The CLAS App

A mobile training tool to improve handover procedures between hospital interface and family doctors

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Simple mobile innovations
What is a HANDOVER?
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What is a HANDOVER?

Shorter hospitalizations, more frequent patient transitions → high demands on the quality of clinical handovers

Focus of HANDOVER

- emergency
- elective
- referral
- hospital
- discharge
- after care by primary care physician

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The Problem

‘In many cases of avoidable maternal death identified in the UK Confidential Enquiry, care was hampered by a lack of cross-disciplinary or cross-agency cooperation and communication problems, ...’

Discharge summaries often did not ...

- Share Information with patients: 91%
- Tests pending at discharge: 65%
- Diagnostic Test Results: 38%
- Identified Hospital Dr: 25%
- Treatment/hospital course: 22%
- Discharge medications: 21%
- Main diagnosis: 18%
- Follow-up plans: 14%
- Physical Findings: 11%

The World Health Organization (WHO) lists accurate handovers as one of its **High 5 Patient Safety** initiatives.

Training of handover skills would appear to be a promising approach to **improve the quality of patient continue care**.

Related mobile health projects

Handover

EMuRGency
New approaches for resuscitation support and training

Patient

CESTEC
celstec.org
Related mobile health projects

Handover

EMuRGency
New approaches for resuscitation support and training

Patient
Process mapping

Electronic medical record in primary care center (photo not available)

Patient's medication list

Referral report (photo not available)

OR anesthetic review

Doctor discharge report with detailed information about the hospital care

Nurse discharge report with information about needs (communication, learning capacity, linguistic barriers, self-care capacity, etc.)

Patient is programmed to continue visit with specialist (at hospital or primary care, depending on the specialist)

Patient with a health problem

Patient consultation to Primary Care

Patient referral to specialist

Appointment for first consultation

Admission?

Control with specialist

No

Yes

Inpatient Care

Surgical Intervention

Patient discharge

Patient is attended in Primary care

Patient consultation to emergency care

Admission?

Yes

No

Information about previous visits and specialist control

Emergency care report

Medication dispensing and administration register (only in paper)

Referral request

Patient's daily review chart during the hospital stay

Information regarding GP and primary care nurse contact information

Information available about main clinical reports from other hospitals and primary care center
Stay up-to-date on the latest developments on handovers

Find interesting tools to improve your handovers

Contribute your own handover tools

Rate and annotate tools and articles

Find training examples and advice to create your own training in handover

Become a member and start sharing!

Share knowledge on best practices

Discuss with other experts in the field

Start your own group

Add interesting information and experiences to the toolbox
Challenge 1: Information Quality

Certified content

Community Content
Challenge 2: Access
Challenge 3: **Standardize**

- General
- Name
- Address
- MRN
- DOB
- Hospital
- Ward
- Consultant
- Speciality
- Date admission
- Date of discharge
- GP’s name
The Cork Letter-Writing Assessment Skills (CLAS)

| General | Personal patient data / GP’s name | General details include basic demographic details such as name, address, date of birth, Medical Record Number (MRN), date of admission and date of discharge of patient. Other items include name of hospital, name of ward, name of consultant and speciality. A specific rating exists for identifying the name of the GP (General Practitioner of Family Doctor) i.e. ‘Dear Dr Casey’ rather than ‘Dear Dr’.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MRN</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hospital</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ward</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Consultant</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Speciality</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Date of admission / discharge</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Problem List</th>
<th>Is there a problem list?</th>
<th>A bulleted list of the patient’s problems provides an immediate soundbyte of the patient’s overall status. Ideally, the problem list should be at the beginning of the letter and highlighted in bold typeface.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>History</th>
<th>Reason for admission (presenting complaint)</th>
<th>This section includes reason for admission (presenting complaint), history of presenting complaint (details) and other relevant history. Past medical history is included here. Current medication at time of admission can be listed here.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>History of presenting complaint (details)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>and other relevant history</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Past history</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Physical examination</th>
<th>Pertinent clinical findings appropriate to the case</th>
<th>Only pertinent clinical findings appropriate to the case need mention.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Investigations</th>
<th>Investigations done</th>
<th>List of investigations and abnormal results. It is important to mention test results that weren’t available at time of discharge.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Results of abnormal investigations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Test results pending</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Diagnosis/diagnoses</th>
<th>List of diagnoses</th>
<th>List of diagnoses and highlighting of new diagnosis.</th>
</tr>
</thead>
</table>
The CLAS App
The CLAS App

CLAS - Page 1 of 4
- General
  - Name of patient
  - Address of patient
  - MRN
  - Date of Birth
  - Hospital
  - Ward
  - Consultant
  - Speciality
  - Date of admission

CLAS - Page 2 of 4
- Problem List
  - Is there a reason for the exam?
  - History
    - Reason for the exam
    - Presenting complaint
    - History of present illness
    - Past history
    - Physical Exam
    - Pertinent to the exams
    - Clinical findings
  - Investigation

CLAS - Page 3 of 4
- Current Status
  - Is there a problem to be solved?
  - Clarity and Writing Style
    - Unnecessary information
      - Is the letter too long?
    - Structure
      - Did the letter flow logically?
    - Paragraphs
      - Are the paragraphs clear and complete?
    - Was the writing legible?

CLAS - Page 4 of 4
- Clarity and Writing Style
  - Readability
    - Good syntax, grammar, spelling
  - Clarity
    - Easy to read and understand

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QR Code
Pilot study at UCC

- 80 medical students (4th yr)

- Patient casenotes (fictional) given to students in advance of teaching session

- **Experimental group (n=40)** students received instruction on the CLAS scale. Asked to write a patient discharge letter (25 mins)

- **Control group (n=40)** wrote discharge letter without CLAS instruction
Pilot study at UCC

Challenge to prove that mobile educational interventions improve handover

• Lack of research describing / assessment of educational interventions to improve handover.

• Transfer of skills to workplace - some evidence

• Improved Patient Safety - no evidence

Gordon M, Findley R. Educational interventions to improve handover in health care: a systematic review. MEDICAL EDUCATION 2011; 45: 1081–1089
Conclusions

1. Use of checklists can improve the overall quality, content, structure and clarity of hospital discharge letters written by medical students.

2. Medical students benefit from formal instruction in letter-writing skills.

3. Use of the CLAS app at point of practice may improve the quality of hospital discharge letters.
Future Research and Development

• Extending the idea of apps to support handover processes (communication, awareness, reflection competences).

• Extending the handover app approach to empower patients

- NFC
- Linked Data (ICD9, SNOMED_CT)
Future Research and Development

• Extending the idea of apps to support handover processes (communication, awareness, reflection competences).

• Extending the handover app approach to empower patients.

• NFC
• Linked Data (ICD9, SNOMED_CT)
Future Research and Development

1. Analysis of 200 hospital discharge letters from 5 different GP practices using CLAS scale

2. Extending the handover app approach to empower patients

3. Pilot phase for CLAS and other mobile apps in the PATIENT project -> TARGET: train 600 students per year with mobile learning tools for handover
Thank you for attending this lecture!

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