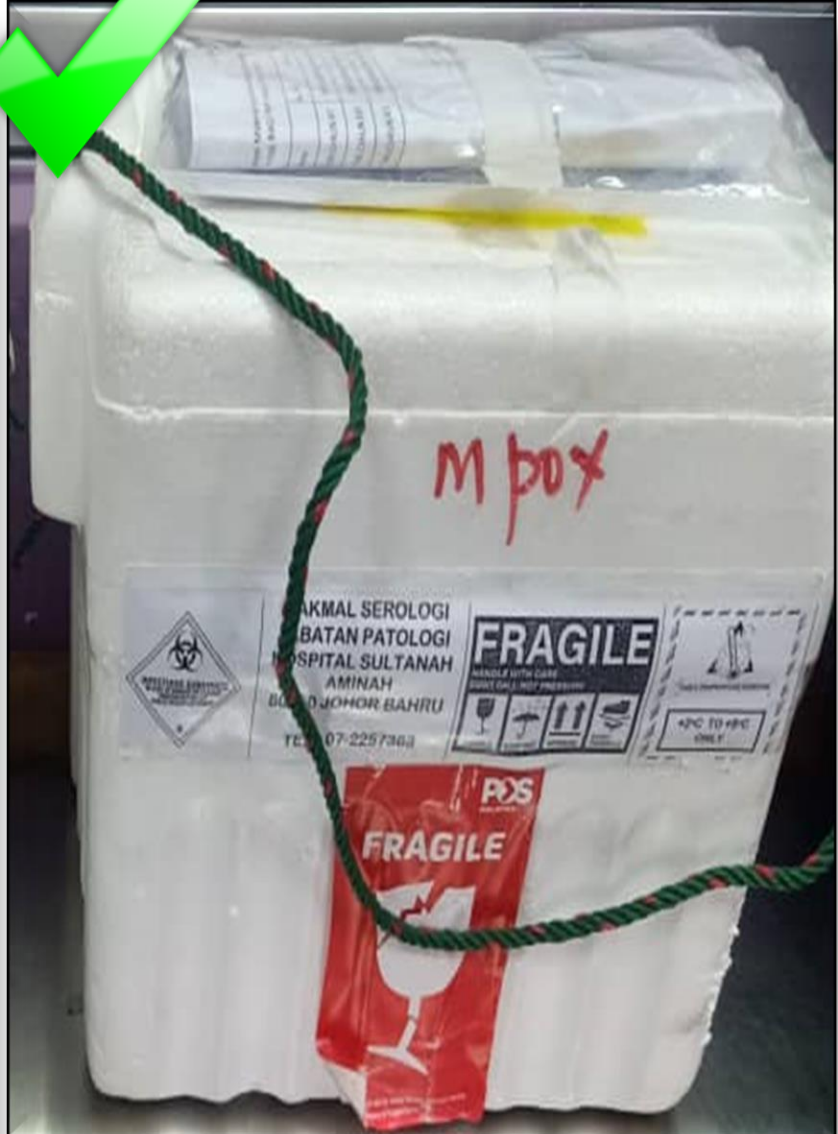
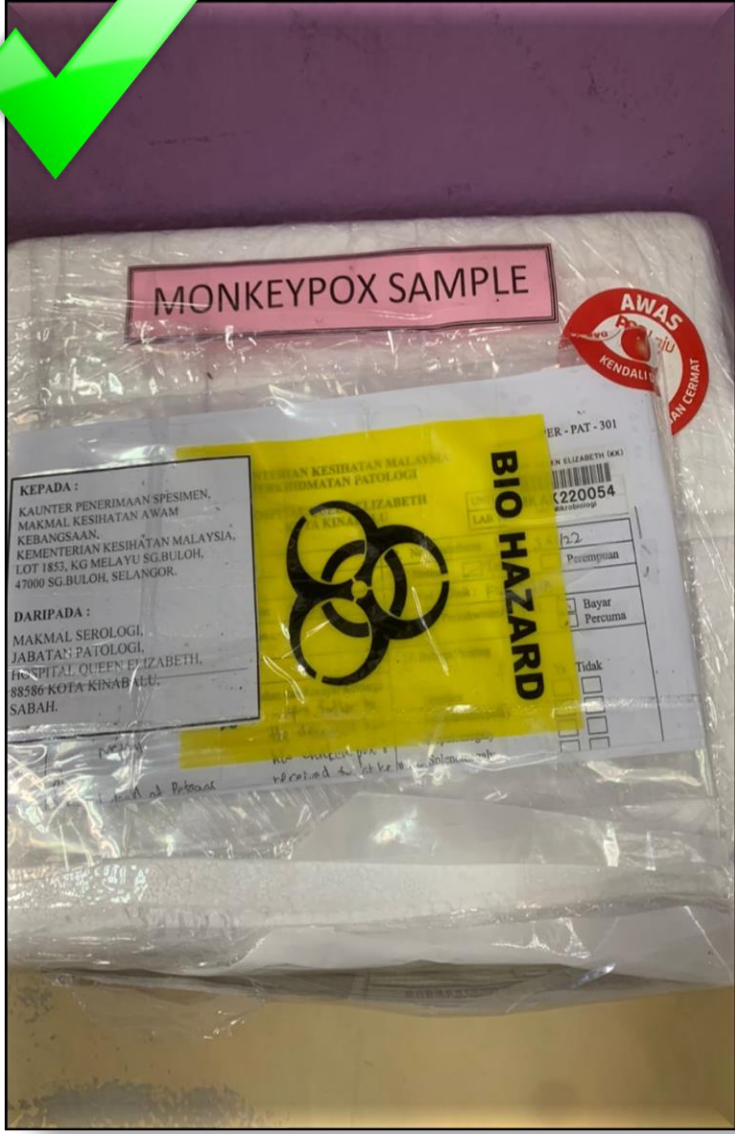
**Primary receptacle
sealable, leak-proof material**



**Secondary receptacle
watertight, leak-proof biohazard
plastic bag**



**Outer packaging
Rigid Outer box, recommended
Styrofoam**



LABORATORY REQUEST FORM

In order to interpret test results, it is critical that patient information is provided with the specimens, including (but not limited to):

- i. Name
- ii. Identification Number
- iii. Type of test
- iv. Type of Specimen
- v. Date of onset of fever
- vi. Date of onset of rash
- vii. Other clinical signs
- viii. date of specimen collection
- ix. Status of the individual (stage of rash)
- x. Nationality/country
- xi. Travel history to Mpox affected country
- xii. Contact history with Mpox patient
- xiii. Date specimen sent to laboratory
- xiv. Requestor details i.e., name, contact number, email address

IMR LABORATORY REQUEST FORM

IMRIDRC/VIROADMIN/3

VIROLOGY TEST REQUEST FORM
Virology Unit, Infectious Diseases Research Centre (IDRC)
 Institute For Medical Research (IMR), National Institutes of Health (NIH)
 No 1, Jalan Setia Utama U13/S2, Subang Jaya, Setia Alam, 40170 Shah Alam, Selangor

Phone: 03-5362 8900
 Email: virologi@imr.gov.my

IMR

1. Name: _____

2. ICD No: _____

3. ICD No: _____

4. Ward/Clinic: _____ 5. Age: _____ 6. Race: _____

7. Gender: Male Female

8. Hospital: _____

9. Specimen type: _____

10. Clinical History/Laboratory information: _____

11. Diagnosis: _____

PLEASE FILL UP SPECIFIED REQUEST FORMS FOR FOLLOWING TESTS
 (https://www.imr.gov.my/index.php?option=com_content&view=article&id=107:diagnostic-service-forms)

No.	Test Offered	Please tick
1.	Polio Virus and Non-Polio Virus (Acute Flaccid Paralysis)	
2.	Confirmation for HIV 1 / 2	
3.	HIV-1 RT-PCR (Qualitative)	
4.	HIV-1 RNA RT-PCR for babies (0-18 months)	
5.	HIV-2 qRT-PCR (by Consultation Only)	
6.	HIV Drug Resistance Test (Protease and Reverse Transcriptase)	
7.	HIV Drug Resistance Test (Integrase)	
8.	SARI Surveillance (Influenza A, B dan SARS-CoV-2 qRT-PCR) *Test is for selected sentinel labs only	
9.	St Louis Encephalitis Virus (SLEV)	
10.	West Nile Virus	
11.	Yellow Fever Virus	
12.	Muscle Virus	
13.	Rabies Virus	
14.	Zika Virus	
15.	Norovirus qRT-PCR	
16.	Viral Isolation Norovirus	
17.	Asian Influenza (H5N1/H9N9)	
18.	Formosan Casar Norovirus qRT-PCR	
19.	Hanta Pulmonary Syndrome (Sin Nombre Orthohantavirus)	
20.	Hanta Renal Syndrome (Neural & Human Virus)	
21.	Real Time PCR for Single Target Virus	
22.	Adenovirus F41 qRT-PCR	
23.	Adenovirus D IgM	
24.	Adenovirus E IgM	
25.	SARS-CoV 2 Antibody	
26.	Monkeypox qRT-PCR	

Version 1.1 Issued Date: 22/06/2022 Approved By: Head of Virology Unit, IDRC

IMR

Virology test request

<https://imr.nih.gov.my/en/services-menu/menu-specific-request-form>

OR

Borang PER-PAT 301

MOH HOSPITAL LABORATORY REQUEST FORM

(PER-PAT 301)

KEMENTERIAN KESIHATAN MALAYSIA
PERKHIDMATAN PATOLOGI

HOSPITAL.....

UNTUK KOGUNAAN MAKMAL
LAB No.

1. Nama:		2. No. Pendaftaran:	
3. No. K/P:		4. Jantina: <input type="checkbox"/> Lelaki <input type="checkbox"/> Perempuan	
5. Umur:	6. Keamatan:	7. Wad/Klinik:	
8. Tarikh Masuk Wad:	9. Pekerjaan:	10. Taraf Perkahwinan:	11. <input type="checkbox"/> Bayar <input type="checkbox"/> Percuma
12. No. Laporan Dahulu:		13. Batiran Penting	
14. Ringkasan Klinikal, Peremuan Postbedahan dan Riwayat Keluarga:		Ya	Tidak
		Jandicia <input type="checkbox"/>	<input type="checkbox"/>
		Lymphadenopathy <input type="checkbox"/>	<input type="checkbox"/>
		Hepatomegaly <input type="checkbox"/>	<input type="checkbox"/>
		Splenomegaly <input type="checkbox"/>	<input type="checkbox"/>
		Bleeding Tendency <input type="checkbox"/>	<input type="checkbox"/>
		H/O Transfusi <input type="checkbox"/>	<input type="checkbox"/>
		Haematinics	
		
		Drug/Chemical History	
		
		Data Makmal Terdahulu	
		Hb	
		Platelet	
		TWDC	
15. Diagnosis:			
16. Kategori Permohonan/Jenis Ujian:			
<input type="checkbox"/> Patologi Klinikal	<input type="checkbox"/> Klinikal	<input type="checkbox"/> Haematologi	<input type="checkbox"/> Histo/Sitologi
<input type="checkbox"/> B. Sagar	<input type="checkbox"/> Bil. Count	<input type="checkbox"/> FBP	<input type="checkbox"/> Spesimen
<input type="checkbox"/> B. Urin	<input type="checkbox"/> ESR	<input type="checkbox"/> BM Asp.	<input type="checkbox"/> Spesimen
<input type="checkbox"/> S. Eter	<input type="checkbox"/> RFMP	<input type="checkbox"/> Hb Analysis	<input type="checkbox"/> Ujian
<input type="checkbox"/> B. Gasus	<input type="checkbox"/> U. Sagar	<input type="checkbox"/> Coagulation	
<input type="checkbox"/> S. Bilirubin	<input type="checkbox"/> U. Aih.		
<input type="checkbox"/> LFT	<input type="checkbox"/> U. ME		
<input type="checkbox"/> Sc. Creatinine	<input type="checkbox"/> Stool ME		
Lain-lain			
17. Pengambilan Spesimen: Tarikh: [][]/[][] Masa: [][]			
18. Nama Doktor:			
19. Tarikh:			
Tandatangan dan Cop Doktor			

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HOSPITAL
Borang PER-PAT 301

LABORATORY FOR MPOX TESTING

NO	TESTING LABORATORY	REQUESTING HEALTH FACILITY
1	Makmal Kesihatan Awam Kebangsaan (MKAK)	Klinik Kesihatan di Zon Tengah (Negeri Sembilan, Melaka, Selangor, WP Kuala Lumpur dan Putrajaya, Pahang)
2	Makmal Kesihatan Awam Ipoh (MKAI)	Klinik Kesihatan & Hospital (KKM dan universiti) di Zon Utara (Perlis, Kedah, Perak & Pulau Pinang)
3	Makmal Kesihatan Awam Kota Kinabalu (MKAKK)	Klinik Kesihatan & Hospital (KKM & universiti) di Sabah & WP Labuan
4	Makmal Kesihatan Awam Kota Bharu (MKAKB)	Klinik Kesihatan & hospital (KKM & universiti) di Kelantan & Terengganu
5	Makmal Kesihatan Awam Johor Bahru (MKAJB)	Klinik Kesihatan & hospital (KKM & universiti) di Johor
6	Institut Penyelidikan Perubatan (IMR)	Semua hospital (KKM & universiti) di Zon Tengah (Negeri Sembilan, Melaka, Selangor, WP Kuala Lumpur & Putrajaya, Pahang)
7	Hospital Sultanah Maliha, Langkawi	Klinik Kesihatan & hospital di Langkawi
8	Hospital Umum Sarawak (HUS)	Klinik Kesihatan & hospital (KKM & universiti) di Sarawak
9	Neogenix Laboratories Sdn Bhd	Hospital & klinik swasta
10	Innoquest Pathology Sdn Bhd	
11	BP Healthcare	
12	Dunia Wellness Laboratories Sdn Bhd	
13	Pathology & Clinical Laboratory (M) Sdn Bhd (PATHLAB)	
14	Lablink (M) Sdn Bhd	

LABORATORY TURN AROUND TIME (LTAT)

MPXV REAL TIME PCR

48 hours

KRITERIA PENOLAKAN BORANG PERMOHONAN

MKAK-BPU-U01/Rev2018

BORANG PERMOHONAN UJIAN MAKMAL (SPESIMEN KLINIKAL)
MAKMAL KESIHATAN AWAM

NO Rujukan Makmal (MKA):

A. MAKLUMAT PESAKIT

Nama Pesakit: _____ Umur: 24yo
No X / Lain-lain: _____ Jantina: L
Warga Negara: Malaysia Bangsa: Melayu
Alamat: _____ Pekerjaan: _____
No. Tel: 011-222-2222 Status perkahwinan: Bujang Berkahwin Lain-lain

B. TUJUAN PERSAMPULAN Tanda (✓) yang berkenaan

Wabak/ Kluster	Pesakit (Ada gejala)	<input checked="" type="checkbox"/>
Susulan	Kes	<input type="checkbox"/>
Disseminasi	Kontak	<input type="checkbox"/>
Projek		<input type="checkbox"/>
Lain-lain		<input type="checkbox"/>

LAIN-LAIN MAKLUMAT

Lokasi kejadian: _____
Sejarah melancong: Ada / Tiada Negara: _____
Tarikh keluar: _____ Tarikh masuk: _____

D. RINGKASAN KLINIKAL

do fever me 4/12 - 07 today
Pain Ds developed 4 days
and UA 15x
0 140 travel / contact

Tanda (✓) yang berkenaan	Tanda dan Gejala	Ada (✓)	Tarikh onset	Tanda dan Gejala	Ada (✓)	Tarikh onset
1) Demam (°C)	61.6 9am	<input checked="" type="checkbox"/>	4/12/23	7) URTI	<input checked="" type="checkbox"/>	2/12/23
2) Selsema		<input type="checkbox"/>				
3) Cirit-birit		<input type="checkbox"/>				
4) Muntah		<input type="checkbox"/>				

Status & tarikh imunisasi berkaitan: Ada _____ Tarikh: _____ Tiada _____ Tidak diketahui _____

E. MAKLUMAT SPESIMEN

Jenis Spesimen	Jenis ujian dipohon	Tarikh diambil	Tarikh dihantar	Tanda Tangan Pegawai yang mengambil spesimen (sila cop)
Blood	Wabak	6/12	6/12	
Nasal Pharyngeal	Wabak	6/12	6/12	
Oral	Wabak	6/12	6/12	
Lejutan (S) faeces	Wabak	6/12	6/12	

F. BUTIRAN PEMOHON

Nama: _____ Jawatan: _____
Tempat ber: _____ (sila cop)
No H/P: _____
RK/PKD/Hospital: _____ Nama Pusat Transit: _____
Daerah: _____ Negeri: _____

G. BUTIRAN MAKLUM TRANSIT

Nama: _____ Jawatan: _____
Tempat bertugas (sila cop): _____
No tel & samb: _____ Email: _____
Nama Pusat Transit: _____
Daerah: _____ Negeri: _____

H. MAKLUM (untuk kegunaan MKA):

Unit Pengurusan Spesimen	Makmal	Catatan
Suhu: °C	Jenis sampel: _____	Terima / Tolak
Sampel: Terima / Tolak	Sampel dim transport media: _____	Suhu: °C
Nama Penerima: _____	Ya / Tidak	
Tarikh & masa: _____	Nama Penerima: _____	
Reputasi ujian disahkan oleh: _____	Tarikh & Masa: _____	Tarikh: _____

1. Borang tidak disertakan dengan sampel
2. Tiada nama pesakit / No identiti
3. Nama pesakit / No identiti berlainan dengan sampel
4. Tiada butiran pemohon
5. Tiada dinyatakan ujian yang dipohon
6. Tiada tarikh dan masa pengambilan sampel
7. Borang rosak terkena sampel tumpah
8. Borang koyak, maklumat tidak jelas
9. Tiada nama/pengesahan pegawai pemohon
10. Salah borang

KRITERIA PENOLAKAN *SAMPEL*



Sampel dihantar tanpa label

- Sampel tidak disertakan dengan borang
- Sampel tumpah / bocor / pecah
- Sampel tidak sesuai untuk dianalisa
- Nama / KP / RN pada sampel berlainan dengan borang
- Maklumat pada sampel tidak jelas
- Sampel terkena tumpahan sampel lain
- Suhu penghantaran tidak sesuai
- Kaedah penghantaran yang tidak sesuai
- Tiada label / maklumat pesakit pada sampel

CONTOH PENOLAKAN *SAMPEL*



*Multiple samples of different patients [MPOX & Non-MPOX] received in **biohazard bag** used as third packaging & cold chain not maintained – Affects viability of virus & inappropriate strength to contain the inner composition & risk of leakage due to not rigid / unable to withstand shocks*

CONTACT PERSON

The Director,
Family Health Development Division
(Tel no. 03-8883 2171/ 8883 2159 / Email : bpkk@moh.gov.my)
Attention: Dr Siti Khadijah bt Ahmad Tajuddin / Dr Rajini Sooryanarayana)

The Director,
Disease Control Division
Email : zoonosis@moh.gov.my

The Director,
National Public Health Laboratory
(Tel no. 03- 6126 1271 / Email : njasmin@moh.gov.my)
Attention: Dr Santhi Subramaniam



 **SELAMAT DATANG KE LAMAN WEB RASMI**
MAKMAL KESIHATAN AWAM KEBANGSAAN
KEMENTERIAN KESIHATAN MALAYSIA

22
JUL
Pemakluman Pembukaan Semula Sistem SIMKA Outbreak

20
AUG
KESIAPSIAGAAN BAGI MENGHADAPI RISIKO JANGKITAN MPOX DI MALAYSIA

01
AUG
Jadual Oncall



THANK YOU FOR YOUR TIME! VISIT OUR WEBSITE FOR MORE INFORMATION AND RELEVANT RESOURCES

<https://mkak.moh.gov.my/>