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Clinical activity at the UK military level 2 hospital near Bentiu, South Sudan during Op TRENTON from June 2017 to October 2018

Anonymised

The clinical activity data collected by Bailey *et al.*¹ during Op TRENTON roulements 2 & 3A from 19 Jun 2017 to 24 Sep 2017 proved useful during pre-deployment preparation for subsequent Op TRENTON roulements 3B, 4A, 4B & 5A from 25 Sep 2017 to 25 Oct 2018. We updated and continued this data collection using the same methods in order to obtain a complete dataset for the whole of the Op TRENTON deployment and to look for trends.

During the whole 16-month deployment period from 19 Jun 2017 to 25 Oct 2018, a total of 596 patients were seen at the UK level 2 hospital including those ‘bedded down’ by the UK level 1 primary healthcare team. As previously reported, 286 (50%) of these were admitted during the first 3 months of the deployment¹ and most of the data reported at that stage was similar in percentage terms to our findings for the whole deployment (Table 1). However, there were some significant differences in the clinical activity between the first 3 months and the remaining 13 months (Table 1).

The number of new patients seen reduced from 20 per week to 5 per week and the proportion of UK military patients halved from 50% to 25% with a corresponding increase in the proportion of UN staff patients. The admission rate reduced from 52% to 34%, the length of stay reduced from 2.4 days to 1.8 days and the “return to unit” rate reduced from 98% to 92%. These figures are probably due to the large number of acute gastroenteritis (AGE) cases that occurred in UK military staff during the first 3 months, because these usually required admission for isolation until their symptoms resolved and were then able to return to their units without any need for medical evacuation.²

Despite a marked decrease in AGE cases, the proportion of patients requiring definitive care from medicine specialists (general physicians) remained high (44% to 47%). Most of the remaining patients received definitive care from the emergency medicine team (41% to 31%), which highlights their important role in supporting the primary healthcare teams dealing with a range of minor illnesses and injuries.

Throughout this deployment, the number of cases due to “disease” remained high (79% to 71%) despite reductions in the proportion of cases due to AGE (from 36% to 6%) and undiagnosed non-malarial undifferentiated febrile illness (UNMUFI)³ (from 13% to 6%). Further analysis shows that the decrease in AGE cases was most marked after the first roulement-in-place of UK troops had been completed and that it decreased again after a new water borehole and plumbing system were brought online.

Our conclusions are :

1. Clinical activity data at 3 months was representative of the whole deployment in most respects and so was useful for pre-deployment preparation.¹
2. Disease was responsible for 75% of all cases seen with no significant variation throughout the deployment.

3. Medicine specialists (general physicians) provided definitive care for the most patients (46%) even after AGE and UNMUFI cases declined.

4. AGE outbreaks remain a problem during the initial stages of UK military deployments, but can be brought under control.²

Future deployments to similar environments (*eg.* Mali) are likely to see similar clinical activity and so operational planning should take account of these findings.

References:

1. Bailey MS, Gurney I, Lentaigine J, Biswas JS, Hill NE. Clinical activity at the UK military level 2 hospital in Bentiu, South Sudan during Op TRENTON from June to September 2017. *J R Army Med Corps* 2019 Apr 20. pii: jramc-2018-001154. doi: 10.1136/jramc-2018-001154. [Epub ahead of print]

2. Biswas JS, Lentaigine J, Hill NE, *et al.* Epidemiology and etiology of diarrhea in UK military personnel serving on the United Nations Mission in South Sudan in 2017: A prospective cohort study. *Travel Med Infect Dis.* 2019;28:34-40. doi: 10.1016/j.tmaid.2018.12.004. Epub 2018 Dec 12.

3. Biswas JS, Lentaigine J, Burns DS, *et al.* Undifferentiated febrile illnesses in South Sudan: a case series from Operation TRENTON from June to August 2017. *BMJ Mil Health* 2020 Feb 23. pii: jramc-2019-001238. doi: 10.1136/jramc-2019-001238. [Epub ahead of print].

Table 1. Patients seen at the UK L2H near Bentiu during Op TRENTON

	Total from Jun 2017 to Oct 2018	19 Jun 2017 to 24 Sep 2017 ¹	25 Sep 2017 to 25 Oct 2018	Difference*
Patients	576 (100%)	286 (50%)	290 (50%)	NS
Patients per week	8	20	5	P < 0.01
Males	483 (84%)	244 (85%)	239 (82%)	NS
Females	93 (16%)	42 (15%)	51 (18%)	NS
Age - range (years)	15-64	19-56	15-64	NS
Age - median (years)	33	31	35	P < 0.01
Age - mean (years)	34.8	33.1	36.3	P < 0.01
UK military staff	215 (37%)	142 (50%)	73 (25%)	P < 0.01
UN civilian staff	212 (37%)	84 (29%)	128 (44%)	P < 0.01
UN military staff	143 (25%)	57 (21%)	83 (29%)	P = 0.03
Other civilians	6 (1%)	0 (0%)	6 (2%)	P = 0.02
Admitted	248 (43%)	149 (52%)	99 (34%)	P < 0.01
Length of stay - range (days)	0-7	1-7	0-6	NS
Length of stay - median (days)	2	2	2	NS
Length of stay - mean (days)	2.1	2.4	1.8	P < 0.01
Returned to unit	545 (95%)	279 (98%)	266 (92%)	P < 0.01
Medically evacuated	30 (5%)	7 (2%)	23 (8%)	P < 0.01
Died	1 (<1%)	0 (0%)	1 (<1%)	NS
Seen first by EM	362 (63%)	181 (63%)	187 (62%)	NS
Definitive care by MED	263 (46%)	126 (44%)	137 (47%)	NS
Definitive care by EM	208 (36%)	118 (41%)	90 (31%)	P = 0.01
Definitive care by PHC	33 (6%)	27 (9%)	6 (2%)	P < 0.01
Definitive care by SURG	31 (5%)	4 (1%)	27 (9%)	P < 0.01
Definitive care by ORTHO	28 (5%)	4 (1%)	24 (8%)	P < 0.01
Definitive care by PLASTICS	7 (1%)	5 (2%)	2 (1%)	NS
Definitive care by MED + ICM	6 (1%)	2 (1%)	4 (1%)	NS
Disease	430 (75%)	226 (79%)	206 (71%)	NS
Non-battle injury	138 (24%)	60 (21%)	78 (27%)	NS
Battle injury	6 (1%)	0 (0%)	6 (2%)	P = 0.02
Infection-related	302 (52%)	188 (66%)	114 (39%)	P < 0.01
AGE	121 (21%)	103 (36%)	18 (6%)	P < 0.01
UNMUFI	52 (9%)	36 (13%)	16 (6%)	P < 0.01
Malaria	33 (6%)	19 (7%)	14 (5%)	NS
Chemical pneumonitis	23 (4%)	23 (8%)	0 (0%)	P < 0.01

*Difference between values recorded for Jun - Sep 2017 and Sep 2017 - Oct 2018.

NS, not significant; EM, emergency medicine; MED, general medicine; PHC, primary healthcare; SURG, general surgery; ORTHO, orthopaedic surgery; PLASTICS, plastic surgery; ICM, intensive care medicine; AGE, acute gastroenteritis; UNMUFI, undiagnosed non-malarial undifferentiated febrile illness.