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## Evaluation of electronic medical records - Questionnaire 1

In this questionnaire, we would like to know about your use of and perception of the electronic medical record in your hospital. By electronic medical record, we mean one of the following computer software systems: DocuLive, DIPS or Infomedix (IMx).

Check like this INot like this 

### A. About your position

- 1 Do you regularly work with patients in this hospital?  Yes  No
- 2 Have you been working for more than three months in this hospital?  Yes  No

If your answer was "no" to any of these questions, you don't have to complete the rest of this questionnaire. Still, we would very much like you to return the questionnaire in the enclosed envelope.

### B1. About your use of electronic medical records for clinical tasks in the hospital

First, we would like to know how often you use the electronic medical record for certain tasks in your everyday clinical work.

How often do you use the electronic medical record (EMR<sup>1</sup>) to assist you with the following tasks?

Please answer by check one of the alternatives in column 1-5. If the EMR in your department doesn't support this task (i.e. the software can't be used for this task), please check column A. If this task does not apply to you, please check column B.

	1 Never/ almost never	2 Seldom	3 About half of the occasions	4 Most of the occasions	5 Always/ almost always	A Our EMR <sup>1</sup> doesn't support this task	B This task doesn't apply to me
1 Review the patient's problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 Seek out specific information from patient records	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 Follow the results of a particular test or investigation over time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 Obtain the results from new test or investigations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 Enter daily notes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6 Obtain information on investigation or treatment procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7 Answer questions concerning general medical knowledge (e.g. concerning treatment, symptoms, complications etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8 Produce data reviews for specific patient groups, e.g. complication rate, diagnoses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<sup>1</sup>DocuLive, DIPS or Infomedix

(B1, forts.)	1 Never/ almost never	2 Seldom	3 About half of the occa- sions	4 Most of the occa- sions	5 Always/ almost always	A Our EMR doesn't support this task	B This task doesn't apply to me
9 Order clinical biochemical laboratory analyses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10 Obtain the results from clinical <input type="checkbox"/> biochemical laboratory analyses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11 Order X-ray, ultrasound or CT investigations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12 Obtain the results from X-ray, ultrasound or CT investigations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13 Order other supplementary investigations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14 Obtain the results from other supplementary investigations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15 Refer the patient to other departments or specialists	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16 Order treatment directly (e.g. medicines, operations etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17 Write prescriptions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18 Write sick-leave notes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19 Collect patient information for various medical declarations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20 Give written individual information to patients, e.g. about medications, disease status	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21 Give written general medical information to patients	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22 Collect patient info for discharge reports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23 Check and sign typed dictations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24 Register codes for diagnosis or performed procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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## B2. General use of EMR and paper-based medical record

Now, we'd like to know about your general use of paper-based medical records and EMR in your patient-related work

	1 Never/ almost never	2 Seldom	3 About half of the occa- sions	4 Most of the occa- sions	5 Always/ almost always
1 All considered, how often do you use the <u>paper-based medical record or the chart summary</u> as an information source in your daily clinical work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 All considered, how often do you use the <u>EMR</u> as an information source in your daily clinical work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 All considered, how often do you use the <u>EMR</u> when transferring patient-related information to other persons <sup>1</sup> or instances (by printouts or by electronic transmission)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<sup>1</sup>The patient and all relevant health personell

## C. About the performance of clinical work tasks when using the EMR

Although the questions in section B1 and B2 survey the use of EMR for various clinical tasks, they do not describe how the the EMR supports these tasks. In this section we would like to know the ease of performing each task when using the EMR.

Compared to previous routines, how has the EMR in your opinion changed the performance of the following tasks? Check "Don't know/Not applicable" if you have never used anything else than the EMR for the task, or if the EMR in your department doesn't support it.

	Signifi- cantly more difficult	More difficult	Slightly more difficult	No change	Slightly easier	Easier	Signifi- cantly easier	Don't know/ Not applic- able
1 To review the patient's problems has become	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 To seek out specific information from patient records has become	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 To follow the results of a particular test or investigation over time has become	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 To obtain the results from new tests or investigations has become	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 To enter daily notes has become	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6 To obtain information on investigation or treatment procedures has become	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7 To answer questions concerning general medical knowledge (e.g. concerning treatment, symptoms, complications etc.) has become	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8 To produce data reviews for specific patient groups (eg. complication rate) has become	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**(C. continued)**

		Significantly more difficult	More difficult	Slightly more difficult	No change	Slightly easier	Easier	Signifi- cantly easier	Don't know/ Not applic- able
9	To order clinical biochemical laboratory analyses has become	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	To obtain the results from clinical biochemical laboratory analyses has become	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	To order X-ray, ultrasound or CT investigations has become	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	To obtain the results from X-ray, ultrasound or CT investigations has become	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	To order other supplementary investigations has become	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	To obtain the results from other supplementary investigations has become	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	To refer the patient to other departments or specialists has become	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	To order treatment directly (e.g. medicines, operations etc.) has become	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	To write prescriptions has become	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18	To complete sick-leave forms has become	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19	To collect patient information for various medical declarations has become	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20	To give written individual information to patients, (e.g. about medications, disease status) has become	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	To give written general medical information to patients has become	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	To collect patient information for discharge reports has become	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	To check and sign typed dictations has become	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	The register codes for diagnosis or performed procedures has become	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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## D. About your satisfaction with the electronic medical record (EMR<sup>1</sup>) in your department

In this section we would like to know your view of the electronic medical record by asking about central aspect of using such systems

	Never/ almost never	Seldom	About half of the time <sup>4</sup>	Most of the time	Always/ almost always
<b>1 Content</b>					
a How often does the system provide the precise information you need?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b How often does the information content meet your needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c How often does the system provide reports <sup>2</sup> that seem to be just about exactly what you need?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d How often does the system provide sufficient information?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>2 Accuracy<sup>3</sup></b>					
a How often is the system accurate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b How often are you satisfied with the accuracy of the system?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>3 Format</b>					
a How often do you think the output is presented in a useful format?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b How often is the information clear?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>4 Ease of use</b>					
a How often is the system user-friendly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b How often is the system easy to use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>5 Timeliness</b>					
a How often do you get the information you need in time?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b How often does the system provide up-to-date information?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<sup>1</sup> DocuLive, DIPS or Infomedix

<sup>2</sup> A 'report' in this context is any collection or summary of information printed or shown on screen

<sup>3</sup> E.g. correct record, correct patient and correct document type is shown; that the information (e.g. blood pressure) is presented using the correct name, that the information presented is relevant; that summaries in reports are correct, etc.

<sup>4</sup> The time normally spent using the system

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### E. Global assessment of the electronic medical record (EMR) in your department

Finally, we would like to know your opinion about the electronic medical record in your department, all considered.

- |  | Strongly disagree                                   | Disagree                              | Slightly disagree                              | Neutral                               | Slightly agree                                 | Agree                                 | Strongly agree                                      |
|--|---|---------------------------------------|--|---------------------------------------|--|---------------------------------------|---|
| 1 How much do you agree with the following statement:<br>EMR is worth the time and effort required to use it | <input type="checkbox"/>                            | <input type="checkbox"/>              | <input type="checkbox"/>                       | <input type="checkbox"/>              | <input type="checkbox"/>                       | <input type="checkbox"/>              | <input type="checkbox"/>                            |
| 2 All considered, how would you rate your satisfaction with DIPS in your department?                         | non-existent<br><input type="checkbox"/>            | poor<br><input type="checkbox"/>      |  | fair<br><input type="checkbox"/>      |  | good<br><input type="checkbox"/>      | excellent<br><input type="checkbox"/>               |
| 3 All considered, to what extent has EMR changed these three aspects of your own department?                 |   |                                       |  |                                       |  |                                       |   |
|  | Significantly more difficult                        | More difficult                        | Slightly more difficult                        | No change                             | Slightly easier                                | Easier                                | Significantly easier                                |
| a The performance of our department's work has become  | <input type="checkbox"/>                            | <input type="checkbox"/>              | <input type="checkbox"/>                       | <input type="checkbox"/>              | <input type="checkbox"/>                       | <input type="checkbox"/>              | <input type="checkbox"/>                            |
| b The performance of <i>my own</i> tasks has become  | <input type="checkbox"/>                            | <input type="checkbox"/>              | <input type="checkbox"/>                       | <input type="checkbox"/>              | <input type="checkbox"/>                       | <input type="checkbox"/>              | <input type="checkbox"/>                            |
| c The quality of our department's work has become  | Significantly decreased<br><input type="checkbox"/> | Decreased<br><input type="checkbox"/> | Slightly decreased<br><input type="checkbox"/> | No change<br><input type="checkbox"/> | Slightly increased<br><input type="checkbox"/> | Increased<br><input type="checkbox"/> | Significantly increased<br><input type="checkbox"/> |
| 4 All considered, how would you rate the success of the EMR system installed in your department?             | non-existent<br><input type="checkbox"/>            | poor<br><input type="checkbox"/>      |  | fair<br><input type="checkbox"/>      |  | good<br><input type="checkbox"/>      | excellent<br><input type="checkbox"/>               |

### E. Comments