recurring tumors (actuarial 5-yr 44% vs 0% p<0.05). Four cases of mandibular osteoradionecrosis were seen (cumulative dose range 106-128 Gy). Fifty-three patients received a cumulative dose of 100 Gy or higher. The actuarial 5-year mandibular necrosis rate in this group was 26%.

Conclusion: Re-irradiation in the head and neck region for a recurrent or second primary malignancy is associated with LRC-rates of 40%. Results in patients re-irradiated postoperatively are more favorable. Approximately one in six patients survived at 5 years without a recurrence or a serious late toxicity. The most important limitation for re-irradiation is late toxicity, which can be limited with current IMRT techniques.

**EP-1100**
External validation of a mixture NTCP model of radiation-induced hypothyroidism (HT)
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**Purpose or Objective:** We have previously developed a mixture NTCP model for radiation-induced HT in a cohort of patients with head and neck cancer treated at the Department of Oncology, Odense University Hospital (OUH), Denmark. The model was validated in an independent cohort of patients treated at the Department of Oncology, Aarhus University Hospital (AUH). One plasma TSH assessment after RT was used in the external validation cohort and the latency time function of the model could therefore not be validated. The aim of this study was to validate the latency function by including repeated thyrotropin (TSH) measurements and a longer follow-up in the validation cohort.

**Material and Methods:** Initially, 198 patients were included in the validation cohort. From July 2012-October 2014 further TSH measurements were collected in 171/198 patients, increasing the median follow-up from 22 to 38 months after RT. The endpoint, HT, was defined as TSH>4.0 mU/l. Data were analyzed using a mixture model taking both thyroid volume (Vthyroid) and dose (Dmean) into account. From the repeated binomial samples, latency was estimated and both the latency time function and NTCP models in AUH were compared to OUH. Validation was performed using a calibration plot of binned groups of patients showing the clinically observed outcome in the validation cohort compared with the predicted outcome from the original NTCP model.

**Results:** With the additional follow-up, 40 patients (20%) developed HT (19 after one TSH assessment). Dmean and Vthyroid were still significant risk factors for HT, OR=1.1 (1.06-1.19) and OR=0.85 (0.74-0.93), respectively. The cumulative events showed that 94% (59-100%) of the events would develop within the first five years after RT in the validation cohort, in line with the original cohort’s 97% (85-100%). Mean thyroid volumes were 17.4 (OUH) and 17.3 (AUH) cm3, and tolerance estimates around this level showed TD25 =38 Gy and 34 Gy, respectively, at 15 cm3 and 48 Gy and 42Gy, respectively, at 20 cm3. The calibration plot (Fig. 1) showed good agreement between the observed incidences of HT in the validation group versus the expected probability of HT from the original model. Thus, the NTCP model has external validity in the cohort with multiple blood tests.

**Conclusion:** Increasing thyroid dose and a decreasing thyroid volume were confirmed as significant risk factors for radiation-induced HT, which likely develops within the first five years after RT. The calibration plot shows that the original NTCP model has external validity, supporting that risk estimates from the NTCP model may be used to support clinical treatment planning decisions relating to development of hypothyroidism after RT to the neck area.

**EP-1101**
Knowledge of HNC risk factors and symptoms - a survey among 1903 young Polish respondents
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**Purpose or Objective:** Head and neck cancer (HNC) is the sixth most common type of cancer in Europe. Its early symptoms are usually non-specific and easy to miss, which in many patients lead to late presentation and diagnosis. Main risk factors of HNC include alcohol consumption and smoking. Both of them are usually present in young people, thus health education in this group is of great importance. The aim of the study was to assess the level of HNC awareness among young population in Poland.

**Material and Methods:** An anonymous online survey about HNC was conducted among 1903 people in the age of 18-35 years, mainly students of high schools and universities. The closed-ended questions concerned HNC risk factors, symptoms and prognosis. Participation in the study was voluntary.

**Results:** 85% of respondents had heard about HNC. The main source of information was the Internet (57%). Seventy-eight percent of participants associated smoking with HNC development, but alcohol consumption was mentioned by less than a half, and human papillomavirus (HPV) infection by approximately ¼ of them. The main risk factors mentioned by students of non-medical schools included smoking (66%), stress (33%), and excessive sunbathing (32%). One fourth of the respondents (38% when excluding medical students) were unaware of any HNC early symptoms. The symptoms mentioned most often included chronic hoarseness (55%), lump in the neck (52%), and chronic sore throat (51%). Over ¼ of medical students and half of other respondents were aware that early diagnosis is associated with a great chance...