Development of patients e-registry and electronic medical records (EMR) as a cost-effective management system for epilepsy - the pilot study in Georgia

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Introduction: Epilepsy is a chronic neurological condition which requires long-term medical care, dynamic collection of patient's data and scrupulous analytical follow-up supervision that is difficult without e-Health technologies. Aim: to develop the Electronic Medical/Health Records' (EMRs & EHRs) model for the integrated and cost-effective management of Epilepsy. Methods: First electronic format of the "Epilepsy Registry" (EpiReg) was created in 2005 at the Epilepsy Prevention and Control Centre (EPCC, Tbilisi, Georgia). Main framework of the EMR – EpiSoft has been achieved in 2014, with detailed analysis of the advantages/disadvantages resulting in new comprehensive interface. Pilot testing, correction of errors/gaps of EMR-EpiSoft was provided in 2017 and launched in 2018. Results: As well as disease course and complications – all these in digitized and maximally measurable formats. The soft is based on Web-technologies – (HTML, CSS; Database - PostgreSQL, Platform: OS – Linux, web-server – Apache), although currently it is used as EMR inside one institutional intranet – EPCC. But could be easily converted into the Internet-accessible system both countrywide and internationally as main interoperability standards are considered. Nowadays 15,347 outpatients' data are included in the EpiReg; more than 8,000 are assessed at repeated visits (from 2 to 14, average - 4.6 visits) and over 1,542 patients' data have been already filled-in in the EMR-EpiSoft. Preliminary results showed improvement of the epilepsy management and effectiveness of AED treatment. Discussion: EpiSoft represent one of the most comprehensive ready-to-go e-Health systems countrywide for long-term supervision and management of epilepsy. This model can be transferred for management of other chronic neurological conditions as well as can be suitable big-data for international practical/research collaboration.

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