

## Recent military fatalities in Afghanistan and Iraq by cause and nationality

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### Summary

**Afghanistan versus Iraq:** a) PERIOD 6 (31 March to 17 August 2008, 140 days) was the first of seven 140-day periods since 1 May 2006 in which coalition military fatalities were as numerous in Afghanistan as in Iraq: 134 deaths in Iraq, 136 in Afghanistan. **PERIOD 7 (18 August 2008 to 4 January 2009, 140 days) is the first in which coalition fatalities were substantially more numerous in Afghanistan than in Iraq: 80 deaths in Iraq, 123 in Afghanistan (including a large cluster of 10 French fatalities under hostile fire).** US, UK and Canada forces in Afghanistan sustained an average fatality rate of 7 per 1,000 personnel-years (pys) in PERIOD 6 {121 deaths in 17,455 pys; 95% CI: 5.7 to 8.2} and of 5 per 1,000 pys in PERIOD 7 {93 fatalities in 17,455 pys; 95% CI: 4.2 to 6.4} despite overlap with the Afghan winter. By comparison, US military fatality rate in Iraq was 1.4 per 1,000 pys in PERIOD 7 {78 fatalities in 57,308 pys; 95% CI: 1.1 to 1.7}.

**Lethality of fatal IED (only) incidents:** b) Lethality per fatal IED (only) incident in late-surge PERIODS 5+6+7 (12 November 2007 to 4 January 2009, 560 days) was similar in Iraq (151 fatalities in 107 fatal IED incidents) and Afghanistan (161 fatalities in 110 fatal IED incidents), a mean of 1.44 deaths per fatal IED (only) incident (95% CI for mean: 1.3 to 1.6). Remarkably, fatal IED incidents in PERIODS 5+6+7 were as numerous in Afghanistan (110) as in Iraq (107). **But PERIOD 7 is the first in which there were substantially more fatal IED (only) incidents in Afghanistan (42) than in Iraq (10).**

**Non-hostile deaths:** c) In PERIODS 5+6+7, with roughly 3-fold higher deployment of coalition troops to Iraq than Afghanistan, 36/318 fatalities in Afghanistan (11%; 95% CI: 8% to 15%) were non-hostile deaths as were 108/370 in Iraq (29%; 95% CI: 25% to 34%). **As expected, non-hostile deaths are broadly proportionate to deployment – and occur at a rate of around 0.6 non-hostile deaths per 1,000 pys.**

**National fatality rates in Afghanistan:** d) In PERIODS 1+2+3+4 (1 May 2006 to 11 Nov. 2007, 560 days), Canadian losses had been 56 deaths in 3,654 personnel-years (15 per 1,000 pys; 95% CI: 11 to 19) when the corresponding UK fatality rate was 9 per 1,000 personnel-years (95% CI: 7 to 11, based on 76 fatalities {including 14 Nimrod deaths} in 11,277 pys). In PERIODS 5+6+7, Canadian fatalities remained high at 35 deaths in 2,886 personnel-years (12 per 1,000 pys; 95% CI: 8 to 16), nearly double the UK rate of 6.3 per 1,000 pys (95% CI: 5 to 8, based on 56 fatalities in 8,828 pys), which was itself higher ( $p = 0.03$ ) than the US rate of 4.3 per 1,000 pys (95% CI: 3.6 to 4.9, based on 166 fatalities in 38,773 pys).

**Iraq in retrospect:** e) In PERIOD 1 (1 May to 17 September 2006) & PERIOD 2 (18 Sept. 2006 to 4 February 2007), coalition fatalities in pre-surge Iraq were 299 and 436. US deployment to Iraq was 145,000 troops and the US military fatality rate had risen from 5.0 (95% CI: 4.4 to 5.6) to 7.5 (6.8 to 8.2) per 1,000 personnel-years, the latter consistent with major combat. SURGE swiftly followed. By PERIOD 5 (12 Nov. 2007 to 30 March 2008) & PERIOD 6 (31 March to 17 August 2008), when post-surge US deployment dropped to around 150,000 troops, coalition fatalities had decreased to 156 and 134 and the US military fatality rate was comfortably below 3 per 1,000 pys. **In PERIOD 7, there was a further decrease in US military fatality rate to below 2 per 1,000 pys.**

**Iraq's fatal IED (only) incidents:** f) Fatal IED (only) incidents in Iraq had nearly halved in frequency in PERIOD 4 when there were 86 (causing 136 deaths) compared to 155 (causing 280 deaths) in PERIOD 3. In PERIODS 5+6, they were further dramatically reduced to 48+49 fatal IED incidents causing 78+62 deaths {140/227 hostile deaths: 62%}. **In PERIOD 7, there were fewer still: 10 fatal IED incidents caused only 11 fatalities {11/35 hostile deaths: 31%}.**

**Afghanistan in retrospect:** g) Recent history in Afghanistan is: total coalition fatalities in PERIODS 1+2 were 157 (which includes large clusters of 10 US and 14 UK fatalities) but increased to 195 in PERIODS 5+6. {PERIODS 2 and 5 coincided with Afghan winter.} UK deployment increased from 4,500 in PERIOD 1 to 8,000 in PERIOD 6; and UK military fatality rate decreased from horrendous 19 (95% CI: 13 to 27) – which includes 14 Nimrod deaths – to 8 (95% CI: 5 to 11) per 1,000 personnel-years in PERIOD 6, still consistent with major combat. The combined US+UK+Canadian military fatality rate in PERIOD 6 was 6.9 (95% CI: 5.7 to 8.2) {based on 121 deaths, 45,500 troops, and 17,455 personnel-years} – equivalent to the level of combat that had occasioned SURGE in Iraq. **In PERIOD 7, which overlaps the Afghan winter by around 10 weeks, the combined US+UK+Canadian military fatality rate was 5.3 (95% CI: 4.2 to 6.4).**

**Afghanistan's fatal IED (only) incidents:** h) Fatal IED (only) incidents, which had doubled in frequency in PERIOD 4 (27 incidents caused 44 fatalities) compared to 12 (causing 22 fatalities) in PERIOD 3, **remained high at 29+39+42 IED incidents in PERIODS 5+6+7, and caused 37+62+62 ISAF fatalities {161/282 hostile deaths: 57%}.**

**Recent military fatalities in Afghanistan and Iraq by cause and nationality**  
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**1. Background and rationale**

Our analyses<sup>1,2</sup> rely on icasualties.org, to which we make acknowledgement. Date and cause of fatalities on icasualties.org are subject to change as well as to updating.

Bird and Fairweather<sup>1</sup> showed that the vast majority of coalition fatalities in Operation Iraqi Freedom in 2006 up to 17 September 2006 was ascribed as hostile (85%: 457/537). In particular, *improvised explosive devices (IEDs) accounted for 53% of all fatalities, and for 62% of hostile deaths (282/457: 95% CI from 57% to 66%)*. We also reported on IED lethality: there were 271 deaths in 183 fatal IED (only) incidents in Iraq during 1 January to 17 September 2006 (260 days), and 222 deaths in 142 fatal IED (only) incidents in the subsequent 140 days (PERIOD 2 = 18 September 2006 to 4 February 2007), *a pooled mean of 1.5 deaths per fatal IED (only) incident*.

*Back-story on troop numbers* UK troops were withdrawn from Basra on 3 September 2007 midway through PERIOD 4 (25 June to 11 November 2007). UK troop numbers in Iraq decreased to 5,000 in the second half of PERIOD 4<sup>6,5</sup>. Subsequently, in PERIOD 5, there was much debate about UK's deployment to Iraq<sup>6-8</sup>, which we assume to have been roughly 4,500 troops from 12 November until the end of 2007; and around 4,000 thereafter. In PERIOD 5, UK troops in Afghanistan continued at 7,000<sup>9,10</sup> with the US contingent being reckoned at 31,000<sup>11-14</sup>. By the end of PERIOD 6, both deployments had increased: UK is variously reported as having 8,500<sup>15</sup>, 'more than 8,000'<sup>16</sup>, or 'roughly 8,000'<sup>17</sup> troops in Afghanistan; and US as having 34,000<sup>16</sup> to 36,000<sup>18</sup>. We have counted UK and US deployments to Afghanistan as averaging 8,000 and 35,000 respectively throughout PERIOD 6 and also PERIOD 7 despite some reports that they may have been 10% lower<sup>20,21</sup>; and to Iraq as 4,000<sup>17</sup> and 150,000<sup>18</sup> (149,000<sup>22</sup>) respectively in PERIOD 6 (PERIOD 7).

**PERIOD 7 is 18 August 2008 to 4 January 2009. It overlaps the Afghan winter by some 9 or 10 weeks.** During PERIOD 7, US was expected to send an additional 10,000 to 12,000 troops to Afghanistan; and UK's deployment to Iraq to reduce to 2,000. In practice, neither seems to have occurred.

This report incorporates military fatalities in PERIOD 7 (18 August 2008 to 4 January 2009): **80 deaths in Iraq, 123 in Afghanistan.**

## ***2. Methods briefly***

### ***2.1 Our analyses relate primarily to 140-day, that is 20 week, PERIODS as follows:***

PERIOD 1= 1 May 2006 to 17 September 2006,  
PERIOD 2= 18 September 2006 to 4 February 2007,  
PERIOD 3= 5 February 2007 to 24 June 2007,  
PERIOD 4= 25 June 2007 to 11 November 2007,  
PERIOD 5= 12 November 2007 to 30 March 2008,  
{from icasualties.org on 3 April 2008}  
PERIOD 6 = 31 March 2008 to 17 August 2008,  
{from icasualties.org on 12 & 21 August 2008}  
PERIOD 7 = 18 August 2008 to 4 January 2009  
{from icasualties.org on 11 January 2009}.

### ***2.2 We report fatality rates per 1,000 personnel-years.***

Four thousand troops in a theatre of operation for 3 months contribute 1,000 personnel-years (pys). So too do 1,000 personnel in theatre for one year. ***Analytically, we characterise “major combat” by a military fatality rate of 6 or more per 1,000 personnel-years.***

### ***2.3 We analyse the lethality of IED (only) incidents.***

As in Bird and Fairweather<sup>1</sup>, we exclude from this analysis multiply-ascribed deaths, such as IED and small arms fire (16, 17 and 6 in PERIODS 3, 4 and 6 respectively) or IED and rocket propelled grenade/grenades (two, two and zero respectively). A singleton fatal IED attack in Iraq during PERIOD 5 in which a suicide vehicle was used has been coded as ‘suicide bomb’ rather than IED. Unusually, triple hostile fire US fatalities in Afghanistan and a UK singleton SAS death in PERIOD 6 were coded as ‘explosion’; and likewise the death of a UK lance corporal in PERIOD 7. We have not counted them as IED deaths.

### ***2.4 We need to track changes in deployment***

In PERIOD 5, UK’s deployment to Iraq reduced below 5,000 troops<sup>6-8</sup> and to Afghanistan was to have increased to 7,700, but seems to have remained at around 7,000<sup>3</sup> until PERIOD 6<sup>15-17</sup>. Withdrawal of some 20,000 US combat troops from Iraq during PERIOD 5 was announced by President Bush: we have assumed that their number has effectively stood at 155,000 throughout PERIOD 5<sup>11-14</sup> whereas US troops in Afghanistan have been reckoned at 31,000<sup>11</sup> throughout PERIOD 5. In PERIOD 6 (7), US troop numbers have been reckoned as 150,000 (149,000) in Iraq and 35,000 in Afghanistan<sup>16, 18</sup> despite some reports that both UK and US troop numbers were around 10% lower in Afghanistan<sup>20-22</sup>.

### ***2.5 Our next update relates to 140-day PERIOD 8 (5 January 2009 to 17 May 2009).***

### 3. RESULTS

#### 3.1 Fatalities in Afghanistan and Iraq in PERIODS 1 to 7

Military fatalities in PERIOD 7 (18 August 2008 to 4 January 2009) were: **80 deaths in Iraq, 123 in Afghanistan (including a large cluster of 10 French fatalities under hostile fire)**. PERIOD 7 is the first in which the number of military fatalities has been substantially higher in Afghanistan than in Iraq ( $p < 0.001$ ), see **TABLE 1**.

**TABLE 1** summarises coalition military fatalities by nationality in Iraq and Afghanistan. The data for PERIODS 1+2 are reproduced from Bird and Fairweather<sup>1</sup> and for PERIODS 3 - 6 from earlier reports on MRC Biostatistics Unit website.

*Iraq: what's new?* Of the 80 coalition fatalities in PERIOD 7, only 35 were hostile deaths. They included 11 deaths in 10 fatal IED incidents {so that only 11/35 hostile deaths (31%) were caused by IEDs in PERIOD 7} and three on account of two suicide bombers. The only two UK fatalities were non-hostile shooting/gunshot incidents.

US fatality rate in PERIOD 7 fell to 1.4 per 1000 pys (95% CI: 1.1 to 1.7), below even that for PERIOD 6 (2.2 with 95% CI from 1.6 to 2.6). UK's military fatality rate in Iraq has been around 2 per 1,000 pys since UK troops withdrew from Basra City (95% CI: 1 to 3 per 1,000 pys, based on 10 deaths in 5,633 pys).

*Iraq: resume on past PERIODS* Surge began in Iraq in PERIOD 3. In the first half of PERIOD 4, the UK fatality rate in Iraq rose to 14 per 1,000 personnel-years (95% CI: 8 to 23), whereas the US fatality rate in Iraq fell to 5.7 per 1,000 personnel-years (95% CI: 4.9 to 6.6) or less, thereby reverting to its level a year previously, see PERIOD 1 in **TABLE 1 (Iraq)**.

The second half of our PERIOD 4 began on the day after UK troops had withdrawn from Basra City. UK's military fatality rate in Iraq fell to 3 per 1,000 personnel-years in the second half of PERIOD 4 and has remained low ever since, averaging 2 per 1,000 personnel-years (pys), with only 3+5+0+2 = 10 fatalities (**none** in PERIOD 6) in 5,633 pys (95% CI: 1 to 3 fatalities per 1,000 pys).

The second half of PERIOD 4 also saw a highly significant further reduction in US military fatality rate to 3.7 deaths per 1,000 personnel-years (95% CI: 3.0 to 4.4), lower even than in PERIOD 1. The decrease in US military fatality rate has continued so that, by PERIOD 6, it had dropped remarkably to 2.2 per 1,000 personnel-years (95% CI: 1.8 to 2.6); and fell further to 1.4 per 1,000 pys in PERIOD 7, see above.

In PERIODS 5+6, 63/290 military fatalities in Iraq were non-hostile causes of death (22%: 95% CI from 17% to 26%); and 140/227 hostile deaths were caused by IEDs (62%: 95% CI from 55% to 68%).

*Afghanistan: what's new?* Of the 123 coalition fatalities in PERIOD 7, all but six were hostile deaths. They included 62 deaths in 42 fatal IED incidents {so that 62/117 hostile deaths (53%) were caused by IEDs in PERIOD 7} and nine on account of four suicide bombers.

In PERIODS 5+6+7, **Table 1 (Afghanistan)** shows that non-hostile causes accounted for only 36/318 military fatalities in Afghanistan (11%; 95% CI: 8% to 15%).

By nationality, military fatality rates in PERIODS 5+6+7 were notably different:

Canadians: 12 per 1,000 pys (95% CI: 8 to 16, based on 35 fatalities in 2,886 pys)  
UK forces: 6.3 per 1,000 pys (95% CI: 5 to 8, based on 56 fatalities in 8,828 pys)  
US forces: 4.3 per 1,000 pys (95% CI: 3.6 to 4.9, based on 166 fatalities in 38,773 pys).

The Canadian+UK+US fatality rate in PERIOD 7 was 5.3 per 1,000 pys (95% CI: 4.2 to 6.4, based on 93 deaths in 17,455 pys).

*Afghanistan: resume on past PERIODS* In Afghanistan in PERIODS 1+2+3+4 (560 days), there were 76 UK military fatalities {includes 14 Nimrod deaths} in 8,580 pys, and 56 Canadian deaths in 3,654 pys.

Canada's deployment has *never been more than* half the UK's, but Canadian losses<sup>19</sup> had been onerously high at 15 per 1,000 personnel-years (95% CI: 11 to 19) when set against UK's 9 fatalities per 1,000 personnel-years (95% CI: 7 to 11) for PERIODS 1+2+3+4.

In post-winter PERIOD 6, all nationalities encountered major combat and sustained military fatalities at an average rate of 7 per 1,000 personnel-years as judged by US, UK and Canada (95% CI: 5.7 to 8.2 per 1,000 pys). This was in stark contrast with Iraq in PERIOD 6.

In Afghanistan, US personnel accounted for 49% of all military fatalities in PERIODS 1+2+3+4 (180/367; 95% CI: 44% to 54%), for a higher proportion ( $p < 0.05$ ) at 58% in PERIODS 5+6 (113/195; 95% CI: 51% to 65%), and for 43% in PERIOD 7 (53/123; 95% CI: 34% to 52%) when there was a large cluster of 10 French fatalities from hostile fire.

In PERIODS 5+6, **TABLE 1 (Afghanistan)** shows that non-hostile causes accounted for only 30/195 of military fatalities in Afghanistan (15%, 95% CI: 10% to 20%). As in Iraq, 99/165 hostile deaths were caused by IEDs (60%, 95% CI: 53% to 67%).

### **3.2 Fatal IED (only) incidents: variations**

**TABLE 2** shows military fatalities in IED (only) incidents in Iraq and Afghanistan.

*Iraq:* In Iraq<sup>1</sup>, the rate at which fatal IED (only) incidents occurred had increased by 37% in PERIOD 2 (to one per day) compared to BASELINE (0.7 per day). That increase was sustained in PERIOD 3 but reverted in PERIOD 4 and fell dramatically to 0.35 fatal IED incidents per day in PERIODS 5+6, and further still to 0.07 incidents per day in PERIOD 7. In PERIODS 5+6+7, there were 151 fatalities in 107 fatal IED (only) incidents, that is: an average of 1.4 deaths per fatal IED incident, and essentially unchanged from the BASELINE in **TABLE 2 (Iraq)**.

*Afghanistan:* Noteworthy in **TABLE 2 (Afghanistan)** are the striking changes in fatal IED (only) incident rate, and fatalities, after PERIOD 3. In Afghanistan, the number of fatal IED (only) incidents roughly doubled from 12 in PERIOD 3 to 27 in PERIOD 4 ( $p < 0.02$ ); with 29+39+42 thereafter in PERIODS 5+6+7. Meanwhile, in Iraq, the number of fatal IED (only) incidents reduced from 155 in PERIOD 3 to 86 in PERIOD 4 ( $p < 0.001$ ) with further major reductions to 48+49 incidents in PERIODS 5+6 and to only 10 in PERIOD 7.

Lethality per fatal IED incident in PERIODS 5+6+7 was similar in Afghanistan and Iraq with 161 fatalities in 110 fatal IED (only) incidents in Afghanistan, a mean of 1.5 deaths per fatal IED (only) incident, consistent with Iraq.

**TABLE 1 (Iraq):** Coalition military deaths and estimated fatality rates per 1,000 personnel-years in consecutive 140-day or 70-day PERIODS; friendly fire deaths superscripted <sup>F</sup>

<i>Theatre</i>	<i>Iraq</i>								
<i>PERIODS of 140 days, except where indicated</i>	<i>1 May to 17 Sept. 2006</i>	<i>18 Sept. to 4 Feb. 2007</i>	<i>5 Feb. to 24 June 2007</i>	<i>25 Jun to 2 Sept. 2007 (70days)</i>	<i>3 Sep to 11 Nov. 2007 (70days)</i>	<i>12 Nov. 2007 to 30 Mar. 2008</i>	<i>31 Mar. to 17 Aug. 2008</i>	<i>18 Aug 2008 to 4 Jan. 2009</i>	<i>5 Jan. 2009 to 14 May 2009</i>
			<i><b>SURGE</b></i>	<i><b>SURGE</b></i>	<i><b>SURGE</b></i>	<i><b>SURGE</b></i>	<i><b>SURGE</b></i>	<i><b>SURGE</b></i>	<i><b>SURGE</b></i>
Total fatalities <i>(non-hostile, see footnotes)</i>	299 ( 32)	436* ( 56)	490* ( 42)	193**** ( 43)	123**** ( 36)	156 ( 29)	134 ( 34)	80 ( 45)	
US (estimated deployment) & person-years	280 (145,000 troops) <b>55,616pys</b>	416 <sup>FF</sup> (145,000 troops)	463 (<= 165,000)	177**** (162,000 <sup>8</sup> - 168,000 troops <sup>9</sup> )	116**** (minimum 162,000 troops <sup>8</sup> )	151 (155,000 troops) <b>59,615pys</b>	130 (150,000 troops) <b>59,615pys</b>	78 (149,000 troops <sup>22</sup> ) <b>57,308pys</b>	
UK (estimated deployment) & person-years	14 (7,200 troops) <b>2,769pys</b>	12 (7,000 troops) <b>2,692pys</b>	23 (7,000 down to 5,500 <sup>3 4</sup> ) <b>2,586pys</b>	15 (5,500 troops) <b>1,058 pys</b>	3 (5,000 troops) <b>962 pys</b>	5 (~4,500 troops in 2007; 4,000 in 2008) <b>1,603 pys</b>	0 (4,000 in 2008) <b>1,534 pys</b>	2 (4,000 in 2008) <b>1,534 pys</b>	
Other	5	8	4	1	4	0	4	0	
<b><i>Estimated fatality rates per 1,000 personnel-years (95% Poisson uncertainty)</i></b>									
US	5.0 (4.4 to 5.6)	7.5 (6.8 to 8.2)	7.3 (6.6 to 8.0)	5.7 <sup>8</sup> (5.5 <sup>9</sup> ) (4.9 to 6.6 <sup>8</sup> ) (4.7 to 6.3 <sup>9</sup> )	3.7 (3.0 to 4.4 <sup>8</sup> )	2.5 (2.1 to 2.9)	2.2 (1.8 to 2.6)	1.4 (1.1 to 1.7)	
UK	4.8 (3.1 to 7.0)		8.8 (5.6 to 13.3)	14.1 (7.9 to 23.4)	3.1 (0.6 to 9.1)	3.1 (1.6 to 5.2)	0.7 (0.1 to 2.4)		
Canada	<b>No deployment</b>								

\* Now shown as 437 and as 491 respectively on icasualties.org.  
 \*\* Includes large clusters of 10 US and 14 UK deaths respectively.  
 \*\*\* Includes a large cluster of eight US deaths  
 \*\*\*\* Includes large cluster of 14 US non-hostile deaths in helicopter crash in first half of PERIOD 4 (when 43/193 US fatalities in Iraq were non-hostile deaths) and 8 US non-hostile deaths in vehicle roll-over in second half of PERIOD 4 (when 36/123 US fatalities in Iraq were non-hostile deaths)  
 \*\*\*\*\* PERIOD 7 include a large cluster of 10 hostile fire French fatalities in Afghanistan.  
 F = friendly fire; JW = death of Jonathan Wigley from hostile fire, but questions raised;  
 ?? = friendly fire mooted as cause of two Danish deaths in a fire in September 2007  
 A: 13/22 UK and 10/11 Canadian fatalities occurred in the first half of PERIOD 4.  
 @ US fatality rate in Afghanistan in PERIOD 7 would be 4.4 (3.2 to 5.6) and UK rate would be 9 (4 to 13) if their troop numbers were 31,000 {and hence 11,923 pys} and 7,300 {and hence 2,808 pys} rather than as shown in Table 1.

**TABLE 1 (Afghanistan):** Coalition military deaths and estimated fatality rates per 1,000 personnel-years in consecutive PERIODS; friendly fire deaths superscripted <sup>F</sup>

<i>Theatre</i>	<i>Afghanistan (winter PERIODS)</i>							
<i>PERIODS of 140 days.</i>	<i>1 May to 17 Sept. 2006</i>	<i>18 Sept. 2006 to 4 Feb. 2007</i>	<i>5 Feb. to 24 June 2007</i>	<i>25 Jun to 11 Nov. 2007</i>	<i>12 Nov. 2007 to 30 Mar. 2008</i>	<i>31 Mar. to 17 Aug. 2008</i>	<i>18 Aug 2008 to 4 Jan. 2009</i>	<i>5 Jan. 2009 to 14 May 2009</i>
Total fatalities (non-hostile)	117 ( 41)	40 ( 4)	96 ( 27)	114 ( 16)	59 <sup>FF</sup> ( 10)	136 ( 20)	123 <sup>F*****</sup> ( 6)	
US (estimated deployment) & person-years	54**	18	50***	58	25 (31,000 troops) <b>11,923pys</b>	88 (35,000 troops) <b>13,425pys</b>	53 <sup>F</sup> (35,000 or 31,000 <sup>20</sup> ) <b>13,425pys</b>	
UK (estimated deployment) & person-years	33** <sup>F</sup> (4,500 troops) <b>1,726pys</b>	6 <sup>JW</sup> (up to 5,250 troops) <b>2,014pys</b>	15 (5,250 to 6K to 6,900 <sup>56</sup> ) <b>2,186pys</b>	22 <sup>FFFA</sup> (6,900 troops) <b>2,654pys</b>	8 (7,000 troops) <b>2,692pys</b>	24 (8,000 troops) <b>3,068pys</b>	24 (8,000 or 7,300 <sup>21</sup> ) <b>3,068pys</b>	
Canada (estimated deployment) & person-years	17 <sup>F</sup> (2,250 troops) <b>865pys</b>	12 (2,250 troops) <b>865pys</b>	16 (2,500 troops) <b>962pys</b>	11 (2,500 troops) <b>962pys</b>	10 (2,500 troops) <b>962pys</b>	9 (2,500 troops) <b>962pys</b>	16 (2,500 troops) <b>962pys</b>	
Other	13	4	15	23 <sup>??</sup>	16 <sup>FF</sup>	15	3*****	
<b><i>Estimated fatality rates per 1,000 personnel-years (95% Poisson uncertainty)</i></b>								
US	US troop numbers not ascertained				2.1 (1.3 to 2.9)	6.6 (5.2 to 7.9)	4.0 <sup>@</sup> (2.9 to 5.0)	
UK	19** (13 to 27)	3 (1 to 6)	7 (4 to 11)	8 (5 to 11)	3 (1 to 6)	8 (5 to 11)	8 <sup>@</sup> (5 to 11)	
Canada	20 (11 to 31)	14 (7 to 24)	17 (9 to 27)	9 (3 to 16)	10 (5 to 19)	9 (3 to 16)	17 (9 to 27)	
UK/Canada	19** (14 to 25)	6 (4 to 11)	10 (7 to 14)	8.2 (5.4 to 11)	4.9 (2.9 to 7.8)	8.2 (5.4 to 11)	9.9 (6.8 to 13)	

**TABLE 2 (Iraq): IED fatalities in Iraq and Afghanistan**

<i>Theatre</i>	<i>Fatal IED incidents in Iraq</i>						
<b>PERIOD</b>	<i>BASE-LINE:</i> 1 Jan. to 17 Sept. 2006 <b>271 IED</b> <b>deaths in</b> <b>183 fatal</b> <b>IED</b> <b>incidents</b>  (260 days)	<b>Period 2:</b> 18 Sept. to 4 Feb. 2007 <b>217 IED</b> <b>deaths in</b> <b>135 fatal</b> <b>IED</b> <b>incidents</b>  (140 days)	<b>Period 3:</b> 5 Feb. to 24 June 2007 <b>280 IED</b> <b>deaths in</b> <b>155 fatal</b> <b>IED</b> <b>incidents</b>  (140 days) <b>SURGE</b>	<b>Period 4:</b> 25 June to 11 Nov. 2007 <b>136 IED</b> <b>deaths in</b> <b>86 fatal</b> <b>IED</b> <b>incidents</b>  (140 days) <b>SURGE</b>	<b>Period 5:</b> 12 Nov. 2007 to 31 Mar. 2008 <b>78 IED</b> <b>deaths in</b> <b>48 fatal</b> <b>IED</b> <b>incidents</b>  (140 days) <b>SURGE</b>	<b>Period 6:</b> 31 Mar. to 17 Aug. 2008 <b>62 IED</b> <b>deaths in</b> <b>49 fatal</b> <b>IED</b> <b>incidents</b>  (140 days) <b>SURGE</b>	<b>Period 7:</b> 18 Aug. to 4 Jan. 2009 <b>11 IED</b> <b>deaths in</b> <b>10 fatal</b> <b>IED</b> <b>incidents</b>  (140 days) <b>SURGE</b>
1	<b>128</b>	88	97	57	35	39	9
2	<b>33</b>	23	22	13	4	8	1
3	<b>14</b>	14	20	12	4	1	
4	<b>5</b>	9	10	3	3	1	
5	<b>3</b>	1	1	1	1		
6+			5		1		
<b>TOTAL</b>	<b>183</b>	135	155	86	48	49	10
<i>Fatal IED incidents per day</i>	<i>0.7</i>	<i>1.0</i>	<i>1.1</i>	<i>0.6</i>	<i>0.34</i>	<i>0.35</i>	<i>0.07</i>
<i>Mean deaths per fatal IED incident</i>	<i>1.5</i>	<i>1.6</i>	<i>1.8</i>	<i>1.6</i>	<i>1.6</i>	<i>1.3</i>	<i>1.1</i>

**TABLE 2 (Afghanistan): IED fatalities in Iraq and Afghanistan**

<i>Theatre</i>	<i>Fatal IED incidents in Afghanistan</i>						
<b>PERIOD</b>	<i>BASE-LINE</i> 1 Oct. 2001 to 4 Feb. 2007  <b>76 IED</b> <b>deaths in</b> <b>46 fatal</b> <b>IED</b> <b>incidents</b>  (1,953 days)	<b>Period 3:</b> 5 Feb. to 24 June 2007 <b>22 IED</b> <b>deaths in</b> <b>12 fatal</b> <b>IED</b> <b>incidents</b>  (140 days)	<b>Period 4:</b> 25 June to 2 Sept 2007 <b>44 IED</b> <b>deaths in</b> <b>27 fatal</b> <b>IED</b> <b>incidents</b>  (140 days)	<b>Period 5:</b> 12 Nov 2007 to 31 Mar. 2008 <b>37 IED</b> <b>deaths in</b> <b>29 fatal</b> <b>IED</b> <b>incidents</b>  (140 days)	<b>Period 6:</b> 31 Mar. to 17 Aug. 2008 <b>62 IED</b> <b>deaths in</b> <b>39 fatal</b> <b>IED</b> <b>incidents</b>  (140 days)	<b>Period 7:</b> 18 Aug. 2008 to 4 Jan. 2009 <b>62 IED</b> <b>deaths in</b> <b>42 fatal</b> <b>IED</b> <b>incidents</b>  (140 days)	
1		<b>28</b>	8	19	22	25	29
2		<b>11</b>	1	3	6	8	7
3		<b>2</b>	2	3	1	3	5
4		<b>5</b>	0	1		3	1
5		<b>0</b>	0	0			
6+		<b>0</b>	1	1			
<b>TOTAL</b>		<b>46</b>	12	27	29	39	42
<i>Fatal IED incidents per day</i>		<i>0.02</i>	<i>0.1</i>	<i>0.2</i>	<i>0.2</i>	<i>0.3</i>	<i>0.3</i>
<i>Mean deaths per fatal IED incident</i>		<i>1.7</i>	<i>1.8</i>	<i>1.6</i>	<i>1.3</i>	<i>1.6</i>	<i>1.5</i>

## **4. DISCUSSION**

### **4.1 Afghanistan versus Iraq: dicing with death**

PERIOD 7 is the first in which military fatalities have been substantially more numerous in Afghanistan (123) than in Iraq (80). This may seem paradoxical because of the considerably lower coalition deployment to Afghanistan than to Iraq but the explanation lies in vastly different fatality rates. Whereas the military fatality rate was under 2 per 1,000 pys in Iraq in PERIOD 7, it was more than twice as high at 5.3 per 1,000 pys for US, UK and Canadian troops in Afghanistan (95% CI: 4.2 to 6.4).

Canada's high military fatality rate throughout PERIODS 1+2+3+4 of 15 deaths per 1,000 personnel-years (95% CI: 11 to 19) in Afghanistan had warranted close scrutiny. In PERIODS 5+6+7, Canadian troops continued to face major combat in Afghanistan where their fatality rate of 12 per 1,000 pys has been nearly twice that of UK troops (95% CI: 4.7 to 8.0 per 1,000 pys) and about three times that of US forces (95% CI: 3.6 to 4.9 per 1,000 pys). Different theatres of operation or different availability of air support may contribute to this striking gradient by nationality in military fatality rates.

### **4.2 Lethality and frequency of IEDs in Iraq and Afghanistan**

Bird and Fariweather<sup>1</sup> identified that the frequency of fatal IED (only) incidents in Iraq had increased very significantly (by 37%) in PERIOD 2 compared with earlier in 2006, but that the mean number of deaths per fatal IED incident was essentially unchanged, there having been 1.5 deaths per fatal IED (only) incident overall.

In PERIOD 3, IEDs' lethality increased markedly (but transiently) when 155 fatal IED incidents claimed 280 lives, not the hitherto-expected 238, or even 249 (if based on PERIOD 2 only). Unprecedented in Afghanistan or in Iraq in 2006 were fatal IED incidents which claimed 6+ lives – six such incidents occurred in Iraq, and two in Afghanistan to the end of PERIOD 5; but none in PERIODS 6+7.

In PERIODS 5+6+7, fatal IED incidents in Iraq have reduced dramatically to as few as 48+49+10 (and 78+62+11 fatalities) but their increase from PERIOD 4 in Afghanistan has persisted so that there were 29+39+42 fatal IED incidents in PERIODS 5+6+7 which claimed 37+62+62 lives. PERIOD 7 is the first in which there have been substantially more fatal IED (only) incidents in Afghanistan than in Iraq.

The coalition toll has reverted to 1.44 deaths per fatal IED incident in PERIODS 5+6+7 (312/217; 95% CI for mean number of deaths: 1.3 to 1.6). Six suicide bomber incidents in PERIOD 7 claimed 12 military lives.

If the trend in fatal IED incidents in Afghanistan continues, it might be a cautious conclusion that the Taleban, having realised that they are no longer a match for coalition forces in more traditional firefights, are consciously switching emphasis to indirect attack (including suicide bombers against military as well as civilian targets); or it may be that both tactics continue to be pursued. Such a switch would imply strategic analysis and an aim of causing maximum casualties, both per incident and cumulatively, to engender adverse media headlines and reaction by outside commentators – a lesson well applied

during the Soviet occupation. Our surmises lack access to contrary, or supportive, intelligence material (such as limitations on the Taleban's logistics) but warn of increased IED incidents for the next period when troop reinforcements are forecast. A corresponding increase in the use of suicide bombers against military as well as civilian targets could also be expected. Meanwhile, a Taleban search for reliable means to inflict multiple casualties, such as on the occupants of transport helicopters and fixed wing aircraft, is likely to be ongoing. Preliminary indications of changed strategic direction, or analysis, are a concern to be thwarted.

#### ***4.3 Projection of UK military fatalities in PERIODS 6+7; and forecast for PERIOD 8***

On the basis of 1,500 and 3,000 UK personnel-years respectively in Iraq and Afghanistan, we had expected around 30 UK fatalities (5.25+24) in each of PERIODS 6 and 7 as singleton deaths or in small clusters - but with wide, informal uncertainty range from 15 to 45. Actual fatalities were (0 + 24) in PERIOD 6 and (2+24) in PERIOD 7. We see no reason to moderate our projection for PERIOD 8, other than *proportionately up* if substantial changes in UK troop numbers should occur. The beneficial impact of any 'surge' of troops to Afghanistan is more likely to be evident in PERIOD 9.

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