

Table 1 Distribution of diagnostic groups by gender, race, age group, time period and their overall survival rates

| Diagnostic group | n (%) | n (%) | | | | | 0-4 years | 5-9 years | 10-15 years | Overall survival (%) (95% CI) | |
|---------------------|---------------|------------|-----------|-----------|-----------|------------|------------|-----------|-------------|----------------------------------|-------------|
| | | Male | Female | African n | Caucasia | Mixed race | | | | | |
| Leukemia | 259 | 144 (55.6) | 115 | 40 (15.4) | 64 (24.7) | 154 (59.5) | 126 (48.7) | 74 (28.6) | 59 (22.8) | 59.1 (52.8, | |
| Pre-B ALL | (27.7) | 72 | (44.4) | 14 (10.2) | 42 (30.7) | 81 (59.1) | 82 (59.9) | 37 (27) | 18 (13.1) | 65.1) | |
| T-ALL | 137 | (52.6) | 37 | 65 (47.5) | 6 (13) | 7 (15.2) | 32 (69.6) | 11 (23.9) | 20 (43.5) | 15 (32.6) | 74.5 (66.3, |
| AML | (14.7) | (80.4) | 9 (19.6) | 16 (26.2) | 10 (16.4) | 35 (57.4) | 28 (45.9) | 12 (19.7) | 21 (34.4) | 81.5) | |
| | 46 (4.9) | 26 (42.6) | 35 (57.4) | | | | | | | 56.5 (41.1, | |
| | 61 (6.5) | | | | | | | | | 71.1) | |
| | | | | | | | | | | 29.5 (18.5, | |
| | | | | | | | | | | 42.6) | |
| Brain tumors | 172 (18.4) | 95 (55.2) | 77 (44.8) | 36 (20.9) | 17 (9.9) | 119 (69.2) | 66 (38.4) | 77 (44.8) | 29 (16.9) | 48.8 (41.2, | |
| | | | | | | | | | | 56.6) | |
| Lymphoma | 132 | 95 (72) | 37 (28) | 26 (19.7) | 22 (16.7) | 83 (62.9) | 33 (25) | 52 (39.4) | 47 (35.6) | 76.5 (68.4, | |
| BL | (14.1) | 42 (79.3) | 11 (20.8) | 10 (18.9) | 9 (17) | 34 (64.2) | 23 (43.4) | 15 (28.3) | 15 (28.3) | 83.5) | |
| NHL | 53 (5.7) | 26 (65) | 14 (35) | 8 (20) | 7 (17.5) | 24 (60) | 7 (17.5) | 21 (52.5) | 12 (30) | 75.5 (61.7, | |
| HL | 40 (4.3) | 27 (69.2) | 12 (30.8) | 8 (20.5) | 6 (15.4) | 25 (64.1) | 3 (7.7) | 16 (41) | 20 (51.3) | 86.2) | |
| | 39 (4.2) | | | | | | | | | 65 (48.3, 79.4) | |
| | | | | | | | | | | 89.7 (75.8, | |
| | | | | | | | | | | 97.1) | |
| Nephroblastoma | 75 (8) | 36 (48) | 39 (52) | 22 (29.3) | 10 (13.3) | 43 (57.3) | 61 (81.3) | 11 (14.7) | 3 (4.0) | 89.3 (80.1, | |
| | | | | | | | | | | 95.3) | |
| Soft tissue sarcoma | 69 (7.4) | 37 (53.6) | 32 (46.4) | 21 (30.4) | 9 (13) | 39 (56.5) | 33 (47.8) | 19 (27.5) | 17 (24.6) | 52.2 (39.8, | |
| | | | | | | | | | | 64.4) | |
| Bone tumors | 50 (5.4) | 23 (46) | 27 (54) | 9 (18) | 6 (12) | 34 (68) | 2 (4) | 10 (20) | 38 (76) | 28 (16.2, 42.5) | |
| Neuroblastoma | 48 (5.13) | 29 (60.4) | 19 (39.6) | 10 (20.8) | 8 (16.7) | 30 (62.5) | 40 (83.3) | 6 (12.5) | 2 (4.2) | 27.1 (15.3, | |
| | | | | | | | | | | 41.8) | |
| Retinoblastoma | 30 (3.2) | 17 (56.7) | 13 (43.3) | 12 (40) | 1 (3.3) | 17 (56.7) | 29 (96.7) | 1 (3.3) | 0 (0) | 86.7 (69.3, | |
| | | | | | | | | | | 96.2) | |
| Less common cancers | 100 (10.7) | 52 (52) | 48 (48) | 12 (12) | 19 (19) | 69 (69) | 48 (48) | 29 (29) | 23 (23) | 69 (59, 77.9) | |

| | | | | | | | | | | |
|-------|-----------|------------|---------------|------------|------------|------------|------------|------------|------------|-----------------|
| Total | 935 (100) | 528 (56.5) | 407 (43.5) | 188 (20.1) | 156 (16.7) | 588 (62.9) | 438 (46.8) | 279 (29.8) | 218 (23.3) | 60.2 (57, 63.4) |
|-------|-----------|------------|---------------|------------|------------|------------|------------|------------|------------|-----------------|

Table 2 Comparison of relative frequency and OS between the two study periods

| Diagnostic group | Relative frequency % | | Limited\Standard risk | | | Advanced\high risk | | |
|------------------------|----------------------|-----------|-----------------------|-------------------|----------|--------------------|-------------------|----------|
| | 1994-2001 | 2002-2014 | OS(%) (95% CI) | | P-values | OS(%) (95% CI) | | P-values |
| | | | 1994-2001 | 2002-2014 | | 1994-2001 | 2002-2014 | |
| Leukemia | 28.9 | 27.0 | 80.9 (66.7, 90.9) | 84.2 (72.1, 92.5) | 0.652 | 37 (24.3, 51.3) | 46.5 (36.5, 56.7) | 0.299 |
| Pre-B ALL | 10 | 13.7 | 91.9 (78.1, 98.3) | 93.6 (82.5, 98.7) | 0.747 | 37.5 (15.2, | 48.6 (31.9, 65.6) | 0.493 |
| T-ALL | 2.9 | 5.3 | - | - | - | 64.6) | 61.3 (42.2, 78.2) | 0.422 |
| AML | 7.7 | 5.8 | 33.3 (7.5, 70.1) | 40 (12.2, 73.8) | 0.879 | 46.7 (21.3, | 25 (9.8, 46.7) | 0.800 |
| Brain tumors | 19.4 | 17.8 | 65.4 (44.3, 82.8) | 67.6 (50.2, 82) | 0.803 | 27.8 (9.7, 53.5) | 45.8 (31.4, 60.8) | 0.354 |
| Lymphoma | 14.9 | 13.7 | 91.7 (61.5, 99.8) | 96.2 (80.4, 99.9) | 0.585 | 34.3 (19.1, | 70.7 (54.4, 83.9) | 0.949 |
| BL | 7.7 | 4.4 | 100 (39.8, 100) | 100 (54.1, 100) | - | 52.2) | 70 (34.8, 93.3) | 0.577 |
| NHL | 5.4 | 3.6 | 80 (28.4, 99.5) | 100 (15.8, 100) | 0.527 | 92.2) | 56.3 (29.9, 80.2) | 0.617 |
| HL | 1.7 | 5.6 | 100 (29.2, 100) | 94.4 (72.7, 99.9) | 0.683 | 64.3 (35.1, | 86.7 (59.5, 98.3) | 0.364 |
| Nephroblastom a | 9.1 | 7.4 | 100 (76.8, 100) | 85.2 (66.3, 95.8) | 0.184 | 66.7 (9.4, 99.2) | 92.9 (66.1, 99.8) | 0.434 |
| Soft tissue sarcoma | 6.9 | 7.7 | 100 (39.8, 100) | 85.7 (42.1, 99.6) | 0.450 | 82.4 (55.6, | 40.6 (23.7, 59.4) | 0.271 |
| Bone tumors | 4.6 | 5.8 | 25 (3.2, 65.1) | 53.8 (25.1, 80.8) | 0.740 | 96.2) | 14.3 (1.8, 42.8) | 0.513 |
| Neuroblastoma | 4.6 | 5.5 | 100 (15.8, 100) | 100 (2.5, 100) | - | 52.9 (27.8, 77) | 16.1 (5.5, 33.7) | 0.139 |
| Retinoblastoma | 2.6 | 3.6 | 100 (47.8, 100) | 100 (66.4, 100) | - | 50 (1.3, 98.7) | 66.7 (22.3, 95.7) | 0.583 |

| | | | | | | | | |
|---------------------|-----|------|-------------------|-------------------|-------|-------------------|-------------------|-------|
| Less common cancers | 9.1 | 11.6 | 77.8 (40, 97.2) | 100 (75.3, 100) | 0.108 | 55.6 (30.8, 78.5) | 64.3 (44.1, 81.4) | 0.472 |
| Total | 100 | 100 | 78.7 (70.6, 85.5) | 83.2 (77.1, 88.2) | 0.390 | 49.3 (42.2, 56.4) | 48.6 (42.9, 54.2) | 0.740 |

Table 3. Adjusted Hazard ratios of the selected potential risk factors in solid tumors and their reference groups

| Solid tumors | | | |
|-------------------------|--------------|---------|-----------|
| Factors | Hazard ratio | P-value | 95% CI |
| <i>Age group</i> | | | |
| 1-4 years | | | |
| 5-9 years | 0.8 | 0.275 | 0.6, 1.2 |
| 10-15 years | 1 | 0.839 | 0.7, 1.4 |
| <i>Diagnostic group</i> | | | |
| Nephroblastoma | | | |
| Brain tumor | 7.1 | <0.001 | 3,4, 15 |
| Bone tumor | 9.2 | <0.001 | 4.1, 20.9 |
| Neuroblastoma | 8.5 | <0.001 | 3.9, 18.5 |
| Retinoblastoma | 1.2 | 0.782 | 0.4, 4 |
| Soft tissue sarcoma | 4.9 | <0.001 | 2.2, 11 |
| Less common and unknown | 3 | 0.008 | 1.3, 6.6 |
| <i>Stage</i> | | | |
| Limited risk | | | |
| Advanced risk | 2.4 | <0.001 | 1.6, 3.4 |
| <i>HIV status</i> | | | |
| HIV (-) | | | |
| HIV (+) | 1.7 | 0.219 | 0.7, 3.7 |
| <i>Ethnicity</i> | | | |
| Caucasian | | | |
| African | 1.8 | 0.019 | 1.1, 3.1 |
| Mixed race | 1.7 | 0.028 | 1.1, 2.6 |

Table 4. Adjusted Hazard ratios of the selected potential risk factors in hematologic malignancies and their reference groups

| Hematologic malignancies | | | |
|--------------------------|--------------|---------|----------|
| Factors | Hazard ratio | P-value | 95% CI |
| <i>Diagnostic group</i> | | | |
| Lymphoma | | | |
| Leukemia | 2.3 | <0.001 | 1.5, 3.6 |
| <i>Stage</i> | | | |
| Standard risk | | | |
| High risk | 4.2 | <0.001 | 2.6, 6.8 |
| <i>Comorbid diseases</i> | | | |
| No comorbid diseases | | | |
| Down syndrome | 2.4 | 0.082 | 0.9, 6.7 |