

RN4CAST

nurse forecasting in Europe

NURSE FORECASTING IN EUROPE (RN4CAST): RATIONALE, DESIGN AND METHODOLOGY

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On behalf of RN4CAST CONSORTIUM



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RN4CAST RATIONALE

- Worldwide numeric, skill, and geographic imbalances in healthcare and nursing workforce.
- The workforce crisis is likely to increasingly affect quality and safety of healthcare and health system performance.
- Strategic investments in healthcare and nursing workforce are expected to accelerate health gains by enhancing the performance of health care organizations and health systems.

RN4CAST RATIONALE

- Nursing workforce planning and forecasting efforts...
 - have a poor record of accurately predicting future nursing workforce needs and of informing policy interventions that avoid cyclical shortages.
 - don't take into account the dynamics between nurse-to-patient ratios, skill mix, nurse education level, and nursing work environment on one hand and nurse wellbeing and patient outcomes on the other hand.

Example of the dynamics between nursing organization of care and patient outcomes and nurse wellbeing (Aiken et al., 2010)

Nurse staffing levels in Californian hospitals increased substantially after mandated minimum nurse-to-patient ratios. When compared to states with higher workloads, Californian workloads are associated to lower patient mortality, and lower nurse burnout, job dissatisfaction and, and better nurse-perceived quality of care.

RN4CAST OBJECTIVE

- Expand typical forecasting models with factors that take into account how features of work environments impact nurse and patient outcomes.
- Explore what the optimal scenario is to deliver safe patient care across countries.
- Simulations will illustrate what happens to patient safety and nurse outcomes when different factors within the nursing workforce are changed.

7th Framework Programme for Research and Technological Development



- 2007-2013
- 'RN4CAST: nurse forecasting in Europe': €3 million funding for 2009-2011
 - Theme Health
 - Optimising the delivery of health care
 - Quality, efficiency and solidarity of health care systems, including transnational health systems
 - Health care human resources planning in nursing

- RN4CAST project co-ordination
 - co-ordinator: Walter Sermeus, Katholieke Universiteit Leuven, Belgium
 - vice-coordinator: Linda Aiken, University of Pennsylvania
 - manager: Koen Van den Heede, Luk Bruyneel, Katholieke Universiteit Leuven, Belgium
- RN4CAST Partners
 - 12 European partners
 - U.S.
 - 3 International Cooperating Partner Countries of the EU

RN4CAST CONSORTIUM



Belgium	Catholic University Leuven
England	King's College London
Finland	University of Eastern Finland
Germany	Technical University Berlin
Greece	University of Athens
Ireland	Dublin City University
Netherlands	UMC St Radboud Nijmegen
Norway	Norwegian Knowledge Centre HSR
Poland	Jagiellonian University
Spain	Institute of Health Carlos III
Sweden	Karolinska Institute
Switzerland	Basel University
United States	University of Pennsylvania
Botswana	University of Botswana
China	Sun Yat-sen University
South Africa	North-West University

RN4CAST DESIGN

- Multicountry, multilevel, cross-sectional design to obtain important unmeasured factors in forecasting models:
 - Hospital profile data (type, patient activity, personnel records,...)
 - Nurse survey (work environment, staffing, wellbeing,...)
 - Patient survey (experiences with hospital care)
 - Hospital discharge data (medical diagnoses and interventions, discharge status, length of stay,...)
- Setting
 - At least 30 general acute hospitals in each European country.
 - At least 2 general surgical and internal medicine wards in each hospital.

RN4CAST DESIGN

Number of hospitals and nursing units

Country	Nurse survey		Patient survey	
	N hospitals	N units	N hospitals	N units
Belgium	67	272	60	244
England	46	413	--	--
Finland	32	126	32	128
Germany	49	199	13	/
Greece	24	65	24	65
Ireland	30	112	10	38
Netherlands	28	131	--	--
Norway	35	238	--	--
Poland	30	119	30	119
Spain	33	281	15	104
Sweden	79	79	--	--
Switzerland	35	134	34	127
Total	486	2169	210	825

RN4CAST DESIGN

Number of nurses

Country	Distributed	Received	Response rate
Belgium	4421	3186	72,07 %
England	7609	2990	39,30 %
Finland	2450	1131	46,16 %
Germany	3210	1508	46,98 %
Greece	675	367	54,37 %
Ireland	2495	1406	56,35 %
Netherlands	3228	2217	68,68 %
Norway	6600	3752	56,85 %
Poland	2677	2605	97,31 %
Spain	3340	2804	83,95 %
Sweden	14624	10133	69,29 %
Switzerland	2261	1632	72,18 %
Total	53590	33731	62,94 %

RN4CAST DESIGN

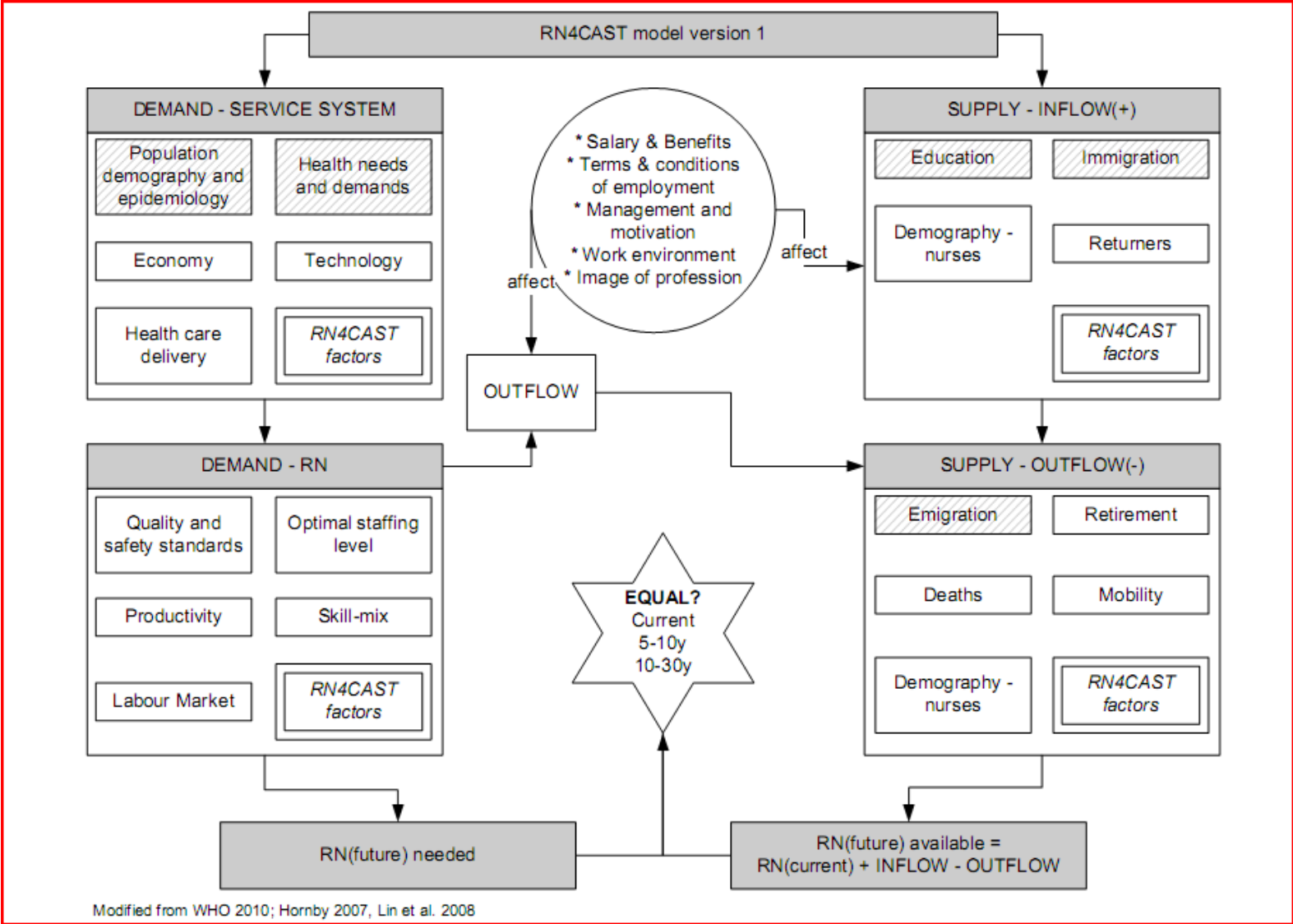
Number of patients

Country	Distributed	Received	Response rate
Belgium	3870	2623	67,78%
England	--	--	--
Finland	3752	1947	51,89%
Germany	390	262	67,18%
Greece	1334	847	63,49%
Ireland	307	285	92,83%
Netherlands	--	--	--
Norway	--	--	--
Poland	4416	4136	93,66%
Spain	/	470	/
Sweden	--	--	--
Switzerland	1458	997	68,38%
Total (without Spain)	15227	10866	71,36%

RN4CAST HOSPITAL DISCHARGE DATA

Country	Diagnosis	Procedure	Year	n records
Belgium	ICD-9-CM	ICD-9-CM	2007	911,658
Finland	ICD-10	Local based on NCSP	2008	733,243
England	ICD-10	OPCS	2009	1,401,613
Germany	ICD-10-GM	OPS 2010	2009	2,392,474
Greece	--	--	--	--
Ireland	ICD-10	ICD10 AM	2009	472,609
Netherlands	ICD-9-CM	ICD 9	2009	389,099
Norway	ICD-10	NCSP	2009	741,314
Poland	ICD-10	ICD-9	2009	1,099,891
South Africa	ICD-10			3731
Spain	ICD-9-CM	ICD-9-CM	2009	739,546
Sweden	ICD-10	Local based on NCSP	2009	1,267,413
Switzerland	ICD-10	CHOP	2008	543,374

RN4CAST WORKFORCE PLANNING



RN4CAST WORKFORCE PLANNING

Synthesising RN4CAST findings with forecasting data on future nurse staffing requirements to inform nursing human resource policy, using **scenario-building** approach.

- Detailed breakdown for nursing per country according to gender, nationality, full-time/part time etc. (Eurostat, OECD, WHO)

↳ data are being checked for accuracy by RN4CAST teams

- Contextualise nurse forecasting results in each country

↳ nursing organization, regulation of nursing, nursing registration, nursing definitions, nursing roles

RN4CAST DISSEMINATION

KEY FUTURE INTERNATIONAL PRESENTATIONS

- ISQua annual conference

14-17 September 2011, Hong Kong

- Joint conference FP7- funded projects: RN4CAST, PROMeTHEUS and MoHProf

Week of 5-9 December 2011, Belgium

- International RN4CAST conference: Nursing workforce and quality of care in European hospitals

14 September 2012, Switzerland

RN4CAST DISSEMINATION

KEY FUTURE PUBLICATIONS

1. Edited book with chapters by topic and by country in European Observatory on Health Systems and Policies OUP series



- Part 1: Issues, status, trends, policy conclusions
 - European nursing workforce: trends and challenges
 - Nurses at work
 - Nurses' contributions to health and health care
 - Issues in the organisation of nursing care: task-shifting, migration,...
 - Conclusions for policy makers

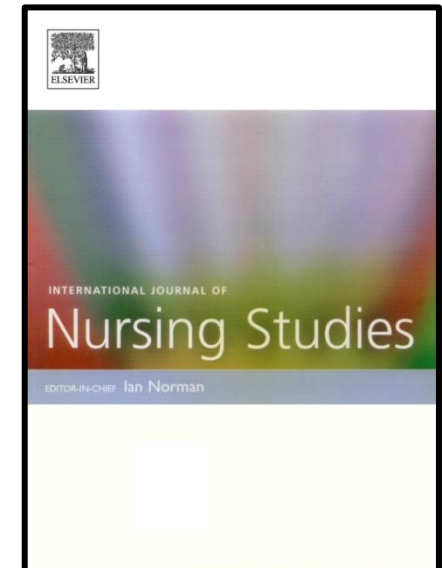
- Part 2: Country case studies



KEY FUTURE PUBLICATIONS

2. International Journal of Nursing studies RN4CAST special issue

A mix of methods papers (instrument development and validation) and substantive single-country or multi-country papers on RN4CAST findings





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