Integration of evidence-based practice and high-fidelity interprofessional OSCE reduced major morbidity and mortality rate of contrast media allergy

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I do not have an affiliation (financial or otherwise) with a pharmaceutical, medical device or communications organization.

Je n’ai aucune affiliation (financière ou autre) avec une entreprise pharmaceutique, un fabricant d’appareils médicaux ou un cabinet de communication.
The prevalence rate of contrast media (CMs) allergy decreased with the introduction of nonionic CMs and premedication for high-risk patients.

- Acute adverse events
- Severe acute reaction
- Fatal reactions

Katayama, Radiology 1990;175:621–628
• Delayed of recognition, fluid resuscitation, and delayed intubation
• History of CHF or on beta-blockers
• Knowledge not updated, gap in anaphylaxis recognition and management was identified in postgraduate year 1 (PGY-1) objective structured clinical examination (OSCE) in 2011 in Taichung Veterans General Hospital
We made 3 changes in simulation

- Evidence-based practice
- Interprofessional High-fidelity OSCE
- Team resource management skills (SBAR)
Evidence-based practice

- Integrated 2015 EAACI/WAO anaphylaxis management guideline
- Feedback and extended learning
Interprofessional High-fidelity OSCE

- Focus group discussion, which included ADR consultants, intensive care unit physicians, and radiologists.
- One radiology resident and one internal medicine resident
- 2 assessors from 3 major domains: anaphylaxis medication and airway management by senior physician and leadership by senior nurse
- Formative assessment and feedback hints card
  1) Call-out
  2) Epinephrine timing
  3) Difficult airway management, including laryngeal mask
  4) Breaking bad news
- 3) Debrief immediately after simulation
Radiology
Check list

Team resource management

21. Leader Team Ability
   1. Members have clear roles and responsibilities.
   2. Effective communication within the team.
   3. Clear goals and objectives.
   4. Strong leadership.
   5. Effective decision-making processes.

22. Support and Development
   1. Opportunities for professional development.
   2. Regular feedback and performance evaluations.
   5. Recognition and rewards for achievements.

23. Culture and Values
   1. Strong organizational values.
   2. Supportive and inclusive workplace.
   3. Open communication channels.
   4. Respect and fairness.
   5. Commitment to continuous improvement.

24. Compliance and Ethics
   1.严格遵守法律法规。
   2. 公司内部的合规政策。
   3. 透明的报告机制。
   4. 高效的审计流程。
   5. 强大的风险管理。

25. Customer Satisfaction
   1. 高水准的客户服务。
   2. 合理的客户服务流程。
   3. 客户反馈机制。
   4. 客户投诉处理。
   5. 客户满意度调查。
Team resource management

- Call-out
- Check-back
- iBSAR (background, situation, assessment, recommendation)
- Cross monitor and show respect to team members
Evaluation

- Resident’s Satisfaction
- O-SCORE Entrustability Scale
- Adverse Drug Reaction Committee: in-hospital CMs allergy reports

Satisfaction 93%

RAD
N=19

IM
N=110

PGY1
N=334
Identification and Medication

Airway Management
**Severe acute reaction rate decreased**

<table>
<thead>
<tr>
<th>Category</th>
<th>Reference</th>
<th>2009</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute adverse events</td>
<td>0.70%</td>
<td>0.88%</td>
<td>1.65%</td>
</tr>
<tr>
<td>Severe acute reaction</td>
<td>0.04%</td>
<td>0.26%</td>
<td>0.05%</td>
</tr>
<tr>
<td>Fatal reactions</td>
<td>0.00059%</td>
<td>0.01%</td>
<td>0.00%</td>
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</table>
No major morbidity or mortality

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2018</th>
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<tbody>
<tr>
<td><strong>Code blue</strong></td>
<td>37</td>
<td>7</td>
</tr>
<tr>
<td><strong>ICU admission</strong></td>
<td>15</td>
<td>0</td>
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</table>
Limitation

- Single tertiary referral hospital
- Long scenario

Strength

- Evidence-based practice
- Interprofessional, high fidelity, with two assessors
- TRM skills
Conclusion

Integration of evidence-based practice and high-fidelity OSCE were effective in residents’ training and could reduce major morbidity and mortality rate of CMs allergy.
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