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BONE SCAN INDEX

Bone Scan Index (BSI) – A Nuclear Medicine Imaging Biomarker in Metastatic Prostate Cancer

Bone Scan Index (BSI) – A Nuclear Medicine Imaging Biomarker in Metastatic Prostate Cancer

Lars Edenbrandt

MD, Professor

Medical & Scientific Director, Exini Diagnostics AB

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13:00 Introduction
Prof. Lars Edenbrandt, Medical and Scientific Director, EXINI Diagnostics AB, Sweden.

13:10 What is BSI? - Its History and Technique
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metastatic burden in bone

http://bonescanindex.org

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Biomarker –

A characteristic that is **objectively** measured and evaluated as an indicator of

- normal biological processes,
- pathogenic processes, or
- pharmacologic responses to a therapeutic intervention.

The biomarker definitions working group of the National Institutes of Health

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Clinical need – Imaging

Diagnostic imaging is an important part of the evaluation of patients with for example known or suspected cancer

- diagnosis
- prognosis
- treatment response
-
-

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Clinical need – Biomarkers

Personalized medicine – tailoring medical treatment to the individual characteristics, needs and preferences of each patient

Biomarkers – useful tools in the decision-making process for personalized treatment

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Clinical need – Imaging

The European Society of Cardiology recommends that patients with stable angina or silent ischemia with "**proven large area of ischemia (>10%)**" should receive revascularization

European Heart Journal (2010) **31**, 2501–2555
doi:10.1093/eurheartj/ehq277

ESC/EACTS GUIDELINES

Guidelines on myocardial revascularization

The Task Force on Myocardial Revascularization of the European Society of Cardiology (ESC) and the European Association for Cardio-Thoracic Surgery (EACTS)

Developed with the special contribution of the European Association for Percutaneous Cardiovascular Interventions (EAPCI)‡

Authors/Task Force Members: William Wijns (Chairperson) (Belgium)*, Philippe Kolh (Chairperson) (Belgium)*, Nicolas Danchin (France), Carlo Di Mario (UK), Volkmar Falk (Switzerland), Thierry Folliguet (France), Scot Garg (The Netherlands),

Downloaded from http://eurhe

Table 8 Indications for revascularization in stable angina or silent ischaemia

	Subset of CAD by anatomy	Class[a]	Level[b]	Ref.[c]
For prognosis	Left main >50%[d]	I	A	30, 31, 54
	Any proximal LAD >50%[d]	I	A	30–37
	2VD or 3VD with impaired LV function[d]	I	B	30–37
	Proven large area of ischaemia (>10% LV)	I	B	13, 14, 38
	Single remaining patent vessel >50% stenosis[d]	I	C	—
	1VD without proximal LAD and without >10% ischaemia	III	A	39, 40, 53
For symptoms	Any stenosis >50% with limiting angina or angina equivalent, unresponsive to OMT	I	A	30, 31, 39–43
	Dyspnoea/CHF and >10% LV ischaemia/viability supplied by >50% stenotic artery	IIa	B	14, 38
	No limiting symptoms with OMT	III	C	—

[a]Class of recommendation.
[b]Level of evidence.
[c]References

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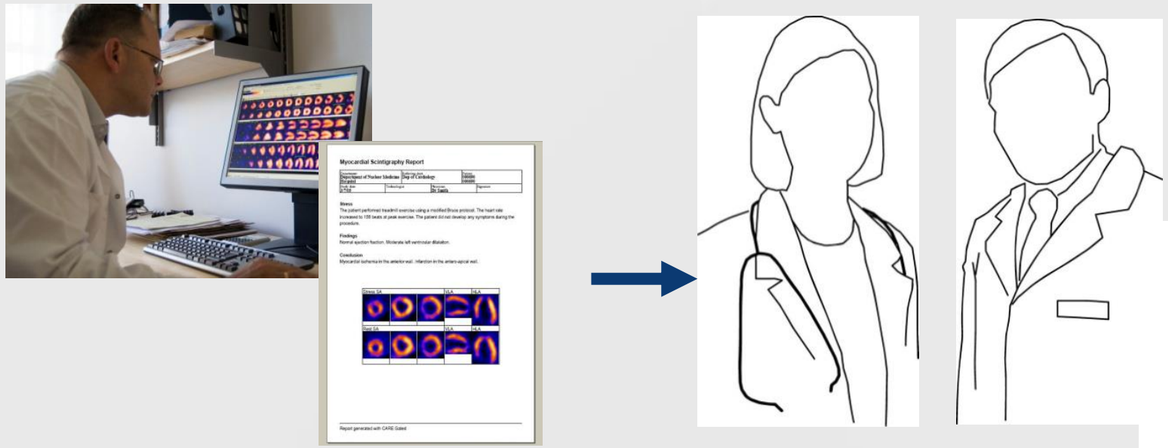
Problem – Imaging Report



not “objectively measured”

Trägårdh *et al. EJNMMI Research* 2012, **2**:27
http://www.ejnmmires.com/content/2/1/27

EJNMMI Research
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ORIGINAL RESEARCH Open Access

Referring physicians underestimate the extent of abnormalities in final reports from myocardial perfusion imaging

Elin Trägårdh[1*], Peter Höglund[2], Mattias Ohlsson[3], Mattias Wieloch[4] and Lars Edenbrandt[1]

Abstract

Background: It is important that referring physicians and other treating clinicians properly understand the final reports from diagnostic tests. The aim of the study was to investigate whether referring physicians interpret a final

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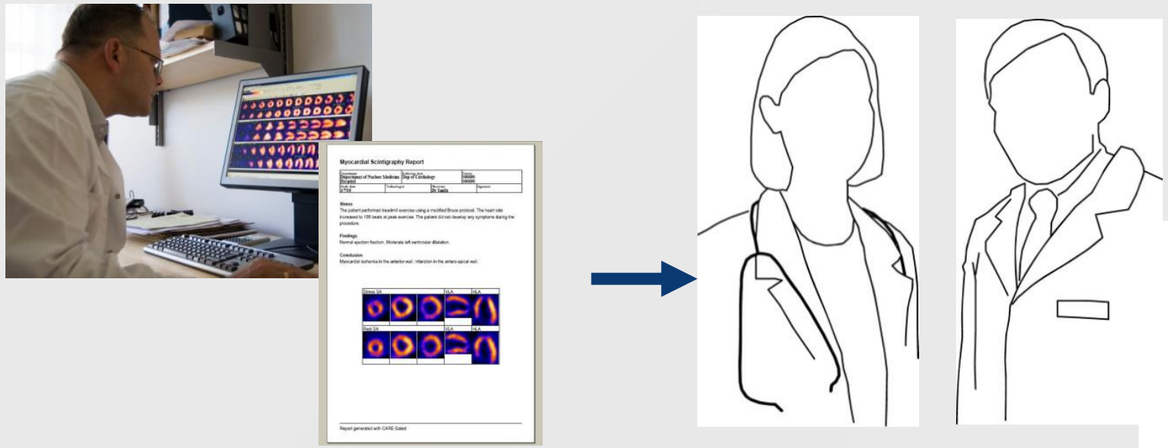
Solution – Imaging Biomarker



Biomarker candidates
extent, SDS, ….

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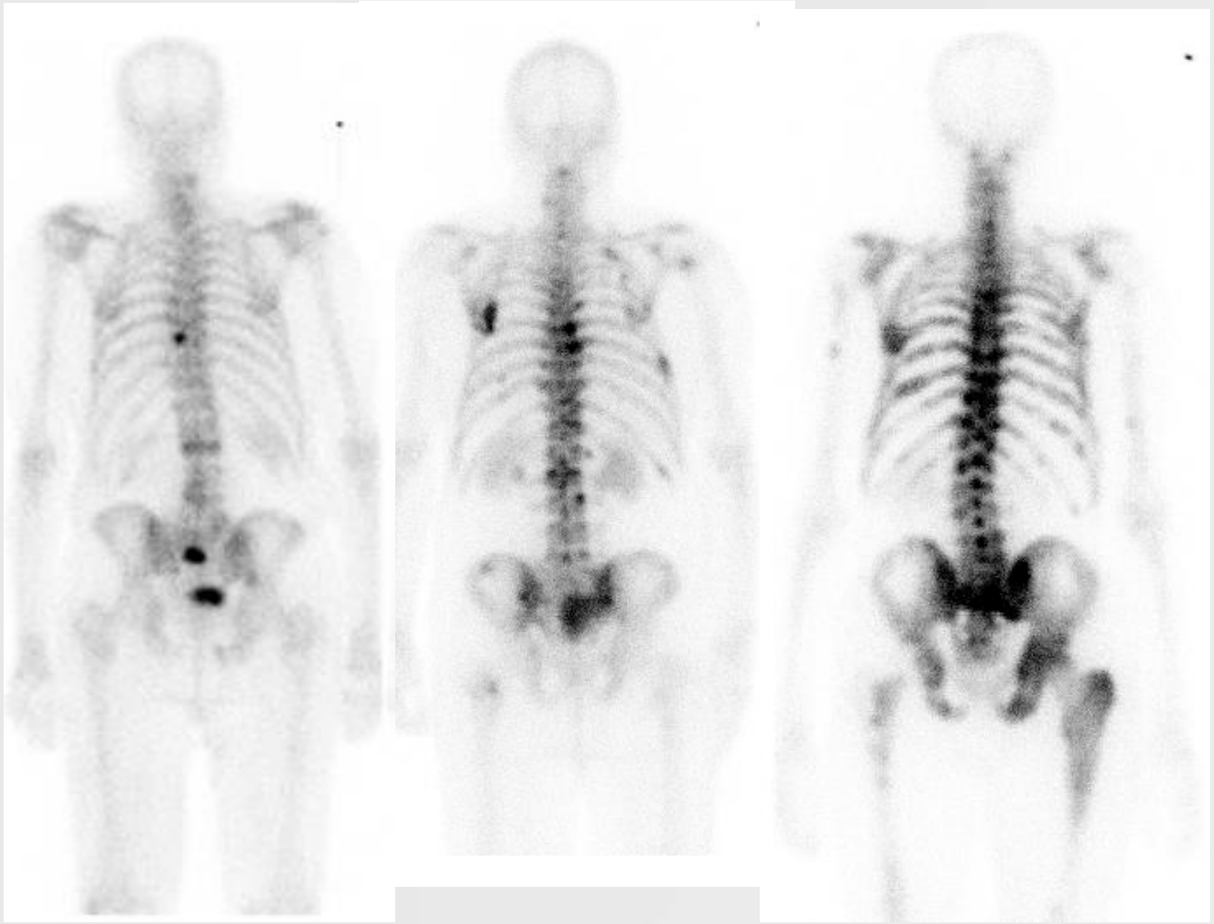
Imaging – Opportunity



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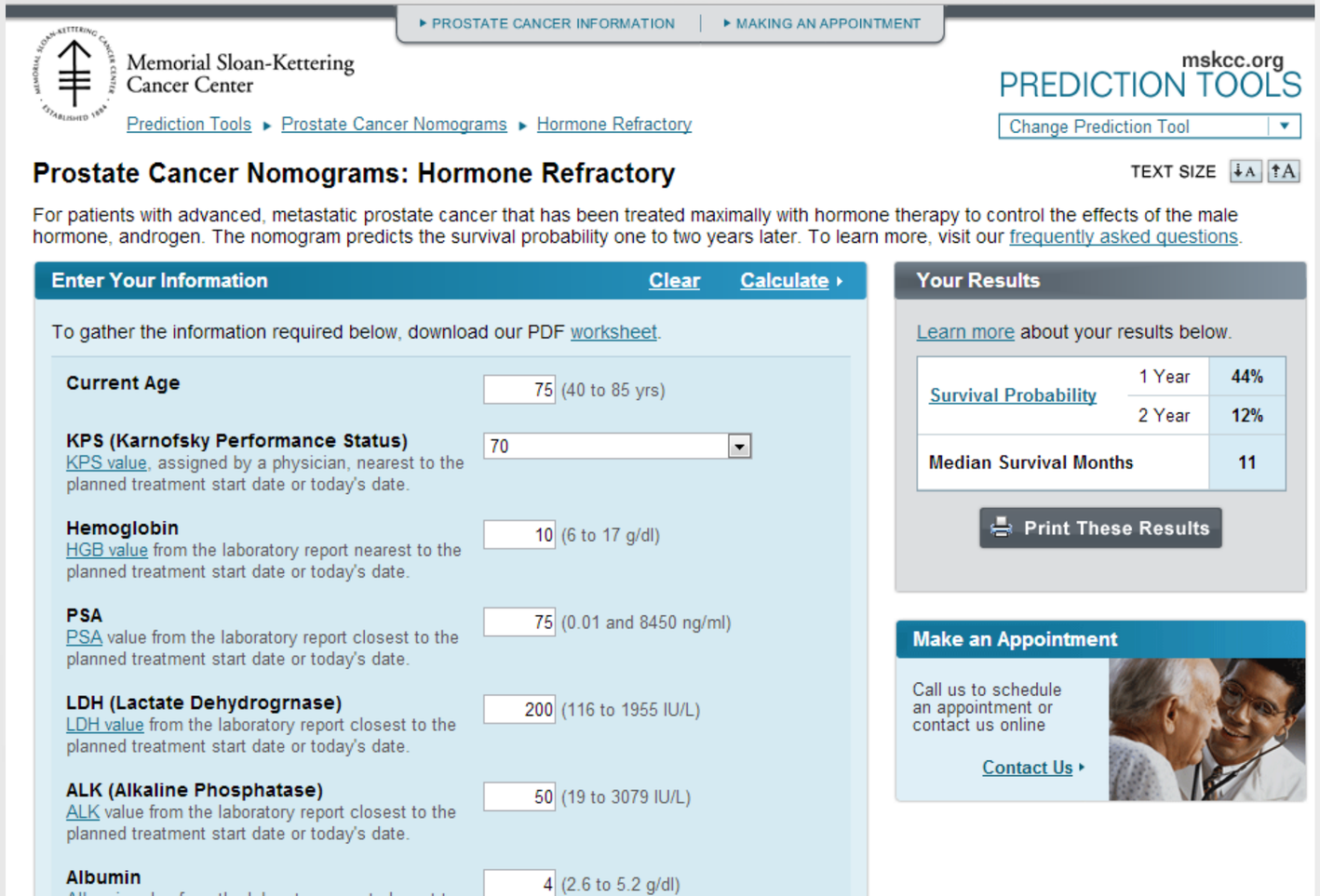
Imaging – Problem

How to incorporate information from imaging reports with other data



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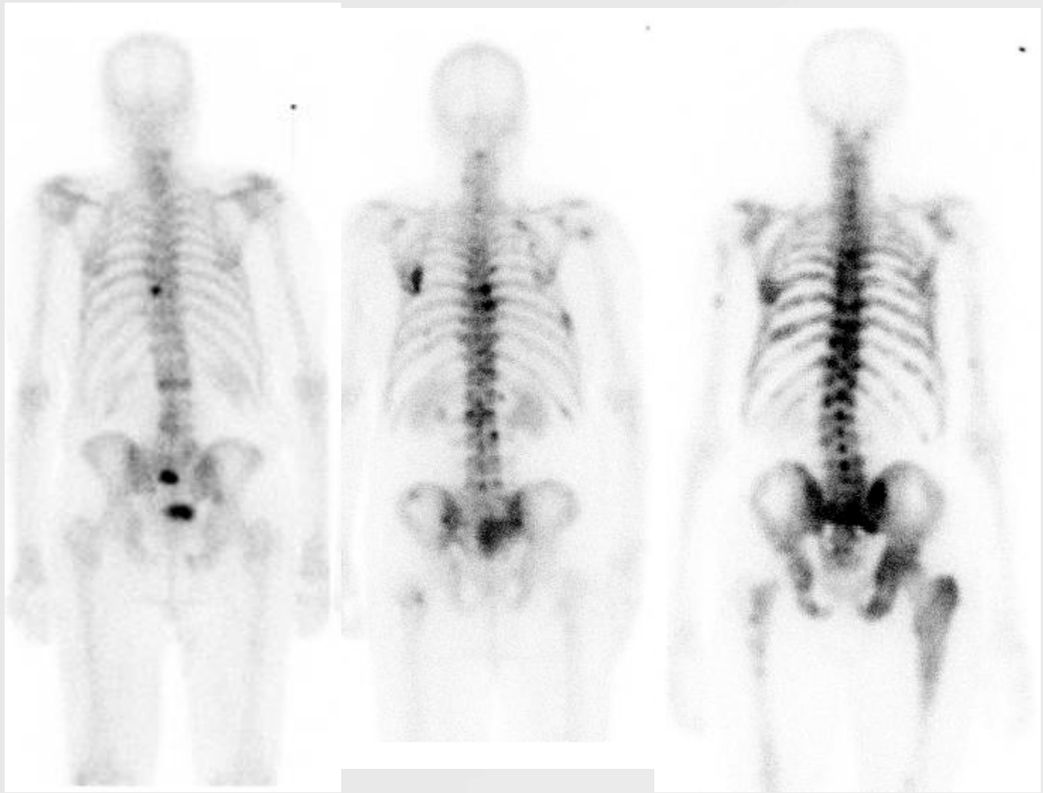
Imaging – Solution an Imaging Biomarker

Bone Scan Index	0.7	2.2	8.1
5 year survival probability	42%	31%	0%



5 year survival probability for all patients with bone metastases
24%

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It is time to be quantitative in our image analysis of cancer patients

BSI is an **objectively measured** quantitative expression of skeletal tumour burden as seen on bone scans

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Imaging Biomarker

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