

# International Journal of Population Data Science

Journal Website: [www.ijpds.org](http://www.ijpds.org)



Swansea University  
Prifysgol Abertawe

## Linkage of health care claims data and apps data: The ADVOCATE oral health care dashboard

Gabel, Frank<sup>1\*</sup>, O'hanlon, Karen<sup>2</sup>, Brankin, Pamela<sup>2</sup>, Bryce, Robert<sup>2</sup>, Trescher, Anna-Lena<sup>1</sup>, Haux, Christian<sup>1</sup>, Whelton, Helen<sup>3</sup>, van der Heijden, Geert<sup>4</sup>, and Listl, Stefan<sup>1</sup>

<sup>1</sup>University of Heidelberg

<sup>2</sup>Aridhia Informatics

<sup>3</sup>University of Leeds

<sup>4</sup>ACTA Amsterdam

### Objectives

Oral diseases are highly prevalent worldwide and their treatment places considerable economic burden on individuals and society. The ADVOCATE (Added value for Oral Care) project aims to promote new, patient-centred preventively oriented primary care and treatment.

As part of the project, a benchmarking dashboard is being developed to give stakeholders (i.e. health professionals, policy makers and health service planners) access to routinely collected data through a number of indicators such as: the types of care provided, costs of care and care outcomes, enabling comparisons across countries to be made.

### Approach

At the core of the ADVOCATE project, health data from several European countries are being collected. A bidirectional approach is used. Routinely collected claims data from 9 health insurers (insurance companies and NHS schemes) are being gathered. Concurrently, a patient e-questionnaire is being developed. Patients will be asked to answer additional health information questions anonymously whilst in the dental practitioner's office using an app, thus providing data that isn't available through the routinely collected claims data.

A previously developed set of indicators is being implemented in an electronic benchmarking dashboard. With the help of the linkage of aggregated forms of both claims data and data from the patient e-questionnaire, the dashboard will be used to visualize these indicators in order to monitor, direct and evaluate system change and related behaviors of patients, professionals, policymakers and insurers.

### Results

A pilot version of a dental healthcare dashboard has been developed using data from the Survey of Health, Aging, and Retirement Europe (SHARE).

In this context, the number of remaining teeth (indicating oral health status), the proportion of replaced teeth (indicating restorative activity of dentists) and the mean number of dentist visits per day (indicating oral health awareness of the population) were modeled and visualized for 12 European countries and Israel, resulting in highly diverse country groups in terms of the above indicators.

### Conclusion

The ADVOCATE oral healthcare dashboard, containing essential information from both claims data and data from a patient e-questionnaire (via an app), can be used to review compliance with best practice guidelines and help close the guideline implementation gap. It will be the first time that oral health professionals, insurers, and health policy makers will have the opportunity to review oral health care performance against standards. This project has received funding from the European Union's

Horizon 2020 research and innovation programme under grant agreement No 635183.

\*Corresponding Author:

Email Address: [frank.gabel@med.uni-heidelberg.de](mailto:frank.gabel@med.uni-heidelberg.de) (F. Gabel)

