Part 1

Machine Learning/ Deep Learning in RT

Clinical Setting

1. What is your profession

[⇕]

2. Number of patients treated in your institution per year

[⇕]

3. Please fill in institution details

What is the name of your institution?

[   ]

In which city is your institution located?

[   ]

In which country is you institution located?

[   ]

What is your e-mail address?

[   ]

4. Is AI software in clinical use in your clinic?

○ Yes

○ No

Machine Learning/ Deep Learning in RT

If no AI software in clinical use:

5. Within which timeframe do you expect to use AI in your clinic

	<1y	1-2y	2-5y	don't know yet
Contouring	○	○	○	○
Planning	○	○	○	○
Machine qa	○	○	○	○
Synthetic CT	○	○	○	○
Other*	○	○	○	○

*please specify the application:

6. Are you preparing to use AI in clinic

○ Yes (please fill out remaining of survey as how you plan/foresee the use of your AI application)

○ No (please specify why not (yet))

If Yes AI software in clinical use and preparing to use AI in clinic:

5. What kind of AI software do you use in your clinic? please specify per application

	Commercial software	Home-made software
Contouring	○	○
Planning	○	○
Machine QA	○	○
Synthetic CT	○	○
Other*	○	○

6. What is the type of model (please specify most appropriate answer per application)?

	Machine Learning (non CNN)	Deep Learning (CNN)	I don't know
Contouring	○	○	○
Planning	○	○	○
Machine QA	○	○	○
Synthetic CT	○	○	○
Other*	○	○	○

*please specify the application:

Part 2

7. Has your department been involved in model training?

	Yes, model is trained using our own data	No, model was purchased from vendor
Contouring	○	○
Planning	○	○
Machine QA	○	○
Synthetic CT	○	○
Other*	○	○

*please specify the application:

8. How many patients have been used for model training?

	<100	≥100	≥200	≥500	Vendor trained
Contouring	○	○	○	○	○
Planning	○	○	○	○	○
Machine QA	○	○	○	○	○
Synthetic CT	○	○	○	○	○
Other*	○	○	○	○	○

*please specify application:

9. Did you perform quality control of patients selected for model training?

	Yes*	No
Contouring	○	○
Planning	○	○
Machine QA	○	○
Synthetic CT	○	○
Other	○	○

*please specify what was done:

10. Has a risk analysis for your AI application been done?

○ No

○ Yes (please specify when and which type of risk assessment):

11. What kind of acceptance and commissioning tests did you perform (based on certain institutional/national/international guidelines or recommendations?) multiple options possible

☐ Scoring by RTT/ MD/ MP on acceptance/ quality

☐ Time saving analysis

☐ Objective measures

Please specify number of patients and which objective measures (if applicable):

Part 3

12. Do you perform regular QA on your AI-application?

☐ No

☐ Manual interactions are monitored/ evaluated

☐ Yes (please specify frequency and type of QA test):

13. Are human observers involved in daily clinical use of your AI application (quality check)?

○ Yes

○ No

14. Did you consider how to deal with GDPR for your (future) home-made applications?

○ Yes

○ No

○ I don't know

Please explain (Have you already taken measures?):

15. Privacy: Are you able to share your data with 3rd parties?

○ Yes

○ No

○ Only if informed consent is available

○ Only if informed consent and data sharing agreement is available

Optional comment:

16. What is your main reason to use AI in your clinic? Please rank in order of importance

☰	⇕	Save time
☰	⇕	Save resources
☰	⇕	Improve quality
☰	⇕	Increase consistency

Part 4

Machine Learning/ Deep Learning in RT

Need for training and guidelines

17. How would you describe your level of expertise on Machine Learning/ Deep Learning

◯ Beginner

◯ Basic (I followed some machine learning courses)

◯ Advanced (I work on training models myself)

◯ Pro (I know how to tune the model and apply new methods myself)

18. Which applications of AI do you expect in your clinic within the next 5 years? (multiple options possible)

☐ Contouring

☐ Planning

☐ Machine QA

☐ Synthetic CT

☐ Decision making

☐ None

Optional comment:

19. What is needed for broader adoption of AI in clinic (please rank in order of importance)

☰	⇕	Training medical doctors and technicians
☰	⇕	Training medical physicists
☰	⇕	Employ AI experts
☰	⇕	Introduce patient specific QA tools (i.e. independent check)
☰	⇕	Introduce man-machine interfaces
☰	⇕	Larger databases including multi-center data
☰	⇕	Better AI models

20. Do you think ESTRO should offer a course on Machine Learning/ Deep Learning?

☐ No, there are plenty of courses available

☐ Yes, for physicists to increase knowledge or get started on building and training your own models

☐ Yes, for physicists to aid in commissioning and implementation of models in your clinic

☐ Yes, multidisciplinary on how to use models in the clinic and what to expect from it

☐ Other suggestions:

21. Do you think ESTRO should provide guidelines on QA and use of Machine Learning/ Deep Learning?

○ No

○ Yes

Other suggestions: