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Mortality from cancer among ethnic German immigrants from the Former Soviet Union, in Germany

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ABSTRACT

This study aimed to compare mortality from cancers between ethnic German immigrants and the native German population. We conducted a retrospective cohort study of 34,393 so-called *Aussiedler* from the Former Soviet Union in Germany's largest federal state and ascertained vital status and cause-of-death through population registries. We used direct and indirect standardisation to compare *Aussiedler*, German and Russian federation rates, and Poisson regression for influencing factors. Compared to Germans, male *Aussiedler* had similar all-cancer mortality, standardised mortality ratio (SMR) 0.97 (95% confidence interval: 0.86–1.10), higher mortality from lung and stomach cancers, and lower mortality from prostate cancer; SMR 0.48 (0.25–0.84). Females had lower all-cancer, lung, and breast cancer mortality with SMR (95% CI), 0.76 (0.67–0.89), 0.61 (0.34–1.01) and 0.47 (0.29–0.70), respectively. Compared to the Russian Federation, *Aussiedler* had lower all-cancer mortality; males had similar mortality from lung cancers. Better health care in Germany could have resulted in reduced mortality from certain cancers among *Aussiedler*.

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1. Introduction

Throughout the last decades, there have been huge migratory movements in many parts of the world. In Europe, political changes in the late 1980s and early 1990s were followed by a steep increase in migration. Large migration flows occurred from countries of the Former Soviet Union (FSU) and Eastern and Central Europe to Western Europe and Israel.^{1,2} *Aussiedler* or 're-settlers' are 'Diaspora' immigrants of German ethnicity whose descendants emigrated to the Russian empire in the 17th and 18th centuries and lived there as a disadvantaged minority.³ Since the collapse of the Soviet Union, about two million people have migrated to Germany.⁴

It is expected that 'healthy migrant effects' are attenuated in Diaspora immigrants if the vast majority of such populations migrate.⁵ According to official estimates, most *Aussiedler* have

migrated due to a combination of factors like the pro-return-migration German government policy and discrimination and socio-economic hardships in the FSU.⁶ Therefore, their mortality is unlikely to be appreciably modified by selection effects. *Aussiedler* are the largest contributors to European Diaspora migration flows in the 1990s¹ but little is known about their post-migration health experience. Studying their mortality from chronic diseases like cancer may elucidate factors associated with such diseases and could provide information about aetiology and prevention in this particular population, among other migrant groups and the general population.

2. Migration and mortality from cancer

Given the long latency between exposure and disease onset in most cancers, short and medium term cancer mortality

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among first generation immigrants in the destination country is mainly influenced by country-of-origin factors.⁷ One exception is lung cancer for which smoking reduction or quitting may result in a reduced risk relatively quickly.⁸ There are differences in cancer mortality rates in the FSU and in Germany for different cancer sites as shown in Table 1. Based on calculations from the World Health Organisation (WHO) mortality database,⁹ mortality rates for smoking-related cancers are generally higher in the Russian Federation (country of origin for majority of *Aussiedler*) than in Germany, and lower for cancers of the reproductive systems with the exception of cervical cancer.

With increasing length of stay, cancer mortality rates among immigrants converge towards those in the destination country. This has been shown for stomach, colon and prostate cancers.¹⁰ Convergence may occur due to diet acculturation, adaptation of new lifestyles or utilisation of often superior health services. Mortality from cancers whose incidence can be reduced by effective screening programmes and those whose survival depends on availability of treatment options, may decrease in a relatively shorter time. Given the differences in mortality between populations of Germany and the Russian federation and assuming that *Aussiedler* had pre-migration risk factor profiles similar to populations in FSU countries the following scenarios are expected: (i) *Aussiedler* mortality should be lower than in the German population for cancer sites like breast and prostate where mortality in

FSU countries is lower or comparable; (ii) *Aussiedler* mortality should be higher or comparable to that of the German population for cancer sites like lung or stomach, where mortality in FSU countries is higher than in Germany and where survival rates are low in both countries. The aim of this study was to compare mortality from cancers among the *Aussiedler* and the native German population with the above scenarios in mind and to determine which factors have an effect on any mortality differences.

3. Materials and methods

3.1. Study population and design

Our study population comprised *Aussiedler* who arrived from countries of the FSU aged 15 years and above, and settled in North Rhine Westphalia (NRW), Germany's most populous federal state, between 1990 and 2001. Methodological details about their selection have been described elsewhere.¹¹ Briefly, we obtained a list of 281,356 *Aussiedler* containing names, sex, dates of birth and arrival in Germany, first city of residence, and country of origin from the NRW *Aussiedler* reception center. From these, we selected a cohort of 34,393 (16,734 males and 17,659 females) for whom automated record-linkage was possible at local population registries in the first cities of residence. Since allocation to the different federal states at the national level and to first residence in

Table 1 – Standardised death rates^{a,b} and rate ratios^c for selected cancer sites among the 15+ year-old populations of Germany and the Russian Federation for two time-periods as calculated from the WHO mortality database

Cancer site	ICD10	Year	German males	Russian males	Rate ratio	German females	Russian females	Rate ratio
			SDR/100000 population			SDR/100000 population		
Oesophagus	C15	1990	9.0	16.0	1.77	1.5	3.4	2.28
		2002	9.1	12.0	1.31	1.9	1.9	1.02
Stomach	C16	1990	29.5	77.6	2.63	15.4	33.5	2.18
		2002	18.0	53.1	2.95	9.7	21.7	2.24
Colorectal	C18–21	1990	42.0	33.0	0.79	30.3	23.1	0.76
		2002	36.6	36.8	1.01	24.0	24.2	1.01
Larynx	C32	1990	5.1	14.0	2.75	0.3	0.5	1.37
		2002	3.6	11.7	3.22	0.3	0.3	0.94
Lung	C33–34	1990	92.2	132.9	1.44	14.7	13.7	0.93
		2002	76.6	105.1	1.37	20.2	10.9	0.54
Breast	C50	1990	NA	NA	NA	40.0	24.6	0.61
		2002	NA	NA	NA	35.2	30.8	0.87
Cervix uteri	C53	1990	NA	NA	NA	6.2	8.9	1.44
		2002	NA	NA	NA	4.1	8.6	2.13
Prostate	C61	1990	35.3	13.4	0.38	NA	NA	NA
		2002	31.3	18.3	0.58	NA	NA	NA
Leukaemia	C91–95	1990	10.6	8.0	0.76	6.3	4.9	0.78
		2002	10.4	8.1	0.78	6.2	4.9	0.78
All cancers	C00–97	1990	373.1	401.8	1.08	226.9	178.5	0.79
		2002	282.2	354.9	1.26	177.9	170.3	0.96

a Direct standardisation with European Standard population.

b NA implies 'not applicable'.

c Ratio of SDR of Russian Federation:SDR of Germany.

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