Appendix 2
Baseline incidence rates (the LSS cohort vs. population)

1. CANCERS OF DIGESTIVE ORGANS (EXCL. STOMACH AND COLON)

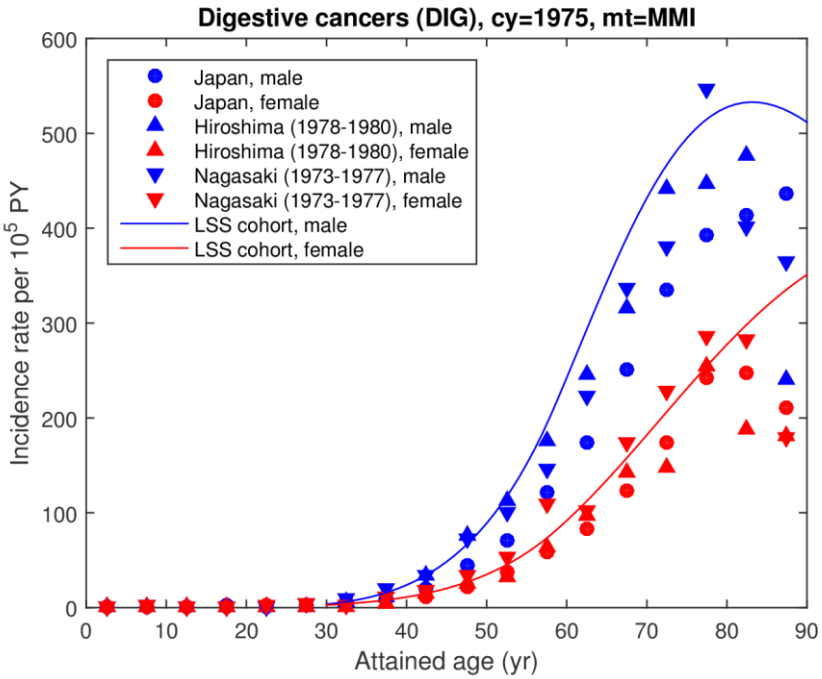

Fig. 1.1 Baseline incidence rates for males (blue) and females (red) in 1975 computed using the MMI-average of the models selected for the group DIG (lines) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

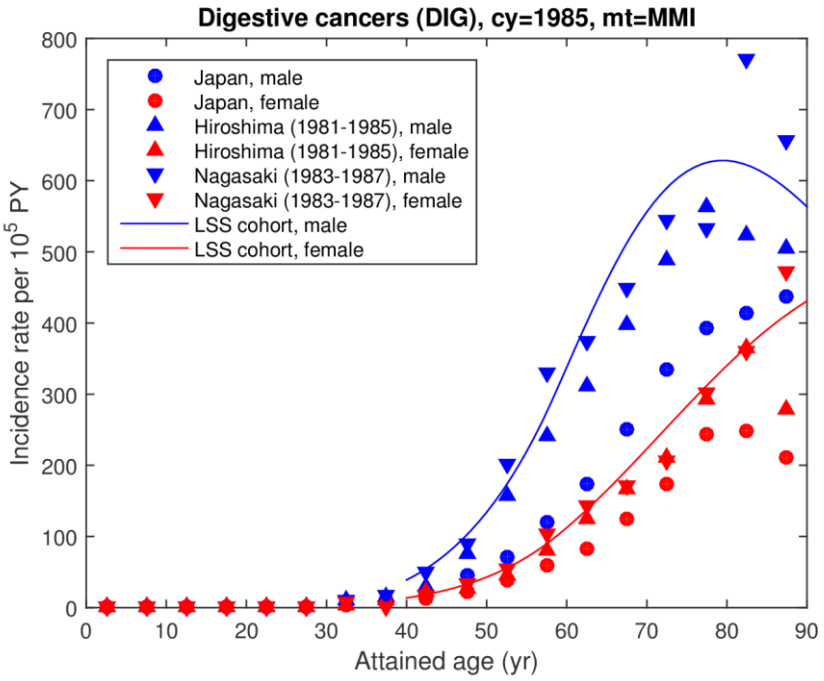

Fig. 1.2 Baseline incidence rates for males (blue) and females (red) in 1985 computed using the MMI-average of the models selected for the group DIG (lines) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

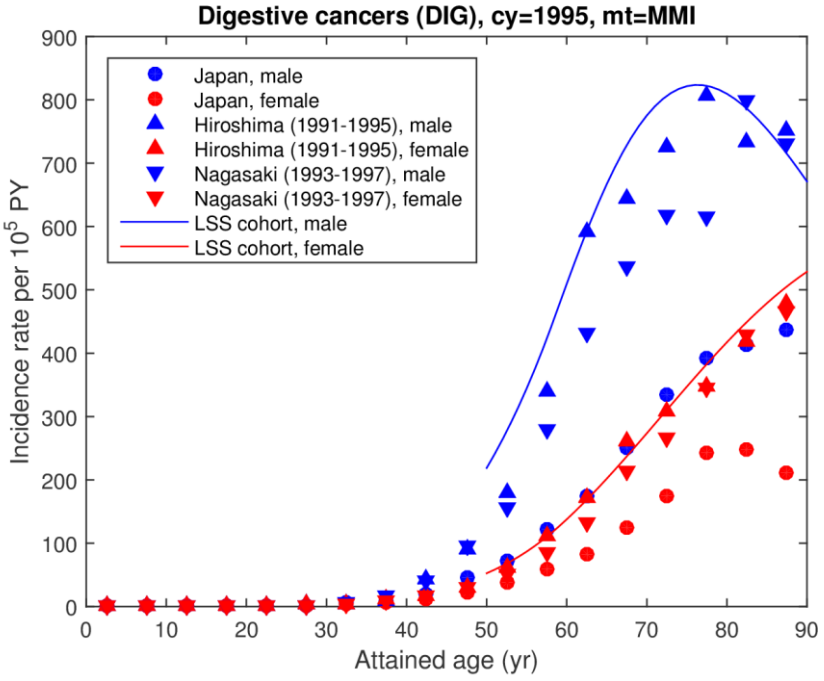

Fig. 1.3 Baseline incidence rates for males (blue) and females (red) in 1995 computed using the MMI-average of the models selected for the group DIG (lines) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

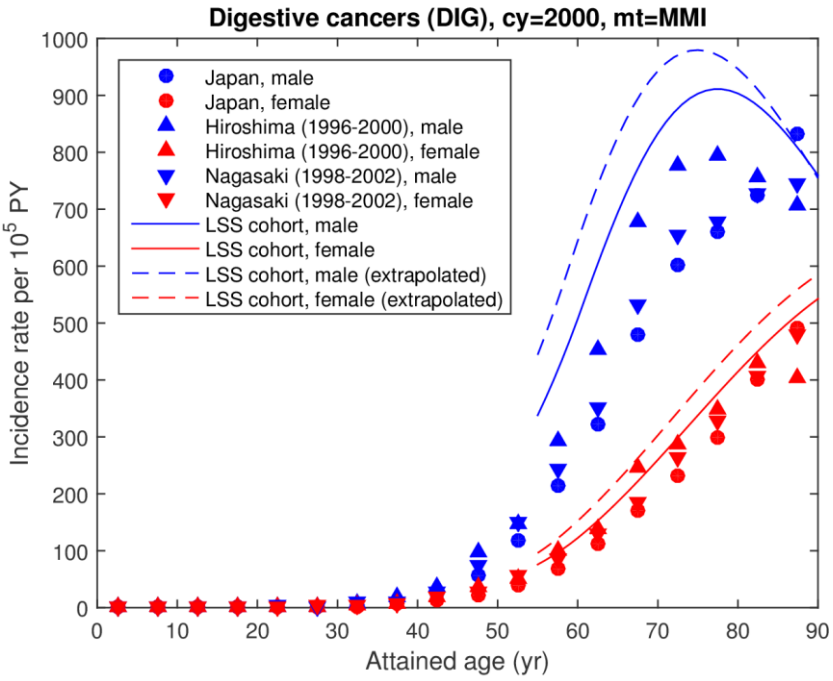

Fig. 1.4 Baseline incidence rates for males (blue) and females (red) in 2000 computed using the MMI-average of the models selected for the group DIG (lines) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

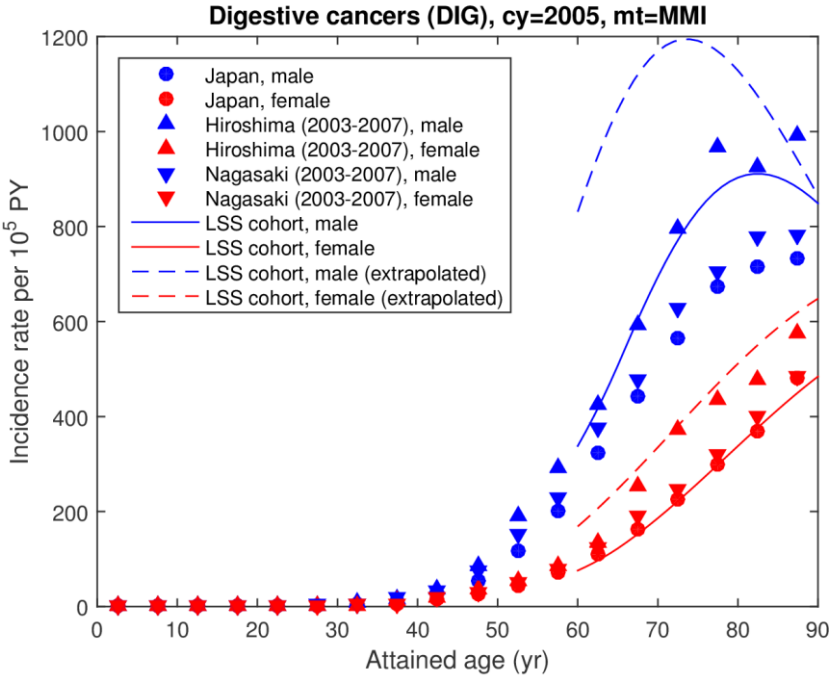

Fig. 1.5 Baseline incidence rates for males (blue) and females (red) in 2005 computed using the MMI-average of the models selected for the group DIG (lines) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

2. CANCERS OF BRAIN AND CENTRAL NERVOUS SYSTEM

Cancers indicated in the LSS dataset as 'cnsca' include as malignant as benign tumours. Correspondingly, the model baseline fit for the LSS data significantly differs from baseline rate reported for Japan and populations of Hiroshima and Nagasaki cities. Incidence rate reported in population registers for malignant neoplasms (ICD10:C70–72), while the group of CNS cancer in the LSS dataset includes these as well as benign meningioma (ICD10:D32). Direct comparison of the model baseline rate and incidence rates from the population registers shows that the former are higher than the latter by factor 2 or 3.

Indirect confirmation of plausibility of the model baseline rates can be found by using incidence rates for brain and CNS from Scandinavian cancer registers (NORDCAN). In these registers, cancers of BCNS group are reported including malignant and benign neoplasms, similarly to selection criteria used in the LSS study for CNS cancers. Comparison of the NORDCAN data with data from European and Japanese population registers shows that aggregated incidence rate for malignant and benign tumours is higher that rate for malignant only diseases by a factor 2–3.

3. CANCERS OF FEMALE GENITAL ORGANS (GNF1 AND GNF2 GROUPS)

Cervical cancer (GNF1 group)

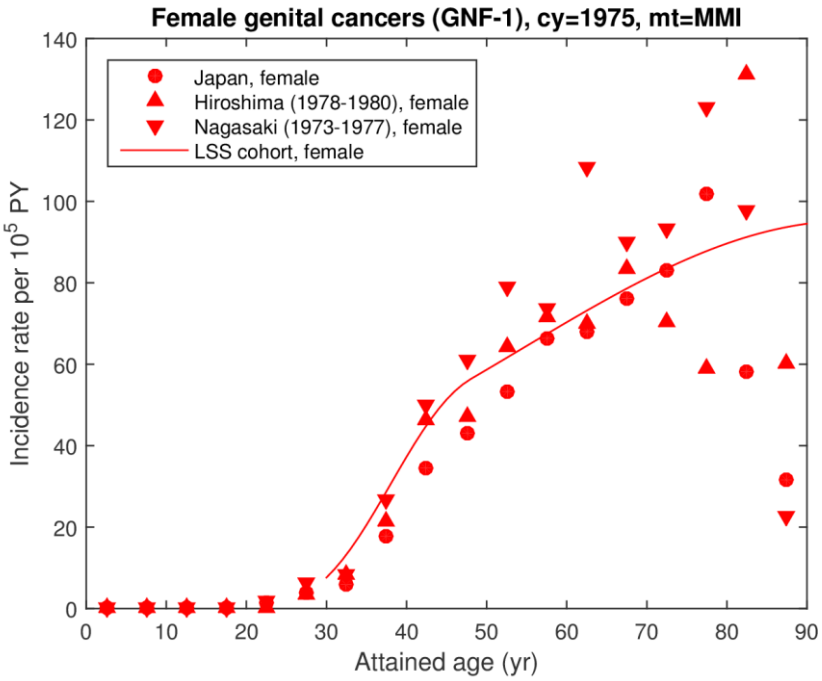

Fig. 3.1 Baseline incidence rates of cervical cancer in 1975 computed using the MMI-average of the models selected for the group GNF1 (line) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

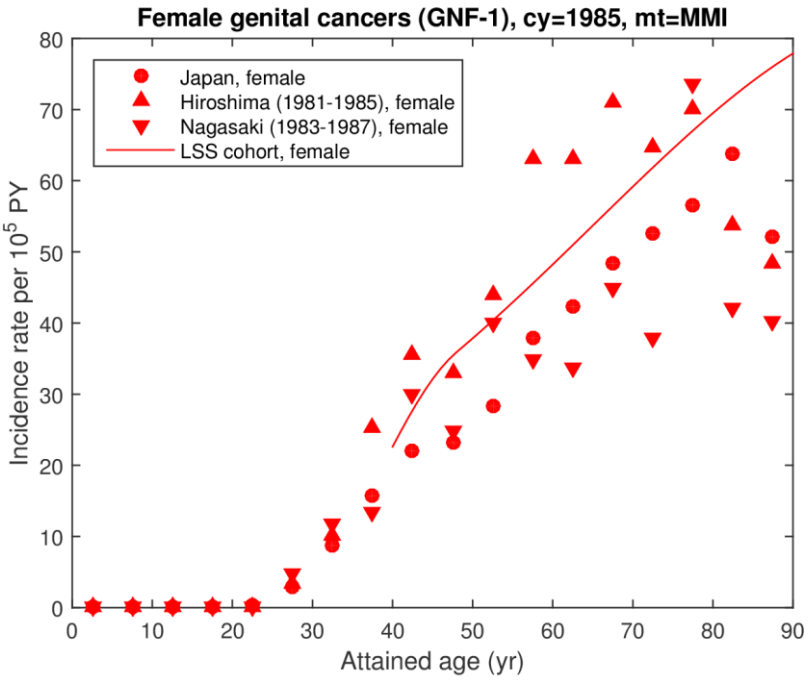

Fig. 3.2 Baseline incidence rates of cervical cancer in 1985 computed using the MMI-average of the models selected for the group GNF1 (line) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

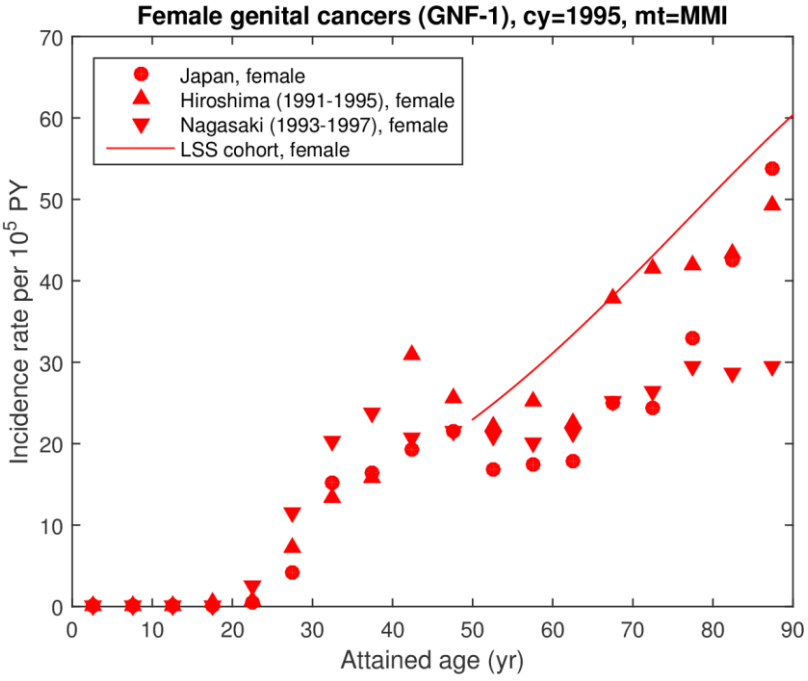

Fig. 3.3 Baseline incidence rates of cervical cancer in 1995 computed using the MMI-average of the models selected for the group GNF1 (line) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

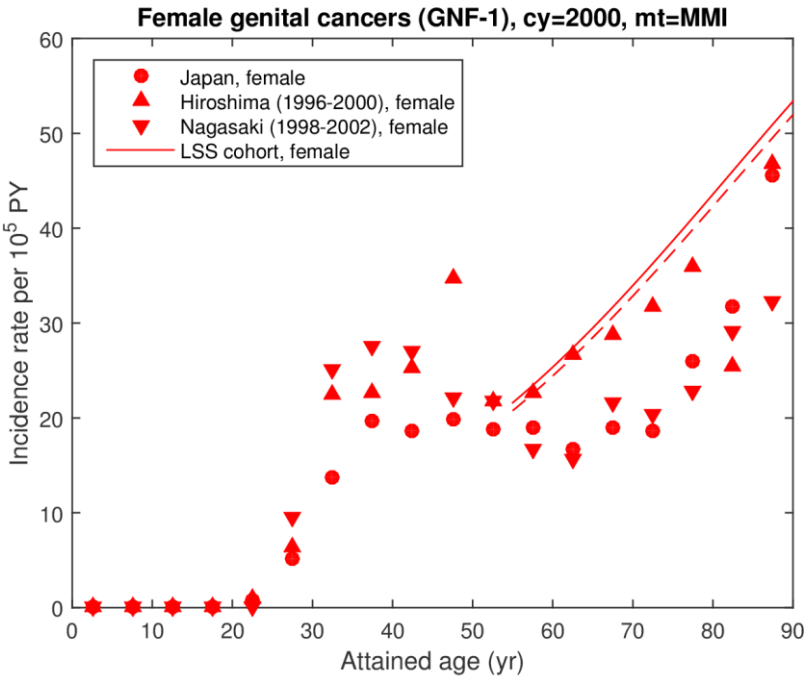

Fig. 3.4 Baseline incidence rates of cervical cancer in 2000 computed using the MMI-average of the models selected for the group GNF1 (line) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

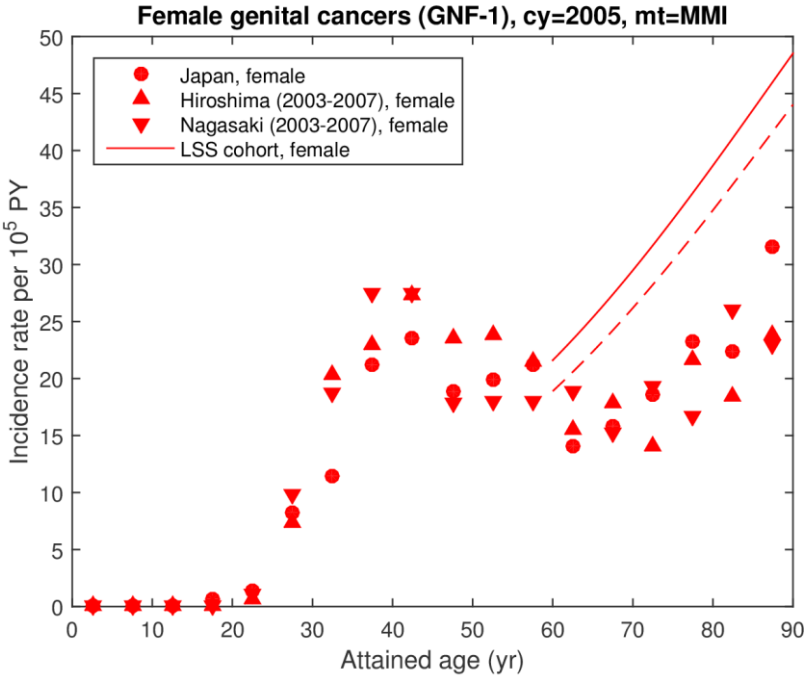

Fig. 3.5 Baseline incidence rates of cervical cancer in 2005 computed using the MMI-average of the models selected for the group GNF1 (line) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

Other female genital cancers (GNF2 group)

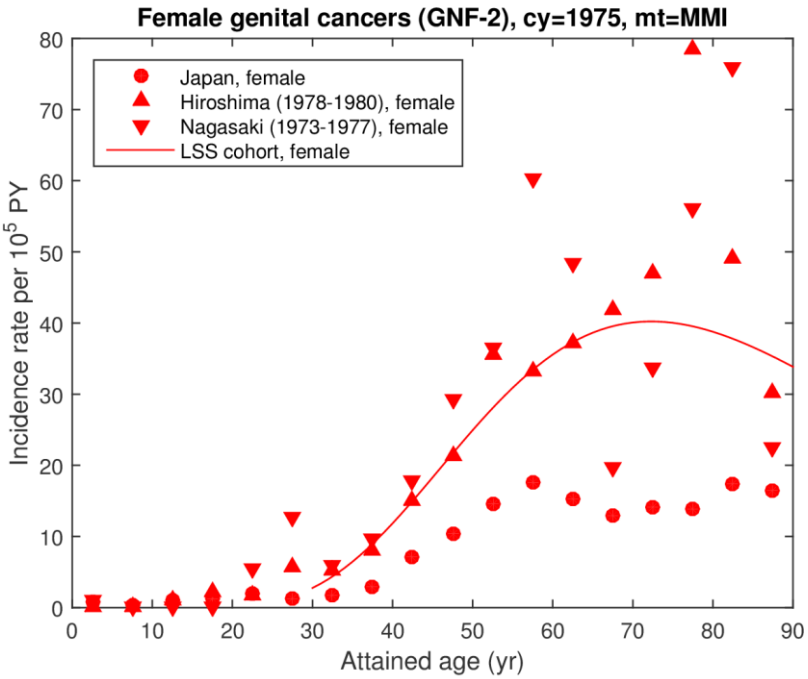

Fig. 3.6 Baseline incidence rates of female genital cancers in 1975 computed using the MMI-average of the models selected for the group GNF2 (line) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

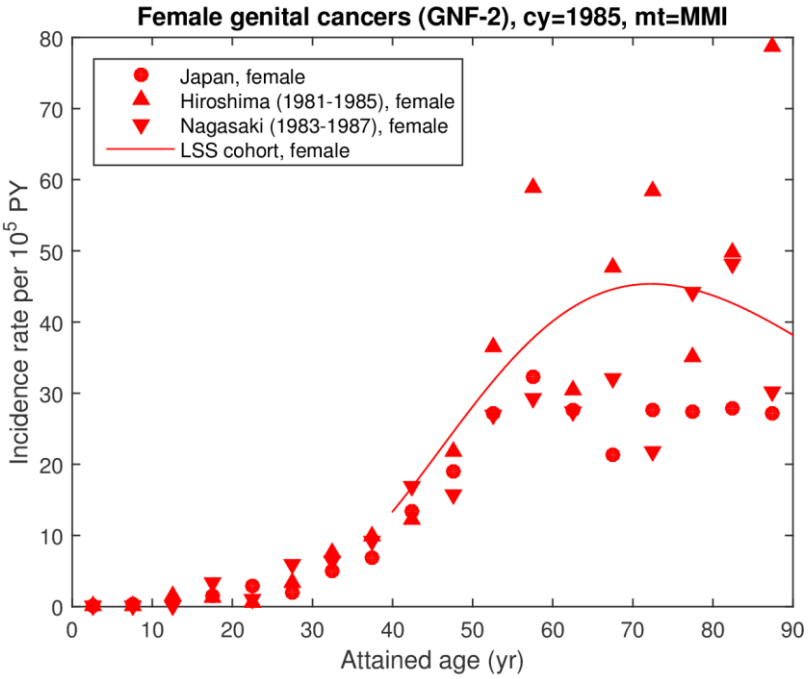

Fig. 3.7 Baseline incidence rates of female genital cancers in 1985 computed using the MMI-average of the models selected for the group GNF2 (line) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

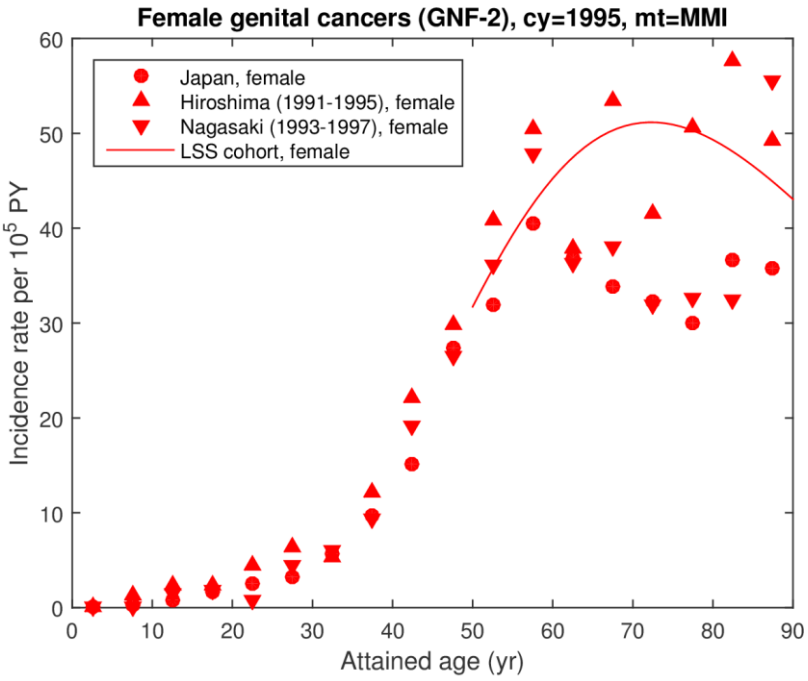

Fig. 3.8 Baseline incidence rates of female genital cancers in 1995 computed using the MMI-average of the models selected for the group GNF2 (line) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

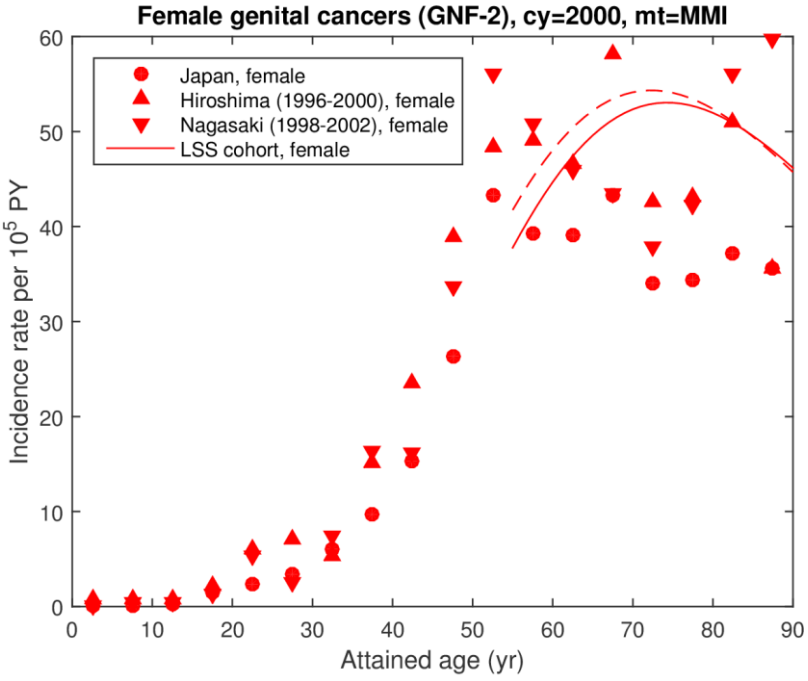

Fig. 3.9 Baseline incidence rates of female genital cancers in 2000 computed using the MMI-average of the models selected for the group GNF2 (line) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

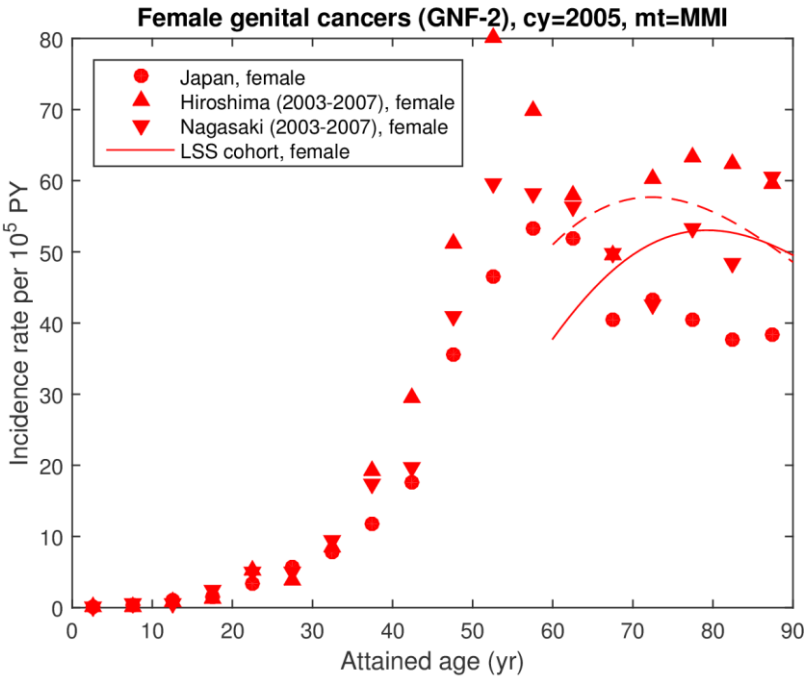

Fig. 3.10 Baseline incidence rates of female genital cancers in 2005 computed using the MMI-average of the models selected for the group GNF2 (line) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

4. CANCERS OF MALE GENITAL ORGANS

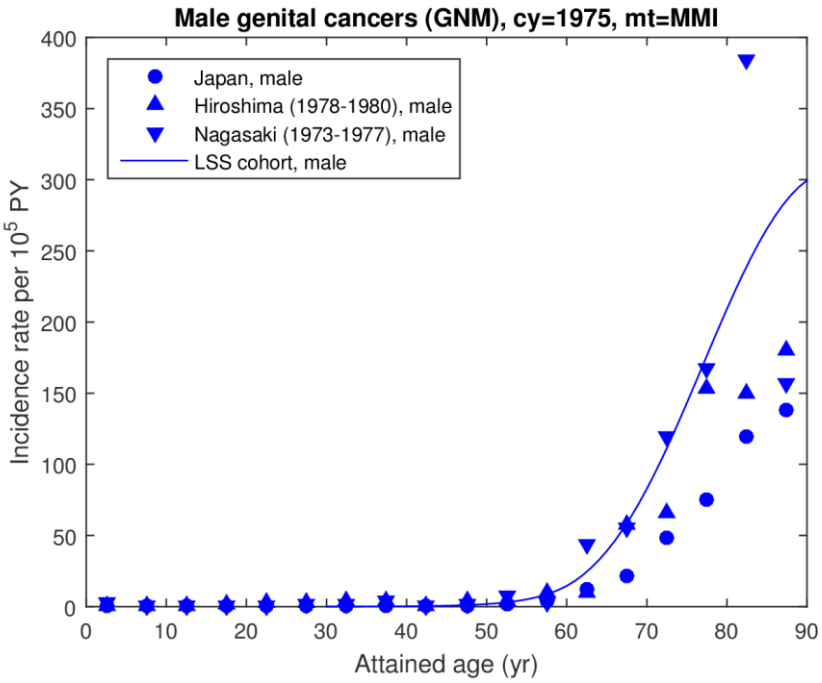

Fig. 4.1 Baseline incidence rates of male genital cancers in 1975 computed using the MMI-average of the models selected for the group GNM (line) and incidence rates reported by population

registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

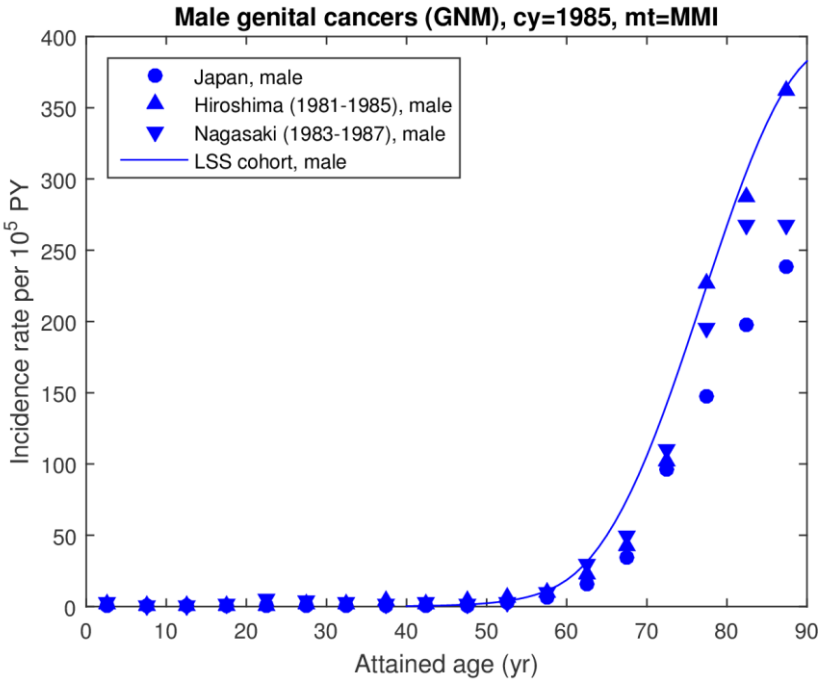

Fig. 4.2 Baseline incidence rates of male genital cancers in 1985 computed using the MMI-average of the models selected for the group GNM (line) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

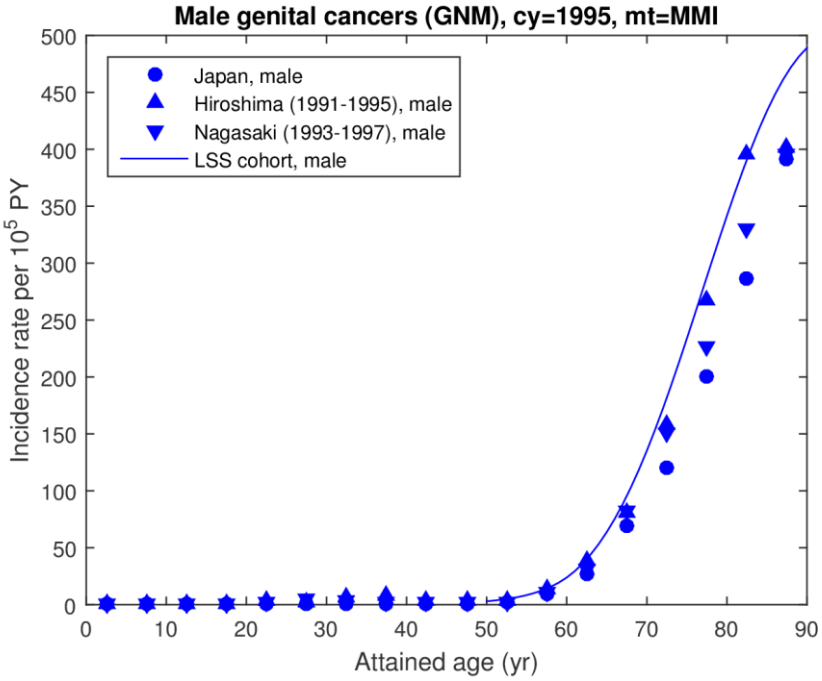

Fig. 4.3 Baseline incidence rates of male genital cancers in 1995 computed using the MMI-average of the models selected for the group GNM (line) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

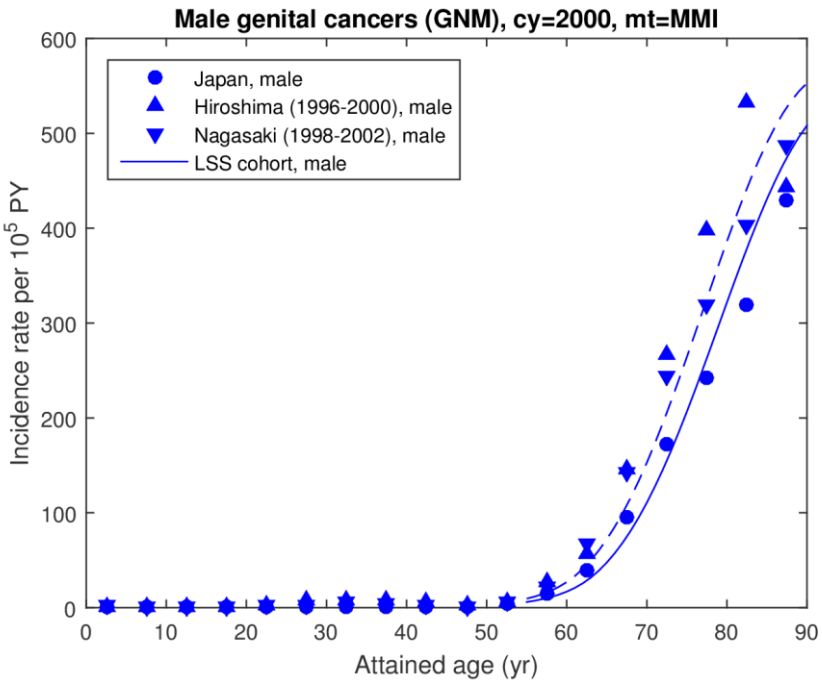

Fig. 4.4 Baseline incidence rates of male genital cancers in 2000 computed using the MMI-average of the models selected for the group GNM (line) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

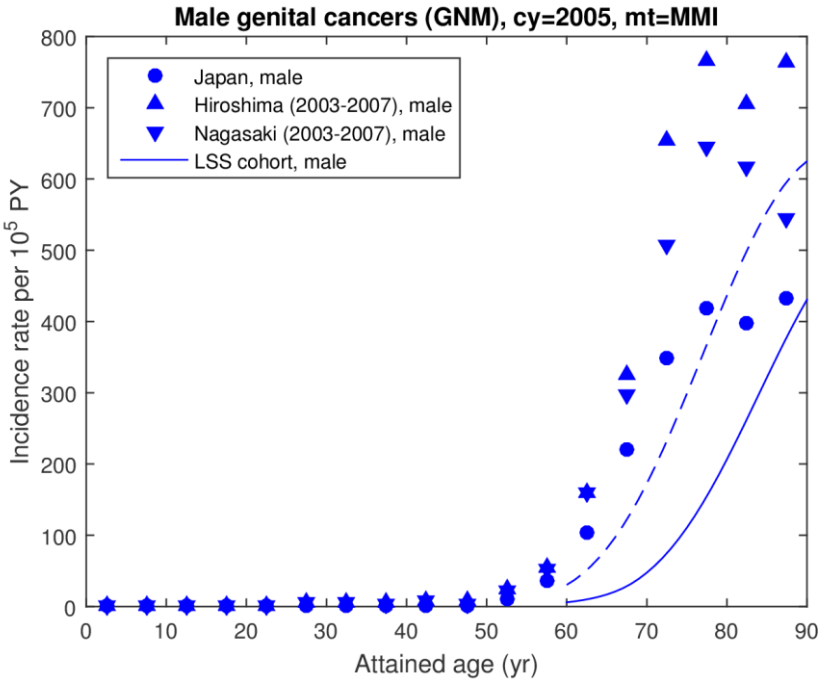

Fig. 4.5 Baseline incidence rates of male genital cancers in 2005 computed using the MMI-average of the models selected for the group GNM (line) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

5. CANCERS OF URINARY TRACT ORGANS (URI GROUP)

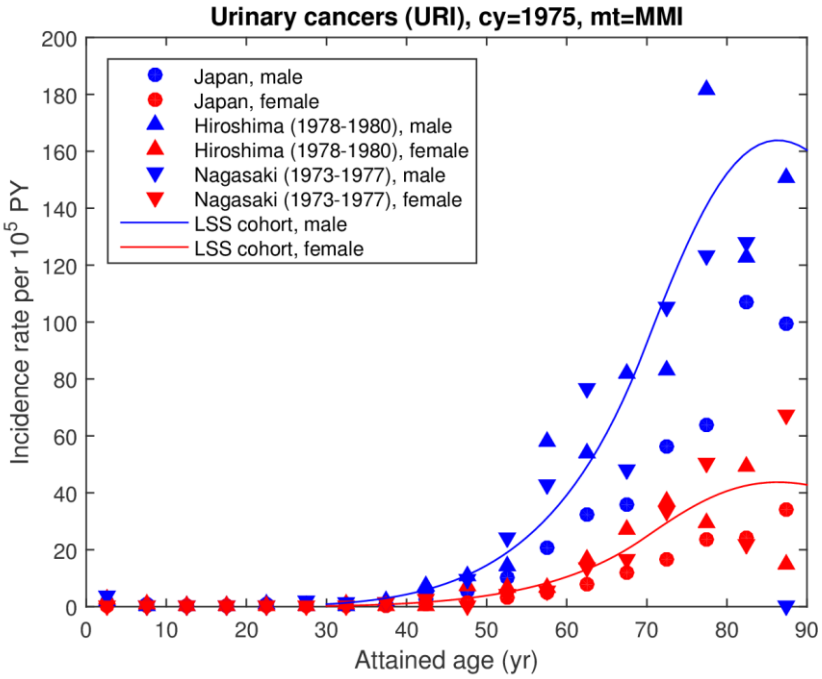

Fig. 5.1 Baseline incidence rates for males (blue) and females (red) in 1975 computed using the MMI-average of the models selected for the group URI (lines) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

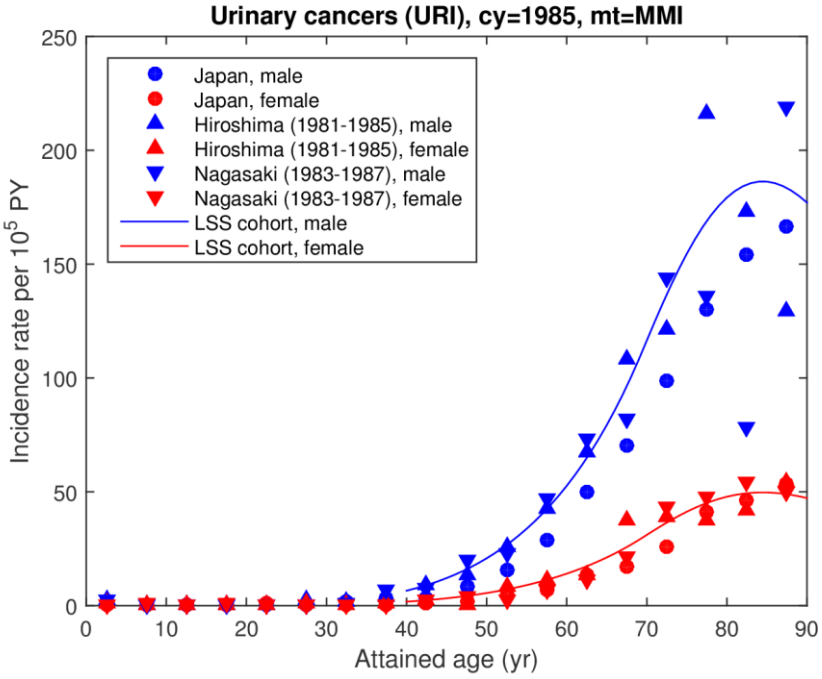

Fig. 5.2 Baseline incidence rates for males (blue) and females (red) in 1985 computed using the MMI-average of the models selected for the group URI (lines) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

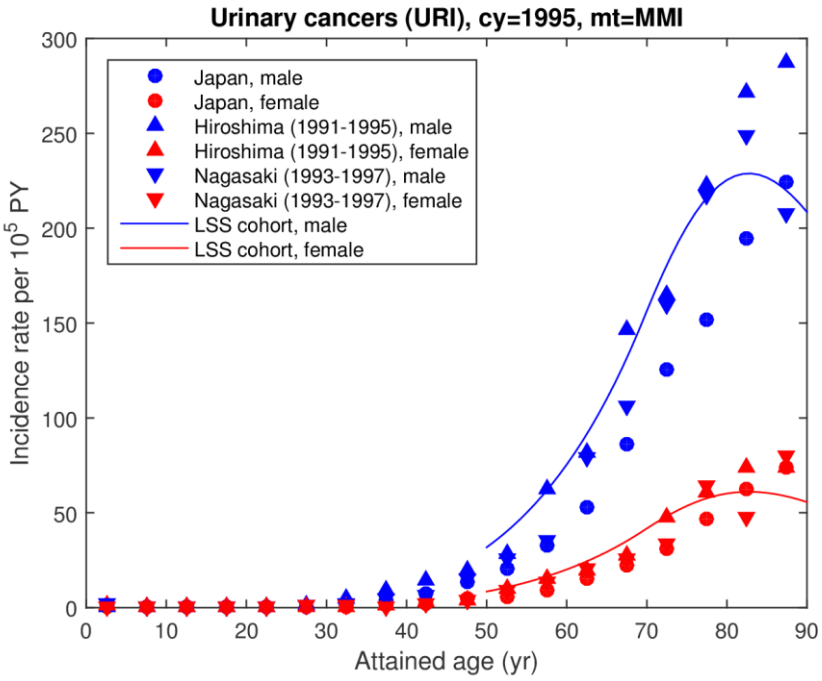

Fig. 5.3 Baseline incidence rates for males (blue) and females (red) in 1995 computed using the MMI-average of the models selected for the group URI (lines) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

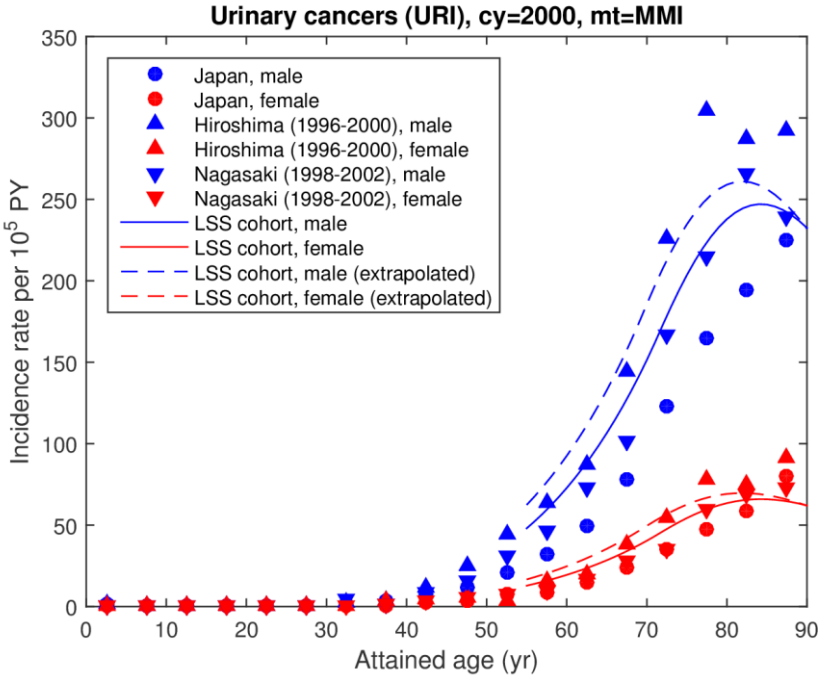

Fig. 5.4 Baseline incidence rates for males (blue) and females (red) in 2000 computed using the MMI-average of the models selected for the group URI (lines) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

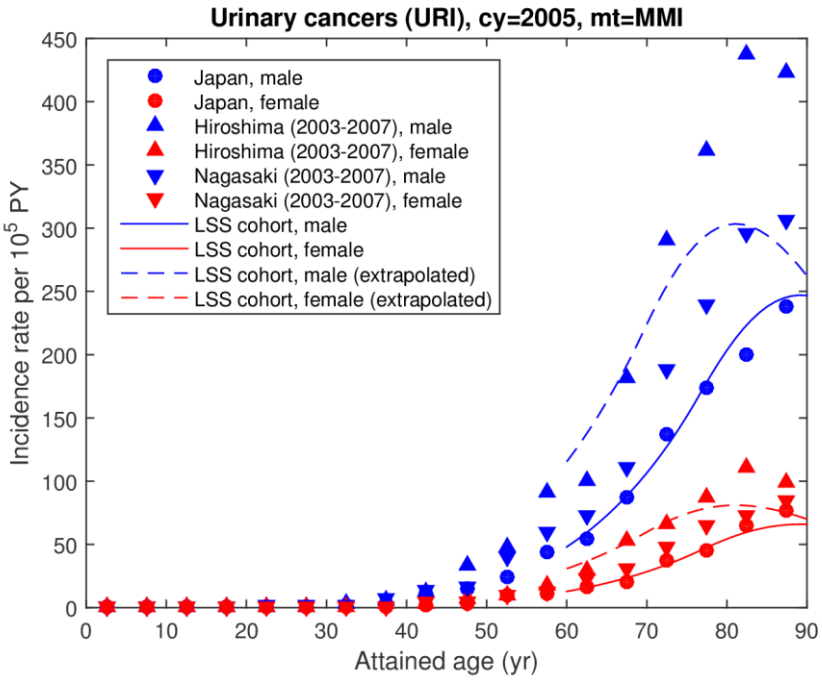

Fig. 5.5 Baseline incidence rates for males (blue) and females (red) in 2005 computed using the MMI-average of the models selected for the group URI (lines) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

6. CANCERS OF THE REMAINING ORGANS (REM GROUP)

Plausibility of the derived models has been tested by comparing baseline incidence rate in Hiroshima and Nagasaki, as reported by IARC in CI5 publication.

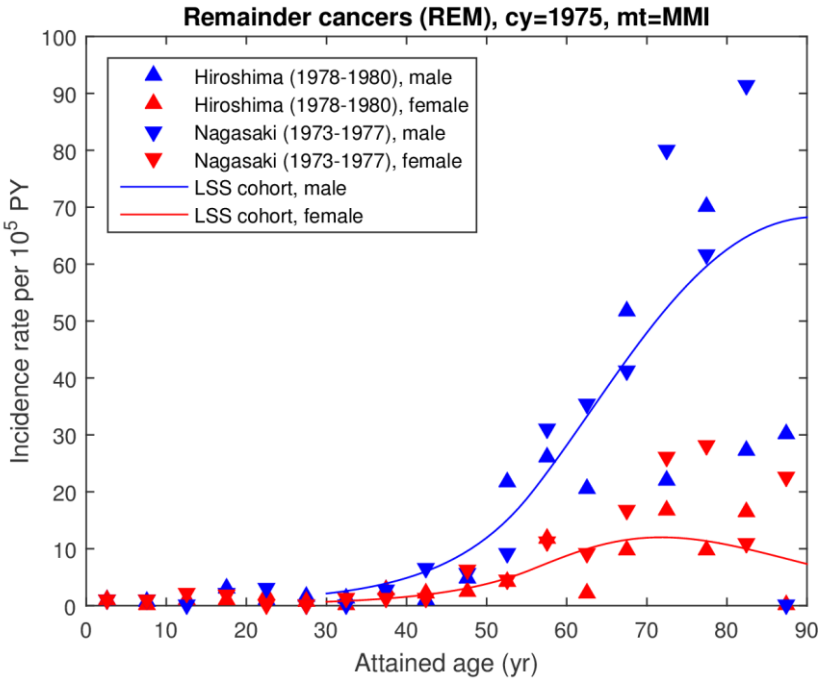

Fig. 6.1 Baseline incidence rates for males (blue) and females (red) in 1975 computed using the MMI-average of the models selected for the group REM (lines) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

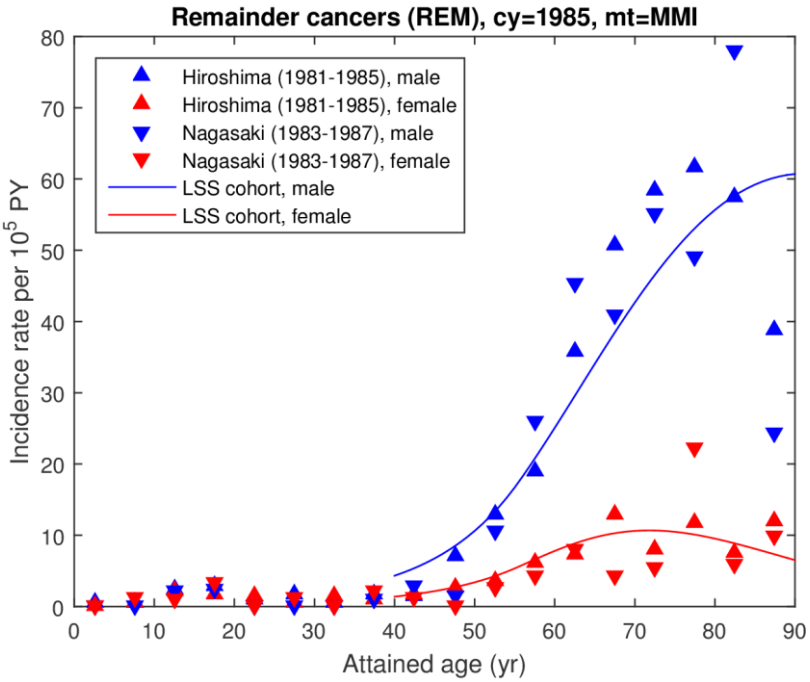

Fig. 6.2 Baseline incidence rates for males (blue) and females (red) in 1985 computed using the MMI-average of the models selected for the group URI (lines) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

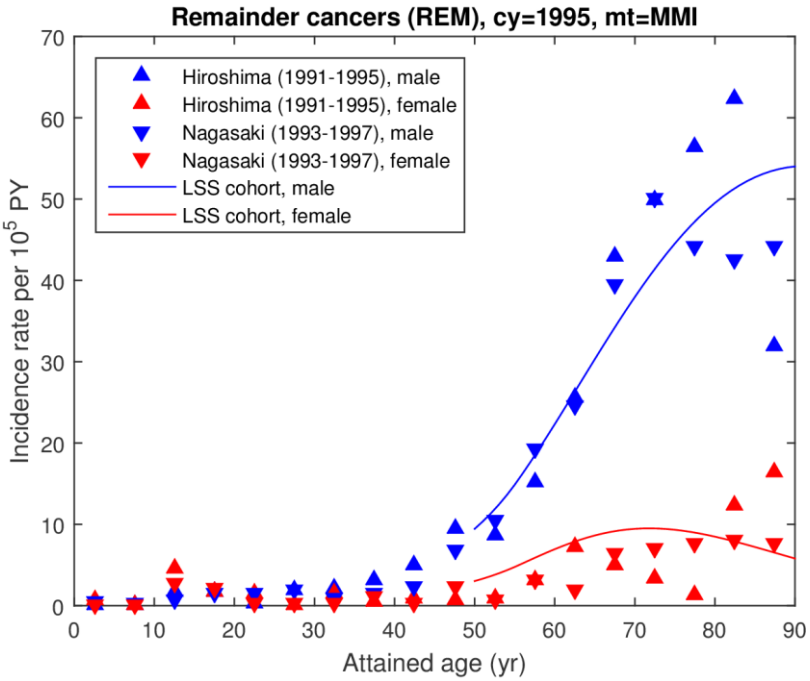

Fig. 6.3 Baseline incidence rates for males (blue) and females (red) in 1995 computed using the MMI-average of the models selected for the group URI (lines) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

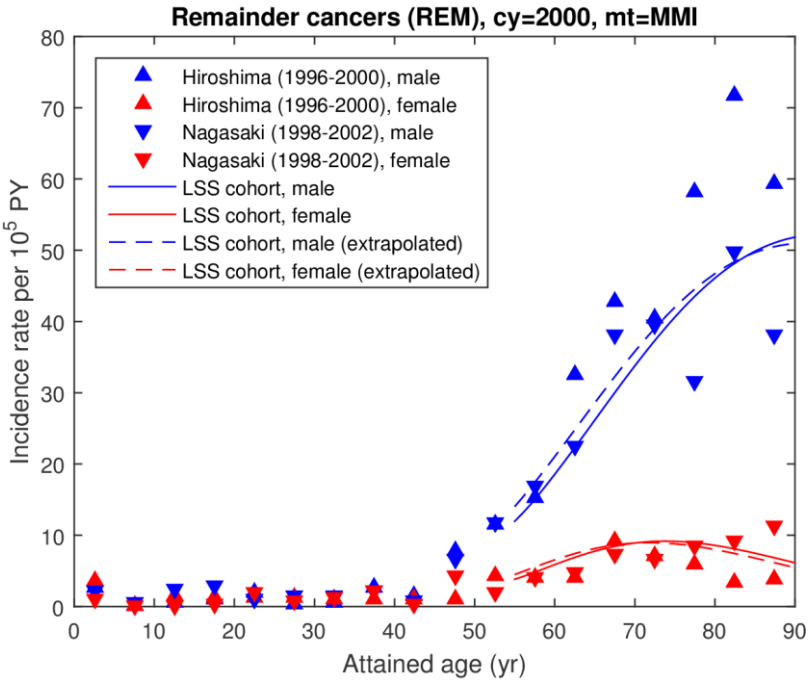

Fig. 6.4 Baseline incidence rates for males (blue) and females (red) in 2000 computed using the MMI-average of the models selected for the group URI (lines) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

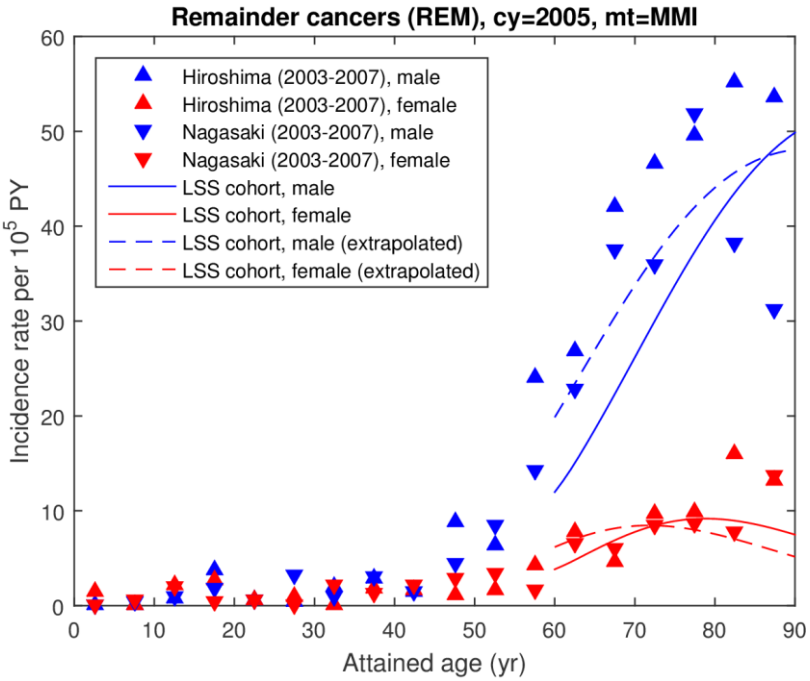

Fig. 6.5 Baseline incidence rates for males (blue) and females (red) in 2005 computed using the MMI-average of the models selected for the group URI (lines) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

7. NON-MELANOMA SKIN CANCER

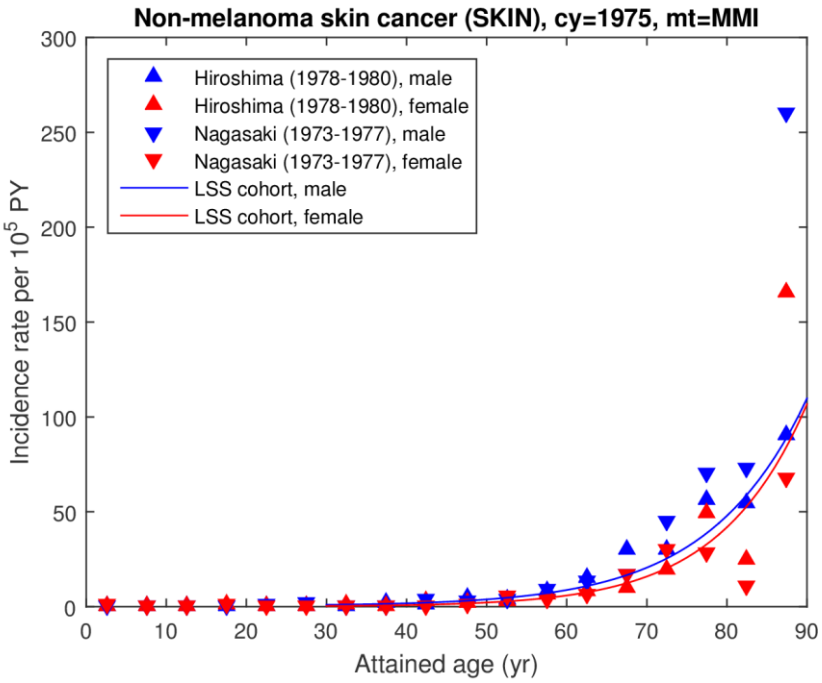

Fig. 7.1 Baseline incidence rates for males (blue) and females (red) in 1975 computed using the MMI-average of the models selected for the group SKIN (lines) and incidence rates reported by

population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

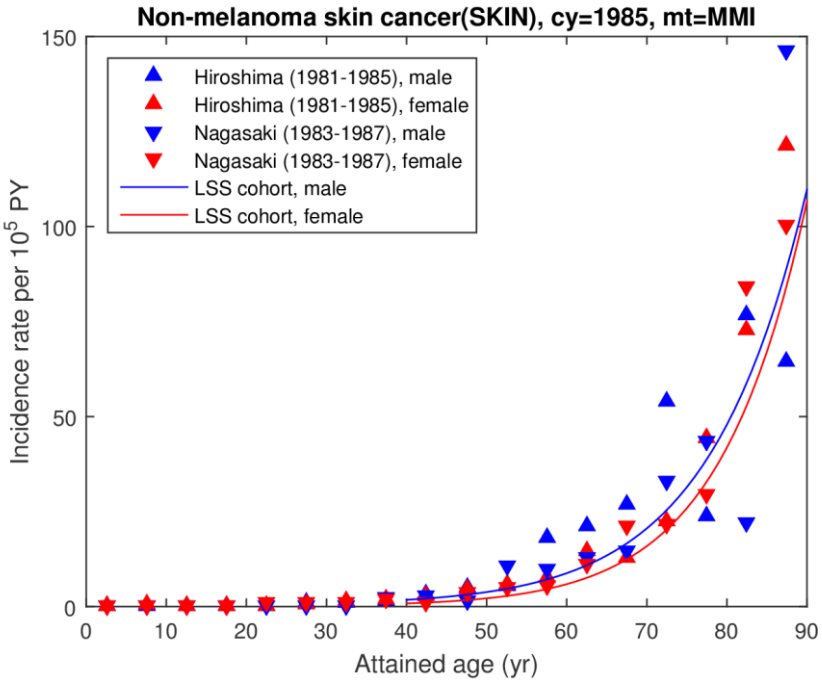

Fig. 7.2 Baseline incidence rates for males (blue) and females (red) in 1985 computed using the MMI-average of the models selected for the group SKIN (lines) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

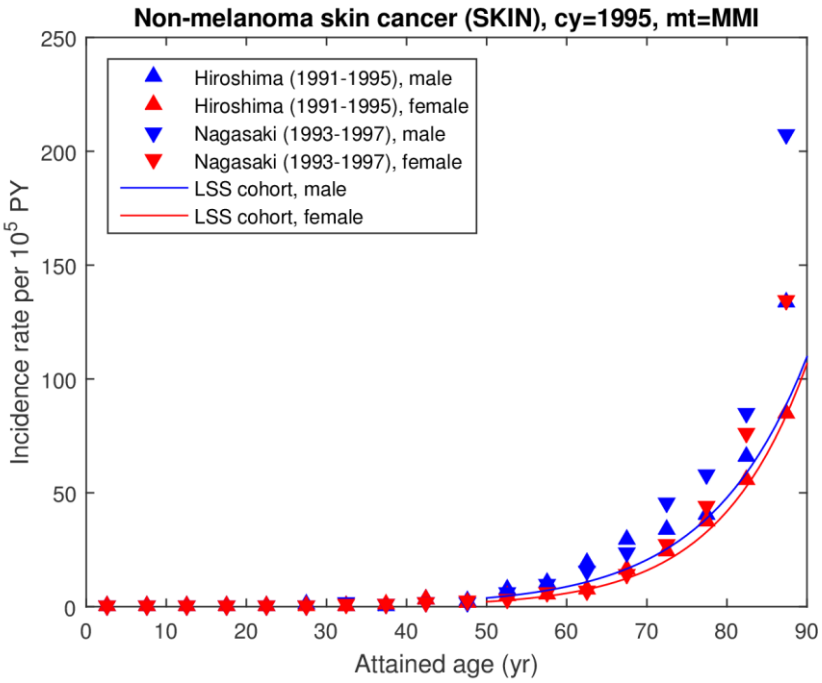

Fig. 7.3 Baseline incidence rates for males (blue) and females (red) in 1995 computed using the MMI-average of the models selected for the group SKIN (lines) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

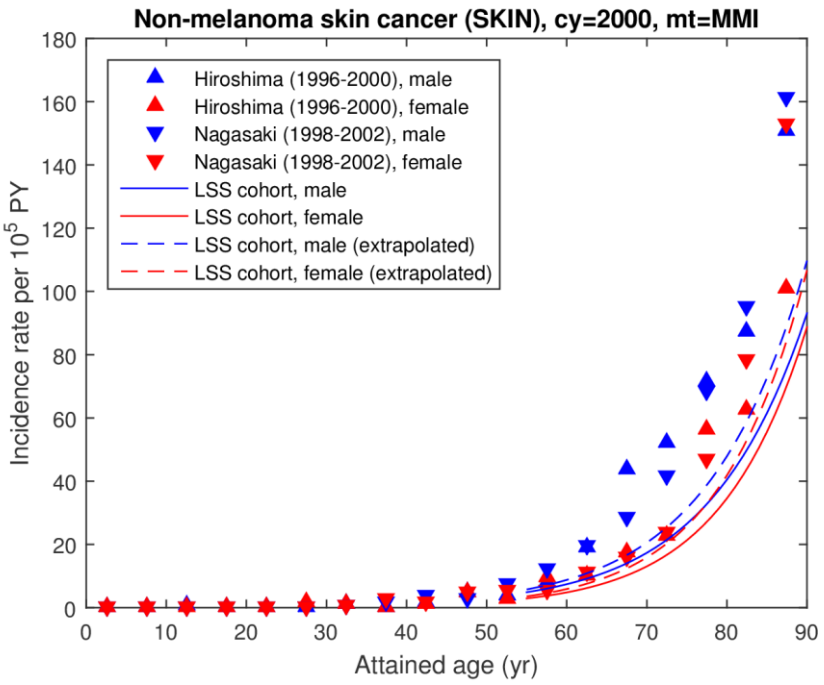

Fig. 7.4 Baseline incidence rates for males (blue) and females (red) in 2000 computed using the MMI-average of the models selected for the group SKIN (lines) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)

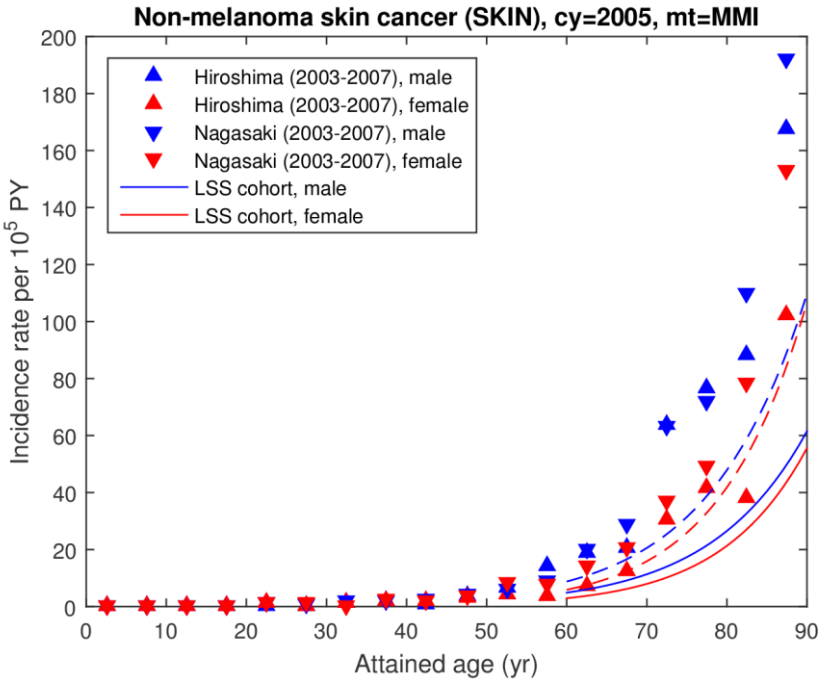

Fig. 7.5 Baseline incidence rates for males (blue) and females (red) in 2005 computed using the MMI-average of the models selected for the group SKIN (lines) and incidence rates reported by population registries for the whole Japan (circles; NCC, 2013) and the cities of Hiroshima and Nagasaki (triangles; IARC, 1976–2014)