How to improve nurse’s education

Nursing Practice and Nursing Education in current and future health care

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WHO CC Human Resources in Health Research & Policy
Belgium
Health workforce is key to the sustainability of health systems

**Challenges:**
- Ageing of population and health workers
- Increase of chronic and multi-morbidity
- Economic crisis

**Leading to:**
- Shortages of professional skills
- Regional imbalances of health professionals

**Policy responses:**
- (inflow) Increased recruitment & training
- (Labour market) Organisational changes in care delivery
- (outflow) Improved retention, pay, working conditions
How are these elements related?

**Education sector**
- High school
  - Training in health
  - Training in other fields
- Pool of qualified health workers
  - Migration
    - Abroad

**Labour market dynamics**
- Employed
- Unemployed
- Out of labour force
- Other sectors
- Health workforce equipped to deliver quality health services

**Recruitment**

**Organization & care delivery**

**Retention**

- Patient care quality & safety
- Health & job satisfaction

Dubois et al., *BMC HSR*, 2012; Sousa et al., *WHO Bulletin*, 2013
<table>
<thead>
<tr>
<th>Qualification level</th>
<th>Nurse Staffing Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skill-mix</td>
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<table>
<thead>
<tr>
<th>Quality &amp; Patient Safety</th>
<th>Work Environment</th>
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<tr>
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<td>Job Satisfaction – Intention To Leave</td>
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What do we know?

Dubois et al., BMC HSR, 2012; Sousa et al., WHO Bulletin, 2013

Recruitment
Organization & care delivery
Retention
Patient care quality & safety
Health & job satisfaction
Nurse Staffing Levels

% Bachelor trained nursing staff

Quality & Patient Safety

Work Environment
Job Satisfaction – Intention To Leave
What do we know?

% Bachelor trained nursing staff

<table>
<thead>
<tr>
<th>Country</th>
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<tbody>
<tr>
<td>Belgium</td>
<td>51</td>
</tr>
<tr>
<td>England</td>
<td>56</td>
</tr>
<tr>
<td>Finland</td>
<td>52</td>
</tr>
<tr>
<td>Germany</td>
<td>60</td>
</tr>
<tr>
<td>Greece</td>
<td>32</td>
</tr>
<tr>
<td>Ireland</td>
<td>22</td>
</tr>
<tr>
<td>Netherlands</td>
<td>100</td>
</tr>
<tr>
<td>Norway</td>
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</tr>
<tr>
<td>Poland</td>
<td>59</td>
</tr>
<tr>
<td>Spain</td>
<td>10</td>
</tr>
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<td>Sweden</td>
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</tr>
<tr>
<td>Switzerland</td>
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</table>

Patient to Nurse ratios

- Ireland: 7.0 (5.4-8.9)
- Finland: 8.3 (5.3-15.6)
- Sweden: 7.6 (5.4-10.6)
- Greece: 9.8 (6.3-15.5)
- Germany: 10.7 (6.2-16.2)
- England: 8.6 (5.6-11.5)
- Italy: 9.5 (7.1-13.7)
- Spain: 12.4 (9.4-17.9)

Quality & Patient Safety

Work Environment

Job Satisfaction – Intention To Leave
What do we know?

% Bachelor trained nursing staff

- Belgium: 51
- England: 56
- Finland: 52
- Germany: 0
- Greece: 20
- Ireland: 60
- Netherlands: 32
- Norway: 22
- Poland: 100
- Spain: 100
- Sweden: 100
- Switzerland: 59

Patient to Nurse ratios

- Ireland: 7.0, 5.4-8.9
- Sweden: 7.6, 5.3-15.6
- Finland: 8.3, 5.3-15.6
- Belgium: 10.7, 6.2-16.2
- Cyprus: 6.6
- Portugal: 7.7
- Greece: 9.8, 6.3-15.5
- Germany: 13.0, 7.5-19.2
- USA: 5.3
- the Netherlands: 7.0, 5.1-8.1
- England: 8.6, 5.6-11.5
- Italy: 9.5, 7.1-13.7
- Spain: 12.4, 9.4-17.9

Nursing work environment

- Total
- England
- Sweden
- Poland
- Norway
- Netherlands
- Ireland
- Greece
- Finland
- Spain
- Germany
- Switzerland
- Belgium

Legend:
- poor
- mixed
- better
What do we know?

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- England: 56
- Finland: 52
- Germany: 0
- Greece: 20
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- Netherlands: 32
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Patient to Nurse ratios

- Ireland: 6.0, 5.4-8.9
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Quality & Patient Safety

Intention to leave the hospital and the profession in 10 European countries.

<table>
<thead>
<tr>
<th>Country (number of nurses)</th>
<th>Nurses intending to leave the hospital workplace as % of all nurses</th>
<th>Nurses intending to leave the profession as % of all nurses</th>
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<tbody>
<tr>
<td>Belgium (n = 3186)</td>
<td>30</td>
<td>9</td>
</tr>
<tr>
<td>Finland (n = 1131)</td>
<td>49</td>
<td>10</td>
</tr>
<tr>
<td>Germany (n = 1508)</td>
<td>36</td>
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</tr>
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<td>44</td>
<td>11</td>
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<tr>
<td>Netherlands (n = 2217)</td>
<td>19</td>
<td>5</td>
</tr>
<tr>
<td>Norway (n = 3752)</td>
<td>25</td>
<td>9</td>
</tr>
<tr>
<td>Poland (n = 2605)</td>
<td>44</td>
<td>9</td>
</tr>
<tr>
<td>Spain (n = 2804)</td>
<td>27</td>
<td>5</td>
</tr>
<tr>
<td>Switzerland (n = 1632)</td>
<td>26</td>
<td>6</td>
</tr>
<tr>
<td>UK (n = 2018)</td>
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<td>10</td>
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<tr>
<td>Ten country mean (n = 23,150)</td>
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<td>9</td>
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What do we know?

% Bachelor trained nursing staff

Patient to Nurse ratios

Aiken et al., BMJ Q&S, 2016

With controls

Outcome | OR 95% CI | p Value
---|---|---
30-day inpatient mortality | 0.89 (0.80 to 0.98) | 0.018
Low hospital rating by patients | 0.90 (0.81 to 0.99) | 0.026
Poor/fair unit quality | 0.89 (0.80 to 0.98) | 0.016
Poor/failing safety grade | 0.85 (0.73 to 0.99) | 0.040
Poor safety culture | 0.93 (0.87 to 0.99) | 0.027
Nurse would not recommend hospital | 0.82 (0.72 to 0.93) | 0.001
Pressure ulcers | 0.85 (0.73 to 0.98) | 0.027
Falls with injury | 0.80 (0.71 to 0.91) | 0.001
Urinary tract infections | 0.88 (0.78 to 1.00) | 0.049
High nurse burnout | 0.89 (0.80 to 1.00) | 0.043
Nurse job dissatisfaction | 0.91 (0.83 to 0.99) | 0.025

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Aiken et al. 2014 The Lancet

**Table 1**: Hospitals sampled in nine European countries with patient discharge data, numbers of surgical patients discharged, and numbers of patient deaths (RN4CAST data)

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of hospitals</th>
<th>Mean discharges per hospital (range)</th>
<th>Deaths/discharges (%):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>59</td>
<td>1493 (413-4794)</td>
<td>1017/88 078 (1.2%)</td>
</tr>
<tr>
<td>England</td>
<td>30</td>
<td>2603 (868-6583)</td>
<td>1084/78 045 (1.4%)</td>
</tr>
<tr>
<td>Finland</td>
<td>25</td>
<td>1516 (175-3683)</td>
<td>303/27 867 (1.1%)</td>
</tr>
<tr>
<td>Ireland</td>
<td>27</td>
<td>738 (103-1997)</td>
<td>292/19 822 (1.5%)</td>
</tr>
<tr>
<td>Netherlands</td>
<td>22</td>
<td>1419 (181-2994)</td>
<td>466/31 216 (1.5%)</td>
</tr>
<tr>
<td>Norway</td>
<td>28</td>
<td>1468 (432-4430)</td>
<td>518/35 195 (1.5%)</td>
</tr>
<tr>
<td><strong>Spain</strong></td>
<td>16</td>
<td>1382 (186-3034)</td>
<td>283/215 20 (1.3%)</td>
</tr>
<tr>
<td>Sweden</td>
<td>62</td>
<td>1304 (295-4654)</td>
<td>828/80 800 (1.0%)</td>
</tr>
<tr>
<td>Switzerland</td>
<td>31</td>
<td>1308 (158-3812)</td>
<td>590/40 187 (1.5%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>1308 (103-6583)</td>
<td>5381/422 730 (1.3%)</td>
</tr>
</tbody>
</table>

Only hospitals with more than 100 surgical patient discharges were included in the analyses. Data shown are for discharged patients for whom information about 30 day mortality, age, sex, type of surgery, and comorbidities were complete. Data were missing for those characteristics for less than 4% of all patients.

**Table 2**: Nurse staffing and education in nine European countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Nurse staffing (patients to nurse)</th>
<th>Nurse education (% of nurses with bachelor’s degrees)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>10.8 (2.0)</td>
<td>55% (15)</td>
</tr>
<tr>
<td>England</td>
<td>8.8 (1.5)</td>
<td>28% (9)</td>
</tr>
<tr>
<td>Finland</td>
<td>7.6 (1.4)</td>
<td>50% (10)</td>
</tr>
<tr>
<td>Ireland</td>
<td>6.9 (1.0)</td>
<td>58% (12)</td>
</tr>
<tr>
<td>Netherlands</td>
<td>7.0 (0.8)</td>
<td>31% (12)</td>
</tr>
<tr>
<td>Norway</td>
<td>5.2 (0.8)</td>
<td>100% (0)</td>
</tr>
<tr>
<td><strong>Spain</strong></td>
<td>12.7 (2.0)</td>
<td>100% (0)</td>
</tr>
<tr>
<td>Sweden</td>
<td>7.6 (1.1)</td>
<td>54% (12)</td>
</tr>
<tr>
<td>Switzerland</td>
<td>7.8 (1.3)</td>
<td>10% (10)</td>
</tr>
<tr>
<td>Total</td>
<td>8.3 (2.4)</td>
<td>52% (27)</td>
</tr>
</tbody>
</table>

Means, SDs, and ranges are estimated from hospital data—eg, the 59 hospitals in Belgium have a mean patient-to-nurse ratio of 10.8, and the patient-to-nurse ratio ranges across those 59 hospitals from 7.5 to 15.9. Similarly, the 31 hospitals in Switzerland have, on average, 10% bachelor’s nurses, and the percent of bachelor’s nurses ranges across those 31 hospitals from 0% to 39%.
30-day inpatient general surgery mortality per hospital

$N_h = 300$ Hospitals, $N_p=422730$ patients

(9 European countries: BE, UK, FI, IE, NL, NO, ES, SE, CH)

“One country” hospitals are marked in red

**Mean Europe:** 1.3%, **Range:** 0.0%-7.2%, $N=300$

**Mean One Country:** 1.2%, **Range:** 0.3%-3.0%, $N=59$

## Significant effect

<table>
<thead>
<tr>
<th>Partly adjusted models</th>
<th>Fully adjusted model</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>OR (95% CI)</td>
</tr>
<tr>
<td>Staffing</td>
<td>1.005 (0.965–1.046)</td>
</tr>
<tr>
<td>Education</td>
<td>1.000 (0.959–1.044)</td>
</tr>
</tbody>
</table>

The partly adjusted models estimate the effects of nurse staffing and nurse education separately while controlling for unmeasured differences across countries. The fully adjusted model estimates the effects of nurse staffing and nurse education simultaneously, controlling for unmeasured differences across countries and for the hospital characteristics (bed size, teaching status, technology, and work environment), and patient characteristics (age, sex, admission type, type of surgery, and comorbidities present on admission). OR=odds ratio.

*Table 4*: Partly and fully adjusted odds ratios showing the effects of nurse staffing and nurse education on 30 day inpatient mortality
Physicians’ density 2000-2014

Per 1 000 population

Source: G. Lafortune, EUPHA, Vienna 2016
Based on 2016 OECD/Eurostat/WHO-Europe Joint Questionnaire.
Nurses’ density 2000-2014

Source: G. Lafortune, EUPHA, Vienna 2016
Based on 2016 OECD/Eurostat/WHO-Europe Joint Questionnaire.
Physician/Nurse densities across OECD countries

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**Ratio of nurses to physicians**

- **Physicians Low**
  - Nurses High
- **Physicians High**
  - Nurses Low

**Source:** OECD

*nearest year available*
Inflow Nursing Graduates (per 100,000 population)

Based on 2016 OECD/Eurostat/WHO-Europe Joint Questionnaire.
Overall strategies on nursing education

• The IOM future of nursing Report USA (2010)
  o Future of nursing : education (2010)
  o Progress report 2013
  o Progress report 2015

• WHO-Europe: European strategic directions for strengthening nursing and midwifery towards Health 2020 goals (Sept 2015)
  o Scaling up and transforming education and training
  o Workforce planning and optimizing skill mix
  o Ensuring positive work environments
  o Promoting evidence-based practice and innovation
The Future of Nursing (2010)

• Remove scope-of-practice barriers
• expand opportunities for nurses to lead and diffuse collaborative improvement efforts
• Implement nurse residency programs
• Increase the proportion of nurses with a baccalaureate degree to 80 percent by 2020
• double the number of nurses with a doctorate by 2020
• ensure that nurses engage in lifelong learning
• prepare and enable nurses to lead change to advance health
• Build an infrastructure for the collection and analysis of inter-professional health care workforce data
WHO-Europe – strategy
Scaling up and transforming education

1. Standardize the initial education of nurses and midwives at degree level to get the best outcomes for patients and populations.

2. Develop education and regulation that enables and ensures that nurses’ and midwives’ core competencies are in line with the basic principles of Health 2020.

3. Strengthen continuing professional development and career development.
• Art. 31 Admission to training for nurses responsible for general care shall be contingent upon either:
  o completion of general education of 12 years, as attested by a diploma, certificate … and giving access to universities or to higher education institutions of a level recognised as equivalent;
  o or(b)completion of general education of at least 10 years, as attested by a diploma, certificate … and giving access to a vocational school or vocational training programme for nursing.’;

• At least 3Y of study; at least 4 600 hours of theoretical and clinical training; at least 1/3 theoretical training; at least 2300h of clinical training
Eight core competencies

a) competence to independently diagnose the nursing care
b) competence to work together effectively with other actors in the health sector
c) competence to empower individuals, families and groups towards healthy lifestyles and self-care
d) competence to independently initiate life-preserving immediate measures and to carry out measures in crises and disaster situations
e) competence to independently give advice to, instruct and support persons needing care;
f) competence to independently assure the quality of, and to evaluate, nursing care
g) competence to comprehensively communicate professionally and to cooperate with members of other professions in the health sector
h) competence to analyse the care quality to improve his own professional practice as a nurse responsible for general care.
Advanced Practice Nursing Roles

- Nurse Practitioners or other Advanced Practice Nurses (NP/APN), working at the interface of the nursing and medical profession
- Expanding Scope of Practice:
  - Task-shifting (a concept referred to as ‘substitution’) whereby nurses take up activities formerly in the domain of physicians to alleviate shortages and/or improve access;
  - New clinical areas (‘supplementation’) that have been largely unexplored, such as new roles as case managers, liaison roles, eHealth monitoring and lifestyle advice.
Task shifting from MD to RN (NP/APN)

Extent of task shifting from physicians to nurses by seven clinical activities and educational requirements

Doctoral degree in nursing

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PhD level</td>
<td>Increase the number of nurses with Baccalaureate degrees from 50% to 80% by 2020.</td>
</tr>
<tr>
<td>Master level</td>
<td>Double the number of nurses with a doctoral degree by 2020.</td>
</tr>
<tr>
<td>Bachelor level</td>
<td>Although 13% of nurses hold a graduate degree, fewer than 1 percent (28,369 nurses) have a doctoral degree in nursing or a nursing-related field.</td>
</tr>
</tbody>
</table>

The IOM future of nursing Report USA (2010)
Overall strategy for Education Health Professionals

The Flexner Report

on Medical Education in the United States and Canada
1910 by Abraham Flexner

Flexner-report 1910

Lancet-report 2010 (Frenk et al.)
Recommentations from the Lancet report (1)

Frenk et al., 2010
Shifts proposed in the Lancet report (2)

Frenk et al., 2010
Conclusions

• Highly positive: all nurses are trained at the Bachelor Level
• Health system: high physician density, low nurses’ density
• Shift in competencies will be required (chronic care conditions, primary care, elderly care,…)
• Recommendations to develop further:
  o Recruitment & retention efforts
  o Advanced Practice Nursing Roles (on master level)
  o Doctorates for teaching, innovation, leadership
  o Transformational skills and competences
  o Interprofessional education
Thank you for your attention