A CHRONOLOGICAL REVIEW OF SIMULATION TRAINING FOR MEDICAL TRAINEES ACROSS THE NORTHERN DEANERY

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INTRODUCTION

Medical training is relatively linear following on from medical school, where trainees are provided with a range of simulation-based interventions at each grade during their progression towards CCT. This is highlighted in the JRCPTB HEE simulation report which states: “Core Medical Training provides the fundamental building blocks for all the physician specialties, particularly in preparing doctors for the demanding role of Medical Registrar. It is therefore vital that doctors receive the necessary training to be fully equipped to competently and confidently perform this role.” This, in all reality, should be expanded to all grades of training, so that each year builds towards the final essentials skills and abilities required of a highly capable final year registrar.

What is not currently well known is how much simulation any one trainee may experience during their training, or how much is being delivered within any one specialty. This project reviews simulation training from the North East of England chronologically, from a new Foundation Trainee Doctor through to an ST7 Acute Medical Registrar.

CURRENT TRAINING PROGRESS

FOUNDATION YEARS PROGRAMME

Training across the region covers a range of clinical scenarios (listed below), as well as human factors and non-technical skills, including: communication in a crisis, breaking bad news, escalation and graded assertiveness.

CORE MEDICAL TRAINING PROGRAMME

Training for CMTs is covered by the JRCPTB / HEE CMT simulation training report and promotes training in human factors, emergency and top presentations (listed below).

Practical skills training are covered by a Regional training course.

ACUTE MEDICAL REGISTRAR TRAINING

Teaching sessions have covered human factors awareness and advanced non-technical skills, while sharing tips and tricks between peers.

Human Factors include:
- Leadership, teamwork, communication, decision making, cognitive burden, situational awareness, stress, cognitive biases, managing workplace / environment / teamwork issues.

Scenarios during FY1 & FY2 training cover:
- Septic, AKI, Anaphylaxis, Upper GI bleed, Asthma, COPD & NIV/BIPAP, Stroke, Arrhythmias, ACS / IHD, AAA, acute headache, TACO & transfusion reactions, hyperkalaemia, drug overdose.

Scenarios during CMT1 & CMT2 training cover:

Scenarios covered in Acute Medical Registrar simulations:
- Equipment connected in error to chest drain, Dual leadshurel cardiac arrest, Breaking bad news to challenging / threatening relative, Aortic anoxic RT studies, Complex UGI

CRITIQUE OF CURRENT TRAINING

At present, simulation centres across the North East of England are not currently coordinating simulation-based training interventions. This is likely leading to a high degree of duplication of work by training centres, as well as leading to possible duplication, or omission, of training experienced by trainees.

While this is common across many training interventions, it would not be difficult to link training regionally, so that each centre delivers a basic combination of scenarios, which will provide experience of clearly defined objectives.

Human Factors training is also becoming increasingly acknowledged as essential non-technical skills which enhance clinicians efficiency and safety in the workplace, combating many aspects which lead to symptoms of burnout. Simulation training is an effective tool for developing highly skilled trainees with an in depth knowledge of leadership, communication, negotiation, and teamwork abilities, with increased awareness of their biases and assumptions.

A large amount of simulation training is already being delivered in the North East, however, not all hospitals across the region have established simulation programmes and the current list of training experiences isn’t fair for trainees. It is also highly wasteful in time, money and resources, particularly as service provision is increasingly in demand.

REFERENCES

http://www.elsevier.com/actions/journal/1566-8274

SPINAL CURRICULA

Two essential principles support a development of training programme in this format. The primary focus of this is the targeted repetition of topics and themes, essential to the development of its trainees with a clear end-goal in mind. There should be increasing level of difficulty to provide fresh learning scaffolding to the final objective with increasing proficiency and efficiency.

New learning develops based on previous experiences, with controlled and graded challenge so the learner is not overwhelmed early on. Competence inherently increases with each stage which can be tested and subsequently adapted for future development.

MASTERY LEARNING PROGRAMME

The second and most influential is the premise of Mastery learning through deliberate practice. Low dose, high frequency training is better at maintaining and expanding competence, and designing an appropriate spaced set of interventions is therefore key to help learners prepare for the main challenge. Small and frequent successes are more likely to inspire confidence and self-efficacy, improving the learners ability to rise to the core challenge.

Scaffolding appropriate degrees of challenge can promote competence further balancing the boredom of an under motivated learner, against the risk of anxiety and demoralisation if a highly motivated fails an inappropriately difficult encounter.

CONCLUSIONS

“It is vital that doctors receive the necessary training to be fully equipped to competently and confidently perform this role, and simulations one route to achieving this outcome.”

Without coordinating training into a stepwise, competency oriented, interconnected mastery focused, a lot of training time, money and resources are likely to be used inefficiently and waste an opportunity to enhance clinician development beyond what is currently delivered.

Aims

- Quantify the volume and content of simulation-based education in the North East of England between FY1 & ST7.
- Review each stage of training and identify gaps in training pathway.
- Critique an alternative framework for graded challenge simulations.

Methods

- Simulation departments were asked to contribute a log of teaching activities for each grade of medical trainees and focused on case-based scenarios, human factors training, or workplace ergonomics.
- These did not include task-trainer specific skills, or resuscitation training courses.
- Cost of training per grade was calculate based on the current contract pay scales for estimation purposes.

Gamification Training Process

Level 3 - Acute Medical Registrars

Hardest simulations representing the real challenges a medical registrar may face during their clinical practice, preparing them to deal with a range of human factor crisis and developing essential non-technical skills.

Level 2 - Internal Medical Training Programme

As currently practiced, albeit developing from the baseline scenarios, these introduce more complexity with greater weight towards leadership skills and challenging communications.

Level 1 - Foundation Years Programme

Linking in with undergraduate training, these sessions could focus on providing the foundations for higher training initiatives, such as the core emergency presentations in IMT, albeit at an appropriate degree of challenge.

Example scenarios covered with a gamification orientated training programme:
- Cardiorespiratory arrest - Level 1:
- Non-shockable rhythm with Human Factors introductions
- Level 2: Shockable rhythm with challenges in leadership/teamwork
- Level 3: Complex arrhythmia management with complex interactions
- Anaphylaxis - Level 1: Simple anaphylaxis with recovery, with Human Factors introductions
- Level 2: Slow recovery with with challenging escalation / negotiations
- Level 3: Severe reaction with incompetent/combative team members
- Unconscious patient - Level 1: Post-scan, or oposite exceed with basic non-technical skills
- Level 2: Seizure in stridor with challenging family interaction
- Level 3: Status epilepticus in post-operatives patient without DNR
- Shocked patient - Level 1: Septic patient with AKI needing escalation and handover
- Level 2: Unstable sepsis with AKI and adult
- Level 3: Late shock with arrest and explanation to family / challenging staff