FRAX® WHO Fracture Risk Assessment Tool

New Zealand - The probabilities of a major osteoporotic fracture in women

The following tables give the 10-year probability (%) of a major osteoporotic fracture (hip, clinical spine, forearm or proximal humerus fracture) according to the T-score for femoral neck BMD , the number of clinical risk factors (CRF) and age. Each table provides a mean estimate and a range, based on the epidemiology of New Zealand. The range is not a confidence interval, but because the weight of different risk factors varies, is a true range.

Note that the BMI is set at 24 kg/m².

Age = 50 years

Number of CRFs	BMD T-score (femoral neck)										
	-4.0	**-3.5**	**-3.0**	**-2.5**	**-2.0**	**-1.5**	**-1.0**	**-0.5**	**0**	**0.5**	**1.0**
0	9.8	6.2	4.1	3.0	2.3	1.9	1.6	1.4	1.4	1.3	1.3
1	15 (13-19)	9.6 (8.4-12)	6.4 (5.4-8.1)	4.6 (3.6-5.8)	3.5 (2.6-4.4)	2.9 (2.0-3.7)	2.4 (1.6-3.2)	2.2 (1.4-3.0)	2.1 (1.3-2.9)	2.0 (1.3-2.7)	1.9 (1.2-2.6)
2	23 (17-32)	14 (11-21)	9.7 (7.3-14)	6.9 (4.8-9.9)	5.3 (3.3-8.1)	4.3 (2.5-6.9)	3.6 (2.0-6.0)	3.2 (1.7-5.5)	3.0 (1.6-5.3)	2.9 (1.5-5.1)	2.8 (1.4-4.9)
3	33 (23-45)	21 (15-29)	14 (10-21)	10 (6.5-16)	7.8 (4.5-13)	6.3 (3.3-11)	5.2 (2.6-9.7)	4.7 (2.2-8.9)	4.4 (2.1-8.5)	4.2 (1.9-8.2)	4.1 (1.8-7.9)
4	46 (32-58)	31 (21-39)	21 (14-27)	15 (9.8-21)	11 (7.4-17)	9.0 (5.5-14)	7.5 (4.3-12)	6.8 (3.7-11)	6.4 (3.4-11)	6.1 (3.1-10)	5.8 (3.0-10)
5	60 (50-70)	43 (34-49)	30 (23-33)	21 (16-25)	16 (12-20)	13 (9.7-17)	11 (8.1-15)	9.5 (6.9-13)	9.0 (6.3-13)	8.5 (5.8-12)	8.2 (5.5-12)
6	75	57	41	30	22	18	15	13	12	12	11

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Ten year probability of osteoporotic fractures (%) according to BMD, the number of clinical risk factors (CRF) and age in women from New Zealand.

Age = 55 years

Number of CRFs	BMD T-score (femoral neck)										
	-4.0	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0	0.5	1.0
0	11	7.5	5.3	3.9	3.1	2.5	2.1	1.9	1.8	1.7	1.6
1	17 (15-20)	11 (10-14)	8.0 (6.7-9.7)	5.9 (4.6-7.2)	4.6 (3.4-5.8)	3.8 (2.7-4.9)	3.2 (2.1-4.3)	2.9 (1.9-4.0)	2.7 (1.8-3.8)	2.5 (1.6-3.6)	2.4 (1.6-3.4)
2	25 (20-33)	17 (14-23)	12 (9.0-16)	8.8 (6.1-13)	6.9 (4.4-10)	5.6 (3.3-8.8)	4.7 (2.6-7.6)	4.3 (2.3-7.1)	4.0 (2.1-6.7)	3.7 (2.0-6.4)	3.5 (1.8-6.1)
3	35 (26-45)	24 (18-32)	17 (12-25)	13 (8.2-20)	10 (5.8-17)	8.1 (4.4-14)	6.8 (3.5-12)	6.2 (3.0-11)	5.7 (2.7-11)	5.4 (2.5-10)	5.1 (2.4-9.7)
4	48 (35-58)	34 (24-41)	25 (17-32)	18 (13-26)	14 (9.7-21)	12 (7.3-18)	9.6 (5.7-16)	8.8 (5.0-15)	8.2 (4.5-14)	7.7 (4.1-13)	7.3 (3.8-12)
5	62 (53-70)	46 (38-51)	34 (28-39)	26 (20-31)	20 (16-25)	16 (13-21)	13 (10-18)	12 (8.9-17)	11 (8.0-16)	11 (7.4-15)	10 (6.9-14)
6	76	60	46	35	27	22	19	17	16	15	14

Age = 60 years

Number of CRFs	BMD T-score (femoral neck)										
	-4.0	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0	0.5	1.0
0	13	8.6	6.2	4.6	3.6	2.9	2.5	2.3	2.1	1.9	1.8
1	19 (17-21)	13 (11-15)	9.3 (7.7-11)	6.9 (5.5-8.2)	5.4 (4.0-6.8)	4.3 (3.1-5.7)	3.7 (2.6-5.0)	3.3 (2.3-4.6)	3.1 (2.0-4.3)	2.9 (1.9-4.0)	2.7 (1.7-3.8)
2	27 (22-34)	19 (15-25)	14 (10-18)	10 (7.2-14)	7.9 (5.2-12)	6.4 (3.9-9.8)	5.4 (3.1-8.6)	4.9 (2.7-8.0)	4.5 (2.4-7.5)	4.2 (2.2-7.0)	3.9 (2.0-6.6)
3	37 (29-45)	27 (21-35)	19 (14-28)	15 (9.7-22)	11 (6.9-18)	9.2 (5.2-16)	7.8 (4.1-14)	7.0 (3.6-13)	6.4 (3.2-12)	6.0 (2.9-11)	5.6 (2.6-10)
4	50 (38-58)	37 (27-44)	27 (20-35)	21 (15-28)	16 (11-23)	13 (8.6-20)	11 (6.8-17)	9.9 (5.8-16)	9.1 (5.1-15)	8.4 (4.6-14)	7.9 (4.3-13)
5	63 (56-69)	49 (42-53)	37 (31-42)	28 (23-34)	22 (18-28)	18 (15-23)	15 (12-21)	14 (10-19)	13 (8.9-18)	12 (8.1-16)	11 (7.4-15)
6	76	62	48	38	30	24	21	19	17	16	15

Ten year probability of osteoporotic fractures (%) according to BMD, the number of clinical risk factors (CRF) and age in women from New Zealand.

Age = 65 years

Number of CRFs	BMD T-score (femoral neck)										
	-4.0	**-3.5**	**-3.0**	**-2.5**	**-2.0**	**-1.5**	**-1.0**	**-0.5**	**0**	**0.5**	**1.0**
0	16	12	8.6	6.5	5.1	4.0	3.5	3.2	2.9	2.6	2.4
1	24 (22-27)	17 (15-19)	13 (10-14)	9.5 (7.5-11)	7.4 (5.6-9.3)	5.9 (4.3-7.8)	5.2 (3.6-7.0)	4.6 (3.2-6.4)	4.2 (2.8-5.9)	3.8 (2.5-5.4)	3.5 (2.3-5.0)
2	33 (28-40)	24 (20-30)	18 (14-23)	14 (9.9-19)	11 (7.2-15)	8.6 (5.4-13)	7.5 (4.5-12)	6.7 (3.8-11)	6.1 (3.4-9.8)	5.5 (3.0-9.1)	5.1 (2.7-8.4)
3	44 (36-53)	33 (27-43)	25 (19-35)	19 (13-29)	15 (9.6-24)	12 (7.2-20)	11 (5.9-18)	9.5 (5.0-17)	8.6 (4.4-15)	7.8 (3.9-14)	7.2 (3.5-13)
4	56 (46-63)	44 (34-52)	34 (26-43)	27 (20-36)	21 (15-30)	17 (12-25)	15 (9.6-23)	13 (8.1-21)	12 (7.0-19)	11 (6.3-18)	10 (5.7-17)
5	69 (63-73)	56 (50-61)	45 (39-51)	35 (31-42)	28 (24-35)	23 (19-30)	20 (16-27)	18 (13-24)	16 (12-23)	15 (10-21)	14 (9.5-19)
6	79	68	56	46	37	31	27	24	22	20	19

Age = 70 years

Number of CRFs	BMD T-score (femoral neck)										
	-4.0	**-3.5**	**-3.0**	**-2.5**	**-2.0**	**-1.5**	**-1.0**	**-0.5**	**0**	**0.5**	**1.0**
0	22	16	12	8.9	6.9	5.6	4.8	4.2	3.7	3.3	3.0
1	31 (28-37)	23 (20-27)	17 (14-20)	13 (10-15)	9.8 (7.7-12)	7.9 (6.0-9.2)	6.7 (5.0-7.8)	5.8 (4.2-6.8)	5.1 (3.7-6.0)	4.6 (3.2-5.4)	4.1 (2.9-4.9)
2	43 (36-53)	33 (26-41)	24 (19-31)	18 (14-24)	14 (10-18)	11 (7.7-15)	9.3 (6.2-12)	8.0 (5.2-11)	7.0 (4.5-9.5)	6.2 (3.9-8.6)	5.6 (3.4-7.8)
3	57 (47-68)	45 (35-56)	34 (25-45)	26 (18-35)	20 (13-28)	15 (10-23)	13 (8.2-19)	11 (6.8-17)	9.6 (5.8-15)	8.5 (5.1-13)	7.6 (4.5-12)
4	71 (61-78)	59 (48-67)	46 (37-55)	36 (27-44)	27 (20-35)	21 (16-29)	18 (13-25)	15 (11-21)	13 (9.3-19)	11 (8.0-17)	10 (7.1-15)
5	81 (76-84)	72 (65-76)	60 (52-65)	48 (41-53)	37 (31-43)	29 (25-35)	24 (20-30)	20 (17-26)	17 (15-23)	15 (13-20)	13 (11-18)
6	87	82	73	61	49	39	33	27	23	20	18

Ten year probability of osteoporotic fractures (%) according to BMD, the number of clinical risk factors (CRF) and age in women from New Zealand.

Age = 75 years

Number of CRFs	BMD T-score (femoral neck)										
	-4.0	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0	0.5	1.0
0	27	20	15	11	8.8	7.2	6.1	5.2	4.5	4.0	3.5
1	40 (33-59)	30 (25-46)	23 (18-35)	17 (13-25)	13 (10-18)	10 (7.9-14)	8.6 (6.4-11)	7.2 (5.3-8.6)	6.1 (4.5-7.1)	5.3 (3.9-6.2)	4.6 (3.4-5.5)
2	54 (42-73)	43 (32-62)	34 (24-50)	26 (18-38)	19 (13-29)	15 (10-22)	12 (8.2-17)	10 (6.7-14)	8.4 (5.6-11)	7.2 (4.8-9.7)	6.2 (4.1-8.6)
3	68 (53-81)	58 (41-73)	47 (31-62)	37 (23-50)	28 (17-39)	22 (14-31)	18 (11-25)	14 (8.9-20)	12 (7.4-16)	9.7 (6.2-14)	8.3 (5.3-12)
4	78 (64-86)	71 (53-80)	61 (42-72)	51 (32-61)	40 (25-49)	32 (20-40)	25 (16-32)	20 (13-26)	16 (11-21)	13 (9.6-18)	11 (8.3-15)
5	85 (75-89)	81 (66-85)	74 (56-80)	65 (46-71)	54 (36-60)	44 (30-49)	35 (24-40)	28 (20-33)	23 (17-27)	18 (15-22)	15 (13-19)
6	89	87	83	77	68	58	48	39	31	25	20

Age = 80 years

Number of CRFs	BMD T-score (femoral neck)										
	-4.0	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0	0.5	1.0
0	31	24	19	15	12	9.8	8.3	7.1	6.1	5.3	4.6
1	43 (36-62)	35 (28-51)	28 (22-41)	21 (17-32)	17 (13-24)	14 (10-19)	12 (8.6-15)	9.8 (7.2-12)	8.3 (6.0-9.9)	7.1 (5.1-8.1)	6.1 (4.4-7.0)
2	56 (45-72)	47 (36-64)	38 (28-54)	30 (22-44)	24 (17-36)	20 (14-29)	16 (11-23)	14 (9.1-19)	11 (7.6-15)	9.5 (6.4-13)	8.1 (5.4-11)
3	67 (54-79)	59 (45-73)	51 (36-65)	42 (28-55)	34 (22-45)	28 (18-37)	23 (15-31)	19 (12-26)	16 (10-21)	13 (8.4-18)	11 (7.1-15)
4	76 (63-84)	70 (54-79)	63 (45-73)	54 (36-64)	45 (29-55)	38 (24-47)	31 (20-39)	26 (17-33)	21 (14-27)	18 (12-23)	15 (10-19)
5	83 (72-86)	79 (65-83)	73 (57-78)	66 (48-72)	58 (40-64)	50 (34-56)	42 (29-48)	35 (24-41)	29 (21-34)	24 (18-29)	20 (15-24)
6	86	84	81	76	69	62	54	46	39	32	26

Ten year probability of osteoporotic fractures (%) according to BMD, the number of clinical risk factors (CRF) and age in women from New Zealand.

Age = 85 years

Number of CRFs	BMD T-score (femoral neck)										
	-4.0	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0	0.5	1.0
0	33	27	22	17	15	12	11	9.1	7.8	6.7	5.8
1	44 (35-60)	37 (29-52)	30 (23-43)	24 (18-35)	20 (15-29)	17 (13-24)	15 (11-19)	12 (9.0-16)	11 (7.6-13)	9.0 (6.5-11)	7.7 (5.5-9.0)
2	55 (43-69)	47 (36-62)	40 (29-54)	33 (24-46)	28 (20-39)	24 (16-33)	20 (14-28)	17 (11-23)	14 (9.6-19)	12 (8.1-16)	10 (6.8-14)
3	65 (52-76)	58 (45-70)	51 (37-64)	43 (30-56)	37 (25-49)	32 (21-42)	27 (18-36)	23 (15-31)	19 (13-26)	16 (11-22)	14 (9.0-19)
4	73 (61-81)	68 (54-76)	62 (46-71)	54 (39-64)	48 (33-58)	42 (28-51)	36 (24-45)	31 (21-39)	26 (18-33)	22 (15-28)	19 (13-24)
5	79 (68-83)	76 (62-81)	71 (55-77)	65 (48-71)	59 (43-66)	53 (37-60)	47 (33-54)	40 (28-47)	35 (24-41)	29 (21-35)	25 (18-30)
6	83	82	79	74	69	64	58	51	45	38	33

Age = 90 years

Number of CRFs	BMD T-score (femoral neck)										
	-4.0	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0	0.5	1.0
0	28	23	19	15	13	11	9.6	8.2	7.0	5.9	5.1
1	38 (30-53)	32 (24-45)	26 (20-38)	22 (16-32)	19 (14-27)	16 (12-22)	13 (9.7-19)	11 (8.2-16)	9.7 (6.9-13)	8.2 (5.9-11)	7.0 (5.0-8.9)
2	48 (37-62)	42 (31-56)	35 (25-49)	30 (21-42)	26 (18-37)	22 (15-31)	19 (13-27)	16 (11-23)	13 (8.9-19)	11 (7.5-16)	9.6 (6.3-13)
3	59 (45-70)	52 (39-65)	46 (32-58)	40 (27-52)	35 (23-46)	30 (20-40)	26 (17-35)	22 (14-30)	19 (12-25)	16 (9.9-22)	13 (8.3-18)
4	68 (54-76)	62 (48-71)	56 (41-66)	50 (35-60)	45 (30-55)	40 (26-49)	35 (23-43)	30 (19-38)	26 (16-32)	22 (14-28)	18 (12-24)
5	75 (63-79)	71 (57-76)	66 (50-72)	61 (44-68)	56 (39-63)	51 (35-58)	45 (30-52)	40 (26-46)	34 (23-40)	30 (20-35)	25 (17-30)
6	79	77	74	71	66	62	56	51	45	39	34