

Label	Variable	Variable class	Details
<b>Patient demographics</b>			
Age	age	Alphanumeric	Date of birth
Sex	sex	Categorical	M/F
Patient ID	pid	Alphanumeric	Individual patient hospital number
<b>Disease characteristics</b>			
Disease	disease_name	Alphanumeric	Disease according to patient record
Tumor type	tumor_type	Categorical	"Solid tumor", "Lymphoma" or "Hematological diseases"
Molecular markers	gbm_marker	Categorical	Present molecular characteristics (predictive marker) for Glioblastoma multiforme: "MGMT meth.", "IDH mutations", "other"
	bc_marker	Categorical	Present molecular characteristics (predictive marker) for breast cancer: "Her2/neu", "ER", "PR", "BRCA1/2"
	lc_marker	Categorical	Present molecular characteristics (predictive marker) for lung cancer: "EGFR mutation", "ALK rearrangement", "ROS1", "KRAS", "BRAF", "PD-L1>50%", "PD-L1>1%"
	mel_marker	Categorical	Present molecular characteristics (predictive marker) for melanoma: "BRAF", "NRAS", "CKIT"
	lymphoma_marker	Categorical	Present molecular characteristics (predictive marker) for lymphoma and hematological diseases: "CD19", "CD20", "CD30", "CD38", "MYD88", "BCR-ABL", "FLT3"
	crc_marker	Categorical	Present molecular characteristics (predictive marker) for colorectal cancer: "APC", "p53 loss", "KRAS", "NRAS", "BRAF", "MSI", "PI3K mutation"
	gastric_marker	Categorical	Present molecular characteristics (predictive marker) for gastric cancer: "Her2/neu", "MSI"
<b>Request characteristics</b>			

Date of Request	request_date	Date (DD.MM.YYYY)	Date on which the request was filed
Insurance company	insurance_name	Alphanumeric	Respective health insurer of the patient
Class of Insurance	insurance_class	Categorical	Private, semi-private or compulsory health insurance: "Class 1", "Class 2" or "Class 3"
Stadium	solid_stad	Categorical	Solid tumor: "Localized N0", "Localized N+", "Locally advanced /Metastatic"
	lymph_stad	Categorical	Lymphomas: A or B, I, II, III, IV
Diagnosis	diagnosed	Categorical	"Newly diagnosed", "Relapse/ Progression", "Other"
Reason for Request	reason_request	Categorical	"Relapse from previous treatment", "Progression from current treatment", "Toxicity of current treatment", "Current treatment no longer available", "Supportive treatment", "Other"
Drug requested	drug_name	Alphanumeric	Generic name of the requested drug
Continuation of treatment with previously requested drug	treatment_continuation	Logical	Is the request for a drug that was previously requested and approved for a limited time (Y/N)
Single agent or combination	single_agent	Categorical	Will the drug be given as a single agent or in combination? "Single agent", "Drug combination"
Combination with which drug?	drug_combo	Alphanumeric	Name of the drug, that will be co-treatment to the requested drug
Predictive marker needed (according to LoS)	marker_demand	Logical	Does the Swiss "List of specialties" (26) demand presence of a specific molecular marker? (Y/N)
Which marker?	marker_name	Alphanumeric	Which marker does the LoS demand for treatment with the requested drug?
Repeat biopsy at time of request	repeat_biopsy	Logical	Was a biopsy performed at the time of the request? (Y/N)
Biopsy result	result_biopsy	Alphanumeric	Which marker were identified in the biopsy?
Position of	author_request	Categorical	"Head of Department", "Consultant", "Junior"

requesting physician			physician", "Unknown"
Does requesting physician provide literature?	literature_provided	Logical	Did the requesting physician provide any literature to the insurer in the request? (Y/N)
Literature provided	literature_type	Categorical	Which kind of literature did the requesting physician provide with the request: "Meta-analysis", "RCT", "Prospective single arm study", "Retrospective study", "Guidelines", "Other"
Claimed benefit statement	evidence_type	Categorical	What kind of benefit does the provided literature show: "OS benefit", "PFS benefit", "Tumor response benefit", "Pre-clinical"
Literature details	comment_literature	Alphanumeric	Name of publication or study provided in the request
<b>Correspondence</b>			
Date of Letter	date_letter	Date (DD.MM.YYYY)	Date of the recorded letter
Type of Letter	type_letter	Categorical	What kind of correspondence is recorded: "Response from insurer", "Response from drug manufacturer", "Response from physician", "Rebuttal from physician", "Letter not found"
If rebuttal from physician, literature provided?	literature_rebut	Logical	Y/N
Final decision	final_decision	Logical	Is this letter the final decision for reimbursement (Y/N)
Which decision?	decision_type	Categorical	If final_decision= Y: "Approval", "Disapproval"
Reason, why not final	reason_notfinal	Categorical	If final_decision= N: "Insurer in negotiation with drug manufacturer", "Just notification of receipt", "Disapproval but rebuttal from physician follows", "Insurer requests further information"
Decision model	dec_model	Logical	Did the insurer mention the decision aid/model

mentioned?			used for decision making (Y/N)
Which model?	model_type	Categorical	"Helsana model", "9-fields model", "Nutzenbewertung", "Other"
Cost coverage	cost_coverage	Categorical	"Insurance pays alone", "Pharma pays alone", "Costs split between pharma and insurance", "Patient pays alone", "Not paid for"
Limitations for approval	approval_limit	Logical	Did the insurer set any limitations on the approval of OLU (Y/N)
How is the approval limited	limit_type	Categorical	"Limited time", "Limited treatment cycles", "Limited until progression of disease", "Outpatient only", "Other"
<b>Treatment characteristics</b>			
Treatment setting Lymphoma/ Leukemia	treat_set_lymph	Categorical	"Induction", "Maintenance", "Post-autologous SCT", "Post-allogeneous SCT", "Palliative"
Treatment setting solid tumors	treat_set_solid	Categorical	"Neoadjuvant", "Adjuvant", "Perioperative", "Advanced", "Other"
Number of previous drug treatments	n_prev_drugs	Integer	How many lines of treatment did the patient receive before the request?
Previous treatments	name_prev_drugs	Alphanumeric	Which treatment did the patient already receive for this particular disease?
Which treatment did patient finally receive?	final_treatment	Categorical	"Requested drug treatment", "Other treatment", "No treatment", "Unclear"
Date available for start of treatment	if_treatment_date	Logical	Y/N
Start of treatment	treatment_date	Date (DD.MM.YYYY)	If if_treatment_date=Y: Date of start of treatment with requested drug
Patient deceased	patient_dead	Logical	Did the patient die between request and reimbursement decision (Y/N)

**Table S1:** List of all variables extracted from patient records.