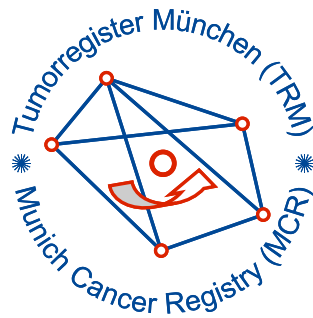


# Munich Cancer Registry



- ▶ Baseline statistics
- ▶ Selection Matrix
- ▶ Homepage
- ▶ *Deutsch*

Munich Cancer Registry at Munich Cancer Center  
Marchioninstr. 15  
Munich, 81377  
Germany

<http://www.tumorregister-muenchen.de/en>

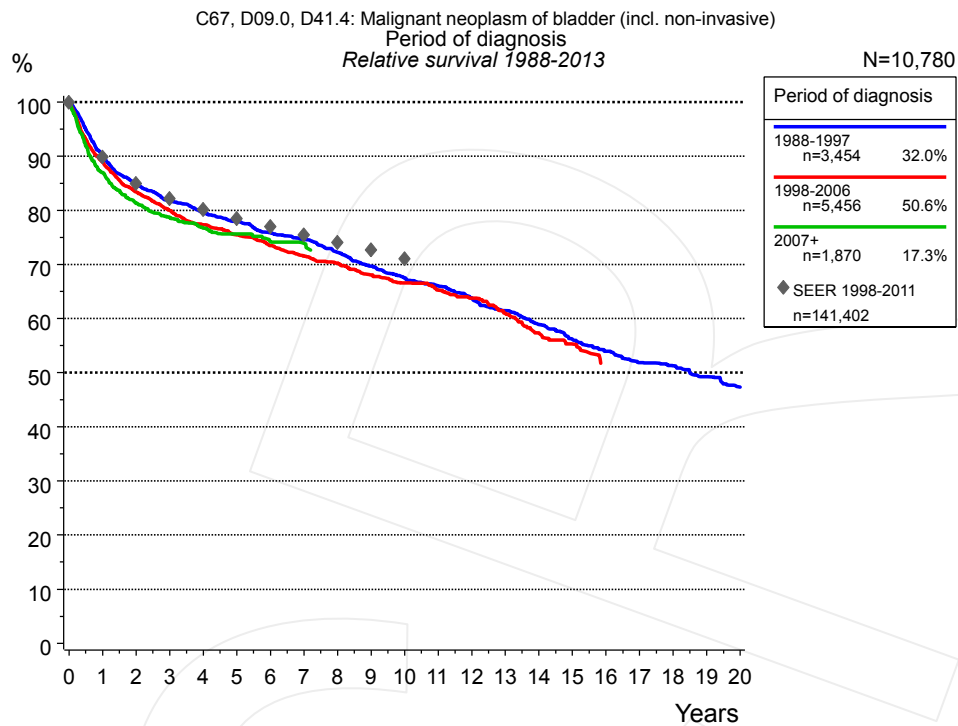
## Cancer statistics: Survival

### C67, D09.0, D41.4: Bladder cancer

|                   |            |
|-------------------|------------|
| Year of diagnosis | 1988-2013  |
| Patients          | 20,556     |
| Diseases          | 20,830     |
| Cases evaluated   | 10,780     |
| Creation date     | 05/13/2015 |
| Export date       | 12/30/2014 |
| Population        | 4.64 m     |



[http://www.tumorregister-muenchen.de/en/facts/surv/surv\\_C67D\\_E.pdf](http://www.tumorregister-muenchen.de/en/facts/surv/surv_C67D_E.pdf)

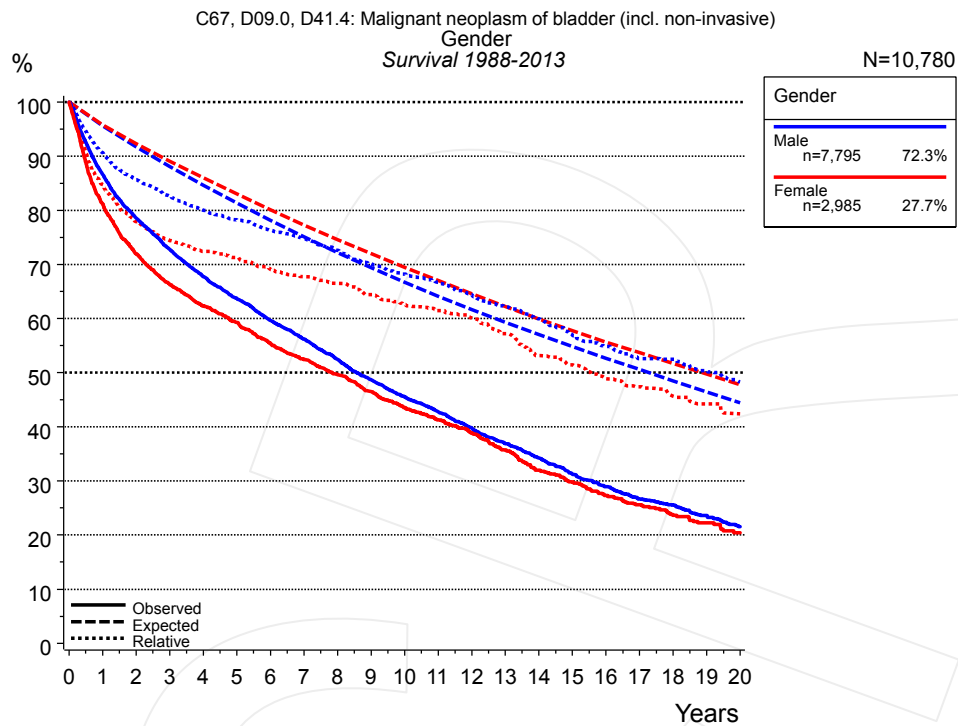


**Figure 1a.** Relative survival of patients with bladder cancer by period of diagnosis. Included in the evaluation are 10,780 cases diagnosed between 1988 and 2013.

The presented survival curves are derived from clinical records with valid follow-up informations, which means that death certificate cases (DCO) cases are omitted from the analysis. With this one restriction, the MCR has provided population-based statistics since 1988, collecting data on all cancer cases in the region of southern Bavaria. Historical data of previous time periods can be heavily selected, therefore, univariate survival comparisons of the presented time periods must be carefully considered. Nonetheless, all calculable survival curves are depicted to facilitate the comparison of long time follow-up analyses of relative survival between particular cancers.

| Period of diagnosis |                      |        |                      |        |                  |        |
|---------------------|----------------------|--------|----------------------|--------|------------------|--------|
| Years               | 1988-1997<br>n=3,454 |        | 1998-2006<br>n=5,456 |        | 2007+<br>n=1,870 |        |
|                     | obs. %               | rel. % | obs. %               | rel. % | obs. %           | rel. % |
| 0                   | 100.0                | 100.0  | 100.0                | 100.0  | 100.0            | 100.0  |
| 1                   | 86.1                 | 90.2   | 85.1                 | 88.9   | 83.6             | 87.0   |
| 2                   | 77.4                 | 84.8   | 76.8                 | 83.4   | 75.4             | 81.3   |
| 3                   | 71.5                 | 81.7   | 70.9                 | 80.0   | 70.5             | 78.6   |
| 4                   | 66.7                 | 79.5   | 66.0                 | 77.3   | 66.5             | 76.7   |
| 5                   | 62.9                 | 78.0   | 62.1                 | 75.5   | 63.5             | 75.6   |
| 6                   | 58.7                 | 75.8   | 58.2                 | 73.5   | 60.1             | 74.2   |
| 7                   | 55.5                 | 74.6   | 54.5                 | 71.5   | 57.9             | 73.9   |
| 8                   | 51.6                 | 72.2   | 51.6                 | 70.2   |                  |        |
| 9                   | 47.9                 | 69.7   | 48.1                 | 68.1   |                  |        |
| 10                  | 44.6                 | 67.5   | 45.5                 | 66.6   |                  |        |
| 11                  | 42.1                 | 66.0   | 42.8                 | 65.2   |                  |        |
| 12                  | 39.2                 | 63.9   | 40.3                 | 63.8   |                  |        |
| 13                  | 36.3                 | 61.4   | 37.1                 | 60.9   |                  |        |
| 14                  | 33.4                 | 58.9   | 33.6                 | 57.3   |                  |        |
| 15                  | 30.7                 | 56.2   | 31.1                 | 55.3   |                  |        |
| 16                  | 28.4                 | 54.0   |                      |        |                  |        |
| 17                  | 26.2                 | 51.8   |                      |        |                  |        |
| 18                  | 24.8                 | 51.3   |                      |        |                  |        |
| 19                  | 23.0                 | 49.3   |                      |        |                  |        |
| 20                  | 21.1                 | 47.3   |                      |        |                  |        |

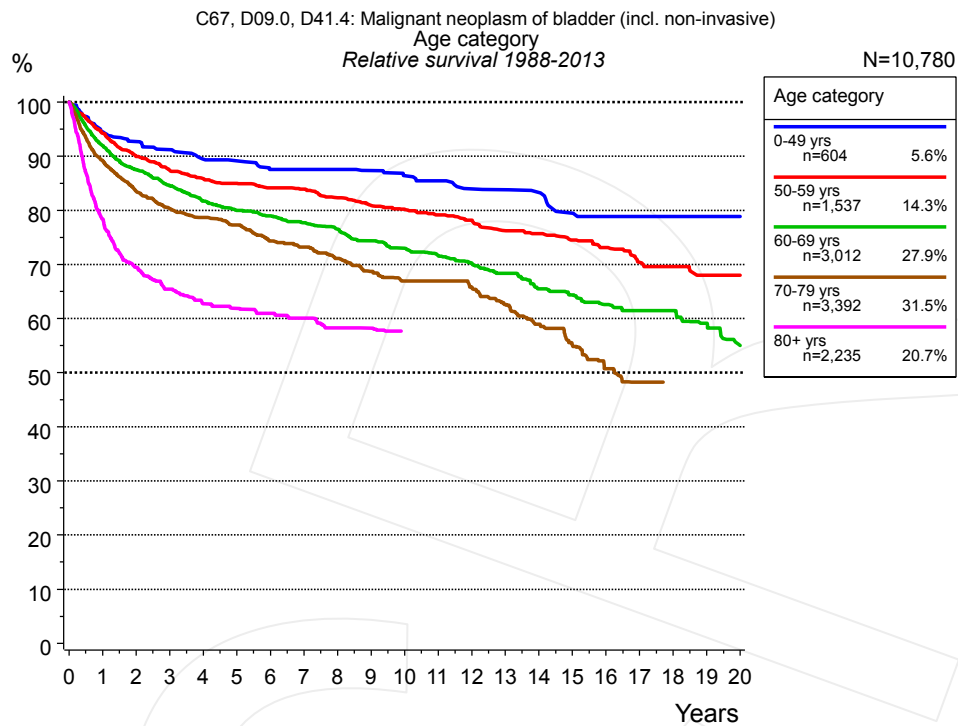
**Table 1b.** Observed (obs.) and relative (rel.) survival of patients with bladder cancer by period of diagnosis for period 1988-2013 (N=10,780).



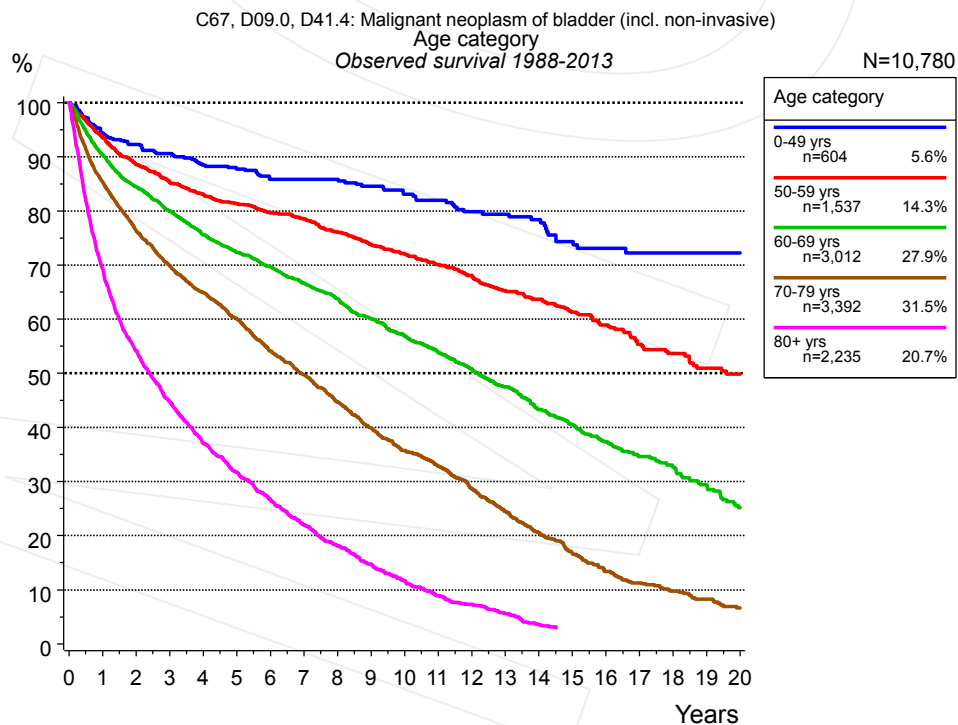
**Figure 2a.** Survival of patients with bladder cancer by gender. Included in the evaluation are 10,780 cases diagnosed between 1988 and 2013.

| Years | Gender          |        |                   |        |
|-------|-----------------|--------|-------------------|--------|
|       | Male<br>n=7,795 |        | Female<br>n=2,985 |        |
|       | obs. %          | rel. % | obs. %            | rel. % |
| 0     | 100.0           | 100.0  | 100.0             | 100.0  |
| 1     | 86.7            | 90.7   | 81.2              | 84.8   |
| 2     | 78.6            | 85.7   | 72.0              | 77.9   |
| 3     | 72.8            | 82.6   | 66.3              | 74.4   |
| 4     | 67.7            | 80.0   | 62.4              | 72.4   |
| 5     | 63.7            | 78.3   | 59.3              | 71.3   |
| 6     | 59.6            | 76.3   | 55.5              | 69.2   |
| 7     | 56.2            | 74.8   | 52.4              | 67.7   |
| 8     | 52.4            | 72.6   | 49.6              | 66.5   |
| 9     | 48.7            | 70.1   | 46.4              | 64.4   |
| 10    | 45.5            | 68.2   | 43.6              | 62.6   |
| 11    | 42.8            | 66.6   | 41.3              | 61.5   |
| 12    | 39.8            | 64.5   | 38.9              | 60.0   |
| 13    | 36.9            | 62.1   | 35.7              | 57.2   |
| 14    | 34.2            | 60.0   | 32.0              | 53.2   |
| 15    | 31.3            | 56.9   | 29.9              | 51.4   |
| 16    | 28.9            | 54.8   | 27.3              | 48.9   |
| 17    | 26.7            | 52.6   | 25.6              | 47.4   |
| 18    | 25.5            | 52.5   | 23.6              | 45.6   |
| 19    | 23.6            | 50.4   | 22.2              | 44.2   |
| 20    | 21.6            | 48.3   | 20.5              | 42.4   |

**Table 2b.** Observed (obs.) and relative (rel.) survival of patients with bladder cancer by gender for period 1988-2013 (N=10,780).



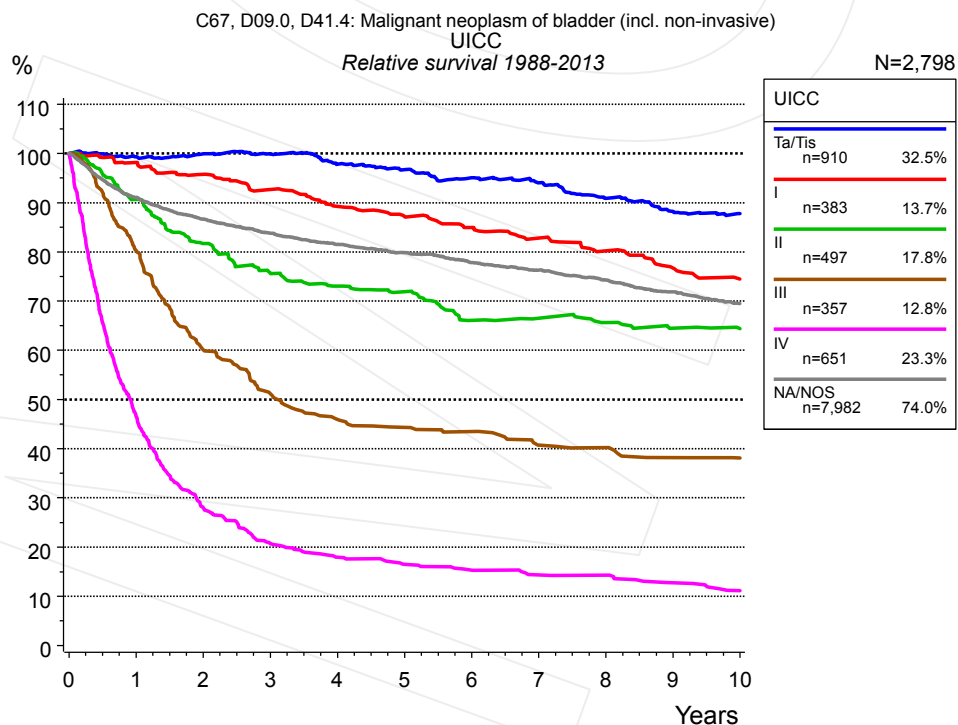
**Figure 3a.** Relative survival of patients with bladder cancer by age category. Included in the evaluation are 10,780 cases diagnosed between 1988 and 2013.



**Figure 3b.** Observed survival of patients with bladder cancer by age category. Included in the evaluation are 10,780 cases diagnosed between 1988 and 2013.

| Years | Age category      |        |                      |        |                      |        |                      |        |                    |        |
|-------|-------------------|--------|----------------------|--------|----------------------|--------|----------------------|--------|--------------------|--------|
|       | 0-49 yrs<br>n=604 |        | 50-59 yrs<br>n=1,537 |        | 60-69 yrs<br>n=3,012 |        | 70-79 yrs<br>n=3,392 |        | 80+ yrs<br>n=2,235 |        |
|       | obs. %            | rel. % | obs. %               | rel. % | obs. %               | rel. % | obs. %               | rel. % | obs. %             | rel. % |
| 0     | 100.0             | 100.0  | 100.0                | 100.0  | 100.0                | 100.0  | 100.0                | 100.0  | 100.0              | 100.0  |
| 1     | 94.4              | 94.5   | 93.6                 | 94.2   | 90.4                 | 92.0   | 85.4                 | 89.1   | 69.4               | 78.4   |
| 2     | 92.3              | 92.7   | 88.6                 | 90.0   | 84.5                 | 87.5   | 76.4                 | 83.5   | 54.1               | 69.4   |
| 3     | 90.6              | 91.2   | 85.3                 | 87.4   | 79.9                 | 84.5   | 69.9                 | 80.3   | 44.7               | 65.4   |
| 4     | 88.5              | 89.5   | 83.1                 | 85.8   | 75.6                 | 81.7   | 64.9                 | 78.7   | 37.1               | 62.7   |
| 5     | 87.7              | 89.1   | 81.4                 | 85.0   | 72.4                 | 80.0   | 60.1                 | 77.3   | 31.7               | 61.8   |
| 6     | 85.9              | 87.6   | 79.6                 | 84.1   | 69.6                 | 79.0   | 54.1                 | 74.3   | 26.7               | 61.0   |
| 7     | 85.9              | 87.6   | 78.5                 | 83.9   | 66.7                 | 77.7   | 49.7                 | 73.2   | 22.0               | 60.1   |
| 8     | 85.9              | 87.6   | 76.2                 | 82.3   | 63.8                 | 76.5   | 44.7                 | 71.1   | 18.1               | 58.2   |
| 9     | 84.6              | 87.3   | 73.8                 | 80.9   | 60.1                 | 74.4   | 39.8                 | 68.7   | 14.8               | 58.2   |
| 10    | 83.1              | 86.4   | 72.0                 | 80.2   | 56.9                 | 72.9   | 35.8                 | 66.9   |                    |        |
| 11    | 82.0              | 85.5   | 70.1                 | 79.1   | 53.9                 | 71.6   | 32.8                 | 66.9   |                    |        |
| 12    | 79.9              | 84.0   | 68.1                 | 78.1   | 50.8                 | 70.2   | 28.8                 | 65.8   |                    |        |
| 13    | 79.4              | 83.8   | 65.3                 | 76.2   | 47.5                 | 68.4   | 24.5                 | 62.6   |                    |        |
| 14    | 78.4              | 83.3   | 63.7                 | 75.7   | 43.4                 | 65.5   | 20.6                 | 59.0   |                    |        |
| 15    | 74.4              | 79.5   | 61.3                 | 74.5   | 40.6                 | 64.4   | 16.7                 | 55.1   |                    |        |
| 16    | 73.1              | 78.9   | 59.0                 | 73.1   | 37.3                 | 62.6   | 13.4                 | 50.7   |                    |        |
| 17    | 72.3              | 78.9   | 55.4                 | 70.4   | 34.7                 | 61.5   | 11.3                 | 48.3   |                    |        |
| 18    | 72.3              | 78.9   | 53.6                 | 69.6   | 32.6                 | 61.5   |                      |        |                    |        |
| 19    | 72.3              | 78.9   | 51.0                 | 68.0   | 29.4                 | 59.1   |                      |        |                    |        |
| 20    | 72.3              | 78.9   | 49.8                 | 68.0   | 25.2                 | 55.0   |                      |        |                    |        |

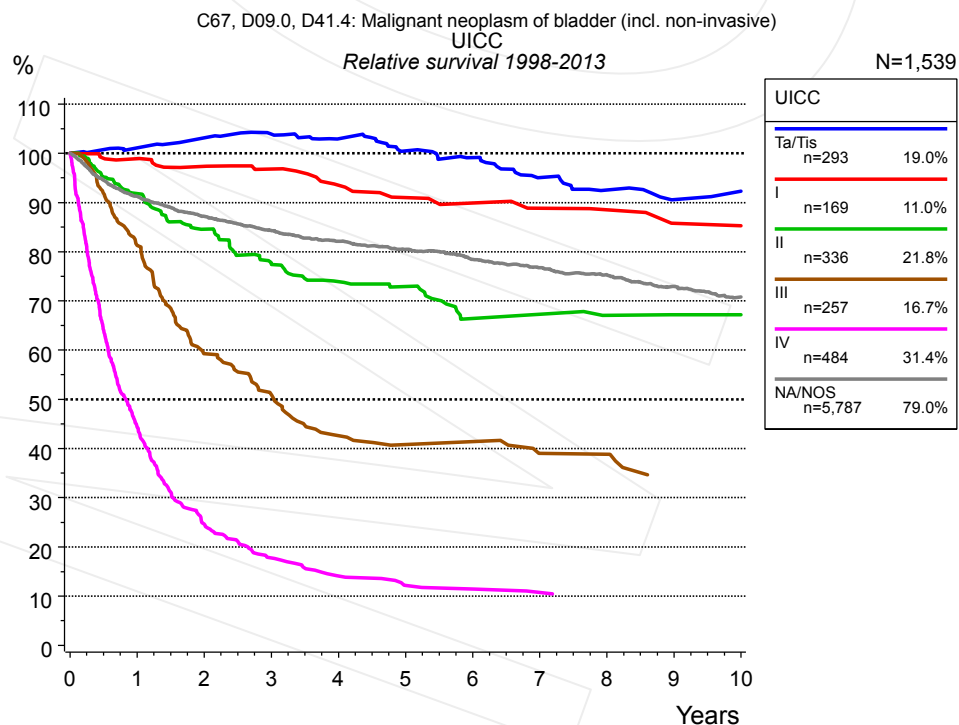
**Table 3c.** Observed (obs.) and relative (rel.) survival of patients with bladder cancer by age category for period 1988-2013 (N=10,780).



**Figure 4a.** Relative survival of patients with bladder cancer by UICC. For 10,296 of 10,780 cases diagnosed between 1988 and 2013 valid data could be obtained for this item. For a total of 2,798 cases an evaluable classification was established. The grey line represents the subgroup of 7,982 patients with missing values regarding UICC (74.0% of 10,780 patients, the percent values of all other categories are related to n=2,798).

| Years | UICC            |        |            |        |             |        |              |        |             |        |                   |        |
|-------|-----------------|--------|------------|--------|-------------|--------|--------------|--------|-------------|--------|-------------------|--------|
|       | Ta/Tis<br>n=910 |        | I<br>n=383 |        | II<br>n=497 |        | III<br>n=357 |        | IV<br>n=651 |        | NA/NOS<br>n=7,982 |        |
|       | obs. %          | rel. % | obs. %     | rel. % | obs. %      | rel. % | obs. %       | rel. % | obs. %      | rel. % | obs. %            | rel. % |
| 0     | 100.0           | 100.0  | 100.0      | 100.0  | 100.0       | 100.0  | 100.0        | 100.0  | 100.0       | 100.0  | 100.0             | 100.0  |
| 1     | 95.5            | 99.4   | 95.0       | 98.2   | 88.0        | 90.7   | 78.3         | 80.3   | 45.2        | 46.7   | 86.9              | 91.1   |
| 2     | 92.3            | 100.0  | 89.5       | 95.7   | 76.8        | 81.7   | 57.3         | 60.1   | 26.2        | 28.0   | 79.2              | 86.6   |
| 3     | 88.6            | 99.9   | 83.7       | 92.7   | 69.0        | 75.7   | 47.8         | 51.2   | 18.8        | 20.7   | 73.5              | 83.8   |
| 4     | 83.4            | 97.8   | 78.1       | 89.2   | 64.5        | 73.0   | 41.8         | 46.0   | 15.9        | 18.0   | 68.8              | 81.5   |
| 5     | 79.4            | 96.7   | 73.8       | 87.2   | 61.5        | 71.9   | 39.3         | 44.4   | 14.1        | 16.5   | 64.8              | 79.9   |
| 6     | 74.9            | 95.1   | 69.4       | 84.9   | 54.5        | 66.1   | 37.5         | 43.5   | 12.9        | 15.3   | 60.7              | 77.8   |
| 7     | 71.3            | 94.0   | 65.3       | 82.8   | 53.0        | 66.5   | 33.7         | 40.7   | 11.6        | 14.4   | 57.2              | 76.3   |
| 8     | 66.2            | 90.9   | 60.9       | 80.2   | 50.5        | 65.7   | 32.7         | 40.2   | 11.3        | 14.3   | 53.5              | 74.3   |
| 9     | 62.0            | 88.2   | 56.4       | 76.7   | 47.8        | 64.5   | 30.0         | 38.2   | 9.7         | 12.8   | 49.8              | 71.9   |
| 10    | 59.4            | 87.8   | 52.4       | 74.5   | 46.2        | 64.4   | 28.8         | 38.1   | 8.2         | 11.2   | 46.3              | 69.5   |

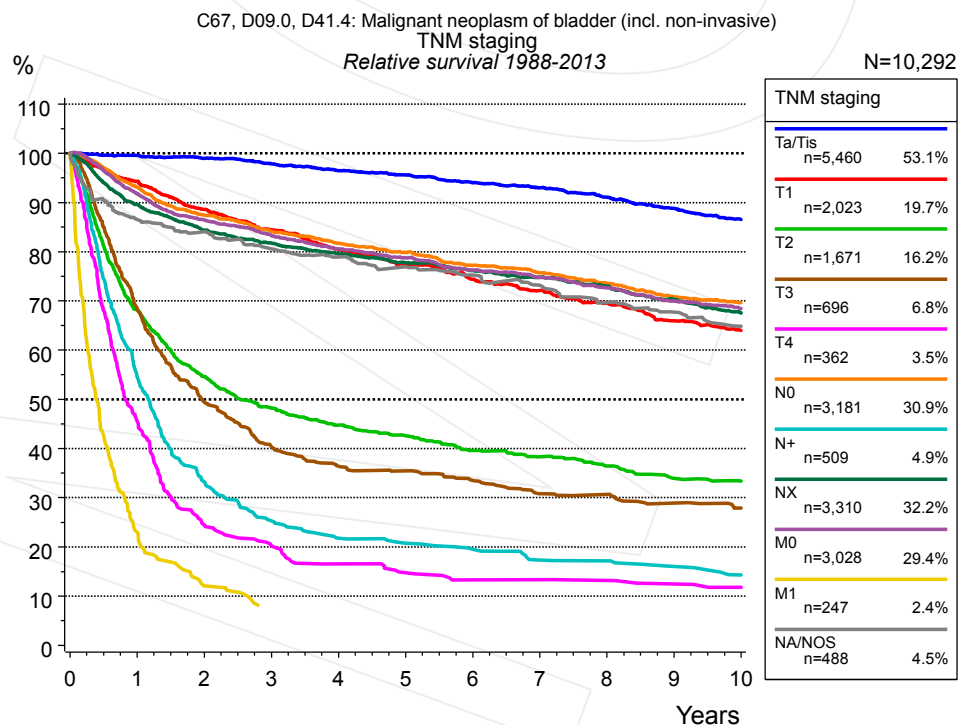
**Table 4b.** Observed (obs.) and relative (rel.) survival of patients with bladder cancer by UICC for period 1988-2013 (N=2,798).



**Figure 4c.** Relative survival of patients with bladder cancer by UICC. For 7,038 of 7,326 cases diagnosed between 1998 and 2013 valid data could be obtained for this item. For a total of 1,539 cases an evaluable classification was established. The grey line represents the subgroup of 5,787 patients with missing values regarding UICC (79.0% of 7,326 patients, the percent values of all other categories are related to n=1,539).

| Years | UICC            |        |            |        |             |        |              |        |             |        |                   |        |
|-------|-----------------|--------|------------|--------|-------------|--------|--------------|--------|-------------|--------|-------------------|--------|
|       | Ta/Tis<br>n=293 |        | I<br>n=169 |        | II<br>n=336 |        | III<br>n=257 |        | IV<br>n=484 |        | NA/NOS<br>n=5,787 |        |
|       | obs. %          | rel. % | obs. %     | rel. % | obs. %      | rel. % | obs. %       | rel. % | obs. %      | rel. % | obs. %            | rel. % |
| 0     | 100.0           | 100.0  | 100.0      | 100.0  | 100.0       | 100.0  | 100.0        | 100.0  | 100.0       | 100.0  | 100.0             | 100.0  |
| 1     | 97.9            | 101.1  | 97.0       | 98.9   | 89.6        | 91.8   | 79.2         | 81.3   | 43.1        | 44.4   | 87.1              | 91.2   |
| 2     | 96.8            | 103.1  | 93.1       | 97.3   | 80.1        | 84.6   | 56.5         | 59.3   | 23.2        | 24.6   | 79.9              | 87.1   |
| 3     | 94.0            | 103.9  | 90.1       | 96.8   | 71.6        | 77.5   | 47.9         | 51.0   | 16.4        | 17.7   | 74.3              | 84.3   |
| 4     | 89.8            | 103.0  | 84.8       | 93.5   | 66.2        | 73.9   | 38.8         | 42.6   | 12.6        | 14.1   | 69.7              | 82.1   |
| 5     | 84.5            | 100.5  | 80.5       | 91.0   | 63.5        | 72.9   | 36.0         | 40.8   | 10.5        | 12.2   | 65.8              | 80.5   |
| 6     | 80.3            | 99.1   | 77.8       | 89.9   | 55.8        | 66.4   | 36.0         | 41.4   | 10.0        | 11.4   | 61.7              | 78.4   |
| 7     | 73.9            | 95.0   | 74.5       | 88.8   | 55.0        | 67.3   | 32.3         | 39.0   | 9.0         | 10.7   | 58.1              | 76.7   |
| 8     | 69.3            | 92.5   | 72.5       | 88.5   | 52.8        | 67.1   | 32.3         | 38.8   | 8.5         | 10.5   | 54.8              | 75.3   |
| 9     | 65.1            | 90.6   | 67.7       | 85.8   | 51.1        | 67.2   | 27.4         | 34.5   | 8.5         | 10.5   | 51.1              | 72.9   |
| 10    | 64.1            | 92.3   | 67.7       | 85.3   | 51.1        | 67.2   | 27.4         | 34.1   | 8.5         | 10.5   | 47.8              | 70.8   |

**Table 4d.** Observed (obs.) and relative (rel.) survival of patients with bladder cancer by UICC for period 1998-2013 (N=1,539).



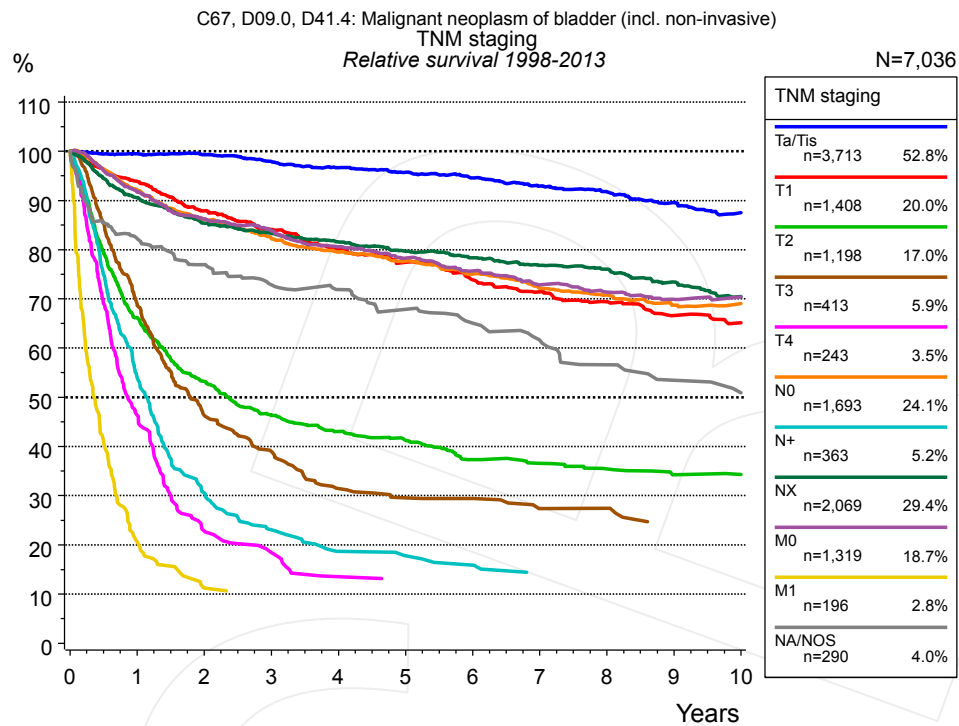
**Figure 4e.** Relative survival of patients with bladder cancer by TNM staging. For 10,296 of 10,780 cases diagnosed between 1988 and 2013 valid data could be obtained for this item. For a total of 10,292 cases an evaluable classification was established. The accumulated percentage exceeds the 100% value because patients are potentially considered in more than one subgroup. The grey line represents the subgroup of 488 patients with missing values regarding TNM staging (4.5% of 10,780 patients, the percent values of all other categories are related to n=10,292).

| TNM staging |                   |        |               |        |               |        |             |        |             |        |               |        |             |        |
|-------------|-------------------|--------|---------------|--------|---------------|--------|-------------|--------|-------------|--------|---------------|--------|-------------|--------|
| Years       | Ta/Tis<br>n=5,460 |        | T1<br>n=2,023 |        | T2<br>n=1,671 |        | T3<br>n=696 |        | T4<br>n=362 |        | N0<br>n=3,181 |        | N+<br>n=509 |        |
|             | obs. %            | rel. % | obs. %        | rel. % | obs. %        | rel. % | obs. %      | rel. % | obs. %      | rel. % | obs. %        | rel. % | obs. %      | rel. % |
| 0           | 100.0             | 100.0  | 100.0         | 100.0  | 100.0         | 100.0  | 100.0       | 100.0  | 100.0       | 100.0  | 100.0         | 100.0  | 100.0       | 100.0  |
| 1           | 95.7              | 99.5   | 89.9          | 94.3   | 64.4          | 68.2   | 66.1        | 68.4   | 43.8        | 45.6   | 89.8          | 93.2   | 53.1        | 54.7   |
| 2           | 91.5              | 99.0   | 80.8          | 88.5   | 49.1          | 54.6   | 46.4        | 49.4   | 22.7        | 24.5   | 81.2          | 87.4   | 31.3        | 33.3   |
| 3           | 87.0              | 97.8   | 73.9          | 84.4   | 41.5          | 48.2   | 36.8        | 40.3   | 18.1        | 20.2   | 75.4          | 84.1   | 23.2        | 25.3   |
| 4           | 82.6              | 96.4   | 67.6          | 80.5   | 36.9          | 44.8   | 32.2        | 36.4   | 14.4        | 16.5   | 70.6          | 81.7   | 19.4        | 21.8   |
| 5           | 78.9              | 95.6   | 62.4          | 77.4   | 33.6          | 42.6   | 30.5        | 35.4   | 12.4        | 14.7   | 66.5          | 79.9   | 17.8        | 20.8   |
| 6           | 74.7              | 94.0   | 57.6          | 74.4   | 30.0          | 39.6   | 28.0        | 33.5   | 10.8        | 13.3   | 61.9          | 77.2   | 16.5        | 19.5   |
| 7           | 71.1              | 93.0   | 53.6          | 72.1   | 27.8          | 38.3   | 24.7        | 30.8   | 10.8        | 13.3   | 58.4          | 75.7   | 14.1        | 17.3   |
| 8           | 66.9              | 91.0   | 49.7          | 69.5   | 25.4          | 36.4   | 24.0        | 30.7   | 10.4        | 13.2   | 54.7          | 73.6   | 13.8        | 17.2   |
| 9           | 62.9              | 88.8   | 45.3          | 66.0   | 22.7          | 33.9   | 21.9        | 28.9   | 9.5         | 12.5   | 50.8          | 70.9   | 12.3        | 16.1   |
| 10          | 59.0              | 86.5   | 42.2          | 64.0   | 21.5          | 33.4   | 20.3        | 27.9   | 8.5         | 11.8   | 48.0          | 69.7   | 10.6        | 14.3   |

| TNM staging |               |        |               |        |             |        |                 |        |
|-------------|---------------|--------|---------------|--------|-------------|--------|-----------------|--------|
| cont'd      | NX<br>n=3,310 |        | M0<br>n=3,028 |        | M1<br>n=247 |        | NA/NOS<br>n=488 |        |
| Years       | obs. %        | rel. % | obs. %        | rel. % | obs. %      | rel. % | obs. %          | rel. % |
| 0           | 100.0         | 100.0  | 100.0         | 100.0  | 100.0       | 100.0  | 100.0           | 100.0  |
| 1           | 85.2          | 89.6   | 88.2          | 91.8   | 22.4        | 23.0   | 82.7            | 86.5   |
| 2           | 76.8          | 84.3   | 79.8          | 86.4   | 11.1        | 12.0   | 77.4            | 84.0   |
| 3           | 71.3          | 81.7   | 74.0          | 83.2   | 7.2         | 8.0    | 71.5            | 80.6   |
| 4           | 66.6          | 79.5   | 69.0          | 80.5   |             |        | 67.3            | 78.9   |
| 5           | 62.5          | 77.7   | 64.9          | 78.7   |             |        | 63.5            | 76.9   |
| 6           | 58.8          | 76.1   | 60.5          | 76.2   |             |        | 59.9            | 75.2   |
| 7           | 55.4          | 74.8   | 57.0          | 74.7   |             |        | 55.9            | 73.1   |
| 8           | 51.9          | 73.0   | 53.4          | 72.7   |             |        | 51.4            | 69.7   |
| 9           | 48.1          | 70.3   | 49.6          | 70.0   |             |        | 48.0            | 67.7   |
| 10          | 44.4          | 67.5   | 46.6          | 68.5   |             |        | 44.4            | 64.8   |

**Table 4f.** Observed (obs.) and relative (rel.) survival of patients with bladder cancer by TNM staging for period 1988-2013 (N=20,487).



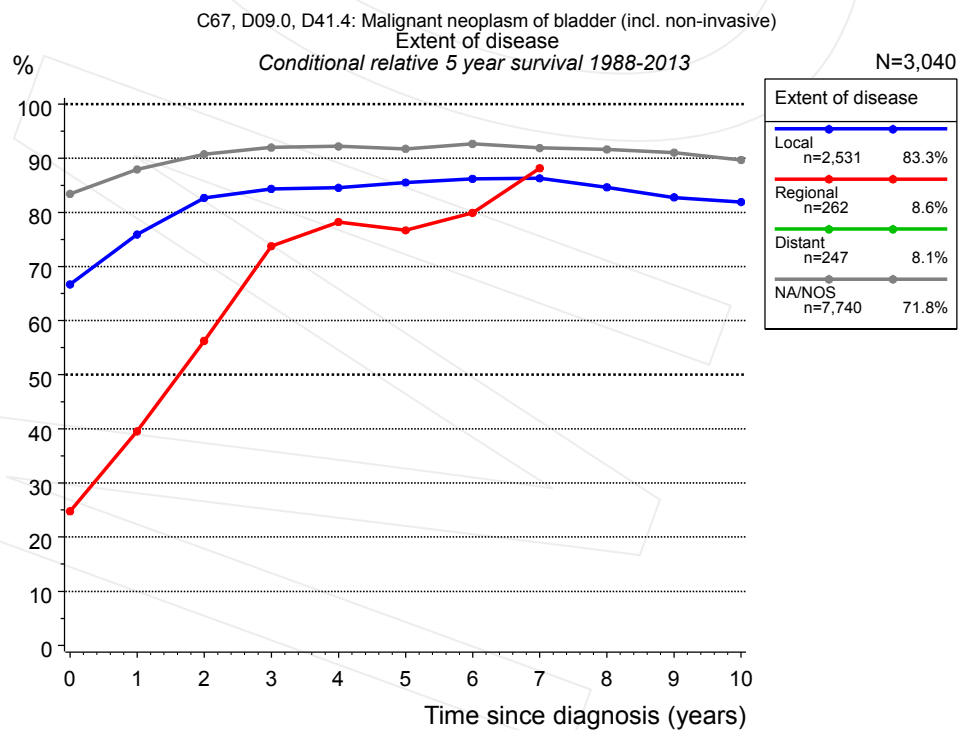


**Figure 4g.** Relative survival of patients with bladder cancer by TNM staging. For 7,038 of 7,326 cases diagnosed between 1998 and 2013 valid data could be obtained for this item. For a total of 7,036 cases an evaluable classification was established. The accumulated percentage exceeds the 100% value because patients are potentially considered in more than one subgroup. The grey line represents the subgroup of 290 patients with missing values regarding TNM staging (4.0% of 7,326 patients, the percent values of all other categories are related to n=7,036).

| TNM staging |                   |        |               |        |               |        |             |        |             |        |               |        |             |        |
|-------------|-------------------|--------|---------------|--------|---------------|--------|-------------|--------|-------------|--------|---------------|--------|-------------|--------|
| Years       | Ta/Tis<br>n=3,713 |        | T1<br>n=1,408 |        | T2<br>n=1,198 |        | T3<br>n=413 |        | T4<br>n=243 |        | N0<br>n=1,693 |        | N+<br>n=363 |        |
|             | obs. %            | rel. % | obs. %        | rel. % | obs. %        | rel. % | obs. %      | rel. % | obs. %      | rel. % | obs. %        | rel. % | obs. %      | rel. % |
| 0           | 100.0             | 100.0  | 100.0         | 100.0  | 100.0         | 100.0  | 100.0       | 100.0  | 100.0       | 100.0  | 100.0         | 100.0  | 100.0       | 100.0  |
| 1           | 95.8              | 99.5   | 89.7          | 93.9   | 62.6          | 66.2   | 66.8        | 68.9   | 44.7        | 46.4   | 89.3          | 92.2   | 52.7        | 54.0   |
| 2           | 92.1              | 99.3   | 80.6          | 87.9   | 48.1          | 53.2   | 43.9        | 46.3   | 21.6        | 22.8   | 80.8          | 86.1   | 29.1        | 30.6   |
| 3           | 87.5              | 97.8   | 74.2          | 84.1   | 40.3          | 46.4   | 36.2        | 39.0   | 16.7        | 18.4   | 74.9          | 82.3   | 21.4        | 23.1   |
| 4           | 83.4              | 96.6   | 68.0          | 80.1   | 35.9          | 43.0   | 28.3        | 31.5   | 12.0        | 13.5   | 70.0          | 79.5   | 16.7        | 18.7   |
| 5           | 79.6              | 95.7   | 63.2          | 77.4   | 33.2          | 41.3   | 26.0        | 29.6   |             |        | 66.0          | 77.7   | 15.5        | 17.8   |
| 6           | 75.8              | 94.5   | 58.1          | 73.8   | 28.9          | 37.3   | 25.4        | 29.5   |             |        | 61.6          | 75.1   | 14.1        | 15.9   |
| 7           | 71.7              | 92.9   | 54.0          | 71.4   | 27.3          | 36.6   | 22.3        | 27.4   |             |        | 57.1          | 72.2   | 11.9        | 14.0   |
| 8           | 68.2              | 91.8   | 50.5          | 69.4   | 25.5          | 35.4   | 22.3        | 27.4   |             |        | 54.1          | 70.8   |             |        |
| 9           | 64.1              | 89.6   | 46.5          | 66.6   | 23.6          | 34.2   | 19.1        | 24.6   |             |        | 50.6          | 68.7   |             |        |
| 10          | 60.3              | 87.5   | 43.8          | 65.1   | 23.1          | 34.3   | 19.1        | 24.4   |             |        | 49.0          | 69.0   |             |        |

| cont'd<br>Years | TNM staging   |        |               |        |             |        |                 |        |
|-----------------|---------------|--------|---------------|--------|-------------|--------|-----------------|--------|
|                 | NX<br>n=2,069 |        | M0<br>n=1,319 |        | M1<br>n=196 |        | NA/NOS<br>n=290 |        |
|                 | obs. %        | rel. % | obs. %        | rel. % | obs. %      | rel. % | obs. %          | rel. % |
| 0               | 100.0         | 100.0  | 100.0         | 100.0  | 100.0       | 100.0  | 100.0           | 100.0  |
| 1               | 86.5          | 90.6   | 88.7          | 91.8   | 20.5        | 20.5   | 78.4            | 82.2   |
| 2               | 78.2          | 85.4   | 80.6          | 86.3   | 10.4        | 11.2   | 70.6            | 77.0   |
| 3               | 73.4          | 83.3   | 75.8          | 83.8   |             |        | 64.4            | 72.9   |
| 4               | 69.1          | 81.5   | 70.4          | 80.6   |             |        | 61.0            | 71.9   |
| 5               | 65.0          | 79.7   | 66.0          | 78.2   |             |        | 55.8            | 67.8   |
| 6               | 61.5          | 78.4   | 61.6          | 75.6   |             |        | 51.9            | 65.1   |
| 7               | 57.9          | 76.8   | 57.3          | 72.8   |             |        | 46.9            | 61.6   |
| 8               | 55.1          | 76.0   | 54.2          | 71.3   |             |        | 42.1            | 56.6   |
| 9               | 51.2          | 73.4   | 51.3          | 69.9   |             |        | 38.3            | 53.4   |
| 10              | 47.3          | 70.5   | 49.8          | 70.4   |             |        | 35.8            | 50.9   |

**Table 4h.** Observed (obs.) and relative (rel.) survival of patients with bladder cancer by TNM staging for period 1998-2013 (N=12,615).

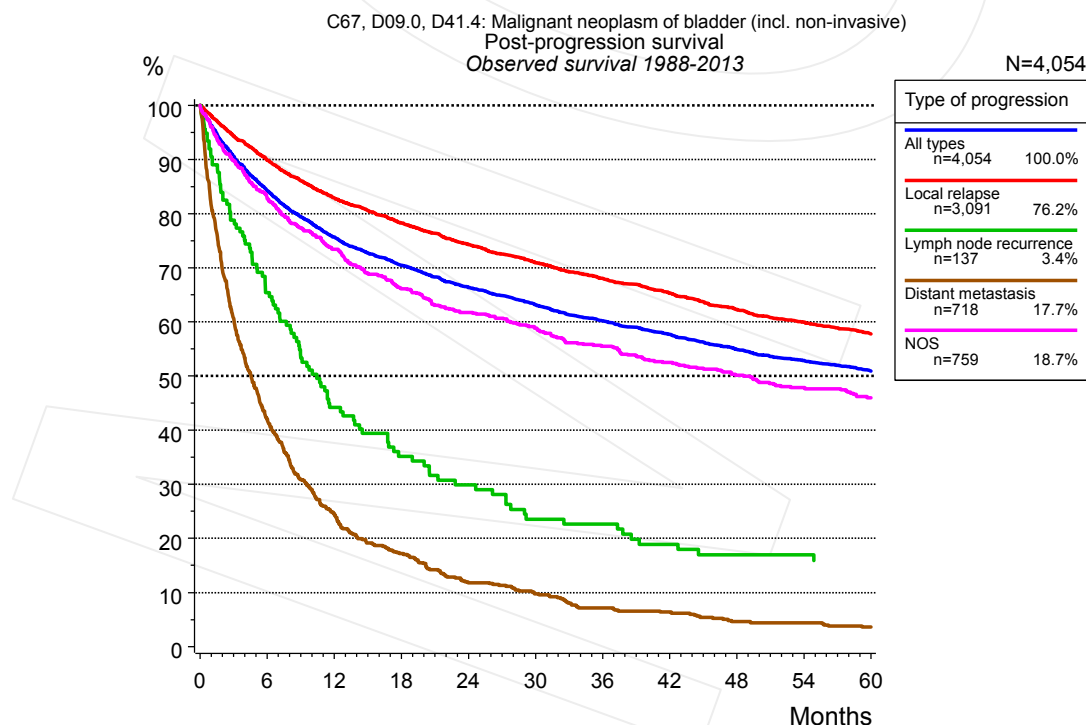


**Figure 4i.** Conditional relative 5-year survival of patients with bladder cancer by extent of disease. For 10,296 of 10,780 cases diagnosed between 1988 and 2013 valid data could be obtained for this item. For a total of 3,040 cases an evaluable classification was established. The grey line represents the subgroup of 7,740 patients with missing values regarding extent of disease (71.8% of 10,780 patients, the percent values of all other categories are related to n=3,040).

| Years | Extent of disease |                        |          |                        |         |                        |        |                        |
|-------|-------------------|------------------------|----------|------------------------|---------|------------------------|--------|------------------------|
|       | Local             |                        | Regional |                        | Distant |                        | NA/NOS |                        |
|       | n                 | Cond. surv. %<br>5 yrs | n        | Cond. surv. %<br>5 yrs | n       | Cond. surv. %<br>5 yrs | n      | Cond. surv. %<br>5 yrs |
| 0     | 2,531             | 66.7                   | 262      | 24.8                   | 247     |                        | 7,740  | 83.4                   |
| 1     | 1,946             | 75.9                   | 142      | 39.6                   |         |                        | 6,615  | 87.9                   |
| 2     | 1,558             | 82.7                   | 80       | 56.3                   |         |                        | 5,732  | 90.8                   |
| 3     | 1,285             | 84.3                   | 54       | 73.8                   |         |                        | 4,932  | 92.0                   |
| 4     | 1,060             | 84.5                   | 44       | 78.2                   |         |                        | 4,244  | 92.2                   |
| 5     | 888               | 85.5                   | 37       | 76.7                   |         |                        | 3,681  | 91.8                   |
| 6     | 745               | 86.2                   | 33       | 79.9                   |         |                        | 3,159  | 92.7                   |
| 7     | 645               | 86.3                   | 27       | 88.2                   |         |                        | 2,797  | 91.9                   |
| 8     | 547               | 84.6                   |          |                        |         |                        | 2,412  | 91.6                   |
| 9     | 459               | 82.8                   |          |                        |         |                        | 2,049  | 91.0                   |
| 10    | 403               | 81.9                   |          |                        |         |                        | 1,739  | 89.7                   |

**Table 4j.** Conditional relative 5-year survival of patients with bladder cancer by extent of disease for period 1988-2013 (N=3,040).

Conditional relative survival rates refer to the relative survival probability, in this case for 5 years after cancer diagnosis, compared to the age- and sex-matched population (=100%) under the condition of being alive for a certain time period (x-axis in Figure 4g). The results illustrate to what extent the cancer induced mortality of particular subgroups declines in the subsequent years after detection of the malignancy. For instance, according to the presented survival statistics, patients in the subgroup extent of disease="Local", who are alive at least 3 years after cancer diagnosis, the conditional relative 5-year survival rate is 84.3% (n=1,285).



**Figure 5a.** Observed post-progression survival of 4,054 patients with bladder cancer diagnosed between 1988 and 2013 (incl. M1). These 4,054 patients with documented progression events during their course of disease represent 37.6% of the totally 10,780 evaluated cases. Patients with cancer relapse documented via death certificates only were excluded (n=625, 5.8%). Multiple progression types on different sites are included in the evaluation even when not occurring

synchronously. The NOS (not otherwise specified) class is included under the condition, that it is the one and only progression type during the course of disease.

Medical record documentation often lacks the linguistic severity to distinguish between local relapse, regional lymph node metastasis and distant spread in solid cancers. Frequently, the statement "not specified" is the only information in registries regarding relapse of the disease. The category "All types" denotes all cases who suffered from at least one relapse during the course of disease (incl. primary M1-status). Although, the real number of relapsed patients is likely to be much higher. The accumulated percentage of patients with local relapse or distant metastasis exceeds the 100% value because patients are potentially considered in more than one subgroup.

| Months | Type of progression       |                               |                                     |                                  | NOS<br>n=759<br>% |
|--------|---------------------------|-------------------------------|-------------------------------------|----------------------------------|-------------------|
|        | All types<br>n=4,054<br>% | Local relapse<br>n=3,091<br>% | Lymph node recurrence<br>n=137<br>% | Distant metastasis<br>n=718<br>% |                   |
| 0      | 100.0                     | 100.0                         | 100.0                               | 100.0                            | 100.0             |
| 12     | 75.6                      | 82.9                          | 44.2                                | 24.3                             | 73.4              |
| 24     | 66.4                      | 74.3                          | 29.9                                | 11.8                             | 61.7              |
| 36     | 60.2                      | 68.0                          | 22.7                                | 7.1                              | 55.5              |
| 48     | 54.9                      | 62.3                          | 16.9                                | 4.6                              | 50.2              |
| 60     | 50.9                      | 57.8                          | 15.9                                | 3.6                              | 46.0              |

**Table 5b.** Observed post-progression survival of patients with bladder cancer for period 1988-2013 (N=4,054).

## Shortcuts

|             |   |
|-------------|---|
| MCR         | Munich Cancer Registry, Germany (Tumorregister München)   |
| NCI         | National Cancer Institute, USA  |
| SEER        | Surveillance, Epidemiology, and End Results, USA  |
| UICC        | Union for International Cancer Control, Geneva  |
| DCO         | Death certificate only. The death certificate provides the only notification to the registry.   |
| NA          | Not available   |
| NOS         | Not otherwise specified   |
| OS          | Observed/overall survival (Kaplan-Meier estimate)   |
| RS          | Relative survival, compared to the general population, ratio of observed to expected survival (Ederer II method), reflecting excess mortality among cancer patients |
| AS          | Assembled survival chart (observed, expected, relative)   |
| PPS         | Post-progression survival, survival since first relapse (Kaplan-Meier estimate)   |
| progression | Date of entry: Date of first locoregional recurrence, distant metastasis, unspecified   |
|             | Event: Death of all causes  |
| CS          | Conditional survival, survival probability under the condition of surviving a given period of time  |

## Recommended Citation

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