OsteoporosisM80.x, M48.5*1Osteoporosis with current pathological fractureM80.x, M48.5*2Osteoporosis without current pathological fractureM81.x3FracturesS22.0x, S22.13Vertebral fractureS32.0x4Hip fractureS72.0x except S72.084Hip fractureS72.1, S72.2M 80.x5*(S.22.3 (ribs))5Non-hip fracture, non-vertebral fractures(S.22.3 (ribs))5Non-hip fracture, non-vertebral fractures(Including, among others, M80.99*, M80.08*)5Non-hip fractureS52.5, S52.6, S28.5, S2.9, M80.x3*6Forearm fractureS52.5, S52.6, S28.5, S2.9, M80.x3*7Fracture of pelvisS32.1, S32.4, S32.59Fracture of neck of the femurS72.0x except S72.0810Pertrochanteric fractureS72.011Large osteoporotic fractureS72.0	Number	Description	ICD-10-GM Code
2Osteoporosis without current pathological fractureM81.x2Fractures\$22.0x, \$22.13Vertebral fracture\$22.0x, \$22.13Vertebral fracture\$22.0x, \$22.14Hip fracture\$72.0x except \$72.084Hip fracture\$72.1, \$72.2M 80.x5*\$52.3 (ribs))5Non-hip fracture, non-vertebral fractures\$52.5 (distal radius)5Non-hip fracture, non-vertebral fractures\$52.5 (distal radius)5Non-hip fracture, non-vertebral fractures\$32.4, \$32.5 (pelvis)5S52.5 (distal radius)\$30.00,1,2,3,4,6,7,9*) or (M 80.x*6Forearm fracture\$52.5, \$52.6, \$52.8, \$2.9, \$32.1 or7Fracture of humerus\$52.5, \$52.6, \$52.8, \$52.9, \$32.1 or8Fracture of pelvis\$32.1, \$32.4, \$32.59Fracture of new for the femur\$72.0x except \$72.0810Pertrochanteric fracture\$72.111Large osteoporotic fracture\$32.0, \$52.5, \$2.4		Osteoporosis	
2fractureFracturesS22.0x, S22.13Vertebral fractureS32.0x4Hip fractureS72.0x except S72.084Hip fractureS72.1, S72.2M 80.x5*(S.22.3 (ribs))5S32.1, S32.4, S32.5 (pelvis)5Non-hip fracture, non-vertebral fracturesM80.x0,1,2,3,4,6,7,9*) or (M 80.x*5Non-hip fracture, non-vertebral fracturesM80.x0,1,2,3,4,6,7,9*) or (M 80.x*6Forearm fractureS52.5, S52.6, 52.8, 52.9, M80.x3*7Fracture of humerusS32.1, S32.4, S32.59Fracture of pelvisS32.1, S32.4, S32.59Fracture of neck of the femurS72.0x except S72.0810Pertrochanteric fractureS72.011Large osteoporotic fractureS32.01-055 52.4	1	Osteoporosis with current pathological fracture	M80.x, M48.5*
fracturefractures3Fractures\$22.0x, \$22.13Vertebral fracture\$32.0x4Hip fracture\$72.0x except \$72.084Hip fracture\$72.1, \$72.2M 80.x5*\$32.1, \$32.4, \$32.5 (pelvis)5S52.1, \$32.4, \$32.5 (pelvis)5S52.5 (distal radius)M80.x0,1,2,3,4,6,7,9*) or (M 80.x*(including, among others, M80.0,1,2,3,4,6,7,9*) or (M 80.x*6Forearm fracture\$52.5, \$52.6, \$22.3 or \$32.1 or \$32.4 or \$32.5 or \$42.2 or \$52.5 or M80.x0,1,2,3,4,6,7,9)6Forearm fracture\$52.5, \$52.6, \$22.8, \$22.9, M80.x3*7Fracture of humerus\$32.1, \$32.4, \$32.59Fracture of neck of the femur\$72.0x except \$72.0810Pertrochanteric fracture\$72.011Large osteoporotic fracture\$32.01-055 \$2.4	2	Osteoporosis without current pathological	M81.x
3Vertebral fracture522.0x, 522.13Vertebral fracture532.0x4Hip fracture572.0x except 572.084Hip fracture572.1, 572.2M 80.x5*(5.22.3 (ribs))5532.1, 532.4, 532.5 (pelvis)5542.2 (proximal humerus)552.5 (distal radius)M80.x0,1,2,3,4,6,7,9*) or (M 80.x*(including, among others, M80.99*, M80.08*)M80.99*, M80.08*)AND NOT (Number 1 or Number 2 or 522.3 or 532.1 or 532.4 or 532.5 or 542.2 or 552.5 or M80.x0,1,2,3,4,6,7,9))6Forearm fracture552.5, 552.6, 52.8, 52.9, M80.x3*7Fracture of humerus542.2x, M80.x2*8Fracture of neck of the femur572.0x except 572.0810Pertrochanteric fracture572.01-0611Large osteoporotic fracture532.01-055 52.4		fracture	
3Vertebral fractureS32.0x M80.x8*, M48.5*4Hip fracture\$72.0x except \$72.08 \$72.1, \$72.2 M 80.x5*4Hip fracture\$72.1, \$72.2 M 80.x5*5S\$52.3 (ribs)] \$32.1, \$32.4, \$32.5 (pelvis) \$42.2 (proximal humerus) \$52.5 (distal radius) M80.x0,1,2,3,4,6,7,9*) or (M 80.x* (including, among others, M80.99*, M80.08*) AND NOT (Number 1 or Number 2 or \$22.3 or \$32.1 or \$32.4 or \$32.5 or \$42.2 or \$52.5 or M80.x0,1,2,3,4,6,7,9))6Forearm fracture\$52.5, \$52.6, \$52.8, \$52.9, \$M80.x3*7Fracture of humerus\$42.2x, M80.x2*8Fracture of pelvis\$32.1, \$32.4, \$32.59Fracture of neck of the femur\$72.0x except \$72.0810Pertrochanteric fracture\$72.111Large osteoporotic fracture\$32.0011Large osteoporotic fracture\$32.01-05\$ \$52.4		Fractures	
M80.x8*, M48.5*4Hip fracture\$72.0x except \$72.084Hip fracture\$72.1, \$72.2M 80.x5*(\$22.3 (ribs))5\$32.1, \$32.4, \$32.5 (pelvis)\$32.1, \$32.4, \$32.5 (pelvis)\$42.2 (proximal humerus)\$52.5 (distal radius)M80.x0,1,2,3,4,6,7,9*) or (M 80.x*5Non-hip fracture, non-vertebral fractures(including, among others, M80.99*, M80.08*)AND NOT (Number 1 or Number 2 or \$22.3 or \$32.1 or \$32.4 or \$32.5 or \$42.2 or \$52.5 or M80.x0,1,2,3,4,6,7,9))6Forearm fracture\$52.5, \$52.6, \$52.8, \$52.9, M80.x3*7Fracture of humerus\$42.2x, M80.x2*8Fracture of neck of the femur\$72.0x except \$72.089Fracture of neck of the femur\$72.110Pertrochanteric fracture\$72.111Large osteoporotic fracture\$32.01-05\$ \$52.4			S22.0x, S22.1
4Hip fractureS72.0x except S72.084Hip fractureS72.1, S72.2M 80.x5*(S.22.3 (ribs))S32.1, S32.4, S32.5 (pelvis)S42.2 (proximal humerus)S52.5 (distal radius)M80.x0,1,2,3,4,6,7,9*) or (M 80.x*5Non-hip fracture, non-vertebral fractures(including, among others, M80.99*, M80.08*)5Non-hip fracture non-vertebral fracturesS32.1 (S32.4 (S32.5 or S32.1 or S32.4 or S32.5 or S42.2 or S52.5 or M80.x0,1,2,3,4,6,7,9))6Forearm fractureS52.5, S52.6, 52.8, 52.9, M80.x3*7Fracture of humerusS42.2x, M80.x2*8Fracture of pelvisS32.1, S32.4, S32.59Fracture of neck of the femurS72.0x except S72.0810Pertrochanteric fractureS72.111Large osteoporotic fractureS32.0011Large osteoporotic fractureS32.01-05S 52.4	3	Vertebral fracture	S32.0x
4Hip fractureS72.1, S72.2 M 80.x5*4Hip fractureS72.1, S72.2 M 80.x5*5Reserve a second and a sec			M80.x8*, M48.5*
Image: Construct of the second state of the second			S72.0x except S72.08
Image: constraint of the fermur(S.22.3 (ribs))5Non-hip fracture, non-vertebral fractures(S.22.3 (ribs))5Non-hip fracture, non-vertebral fracturesS52.5 (distal radius)5Non-hip fracture, non-vertebral fractures(including, among others, N80.99*, M80.08*)5Non-hip fracture, non-vertebral fracturesS52.5 (distal radius)6Forearm fractureS52.5 or S42.2 or S52.5 or M80.x0,1,2,3,4,6,7,9))6Forearm fractureS52.5, S52.6. 52.8, 52.9, M80.x3*7Fracture of humerusS42.2x, M80.x2*8Fracture of pelvisS32.1, S32.4, S32.59Fracture of neck of the femurS72.0x except S72.0810Pertrochanteric fractureS72.111Large osteoporotic fractureS32.0011Large osteoporotic fractureS32.01-055 52.4	4	Hip fracture	S72.1, S72.2
 S32.1, S32.4, S32.5 (pelvis) S42.2 (proximal humerus) S52.5 (distal radius) M80.x0,1,2,3,4,6,7,9*) or (M 80.x* (including, among others, M80.99*, M80.08*) AND NOT (Number 1 or Number 2 or S22.3 or S32.1 or S32.4 or S32.5 or S42.2 or S52.5 or M80.x0,1,2,3,4,6,7,9) Forearm fracture Forearm fracture S52.5, S52.6, 52.8, 52.9, M80.x3* Fracture of humerus S42.2x, M80.x2* Fracture of neck of the femur S72.0x except S72.08 Pertrochanteric fracture S72.01-06 S32.00 Large osteoporotic fracture S32.01-05S 52.4 			M 80.x5*
5S42.2 (proximal humerus) S52.5 (distal radius) M80.x0,1,2,3,4,6,7,9*) or (M 80.x* (including, among others, M80.99*, M80.08*) AND NOT (Number 1 or Number 2 or S22.3 or S32.1 or S32.4 or S32.5 or S42.2 or S52.5 or M80.x0,1,2,3,4,6,7,9))6Forearm fracture Forearm fractureS52.5, S52.6. 52.8, 52.9, M80.x3*7Fracture of humerusS42.2x, M80.x2*8Fracture of pelvisS32.1, S32.4, S32.59Fracture of neck of the femurS72.0x except S72.0810Pertrochanteric fractureS72.111Large osteoporotic fractureS32.0011Large osteoporotic fractureS32.01-05S 52.4			(S.22.3 (ribs))
 S52.5 (distal radius) M80.x0,1,2,3,4,6,7,9*) or (M 80.x* (including, among others, M80.99*, M80.08*) AND NOT (Number 1 or Number 2 or S22.3 or S32.1 or S32.4 or S32.5 or S42.2 or S52.5 or M80.x0,1,2,3,4,6,7,9)) Forearm fracture S52.5, S52.6, 52.8, 52.9, M80.x3* Fracture of humerus S42.2x, M80.x2* Fracture of pelvis S32.1, S32.4, S32.5 Fracture of neck of the femur S72.0x except S72.08 Pertrochanteric fracture S72.01-06 S32.00 Large osteoporotic fracture S32.01-05S 52.4 			S32.1, S32.4, S32.5 (pelvis)
5M80.x0,1,2,3,4,6,7,9*) or (M 80.x* (including, among others, M80.99*, M80.08*) AND NOT (Number 1 or Number 2 or \$22.3 or \$32.1 or \$32.4 or \$32.5 or \$42.2 or \$52.5 or M80.x0,1,2,3,4,6,7,9))6Forearm fracture\$52.5, \$52.6. 52.8, 52.9, M80.x3*7Fracture of humerus\$42.2x, M80.x2*8Fracture of pelvis\$32.1, \$32.4, \$32.59Fracture of neck of the femur\$72.0x except \$72.0810Pertrochanteric fracture\$72.111Large osteoporotic fracture\$32.00532.00\$32.01-05\$ \$52.4			S42.2 (proximal humerus)
5Non-hip fracture, non-vertebral fractures(including, among others, M80.99*, M80.08*) AND NOT (Number 1 or Number 2 or S22.3 or S32.1 or S32.4 or S32.5 or S42.2 or S52.5 or M80.x0,1,2,3,4,6,7,9))6Forearm fractureS52.5, S52.6. 52.8, 52.9, M80.x3*7Fracture of humerusS42.2x, M80.x2*8Fracture of pelvisS32.1, S32.4, S32.59Fracture of neck of the femurS72.0x except S72.0810Pertrochanteric fractureS72.111Large osteoporotic fractureS32.0012Large osteoporotic fractureS32.01-05S 52.4			S52.5 (distal radius)
Image: Problem of the fermineKine of the fermineM80.99*, M80.08*)AND NOT (Number 1 or Number 2 or S22.3 or S32.1 or S32.4 or S32.5 or S42.2 or S52.5 or M80.x0,1,2,3,4,6,7,9))6Forearm fractureS52.5, S52.6. 52.8, 52.9, M80.x3*7Fracture of humerusS42.2x, M80.x2*8Fracture of pelvisS32.1, S32.4, S32.59Fracture of neck of the femurS72.0x except S72.0810Pertrochanteric fractureS72.111Large osteoporotic fractureS32.01-05S 52.4			M80.x0,1,2,3,4,6,7,9*) or (M 80.x*
AND NOT (Number 1 or Number 2 or \$22.3 or \$32.1 or \$32.4 or \$32.5 or \$42.2 or \$52.5 or M80.x0,1,2,3,4,6,7,9))6Forearm fracture\$52.5, \$52.6, 52.8, 52.9, M80.x3*7Fracture of humerus\$42.2x, M80.x2*8Fracture of pelvis\$32.1, \$32.4, \$32.59Fracture of neck of the femur\$72.0x except \$72.0810Pertrochanteric fracture\$72.1522.01-06\$32.0011Large osteoporotic fracture\$32.01-05\$ 52.4	5	Non-hip fracture, non-vertebral fractures	(including, among others,
Number 2 or S22.3 or S32.1 orS32.4 or S32.5 or S42.2 or S52.5 orM80.x0,1,2,3,4,6,7,9))Forearm fractureS52.5, S52.6. 52.8, 52.9, M80.x3*Fracture of humerusS42.2x, M80.x2*Fracture of pelvisS32.1, S32.4, S32.5Fracture of neck of the femurS72.0x except S72.08Pertrochanteric fractureS72.1Large osteoporotic fractureS32.00S32.01-055 52.4			M80.99*, M80.08*)
S32.4 or S32.5 or S42.2 or S52.5 or M80.x0,1,2,3,4,6,7,9))6Forearm fracture552.5, S52.6. 52.8, 52.9, M80.x3*7Fracture of humerus8Fracture of pelvis9Fracture of neck of the femur9Fracture of neck of the femur10Pertrochanteric fracture10S72.020S22.01-0632.00S32.01-055 52.4			AND NOT (Number 1 or
M80.x0,1,2,3,4,6,7,9))Forearm fractureS52.5, S52.6, 52.8, 52.9, M80.x3*Fracture of humerusS42.2x, M80.x2*Fracture of pelvisS32.1, S32.4, S32.5Fracture of neck of the femurS72.0x except S72.08Pertrochanteric fractureS72.1S22.01-06S32.00S32.1Large osteoporotic fractureS32.01-05S 52.4			Number 2 or S22.3 or S32.1 or
6Forearm fractureS52.5, S52.6. 52.8, 52.9, M80.x3*7Fracture of humerusS42.2x, M80.x2*8Fracture of pelvisS32.1, S32.4, S32.59Fracture of neck of the femurS72.0x except S72.0810Pertrochanteric fractureS72.110Large osteoporotic fractureS32.0011Large osteoporotic fractureS32.01-05S 52.4			S32.4 or S32.5 or S42.2 or S52.5 or
7Fracture of humerus542.2x, M80.x2*8Fracture of pelvisS32.1, S32.4, S32.59Fracture of neck of the femurS72.0x except S72.0810Pertrochanteric fractureS72.110Large osteoporotic fractureS32.0011Large osteoporotic fractureS32.01-05S 52.4			M80.x0,1,2,3,4,6,7,9))
8Fracture of pelvisS32.1, S32.4, S32.59Fracture of neck of the femurS72.0x except S72.0810Pertrochanteric fractureS72.110Large osteoporotic fractureS22.01-0611Large osteoporotic fractureS32.00	6	Forearm fracture	S52.5, S52.6. 52.8, 52.9, M80.x3*
9Fracture of neck of the femurS72.0x except S72.0810Pertrochanteric fractureS72.110S72.0S22.01-0611Large osteoporotic fractureS32.0011Stepporotic fractureS32.01-05S 52.4	7	Fracture of humerus	S42.2x, M80.x2*
10Pertrochanteric fractureS72.110S22.01-0611Large osteoporotic fractureS32.0011S32.01-05S 52.4	8	Fracture of pelvis	\$32.1, \$32.4, \$32.5
S22.01-06 S32.00 11 Large osteoporotic fracture S32.01-05S 52.4	9	Fracture of neck of the femur	S72.0x except S72.08
11Large osteoporotic fractureS32.00S32.01-05S 52.4	10	Pertrochanteric fracture	S72.1
11Large osteoporotic fracture\$32.01-05\$ 52.4	11		S22.01-06
			S32.00
572 0		Large osteoporotic fracture	S32.01-05S 52.4
572.0			S72.0
S72.00			\$72.00

Table S1: Diagnosis codes used for identification from the International Classification of Diseases, 10th Edition, German Modification (ICD-10-GM)

		\$72.01-05
		S72.1
		S72.2
		S52.4, S42.2
		S42.2, S42.20, S42.21
		S42.22 S42.23 S42.24
		\$42.29, M80.x2,3,5,8*
12	Osteoporotic fracture, any form	Number 1 or
		Number 2 or
		Number 3 or
		M80.x* (including, among others,
		M80.99* <i>,</i> M80.08*)

An asterisk (*) indicates that at this position a modifier for any feature is allowed.

Table S2: Codes used from the Anatomical Therapeutic Chemical (ATC) Classification System

Class	ATC code	
Calcium	A12A	
Hormone therapy	G03	
Vitamin D	A11C2 or A11C3	
Bisphosphonates	M05BA	
Denosumab	M05BX04	
Tibolone	G03CX01	
Raloxifene	G03XC01	
Strontium ranelate	M05BX03	
Parathormone	H05AA03	