London Ambulance Service

NHS Trust

Maximising the contribution of Advanced Paramedic Practitioners (APP) - a comparison of treat-and-leave rates between APP and standard ambulance response

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Introduction

Successive policy documents advocate specialist and advanced paramedics in ambulance services where these roles have been shown to be safe and effective.[1-5] In contrast, clinical decision making by paramedics without additional education may be ineffective or clinically unsafe.[6] Within the London Ambulance Service (LAS) Advanced Paramedic Practitioners in Urgent Care (APP-UC) undertake an MSc in advanced practice and provide a solo response to 999 callers. The aims of this retrospective review were to examine variation in Emergency Department (ED) conveyance by APP-UC compared with a standard ambulance response and to quantify any marginal benefits associated with APP-UC attendance stratified by illness or injury code.

Method

A retrospective review of clinical performance data for APP-UC staff was undertaken between January – September 2018 and compared with data from standard ambulance responses within the same Trust. Data were stratified by illness and injury code as determined by the attending ambulance clinician and presented as proportions of patients conveyed to the ED when an APP-UC versus standard ambulance responded to the call. Regression analysis incorporating matched cases was performed to adjust for confounding factors potentially influencing ED transfer rates.

Results

A total of 1,578 APP-UC cases were compared with 836,151 standard ambulance responses. APP-UC incidents were conveyed to an ED in 25% of cases compared with 64% following a standard ambulance response. When compared with standard ambulance responses, APP-UC were significantly less likely to convey patients with abdominal pain (34% n=232 versus 78% n=60,426), back pain (24% n=160 versus 69% n=27,893), dizziness (23% n=75 versus 72% n=27,105), lacerations (9% n = 23 versus 65% n=13,010), and headache (25% n=12 versus 69% n=5,581). For a smaller number of conditions such as sepsis (96% n=25 versus 98% n=24,311) there was no appreciable difference in conveyance rates. Regression analysis demonstrated that these differences persisted when adjusted for confounders such as age, time of day, triage acuity and illness type *(Figure 1)*. The re-contact rate for APP-UC attendances during this period was 2.5%.

Limitations

This was a retrospective review and no long term follow-up of patients was undertaken beyond 24 hours. Regression analysis did not incorporate additional confounders such as national early warning score (NEWS) or comorbidities.

Fig. 1 ED conveyance rates comparison of APP-UC versus standard ambulance response

	APP-UC		BAU			MATCHED		
		n 95% CI		n 95% CI	Sig		n 95% CI	Sig
Abdominal pains	34%	232 (26%, 44%)	78%	60,395 (78%, 79%)	*	69%	202 (59%, 78%)	*
Pain - Other	37%	177 (27%, 49%)	69%	71,084 (69%, 70%)	*	63%	144 (51%, 75%)	*
Other medical conditions	39%	166 (28%, 50%)	70%	70,416 (70%, 71%)	*	70%	136 (57%, 81%)	*
Pain - Back	24%	160 (15%, 36%)	68%	27,873 (68%, 70%)	*	70%	137 (58%, 81%)	*
Vomiting	34%	124 (22%, 47%)	72%	35,258 (72%, 74%)	*	64%	66 (45%, 80%)	*
Dizzy/near faint/loss of coordination	23%	75 (11%, 39%)	71%	27,090 (71%, 72%)	*	64%	53 (43%, 82%)	*
Urological	26%	65 (12%, 44%)	79%	13,236 (79%, 81%)	*	72%	36 (47%, 90%)	*
Head Injury – Minor	31%	64 (16%, 50%)	77%	31,135 (77%, 78%)	*	69%	51 (48%, 85%)	*
Generally unwell	56%	59 (37%, 74%)	74%	36,876 (74%, 76%)	*	65%	37 (40%, 85%)	n.s.
Minor cuts & bruising	10%	59 (2%, 26%)	54%	18,219 (54%, 56%)	*	40%	48 (20%, 61%)	*
Sepsis	96%	25 (NA)	98%	24,311 (98%, 98%)	-	100%	12 (NA)	-

* p=0.0025   ns=not-significant

Conclusion

Attendance by an APP-UC resource leads to a reduction in ED conveyance compared with standard ambulance response and is associated with a low re-contact rate suggesting the service is both safe and effective. The marginal benefits associated with APP-UC versus standard ambulance response vary according to illness and injury code and are more pronounced for some conditions than others. This variation is likely due to a combination of APP-UC education and experience alongside an expanded diagnostic and therapeutic scope of practice enabling autonomous management of a broader range of conditions within the community. Further research is required to define sub-sets of patients for whom APP-UC attendance provides the most benefit in terms of admission avoidance and safe discharge beyond a standard ambulance response.

References

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