Title of the action: Improvement of the health service by means of IT technology in dermal and lungs cancer diagnostics (LLB-2-242)

List of established set of key parameters for skin cancer diagnostic algorithm

Criterion	Comment	Person who fills out the Criterion
Personal Details		
Sex	In women the tumor is often found on the lower legs. In men it is often found on the back, shoulders, head and neck (LeBoit, P.E., et al., World Health Organization Classification of Tumours. Pathology and Genetics of Skin Tumours. IARC Press: Lyon 2006)	doctor
Age	The peak incidence of melanoma is among people aged 60 years (McKee, P., E. Calonje, and S.R. Granter, Pathology of the skin with clinical correlations. 2005). Melanoma is rare in children, and it usually develops from congenital nevi, mostly from giant hairy nevi. Melanoma accounts for 1-3% of all childhood malignant tumors. (McKee, P., E. Calonje, and S.R. Granter, Pathology of the skin with clinical correlations. 2005; LeBoit, P.E., et al., World Health Organization Classification of Tumours. Pathology and Genetics of Skin Tumours. IARC Press: Lyon 2006)	doctor

Anamnesis		
Origin (primary, secondary)		doctor
Lesion Age		doctor
Changes in Shape		doctor
Changes in Size		doctor
Changes in Colour		doctor
Changes in Sensitivity		doctor
Life History		
Personal Melanoma History		doctor
Family Melanoma History		doctor
Familial Dysplastic Nevus Syndrome		doctor
Multiple Melanocytic Nevi (more than 50)		doctor
Congenital Nevus More Than 1.5 cm in Size		doctor
Immunosuppressive Therapy		doctor
Local Status		
Skin Phototype		doctor
Localization	There is a correlation between the localization of melanoma and the prognosis of the disease. It has been found that the melanomas, that develop on the back of the head, back of the neck, shoulders and back, tend to be more aggressive than the tumors of other localization. (McKee, P., E. Calonje, and S.R. Granter, Pathology of the skin with clinical correlations. 2005)	doctor
Form		doctor
Diameter	maximal diameter, x cm, unknown	doctor
Colour Uniformity		doctor
Surface (smooth, tuberous, fine-grained, with keratosis)		doctor
Outline (clear, fuzzy)		doctor
Soreness		doctor
Intussusception to underlying tissue		doctor
Inflammation		doctor
Ulceration		doctor
Crusting		doctor
Bleeding		doctor
Dermatoscopic Image		
Asymmetry (A)	An axial system consisting of perpendicular lines (X-axis and Y-axis) is used to calculate the Asymmetry Index. The system helps determine whether the lesion is symmetric or asymmetric. The axes are always	

	directed in such a way that the Asymmetry Index is the lowest possible. The asymmetry depends, above all, on the colour and structural elements of the lesion, not only on its outlines. If the lesion has asymmetry in one plane, it gets 1 point. If it has asymmetry in both planes, it gets 2 points. Most melanomas have the Asymmetry Index 2, in contrast to the melanocytic nevi, among which only 25% are characterised by pronounced asymmetry.	
Borders: regular/irregular (B)	In order to analyse this criterion, the lesion is divided into 8 equal segments. Each segment with a clear border of the pigmented structure gets 1 point. Therefore the Border Index may be between 0 and 8. As a rule, nevi have a low index, while for melanomas this figure is between 3 and 8.	
Colour (C)	The colour of the lesion depends on the number of colours observed in dermatoscopy. The maximum number of the colours that may be determined is 6 (white, red, light brown, dark brown, blue-grey and black). Therefore, the Colour Index may vary from 1 to 6. Melanomas tend to have segments of 3 or more colours, and 40% of melanomas have more than 5 colours.	
Structures (D)	There are 5 structural components (pigmented network, unstructured areas, pigmented nodules, pigmented dots, branched lines) each of which gets 1 point. At least 10% of the lesion must have either structural or uniform surface. Lines and dots are taken into the account only if at least 2 such elements can be clearly seen. To register globular structures (pigmented “crumbs” or “balls”), it suffices to find one element of this type of structure. The probability of melanoma rises	

	with the number of the structures that are observed.	
Morphological Criteria		
Size		histologist
Macroscopic Satellites	yes, no, not defined	histologist
Macroscopic Pigmentation	yes (diffuse, localized/spotted), no, not defined	histologist
Histological Type	lentigo maligna melanoma type; superficial spreading melanoma; nodular melanoma; acral lentigo melanoma; desmoplastic melanoma/desmoplastic melanoma with neurotropism; malignant blue nevus/melanoma developing from blue nevus; childhood melanoma; nevoid melanoma; persistent melanoma	histologist
Predominant Cell Type	epithelioid, spindle cell, small cell, balloon cell, signet ring cell, plasmacytoma cell	histologist
Breslow Tumor Thickness	It is measured by means of an ocular micrometer at right angle to the surface of the adjacent normal skin. It is measured from the top of the granular layer of the overlying epidermis or from the ulcer base to the deepest invasive tumor cells. If the tumor is ulcerated, the tumor thickness is measured from the bottom of the ulcer to the deepest part of the tumor. If the tumor is polypoid, its entire thickness is measured. Breslow tumor thickness is a prognosis factor: low risk – less than 0.76 mm; medium risk – 0.76-1.5 mm; high risk – more than 1.5 mm	histologist
Clark Level of Invasion	W.Clark levels of invasion: level I – the tumor within the epithelial layer (non-invasive); level II – the tumor invades the basement membrane and infiltrates the papillary dermis; level III – the tumor infiltrating the reticular dermis at the level of the sweat glands; level IV – the tumor within the reticular dermis; level V – the tumor invades the subcutaneous fat	histologist
Ulceration	yes, no, not defined	histologist
Cut-off Edges	peripheral or in-depth - for invasive melanoma:	histologist

	clear edge, distance between the edge and the melanoma in mm; invaded by melanoma; cannot be defined - for melanoma in situ: clear edge, distance between the edge and the melanoma in mm; invaded by melanoma in situ; cannot be defined	
Mitotic Index	less than 1 mitosis/mm2; number of mitoses/mm2	histologist
Microsatellites	yes, no, not defined	histologist
Invasion of Lymphatic Vessels	yes, no, not defined	histologist
Perineural Invasion	yes, no, not defined	histologist
Lymphocytic Infiltration	yes (moderately expressed, pronounced), no, not defined	histologist
Tumor Regression Grade	yes (less than 75%, 75% or more), no, not defined	histologist
Growth Phase	radial phase/vertical phase; (in case of radial phase the growth pattern is also identified: in situ, pagetoid, lentiginous, not classified)	histologist
pT (Primary Tumor)	pTX – primary tumor cannot be assessed. pT0 – no evidence of primary tumor. pTis – melanoma in situ (Clark Level I) – atypical melanocytic hyperplasia , severe melanocytic dysplasia, no signs of invasion. pT1 – tumor thickness: less than 1 mm, with ulceration or without ulceration: pT1a – tumor thickness: less than 1 mm, without ulceration, less than 1 mitosis/mm2; pT1b – tumor thickness: less than 1 mm, with ulceration and/or more than 1 mitosis/mm2; pT2 – tumor thickness: 1.01-2.00 mm: pT2a – without ulceration; pT2b – with ulceration. pT3 – tumor thickness: 2.01-4.00 mm: pT3a – without ulceration; pT3b – with ulceration. pT4 – tumor thickness: more than 4 mm: pT4a – without ulceration; pT4b – with ulceration.	histologist

Dysplastic Nevus	yes, no, not defined	histologist
Nevus	yes, no, not defined	histologist