Supplementary Table 1. The association of clinicopathological variables of bone metastatic cancers and skeletal-related events at diagnosis. Odds ratios and 95% confidence intervals were calculated using univariable logistic regression

Variables	Category	Reference	Bone metastases (OR, 95%CI)	Skeletal-related events (OR, 95%CI)
Age	≤40 years	>40 years	**1.795 (1.236-2.427)**	**1.623 (1.117-2.358)**
Ethnicity	Javanese	Non-Javanese	0.531 (0.242-1.162)	0.540 (0.173-1.686)
Residence	Rural	Urban	**2.081 (1.418-3.052)**	**2.140 (1.384-3.309)**
Menarche	≤12 years	>12 years	1.235 (0.862-1.770)	1.238 (0.833-1.841)
Menopause	≤50 years	> 50 years	1.302 (0.793-2.138)	1.596 (0.882-2.891)
Parity	Multiparity	Nulliparity	1.302 (0.793-2.138)	1.596 (0.882-2.891)
Breastfeeding practice	Yes	No	1.256 (0.864-1.826)	1.258 (0.829-1.910)
BMI	>25	≤25	1.078 (0.804-1.443)	1.188 (0.861-1.639)
Family history	Yes	No	1.270 (0.860-1.877)	1.207 (0.785-1.856)
Education	Lower than high school	High school and university	1.046 (0.786-1.390)	1.092 (0.797-1.497)
Tumor size	>5cm	≤ 5 cm	1.027 (0.756-1.396)	1.029 (0.732-1.446)
Axillary node	Positive	Negative	**2.363 (1.582-3.529)**	**2.423 (1.534-3.826)**
Estrogen receptor	Positive	Negative	**1.963 (1.449-2.659)**	**1.970 (1.403-2.766)**
Progesterone receptor	Positive	Negative	**1.513 (1.139-2.011)**	1.312 (0.957-1.798)
HER2 expression	Positive	Negative	1.050 (0.767-1.436)	1.400 (0.847-2.313)
Intrinsic subtype	Luminal	Non-Luminal	**1.851 (1.366-2.506)**	**1.862 (1.326-2.618)**
Histological type	Lobular	Ductal	**2.386 (1.606-3.546)**	**2.304 (1.501-3.538)**
Having multiple metabolic comorbidities	Yes	No	**1.477 (1.057-2.063)**	**1.500 (1.040-2.164)**

Supplementary Table 2. The association of clinicopathological variables with the risks of recurrent bone metastases and skeletal-related events in breast cancer patients after median follow up of 4.6 years. Odds ratios and 95% confidence intervals were calculated using univariable logistic regression.

Variables	Category	Reference	Bone metastases (OR, 95%CI)	Skeletal-related events (OR, 95%CI)
Age	≤40 years	>40 years	1.447 (0.924-2.257)	1.239 (0.746-2.058)
Ethnicity	Javanese	Non-Javanese	0.459 (0.167-1.266)	0.495 (0.165-1.483)
Residence	Rural	Urban	**1.654 (1.001-2.415)**	**1.794 (1.081-2.977)**
Menarche	≤12 years	>12 years	1.176 (0.807-1.715)	1.133 (0.677-1.896)
Menopause	≤50 years	> 50 years	1.165 (0.803-1.689)	1.208 (0.781-1.869)
Parity	Multiparity	Nulliparity	0.508 (0.119-1.293)	0.564 (0.256-1.245)
Breastfeeding practice	Yes	No	0.708 (0.382-1.315)	1.571 (0.890-2.774)
BMI	>25	≤25	1.430 (0.912-2.242)	1.170 (0.776-1.766)
Family history	Yes	No	0.918 (0.501-1.681)	1.084 (0.636-1.847)
Education	Lower than high school	High school and university	0.846 (0.580-1.231)	1.126 (0.745-1.702)
Tumor size	>5cm	≤ 5 cm	1.127 (0.703-1.805)	0.971 (0.633-1.489)
Axillary node	Positive	Negative	**2.189 (1.345-3.563)**	**1.991 (1.176-3.371)**
Estrogen receptor	Positive	Negative	**1.760 (1.194-2.596)**	**1.786 (1.160-2.749)**
Progesterone receptor	Positive	Negative	1.360 (0.943-1.961)	1.206 (0.804-1.808)
HER2 expression	Positive	Negative	1.172 (0.768-1.789)	0.835 (0.521-1.439)
Intrinsic subtype	Luminal	Non-Luminal	**1.788 (1.206-2.652)**	**1.764 (1.140-2.725)**
Histological type	Lobular	Ductal	**2.126 (1.235-3.661)**	**2.637 (1.503-4.624)**
Having multiple metabolic comorbidities	Yes	No	1.123 (0.775-1.629)	**1.686 (1.077-2.639)**

Supplementary Table 3. Distribution of bone metastases (367 events diagnosed in 232 patients) and SREs (288 events in 180 patients)

	Bone metastases N (%)	Skeletal related events N(%)
Skull	91 (24.8)	53 (18.4)
Upper extremity	49 (13.3)	38 (13.2)
Lower extremity	69 (18.8)	58 (20.1)
Thoracic cage	19 (5.2)	16 (5.6)
Spine	94 (25.6)	84 (29.2)
Pelvic bone	45 (12.2)	39 (13.5)
	367 (100)	288(100)

Supplementary Table 4. Frequency of bone metastasis and associated bone pain

	Symptom of bone pain N(%)	Without bone pain N(%)
Evidence of bone metastasis	217 (93.5)	15 (6.5)
Without evidence of bone metastasis	14 (1.3)	1083 (98.7)

Supplementary Table 5. Attainable treatment of breast cancer patients with bone metastases (N=232)

Treatment	N (%)
Systemic treatment	
Chemotherapy	106 (45.7)
Endocrine therapy	156 (67.2)
Bisphosphonate bone modifier	184 (79.3)
Analgesic and bone modifier	
Analgesic non-opioid	86 (37.1)
Analgesic opioid	196 (84.5)
Radiotherapy	193 (83.2)
Spine surgery	8 (3.4)
Bone stabilization surgery	28 (12.1)