

# How whole body modelling is impacting on research and clinical practice

**Marco Viceconti**

*Rizzoli Orthopaedic Institute, Italy*

VPH NoE – Outreach program

# WBM in biomed research



- Interaction with electromagnetic field & Radiotherapy planning
- Safety, forensics, security, defence
- Whole organ systems (NMS, CVR)
- Human performance (sport)
- Body devices industry: automotive, tools, aerospace, defence, sport, medical, furniture, aesthetics, entertainment

# WBM: integrative research

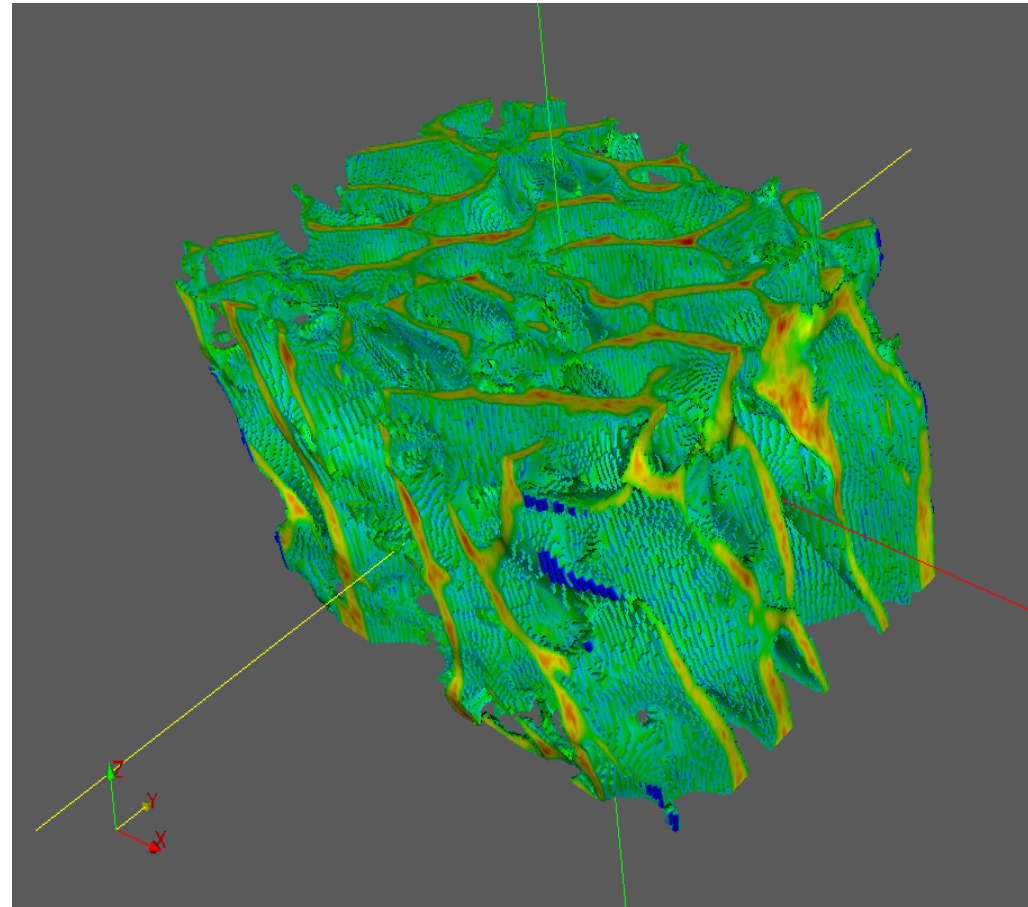
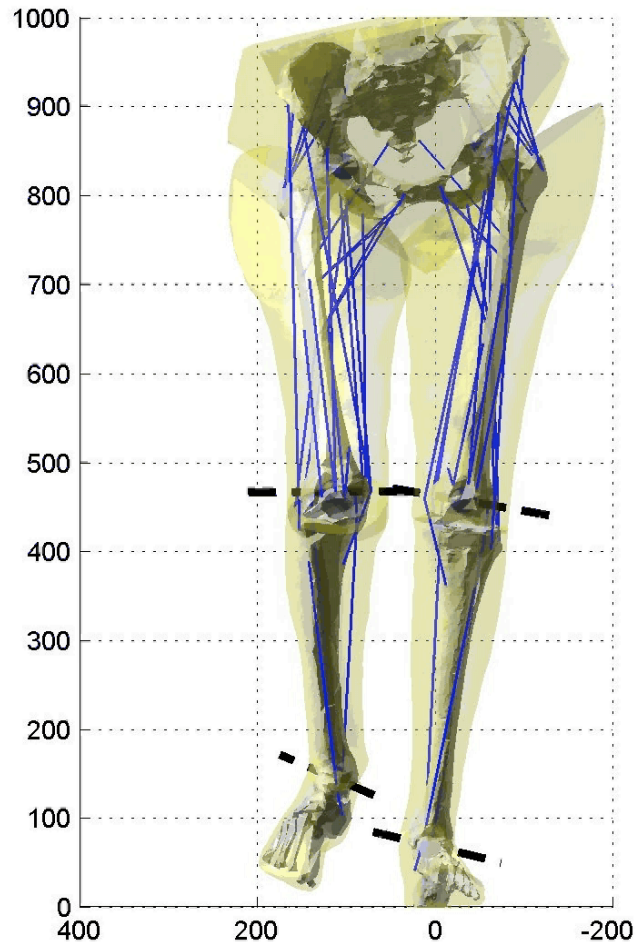


- Environment / body contaminants transport models
- Body / organ multiscale models



# VPHOP Technology to fight osteoporosis

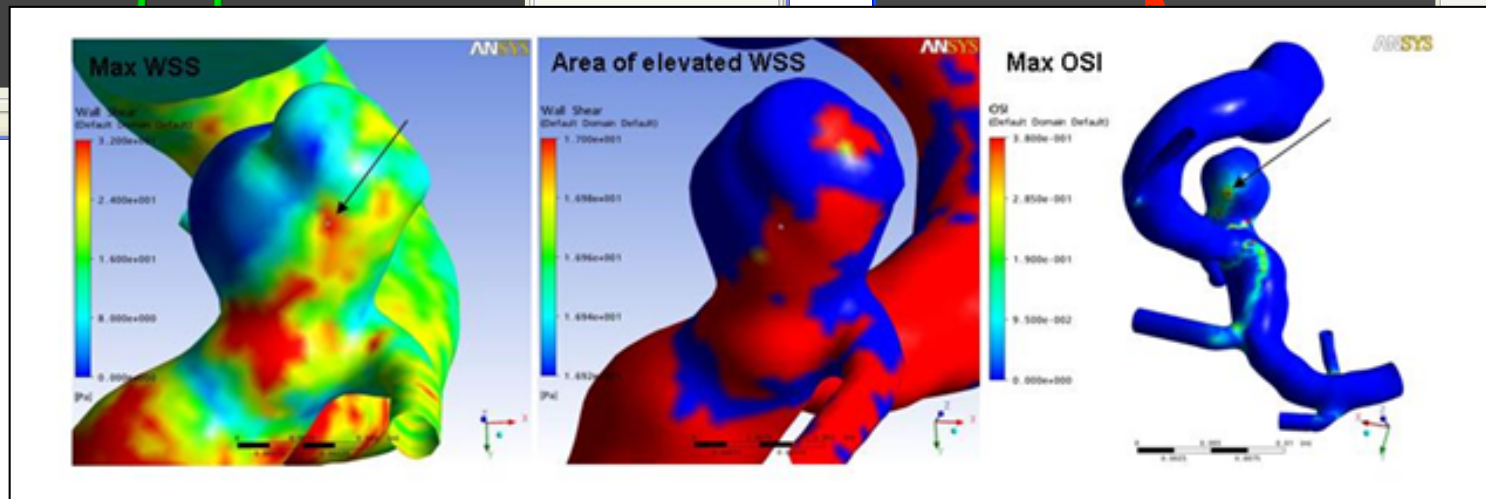
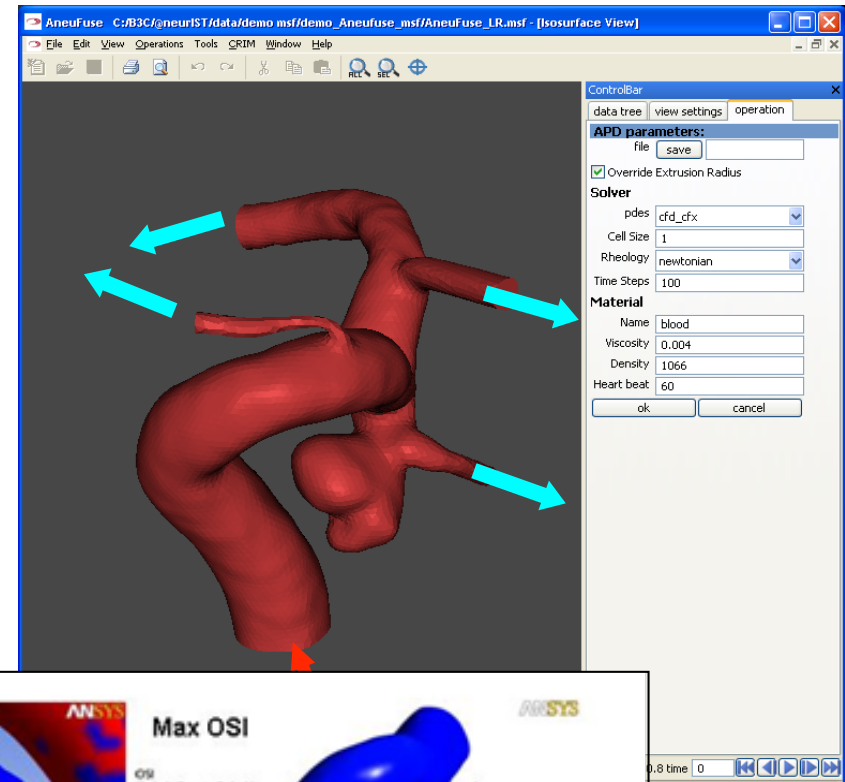
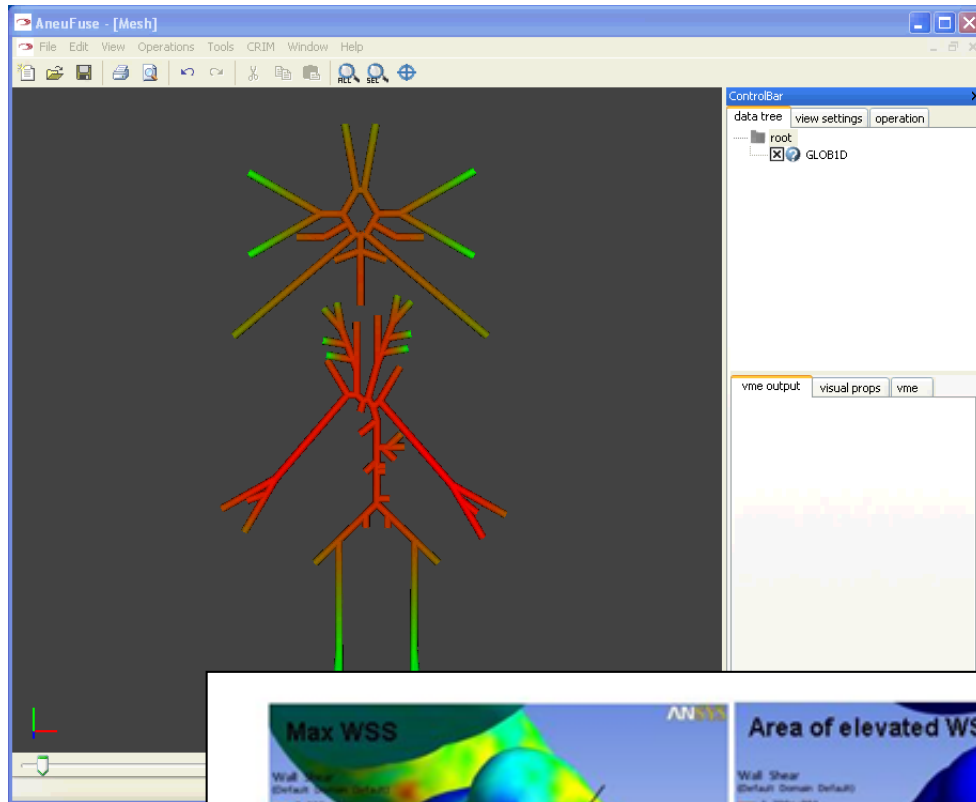
Osteoporotic Virtual  
Physiological Human



IMAG Futures meeting  
Bethesda, December 2009



aneurIST  
Integrated biomedical informatics for the management of cerebral aneurysms



# WBM in clinical practice



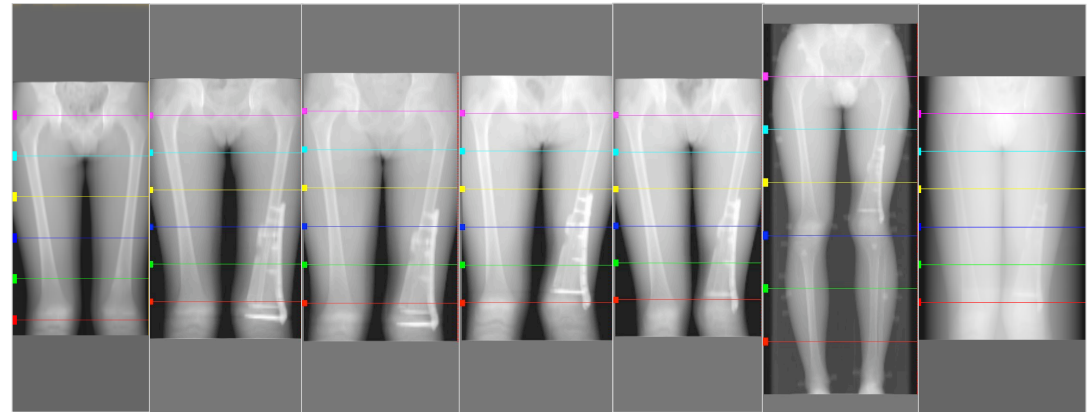
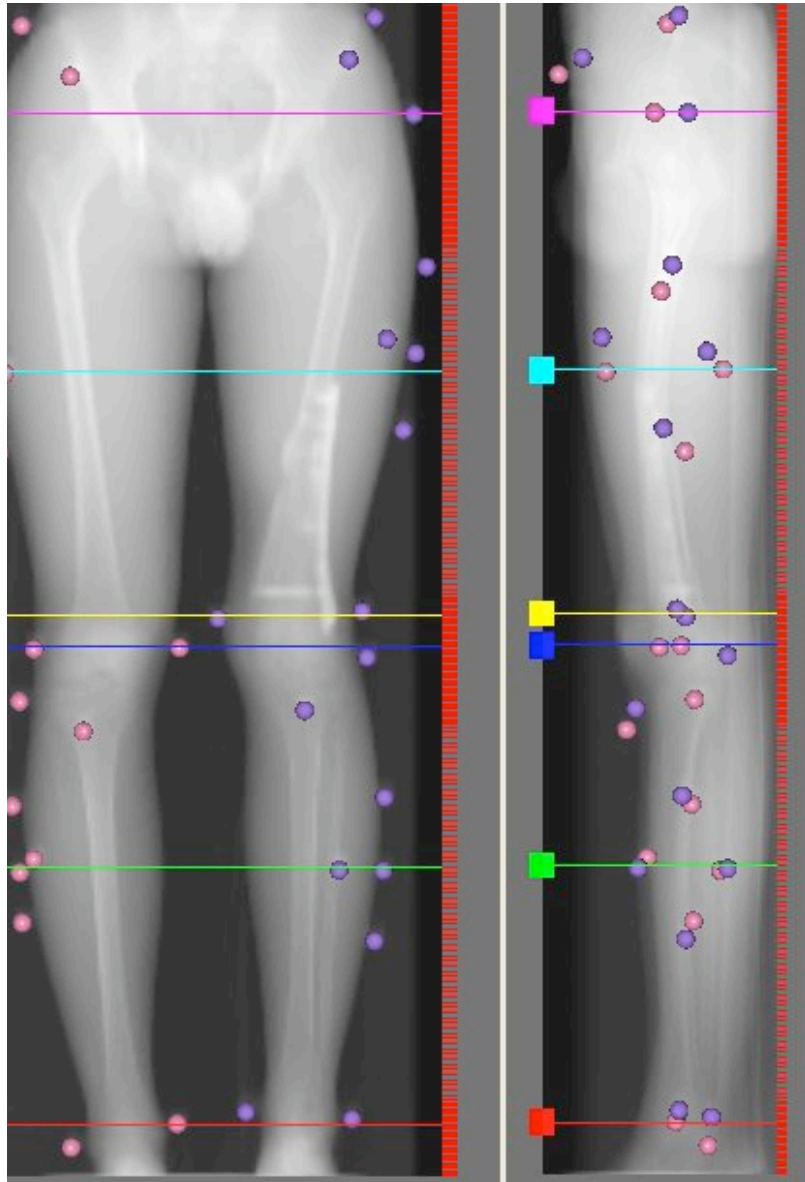
- @neurIST tools for prediction of the risk of rupture of cerebral aneurysm is starting in 8 EU hospitals
- VPHOP is collecting ethical approvals in 4 European hospitals to start phase 1 trial in March 2010 for simulation-based prediction of the risk of fracture in OP patients
- EU-Heart is also planning two small cohorts where computed ablation lines will be used on patients undergoing a second RF ablation for AF, or on patients treated with intra-cardiac defibrillators as backup.



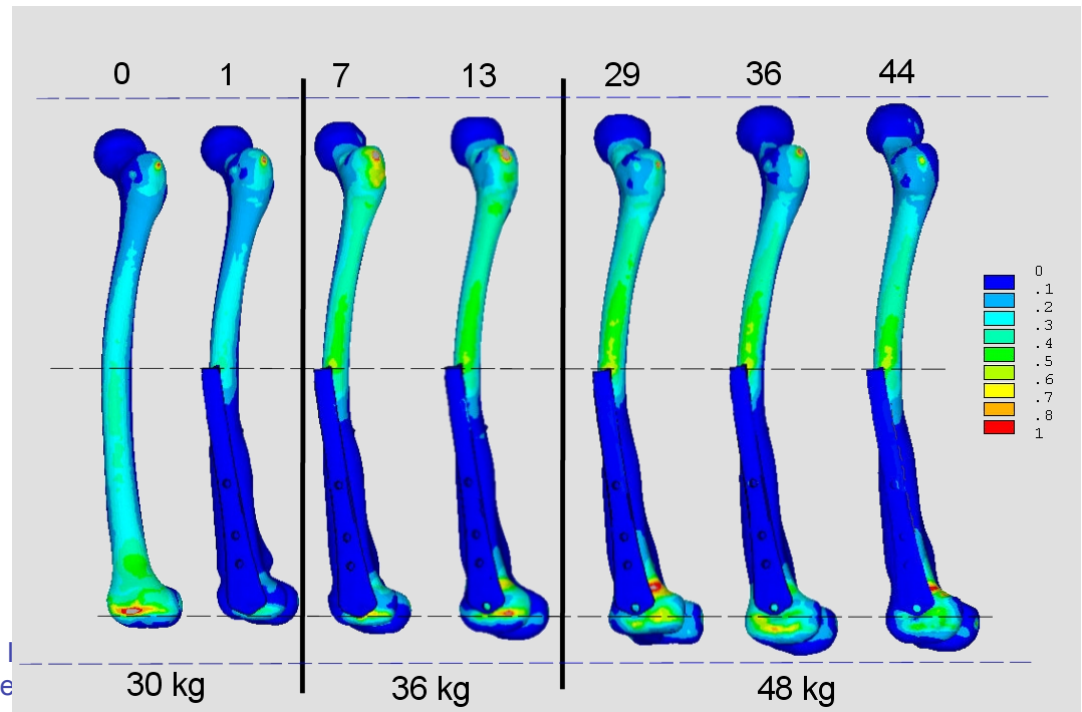
# Models in clinical use



Istituto Ortopedico Rizzoli



Pre-op    1 month    7 months    13 months    29 months    36 months    44 months



# Thank You!!