**Supplementary Figure 1.** Flow diagram of inclusions and exclusions.

UTUC = upper urinary tract urothelial carcinoma; CAD = coronary arterial disease; COPD = chronic obstructive pulmonary disease; DM = diabetes mellitus

Patients who were newly diagnosed with UTUC from 2004 till 2011

(N=6,445)

Exclusion:

1. Patients who had previous cancer history before the date of initial diagnosis of UTUC (N=1,562)
2. Patients who lacked information on insurance premium and residential area (N=24)

People who were NHI beneficiaries in 2005 LHID

(N=997,771)

Exclusion:

1. Cases did not match with corresponding controls (N=1,045)
* Renal insufficiency: 494
* Hepatitis: 132
* CAD: 259
* COPD: 197
* DM: 401
* Hyperlipidemia: 266
* Blackfoot disease endemic area: 36
1. Cases did not match with enough controls (N=893)
* (Only 1 control: 452)
* (Only 2 controls: 271)
* (Only 3 controls: 170)
* Renal insufficiency: 272
* Hepatitis: 47
* CAD: 188
* COPD: 141
* DM: 280
* Hyperlipidemia: 222
* Blackfoot disease endemic area: 30

Exclusion:

1. Beneficiaries who had previous cancer history or died at the matching year (N=134,713)
2. Beneficiaries who lacked information on insurance premium and residential area (N=10,501)

Study cases

(N=4,859)

Comparison cohort

(N=852,557)

Cases were matched with controls at a 4:1 (controls:cases) ratio on the basis of age, gender, insurance premium, residential region, urbanization level of residential district, blackfoot disease endemicarea*,* comorbidity (renal insufficiency, hepatitis, CAD, COPD, DM, hyperlipidemia)

Final study cases

(N=2,921)

Final study controls

(N=11,684)