



Insights into Brain and CNS Tumor Epidemiology Among the Chronologically Advantaged in the US Population

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Introduction

On January 1st 2011 and every single day over the next 19 years more than 10,000 Baby Boomers have reached or will reach the age of 65, a fact that highlights the aging of the US population. This population trend will have a profound impact on disease patterns including those involving brain and CNS tumor incidence and survival prompting this study.

Methods

The sample consisted of cases diagnosed with brain and CNS tumors (C70.0-C72.9, C75.1-C75.3) in the Central Brain Tumor Registry of the United States (CBTRUS) 21 state population-based registries analytic data set, 2004-2008 [n=105,045; n=49,121 (60+ years)] and the Surveillance Epidemiology End Results Program (SEER) 13 registry research data file, 1992-2009 [n=26,633 (60+ years)]. Incidence rates of malignant and non-malignant tumors were compared and contrasted for six age groups using CBTRUS. Trends and survival among those 60+ years were examined for malignant tumors using SEER. Analyses were conducted using SEER*Stat v. 7.0.9.

Results

- ❖ Incidence rates for the age groups of interest were highest among whites followed by blacks and lowest for other races with the exception of black females ages 60-69 and were higher for females than males within every race group (Table 1).
- ❖ Incidence rates for all combined, malignant, and non-malignant tumors progressively increased with each advancing age group with the exception of malignant rates not being significantly different between age categories 70-79 and 80+ years (Figure 1).
- ❖ The incidence of meningioma progressively increased with advancing age, while the incidence of other selected histologies decreased in the 80+ group (Figure 2).
- ❖ Microscopic confirmation by behavior decreased with each advancing age group and was substantially lower for non-malignant behavior (Figure 3).
- ❖ Trend analyses for malignant brain tumor rates by age category showed statistically significant decreases for males 60-69 and females 70-79, but a statistically significant increase among females 80+ years (Figure 4).
- ❖ Survival was poorest in the 80+ year category which is of importance given the increasing incidence trend for the respective group (Figure 5).

Conclusion

Increases in the incidence in the oldest age group (80+ years) will require attention to approaches needed to treat and care for those diagnosed with brain and CNS tumors in this population subgroup.

Table 1. Average Annual Age-adjusted Incidence Rates for Brain and Central Nervous System Tumors Among Selected Age Groups in the Chronologically Advantaged Populations
 CBTRUS 21 State Registry Data File, 2004-2008

	60-69 Years			70-79 Years			80+ Years		
	Count	Rate	95% CI	Count	Rate	95% CI	Count	Rate	95% CI
Total	18,809	46.7	(46.0-47.3)	17,282	64.6	(63.6-65.6)	13,030	73.3	(72.0-74.6)
Male	8,353	43.9	(43.0-44.9)	7,170	61.2	(59.8-62.6)	4,260	68.9	(66.9-71.0)
Female	10,456	49.1	(48.2-50.1)	10,112	67.2	(65.9-68.6)	8,770	75.9	(74.3-77.4)
Male	Count	Rate	95% CI	Count	Rate	95% CI	Count	Rate	95% CI
White	7,401	44.5	(43.5-45.6)	6,462	62.1	(60.6-63.6)	3,950	70.3	(68.1-72.6)
Black	613	40.5	(37.4-43.9)	446	52.9	(48.0-58.0)	177	52.4	(44.9-60.9)
Other	234	26.3	(23.0-29.9)	194	40.9	(35.3-47.1)	115	51.8	(42.8-62.2)
Female	Count	Rate	95% CI	Count	Rate	95% CI	Count	Rate	95% CI
White	8,911	48.8	(47.8-49.8)	8,816	67.2	(65.8-68.6)	7,927	76.1	(74.4-77.8)
Black	995	49.4	(46.4-52.6)	858	65.9	(61.6-70.5)	593	75.3	(69.4-81.6)
Other	419	41.4	(37.5-45.6)	345	56.7	(50.9-63.0)	193	55.2	(47.7-63.5)

Rates are per 100,000 and age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130) standard; CI - Confidence intervals (Tiwari mod) are 95% for rates.

Figure 1. Age-specific Rates by Behavior, 2004-2008

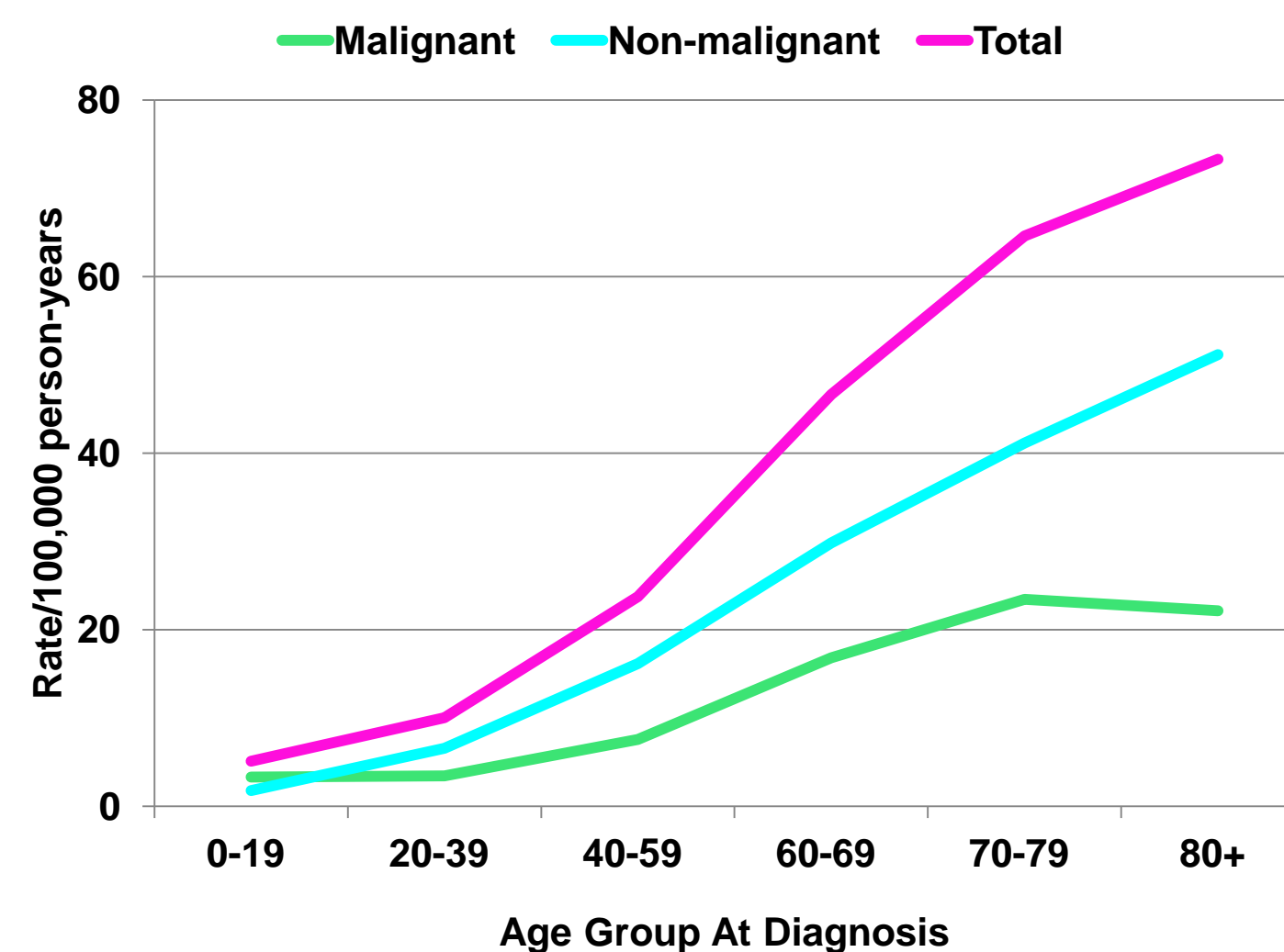


Figure 2. Age-specific Rates by Histology, 2004-2008

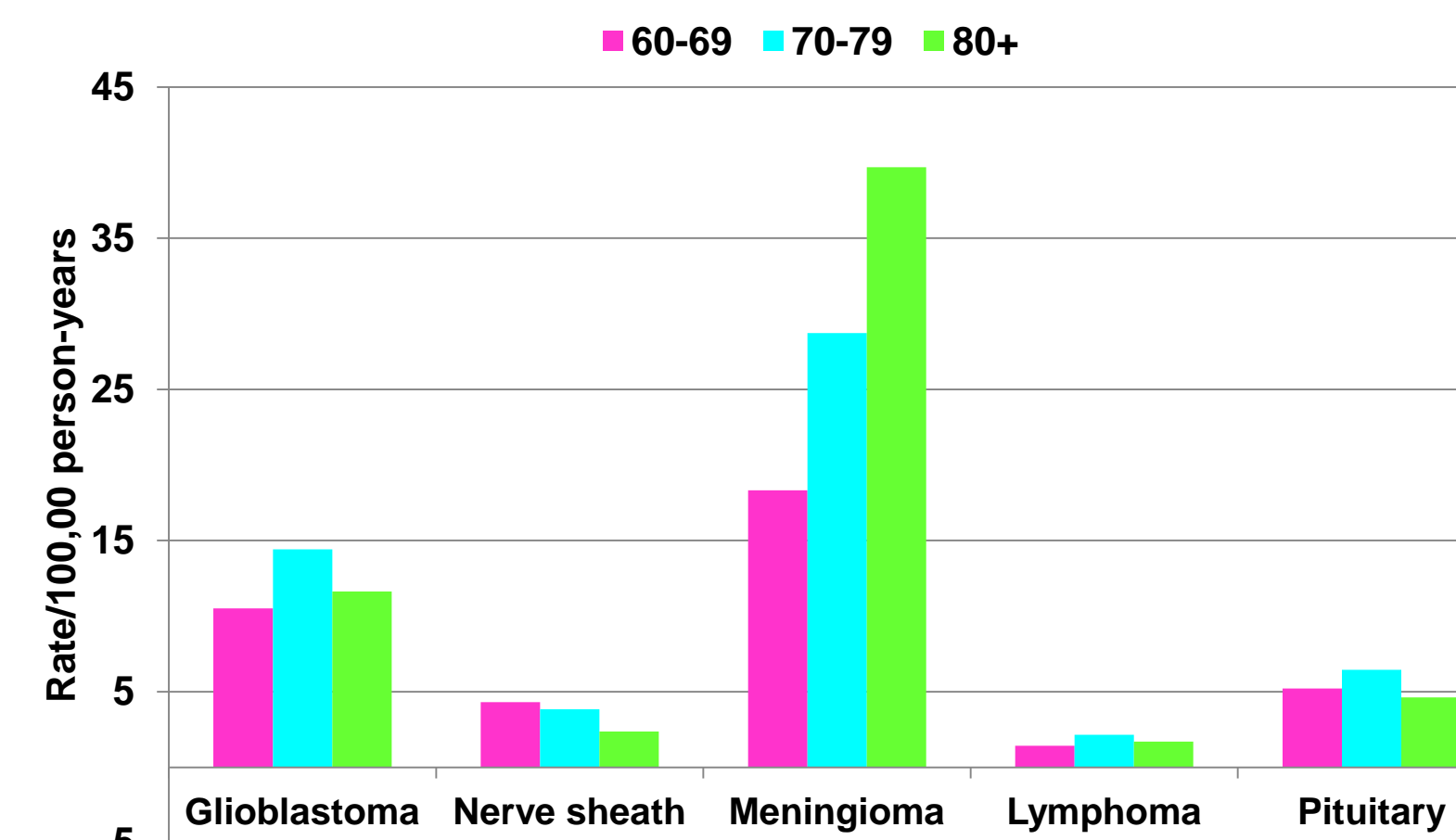


Figure 3. Percent Microscopically Confirmed by Age Group and Behavior, 2004-2008

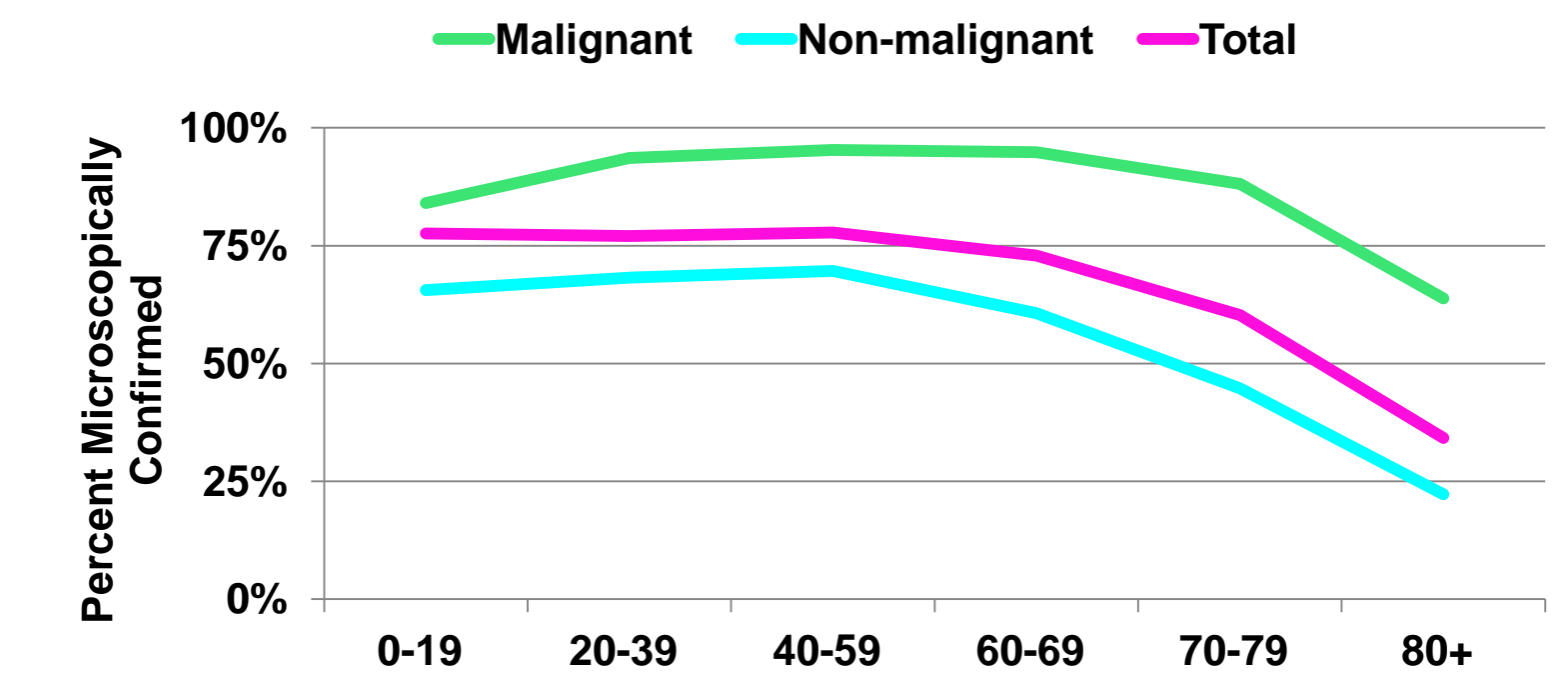


Figure 4. Age-specific Trends by Gender, 1992-2009

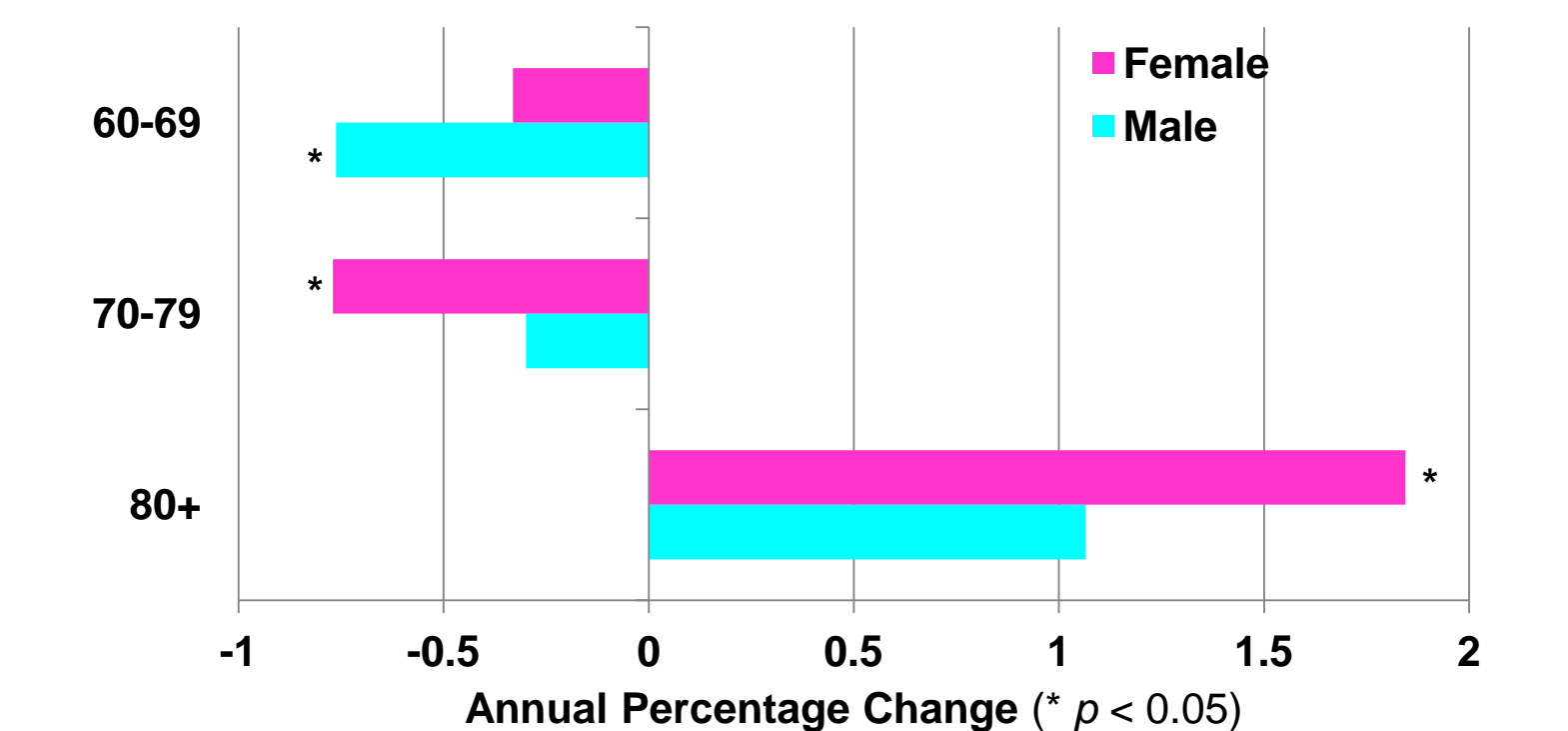
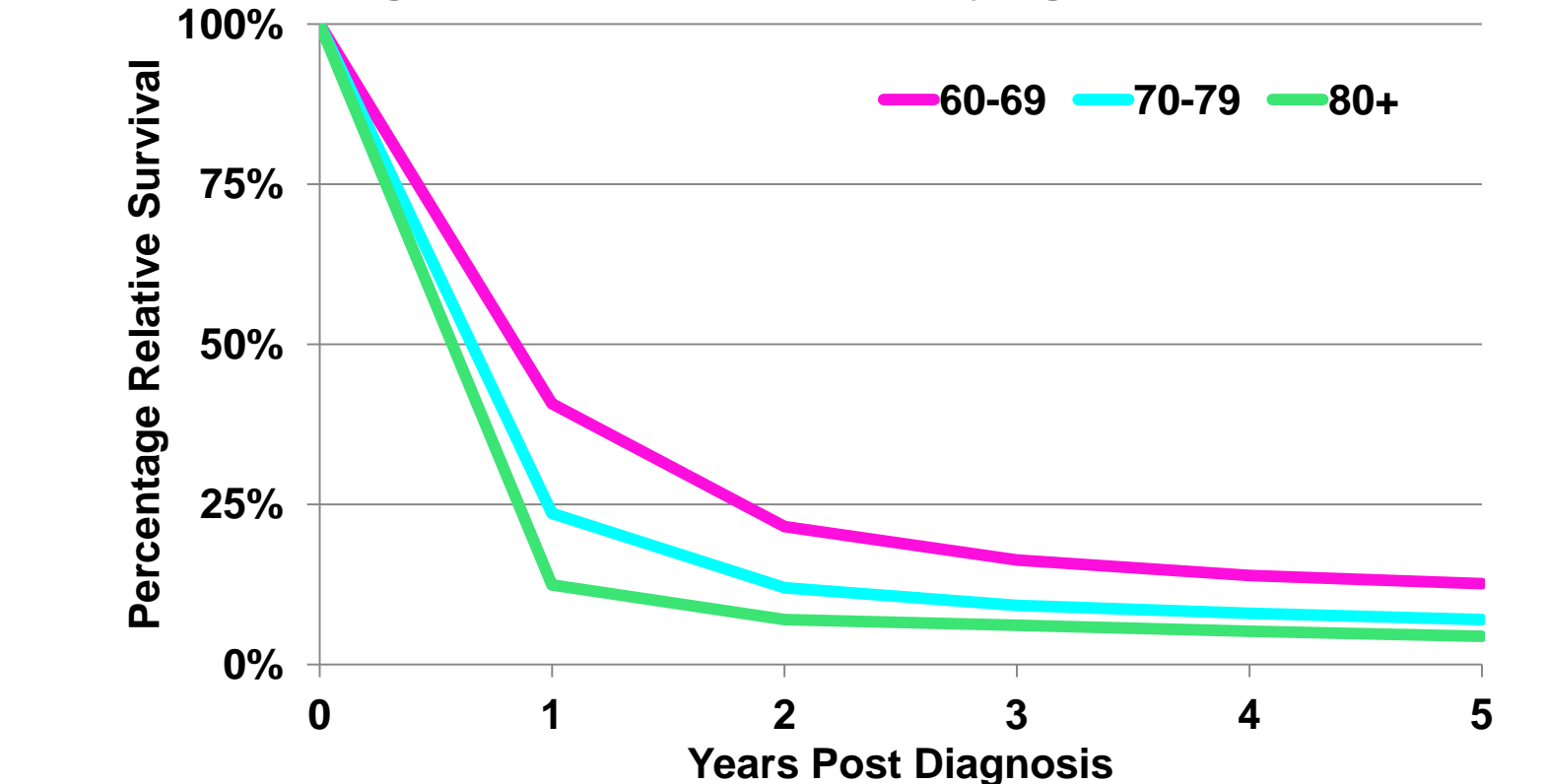


Figure 5. Relative Survival by Age Group, 1992-2009



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