Applying research into emergency nursing – examples from Iceland

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COMPASSION • PROFESSIONALISM • SAFETY • PROGRESS
Outline

• The Research Institute in Emergency Care

• Research projects
  – Examples

• Implementing study results
  – Changing practice
  – The future
Landspitali – The National University Hospital of Iceland

• The Icelandic population 330,000 (Jan. 2015)
  – 211,000 in the capital area

• One academic (teaching) hospital
  – 680 hospital beds
  – 5700 employees

• General ED: injuries and emergency care
• Pediatric ED: illnesses
• Cardiac ED
• Psychiatric ED

• 101,000 emergency visits per year / About 300 per day

• About 100 nurses in 75,2 positions at the General ED
• The Landspitali Emergency Nursing Academic Council (LENAC)
The Research Institute in Emergency Care

• Multiprofessional center of emergency care research.
• Promotes and coordinates research projects.
• Promoting preventions.
• Promote education and teaching.
• Cooperation with research units and other parts.
• A venue for research projects.
• Annual professional conference.
Examples of research projects

Epidemiology – e-journals, registers

• Implementing the service of clinical pharmacists in the ED – medication errors
• Epidemiology of childhood fatal injuries 1980-2012
• Traffic injuries and deaths in Iceland
• Ottawa ankle-rule
• Self-harm and suicides in aspects of the financial crisis
• Elderly in the ED
• Foreign tourists needing health-care
• Nursing competencies
Suicide attempts and self-harm during a dramatic national economic transition: a population-based study in Iceland

Hildur G. Ásgeirsdóttir¹, Tinna L. Ásgeirsdóttir², Ullakarin Nyberg³, Thordis K. Thorsteinsdottir⁴,⁵, Brynjólfur Mogensen⁴,⁶, Páll Matthíassson⁶,⁷, Sigrún H. Lund¹, Unnur A. Valdimarsdóttir¹,⁸,⁹, Arna Hauksdóttir¹
Assessment and security protocol for individuals with suicidal ideation at the University Hospital of Iceland

Anna María Pórdardóttir, Hrönn Stefánsdóttir, Hulda Hrönn Björgúlfsdóttir, Kristín Rósa Ármanbsdóttir

In the spring of 2014 a new protocol was implemented at the Emergency Department (ED) at the University Hospital of Iceland with the aim to assess and define patient safety in case of suicidal ideation or suicide attempts.

At admission at the Emergency Department the Triage nurse uses the following questions among others as a guideline to assess an individual with suicidal ideation:

- Have you ever felt that life was not worth living?
- Have you ever had thoughts about wanting to die?
- Have you ever had thoughts about self-harm?
- Are you thoughts about committing suicide now?
- Do you have a suicidal plan?
- Have you tried to harm yourself? If so, how often and when was the last time?
Foreign tourists’ visits to Emergency Department
Landspitali University Hospital, 2001-2014

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Introduction
The number of foreign tourists in Iceland increased markedly from 2000 to 2015. This increase in visitors carrying health insurance may impact the outcomes of illness and injury. The purpose of our study was to describe the characteristics of foreign tourists visiting Landspitali University Hospital (LUH) Emergency Department (ED).
14.303 ferðamenn komið á bráðamóttöku

Helga Þórey Friðriksdóttir og
mbl.is/Golli
Icelandic emergency nurses’ self-assessment of competence

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Competence is a key factor affecting quality of care and patient safety. To ensure quality of care, nurses’ competence must always meet patients’ needs and standards of nursing care.

The information can be used for professional development and also as a basis for setting standards for nurses at the emergency department.

Method
- Descriptive study
- From February to April 2015
- 76 (81%) nurses working at the ED at Landspítali
- NCS was used, Nurse Competence Scale, NCS, translated from English
- The Scale is a 73 item instrument with seven nursing domains answered on VAS scale 0-10
- Using descriptive statistics and logistic regression

Results
- Work experience was significantly associated with more competence in the following nursing domains: Teaching and coaching (p=0.010), Therapeutic interventions (p=0.030), Work role (p=0.048) and Overall competence (p=0.040)
- Only in one domain, Helping Role, did nurses with the most professional experience assess their competence as the highest
- Nurses with 10 to 15 years experience assessed their competence as higher than other participants in four of seven domains
- According to logistic regression professional experience explained the most of nurses self-assessment of competence

Fig. 3 ED Nurses assessment of competence in relation to professional experience
Elderly in the ED

- Gender differences in visits
- Referrals to nurse-led clinics after revisits
- Hip fractures
- Accidental injuries
- Screening instruments: ED screener, ISAR, TRST
- Elderly cancer patients
1. To study if the number of visits and revisits changed between 2008-12.

2. To look at visits in aspects of gender, marital status, age and cause of visit.

3. To find out if socio-demographic background, cause of visit or diagnosis were associated with patients’ admission, referral to outpatient clinics or discharges home without referrals.
Methods

- Retrospective observational study
- All visits by people older than 67 years
- January 1\textsuperscript{st} 2008 to December 31\textsuperscript{st} 2012
- Electronic medical journals from the ED at Landspitali (LUH)

Outcomes
- Admission
- Revisit within 21, 30 and 90 days from last visit
- Discharge home without referrals/revisits
- Discharge with referrals

- Statistical analysis applied according to hypothesis
Total of 66.136 visits of 67 years and older during 2008-2012
Relationship status of elderly visiting the ED compared to the general population
Predictors for revisits to the emergency department (ED)
(Cox regression: Hazard ratios)

<table>
<thead>
<tr>
<th></th>
<th>ED-revisit within 21 days</th>
<th>ED-revisit within 30 days</th>
<th>ED-revisit within 90 days</th>
<th>ED-revisit without time limit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hazard ratio (95% CI)</td>
<td>Hazard ratio (95% CI)</td>
<td>Hazard ratio (95% CI)</td>
<td>Hazard ratio (95% CI)</td>
</tr>
<tr>
<td>Gender (male)</td>
<td>1.52 (1.40-1.65)</td>
<td>1.16 (1.12-1.20)</td>
<td>1.07 (1.02-1.12)</td>
<td>1.06 (1.04-1.08)</td>
</tr>
<tr>
<td>Age 70-79</td>
<td>0.72 (0.65-0.81)</td>
<td>Non-significant</td>
<td>1.21 (1.12-1.30)</td>
<td>1.33 (1.28-1.37)</td>
</tr>
<tr>
<td>Age 80-89</td>
<td>0.48 (0.42-0.54)</td>
<td>0.94 (0.89-0.99)</td>
<td>1.32 (1.22-1.43)</td>
<td>1.42 (1.37-1.47)</td>
</tr>
<tr>
<td>Age 90-112</td>
<td>0.37 (0.29-0.46)</td>
<td>0.81 (0.74-0.89)</td>
<td>1.46 (1.30-1.64)</td>
<td>1.39 (1.32-1.46)</td>
</tr>
<tr>
<td>Marital status (alone)</td>
<td></td>
<td>Non-significant</td>
<td>1.11 (1.05-1.18)</td>
<td>1.06 (1.03-1.09)</td>
</tr>
<tr>
<td>Marital status (widower)</td>
<td>0.68 (0.61-0.76)</td>
<td>Non-significant</td>
<td>Non-significant</td>
<td>1.04 (1.01-1.06)</td>
</tr>
</tbody>
</table>
Hip fractures (n=1053) divided by gender and years

Sigrún Sunna Skúladóttir MS thesis 2014
Cumulative mortality rate [%]

*P<0.05

Men
Women

Sigrún Sunna Skúladóttir MS thesis 2014
Marital status of fracture patients

- Married / cohabiting: 31%
- Live alone: 18%
- Widower, Widow: 50%
- Not listed: 1%

Sigrún Sunna Skúladóttir MS thesis 2014
Revists of elderly to the ED

- Visits to ED last 30 days: 44%
- Hospital stay within last 90 days: 65%
- Revisits to ED: 27% (n=18154)
- Admitted to the hospital: 42%
- Discharged home: 55%

Ingibjörg Sigurþórsdóttir MS thesis 2014
### Age categories and gender of revisits 67 years and older at the ED 2008-2012. (n=18,154)

<table>
<thead>
<tr>
<th>Age categories***</th>
<th>Revisits men (%)</th>
<th>Revisits women (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 67-69</td>
<td>14,5</td>
<td>10,3</td>
<td>12,3</td>
</tr>
<tr>
<td>Age 70-74</td>
<td>22,3</td>
<td>20,1</td>
<td>21,2</td>
</tr>
<tr>
<td>Age 75-79</td>
<td>23,4</td>
<td>23,9</td>
<td>23,7</td>
</tr>
<tr>
<td>Age 80-84</td>
<td>23,1</td>
<td>22,1</td>
<td>22,6</td>
</tr>
<tr>
<td>Age 85-89</td>
<td>12,2</td>
<td>16,9</td>
<td>14,7</td>
</tr>
<tr>
<td>Age 90-94</td>
<td>3,7</td>
<td>5,7</td>
<td>4,7</td>
</tr>
<tr>
<td>95 and older</td>
<td>0,7</td>
<td>1,0</td>
<td>0,9</td>
</tr>
</tbody>
</table>

*** p<0.001 Chi-square test.
## Arrival time and gender of revisits

<table>
<thead>
<tr>
<th>Arrival time</th>
<th>Revisits men (%)</th>
<th>Revisits women (%)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>00:00-07:59</td>
<td>12,0</td>
<td>8,8</td>
<td>10,3</td>
</tr>
<tr>
<td>08:00-15:59</td>
<td>58,4</td>
<td>59,3</td>
<td>58,9</td>
</tr>
<tr>
<td>16:00-23:59</td>
<td>29,6</td>
<td>31,9</td>
<td>30,8</td>
</tr>
</tbody>
</table>

*** p<0,001 Chi-square test.
Marital status adults, 67 years and older, at revisits at the ED

- Married:
  - Women: 3,305
  - Men: 5,420

- Living alone:
  - Women: 1,878
  - Men: 1,723

- Widow/widower:
  - Women: 4,146
  - Men: 1,546

Ingibjörg Sigurjónsdóttir MS thesis 2014
The most common causes of revisits by ICD-10 diagnosis

<table>
<thead>
<tr>
<th>Year of revisits til ED</th>
<th>Number of revisits to ED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>0</td>
</tr>
<tr>
<td>2009</td>
<td>100</td>
</tr>
<tr>
<td>2010</td>
<td>200</td>
</tr>
<tr>
<td>2011</td>
<td>300</td>
</tr>
<tr>
<td>2012</td>
<td>400</td>
</tr>
</tbody>
</table>

- **Symptom diagnoses**
- **Musculoskeletal symptoms or fractures**
- **Pulmonary diseases**
- **Cardiovascular problems**

Ingibjörg Sigurþórsdóttir MS thesis 2014
Referrals ratio and predictors for referrals to nurse-led clinics after ED revisit 2011-2012

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Odds ratio</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woman</td>
<td>2.11</td>
<td>(1.24-3.58)</td>
</tr>
<tr>
<td>Living alone, Widow/Widower</td>
<td>2.45</td>
<td>(1.48-4.05)</td>
</tr>
<tr>
<td>Capital area of Reykjavik</td>
<td>3.19</td>
<td>(1.17-8.66)</td>
</tr>
<tr>
<td>Age</td>
<td>1.03</td>
<td>(1.01-1.06)</td>
</tr>
<tr>
<td>Symptom diagnosis</td>
<td>2.04</td>
<td>(1.36-3.06)</td>
</tr>
<tr>
<td>Musculoskeletal problems</td>
<td>1.56</td>
<td>(1.01-2.41)</td>
</tr>
<tr>
<td>Pulmonary diseases</td>
<td>4.17</td>
<td>(2.53-6.88)</td>
</tr>
<tr>
<td>Cardiovascular problems</td>
<td>1.80</td>
<td>(1.07-3.03)</td>
</tr>
</tbody>
</table>
Implementing research results – elderly at the ED

• Men
  – Single living
  – Younger
  – Fewer diagnoses
  – Cardiovascular diseases
  – Admitted
  – Earlier revisits
  – No referral to NLC
  – Shorter hospital stay
  – Higher mortality after hip-fracture

• Women
  – Married
  – Older
  – Multiple diagnoses
  – Musculoskeletal problems
  – Discharged home
  – Referrals to NLC
  – Longer hospital stay
  – Lower mortality after hip-fracture
What are we doing now!

• Hip-fracture protocol
• Implementing delirium screening tools (DOS, CAM)
• Screening and assessment tool (Inter-RAI)
  – to identify and address the needs of high risk older adults
  – ED Screener – all seniors 75 years and older
  – ED Contact Assessment – positive on the ED-screener
What are we doing now!

• Geriatric Emergency Management Nurse (GEM)

• Staff education in caring for older adults and an elder-friendly culture

• Collaboration with the Canadian Foundation for Healthcare Improvement and Canadian Frailty Network
  – support, education and collection of data
The future... 

... is bright