

# Distribution and Determinants of Colorectal Cancer, Kingdom of Saudi Arabia, 2004 – 2010

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## Introduction

- Colorectal cancer (CRC) is a proliferation of tumors in the colon, appendix, or rectum
- Fastest growing cause of cancer-related illness and death globally and, in particular, in the Kingdom of Saudi Arabia (KSA)
- CRC is most-common cancer in males and third most-common in females in KSA

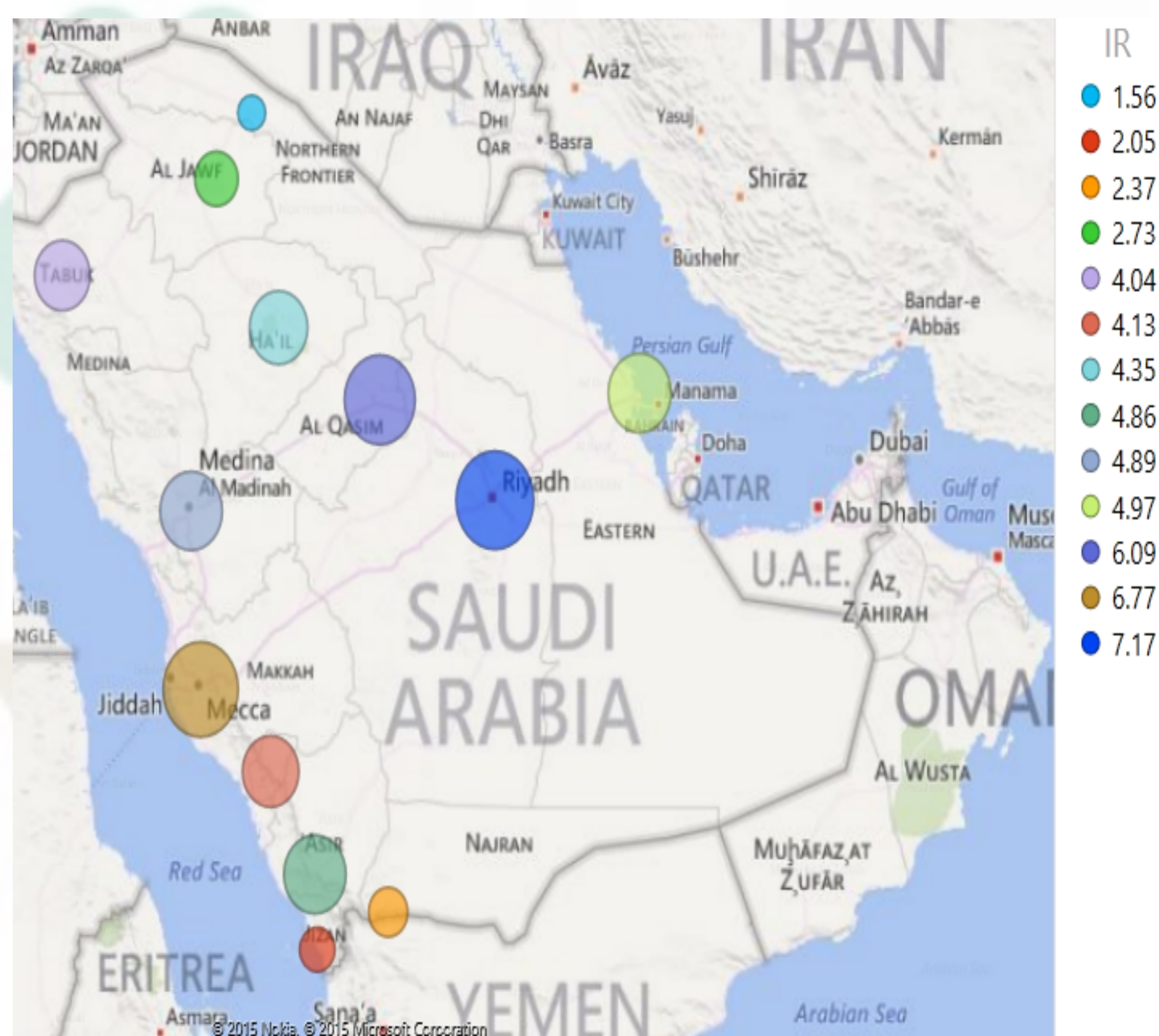
## Objectives

- Investigate trends in CRC incidence rates (IRs) from 2004 – 2010 in KSA
- Recommend further investigation
- Offer options for policy change

## Methods

- Estimated IRs and 95% confidence intervals (CIs) of CRC in KSA from 2004 – 2010
- CRC IRs were stratified by nationality, gender, and 13 administrative regions
- IRs estimated using number of cases per year over total population per 100,000 persons

Figure 1. Incidence Rates of Reported Cases of Colorectal Cancer, by Year and 13 administrative Region, Kingdom of Saudi Arabia, 2010



## Results

- Increase of IRs statistically significant from 2004 – 2010, with substantially high IR in 2009

Table 1. Reported Cases of Colorectal Cancer and Incidence Rates, by Year, Kingdom of Saudi Arabia, 2004 – 2010

Year	#	IR <sup>o</sup>	95% CI*
2004	915	4.06	3.79 - 4.32
2005	1051	4.51	4.23 - 4.78
2006	1061	4.40	4.13 - 4.66
2007	1172	4.70	4.43 - 4.97
2008	1246	4.83	4.56 - 5.10
2009	1477	5.54	5.26 - 5.82
2010	1550	5.62	5.34 - 5.90
Total	8472		

- Among Saudis, a significant increase was observed in IRs from 2004 – 2010. Among non-Saudis, a similar trend was observed.

Table 2. Reported Cases of Colorectal Cancer and Incidence Rates, by Year and Nationality, Kingdom of Saudi Arabia, 2004 – 2010

Year	Saudi			Non-Saudi			p-value
	#	IR <sup>o</sup>	95% CI*	#	IR <sup>o</sup>	95% CI*	
2004	666	4.05	3.74 - 4.36	223	3.64	3.17 - 4.12	0.17
2005	789	4.68	4.35 - 5.01	249	3.85	3.37 - 4.32	<0.05
2006	772	4.47	4.15 - 4.79	272	3.97	3.50 - 4.44	0.09
2007	864	4.88	4.56 - 5.21	292	4.03	3.57 - 4.49	<0.05
2008	926	5.11	4.78 - 5.44	310	4.04	3.59 - 4.49	<0.05
2009	1143	6.16	5.81 - 6.52	324	3.99	3.56 - 4.43	<0.05
2010	1140	6.01	5.66 - 6.36	404	4.70	4.24 - 5.16	<0.05
Total	6,300			2,074			

- Among males, IRs increased significantly from 2004 – 2010 [from 4.26 in 2004 to 5.68 in 2010]
- Among females, a similarly significant increase in IR was observed [from 3.8 in 2004 to 5.55 in 2010]

Table 3. Reported Cases of Colorectal Cancer and Incidence Rates, by Year and Gender, Kingdom of Saudi Arabia, 2004 – 2010

Year	Male			Female			p-value
	#	IR <sup>o</sup>	95% CI*	#	IR <sup>o</sup>	95% CI*	
2004	532	4.26	3.90 - 4.62	383	3.80	3.42 - 4.18	0.09
2005	629	4.85	4.47 - 5.23	422	4.07	3.68 - 4.46	<0.05
2006	592	4.40	4.05 - 4.76	469	4.39	3.99 - 4.79	0.97
2007	674	4.83	4.47 - 5.20	498	4.53	4.13 - 4.93	0.27
2008	714	4.93	4.57 - 5.30	532	4.70	4.30 - 5.10	0.40
2009	875	5.83	5.44 - 6.21	602	5.17	4.76 - 5.58	<0.05
2010	885	5.68	5.31 - 6.06	665	5.55	5.13 - 5.97	0.65
Total	4,901			3,571			

Figure 2. Incidence Rates of Reported Cases of Colorectal Cancer, by Year and Region<sup>o</sup>, Kingdom of Saudi Arabia, 2004 – 2010 (IR order based on 2010)

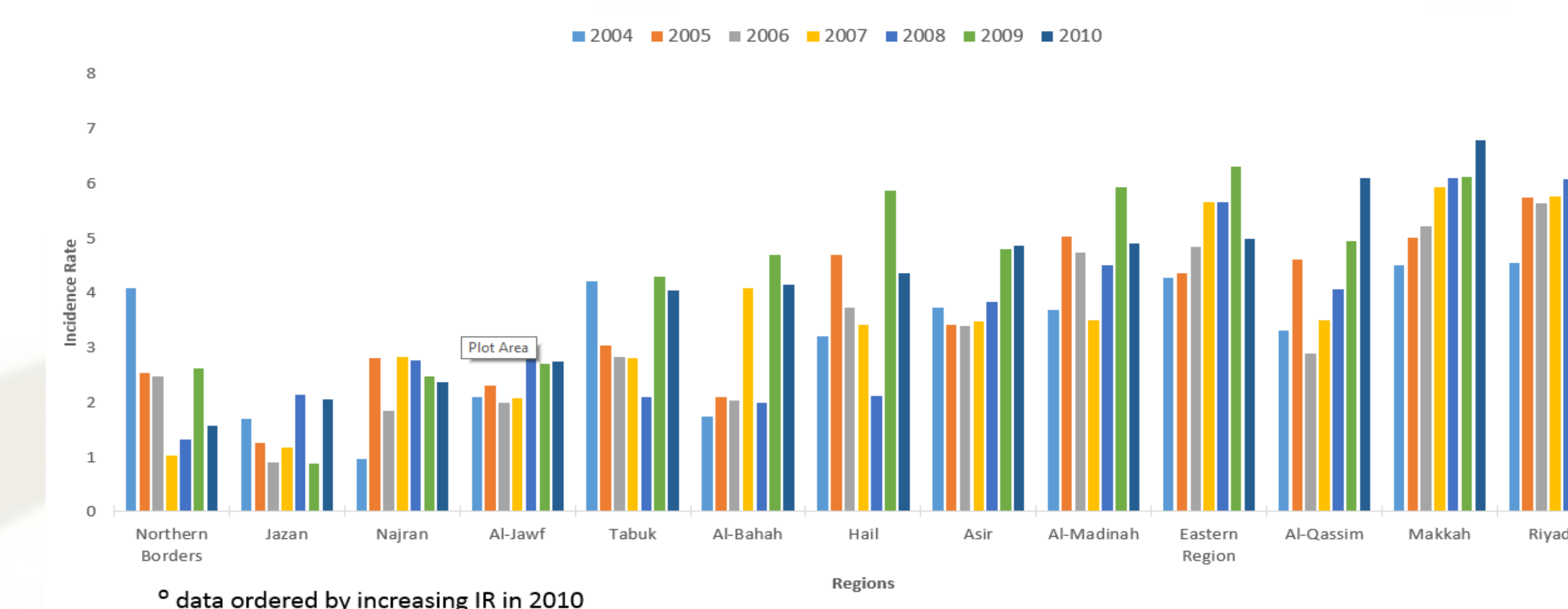
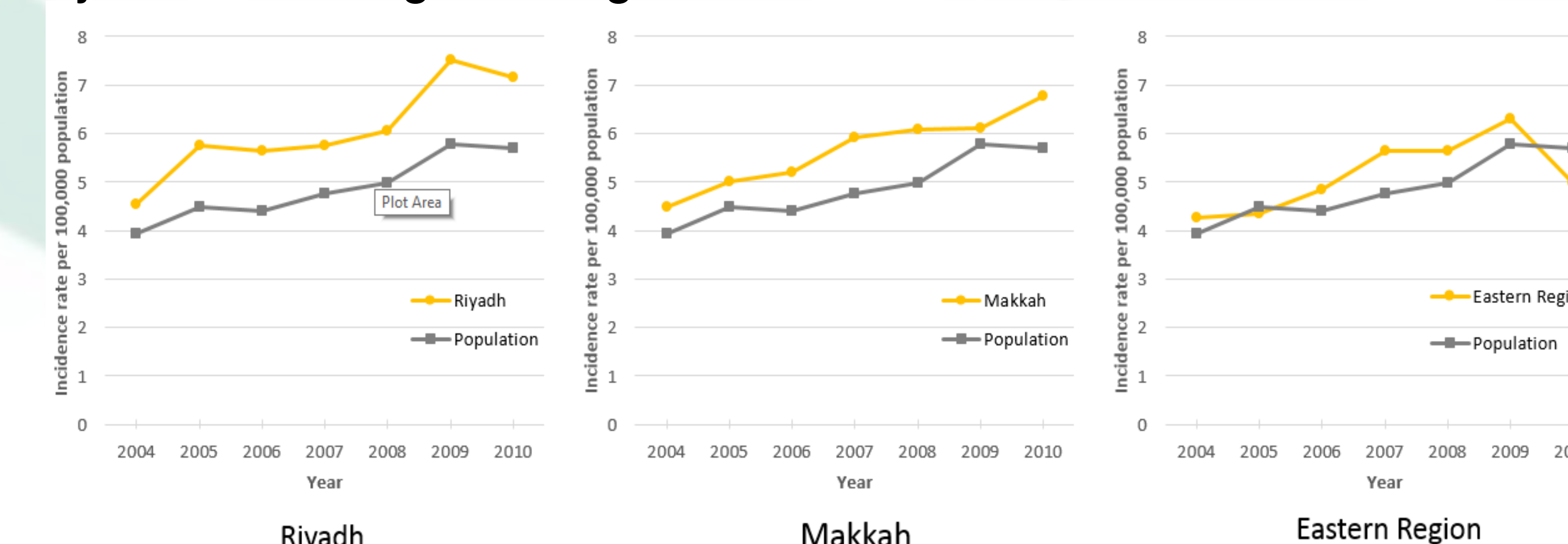


Figure 3. Incidence Rates of Reported Cases of Colorectal Cancer, by Year and Region, Kingdom of Saudi Arabia, 2004-2010



## Conclusion

- CRC incidence and mortality rates can be significantly diminished through early screening and detection, healthier diet, increased amounts of physical activity, and the elimination of harmful lifestyle habits

## Recommendations

- Investigate why there are higher IRs among men than women
- Study records of patients seen by private doctors
- Focus on individuals most at risk from CRC and determine risk factors

## Acknowledgments

- I would like to thank Natalie Schulhofer, Suman Kundu, Prabhjyot Saini, and the entire King Abdullah Fellowship team for their support
- Special thanks to the Ministry of Health and Saudi Cancer Registry