

and outcomes. National ADI ranking was assigned to each patient's geocoded address.

**Results:** This analysis included 574 adult patients with TGCT in the US (median age: 43.6 years; 73.5% female). Of these, 123 patients (21.4%) were in the most disadvantaged neighborhood ADI decile. Compared to those in less disadvantaged neighborhood ADI deciles, patients in the most disadvantaged group had significantly higher rates of misdiagnosis (64.2% vs 46.7%,  $p < 0.01$ ), longer diagnostic delays (65.1% vs 57.4% had symptoms for  $> 12$  months prior to diagnosis), underwent more tumor resections ( $3.3 \pm 1.6$  vs  $2.2 \pm 1.7$ ,  $p < 0.05$ ) and were more likely to receive joint replacements (16.3% vs 7.8%,  $p < 0.01$ ). They also experienced higher local recurrence rates (56.9% vs 45.5%,  $p < 0.05$ ), and were less likely to receive systemic therapies (27.5% vs 16.3%,  $p < 0.01$ ). Notably, patients from the most disadvantaged group were not enrolled in clinical trials.

**Conclusion:** Results of this analysis suggest that adverse social exposome, as measured by ADI, is associated with significant disparities in the diagnosis and management of TGCT. This analysis does not consider the transient nature of living situations and temporality biases. Further research is needed to understand the impact of sociodemographic indicators on the clinical care of TGCT.

**Table. Patient treatments and recurrences**

	Less Disadvantaged (n=451, 78.6%)	More Disadvantaged (n=123, 21.4%)	Total (n=574) (n, % column)
Mean surgeries $\pm$ SD	2.2 $\pm$ 1.7*	3.3 $\pm$ 1.6*	2.2 $\pm$ 1.7
Recurrence, n (%)	205 (45.5)**	70 (56.9)**	275 (47.9)
1 recurrence	88 (19.5)	23 (18.7)	111 (19.3)
$\geq 2$ recurrences	117 (25.9)**	47 (38.2)**	164 (28.6)
Systemic therapies, n (%)	124 (86.1)	20 (13.9)	144 (25.1)
Pexidartinib	93 (75.0)	15 (75.0)	108 (75.0)
Imatinib	35 (28.2)**	10 (63.0)**	45 (31.3)
Investigational Agents	24 (19.4)**	0 (0.0)**	24 (16.7)

Footnotes: \*  $p < 0.05$  determined by two-sided t-test. \*\*  $p < 0.05$  determined by Mantel-Haenszel  $\chi^2$

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### LONGTERM BURDEN OF DISEASE AND LIVING SITUATION IN DESMOID PATIENTS - A NON-INTERVENTIONAL STUDY

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**Objective:** Desmoid Tumors (aggressive Fibromatosis; DT) are rare soft tissue tumors that typically affect young adults, predominantly women and can lead to significant long-term morbidity. While its physical burden is well characterized, less is known about its long-term psychosocial and functional impact. This study aims to explore how DT affects employment, career development, family planning, and support needs from a patient-centered perspective.

**Methods:** We analyzed data from 109 participants suffering from DT who were recruited via a tertiary cancer center and a national patient advocacy group. The cohort has a median disease history of ten years. Quantitative data on employment,

fertility planning, and unmet needs were collected via structured questionnaires. Qualitative input from patient commentaries complemented these findings.

**Results:** The mean age at survey was 45.7 years (SD = 14.1); mean age at diagnosis was 35.8 years (SD = 14.5). Among those employed full-time at diagnosis (n = 49), 51.0% (n = 25) changed their career path, primarily due to physical (89.9%, n = 44) and psychological limitations (56.2%, n = 27). Financial losses were reported by 52.2% (n = 24) of those affected. Of participants with incomplete family planning (n = 59), 79.7% expressed at least moderate desire for children, yet only 17.0% (n = 10) received counseling from reproductive medicine specialists. Unmet needs were most common for fear of progression (medium/high: 31.5%, n = 34) and uncertainty about the future (35.8%, n = 39). Emotional support needs declined over time ( $p = 0.050$ ).

**Conclusion:** DT has a sustained impact on patients' lives. Structured return-to-work support, fertility counseling, and psychosocial care should be integrated into the care pathway to address the long-term needs of this predominantly young patient population.

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### PREDICTING FAILURE OF ACTIVE SURVEILLANCE IN DESMOID-TYPE FIBROMATOSIS USING RADIOMICS: AN INTERNATIONAL MULTI-CENTER STUDY

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**Objective:** Active surveillance (AS) is the recommended first-line approach for Desmoid-type fibromatosis (DTF). However, nearly a third of patients require active treatment. Identifying patients who will fail AS will help to choose the appropriate strategy upfront, leading to a more personalized treatment approach. Radiomics could provide a tool for this by capturing imaging patterns that may reflect underlying tumor biology related to progression or regression of DTF. This study aimed to assess whether radiomics can predict failure of AS in patients diagnosed with DTF.

**Methods:** This international multicenter study included data from three sarcoma centers in the Netherlands (NL), Italy (ITA), and Canada (CAN). Adult patients with extra-abdominal DTF initially managed with AS and an available baseline MRI were included. Clinical data on patient and tumor characteristics, tumor behavior during AS and failure of AS were collected. Failure of AS was defined as the initiation of active treatment. Tumors were segmented using minimally interactive deep learning-based segmentation, and radiomics features were extracted from T1w and T2w MRI scans. Prediction models to predict failure of AS vs. no failure were created using a combination of various machine learning approaches. Both an internal cross-validation using all available data and a leave-one-center-out external validation were used to assess the model's performance.

**Results:** A total of 223 patients were included (80 NL, 73 ITA, 70 CAN). During a median follow-up of 36 months, AS failed in 26% of patients (table). Internal validation of the T1w+T2w imaging model resulted in an overall AUC of 0.74 (95% CI: 0.54, 0.94). External validation resulted in an AUC of 0.61 (0.46, 0.75) in the Dutch cohort, 0.79 (0.63, 0.95) in the Italian cohort, and 0.75 (0.62, 0.89) in the Canadian cohort.

**Conclusion:** Predicting failure of AS with radiomics showed a reasonable performance and generalized well in the Italian and Canadian cohorts. However, the performance was lower in the Dutch cohort, highlighting potential challenges in cross-center generalizability.

**Patient characteristics of the Dutch, Italian and Canadian study cohorts**

	Dutch cohort N = 80	Italian cohort N = 73	Canadian cohort N = 70	Total cohort N = 223	P-value
Gender, female (%)	64 (80)	62 (85)	53 (76)	179 (80)	0.549
Age at diagnosis, years <sup>a</sup>	36.0 [32.0, 47.0]	39.0 [34.0, 46.0]	34.0 [30.0, 47.0]	38.0 [33.0, 47.0]	0.645
Tumor location, n (%)					0.001
Abdominal wall	30 (38)	41 (56)	51 (73)	122 (55)	
Extremities	20 (25)	11 (15)	7 (10)	38 (17)	
Chest wall	18 (23)	18 (25)	7 (10)	43 (19)	
Breast	6 (8)	0 (0)	2 (3)	8 (4)	
Head/neck	6 (8)	3 (4)	3 (4)	12 (5)	
Mutation status, n (%)					0.248 <sup>b</sup>
T4TA	42 (53)	38 (52)	0	80 (36)	
S4SF	10 (13)	8 (10)	0	18 (8)	
S4SP	13 (16)	13 (18)	0	26 (12)	
WT	6 (8)	9 (12)	0	15 (7)	
Other	3 (4)	5 (7)	0	8 (4)	
Unknown	6 (8)	0	80 (100)	86 (39)	
Tumor size at intake <sup>c</sup> , cm	5.0 [3.4, 7.1]	5.1 [4.0, 8.0]	6.0 [4.5, 7.4]	5.5 [3.8, 7.6]	0.151
Follow-up period, months <sup>a</sup>	33.5 [17.5, 45.2]	39.5 [15.0, 56.2]	35.0 [24.2, 61.5]	35.5 [19.0, 51.8]	0.001
Time between diagnosis and first available imaging, months <sup>a</sup>	4.1 [1.1, 6.5]	1.3 [0.7, 1.9]	2.6 [1.3, 4.9]	1.9 [0.8, 4.6]	<0.001
Initial RECIST progression, n (%)	28 (35)	32 (44)	24 (34)	84 (38)	0.413
Time to first RECIST progression, months <sup>a</sup>	7.5 [4.8, 15.2]	6.0 [4.0, 10.5]	7.0 [4.0, 13.5]	7.0 [4.0, 12.0]	0.537
Treatment during follow-up, n (%)	22 (28)	16 (22)	19 (27)	57 (26)	0.557
Time to treatment, months <sup>a</sup>	10.0 [6.5, 15.8]	6.5 [4.0, 15.2]	15.0 [9.0, 23.5]	10.0 [6.0, 16.0]	0.103

P-values < 0.05 are presented in bold.

<sup>a</sup>Presented as median [IQR].

<sup>b</sup>Fishers Exact Test between the Dutch and Italian cohort. The Canadian cohort was excluded from the analysis since gene mutation analysis was performed for none of the patients

<sup>c</sup>Measured on first available MRI used for radiomics analysis.

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**DEMOGRAPHIC, RACIAL, AND GEOGRAPHIC DISPARITIES IN MORTALITY AND PLACE OF DEATH AMONG PATIENTS WITH BONE AND CARTILAGE TUMORS: A NATIONAL POPULATION-BASED STUDY**

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**Objective:** Bone and cartilage tumors are rare, aggressive, and show variable outcomes, but national data on sociodemographic mortality disparities are limited.

**Methods:** We utilized the CDC WONDER database to analyze mortality data for bone and cartilage tumors in the United States from 1999 to 2020 using C40 and C41 International Classification of Diseases 10 classification. We assessed mortality trends by race, ethnicity, age, sex, region and PoD. Odds ratios (OR) with 95% confidence intervals (CI) and p-values were computed using logistic regression to evaluate the association of these factors with PoD specially hospice utilization.

**Results:** Among 31,990 deaths from bone and cartilage tumors, most were White (82%), followed by Black (10.6%), Asian/Pacific Islander (A/PI) (5%), and American Indian/Alaska Native (1.6%). The overall Age-Adjusted Mortality Rate (AAMR) was 0.45 per 100,000, lowest in A/PI (0.26) while highest in Whites and Blacks (0.46). Hispanic individuals had a lower AAMR (0.40) compared to non-Hispanics (0.46). AAMR was higher in rural areas (0.56) compared to urban areas (0.43) with highest being in Mississippi (1.08). Crude Mortality Rates (CMR) increased from 0.47 in individuals aged 15–24 to 3.43 per 100,000 in those aged 85 and older.

The most common PoD were home (44.6%) followed by inpatient medical facilities (27.0%). Hospice utilization accounted for 7.1% of all deaths. Blacks had significantly higher odds of dying in inpatient, ER/outpatient settings, and being dead on arrival compared to Whites (Table). In contrast, blacks were significantly less likely to die at home. Younger individuals (< 65 years) had lower odds of dying in outpatient/ER settings (OR = 0.71), being dead on arrival (OR = 0.33), and in hospice facilities (OR = 0.87). (All p respectively < 0.01). Hospice utilization was highest in the South (7.9%), with maximum state wise-utilization in Delaware (24.6%) and Florida (22.6%). In contrast, California and Minnesota had the lowest hospice utilization.

**Conclusion:** Black individuals were more likely to die in acute care settings and less likely at home compared to White individuals. Hospice utilization remained low overall, with notable variation by region and state. These findings highlight the need for targeted interventions to address disparities in EOL care and improve hospice access for patients with bone or cartilage tumors.

**Odds of Place of Death for Black vs White Individuals with Bone and Cartilage Tumors**

Place of Death	Odds Ratio (Black vs White)	95% Confidence Interval	p-value
Inpatient Medical Facility	1.78	1.66 - 1.91	<0.001
Outpatient/ER	6.30	5.23 - 7.58	<0.001
Dead on Arrival	5.01	2.69 - 9.33	<0.001
Decedent's Home	0.65	0.61 - 0.69	<0.001
Hospice Facility	1.00	0.87 - 1.15	0.989
Nursing Home/Long-term Care	1.10	0.98 - 1.22	0.101

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**HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH A HEAD AND NECK SARCOMA: A MIXED-METHODS STUDY**

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**Objective:** Patients with head and neck sarcoma (HNS) face unique health-related quality of life (HRQoL) challenges due to its disease rarity. This study examined and identified the prevalence of generic- and location-specific HRQoL issues.

**Methods:** Quantitative data from 72 HNS survivors (SURVSARC study), and qualitative data from 18 HNS patients (EORTC QoL VOICE study) were examined. Descriptive