A poor level of resuscitation knowledge has been shown among all grades of paediatricians. Standardised resuscitation teaching has been streamlined in the United Kingdom (UK) with the introduction of courses like Advanced Paediatric Life Support (APLS) and European Paediatric Life Support or EPLS (formerly known as Paediatric Advanced Life Support). A succeeding survey showed improved knowledge especially in those who attended paediatric resuscitation courses. APLS and EPLS courses are thought to significantly increase immediate short-term knowledge of paediatric resuscitation for all professional groups. PLS and NLS guidelines were revised and updated in 2005 and the subsequent APLS, EPLS and NLS courses incorporated these changes.

Completion of APLS and NLS courses (or equivalent) is an essential criterion for application to enter Specialty Training (ST) at ST3 or above in Paediatrics in the United Kingdom. Published data portrays that neonatal resuscitation courses significantly improve knowledge, but this is only partially retained over time.

The current practice at Queen's Hospital is to provide all trainees with one day Paediatric Life Support course at the commencement of their jobs. Moreover, regular refresher scenario based training sessions are held every couple of weeks. This study aimed to evaluate the retention and awareness of the changes in PLS guidelines (2005) among junior paediatric doctors. The changes specifically investigated were landmarks for cardiac compression in an infant and an older child, ratio of compression to ventilation in an infant and an older child, shock delivering sequence in pulseless ventricular tachycardia or ventricular fibrillation, dose and frequency of adrenaline administration in cardiac arrest and management of foreign body inhalation.

A telephonic questionnaire survey of randomly selected junior paediatric doctors working in hospitals of England was conducted in November 2007. They were asked questions about the 2005 changes in the PLS guidelines. Four possible answer options were provided for each of the questions asked. Questions were asked by a single researcher (BP) in order to maintain uniformity. Trainees were also asked to provide their grade, title and date of the last paediatric life support course attended.

A total of 100 doctors working in paediatrics and child health in 70 different hospitals in England completed the survey. This included 38 doctors working as first on-call in paediatrics (Foundation year 2, and ST1-3) and 62 doctors working as second on-call (Specialist Registrars, Staff Grades, and ST4 and above). Experience was assessed by employment grade and not by year of seniority. Since, the distribution of results was non-Gaussian, statistical significance was evaluated by the Mann-Whitney signed rank test. Figure 1 shows the distribution of scores achieved and whether training was before or after 2005. Overall, there was a tendency towards better scores for second on-call doctors compared to the first on-call doctors (score 6.55 ± 2.25 vs. 5.89 ± 2.17 respectively, $p = 0.062$). Doctors who attended PLS courses after 2005 tended to have higher scores. There is a need to streamline formalised regular updates (e.g. annual online written multiple choice questions) and in-house rehearsals using mock emergency scenarios at local, regional and national level.

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fibrillation and pulse-less ventricular tachycardia) and the frequency of adrenaline usage during cardiac arrest. Significantly, more doctors attained high scores if they attended PLS courses within the last 6 months, indicating that knowledge decays. Skill retention not only depends on how often it is performed but also upon its complexity. In CPR training and other life support courses skill is known to decay rapidly and frequent reinforcement is necessary.5

The trend showed that more senior (second on-call) doctors performed better than the first on-call paediatric doctors. We believe this reflects that middle grade doctors are more likely to attend and retain provider status for APLS or EPLS courses and have regular exposure to real life resuscitation situations and emergencies. Furthermore, some of the junior paediatric trainees only work in paediatrics for 4-6 months as part of their foundation year or general practice rotation.

Completion of the APLS/EPLS courses significantly improves paediatric resuscitation skills. Although, previous studies in neonatal resuscitation program (NRP) have suggested a yearly refresher course, the effect of mannequin practice or video-bootcamps 3-5 months following the NRP course showed that after a hands-on booster session doctors made significantly fewer errors in life-supporting but not in lifesaving scores than those allocated to the control and video groups.

Hunt et al. suggested formal mechanisms to guarantee adequate resuscitation training for all paediatric residents, especially regarding participation in paediatric basic life support and hands on defibrillator training.6 Computerized simulation is increasingly being used as a tool for resuscitation training and assessment which has been demonstrated to show good inter-rater reliability within various domains like basic resuscitation, airway support, circulation and arrhythmia management, and leadership behaviour.

Attendance at APLS/EPLS is recommended every 4 years. More frequent courses would increase cost and consume study leave allowances. Alternative strategies such as the use of in-house refreshers and information technology are necessary. Mock training with active participation and immediate debriefing may be an effective educational tool. Regular in-house practice mock resuscitations with immediate feedback along with structured, formal curriculum is likely to help in retaining the necessary knowledge, skills, confidence and leadership required for resuscitation.7

To ensure optimum performance, formalised regular updates and in-house rehearsals using mock emergency scenarios at local, regional and national level should be arranged. We strongly recommend regular mock emergency scenario practices in every acute paediatric institution.

REFERENCES