VPH Institute
Building the Virtual Physiological Human

VPHi Survey for mapping the use of computer models & simulations in clinical settings

1. Please indicate your level of awareness with

	Not at all aware	Slightly aware	Moderately aware	Very aware	Extremely aware
In silico medicine	☐	☐	☐	☐	☐
Patient-specific modelling	☐	☐	☐	☐	☐
In silico clinical trials	☐	☐	☐	☐	☐
Virtual Physiological Human	☐	☐	☐	☐	☐
Personalized medicine	☐	☐	☐	☐	☐
Digital Twin	☐	☐	☐	☐	☐

2. Please specify the technical backgrounds included in your team (please select all that apply)

- [ ] Biomedical Engineering
- [ ] Computer Science
- [ ] Data Science
- [ ] Other (please specify)
- [ ] Statistics
- [ ] Mathematics

3. Please indicate your level of familiarity with the following computer modelling and simulation methodologies:

	Not at all familiar	Slightly familiar	Moderately familiar	Very familiar	Extremely familiar
Finite Element Analysis	○	○	○	○	○
Lumped-parameter models	○	○	○	○	○
Computational Fluid Dynamics	○	○	○	○	○
Fluid-structure interaction	○	○	○	○	○
Multi-scale (1D-3D)	○	○	○	○	○
Extended (e.g. Augmented, Virtual, Mixed) reality	○	○	○	○	○
Artificial Intelligence/Machine Learning	○	○	○	○	○
Statistical shape modelling	○	○	○	○	○

4. Please select all computer modelling and simulation methodologies that you have actually

applied to your practice

- [ ] Finite Element Analysis
- [ ] Lumped-parameter models
- [ ] Computational Fluid Dynamics
- [ ] Fluid-structure Interaction
- [ ] Multi-scale (1D-3D) modelling
- [ ] Extended (e.g. Augmented, Virtual, Mixed) reality
- [ ] Artificial Interlligence/Machine Learning
- [ ] Statistical Shape Modelling
- [ ] None
- [ ] Other (please specify)

5. Do you have team members dedicated to computer modelling and simulations?

- ◯ Yes
- ◯ No

6. If any, are your team members dedicated to computer modelling and simulation based within the clinical premises?

- ◯ Yes
- ◯ No
- ◯ N/A

7. Do you see a role for expertise on computer

7. Do you see a role for expertise on computer modelling and simulation in your team in the next 5 years?

- ◯ Definitely yes
- ◯ Probably yes
- ◯ Not sure
- ◯ Probably not
- ◯ Definitely not

8. Do you agree with the following sentences?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Computer modelling and simulation provides me with more confidence in planning procedures	◯	◯	◯	◯	◯
Patient-specific computer modelling and simulation is accurate enough for clinical application	◯	◯	◯	◯	◯
Patient-specific computer modelling and simulation is slow	◯	◯	◯	◯	◯

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I have access to high performance computing	○	○	○	○	○
There is no need for expertise on computer modelling and simulation in my team	○	○	○	○	○
Results of computer modelling and simulation are easy to understand	○	○	○	○	○
It would be impossible to finance a position for an expert in computer modelling and simulation in my institute	○	○	○	○	○
Computer modelling and simulation allows me to perform procedure faster	○	○	○	○	○

9. I have used computer modelling and simulation to (please select all that apply):

to (please select all that apply):

- [ ] Enrich diagnosis
- [ ] Plan interventions
- [ ] Compare different therapeutic outcomes (retrospectively)
- [ ] Teach
- [ ] Study Pathophysiology
- [ ] Inform the patient on disease progress
- [ ] Predict/compare therapeutic outcomes
- [ ] None of the above
- [ ] Other (please specify)

10. Have you used computer modelling and simulations for planning procedures?

- ◯ Yes
- ◯ No

11. If you have used computer modelling & simulation to plan interventions, please specify the medical field

- [ ] Cardiovascular
- [ ] Musko-skeletal
- [ ] Cancer
- [ ] Neuro-degenerative
- [ ] N/A
- [ ] Other (please specify)

12. If any, please name the procedures you used them for:

13. How often have you used them over the last year?

- ◯ Less than 5
- ◯ 5-10 times
- ◯ 11-20 times
- ◯ >20 times

14. On a scale from 1 to 10, how much do you trust the computer modelling and simulation you use?

1 10

15. Which kind of evidence would you require to trust the outcome of computer modelling & simulation (Please select all that apply)?

- ☐ Successful post-hoc in silico clinical trials
- ☐ Successful a priori in silico clinical trials
- ☐ Personal positive experience
- ☐ Regulatory approval
- ☐

☐ Other (please specify)

16. And to conclude, please address the following questions about yourself.

Which is your medical specialty?

17. In what country do you currently work?

18. What is your current position?

19. What is your age group?

- ◯ 25-34
- ◯ 35-44
- ◯ 45-54
- ◯ 55-64
- ◯ 65+

20. Approximately, how many journal articles have you published?

21. How many grants have you been awarded that include computer modelling and simulation?

- ◯ None
- ◯ 1-5
- ◯ 6-10
- ◯ >10

22. If any, please provide an estimate of the total amount of funding awarded from grants including (but possibly not only) computer modelling and simulation?

23. Do you have on-going collaborations within in the field of computer modelling and simulation (e.g. joint grants, research projects leading to joint publications etc) in the following parts of the world (please select all that apply)?

- ☐ Europe
- ☐ Africa
- ☐ North America
- ☐ Asia
- ☐ South America
- ☐ Oceania

24. Have you ever been involved in conducting a clinical trial of a healthcare technology?

- ◯ Yes

- ◯ No

25. Have you ever been involved in CE marking/FDA/EMA submission for a healthcare technology?

- ◯ Yes
- ◯ No

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