University of Applied Sciences Osnabrück
Department of Business Management and Social Sciences
Health Informatics Research Group
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D-49009 Osnabrück Germany

IT-Report
Healthcare
2007
Nursing in the Information Age
www.it-report-healthcare.info

Please read the questions carefully.
### Demographic data

1. **ZIP code, city, state**

2. **Did you participate in the 2002 survey “Nursing in the Information Age”?**
   - YES
   - NO

3. **What is your position in the hospital?**

4. **Type of hospital**
   - General hospital
   - Other hospital
   - Clinic
   - (please specify)
     - hospital type A
     - hospital type B
     - hospital type C
     - other hospital

5. **Ownership**
   - not-for profit
   - for profit
   - other

6. **System affiliation**
   - stand-alone hospital
   - network hospital

7. **Number of beds**
   - -49
   - -99
   - 50
   - -149
   - -199
   - 100
   - -299
   - 150
   - -399
   - 200
   - 300

8. **IT-systems within the hospital information system (HIS)**
   - multiple answers possible
   - accounting
   - controlling
   - human resources
   - materials management
   - asset management
   - medical controlling
   - patient-management (adm/dis/trans)
   - clinical work-station
   - ordering supplies & examinations
   - intensive care record
   - nursing documentation
   - minimum data set
   - surgery information
   - anesth. documentation
   - laboratory
   - radiology information
   - PACS²
   - electronic archive
   - output management
   - staff scheduling
   - time recording
   - quality management
   - meal ordering
   - device management

   **multiple answers possible**
   - others

---

Diagnosis Related Group

² Picture Archiving and Communication System
9. The HIS is an all-in-one solution.

<table>
<thead>
<tr>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
</table>

(continue with 9a-b)

9a. The clinical system is an all-in-one solution.

<table>
<thead>
<tr>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
</table>

9b. The administrative system is an all-in-one solution.

<table>
<thead>
<tr>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
</table>

10. How satisfied are you with the IT-products and services?

<table>
<thead>
<tr>
<th>very satisfied</th>
<th>satisfied</th>
<th>neutral</th>
<th>dissatisfied</th>
<th>very dissatisfied</th>
</tr>
</thead>
</table>

11. IT-infrastructure

<table>
<thead>
<tr>
<th>Is there a central IT-department in your hospital?</th>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Is there a nursing informatics specialist in your hospital?</th>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
</table>

13. What is the average number of PCs on the wards, e.g. desktops, notebook?

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>more</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>number</th>
</tr>
</thead>
</table>

14. What is the most significant barrier to successfully implementing IT for NURSING in your institution today?

Please select only ONE line.

- Lack of strategic IT plan
- Lack of IT staff
- Lack of a nursing informatics specialist
- Difficulty in proving IT quantifiable benefits / return on investment
- Lack of common data standards
- Lack of support from hospital executives
- Difficulty in achieving end-user acceptance or use
- Lack of adequate financial support for IT
- Vendor’s inability to effectively deliver product or service to our satisfaction
- Others
- Don’t know

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Electronic Patient Record*

15 Please describe the status of your institution’s current use of an electronic patient record (EPR) system.

<table>
<thead>
<tr>
<th>Status</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>We have a fully operational EPR system in place.</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>We have begun to install EPR software and hardware.</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>We already signed a contract.</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>We have developed a plan to implement an EPR system</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>We have not yet begun to plan for the use of an EPR system.</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Do not know</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

16 What is the potential benefit of implementing an EPR system* and how large is it?

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Large</th>
<th>Very Large</th>
<th>Small</th>
<th>Very Small</th>
<th>Do not know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influence on the quality of care (e.g. by increasing the information exchange)</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Improvement of the data quality (e.g. by avoidance of double captures)</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Availability of the data (e.g. simultaneous access to the EPR by different healthcare professionals)</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Reduction of input errors (e.g. by given data types)</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Reporting (e.g. medical and nursing summaries)</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Quality assurance (e.g. monitoring and analysing of quality indicators)</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Education / research (e.g. retrieval of patient records for research purposes)</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Increased staff satisfaction (e.g. reduction of extra work such as retrieval of patient records)</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

Nursing information system**

** A nursing information system includes the legally required documentation of the nursing process. It furthermore allows the analysis of quality data and economic nursing data for management purposes. It may consist of one or more subsystems of a hospital information system. (after Schrader, U. and Ammenwerth, E., 2004)

17 Do you use IT-modules of a nursing information system?

<table>
<thead>
<tr>
<th>Use</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please continue with question 18.</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

18 Is the nursing documentation system integrated in the HIS?

<table>
<thead>
<tr>
<th>Integration in HIS</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>IF YES please continue with 18a.</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

18a Is the nursing documentation system integrated in the EPR?

<table>
<thead>
<tr>
<th>Integration in EPR</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

19 Is the staff scheduling system integrated in the HIS?

<table>
<thead>
<tr>
<th>Integration in HIS</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

* EPR Definition: An EPR is an electronically originated and maintained clinical health information system, delivered from multiple sources, about an individual’s lifetime health status and health care. An EPR is supported by clinical decision systems and replaces the paper medical record as the primary source of patient information.
20 The software supports the following phases of the nursing process, i.e. documentation of...

<table>
<thead>
<tr>
<th>Phase</th>
<th>General Assessment</th>
<th>Assessment Scales</th>
<th>Diagnoses / Problems</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>multiple answers possible</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

goals interventions evaluation others

21 The following scales are integrated...

<table>
<thead>
<tr>
<th>Scale</th>
<th>Braden-scale</th>
<th>Norton-scale</th>
<th>Barthel-index</th>
<th>FIM&lt;sup&gt;4&lt;/sup&gt;</th>
<th>others</th>
</tr>
</thead>
<tbody>
<tr>
<td>multiple answers possible</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

22 Problems and diagnoses are described/coded by...

<table>
<thead>
<tr>
<th>Method</th>
<th>free text</th>
<th>propriet. catalogue</th>
<th>catalogue based on the ICNP&lt;sup&gt;5&lt;/sup&gt;</th>
<th>NANDA&lt;sup&gt;6&lt;/sup&gt;</th>
<th>others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please choose one item only.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

23 Resources are described/coded by...

<table>
<thead>
<tr>
<th>Method</th>
<th>free text</th>
<th>propriet. catalogue</th>
<th>catalogue based on the ICNP&lt;sup&gt;5&lt;/sup&gt;</th>
<th>others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please choose one item only.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

24 Interventions are described/coded by...

<table>
<thead>
<tr>
<th>Method</th>
<th>free text</th>
<th>propriet. catalogue</th>
<th>catalogue based on the ICNP&lt;sup&gt;5&lt;/sup&gt;</th>
<th>LEP&lt;sup&gt;7&lt;/sup&gt; Nursing 2</th>
<th>LEP&lt;sup&gt;7&lt;/sup&gt; Nursing 3</th>
<th>others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please choose one item only.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

25 Goals and outcomes are described/coded by...

<table>
<thead>
<tr>
<th>Method</th>
<th>free text</th>
<th>propriet. catalogue</th>
<th>catalogue based on the ICNP&lt;sup&gt;5&lt;/sup&gt;</th>
<th>others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please choose one item only.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

26 Data are entered using ...

<table>
<thead>
<tr>
<th>Device</th>
<th>PCs on the ward</th>
<th>computer on wheels</th>
<th>PDAs&lt;sup&gt;8&lt;/sup&gt; e.g. Palm</th>
<th>Barcode device at point of care</th>
<th>special device at point of care</th>
</tr>
</thead>
<tbody>
<tr>
<td>multiple answers possible</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

others please specify

---

<sup>4</sup> Functional Independence Measure (FIM)<br><sup>5</sup> International Classification of Nursing Practice (ICNP)<br><sup>6</sup> North American Nursing Diagnosis Association (NANDA)<br><sup>7</sup> Leistungserfassung in der Pflege (LEP)<br><sup>8</sup> Personal Digital Assistant (PDA)
The nursing information system is used for …

<table>
<thead>
<tr>
<th>quality assurance</th>
<th>analysing patient needs</th>
<th>analysing nursing workload</th>
<th>Long-term planning of staff</th>
<th>recording information relev. to DRG/LKF syst.</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>multiple answers possible</td>
<td>multiple answers possible</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>account. using case-based nursing inform.</td>
<td>accounting of optional nursing services</td>
<td>research / education</td>
<td>others</td>
<td></td>
</tr>
</tbody>
</table>

| [ ] | [ ] | [ ] | [ ] | [ ] |

Are you using LEP (Nursing 2 oder 3)?

<table>
<thead>
<tr>
<th>YES</th>
<th>YES, but we are still implementing LEP.</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

(If YES please continue with 28a-e)

If YES, please answer every question.

28a. Public 2 is used for …

<table>
<thead>
<tr>
<th>analysing the nursing workload</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

28b. LEP is used for …

<table>
<thead>
<tr>
<th>short-term planning of staff</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

28c. LEP is used for …

<table>
<thead>
<tr>
<th>long-term planning of staff</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

28d. LEP is used for …

<table>
<thead>
<tr>
<th>controlling in nursing</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

28e. LEP is used for …

<table>
<thead>
<tr>
<th>analysis of the C-value</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

Plans about implementing software used by nurses

(Please answer the question regardless of whether you are already using a nursing information system or not.)

We plan to implement the following IT-systems

<table>
<thead>
<tr>
<th>staff scheduling</th>
<th>[ ]</th>
<th>[ ]</th>
<th>[ ]</th>
<th>[ ]</th>
<th>[ ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>quality management</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>patient management</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>nursing documentation</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>nursing workload analysis</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>surgery information</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>anesthesia documentation</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>intensive care record</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>ordering supplies and examinat.</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>time recording</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>meal ordering</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>others</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>
### Requirements of a good nursing information system**

(Please answer the question regardless of whether you are already using a nursing information system or not.)

<table>
<thead>
<tr>
<th>The software should support the following phases of the nursing process, i.e. documentation of ...</th>
<th>very important</th>
<th>important</th>
<th>less important</th>
<th>not important</th>
<th>do not know</th>
</tr>
</thead>
<tbody>
<tr>
<td>general assessment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>assessment scales</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nursing diagnoses / problems</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>resources</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>goals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>interventions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>evaluation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>others:____________________</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

31 Problems and diagnoses should be described/coded by ... free text propriet. catalogue catalogue based on the ICNP® NANDA® catalogue others

Please choose one item only. ____________________________ please specify________

32 Resources should be described/coded by ... free text propriet. catalogue catalogue based on the ICNP® others

Please choose one item only. ____________________________ please specify________

33 Interventions should be described/coded by ... free text propriet. catalogue catalogue based on the ICNP® LEP® Nursing 2 LEP® Nursing 3

Please choose one item only. ____________________________ please specify________

34 Goals and outcomes should be described/coded by ... free text propriet. catalogue catalogue based on the ICNP® others

Please choose one item only. ____________________________ please specify________

35 The software should include clinical pathways for ... YES NO

(If YES, please continue with 35 a-d)

<table>
<thead>
<tr>
<th>Other purposes:</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>process descriptions and to-do-lists</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>documentation</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>steering the processes</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>

Please answer every question.

34 Data should be entered using ... PCs on the ward computer on wheels PDA® e.g. Palm Barcode device at point of care special device at point of care

multiple answers possible

<table>
<thead>
<tr>
<th>Others:</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>please specify ____________________________________________</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>The nursing information system should be used for …</th>
<th>very important</th>
<th>important</th>
<th>less important</th>
<th>not important</th>
<th>do not know</th>
</tr>
</thead>
<tbody>
<tr>
<td>quality assurance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>analysing patient needs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>analysing the nursing workload</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>long-term staff scheduling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>short-term staff scheduling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>recording information relevant to DRG/LKF system</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>accounting using case-based nursing information</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>accounting of optional nursing services</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>research</td>
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<tr>
<td>other:</td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

Please fill in every line.

Access to eHealth applications

How important is the access to patient data in eHealth applications for nurses …

<table>
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<tr>
<th>very important</th>
<th>important</th>
<th>less important</th>
<th>not important</th>
<th>do not know</th>
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</table>

<table>
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<th>Option A</th>
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<tbody>
<tr>
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</table>

<table>
<thead>
<tr>
<th>Option B</th>
<th></th>
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</tbody>
</table>

<This question was country specific.>

Finances

How does the DRG/LKF-system influence the economic situation of your hospital?

<table>
<thead>
<tr>
<th>positively</th>
<th>negatively</th>
<th>not at all</th>
</tr>
</thead>
</table>

What is your IT-Budget (as percent of your yearly turnover)? %

Thank you for your time.