

# Civilian Death and Injury in the Iraq War, 2003-2013

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## Summary

At a minimum, 134,000 civilians have been killed by war's violence since 2003 in Iraq. But, as described below, many deaths in Iraq were unreported or unrecorded: thus, this number, based on tallies of government and press reports, is an undercount. If a full recording of Iraqi violent deaths due to war were to be made, the toll could be twice as high, according to Iraq Body Count (IBC), the one organization that has attempted to document all the violent deaths in Iraq that have resulted from the initiation of war ten years ago. Thus, the toll of violent death due to war may be 250,000 or more people.

The number of Iraqi men, women and children who been seriously injured in the war is about the same as the number killed.

In addition, many times the number killed by direct violence have likely died due to the effects of the destruction of Iraq's infrastructure.

Some of these numbers are disputed: some officials might argue that this is an over-estimate of the effects of war on Iraqi civilians; many more would argue that these estimates are too cautious.

But two facts are indisputable. First, direct violence continues to harm civilians in Iraq. In other words, Iraq is still at war. And, second, the continued parlous state of Iraq's physical infrastructure and public health system will lead to more indirect deaths over the coming years despite efforts by governments, international organizations, and international humanitarian organizations such as the ICRC and Handicap International, to repair Iraq's infrastructure. While much more research is needed on the health effects of war on Iraqi civilians, and on the causes of both direct and indirect civilian death, injury, and illness, the need to repair Iraq's infrastructure is urgent.

## Overview of Direct Violent Death and Indirect Death

When the United States invaded Iraq ten years ago, U.S. officials were at great pains to underscore their commitment to avoid harm to Iraqi civilians. A few weeks before the March 2003 U.S. invasion of Iraq, Secretary of Defense Donald Rumsfeld said, "If force becomes necessary, it is clear that coalition forces would take great care to avoid civilian casualties."<sup>2</sup> When the U.S. invaded Iraq, President George W. Bush said, "I

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<sup>1</sup> This paper updates and expands analysis in Neta C. Crawford, "Civilian Death and Injury in Iraq, 2003-2011," *Costs of War*, September 2011 and relies on work from Neta C. Crawford, *Moral Responsibility for Collateral Damage* (forthcoming, Oxford University Press, 2013) and "Avoid Civilian Deaths, Collateral Damage," 5 March 2003, *American Forces Press Service*, U.S. Department of Defense, <http://www.defense.gov/news/newsarticle.aspx?id=29337>.

want Americans and all the world to know that coalition forces will make every effort to spare innocent civilians from harm."<sup>3</sup> About two years into the war, President Bush acknowledged, "I would say 30,000, more or less, have died as a result of the initial incursion and the ongoing violence against Iraqis."<sup>4</sup>

All told, the invasion and occupation led to hundreds of thousands of deaths and injuries in a country that is now experiencing less violence than at the peak of the fighting, but is still more violent than before the U.S. invasion. Iraq Body Count uses data from public records and an estimate based on the Iraq War Logs. Adding their count to what the Iraq War Logs are likely to yield, shows that about 134,000 civilians have been killed in direct violence due to war between the invasion and early March 2013.<sup>5</sup> But, as IBC noted several times, public reports of deaths are incomplete: "the current death toll *could* be around twice the numbers recorded by IBC and the various official sources in Iraq." They hasten to add, however that, "We do not think it could possibly be 10 times higher."<sup>6</sup>

The Iraq war produced the kinds of casualties associated with every war — direct deaths and injuries due to combat related violence; violent deaths and injuries due to lawlessness following the breakdown of the state, e.g. revenge killing; deaths due to accidents related to military occupation, such as traffic crashes caused by military convoys or at checkpoints; and the indirect harm to health that results from the destruction of infrastructure and the lingering environmental effects of war.

The focus of this section is on deaths due to armed violence, in other words, combat and other war-related violence, such as air strikes, cross-fire, suicide bombs, sectarian killing, massacres and assassinations. Both the Iraq Body Count (IBC) and the Brookings Institution's "Iraq Index" count more than 115,000 civilian deaths due to armed violence between 2003 and December 2011.<sup>7</sup> More Iraqis have died since the United States concluded its Operation New Dawn at the end of 2011. Add to this the number of civilian deaths that were unrecorded at the time, but which are to be described in other logs, and Iraq Body Count estimates that about 134,000 civilians

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<sup>3</sup> George W. Bush, "Bush Declares War," 19 March 2003, CNN, [http://articles.cnn.com/2003-03-19/us/sprj.irq.int.bush.transcript\\_1\\_coalition-forces-equipment-in-civilian-areas-iraqi-troops-and-equipment?\\_s=PM:US](http://articles.cnn.com/2003-03-19/us/sprj.irq.int.bush.transcript_1_coalition-forces-equipment-in-civilian-areas-iraqi-troops-and-equipment?_s=PM:US).

<sup>4</sup> Bush quoted in Demitri Sevastopulo and Ben Bain, "Bush Acknowledges about 30,00 Iraqis Have Died," *Financial Times*, 12 December 2005, <http://www.ft.com/intl/cms/s/0/818c4444-6b2c-11da-8aee-0000779e2340.html#axzz1OXmCyoQ8>.

<sup>5</sup> Derived by rounding the Iraq Body Count estimate from Iraq Body Count <http://www.iraqbodycount.org/> reported a range of 111,407 - 121,754 violent deaths in Iraq through January 2013 and estimated that an additional 12,000 deaths would be added to their database when they had fully analyzed new data from the Iraq War Logs. Accessed 6 March 2013.

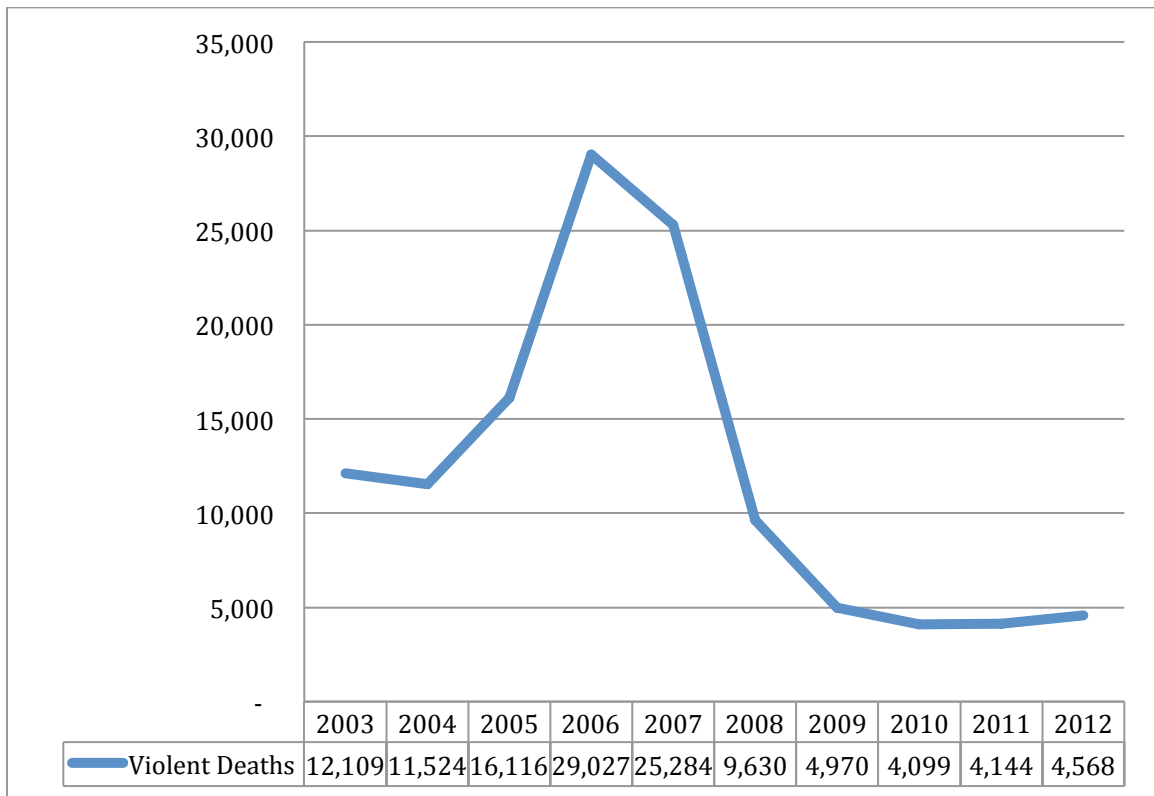
<sup>6</sup> Iraq Body Count, "How Accurate is IBC," <http://www.iraqbodycount.org/analysis/beyond/state-of-knowledge/7>.

<sup>7</sup> Brookings Institute data was, for some years, derivative of the Iraq Body Count Data and their close correspondence should not be a surprise. Brookings uses IBC data as a starting point for 2003 to 2005 and then increased those counts by a rate of 1.75 to reflect the fact that "estimates for civilian casualties from the Iraqi Ministry of the Interior were 75 percent higher than those of our Iraq Body Count-based estimate over the aggregate May 2004-December 2005 period." In May 2010, Brookings began using Iraqi government figures. Michael E. O'Hanlon and Ian Livingston, "Iraq Index: Tracking Variables of Reconstruction and Security in Post-Saddam Iraq," Brookings, 29 May 2011, p. 3 and 32.

have been killed in direct violence due to war between the invasion and early March 2013.<sup>8</sup>

As Figure 1 illustrates, the peak of violent civilian death occurred between 2004 and 2008. The war's violence diminished after 2008, although it certainly did not end for civilians. If trends continue, another 4,000 or so Iraqis can be expected to die this year from continued violence. In addition to the civilian toll through December 2011, more than 4,480 U.S. soldiers were killed in the war, and more than 10,000 Iraqi police and Iraqi military forces were killed by insurgents or in friendly fire incidents from June 2003 through July 2011.<sup>9</sup> Iraqi military and insurgent deaths may number more than 30,000 additional deaths. If violence continues at its current rate, an additional 3,500 – 4,000 people will be killed in Iraq in 2013.

**Figure 1. Number of Iraqi Violent Civilian Deaths Due to War, 2003- 2012<sup>10</sup>**



<sup>8</sup> <http://www.iraqbodycount.org/> reported a range of 111,407 -121,754 violent deaths in Iraq through January 2013 and estimated that an additional 12,000 deaths would be added to their database when they had fully analyzed new data from the Iraq War Logs.

<sup>9</sup> And more than 32,000 U.S. soldiers were wounded according to the U.S. Department of Defense, though this number is almost certainly an undercount. See Catherine Lutz, "U.S. and Coalition Casualties in Iraq and Afghanistan," Costs of War, February 2013.

<sup>10</sup> Based on data in <http://www.iraqbodycount.org/database/>. Accessed 6 March 2013. IBC believes about 12,000 additional deaths will be recorded after the Wikileaks files have been fully integrated into its database.

In addition, likely several times that number of Iraqi civilians have died due to the effects of war, the so-called "indirect deaths" that are a consequence of the destruction of Iraqi infrastructure and other war-induced or war-related conditions such as internal displacement and starvation. A reasonable estimate is that indirect deaths number 2 to 4 times the number of direct deaths.

The indirect death toll may be much higher than that. This is because, despite the relatively sophisticated state of Iraq's health care and physical infrastructure before the 2003 war, the 1991 war, and the years of sanctions that followed, had already crippled Iraq's health care system and weakened its people, while the years of war following the 2003 invasion further devastated Iraq's medical and physical infrastructure.<sup>11</sup> The extra burden to Iraqis wrought by a decade of war and subsequent unrest — of physical and emotional stress, malnutrition, disease, environmental pollution, loss of medical personnel, and destruction of medical facilities — has translated into a miserable environment for many Iraqis.

But there have been many arguments over just how many have died, and how to count: the bottom line is that no one knows for sure. Although it is difficult to estimate with precision, indirect deaths, in other wars, tend to outnumber direct deaths. Research has yielded an extremely crude rule of thumb: "between three and 15 times as many people die indirectly for every person who dies violently."<sup>12</sup> The question is how to tell which conflicts are associated with which scale of indirect death. The Geneva Declaration Secretariat, which closely examined data from armed conflicts occurring in the period of 2004-2007, suggests that, "a reasonable average estimate would be a ratio of four indirect deaths to one direct death in contemporary conflicts."<sup>13</sup> Beth Osborne Daponte estimated in 1993 that of the total deaths from the 1991 Gulf War in Iraq, civilian wartime deaths comprised less than 2 percent of all deaths due to the war. "In the Gulf war, far more persons died from postwar health effects than from direct war effects."<sup>14</sup> The Iraq war begun in March 2003 was more devastating than the relatively short Gulf War a decade earlier. It would not be surprising then that indirect war death in Iraq from 2003 to 2013 was very high. Moreover, as with other wars, the indirect health effects of Iraq's most recent war and occupation will continue for many years after the war ends.

### **How Much of this Killing is "Collateral Damage"?**

The number of civilians killed and injured directly in Iraq by the U.S. military and its coalition between the start of the war in 2003 and the U.S. military's almost complete exit in late 2011 is not yet known and may never be known with certainty. For example, there is no good count of traffic incident deaths caused by U.S. and coalition forces, though the compensation records of the Foreign Claims Act program in Iraq,

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<sup>11</sup> See Mac Skelton, "Health and Health Care Decline in Iraq" Costs of War, March 2013.

<sup>12</sup> Geneva Declaration Secretariat, "Global Burden of Armed Conflict," (Geneva: Geneva Declaration Secretariat, 2008) pp. 4 and 32.

<sup>13</sup> Geneva Declaration Secretariat, "Global Burden of Armed Conflict," p. 32.

<sup>14</sup> Beth Osborne Daponte, "A Case Study in Estimating Casualties from War and Its Aftermath: The 1991 Persian Gulf War," *Physicians for Social Responsibility Quarterly*, vol. 3 (1993) pp. 57-66. Archived at *Medicine and Global Survival*, <http://ipnw.org/Resources/MGS/PSQV3N2Daponte.html>

when fully available, may suggest how many have died in non-combat related incidents.<sup>15</sup> Despite enormous media attention to incidents where soldiers violate the laws of war, a small portion of civilian deaths at coalition hands occurred when soldier's deliberately killed Iraqi civilians — perhaps about 1 percent.<sup>16</sup> Rather, the majority of the civilians killed by the U.S. and other coalition members were "collateral damage" — the Pentagon's term of art for the inadvertent (although often foreseeable) killing of civilians in war.

Before the March 2003 U.S. invasion, the Pentagon invited reporters to hear how civilian casualties would be minimized in the air war.<sup>17</sup> Chairman of the Joint Chiefs of Staff Richard Myers emphasized that in U.S. "targeting, we'll go to extraordinary lengths to protect non-combatants and civilians and — and facilities that should not be struck. And we always do that [sic]."<sup>18</sup> The use of precision weapons was highlighted by U.S. officials, and when civilians were killed, U.S. military spokespersons tended to emphasize the great care that had been taken to minimize effects on civilians. American leaders did not predict a swift military victory, but neither did they plan for a prolonged war, the following insurgency and counterinsurgency, or the sectarian violence and criminality that raged for many years. As promised, the U.S. did go to some lengths to keep harm to to a minimum. There is no disputing the fact that if the U.S. had not taken as much care as it did, many more civilians would have been killed. However, "collateral damage" and, much more rarely, deliberate killing of civilians occurred during the U.S. war and occupation.

During the height of the war both massacres of civilians (war crimes) and "collateral damage" became a huge political-military concern for the Bush Administration. Officials began to argue that Iraqi civilian casualties were counterproductive to the goals of U.S. fighting. The goal was "liberation." As President Bush argued, "A liberated Iraq can show the power of freedom to transform that vital region, by bringing hope and progress into the lives of millions."<sup>19</sup>

While there were news reports of civilian killing that reached the American public, there was also a steady stream of information about civilian killing — both massacres and collateral damage killing — making its way to the top U.S. commanders in Iraq. For example, in 2005 United States Lieutenant General Peter Chiarelli identified the large number of civilian deaths at US checkpoints as a *military* problem because it created resentment and hatred that fueled the insurgency in Iraq. "We have people who were on the fence or supported us who in the last two years or three years have in fact decided to strike out against us. And you have to ask: Why is that? And I would argue in many

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<sup>15</sup> For a discussion see, John Fabian Witt, "Form and Substance in the Law of Counterinsurgency Damages," *Loyola of Los Angeles Law Review*, vol. 41, (2007-2008) pp. 1455-1481.

<sup>16</sup> Based on figures for short duration events, in Madelyn Hsiao-Rei Hicks, Hamit Dardagan, Gabriela Guerrero Serdan, Peter Bagnall, John Sloboda, Michael Spagat, "Violent Deaths of Iraqi Civilians: Analysis by Perpetrator, Weapon, Time and Location," *PLOS Medicine*, February 2011, vol. 8, no. 2. , p. 5. [www.plosmedicine.org](http://www.plosmedicine.org).

<sup>17</sup> Senior Defense Official, "Background Briefing on Targeting," 5 March 2003, <http://www.defense.gov/transcripts/transcript.aspx?transcriptid=2007>.

<sup>18</sup> Matt Lauer and Katie Couric, "General Richard Myers, chairman, Joint Chiefs of Staff, discusses preparing for a possible war with Iraq," Today Show, NBC-TV, 27 February 2003, 7:00 a.m.

<sup>19</sup> President Discusses the Future of Iraq, 26 February 2003, <http://www.whitehouse.gov/news/releases/2003/02/20030226-11.html>.

instances we are our own worst enemy."<sup>20</sup> Chiarelli argued that if fewer civilians were killed in escalation of force incidents at checkpoints, "I think that will make our soldiers safer."<sup>21</sup>

Iraq Body Count documented 14,781 violent deaths directly caused by the U.S. coalition from 2003-2011 during the U.S. war and occupation.<sup>22</sup> This is 13 percent of all violent deaths during that period. Almost half of the U.S. and coalition caused collateral damage deaths occurred during the first 12 months of the fighting and occupation. IBC also notes that a full analysis of the WikiLeaks War Logs, which are the U.S. military's own records, may add more than 12,000 deaths besides those they have already incorporated from the Wikileaks data.<sup>23</sup> If so, and if the ratio of 13 percent holds or is even as low as 10 percent, at a minimum, an additional 1,200 deaths could be attributed direction to the bombs and bullets of the U.S., bringing the total of U.S. caused civilian deaths to more than 16,000.<sup>24</sup>

This apportioning of responsibility for civilian killing is, in a way arbitrary. Under international law of occupation the U.S. military and its coalition partners were responsible for the security of Iraq during the occupation. Iraqi many of the reported deaths discussed below by "unknown" perpetrators, and many unrecorded deaths may have been at the hands of Iraqi military and police who used the occupation as a cover for settling scores and establishing a political-military order that suited them.

### Arguing about the Numbers

Nothing is simple about counting and accounting for civilian death in Iraq. The total number of civilians killed in Iraq, and by whose hands, is hotly contested for two basic reasons: politics and the considerable difficulty of counting casualties in any war. The politics of counting casualties is complex, while the disputes about counting have their own political repercussions — namely that arguing about the counting focuses attention on the counting, but not so much on the actual dead and wounded and how they came to harm.

As with the tendency to low-ball the budgetary costs of the Iraq war, there has been a tendency to minimize the harm of the war to Iraqis. In the early years of the war, minimization was easy: no one in the U.S. military kept systematic account of civilian war deaths. Specifically, the U.S. military apparently did not make a systematic account of Iraqi casualties in the early weeks of the war, nor did it make public many estimates or detailed accounts of civilian death unless in response to an undeniable tragedy. The U.S. Department of Defense began to make more of its data public over the years, but the

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<sup>20</sup> Nancy Youssef, "Commander: Fewer Civilians Dying," *Philadelphia Inquirer*, 22 June 2006, <http://www.philly.com/mlid/inquirer/2006/06/22/news/nation/14872541.htm>.

<sup>21</sup> Youssef, "Commander."

<sup>22</sup> Iraq Body Count, "Iraq Deaths from Violence 2003-2011," 2 January 2012, <http://www.iraqbodycount.org/analysis/numbers/2011/>, accessed 14 May 2012.

<sup>23</sup> As of this writing, IBC had not yet completed its research and expected to add to this count based on new released materials.

<sup>24</sup> Many more civilians were killed by Iraqis because they were thought to be collaborators with the U.S. and its allies or because they simply got in the way of US and insurgent fighting. Indeed, in a sense, to the extent that the U.S. invasion and occupation led to a period of lawlessness and jockeying for power, one could charge the U.S. with the moral responsibility for most of the deaths.



releases were periodic, often incomplete, and did not include all the years of the war.<sup>25</sup> The Pentagon often said it did not have good data. In late 2005, *The New York Times* noted the "first public disclosure that the United States military is tracking some of the deaths of Iraqi civilians." The figures were partial, tracking only those civilians killed or wounded by insurgents and observers suggested that those numbers were low.<sup>26</sup> Another U.S. estimate for Iraqi casualties, given in late 2010 by the U.S. Central Command, is a total of 76,939 Iraqi security and civilians killed, and 121,649 wounded for the period of January 2004 to August 2008.<sup>27</sup>

Official Iraqi reporting was also intermittent and incomplete. Iraq's Ministry of Health's statistics department was ordered to stop counting the civilian dead in late 2003, by some reports at the insistence of the Coalition Provisional Authority. Reporting has been intermittent since that time.<sup>28</sup> In October 2009, the Iraqi Ministry of Human Rights gave an estimate of 85,694 people killed and 147,195 wounded for the period January 2004 to 31 October 2008.<sup>29</sup> Hannah Fischer of the Congressional Research Service suggested that the Ministry figures only included those who died as a result of insurgent attacks or displacement, suggesting that they did not include deaths due to fighting between groups within Iraq or due to the U.S. and other coalition forces occupation of Iraq.<sup>30</sup>

Second, as I discussed in my 2011 paper for the Costs of War project, "Assessing the Human Toll," the way one counts the dead, tallies public records, or estimates the human toll can produce what appear to be, and sometimes are, dramatically different figures. To a certain extent, the uncertainties associated with counting casualties and the disputes between advocates of different approaches has focused attention on the methods and controversies associated with the studies, rather than on the dead and wounded in Iraq.

Much of the criticism of civilian casualty counting in the Iraq war has focused on one particular form of research, public health surveys. For example, three studies of the effects of war on Iraqi civilians employed the household cluster sample survey method commonly used in public health research. The first, published in 2004 in the British medical journal *The Lancet*, and commonly referred to as the *Lancet* study, estimated that about 98,000 excess deaths (over what could be expected if Iraq had not been at war) had occurred in Iraq from 19 March 2003 to 16 September 2004. The second, a 2006, study also published in, the *Lancet*, gives a range of between 426,000 and

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<sup>25</sup> See [http://www.defense.gov/home/features/iraq\\_reports/index.html](http://www.defense.gov/home/features/iraq_reports/index.html).

<sup>26</sup> Sabrina Tavernise, "U.S. Quietly Issues Estimate of Iraqi Civilian Casualties," *The New York Times*, 30 October 2005, [http://www.nytimes.com/2005/10/30/international/middleeast/30civilians.html?pagewanted=2&\\_r=2&&fta=y;pagewanted=all](http://www.nytimes.com/2005/10/30/international/middleeast/30civilians.html?pagewanted=2&_r=2&&fta=y;pagewanted=all).

<sup>27</sup> Lara Jakes, Associated Press, "U.S. Says Iraq War led to 77k Deaths over 5 Years," *Salon.com*, 14 October 2010. Associated Press, "U.S. Military Tallies Deaths of Iraqi Civilians," *The New York Times*, 14 October 2010.

<sup>28</sup> Associated Press, "Iraq's Health Ministry Ordered to Stop Counting Civilian Dead From War," *USA Today*, 12 October 2003, [http://www.usatoday.com/news/world/iraq/2003-12-10-iraq-civilians\\_x.htm](http://www.usatoday.com/news/world/iraq/2003-12-10-iraq-civilians_x.htm).

<sup>29</sup> Michael Todd, "Iraq's Official Death Toll Supports Unofficial Tally," *Miller-McCune*, 15 October 2009, <http://www.miller-mccune.com/politics/iraq-official-death-toll-supports-unofficial-tally-3406/>.

<sup>30</sup> Hannah Fischer, "Iraq Casualties: U.S. Military Forces and Iraqi Civilians, Police, and Security Forces," *Congressional Research Service*, 7 October 2010, p. 2.

793,000 killed after the invasion through July 2006.<sup>31</sup> More specifically, the authors estimated about 655,000 excess deaths, of which they suggested some 601,000 were due to violent causes. A study published in *The New England Journal of Medicine*, conducted by the Iraq Family Health Survey Study Group, surveyed a larger number of household clusters than the *Lancet* published studies, but found a lower number of violent deaths; they estimated 151,000 deaths from March 2003-June 2006.<sup>32</sup> An even higher figure for violent death — more than 1 million killed — was given in 2007 by the Opinion Research Bureau (ORB), based in Britain.<sup>33</sup>

The *ORB* and *Lancet* studies were challenged on methodological grounds.<sup>34</sup> Specifically, critics questioned whether the samples were random.<sup>35</sup> Because of the problems associated with random sample surveys in a war zone, some scholars have concluded that it may be that the *Lancet* study was the best that could be done given the extreme violence in Iraq at the time.<sup>36</sup> Whether or not the resulting numbers from the cluster sample survey research are valid, cluster sampling from Iraq and other conflicts does show that reliance on media reports of death undercount the true number of dead.<sup>37</sup>

The other method used to count the direct death of civilians in Iraq relies on cross checking media reports and supplementing those reports with morgue and hospital accounts. In this way, Iraq Body Count, which produced the most well known of these counts, enumerates each incident of civilian killing, using publicly available data.<sup>38</sup> Since the beginning of the war, IBC regularly scanned more than two hundred media sources and crossed checked their data. IBC does not count 'insurgents' or security forces, or non-violent deaths that are attributable to the war.

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<sup>31</sup> Gilbert Burnham, Riyadh Lafta, Shannon Doocy, and Les Roberts. "Mortality after the 2003 invasion of Iraq: a cross-sectional cluster sample survey," *Lancet*, vol. 368 no. 9545, (11 October 2006) pp. 1421-1428.

<sup>32</sup> Iraq Family Health Survey Study Group, "Violence Related Mortality in Iraq from 2002 to 2006," *The New England Journal of Medicine* vol. 358, no. 5, 31 (January 2008) pp. 484-493.

<sup>33</sup> Opinion Research Bureau, "Iraq Casualties Poll Update,"

[http://opinion.co.uk/Newsroom\\_details.aspx?NewsID=111](http://opinion.co.uk/Newsroom_details.aspx?NewsID=111). ORB, "New Analysis 'confirms' 1million + Iraq Casualties," The Opinion Research Business, 28 January 2008.

<sup>34</sup> See, for example, John Bohannon, "Iraqi Death Estimates Called Too High; Methods Faulted," *Science*, 20 October 2006, vol. 16, no. 314, pp. 396-397; Michael Spagat and Josh Dougherty, "Conflict Deaths in Iraq: A Methodological Critique," *Survey Research Methods*, vol. 4, no. 1, (2010) pp. 3-15.

<sup>35</sup> Spagat and Dougherty, "Conflict Deaths in Iraq: A Methodological Critique."

<sup>36</sup> Daponte, "Wartime Estimates of Iraqi Civilian Casualties."

<sup>37</sup> Aldo A. Benini and Lawrence H. Moulton, "Civilian Victims in an Assymetrical Conflict: Operation Enduring Freedom, Afghanistan," *Journal of Peace Research*, vol. 41, no. 4 (July 2004) pp. 403-422.

<sup>38</sup> The Brookings Institution made estimates based on the Iraq Body Count, but later adjusted them to reflect figures released by the Iraqi and U.S. governments. "Information for May 2003-December 2005 is based upon data from Iraq Body Count. The data for war-related fatalities was calculated at 1.75 times our IBC-based numbers, reflecting the fact that estimates for civilian casualties from the Iraqi Ministry of the Interior were 75 percent higher than those of our Iraq Body Count-based estimate over the aggregate May 2003 – December 2005 period. During this time, we separately studied the crime rate in Iraq, and on that basis estimated 23,000 murders throughout the country. In order to add these back in to our estimate, we used estimated monthly murder rates for Baghdad as a guide in proportionally allocating these 23,000 additional fatalities. CENTCOM, Unclassified briefing slides (monthly through April 2010)." Michael E. O'Hanlon, and Ian Livingston, "Iraq Index: Tracking Variables of Reconstruction & Security in Post-Saddam Iraq," Brookings Institution, 9 December 2010, pp. 3 and 44.



But supplementing the IBC or Brookings Institute numbers with Wikileaks data and official reports may still produce a number for civilian direct death that is much too low in the sense of not counting those deaths due to fighting that were hidden from view (and therefore counting) for political reasons. As noted above, Iraq Body Count acknowledges that not all violent deaths have been reported and that because their data set counts only publicly reported data, they are necessarily an undercount of violent war death in Iraq, perhaps by a factor of two.

And it should be no wonder that it is difficult to make a count of the war's dead. Official Iraqi sources have not only been told, at the national level, to not make their figures public, local morgues have also underreported deaths due to war. For example, Iraqi officials at the Ministry of Health may have been systematically encouraged to under-report deaths. One person who worked at the Baghdad central morgue statistics office told *National Public Radio* in 2009 that, "By orders of the minister's office, we cannot talk about the real numbers of deaths. This has been the case since 2004. . . . I would go home and look at the news. The minister would say 10 people got killed all over Iraq, while I had received in that day more than 50 dead bodies just in Baghdad. It's always been like that — they would say one thing, but the reality was much worse."<sup>39</sup> Further, as John Tirman notes, sources that count civilian dead rely on a determination of who is a civilian and who is a combatant: "But who is the source of such an identification? It was often coalition forces, which frequently overstated the number of 'insurgents' killed in their operations."<sup>40</sup>

### The Patterns of Direct Civilian Death

Despite the uncertainty associated with the various counts and estimates, it is possible to give a general outline of the causes of civilian killing in Iraq. The most intense periods of combat was from 2003 through 2008. Combat related deaths and injuries to civilians in Iraq were caused in several ways: when bombs missed their intended targets; in crossfire; when insurgents used suicide bombs and improvised explosive devices.

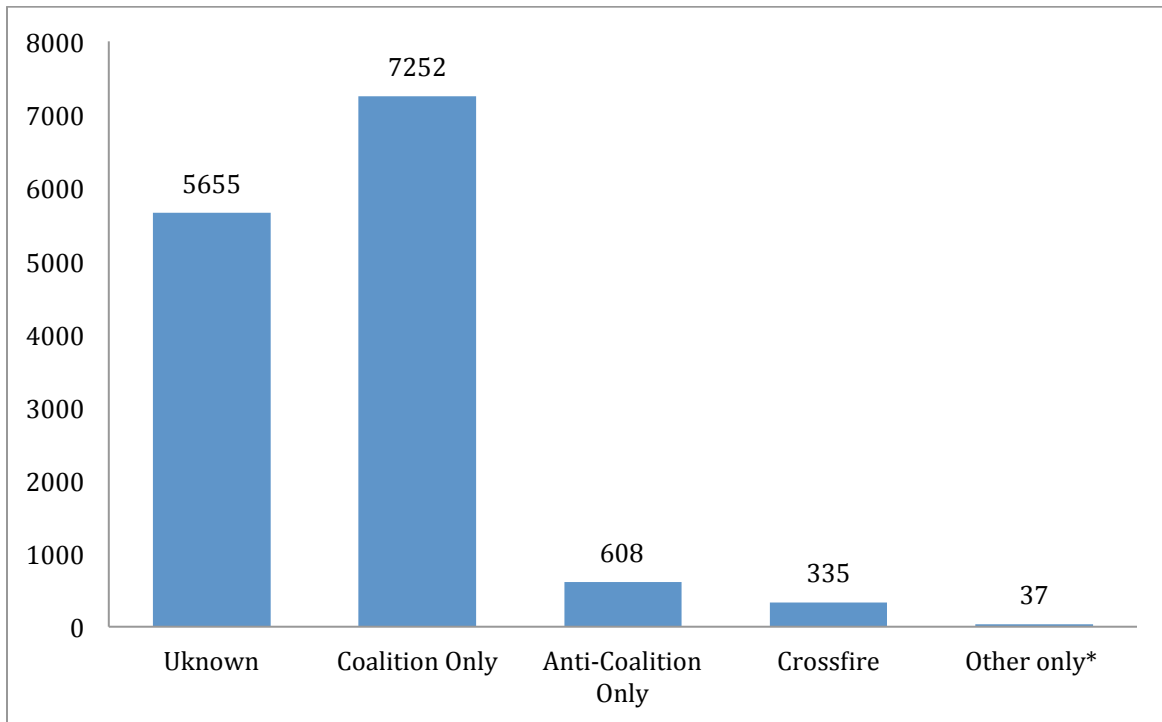
The pattern of the killing changed over the course of the war. In the first year of the Iraq war, as Figure 2 shows, the largest share of civilian deaths were caused by U.S. coalition forces. Specifically, about 52 percent of recorded violent deaths could be attributed to Coalition forces, and of those, most of the Coalition caused deaths in that period occurred in air attacks. Unknown perpetrators accounted for 41 percent of recorded violent deaths, while anti-coalition forces accounted for about 4 percent of recorded deaths.

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<sup>39</sup> Lourdes Garcia-Navarro, "Iraq: Though Numbers Unclear, Iraqi Deaths Touch Many," *National Public Radio*, 24 February 2009, <http://www.npr.org/templates/story/story.php?storyID=100145401>.

<sup>40</sup> John Tirman, *The Deaths of Others: The Fate of Civilians in America's Wars* (Oxford: Oxford University Press, 2011) p. 332.

**Figure 2. Reported Perpetrators of Civilian Deaths by Armed Violence in Iraq from 20 March 2003-19 March 2004.<sup>41</sup>**



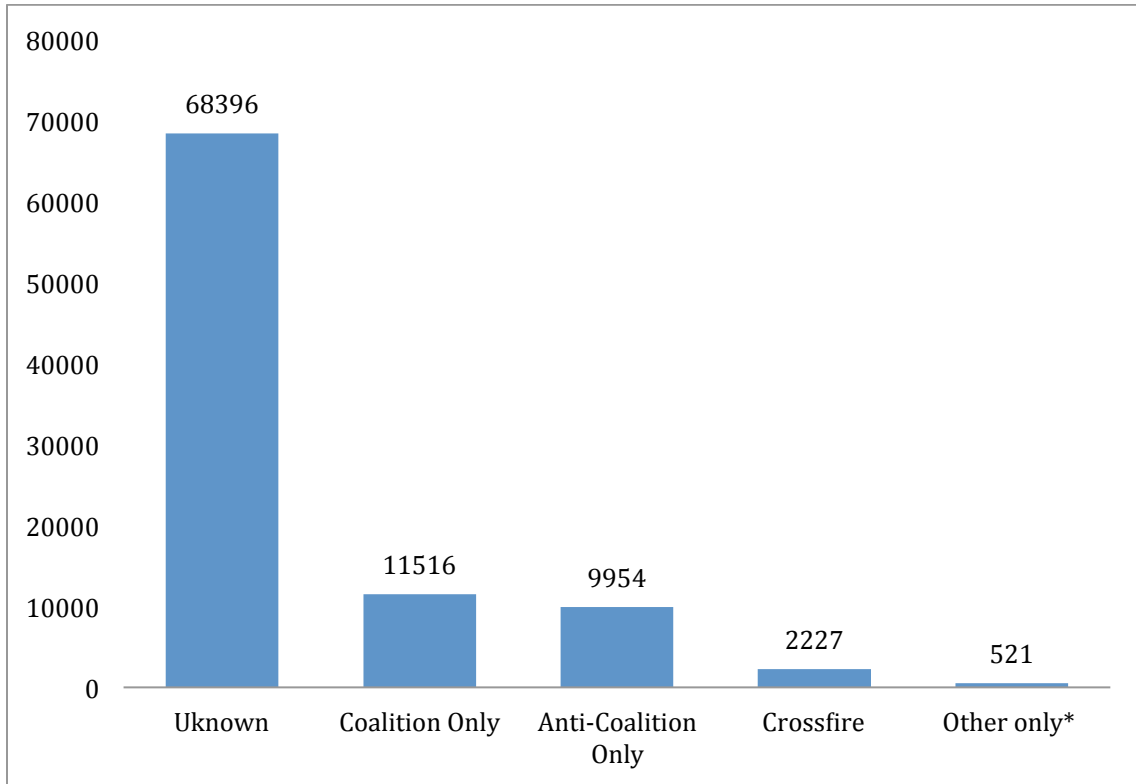
\* Primarily Iraqi Police and Iraqi Military Forces

As is well known, after the initial, rather quick victory over Iraq's conventional military forces, the war became an insurgency and civil conflict. The first five years of war in Iraq were the most violent, with more than 92,000 people killed in armed violence according to Iraq Body Count. By the end of the first five years of fighting in March 2008, unknown perpetrators had caused the most (74 percent) violent deaths recorded by Iraq Body Count. When the invasion broke the rule of law in Iraq, lawlessness and sectarian violence developed in the mid-2000s: revenge killings, and clashes between Sunni, Shia and Kurdish groups, escalated. Civilian rivals, and suspected collaborators, were killed by both militants and the Iraqi security forces and police, who themselves engaged in extrajudicial executions. Unknown perpetrators executed their victims, or tortured them and then executed them. Armed violence, including executions, during and after major combat ends occurs in many wars and was predicable in Iraq.<sup>42</sup> Because occupying forces are responsible for security during an occupation, the U.S. bears indirect causal responsibility, if not legal and direct causal responsibility for beginning the war that lead to these sorts of deaths. Figure 3 represents Madelyn Hsiao-Rei Hicks, et al, analysis of recorded civilian death by perpetrator for the first five years of the war in Iraq.

<sup>41</sup> Source: Madelyn Hsiao-Rei Hicks, Hamit Dardagan, Gabriela Guerrero Serdan, Peter Bagnall, John Sloboda, Michael Spagat, "Violent Deaths of Iraqi Civilians: Analysis by Perpetrator, Weapon, Time and Location," *PLOS Medicine*, February 2011, vol. 8, no. 2. [www.plosmedicine.org](http://www.plosmedicine.org).

<sup>42</sup> See the Geneva Declaration Secretariat, "Global Burden of Armed Conflict".

**Figure 3. Reported Perpetrators of Civilian Deaths by Armed Violence in Iraq from 20 March 2003 - 19 March 2008.<sup>43</sup>**



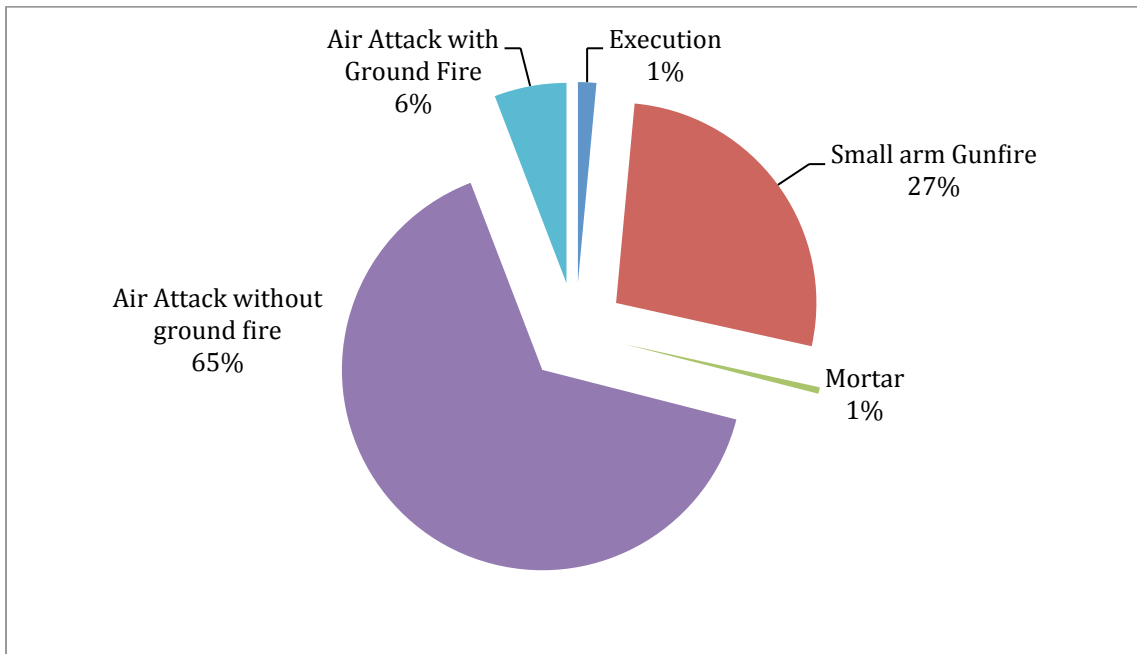
\* Primarily Iraqi Police and Iraqi Military Forces

Not surprisingly, in some cases of crossfire, it was impossible to say whether coalition or anti-coalition forces had caused the deaths. When Coalition forces were identified as responsible for killing civilians, 12 percent of the total deaths could be attributed to Coalition forces during the first five years of the war. The use of airpower continued to be the main cause of coalition caused civilian death — 65 percent of of such deaths over the first five years. Anti-coalition forces killed about 11 percent of the civilians during this period. When Anti-coalition forces killed civilians it was primarily by suicide bombs, vehicle bombs, and roadside bombs. Unknown perpetrators killed the majority of their victims by execution and small arms fire.<sup>44</sup> The following, Figure 4 shows the way Iraqi civilians were being killed during the first five years of the war in a subset of civilian casualty incidents — short duration events (lasting 2 days or less).

<sup>43</sup> Source: Hicks, et al., "Violent Deaths of Iraqi Civilians."

<sup>44</sup> Hicks, et al., "Violent Deaths of Iraqi Civilians."

**Figure 4. Coalition Caused Civilian Deaths In Short Duration Events in Iraq, 2003-2008.<sup>45</sup>**



The violence continues. Since the U.S. and other coalition militaries Iraq in late 2011 more than 4,800 civilians were killed in various ways: by suicide bomb, assassination, and other means.

But of course, Iraqi civilians are not the only ones who have been killed. More than 45,000 Iraqi combatants — from the Iraqi military who initially resisted the U.S. led invasion, to the current Iraqi security forces and militants — are estimated to have been killed since the 2003 invasion. It remains to be seen whether the distinction between civilian and militant holds in every case and what portion of those classified as militant were actually civilians.<sup>46</sup>

### **Indirect Civilian Death**

There is a long tradition of deliberately targeting infrastructure. For example, in World War II the British firebombed German railway junctions as a deliberate targeting of infrastructure. Sanctions that cut off the material necessary to grow food, produce medicines, or to treat water can also hurt or kill civilians. The U.S. targeted infrastructure in Iraq during both the 1991 Gulf War and in 2003. In deliberately targeting infrastructure, the idea is to hurt civilians who might be aiding insurgents and to directly diminish the insurgent's military potential. So, some battles in Iraq, notably Fallujah, began to resemble ancient sieges — towns were surrounded, the women and

<sup>45</sup> From data in Hicks, et al., "Violent Deaths of Iraqi Civilians" table 2, p. 5.

<sup>46</sup> Of course it is possible that those classified as civilians were actually militants, but there is a bias toward classifying any ambiguous killing as one of killing militants simply because it is easier to justify the killing of a suspected combatant than to claim responsibility for killing a civilian.

children were encouraged to leave, and the flow of vital materials such as water and food were cut off. The modern twist is, of course, that the electricity might be shut off as well. Infrastructure can also be inadvertently destroyed, for example, by inaccurate bombs, or by a large fire that is ignited as a result of a bombing.

Indirect civilian death occurs in war because the infrastructure that sustains life — water treatment facilities, electricity for refrigeration of food and medicine — is damaged or destroyed by fighting. People lack food, clean drinking water, and sanitation. For example, as a consequence of lack of clean drinking water, people get illnesses would not have contracted before the destruction — such as cholera — and illnesses that could have been cured become fatal. In other cases, Medicines for treatable illnesses, such as tuberculosis or cancer may be in short supply. Iraq's infrastructure had been devastated by its wars against Iran in the 1980s and the US in 1991, and by UN sanctions from 1991 to 2003. Thus, Iraq's pre-war physical and health care infrastructure was far from robust.

Experienced public health researchers note that the US invasion in 2003 only added to Iraq's public health problems. The 2006 *Lancet* article described the ripple effects of the war in Iraq, "Aside from violence, insufficient water supplies, non-functional sewerage, and restricted electricity supply also create health hazards. A deteriorating health service with insecure access, and the flight of health professionals adds further risks. People displaced by on-going sectarian violence add to the number of vulnerable individuals. In many conflicts, these indirect causes have accounted for most civilian deaths."<sup>47</sup> Similarly, scholars also writing in 2006 in the *International Journal of Health Services* suggested that, "The number of Iraqis who have died and will die from indirect effects of the war—including social chaos, displacement, the interruption of food and water supplies, infectious diseases, and inadequate medical care. . . will be much higher than the number of direct casualties."<sup>48</sup>

Efforts to repair Iraq's infrastructure have been made as the violence diminishes in parts of Iraq, but reconstruction is woefully inadequate in areas that have immediate impact on public health. For example, in June 2012, the International Committee for the Red Cross noted that many Iraqis still lacked access to clean drinking water.<sup>49</sup> Those who are displaced and living in camps lack reliable access to health care.

Despite the fact that indirect war death is not a frequently discussed topic, research from recent wars and armed conflicts suggest that battle deaths are often a fraction of the total deaths attributable to war.<sup>50</sup> Indirect deaths, in fact, usually cause the majority of war-related death. But quantifying the ratio of direct to indirect deaths is not an exact science given the limits of existing data. As one recent study of the problem of assessing indirect death concludes, without better data "it is not possible to give a precise estimate of the indirect burden" of war although "an order of magnitude

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<sup>47</sup> Gilbert Burnham, Riyadh Lafta, Shannon Doocy, and Les Roberts, "Mortality after the 2003 invasion of Iraq: a cross-sectional cluster sample survey," *Lancet*, vol. 368 no. 9545, (2006) 1421-1428: 1421.

<sup>48</sup> Seiji Yamada, Mary C. Smith Fawzi, Gregory G. Maskarinec, and Paul E. Farmer, "Casualties: Narrative and Images from The War on Iraq," *International Journal of Health Services*, vol. 36, no. 2 (2006) pp. 401-415: 405.

<sup>49</sup> International Committee for the Red Cross (ICRC) "Iraq: The Challenge of Providing Clean Water and Rebuilding Infrastructure," 25 June 2012, Operational Update, <http://www.icrc.org/eng/resources/documents/update/2012/iraq-update-2012-06-25.htm>.

<sup>50</sup> Geneva Declaration Secretariat, "Global Burden of Armed Conflict," p. 42.

can be offered."<sup>51</sup> In cases where the populations' health was already low and perhaps taxed by previous conflicts and concurrent natural disasters, it may be both difficult to disentangle the previous indirect effects of war and the ongoing disasters from the indirect effects of the current war. Rather, these conditions amplify each other and no one-size-fits all rule about the ratio of direct to indirect death will apply. The Geneva Secretariat suggests that "a conservative ratio of 4:1 indirect to direct death" is a good rule of thumb.<sup>52</sup>

Is it possible to give a more precise estimate of the number of indirect deaths in Iraq due to war? As Lacina and Gleditch note, "measuring war related deaths involves comparing the number of deaths that occurred due to a conflict against the counterfactual scenario of peace."<sup>53</sup> But what would "peace" have looked like? In countries like Afghanistan, Iraq, and Pakistan, there was little peace prior to the conflicts. In other words, as Michael Spagat emphasizes, "the key to any excess death estimate is to establish a plausible baseline mortality rate to serve as a counterfactual."<sup>54</sup> Unfortunately, for the purpose of understanding the likely indirect health impact of wars, the quality and reliability of pre-war data in Iraq is probably not very high. In this respect, Iraq is little different from other poor countries at war. Health information systems, such as hospital and clinic records, and death certificates, are "almost universally weak in conflict-affected areas, and between two-thirds and three quarters of the world's population are not covered by any type of health surveillance."<sup>55</sup> Current mortality rates can be estimated, but while violence is ongoing it is very difficult to assess the indirect health effects of these wars. Iraq had not had a census in the years immediately prior to the onset of the US war.

Further, it is difficult to disentangle the causal effects of the most recent wars from the damage caused by previous decades of fighting and sanctions. Both Afghanistan and Iraq have been at war or under sanctions for the better part of the last thirty years. And, it is sometimes impossible to disentangle the effects of war from other environmental, economic, or political events. "It is necessary to judge whether certain events - such as a famine or riot - would not have happened at all if peace had prevailed, and to measure the degree of elevation (or depression) in peacetime risks of mortality from factors like crime or malnutrition."<sup>56</sup> In addition, there is the issue of estimating the future long term and lagged effects of war. We might say that a war ends with a ceasefire, but the indirect effects of war will ripple and linger for years after the end of conflict. Thus, the conflict researchers Lacina and Gleditsch rightly ask, "How many years of elevated mortality due to, for instance, depressed economic performance, environmental degradation, or the spread of sexually transmitted diseases should be attached to the terminated war and can those impacts be measured in a reliable way?"<sup>57</sup>

In addition, war has not been the only stress on public health in Iraq. Environmental disasters, such as earthquakes, can stress or ruin the infrastructure and

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<sup>51</sup> Geneva Declaration Secretariat, "Global Burden of Armed Conflict," p. 42.

<sup>52</sup> Geneva Declaration Secretariat, "Global Burden of Armed Conflict," p. 42.

<sup>53</sup> Bethany Lacina and Nils Petter Gleditsch, "Monitoring Trends in Global Combat: A New Dataset of Battle Deaths," *European Journal of Population*, vol. 21, no. 2/3 (2005) pp. 145-166: 148-149.

<sup>54</sup> Michael Spagat, "Estimating the Human Costs of War: The Sample Survey Approach," *Households in Conflict Network, HiCN Research Design Note 14*, May 2010, p. 8.

<sup>55</sup> Geneva Declaration Secretariat, "Global Burden of Armed Conflict," p. 37.

<sup>56</sup> Lacina and Gleditsch, "Monitoring Trends in Global Combat," p. 149.

<sup>57</sup> Lacina and Gleditsch, "Monitoring Trends in Global Combat," p. 149.



support system that would otherwise be used to help the victims of war. Droughts and floods have turned Iraq into a case of "complex emergency." As Beth Daponte argued, "disentangling deaths due to the war from those due to other factors can be impossible and beyond expertise of most statisticians and demographers. Perhaps the best that the statisticians and demographers can do is to provide estimates of the mortality levels of civilians at different time periods, and let the political scientists argue about the proportion of the increase in mortality that should be attributed to different parties and policies."<sup>58</sup>

The 2012 U.S. Army *Civilian Casualty Mitigation* manual acknowledges that destruction of infrastructure may cause harm, but implies a proportionality calculus in decisions about whether to attack infrastructure. Both the short-term risk to civilians, and the longer term, indirect, harm are to be considered, according to the Army manual. "During operations, it may be desirable to attack key infrastructure targets such as bridges, power plants, and office buildings. The military benefit of should [sic] be balanced against the possibility that the targets are occupied by or in close proximity to civilians, that destroying such targets will unduly harm civilians, or that their destruction will create long-term effects such as contaminating the environment."<sup>59</sup> Interestingly, the *Civilian Casualty Mitigation* notes that "If left unrepaired, damaged infrastructure such as buildings, bridges and roads increase the risk of CIVCASs [civilian casualties]." The potential for long-term harm is also noted: "For example, risk increases if a structure could collapse, if contaminated materials such as asbestos or polychlorinated biphenyls might be released, or if accidents more likely."<sup>60</sup> Finally, Army manual notes, that "the population may blame Army units for hardships and decreased human security resulting from a lack from lack of infrastructure or diminished essential services."<sup>61</sup>

Iraq has seen all these expected consequences of war. Although the Iraqi health care system had been harmed by more than a decade of economic sanctions, it was further harmed by a decade of war. For example, life expectancy and child immunization rates for some diseases fell during the years of most intense fighting, while infant mortality increased. There have been some improvements in health: for instance, infant mortality rates have declined since 2004. Other indicators of health have yet to improve, and many Iraqis also suffer from untreated or undertreated mental health conditions. In 2012, the World Health Organization (WHO) counted 84 psychiatrists for a population of 31.6 million people, a number that would be inadequate even if Iraq was not suffering the effects of war.

The medical system has been stressed, in addition, by the loss of personnel since the 2003 invasion. There were 34,000 physicians in Iraq in 2003 before the war. About half of Iraq's physicians, fled Iraq during the U.S. war and occupation, and many have failed to return.<sup>62</sup> In 2008, there were about 16,000 physicians to care for about 30 million people.<sup>63</sup> Even after the 2011 U.S. withdrawal the number of physicians remained

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<sup>58</sup> Beth Osborne Daponte, "Wartime Estimates of Iraqi Civilian Casualties," *International Review of the Red Cross*, vol. 89, no 868, (2007) pp. 943-957: 945.

<sup>59</sup> U.S. Army, *Civilian Casualty Mitigation*, Army Tactics, Techniques and Procedures 3-37.11, Department of the Army: Washington, DC, July 2012) p. 1-10.

<sup>60</sup> Army, *Civilian Casualty Mitigation*, p. 1-11.

<sup>61</sup> Army, *Civilian Casualty Mitigation*, p. 2-17.

<sup>62</sup> Paul C. Webster, "Iraq's Health System Yet to Heal from Ravages of War," *The Lancet*, vol. 378, 3 September 2011, pp. 863-866.

<sup>63</sup> Brookings, "Iraq Index," 29 May 2011, p. 29.

lower than before the invasion. The WHO report in 2012 counted 22,000 physicians and 44,850 nursing and midwife staff.<sup>64</sup>

Many Iraqi's are leaving Iraq for medical care outside the country, as Omar Dewachi describes in his Costs of War report: there are still too few doctors and a shortage of other medical personnel, equipment and medicines.<sup>65</sup> Others seek treatment in refugee camps. A 2012 study of Iraqi refugees in Jordan found that refugees experienced high rates of neurological disorders, but that even though medical care for Iraqis living in Jordan with neurological disease was inadequate, it was likely better than the care available to Iraqis living in Iraq.<sup>66</sup>

I have refrained from attempting to precisely quantify the indirect death and illness in Iraq, but war certainly caused extensive destruction of infrastructure in Iraq and, as I noted above, it would not be surprising if indirect death were 2 to 4 times the number of direct deaths due to violence — reaching as high as 536,000 indirect deaths over the 134,000 civilians killed directly by violence. In sum, the continued state of destruction and disrepair of Iraq's physical infrastructure, and the lack of medical personnel and resources will combine to mean that toll of indirect injury and death may grow substantially. This burden of indirect death and injury will last beyond the fighting itself. It always does. More study of this feature of civilian harm is clearly needed.

## Injuries

By one analysis, about as many who have been killed due to the war's violence have been wounded in various ways — a 1:1 ratio.<sup>67</sup> Similarly, the U.S. National Counterterrorism Center, which focuses only on "terrorist" events counted about 110,000 wounded Iraqis from 2004 through 2010.<sup>68</sup> The Iraq Body Count data set does include wounds caused by all parties, but only tallies incidents where there is at least one civilian death; incidents where there are only injuries, but no deaths, are not recorded.

Civilians are wounded in the same way that they are killed: in cross-fire; bombings; by improvised explosive devices, and by suicide bombs. Injury rates vary by weapon and method: for instance, the injured to killed ratio for civilians by suicide bomb was 2.5 injured to every one person killed.<sup>69</sup> The international military coalition and Iraqi security forces are also responsible for wounding some Iraqis. According to a 2010 report by Handicap International, 13,000 cluster munitions, containing 1.8 to 2 million sub-munitions were used by the United States and Britain in 2003 in the first weeks of

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<sup>64</sup> See World Health Organization, <http://www.who.int/whosis/indicators/en/>.

<sup>65</sup> Omar Dewachi, "War and the Costs of Medical Travel for Iraqis in Lebanon," *Costs of War*, February 2013.

<sup>66</sup> Farrah J. Matteen, Marco Carone, Sayre Nyce, Jad Ghosn, Timothy Mutuerandu, Huda Al-Saedy, Daniel H. Lowenstein, and Gilbert Burnham, "Neurological Disorders in Iraqi Refugees in Jordan: Data from the United Nations Refugee Assistance Information System," *Journal of Neurology* (2012) pp. 694-701.

<sup>67</sup> Madelyn Hsiao-Rei Hicks, Hamit Dardagan, Peter M. Bagnall, Michael Spagat, John Sloboda, "Casualties in Civilians and Coalition Soldiers from Suicide Bombings in Iraq, 2003-2010: A Descriptive Study," *The Lancet*, vol. 378, no. 9794, (September 2011) pp. 906-914: 912.

<sup>68</sup> United States, National Counterterrorism Center (NCTC), "Worldwide Incidents Tracking System," <https://wits.nctc.gov/FederalDiscoverWITS/index.do?N=0> accessed 9 May 2011.

<sup>69</sup> Hicks, et. al., "Casualties in Civilians and Coalition Soldiers from Suicide Bombings in Iraq, 2003-2010."

combat and Iraq remains one of the most heavily contaminated countries in the world.<sup>70</sup> Further, landmines and other unexploded ordnance remain from Iraq's previous wars — with Iran from 1980 to 1988, and with the U.S.

The legacy of unexploded ordnance and other violent events is evident in the number of amputees in Iraq. The International Committee for the Red Cross supports 13 centers in Iraq that provided prostheses, orthoses and rehabilitation in Iraq. The ICRC supported centers provided more than 300 prostheses for survivors of mines to Iraqis in 2009. The ICRC noted that, "The series of conflicts that took place in Iraq and the on-going turmoil there, together with the still weak public health-care system, resulted in an ever growing number of disabled people. Unfortunately there was still no way to pinpoint that number with certainty." But the ICRC noted that the need for orthotic support devices and prostheses would grow, even assuming no more wounded. "The WHO's estimate that 0.5% of the total population was in need of physical rehabilitation would put the figure at 156,000; since all of them would need a new orthopaedic device every three years on average, which would mean an average production of over 52,000, (still about three times the number of orthopaedic appliances delivered in 2009)."<sup>71</sup> More recently, the ICRC noted that, "Iraq is littered with more than 25 million mines and other explosive remnants of war."<sup>72</sup> Indeed, there is little evidence that the need is diminishing: in 2011 the ICRC fit more than 627 new patients that were victims of landmines with prostheses.<sup>73</sup>

And war directly and indirectly causes invisible wounds in the form of psychological trauma and stress. War affects the economy, crime, and other stressors so that it is not simply the exposure to violent trauma that could contribute to psychological distress. Many Iraqi children and adults suffered post-traumatic stress symptoms after the 1991 Gulf War.<sup>74</sup> It is difficult to assess the psychological effects of the 2003-2013 war on Iraq's children. A clinic for children with PTSD opened in Iraq in 2008.<sup>75</sup> But despite these and other efforts, the psychological needs of Iraqis are likely increasing. Dr. Haider Maliki of the Central Pediatric Teaching Hospital in Baghdad estimated in 2010 that "28% of Iraqi children suffer some degree of PTSD, and their numbers are steadily rising."<sup>76</sup> If Dr. Maliki's assessment is correct, it is likely that more than 3 million Iraqi children suffer PTSD.

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<sup>70</sup> Handicap International, Cluster Munition Coalition, et al, *Cluster Munition Monitor 2010* (Mines Action Canada, October 2010) p. 3.

<sup>71</sup> International Committee for the Red Cross, *Physical Rehabilitation Programme, Annual Report 2009* (Geneva: ICRC, 2009) p. 62, [http://www.icrc.org/eng/assets/files/other/icrc\\_002\\_4031.pdf](http://www.icrc.org/eng/assets/files/other/icrc_002_4031.pdf).

<sup>72</sup> International Committee for the Red Cross, "Iraq: Facts and Figures, January – December 2012," 29 March 2012, <http://www.icrc.org/eng/resources/documents/fact-figures/iraq-facts-figures-2011.htm>.

<sup>73</sup> International Committee for the Red Cross, "Iraq, Annual Report," <http://www.icrc.org/eng/assets/files/annual-report/current/icrc-annual-report-iraq.pdf>.

<sup>74</sup> Joshua Barenbaum, Vladislave Ruchkin, and Mary Schwab-Stone, "The Psychological Aspects of Children Exposed to War: Practice and Policy Initiatives," *Journal of Child Psychology and Psychiatry*, vol. 45, no. 1 (January 2004) pp. 41-62.

<sup>75</sup> Lourdes Garcia-Navarro, "Treating Iraqi Children for PTSD," National Public Radio, 25 August, 2008, <http://www.npr.org/templates/story/story.php?storyId=100145401>.

<sup>76</sup> Maliki interview with NBC quoted in Paula Mejia, "Wounds of War: PTSD in Iraqis and Veterans," *The Majalla*, 20 October 2010 <http://www.majalla.com/en/ideas/article165470.ece>

### **Conclusion: Iraq Remains an Urgent War Situation**

Nearly every day brings reports of continued injury and death due to violence in Iraq. Indeed, the trend is increasing violence over the last two years. More people were killed by war-related violence in Iraq during 2011 than in 2010 and more were killed in 2012 than in 2011.

What is less obvious is the toll of indirect harm due to the destruction of Iraq's infrastructure. Internally displaced persons, refugees and children remain the most vulnerable to disease, malnutrition, and continued injury due to unexploded ordnance. Unless and until the public health infrastructure and the physical infrastructure of Iraq is repaired, the ripple effects of years of war, and before that, years of U.S. led sanctions will continue to take its human toll.