EAPC RN anchored studies

With primary focus on pain

Stein Kaasa

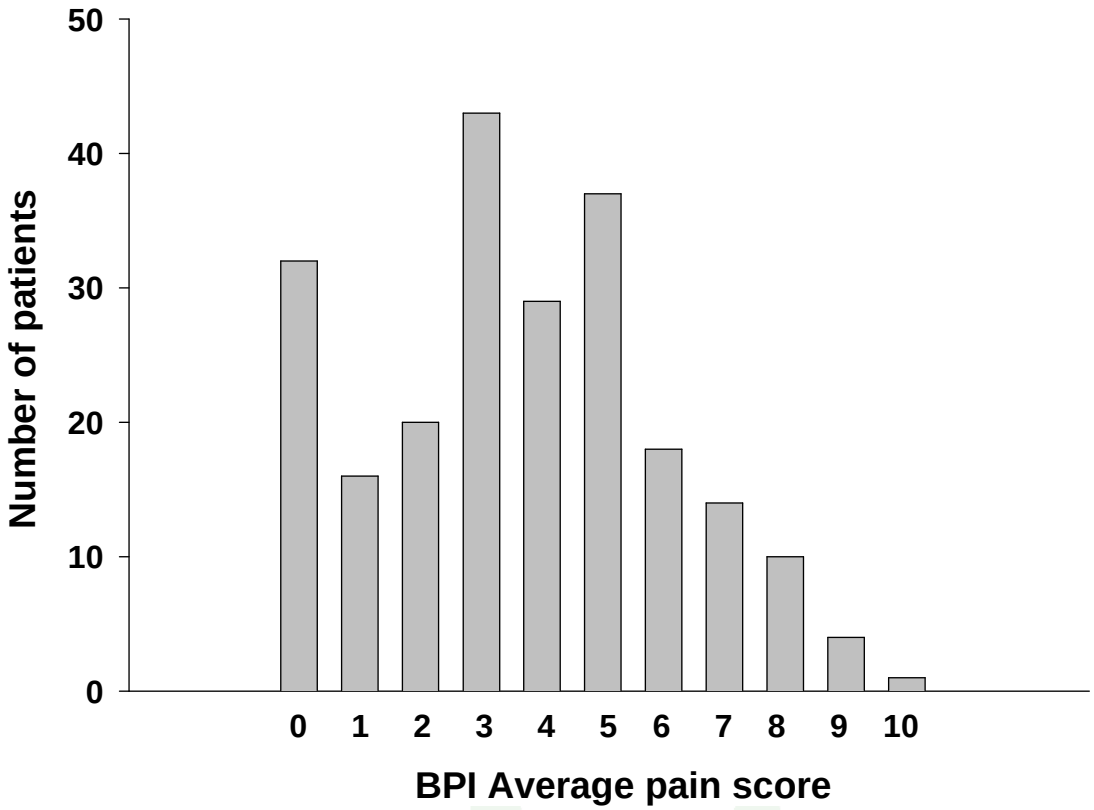
With a translational approach

- Molecular biology/genetics into clinical practice
- Computer science into clinical practice
- ….is it possible and does it make any difference?

Background

- Pain is sub optimally treated
- 50% or fewer experience satisfactory pain control
- 90% may reach optimal pain control
- ….why suboptimal pain control?

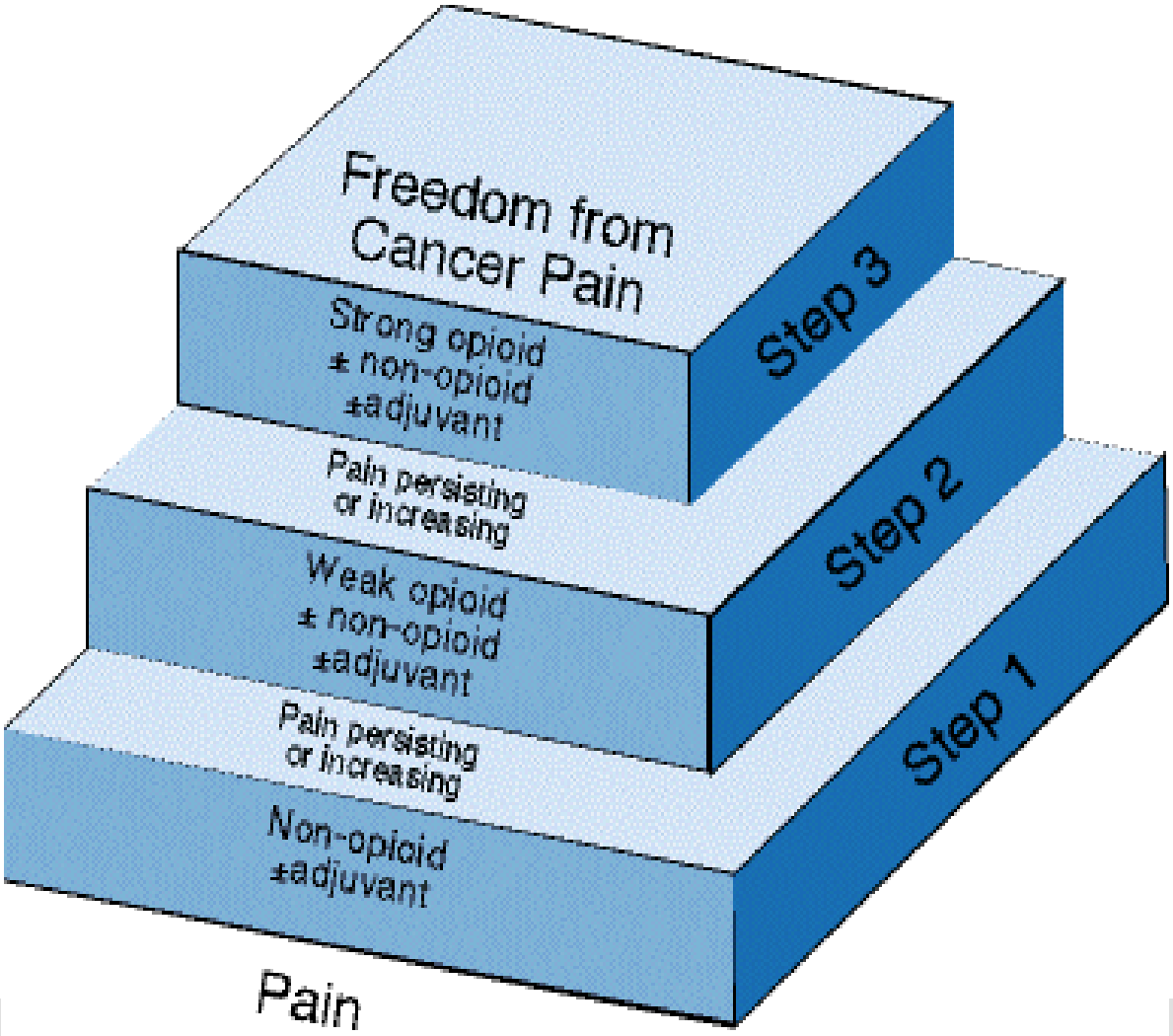
Pain in hospitilized cancer patients



NTNU

Sixth Framework Programme

EPCRC



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Some barriers are identified

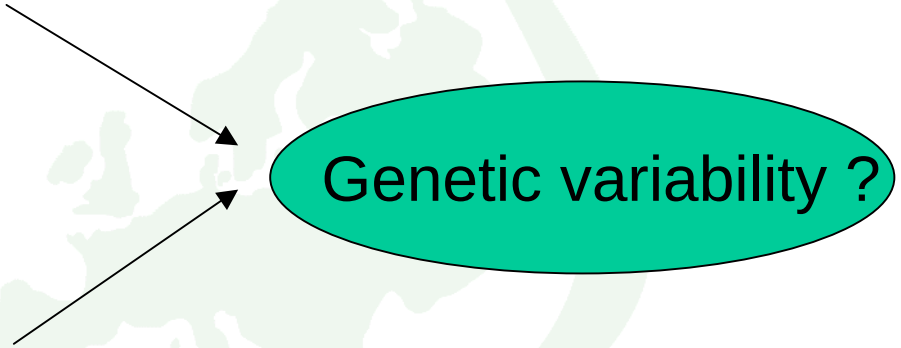
- Patient related-’not telling the doctor’
- Family related-’afraid of the cancer as well of the pain’
- Health care provider-’do not diagnose and lack of knowledge’
- Societal-’Opioid phobia’
- …and many others

Inter individual variability is observed

Huge variation among individuals in the clinical responses to opioids

- morfin "responders" / "nonresponders"
- variation in side effects
- degree of tolerance
- different effects from different opioids
- etc.

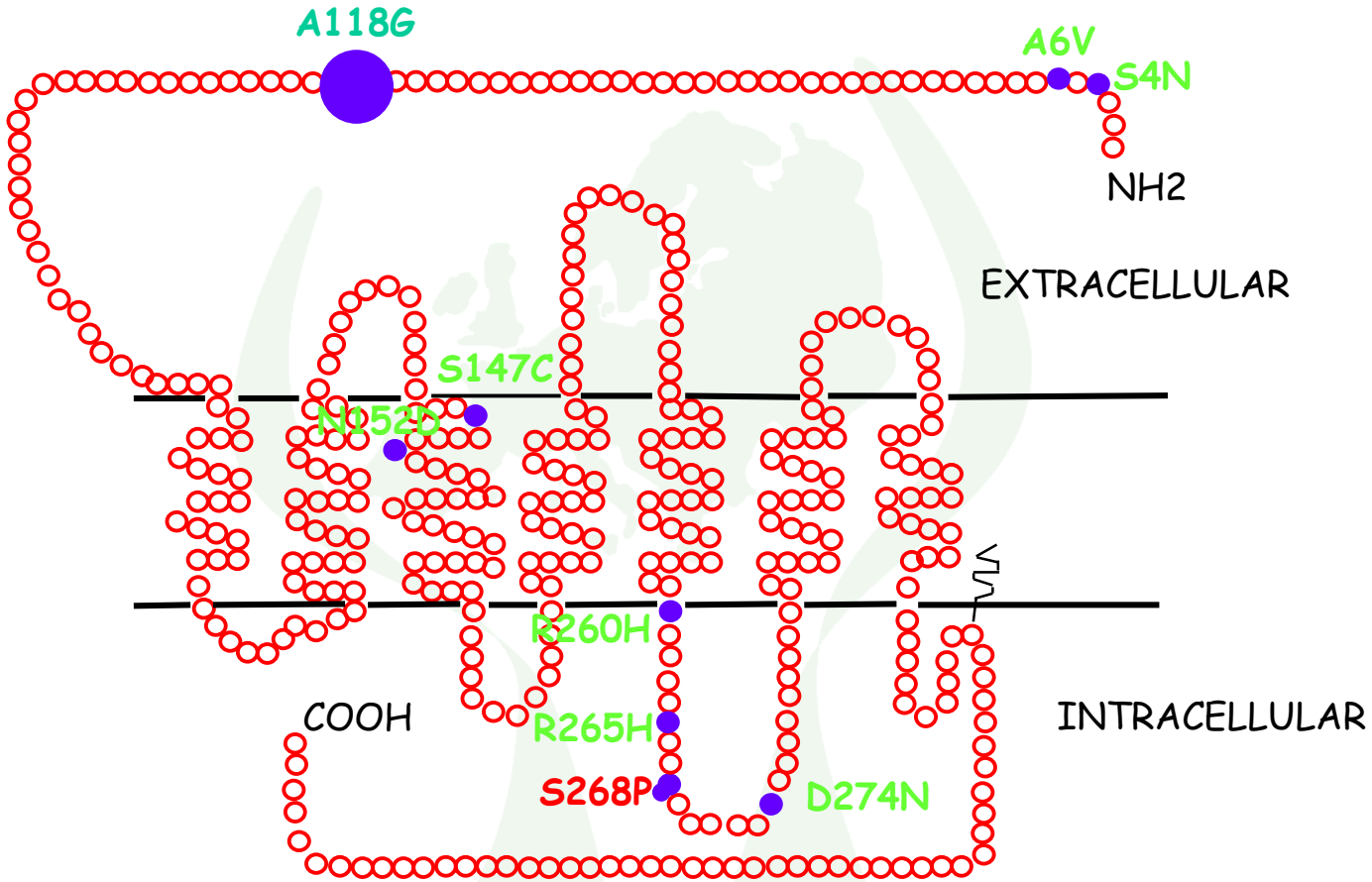
Interindividual variability of opioid dose



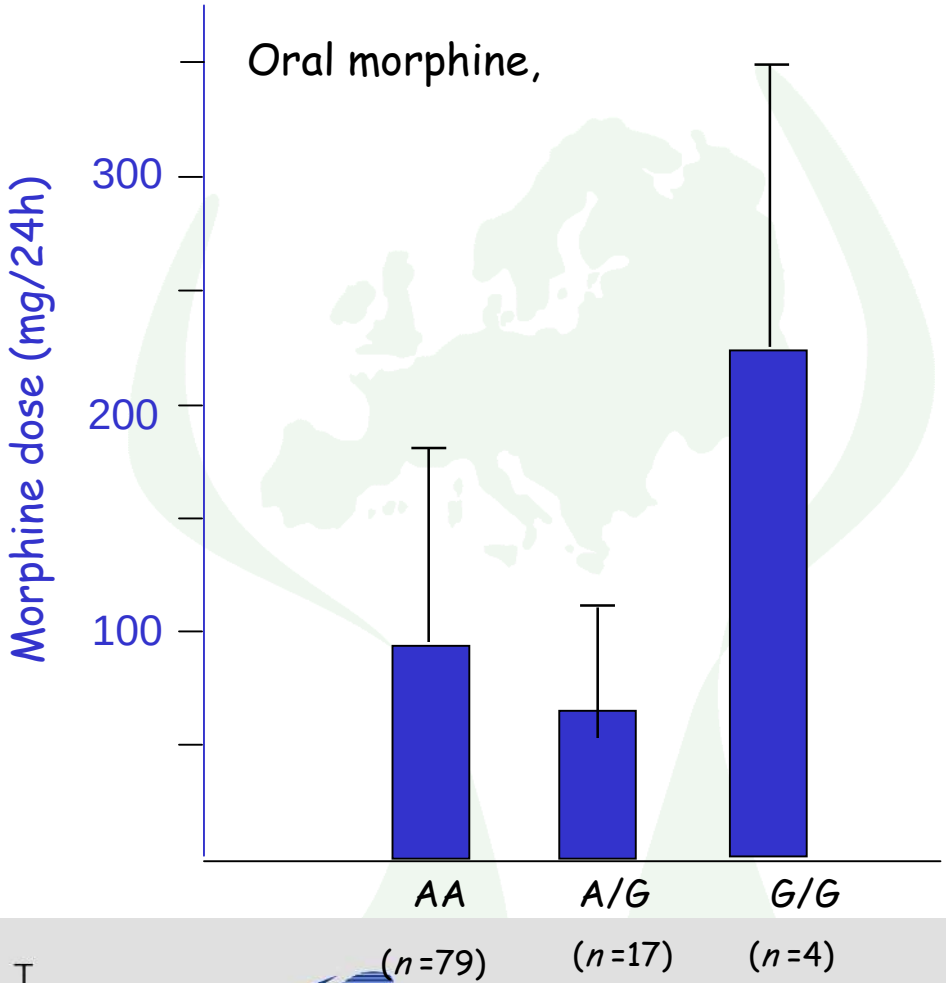
Interindividual variability in response to specific opioids

Opioid receptors

Polymorphisms that give altered amino acid sequence of the μ-opioid receptor

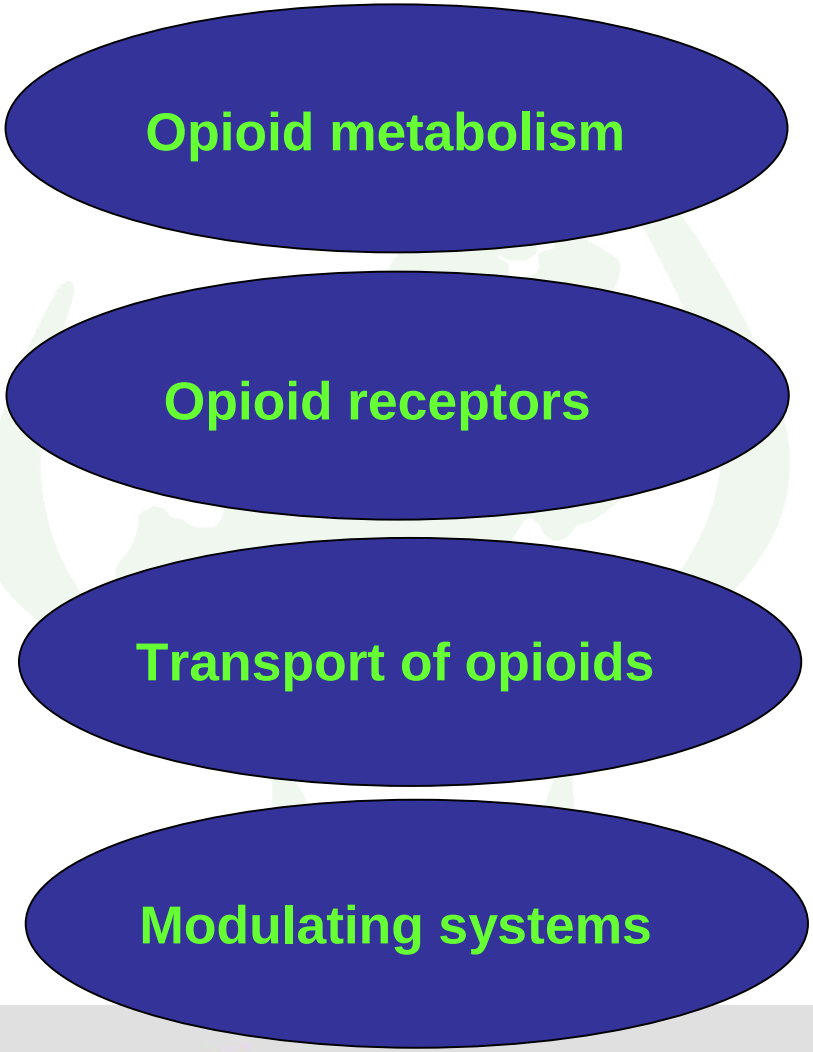


118 A>G polymorphism in cancer pain - - altered need for morphine



Klepstad *et al.* Acta Anaesthesiol Scand 2004

Opioid pharmacology can be influenced by genetic variation related to:



Genetic variability –
Current implications for clinical use of opioids

- Can we explain some of the differences in doses between patients?
  - Yes
- Is this important for the clinic?
  - Yes,

    It is important with a theoretical framework to support the practice of individualizing doses

Genetic variability –
Current implications for clinical use of opioids

- Can we use genetic variability or assays to choose the most effective opioid?
  - No
- Are the hope for the future?
  - Yes

    Population based, each country each opioid?

    Individual based?

    Most promising is the splice variants but these are difficult to study in humans.

Limitations of present research on opioids and clinical effects of opoids.

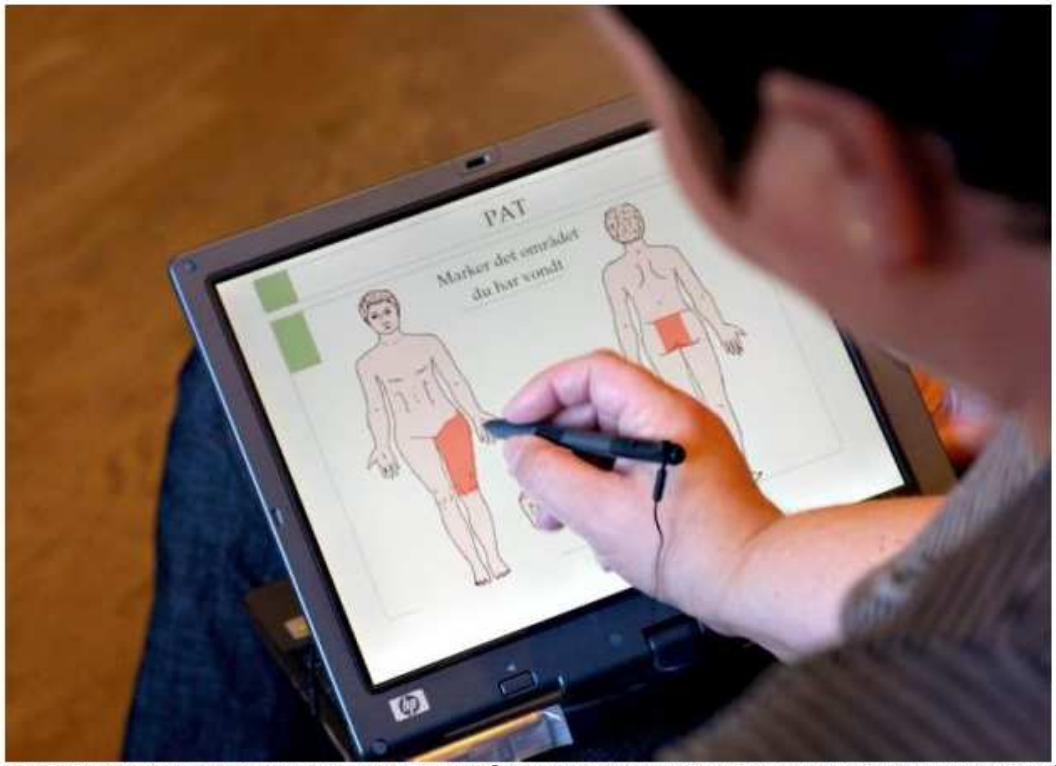
- Most studies small sample sizes
- Most studies on morphine
- Most studies from one population

Assessment and classification

What about going….

- Computer based?
- Interactive?
- Apply the methodology of artificial intelligence?

Aftenposten 05.09.07



Kreftsyke Merethe Roli (40) synes datamaskinen får bedre frem hvilke plager hun har enn det hun selv klarer å formidle muntlig. Hun er svært positiv til mer bruk av moderne teknologi. (Foto: GEIR OTTO JOHANSEN)

Plotter inn smerte på PC-en

National multi-centre study
Pain assessment in palliative cancer patients

- Eight participating palliative care units in Norway

- Material (both in- and out-patients)
  - 724 complete registrations by 392 patients

Is time use influenced by various factors?

- Total time use is about 15 minutes
- ***Age***: Nine seconds more per year older
- ***Gender***: No effect
- ***Karnofsky***: 47 seconds less per ten points improved PF
- ***Education***: 12 years or less vs. 13 years or more
  - 2 minutes 10 seconds more for lower educated

Complex problems usually not solved through simple solutions

- More than opioid receptors?
- More than one gene involved ?
- Interactions between symptoms as well as genes?

- Can we use the potential of a computer?

The European Palliative Care Research Collaborative (EPCRC)

- Six countries involved
- Complementary expertise
- Based within EAPC RN

What is the aim of the project?

- Improved treatment of pain, depression and cachexia through translational research

Main objectives

- To identify genes and genetic variation relevant for inter-individual variation in opioid responses and genetic variation that may identify patients at particular risk for developing cachexia.

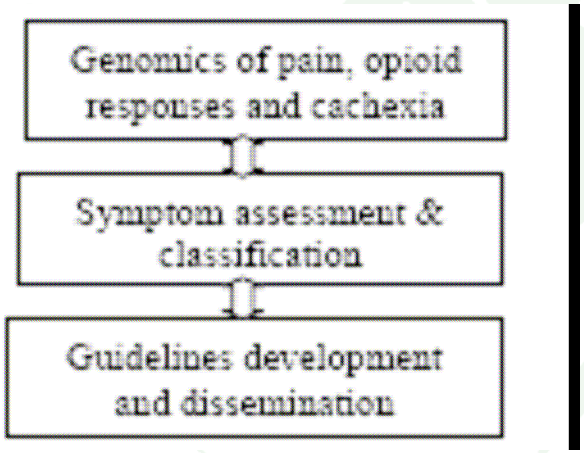
- To improve classification and assessment of pain, depression and cachexia by computer assisted approaches.

Main objectives cont.

- To combine the new knowledge of symptoms, genomics and assessment in an internet-based system for implementation of European evidence based guidelines, which will include standardized assessment and individualized treatment plans for pain, depression and cachexia.

- To establish a long lasting European Collaborative in palliative care cancer research

The European Palliative Care Research Collaborative - EPCRC



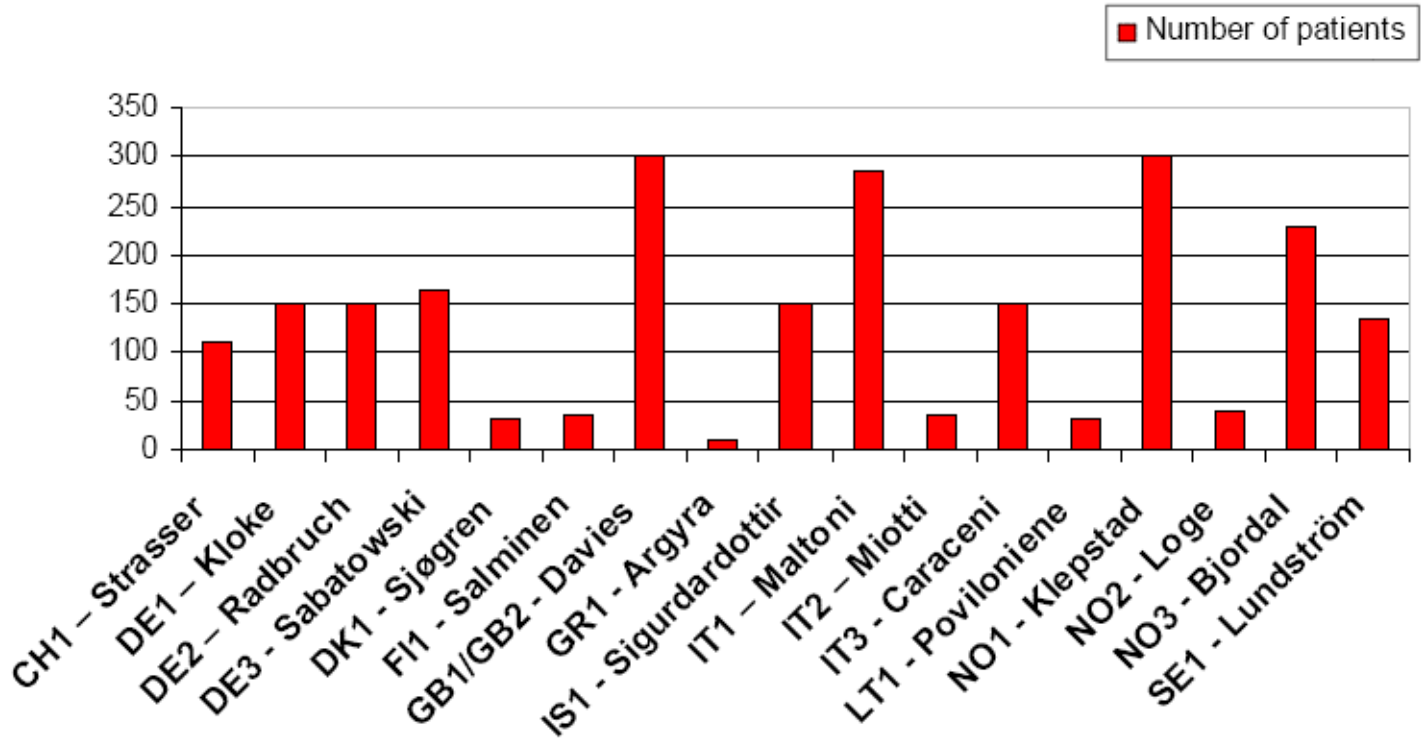
How to we proceed ?

- Genetics –Many SNP's coding for several proteins
  - Large patient cohorts
- International consensus on assessment and classification
  - A complex process
- Intelligent solutions form computer sciences
  - Does it work in the clinic?

European Pharmacogenetic Opioid Study (EPOS)

- **2300 patients**
- **15 centres, 10 countries**

Participating centres



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EPOS-
Data base and biobank

- Clinical symptoms
- PRO
  - HRQoL – EORTC QOL 30
  - Pain – BPI
  - Cognitive function MMSE
- Serum opioid concentration
- Full blood genetic analysis

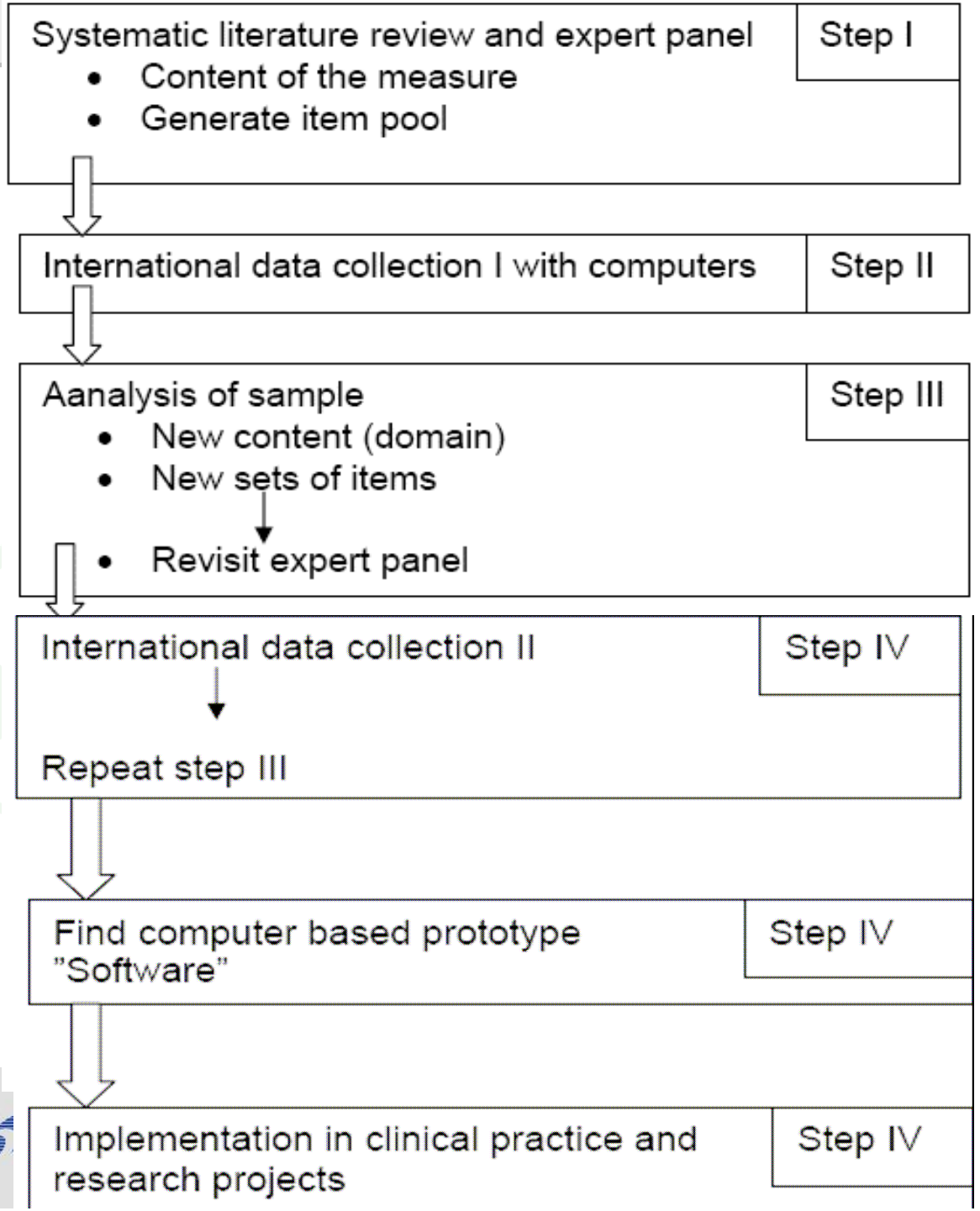
Ongoing work

- **200 candidate polymorphisms are selected for further analysis**
- **Analysis in process**
- **Similar analysis for cachexia**

Symptom assessment and classification in palliative care: Towards an international consensus?

- The EPCRC stepwise approach towards a computer

based system



‘Intelligent’ computer programs

- How to develop?
- Is it clinically beneficial?

A pilot software in a randomized study

- We will combine the existing knowledge from pain assessment and classification
- …into a computer program
- …and ad to it: Pain guidelines

- Test the effect in a cluster randomized study in out patient clinics

How to proceed?

- Collaboration
- Consensus
- Scientific quality
- …more collaboration
- …and even more

Do you want to know more?

www.epcrc.org

Invitation

See you in Vienna

11TH CONGRESS
OF THE EUROPEAN
ASSOCIATION FOR
PALLIATIVE CARE
7th – 10th MAY 2009
VIENNA AUSTRIA

See you in Vienna

AUSTRIAN SOCIETY FOR PALLIATIVE CARE

EAPC EUROPEAN ASSOCIATION FOR PALLIATIVE CARE

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EPCRC

For further information please visit: www.eapcnet.org/vienna2009

EAPC

www.eapcnet.org/research2008

5th Research Forum of the European Association for Palliative Care

Glasgow UK 10-12th June 2010