



# RN4CAST

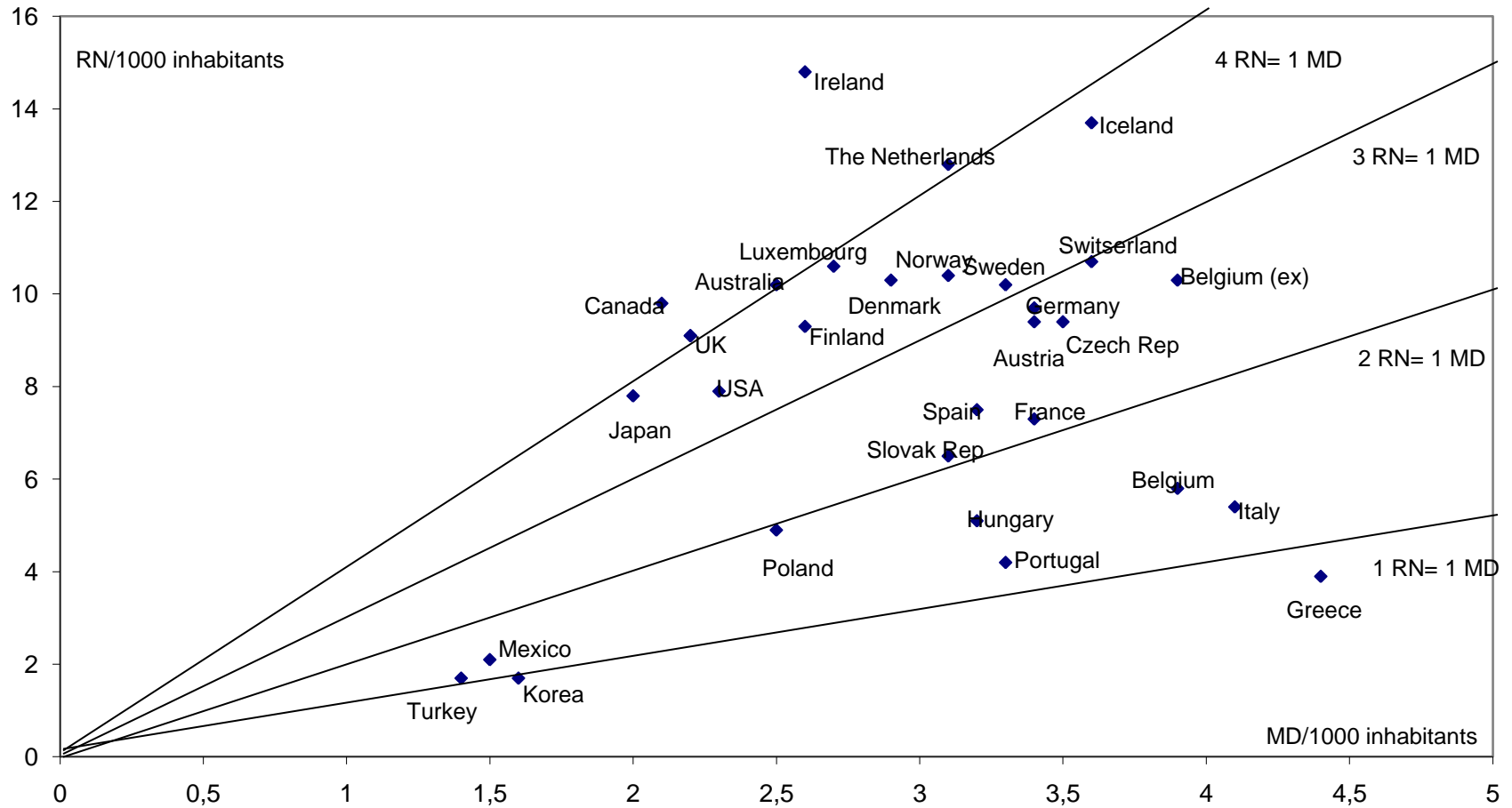
## Nurse Forecasting: Human Resources Planning in Nursing

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- The nursing workforce, international context
- **RN4CAST: FP7-funded research on the nursing workforce**

## Ratio nurses/physicians



Source: OESO 2005 – for Belgium (exact): J.Pacolet, 2006

## Nursing education in 19 European countries

Country	Undergraduate			(post)graduate
	Professional training	College	University	Master and PhD
Iceland			Bachelor – 4y	MA, PhD
Ireland			Bachelor – 3 and 4y	MA, PhD
Italy			Bachelor – 3y	MA, PhD
Norway			Bachelor – 3y	MA, PhD
Spain			Bachelor – 3y	MA, PhD
Sweden			Bachelor – 3y	MA, PhD
UK			Bachelor – 3y	MA, PhD
Malta			Bachelor – 4y	
Greece		Bachelor – 4y	Bachelor – 4y	MA, PhD
Portugal		Bachelor – 4y	Bachelor – 4y	MA, PhD
Finland		Bachelor – 3,5y		MA, PhD
Denmark		Bachelor – 3,5y		MA, PhD
Switzerland	Diploma – 3y	Bachelor – 4y		MA, PhD
The Netherlands	Diploma – 3y (MBOV)	Bachelor – 3y(HBOV)		MA, PhD
Belgium	Diploma - 3jy	Bachelor – 3y		MA, PhD
Germany	Diploma - 3jy			MA, PhD
France	Diploma – 3y			
Austria	Diploma – 3y			
Luxemburg	Diploma – 3y			

Source: Spitzer and Perrenoud, 2006

- ❑ Worldwide numeric, skill and geographic imbalances in the nursing workforce
- ❑ Joint effects of staffing and various practice environment elements on patient outcomes (Aiken et al., 2002)
- ❑ Poor nursing workforce planning and associated shortages in any country threaten the stability of the nurse workforce in neighbouring countries and beyond through distortions in patterns of international nurse migration

PROBLEM: traditional forecasting models for manpower planning in nursing are inaccurate and unreliable as they consider established factors of demand and supply, but ignore effects of deployment of nursing staff (number and qualification) on quality of patient care.

- ❑ **The nursing workforce, international context**
  
- ❑ **RN4CAST: FP7-funded research on the nursing workforce**

- ❑ 2007-2013
- ❑ Aims to stimulate cooperation and improve links between industry and research within a transnational framework
- ❑ Focus on themes (Health, Space, Energy,...)
- ❑ Theme Health:  
“Research action to improve the health of European citizens and boost the competitiveness of health-related industries and businesses, as well as address global health issues.”
- ❑ Overall budget of 53,2 billion €

<http://cordis.europa.eu/fp7/>

- ❑ FP7-Health
  - ❑ Health theme 3: Optimising the delivery of health care
    - ❑ 3.2. Quality, Efficiency and solidarity of health care systems, including transnational health systems
      - ❑ 3.2.4. Health care human resources planning in nursing
- ❑ 2009-2011
- ❑ Co-ordination
  - ❑ Co-ordinator: Walter Sermeus (CZV, Katholieke Universiteit Leuven)
  - ❑ Vice-coordinator: Linda Aiken (CHOPR, University of Pennsylvania)
- ❑ 15 partners

To refine current forecasting models for manpowerplanning of the nursing workforce with new elements:

1. (perception of) various aspects of the nursing work environment
2. Impact of nurse deployment on recrutement, retention and productivity of nurses and on patient outcomes

And to present mid-term and long-term projections on a European  
and national level

## European partners

### **Belgium**

Katholieke Universiteit Leuven

### **Germany**

Technische Universität Berlin

### **Finland**

Kuopio University

### **Greece**

National and Kapodistrian University of Athens

### **Ireland**

Dublin City University

### **The Netherlands**

Radboud University Medical Centre Nijmegen

### **Poland**

Jagiellonian University in Krakow

### **Spain**

Institute of Health Carlos III

### **United Kingdom**

King's College

### **Sweden**

Karolinska Institutet

### **Switzerland**

Basel University



## United States

University of Pennsylvania

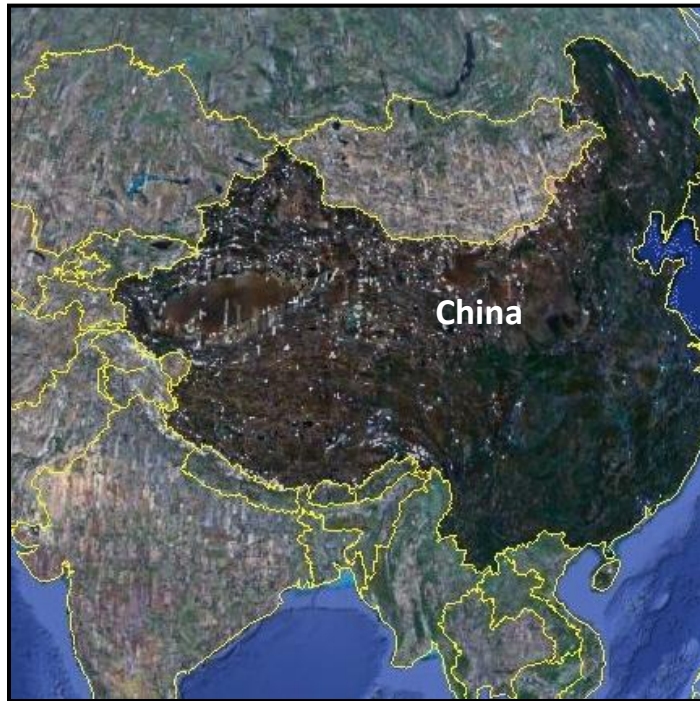
- ❑ Vice-coordinator
- ❑ Experience as co-ordinator of the International Hospital Outcomes

Study:

- ❑ Instruments
- ❑ Protocol
- ❑ Analysis

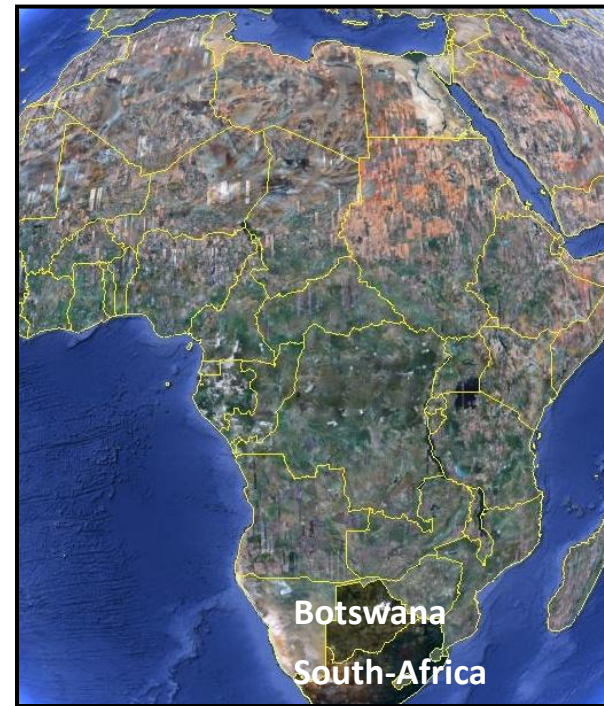


## International Cooperating Partner Countries (ICPC)



**China**

Peking Union Medical College



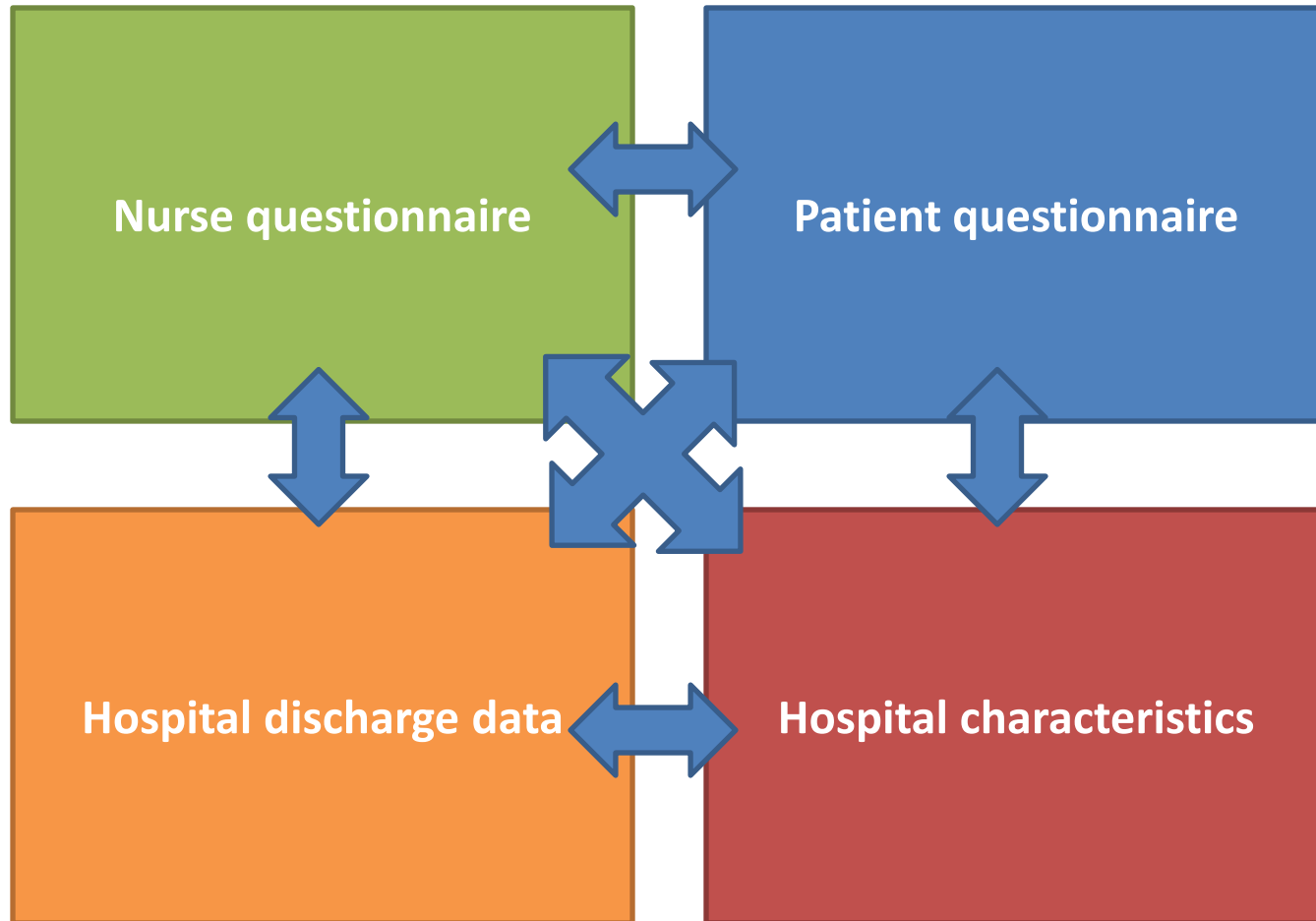
**Botswana**

University of Botswana

**South-Africa**

North-West University

**Objective : observation and comparison in a second phase**



- Hospitals
  - Acute hospitals
  - At least 30 hospitals/country
- Nursing units
  - General medicine and surgery (cf. Kane et al., 2007)
  - At least 2 units/hospital
- Nurses
  - All nurses in direct patient care
  - Approximately 15 000 nurses will participate

## Nurse questionnaire

- The nursing work environment
  - Factors influencing the nursing work environment, job satisfaction, intention to leave
- Quality and safety
  - Incidents, quality nursing unit and hospital
- Most recent shift
  - Number of patients cared for, non-nursing tasks,...
- Characteristics of nurses
  - Age, gender, migration, experience

## Patient questionnaire

- On one day
- Experiences
  - Care from nurses (respect,...)
  - Care from physicians (respect,...)
  - Hospital environment (cleanliness, calmness)
  - Pain management, information

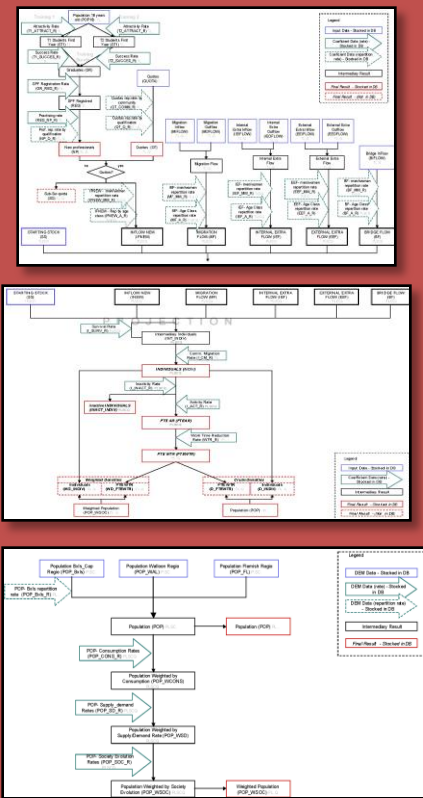
### Hospital discharge data

- ❑ Routinely collected hospital discharge data (i.e. hospital discharge datasets containing information about patient demographics, medical diagnoses & interventions
  - ❑ ICD-9, ICD-10
  - ❑ length-of-stay
  - ❑ discharge status (e.g. in-hospital mortality)
- ❑ Selection of adult medical/surgical patients
- ❑ Outcomes will include mortality, failure-to-rescue and adverse events (e.g. pressure ulcers, nosocomial infections)

## Hospital characteristics

- Type
- Patient activity
- Personnel deployment (nurses, physicians): number and qualification
- Personnel inflow and outflow
- Organisation and management of the nursing workforce

## Traditional forecasting models



## RN4CAST data

Patient safety

Nursing work environment

Nurse deployment

Other European and national research (bv. MoHProf (FP7))

- ➔ Image of nursing
- ➔ (ethical aspects of) migration
- ➔ Nursing education
- ➔ Competences, retention, recruitment, management

➔ **Accurate idea of the required personnel deployment in terms of number of qualification for safe patient care and a healthy work environment for nurses**

- ❑ Publications, website, conferences,...
- ❑ National and international stakeholder committees
  - ❑ National: representants of nursing unions, hospitals, schools of nursing, government
  - ❑ International: ICN, EHMA, HOPE, EFN, WHO, WAHP, EANS, ENDA, EU, other FP7-funded projects
  - ❑ Strong basis and support for translation of results to European and national policy
  - ❑ Follow-up, monitoring of outcomes

**Patients**

- Improved outcomes
- Active, well-informed role in care-process

**Nurses**

- Involvement in policy-making
- Recognition of contribution to patient care
- Improved nurse outcomes

**Hospital administrators**

- Better understand the implications of staffing decisions
- Better understand how organizational models affect care

**Governments**

- Educational restructuring
- Increased pressure to improve quality of patient care

RN4CAST has the capability to bridge the information gap between the causes and effects of current nurse deployment and traditional models for manpowerplanning of the nursing workforce. The objectification and accurateness of mid-term and long-term projections for manpowerplanning of the nursing workforce should result in well-informed discussions between stakeholders at both the national and European level and should lead to a broadly supported nursing workforce policy, boosting a well-skilled, geographically balanced nursing workforce



**[www.RN4CAST.eu](http://www.RN4CAST.eu)**  
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