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# Effect of low dose and long term use of aspirin in primary prevention of colorectal cancer: Nationwide cohort study, Taiwan 1998-2010

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## Introduction 399

Whether lower or less frequent doses of aspirin use in primary prevention of colorectal cancer (CRC) is controversial, although high dose (300 mg or more) of aspirin use daily for 5 years or more has been shown to be effective.

The aim of this study was to explore the effect of low dose of aspirin on primary prevention of CRC.

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Hybrid study of cohort with matched comparative group was used. Two longitudinal cohorts with 1000 000 beneficiaries each of the Taiwan National Health Insurance Research Dataset of year 2000, 2005 were used. As CRC rate increased after age 55, this study was limited to adults between 18-55 years old. The low dose user group were prescribed ≤150 mg aspirin daily consecutively for at least 30 days during 1998-2003 and followed until 2010. The nonuser group was matched with the user group by age, gender, three comorbidity (hypertension, diabetes mellitus, hyperlipidemia), index date (the user cases first prescribed aspirin). Records with CRC before aspirin being prescribed were excluded.

Survival analysis (log-rank test univariately and Cox's proportional hazard model multivariately) was used to examine the difference in CRC incidence among factors.

# Results

Figure 1. Colorectal cancer (CRC) incidence (per10<sup>5</sup>person-years) by age and aspirin group. age 18-55 years old, Taiwan 1998-2010

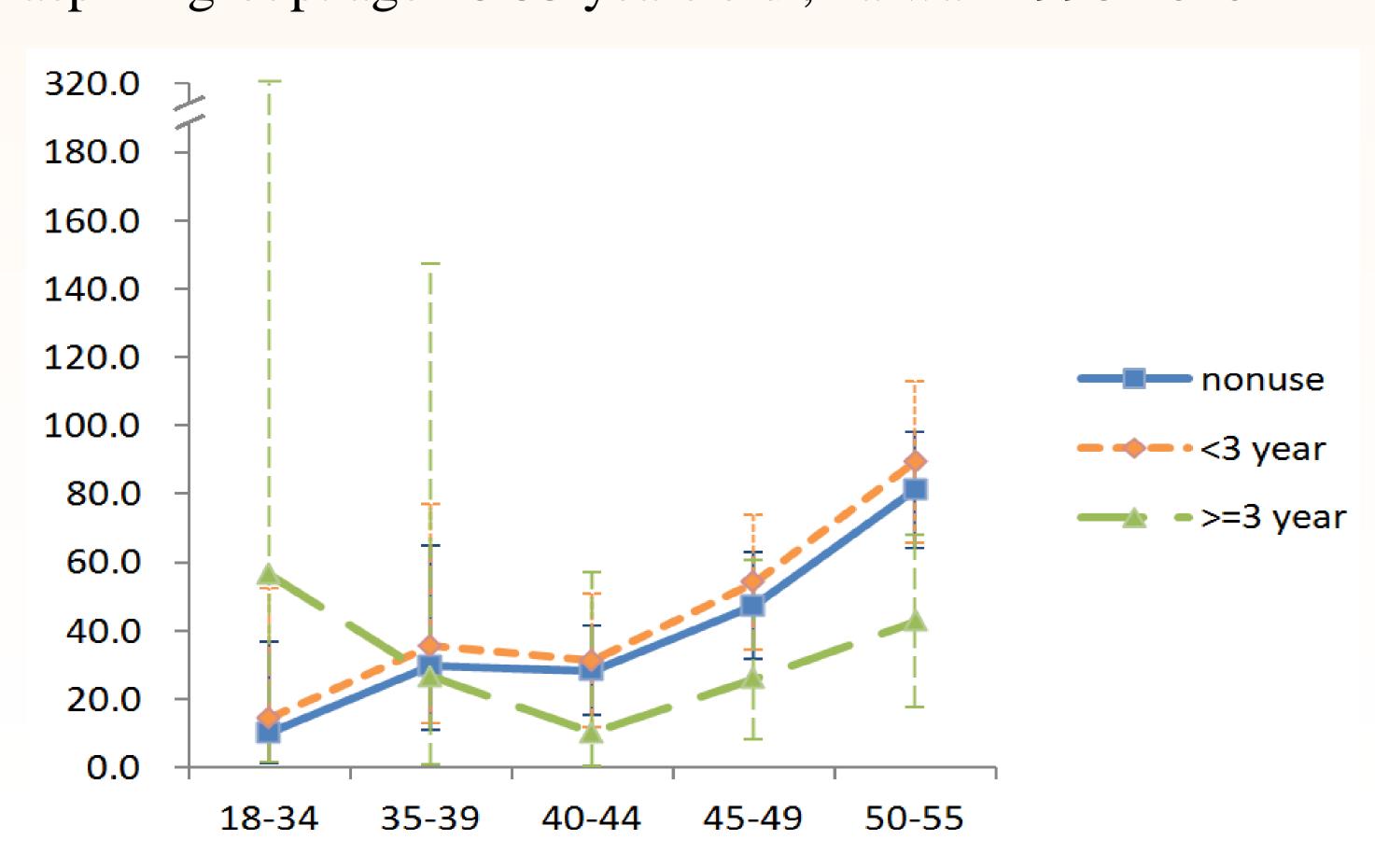
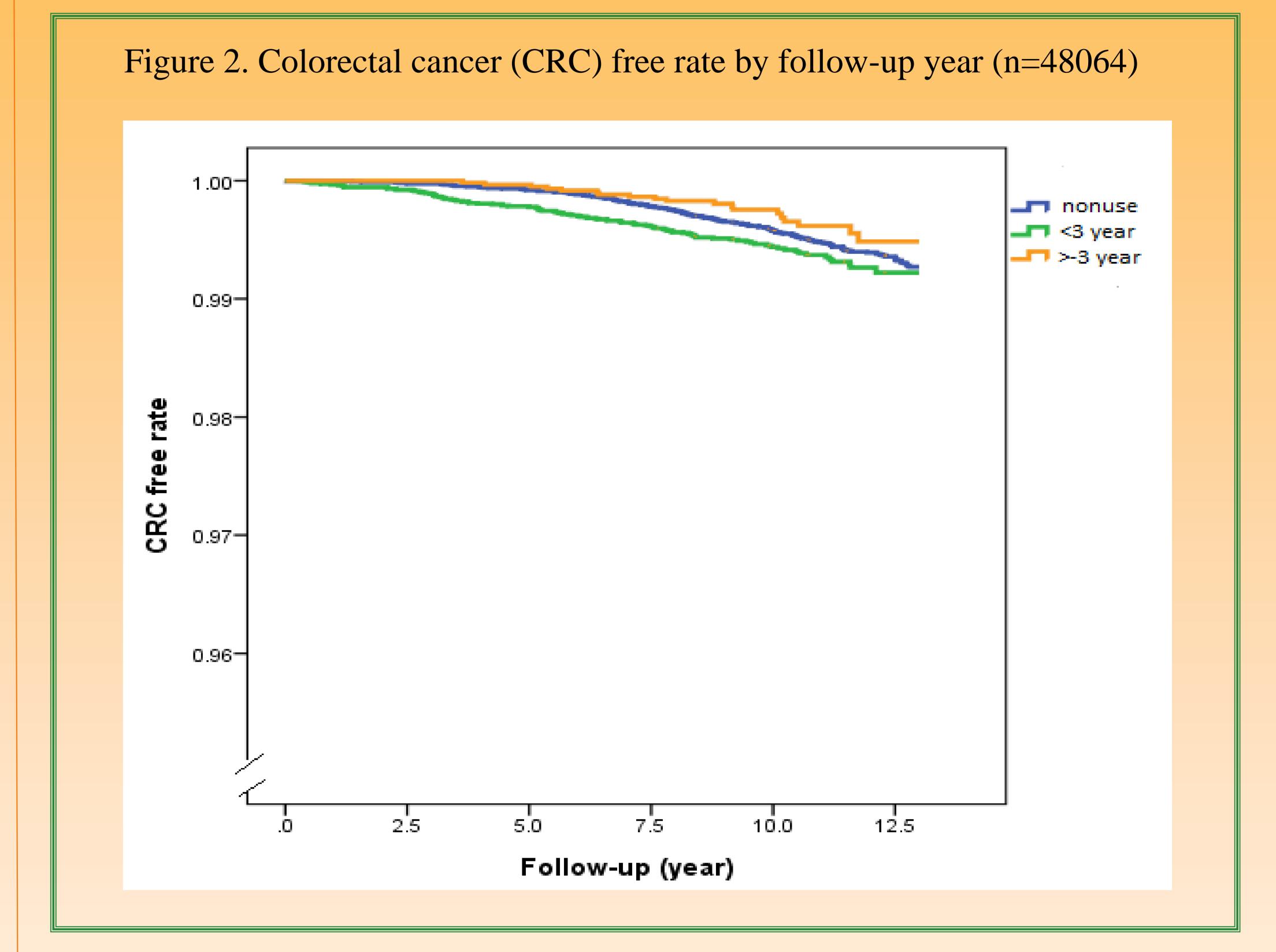


table1.Uniavriate and mulitivariate analysis of developing colorectal cancer (CRC) age 18-55 years old, Taiwan 1998-2010 (n=48064)

	Total	CRC	Person year	Incident rate (per 10 <sup>5</sup> person-years) (95% CI)	Unadjusted HR (95% CI)	Adjusted HR (95% CI)
Total Sex	48064	270	523645.15	51.56(45.41-57.71)		
Female	21138	103	232339.52	44.33(35.77-52.89)	ref	ref
Male	26926	167	291305.63	57.33(48.63-66.02)	1.31(1.02-1.67)*	1.42(1.11-1.81)*
Age						
18-34	3371	5	35251.54	14.18(4.61-33.10)	ref	ref
35-39	3829	13	40842.3	31.83(14.53-49.13)	2.21(0.79-6.19)	2.27(0.81-6.38)
40-44	9554	29	105365.9	27.52(17.51-37.54)	1.86(0.72-4.80)	2.01(0.78-5.19)
45-49	13414		146737.7	47.02(35.93-58.12)	3.18(1.28-7.89)*	3.50(1.41-8.69)*
50-55	17896		195447.8	78.79(66.35-91.24)	5.33(2.19-13.00)*	6.07(2.49-14.83)*
Comorbidity Hypertension						
No	8938	55	94644.85	58.11(42.75-73.47)	ref	
Yes	39126	215	429000.3	50.12(43.42-56.82)	0.84(0.63-1.13)	
Diabetes						
mellitus No	26744	150	200012.50	52 00(15 51 (2 15)	ref	
Yes	26744	156	289013.58	53.98(45.51-62.45) 48.59(39.67-57.51)		
Hyperlipidemia	21320	114	234031.38	48.59(39.67-57.51)	0.07(0.70-1.13)	
No	16518	106	177234.73	59.81(48.42-71.19)	ref	ref
Yes	31546	164	346410.43	47.343(40.10-54.59)	0.78(0.61-0.99)*	0.75(0.58-0.95)*
Coronary artery disease					C	
No	28929	170	322896.45	52.65(44.73-60.56)	ref	
Yes	19135	100	200748.71	49.81(40.05-59.58)	0.99(0.78-1.28)	
Heart failure	4.40.22	252	40050000	E1 45 (45 10 55 00)	rof	
No Vac	44833	252	489598.89	51.47(45.12-57.83)	ref	
Yes  Isohomio stroko	3231	18	34046.27	52.87(28.45-77.29)	1.00(0.00-1.71)	
Ischemic stroke						
No	42925	247	470369.97	52.51(45.96-59.06)	ref	
Yes	5139	23	53275.18	43.17(25.53-60.82)	0.86(0.56-1.32)	
Chronic renal disease						
No	42165	240	459129.65	52.27(45.66-58.89)	ref	
Yes	5899	30	64515.50	46.50(29.86-63.14)	0.89(0.61-1.30)	
Statin Use	0.000	1 / 4	202502.01		ref	
nonuse	26759	154	292502.81	52.65(44.33-60.96)	ref 0.98(0.76-1.25)	
<3 year >=3year		109	213489.84	51.056(41.47-60.64)	0.76(0.76-1.23)	
>=3year NSAID Use	1634	/	17652.51	39.65(15.94-81.70)	0.70(0.30-1.03)	
nonuse	23580	134	256477.02	52.25(43.40-61.09)	ref	
<3 year	24216	133	264207.96	50.34(41.78-58.89)		
>=3year	268	3	2960.18	101.35(20.90-296.17)	1.93(0.61-6.04)	
Aspirin Use	_55				, _ (0.01 0.01)	
nonuse	24032	149	285688.04	52.15(43.78-60.53)	ref	ref
<3 year	18105	102	177682.13	57.41(46.27-68.55)	1.29(1.00-1.67)	1.32(1.02-1.71)*
>=3year	5927	19	60274.98	31.52(17.35-45.70)	0.69(0.43-1.12)	0.64(0.40-1.04)



## Discussion \*\*\*

In this study, subjects were limited in age 18-55 years old and predominantly had cardiovascular problems. We saw a marginal benefit of reducing CRC incidence (unadjusted hazard ratio=0.69 (95% CI=0.43-1.12) and adjusted hazard ratio=0.64 (95% CI=0.40-1.04) among those who used low dose of aspirin for >3 years. Such findings were similar to two large cardiovascular prevention randomized control trials.

On the other hand, we saw a significant risk of developing CRC among those who took low dose of aspirin for < 3 years, when compared with the nonuse group. We have tried our best to figure out why this happened by double checking the data, inclusion, exclusion, SAS program, or re-sampling the nonuse group. Unfortunately, we saw similar findings of higher risk of CRC for < 3 year use group. We speculate that non-compliance may be a reason. Further study is needed to examine our guess.