**Term of Reference**

**STCs for Capacity Building in System Interoperability using Fast Healthcare Interoperability Resources (FHIR) Standards for the Ministry of Health Indonesia**

**Background**

As experienced by many other countries the Indonesia's health system has been struggling to cope with the COVID-19 pandemic. In July 2021, Indonesia experienced another surge of new COVID-19 cases, marked by one of the highest daily COVID-19 cases globally. Indonesia is a large and diverse country, and although the country already has a vast network of health care facilities and a relatively well establish public health system, the level of the system preparedness for 3T of testing, tracing, and treatment remains varied widely. The capacity of health facility to treat cases with severe acute respiratory symptoms, and those with the COVID-19 related complications are relatively limited especially outside of Jakarta. Even for those with ICU bed to population ratio higher than the national average of 3.1 per 100,000 were unable to surge of demand which led to overcrowded emergency rooms and the advice to home isolation and treatment. The laboratory testing capacity continued to increase from more than 70,000 tests per day in January 2021 to around 230,000 test per day, still well below the target of 400,000 test/day. Recently, the COVID-19 transmission especially due to the new variants has expanded across the country, while the much needed health system capacity remains concentrated in larger cities.

The Government of Indonesia has recognized the opportunity to use COVID-19 pandemic to strengthen its health system. One of the key priorities to reform is the health information management system, the pandemic is a perfect catalyst for national digital health transformation.[[1]](#footnote-2) The Ministry of Health has established Digital Transformation Office (DTO) that consists of newly recruits business model analysts, developers, and programmers to accelerate the transformation process. The DTO works in close coordination and collaboration with the responsible unit for health management information system (HMIS) within the MOH, the Center for Health Data and Information (Pusdatin). One of the key reform activities in HMIS is the integration of currently highly fragmented information system. These units have been exposed to several health information standards that enable interoperability of various systems such as LOINC, SNOMED-CT, and also HL7[[2]](#footnote-3), but not many standards have been implemented nationally.

The integrated information system for COVID-19, "All Record TC-19" that is intended to connect key response measures such as laboratory, surveillance, and health facilities was developed early during the pandemic. This application might be the best starting point for data information exchange among health units as well as key health institutions in Indonesia. The "All Record" application starts with the recording of all COVID-19 test in Indonesia and follows individuals throughout the course of the disease. The application is connected to contact tracing, travel requirement, venue check-in, telemedicine and research application. However, up to now the integration with the "All Record" has to be done manually as each system uses different language and standards need to enable the communication.

Prior to the pandemic, the GOI has included digitalization and integration of public information systems within and across the public sector as one of the key strategies for responsiveness and efficiency. In 2017, MoH issued Ministry of Health Regulation No. 46 of 2017 on the National E-health strategy. One of 7 key components are establishing standards and interoperability between systems. The regulation was then followed by Presidential Regulation No. 39 of 2019 on One Data Indonesia. These signify the GoI commitment to strengthen evidence based policymaking process. However, there is no decision on specific standards assigned for the activities.

The World Bank Group and AIIB have committed USD 250 million each for Indonesia using Program for Results (PforR) instrument as a part of the COVID-19 Fast Track Facility to help developing countries address emergency response to and impacts of the outbreak. The PforR that has been effective since early July 2020 is focusing on the sub-set of the country’s emergency response to the COVID-19 outbreak and aims to prevent, detect and respond to the threat posed by COVID-19 and strengthen national systems for public health preparedness in Indonesia. An Additional Financing (AF) with an amount of US$500 million from the World Bank to support the Government of Indonesia (GOI)’s plan for scaling up its response to COVID-19 and to support the government’s free COVID-19 vaccination programs one of the national economic recovery strategies has been approved in June 2021 and is now effective. The AF is also co-financed by other development partners namely Asian Infrastructure Investment Bank (AIIB) loan of US$500 million, a loan from the German Development Bank (*Kreditanstalt für Wiederaufbau, KfW*) in amount of EUR 200 million or about US$235 million, and a grant from the Department of Foreign Affairs and Trade, Government of Australia (DFAT) in an amount of AUD 12.9 million or about US$9.9 million. The government’s own resources for COVID-19 response and vaccination have been far higher, and stand at several billion dollars for the health sector alone.

The financial support is also accompanied by a set of technical assistance activities to the GOI, in particular the Ministry of Health as the implementing agency of the PforRs. The MOH has specifically requested technical assistance in strengthening of the integration of the surveillance information system for COVID-19. This includes technical assistance in developing manual, establishing a platform for communicating the system updates, and capacity building for the introduction of system standards. For the latter, the World Bank is seeking qualified consultants to support the capacity building in information system interoperability including, but not limited to, the introduction of FHIR as a system standard that enables interoperability, and training the newly appointed DTO staff members with the system standard.

**Objectives**

The assignment is for the consultant(s) to conduct capacity building activities, which are crucial for the development of an interoperable and interconnected health information system in Indonesia. The support provided will focus on the currently ongoing effort by the Indonesian Ministry of Health and Digital Information Office (DTO).

**Scope of work**

The consultant is expected to:

1. Develop a customized curriculum for the FHIR implementation training that is suitable for the characteristics of the target audience for the training, such as active technical staff members of the Ministry of Health, local health offices, and health facilities, and other target groups as agreed. This will be done in consultation with the WB Health team including the WB technical consultant team, and with inputs from the MoH;
2. Provide training as the main feature of the capacity building on FHIR implementation for the MoH Center for Data and Information and Digital Transformation Office staff members;
3. Provide technical assistance to the MOH Pusdatin and DTO team on FHIR implementation especially in the selected/agreed specific area (e.g integration of the New All Record with the hospital claim information system).
4. Provide inputs and feedback for further improvement to the existing MOH integrated information system for COVID-19 (New All Record).

**Expected activities**

The consultant is expected to act as a trainer to conduct and be actively involved in the following activities. However, the list is not exhaustive and may change considering the dynamic nature of the program implementation:

* Assess and review the MOH existing New All Record (the integrated information system);
* Assess training needs and selected use cases will be provided by MoH and DTO in assistance with the WB consultant team.
* Compile a set of training curriculum based on training needs.
* Define training format (online/offline).
* Define learning objectives.
* A defined learner’s minimum knowledge and ability .
* Produce learning materials built upon the training curriculum.
* Organize the learner's logical steps.
* Design ways for learners to demonstrate what they are learning based on selected use cases.
* Evaluate the learning conducted (eg. pre and post tests, demonstration of FHIR integration, etc.)

**Expected deliverables**

* Documents related to the training curriculum. The document will describe the syllabus, learning objective, materials, etc. The learners expected to be enabled to recall the capacity building through the document.
* Learning materials including ppt/case/exercise used in the training
* A brief report on training evaluation. The report expected to provide analysis of the training curriculum and the participants responds and ability to the training provided.

**Consultant qualification**

The consultant must have a relevant advanced degree, a postgraduate degree will be a plus, in public health, healthcare administration and management, health information systems, biomedical informatics, or other relevant subjects, and some experience in implementing health security technical areas would be another plus.

* Knowledge in health information system at regional or national level, and knowledge in health information and health surveillance in the health sector, while knowledge in related technical areas of health security issues would be a plus;
* Experience in the implementation of health information system interoperability at regional or national level.
* Excellent communication skills (in English), especially writing and presentation skills;
* Excellent computer skills, including familiarity and experience working with Microsoft Word, Excel, and PowerPoint;
* Strong interpersonal skills and cultural sensitivity to effectively communicate with government officials, development partners, WB staff, and other consultants;
* Ability to work effectively in teams across multiple time zones and has the ability to work under pressure or tight timeline.

**Duration of the assignment**

The assignment will start from September Xth, 2021 for (XX) days. The consultant will be reporting directly to the co TTLs, Pandu Harimurti and Somil Nagpal, and will be in close communication with the WB team providing technical support to the Additional Financing PforR on the relevant subject.

1. *Sust, P.P., Solans, O., Fajardo, J.C., Peralta, M.M., Rodenas, P., Gabaldà, J., Eroles, L.G., Comella, A., Muñoz, C.V., Ribes, J.S. and Monfa, R.R., 2020. Turning the crisis into an opportunity: digital health strategies deployed during the COVID-19 outbreak. JMIR public health and surveillance, 6(2), p.e19106.* [↑](#footnote-ref-2)
2. *Grahame Grieve, the proponent of Australian Health Level Seven (HL7) standards, presented the Resources for Healthcare (RFH) interoperability strategy as a new standard for enhanced interoperability in digital health in 2011. RFH is a web-based resource that uses extensible markup language (XML), an HTTP-based representational state transfer (REST)ful protocol, and a unique URL for each resource. With the extension of prior HL7 specifications (i.e., HL7 version 2 and version 3) and inclusion of new web technologies, the RFH standard was renamed Fast Health Interoperability Resources (FHIR).* [↑](#footnote-ref-3)