Annotation Guide - GGPONC 2.0

The definition of entity classes follows the concept hierarchy in SNOMED CT.
In general, when the definition of a concept is unclear, we advise you to check the SNOMED CT Browser.

General Rules

	Rule	Remarks	Examples
0.1	Compound nouns should be annotated as a single entity	• Tokens connected by hyphens usually belong to the same entity • Missing hyphens due to orthographical errors should be considered as being present (“HPV Infektion”)	• **[Vitamin D]**[Substance] • **[LSIL-Patientinnen]**[Finding] • **[Röntgen-Thorax]**[Procedure] • **[HPV Infektion]**[Finding] • **[Hodgkin Lymphom]**[Finding] • **[5-Jahres PFS]**[Finding]
0.2	Entity annotation spans should be as short as possible	• Modifiers (mostly adjectives or adverbs) should be annotated separately using the *Specification* class (also see below) • the same applies to disease subtypes and dosage information	• **<*essentielle*>**[Spec →] **[Spurenelemente]**[Substance] • **<*supportive*>**[Spec →] **[Therapie]**[Procedure] • **[NSCLC]**[Finding] **<*IV*>**[Spec ←] • **[SCLC]**[Finding] **<*extensive disease*>**[Spec ←] • **[Hyaluronsäure]**[Substance] **<*2,5%*>**[Spec ←]
0.3	Annotations are only possible on the token level	• The entity class should be assigned on the token level (for instance, “Ibuprofenallergie” is a *Finding*, although “Ibuprofen” is a *Substance*)	• **[Ibuprofenallergie]**[Finding] • **[Tumorpatienten]**[Finding] • niedrige **[HCC-Inzidenz]**[Finding|detail=Diagnosis or Pathology]

		• When the token itself is not an entity, the longest appropriate subtoken determines the class of the token, for instance “Tumorpatienten” is a *Finding*, although “Patienten” is not.	• **[Prostatakarzinomzentren]**[Finding|detail=Diagnosis or Pathology]
0.4	Composite nouns in an enumeration should be annotated separately.	• Use the *fragment* annotation (see below). • the “-” should not be part of the token	• **[Chemo]**[Procedure|suffix=therapie]- und **[Strahlentherapie]**[Procedure]
0.5	Spelling mistakes should be ignored and annotated either way.	• Also, if a space character is missing, the whole “compound word” gets annotated	• **[Pap]**[Finding|detail=Diagnosis or Pathology] ***<Gruppe IIID1oder>***[Spec ←]
0.6	Abbreviations are treated as entities	• however, specifications do not need to target both the complete term and its abbreviation when both are present	• **<3-Jahres>**[Spec →] ***<progressionsfreie>***[Spec → Überleben][Finding|detail=Other Finding] **([PFS]**[Finding|detail=Other Finding]**)** •
0.7	**In rare cases** words can also be annotated two or multiple times if necessary	• This accounts especially for when a word in the context has (regarding our annotations) two different meanings • Better discuss these cases with the group	• **[Durchführung]**[Procedure|detail=Diagnostic][Procedure|detail=Therapeutic] ***<einer*** **[Biopsie]**[Procedure|detail=Diagnostic]**>**[Spec ←] oder **<[Ablatio Testis]**[Procedure|detail=Therapeutic]**>**[Spec ← |prefix=_einer_]
0.8	Words from other languages should be annotated analogously		• **[Cancer]**[Finding|detail=Diagnosis or Pathology]**[Screening]**[Procedure|detail=Diagnostic]
0.9	Annotations can be dependent of the context		• **[Immunsuppression]**[Procedure|detail=Therapeutic] or

			[Immunsuppression][Finding|detail=Diagnosis or Pathology] • **[Tumorgrading]**[Procedure|detail=Diagnostic] or **[Tumorgrading]**[Finding|detail=Diagnosis or Pathology] • Der **[Nachweis]**[Procedure|detail=Diagnostic] erfolgte or Es liegt ein **[Nachweis]**[Finding|detail=Diagnosis or Pathology] vor
0.10	Whether a word should get annotated is sometimes solely dependent of the context or respective specifications		• **<unerwünschte>**[Spec→] **[Wirkung]**[Finding|detail=Diagnosis or Pathology] *(here, even though "Wirkung" is usually not annotated, it represents a finding through the specification "unterwünschte")*

Findings

“A clinical finding represents the result of a clinical observation, assessment or judgment and includes normal and abnormal clinical states (e.g. *asthma*, *headache*, *normal breath sounds*. The clinical finding hierarchy includes concepts used to represent diagnoses.”

SNOMED definition

Subclasses (detail)

Subclass	**Definition**	**Examples**
Diagnosis or Pathology	● Always and necessarily abnormal ● Necessarily have an underlying pathological process ● Also includes symptoms ● Also includes viruses / bacteria etc. ● ICD codes are annotated as one coherent unit	● **[Tumorpatienten]**[Finding|detail=Diagnosis or Pathology] ● **[Neurotoxizität]**[Finding|detail=Diagnosis or Pathology] ● **[CIN]**[Finding|detail=Diagnosis or Pathology] ● **[HPV Infektion]**[Finding|detail=Diagnosis or Pathology] ● **[Rezidiv]**[Finding|detail=Diagnosis or Pathology] ● **[Mangelzustände]**[Finding|detail=Diagnosis or Pathology] **<von Vitamin D>**[Spec ←] ● **[PET/CT-Positivität]**[Finding|detail=Diagnosis or Pathology] ● **[Symptome]**[Finding|detail=Diagnosis or Pathology] ● **<*erhöhte*>**[Spec →]**[Rate]**[Finding|detail=Other Finding] **<*an*** [**Dottersackanteilen**][Finding|detail=Diagnosis or Pathology]>, **<<*erhöhten*>**[Spec →]**[AFP-Werten]**[Finding|detail=Diagnosis or Pathology]**>**[Spec ←|prefix=_an_] und **<[TP53-Aberrationen]**[Finding|detail=Diagnosis or Pathology]**>**[Spec ←|prefix=_an_] ● [**Reduktion**][Finding|detail=Diagnosis or Pathology]**<*der*** [**Ejektionsfraktion**][Finding|detail=Other Finding]**>**[Spec ←] ● **[Auftreten]**[Finding|detail=Diagnosis or Pathology]**<<kardialer>**[Spec→]**[Symptome]**[Finding|detail=Diagnosis or Pathology]**>**[Spec ←]

		• **[HPV]**[Finding|detail=Diagnosis or Pathology] • **[Carcinoma in situ]**[Finding|detail=Diagnosis or Pathology] • **<<humane>**[Spec→]**[Papillomviren]**[Finding|detail=Diagnosis or Pathology]**>** • **[ICD-10 C53]**[Finding|detail=Diagnosis or Pathology] • **[Nachweis|**Finding|detail=Diagnosis or Pathology**] <von *<high-risk>***[Spec→] **HPV Typen**[Finding|detail=Diagnosis or Pathology]**>**[Spec ←] • **[Stadium]**[Finding|detail=Diagnosis or Pathology] **<der [CIN]**[Finding|detail=Diagnosis or Pathology]**>**[Spec ←] • **[Versagen]**[Finding|detail=Diagnosis or Pathology] **<der [Therapie]**[Procedure|detail=Therapeutic]**>**[Spec ←] • Verlauf[-] der **[Erkrankung]**[Finding|detail=Diagnosis or Pathology] • **[Komorbidität]**[Finding|detail=Diagnosis or Pathology] • **[Tumorantigen]**[Finding|detail=Diagnosis or Pathology]
Other Finding	• May be normal (but not necessarily) • Other information about the state of health • May exist only at a single point in time • Also: a negative test (i.e. absence of pathology) • Also: outcomes, such as PFS • Also: risks and rates • Also: information about the patient, like sex, age, relative status etc. (however, information like sex should not be annotated when only contained implicitely (e.g. “Patientin”)) • statistical expressions like “Risiko” when they contain information about the individual patient (e.g. “*erhöhtes* Risiko”)	• **[Gesunde]**[Finding|detail=Other Finding] • ***<histologischer>***[Spec →] **[Befund]**[Finding|detail=Other Finding] • **[PET/CT-Negativität]**[Finding|detail=Other Finding] • **[Alter]**[Finding] ***<jünger als 51 Jahre>***[Spec] • **[normale]**[Spec →]**[Ernährung]**[Finding|detail=Other Finding] • **[Mortalitätsrisiko]**[Finding|detail=Other Finding] • **[5-Jahres-Risiko]**[Finding|detail=Other Finding] • **[Abfall]**[Finding|detail=Other Finding] **<*im* [Serum]**[Substance|detail=Nutrient or Body Substance]> [Spec ←] • **[Überleben]**[Finding|detail=Other Finding] • ***<verminderte>***[Spec→]***<postoperative>***[Spec→] [**Morbidität**][Finding|detail=Other Finding] • ***<subjektives>***[Spec→]**[Erleben]**[Finding|detail=Other Finding] • **[Interaktion]**[Finding|detail=Other Finding] • **<schlechte>**[Spec→]**[Prognose]**[Finding|detail=Other Finding] • **[Radonexposition]**[Finding|detail=Other Finding] • ***das <subjektive>***[Spec →] **[Erleben]**[Finding|detail=Other

		Finding] des Patienten • **<*geringere*>**[Spec→] **[Rezidivrate]**[Finding|detail=Other Finding] • **<*klinisches*>**[Spec→]**[Erscheinungsbild]**[Finding|detail=Other Finding] • **[Frauen]**[Finding|detail=Other Finding] • **[Risikofaktoren]**[Finding|detail=Other Finding] • **[Malignitätspotenzial]**[Finding|detail=Other Finding] • **[Verwandte]**[Finding|detail=Other Finding] **<ersten Grades>**[Spec ←] **<von Patienten mit [Pankreaskarzinom]**[Finding|detail=Diagnosis or Pathology]**>**[Spec ←] • **<*physiologischen*>**[Spec→] **[Bedarf]**[Finding|detail=Other Finding] • **[Ansprechen]**[Finding|detail=Other Finding] **<der [Therapie]**[Procedure|detail=Therapeutic]**>**[Spec ←] • **[Mortalität]**[Finding|detail=Other Finding] • **[Tumoransprechen]**[Finding|detail=Other Finding] • **[V.a.]**[Finding|detail=Other Finding] • **[Verdacht]**[Finding|detail=Other Finding]**<auf [Kolonkarzinom]**[Finding]**>**[Spec ←] • **[Therapiebedürftigkeit]**[Finding|detail=Other Finding] • **<signifikant höheres>**[Spec→]**[Risiko]**[Finding|detail=Other Finding] • **[Erstdiagnose]**[Finding|detail=Other Finding] • **[Fortschreiten]**[Finding|detail=Other Finding] und **[Dauer]**[Finding|detail=Other Finding] der Erkrankung[Finding] • **<[HIV-positive]**[Finding|detail=Diagnosis or Pathology]**>**[Spec →] **[Männer]**[Finding|detail=Other Finding] • **[Rezidivrisiko]**[Finding|detail=Other Finding] • **[Rezidivrate]**[Finding|detail=Other Finding] • **[Nikotinabusus]**[Finding|detail=Other Finding] • **[Antigen]**[Finding|detail=Other Finding] • das mediane[-] **[Überleben]**[Finding|detail=Other Finding]

Counterexamples	• check the rules section for more	• im Erwerbsleben stehend[-] • Modifikation[-] • Sensitivität[-] und Spezifität[-] • Inzidenz[-] • Inzidenzraten[-] • Indikation[-] • Häufigkeit[-] von Tumorrezidiven[Finding] • Inzidenzrate[-]

Rules

	Rule	Explanation	Examples
1.1	When in doubt, the result of a diagnostic test is rather a finding than a procedure	•	• mit oder ohne **[HPV Nachweis]**[Finding|detail=Diagnosis or Pathology]
1.2	Findings do not have to be nouns, they can also be e.g. adverbs / adjectives	• as with other findings, these should still be attributable to a patient context • this rule only accounts when the adverb is describing a noun in a clinically relevant context (e.g. “Patient” or “Person”) • when inside a specification, adjectives / adverbs should not be annotated, nouns however should (see examples)	• ***<beruflich>***[Spec →] **[strahlenexponierte]**[Finding|detail=Other Finding] Personen • **[bestrahlter]**[Procedure|detail=Therapeutic] Patient • ***<kolposkopisch*[-] *komplett beurteilbare>***[Spec →] **Platten-Zylinderepithelgrenze**[Finding]

1.3	Words can become findings through their specification		• **<negative>**[Spec →] **[Wirkung]**[Finding|detail=Diagnosis or Pathology] • **<transplantiertes>**[Spec →] **[Organ]**[Finding|detail=Other Finding]
1.4	Efficacy of drugs	• is usually not a finding, when no directionality is specified in a patient context	• Wirkung[-] von **[Chemo]**[Procedure|suffix=therapie]-und **[Strahlentherapie]**[Procedure] (the "-" should not be part of the token!) • **[Folsäure]**[Substance] könnte die Wirkung[-] von **[5-FU]**[Substance] beeinflussen. • Wirksamkeit[-] der **[Therapie]**[Procedure|detail=Therapeutic]
1.5	No percentages / statistical numbers should be part of the annotation		• **[PFS]**[Finding|detail=Other Finding] von 94,5%
1.6	Specific endpoints of a study can be findings, but the general concept of an endpoint is not		• Patientenrelevante Endpunkte[-] wie **[Gesamtüberleben]**[Finding|detail=Other Finding] und <***krankheitsfreies***>[Spec →] **[Überleben]**[Finding|detail=Other Finding] wurden nicht untersucht.
1.7	Side-effects and complications are always pathological, unless they are clearly specified as desired		• [**Nebenwirkungen**][Finding|detail=Diagnosis or Pathology] • [**Komplikationen**][Finding|detail=Diagnosis or Pathology]
1.8	Parameters and body functions are other findings, unless they exceed some pathological threshold		• **[QTc-Zeiten]**[Finding|detail=Diagnosis or Pathology]**<*über 500 ms*>**[Spec ←] oder eine **[Erhöhung]**[Finding|detail=Diagnosis or Pathology]**<*um 60 ms*>**[Spec ←] • **[Verlängerung]**[Finding|detail=Diagnosis or Pathology] **<der [QTc-Zeit]**[Finding|detail=Other Finding]**>**[Spec ←

1.9	Tumor classifications are pathological or not depending on their meaning “Stadium” in a disease context is also generally considered as pathological finding	• They usually constitute separate entities • TNM classification is generally considered as pathological finding • TNM expressions are annotated together even when there is a comma between them, otherwise (when they occur in different parts of the sentence) they are annotated independently • When a TNM complex is annotated together, and one part of that complex is considered pathological (i.e. the complex is not T0 N0 M0), the complex is annotated as pathological finding • When the TNM-parts occur singly (e.g. there are words between the m), they are rated individually as other finding or pathological finding (see example)	• **[Lymphknotenmetastasen]**[Finding|detail=Diagnosis or Pathology]**([N1]**[Finding|detail=Diagnosis or Pathology] **), [R1-Status]**[Finding|detail=Diagnosis or Pathology] und ein ***<niedriger>***[Spec→]**[Differenzierungsgrad]**[Finding|detail=Diagnosis or Pathology] **(** **[G3]**[Finding|detail=Diagnosis or Pathology] **)** • **[R0]**[Finding|detail=Other Finding] oder **[R1]**[Finding|detail=Diagnosis or Pathology] • **[R0-Resektion]**[Finding|detail=Other Finding] • **[R1-Resektion]**[Finding|detail=Diagnosis or Pathology] • **[Grad I-II]**[Finding|detail=Diagnosis or Pathology] ***<nach Olsen>***[Spec ←] • **[Grad 3]**[Finding|detail=Diagnosis or • **[Stadium T1, N1, M1]**[Finding|detail=Diagnosis or Pathology] • **[T1]**[Finding|detail=Diagnosis or Pathology|suffix=-Tumoren|fragment=-Tumoren]-**[T2-Tumoren]**[Finding|detail=Diagnosis or Pathology] • **[Stadien T1b]**[Finding|detail=Diagnosis or Pathology] und **[T1a]**[Finding|detail=Diagnosis or Pathology] • **[T1]**[Finding|detail=Diagnosis or Pathology] und **[N1]**[Finding|detail=Diagnosis or Pathology], aber **[M0]**[Finding|detail=Diagnosis or Pathology]
1.10	Concrete locations / organs are usually *not* considered as findings, although the abstract property of being localized (“Lokalisation”) can be		• Der **[Tumor]**[Finding|detail=Diagnosis or Pathology] ist im vorderen Mediastinum[-] lokalisiert • **<extragonadalen>**[Spec→] **[Lokalisationen]**[Finding|detail=Diagnosis or Pathology]

1.11	Concrete concentration / quantity information can turn a substance into a finding		● **[PSA]**[Finding|detail=Diagnosis or Pathology] **<< 10ng/ml>**[Spec ←]
1.12	Tumor markers are generally considered as pathological finding	● it can be context dependent whether a body substance is considered as tumor marker	● **[CA 125]**[Finding|detail=Diagnosis or Pathology] ● **[CEA]**[Finding|detail=Diagnosis or Pathology]
1.13	Mutations, when in a pathological context, are considered as pathological finding	● DNA translocations are mutations as well	● **[t(11;14)]**[Finding|detail=Diagnosis or Pathology]

Substances

“Substances represent general substances, the chemical constituents of pharmaceutical/biological products, body substances, dietary substances and diagnostic substances (e.g. *methane, insulin, albumin*).”

SNOMED definition

Subclasses (detail)

Subclass	**Definition**	**Examples**
Clinical Drug	● Usually pharmaceutical product ● Externally produced/obtained for diagnostic or therapeutic purposes	● **[5-FU]**[Substance|detail=Clinical Drug] ● die **[Injektion]**[Procedure] **<*von* [Insulin]**[Substance|detail=Clinical Drug]**>**[Spec ←] ● **[Präparate]**[Substance|detail=Clinical Drug] ● **[Placebo]**[Substance|detail=Clinical Drug] ● **[Diclofenac-Natrium]**[Substance|detail=Clinical Drug] **<3%>**[Spec ←] **<in [Hyaluronsäure]**[Substance|detail=Clinical Drug]**>**[Spec ←] **<2,5% Gel>**[Spec ←] ● **[Spender-T-Zellen]**[Substance|detail=Clinical Drug]

Nutrient or Body Substance	• A nutrient / body substance is part of a physiological body. When diseases occur because of the absence of such a substance (i.e. reduced supply), the “medication” for that deficiency is still a nutrient / body substance (example: scurvy → Vitamin C). • (If not reduced supply but a pathological process is the reason for the deficiency state, the substance is more likely a drug, e.g. Diabetes → Insulin) • Specific genes as well as their respective proteins are also considered as body substances (more abstract notations like Exon[-], however, not) • Supplements are nutrients	• **[Vitamine]**[Substance|detail=Nutrient or Body Substance] • **[Fettsäuren]**[Substance|detail=Nutrient or Body Substance] • **[Antioxidantien]**[Substance|detail=Nutrient or Body Substance] • **[Folsäure]**[Substance|detail=Nutrient or Body Substance] • **[Glucose]**[Substance|detail=Nutrient or Body Substance] • **[LDL]**[Substance|detail=Nutrient or Body Substance] • **<*Alkalische*>**[Spec →] **[Phosphatase]**[Substance|detail=Nutrient or Body Substance] • **[Nahrungsergänzungsmittel]**[Substance|detail=Nutrient or Body Substance] • **<**freie**>**[Spec→] **[Radikale]**[Substance|detail=Nutrient or Body Substance] • **[BRCA1]**[Substance|detail=Nutrient or Body Substance] • Hemmung[-] der **[Cyclooxygenase]**[Substance|detail=External Substance] • **[Blut]**[Substance|detail=Nutrient or Body Substance] • **[Lymphflüssigkeit]**[Substance|detail=Nutrient or Body Substance]
External Substance	• External substances that the body does normally does not get in contact with, • Potentially harmful (e.g. carcinogens) • Not applied by a doctor	• **[Radon-222]**[Substance|detail=External Substance] • **[18F-Fluoromethylcholin]**[Substance|detail=External Substance] • **[Chemikalien]**[Substance|detail=External Substance] • **[Feinstaub]**[Substance|detail=External Substance] • **<*künstliche*>**[Spec →]**[Mineralfasern]**[Substance|detail=External Substance]
Counterexamples	• check the rules section for more	• Exon[-]

Rules

	Rule	Remarks	Examples
2.1	Modes of administration are not substances	• If a term solely refers to a *mode of administration* rather than a concrete substance or class of substances, the entity should not be annotated	• Einzelsubstanzen[-] • Mischungen[-] • Vehikel-Creme[-]
2.2	Living organisms are also substances when used as medications	• In these cases, they would usually get the detail tag “Clinical Drug”	• Eine Kombination**[-]** aus **[Lactobacillus]**[Substance|detail=Clinical Drug] und **[Ballaststoffen]**[Substance|detail=Nutrient or Body Substance] senkt nach einer Studie…
2.3	Physical compounds are only substances if their chemical composition is clearly relevant in a clinical context		• Gestein[-] • Böden[-] • Außenluft[-]
2.4	Radiation is not a substance		• Alphastrahlung[-]
2.5	Distinction between drugs an and nutrients / body substances	• A nutrient / body substance is part of a physiological body. When diseases occur because of the absence of such a substance, the “medication” for that deficiency is still a nutrient / body substance (example: scurvy → Vitamin C). • However, when diseases occur because of a reduced or increased production of a substance or a	• ***<Topisch appliziertes>***[Spec→] **[Vitamin C]**[Substance|detail=Clinical Drug] • **[Vitamin C]**[Substance|detail=Nutrient or Body Substance] bei Skorbut[Finding] • **[Retinoiden]**[Substance|detail=Clinical Drug] und **[Interferonen]**[Substance|detail=Clinical Drug]

		substance is used therapeutically in a non-physiological way, it is considered rather a drug (example: Diabetes type 1 → Insulin)	
2.6	Nutrients / Body substances with specific quantities become a finding	• if the finding is clearly pathological, they are considered as pathological finding, if not, as other finding In case of doubt, they are rather considered as other finding	• **<Korrigiertes>**[Spec→] **[Serumkalzium]**[Finding|detail=Other Finding] **<10,0mg/dl>**[Spec ←] • **[Neutrophilen-Anzahl]**[Finding|detail=Other Finding] **<<4,5/ml>**[Spec ←]
2.7	Parts of the body should not be annotated	• e.g. organs, parts of organs, conglomerates of molecules (like cell organelles etc.)	• Zelle[-] • Rezeptoren[-] • Zellkern[-] • Chromosom[-] • Leber[-]
2.8	Combinations of drugs	• the word Kombination[-] is not annotated (apart from being part of a specification) • When drug A is combined with drug B, the second mentioned drug should be annotated as a specification of the first mentioned drug (see examples) • the combination of multiple drugs requires the chain rule (4.11) • possible formulations / signs to introduce a specification are “in Kombination mit”, “mit”, “plus, “+”	• **[DrugA]**[Substance] **<in Kombination mit [DrugB]**[Substance]**>**[Spec <-] • **[DrugA]**[Substance] **<mit [DrugB]**[Substance]**>**[Spec <-] • **[DrugA]**[Substance]**<+[DrugB]**[Substance]**>**[Spec <-]" • **[DrugA]**[Substance]**<+[DrugB]**[Substance]**>**[Spec <-]**<+[DrugC]**[Substance]**>**[Spec <-] • **[DrugA]**[Substance] **/ [DrugB]**[Substance]**>**

		● “/” does not introduce a specification as it is not clear whether the drugs are really combined or just prestented as alternatives	

Procedures

“Procedures represent activities performed in the provision of health care. This includes not only invasive procedures but also administration of medicines, imaging, education, therapies and administrative procedures (e.g. *appendectomy, physiotherapy, subcutaneous injection*).”

SNOMED definition

Subclasses (detail)

Subclass	**Definition**	**Examples**
Diagnostic	• Generally “measuring” something • Classification systems, unless they have a concrete value (then they are findings) • MRI sequences are diagnostic procedures as well	• **[Röntgen-Thorax]**[Procedure|detail=Diagnostic] • **[Kolposkopie]**[Procedure|detail=Diagnostic] • ***<histopathologische>***[Spec →] **[Evaluierung]**[Procedure|detail=Diagnostic] • **[Verlaufsbeobachtung]**[Procedure|detail=Diagnostic] • **[Beobachtung]**[Procedure|detail=Diagnostic] • **[PET/CT]**[Procedure|detail=Diagnostic] • **[GHSG-Risikostratifizierung]**[Procedure|detail=Diagnostic] • **[Blutsenkungsgeschwindigkeit]**[Procedure|detail=Diagnostic] • **[Beobachtungsarm]**[Procedure|detail=Diagnostic] • ***<korrekten>***[Spec →] **[Klassifikation]**[Procedure|detail=Diagnostic] ***<des* [EGKZT]**[Finding|detail=Diagnosis or Pathology]**>**[Spec ←] ***<nach IGCCCG>***[Spec ←] • **[IGCCCG-Klassifikation]**[Procedure|detail=Diagnostic] • **[T1-Sequenz]**[Procedure|detail=Diagnostic] • **[Tumormarkerbestimmung]**[Procedure|detail=Diagnostic] • **[Nachsorge]**[Procedure|detailed=Diagnostic] • **[Vorsorge]**[Procedure|detail=Diagnostic]

		• **[Indikationsstellung]**[Procedure|detail=Diagnostic] • **[Hospital Anxiety and Depression Scale]**[Procedure|detail=Diagnostic] • **[Biopsat]**[Procedure|detail=Diagnostic] • **[Resektat]**[Procedure|detail=Diagnostic] • **[Klinische Chemie]**[Procedure|detail=Diagnostic]
Therapeutic	• Any reactive or preventive intervention • also: abstract procedures with an interventional character (like “Zufuhr von Mikronährstoffen”, “Einleitung der Therapie” or “Dosisänderung”) • also: Tools / devices that represent a therapeutic procedure (see rule 3.4)	• **[Chemotherapie]**[Procedure|detail=Therapeutic] • **<parenterale>**[Spec →] **[Ernährung]**[Procedure|detail=Therapeutic] • **[Diät]**[Procedure|detail=Therapeutic] • Es wurde eine **[Immunsuppression]**[Procedure|detail=Therapeutic] durchgeführt (--> depending on the context can also be a finding!) • **[Laservaporisation]**[Procedure|detail=Therapeutic] • **[Intervention]**[Procedure|detail=Therapeutic]<zur Senkung der [**Radonexposition]**[Finding]>[Spec ←][• **[Therapiearm]**[Procedure|detail=Therapeutic] • **[Bestrahlungsarm]**[Procedure|detail=Therapeutic] • **[Einleitung]**[Procedure|detail=Therapeutic]**<der [Therapie]**[Procedure|detail=Therapeutic]**>**[Spec ←] • **<konsequentes>**[Spec→]**[Management]**[Procedure|detail=Therapeutic] • **[Selbsthilfegruppen]**[Procedure|detail=Therapeutic] und **<soziale>**[Spec→]**[Betreuung]**[Procedure|detail=Therapeutic] • **[Obst]**[Procedure|detail=Therapeutic|suffix=zufuhr]- und **[Gemüsezufuhr]**[Procedure|detail=Therapeutic] • **[Einsatz]**[Procedure|detail=Therapeutic] eines **[Medikaments]**[Substance] • **[Psychoonkologische**

		Versorgung][Procedure|detail=Therapeutic] • **<Palliative>**[Spec→] **[Behandlungssituation]**[Procedure|detail=Therapeutic] • Thulium:YAG-Laser (2010 nm) führen zu einer [**Ablation]**[Procedure|detail=Therapeutic] und [**Koagulation]**[Procedure|detail=Therapeutic] • [**Vorbeugen]**[Procedure|detail=Therapeutic] und [**Lindern]**[Procedure|detail=Therapeutic] von Leid[Finding] • [**Traditionelle chinesische Medizin]**[Procedure|detail=Therapeutic] • [**Aerobic]**[Procedure|detail=Therapeutic] und [**Yoga]**[Procedure|detail=Therapeutic] • Abschluss**[-]** der [**Primärtherapie]**[Procedure|detail=Therapeutic] • **[Schutz]**[Procedure|detail=Therapeutic] vor **[Wiedererkrankung]**[Finding]
Counterexamples	• check the rules section for more	• Risikoabwägung[-] • Hemmung[-] • experimentelle in vitro Untersuchungen[-] (in this case, “Untersuchungen” related to laboratory examinations and not to patients) • ärztliche Aufklärung[-] • Zyklen[-] • Perücken[-]

Rules

	Rule	**Remarks**	**Examples**

3.1	Clinical trials and other study designs are not procedures	• However, inclusion in a trial as a therapeutic option can be	• Studien[-] • Kohortenstudie[-] • Fall-Kontroll-Studie[-] • Ernährung[-] (--> without further specification is not a procedure)
3.2	Chemotherapeutic regimen are procedures, not substances	• individual components of the regiment can be annotated as substances	• ***<zwei>***[Spec →|suffix=Zyklen] /***<drei Zyklen>***[Spec →] **ABVD**[Procedure|detail=Therapeutic]
3.3	Trial names can be procedures, when they are abbreviations	• this might need some research by the annotator	• **[ACTICCA]**[Procedure|detail=Therapeutic Procedure] • BILCAP-Daten[-]
3.4	Tools / devices are annotated when they represent a therapeutic procedure	• E.g. “Pflaster”, as it really represents the therapeutic procedure, is annotated • A counterexample would be Skalpell[-] as it does not represent a therapeutic procedure (e.g. the surgery) but is rather a means to an end	• **<lokalanästhetisch wirksames>**[Spec→]**[Pflaster]**[Procedure|detail=Therapeutic] • **<medizinische>**[Spec→]**[Verbände]**[Procedure|detail=Therapeutic] • **[ZVK]**[Procedure|detail=Therapeutic] • Skalpell[-]
3.5	Branches of medicine etc. are not considered therapeutic procedures		• Palliativmedizin[-] • Onkologie[-]

Specification

Rules

	Rule	Remarks	Examples
4.1	Multiple specifications get annotated separately	• however, semantically dependent tokens (“natürlich vorkommend”) are annotated together • as a rule of thumb, specifications should be annotated separately if they could be omitted without making the sentence ungrammatical • this should also happen even if the outcome is quite granular	• ein **<*natürlich vorkommendes*>**[Spec→] **<*radioaktives*>**[Spec→] **[Edelgas]**[Substance|detail=External Substance] • **[Capecitabin]**[Substance|detail=Clinical Drug](**<1250 mg/m2>**[Spec ←]**<zweimal täglich>**[Spec ←]**<an Tag 1 bis 14>**[Spec ←]**<bei einer Zyklusdauer von 21 Tagen, insgesamt 8 Zyklen>**[Spec ←]) • **[Konsum]**[Finding|detail=Diagnosis or Pathology] **<von [Tabak]**[Substance|detail=External Substance]**>**[Spec ←] oder **<[Alkohol]**[Substance|detail=External Substance]**>**[Spec ←|prefix=_von_]
4.2	Specifications can be nested	• however, we want to avoid more than one level of nesting	• **[Inhalation]**[Finding] <***des <radioaktiven>***[Spec →] **Radons**[Substance]>[Spec ←] • **[Zustand]**[Finding] <***nach <früherer>***[Spec →] **[Behandlung]**[Procedure] ***einer* [CIN]**[Finding]>[Spec ←] • **Nachweis**[Finding] <***von* [CIN]**[Finding] **<1>**[Spec ←]>[Spec ←] <***in der* [ECC]**[Procedure]>[Spec ←]

4.3	Specifications must actually specify something	• unspecific modifiers or too general information should not be annotated	• unterschiedliche **[Präparate]**[Substance] • entsprechende **[Supplementation]**[Procedure] • die **[Betreuung]**[Procedure] des Patienten ***<durch einen erfahrenen Ernährungsmediziner>***[Spec ←] • die **[Strahlenexposition]**[Finding] der Bevölkerung
4.4	Specifications should be long enough to make the combination of specification and entity self-contained	• articles and prepositions can be part of the specification • conjunctions (und / oder), are usually not and constitute separate specifications	• **[Tumoren]**[Finding] ***<des oberen Gastrointestinaltraktes>***[Spec ←] und ***<des Pankreas>***[Spec ←]
4.5	Dosage information or cycles constitute a specification	•	• **<30Gy>**[Spec →] **IN-RT**[Procedure|detail=Therapeutic]
4.6	Statistical measures do not constitute a specification	• in general, outcomes of a study population are not related to individual patients	• **[PFS]**[Finding] 95%[-]
4.7	Filler words should be omitted from specifications	• v.a., z.B. don't need to be part of a specification of omitting them does not change the meeting of the sentence	• **[Therapie]**[Procedure]<***der* [Diarrhoe]**[Finding]> [Spec ←] v.a.[-] <***unter* [Irinotecan]**[Substance]>[Spec ←]**
4.8	On specification level, words that normally would only get annotated because of the meaning of a *subtoken* or because they are *adverbs* derived from a noun, should not	• Normally, words get also annotated due to the meaning of their subtokens (e.g. **[antitumoral]**[Finding|detail=Diagnosis or Pathology])	• ***<antitumorale>***[Spec →] **[Therapie]**[Procedure|detail=Therapeutic] (here, "antitumoral" is not annotated as Finding), while: • **[Therapie]**[Procedure|detail=Therapeutic]<***des* [Tumores]**[Finding]>[Spec ←]**

	be annotated separately as Finding, Procedure or Substance	• However, this should not be done, when these words are completely identical to a specification (and words should ideally only have a single annotation)	• ***<kolposkopisch*[-] *komplett beurteilbare>***[Spec →] **Platten-Zylinderepithelgrenze**[Finding] (here, adverb “kolposkopisch” is part of a specification and therefore does not get annotated separately, the word “Kolposkopie” however would get annotated)
4.9	Starts and ends of value ranges are not individually annotated		• **[Deauville-Score]**[Finding|detail=Other Finding] ***<von 4-5>***[Spec ←] • **[ECOG]**[Finding|detail=Other Finding] ***<0-1>***[Spec ←]
4.10	Prepositions like “bei”, “zur” und “mit” can break a chain of Specifications, unless they are absolutely necessary for constituting the meaning of an entity	• This rule is rather arbitrary to avoid overly long specification chains	• ***<geringere>***[Spec→] **Rezivivrate**[Finding|detail=Other Finding] bei[-] **Vitamin-A-Gabe**[Procedure|detail=Therapeutic] • **<„ausgebrannten “>**[Spec→]**[KZT]<des Hodens>**[Spec ←] mit[-] **<retroperitonealer>**[Spec→]**[Metastasierung]**
4.11	Chains of specification work just like a long specification span (chain rule)		• **[Vermeidung]**[Procedure|detail=Therapeutic] ***<<unerwünschter>***[Spec →] **[Nebenwirkungen]**[Finding|detail=Diagnosis or Pathology]**>**[Spec ←] ***<in der*** **[Therapie]**[Procedure|detail=Therapeutic]>[Spec ←] ***<von*** **[Zervixkarzinompatientinnen]**[Finding|detail=Diagnosis or Pathology]**>**[Spec ←] • Das ***<nicht-steroidale>***[Spec →] **[Antirhematikum]**[Substance|detail=Clinical Drug] **[Diclofenac]**[Substance|detail=Clinical Drug] ist in Form eines dreiprozentigen Gels in **[Hyaluronsäure]**[Substance|detail=Clinical Drug]***<2,5%>***[Spec ←] zur <***topischen>***[Spec →]

			[Behandlung] **<*von* [AK]**[Finding|detail=Diagnosis or Pathology]>[Spec ←] **<*bei* [Erwachsenen]**[Finding|detail=Other Finding]**>**[Spec ←] • **[Frauen]**[Finding|detail=Other Finding] **<*mit* [Strahlentherapie]**[Procedure|detail=Therapeutic] **>**[Spec ←] **<wegen eines Zervixkarzinoms**[Finding|detail=Diagnosis or Pathology]**>**[Spec ←]
4.12	Specification should be clinically relevant / relevant for the individual patient	• Especially when a token gets only annotated because of a subtoken, and a spec. does not relate to that subtoken, it should not get annotated (see example)	• **Krebsregister**[Finding|detail=Diagnosis or Pathology] des Robert-Koch-Instituts[-] • **Todesursachenstatistik**[Finding|detail=Diagnosis or Pathology] • **Sterbefälle**[Finding|detail=Diagnosis or Pathology]
4.13	Negations (or analogous expressions) are not considered as specifications		• ohne[-] • keine[-] • fehlende[-]

Fragment Annotation

Examples
• **[ungünstigeres]**[Finding|detail=Other Finding|suffix=_Überleben|fragment=Gesamtüberleben] , **[rezidivfreies]**[Finding|detail=Other Finding|suffix=_Überleben|fragment=Gesamtüberleben] und **[Gesamtüberleben]** • **[BRAF]**[Substance|detail=Clinical Drug|suffix=-Inhibitoren|fragment=-Inhibitoren]- und die **[MEK-Inhibitoren]**[Substance|detail=Clinical Drug]

Rules

	Rule	**Remarks**	**Examples**
X.1	Multiple specifications for an entity do not need the “fragment” attribute	• however, a prefix / suffix should still be included for elliptical constructs within specifications	• **[Pap]**[Finding] ***<IIID2>***[Spec ←] oder ***<IVA-p>***[Spec ←] • ***<zwei>***[Spec →|suffix=_Zyklen_] /***<drei Zyklen>***[Spec →] **[ABVD]**[Procedure|detail=Therapeutic]
X.2	Spaces in prefixes / suffixes should be denoted by underscores (“_”)		• **[Vitamine C]**[Substance] und **[E]**[Substance|fragment=Vitamine C|prefix=Vitamine_]
X.3	“-” should not be part of the annotation		• **[Chemo]**[Procedure|suffix=therapie]- und **[Strahlentherapie]**[Procedure]
X.4	Prefixes / suffixes should also include filler words		• **[Neurotoxizität]**[Finding|detail=Diagnosis or Pathology] ***<unter Cisplatin>***[Spec ←] und ***<Taxol>***[Spec ←|prefix=_unter_]

X.5	Fragmented specifications can have multiple prefixes / suffixes	• The prefixes / suffixes can relate to the respective other specification	• **[Immuntherapie]**[Procedure|detail=Therapeutic] **<mit anti-CTLA4>**[Spec ←|suffix=_Antikörper] und **<anti-PD1 Antikörper>**[Spec ←|prefix=_mit_]