PATIENT ACCEPTABILITY AND FEASIBILITY OF HIV TESTING IN EMERGENCY DEPARTMENTS IN THE UK – A SYSTEMATIC REVIEW AND META-ANALYSIS

Nicola Lungu. London School of Hygiene and Tropical Medicine

Background NICE 2016 HIV testing guidelines now include the recommendation to offer HIV testing in Emergency Departments, in areas of high prevalence, to everyone who is undergoing blood tests. 23% of England’s local authorities are areas of high HIV prevalence (>2/1000) and are therefore eligible. So far very few Emergency Departments have implemented routine HIV testing. This systematic review assesses evidence for two implementation considerations: patient acceptability (how likely a patient will accept an HIV test when offered in an Emergency Department), and feasibility, which incorporates staff training and willingness, and department capacity, (how likely Emergency Department staff will offer an HIV test to an eligible patient), both measured by surrogate quantitative markers.

Methods and results Three medical databases were systematically searched for reports of non-targeted HIV testing in UK Emergency Departments. A total of 1584 unique papers were found, 9 full text articles were critically appraised, and 7 studies included in meta-analysis. There is a combined patient sample of 101,975. The primary outcome, patient acceptability of HIV testing in Emergency Departments (number of patients accepting an HIV test, as a proportion of those offered) is 54.1% (CI 40.1, 68.2). Feasibility (number of tests offered, as a proportion of eligible patients) is 36.2% (CI 9.8, 62.4).

Conclusions For an Emergency Department considering introducing routine HIV testing, this review suggests an opt-out publicity-lead strategy. Utilising oral fluid and blood tests would lead to the greatest proportion of eligible patients accepting an HIV test. For individual staff who are consenting patients for HIV testing, it may be encouraging to know that there is >50% chance the patient will accept an offer of testing.

Table 1 Summary table of data extracted from final 7 studies, with calculated acceptability and feasibility if appropriate, and GRADE score.

| Study         | GRADE score | Eligible | Offered | Accepted | Acceptability % (CI) | Feasibility % (CI) |
|---------------|-------------|----------|---------|----------|----------------------|--------------------|
| Rayment 2012(11)| 1           | 5505     | 3433    | 2121     | 61.8 (60.1, 63.4)    | 62.4 (61.1, 63.6)  |
| Hempling 2011(20)| 0          | 2726     | 2726    | 584      | -                    | -                  |
| Rayment 2013(10)| 1           | 44582    | 6242    | 4327     | 69.3 (68.1, 70.5)    | 14.0 (13.7, 14.3)  |
| Hempling 2016(23)| 1           | 8404     | 2697    | 1747     | 64.8 (62.9, 66.6)    | 32.1 (31.1, 33.1)  |
| Bath 2015(12)| 2           | 9297     | 9297    | 2828     | 30.4 (29.5, 31.4)    | -                  |
| Bath 2016(24)| 2           | 1000     | 1000    | 343      | 34.3 (31.4, 37.3)    | -                  |
| Hunter 2016(8)| 1           | 30461    | 30461   | 19569    | 64.2 (63.7, 64.8)    | -                  |
| Overall       | 101975      | 55856    | 31519   | 54.1% (40.1, 68.2)  | 36.2% (9.8, 62.4)  |

REFERENCES
1. National Institute for Health and Care Excellence, Public Health England. HIV testing: Increasing uptake among people who may have undiagnosed HIV. 2016 1 December 2016.
2. Public Health England. HIV prevalence by Local Authority of residence to end December 2015. Table No.1: 2016. Public Health England; 2016.

Figure 1 Patients accepting HIV tests, and being offered HIV tests, as a proportion of the eligible sample

MAJOR INCIDENT TRIAGE AND THE IMPLEMENTATION OF A NEW TRIAGE TOOL, THE MPTT-24

James Vassallo, Jason Smith. Plymouth Hospital; Academic Department of Military Emergency Medicine, Royal Centre for Defence Medicine, Birmingham

Introduction Over the last decade, a number of European cities including London, have witnessed high profile terrorist attacks resulting in major incidents with large numbers of casualties. Triage, the process of categorising casualties on the basis of their clinical acuity, is a key principle in the effective management of major incidents.

The Modified Physiological Triage Tool (MPTT) is a recently developed primary triage tool which in comparison to existing triage tools, including the 2013 UK NARU Sieve, demonstrates the greatest sensitivity at predicting need for lifesaving intervention (LSI) within both military and civilian populations.

Table 1 Summary table of data extracted from final 7 studies, with calculated acceptability and feasibility if appropriate, and GRADE score.

Studies listed in chronological order of data collection. GRADE working group evidence grades: 4= high quality, 3= moderate quality, 2= low quality, 1 or below = very low quality. (*study conclusion reports this figure is inaccurate)

| Study         | GRADE score | Eligible | Offered | Accepted | Acceptability % (CI) | Feasibility % (CI) |
|---------------|-------------|----------|---------|----------|----------------------|--------------------|
| Rayment 2012(11)| 1           | 5505     | 3433    | 2121     | 61.8 (60.1, 63.4)    | 62.4 (61.1, 63.6)  |
| Hempling 2011(20)| 0          | 2726     | 2726    | 584      | -                    | -                  |
| Rayment 2013(10)| 1           | 44582    | 6242    | 4327     | 69.3 (68.1, 70.5)    | 14.0 (13.7, 14.3)  |
| Hempling 2016(23)| 1           | 8404     | 2697    | 1747     | 64.8 (62.9, 66.6)    | 32.1 (31.1, 33.1)  |
| Bath 2015(12)| 2           | 9297     | 9297    | 2828     | 30.4 (29.5, 31.4)    | -                  |
| Bath 2016(24)| 2           | 1000     | 1000    | 343      | 34.3 (31.4, 37.3)    | -                  |
| Hunter 2016(8)| 1           | 30461    | 30461   | 19569    | 64.2 (63.7, 64.8)    | -                  |
| Overall       | 101975      | 55856    | 31519   | 54.1% (40.1, 68.2)  | 36.2% (9.8, 62.4)  |
To improve the applicability and usability of the MPTT we increased the upper respiratory rate threshold to 24 breaths per minute (MPTT-24), to make it divisible by four, and included an assessment of external catastrophic haemorrhage. The aim of this study was to conduct a feasibility analysis of the proposed MPTT-24 (figure 1).

**Figure 1 MPTT-24**

**Methods** A retrospective review of the Joint Theatre Trauma Registry (JTTR) and Trauma Audit Research Network (TARN) databases was performed for all adult (>18 years) patients presenting between 2006–2013 (JTTR) and 2014 (TARN). Patients were defined as priority one (P1) if they had received one or more life-saving interventions. Using first recorded hospital physiology, patients were categorised as P1 or not-P1 by existing triage tools and both MPTT and MPTT-24. Performance characteristics were evaluated using sensitivity, specificity, under and over-triage with a McNemar test to determine statistical significance.

**Results** Basic study characteristics are shown in Table 1. Both the MPTT and MPTT-24 outperformed all existing triage methods with a statistically significant (p<0.001) absolute reduction of between 25.5%–29.5% in under-triage when compared to existing UK civilian methods (NARU Sieve). In both populations the MPTT-24 demonstrated an absolute reduction in sensitivity with an increase in specificity when compared to the MPTT. A statistically significant difference was observed between the MPTT and MPTT-24 in the way they categorised TARN and JTTR cases as P1 (p<0.001).

**Conclusion** Existing UK methods of primary major incident triage, including the NARU Sieve, are not fit for purpose, with unacceptably high rates of under-triage. When compared to the MPTT, the MPTT-24 allows for a more rapid triage assessment and continues to outperform existing triage tools at predicting need for life-saving intervention. Its use should be considered in civilian and military major incidents.

**Table 1** Study characteristics

|                | JTTR (2006–2013) | TARN (2006–2014) |
|----------------|------------------|------------------|
| Number cases   | 103,513          | 98,736           |
| Male, N, %     | 57,352 (54.8%)   | 53,345 (54.1%)   |
| Age, Median (IQ) | 37 (1.0, 78)   | 34 (1.0, 77)     |
| UK, Median (IQ) | 37 (1.0, 78)   | 34 (1.0, 77)     |
| Mortality      | 3.4%             | 2.7%             |
| Mechanism of injury N, % | 3.4%             | 2.7%             |
| Injured body region N, % | 20.3%            | 16.0%            |
| Priority One N, % | 37.1%            | 24.7%            |

**Table 2** Performance analysis

|                | MPTT-24 | MPTT   | NARU Sieve/ UK Military Sieve | MIMHS Triage Sieve | START (US) | Careflight (AUS) |
|----------------|---------|--------|-------------------------------|-------------------|------------|----------------|
| Sensitivity    | 72.9%   | 58.9%  | 66.0%                         | 70.0%             | 80.9%      | 72.0%          |
| Specificity    | 42.9%   | 32.0%  | 41.8%                         | 42.9%             | 35.8%      | 45.0%          |
| Under-triage   | 40.2%   | 47.0%  | 51.0%                         | 42.7%             | 75.0%      | 93.6%          |
| Over-triage    | 21.6%   | 25.0%  | 25.5%                         | 22.3%             | 5.0%       | 3.5%           |

**Background** There are no widely accepted validated clinical decision rules for the use of WBCT in trauma. Given the potential risks and costs, there is a clear need for a clinical decision rule (CDR) to safely guide targeted use of WBCT. We aimed to derive a CDR to guide clinical decisions on WBCT utilisation by detecting patients at high and low risk of multi-region trauma.

**Methods** We retrospectively identified consecutive patients who had presented to a major trauma centre with suspected major trauma. Study took place at Aintree University Hospital, Merseyside. After extracting data, we derived a clinical decision rule for detection of multi-region trauma by logistic regression and recursive partitioning. The primary outcome was defined as injuries of AIS≥2 in two or more body regions, while the secondary outcome was the presence of two injuries of AIS≥3 in two or more body regions. This rule was cross-validated on the original sample using bootstrapping.

**Table 2** Performance analysis

|                | JTRR    | TARN    |
|----------------|---------|---------|
| Sensitivity    | 72.9%   | 58.9%   |
| Specificity    | 42.9%   | 32.0%   |
| Under-triage   | 40.2%   | 47.0%   |
| Over-triage    | 21.6%   | 25.0%   |

**Abstracts**

**DERIVATION AND INTERNAL VALIDATION OF A CLINICAL DECISION RULE TO GUIDE WHOLE BODY COMPUTED TOMOGRAPHY SCANNING IN TRAUMA**

1. Hridesh Chatha, 2Ian Sammy, 3Rick Body, 1Abdo Sattout, 1John Hollingsworth. 1Aintree University Hospital NHS Foundation Trust, 2Sheffield University, Sheffield, 3Central Manchester University Hospital NHS Foundation Trust

10.1136/emermed-2017-207308.3

**Background** There are no widely accepted validated clinical decision rules for the use of WBCT in trauma. Given the potential risks and costs, there is a clear need for a clinical decision rule (CDR) to safely guide targeted use of WBCT. We aimed to derive a CDR to guide clinical decisions on WBCT utilisation by detecting patients at high and low risk of multi-region trauma.

**Methods** We retrospectively identified consecutive patients who had presented to a major trauma centre with suspected major trauma. Study took place at Aintree University Hospital, Merseyside. After extracting data, we derived a clinical decision rule for detection of multi-region trauma by logistic regression and recursive partitioning. The primary outcome was defined as injuries of AIS≥2 in two or more body regions, while the secondary outcome was the presence of two injuries of AIS≥3 in two or more body regions. This rule was cross-validated on the original sample using bootstrapping.