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Guidelines on Appropriate Contribution, Use and Access to National Electronic Health Record (NEHR)

[For Healthcare Professionals]

GUIDELINES ON APPROPRIATE CONTRIBUTION, USE AND ACCESS TO NATIONAL ELECTRONIC HEALTH RECORD (NEHR)

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1. Foreword

The National Electronic Health Record (NEHR) Guidelines is the culmination of the joint efforts of various stakeholders. As NEHR gained adoption over the years and the healthcare profession prepared for the Health Information Act (HIA), the Ministry of Health (MOH) partnered professionals from medicine, dentistry and nursing, as well as pharmacists and allied health professionals, and also brought on board other specialists in health law and ethics, to come up with a set of guidelines that would provide common sense recommendations and practical assistance to those who create, access and use medical records and health data.

The guidelines have been written in a way that is easier to read and understand, peppered with case scenarios that depict real-life dilemmas and potential uncertainties on the ground. The goal is to provide clarity on what is expected and remove any apprehension amongst contributors and users of NEHR regarding their duties and responsibilities and how to avoid potential breaches of practice. At the same time, the guidelines aim to set reasonable expectations on the part of patients in terms of how and when their health information from NEHR will be retrieved or used. We want to emphasise that NEHR is to be used only for appropriate purposes and is intended to *augment* the ability to obtain accurate and reliable information to facilitate care, but is not a *replacement* for good doctor-patient communications, which must continue to be the primary means in which a healthcare professional elicits the patient's medical history.

We hope that the guidelines will have a positive impact on those who are serving the needs and interests of our patients, especially those who may still be grappling with digital transformation within our healthcare ecosystem. It is critical that if we are to continue delivering coordinated and effective care to patients, we must retain the confidence of patients regarding the secure and responsible access and usage of their personal data, and that the contributors and users of NEHR also see this central repository as an asset rather than a bane or a minefield to be navigated.

The guidelines will be a living document, supplemented and revised from time to time to address new issues and challenges encountered. This will enable NEHR to maintain a high level of confidence from the public and healthcare providers alike.

As co-chairs, we want to thank each and every member of the committee who in their own way contributed their valuable insights and suggestions and gave so much of their time to bring this work to fruition. We also want to acknowledge many healthcare professionals and other stakeholders who took the time to attend and participate in the engagement sessions that were held--- your feedback was instrumental in guiding our work. And last but not least, we want to acknowledge the tremendous support that we received from Deputy Director-General of Health (Health Regulation) Adj Prof Raymond Chua and the excellent secretariat team from the MOH, without which we would not have been able to complete these guidelines.

The true value of Singapore healthcare's digital transformation will lie in its adoption and proper use by those who are delivering care to patients. We hope that these ready-to-use guidelines will support those efforts, and we look forward to witnessing the next exciting chapter of Singapore's healthcare journey.

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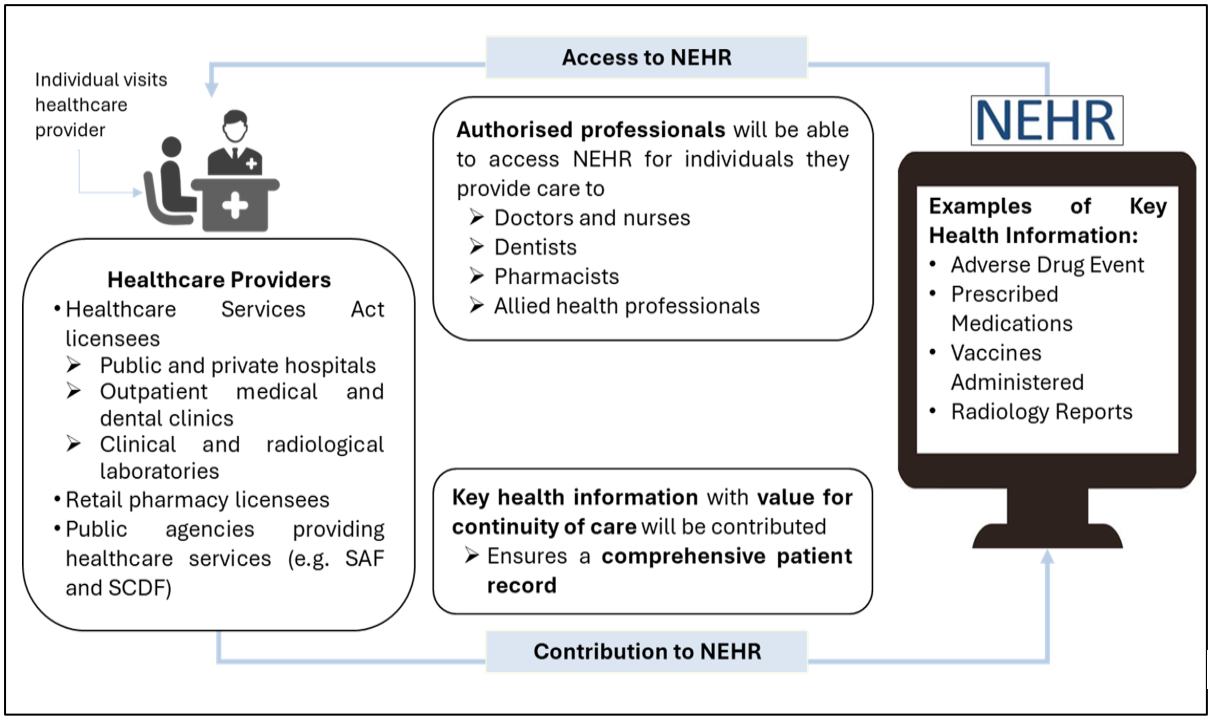
2. Introduction

2.1. What is the National Electronic Health Record (NEHR)?

The NEHR is Singapore's centralised repository of key health information, and a key component of MOH's goal of "One Patient, One Health Summary, One Care Journey" that the HIA will enable.

The NEHR was introduced in 2011 and allows public and private healthcare institutions to contribute key health information of their patients from their Health Information Management Systems (HIMS)[1] in a seamless manner that is designed to avoid duplicative data entry. This health information (henceforth referred to as "NEHR information") is then made accessible to other healthcare providers and professionals caring for the patients when they move across healthcare settings and providers, allowing patients to benefit from better coordinated care, enhanced quality of care and lower costs.

NEHR is owned by the MOH and operated by Synapxe.



Screenshots of the NEHR User dashboard are found in Annex A.

Note to Healthcare Professionals

This set of guidelines as well as the examples and scenarios described within should not be considered exhaustive, nor do they represent the minimum standards of care expected of healthcare professionals.

***NEHR is a tool to support healthcare professionals in the provision of care for patients; it is not a substitute for good clinical skills and judgement**. Healthcare professionals should continue to exercise professional judgement appropriate for their clinical setting and for each individual patient.*

[1] HIMS refers to the IT system used to manage patient records and includes institutions' Electronic Medical Records (EMRs) and Clinic Management Systems (CMS).

2.2 Aim and Key Principles

This set of guidelines aims to assist healthcare professionals in navigating their interactions with NEHR, taking into account the obligations that will apply to healthcare providers and NEHR users under the HIA.

These guidelines build on the foundations of good clinical practice and take reference from existing laws and guidelines such as the Healthcare Services Act 2020 (HCSA) and the Singapore Medical Council (SMC)'s Ethical Code and Ethical Guidelines (ECEG). This set of NEHR guidelines should be applied in conjunction with professional guidelines or codes of conducts, and the laws and regulations governing healthcare practice in Singapore. It is not a substitute for prevailing legislation or applicable case law, or for legal advice.

The key principles on which these guidelines are based are:

- Good clinical care: NEHR should be used to aid healthcare professionals in the provision of high standard evaluation and provision of care to patients.
- Management of medical records: Accurate and timely record keeping helps ensure that key health information sent to NEHR is available and usable for healthcare professionals' care provision to patients.
- Maintaining patient confidentiality: Healthcare providers should ensure that NEHR information is secured from unauthorised access as well as ensure that NEHR information is not disclosed for unauthorised purposes or to unauthorised persons.
- Respect patient choice: Patients will have the option to restrict healthcare providers' access to their NEHR information.

2.3 Structure of Guidelines and How to Use These Guidelines

These guidelines are organised into three sections following the natural sequence of NEHR interaction: contribution to, access to, and use of NEHR information. Each section elaborates on the guiding principles, which are premised on fundamental ethical principles and professional standards (see Section 2.2). Certain key principles will also be illustrated via scenarios in the Annex. These scenarios are not exhaustive and will be refreshed from time to time.

A summary for each section of the Guidelines is found in table below.

Guidelines on Contribution to NEHR (Section 3)	• What is a good medical record? (Section 3.1) • Revisions and addendums to medical records (Section 3.2)
Guidelines on Appropriate Access to NEHR (Section 4)	• Managing healthcare professionals' access to NEHR (Section 4.1) • When NEHR should and should not be accessed (Section 4.2) • Handling patients who have restricted access to NEHR (Section 4.3) • Handling of NEHR information (Section 4.4)
Guidelines on Appropriate Use of NEHR Information (Section 5)	• Reviewing NEHR information before use (Section 5.1) • Handling incidental findings within NEHR (Section 5.2) • Handling NEHR information that may be deemed more sensitive (Section 5.3) • Disclosure of NEHR information (Section 5.4)

3. Guidelines on Contribution to NEHR

Under the HIA, healthcare providers have a duty to ensure the timely contribution of key health information of Singapore citizens, permanent residents and individuals on long term visit passes (i.e. holders of Foreign Identification Numbers) to NEHR, including the accuracy and completeness of such health information contributed. This facilitates continuity of care by ensuring relevant information is available when patients visit other healthcare providers. A list of such key health information can be found in Annex B.

For operational convenience, healthcare providers may use a HIA-Compliant HIMS (HCH) that is authorised to connect directly to NEHR. HCH will automatically extract the relevant information and submit it to NEHR. Healthcare providers using HCH will therefore not have to manually enter the data fields for submission to NEHR.

The HIA does not require the contribution of health information of short-term visitors (e.g. tourists). It is also not necessary to contribute patients' entire medical records to NEHR.

Contribution to NEHR is automated for providers using HCH

Only selected information is contributed from healthcare providers' HIMS.

3.1 What is a good medical record?

Healthcare professionals should make accurate, clear, and contemporaneous medical records within their own HIMS, taking into account that the key health information from these medical records will also be contributed to and viewed in NEHR and be used for clinical care purposes by other healthcare professionals.

Healthcare professionals should follow the professional guidelines set by their respective professions on record-keeping. This would include ensuring accurate, clear and contemporaneous records (see relevant section of SMC's ECEG in Annex C as a reference). While key health information in HCH is automatically contributed to NEHR, healthcare providers remain responsible for ensuring data accuracy in their records.

In situations where healthcare providers are aware of technical issues which may delay the capturing of information into the HCH or transmission of the information from their HCH to NEHR, healthcare providers should ensure that the information is updated into NEHR as soon as reasonably possible from the time of the patient visit.

3.2 Revisions and addendums to medical records

NEHR consolidates and reflects information from healthcare providers, and hence revisions and addendums will need to be made by healthcare professionals and should be made as soon as possible. For example, if a healthcare professional notices an error in NEHR and determines that the error needs to be corrected to prevent future negative impact on the patient's clinical management, he/she should inform the NEHR Service Desk at 1800-6644-347 or ehealthit.svcdesk@synapxe.sg, which will contact the source healthcare provider. The source healthcare provider will then review the request and make the necessary corrections in their HCH, which will then send an updated copy to NEHR.

In this process of identifying errors made by other users, healthcare professionals should maintain professional collegiality and refrain from casting aspersions on other healthcare professionals' competency.

You may refer to Annex D for scenarios that illustrate the key principles surrounding appropriate contribution to NEHR.

4. Guidelines on Appropriate Access to NEHR

The primary purpose for NEHR access is for the delivery of patient care. Healthcare professionals should take care to ensure they only access NEHR where appropriate, and that they handle the NEHR information, once accessed, with care.

4.1 Managing healthcare professionals' access to NEHR

4.1.1 Role-based access to NEHR

Under the HIA, healthcare providers are authorised to access NEHR and are therefore overall responsible for ensuring appropriate NEHR access by their personnel. Healthcare providers should request NEHR accounts only for healthcare professionals who are directly involved in patient care. They must also inform Synapxe in a timely fashion where healthcare professionals no longer require NEHR access (for instance, if such professionals are currently playing a purely corporate or administrative role) or have left the organisation.

NEHR accounts are unique to individual healthcare professionals and must not be shared with colleagues or other individuals. As access is granted at the organisational level, for healthcare professionals who provide care at multiple clinics/institutions, they should take care to select the correct clinic/institution at the point of log-in.

4.1.2 Privilege to access patient's NEHR information

Access to a patient's NEHR information is built on the foundation of the patient's trust that this information is shared and used to provide better patient care. **Healthcare professionals must not access an individual's NEHR information (including that of their relatives, friends, colleagues or themselves), unless the individual is registered and consulting the healthcare professionals as their patient.** Access to NEHR must not be abused, whether it is out of curiosity or any other purpose malicious or otherwise. Inappropriate access to NEHR will be taken seriously by MOH.

4.1.3 Healthcare professionals granted access to NEHR should be adequately trained

Healthcare providers should establish policies and procedures to ensure appropriate access to NEHR. Healthcare providers should ensure that all users who are granted access to NEHR are trained and aware of the policies regarding the appropriate access to and use of NEHR information and comply with these policies.

4.2 When NEHR should and should not be accessed

4.2.1 NEHR access – authorised and prohibited purposes

The HIA permits healthcare professionals to access NEHR information for either of two purposes:

1. The provision of patient care **except** where they are related to an employment or insurance related purposes; and
2. Conducting a whitelisted statutory medical examination.

The HIA allows (but does not require) healthcare professionals to access NEHR for the provision of patient care. Access to NEHR for insurance- or employment-related purposes is **prohibited**, even if it is part of patient care**.**

4.2.1.1 Factors for considering when NEHR access may be needed

History-taking and physical examination will continue to be the mainstay in clinical assessment. NEHR is a supplementary tool that can complement and aid clinical assessment.

Healthcare professionals are therefore not expected to access NEHR at every single clinical encounter, and should consider whether they have sufficient information about their patients derived from history-taking, clinical examination and/or relevant investigations before deciding if NEHR should be accessed during the consultation.

Healthcare professionals can take guidance from the relevant professional ethical codes and guidelines (an example of the relevant section in the SMC's ECEG is extracted in Annex E). Factors to consider when deciding if it is reasonable to access NEHR include:

- **Does history-taking and physical examination suffice to make a reliable clinical assessment?** Where a healthcare professional is satisfied that the information provided through the patient's history and examining the patient is sufficient for them to assess and treat the patient, there is no requirement for the

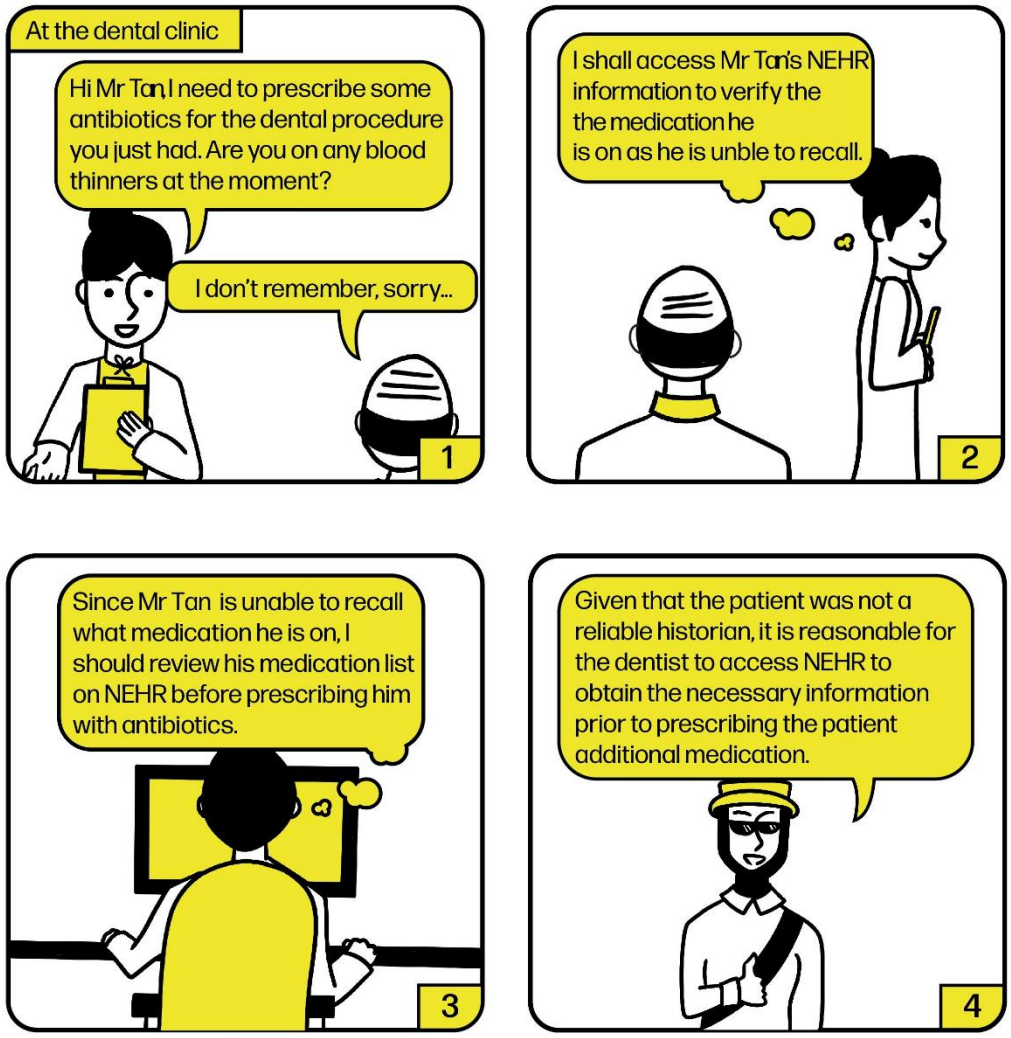
healthcare professional to access NEHR. For instance, if a young and healthy patient is seeking treatment for cough, confirms he has no past medical history and the history taken and examinations are sufficient to conclude that the patient has an upper respiratory tract infection, there may not be a need to access NEHR to make a diagnosis or start the relevant treatment.

- **Is more information required?** A healthcare professional may refer to NEHR if the patient is unable to provide sufficient details during history-taking, or if the healthcare professional suspects that the history provided by the patient is incomplete or incoherent. For example, if a patient claims to have undergone an operation 2 years ago but is unable to name the operation or what it involved, it is reasonable for the healthcare professional to access NEHR if such information could potentially be relevant to the current management.

- **Which information in NEHR is relevant to the current consultation?** NEHR is a supplementary tool to assist healthcare professionals to obtain information that is missing or unclear from history-taking and physical examination. Healthcare professionals are not expected to review every single record in NEHR each time it is accessed. Healthcare professionals need to only review the relevant portion of NEHR information that clarifies their doubts on the patient's history or to obtain any missing information required for their assessment and treatment of the patient's condition.

When healthcare professionals decide to access NEHR, they are not expected to review every single past medical record in NEHR. As good medical practice, clinically relevant information (or absence of information) should be properly documented in the patient's record.

Appropriate access to NEHR



Healthcare professionals should use professional judgment to determine whether access to NEHR is required to obtain additional information for patient care.

4.2.2 Access for whitelisted statutory medical examinations

To protect the public and safeguard the health of the individual and those around the individual, the **HIA allows the use of NEHR for whitelisted statutory medical examinations** (even if it may be employment or insurance related)**.** For ease of reference, doctors may refer to https://www.healthinfo.gov.sg/help-and-resources/useful-links/ for an updated list of whitelisted statutory medical examinations.

Examples include (i) medical examinations to assess fitness for service in the Singapore Armed Forces, Singapore Civil Defence Force and Singapore Police Force, as required under the Enlistment Act 1970; (ii) medical examinations for fitness to continue to drive for those reaching 65 years of age, as required under the Road Traffic (Motor Vehicles, Driving Licenses) Rules, and (iii) examinations of persons who are at risk of an infectious disease, as required under the Infectious Diseases Act 1976.

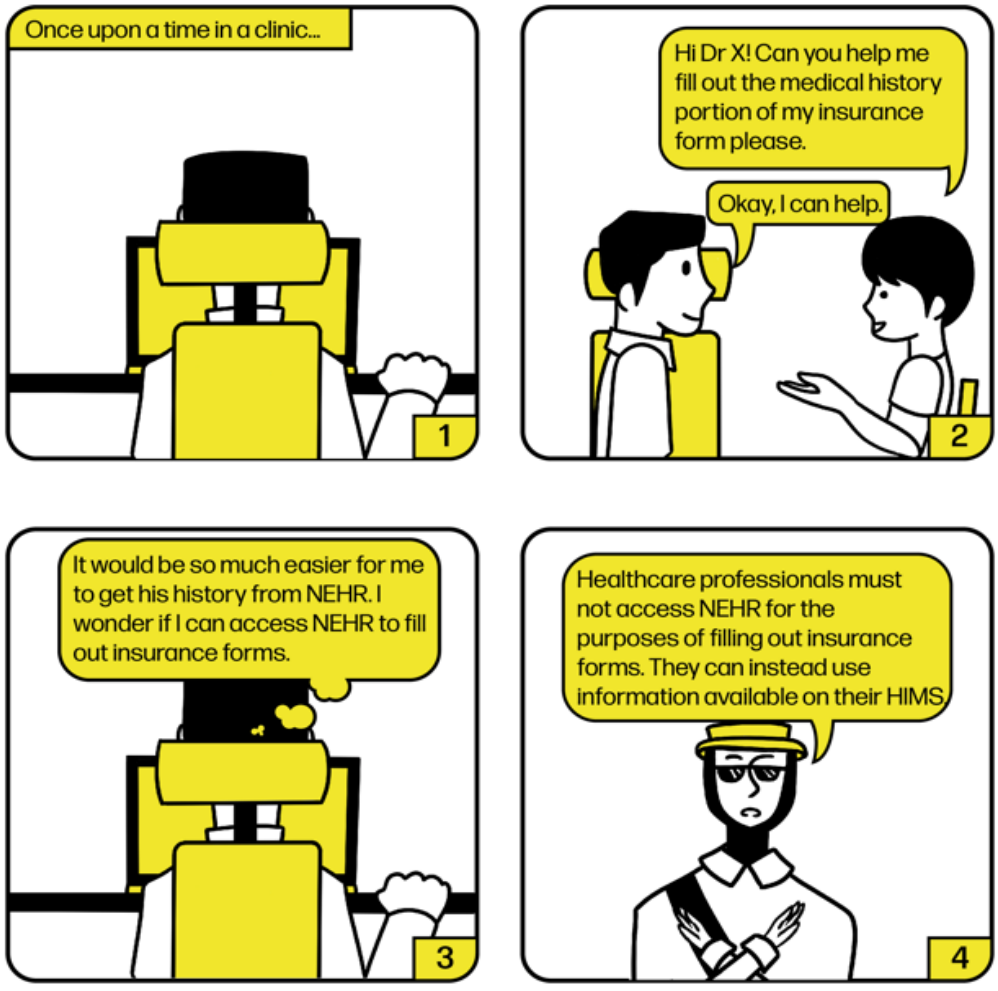
When accessing NEHR for a whitelisted statutory medical examination, healthcare professionals should be careful to only access or collect NEHR information that is relevant for the whitelisted statutory medical examination. Inappropriate access or collection of NEHR information would be a breach of the HIA.

4.2.3 Accessing NEHR for medical examinations and writing medical reports

Access to NEHR for medical examinations / assessments for employment or insurance purpose is prohibited. NEHR may be accessed for other types of medical examination / assessment which are not for employment or insurance related, or if it is whitelisted statutory medical examination.

Writing a medical report is a separate activity that may take place independent of a medical examination. **NEHR access is not allowed for medical report writing purposes**. Medical reports should be based on information available in the healthcare provider's own medical records.

Unauthorised access to NEHR



Accessing NEHR to fill out insurance or employment forms* is strictly prohibited.

NEHR should only be accessed for patient care purposes.

**Except for whitelisted statutory medical examinations in the HIA.*

4.3 Handling patients who have restricted access to NEHR

NEHR is designed to support the delivery of patient care by healthcare professionals – a healthcare professional need not seek consent or ask if a patient has imposed Access Restrictions before accessing NEHR for patient care purposes.

Where a patient has placed an Access Restriction on his/her NEHR record, only allergies and vaccination records (together with their key demographic information i.e. name, NRIC/FIN, date of birth, race and gender) will be displayed.

In medical emergencies, only doctors may "break glass" to access a patient's full NEHR information despite an Access Restriction. A medical emergency refers to a medical situation where the patient is at risk of death or serious injury or disability, unless the doctor intervenes immediately, and such intervention is in the patient's best interest.

Doctors who "break glass" during a medical emergency will be required to re-verify their credentials and declare that a medical emergency has occurred before they may access the patient's NEHR information despite the Access Restriction. Such access will be subject to audits, and inappropriate access would be a breach of the HIA and may also be referred to the SMC for disciplinary action.

4.4 Handling of NEHR information

4.4.1 Documentation of NEHR access

Healthcare professionals are **not required to routinely document** their reasons for accessing NEHR. However, when NEHR is accessed outside of a consultation or admission encounter, such accesses may be audited. In such instances, healthcare professionals may be asked to provide the reason(s) for accessing NEHR. Consequently, whenever healthcare professionals access NEHR outside of a consultation or admission encounter, they are strongly encouraged to document their reasons for doing so.

4.4.2 Patient's records and confidentiality

As good clinical practice, all clinically relevant information should be documented in the patient's medical records – this may include documenting any clinically relevant NEHR information which has been collected and validated with the patient during the consultation or significant negatives**.** The healthcare provider's medical records continue to be governed by existing professional codes and legislative requirements under the HCSA and Personal Data Protection Act 2012 (PDPA) and should be secured to prevent unauthorised access. Inappropriate collection of NEHR information (e.g. where collection is not necessary for discharge of duties in relation to provision of healthcare service to the patient) would be a breach of the HIA.

Refer to Annex F for scenarios that illustrate the key principles surrounding appropriate access to NEHR.

Refer to Annex G for the extract from SMC's ECEG on maintaining medical confidentiality when providing patient care.

5. Appropriate Use of NEHR Information

The preceding sections have set the stage for NEHR use by setting out the key principles relating to contribution and access. This section will discuss the guiding principles on the use of NEHR once it has been established that the healthcare professional has appropriate reasons to access NEHR.

5.1 Reviewing NEHR information before use

Healthcare professionals should recognise that information in NEHR is dynamic (e.g. new test results may be added) and is subject to the accuracy of the clinical information at the time of writing and contribution to NEHR. **Healthcare professionals should therefore make their own assessment on whether to rely on the information obtained from NEHR.**

Where there are inconsistencies, they should assess if the NEHR information is still valid prior to relying on it for clinical care. Where appropriate, information obtained from NEHR (such as information on drug allergies) can be validated with the patient.

5.2 Handling incidental findings within NEHR

Discovery of incidental findings in medical records is not a new phenomenon. Hence, **the approach to dealing with incidental findings should be no different from before the inception of NEHR.**

When incidental findings are discovered, healthcare professionals are obliged to offer patients follow-up care as necessary, as guided by their professional bodies' ethical codes and ethical guidelines (refer to Annex H for guidance on managing incidental findings in SMC's ECEG). Follow-up care may come in the form of ordering further tests and investigations or referring the patient to the relevant specialist and should be appropriately documented within the patient's medical record.

5.3 Handling NEHR Information that may be deemed more sensitive

NEHR Information that may be deemed more sensitive refers to information that could lead to stigmatisation or discrimination or are governed by specific statutory requirements. MOH has defined a list of such information (Annex I).

Only authorised healthcare professionals (e.g. doctors, select nurses and pharmacists) are granted access to NEHR information that may be deemed more sensitive. Consent from the patient is not required before accessing NEHR information that may be deemed more sensitive.

Access to NEHR information that may be deemed more sensitive should only be in the context of providing a healthcare service, including the conduct of whitelisted statutory medical examinations, and will be subject to audits. There are additional safeguards in place for access, such as requiring the healthcare professional to provide their authentication and purpose for access to view this information in NEHR. Healthcare professionals are encouraged to document their rationale for accessing such information in their own patient medical records. Healthcare professionals are also reminded to handle this data with additional care to minimise any embarrassment to the patient or any unintended disclosure. For instance, healthcare professionals should ensure that there is sufficient privacy (e.g. no bystanders or onlookers around them) before accessing this information.

5.4 Disclosure of NEHR information

NEHR information should only be disclosed to other healthcare professionals if they are involved in providing care to the same patient.

Healthcare professionals should direct patients requesting for access to their NEHR information to view their information through the HealthHub application. However, NEHR only contains a patient's key health information and not the complete health record. As such, where patients require detailed health records, healthcare professionals should direct patients to contact the relevant healthcare provider that had provided the care for which the information is being sought.

You may refer to Annex J for scenarios that illustrate the key principles surrounding appropriate use of NEHR.

6. Conclusion

NEHR is intended to help healthcare professionals provide better patient care, by ensuring that up-to-date health information is aggregated across various healthcare providers and made available to healthcare professionals, so that informed and holistic care decisions can be proposed to patients.

It is our objective that these Guidelines provide the broad principles that will support healthcare professionals in addressing and responding to different situations when contributing to, accessing and using NEHR. These guidelines will be periodically updated to reflect the changing digital healthcare landscape and MOH policies and requirements.

We also hope that the scenarios provided in the Annex will help contextualise these broad principles in a manner that is of use to healthcare professionals in their daily work. These scenarios are not exhaustive and are only meant to illustrate how the principles in the Guidelines can work in practice. Healthcare professionals are therefore encouraged to use these scenarios as guides in their day-to-day practice, rather than treat these as new clinical standards to adhere to.

You may write to HIA_Enquiries@moh.gov.sg if you have queries or feedback on the Guidelines.

For more information on NEHR, please visit https://for.sg/connectnehr.

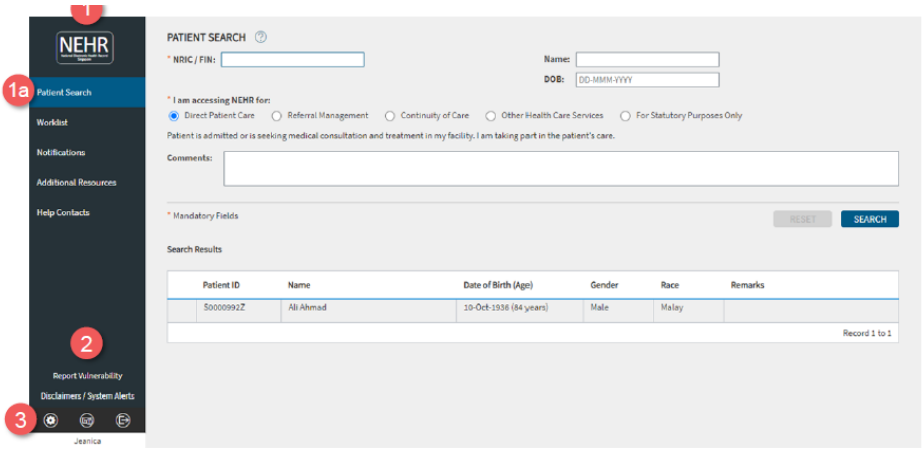
For more information on the Health Information Act, please visit www.healthinfo.gov.sg.

7. Annexes

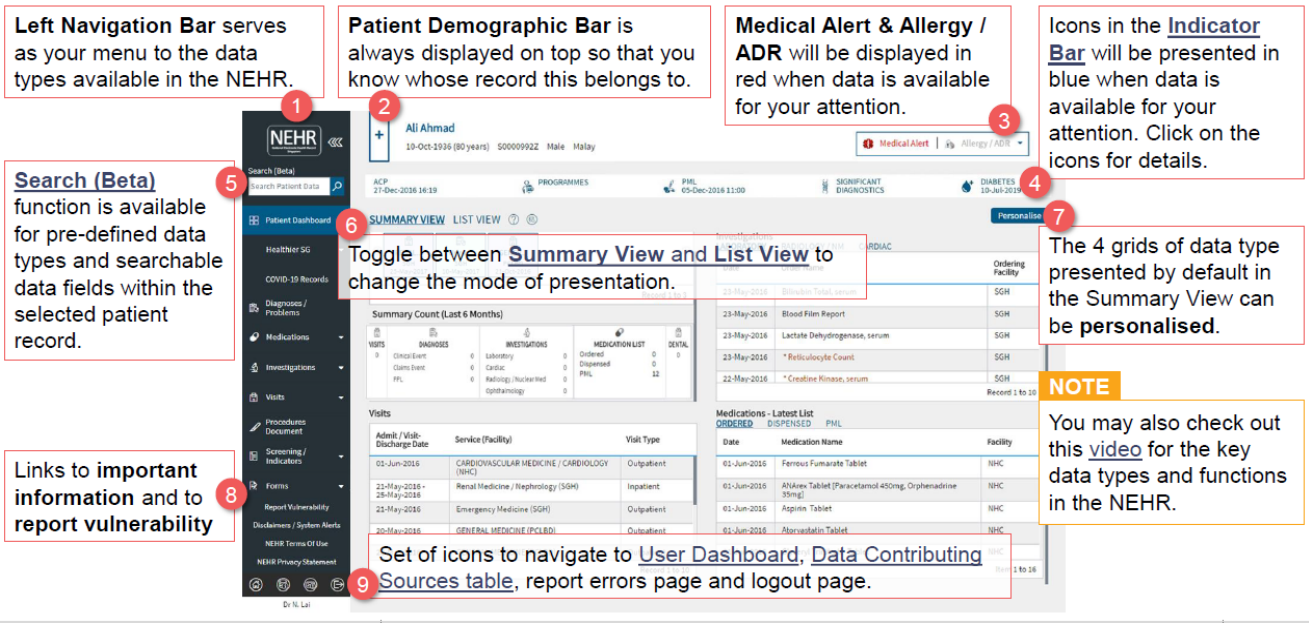
Annex A – Overview of NEHR Dashboard

NEHR User Dashboard:

1. The User Dashboard has a different menu on the left navigation bar.
   a) By default, Patient Search is the landing page when you clicked on the home icon from the Patient Dashboard or when you login via the NEHR Portal.
2. Like the Patient Dashboard, links to important information and to report vulnerability are available here.
3. There are also icons to help you navigate to Edit User Settings page, report errors page and logout page.



Patient Record Dashboard:



Annex B – List of health information that is required for contribution to NEHR

Under the HIA, only key health information crucial for continuity of care will be contributed to NEHR. This includes:

1. Visit Diagnoses/Reasons for Visits or Patient Problem List
2. Visit Event
3. Adverse Drug Event History
4. Ordered (prescribed) Medications, Dispensed Medications and Medication List
5. Vaccines Administered
6. Cardiac Reports
7. Laboratory Test Reports
8. Radiology/Imaging Reports

9. Surgical Procedure Notes
10. Dental Notes
11. Discharge Summary
12. Emergency Department/Urgent Care Summary
13. Referral memorandum

Please refer to the HIA website healthinfo.gov.sg/files/HIA_First_Schedule_Table_1_0.pdf for the specific data types to be contributed by different classes of HCSA licensees.

Annex C – Extract of SMC's ECEG on maintaining good medical records

[Section B3] Medical Records

1. Maintaining clear and accurate medical records enhances good patient care and ensures high quality continuity of care.
2. Medical practitioners must maintain clear, legible, accurate and contemporaneous medical records of sufficient detail to enable a high quality of continuing care.
3. Medical practitioners must make their records at the time of engagement with patients, or as soon as possible afterwards.
4. Those medical records must include all clinical details about their patients, discussions of investigation and treatment options, informed consents, results of tests and treatments and other material information. If a medical practitioner is delegated an aspect of the care, the records may be confined to what is relevant to that portion of the care.
5. If patients request for information not to be documented, the medical practitioner may accede to their requests, but they must ensure that this does not adversely impact their own care or the safety of others.
6. Medical notes must be written or entered in objective language without showing disrespect for patients, or otherwise disparaging or insulting patients in any way.
7. Medical records must not be amended in order to hide anything, or to otherwise mislead. Amendments are only permitted to make genuine corrections or amplifications.
8. If the medical records are made on behalf of the medical practitioner, reasonable steps must be taken to ensure that the quality of the records is up to the required standards.
9. Within the ability of the medical practitioner, all medical records must be kept safely and securely and are not at risk of unauthorised access and breach of medical confidentiality. If the medical record systems are not within the control of the medical practitioner, it is the duty of the medical practitioner to use the systems responsibly and abide by all the security protocols in place.
10. Patients have a right to their medical information (though not the physical medical records or the original digital records) and when requested, unless there are exceptional circumstances, such information from their medical records should be made available to them, communicating it in a way that best suits the patients' needs, such as in a medical summary or report.

Annex D – Scenarios to illustrate appropriate contribution to NEHR

Scenario (I): Correcting errors in medical record that are discovered through the use of NEHR

Patient A and his next-of-kin (NOK) visits Dr X for what appears to be an acute asthma attack. Dr X is unable to elicit a clear history from Patient A and accesses NEHR for further information on Patient A's history and any past presentations of asthma exacerbations requiring hospitalisation. Dr X notes that Dr Y, the patient's primary physician, had recorded that the patient had no past hospitalisations for an asthma

exacerbation but noted from Patient A's NOK that Patient A was previously admitted for an acute asthma attack. Dr X proceeds to stabilise the patient and update his notes on Patient A's past admission. He determines that this information is important enough to be updated in Dr Y's records and informs Patient A's NOK to notify Dr Y of this. Dr X also informs the Medical Records Office of Dr Y's institution.

Professional Guidance:

Section 3.2 – Doctor X did the right thing. When a healthcare professional becomes aware of an error in NEHR, he/she should exercise professional judgement in determining whether the error needs to be corrected to prevent an adverse impact on the patient's future clinical management. If so, the healthcare professional should inform the NEHR Service Desk at 1800-6644-347 or ehealthit.svcdesk@synapxe.sg, which will contact the source healthcare provider. The source healthcare provider will then review the request and make the necessary corrections in their HCH, which will then send an updated copy to NEHR.

Annex E – Extract of SMC's ECEG on clinical evaluation of patients

[Section A2] Clinical Evaluation of Patients

1. Medical practitioners must ensure that they have sufficient information about their patients, derived from history-taking, clinical examination and other relevant investigations or information sources, before they offer any clinical opinion, make management plans or offer treatment.

Annex F – Scenarios and further guidance to illustrate appropriate access to NEHR

Scenario (I): Unauthorised access to NEHR

Nurse A accidentally pricks her own finger while drawing blood from Patient B. She then visits Occupational Health, where Doctor X reviews her. Doctor X considers if he should access the NEHR information of Patient B to screen for blood-borne infectious diseases such as Human Immunodeficiency Virus (HIV), to better treat Nurse A's needlestick injury.

Professional Guidance:

Section 4.1.2 - Accessing Patient B's NEHR information in such circumstances is considered unauthorised as Patient B is not under the care of Doctor X.

- The risk of inadvertent disclosure of Patient B's NEHR information, including information that may be deemed more sensitive, far outweighs the benefit of reducing duplicative tests in this scenario.
- In the case of a needlestick injury, healthcare professionals are encouraged to follow the relevant guidelines of the institution and treat the primary patient (Nurse A in the scenario above) accordingly.

Separately, MOH considers access to and use of the NEHR in the following (non-exhaustive) circumstances to be **unauthorised**:

a. Users accessing NEHR information of patients not assigned to their care;

b. Users accessing NEHR information of patients not under the care of the users' institution/clinic (e.g. Nursing home doctor accessing an individual's NEHR information when he is not registered with the nursing home);
c. Users accessing patients' NEHR information for research purposes without MOH's prior approval; and
d. Users accessing NEHR for clinical audits, teaching or training purposes. For example, if a patient underwent surgery and suffered post-operative complications and a clinical audit quality was requested, NEHR **cannot** be accessed for such purposes.

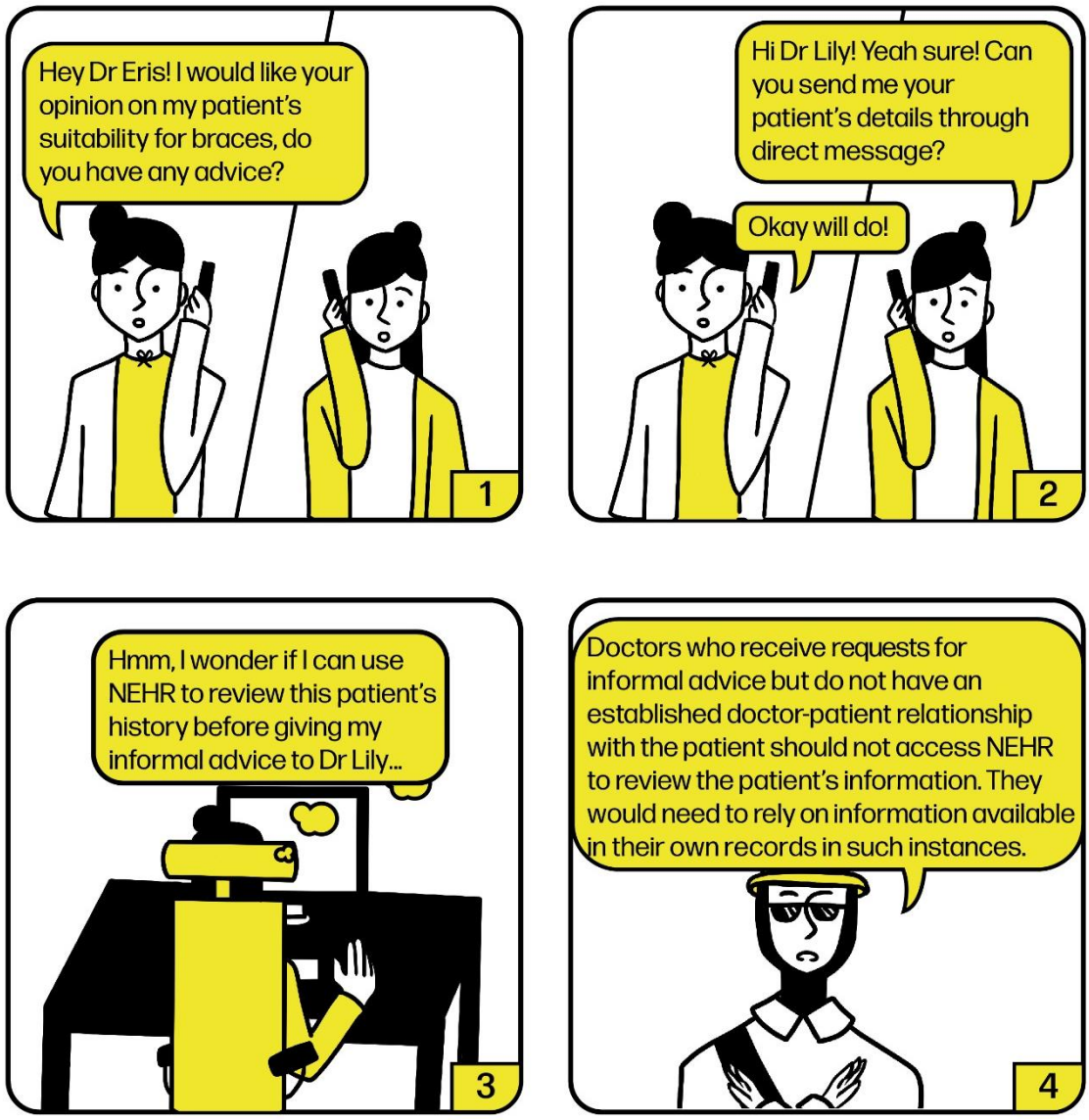
Scenario (II): Unauthorised access to NEHR

Doctor X learns that her friend's mother, Patient A, has been admitted to the ward. Out of curiosity and concern for her friend's mother, Doctor X accesses NEHR to check Patient A's medical history and current condition, even though she is not involved in Patient A's care.

Professional Guidance:

Section 4.1.2 – The scenario above is an example of inappropriate access to NEHR, which MOH takes seriously. Healthcare professionals must not access an individual's NEHR information (including that of their relatives, friends, colleagues or themselves), unless the individual is registered and consulting the healthcare professionals as their patient.

Unauthorised access to NEHR for informal advice



Healthcare professionals should only access NEHR for authorised purposes.

<u>Scenario (III): Relying on professional judgement to determine if access to NEHR is required</u>

Patient Y seeks care from Doctor A for his asthma exacerbation. Doctor A asks Patient Y and his accompanying relative if there have been any hospital/ICU admissions due to asthma or any other breathing-related difficulties in the past. Patient Y replies that there have not been any and this is confirmed by his relative who shared that he has been the patient's caregiver for some time. NEHR was not accessed as Doctor A assessed that the history provided was reliable enough. Patient Y is given the necessary treatment for the exacerbation and sent home, but subsequently gets admitted for a severe asthma attack. It is later found out that Patient Y did in fact have previous hospital and ICU admissions for asthma attack. Had Doctor A been aware of this, the management plan would have been different.

However, in this instance, there was nothing to suggest to Doctor A that the information provided by both the patient and the relative was inaccurate.

Professional Guidance:
Section 4.2.1.1 – Healthcare professionals should rely on their own professional judgment to assess whether there is a need to access NEHR as a complement to history taking and physical examination for the purpose of patient care.

- In this case, it was reasonable not to access NEHR as Doctor A was confident that Patient Y and his relative had given a reliable account.
- Doctor A's obligation to access NEHR can be determined by the factors of consideration as discussed in Section 4.2.1.1:
    - The first consideration is whether Doctor A is satisfied that appropriate and sufficient history taking and physical examination have been undertaken to make a clinical assessment. Assuming that the physical examination uncovered a wheeze on lung examination indicating possible asthma exacerbation, Doctor A may conclude that the past medical history provided by Patient Y and the relative does not adequately explain the clinical presentation. Doctor A should then consider accessing NEHR to obtain additional relevant medical information on Patient Y.
    - Another consideration is whether Patient Y and/or his relative is a reliable historian. If Doctor A assesses that Patient Y has a condition that makes it difficult for Patient Y to be clear about his medical history or if Patient Y had admitted that he was unsure about his past medical history, there would be a stronger need for Doctor A to access NEHR to clarify the history.
    - If Doctor A assesses a need to access NEHR, Doctor A should focus the use of NEHR on Patient Y's respiratory condition. In other words, there should be no need for Doctor A to perform a general review of all of Patient Y's NEHR information.

Scenario (IV): Authorised access to NEHR

Patient A was prescribed medications by his doctor for chest pain. To fill out this prescription, Patient A visits a pharmacy in his neighbourhood. When asked about his existing medications and allergies, Patient A was unable to recall it. Concerned about possible drug interactions, pre-existing conditions and contraindications, Pharmacist X accesses NEHR to obtain information on Patient A's allergies, medical and medication history. Pharmacist X then verifies the NEHR information with the patient before dispensing him the medications.

Professional Guidance:
Section 4.2.1.1 – Accessing NEHR for such patient care purposes is considered appropriate as Pharmacist X determined that more information was required before he could safely dispense any medication.

Healthcare professionals should consider whether they have sufficient information about their patients derived from history taking, clinical examination and/or relevant investigations before deciding if NEHR should be accessed during the consultation.

Scenario (V): Authorised access to NEHR

Patient A was admitted to an institution he has never visited before for an acute psychotic episode. The Emergency Department doctors noted from Patient A that he had previously sought treatment for a similar condition in a private hospital. Noting that there was no past history on Patient A in the hospital's HIMS, Nurse Y, who was assigned to care for Patient A, accesses NEHR to find out more about Patient A's past medical history and potential behavioural issues. Based on the information obtained from NEHR, she could plan her approach for managing Patient A.

Professional Guidance:
Section 4.2.1.1 – Accessing NEHR for such patient care purposes is considered appropriate as Nurse Y required more information on Patient A's past medical history to determine how best to manage Patient A and ensure the safety of the other patients in the ward.

Scenario (VI): Accessing NEHR for a whitelisted statutory medical examination

Patient A is a crane operator and comes to Doctor Y's clinic because he requires a medical report to state that he is fit to operate a crane. Noting that such a medical examination is a whitelisted statutory medical examination, Doctor Y concludes that NEHR may be accessed for the filling out of this medical report. Doctor Y proceeds with the clinical assessment and assesses that NEHR access is required to fill out the medical report accurately. Doctor Y accesses NEHR and documents the relevant information in the patient's medical records.

Professional Guidance:
Section 4.2.2: Doctor Y's access to NEHR is appropriate in this scenario as this is a whitelisted statutory medical examination, and Dr Y has assessed that NEHR access is necessary to aid him in conducting the medical examination.

As NEHR was accessed in this consultation, and the clinically relevant information was incorporated into the patient's own medical records, Doctor Y should subsequently refer to the patient's own medical records when preparing other medical reports for the patient.

Scenario (VII): Writing a Medical Report without a Medical Examination

Doctor A is asked to write a medical report listing the vaccinations given to Patient Y ahead of his upcoming travel. Doctor A last saw Patient Y 3 years ago and assessed that it was not necessary to call Patient Y back for a repeat examination before writing this report. Doctor A proceeds to write this report based on the information available in his institution's HIMS without accessing NEHR.

Professional Guidance:
Section 4.2.2: Doctor A did the correct thing. NEHR access is not allowed for the writing of medical reports. Medical reports should be based on information available in the healthcare provider's own medical records.

Scenario (VIII): Writing a Medical Report after a Medical Examination

Sometime later, Patient Y visits Doctor A, requesting for a medical report to state that he is fit to participate in a school activity. Doctor A then decides that Patient Y needs to be holistically reviewed before the report can be written. Doctor A proceeds with history-taking and examination and assesses that NEHR needs to be accessed for further information on Patient Y. Doctor A accesses NEHR, takes down the clinically relevant information from NEHR into his own medical records. He subsequently uses the information from his medical records to fill out the medical report.

Professional Guidance:

Section 4.2.2 and 4.2.3: Medical examinations and assessments are a form of healthcare service, and NEHR access is appropriate unless it is for employment- or insurance-related purposes. NEHR access is not allowed for the writing of medical reports. Medical reports should be based on information available in the healthcare provider's own medical records.

Scenario (IX): Authorised and unauthorised NEHR access

Doctor B, a radiologist, was assigned the review of a patient's X-ray with the reason for the scan indicated as "Insurance Application". While reviewing the X-ray, Doctor B noted a suspicious lesion in the apex of the left lung. There were no previous X-rays available on his institution's HIMS for comparison. As Doctor B noted that the purpose of the X-ray was insurance-related, he did not access NEHR to check for past X-rays. Instead, he reported the lesion and indicated in his report that comparison to previous X-rays was not done as there were none in the HIMS, and he did not access NEHR due to the insurance purpose of the scan. Doctor B further stated in his report that the patient should seek further medical advice for this suspicious lesion.

Professional Guidance:

Section 4.2.3 – Healthcare professionals should not access NEHR for any employment- or insurance-related purpose, unless it is for a whitelisted statutory medical examination.

Where healthcare professionals are concerned about certain findings in their assessment, and they are aware that they cannot access NEHR due to the purpose of the consultation, they should explicitly indicate in their notes / report that:

i. NEHR was not accessed due to the purpose of the consultation, and
ii. Follow-up outside of this consultation will be required to further assess the suspicious finding.

NEHR may be accessed in the separate follow-up for the purposes of diagnosing the suspicious finding.

Scenario (X): Handling patients who have placed Access Restrictions

Doctor A receives an unconscious Patient Z at the Emergency Department (ED). This patient was conveyed by ambulance after he was found unconscious by the road. Ambulance staff had identified the patient with his NRIC and noted that he is a 19-

year-old male. In the ED, Doctor A notes that Patient Z's glucose level is dangerously low and begins immediate treatment with Dextrose. Doctor A also notes that the rest of Patient Z's vital signs are unstable and proceeds to stabilise the patient.

To gain further information on Patient Z's medical history and allergies, Doctor A instructs the House Officer to review Patient Z's NEHR information. The House Officer notes that Patient Z has placed an Access Restriction and seeks Doctor A's guidance on whether they should "break glass". Doctor A assesses the situation to be a medical emergency and the House Officer proceeds to access Patient Z's NEHR information.

Professional Guidance:
Section 4.3.1 – Doctors can access a patient's NEHR information despite an Access Restriction during medical emergencies only. A medical emergency refers to a medical situation where the patient is at risk of death, or serious injury or disability, unless the doctor intervenes immediately, and such intervention is in the patient's best interest.

Scenario (XI): Appropriate documentation of access to NEHR

Dr X, a specialist dentist, receives a referral letter from a GP to seek his opinion on Patient A's care. Dr X pre-registers Patient A and sets an appointment date for him. In preparation for the consult, Dr X sets out to seek further information on Patient A via NEHR. After reviewing NEHR, Dr X determines that he is unable to review the Patient and would prefer to refer Patient A to another specialist dentist. Dr X proceeds to document that he had received the referral, reviewed Patient A's NEHR information and determined that it is best for Patient A to be referred to another dentist.

Professional Guidance:
Section 4.4.1 – Access to NEHR was appropriate. Healthcare professionals should document their access to NEHR when it occurs outside of a patient consultation setting.

In such a scenario, the healthcare professional should document that he had accessed NEHR for the purpose of triaging the patient and determining whether this patient is suitable for his care, regardless of whether the patient was seen by the healthcare professional. The creation of an appointment for the patient indicates the beginning of the care relationship, albeit a limited one, which justifies the use of NEHR.

Scenario (XII): Appropriate documentation and access to NEHR

During a patient's follow-up visit at a hospital, Physiotherapist B notices that the patient's gait has changed, showing new abnormalities. When asked about any recent falls or incidents, Patient Y vaguely mentioned visiting another institution for a recent injury but was unable to provide further details. Physiotherapist B reviews NEHR for Patient Y's relevant medical history, including imaging reports. Physiotherapist B validates the information with Patient Y and adjusts Patient Y's treatment plan accordingly.

Professional Guidance:

Section 4.4.1 – Physiotherapist B's access to NEHR is considered appropriate as it was for patient care. As the patient was unable to recall pertinent information about his medical history, Physiotherapist B had reasonable grounds to access NEHR to obtain the necessary information. As a clear patient care relationship was established, and as NEHR was accessed during the patient consultation, there is no need to document the reason for accessing NEHR.

Annex G – Extract of SMC's ECEG on maintaining medical confidentiality

[Section C7] Medical Confidentiality

1. Patients have a right to expect that any information provided in the context of clinical care must be kept confidential unless there are good reasons for sharing the information.
2. Medical practitioners must maintain medical confidentiality unless patients consent for specific disclosure to other parties.
3. Reasonable care must be taken to ensure security of the systems used for storing medical records. If the systems are not within the medical practitioners' control, it is their duty to use the systems responsibly and comply with all the security protocols in place.
4. There should be no access to confidential patient information unless the medical practitioner is involved in the patient's care.
5. If patients request withholding of information from those involved in their care, appropriate advice should be provided to the patients on possible adverse consequences of doing so. If they insist, such request may be acceded to unless disclosure is necessary to prevent harm to the patients, other healthcare professionals or the public.

Annex H – Extract of 2016 ECEG on Medical Investigations

Medical Investigations [Section B2 of the ECEG]

1. You must communicate clearly why tests are needed and explain important results to patients in a timely manner. You must ensure that patients are offered follow-up care as necessary
2. If results are clinically significant or important to act on to prevent harm to patients or others but patients are difficult to contact, you must make reasonable efforts to trace them, the effort being in proportion to the urgency of the situation.

Annex I – List of NEHR information that may be deemed more sensitive

NEHR information that may be deemed more sensitive refers to information that could lead to stigmatisation or discrimination or are governed by specific statutory requirements. There will be additional safeguards placed, such as the requirement for an authentication process, to prevent unauthorised access of NEHR information, and all accesses will be subject to audit.

This includes examples such as:

1. Sexually Transmitted Diseases (e.g. Chlamydial Genital Infection, Gonorrhoea, Syphilis)
2. Human Immunodeficiency Virus Infection (HIV)
3. Schizophrenia, Delusional Disorder

Annex J – Scenarios to illustrate appropriate use of NEHR

Scenario (I): Reviewing and verifying NEHR information before relying on it

Patient A informed Dr X that he had no drug allergies. Dr X had no reason to suspect otherwise and entered into his record that the patient had no known allergies. This information was then contributed to NEHR. Subsequently the patient developed an allergy to Augmentin, however this information was not captured in NEHR. Patient then visited Dr Y, who noted Dr X's entry regarding nil allergies and did not ask the patient about his allergy history. Dr Y proceeded to prescribe the patient Augmentin. Patient A subsequently developed an anaphylactic shock from taking Augmentin.

Professional Guidance:

Section 5.1 – Healthcare professionals should be aware that various factors can affect the currency and accuracy of NEHR information. They need to take reasonable steps to review and verify available information prior to relying on it for clinical use.

- Healthcare professionals should be aware that information in NEHR is only accurate as at the time it was entered and may change. Further, although uncommon, such information may also be subject to human error. Where there is no contrary information/inconsistency and where the information in NEHR is deemed reasonably consistent with the doctor's own assessment, a doctor acting in good faith should not be deemed negligent.
- Even if Dr X had taken a complete history including checking patient's allergies through history taking and reviewing NEHR, this information was accurate at the point of documentation, and it may not be fair to fault Dr X for contributing the history to NEHR that the patient has no known drug allergies.
    - *Reminder:* Healthcare professionals are reminded that their clinical competence and professional judgment in their respective clinical encounters are reflected in their medical documentation. Good history taking and physical examination skills remain the cornerstone of high-quality care.
- Additionally, Dr Y is professionally obliged to verify critical patient safety information such as drug allergies at the point of prescribing and should not only rely on NEHR information.

Scenario (II): Relying on professional judgment to determine if incidental findings need to be followed up on

Patient A consults her GP for chest pain. The GP decides to access NEHR for information on past clinical reviews as Patient A is unable to recall this information. The GP notes that earlier in the year, Patient A had undergone a CT scan which showed incidental thyroid nodules that was never followed up on.

Professional Guidance:

Section 5.2 – Healthcare professionals should assess whether any follow-up is required for incidental findings discovered through using NEHR. This approach is no different from existing practices.

- The GP should consider the need to inform the patient and establish what the patient knows about the finding, and where necessary, to correlate the findings of incidental thyroid nodules with the patient's symptoms and physical findings. The GP may then

consider either pursuing further investigations or referring the patient to a specialist for further management.

The following is an example of reasonable steps a healthcare professional may consider when faced with incidental findings discovered through the use of NEHR:

a. Inform the patient of the incidental finding.
b. Enquire if the finding has been made known to the patient by the doctor who ordered the investigation/test or by any other healthcare professional.
c. If patient has not been informed, to encourage patient to return to the original institution/healthcare professional to seek the required follow-up care.
d. To document that they have discovered the incidental finding and carried out reasonable follow-up as listed above.