Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

OAR	Mean dMax to OAR (Gy)			Mean dMean to OAR (Gy)		
	3DCRT	VMAT	p-value	3DCRT	VMAT	p-value
Floor of mouth	**64.89**	**62.22**	**0.00034**	45.74	44.89	0.25014
Genioglossus muscles	**61.17**	**58.71**	**0.00062**	40.44	41.78	0.88076
Hyoglossus/styloglossus muscles complex (right)	64.15	63.62	0.13362	**56.67**	**54.45**	**0.00374**
Hyoglossus/styloglossus muscles complex (left)	64.42	63.28	0.06432	**56.39**	**54.37**	**0.01390**
Intrinsic tongue muscles	58.97	58.50	0.23014	25.02	30.84	0.07030
Longitudinal pharyngeal muscles	61.86	63.05	0.38430	**49.63**	**46.05**	**0.00438**
Constrictor muscles	65.03	65.89	0.39532	**56.23**	**53.76**	**0.00120**
Thyrohyoid muscles (right)	**67.12**	**64.16**	**0.00072**	**64.36**	**60.42**	**0.00034**
Thyrohyoid muscles (left)	**67.06**	**64.28**	**0.00054**	**64.42**	**60.61**	**0.00024**
Arytenoids (right)	**62.55**	**59.98**	**0.00830**	**61.37**	**58.29**	**0.00374**
Arytenoids (left)	**62.51**	**60.37**	**0.01980**	**61.53**	**58.84**	**0.00960**
Pharyngeal axis	65.83	65.61	0.40654	**31.61**	**35.60**	**0.02510**
Base of tongue	63.74	63.17	0.58920	**56.18**	**52.36**	**0.00138**
Oral cavity	62.00	62.13	0.81034	29.09	33.25	0.09296
Esophagus	58.78	61.47	0.12114	33.60	33.18	0.15560
Submandibular gland (right)	**64.97**	**62.48**	**0.03400**	**62.33**	**56.79**	**0.00064**
Submandibular gland (left)	**65.58**	**64.16**	**0.00132**	**62.66**	**56.83**	**0.00054**
Remnant larynx	**67.88**	**65.88**	**0.00560**	**62.39**	**59.19**	**0.00128**

Table 1 Comparison between 3D conformal Radiotherapy (3DCRT) and Volumetric Modulated Arc Therapy (VMAT) techniques of the mean value of maximum doses (dMax) (2nd and 3rd columns) and the mean value of mean doses (dMean) (5th and 6th columns) absorbed to organs at risk. P-values from Wilcoxon-signed rank tests are also displayed (4th and 6th column), in bold if significant (p<0.05). Abbreviations: 3DCRT (3D Conformal Radiotherapy); dMax (Maximum dose); dMean (Mean dose); OAR (Organ At Risk); VMAT (Volumetric Modulated Arc Therapy).

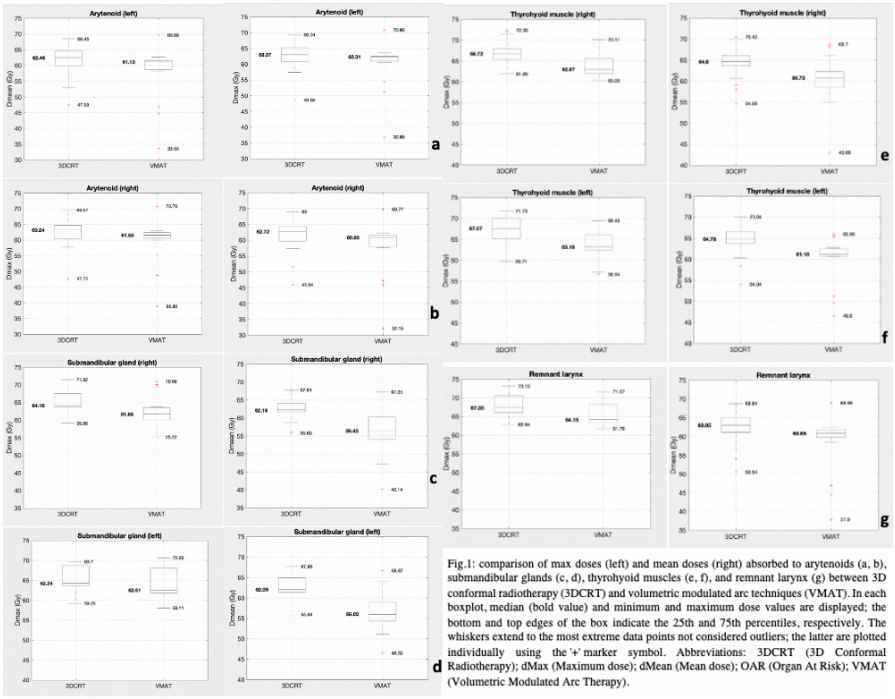

Fig.1: comparison of max doses (left) and mean doses (right) absorbed to arytenoids (a, b), submandibular glands (c, d), thyrohyoid muscles (e, f), and remnant larynx (g) between 3D conformal radiotherapy (3DCRT) and volumetric modulated arc techniques (VMAT). In each boxplot, median (bold value) and minimum and maximum dose values are displayed; the bottom and top edges of the box indicate the 25th and 75th percentiles, respectively. The whiskers extend to the most extreme data points not considered outliers; the latter are plotted individually using the '+' marker symbol. Abbreviations: 3DCRT (3D Conformal Radiotherapy); dMax (Maximum dose); dMean (Mean dose); OAR (Organ At Risk); VMAT (Volumetric Modulated Arc Therapy).

Conclusion

Severe long-term toxicity rate of CS followed by IMRT resulted to be low and seems to compare favourably with historical data of pts treated with the 3DCRT approach. The dosimetric analysis confirmed that IMRT allows a significant reduction of absorbed doses for the majority of analyzed structures compared to the 3DCRT approach.

PO-1115 First year survival data on COVID-19 outbreak during radiotherapy course in head and neck cancer

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Purpose or Objective
To evaluate the first year survival data of patients with head and neck cancer (HNC), whose radiation (RT) or chemo-radiation (CRT) course was affected by second wave of COVID-19 pandemic.

Materials and Methods
We have performed a retrospective review and identified patients with confirmed SARS-CoV-2 infection or quarantine during RT/CRT of HNC who were treated in 3 radiotherapy departments form September 2020 till January 2021. The quarantine was imposed due to a close contact with COVID-19 positive person e.g. after hospitalisation in the same patient's room. None of the patients was vaccinated prior to the treatment because the population-based vaccination program started in Poland in January 2021.
Log rank and univariate Cox test were used for two endpoints: overall survival (OS) and time to progression (TTP).

Results
36 patients (pts) with tumours in head and neck region were identified. Patients with sarcoma, paraganglioma, thyroid cancer and palliative RT were excluded (n=6). In total a cohort of 30 patients including squamous cell carcinoma (n=27), adenocarcinoma (n=2) and undifferentiated nasopharyngeal carcinoma (n=1) was farther evaluated. 50% (n=15) patients were treated with primary RT and 50% with adjuvant RT. Additionally, nine patients were treated with induction and/or concomitant chemotherapy. The median overall survival was 10.7 month (Range: 1-13.5). Three patients progressed (n=2 loco-regional, n=1 distant metastases), 11 patients died. 5 of them were categorised as COVID-19 related death, n=6 died in median 7.6 month after beginning of the treatment. 23 patients (77%) had SARS-CoV-2 infection confirmed and in the case of 7 patients RT was interrupted due to imposed quarantine. The median overall treatment time yield 56 days (9-106). 12 pts discontinue RT due to death (5 pts), deterioration of performance status (2 pts) and patients decision (7 pts, they received in median 85 % of prescribed radiation dose).
We did not observe a significant difference neither in log-rank test results for OS and TTP between COVID-19 and quarantine group (p=0.605 and p=0.135 respectively) nor on Cox univariate analysis (p=0,589). In subgroup of COVID-19 positive group there was a significant correlation between OS and duration of treatment interruption (p=0.047). The age, hypertension, cardiac diseases, chemotherapy or radiation dose received before treatment interruption did not correlate with OS.

Conclusion
In our cohort of patients COVID-19 infection did not worsen the survival probability in comparison to patients with quarantine, however the death ratio at median follow-up of 10.7 month yield 37%, which is high for curative treatment setting in head and neck cancer patients. More than half of death cases were COVID-19 related. Farther observation and evaluation of larger cohorts of patients, especially in vaccinated population is planned.

PO-1116 Towards Privacy-Preserving Federated Deep Learning infrastructure : proof-of-concept

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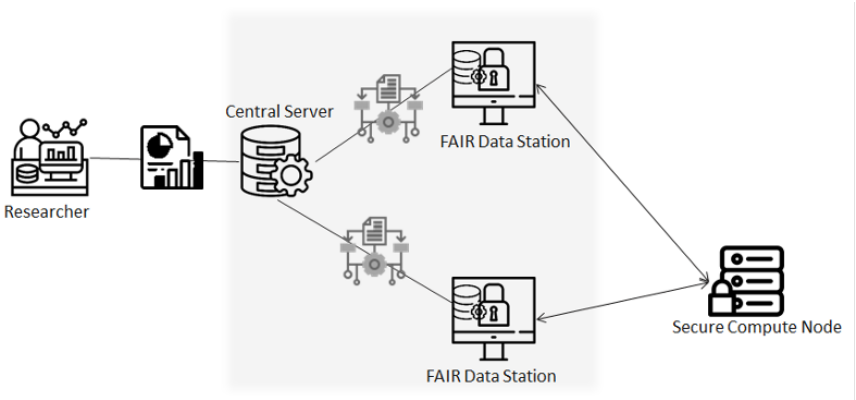
Purpose or Objective
Deep learning (DL) has immense potential to revolutionise healthcare. Several Federated DL solutions have been proposed to access massive repositories of private data, without transferring subject data from the host devices. There remain concerns about potential privacy violation via "reconstructing" individually-identifiable subject data by exploiting model weights from host institutions. We propose a methodology for federated DL that addresses this risk through cloud-server architecture design.



Experiments	1 epoch x 200 iterations	2 epoch x 100 iterations	5 epoch x 40 iterations
Training	0.76 (95% CI: 0.55-0.77)	0.70 (95% CI: 0.52- 0.75)	0.74 (95% CI: 0.57-0.82)