**Supplementary Material 4. SAS code for time-dependent competing risk Cox regression.**

/\*Colon cancer\*/

proc phreg data=cb.colonnewfinal;

class incomegp(ref=’5’) sex\_type(ref=’1’) cci(ref=’2’) / param=’ref’;

model (startdate, finaloutdate)\*dementiafinal(0,2) = age sex\_type cci incomegp x y;

if (ctx=1 and chemodate<=finaloutdate) then x=1; else x=0;

if (folate=1 and folatedate<=finaloutdate) then y=1; else y=0;

hazardratio ‘chemotherapy’ x/cl=wald;

hazardratio ‘folate therapy’ y/cl=wald;

run;

/\*Rectal cancer\*/

proc phreg data=cb.rectalnewfinal;

class incomegp(ref=’5’) sex\_type(ref=’1’) cci(ref=’2’) / param=’ref’;

model (startdate, finaloutdate)\*dementiafinal(0,2) = age sex\_type cci incomegp x y z;

if (ctx=1 and chemodate<=finaloutdate) then x=1; else x=0;

if (folate=1 and folatedate<=finaloutdate) then y=1; else y=0;

if (rt=1 and radiodate<=finaloutdate) the z=1; else z=0;

hazardratio ‘chemotherapy’ x/cl=wald;

hazardratio ‘folate therapy’ y/cl=wald;

run;