

**Recent military fatalities in Afghanistan by cause and nationality:  
PERIOD 11b (3 May to 11 July 2010)**

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**Summary**

**a)** During the 10 weeks of PERIOD 11b (3 May to 11 July 2010: in the aftermath of UK's parliamentary election on 6 May 2010), there were 182 coalition military fatalities in Afghanistan (US 117, UK 32, Canada 8, other nations 25) versus 79 fatalities in PERIOD 11a (US 47, UK 19, Canada 2, other nations 11).

**b)** A surge of 30,000 US troops had been deployed to Afghanistan to facilitate Operation Moshtarak which began in 2010. In PERIOD 11b, US deployment of 90,000 by province is reckoned as **20,000** to Helmand, **NK2** to Kandahar and **NK3** elsewhere.

**c)** Military fatality rates in Afghanistan in PERIOD 11b were substantially up on the previous 10 weeks: US – **6.8** fatalities per 1,000 personnel-years in PERIOD 11b (95% CI: 5.5 to 8.0) versus **2.7** (95% CI: 1.9 to 3.5) in PERIOD 11a; UK - **17** fatalities per 1,000 personnel-years (95% CI: 11 to 25) versus **10** (95% CI: 6 to 15) in PERIOD 11a; Canada - **15** fatalities per 1,000 personnel-years in PERIOD 11b (95% CI: 6 to 29) versus **4** (95% CI: 1 to 13) in PERIOD 11a .

**d)** In the 40 weeks of PERIODS 9+10, there were **183** fatal IED-only incidents in Afghanistan, which caused 256 military deaths; **31** fatal IED-only incidents (causing 34 military deaths) in the 10 weeks of PERIOD 11a; but **70** fatal IED-only incidents (causing 95 military deaths) in the 10 weeks of PERIOD 11b. For the 20 weeks of PERIOD 11, the proportion of hostile deaths due to IEDs was **55%** (128/232; 95% CI: 49% to 62%), as also during the 40 weeks of PERIODS 9+10: **57%** (256/448; 95% CI: 53% to 62%).

**e)** UK fatality rates in Afghanistan have essentially doubled when comparing the initial two 80-week epochs (**PERIODS 1 to 8**) and the most recent 60-weeks (18 May 2009 to 11 July 2010) of 1 May 2006 to 11 July 2010:

PERIODS 1+2+3+4: 8.9 per 1,000 pys (95%CI: 7 to 11, based on 76 fatalities in 8,580 pys)  
PERIODS 5+6+7+8: 6.4 per 1,000 pys (95%CI: 5 to 8, based on 76 fatalities in 11,896 pys)  
⇔ **PERIODS 1 to 8: 7.4 per 1,000 pys (95%CI: 6 to 9, based on 152 fatalities in 20,476 pys)**

PERIODS 9+10+11: 14.1 per 1,000 pys (95%CI: 12 to 16, based on 155 fatalities in 10,962 pys)

**f)** In PERIOD 11b, US troops in Helmand outnumbered UK's military personnel in Afghanistan by 2:1, with 45 US military fatalities in Helmand to UK's 32. Although UK/US in Helmand military fatality rates were *not* significantly different in PERIOD 11b, the comparison – currently uncertain - will be more precise after PERIOD 12a:

US in Helmand: 12 per 1,000 pys (95% CI: 8 to 15, based on 45 fatalities in 3,846 pys)  
UK troops: 17 per 1,000 pys (95% CI: 11 to 23, based on 32 fatalities in 1,923 pys).

**g)** But for a forthcoming change in UK's area of operations in Afghanistan, UK might have expected 80-130 military fatalities in the upcoming 40 weeks from 13 July 2010 to 17 April 2011.

**h)** Suicide bombings (59 military deaths in 31 incidents) caused 59/1,554 (4%) of military fatalities in Afghanistan in PERIODS 1 to 11, at the low rate of 0.2 per 1,000 personnel-years for US/UK/Canadian troops (based on 46 fatalities in 223,086 US/UK/Canadian personnel-years).

## 1. Background

Since 1 May 2006 we have reported every 20 weeks on military fatalities in Afghanistan and Iraq by cause and nationality. Our analyses<sup>5,3</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. For example, in late July 2009, military fatalities in Afghanistan in the first half of PERIOD 9 were shown as 119, but now as 120. In this report also, an error in accounting for UK fatalities in PERIOD 7 has been corrected (down from 24 to 23; other nations up from 30 to 31).

Because the initial phase of Panther's Claw, a major counter-insurgency operation in the run-up to elections in Afghanistan, ended mid-way through PERIOD 9, unusually we reported a mid-point analysis: please see **Journal of the Royal United Services Institute 2009; 154: 30-38 & 40-45**<sup>35, 36</sup>.

With two mid-point exceptions – determined by UK's withdrawal from Basra City and, as above, the initial phase of Panther's Claw having ended - our analyses, until now, have related to 140-day PERIODS: see below.

As of PERIOD 11a (22 February to 2 May 2010), for three reasons, we initiated 10-weekly reporting. First, the mid-point of PERIOD 11 marked four years' reporting by us on military fatalities in Iraq and Afghanistan; secondly, PERIOD 11b follows the UK's parliamentary election which was held on 6 May 2010; thirdly, and most importantly, even in 10 weeks that overlapped the end of the Afghan winter, UK military fatalities in Afghanistan have averaged two per week so that, in 2010, UK can expect at least as many military fatalities in 10 weeks in Afghanistan as in 20 weeks in 2006. Throughout 2010/11, we therefore plan to make interim 10-weekly reports so that our intensity of monitoring keeps pace with the intensity of combat which UK forces encounter in Afghanistan.

PERIOD	From	To
1	01 May 2006	17 September 2006
2	18 September 2006	04 February 2007
3	05 February 2007	24 June 2007
4 (mid-point)	25 June 2007	<b>2 September 2007</b> 11 November 2007
5	12 November 2007	30 March 2008
6	31 March 2008	17 August 2008
7	18 August 2008	04 January 2009
8	05 January 2009	17 May 2009
9 (mid-point)	18 May 2009	<b>26 July 2009</b> 04 October 2009
10	05 October 2009	21 February 2010
11 (mid-point)	22 February 2010 (UK election: 6 May)	<b>2 May 2010</b> 11 July 2010
12 (mid-point)	<b>12 July 2010</b>	<b>19 September 2010</b> 28 November 2010
13 (mid-point)	<b>29 November 2010</b>	<b>6 February 2011</b> 17 April 2011

## **2. Methods briefly**

**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 pys.

**We analyse the lethality of IED (only) incidents.** As in Bird and Fairweather<sup>5</sup>, we exclude from this analysis multiply-ascribed deaths, such as IED and small arms fire or IED and rocket propelled grenade/grenades. 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; and similarly a suicide car bomb-IED attack in PERIOD 9 in Afghanistan. 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.

**We need to track changes in deployment.** In PERIOD 5, UK’s deployment to Iraq reduced below 5,000 troops<sup>6-12</sup> and to Afghanistan was to have increased to 7,700, but seems to have remained at around 7,000<sup>10</sup> until PERIOD 6<sup>13-15</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>16-19</sup> whereas US troops in Afghanistan have been reckoned at 31,000<sup>16</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, 20</sup> despite some reports that both UK and US troop numbers were around 10% lower in Afghanistan<sup>21-23</sup>; and as 139,000 and 39,000 in PERIOD 8 with the UK tallies maintained as in PERIOD 7<sup>24-34</sup>. In PERIOD 9, US and UK troop numbers have been taken as 57,000 and 9,000 respectively. By PERIOD 10, US troops were reckoned to be around 100,000 in Iraq and around 90,000 in Afghanistan after a further uplift of around 30,000 personnel was announced by President Obama (<http://www.cnn.com/2009/POLITICS/12/01/obama.afghanistan/index.html>; [http://news.google.co.uk/news?hl=en&q=spectre+of+endless+wars&um=1&ie=UTF-8&ei=QIqHS9CZJoz00gS0rZDGCw&sa=X&oi=news\\_group&ct=title&resnum=1&ved=0CAsQsQQwAA](http://news.google.co.uk/news?hl=en&q=spectre+of+endless+wars&um=1&ie=UTF-8&ei=QIqHS9CZJoz00gS0rZDGCw&sa=X&oi=news_group&ct=title&resnum=1&ved=0CAsQsQQwAA)) following a review of military strategy in Afghanistan which was led by General Petraeus (<http://news.bbc.co.uk/1/hi/8527266.stm>; [http://news.bbc.co.uk/1/hi/world/south\\_asia/8389351.stm](http://news.bbc.co.uk/1/hi/world/south_asia/8389351.stm)). Meanwhile, UK and Canadian troops had increased to 9,500 (which does not include mooted 500 “special forces”, see Straight Statistics (<http://www.straightstatistics.org/article/helicopter-numbers-do-we-have-lift>) and 2,800 respectively in Afghanistan (see CBC News, 24 February 2010: “Brace yourself, Canada, our big fight is just ahead”).

In PERIOD 11a, there was some debate about the totality of UK’s deployment to Afghanistan which we show as 10,000 troops for both PERIODS 11a and 11b(although BBC’s Today programme on 14 May 2010 cited 10,500).

### 3. Results

#### 3.1 Fatalities in Afghanistan in PERIODS 1 to 11b

**TABLE 1** summarises coalition military fatalities by nationality in Afghanistan where US personnel accounted for **49%** of all military fatalities in PERIODS 1+2+3+4 (180/367; 95% CI: 44% to 54%), for **52%** in PERIODS 5+6+7+8 (220/420; 95% CI: 48% to 57%), for **63%** in PERIODS 9+10 (**320/506**; 95% CI: 59% to 67%) and also in PERIOD 11 (**164/261**; 95% CI: 57% to 69%).

*Non-hostile causes:* **TABLE 1** also shows that, in PERIOD 11, non-hostile causes accounted for only 29/261 (11%) military fatalities in Afghanistan, as in PERIODS 9+10 and 5+6+7+8 (see below). Eight of these 29 deaths occurred in helicopter/aircraft crashes.

In PERIODS 9+10, non-hostile causes accounted only 58/506 military fatalities in Afghanistan (11%; 95% CI: 8% to 14%): 11 (7 + 4) of these 58 deaths occurred in two separate helicopter crashes in PERIOD 10 and six (2+3+1) in three helicopter/airplane crashes in PERIOD 9.

Likewise, in PERIODS 5+6+7+8, non-hostile causes accounted for 49/420 military fatalities in Afghanistan (12%; 95% CI: 8% to 15%) but for 88/367 fatalities in preceding 80 weeks of PERIODS 1+2+3+4 (24%; 95% CI: 20% to 28%).

*Suicide bombings:* In the 160+60 weeks since 1 May 2006, 31 suicide bombings have caused 59 military fatalities (out of 787 deaths in 160 weeks + 767 deaths in 60 weeks = 1,554: 4%). The mean has been **1.9 military fatalities per suicide bombing** in Afghanistan (14 single fatalities, 12 pairs, two triple fatalities, and single incidents of 4, 5, and 6 deaths).

Of these 59 military deaths in suicide bombings, there were eight fatalities in PERIOD 11b (2+6), one death in PERIOD 11a, six fatalities (4 + 2) in PERIOD 10 and seven (1+2+1+3) in PERIOD 9. There were thus 22 military fatalities in nine suicide bombing incidents in the 60 weeks of PERIODS 9+10+11, of whom 21 were US/UK/Canadian personnel (in 105,233 pys) – a clearly low US/UK/Canadian military fatality rate by suicide bomb of **20 per 100,000 pys**. Of the earlier 37 military fatalities in 22 suicide bombing incidents in the 160 weeks of PERIODS 1 to 8, 25 were US/UK/Canadian in 117,853 pys, an unchanged low rate of **21 per 100,000 pys**.

*Senior ranks:* In the 160+60 weeks since 1 May 2006, there have been 15 military fatalities at the senior rank of Lieutenant Colonel or Colonel: nine in PERIODS 1 to 8 (8US + Italy) and six in PERIODS 9+10+11 (4US + UK + Canadian). Nineteen majors also died: 13 in PERIODS 1 to 8 (9US + UK + 2Canada + Denmark) and six in PERIODS 9+10+11 (3US + UK + Canada + Germany).

The reason that we draw attention *now* to these fatalities is *data-inspired*: on 18 May 2010, a suicide car bombing in Kabul claimed six coalition military lives, four of them ranked Lieutenant Colonel/Colonel. This tragic incident, little reported in UK, claimed

the lives of a US colonel and a Canadian colonel and two US Lieutenant Colonels as well as US Specialist and US Staff Sergeant. **Prior to this major incident in Kabul**, suicide bombings had caused the death of only one other person ranked Major/Lieutenant Colonel/Colonel – a US Lieutenant Colonel who died on 26 May 2009 (in PERIOD 9): that is one out of 30 **prior** fatalities ranked Major/Lieutenant Colonel/Colonel (3%) was by suicide bombing, no different from the all-ranks rate.

*By nationality:* Military fatality rates in Afghanistan have been notably different by nationality, as indicated by non-overlapping 95% confidence intervals below, and consistently so in both the earlier and later 80-week-summary. In the most recent 60-weeks of PERIODS 9+10+11, UK and Canadian fatality rates are not differentiated. Both are very significantly higher than for US troops, for whom the overall fatality rate in PERIODS 9+10+11, although up by nearly a fifth on PERIODS 1 to 8, has remained just below the ‘major combat’, which we define analytically as 6 fatalities per 1,000 pys.

#### **Summary for PERIODS 1+2+3+4:**

Canadians: 15.7 per 1,000 pys (95%CI: 12 to 20, based on 56 fatalities in 3,564 pys)  
UK forces: 8.9 per 1,000 pys (95%CI: 7 to 11, based on 76 fatalities in 8,580 pys)  
US forces: 4.9 per 1,000 pys (95%CI: 4.2 to 5.6, based on 180 fatalities in 36,577 pys).

#### **Summary for PERIODS 5+6+7+8:**

Canadians: 12.2 per 1,000 pys (95% CI: 9 to 16, based on 47 fatalities in 3,848 pys)  
UK forces: 6.4 per 1,000 pys (95% CI: 5 to 8, based on 76 fatalities in 11,896 pys)  
US forces: 4.1 per 1,000 pys (95% CI: 3.6 to 4.7, based on 220 fatalities in 53,388 pys).

#### **Summary for PERIODS 1 to 8 (160 weeks):**

Canadians: **13.9** per 1,000 pys (95% CI: 11 to 17, based on 103 fatalities in 7,412 pys)  
UK forces: **7.4** per 1,000 pys (95% CI: 6 to 9, based on 152 fatalities in 20,476 pys)  
US forces: **4.4** per 1,000 pys (95% CI: 4.0 to 4.9, based on 400 fatalities in 89,965 pys)

#### **Summary for PERIODS 9+10+11 (60 weeks):**

Canadians: **10.3** per 1,000 pys (95% CI: 7 to 15, based on 32 fatalities in 3,116 pys)  
UK forces: **14.1** per 1,000 pys (95% CI: 12 to 16, based on 155 fatalities in 10,962 pys)  
US forces: **5.3** per 1,000 pys (95% CI: 4.8 to 5.8, based on 484 fatalities in 91,154 pys)

**TABLE 1** shows that the US military fatality rate per 1,000 pys decreased dramatically from **8.4** (95% CI: 7.2 to 9.6) in pre-surge PERIOD 9 (*ie major combat*) through **3.9** (95% CI: 3.3 to 4.6) in PERIOD 10 to **2.7** (95% CI: 1.9 to 3.5) in PERIOD 11a, but rose in PERIOD 11b to **6.8** (95% CI: 5.5 to 8.0) which was again *major combat*. The UK’s military fatality rate, albeit decreased by a third in PERIODS 10+11a, remained consistent with *major combat* throughout PERIODS 9+10+11: down from **17.3** (95% CI: 13 to 22) in PERIOD 9 to **11.3** (95% CI: 8 to 14) in PERIODS 10+11a but again **16.6** (95% CI: 11 to 25) in PERIOD 11b. The *Canadian* fatality rate of **13.5** (95% CI: 7 to 23) in PERIOD 9 halved to **6.8** (95% CI: 3 to 12) in PERIODS 10+11a but rose to **14.8** (95% CI: 6 to 29) in PERIOD 11b.

The combined US/UK/Canadian military fatality rate, which was **3.4** per 1,000 personnel-years (95% CI: 2.6 to 4.3, based on **68** fatalities in 19,769 pys) in PERIOD 11a more than doubled to **7.9** (95% CI: 6.7 to 9.2, based on **157** fatalities in 19,769 pys) in PERIOD 11b.

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

**TABLE 2** shows military fatalities in IED (only) incidents, hereafter IED incidents, in Afghanistan. For Iraq, see **APPENDIX**.

*Afghanistan:* In Afghanistan, the number of fatal IED incidents roughly doubled from 12 in PERIOD 3 to 27 in PERIOD 4 ( $p < 0.02$ ), with thereafter  $29+39+42+34 = 144$  fatal IED incidents in PERIODS 5+6+7+8. Lethality per fatal IED incident in PERIODS 5+6+7+8 was 216 fatalities in 144 fatal IED incidents in Afghanistan, a mean of 1.5 deaths per fatal IED (only) incident {sd = 0.83}, and consistent with Iraq.

In PERIODS 9+10, fatal IED incidents more than doubled per PERIOD to  $94+89 = 183$  fatal IED incidents. These 183 fatal IED incidents in PERIODS 9+10 cost the lives of  $136+120 = 256$  military personnel, a mean of 1.4 deaths per fatal IED (only) incident {sd = 0.91}, and so conferring a lethality which was not significantly lower than in PERIODS 5+6+7+8 {because se for the difference in means is 0.1}.

There were fewer fatal IED incidents (31) in the 70 days of PERIOD 11a than would have been expected (45.8) had the rate of 0.65 fatal IED incidents per day persisted from PERIODS 9+10 into PERIOD 11a but the 10 weeks of PERIOD 11b saw a reversion to 70 fatal IED (only) incidents, so that the overall rate for PERIOD 11 of 101 fatal IED in 140 days (0.72 fatal IED incidents per day) was consistent with PERIODS 9+10.

The proportion of hostile deaths due to IEDs rose significantly from **52%** (136/260; 95% CI: 46% to 58%) in PERIOD 9 to **64%** (120/188; 95% CI: 57% to 71%) in PERIOD 10, and was **56%** in PERIOD 11 (129/232; 95% CI: 49% to 62%). Across the 60 weeks of PERIODS 9+10+11, the proportion of hostile deaths due to fatal IEDs (only) incidents was thus **57%** (385/680; 95% CI: 53% to 60%).

#### **4. Discussion**

*Helicopters.* In early 2009, air support for Canadian forces was increased to 14 helicopters for 2,500 personnel (six Chinook-style and eight other helicopters: **5.6 helicopters per 1,000 personnel**) to meet a stipulation for Canadian troops' continued presence in Afghanistan (see <http://www.forces.gc.ca/site/news-nouvelles/view-news-afficher-nouvelles-eng.asp?id=2816>). Canada's deployment increased to 2,800 by PERIOD 10.

UK's current provision for some 10,000 troops in Afghanistan may be around 35 helicopters (which includes 11.5 Chinook-equivalents), not yet the 50 that may be required for international comparability: see Straight Statistics (<http://www.straightstatistics.org/article/helicopter-numbers-do-we-have-lift>).

*Operations.* A major counter-insurgency operation began in Afghanistan in June 2009 which ended its initial phase midway through PERIOD 9. Thereafter, Operation Moshtarak began in the second half of PERIOD 10 once US reinforcements of some 30,000 troops had been deployed. By the start of PERIOD 11b, 20,000 US troops had deployed to Helmand province.

Fatality rates in Afghanistan had doubled in PERIOD 9 relative to PERIOD 8 but between PERIODS 9 and 11a reduced progressively by a factor of two-thirds for US military personnel; and nearly halved for UK/Canadian forces. However, post-planting, major hostilities by the Taliban resumed in PERIOD 11b during which the UK/Canadian fatality rate was **16** per 1,000 pys (95% CI: 11 to 22) - as high as in PERIOD 9 - and the US rate **6.8** (95% CI: 5.5 to 8.0), which also represented major combat.

Political, reconstructive and geographical differences between Iraq and Afghanistan make the military challenges for the Petraeus-surge distinctive. In both countries, surge was quickly instigated in the PERIOD after US military's fatality rate first clearly exceeded *major combat*, namely 6 deaths per 1,000 personnel-years - which it did in PERIOD 2 in Iraq, and in PERIOD 9 in Afghanistan.

In Afghanistan, quite substantial winter-related decreases have been evident pre-surge, see PERIODS 2 and 5, so that the observed decreases in fatality rates in PERIODS 10+11a could not be attributed merely to the surge. In particular, PERIOD 11a ended in early May before the anticipated renewal of major hostilities, which has been only too evident in PERIOD 11b.

Winter may also have contributed in part to the stay in IED escalation, but other explanations include a greater availability and use of air transport, better armoured road transport, better disruption of the enemy's supply routes or more IED-detections (not routinely reported). As winter ended, so too did the let-up in fatal IED incidents which have run at one per day in PERIOD 11b and claimed the lives of 95 military personnel.

*Deployment.* We have considered whether the Canadians' historically highest of US/UK/Canada fatality-rates in Afghanistan has been effectively counteracted - by

Canada's decision to increase air support and by altered US/Canadian responsibilities in Kandahar. The provisional answer in PERIOD 10 was: yes. The evidence continued in the same vein in PERIOD 11a, but will become more definitive over the next 20 weeks.

Our summary for PERIODS 1 to 8 versus the 60 weeks of PERIODS 9+10+11 shows that, whereas the Canadians had nearly twice the fatality rate of UK military personnel in PERIODS 1 to 8 (**13.9** versus **7.4**), their rates were comparably high in PERIODS 9+10+11 at **13** per 1,000 pys (95% CI: 11 to 15). The reason for this is primarily that the fatality rate of UK troops has nearly doubled in PERIODS 9+10+11 to **14** per 1,000 pys (95% CI: 12 to 16) from **7.4** in PERIODS 1 to 8 (95% CI: 6 to 9). Thus, in 60 weeks and 10,962 UK-pys, there have been 155 UK military fatalities, as many as in the preceded 160 weeks (152) and 20,476 UK-pys.

Insight to differential deployment to provinces within Afghanistan of now substantially more US personnel, is gleaned by comparing the provincial locations of 484 US military fatalities in PERIODS 9+10+11 (see below).

Expectations shown in brackets *in italics* assume a common-provincial-distribution of US military fatalities across PERIODS 9+10, an hypothesis which the data do not conform to (comparison of observed versus expected fatalities by location gives  $\chi^2$  on 2 degrees of freedom of 24.7,  $p < 0.001$ ). There is thus circumstantial evidence that US operational changes occurred during PERIODS 9+10. These impacted on the Canadians' deployment in Kandahar and, in addition to better air support, may have contributed to the altered fortunes of the Canadians.

By contrast, the observed deaths of US personnel are consistent with a common-provincial-distribution of US military fatalities across PERIODS 11a+11b (see expectations in ***bold italics***).

Location of US military fatalities	Helmand	Kandahar	Elsewhere in Afghanistan/NA	US TOTALS
PERIOD 9	39 {47.2}	18 {30.5}	127 {106.4}	<b>184</b>
PERIOD 10	43 {34.8}	35 {22.5}	58 {78.6}	<b>136</b>
PERIOD 11a	16 {17.5}	7 {5.7}	24 {23.8}	<b>47</b>
PERIOD 11b	45 {43.5}	13 {14.3}	59 {59.2}	<b>117</b>
<b>Total</b>	<b>143</b>	<b>73</b>	<b>268</b>	<b>484</b>

In PERIOD 11b, there were some 20,000 US troops in Helmand who outnumbered UK military personnel in Afghanistan by 2:1, and there were 45 US fatalities in Helmand versus 32 UK deaths. Thus, US troops' fatality rate in Helmand province of **12** per 1,000 pys (95% CI: 8 to 15, based on 45 deaths in 3,846 pys) was not significantly different from UK's PERIOD 11b fatality rate in Afghanistan of **17** (95% CI: 11 to 23, based on 32 fatalities in 1,923 pys). Both estimates are currently qualified by quite wide CIs.



In PERIOD 11b, an extreme suicide bombing incident in Kabul claimed six military lives (none of them from UK), four of them of senior rank (Lieutenant colonel/Colonel). In the main, suicide bombing incidents are rarely directed at military personnel and have cost only **0.2 lives per 1,000 pys**. Also, prior to the above extreme incident, senior ranks were no more likely than other ranks to die in suicide bombing incidents in Afghanistan (which accounted for 59/1,554 (4%) coalition military fatalities in PERIODS 1 to 11).

The intended change-over of responsibilities in Helmand between US and UK troops will be complete by the end of 2010. Whether it will come into effect during PERIOD 12a is less clear. But for the intended change-over, UK might have expected 80 -130 military fatalities in Afghanistan in the 40 week period to 17 April 2011 (based on rates of **10 or 14** per 1,000 pys).

**Notes of caution.** If we have over-estimated US's deployment to Afghanistan in PERIODS 10+11a, shown as 90,000 personnel, then US fatality rates may be slightly under-estimated thereby; and UK's fatality rate slightly over-estimated if UK deployment were as high as 10,500.

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**TABLE 1a** (Afghanistan): Coalition military deaths in Afghanistan and estimated fatality rates per 1,000 personnel-years in consecutive 140-day periods

Theatre	Afghanistan							
Period	1	2	3	4	5	6	7	8
Dates	1 May 2006 to 17 Sept 2006	18 Sept 2006 to 4 Feb 2007	5 Feb 2007 to 24 June 2007	25 June 2007 to 11 Nov 2007	12 Nov 2007 to 30 Mar 2008	31 Mar 2008 to 17 Aug 2008	18 Aug 2008 to 4 Jan 2009	5 Jan 2009 to 17 May 2009
Total fatalities (non-hostile)	117 ( 41)	40 ( 4)	96 ( 27)	114 ( 16)	59 ( 10)	136 ( 20)	123 ( 6)	102 ( 13)
US deaths* (troops) personnel-years	54 (23,300) <b>8,962</b>	18 (22,000) <b>8,462</b>	50 (24,800) <b>9,538</b>	58 (25,000) <b>9,615</b>	25 (31,000) <b>11,923</b>	88 (35,000) <b>13,425</b>	53 (35,000 or 31,000 <sup>21</sup> ) <b>13,425</b>	54 (39,000) <b>14,615</b>
UK deaths (troops) personnel-years	33*** (4,500) <b>1,726</b>	6 (up to 5,250) <b>2,014</b>	15 (5,250 to 6K to 6,900) <b>2,186</b>	22 (6,900) <b>2,654</b>	8 (7,000) <b>2,692</b>	24 (8,000) <b>3,068</b>	23 (8K or 7,300) <b>3,068</b>	21 (8,000) <b>3,068</b>
Canadian deaths (troops) personnel-years	17 (2,250) <b>865</b>	12 (2,250) <b>865</b>	16 (2,500) <b>962</b>	11 (2,500) <b>962</b>	10 (2,500) <b>962</b>	9 (2,500) <b>962</b>	16 (2,500) <b>962</b>	12 (2,500) <b>962</b>
Other deaths	13	4	15	2	16	15	31**	15
<b>Estimated fatality rates per 1,000 personnel-years (95% Poisson uncertainty)</b>								
US	6 (4.6 to 7.9)	2 (1.3 to 3.4)	5 (3.8 to 6.7)	6 (4.5 to 7.6)	2.1 (1.3 to 2.9)	6.6 (5.2 to 7.9)	4.0 <sup>@</sup> (2.9 to 5)	3.7 (2.7 to 4.7)
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)	7 <sup>@</sup> (5 to 11)	7 (4 to 10)
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)	12 (6 to 22)
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)	9.7 (7 to 13)	8.2 (5.6 to 11)
<b>US/UK/Canada</b>	<b>9.0</b> (7 to 11)	<b>3.2</b> (2 to 4)	<b>6.4</b> (5 to 8)	<b>6.9</b> (5.5 to 8.3)	<b>2.8</b> (1.9 to 3.6)	<b>6.9</b> (5.7 to 8.2)	<b>5.3</b> (4.2-6.3)	<b>4.7</b> (3.7 to 5.6)

\* For PERIODS 1- 4, US deployments were ascertained retrospectively from Department of Defense Active Duty Military Personnel Strengths (309A): with acknowledgement to Olivier Grouille, RUSI.

\*\* includes large cluster of 10 French fatalities in hostile fire

\*\*\* large cluster of 14 Nimrod deaths

@ US fatality rate in Afghanistan in PERIOD 7 would be 4.4 (3.2 to 5.6) and UK rate would be 8 (5 to 12) 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 1b** (Afghanistan): Coalition military deaths in Afghanistan and estimated fatality rates per 1,000 personnel-years in consecutive 70-day (a) or 140-day periods

Theatre	Afghanistan							
Period	9 <b>UPLIFT</b>	10 <b>SURGE</b>	11a <b>SURGE</b>	11b <b>SURGE</b>				
Dates	18 May 2009 to 4 Oct 2009	5 Oct 2009 to 21 Feb 2010	22 Feb 2010 to 2 May 2010	3 May 2010 to 11 July 2010				
Total fatalities (non-hostile)	293 ( 33)	213 ( 25 <sup>11H</sup> )	79 ( 9 <sup>4H/A</sup> )	182 (20 <sup>4H</sup> )				
US deaths* (troops) <b>personnel- years</b>	<b>184</b> (57,000) <b>21,923</b>	<b>136</b> (90,000) <b>34,615</b>	<b>47</b> (90,000) <b>17,308</b>	<b>117</b> (90,000) <b>17,307</b>				
UK deaths (troops)  <b>personnel- years</b>	60 ( 9,000) <b>3,462</b>	44 ( 9,500) <b>3,654</b>	19 ( 10,000) <b>1,923</b>	32 ( 10,000) <b>1,923</b>				
Canadian deaths (troops) <b>personnel- years</b>	13 ( 2,500) <b>962</b>	9 ( 2,800) <b>1,077</b>	2 ( 2,800) <b>538</b>	8 ( 2,800) <b>539</b>				
Other deaths	36	24	11	25				
<i>Estimated fatality rates per 1,000 personnel-years (95% Poisson uncertainty)</i>								
US	<b>8.4</b> (7.2 to 9.6)	<b>3.9</b> (3.3 to 4.6)	<b>2.7</b> (1.9 to 3.5)	<b>6.8</b> (5.5 to 8.0)				
UK	17.3 (13 to 22)	12.0 ( 8 to 16)	9.9 ( 6 to 15)	16.6 (11 to 25)				
Canada	13.5 ( 7 to 23)	8.4 ( 4 to 16)	3.7 (0.5 to 13)	14.8 ( 6 to 29)				
UK/Canada	16.5 (13 to 20)	11.2 ( 8 to 14)	8.5 ( 5 to 13)	16.2 (11 to 22)				
<b>US/UK/ Canada</b>	<b>9.8</b> (8.5-10.9)	<b>4.8</b> (4.1 to 5.5)	<b>3.4</b> (2.6 to 4.3)	<b>7.9</b> (6.7 to 9.2)				

*11H* Total of 25 non-hostile deaths in PERIOD 10 includes 11 US fatalities (7+4) in two helicopter crashes.

*4H /A* PERIOD 11a includes 4 US fatalities (3+1) in helicopter + aircraft crashes.

*4H* PERIOD 11b includes 3 Australian + 1US fatalities (3+1) in 2 helicopter crashes.

**TABLE 2a** (Afghanistan): IED (only) fatalities in Afghanistan

Theatre	<b>Afghanistan</b>								
Period	Baseline (A)	3	4	5	6	7	8	9	10
Dates	<b>1 Oct 2001 to 4 Feb 2007</b>	5 Feb 2007 to 24 June 2007	25 June 2007 to 11 Nov 2007	12 Nov 2007 to 30 Mar 2008	31 Mar 2008 to 17 Aug 2008	18 Aug 2008 to 4 Jan 2009	5 Jan 2009 to 17 May 2009	18 May 2009 to 4 Oct 2009	5 Oct 2009 to 21 Feb 2010
Duration	<b>1,953 days</b>	140 days	140 days	140 days	140 days	140 days	140 days	140 days	140 days
Deaths in fatal IED incidents	<b>76 in 46 fatal IEDs</b>	22 in 12 fatal IEDs	44 in 27 fatal IEDs	37 in 29 fatal IEDs	62 in 39 fatal IEDs	62 in 42 fatal IEDs	55 in 34 fatal IEDs	136 in 94 fatal IEDs	120 in 89 fatal IEDs
<b>Number of fatalities in a fatal IED incident</b>									
<i>Fatalities, x, in IED incident</i>	<i>By period: frequency of fatal IED incidents with x fatalities</i>								
<i>1</i>	<b>28</b>	8	19	22	25	29	20	71	70
<i>2</i>	<b>11</b>	1	3	6	8	7	9	11	13
<i>3</i>	<b>2</b>	2	3	1	3	5	3	7	3
<i>4</i>	<b>5</b>	0	1		3	1	2	4	2
<i>5</i>	<b>0</b>	0	0					0	
<i>6+</i>	<b>0</b>	1	1					1	1*
TOTAL fatal IED incidents	<b>46</b>	12	27	29	39	42	34	94	89
Fatal IED incidents per day	<b>0.02</b>	<b>0.1</b>	<b>0.2</b>	<b>0.2</b>	<b>0.3</b>	<b>0.3</b>	<b>0.2</b>	<b>0.7</b>	<b>0.6</b>
Mean deaths per fatal IED incident	<b>1.7</b>	<b>1.8</b>	<b>1.6</b>	<b>1.3</b>	<b>1.6</b>	<b>1.5</b>	<b>1.6</b>	<b>1.45</b>	<b>1.35</b>

\* Seven fatalities in apparently a single IED incident – the highest per-incident toll in Afghanistan to date.

**TABLE 2b** (Afghanistan): IED (only) fatalities in Afghanistan

Theatre	Afghanistan							
Period	<b>9+10</b>	11a	<b>11b</b>					
Dates	<b>18 May 2009 to 21 Feb 2010</b>	22 Feb 2010 to 2 May 2010	<b>3 May 2010 to 11 July 2010</b>					
Duration	<b>280 days</b>	70 days	<b>70 days</b>					
Deaths in fatal IED incidents	<b>256 in 183 fatal IEDs</b>	34 in 31 fatal IEDs	<b>95 in 70 fatal IEDs</b>					
<b>Number of fatalities in a fatal IED incident</b>								
<i>Fatalities, x, in IED incident</i>	<i>By period: frequency of fatal IED incidents with x fatalities</i>							
1	<b>141</b>	28	<b>51</b>					
2	<b>24</b>	3	<b>16</b>					
3	<b>10</b>	0	<b>1</b>					
4	<b>6</b>	0	<b>1</b>					
5	<b>0</b>	0	<b>1</b>					
6+	<b>2*</b>	0	<b>0</b>					
TOTAL fatal IED incidents	<b>183</b>	31	<b>70</b>					
Fatal IED incidents per day	<b>0.65</b>	<b>0.4</b>	<b>1.0</b>					
Mean deaths per fatal IED incident	<b>1.4</b>	<b>1.1</b>	<b>1.4</b>					

Consistent with our methodology<sup>5</sup>, excluded from the above analysis of PERIOD 9 are 11 multiply-ascribed IED-related deaths in four IED + small arms fire incidents (2, 1, 2, 1 fatalities) and in three IED + rocket propelled grenade incidents (1, 1, 3 fatalities). In PERIOD 11b, there were two IED+RPG incidents (1, 1).

## APPENDIX for REFERENCE re IRAQ

*Iraq:* For detail on military fatalities in Iraq in PERIODS 1 to 8, please see **Journal of the Royal United Services Institute 2009; 154: 30-38 & 40-45**<sup>35, 36</sup>. By PERIOD 9, UK's deployment to Iraq had effectively ceased. All 52 military fatalities in PERIOD 9 in Iraq were US personnel: 21 deaths were non-hostile, 21 occurred in fatal IED (only) incidents, and 10 were from other hostile causes. In PERIOD 10, all 30 military fatalities in Iraq were US personnel: 24 deaths were non-hostile, one occurred in an IED (only) incident, two from small arms fire, and one from IED and small arms fire, a US military fatality rate of **0.8** per 1,000 personnel-years (95% CI: 0.5 to 1.1). **In PERIOD 11, all 34 military fatalities in Iraq were US personnel: 22 were non-hostile, two deaths were from hostile fire, six in four fatal IED incidents, one in RPG, one small arms fire, one indirect fire and one in mortar attack.**

**TABLE 2** (Iraq): IED (only) fatalities in Iraq.

Theatre	Iraq								
Period	Baseline (I)	2	3	4 SURGE	5 SURGE	6 SURGE	7 SURGE	8 SURGE	9 SURGE
Dates	<b>1 Jan 2001 to 17 Sept 2006</b>	18 Sept 2006 to 4 Feb 2007	5 Feb 2007 to 24 June 2007	25 June 2007 to 11 Nov 2007	12 Nov 2007 to 30 Mar 2008	31 Mar 2008 to 17 Aug 2008	18 Aug 2008 to 4 Jan 2009	5 Jan 2009 to 17 May 2009	18 May 2009 to 4 Oct 2009
Duration	<b>260 days</b>	140 days	140 days	140 days	140 days	140 days	140 days	140 days	140 days
Deaths in fatal IED incidents	<b>271 in 183 fatal IEDs</b>	217 in 135 fatal IEDs	280 in 155 fatal IEDs	136 in 86 fatal IEDs	78 in 48 fatal IEDs	62 in 49 fatal IEDs	11 in 10 fatal IEDs	15 in 12 fatal IEDs	21 in 12 fatal IEDs
<b>Number of fatalities in a fatal IED incident</b>									
<i>Fatalities, x, in IED incident</i>	<i>By period: frequency of fatal IED incidents with x fatalities</i>								
1	<b>128</b>	88	97	57	35	39	9	11	7
2	<b>33</b>	23	22	13	4	8	1	0	2
3	<b>14</b>	14	20	12	4	1		0	2
4	<b>5</b>	9	10	3	3	1		1	1
5	<b>3</b>	1	1	1	1				
6+			5		1				
TOTAL fatal IED incidents	<b>183</b>	135	155	86	48	49	10	12	12
Fatal IED incidents per day	<b>0.7</b>	<b>1.0</b>	<b>1.1</b>	<b>0.6</b>	<b>0.34</b>	<b>0.35</b>	<b>0.07</b>	<b>0.09</b>	<b>0.08</b>
Mean deaths per fatal IED incident	<b>1.5</b>	<b>1.6</b>	<b>1.8</b>	<b>1.6</b>	<b>1.6</b>	<b>1.3</b>	<b>1.1</b>	<b>1.3</b>	<b>1.7</b>

There was a single IED (only) fatality in PERIOD 10 in Iraq. **Six IED (only) fatalities occurred in four IED attacks (2+1+1+2) in PERIOD 11 in Iraq.**