Post-surge, pre-withdrawal: recent military fatalities in Afghanistan and Iraq by cause, notably improvised explosive device (IED) and friendly fire, and nationality (issue date: 30 November 2007)

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Summary

Afghanistan & Iraq: a) In PERIOD 3 (5 February to 24 June 2007, 140 days) and first half of PERIOD 4 (25 June to 2 September 2007), the fatality rate of UK troops was equally high in Afghanistan {28 fatalities in 3,513 personnel-years} & Iraq {38 fatalities in 3,644 pys}, namely: 9 deaths per 1,000 personnel-years (95% CI: 7.0 – 11.4).

***Afghanistan*:** b) In PERIODS 1+2+3+4 (1 May 2006 to 11 November 2007, 560 days), Canadian losses have been 56 deaths in 3,654 personnel-years, or 15 per 1,000 personnel-years (95% CI: 11 to 19), and so around 70% higher than the UK's fatality rate of 9 per 1,000 personnel-years (95% CI: 7 to 11) based on 76 fatalities in 8,585 personnel-years.

***Afghanistan's fatal IED (only) incidents*:** c) Significantly, fatal IED (only) incidents doubled in frequency in PERIOD 4 when 27 incidents caused 44 fatalities compared to 12 (causing 22 fatalities) in PERIOD 3.

Iraq's fatal IED (only) incidents: d) By contrast, fatal IED (only) incidents nearly halved in frequency in PERIOD 4 when there were 86 (causing 136 deaths) compared to 155 (causing 280 deaths) in PERIOD 3.

Iraq: e) In PERIOD 3, UK military fatalities had doubled to 23 versus 12.3 deaths expected if hostilities would have continued as in PERIODS 1+2 ($p < 0.005$). Sharp rise in US's military fatality rate from 5 to 7 deaths per 1,000 personnel-years was already evident in PERIOD 2.

Iraq: f) Relative to PERIOD 3, UK military fatality rate *rose again* in the first half of PERIOD 4 ($p \sim 0.07$) to 14 per 1,000 personnel-years (95% CI: 8 to 23, based on 15 deaths in 1,058 pys); but, following the withdrawal of UK troops from Basra City, it fell dramatically in the second half of PERIOD 4 to 3 per 1,000 personnel-years (95% CI: 1 to 9, based on 3 non-hostile deaths in 962 pys).

Iraq: g) By contrast, the US's post-surge fatality rate *decreased very significantly* in the first half of PERIOD 4 to 5.7 per 1,000 personnel-years (95% CI: 4.9 to 6.5, based on 177 deaths in 31,154 pys). There was a *further, highly significant decrease* in the second half of PERIOD 4 to 3.7 per 1,000 personnel-years (95% CI: 3.0 to 4.4, based on 116 deaths in equivalent pys). US's military fatality rate in the second half of PERIOD 4 had thus fallen significantly below the level of a year previously in PERIOD 1 (1 May to 17 September 2006), when it was 5.0 per 1,000 personnel-years (95% CI: 4.4 to 5.6).

Iraq's frequency and lethality of fatal IED (only) incidents: h) In PERIOD 3, fatalities per fatal IED (only) incident had increased to 280 deaths in 155 fatal IED (only) incidents versus expected 249 IED (only) fatalities based on IED incidents' lethality in PERIOD 2 (18 September 2006 to 4 February 2007: 217 fatalities in 135 fatal IED (only) incidents). But, in PERIOD 4, the frequency of fatal IED (only) incidents (86 fatal incidents in 140 days) reverted to the BASELINE level of a year previously (183 fatal incidents in 260 days from 1 January to 17 September 2006); and their lethality likewise.

Iraq's weekday pattern of fatal IED (only) incidents: i) Fatal IED (only) incidents had a different weekday pattern ($p \sim 0.02$) in PERIOD 4 than in PERIODS 2+3 (when frequency or lethality had escalated). In PERIODS 2+3, fatal IED (only) incidents had been heterogeneous by weekday ($p \sim 0.05$) with disproportionately many on Saturdays and fewer on Tuesdays.

Friendly fire: j) In PERIODS 1+2+3+4, friendly fire claimed one Canadian (4 September 2006) and at least four British lives (23 August 2007; 20 August 2006) in Afghanistan, and two US lives in Iraq (2 February 2007): all seven in major combat.

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1. Background and rationale

Our analyses[1,2] rely on icasualties.org, to which we make acknowledgement. Date and cause of fatalities on icasualties.org are subject to change (see below) as well as to updating.

Bird and Fairweather[1] showed that the vast majority of coalition fatalities in Operation Iraqi Freedom in 2006 to 17 September 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%). Bird and Fairweather also reported on IED lethality: 271 deaths in 183 fatal IED (only) incidents in Iraq in 2006 to 17 September (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.

This update incorporates post-surge fatalities in PERIOD 3 (5 February 2007 to 24 June 2007: **490 deaths in Iraq, 96 in Afghanistan**), and also in the first half of PERIOD 4 (25 June 2007 to 2 September 2007: **193 deaths in Iraq, 64 in Afghanistan**) separately from the second half of PERIOD 4 (3 September 2007 to 11 November 2007: **123 deaths in Iraq, 50 in Afghanistan**). UK troops were withdrawn from Basra on 3 September 2007 which is why, unusually, we report on successive 70-day intervals within PERIOD 4.

Notice also that UK troop numbers in Iraq are shown as having decreased to 5,000 in the second half of PERIOD 4. We note the poignancy of our PERIOD 4 terminating on Armistice Day, 11 November 2007. PERIOD 5 is 12 November 2007 to 30 March 2008.

2. Methods briefly

Our analysis relates primarily to 140-day periods, namely PERIOD 1= 1 May to 17 September 2006, PERIOD 2= 18 September to 4 February 2007, PERIOD 3= 5 February to 24 June 2007 {based on accessing icasualties.org on 16, 17, 27 June and 2 July 2007}, and to consecutive 70-days within PERIOD 4= 25 June to 2 September 2007, and 3 September to 11 November 2007 {from icasualties.org on 9 and 14 November 2007}.

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. So too do 1,000 personnel in theatre for one year.

We analyse the lethality of IED (only) incidents. As in Bird and Fairweather[1], we exclude from this analysis multiply-ascribed deaths, such as IED and small arms fire (16 and ***17***

in PERIOD 3 and PERIOD 4 respectively) or IED and rocket propelled grenade/grenades (two and ***two*** respectively).

The next update will relate to the 140-day PERIOD 5 (12 November 2007 to 30 March 2008), when UK's deployment to Iraq should reduce below 5,000 troops[3 4] and to Afghanistan may have increased to 7,700[5 6], or beyond. Whether withdrawal of some 20,000 US combat troops from Iraq will occur during PERIOD 5 is unclear at present.

3. RESULTS

3.1 Fatalities in Afghanistan and Iraq in PERIODS 1+2[1]; PERIOD 3; and PERIOD 4

TABLE 1 summarises coalition military fatalities by nationality in Iraq and Afghanistan. The data for PERIODS 1+2 are reproduced from Bird and Fairweather[1] and PERIOD 3 from an earlier report on MRC Biostatistics Unit website.

In PERIODS 1+2+3 (420 days) and first half of PERIOD 4 (70 days), there were 54+13 = 67 UK deaths in Afghanistan in estimated 5,926 + 1,327 = 7,253 personnel-years, a cumulative fatality rate of 9 per 1,000 personnel-years (95% CI: 7 – 11); and 49+15 = 64 UK deaths in Iraq in 8,033 + 1,058 = 9,105 personnel-years, a fatality rate of 7 per 1,000 personnel-years (95% CI: 5 – 9). Friendly fire accounted for 4/131 UK fatalities (3%), equivalently for 0.2 deaths per 1,000 personnel-years. The four UK friendly fire deaths all occurred during theatre-specific periods of "major combat" which claimed 99 UK lives (Iraq 38, and Afghanistan 61). Analytically, we characterise "major combat" by a military fatality rate of 6 or more per 1,000 personnel-years.

In PERIOD 3 and first half of PERIOD 4, UK troops encountered similarly lethal hostilities in their two distinct theatres of operation (Afghanistan and Iraq): UK fatalities were 28+38 = 66 in estimated 3,513+3,644 = 7,157 personnel-years, a combined rate of 9 UK deaths per 1,000 personnel-years (95% confidence interval: 7 to 11), and at least equivalent to UK's fatality rate during the initial period of major combat in Iraq in 2003.

In Iraq, there is evidence that the UK fatality rate had increased very significantly in PERIOD 3 compared to PERIODS 1+2 (observed 23 fatalities versus 12.3 expected, $p < 0.005$) whereas the sharp rise in US fatality rate in Iraq clearly began from PERIOD 2.

In the first half of PERIOD 4, the UK fatality rate in Iraq rose further ($p \sim 0.07$) 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 (see **TABLE 1**), and so reverted to its level a year previously, see PERIOD 1. Friendly fire accounted for 2/879 US fatalities during major combat in Iraq (0.2%).

The second half of PERIOD 4 began on the day after UK troops had withdrawn from Basra City. UK military fatality rate in Iraq fell to 3 per 1,000 personnel-years (95% CI: 1 to 9, based on three non-hostile deaths in 962 pys) in the second half of PERIOD 4 when there was also 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.

TABLE 1: Coalition military deaths and estimated fatality rates per 1,000 personnel-years in consecutive 140-day or 70-day PERIODS; friendly fire deaths superscripted [F]

Theatre	***Iraq***					***Afghanistan***			
PERIODS of 140 days, except where indicated	*1 May to 17 Sept. 2006*	*18 Sept. to 4 Feb. 2007*	*5 Feb. to 24 June 2007* ***SURGE***	*25 Jun to 2 Sept. 2007 (70days)* ***SURGE***	*3 Sep to 11 Nov. 2007 (70days)* ***SURGE***	*1 May to 17 Sept 2006*	*18 Sept to 4 Feb. 2007*	*5 Feb. to 24 Jun 2007*	*25 Jun to 11 Nov. 2007*
Total fatalities *(non-hostile, see footnotes)*	299 *(32)*	436* *(56)*	490* *(42)*	193 *(43)*	123 *(36)*	117 *(41)*	40 *(4)*	96 *(27)*	114 *(16)*
US (estimated deployment)	280 (145,000 troops)	416[FF] (145,000 troops)	463 (<= 165,000)	177**** (162,000[8] - 168,000 troops[9])	116**** (minimum 162,000 troops[8])	54**	18	50***	58
UK (estimated deployment) **& person-years**	14 (7,200 troops) **2,769pys**	12 (7,000 troops) **2,692pys**	23 (7,000 down to 5,500[3 4]) **2,586pys**	15 (5,500 troops) **1,058 pys**	3 (5,000 troops) **962 pys**	33**[F] (4,500 troops) **1,726pys**	6[JW] (up to 5,250 troops) **2,014pys**	15 (5,250 to 6K to 6,900[56]) **2,186pys**	22[FFFA] (6,900 troops) **2,654pys**
Canada (estimated deployment) **& person-years**	**No deployment**					17[F] (2,250 troops) **865pys**	12 (2,250 troops) **865pys**	16 (2,500 troops) **962pys**	11 (2,500 troops) **962pys**
Other	5	8	4	1	4	13	4	15	23[??]
Estimated fatality rates per 1,000 personnel-years (95% Poisson uncertainty)									
US	5.0 (4.4 to 5.6)	7.5 (6.8 to 8.2)	7.3 (6.6 to 8.0)	5.7[8](5.5[9]) (4.9 to 6.6[8]) (4.7 to 6.3[9])	3.7 (3.0 to 4.4[8])	**US troop numbers not ascertained**			
UK	4.8 (3.1 to 7.0)		8.8 (5.6 to13.3)	14.1 (7.9 to 23.4)	3.1 (0.6 to 9.1)	19** (13 to 27)	3 (1 to 6)	7 (4 to 11)	8 (5 to 13)
Canada	**No deployment**					20 (11 to 31)	14 (7 to 24)	17 (9 to 27)	11 (6 to 20)
UK/Canada	**Not applicable**					19** (14 to 25)	6 (4 to 11)	10 (7 to 14)	9 (6 to 13)

* 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)*

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 firefight in September 2007

A: 13/22 UK and 10/11 Canadian fatalities occurred in the first half of PERIOD 4.

In Iraq, in the first half of PERIOD 4, there was a large cluster of 14 US deaths in a non-hostile helicopter crash and in the second half of PERIOD 4 eight US lives were lost in a non-hostile vehicle roll-over. In Afghanistan, there were two large (7+ fatalities) clusters of deaths in PERIOD 3: eight US deaths in a helicopter crash, and seven lives lost (5 US, 1 Canadian, 1 UK) when a helicopter was brought down by rocket propelled grenade.

In Afghanistan in PERIODS 1+2+3 (420 days), there were 45 Canadian deaths despite Canada's deployment being *at most* half the UK's so that there was reason to question the onerously high Canadian losses of 17 per 1,000 personnel-years (95% CI: 12 to 22). The same phenomenon persisted into at least the first half of PERIOD 4, see **TABLE 1**: 10/11 Canadian deaths in PERIOD 4 were in the first 10/20 weeks. In PERIODS 1+2+3+4 of major combat by Canadian forces, friendly fire accounted for 1/56 Canadian fatalities (2%).

In Afghanistan in PERIOD 4, UK's military fatality rate remained high at 8 per 1,000 personnel-years (95% CI: 5 to 13, based on 22 deaths in 2,654 pys). We cannot provide PERIOD-specific fatality rates for US troops in Afghanistan - because we have not been able to track the numbers of US troops deployed. However, US personnel accounted for 49% of all military fatalities in Afghanistan in PERIODS 1+2+3+4 (180/367, 95% CI: 44% to 54%).

TABLE 1 shows that, in PERIODS 1+2+3+4, non-hostile causes accounted for one in seven military deaths in Iraq (209/1543, 95% CI: 12% to 15%) but for a much higher proportion, 24%, of military fatalities in Afghanistan (88/367, 95% CI: 20% to 28%).

3.2 Fatal IED (only) incidents: variation in frequency of incidents and in fatalities per fatal IED incident

TABLE 2 shows military fatalities in IED (only) incidents in Iraq and Afghanistan. The data are updated from Bird and Fairweather[1] because, when icasualties.org was accessed in June 2007, we identified only 217 fatalities in 135 fatal IED incidents for PERIOD 2 (18 September 2006 to 4 February 2007: 140 days), fewer than reported previously[1].

In Iraq[1], 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.

PERIOD 3 (5 February 2007 to 24 June 2007) in Iraq accounted for 280 fatalities in 155 fatal IED (only) incidents. Although the number of fatal IED incidents had not increased significantly from PERIOD 2, their lethality had, see below.

> Had there been no change in lethality from BASELINE + PERIOD 2, 155 fatal IED (only) incidents in Iraq would have resulted in 237.9 IED fatalities rather than 280 observed, $p < 0.01$. Lethality may even have increased in PERIOD 3 compared to PERIOD 2: 280 IED (only) deaths are set against an expectation of 249.1 based on IED incidents' lethality in PERIOD 2, $p \sim 0.05$.

Unusually in PERIOD 3, in both Iraq (5) and Afghanistan (1), there were fatal IED (only) incidents which claimed 6+ lives. There were no such incidents previously in

Afghanistan, nor were there any in Iraq from 1 January 2006 to 4 February 2007. In the first half of PERIOD 4, another such incident occurred in Afghanistan, when six Canadian lives were lost an IED attack.

Noteworthy in **TABLE 2** are the striking changes in fatal IED (only) incident rate, and fatalities, between PERIODS 3 and 4. In Afghanistan, the number of fatal IED incidents roughly doubled (up from 12 in PERIOD 3 to 27 in PERIOD 4, $p < 0.02$) whereas, in Iraq, the number of fatal IED incidents nearly halved (reduced from 155 in PERIOD 3 to 86 in PERIOD 4, $p < 0.001$). PERIOD-specific lethality per fatal IED incident in 2007 was similar in Iraq and Afghanistan: 1.8 in PERIOD 3, and 1.6 in PERIOD 4. In PERIOD 4 in Iraq, mean number of deaths per fatal IED incident had reverted to the fatality rate which pertained during 1 January 2006 to 4 February 2007 from their higher lethality (1.8) in PERIOD 3.

TABLE 2: IED fatalities in Iraq and Afghanistan

Theatre	*Fatal IED incidents in Iraq*					*In Afghanistan*		
PERIOD **Number of deaths in a fatal IED incident**	**BASE LINE:** 1 Jan. to 17 Sept. 2006 (271 IED deaths in 183 fatal IED incidents in 260 days)	Period 2: 18 Sept. 2006 to 4 Feb. 2007 (217 IED deaths in 135 fatal IED incidents in 140 days)	**BASE LINE + Period 2 POOLED** (488 IED deaths in 318 fatal IED incidents in 400days)	Period 3: 5 Feb. to 24 June 2007 **{POOLED-expectation}** (280 IED deaths in 155 fatal IED incidents in 140 days)	Period 4: 25 June to 11 Nov2007 **{POOLED-expectation}** (136 IED deaths in 86 fatal IED incidents in 140 days)	**76 IED deaths in 46 fatal IED incidents from 1 Oct. 2001 to 4 Feb. 2007** (1,953 days)	Period 3: 22 IED deaths in 12 fatal IED incidents from 5 Feb. to 24 June 2007, (140 days)	Period 4: 44 IED deaths in 27 fatal IED incidents from 25 June to 2 Sept 2007, (140 days)
1	128	88	**216**	97 **{105.3}**	57 **{ 58.4}**	**28**	8	19
2	33	23	**56**	22 **{ 27.3}**	13 **{ 15.1}**	**11**	1	3
3	14	14	**28**	20 **{ 13.6}**	12 **{ 7.6}**	**2**	2	3
4	5	9	**14**	10 **{ 8.8}**	3 **{ 4.9}**	**5**	0	1
5	3	1	**4**	1	1		0	0
6+				5			1	1
TOTAL	183	135	**318**	155	86	**46**	12	27
Fatal IED incidents per day	*0.7*	*1.0*	***0.8***	*1.1*	*0.6*	***0.02***	*0.1*	*0.2*
Mean deaths per fatal IED incident	*1.5*	*1.6*	***1.5***	*1.8*	*1.6*	***1.7***	*1.8*	*1.6*

3.3 Weekday variation in Iraq's fatal IED (only) incidents, and in fatalities conditional on lethality in fatal IED incidents: comparison of PERIODS 2+3 versus PERIOD 4

Initially, we focused on PERIODS 2+3 because, as shown above, fatal IED (only) incident rate and/or IED incidents' lethality had increased compared to BASELINE. Results were not widely disseminated. They were sensitive in the view of military intelligence because US actions were underway, we assumed, to address the weekday patterning that had characterised PERIODS 2+3. We discuss the result only now that the weekday pattern has duly altered in PERIOD 4.

Essential data on 290 fatal IED (only) incidents in PERIODS 2+3 (and 497 deaths) are summarised in **TABLE 3** by weekday of incident. In these 40 weeks, the expected number of fatal IED (only) incidents per day of the week was 41.1, roughly one a day. In PERIODS 2+3, there was evidence of heterogeneity in the number of fatal IED incidents by weekday ($\chi^2 = 13.4$ on 6 degrees of freedom, $p < 0.05$): Saturdays (60) were associated with disproportionately many fatal IED incidents and Tuesdays (29) with fewer than expected (41.4).

In PERIODS 2+3, actual IED fatalities by weekday were consistent ($\chi^2 = 10.5$ on 6 degrees of freedom, $p > 0.10$) with **EXPECTED fatalities** when the latter were calculated **conditional on** a) PERIOD-specific number of fatal IED incidents that had occurred on each weekday and b) IED-lethality in that PERIOD, see **TABLE 3**.

By PERIOD 4, the weekday distribution of fatal IED incidents had changed significantly ($\chi^2 = 15.4$ on 6 degrees of freedom, $p \sim 0.02$) from the distribution pertaining in PERIODS 2+3, so much so that a Saturday excess was no longer evident and the now-observed distribution was *borderline inconsistent* with there being an equal number of fatal IED incidents by weekday in PERIOD 4 ($\chi^2 = 12.7$ on 6 degrees of freedom, $p \sim 0.05$) since Sundays and Mondays had fewer-than-expected and Thursdays more.

4. DISCUSSION

4.1 Afghanistan versus Iraq: dicing with death

Overall in PERIODS 1+2+3 and first half of PERIOD 4 (490 days), UK troops' fatality rate of 9 per 1,000 personnel-years (95% CI: 7 - 11) in Afghanistan was 30% greater than their death-rate in Iraq of 7 fatalities per 1,000 personnel-years (95% CI: 5 - 9). Canada's high military fatality rate throughout PERIODS 1+2+3 and first half of PERIOD 4 of 17 deaths per 1,000 personnel-years (95% CI: 13 to 22) in Afghanistan warrants closer scrutiny.

In the most recent epochs, however, namely PERIOD 3 and first half of PERIOD 4, UK troops have encountered similarly lethal hostilities in both theatres of operation (Afghanistan and Iraq): their common fatality rate was 9 UK deaths per 1,000 personnel-years (95% CI: 7 - 11), and at least equivalent to UK's fatality rate during the initial short period of major combat for Iraq - but sustained for longer, by fewer troops.

TABLE 3: Fatal IED (only) incidents and related fatalities - by weekday of IED incident.

PERIOD	Fatal IED incidents, **related fatalities**							
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	**TOTAL**
Period 2	16, **31**	15, **20**	15, **28**	17, **27**	17, **19**	28, **50**	27, **42**	135, **217** (lethality = **1.6**)
Period 3	22, **51**	14, **23**	22, **39**	27, **50**	21, **28**	32, **57**	17, **32**	155, **280** (lethality = **1.8**)
PERIODS 2+3								
Incidents *(Expect 41.4)*	38	29	37	44	38	60	44	290
Fatalities **EXPECTED** **Fatalities given** a) PERIOD-specific lethality per fatal IED incident applied to b) weekday-specific number of fatal IED incidents	**82** 25.72 + 39.74 = **65.46**	**43** 24.11 + 25.29 = **49.40**	**67** 24.11 + 39.74 = **63.85**	**77** 27.33 + 48.77 = **76.10**	**47** 27.33 + 37.94 = **65.27**	**107** 45.01 + 57.81 = **102.82**	**74** 43.40 + 30.71 = **74.11**	**497**
PERIOD 4								
Incidents *(Expect 12.3)*	7	14	16	19	15	10	5	86 (lethality = **1.6**)
Fatalities **EXPECTED** **Fatalities given** PERIOD 4 lethality applied to weekday-number of fatal IED incidents	**17** **11.07**	**25** **22.14**	**19** **25.30**	**30** **30.05**	**25** **23.72**	**15** **11.58**	**5** **7.91**	**136**

Contrary to initial reports in the British press, the marked rise in UK fatalities in Iraq in PERIOD 3 was highly significant and, moreover, was anticipated by an earlier sharp increase in US fatalities rate in PERIOD 2. The extra US deployment from the outset of PERIOD 3 may have displaced some insurgents in PERIOD 3 to operate in other regions of Iraq, including those patrolled by British forces. UK fatality rate in Iraq rose further in the first half of PERIOD 4 to 14 per 1,000 personnel-years (95% CI: 8 to 23) when it greatly exceeded that of US troops. After the withdrawal of UK troops from Basra City, their fatality rate fell dramatically in the second half of PERIOD 4 to 3 death per 1,000 personnel-years (95% CI: 1 to 9).

The US military fatality rate of 7 deaths per 1,000 personnel-years, which had been sustained from PERIOD 2 into PERIOD 3 despite a surge of 20,000 to 30,000 additional US troops, fell very significantly in the first half of PERIOD 4 to 5.7 per 1,000 personnel-years[8] (95% CI: 4.9 to 6.6) or less[9], and fell further still in the second half of PERIOD 4 to 3.7 per 1,000 personnel-years (95% CI: 3.0 to 4.4) - and so lower than in PERIOD 1 a year previously.

Current and former infantry commanders emphasise that fatality rates per 1,000 deployed personnel-years – as reported here – may seriously under-estimate, by a factor of two or more, the fatality rate of frontline soldiers[10]. Monitoring frontline fatality rates would, of course, require us to keep track of the deployed numbers of infantrymen and artillery and engineers. We do not have the international access to do this.

4.2 Increased lethality and frequency of IEDs in Iraq reverts, but not in Afghanistan, and weekday patterns

Bird and Fariweather[1] identified that the frequency of fatal IED (only) incidents in Iraq had increased very significantly (by 37%) in PERIOD 2 compared to 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, a further important change in IEDs occurred. Their lethality increased markedly since 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 – five such incidents in Iraq, and two in Afghanistan to date.

In PERIOD 4, the frequency and lethality of fatal IED (only) incidents in Iraq reverted to the lower levels of a year previously but, in Afghanistan, frequency at least doubled: 27 fatal IED incidents (and 44 fatalities) in PERIOD 4 compared with 12 (and 22 fatalities) in PERIOD 3.

Halving in the frequency of fatal IED incidents in Iraq matched by a doubling in frequency in Afghanistan and PERIOD-specific similar lethality in fatal IED incidents can be seen as empirical endorsement of military concerns that a common source for IEDs may servicing both theatres of operation.

Successful disruption of a previous weekday pattern to fatal IED incidents in Iraq in PERIODS 2+3 suggests that US military intelligence may have introduced effective counter-measures, or that insurgents changed tactics. A different non-homogeneous pattern pertains in PERIOD 4.

4.3 Friendly fire deaths

If we consider, not unreasonably, that troops of all nationalities have, to all intents and purposes, been engaged in major combat in both Iraq and Afghanistan throughout PERIODS 1+2+3 and during the first half (Iraq) or all (Afghanistan) of PERIOD 4, then friendly fire fatalities during major combat may be summarised as follows: US = 2/1,516

deaths (0.13%) in one friendly fire incident; and UK = 4/140 deaths[11], Canada = 1/56 deaths, others = 0/63 deaths which sum to 5/259 (1.9%) in three friendly fire incidents.

UK's slow progress on combat identification and unacceptable delays in conducting inquests into friendly fire deaths (by contrast, inquest into Corporal Budd's death on 20 August 2006 concluded on 29th November 2007) are a disservice to current operations and risk perpetuating a 3-fold or greater international differences in the proportion of military fatalities by friendly fire during major combat. In PERIODS 1+2+3+4, the attributable proportion has been thankfully lower in recent major combat than in the initial periods of major combat (in Afghanistan: prior to 1 May 2002; and in Iraq: prior to 1 May 2003) when (4+9)/(57+139) US deaths (7%) and (4+6)/(9+33) other coalition deaths (24%) were from friendly fire. However, each friendly fire fatality remains desperate for all concerned.

4.4 Projection of UK military fatalities in PERIOD 4

In PERIOD 4 (25 June to 11 November 2007), from a combined deployment of 13,200 troops (and just over 5,000 personnel-years), our previously-reported expectation was 40 UK military fatalities (95% CI: 27 to 49) in Afghanistan+Iraq as singleton deaths or in small clusters. UK's actual combined deployment was around 4,700 personnel-years and PERIOD 4 cost 40 UK military fatalities – in line with our projection. UK troop numbers will reduce further in Iraq during PERIOD 5 (12 November 2007 to 30 March 2008), and are likely to increase after Afghanistan's winter. On the basis of 1,500 and 3,000 personnel-years respectively in Iraq and Afghanistan, we may expect around 30 UK fatalities (5.25+24) in PERIOD 5 as singleton deaths or in small clusters - but with wide, informal uncertainty range from 15 to 45.

References

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