

You mentioned primary care, so confirming that is the general practitioner user base?

Yes, GPs are one of the key user groups. Registered nurses, dental therapists, as well as other types of health & care professionals, are included, but the care is delivered across a broader spectrum, including community health and social health.

Were mental health archetypes in use?

Yes, they have used a few mental health archetypes and have built a few. They have used PHQ-9, GAD-7, and CAGE archetypes, and they have built the GAD-2, Two-Item Conjoint Screen (TICS) for Alcohol and Other Drug Problems, and Patient health questionnaire-2 (PHQ-2). All of them will also be published on the International CKM site.

What's the IoT plug-in situation?

They don't have it yet, but there are plans to integrate with the new applications in the near future. Better platform supports out-of-the-box plugins for connecting Bluetooth-enabled devices, and they will use them.

Have you employed/created public health, e.g. Communicable Diseases archetypes?

No, not yet.

If you calculate all the development costs, the licenses, server platform... for these 130.000 patients. What is the average cost per patient E-health record?

At the moment, they don't have the answer yet, but it is something they will be working on. Better can provide the platform costs, so feel free to reach out if you are interested.

Did you consider using only approved archetypes or you used drafts as well? Did you submit the new archetypes that you had to develop?

EHA Clinics used both, the approved ones and the drafts. And yes, they have plans to publish the ones that they have created in the near future.

Was the interface custom-built outside of the platform?

Correct, it was built based on ReactJS. The clinical data is both collected and presented using the Better Platform Low-Code Studio and form renderer.

What is the technology stack for this system? Record saving, data caching, event queueing, role management etc.

All of the clinical data is stored on the Better platform and in openEHR format. The mentioned functionalities come as out-of-the-box features of Better Platform, via the event management mechanism, Attribute and Role Based Access Control Systems. When it comes to data and deployment clustering, indexing, sharding etc., they are all existing platform features. Feel free to reach out to Better directly for more information about the platform.

Why choosing OpenEHR vs FHIR? What made this decision?

For several reasons. Primarily it was the set of tools both for modelling openEHR, with the community available Archetype Designer, but also the Low-Code Tools from Better, giving the EHA Clinics the opportunity to rapidly develop new use-cases. Beyond this, openEHR is a very robust clinical model, and they have managed to find over 90% of the clinical content already available at the international CKM. They only had to create 12 out of the 159 archetypes they used. Looking at long-term, the tools and the platform also allow the EHA Clinics to grow further and support their plans of going beyond using their software only for their own purposes, but also for providing the service to other care providers, leveraging on features like multi-tenancy, ABAC, and other components. So overall, it is a mixture of technology and tools that support the standard, robustness of the clinical model, and ready-made content which is publicly available.

Have you used any international external coded content eg LOINC, Snomed or other classification used in Africa

Yes, they used ICD10 for problems and diagnosis. LOINC was used for the labtest. For other items, such as procedures, body parts etc, they used Snomed.

Can we discuss the architecture a bit? Where is the data stored? And how has OpenEHR helped? Is this all built in Better?

The EHACare frontend is built on ReactJS. The patient demographic details are stored in the Demography server on the Better Platform, and the clinical data on the EHR server of the Better Platform, based on openEHR.

Demography Server: EHACare implements custom forms with ReactJS which interacts with the demography server for creating and updating patient information.

EHR Server: Most of the data saved on the EHR server is collected via the forms developed using Better Low-Code Studio, and they are embedded in our portal using the form-renderer plugin, from where then the data is automatically stored/rendered from the platform – no integration needed.

In some cases, data is sent directly to the EHR server via the Better Platform open API. Examples can be found in the Lab Test and prescription workflows.

Booking & Patient Flow dashboard: The booking app and patient flow dashboard are custom services implemented with a fastAPI backend and a ReachJS frontend. The data is persisted in a postgres database.

Overall, EHACare uses a microservice architecture and is deployed in the cloud.

Are the data from your health system available to some other health systems? For example, if the patient is referred to the hospital, does the hospital have access to the data you collected?

No, not yet, but they have the ability to expose this data very easily using the data views from Better Platform (where the other side does not need to have any specific openEHR knowledge as well).

Do you have any clinical health journals available for AI training of custom language models? As in the use case of text analytics to quickly find key info in patient journals, to flag allergies etc.

Within the Better Platform team, there is an AI unit, where one of the key first steps is discovering and building capabilities to understand the content more and more.

One of these is Snomed Concept Linking which facilitates the standardisation and interoperability of healthcare data by linking clinical terms to the SNOMED CT terminology system. The demo video: <https://youtu.be/yDXzU6s6eCE>

Going into the more focused area to understand the clinical terms, it can also be used as (what is called) an anatomy mapper, which utilises AI algorithms to identify and map anatomical structures automatically: <https://youtu.be/km-xXshwY0s>

Apart from these, ChatGPT is also utilised to make patient summaries from the structured clinical data, available in the platform, in a patient readable (and understandable) way.

Better data, better care.



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