

# GemsTracker

The GemsTracker system arose from research at the Department of Public Health Care of the Erasmus MC. GemsTracker was originally used as a respondent tracking system for clinical trials and population studies. In this department, however, a growing demand was seen for health research during the healthcare process (Research at the workplace). Various parties inside and outside the Erasmus MC had an interest in web-based questionnaires. In 2009 with an initiative of Harm Slijper, working at the Department of Plastic Surgery and Rehabilitation Medicine of Erasmus MC and the Xpert Clinic the development of GemsTracker started. With funding from the Coolsingel Foundation the existing software could be made more suitable for use in research and quality registrations in the healthcare process.

## Open source

Initially GemsTracker was designed as an extension to the functionality of the questionnaire package LimeSurvey. LimeSurvey is an open source, web-based application in which questionnaires can be built, completed, processed and distributed ([www.limesurvey.org](http://www.limesurvey.org)). At the moment, GemsTracker has become much more than an extension of LimeSurvey. It is now an independent system which can communicate with different questionnaire systems (including LimeSurvey). September 2011, the software was published in the open source community to promote the transparency of code, continuous improvement of the quality and wide availability at a low cost to healthcare providers and research institutions. We believe the Open Source software development is the way forward to further develop and improve GemsTracker.

The GemsTracker software, allows organizations to have their own secure data collection site where data can be accessed, transmitted and implemented. GemsTracker can be seen as a 'toolbox' for setting up their own data collection system. It is also possible, of course, that multiple organizations work together (more or less) intensively on one GemsTracker site. Different organisations can then use the same site and measurement processes, while data for each organization is separately stored and visualized for its users. In this way, a GemsTracker site can be used as a (national) database for quality registrations or research. For each organization the GemsTracker site can be modified according to the style and required functionality of the organization.

## What makes GemsTracker special?

In healthcare research the professional and the patient commonly have a minimal role in data entry. Current online survey systems, clinical trial systems or Electronic Health Records (EHR) are not suited for research in which patient healthcare professional and researchers work together. GemsTracker involves both the patient and the professional in the process of data collection. The activities to be performed are centered around a measurement track. This track shows which measurement should be performed by whom at what times. GemsTracker has therefore a built in track engine (for process control) which ensures that the correct measurements, , at the right times are offered to the right person. Moreover, GemsTracker has a track builder which is used to define measuring tracks.

Via a GemsTracker website healthcare professionals can assign measurement tracks to patients so measurements are offered at regular intervals to monitor treatment progress. This way a healthcare professional can offer (a series of) questionnaires to the patient (on-site, via a computer, via email or on paper) or look up the results of a measurement (eg a specific test or measurement) which was entered by a professional. The GemsTracker interface is aimed at providing professionals an overview of the available patient data and the data still to be collected from the patient at all times.

GemsTracker has been primarily used for scientific research (clinical or population research).  
Examples include: Pathway terminal phase, Care for the elderly, Cardiac rehabilitation, Cannabis use, Hand and Wrist Surgery, Pain treatment

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