

Nuclear Cardiology Notes 1.42

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作成者より

iPhone, iPad version

心臓核医学で良く用いられる検査の概要、正常値とその範囲、心筋血流SPECTによる心事故リスクの一覧を掲載しています。記載事項についてはその完全性を保証するものではありません。

随時更新されていますので最新版を利用して下さい。Ver.1.1 Aug 1, 2011

お気づきの点があれば、下記にご連絡下さい。

金沢大学・核医学：中嶋憲一

[問い合わせ先メール](#)

Related web site: [最新版の保存先](#)

[金沢大学核医学](#)

[心臓核医学会セミナー](#)

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Adenosine投与量

120 μ g/kg/minで6分間、3分後にRI静注
(1vial 60mg/20mL=3mg/mL)

禁忌：気管支喘息、2度以上の房室ブロック、低血圧（SP<90）、ジピリダモール・アミノフィリン製剤・カフェインを含む食品を12時間以内に摂取、不安定な急性冠症候群、
(相対禁忌) 洞性徐脈 (<40/分)

参考 負荷心筋の安全な実施のために：
[負荷心筋シンチグラフィ安全指針ガイドライン \(JSNC web site\)](#)

アデノシン投与量 (体重kgに対する)

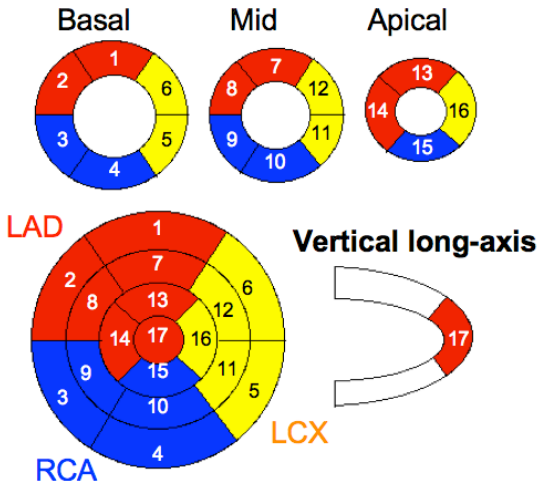
BW	mg/min	mL/min	mL/h	mg/ 6 min
40	4.8	1.6	96	28.8
45	5.4	1.8	108	32.4
50	6.0	2.0	120	36.0
55	6.6	2.2	132	39.6
60	7.2	2.4	144	43.2
65	7.8	2.6	156	46.8
70	8.4	2.8	168	50.4
75	9.0	3.0	180	54.0
80	9.6	3.2	192	57.6
85	10.2	3.4	204	61.2
90	10.8	3.6	216	64.8
95	11.4	3.8	228	68.4
100	12.0	4.0	240	72.0

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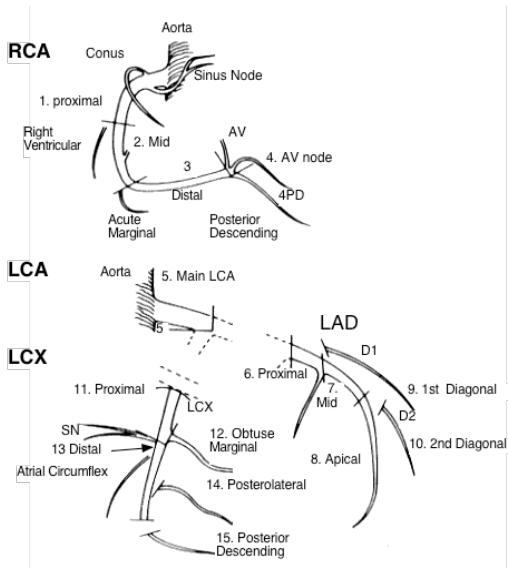
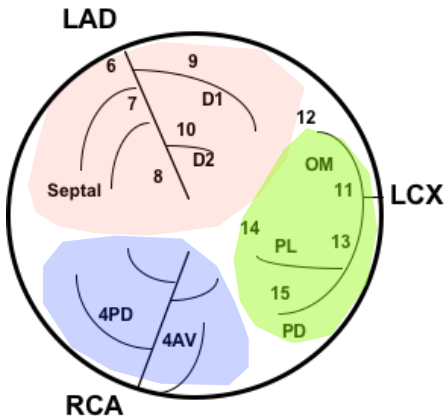
17-segment model

- Basal anterior (1)
 anteroseptal (2)
 inferoseptal (3)
 inferior (4)
 inferolateral (5)
 anterolateral (6)
- Mid anterior (7)
 anteroseptal (8)
 inferoseptal (9)
 inferior (10)
 inferolateral (11)
 anterolateral (12)
- Apical anterior (13)
 septal (14)
 inferior (15)
 lateral (16)
- Apex (17)

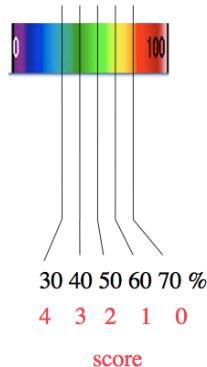
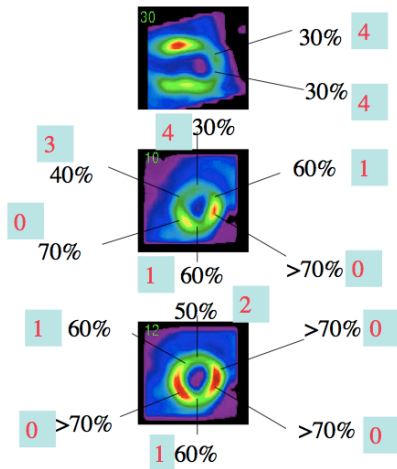
Short-axis



Coronary territory and polar map



Scoring of segments

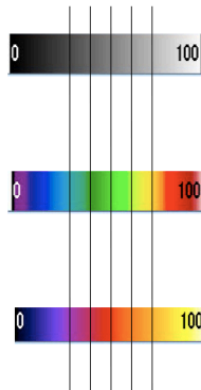
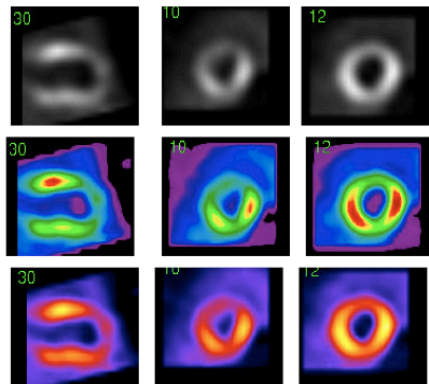


スコア

- 0 : 正常
- 1 : 軽度低下
- 2 : 中等度低下
- 3 : 高度低下
- 4 : 欠損

%値は参考となる目安なので、生理的な厚さや画像上の減弱等を考慮して読む。

Color scale



カラースケールの違いにより印象が異なるので注意。自施設のグレイスケールとカラースケールを確認しておく。

Perfusion defect score

severity	17-seg (max=68)	20-seg (max=80)	%SS
normal	0-3 (2)	0-4	0-5%
slight	4 (3)-7	4-8	5-10%
moderate	8-11	9-13	10-18%
severe	12-	14-	18%-

SSS= summed stress score: -> [Cardiac event risk](#)

SRS= summed rest score

SDS= summed difference score

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Volume curve and dV/dt

EF (%): ejection fraction

EDV (mL): end-diastolic volume

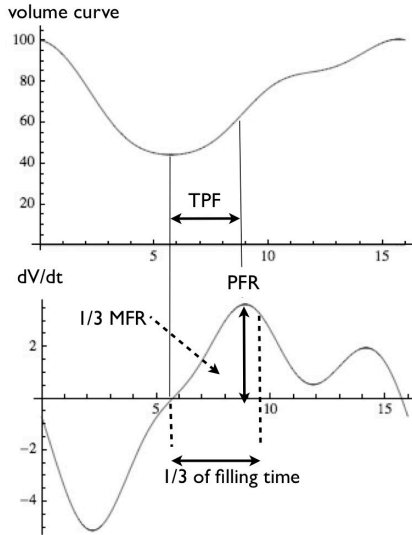
ESV (mL): end-systolic volume

Diastolic parameters

PFR (/sec): peak filling rate

1/3MFR (/sec): 1/3 mean filling rate

TPFR (msec): time to PFR



Ejection Fraction

	JSNM WG		J-ACCESS	
	Male	Female	Male	Female
EF (%)				
mean $\pm$ SD	64 $\pm$ 7	69 $\pm$ 7	63 $\pm$ 7	74 $\pm$ 9
normal range	50-78	54-84	49-78	55-92

Other normal values can be also downloaded from
[Ann Nucl Med 2010; 24:125-35. Normal values for Nuclear cardiology](#) (open access)

LV volumes (mean $\pm$ SD and normal range)

	JSNM WG		J-ACCESS	
	Male	Female	Male	Female
EDV(ml)	80 $\pm$ 16	64 $\pm$ 13	88 $\pm$ 23	59 $\pm$ 17
range	49-112	39-90	42-134	25-93
ESV(ml)	29 $\pm$ 9	20 $\pm$ 7	33 $\pm$ 13	17 $\pm$ 10
range	12-47	7-34	6-60	0-36
EDVI (ml/m ²)	47 $\pm$ 9	42 $\pm$ 7	51 $\pm$ 12	39 $\pm$ 11
range	30-64	29-55	28-75	18-61
ESVI (ml/m ²)	17 $\pm$ 5	13 $\pm$ 4	19 $\pm$ 7	11 $\pm$ 6
range	8-27	5-22	5-33	0-24

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Diastolic function (mean $\pm$ SD and normal range)

	<60 歳 (平均50歳)	≥ 60 歳の異常の頻度 (平均70歳)
PFR (/sec)	2.79 $\pm$ 0.53	0%
range	1.73-3.85	
1/3 MFR (/sec)	1.68 $\pm$ 0.30	22%
range	1.08-2.28	
TPFR (msec)	159 $\pm$ 26	19%
range	108-210	
TPFR/RR	0.17 $\pm$ 0.02	33%
range	0.13-0.22	

Wall thickening (mean $\pm$ SD and normal range)

	male	female
Basal 6 segments	25 $\pm$ 10	25 $\pm$ 9
range	6-44	6-44
Mid 6 segments	47 $\pm$ 9	53 $\pm$ 9
range	29-66	35-71
Apical 4 segments	63 $\pm$ 11	69 $\pm$ 11
range	42-84	47-92
Apex 1 segment	74 $\pm$ 12	78 $\pm$ 12
range	50-98	53-102

平均-2SDを下限とすれば、男性では中央、心尖寄り、心尖部の各領域で、約30%、40%、50%が目安となり、女性では5%を加えると良い

MPI polar map

■ 180 vs. 360

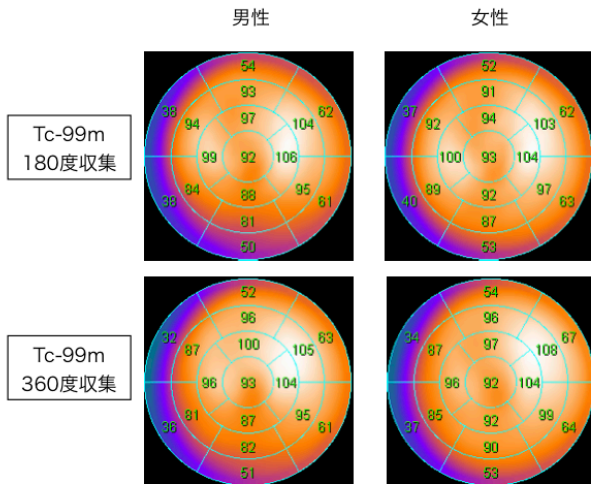
180度収集の方が中隔の
カウントが高く、前壁中隔
が低い。

■ 男性と女性

女性は前壁心尖部が低
く、男性は下壁が低い

■ 参考資料

[Ann Nucl Med 2010;
3:125-35. Normal values for
Nuclear cardiology](#)

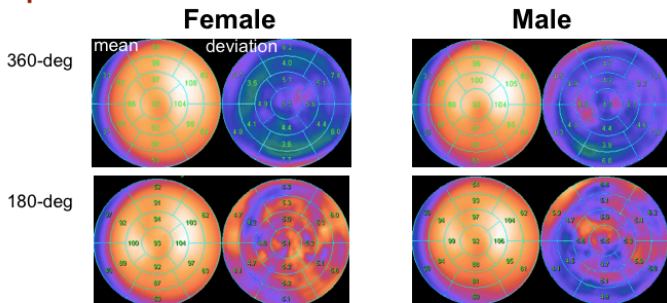


Comparison of US180, Jp180, and Jp360 normal databases

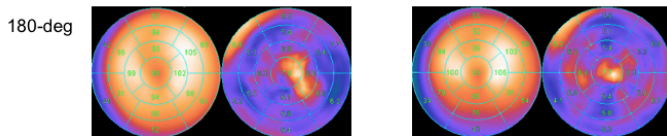
日本と米国のデータベースでは、女性の前壁、男性の下壁に差があることに注意。女性の心尖寄りセグメントでは米国人でSDが大きい。データベースにより診断率にどの程度の差が出るかは文献を参照

([J Nucl Cardiol 2009; 16:422-](#)).

Japan-JSNM WG



US-Cedars Sinai Medical Center



^{123}I -MIBG H/M ratio (mean $\pm$ SD and normal range)

Collimator		Low-energy	Medium- or low-medium-energy
Early H/M		2.39 $\pm$ 0.21	2.76 $\pm$ 0.31
	range	2.0-2.8	2.1-3.4
Late H/M		2.49 $\pm$ 0.25	3.01 $\pm$ 0.35
	range	2.0-3.0	2.3-3.7

Washout rate

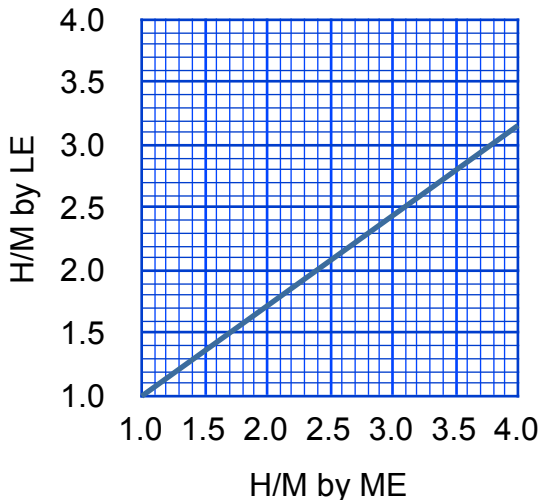
	Decay-corrected	Decay & BG corrected
median	16%	13%
range (10-90%)	9-23%	3-22%

MIBG H/M LE vs. ME 換算

この回帰式はファントム実験による平均的なLEとLME (ME) コリメータによるH/M比の関連を示している。

厳密には、各施設で最適な関係を求める必要があり、金沢大学で調査中。→[phantomの仕様](#)
→[LEとMEコリメータでの相関式](#)

このグラフから得られる数値の例は[次ページ参照](#)



心縦隔 (HM) 比変換の例：前ページの表から得られる典型的LEHRとME/LMEコリメータの関連（平均値なので、各施設で最適な変換式が必要）

LE	ME	LE	ME	LE	ME	LE	ME
1.00	1.00	1.50	1.70	2.00	2.39	2.50	3.09
1.05	1.07	1.55	1.76	2.05	2.46	2.55	3.16
1.10	1.14	1.60	1.83	2.10	2.53	2.60	3.23
1.15	1.21	1.65	1.90	2.15	2.60	2.65	3.29
1.20	1.28	1.70	1.97	2.20	2.67	2.70	3.36
1.25	1.35	1.75	2.04	2.25	2.74	2.75	3.43
1.30	1.42	1.80	2.11	2.30	2.81	2.80	3.50
1.35	1.49	1.85	2.18	2.35	2.88	2.85	3.57
1.40	1.56	1.90	2.25	2.40	2.95	2.90	3.64
1.45	1.63	1.95	2.32	2.45	3.02	2.95	3.71

Heart Risk Table based on J-ACCESS study

^{99m}Tc -Tetrofosminによる負荷心筋血流 gated SPECTを施行した症例 (n=4,629) が登録され、3年間追跡調査が施行された。その結果をもとに、SPECT検査後の心事故発生確率を予測するロジステック回帰式を作成した。心事故確率計算ソフトとしては Heart Risk Viewがある。

SSS category: 0 normal (SSS 0-3), I=slight (4-7), II=moderate (8-11), III=severe (>11)、年齢、糖尿病の有無より3年間のmajor event (心死亡、心筋梗塞、重症心不全)を計

算する。HRTの概要説明は以下を参照

<http://nucmed.w3.kanazawa-u.ac.jp/lecture/heartRisk.html>

年齢別の心事故リスク表

- ☐ [40-49 years old](#)
- ☐ [50-59 years old](#)
- ☐ [60-69 years old](#)
- ☐ [70-79 years old](#)
- ☐ [80-89 years old](#)

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□ HRT 40-49 years

Major event(%) / 3years Relative risk(倍) -- > HRT index, 40s, 50s, 60s, 70s, 80s

DM(-)

DM(+)

Age	SSS category				Age	SSS category				Age	SSS category				Age	SSS category					
	O	I	II	III		O	I	II	III		O	I	II	III		O	I	II	III		
40s EF	10	6	7	8	10	10	13	15	18	22	EF	10	13	15	18	21	10	29	34	40	47
	20	4	4	5	6	20	8	10	12	14	20	9	10	12	14	20	19	23	27	32	
	30	2	3	3	4	30	5	6	8	9	30	6	7	8	9	30	12	15	17	21	
	40	1	2	2	3	40	3	4	5	6	40	4	4	5	6	40	8	9	11	13	
	50	1	1	1	2	50	2	2	3	4	50	2	3	3	4	50	5	6	7	9	
	60	1	1	1	1	60	1	2	2	2	60	1	2	2	2	60	3	4	4	5	
	70	<.5	<.5	1	1	70	1	1	1	1	70	1	1	1	2	70	2	2	3	3	
%	80	<.5	<.5	<.5	<.5	80	<.5	1	1	1	%	80	1	1	1	1	80	1	1	2	2

左欄 (%/3年) 右欄 (同年齢対照に対する倍数) 左表は糖尿病無、右表は有

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□ HRT 50-59 years

Major event(%) / 3years Relative risk(倍) -- > [HRT index](#), [40s](#), [50s](#), [60s](#), [70s](#), [80s](#)

DM(-)

DM(+)

Age	SSS category				SSS category	Age	SSS category				SSS category								
50s EF	O	I	II	III	O	I	II	III	EF	O	I	II	III	O	I	II	III		
10	10	12	14	16	10	12	15	17	21	10	21	24	28	32	10	26	31	35	41
20	6	8	9	11	20	8	10	11	14	20	14	17	19	23	20	18	21	25	29
30	4	5	6	7	30	5	6	7	9	30	9	11	13	15	30	12	14	17	20
40	3	3	4	4	40	3	4	5	6	40	6	7	9	10	40	8	9	11	13
50	2	2	2	3	50	2	2	3	4	50	4	5	5	7	50	5	6	7	8
60	1	1	1	2	60	1	2	2	2	60	2	3	3	4	60	3	4	4	5
70	1	1	1	1	70	1	1	1	1	70	2	2	2	3	70	2	2	3	3
% 80	<.5	<.5	1	1	80	<.5	1	1	1	% 80	1	1	1	2	80	1	1	2	2

左欄 (%/3年) 右欄 (同年齢対照に対する倍数) 左表は糖尿病無、右表は有

□ HRT 60-69 years

Major event(%) / 3years Relative risk(倍) -- > [HRT index](#), [40s](#), [50s](#), [60s](#), [70s](#), [80s](#)

DM(-)

DM(+)

Age	SSS category				SSS category	Age	SSS category				SSS category								
60s EF	O	I	II	III	O	I	II	III	EF	O	I	II	III	O	I	II	III		
10	16	19	22	25	10	12	14	16	18	10	32	36	40	45	10	23	26	29	33
20	11	13	15	17	20	8	9	11	13	20	22	26	30	34	20	16	19	22	25
30	7	8	10	12	30	5	6	7	8	30	15	18	21	24	30	11	13	15	18
40	4	5	6	8	40	3	4	5	6	40	10	12	14	17	40	7	9	10	12
50	3	3	4	5	50	2	2	3	4	50	6	8	9	11	50	5	6	7	8
60	2	2	3	3	60	1	2	2	2	60	4	5	6	7	60	3	4	4	5
70	1	1	2	2	70	1	1	1	1	70	3	3	4	5	70	2	2	3	3
% 80	1	1	1	1	80	<.5	1	1	1	% 80	2	2	2	3	80	1	1	2	2

左欄 (%/3年) 右欄 (同年齢対照に対する倍数) 左表は糖尿病無、右表は有

□ HRT 70-79 years

Major event(%) / 3years Relative risk(倍) -- > [HRT index](#), [40s](#), [50s](#), [60s](#), [70s](#), [80s](#)

DM(-)

DM(+)

Age	SSS category				SSS category	Age	SSS category				SSS category								
70s EF	O	I	II	III	O	I	II	III	EF	O	I	II	III	O	I	II	III		
10	25	29	33	37	10	10	12	14	16	10	45	49	54	59	10	19	21	23	25
20	17	20	23	27	20	7	8	10	11	20	33	38	42	47	20	14	16	18	20
30	11	13	16	19	30	5	6	7	8	30	24	27	31	36	30	10	12	13	15
40	7	9	11	13	40	3	4	4	5	40	16	19	22	26	40	7	8	9	11
50	5	6	7	8	50	2	2	3	3	50	11	13	15	18	50	5	5	6	7
60	3	4	4	5	60	1	2	2	2	60	7	8	10	12	60	3	4	4	5
70	2	2	3	3	70	1	1	1	1	70	4	5	6	8	70	2	2	3	3
% 80	1	1	2	2	80	<5	1	1	1	% 80	3	3	4	5	80	1	1	2	2

左欄 (%/3年) 右欄 (同年齢対照に対する倍数) 左表は糖尿病無、右表は有

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□ HRT 80-89 years

Major event(%) / 3years Relative risk(倍) --> [HRT index](#), [40s](#), [50s](#), [60s](#), [70s](#), [80s](#)

DM(-)

DM(+)

Age	SSS category				SSS category	Age	SSS category				SSS category								
80s EF	O	I	II	III	O	I	II	III	EF	O	I	II	III	O	I	II	III		
10	37	41	46	51	10	9	10	11	12	10	58	63	67	72	10	14	15	17	18
20	27	30	35	39	20	6	7	9	10	20	47	52	56	61	20	11	13	14	15
30	18	21	25	29	30	4	5	6	7	30	35	40	45	49	30	9	10	11	12
40	12	14	17	20	40	3	4	4	5	40	25	29	33	38	40	6	7	8	9
50	8	10	11	13	50	2	2	3	3	50	17	20	24	27	50	4	5	6	7
60	5	6	7	9	60	1	2	2	2	60	12	14	16	19	60	3	3	4	5
70	3	4	5	6	70	1	1	1	1	70	8	9	11	13	70	2	2	3	3
% 80	2	2	3	4	80	1	1	1	1	% 80	5	6	7	8	80	1	1	2	2

左欄 (%/3年) 右欄 (同年齢対照に対する倍数) 左表は糖尿病無、右表は有

Heart Risk Table version 2: Revised version in conjunction with DM and CKD

Age	Low SSS DM-	high SSS DM-	low SSS DM+	high SSS DM +
40-59 y	<u>40 low SSS DM-</u>	<u>40 high SSS DM-</u>	<u>40 low SSS DM+</u>	<u>40 high SSS DM+</u>
50-59 y	<u>50 low SSS DM-</u>	<u>50 high SSS DM-</u>	<u>50 low SSS DM+</u>	<u>50 high SSS DM+</u>
60-69 y	<u>60 low SSS DM-</u>	<u>60 high SSS DM-</u>	<u>60 low SSS DM+</u>	<u>60 high SSS DM+</u>
70-79 y	<u>70 low SSS DM-</u>	<u>70 high SSS DM-</u>	<u>70 low SSS DM+</u>	<u>70 high SSS DM+</u>
80-89 y	<u>80 low SSS DM-</u>	<u>80 high SSS DM-</u>	<u>80 low SSS DM+</u>	<u>80 high SSS DM+</u>

Low SSS < 9 (normal to mild), high SSS ≥ 9 (moderate and severe defects)

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HRT2 40s low SSS DM-

40s, 50s, 60s, 70s, 80s40 lowSSS DM-, 40 high SSS DM-, 40 low SSS DM+, 40 high SSS DM+

Age	EF	Risk (%/3y)				
		eGFR ≥90	89-60	59-45	44-30	<30
40-49	10%	2	3	4	5	6
	20%	2	2	3	3	4
	30%	1	1	2	2	3
	40%	1	1	1	2	2
	50%	1	1	1	1	2
	60%	<0.5	<0.5	1	1	1
	70%	<0.5	<0.5	<0.5	1	1
	80%	<0.5	<0.5	<0.5	<0.5	1

Folds				
≥90	89-60	59-45	44-30	<30
6	8	11	14	18
5	6	8	10	13
3	4	6	7	9
2	3	4	5	6
2	2	3	3	4
1	1	2	2	3
1	1	1	2	2
1	1	1	1	2

high SSS (≥9); low SSS (<9)

[HRT2 index](#)[-> index](#)

HRT2 40s high SSS DM-

40s, 50s, 60s, 70s, 80s40 low SSS DM-, 40 high SSS DM-, 40 low SSS DM+, 40 high SSS DM+

Age	EF	Risk (%/3y)				
		eGFR ≥90	89-60	59-45	44-30	<30
40-49	10%	4	5	7	9	11
	20%	3	4	5	6	8
	30%	2	3	4	5	6
	40%	2	2	3	3	4
	50%	1	1	2	2	3
	60%	1	1	1	2	2
	70%	1	1	1	1	1
	80%	<0.5	<0.5	1	1	1

Folds				
≥90	89-60	59-45	44-30	<30
13	16	22	26	34
9	11	15	19	24
6	8	11	14	17
4	6	8	10	12
3	4	5	7	9
2	3	4	5	6
2	2	3	3	4
1	1	2	2	3

high SSS (≥9); low SSS (<9)

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HRT2 40s low SSS DM+

40s, 50s, 60s, 70s, 80s40 low SSS DM-, 40 high SSS DM-, 40 low SSS DM+, 40 high SSS DM+

Age	EF	Risk (%/3y)				
		eGFR ≥90	89-60	59-45	44-30	<30
40-49	10%	5	6	8	10	13
	20%	3	4	6	7	9
	30%	2	3	4	5	7
	40%	2	2	3	4	5
	50%	1	1	2	3	3
	60%	1	1	1	2	2
	70%	1	1	1	1	2
	80%	<0.5	1	1	1	1

Folds				
≥90	89-60	59-45	44-30	<30
14	17	24	29	37
10	12	17	21	27
7	9	12	15	19
5	6	9	11	14
3	4	6	7	10
2	3	4	5	7
2	2	3	4	5
1	1	2	3	3

high SSS (≥9); low SSS (<9)

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HRT2 40s high SSS DM+

40s, 50s, 60s, 70s, 80s40 low SSS DM-, 40 high SSS DM-, 40 low SSS DM+, 40 high SSS DM+

Age	EF	Risk (%/3y)				
		eGFR ≥90	89-60	59-45	44-30	<30
40-49	10%	9	11	15	18	22
	20%	7	8	11	13	17
	30%	5	6	8	10	12
	40%	3	4	6	7	9
	50%	2	3	4	5	6
	60%	2	2	3	4	5
	70%	1	1	2	3	3
	80%	1	1	1	2	2

Folds				
≥90	89-60	59-45	44-30	<30
27	33	44	53	65
19	24	32	39	49
14	17	23	29	36
10	12	17	21	26
7	8	12	15	19
5	6	8	10	13
3	4	6	7	9
2	3	4	5	7

high SSS (≥9); low SSS (<9)

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HRT2 50s low SSS DM-

40s, 50s, 60s, 70s, 80s50 low SSS DM-, 50 high SSS DM-, 50 low SSS DM+, 50 high SSS DM+

		Risk (%/3y)					Folds				
Age	EF	eGFR									
		≥90	89-60	59-45	44-30	<30	≥90	89-60	59-45	44-30	<30
50-59	10%	4	5	7	8	10	6	7	10	12	15
	20%	3	3	5	6	7	4	5	7	9	11
	30%	2	2	3	4	5	3	4	5	6	8
	40%	1	2	2	3	4	2	3	4	4	6
	50%	1	1	2	2	3	1	2	2	3	4
	60%	1	1	1	1	2	1	1	2	2	3
	70%	<0.5	1	1	1	1	1	1	1	2	2
	80%	<0.5	<0.5	1	1	1	<0.5	1	1	1	1

high SSS (≥9); low SSS (<9);

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HRT2 50s high SSS DM-

40s, 50s, 60s, 70s, 80s50 low SSS DM-, 50 high SSS DM-, 50 low SSS DM+, 50 high SSS DM+

Age	EF	Risk (%/3y)				
		eGFR ≥90	89-60	59-45	44-30	<30
50-59	10%	7	9	12	15	19
	20%	5	7	9	11	14
	30%	4	5	6	8	10
	40%	3	3	5	6	7
	50%	2	2	3	4	5
	60%	1	2	2	3	4
	70%	1	1	2	2	3
	80%	1	1	1	1	2

Folds				
≥90	89-60	59-45	44-30	<30
11	14	19	23	28
8	10	13	17	21
6	7	10	12	15
4	5	7	9	11
3	4	5	6	8
2	2	3	4	6
1	2	2	3	4
1	1	2	2	3

high SSS (≥9); low SSS (<9)

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HRT2 50s low SSS DM+

40s, 50s, 60s, 70s, 80s50 low SSS DM-, 50 high SSS DM-, 50 low SSS DM+, 50 high SSS DM+

		Risk (%/3y)					Folds				
Age	EF	eGFR									
		≥90	89-60	59-45	44-30	<30	≥90	89-60	59-45	44-30	<30
50-59	10%	8	10	14	16	20	12	15	20	25	31
	20%	6	7	10	12	15	9	11	15	18	23
	30%	4	5	7	9	11	6	8	11	13	17
	40%	3	4	5	6	8	4	5	8	9	12
	50%	2	3	4	4	6	3	4	5	7	9
	60%	1	2	3	3	4	2	3	4	5	6
	70%	1	1	2	2	3	2	2	3	3	4
	80%	1	1	1	2	2	1	1	2	2	3

high SSS (≥9); low SSS (<9)

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HRT2 50s high SSS DM+

40s, 50s, 60s, 70s, 80s50 low SSS DM-, 50 high SSS DM-, 50 low SSS DM+, 50 high SSS DM+

		Risk (%/3y)					Folds				
Age	EF	eGFR									
		≥90	89-60	59-45	44-30	<30	≥90	89-60	59-45	44-30	<30
50-59	10%	15	18	24	28	34	23	27	36	42	51
	20%	11	14	18	22	26	17	20	27	32	40
	30%	8	10	13	16	20	12	15	20	24	30
	40%	6	7	10	12	15	9	11	15	18	22
	50%	4	5	7	9	11	6	8	10	13	16
	60%	3	4	5	6	8	4	5	7	9	12
	70%	2	3	4	4	6	3	4	5	7	8
	80%	1	2	2	3	4	2	3	4	5	6

high SSS (≥9); low SSS (<9)

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HRT2 60s low SSS DM-

40s, 50s, 60s, 70s, 80s60 low SSS DM-, 60 high SSS DM-, 60 low SSS DM+, 60 high SSS DM+

		Risk (%/3y)					Folds				
Age	EF	eGFR									
		≥90	89-60	59-45	44-30	<30	≥90	89-60	59-45	44-30	<30
60-69	10%	7	8	11	14	17	5	6	9	10	13
	20%	5	6	8	10	13	4	5	6	8	10
	30%	3	4	6	7	9	3	3	4	5	7
	40%	2	3	4	5	7	2	2	3	4	5
	50%	2	2	3	4	5	1	2	2	3	4
	60%	1	1	2	3	3	1	1	2	2	3
	70%	1	1	1	2	2	1	1	1	1	2
	80%	1	1	1	1	2	<0.5	1	1	1	1

high SSS (≥9); low SSS (<9)

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HRT2 60s high SSS DM-

40s, 50s, 60s, 70s, 80s60 low SSS DM-, 60 high SSS DM-, 60 low SSS DM+, 60 high SSS DM+

		Risk (%/3y)					Folds				
Age	EF	eGFR									
		≥90	89-60	59-45	44-30	<30	≥90	89-60	59-45	44-30	<30
60-69	10%	13	15	20	24	29	10	12	16	18	22
	20%	9	11	15	18	22	7	9	12	14	17
	30%	7	8	11	13	17	5	6	8	10	13
	40%	5	6	8	10	12	4	4	6	7	9
	50%	3	4	6	7	9	3	3	4	5	7
	60%	2	3	4	5	6	2	2	3	4	5
	70%	2	2	3	4	5	1	2	2	3	4
	80%	1	1	2	3	3	1	1	2	2	2

high SSS (≥9); low SSS (<9)

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HRT2 60s low SSS DM+

40s, 50s, 60s, 70s, 80s60 low SSS DM-, 60 high SSS DM-, 60 low SSS DM+, 60 high SSS DM+

		Risk (%/3y)					Folds				
Age	EF	eGFR									
		≥90	89-60	59-45	44-30	<30	≥90	89-60	59-45	44-30	<30
60-69	10%	14	17	22	26	31	11	13	17	20	24
	20%	10	12	16	20	24	8	9	13	15	19
	30%	7	9	12	15	18	6	7	9	11	14
	40%	5	6	9	11	14	4	5	7	8	10
	50%	4	5	6	8	10	3	3	5	6	8
	60%	3	3	4	6	7	2	2	3	4	5
	70%	2	2	3	4	5	1	2	2	3	4
	80%	1	2	2	3	4	1	1	2	2	3

high SSS (≥9); low SSS (<9)

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HRT2 60s high SSS DM+

40s, 50s, 60s, 70s, 80s60 low SSS DM-, 60 high SSS DM-, 60 low SSS DM+, 60 high SSS DM+

Age	EF	Risk (%/3y)				
		eGFR ≥90	89-60	59-45	44-30	<30
60-69	10%	24	29	36	41	48
	20%	18	22	28	33	39
	30%	14	16	22	26	31
	40%	10	12	16	19	24
	50%	7	9	12	14	18
	60%	5	6	9	11	13
	70%	4	4	6	8	10
	80%	3	3	4	5	7

Folds				
≥90	89-60	59-45	44-30	<30
19	22	28	32	37
14	17	22	25	30
10	13	17	20	24
8	9	12	15	18
5	7	9	11	14
4	5	7	8	10
3	3	5	6	7
2	2	3	4	5

high SSS (≥9); low SSS (<9)

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HRT2 70s low SSS DM-

40s, 50s, 60s, 70s, 80s70 low SSS DM-, 70 high SSS DM-, 70 low SSS DM+, 70 high SSS DM+

		Risk (%/3y)					Folds				
Age	EF	eGFR									
		≥90	89-60	59-45	44-30	<30	≥90	89-60	59-45	44-30	<30
70-79	10%	7	8	11	14	17	4	5	7	9	11
	20%	5	6	8	10	13	3	4	5	7	8
	30%	3	4	6	7	9	2	3	4	5	6
	40%	2	3	4	5	7	2	2	3	3	4
	50%	2	2	3	4	5	1	1	2	2	3
	60%	1	1	2	3	3	1	1	1	2	2
	70%	1	1	1	2	2	1	1	1	1	2
	80%	1	1	1	1	2	<0.5	1	1	1	1

high SSS (≥9); low SSS (<9)

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HRT2 70s high SSS DM-

40s, 50s, 60s, 70s, 80s70 low SSS DM-, 70 high SSS DM-, 70 low SSS DM+, 70 high SSS DM+

		Risk (%/3y)					Folds				
Age	EF	eGFR									
		≥90	89-60	59-45	44-30	<30	≥90	89-60	59-45	44-30	<30
70-79	10%	13	15	20	24	29	8	10	12	14	17
	20%	9	11	15	18	22	6	7	10	11	13
	30%	7	8	11	13	17	4	5	7	9	10
	40%	5	6	8	10	12	3	4	5	6	8
	50%	3	4	6	7	9	2	3	4	5	6
	60%	2	3	4	5	6	2	2	3	3	4
	70%	2	2	3	4	5	1	1	2	2	3
	80%	1	1	2	3	3	1	1	1	2	2

high SSS (≥9); low SSS (<9)

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HRT2 70s low SSS DM+

40s, 50s, 60s, 70s, 80s70 low SSS DM-, 70 high SSS DM-, 70 low SSS DM+, 70 high SSS DM+

		Risk (%/3y)					Folds				
Age	EF	eGFR									
		≥90	89-60	59-45	44-30	<30	≥90	89-60	59-45	44-30	<30
70-79	10%	14	17	22	26	31	9	10	13	15	18
	20%	10	12	16	20	24	7	8	10	12	14
	30%	7	9	12	15	18	5	6	8	9	11
	40%	5	6	9	11	14	4	4	6	7	9
	50%	4	5	6	8	10	3	3	4	5	6
	60%	3	3	4	6	7	2	2	3	4	5
	70%	2	2	3	4	5	1	2	2	3	3
	80%	1	2	2	3	4	1	1	2	2	2

high SSS (≥9); low SSS (<9)

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HRT2 70s high SSS DM+

40s, 50s, 60s, 70s, 80s70 low SSS DM-, 70 high SSS DM-, 70 low SSS DM+, 70 high SSS DM+

Age	EF	Risk (%/3y)				
		eGFR ≥90	89-60	59-45	44-30	<30
70-79	10%	24	29	36	41	48
	20%	18	22	28	33	39
	30%	14	16	22	26	31
	40%	10	12	16	19	24
	50%	7	9	12	14	18
	60%	5	6	9	11	13
	70%	4	4	6	8	10
	80%	3	3	4	5	7

Folds				
≥90	89-60	59-45	44-30	<30
14	17	20	22	25
11	13	16	19	21
9	10	13	15	18
6	8	10	12	14
5	6	8	9	11
3	4	6	7	8
2	3	4	5	6
2	2	3	4	5

high SSS (≥9); low SSS (<9)

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HRT2 80s low SSS DM-

40s, 50s, 60s, 70s, 80s80 low SSS DM-, 80 high SSS DM-, 80 low SSS DM+, 80 high SSS DM+

		Risk (%/3y)				
Age	EF	eGFR				
		≥90	89-60	59-45	44-30	<30
80-89	10%	19	22	29	34	40
	20%	14	17	22	26	32
	30%	10	12	16	20	24
	40%	7	9	12	15	18
	50%	5	6	9	11	14
	60%	4	5	6	8	10
	70%	3	3	4	6	7
	80%	2	2	3	4	5

		Folds				
Age	EF	≥90	89-60	59-45	44-30	<30
		≥90	89-60	59-45	44-30	<30
80-89	10%	4	5	6	7	8
	20%	3	3	5	5	7
	30%	2	3	3	4	5
	40%	1	2	2	3	4
	50%	1	1	2	2	3
	60%	1	1	1	2	2
	70%	1	1	1	1	1
	80%	<0.5	<0.5	1	1	1

high SSS (≥9); low SSS (<9)

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HRT2 80s high SSS DM-

40s, 50s, 60s, 70s, 80s80 low SSS DM-, 80 high SSS DM-, 80 low SSS DM+, 80 high SSS DM+

		Risk (%/3y)				
Age	EF	eGFR				
		≥90	89-60	59-45	44-30	<30
80-89	10%	32	37	45	50	57
	20%	24	29	36	42	48
	30%	18	22	28	33	39
	40%	14	16	22	26	31
	50%	10	12	16	20	24
	60%	7	9	12	14	18
	70%	5	6	9	11	13
	80%	4	4	6	8	10

Folds				
≥90	89-60	59-45	44-30	<30
7	8	9	10	12
5	6	7	9	10
4	5	6	7	8
3	3	4	5	6
2	2	3	4	5
1	2	2	3	4
1	1	2	2	3
1	1	1	2	2

high SSS (≥9); low SSS (<9)

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HRT2 80s low SSS DM+

40s, 50s, 60s, 70s, 80s80 low SSS DM-, 80 high SSS DM-, 80 low SSS DM+, 80 high SSS DM+

		Risk (%/3y)					Folds				
Age	EF	eGFR									
		≥90	89-60	59-45	44-30	<30	≥90	89-60	59-45	44-30	<30
80-89	10%	34	39	47	53	60	7	8	10	11	12
	20%	26	31	39	44	51	5	6	8	9	10
	30%	20	24	31	36	42	4	5	6	7	9
	40%	15	18	23	28	33	3	4	5	6	7
	50%	11	13	18	21	26	2	3	4	4	5
	60%	8	10	13	16	20	2	2	3	3	4
	70%	6	7	9	12	15	1	1	2	2	3
	80%	4	5	7	8	11	1	1	1	2	2

high SSS (≥9); low SSS (<9)

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HRT2 80s high SSS DM+

40s, 50s, 60s, 70s, 80s80 low SSS DM-, 80 high SSS DM-, 80 low SSS DM+, 80 high SSS DM+

		Risk (%/3y)				
Age	EF	eGFR				
		≥90	89-60	59-45	44-30	<30
80-89	10%	51	56	64	69	75
	20%	42	47	56	61	67
	30%	33	39	47	53	59
	40%	26	30	38	44	50
	50%	20	23	30	35	41
	60%	15	18	23	27	33
	70%	11	13	17	21	26
	80%	8	9	13	16	19

Folds				
≥90	89-60	59-45	44-30	<30
10	12	13	14	15
9	10	11	13	14
7	8	10	11	12
5	6	8	9	10
4	5	6	7	8
3	4	5	6	7
2	3	4	4	5
2	2	3	3	4

high SSS (≥9); low SSS (<9)

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