



KLINIKUM
DER UNIVERSITÄT MÜNCHEN

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The NeTWoRM Project: Net-based Training for Work-Related Medicine

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and the NeTWoRM Team



Learning objectives of this presentation



The audience should be able to:

- **explain** the term NeTWoRM **level 2**
- **interpret** different dissemination possibilities **level 3**
- **formulate** the objective of NeTWoRM **level 5**
- **analyse** the structure of a VP **level 4**
- **name** the possibilities of the web platform CASUS **level 1**
- **assess** chances and risks of the NeTWoRM project **level 6**



Why did we start case-based e-learning in Occupational Medicine?



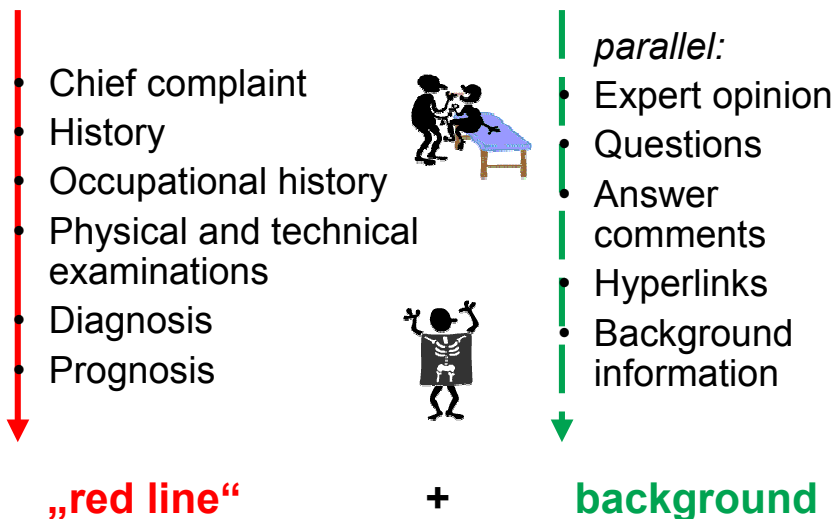
- Training in OM is mandatory for medical students in Germany
- 600 students/year are taught in OM in Munich
- Implementing patients during lecture is difficult
- Wrong ideas about tasks of OM among students
- Students' interest and motivation for OM was low and had to be improved






Web-platform CASUS (Instruct AG)


- Creation of and work with the cases independent form place and time
- Web-surface easy to handle
- Evaluation of the learning success
- Evaluation of the acceptance by the users




LMU **Broad field of OM – Existing cases I** 

1. Baker's asthma
2. Miners (ZeBWis) 
3. Asbestosis
4. Lung carcinoma, Legal procedure
5. Tuberculosis in health service
6. Latex allergy in health service
7. Needle stick injury (Hepatitis) in health service 
8. Forestry worker (Vasospastic syndrome)
9. Thumbness of finger (Carpal tunnel syndrom)
10. Workplace „Rescue service“
11. Bladder carcinoma (Aromatic Amines)
12. Nasal septum perforation (Galvaniser/Chrome)
13. Livercirrhosis (Halogenated hydrocarbons)
14. Lead intoxication
15. Occupational accident 



Respiratoy
 Medical Service
 Musculoskeletal
 „Classisal“ OM
 Methods

LMU **Broad field of OM – Existing cases II** 

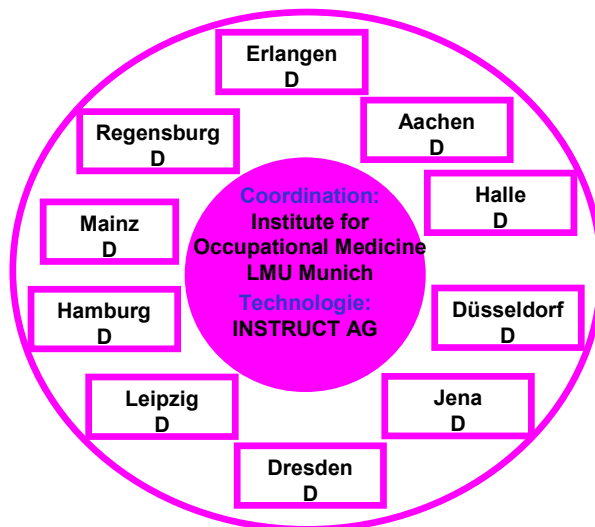
16. Flight attendant with Diabetes mellitus 
17. Radiation protection (An exotic choice)
18. Epidemiologic study (Statistic thesis)
19. Preventive medical check up (noise)
20. Outbreak (SARS)

Cases from other Universities (selection):

21. psychosocial stress at work and heart attack
22. occupational skin diseases
23. ...


➔


Respiratoy
 Medical Service
 Musculoskeletal
 „Classisal“ OM
 Methods/other

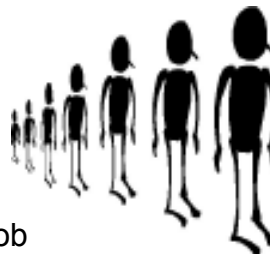
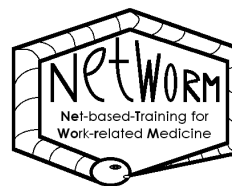


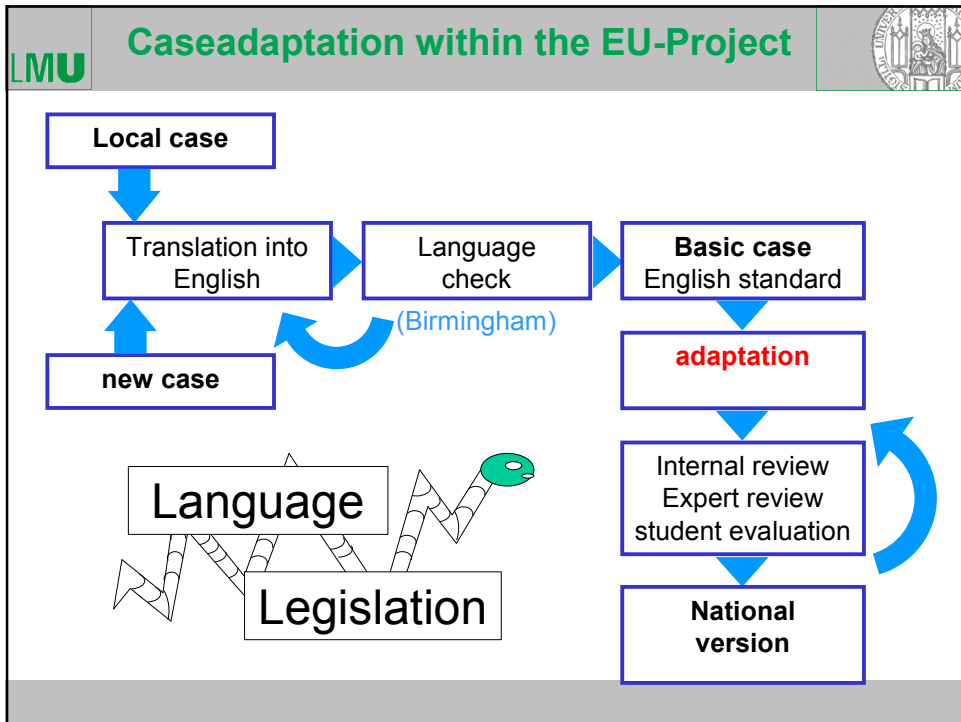
Implementation at 12 German Universities with about 2000 users annually
Radon et al. AAEM 2006;13:93-98



- **Set-up an international network to improve medical training in occupational medicine for**

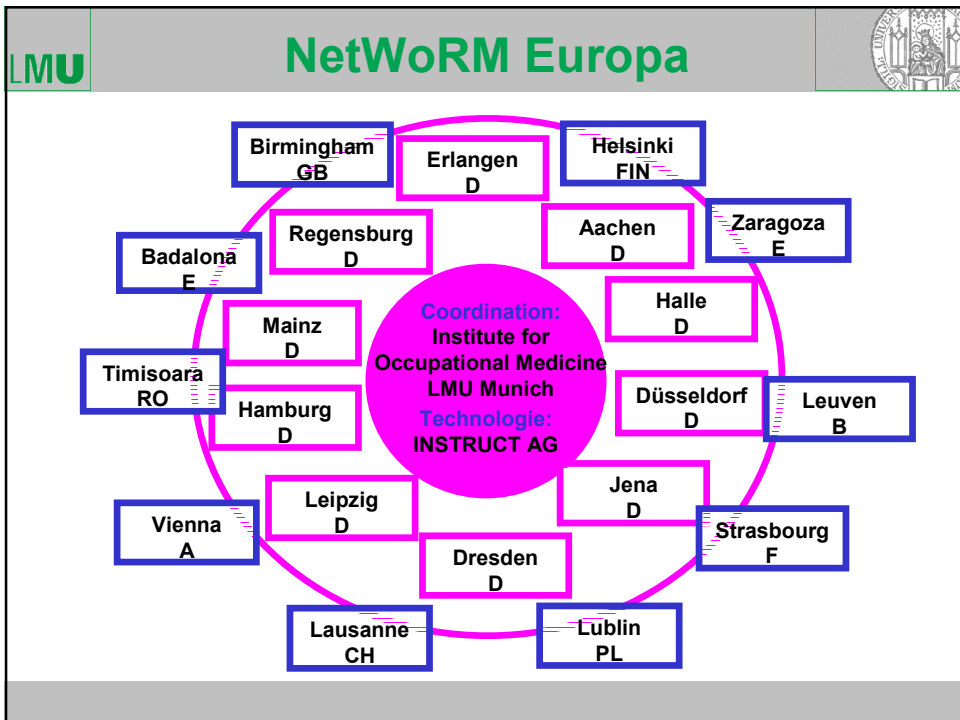
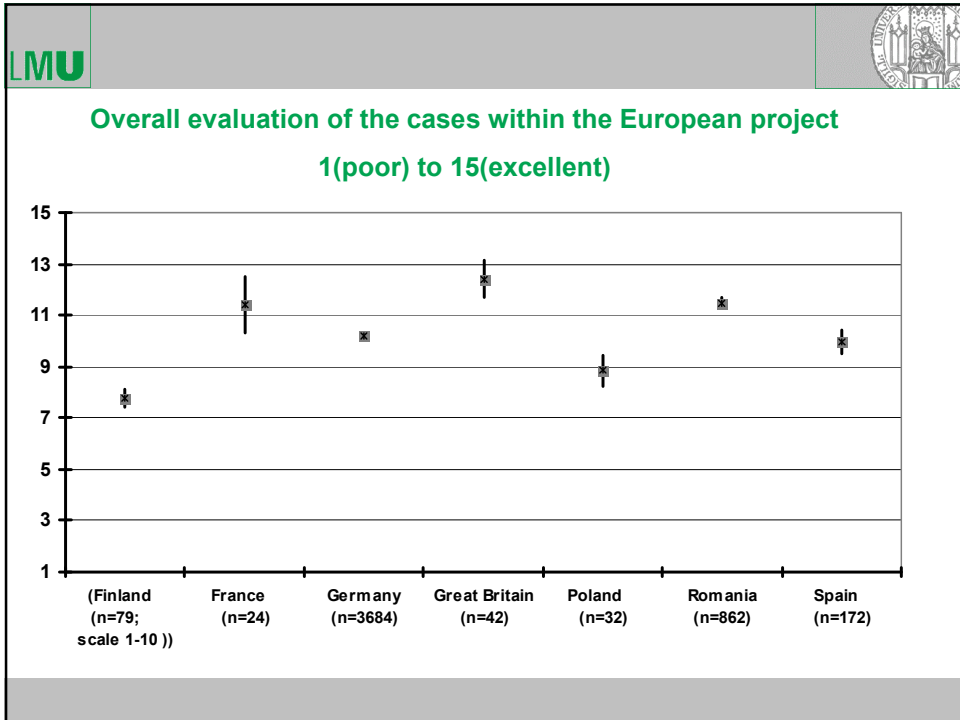
1. Undergraduate medical students
2. Postgraduate physicians / CME
3. Occupational health nurses
4. Health and safety inspectors
5. Workers
6. Teenager and adolescent at time of job selection







LMU New cases by international partners

| | | | |
|---|---|---|---|
|  | Workplace survey |  | Hypersensitivity pneumonitis (HP) |
|  | Protection of the unborn child |  | Welder with maculopathy |
|  | Pleura mesothelioma |  | Workplace accident due to alcohol |
|  | Construction worker with skin carcinoma |  | Occupational asthma / HP Trichloroethanol intoxication |
|  | Steroiddermatosis Silicosis |  | Salt workers |
|  | Psychosocial problems at work |  | Surveillance programm for asbestos |



| | | |
|--|----------------------------------|---|
| LMU | International Cooperation |  |
| Dr. Diego | | |
| <p>28 years, spouse (student), 2 children Company physician at a hospital in a district town (Valdivia) No formal training in Occupational Medicine Few English knowledge</p> | | |
| <p>Distance Valdivia-Stgo. 732 km</p> | | |
| <u>airplane:</u> | | |
| price | 340,- Euro | |
| duration | 2,5 h | |
| <u>Bus:</u> | | |
| price | 10,- Euro | |
| duration | 12 h | |
| | |  |

| | | |
|---|------------------------------|---|
| LMU | NeTWoRM Latin America |  |
| <ul style="list-style-type: none"> ▪ Exchange of students and lecturers for creation and implementation of Virtual Patients ▪ Country specific Virtual Patients for main problems in emerging countries ▪ Partner cases: Virtual Patients describing topics from the Brazilian, Chilean and German point of view | | |
|  | | |

LMU **Partners in Latin America**

- University of Santiago (Santiago, Chile) 
- Universidad Austral (Valdivia, Chile)
- Federal University of Paraná (Curitiba, Brazil) 
- Funded by the German Academic Exchange Service (DAAD)



LMU **Example: Workplace accident**

Case 1 of 21 | Transplantation of bone

Mr. Valdez is annoyed by the idea and thinks it is worth a try, when Mr. Canales tells him about it. Some weeks later the surgery takes place in the university hospital. Drs. Schuster and Dr. Lopez are operating together again.

Notes about surgery:

- cutting of the left olecranon of the left ulnar finger, cut reaches down to the ventral epur. lumen
- deep incision of the left second digital pedicle at the level of the joint between proximal phalanx and metacarpal
- direction of the incision: phalanx
- Anastomosis of second digital pedicle to the open stump of the ulnar finger (basis of an anastomosis IV): Anastomosis of arteries, laceration

reconstruction:

- bone transplantation
- reasonable suturing of the foot
- bandage of foot and hand

Question

Do you remember the compensatory activities? Which of the following measures left the accident insurance pay for Mr. Valdez is (MAY)?

Multiple answers:

- transfer of the lost work capacity
- medical treatment
- transportation costs
- physiotherapy
- retiree's pension
- prosthesis for the right hand
- orthopedic rehabilitation for the hand

www.chile.casus.net



Three months after the transplantation, the hand will follow a complete recovery. The hand will be able to use the ulnar finger.

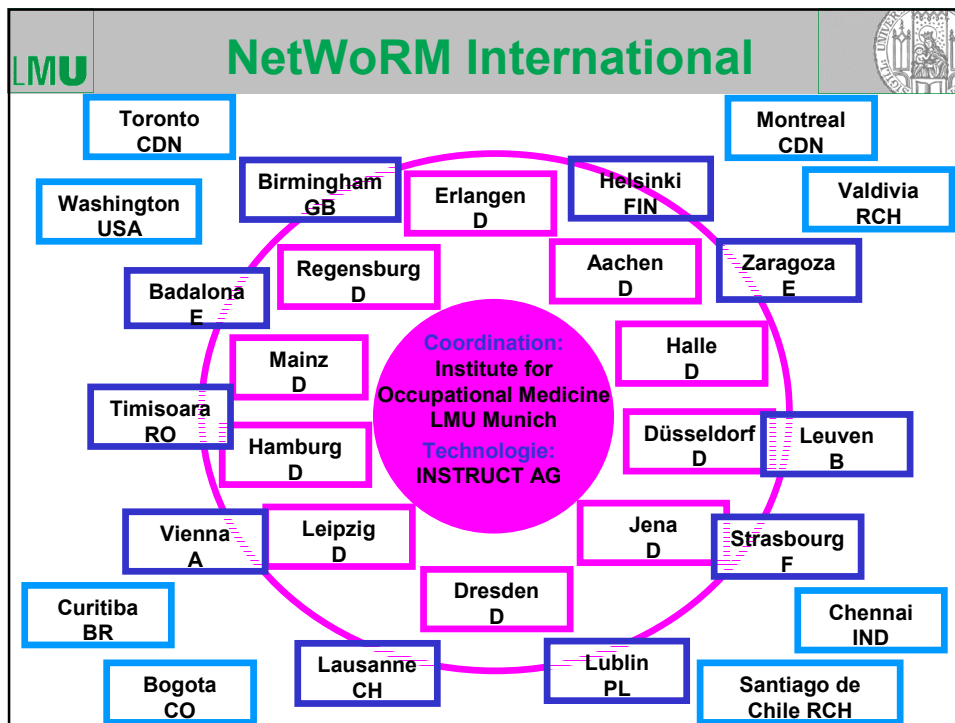


Case:



Chronic lead intoxication

- 66 Participants (computer lab), 1st time users of e-cases
- Mean (SD) duration worked on the case: 43 (13) min
- Mean (SD) % of questions answered correctly: 60 (14) %
- 49 students evaluated the case (74%), results (median, 25/75er percentile):
 - Case interesting (1 very – 6 not at all): 1 (1/2)
 - Level of the case (1 too easy, 6 too difficult): 3 (3/4)
 - Overall rating (1 poor – 15 excellent): 13 (11/14)



LMU **Conclusion: chances**

- Virtual Patients in OM are liked by health professionals at each step of their training and enrich traditional training
- International cooperation in training is enriching for students and lecturers
- (Re-)Using of existing software is effective and efficient
- E-Learning is the method to pass distances



- Creation and update of high quality cases need time
- Translation could be complex
- VPs have to be a win-win situation for students and teachers
- Implementation takes time and local strategies
- Continuous update is necessary
- Implementation and dissemination is necessary to guarantee sustainability
- Long-term financing is necessary



- Focus on dissemination and sustainability
 - Development of specific business models
 - Development of the web platform CASUS
 - Automatic self registration
 - Forum for online discussions
- **New Virtual Patients** for Continuing Medical Education, secondary school children, epidemiology, environmental medicine
- Continuous update of VPs
- Development of a distance degree course for Latin America (DAAD EXCEED) with blended learning concept



- Technical support:
 - Instruct AG ("Casus-Team")
- Financial support
 - Klaus-Tschira-Foundation, Heidelberg
 - European Commission
 - Bavarian Virtual University
 - DAAD, BMBF
 - Lieselotte und Dr. Otto Winklern Foundation
 - Center for Bavarian-French Cooperation
- And all project partners

