

# Whither Combat Casualty Care – Some Observations



**Lieutenant-General Louis Lillywhite, United Kingdom Surgeon General**

# TAKEAWAYS – WE NEED

- ❑ Better measure survival.
- ❑ Better understand variables that should influence deployment of medical resources.
- ❑ Better understand the pre-hospital area.
- ❑ Further reduce disease in the operational environment.
- ❑ Identify factors associated with PTSD rates.
- ❑ How to re-integrate those with disability.
- ❑ More attention to battlefield factors influencing quality of survival.

# Trauma Scoring

- ❑ Abbreviated Injury Score (AIS)
- ❑ Injury Severity Score (ISS)
- ❑ New Injury Severity Score (NISS)
- ❑ TRauma and Injury Severity Score (TRISS)
- ❑ A Severity Characterisation of Trauma (ASCOT)

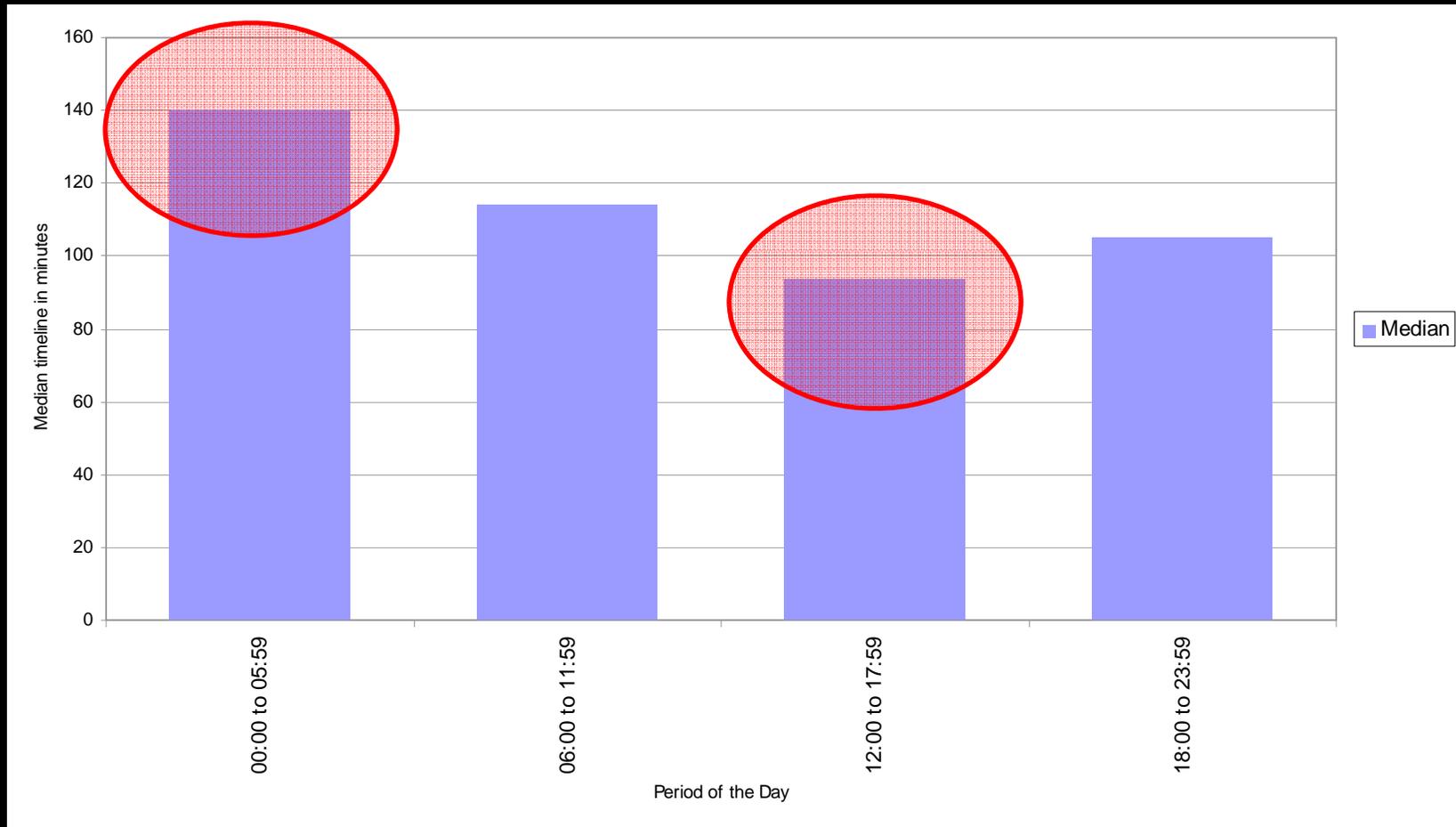
# UK-US Data Convergence

- Standardised automated report functions.
- Agreed benchmarks and key performance indicators (rates, clinical processes).
- Common use of available mathematical and statistical tools (AIS, ISS/NISS, TRISS, ASCOT, SMR, Z value).
- Definitions for unexpected outcomes (survivors and deaths).

# MERT Timeline

## Incident to ED handover (Medians by time of day/night)

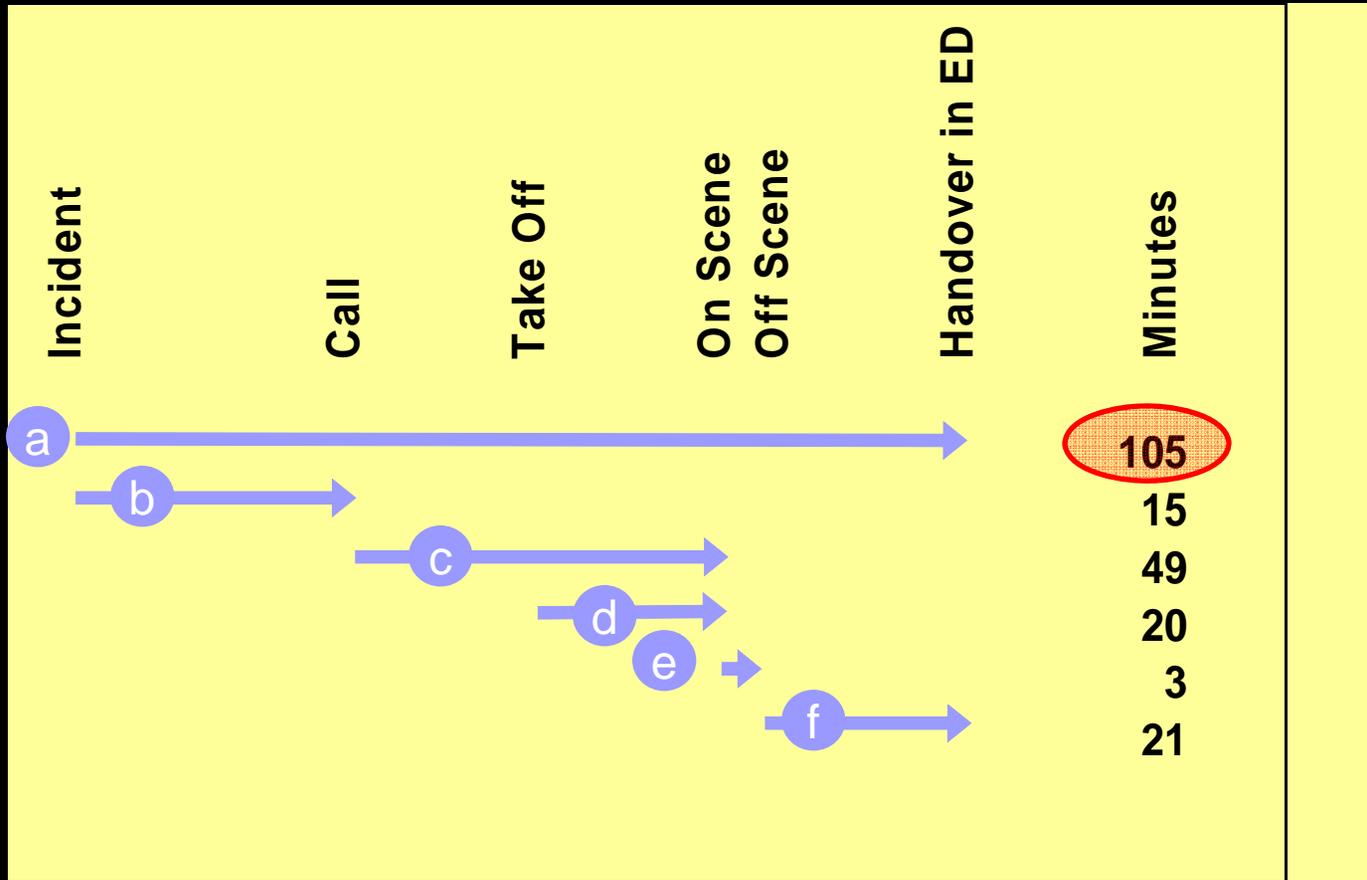
N=1295



# MERT TIMELINE SUMMARY

## Median Timeline Components in Minutes

[N = 1295; ALL PATIENTS, ALL TRIAGE CATEGORIES]



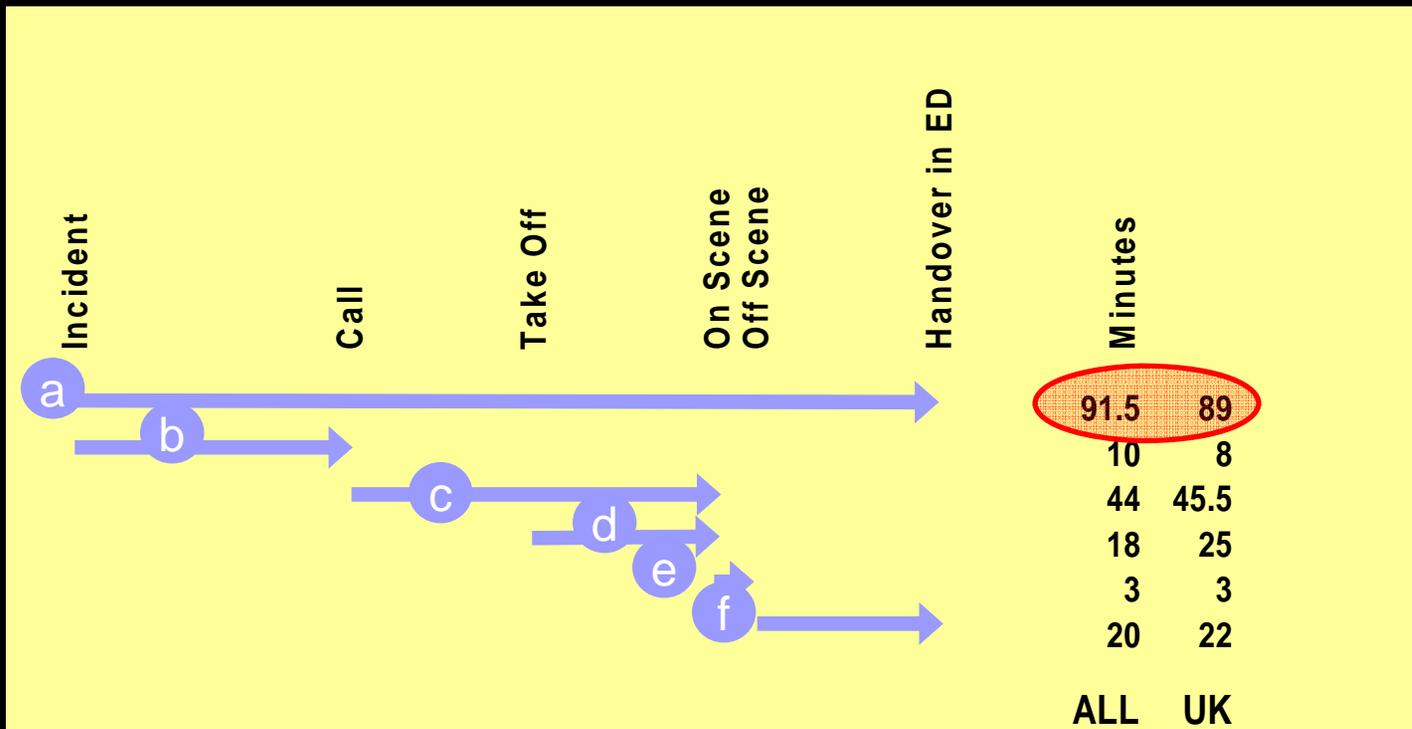
A = TOTAL PRE-HOSPITAL TIME; B = INCIDENT TO CALL TIME; [C - D] = CALL TO RESPONSE INTERVAL  
C = RESPONSE TIME; D = OUTWARD FLIGHT TIME; E = ON-SCENE TIME; F = PATIENT IN-TRANSIT TIME

# MERT TIMELINE SUMMARY

## Median Timeline Components in Minutes

[ALL T1 CASUALTIES, N=406; UK T1 CASUALTIES, n=91]

*NB: Incident to call time not recorded independently, but calculated arithmetically*



A = TOTAL PRE-HOSPITAL TIME; B = INCIDENT TO CALL TIME; [C - D] = CALL TO RESPONSE INTERVAL  
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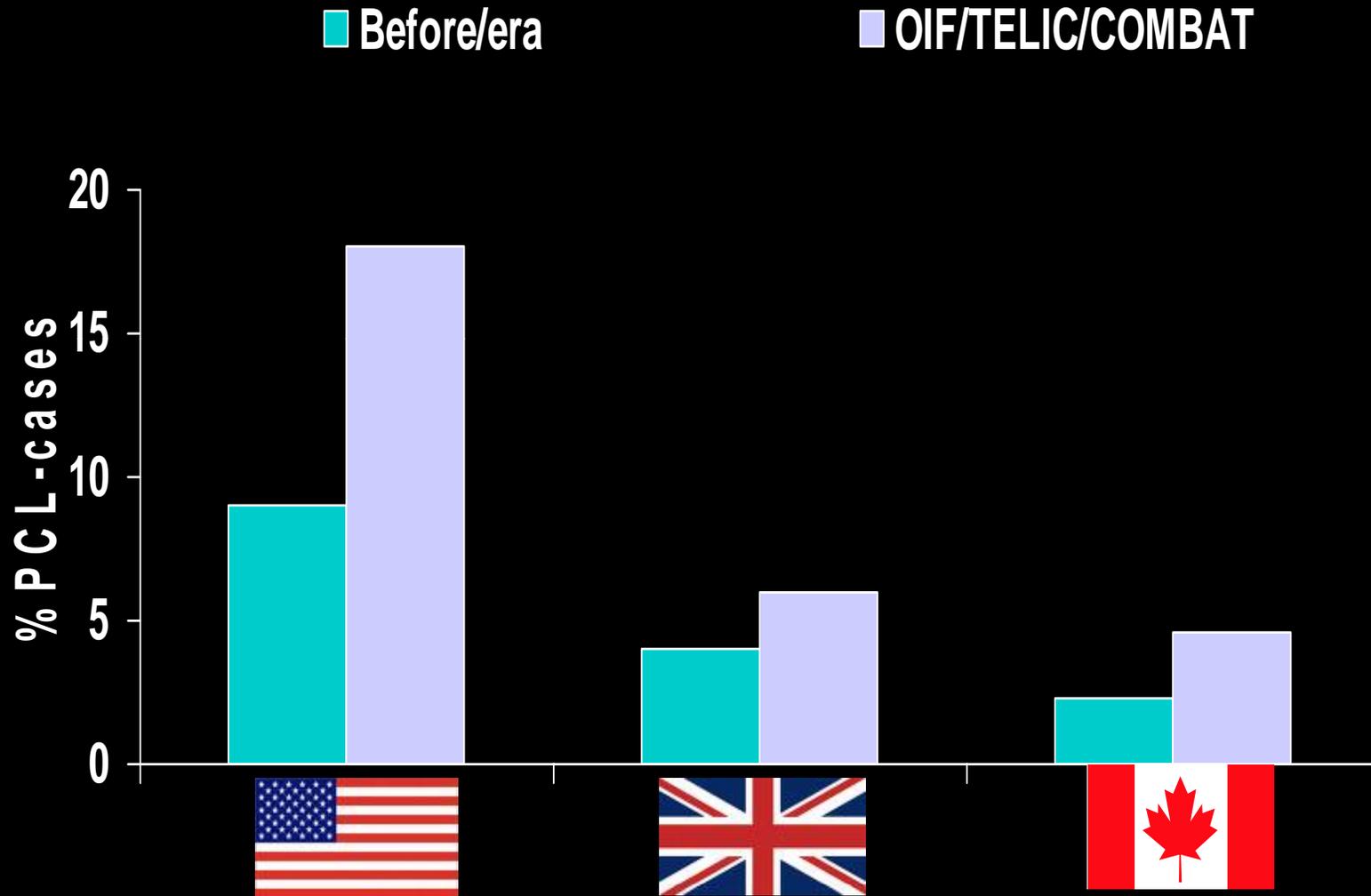
DMS



# Case 034821: GSW to chest

- On Chinook by MERT-E:
  - Intubated, Bilateral thoracostomies.
  - Cardiac Arrest - CPR.
- At R2E, straight to OR:
  - Thoracotomy:
    - ligation internal mammary vessels
    - left lung resection.
  - Grade II liver injury – packed.
  - Grade IV spleen injury – splenectomy.
  - Grade V left kidney injury – nephrectomy.

# Rates of PTSD: - Iraq



US: Hoge et al NEJM 2004; UK: Hotopf et al. Lancet 2006; **Canada; Sareen et al, Archives 2007**

## 2006/7: Outcomes

	Regulars 	Regulars 	Reserves 	Reserves 
PTSD	6%	9%	7%	14%
Depression (score of 2 on PHQ-2)	4%	4%	4%	6%
Suicidal Ideation	0.1%	0.6%	0.1%	1.5%

## 2006/7: US/UK Exposures

	Regulars 	Regulars 	Reserves 	Reserves 
Witnessed someone injured or killed	56%	54 %	43%	54%
Discharged weapon	21%	25%	11%	24%
Felt in danger of being killed	68%	49%	68 %	53%

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