Correspondence to: Sara Ponce (sponce@kronikgune.org)

Abstract: A basic assessment framework to monitor and evaluate a Population Integrated Intervention Programm for heart failure patients in the Basque Country

Authors: Ponce S., Mora J., Ramos E., Domingo C., David M., Fullaondo A., de Manuel E.

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Purpose: The objective of the study is to define and select the correct set of indicators to build assessment framework comprising key performance indicators for evaluation a Population Integrated Intervention Programme (PII) for heart failure patients deployed in the Basque Country. The study was development under the European Project "Advancing Care Coordination & Telehealth Deployment Programme (ACT)".

Context: Population Integrated Intervention Programs were drawn up in the clinical field on how best to provide healthcare in a coordinated and efficient manner among all players involved for each target population. The program for patients with heart failure was defined for patients who are in the segment of disease management in the Kaiser pyramid. The stratification was used for planning and service agreement purposes to define the target population.

Methods: A specific dashboard was built including several indicators for the domains: case ascertainment, health outcomes, clinical management goals, process outcomes, service utilization and economic outcomes. Patients in the program are identified in the administrative database of the Basque Country Healthcare system. Their data were collected in an anonymised manner and provided to the dashboard as aggregated values from the period 2012, 2013 and 2014.

Results and discussion: A comparative analysis of the collected data in the three years was performed in order to select the most relevant indicators (top indicators) which allow monitoring and assessing the integrated intervention programs. The top indicators include:

Domain	**Indicators**
Case ascertainment	Coverage of the target population
Health Outcomes	Mortality; Number of hospitalization per patient; Improved treatment (decrease of polypharmacy)
Services utilization	Total hospitalization days; Number of readmissions (30 days), per patient; Adequate use of emergency, per patient
Economic outcomes	Total cost per patient; transition of resources towards primary care
Process outcomes	Number of patients with anti-fluenza vaccins; % of registered patients with autonomy information (BARTHEL index); Number of patients attending a smoke cessation clinic
Clinical Management Goals	Average Barthel Score

The framework was used to evaluate the program for heart failure patients in 11 microsystems for years 2012, 2013 and 2014.

The number of admissions per patient increased from 2012 to 2013 and then a decrease from 2013 to 2014. There is an increase from 78% of the patients having an admission in 2012 to one admission per patient in 2013 and this number is decreased to 70%. Similarly, there is an increase from 2012 to 2013 and then a decrease from 2013 to 2014 in the number of patients having 1 or more, 2 or more or 3 or more readmissions in the PIP-HF

program. Similar pattern is also observed in most of the microsystems in the 30-day readmission rate. On average, this rate is increased from 8.5% to 13.2% and then drops to 8.1% again. An increase of approximately 30% is also observed in the number of emergency visits from 2012 to 2013. Then, the ED visits are decreased again to 1.2 per patient in 2014. In the PIP-HF program polypharmacy is also recorded where there is an increase of approximately 15% between 2012 and 2013 and a decrease of 1.6% from 2013 to 2014.

This study allow to build a basic dashboard to monitor and evaluate the integrated intervention program for heart failure patients and a data from 2015 and 2016 are going to be analyzed.

Keywords

Assessment framework, data collection, Population integrated intervention programme.

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References:

1. Department of Health and Consumer Affairs of the Basque Government and Osakidetza. A strategy to tackle the challenge of chronicity in the Basque Country. Pais Vasco: Euskadi; 2010. [Cited 2012 March 25]. Available from: http://cronicidad.blog. euskadi.net/descargas/plan/ChronicityBasqueCountry.pdf.