After today…

- You will know what a care process is
  - Example from primary care and hospital
- You will know more about medical records
  - What it looks like
  - Who is documenting
  - What kind of information it contains
  - How it can be structured
- You will understand some problems with paper-based and computer-based medical records

Care process and medical documentation

Medical record documentation is an important part of the care process. It is relevant facts, findings, and observations about an individual's health history including past and present illnesses, examinations, tests, treatments, and outcomes.
The care process in primary care (vårdcentral)

The patient has a problem
- Calls primary care, to get advice from the nurse.
- Examination and initial diagnosis
- Meets physician
- Referral to specialty care, or treatment at primary care.
- Decision about treatment, start the treatment
- The patient is healthy

Example: Hospital (specialty care)

Registration process
- Patient information – administrative and clinical data
- Initial examination – anamnesis and clinical examination
- Decision on care commitment, is the patient at the right care unit.

Diagnostic process
- Actions: tests and examinations
- Make a diagnosis
- Decision about treatment/therapy

Hospital

Treatment/therapy
- Treatment/therapy plan
- Treatment/therapy actions
- Result?

Discharge process
- Epicrisis, a summing up of a medical case history
- Prognosis
- Re-use documented data
- Follow-up
**What is a patient record?**

Patient record is a systematic documentation of a patient’s medical history and care.

It contains:
- Administrative data
- Anamnesis
- Status
- Diagnostic actions, test result, x-ray
- Diagnosis
- Therapy plan

**Patient records**

**Goal**
- Collect relevant data for supporting
  - treatment
  - decision making
  - evaluation
  - quality making
  - research
  - education
- Better quality of the care process
- Unbroken care process
Who document?
- There are legal regulations for some care providers to document.
- Physicians – long documentation history
- Nurses
- Allied Health Personnel
  - Psychologist
  - Physiotherapist
  - Welfare officer

Structure of patient records
- Time-oriented medical record
- Problem-oriented medical record with SOAP structure.
  - Subjective
  - Objective
  - Assessment
  - Plan
- Source-oriented medical record
Paper-based patient record

- Negative
  - It can only be at one place at one time
  - Missing medical records
  - Unstructured
  - Hard to read
  - Hard to get a good overview
  - Many different records
  - Quality assurance is difficult
  - Hard to archive

Hard to archive...
Computer-based patient record

- Often used in primary care, less used at hospitals.
- Are the care providers satisfied?
  - Bad human-computer interaction (low usability)
  - The computer is not working
  - Slow computer programs
  - Different care providers have different needs
  - Bad authorization systems
  - Not patient-centered

Multiple computer systems

- There are multiple systems for primary care and the whole care process. But there are only 5 big systems for the whole care process in Sweden:
  - TakeCare (Profdoc)
  - Cambio Cosmic (Cambio)
  - Melior (Siemens)
  - VAS (Norrbottens läns landsting)
  - BMS Cross (SysTeam)

Example: Cambio COSMIC

- Concept: One patient – One medical record
- Clinical care support
  - Care documentation
  - Order management (e.g. radiology, lab, consultations...)
  - E-prescription
  - Birth, Craft (surgery), Emergency, Link
- Patient administration system (PAS)
  - Resource planning
  - Patient management
Problems with computer-based patient records

- User interface
- Safety
- Terminology
- Communication

Problem 1: User interface

- Overview of information
- Different type of information should be presented: text, numbers, images, voice
- Different ways for data input:
  - Free text
  - Structured
  - Voice
The patient card

My master thesis

Health issue patient overview
Health issue overview

Problem 2: Safety
- Secrecy
- Accessibility
- Correctness
- Traceability

Problem 3: Terminology
- Confusion about the meaning of words.
  - Different words for the same thing
  - Same word for different things
  - Free text
- Different terminology between different roles.
Anamnesis and status

Anamnesis:
- Physician: patient history in health care
- Nurse: information about the patient before the patient comes to the care

Status:
- Physician: objective findings
- Nurse: how the patient feels today

Coding and Classification

- The structure and level of details of the classification system depend on its purpose.
- Many different coding and classification.
- ICD 10: Diseases and Related Health Problems
- ICF: International Classification of Functioning, Disability and Health
- Planning patient care
- SNOMED-CT: Complete medical terminology

Problem 4: Communication

- Information in many systems
  - Different architecture
  - Different information structure
- Integration & interoperability
  - Technical interoperability
  - Semantic interoperability
Trends....

- NPÖ – national patient overview
- European patient overview
- Medical account so the patient can get access to her own medical record.

Summary

- Patient records is a systematic documentation of a patient's medical history and care.
- Physician, nurse, psychologist, physiotherapist, welfare officer have to document.
- The medical record can be time-, problem-, source oriented.
- The patients' way through the health care is called care process.
- The problem with the computer based medical records are: User interface, Safety, Terminology, Communication.