

# Mortality before and after the 2003 invasion of Iraq: cluster sample survey

Study by Les Roberts, Riyadh Lafta, Richard Garfield, Jamal Khudhairi and Gilbert Burnham

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## Editor's note

**We bring to the attention of our readers this authoritative study of Les Roberts et al of the John Hopkins School of Public Health on the deaths of Iraqi civilians, published by The Lancet (Online Medical Journal based in the UK).**

## The study confirms that:

***“Violent deaths were widespread, reported in 15 of 33 clusters, and were mainly attributed to coalition forces. Most individuals reportedly killed by coalition forces were women and children.”***

***“Making conservative assumptions, we think that about 100,000 excess deaths, or more have happened since the 2003 invasion of Iraq,”***

## Background

In March, 2003, military forces, mainly from the USA and the UK, invaded Iraq. We did a survey to compare mortality during the period of 14·6 months before the invasion with the 17·8 months after it.

**Methods** A cluster sample survey was undertaken throughout Iraq during September, 2004. 33 clusters of 30 households each were interviewed about household composition, births, and deaths since January, 2002. In those households reporting deaths, the date, cause, and circumstances of violent deaths were recorded. We assessed the relative risk of death associated with the 2003 invasion and occupation by comparing mortality in the 17·8 months after the invasion with the 14·6-month period preceding it.

**Findings** The risk of death was estimated to be 2·5-fold (95% CI 1·6-4·2) higher after the invasion when compared with the preinvasion period. Two-thirds of all violent deaths were reported in one cluster in the city of Falluja. If we exclude the Falluja data, the risk of death is 1·5-fold (1·1-2·3) higher after the invasion. We estimate that 98000 more deaths than expected (8000-194000) happened after the invasion outside of Falluja and far more if the outlier Falluja cluster is included. The major causes of death before the invasion were

myocardial infarction, cerebrovascular accidents, and other chronic disorders whereas after the invasion violence was the primary cause of death.

Violent deaths were widespread, reported in 15 of 33 clusters, and were mainly attributed to coalition forces. Most individuals reportedly killed by coalition forces were women and children. The risk of death from violence in the period after the invasion was 58 times higher (95% CI 8·1-419) than in the period before the war.

Interpretation Making conservative assumptions, we think that about 100000 excess deaths, or more have happened since the 2003 invasion of Iraq. Violence accounted for most of the excess deaths and air strikes from coalition forces accounted for most violent deaths. We have shown that collection of public-health information is possible even during periods of extreme violence. Our results need further verification and should lead to changes to reduce non-combatant deaths from air strikes.

### **Read complete report at**

<http://image.thelancet.com/extras/04art10342web.pdf> (264kb) (requires registration)

### **Press Report on Lancet Study**

#### **Study: 100,000 Excess Civilian Iraqi Deaths Since War**

**By Patricia Reaney**

LONDON (Reuters) – Tens of thousands of Iraqis have been killed in violence since the U.S.-led invasion last year, American public health experts have calculated in a report that estimates there were 100,000 “excess deaths” in 18 months.

The rise in the death rate was mainly due to violence and much of it was caused by U.S. air strikes on towns and cities.

“Making conservative assumptions, we think that about 100,000 excess deaths, or more have happened since the 2003 invasion of Iraq,” said Les Roberts of the Johns Hopkins Bloomberg School of Public Health in a report published online by The Lancet medical journal.

“The use of air power in areas with lots of civilians appears to be killing a lot of women and children,” Roberts told Reuters.

The report came just days before the U.S. presidential election in which the Iraq war has been a major issue.

Mortality was already high in Iraq before the war because of United Nations sanctions blocking food and medical imports but the researchers described what they found as shocking.

The new figures are based on surveys done by the researchers in Iraq in September 2004. They compared Iraqi deaths during 14.6 months before the invasion in March 2003 and the 17.8 months after it by conducting household surveys in randomly selected neighborhoods.

Previous estimates based on think tank and media sources put the Iraqi civilian death toll at

up to 16,053 and military fatalities as high as 6,370.

By comparison about 849 U.S. military were killed in combat or attacks and another 258 died in accidents or incidents not related to fighting, according to the Pentagon.

### **VERY BAD FOR IRAQI CIVILIANS**

The researchers blamed air strikes for many of the deaths.

“What we have evidence of is the use of air power in populated urban areas and the bad consequences of it,” Roberts said.

Gilbert Burnham, who collaborated on the research, said U.S. military action in Iraq was “very bad for Iraqi civilians.”

“We were not expecting the level of deaths from violence that we found in this study and we hope this will lead to some serious discussions of how military and political aims can be achieved in a way that is not so detrimental to civilians populations,” he told Reuters in an interview.

The researchers did 33 cluster surveys of 30 households each, recording the date, circumstances and cause of deaths.

They found that the risk of death from violence in the period after the invasion was 58 times higher than before the war.

Before the war the major causes of death were heart attacks, chronic disorders and accidents. That changed after the war.

Two-thirds of violent deaths in the study were reported in Falluja, the insurgent held city 50 km (32 miles) west of Baghdad which had been repeatedly hit by U.S. air strikes.

“Our results need further verification and should lead to changes to reduce non-combatant deaths from air strikes,” Roberts added in the study.

Richard Horton, editor of The Lancet, said the research which was submitted to the journal earlier this month had been peer-reviewed, edited and fast-tracked for publication because of its importance in the evolving security situation in Iraq.

“But these findings also raise questions for those far removed from Iraq — in the governments of the countries responsible for launching a pre-emptive war,” Horton said in an editorial.

AP Report

### **Doctors' survey of families estimates Iraqi wartime deaths at 100,000**

October 29, 2004

**Emma Ross Associated Press**

Doctors' survey of families estimates Iraqi wartime deaths at 100,000 Friday, October 29, 2004 Emma Ross Associated Press London - A survey of deaths in Iraqi households

estimates that as many as 100,000 more people may have died throughout the country in the 18 months since the U.S.-led invasion than would be expected based on the death rate before the war.

There is no official figure for the number of Iraqis killed since the conflict began, but some non- governmental estimates range from 10,000 to 30,000.

The scientists who wrote the report concede that the statistics they based their projections on were of "limited precision," because the quality of the information depends on the accuracy of the household interviews used for the study. The interviewers were Iraqis, most of them doctors.

Designed and conducted by researchers at Johns Hopkins University, Columbia University and the Al-Mustansiriya University located in Baghdad, the study was published Thursday on the Web site of the Lancet medical journal.

The survey indicated that violence accounted for most of the extra deaths seen since the invasion, and that airstrikes by coalition forces caused most of those deaths, the researchers wrote in the British-based journal.

Les Roberts, the lead researcher from Johns Hopkins, said the article's timing just days before the U.S. presidential election was up to him.

"My motive in doing that was not to skew the election," Roberts told The Associated Press. "My motive was that if this came out during the campaign, both candidates would be forced to pledge to protect civilian lives in Iraq."

To conduct the survey, investigators visited 33 neighborhoods spread evenly across the country in September, randomly selecting clusters of 30 households to sample.

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