# **Histological tumour type** (Required)

**Reason/Evidentiary Support**

The classification of testicular tumours is taken from the World Health Organisation (WHO) 2016 classification.[1]

## WHO classification of tumours of the testis and paratesticular tissue[a1]

| **Descriptor** | **ICD-O codes** |
|---|---|
| **Germ cell tumours derived from germ cell neoplasia in situ (GCNIS)** | |
| *Non-invasive germ cell neoplasia* | |
| Germ cell neoplasia in situ | 9064/2 |
| Specific forms of intratubular germ cell neoplasia | |
| *Tumours of one histological type (pure tumours)* | |
| Seminoma | 9061/3 |
| Seminoma with syncytiotrophoblast cells | |
| Non-seminomatous germ cell tumours | |
| Embryonal carcinoma | 9070/3 |
| Yolk sac tumour, postpubertal-type | 9071/3 |
| Trophoblastic tumours | |
| Choriocarcinoma | 9100/3 |
| Non-choriocarcinomatous trophoblastic tumours | |
| Placental site trophoblastic tumour | 9104/3 |
| Epithelioid trophoblastic tumour | 9105/3 |
| Cystic trophoblastic tumour | |
| Teratoma, postpubertal-type | 9080/3 |
| Teratoma with somatic-type malignancies | 9084/3 |
| *Non-seminomatous germ cell tumours of more than one histological type* | |
| Mixed germ cell tumours | 9085/3 |
| *Germ cell tumours of unknown type* | |
| Regressed germ cell tumours | 9080/1 |
| **Germ cell tumours unrelated to germ cell neoplasia in situ** | |
| Spermatocytic tumour | 9063/3 |
| Teratoma, prepubertal type | 9084/0 |
| Dermoid cyst | |
| Epidermoid cyst | |
| Well-differentiated neuroendocrine tumour (monodermal teratoma) | 8240/3 |
| Mixed teratoma and yolk sac tumour, prepubertal-type | 9085/3 |
| Yolk sac tumour, prepubertal-type | 9071/3 |
| **Sex cord-stromal tumours** | |
| *Pure tumours* | |
| Leydig cell tumour | 8650/1 |
| Malignant Leydig cell tumour | 8650/3 |
| Sertoli cell tumour | 8640/1 |
| Malignant Sertoli cell tumour | 8640/3 |

| Descriptor | ICD-O codes |
|---|---|
| Large cell calcifying Sertoli cell tumour | 8642/1 |
| Intratubular large cell hyalinizing Sertoli cell tumour | 8643/1 |
| Granulosa cell tumour | |
| Adult granulosa cell tumour | 8620/1 |
| Juvenile granulosa cell tumour | 8622/0 |
| Tumours in the fibroma-thecoma group | 8600/0 |
| *Mixed and unclassified sex cord-stromal tumours* | |
| Mixed sex cord-stromal tumour | 8592/1 |
| Unclassified sex cord-stromal tumour | 8591/1 |
| **Tumour containing both germ cell and sex cord-stromal elements** | |
| Gonadoblastoma | 9073/1 |

a The morphology codes are from the International Classification of Diseases for Oncology (ICD-O). Behaviour is coded /0 for benign tumours; /1 for unspecified, borderline, or uncertain behaviour; /2 for carcinoma in situ and grade III intraepithelial neoplasia; and /3 for malignant tumours.



**Percentage of different tumour components in mixed germ cell tumours**

The percentage of the different tumour elements has been shown to be predictive of the relapse risk in non-seminomatous germ cell tumours (NSGCT), especially the percentage of embryonal carcinoma. As well as the percentage of embryonal carcinoma as a core data item, the approximate percentages of other tumour elements should also be given. The presence of lymphovascular invasion (LVI), embryonal carcinoma and yolk sac tumour were risk factors for relapse in a study of 132 patients.[2] A second study showed that 25/85 men who had predominantly embryonal carcinoma histology relapsed.[3] Of 93 men with stage I NSGCTs who were placed in a surveillance study following orchidectomy, 81 men had predominantly embryonal carcinoma component in their primary tumour and a third of these developed metastases, whereas none of the men lacking an embryonal carcinoma component developed metastases (p=0.05).[4] An older surveillance study in 373 men with stage I NSGCT suggested that 'undifferentiated cells' and the absence of yolk sac elements in the primary tumour were able to identify men with a high risk of relapse.[5]

Giving 'exact' percentages in a mixed non-seminomatous germ cell tumour may be challenging, as some elements may be extremely small, and it may occasionally be difficult to distinguish closely intermingled elements (such as yolk sac tumour and embryonal carcinoma). We suggest that only basic 'eyeball' style quantitation is required. For example, the difference between 10% embryonal carcinoma and 90% embryonal carcinoma may be important in determining the need to adjuvant therapy. However a difference of 5 or 10% is likely insignificant. For NSGCTs which are of pure type, then the percentage of the pure type should be listed as 100%.

Mention of areas of scarring is helpful, particularly in pure seminoma or teratoma cases as they may indicate areas of regression, which might have represented other tumour types. These findings can explain the occasional discordance between the orchidectomy tumour type and that seen in metastatic deposits.

**References**


1 World Health Organization (2016). *World Health Organization (WHO) Classification of tumours. Pathology and genetics of the urinary system and male genital organs*. Moch H, Humphrey PA, Reuter VE, Ulbright TM. IARC Press, Lyon, France.

2 Atsu N, Eskicorapci S, Uner A, Ekici S, Gungen Y, Erkan I, Uygur MC and Ozen H (2003). A novel surveillance protocol for stage I nonseminomatous germ cell testicular tumours. *BJU Int* 92(1):32-35.

3 Nicolai N and Pizzocaro G (1995). A surveillance study of clinical stage I nonseminomatous germ cell tumors of the testis: 10-year followup. *J Urol* 154(3):1045-1049.

4 Dunphy CH, Ayala AG, Swanson DA, Ro JY and Logothetis C (1988). Clinical stage I nonseminomatous and mixed germ cell tumors of the testis. A clinicopathologic study of 93 patients on a surveillance protocol after orchiectomy alone. *Cancer* 62(6):1202-1206.

5 Read G, Stenning SP, Cullen MH, Parkinson MC, Horwich A, Kaye SB and Cook PA (1992). Medical Research Council prospective study of surveillance for stage I testicular teratoma. Medical Research Council Testicular Tumors Working Party. *J Clin Oncol* 10(11):1762-1768.