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## **Which scope for gains? Comparing the performance between Family Health Units and Primary Healthcare Centres organizational models through the use of discrete event simulation models**

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### **Objetivos (Objectives):**

There has been an increasing need for a more efficient organization of primary health care sectors within National Health Service (NHS) based countries. Several governments have attempted to stimulate efficiency improvements by means of innovative reforms in the organization of primary care units. The Portuguese government has been promoting the conversion of Primary Healthcare Centres into Family Health Units. This study proposes a tool to compare differences in performance between two primary care organizational models (Family Health Units and Primary Healthcare Centres) and to evaluate the impact of extending the adoption of Family Health Units in the Portuguese primary care sector. Few studies in literature have attempted to quantify the impacts of changing organizational models in the primary care sector.

### **Metodologia (Methodology):**

Stochastic discrete event simulation models were built with the purpose of comparing the performance of the implemented family health units vs. primary health care centres. Two conceptual models were design to represent the structure of each of those units. The underlying conceptual simulation models were implemented in the Simul8 simulation software and were calibrated to represent the current situation for nineteen primary health care units from three municipalities of the Greater Lisbon sub-region (units within Lisbon, Oeiras and Cascais). Calibration of individual units and validation of the group of units made use of available information regarding the resources, production and costs of these units. After the validation of the models, we compared the performance of two organizational models in a whole set of indicators on accessibility, efficiency, quality and costs. We then modelled the conversion of each primary health care centre into a family health unit, and subsequently analysed in detail the possible gains or losses that could result directly converting all studied Primary health care centres into Family health units.

### **Resultados (Results):**

Some key results follow. The adoption of the Family Health Units organizational model promotes: an estimated increase of 10% in the 'production' of ambulatory consultations per medical doctor that might contribute for solving the problem of having population not

allocated to a GP; and an average reduction in the number of days waiting for a consultation by 50%, meaning that substantial gains on scheduling appointments might be achieved. Regarding acute cases, there is a potential decrease on waiting times from shifting large Primary health care centres into family health units, and thus improving efficiency and quality. Regarding costs, results suggest an increase on overall costs for smaller Primary health care centres and the opposite (cost reductions) for the conversion of large Primary health care centres into Family health units.

**Conclusões (Conclusions):**

Results suggest that the ongoing Portuguese primary health care reform of implementing family health units leads to visible improvements on the accessibility, efficiency, quality and costs within this sector.