

## CONFERENCE ABSTRACT

# The use of Social Network Analysis to plan and implement integrated care goals through balance score cards system

16<sup>th</sup> International Conference on Integrated Care, Barcelona 23-25 May 2016

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**Introduction:** Every governmental health institution in Italy implements its strategic annual plan through a balance score card system (BSC). The ASL (Azienda Sanitaria Locale) of Viterbo that coordinates the entire Viterbo province health system, including several hospitals, primary care districts, home care, veterinary activity, hygiene, vaccination, prevention and food and water control, is using a BSC tool to implement its strategic plan.

The BSCs with specific targets and objectives are set at the beginning of the year. They are discussed and negotiated with each director of the 102 Operative Units (O.U.) within the ASL of Viterbo.

Each director of the O.U. after signing the commitment contract will try to reach or realize the single targets and objective. Most of them up today are used to work in an individual way and they want to be judged at the end of the year as "single" players instead on how they are performing as "team" players.

**Objective:** The aim of our study was to plan an integrated care system using the existing BSC system and monitor the integration level between the shared objectives and O.U. through a social network analysis to validate and estimate the integrated care level within the ASL system before signing the BSC. The final goal was indeed the improvement of healthcare performance at regional and national level.

**Methods:** Instead giving "single" player objectives to the directors of the O.U. we set shared goals that will require a "team play" integrated approach to reach the final goal. The same objectives were indeed given to all the O.U. involved in the process. We focus the measure on the results of a good team work between the players. We extracted data and goals from governmental national and regional performance evaluation system for regional healthcare system. Subsequently we choose critical areas of intervention where integrated care was highly needed through a need assessment analysis. The same goals were sets to different O.U. with the recommendation to collaborate with the other linked O.U. in the process. To obtain a big picture of integration of care between the different O.U. before releasing the final BSCs we used the Social network analysis (SNA). The SNA was set as a bimodal network between

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O.U. and objectives, that were linking the O.U. together. We used the "island method" and the statistical metrics to evaluate the integration and the clustering effect.

**Results:** The clustering analysis of the SNA permitted us to understand the real functional teams that were different from the formal organizational structure. The cluster indeed reflect a functional structure that was invisible before. This allowed to redistribute the resources between the O.U. in a different way using the functional clusters.

The SNA statistical metrics permitted to understand which O.U. were the crossroads between functional clusters using the betweenness centrality but also which O.U. had a more controlling activity of the process using the Eigenvector centrality and the closeness centrality.

**Conclusions:** The SNA was an effective support tool to draw an effective integrated care plan but it was also useful to plan a strategic deployment of objectives and resources. The shared goals on the balance score forced the directors to meet and prepare integrated strategic plans to respond to the issue. The final integrated care effects were visible through the improvements on several regional and national indicators.

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**Keywords:** social network analysis; balance score card system; strategic planning; integrated goals; integrated care

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