RN4CAST - Nurse forecasting in Europe

Researchers from across 12 different European countries collaborate in one of the largest nursing workforce studies in Europe. The RN4CAST-study encompasses about 30,000 nurses working in 459 hospitals and about 15,000 patients hospitalized in 200 hospitals in Belgium, Finland, Germany, Greece, Ireland, Norway, Poland, Spain, Sweden, Switzerland, The Netherlands and England. This 3 year study receives funding from the European Union’s Seventh Framework Programme and is coordinated by Catholic University Leuven, Belgium. The Center for Health Outcomes and Policy Research from the University of Pennsylvania (USA), that is widely recognized as world leading center in this field of research, is vice-coordinator of RN4CAST.

Objective of the study is to determine the effects of hospital nurse staffing, skill mix, educational composition, and quality of the nurse work environment on hospital mortality, failure to rescue, quality of care, and patient satisfaction with care. These new quantitative findings will be used to refine existing nurse workforce forecasting models that are too inaccurate as they consider mainly volumes, but ignore effects on quality in patient care. The RN4CAST-project aims innovative forecasting methods by addressing not only volumes, but quality of nursing staff as well as quality of patient care.

The first project phase (January 2009-June 2010) focused on instrument development & validation and data gathering. In each participating country at least 30 general acute hospitals were sampled as primary sampling units. Data were obtained via nurse, patient and organizational surveys and via routinely collected hospital discharge data.

In each of the selected hospitals (n=459) general medical and surgical nursing units (at least 2 per hospital) were randomly selected to conduct a nurse survey, including all staff nurses (n=30,769) involved in direct patient care activities (Response rate: 58%). The nurse survey has two main purposes. The first is to measure, within and across countries, characteristics of the hospital nurse workforce, nurses’ future employment intentions, and of nurses’ perspectives on quantity and quality of care. The second is to allow the creation of hospital- or nursing unit level measures of staffing and working conditions for nurses through aggregation of responses from nurses working in each institution (or nursing unit).

The patient survey is a voluntary component of the RN4CAST study. In five countries (Belgium, Poland, Greece, Finland, Switzerland) all the selected hospitals are included in the patient survey. Whilst in other countries the patient survey is only conducted in a selection (Spain, Germany, Ireland) or none of the hospitals (The Netherlands, Sweden, Norway). A one-day census approach is used to select patients of the selected nursing units in the participating hospitals (n=200). All eligible patients (i.e. able to speak and understand the language of the questionnaire and to
respond on the questions), present on the selected nursing units on the day of the census, are included in the study sample. In England, patient survey data are obtained from a standardized, routinely collected, patient survey. In total data from from about 11,000 patients are available (response rate: 72%).

Via the organizational survey, information about the organizational profile (e.g. size of the hospital in terms of beds and patient activity, the types of technology available, total expenditure), as well as detailed information on staffing for all categories of hospital workers (RNs, second level nurses, unlicensed assistive personnel, physicians and others) and the organization and management of nursing work within the hospital (e.g. methodology used to allocate staff to nursing units) from each hospital in the study is obtained. These data allow to control the analyses for institutional differences.

Next to conducting a patient survey, hospital discharge abstract datasets will be used to calculate additional patient outcomes like in-hospital mortality and failure-to-rescue. For each participating hospital the hospital discharge data for an entire year are obtained, resulting in a database of millions of patients.

This information will be linked via common identifiers. In the second study (July 2010 - December 2011), this database will be used to study the effects of hospital nurse staffing, skill mix, educational composition, and quality of the nurse work environment on hospital mortality, failure to rescue, quality of care, and patient satisfaction with care. These results will be used to improve the accuracy of forecasting models and generate new approaches to more effective management of nursing resources in Europe.

Simultaneously to these research activities, the project entails dissemination and stakeholder activities toward achieving the study objectives. Strategic collaboration is maintained with a stakeholder panel consisting of thirteen health care and nursing administration related organizations (for complete list, please visit http://www.rn4cast.eu) to raise awareness of the project. Next to the international stakeholder panel, in each partnering country national stakeholder committees were formed to further gain support for the project.

The ambition of the RN4CAST project is to produce a policy breakthrough commensurate with the scientific strength of the project findings and the accumulated evidence in the sector. This includes producing both technical and scientific publications as well as liaising with mass media. Research findings will thus need to be refined through proactive stakeholder engagement. Next to the large-scale European part of the RN4CAST project, additional funding was successfully obtained to also carry out the project in International Cooperating Partner Countries of the EU (Botswana, China,
and South Africa), providing a broader international perspective on the results of the study, which are expected in the fall of 2011.

The research leading to these results has received funding from the European Union’s Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 223468. For more information on the RN4CAST project, please visit www.rn4cast.eu.