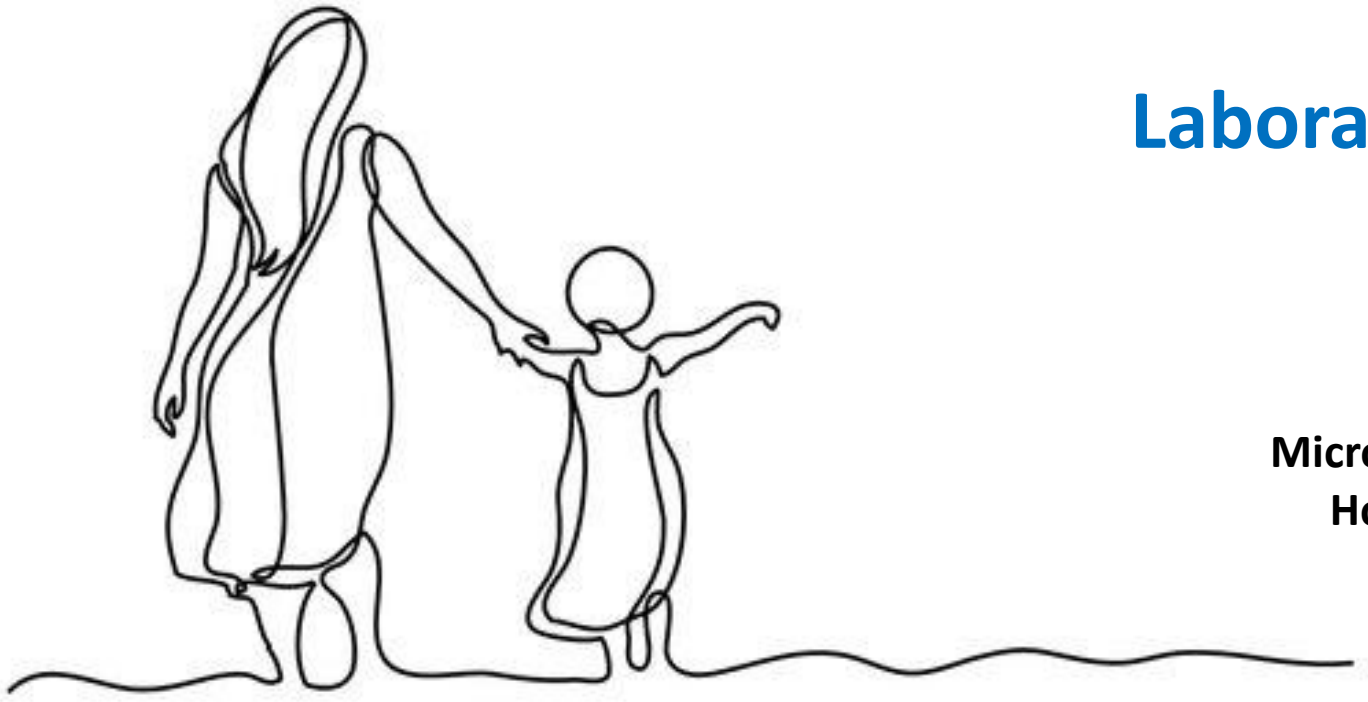
Kursus Pengurusan Kes
Prevention Mother-To-Child Transmission (PMTCT) HIV Dan Sifilis
Peringkat Negeri Johor
2023



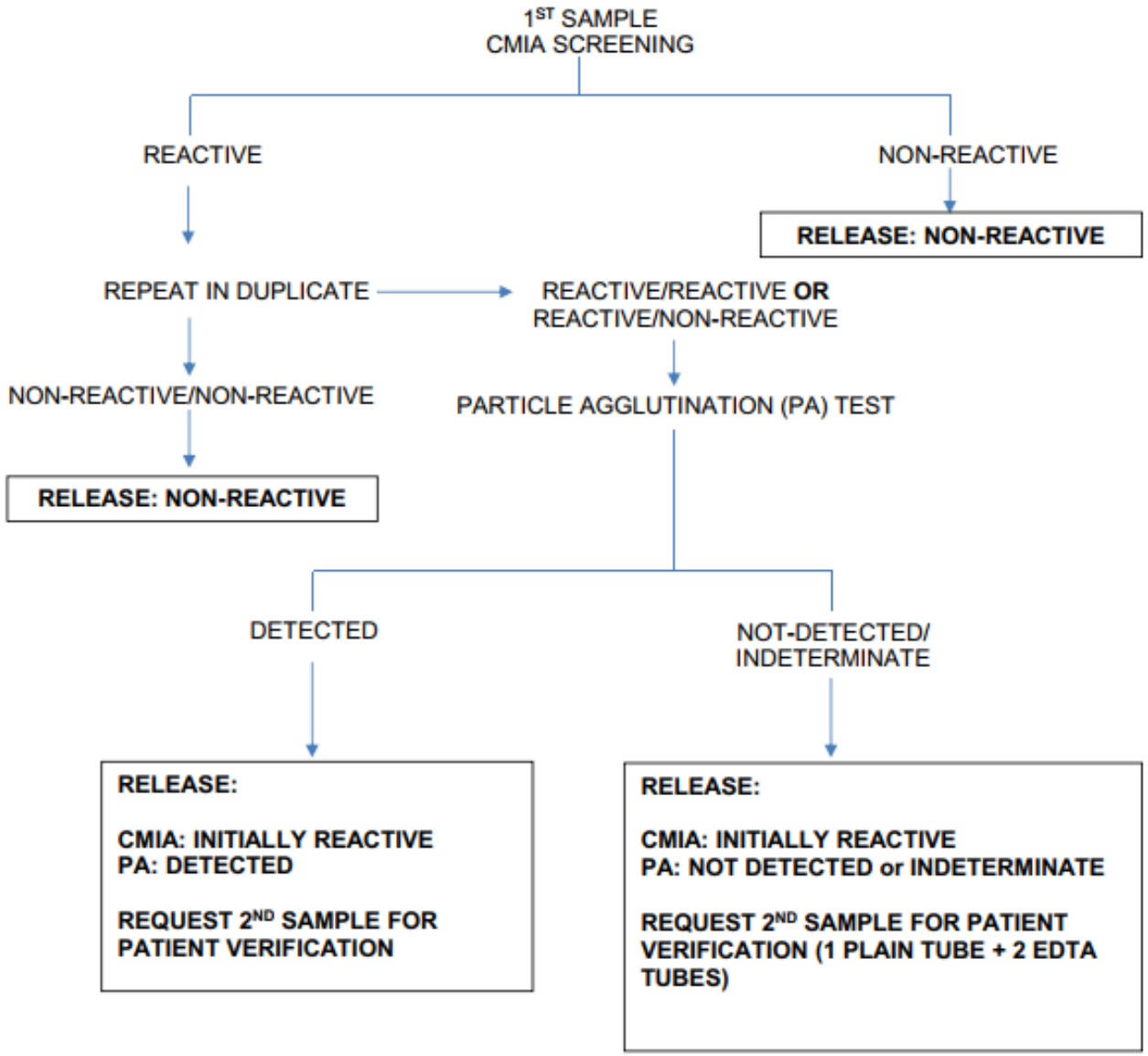
Laboratory Approach in PMTCT HIV and Syphilis

Dr Sharlini Devi Guna Segaran
Microbiology Unit, Department of Pathology
Hospital Sultanah Aminah Johor Bahru

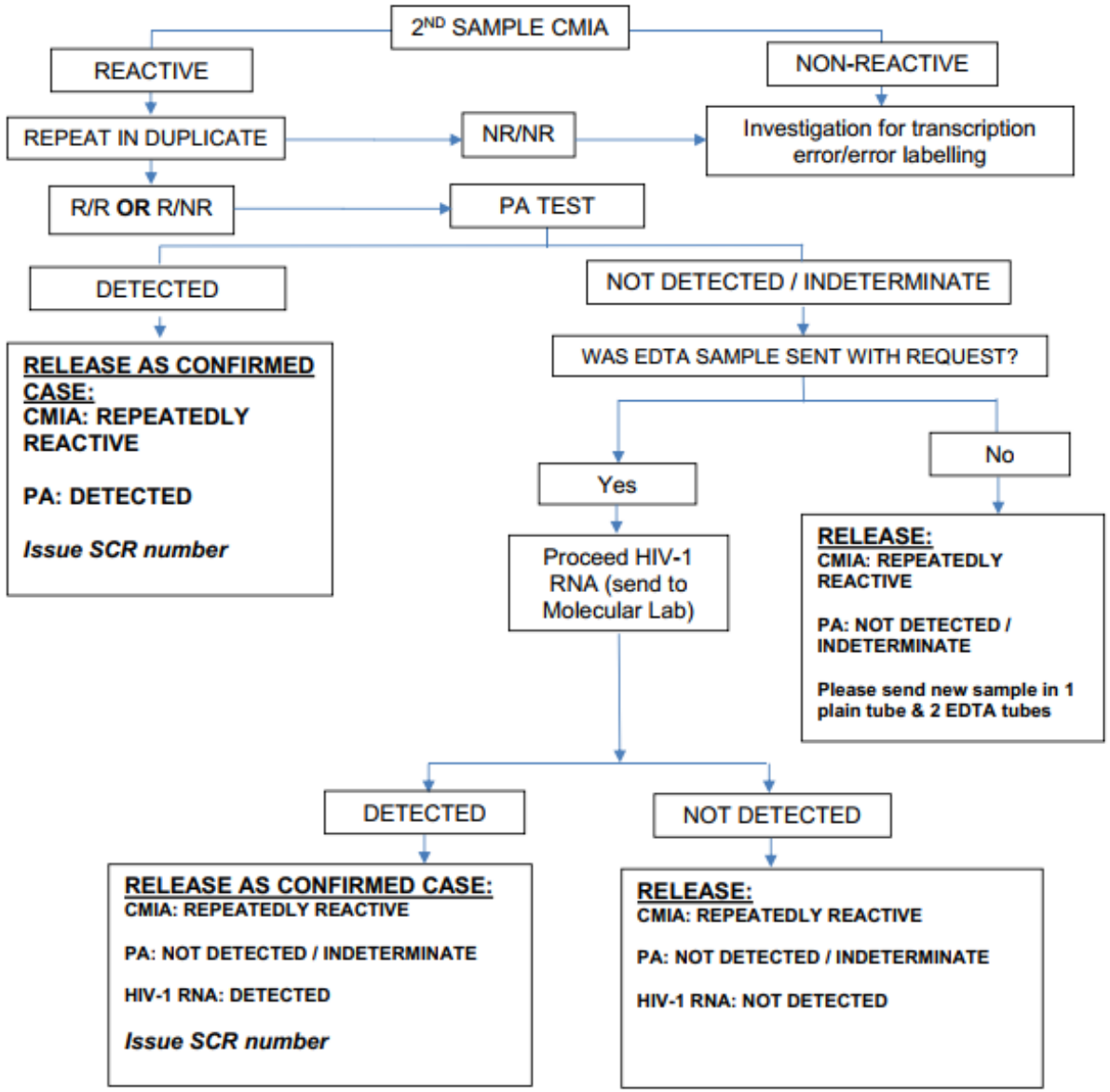
District	Sample Receiving Hospital
Johor Bharu Pontian Kulai Kota Tinggi Mersing	Hospital Sultanah Aminah
Cases in HSI	Hospital Sultan Ismail
Segamat	Hospital Segamat
Muar Tangkak	Hospital Pakar Sultanah Fatimah
Kluang	Hopital Enche' Besar Hajjah Khalsom
Batu Pahat	Hospital Sultanah Nora Ismail

HIV Diagnostic Tests

FLOWCHART: HIV SCREENING AND CONFIRMATORY TEST



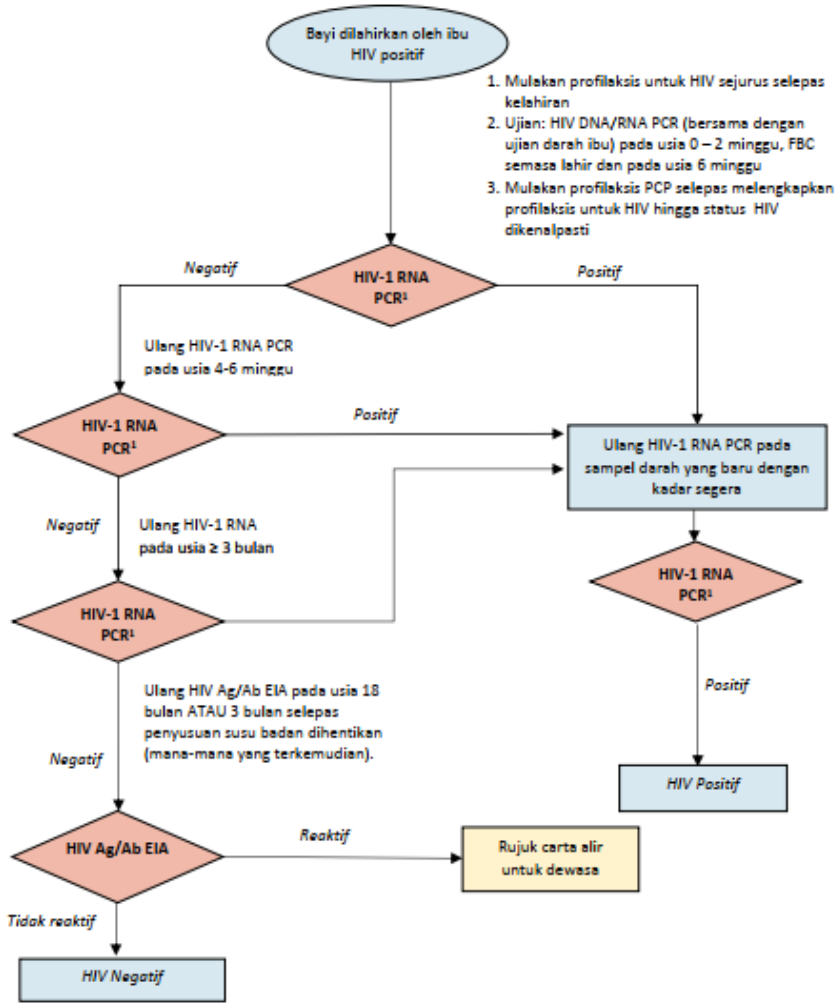
HIV SCREENING AND CONFIRMATORY TEST (CONTINUE)



WHO recommends that all HIV testing algorithms achieve PPV of at least 99% and use a combination of tests with ≥99% sensitivity and ≥98% specificity.

WHO, 2021

Rajah 4: Carta alir pengurusan dan rawatan bayi yang dilahirkan oleh ibu HIV positif

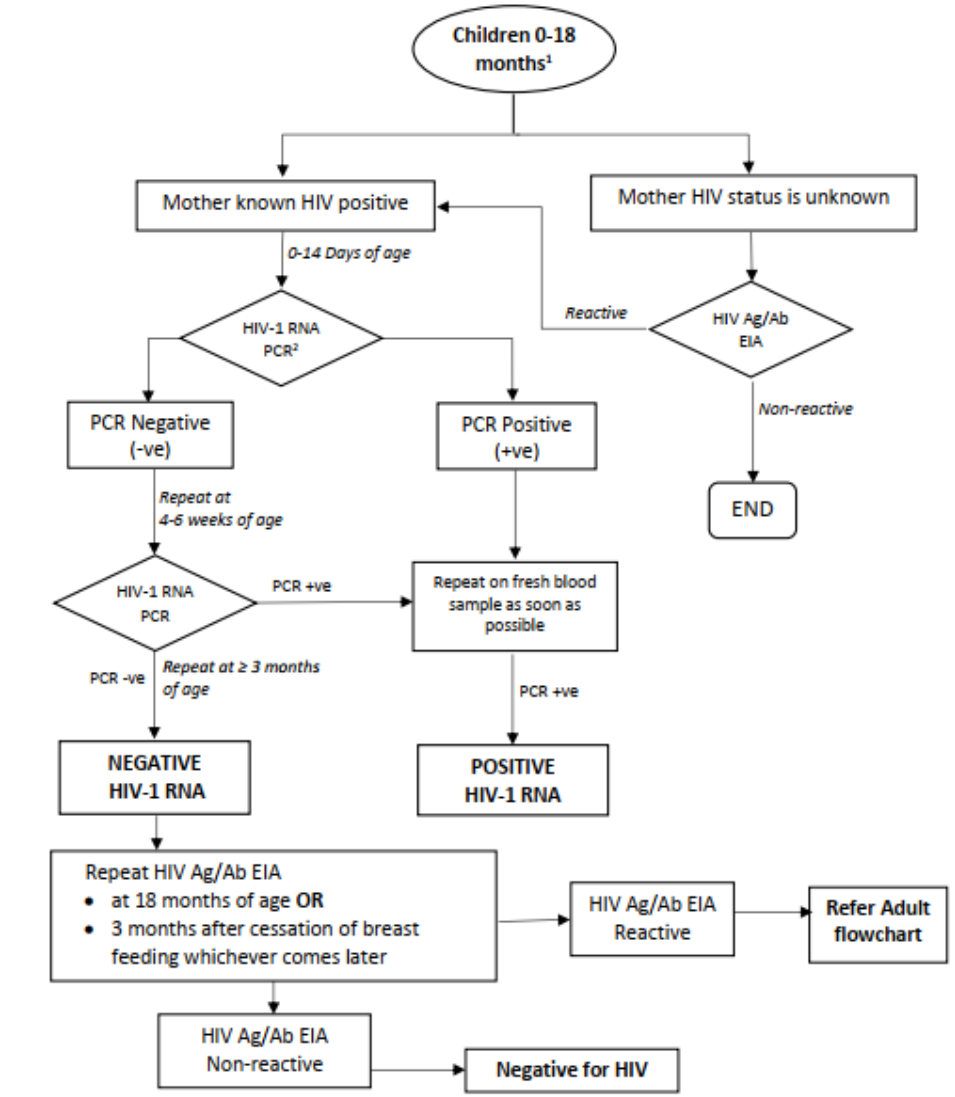


Nota:
Ujian [1]HIV RNA PCR: 2.5mls darah dalam botol EDTA. Spesimen hendaklah ditransport pada suhu yang bersesuaian secepat mungkin ke Makmal Virologi, IMR Kuala Lumpur. Jika tidak dapat dihantar dalam tempoh 24 jam, simpan spesimen pada suhu 2-8°C (maksimum 3 hari sahaja). **JANGAN DIBEKUKAN.**

Rujukan: Surat pekeliling Ketua Pengarah Kesihatan Malaysia Bil 10/2021- Kemaskini carta alir ujian saringan dan pengesahan HIV.

Garis Panduan Pengukuhan Program Pencegahan Jangkitan HIV dan Sifils dari Ibu ke Anak, KKM, Jun 2021

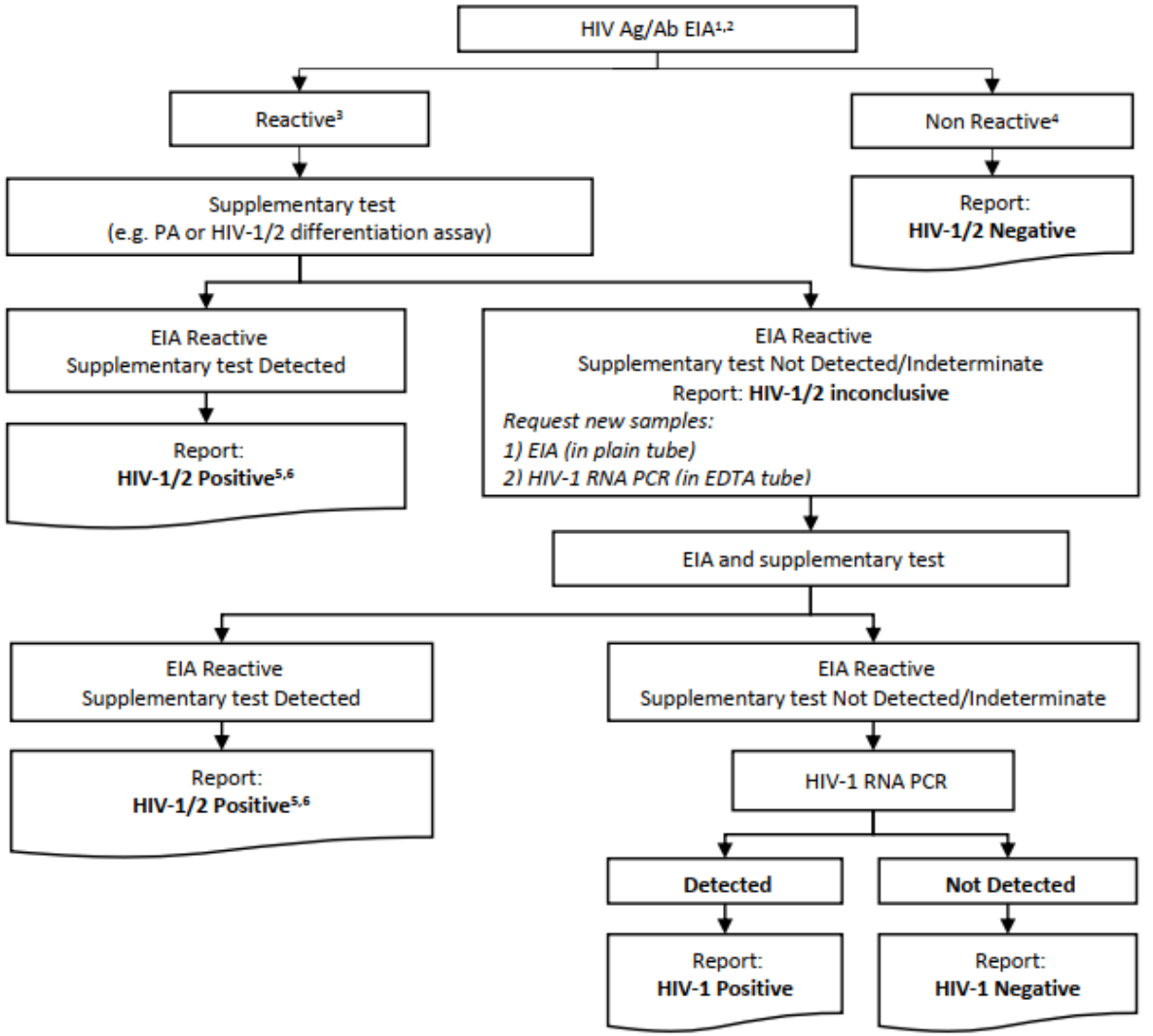
Algorithm for diagnosis of HIV infection in children less than 18 months



[1]includes Abandoned babies
[2]HIV RNA test: 2.5mls of blood in EDTA. Specimen need to be transported at ambient temperature as soon as possible to IMR KL (Virology). If unable to send within 24 hours, keep specimen at 2-8°C (maximum of 3 days).

Garis Panduan Pengukuhan Program Pencegahan Jangkitan HIV dan Sifils dari Ibu ke Anak, KKM, Jun 2021

Algorithm for HIV testing using HIV antigen / antibody combination immunoassay for adults and children more than 18 months



Garis Panduan Pengukuhan Program Pencegahan Jangkitan HIV dan Sifils dari Ibu ke Anak, KKM, Jun 2021

[1] HIV Ag/Ab EIA: HIV antigen-antibody enzyme immunoassay (latest available version).

[2] Specimen is considered as first specimen if there is NO previous RDT result. Specimen is considered as second specimen if there is previous positive RDT result (first specimen).

[3] To be performed as duplicate or more following the manufacture product inserts.

[4] If there is possibility of very early infection leading to a non-reactive on the initial antigen/antibody immunoassay, such as when recent HIV exposure is suspected or reported, request for a new specimen and repeat the algorithm after 2-4 weeks or to conduct an HIV-1 RNA PCR.

[5] Request second sample for patient verification if no previous positive result documented. This is applied for EIA and supplementary testing only.

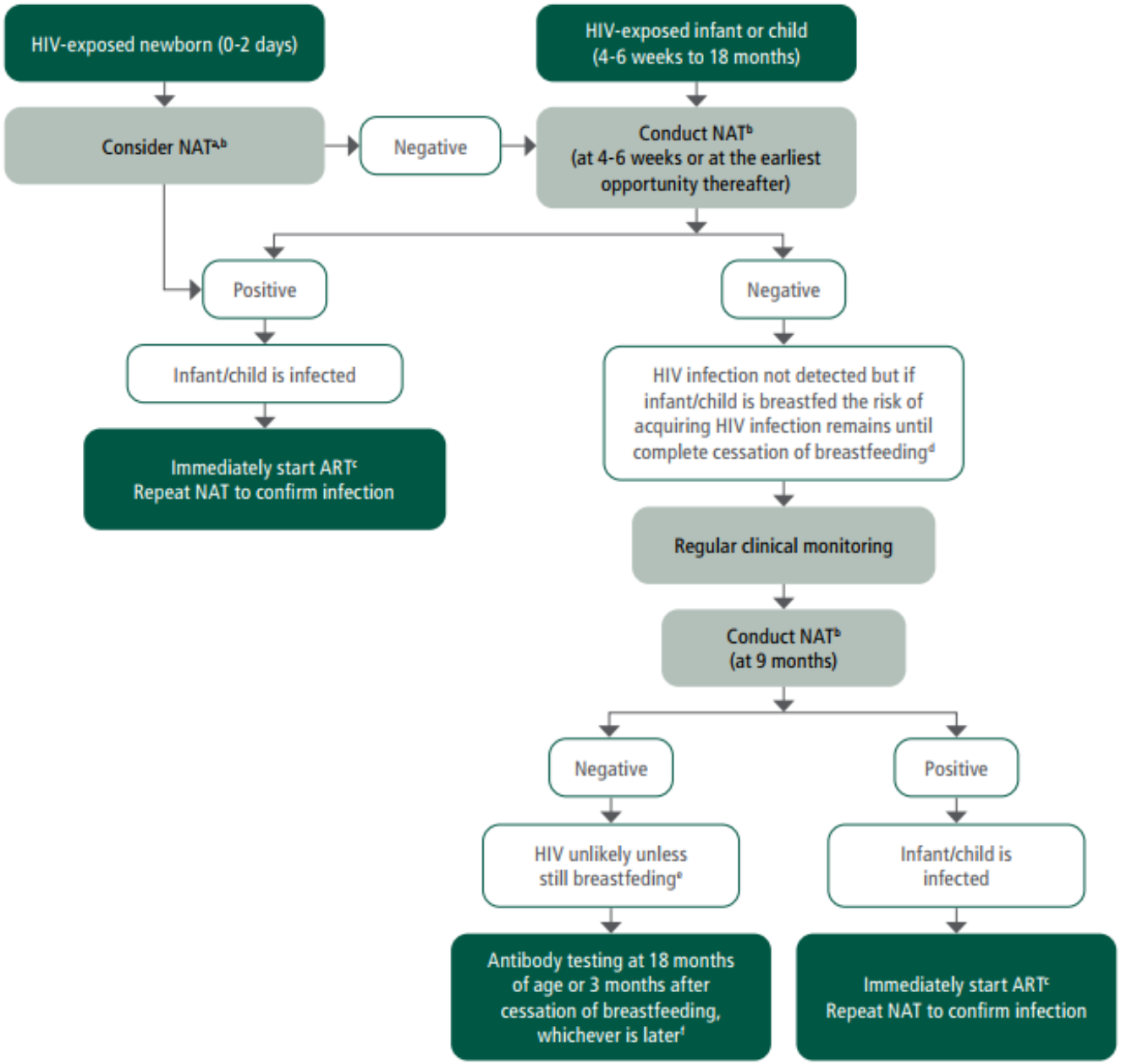
[6] Suggest: to send fresh blood sample in EDTA tubes for HIV-1 RNA PCR

References:

1) *World Health Organization (WHO). Consolidated Guidelines on HIV Testing Services for A Changing Epidemic. Policy Brief. November 2019.*

2) *Centers for Disease Control and Prevention (CDC). 2018 Quick Reference Guide: Recommended Laboratory HIV Testing Algorithm for Serum or Plasma Specimens. CDC website. https://stacks.cdc.gov/view/cdc/50872. Updated January 2018. Accessed 6 February 2020.*

Fig. 2.7 Simplified infant diagnosis algorithm



WHO, July 2021

[a] Based on *2016 WHO Consolidated ARV Guidelines (3)*, addition of NAT at birth to the existing testing algorithm can be considered.

[b] Point-of-care NAT can be used to diagnose HIV infection as well as to confirm positive results.

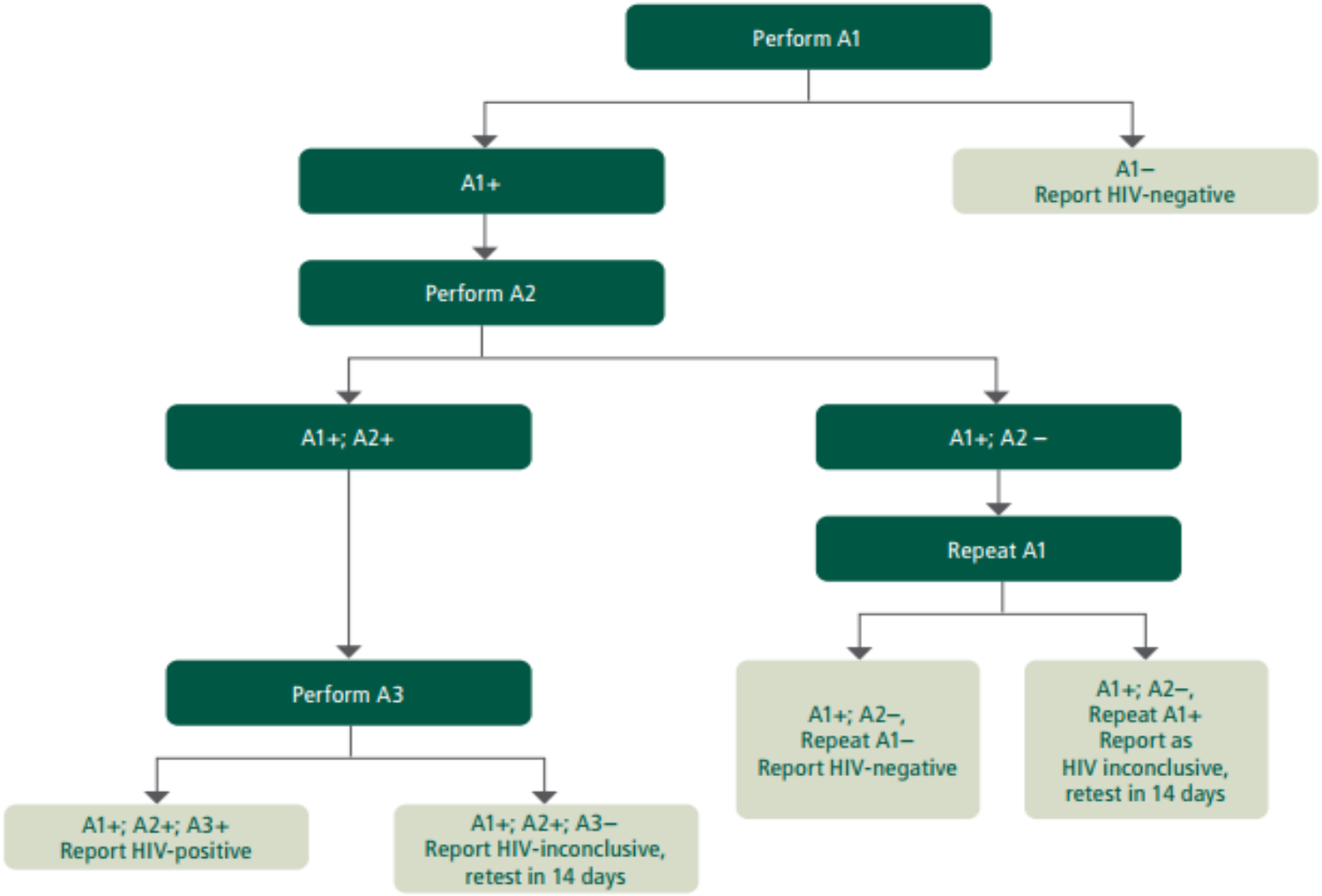
[c] Start ART without delay. At the same time, retest to confirm infection. As maternal treatment is scaled up and MTCT transmission rates decrease, false-positive results are expected to increase: retesting after a first positive NAT is hence important to avoid unnecessary treatment, particularly in settings with lower transmission rates. If the second test is negative, a third NAT should be performed before interrupting ART.

[d] For children who were never breastfed, additional testing following a negative NAT at 4–6 weeks is included in this algorithm to account for potential false-negative NAT results.

[e] The risk of HIV transmission remains as long as breastfeeding continues. If the 9-month test is conducted earlier than 3 months after cessation of breastfeeding, infection acquired in the last days of breastfeeding may be missed. Retesting at 18 months or 3 months after cessation of breastfeeding (whichever is later) should be carried out for final assessment of HIV status.

[f] If breastfeeding extends beyond 18 months, the final diagnosis of HIV status can only be assessed at the end of breastfeeding. If breastfeeding ends before 18 months, the final diagnosis of HIV status with antibody testing can only be assessed at 18 months. Antibody testing should be undertaken at least 3 months after cessation of breastfeeding (to allow for development of HIV antibodies). For infants younger than 18 months of age NAT should be performed to confirm infection. If the infant is older than 18 months, negative antibody testing confirms that the infant is uninfected; positive antibody testing confirms infant is infected.

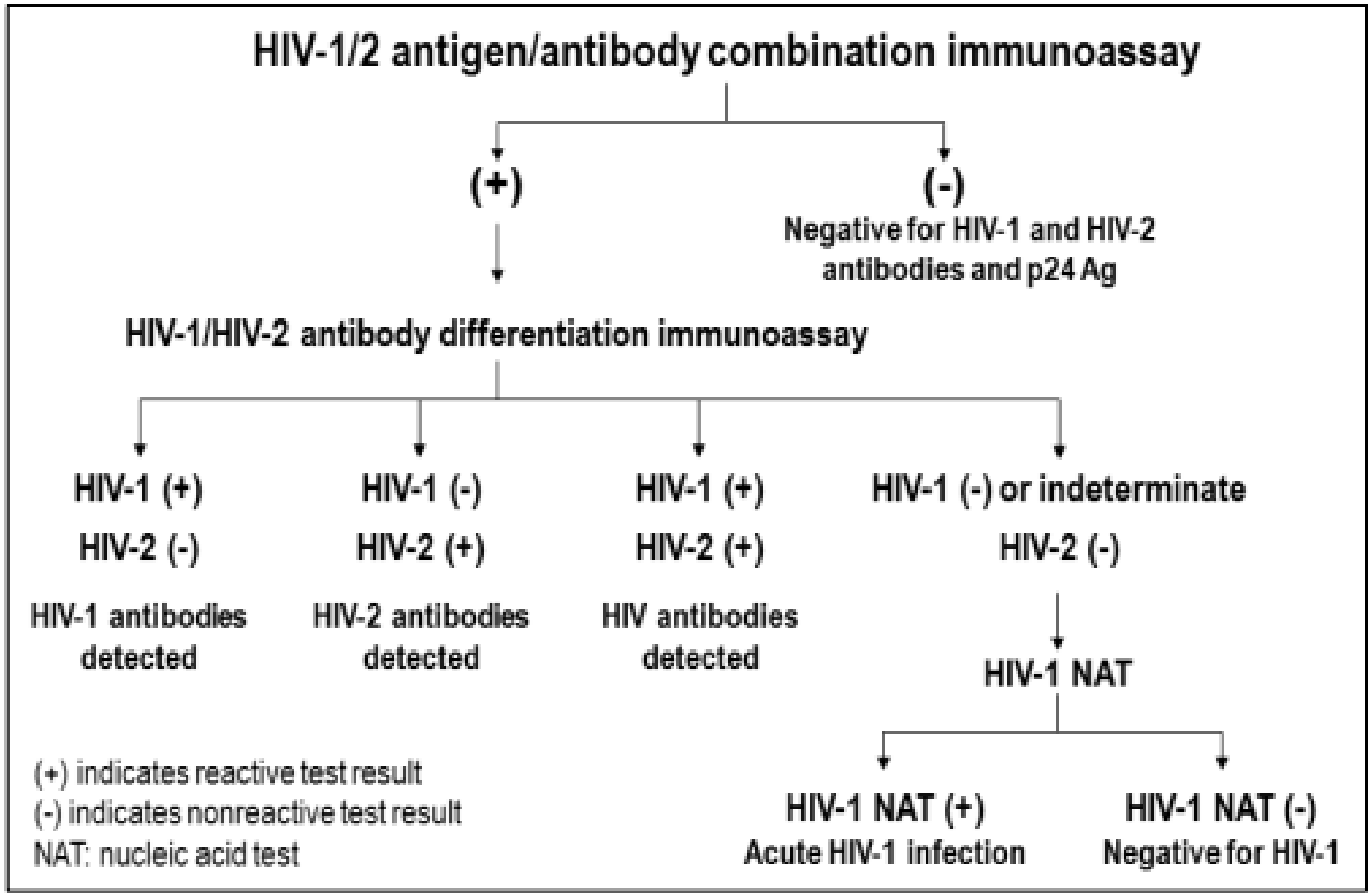
Fig. 2.4 WHO standard testing strategy for HIV-1 diagnosis (among people ≥18 months of age)



A1:Assay 1 (first test); A2: Assay 2 (second test); A3: Assay 3 (third test). Assay (test) are HIV rapid diagnostic tests (RDTs) or enzyme immunoassays (EIAs).

WHO, July 2021

Recommended Laboratory HIV Testing Algorithm for Serum or Plasma Specimens



CDC, 2014

Tests Offered for HIV

Diagnosis

- HIV Rapid Test
- HIV Ag/Ab Serology
- HIV Particle Agglutination
- HIV RNA PCR

Disease Monitoring

- HIV Viral Load
  - PCR
  - Genexpert
- CD4 and CD8 Enumeration

HIV Rapid Test

- The HIV rapid test is a qualitative, membrane-based immunoassay for the detection of antibodies to HIV in serum or plasma
- The membrane is coated with recombinant HIV antigens on the test line region of the cassette
- When the serum or plasma specimen is applied at one end of the membrane, it reacts with Anti-Human IgG Monoclonal antibody coated particles
- The mixture then migrates chromatographically towards the other end of the membrane and reacts with the recombinant HIV antigens on the membrane in the test line region
- If the plasma or serum contains antibodies to HIV-1 or HIV-2, a colored line will appear in the test line region, showing a positive result

- The absence of the colored line indicates that the whole blood Plasma or serum does not contain the anti-HIV antibodies, showing a negative result

- A colored line will always appear in the control region to serve as a procedural control indicating that proper volume of specimen has been added and membrane wicking has occurred

- KKM recommends 99.9% sensitivity and 99.8% specificity for rapid test

- Regular External Quality Assuarance by IMR dan Inter-laboratory Comparison (ILC) by JKN performed

Test	Type of Specimen	Specimen Container	Volume of Specimen	LTAT
HIV Ag/Ab screening	Serum	Plain Tube	3-5 ml	1-3 working days
HIV 1&2 Mix Particle agglutination (PA)	Serum	Plain Tube	3-5 ml	3-5 working days
HIV Viral Load PCR	Plasma (EDTA)	EDTA	5-10 ml Blood (EDTA) / 1.5 ml plasma	2-4 weeks
HIV-1 RNA RtPCR for Babies (HIV PCR)	Blood	EDTA (Child)	3-5 ml	IMR 5 days
HIV Drug Resistance Genotyping Test	Blood	EDTA	5-10 ml	IMR 40 days
CD4 / CD8 Enumeration	Blood	K2/K3 EDTA	3 ml	5 days

HSAJB Laboratory Handbook, 2022

HIV Ag/Ab Serology

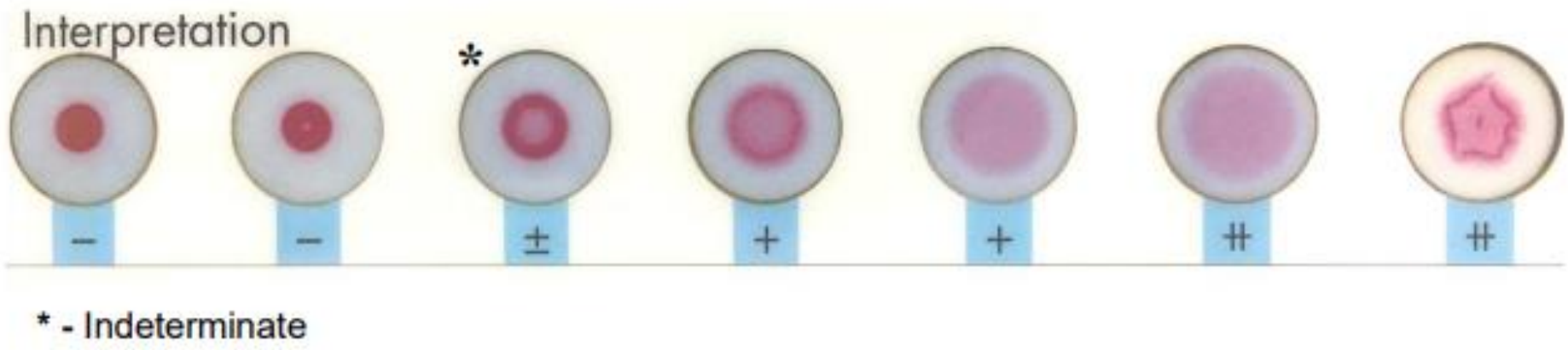
Architect CMIA Assay

- This is a two-step immunoassay, using Chemiluminescent Microparticle Immunoassay (CMIA) technology, with flexible assay protocols referred to as Chemiflex, for the quantitative determination of target antigen or antibody in human serum or plasma
- The resulting chemiluminescent reaction is measured as Relative Light Units (RLUs)
- A direct relationship exists between the target amount of target antigen/antibody in the sample and the RLUs detected by the architect optical system
- The concentration of target antigen/antibody in the specimen is determined using a previously generated Architect target antigen/antibody calibration curve

HIV Particle Agglutination

SERODIA®-HIV 1/2 MIX PA

- The test is an in-vitro diagnostic test for the detection of antibodies towards HIV-1 and/or HIV-2
- It is manufactured using gelatine particles sensitized with recombinant HIV-1 antigens (HIV-1/gp41 and HIV-1/p24) and HIV-2/gp36
- The test is based on the principle that sensitized particles agglutinated by the presence of antibodies towards HIV-1 and/or HIV-2 in human serum/plasma
- If HIV PA is Not Detected / Indeterminate, new samples in 1 plain tube and 2 EDTA tubes for HIV Confirmatory Test must be sent
- For second samples, if PA remains Not Detected/ Indeterminate, send EDTA tubes and request form to Molecular Laboratory, Microbiology Unit, HSAJB to proceed with HIV-1 RNA PCR for confirmation



HIV PA Pattern Interpretation

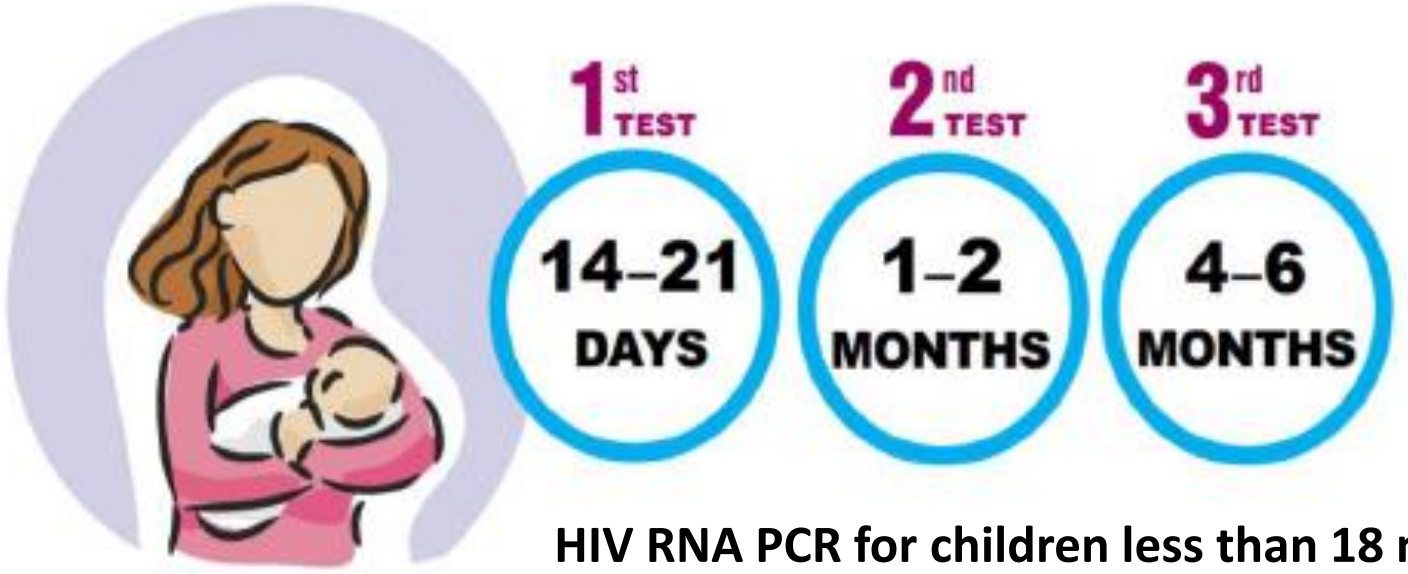
HIV RNA PCR

Mother/ Child above 18 months of age

- Test done in HSAJB
- Abbott RealTime HIV-1 Assay used to detect Human Immunodeficiency Virus Type 1 (HIV-1) nucleic acids from human plasma
- Only for cases with indeterminate/not detected PA with reactive HIV Ag/ab serology

Child less than 18 months of age

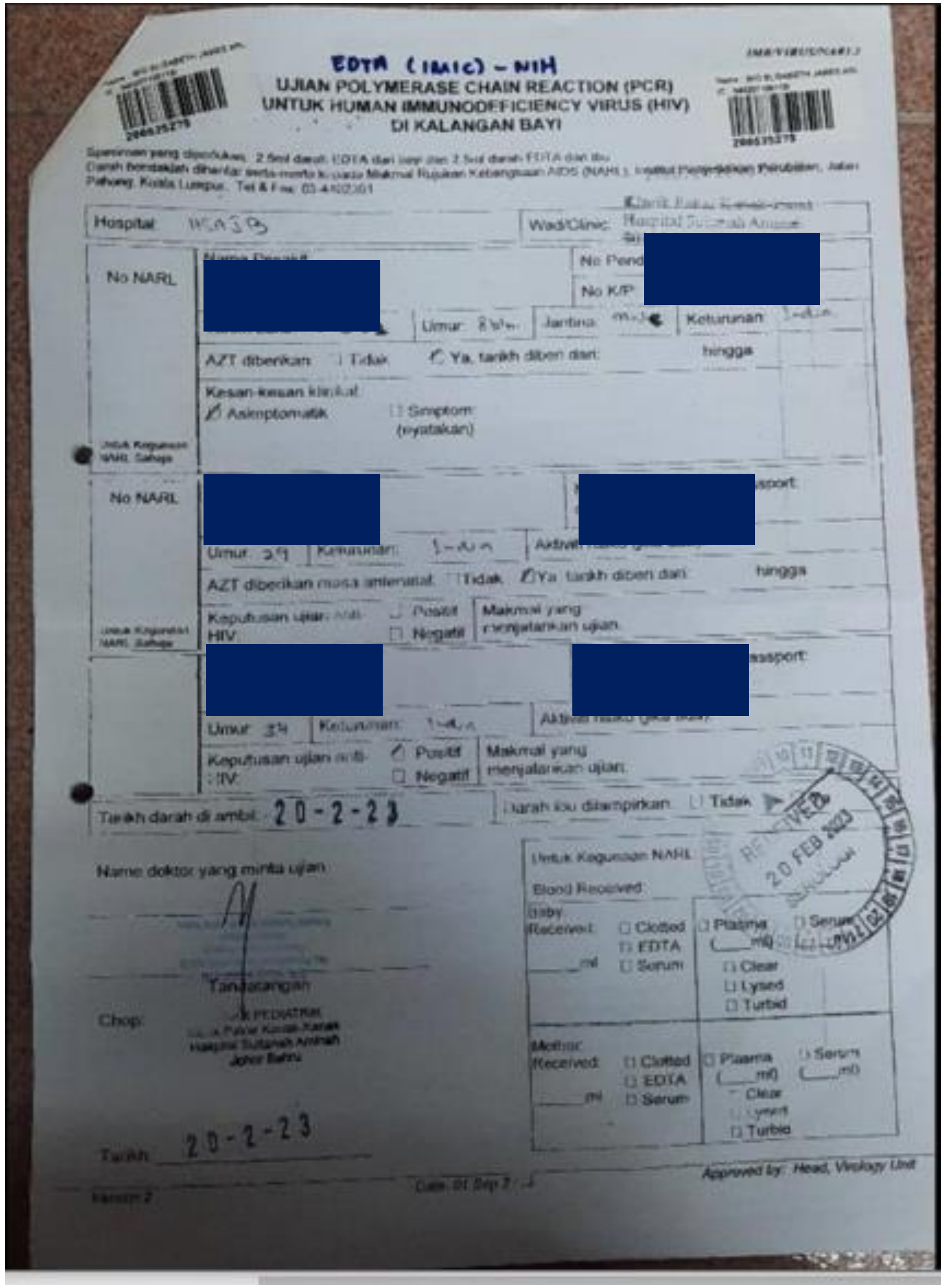
- Test outsourced to Virology, IMR
- Abbott real-time HIV-1 Qualitative performs qualitative detection of Human Immunodeficiency Virus Type 1 (HIV-1) nucleic acids from human plasma
- To send sample with latest IMR Virology form
- Mother’s sample not required



HIV RNA PCR for children less than 18 months

Blood Test for Children less than 18 months old:

1. HIV DNA/RNA PCR : Birth to 2 weeks, 4 to 6 weeks and 4 to 6 months
2. FBC, LFT, RFT, HbsAg, Hep C, Syphilis serology: At birth
3. In premature babies, blood test should be done after 24 hours
4. Cord blood for G6PD and TSH



EDTA (IMIC) - NIH

UJIAN POLYMERASE CHAIN REACTION (PCR)
UNTUK HUMAN IMMUNODEFICIENCY VIRUS (HIV)
DI KALANGAN BAYI

Hospital: HSAJB

Wad/Clinic: Hospital Sultanah Aminah

No NARL

[redacted]

No Pend

[redacted]

No K/P

Umur | Jantina | Keturunan

AZT diberikan: Tidak / Ya, tarikh diberi dari hingga

Kesan-kesan klinikal: Asimptomatik / Simptom (nyatakan)

No NARL

[redacted]

[redacted]

Umur: 29 | Keturunan | Aktiviti

AZT diberikan masa antenatal: Tidak / Ya, tarikh diberi dari hingga

Keputusan ujian Anti-HIV: Positif / Negatif | Makmal yang menjalankan ujian

[redacted]

[redacted]

Umur: 34 | Keturunan | Aktiviti

Keputusan ujian anti-HIV: Positif / Negatif | Makmal yang menjalankan ujian

Tarikh darah di ambil: 20-2-23

Darah ibu dilampirkan: Tidak

RECEIVED 20 FEB 2023

Nama doktor yang minta ujian

Tandatangan

Chop

Untuk Kegunaan NARL

Blood Received

Baby Received: ___ ml | Clotted / EDTA / Serum | Plasma (___ ml) / Clear / Lysed / Turbid | Serum

Mother Received: ___ ml | Clotted / EDTA / Serum | Plasma (___ ml) / Clear / Lysed / Turbid | Serum (___ ml)

Tarikh: 20-2-23

Approved by: Head, Virology Unit

UJIAN POLYMERASE CHAIN REACTION (PCR) UNTUK HUMAN IMMUNODEFICIENCY VIRUS (HIV) DI KALANGAN BAYI

Spesimen yang diperlukan: 2.5ml darah **EDTA** dari bayi
Darah hendaklah dihantar serta-merta kepada Makmal Rujukan Kebangsaan AIDS (NARL), Institut Penyelidikan Perubatan, Institut Kesihatan Negara, Setia Alam,Selangor. Tel: 03-3362 8114

Hospital:	Wad/Clinic:

No NARL Untuk Kegunaan NARL Sahaja	Nama Pesakit:			No Pendaftran: No K/P:
	Tarikh Lahir:	Umur:	Jantina:	Keturunan:
	AZT diberikan: O Tidak O Ya, tarikh diberi dari: hingga			
	Kesan-kesan klinikal: O Asimptomatik O Simptom: (nyatakan)			

No NARL Untuk Kegunaan NARL Sahaja	Nama Ibu:		No Kad Pengenalan/Passport:
	Umur:	Keturunan:	Aktiviti risiko (jika ada):
	AZT diberikan masa antenatal: OTidak OYa, tarikh diberi dari: hingga		
	Keputusan ujian anti-HIV: O Positif O Negatif	Makmal yang menjalankan ujian:	

	Nama Bapa:		No Kad Pengenalan/Passport:
	Umur:	Keturunan:	Aktiviti risiko (jika ada):
	Keputusan ujian anti-HIV: O Positif O Negatif	Makmal yang menjalankan ujian:	

Tarikh darah di ambil:

Nama doktor yang minta ujian:

_____

_____
Tandatangan

Chop:

Untuk Kegunaan NARL:	
Blood Received:	
Received: _____ml O Clotted O EDTA O Serum	O Plasma (____ml) O Clear O Lysed O Turbid / O Serum (____ml)

No Tel :

Tarikh :

Case definition of HIV infection in child aged less than 18 months

In a child aged < 18 months, a reportable case of HIV infection must meet at least one of the following criteria:

1. **Laboratory criteria**

   (i) Definitive.
   Positive result or report of detectable quantity on any of the following HIV virology (non-antibody) tests:
   - HIV nucleic acid (DNA or RNA) detection.
   - HIV p24 antigen test including neutralization assay,
   - HIV isolation (viral culture)

   OR

   (ii) Presumptive
   A child who does not meet the criteria for definitive HIV infection but who has a positive result on only one specimen (excluding cord blood) using the above HIV virology (non-antibody) tests.

   OR

2. **Clinical or other criteria (if the above laboratory criteria are not met and no other causes of immune suppression)**

   Condition that meets criteria included in the 1987 paediatric surveillance case definition for AIDS which are:
   - Candidiasis of the oesophagus, trachea, bronchi, or lungs
   - Cryptococcosis, extrapulmonary
   - Cryptosporidiosis with diarrhoea persisting >1 month
   - Cytomegalovirus diseases of an organ other than liver, spleen, or lymph nodes in patient >1 month of age
   - Herpes simplex virus infection causing a mucocutaneous ulcer persisting >1 month; or bronchitis, pneumonitis, or oesophagitis for any duration in a patient >1 month of age
   - Kaposi sarcoma
   - Lymphoma of the brain (primary).
   - Mycobacterium avium complex or M. kansasii disease, disseminated (site other than/in addition to lungs, skin, cervical or hilar lymph nodes)
   - Pneumocystis carinii pneumonia
   - Progressive multifocal leukoencephalopathy
   - Toxoplasmosis of the brain in a patient >1 month of age
   - Two or more bacterial infections within a 2-year period (septicaemia, pneumonia, meningitis, bone or joint infections) or abscess of an internal organ or body cavity excluding otitis media or superficial abscesses.

HIV Viral Load PCR

Abbott RealTime HIV-1 Assay

- It is an in vitro reverse transcription polymerase chain reaction (RT-PCR) assay for the quantitation of Human Immunodeficiency Virus type 1 (HIV-1) in human plasma from HIV-1 infected individuals

- It is intended for use in conjunction with clinical presentation and other laboratory markers as an indicator of disease prognosis and for use as an aid in assessing viral response to antiretroviral treatment as measured by changes in plasma HIV-1 RNA levels

- Indication:

❖ In pregnancy, to be done between 32 to 36 weeks of gestation to decide on mode of delivery

❖ Pre-HAART (not during diagnosis, except certain cases such as after pregnancy/ discussion with FMS and ID specialist)

❖ 4 months after HAART treatment is started

❖ 6 months intervals (after 4 months of HAART treatment for 2 years)

❖ Once a year after 2 years of HAART treatment

HIV Viral Load Genexpert

- Xpert HIV-1 Viral Load automates the test process including RNA extraction, purification, reverse transcription and cDNA real time quantitation in one fully integrated cartridge
- Point of Care Test (POCT) HIV viral load service at Makmal Klinik Dada Kluang and KK Batu Pahat

Bil	Fasiliti Kesihatan Yang Boleh Menghantar Sampel Ujian HIV Viral Load Ke Makmal Klinik Dada Kluang
1.	Hospital Enche Besar Hajah Kalsom(HEBHK)
2.	KK Mengkibol
3.	KKIA Kluang
4.	Klinik Dada Kluang/Methadone
5.	KK Paloh
6.	KK Kahang Bt22
7.	KK Kahang Timur
8.	KK Ulu Belitong
9.	KK Layang-Layang
10.	KK Renggam
11.	KK Simpang Renggam
12.	Penjara Kluang
13.	Penjara Simpang Renggam

- Sample processed on working Sundays to Wednesdays, sample must reach Makmal Klinik Dada by 11am
- Sample must be sent in 2 EDTA bottles, volume 2.5-3ml of blood plasma
- Blood sample should be centrifuged to separate plasma
- Cold chain maintained during transportation
- LTAT 3-5 days

CD4 CD8 Enumeration

- Direct immunofluorescence method for enumerating percentages of mature human helper/inducer (CD4+) and suppressor/cytotoxic (CD8+) lymphocytes in erythrocyte-lysed whole blood (LWB)

- Request form must include :

I. Latest date of CD4 CD8 Count/ HIV Viral Load

II. Date of specimen collection

III. Date of commencement of HAART

- Transport samples within 4 hours of blood collection at room temperature or within 24 hours for District Hospital/Klinik Kesihatan with ice pack. Avoid direct contact with ice
- CD4/CD8 test is available from Sunday to Wednesday only
- Request form requires Specialist’s signature.

Indication:

- In pregnancy, as soon as diagnosed with HIV
- New HIV case
- Patients with no CD4 CD8 results in 6 months upon being diagnosed with HIV
- Patients who rejected anti-retroviral therapy

- CD4 request once a year if CD4 count > 350
- CD4 request 6 monthly if CD4 count < 350

- In patients who just started anti-retroviral therapy, CD4 CD8 request can be made after 4 months of stable HAART intake
- CD4 CD8 request 6 monthly during the first 2 years of HAART intake (Performed together with HIV Viral Load)
- CD4 CD8 request yearly after 2 years of HAART intake (Performed together with HIV Viral Load)

Results

HIV results both positive/negative and HIV Viral Load PCR

- To collect results from microbiology laboratories
- Results would be placed in sealed envelopes

HIV Genexpert

- Hardcopy, email sent to PKD

CD4 CD8

- Traced via LIS Cobas

(B8)

KEMENTERIAN KESIHATAN MALAYSIA
PERKHIDMATAN PATOLOGI

HOSPITAL SULTANAH AMINAH
JOHOR BAHRU

[redacted] AT 381)

1. Nama: [redacted]	2. No. Pendaftaran:
3. No. K.P.: [redacted]	4. Jantina: ☑ Lelaki ☐ Perempuan
5. Umur: [redacted] 6. Keturunan:	7. Wad/Klinik: PP
8. Tarikh Masuk Wad: 9. Pekerjaan:	10. Taraf Perkahwinan: 11. ☐ Bayar ☐ Percuma
12. No. Laporan Terdahulu:	13. Butiran Penting:

14. Ringkasan Klinikal, Penemuan Pembedahan dan Riwayat Keluarga:

29yo / Male / Indian

p/w fever
onset 08/03/23, on & off

PBS, Igm -ve x 2

Ⓔ pericardial attack

AKI

kindly investigate of viral
screen

CMIA test for HIV Ag & Ab : Non Reactive

13. Butiran Penting:

	Ya	Tidak
Jaundice	☐	☐
Lymphadenopathy	☐	☐
Hepatomegaly	☐	☐
Splenomegaly	☐	☐
Bleeding Tendency	☐	☐
H/O Transfusion	☐	☐

SCREENED ... 15/3

Haematinics ___

Drug/Chemical History ___

Data Makmal Terdahulu

Hb ___

TWDC ___

15. Diagnosis: viral fever ...

16 MAR 2023

16. Kategori Permohonan/Jenis Ujian:

Patologi Kimia		Klinikal		Hematologi	
B. Sugar	☐	Bld. Count	☐	FBP	☐
B. Urea	☐	ESR	☐	BM Asp.	☐
S. Elec	☐	BFMP	☐	Hb Analysis	☐
B. Gases	☐	U. Sugar	☐		
S. Billirubin	☐	U. Alb	☐		
LFT	☐	U. Me	☐		
Se. Creatinine	☐	Stool ME	☐		

Histo/Sitologi	Mikrobiologi/Imunologi	
Spesimen	Spesimen	Ujian

RECEIVED
15 MAR 2023
PATOLOGI

NURUL SYUHADA BT MUKTAR
Pegawai Sains (Mikrobiologi) C44
Unit Mikrobiologi
Jabatan Patologi
Hospital Sultanah Aminah
80100 Johor Bahru

Lain-lain HIV ___

17. Pengambilan Specimen: Tarikh: 15/03/23 Masa: ___

18. Nama Doktor: ___

19. Tarikh: ___

Tandatangan dan Cop Doktor

LAPORAN 'SILA LIHAT SEBELAH'

2023 FEB 18 09:14:02 (PER-PAT 301)

KEMENTER[redacted]IA
PERK[redacted]
HOSPIT[redacted]

UNTUK KEGUNAAN MAKMAL
LAB NO.

1. Nam[redacted]		[redacted]endaftaran:
3. No. K[redacted]		4. Jantina: ☑ Lelaki ☐ Perempuan
5. Umur:	6. Keturunan:	7. Wad/Klinik: W2
8. Tarikh Masuk Wad:	9. Pekerjaan:	10. Taraf Perkahwinan: 11. ☐ Bayar ☐ Percuma

12. No. Laporan Terdahulu:

14. Ringkasan Klinikal, Penemuan Pembedahan dan Riwayat Keluarga:

pv not swelling
⊕ LOW } 1/12
⊕ LOA

fever

15. Diagnosis: T/o lymphoproliferative Dz

13. Butiran Penting:

	Ya	Tidak
Jaundice	☐	☐
Lymphadenopathy	☐	☐
Hepatomegaly	☐	☐
Splenomegaly	☐	☐
Bleeding Tendency	☐	☐
H/O Transfusion	☐	☐

Haematinics ______

RECEIVED
18 FEB 2023
SEROLOGI

Drug/Chemical History

Data Makmal Terdahulu

Hb ______
Platelet ______
TWDC ______

16. Kategori Permohonan/Jenis Ujian:

Patologi Kimia		Klinikal		Hematologi	
B. Sugar	☐	Bld. Count	☐	FBP	☐
B. Urea	☐	ESR	☐	BM Asp.	☐
S. Elec	☐	BFMP	☐	Hb Analysis	☐
B. Gases	☐	U. Sugar	☐	Coagulation	☐
S. Bilirubin	☐	U. Alb	☐		
LFT	☐	U. Me	☐		
Se. Creatinine	☐	Stool ME	☐		

Histo/Sitologi	Mikro/Immunologi	
Specimen	Specimen	Ujian
		Ujian
		Ujian
		Ujian
		Ujian
		Ujian
		Ujian

Lain-lain: HIV

17. Pengambilan Specimen: Tarikh: 17/02/23 Masa:

18. Nama Doktor: ______

19. Tarikh: ______

Tandatangan dan Cop Doktor

LAPORAN *SILA LIHAT SEBELAH*

CMIA TEST FOR HIV Ag & Ab: Reactive

Serodia PA for HIV 1&2: Agglutination to HIV—Detected

PLEASE COLLECT ANOTHER BLOOD SAMPLE FOR VERIFICATION TEST AS SOON AS POSSIBLE

DR. NUR AFIZA BINTI AZIZ
Pegawai Perubatan Pakar (Mikrobiologi)
Unit Mikrobiologi, Jabatan Patologi
Hospital Sultanah Aminah Johor Bahru

20 FEB 2023

PATHOLOGY DEPARTMENT
HOSPITAL SULTANAH AMINAH 80100 JOHOR BAHRU

Lab ID	:	[redacted]		Date & Time Spec. Collect	: 19/03/2023
Name				Date & Time Spec. Received	: 19/03/2023
RN / IC			Sex : Male	Lab Order Date & Time	: 22/03/2023 11:46:30
Sample Type	: Plasma			Location	: OPD, JLN MAHMOODIAH
Sample Status	: Ok			Requesting Doctor	: DR DAYANI

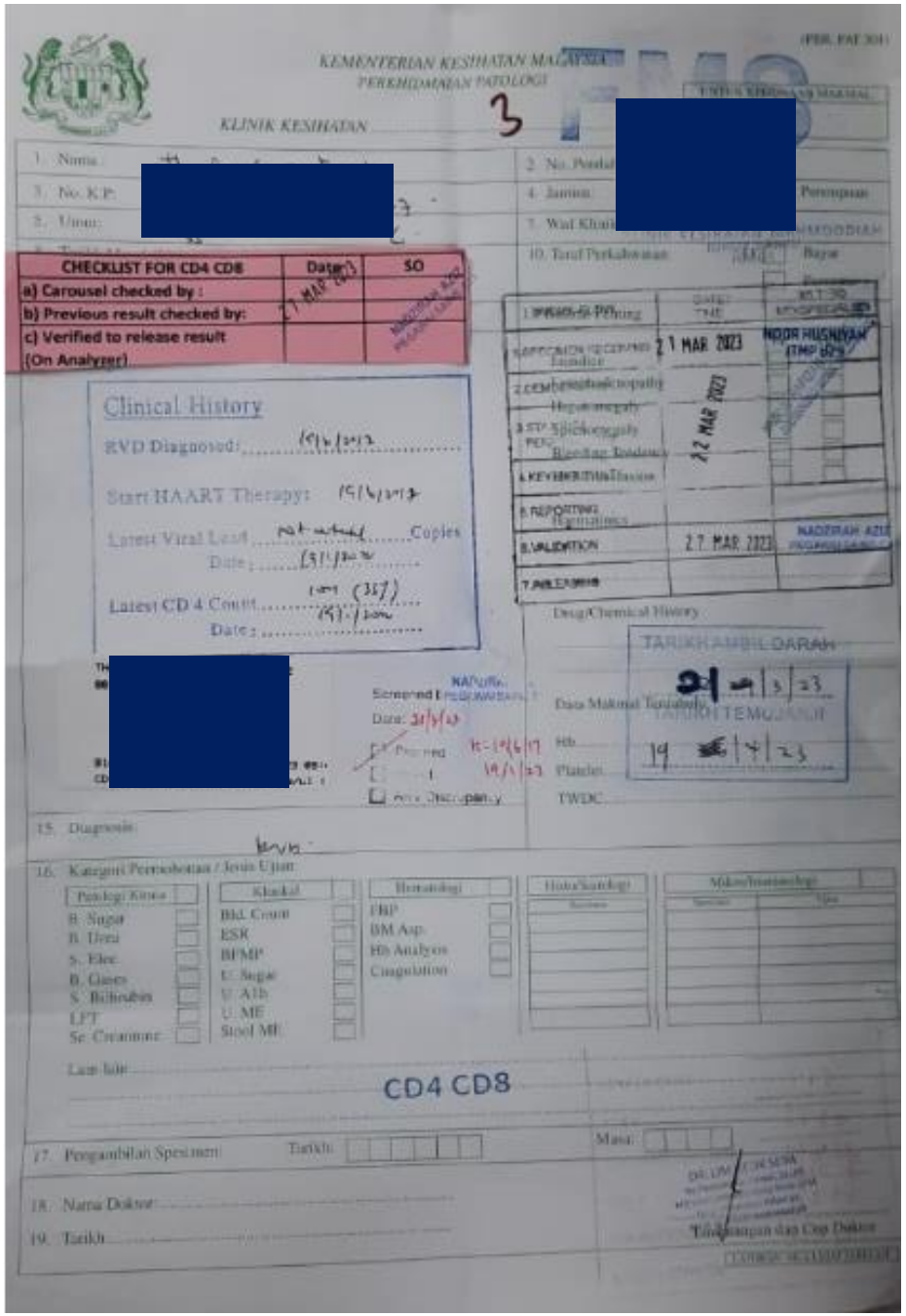
Molecular Laboratory: EXT 2222 / Direct Line: 072257222 Authorised Personel: Dr Dayangku Seritul Akmar, Clinical Pathologist (Micro.), Head of Unit

HIV VIRAL LOAD	Result	Unit
HIV VIRAL LOAD	Detected	
HIV VIRAL LOAD VALUE	12365	copies/ml

Report Date & Time : 27/03/2023 10:32:11
Current Date & Time : 27/03/2023 12:17:09

Validated By : DR HENG PAO YING

* This is a computer generated report. No signature is required.



KEMENTERIAN KESIHATAN MALAYSIA
PERKHIDMATAN PATOLOGI

KLINIK KESIHATAN

CHECKLIST FOR CD4 CD8	Date	SO
a) Carousel checked by :	27 MAR 2023	
b) Previous result checked by:		
c) Verified to release result (On Analyzer)		

Clinical History

HVD Diagnosed: 19/6/2017

Start HAART Therapy: 19/6/2017

Latest Viral Load: not detected Copies

Date: 13/1/2022

Latest CD 4 Count: 1011 (317)

Date: 19/1/2022

21 MAR 2023

22 MAR 2023

27 MAR 2023

NOOR HUSNIYAH (TMP HPJ)

NADZIRAH AZIZ

TARIKH AMBIL DARAH

21 / 3 / 23

TARIKH TEMUJANJI

19 / 4 / 23

Screened

Date: 21/3/23

Hb: 19/6/17

Platelet: 19/1/22

TWDC

15. Diagnosis: HIV

16. Kategori Permohonan / Jenis Ujian

Perubat Kimia	Hematologi	Serologi
B. Sugar	Bld. Count	FBP
B. Urea	ESR	BM Asp.
S. Elec.	BFMP	Hb Analysis
B. Gases	U. Sugar	Coagulation
S. Bilirubin	U. Alb	
LFT	U. ME	
Se. Creatinine	Stool ME	

Lain lain: CD4 CD8

17. Pengambilan Specimen: Tarikh: Masa:

18. Nama Doktor:

19. Tarikh:

Tandatangan dan Cop Doktor

PATHOLOGY DEPARTMENT
HOSPITAL SULTANAH AMINAH 80100 JOHOR BAHRU

Lab ID :
Name :
RN / IC : Age : 34 Sex : Male
Sample Type :
Sample Status : Ok
Referral Lab :

Date & Time Spec. Collect : 21/03/2023 08:00:00
Date & Time Spec. Received : 21/03/2023 11:28:00
Lab Order Date & Time : 22/03/2023 10:49:34
Location : OPD, JLN MAHMOODIAH
Requesting Doctor : DR LIM GEOK SEIM

HEMATO PATHOLOGY UNIT.EXT 2362/DIRECT LINE : 07-2257362 Authorised Personnel Dr Indhira, Hemato Pathologist

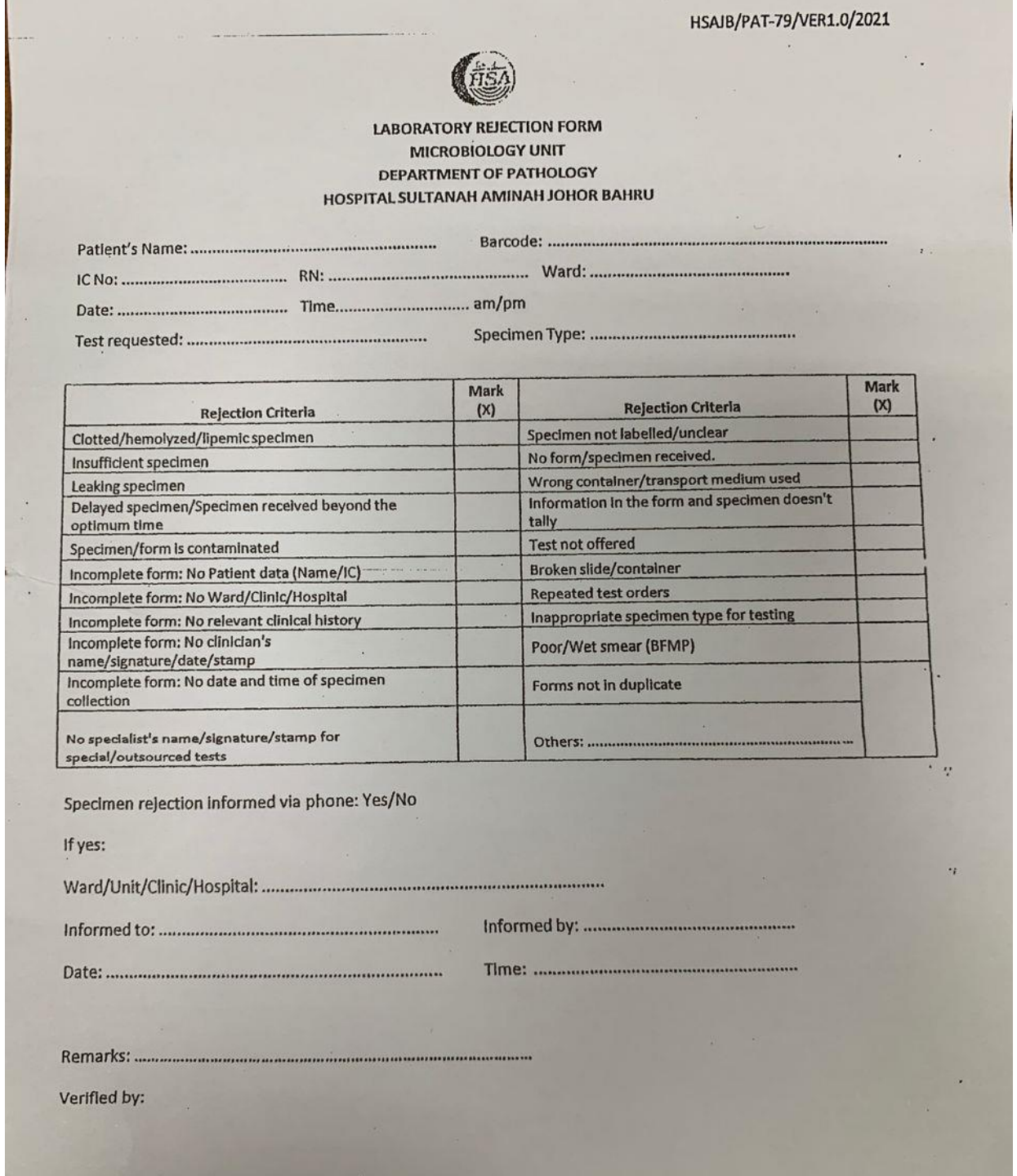
CD4/CD8 ABSOLUTE COUNT	Result	Unit	Flag	Reference Range
CD4	951.00	cells/µL		404.00 - 1612.00
%CD4	37.00	%		23.00 - 50.00
CD8	845.00	cells/µL		220.00 - 1129.00
%CD8	33.00	%		15.00 - 45.00
CD4 / CD8 RATIO	1.13	RATIO		0.37 - 2.21

STARTED HAART : 19/6/2017

PREVIOUS CD4/CD8 TEST DONE 19/1/2022

NEXT CD4/CD8 TEST TO BE SENT ON :21/3/2024

Rejection Criteria



HSAJB/PAT-79/VER1.0/2021

LABORATORY REJECTION FORM
MICROBIOLOGY UNIT
DEPARTMENT OF PATHOLOGY
HOSPITAL SULTANAH AMINAH JOHOR BAHRU

Patient's Name: ..... Barcode: .....

IC No: ..... RN: ..... Ward: .....

Date: ..... Time..... am/pm

Test requested: ..... Specimen Type: .....

Rejection Criteria	Mark (X)	Rejection Criteria	Mark (X)
Clotted/hemolyzed/lipemic specimen		Specimen not labelled/unclear	
Insufficient specimen		No form/specimen received.	
Leaking specimen		Wrong container/transport medium used	
Delayed specimen/Specimen received beyond the optimum time		Information in the form and specimen doesn't tally	
Specimen/form is contaminated		Test not offered	
Incomplete form: No Patient data (Name/IC)		Broken slide/container	
Incomplete form: No Ward/Clinic/Hospital		Repeated test orders	
Incomplete form: No relevant clinical history		Inappropriate specimen type for testing	
Incomplete form: No clinician's name/signature/date/stamp		Poor/Wet smear (BFMP)	
Incomplete form: No date and time of specimen collection		Forms not in duplicate	
No specialist's name/signature/stamp for special/outsourced tests		Others:	

Specimen rejection informed via phone: Yes/No

If yes:

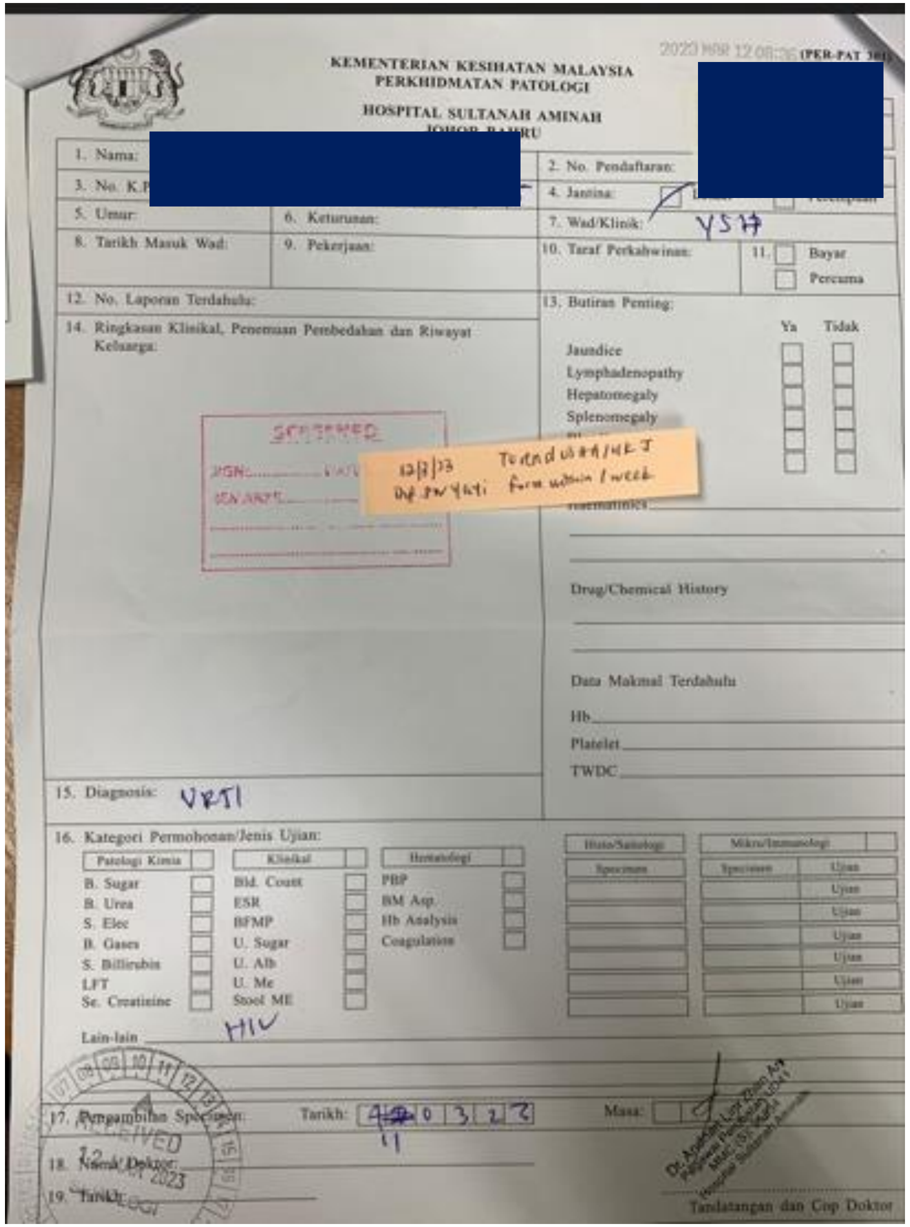
Ward/Unit/Clinic/Hospital: .....

Informed to: ..... Informed by: .....

Date: ..... Time: .....

Remarks: .....

Verified by:


2023 MAR 12 08:36 (PER-PAT 301)

KEMENTERIAN KESIHATAN MALAYSIA
PERKHIDMATAN PATOLOGI

HOSPITAL SULTANAH AMINAH
JOHOR BAHRU

1. Nama: [redacted]
2. No. Pendaftaran: [redacted]
3. No. K.P.
4. Jantina: [illegible] Perempuan
5. Umur:
6. Keturunan:
7. Wad/Klinik: YSH
8. Tarikh Masuk Wad:
9. Pekerjaan:
10. Taraf Perkahwinan:
11. Bayar / Percuma
12. No. Laporan Terdahulu:
13. Butiran Penting:

	Ya	Tidak
Jaundice		
Lymphadenopathy		
Hepatomegaly		
Splenomegaly		

14. Ringkasan Klinikal, Penemuan Pembedahan dan Riwayat Keluarga:

SCREENED

12/3/23 To send with OSHA/UKJ
Inf SN Yati form within 1 week

Haematinics

Drug/Chemical History

Data Makmal Terdahulu
Hb
Platelet
TWDC

15. Diagnosis: URTI

16. Kategori Permohonan/Jenis Ujian:

Patologi Kimia	Klinikal	Hematologi
B. Sugar	Bld. Count	FBP
B. Urea	ESR	BM Asp.
S. Elec	BFMP	Hb Analysis
B. Gases	U. Sugar	Coagulation
S. Billirubin	U. Alb	
LFT	U. Me	
Se. Creatinine	Stool ME	

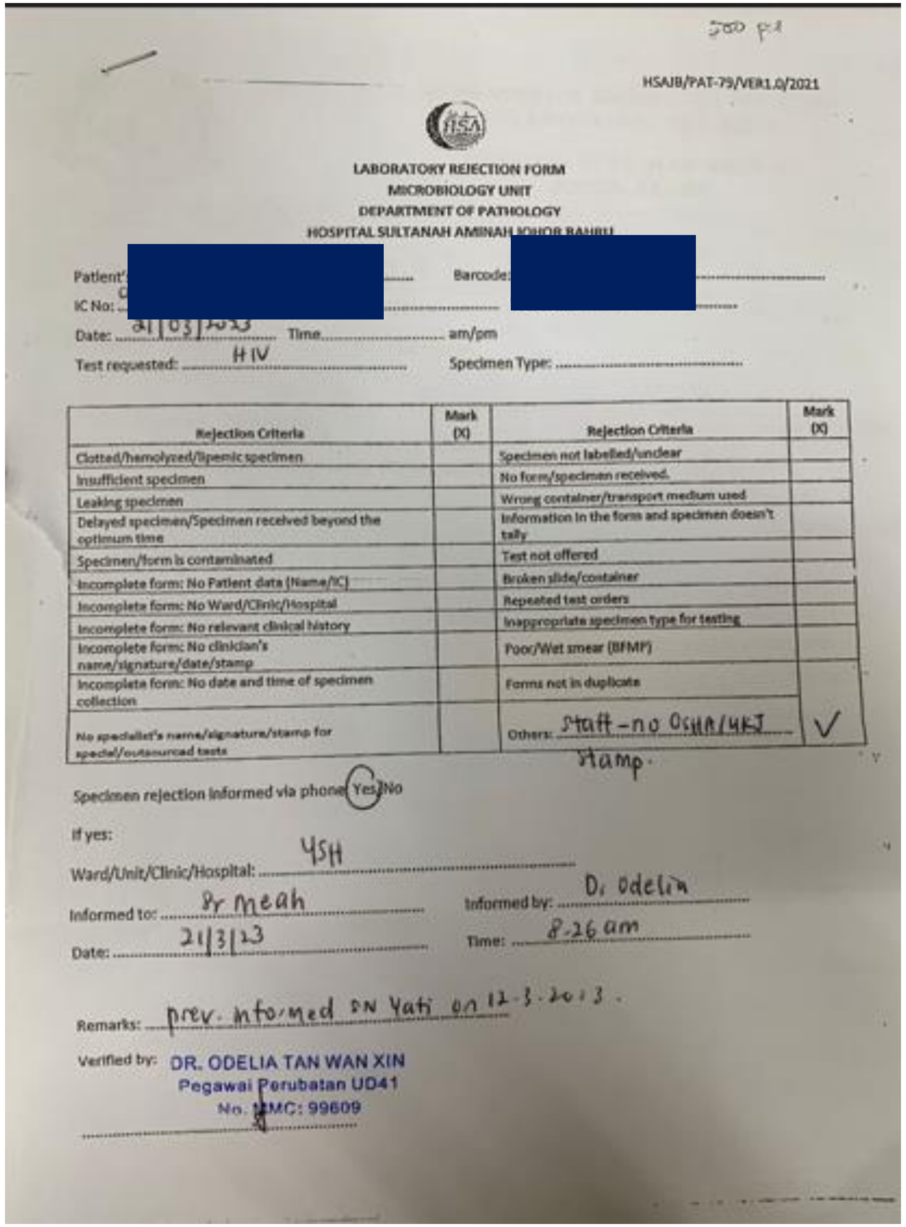
Histo/Sitologi: Specimen
Mikro/Imunologi: Specimen, Ujian

Lain-lain: HIV

17. Pengambilan Specimen: Tarikh: 12 03 23 Masa:
18. Nama Doktor:
19. Tarikh:

RECEIVED 2023

Tandatangan dan Cop Doktor


HSAJB/PAT-79/VER1.0/2021

LABORATORY REJECTION FORM
MICROBIOLOGY UNIT
DEPARTMENT OF PATHOLOGY
HOSPITAL SULTANAH AMINAH JOHOR BAHRU

Patient's [redacted] Barcode: [redacted]
IC No:
Date: 21/03/2023 Time: am/pm
Test requested: HIV Specimen Type:

Rejection Criteria	Mark (X)	Rejection Criteria	Mark (X)
Clotted/hemolyzed/lipemic specimen		Specimen not labelled/unclear	
Insufficient specimen		No form/specimen received	
Leaking specimen		Wrong container/transport medium used	
Delayed specimen/Specimen received beyond the optimum time		Information in the form and specimen doesn't tally	
Specimen/form is contaminated		Test not offered	
Incomplete form: No Patient data (Name/IC)		Broken slide/container	
Incomplete form: No Ward/Clinic/Hospital		Repeated test orders	
Incomplete form: No relevant clinical history		Inappropriate specimen type for testing	
Incomplete form: No clinician's name/signature/date/stamp		Poor/Wet smear (BFMP)	
Incomplete form: No date and time of specimen collection		Forms not in duplicate	
No specialist's name/signature/stamp for special/outsourced tests		Others: Staff - no OSHA/UKJ stamp.	✓

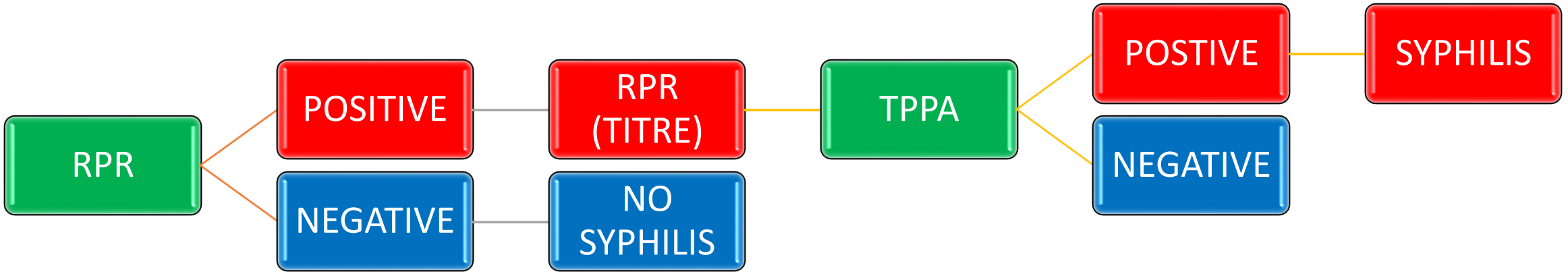
Specimen rejection informed via phone: Yes/No

If yes:
Ward/Unit/Clinic/Hospital: YSH
Informed to: SN Meah
Informed by: Dr Odelia
Date: 21/3/23
Time: 8.26 am

Remarks: prev. informed SN Yati on 12-3-2023.

Verified by: DR. ODELIA TAN WAN XIN
Pegawai Perubatan UD41
No. MMC: 99609

Syphilis Diagnostic Test


RPR
POSITIVE
NEGATIVE
RPR (TITRE)
NO SYPHILIS
TPPA
POSTIVE
NEGATIVE
SYPHILIS

Tests Offered for Syphilis

Routine	Others
• RPR (non-treponemal)- screening • RTK (treponemal)- screening • TPPA/ TPHA (treponemal)- confirmation	•Dark field microscopy •Treponemal Antibody (FTA-ABS) •Microhemagglutination test (MHA-TP) •Treponemal Pallidum Enzyme Immunoassay (TP-EIA) •PCR

Test	Type of Specimen	Specimen Container	Volume of Specimen	LTAT
Rapid Plasma Reagin (RPR) test	Serum	Plain Tube	3-5 ml	1-3 working days
Treponema pallidum Particle Agglutination	Serum	Plain Tube	3-5 ml	1-3 working days
Rapid Diagnostic Test (RDT)	Serum Plasma Whole blood	Plain tube/ Finger prick	According to manufacture's guidelines	10-30 minutes

HSAJB Laboratory Handbook, 2022
RDT insert

Rapid Plasma Reagin (RPR)

- The test qualitatively and semi-quantitatively determine the presence or absence of Reagin (antibodies against Syphilis) in the serum or plasma of patients
- When used by the recommended techniques, the reagent will agglutinate (clump) in the presence of reagin. No agglutination usually indicates the absence of regain
- Dilutions performed in reactive specimen and titre read
- RPR carbon test is non-specific for syphilis. All Reactive samples should be retested with treponemic methods such as TPPA/TPHA and FTA-Abs to confirm the results
- A non reactive result by itself does not exclude a diagnosis of syphilis. Clinical diagnosis should not be made on findings of a single test result, but should integrate both clinical and laboratory data
- Look out for false positives, ie infectious mononucleosis, viral pneumonia, toxoplasmosis, pregnancy and autoimmune diseases
- ***RPR Carbon Kit by Lorne Laboratories*** is widely used
- External Quality Assurance Programme (EQA) and Inter-Laboratory Comparison (ILC) conducted by Makmal Kesihatan Awam Kebangsaan (MKAK)/ Makmal Kesihatan Awam Johor Bahru (MKAJB)

Treponema Pallidum Particle Agglutination (TPPA) Test

- TPPA is a qualitative assay for diagnosis of infection by Treponema Pallidum in serum or plasma specimens. The TPPA kit is manufactured using gelatin particle carriers sensitized with purified pathogenic Treponema pallidum

- The test is based on the principle that the sensitized particles are agglutinated by the presence of antibodies to Treponema pallidum in human serum/plasma

- ***SERODIA-TPPA*** is widely used in the laboratories

TPPA Pattern Interpretation

Rapid Diagnostic Test (RDT)

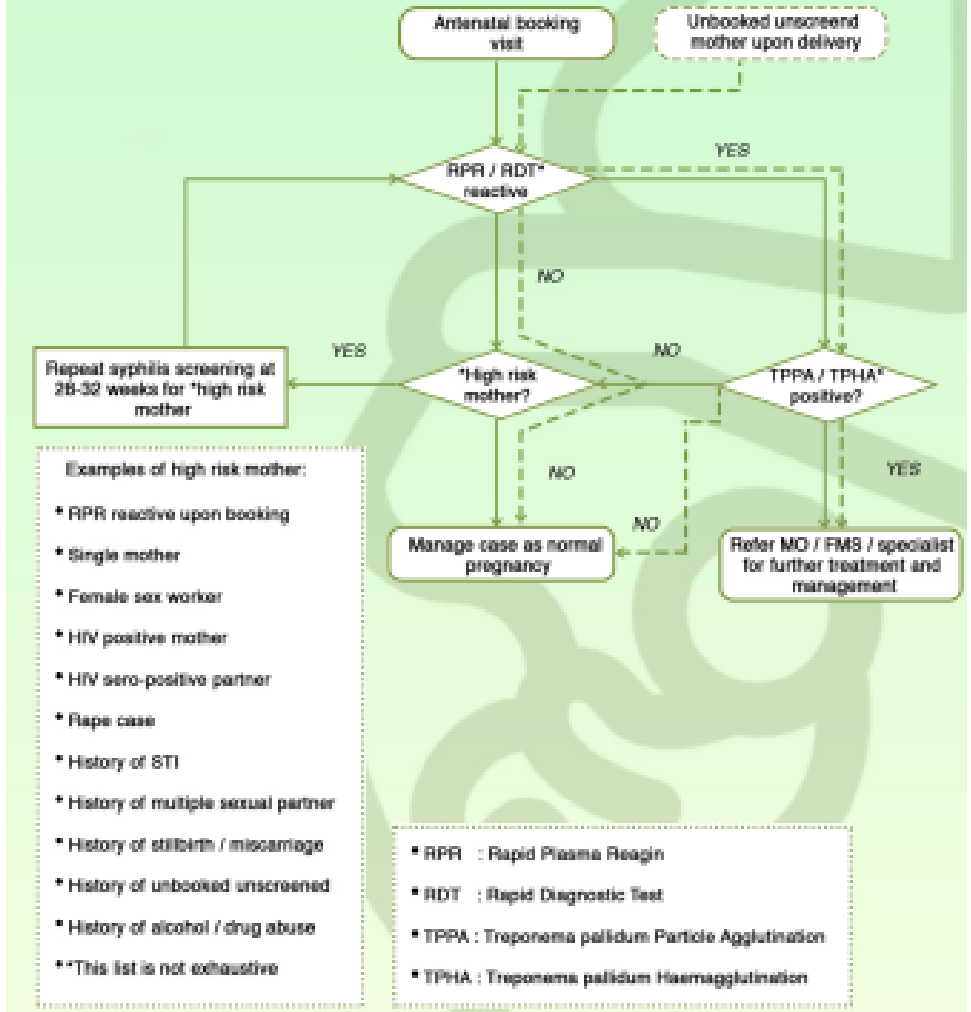
- Syphilis Rapid Diagnostic Test (RDT) is a qualitative rapid immune-chromatographic assay for the detection of IgG and IgM antibodies to Treponema pallidum in human whole blood, serum or plasma

- The assay is used as a screening test for Syphilis in certain groups of pregnant mothers

- RDT has to be registered under Akta dan Peraturan Peranti Perubatan Malaysia (Medical Device Authority Act -MDA)

- KKM recommends 98% sensitivity and 98% specificity

1 SYPHILIS SCREENING FOR PREGNANT WOMEN ATTENDING ANTENATAL CARE AND PRESENTING WITH UNKNOWN SYPHYLIS STATUS IN LABOUR



Examples of high risk mother:

* RPR reactive upon booking
* Single mother
* Female sex worker
* HIV positive mother
* HIV sero-positive partner
* Rape case
* History of STI
* History of multiple sexual partner
* History of stillbirth / miscarriage
* History of unbooked unscreened
* History of alcohol / drug abuse
* *This list is not exhaustive

* RPR : Rapid Plasma Reagin
* RDT : Rapid Diagnostic Test
* TPPA : Treponema pallidum Particle Agglutination
* TPHA : Treponema pallidum Haemagglutination

2 SYPHILIS SCREENING FOR PREGNANT WOMEN ATTENDING ANTENATAL CARE (RAPID DIAGNOSTIC TEST)

RDT screening for following cases or situation:

1. Hard to reach population for example *Orang Asli*, Sabah or Sarawak rural areas, etc.
2. Klinik kesihatan / Klinik Ibu dan Anak without lab facilities to perform RPR / VDRL tests.
3. Late bookers at third trimester (> 28 weeks pregnant)
4. High risk mothers

* Repeat test after 1 month if late booker OR
* Repeat test at 28 - 32 weeks of gestation if high risk

* Health Education
* Informed consent

* Blood withdrawal for RPR / VDRL test with titer reading and Rapid Diagnostic Test (RDT)

YES

Late booker / High risk?

Negative

RDT Test

Positive

* Refer Family Medicine Specialist / Medical Officer to initiate treatment (first dose) on the same day

NO

Non-reactive

Check RPR test result

Reactive

* TPHA / TPPA test (by lab)
* Give treatment (2nd & 3rd dose) for mothers with syphilis in late latent phase / history of receiving treatment for more than 2 years / no documentation of previous treatment / unknown treatment period

Manage case according to 'no risk' pregnancy care

Negative

Check TPHA/ TPPA test result

Positive

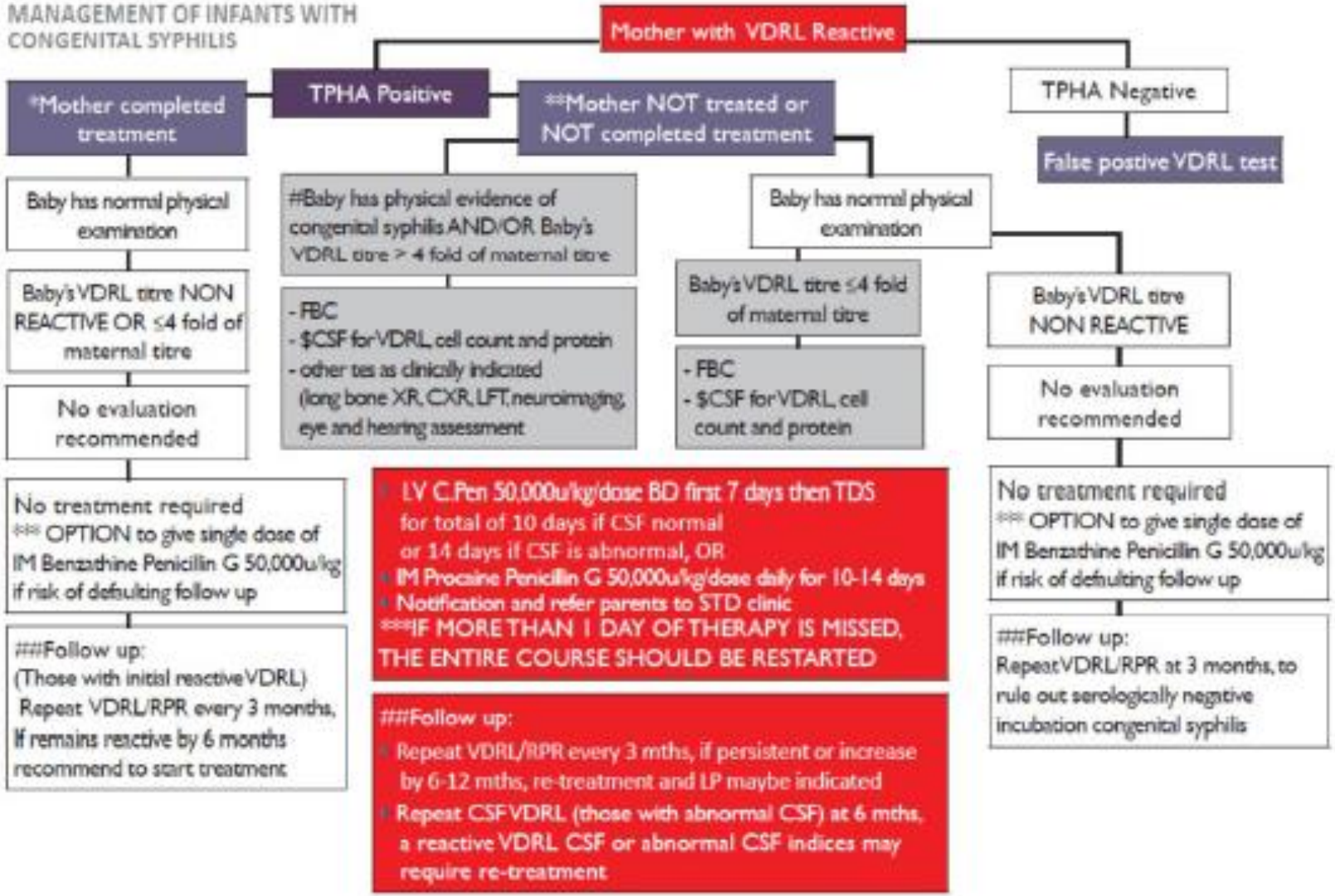
Refer Specialist Hospital (O&G specialist / Dermatologist / Infectious Disease specialist / Pediatrician) for Syphilis treatment plan during pregnancy and for delivery
Notify and contact tracing

High risk pregnancy:

* Unmarried pregnant ladies
* Sex worker
* History of HIV
* History of STI
* History of multiple sexual partner
* History of abortion / stillbirth
* Rape case
* History of alcohol and drug consumption
* Having sexual partners with Syphilis / HIV
* Other criteria deemed necessary based on evaluation by health personnel

Source:
WHO Guideline on Syphilis screening and treatment for pregnant women (2017). Strategy C : On-site rapid syphilis test followed (if positive) by first dose and RPR test (pg.24).

Rajah 7: Carta alir pengurusan kes dan rawatan bayi yang dilahirkan oleh ibu Sifilis positif



Excerpt from Paediatric Protocols for Malaysian Hospitals, 4th Edition, Ministry of Health, 2018. Section 2: Neonatology.

Results

- Traced via LIS -HSA, Hospital Segamat, HSI
- Hardcopy dispatched to Klinik Kesihatan -HPSF, HSNI
- Via email- HEBHK

(PER-PAT 301)

KEMENTERIAN [redacted]
PERKHIDMATAN
HOSPITAL S[redacted]
JOH[redacted]

2023 MAR 16 03:45:40

UNTUK KEGUNAAN MAKMAL
LAB NO.

1. Nam[redacted]
2. No. Pendaftaran:
3. No. [redacted]
4. Jantina: ☑ Lelaki ☐ Perempuan
5. Umur:
6. Keturunan:
8. Tarikh Masuk Wad:
9. Pekerjaan:
11. ☐ Bayar ☐ Percuma
12. No. Laporan Terdahulu:

[redacted]

14. Ringkasan Klinikal, Penemuan Pembedahan dan Riwayat Keluarga:

53y/o M/c, MOH/MMI
p/v yellowish discharge
① generalised jaundice pruritis
② fever, rigor, vomit
③ LOA

No family hx of malignancy
No hx substance abuse
NV fever.

ALT 1037
Alkp 134
TB 416.5 | DB 328.5

for wad

	Ya	Tidak
Jaundice		
Lymphadenopathy		
Hepatomegaly		
Splenomegaly		
Bleeding Tendency		
H/O Transfusion		

SOTSSNRS
SIGN:
NAME:

Haematinics

Drug/Chemical History

Data Makmal Terdahulu

Hb
Platelet
TWDC

15. Diagnosis: obstructive jaundice for ix.

16. Kategori Permohonan/Jenis Ujian:

Patologi Kimia		Klinikal		Hematologi	
B. Sugar	☐	Bld. Count	☐	PBP	☐
B. Urea	☐	ESR	☐	BM Asp.	☐
S. Elec	☐	BFMP	☐	Hb Analysis	☐
B. Gases	☐	U. Sugar	☐	Coagulation	☐
S. Bilirubin	☐	U. Alb	☐		
LFT	☐	U. Mc	☐		
Sc. Creatinine	☐	Stool ME	☐		

Histo/Sitologi Specimen | Mikrobiologi Ujian

Lain-lain VDRL.

RECEIVED 16 MAR 2023

17. Pengambilan Specimen: Tarikh: 16/3/23 Masa:

18. Nama Doktor:
19. Tarikh:

Tandatangan dan Cop Doktor

PATHOLOGY DEPARTMENT
HOSPITAL SULTANAH AMINAH 80100 JOHOR BAHRU

Lab ID : [redacted]
Name :
RN / IC :
Sample Type :
Sample Status : Ok
Referral Lab : None

Age : 53 Sex : Male

Date & Time Spec. Collect : 16/03/2023 00:00:00
Date & Time Spec. Received : 16/03/2023 10:00:00
Lab Order Date & Time : 16/03/2023 10:00:00
Location : WEST 4
Requesting Doctor : DR NUR SABILA

Serology Laboratory: EXT 2363 / Direct Line: 072257363 Authorised Personel: Dr Dayangku Seritul Akmar, Clinical Pathologist (Micro.), Head of Unit

RAPID PLASMA REAGIN	Result	Unit	Ref. Ranges
RAPID PLASMA REAGIN	Non reactive		

METHOD: LATEX AGGLUTINATION

(PER-PAT 301)

KEMENTERIAN K[redacted]

PERKHID [redacted]

HOSPITAL : [redacted]

JOI

UNTUK KEGUNAAN MAKMAL

[redacted]

1. Nama: [redacted]		2. No. Pendaftaran: [redacted]	
3. No. K.P. [redacted]		4. Jantina: ☐ Lelaki	☐ Perempuan
5. Umur: [redacted]		7. Wad/Klinik: Oftalmology	
8. Tarikh Masuk Wad: 15/3/2023	9. Pekerjaan:	10. Taraf Perkahwinan:	11. ☐ Bayar ☐ Percuma
12. No. Laporan Terdahulu:		13. Butiran Penting:	

SCREENED

14. Ringkasan Klinikal, Penemuan Pembedahan dan Riwayat Keluarga:

26 y/o / J / ♂
Mml / wllsn
c/o ⊕ painful swelling × 3/7
⊕ fever × 3/7
⊕ eye pain upon movement
↳ eye redness / no further

o/e: RE CF. # optic disc RE swollen disc, hyperaemic
RAPD +ve

13. Butiran Penting	Ya	Tidak
Jaundice	☐	☐
Lymphadenopathy	☐	☐
Hepatomegaly	☐	☐
Splenomegaly	☐	☐
Bleeding Tendency	☐	☐
H/O Transfusion	☐	☐

Drug/Chemical History

LE.OD normal

Data Makmal Terdahulu

Hb

Platelet

TWDC

15. Diagnosis: RE optic disc swelling for Ix ddx Right optic neuritis

16. Kategori Permohonan/Jenis Ujian:

Patologi Kimia		Klinikal		Hematologi		Histo/Sitologi	Mikrobiologi
B. Sugar	☐	Bld. Count	☐	FBP	☐	Spesimen	
B. Urea	☐	ESR	☐	BM Asp.	☐		
S. Elec	☐	BFMP	☐	Hb Analysis	☐		
B. Gases	☐	U. Sugar	☐	Coagulation	☐		
S. Bilirubin	☐	U. Alb	☐				
LFT	☐	U. Me	☐				
Se. Creatinine	☐	Stool ME	☐				

Lain-lain: RPR

RECEIVED
15 MAR 2023
SEROLOGI

17. Pengambilan Specimen: Tarikh: 15/3/2023 Masa: 0840 AM

18. Nama Doktor: DR FATIN

19. Tarikh: 15/3/23

Tandatangan dan Cop Doktor

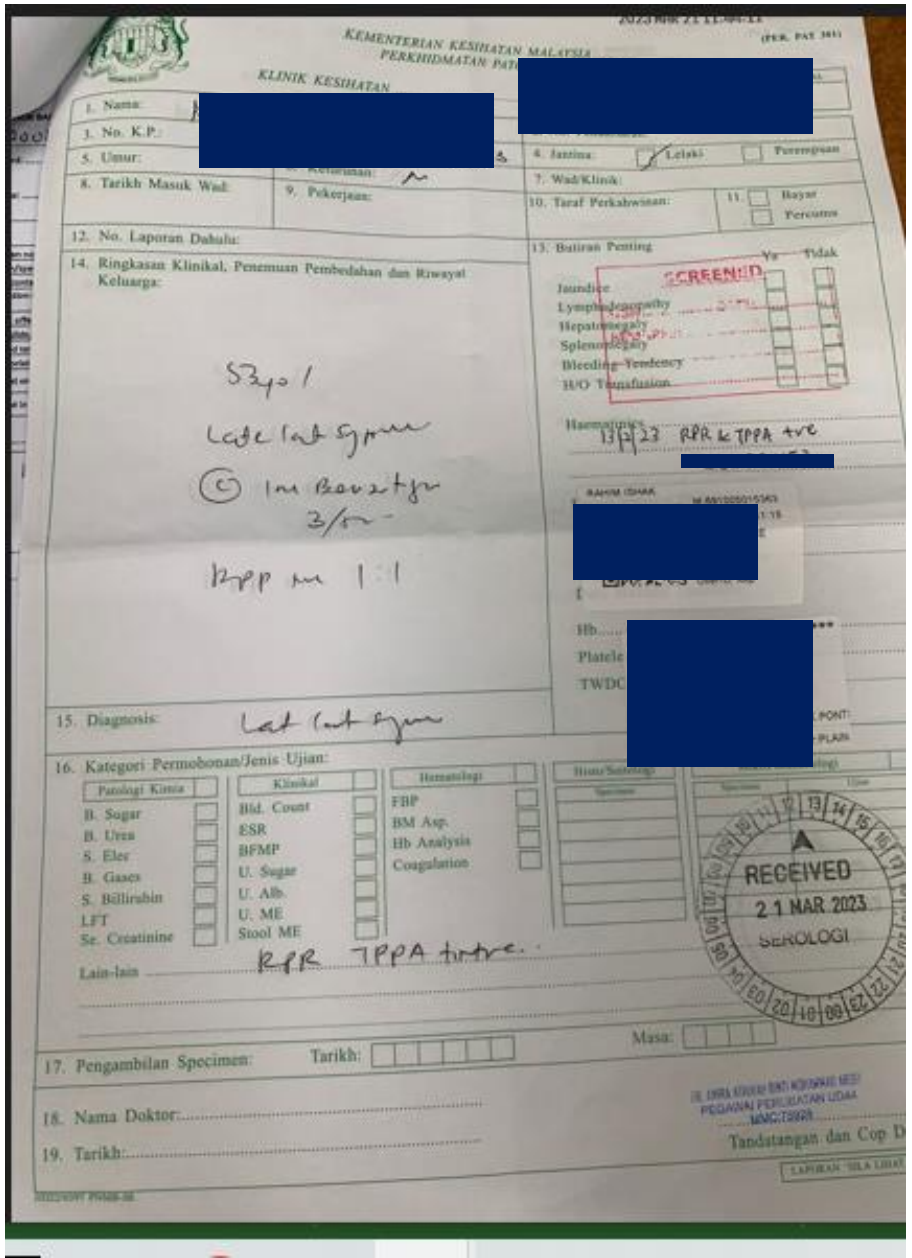
PATHOLOGY DEPARTMENT
HOSPITAL SULTANAH AMINAH 80100 JOHOR BAHRU

Lab ID	: [redacted]	Date & Time Spec. Collect	:	15/03/2023 00:00:00
Name	: [redacted]	Date & Time Spec. Received	:	15/03/2023 10:01:00
RN / IC	: [redacted] x : Male	Lab Order Date & Time	:	15/03/2023 10:01:00
Sample Type	: Serum	Location	:	OPTHAL CLINIC
Sample Status	: Ok	Requesting Doctor	:	DR FATIN
Referral Lab	: None			

Serology Laboratory: EXT 2363 / Direct Line: 072257363 Authorised Personel: Dr Dayangku Seritul Akmar, Clinical Pathologist (Micro.), Head of Unit

RAPID PLASMA REAGIN	Result	Unit	Ref. Ranges
RAPID PLASMA REAGIN	Reactive		
METHOD: LATEX AGGLUTINATION			
RPR TITRE	1:8		
TPPA	POSITIVE		
METHOD: PARTICLE AGGLUTINATION			

Rejections


KEMENTERIAN KESIHATAN MALAYSIA
KLINIK KESIHATAN
SCREENED
RPR & TPPA +ve
RECEIVED
21 MAR 2023
SEROLOGI
RPR TPPA titre.


Sultanah Aminah Hospital
Dermatology
-Laboratory Ord
NAMA:
NO K/P:
JANTINA:
PEKERJAAN:
BUTIRAN PENTING:
NO PERDAFTAR
KETURUNAN:
UMUR: 43Year(s)
TARAF PERKAHWINAN:
WAD/KLINIK Sultanah Aminah Hospital
TARIKH MASUK WAD
NO LAPORAN TERDAHULU
BAYAR
PERCUMA
RINGKASAN KLINIKAL PENEMUAN PEMBEDAHAN DAN RIWAYAT KELUARGA
SCREENED
G6P2+3 at 16 weeks POA. Twin pregnancy DCDA. Syphilis in pregnancy. For monthly monitoring.
DIAGNOSIS
Syphilis- late syphilis
Done 1/2/23 RPR & TPPA
Performing Location Sultanah Aminah Hospital
KATEGORI PERMOHONAN / JENIS UJIAN
Planned Date
Sample Type
Tag No.
RPR (Rapid Plasma Reagin Card Test)
28/02/2023
NAMA DOKTOR Dr Raja Siti Aishah bt Raja Mohd Radzi
TARIKH 28/2/2023
RECEIVED
21 MAR 2023
SEROLOGI

T OXOPLASMA GONDII

O THER AGENTS:
~ TREPONEMA PALLIDUM, VZV, PARVOVIRUS B19, & HIV

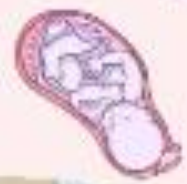
R UBELLA

C YTOMEGALOVIRUS (CMV)

H ERPES SIMPLEX VIRUS (HSV)

TRANSMISSION

* TRANSMITTED to FETUS THROUGH PLACENTA
* INFANT MAY CATCH INFECTION WHILE PASSING THROUGH BIRTH CANAL



* MOTHER can PASS INFECTION to INFANT THROUGH BREAST MILK

Reference

- HSAJB Work Instruction
- HSAJB Pathology Handbook 2022
- Garis Panduan Pengukuhan Program Pencegahan Jangkitan HIV dan Sifils dari Ibu ke Anak, KKM, Jun 2021
- WHO Consolidation Guidelines on HIV Prevention, Testing, Treatment, Service. Delivery and Monitoring: Recommendation for a Public Health Approach, July 2021
- WHO Guideline on Syphilis Screening and Treatment for Pregnant Women, 2017
- RPR Carbon Kit: For Detection Of Syphilis, Lorne Laboratories

Thank You