

# Twenty-first century skills teaching in anaesthesia

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### SUMMARY

**The core competencies defined by the Accreditation Council for Graduate Medical Education merge under the 21st century skills. Technological advancements and globalisation have posed new requirements on all fronts. The 21st century skills are the 12 essential abilities for success in the internet age. Medical education has adapted the 21st century skills in all aspects. The 21st century skills are essential for producing relevant doctors in the age of internet and artificial intelligence. In this article, we present an example of teaching the anaesthesia basics by applying the 21st century skills.**

The advancements of the new millennium of the 21st century at all fronts have posed new challenging demands globally. Globalisation and technological advancements have embarked the medical profession. The skills taught in medical schools 20 years back need to be updated as per the latest involvement of the technology in medical profession and globalisation. To keep at par with the globalised world, medical professionals need to possess these 21st century skills.

The 21st century skills are the 12 essential abilities for success in the internet age. These skills (critical thinking, creativity, collaboration, communication, information, media, technology, flexibility, leadership, initiative, productivity, social skills) are grouped under one of the three categories namely, (i). learning skills, (ii). literacy skills, and (iii). life and career skills.<sup>1,2</sup>

The higher education has adapted the 21st century skills in all aspects.<sup>3-5</sup> The six major competencies defined by the Accreditation Council for Graduate Medical Education (ACGME) viz patient care, medical knowledge, professionalism, systems-based practice, practice-based learning and improvement, and interpersonal and communication skills merge under the 21st century skills.<sup>6</sup>

In medical education, these skills are essential for producing relevant doctors in the age of internet and artificial intelligence.

In this article, we present an example of teaching the Mendelson syndrome at undergraduate level, the basic topic in anaesthesia, applying the 21 century skills.

Mandelson's syndrome is the aspiration of gastric contents under anaesthesia.<sup>7</sup> Fasting guidelines and anti-aspiration prophylaxis is a must to prevent the consequences of the syndrome.

*Application of 21st Century skills:*

*The Learning skills include* (1) critical thinking, (2) creativity, (3) collaboration, and (4) communication. The four C's, incorporate the mental process required for the modern-day medical professional environment improvement.

*Applying the 4 C's:*

1. 'Critical thinking' inculcates teaching the 'must know' and the theoretical basis of the Mandelson syndrome.
2. 'Creativity' comes into play in teaching the fasting guidelines taking into consideration the local cuisine of the patient. For example, for the Asian culture, the fried food must be fasted for 8 hours, the milk tea for 6 hours, and clear juice for 2 hours.
3. 'Collaboration' with the other disciplines managing the patient. For example, if the patient is on anti-diabetic management, the medication needs to be held to prevent hypoglycaemia as the patient is fasting. Thus, multidisciplinary collaboration is essential for the individualised care of the patient.
4. 'Communication' with the patient as well as with the relatives to plan the diet do's and don'ts. For example, the caretaker needs to be informed which food should be avoided. At the same time, communication with the other disciplines involved and the nurses who will be taking care and serving anti-aspiration prophylaxis if required is a must.

The Literacy skills include: (1) Information, (2) Media, (3) Technology referred as IMTs. The IMTs equip to discern the facts, the sources of the information, and the technology involved.

*Applying the IMTs*

1. 'Information Literacy' refers to understanding facts, statistics, figures, and data. For Mandelson syndrome, it refers to the incidence, risk factors, and effectiveness of preventive measures.
2. 'Media Literacy', implies to discern the sources of information available. Practice of evidence-based medicine is emphasised. Various platforms for the understanding of the subject are available, but to choose

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the approved and valid platforms, for example, the Medscape in addition to the textbooks.

3. 'Technology Literacy' refers to understanding the technology involved. For instance, understanding the various types of airway devices and how the endotracheal tube with the inflated cuff prevents Mandelson syndrome.

The 'Life and career skills' encompasses (1) Flexibility, (2) Leadership, (3) Initiative, (4) Productivity, and (5) Social Skills (FLIPS). These relate to personal life joining the professional life.

#### Applying FLIPS:

1. 'Flexibility' implies understanding the basic concepts, using them in a flexible way individualising to the patient concerned. It may not be possible to follow the strict 2,4,6, and 8 guidelines as patient may not be willing to get up in the night to eat before fasting. Thus, the idea is to mould it according to the patient's eating preferences.
2. 'Leadership' lies in following the concepts of Mandelson syndrome, preaching the principles to all involved and encouraging everyone to follow.
3. 'Initiative' to conduct webinars to educate health care professional as well as the public.
4. 'Productivity' implies moulding the principles in a productive manner. In emergency setting, it may not be possible to follow the fasting guidelines, so providing the anti-aspiration prophylaxis and modifying the anaesthesia accordingly can be a solution.
5. 'Social skills' are essential for health care professionals to deal with patients as well as colleagues. They come into play while dealing with a surgeon colleague and unfasted patient posted for an elective procedure planned under regional anaesthesia block. Here, it is essential to communicate to the patient and the surgeon, the risks involved, and the reason for postponement in a friendly way.

These skills can be incorporated into teaching other subjects as well. It is the need of the hour to equip our medical graduates with these specialised skills to be at par with the ever-advancing world of technology, artificial intelligence, and globalisation.

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