

Cancer prognosis by detection route in Korean firefighters

Kyoung Sook Jeong¹, Indam Cho², Jaehee Lim²

¹Dept of Occupational and Environmental Medicine, Hallym Sacred Heart University Hospital, Anyang, South Korea ²National Fire Agency, South Korea ; This study was supported by Korea Fire Officials Credit Union.

BACKGROUND

- Firefighters are exposed to many carcinogens including benzene, 1,3-butadiene, polycyclic aromatic hydrocarbon, diesel engine exhaust, shift work and so on.
- In general, cancer screening reduces the burden of cancer.
- It is necessary to decide which cancers are screened in firefighters.

STUDY OBJECTIVES

- We compared the prognosis and stage by detection method of cancer in Korean firefighters to evaluate whether the cancer screening test is efficient

METHODS

- We registered cancers in Feb 2019 in Korean firefighters.
- We collected age, year of diagnosis, stage at cancer diagnosis, current status of cancer, employment year, shift work duration and longest job as firefighters, and so on.
- We compared the stage and current status of cancers by the chances of cancer diagnosis by chi-square test.
- The statistical analyses were used SPSS 24.0

RESULTS

- Firefighters registered 323 cancers from 1997 to 2018.

Table 1. Mean age and employment duration at cancer diagnosis

	Mean	SD
Age (years)	42.9	8.52
Employment duration (years)	15.5	9.01

RESULTS

Table 2. Incidence cases and proportion by site

	Incident cases	%
Thyroid	108	33.4
Stomach	54	16.7
Colorectum	35	10.8
Lympho-hematopoietic	31	9.6
Liver	16	5.0
Breast	13	4.0
Lung	10	3.1
Kidney	8	2.5
bladder	5	1.5
Pancreas	5	1.5
Others	38	11.8
Total	323	100.0

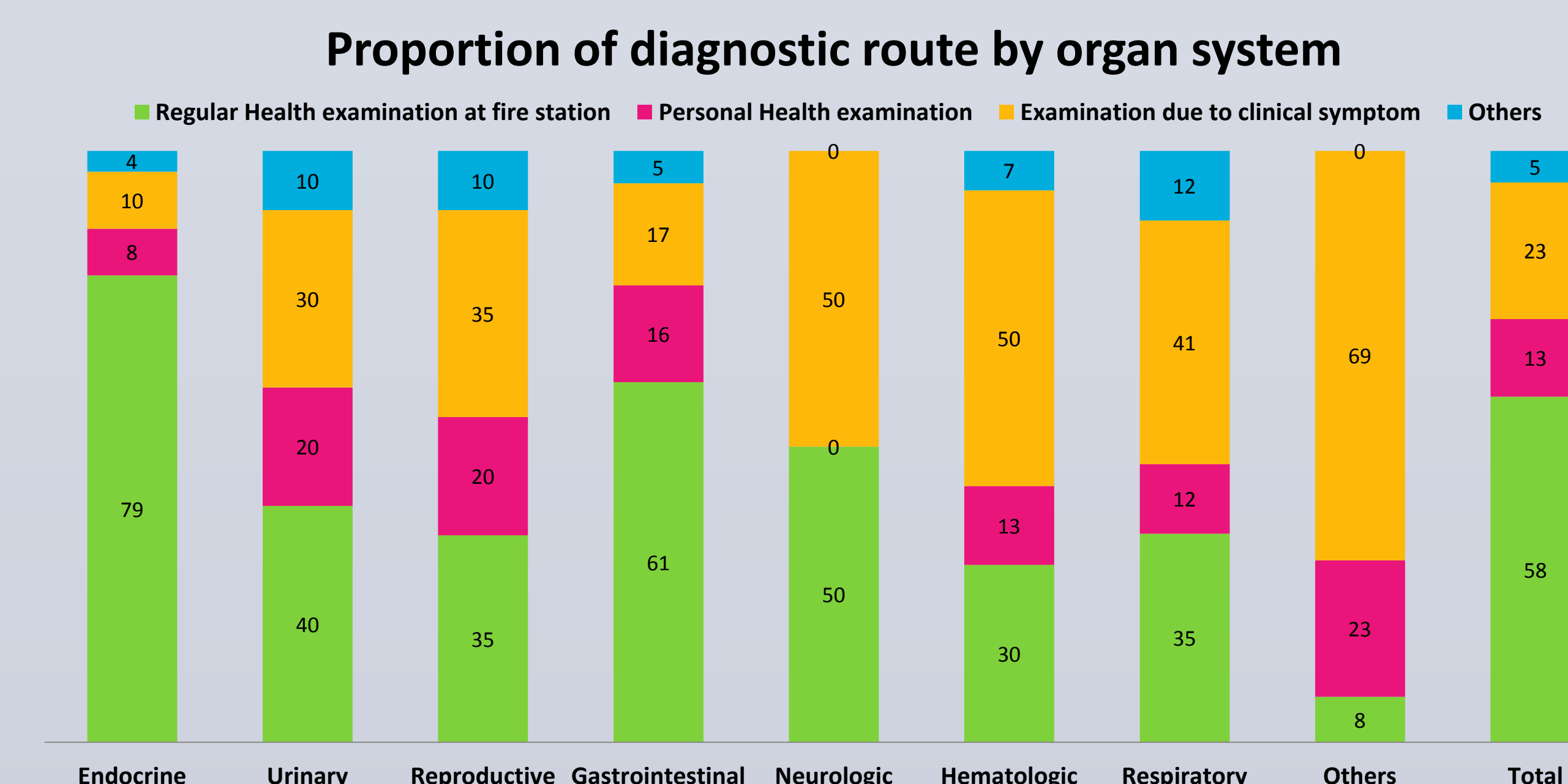
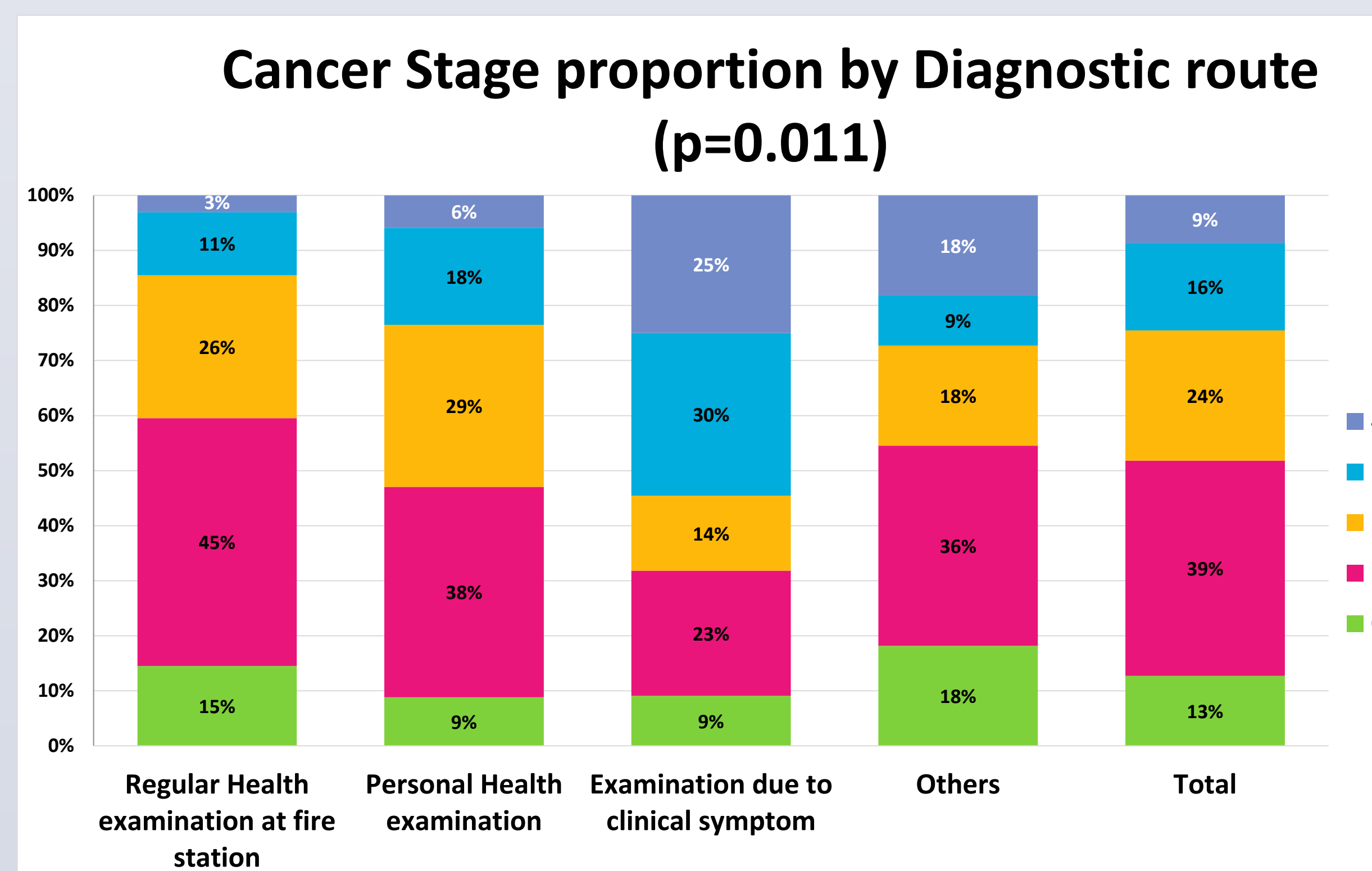


Table 3. Mortality rate by Diagnostic route (p= 0.003 by Fisher's exact test)

Vital status		Dx_Chance		Total
		Health examination	Evaluation for clinical symptoms	
Live	N	129	59	188
	%	97.7%	86.8%	94.0%
Death	N	3	9	12
	%	2.3%	13.2%	6.0%
Total	N	132	68	200
	%	100%	100%	100%

Thyroid cancer was excluded in this analysis.

- The mortality rates were 1.3% in detection cancers by health examination and 12.2% after clinical symptoms. (p=0.03) 16.4% and 54.5% were 3 and 4 stages, respectively. (p<0.001)
- The cancer stages and mortality rates were no differences by age, shift work duration, and longest job duration.

CONCLUSIONS

- Health examination is contributed to the good prognosis in firefighters' cancer.
- We should study which cancers should be screened in firefighters in the future to consider the occupational exposure of carcinogens in firefighters.

REFERENCES

- IARC Working Group on the Evaluation of Carcinogenic Risks to Humans. Painting, firefighting, and shiftwork. IARC Monographs 2010;98:9-764.
- Fu L, Lee CC. The circadian clock: pacemaker and tumor suppressor. Nat Rev Cancer 2003;3:350-61
- Lahti TA, Partonen T, Kyronen P, Kauppinen T, Pukkala E. Night-time work predisposes to non-Hodgkin lymphoma. Int J Cancer 2008;123:2148-51