

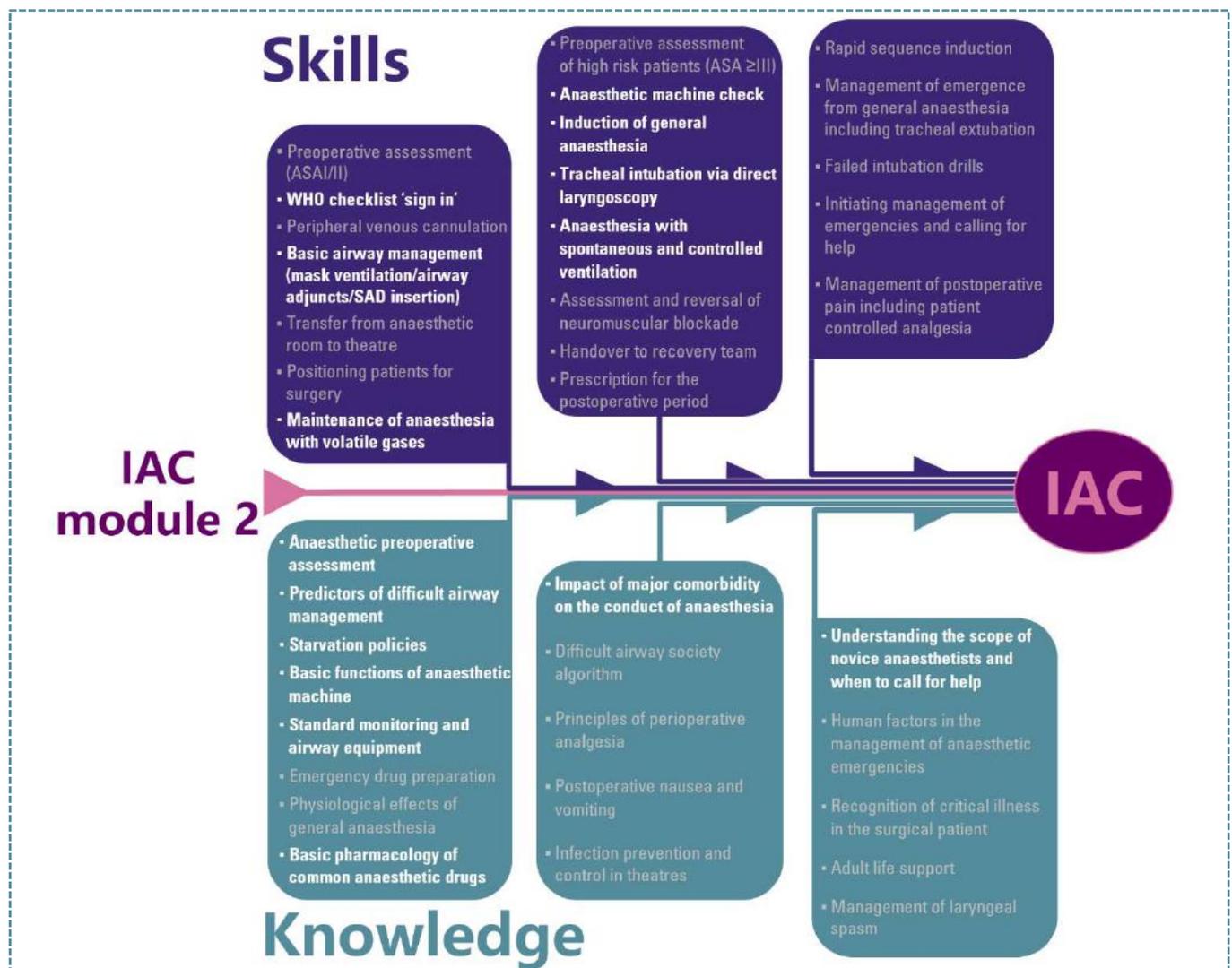
## Learning outcomes

By the end of IAC Module 2 the learner should be able to:

- Participate in safe use of the WHO Surgical Safety Checklist during team brief at the start of a theatre list
- Use the AAGBI Checklist for Anaesthetic Equipment 2012 and perform an anaesthetic machine check
- Understand the importance of planning and communication as part of an MDT
- Explain the drugs they would use and how they would perform induction of anaesthesia for an ASA I patient undergoing an elective procedure

## Trainer information

During the module learners will be developing skills and knowledge mapped to the RCoA IAC curriculum (see figure below).



Please note: IAC Module 1 provides background knowledge and platform familiarity which is desirable, but not essential to learners before undertaking IAC Module 2.

IAC Module 2 carries on the virtual elective upper GI list that the learner has developed during the preoperative assessment module, IAC Module 1. We re-join at point of the team brief before the start of the list. This allows the WHO to be introduced into the narrative.

The learner then is responsible for preparation of the environment for the first case including interacting with a virtual ODP, performing a virtual anaesthetic machine check using the AAGBI proforma.

The learner then plans and provides general anaesthesia to our virtual ASA I patient with a number of relevant decision points as the narrative develops.

## **Trainer information - discussion**

Discussion of the case should develop naturally according to the individual's learning needs in a similar fashion to a CbD in a clinical setting. The learner should be encouraged to develop their own professional judgment according to required curriculum competence areas. The learner should be aware of these as they are stated at the start and on completion of each Module.

Other points for discussion could include:

- What is a 'safety culture'?
- How does the use of checklists help promote safety in anaesthesia?
- Basic pharmacology of commonly used induction agents
- Basic pharmacology of maintenance agents
- What induction/maintenance agents would the learner use and why?

## Appendix 1: IAC Module 2 transcripts

**Narrator:** *The following video shows you how to undertake an example anaesthetic machine safety check. It is based on both the AAGBI safety guideline checking anaesthetic equipment 2012 which can be found on the AAGBI website as well as the checks we do on our machines in our local hospital. For your exam you will be expected to be familiar with the AAGBI safety checklist and you should have a print out copy of this as you watch this video to aid your learning.*

*Always undertake any check according to local hospital and manufacturer policies.*

**ODP:** *Hello. What I'd like to do today is a step by step how to check an anaesthetic machine.*

*The first thing you will need to do before checking your anaesthetic machine is to make sure a self inflating bag is present on your machine and your Ambi (self inflating) bag is 'Adult' and in date.*

*Next thing you need to do is to switch on your anaesthetic machine and check that all the elements are present on the anaesthetic machine. So before starting your checks the equipment you want to have are: a CO<sub>2</sub> absorber, a filter on the expiratory valve, a breathing circuit, a water trap, a CO<sub>2</sub> line, and an extra filter where your breathing circuit and CO<sub>2</sub> line will be attached. Obviously you want to add your bag for the ventilation.*

*After the machine turns on, before performing the safety checks, what you would like to do is make sure the machine is plugged in and switched on.*

*The next and last thing you want to do before performing the safety checks is the 'Tug Test'. Manufacturer says that instead of disconnecting all the pipes the only thing you should be doing to check them is the 'Tug Test' to make sure they are all functioning. By doing the tug test you will ensure they will last longer than disconnecting and reconnecting them all the time.*

*Once you have done these checks you can do your manufacturer checks. So you press on start and the first thing you do is access the back cylinders and open and close them. After you do this all the numbers will appear (on the screen) and you can click continue.*

*The oxygen flush is the first step. You press the oxygen flush button for approximately three seconds until you hear a noise and then you can release the button. You see it pass. The next check will be to check your inspiratory and expiratory valves are actually moving. In order to do that (on this machine) you open this cassette and visually inspect that both valves are moving.*

*After closing the cassette the next step will be to (press) continue and the machine will go into the self test and if something flags up the machine will tell you to double check yourself. Otherwise the test will be performed and the machine enters into standby mode. It will last in standby mode for 12 hours. After 12 hours a new test will need to be performed.*

*While the machine is performing its checks the next thing you will need to check is the suction. What you would like to do is make sure the whole (suction) system is there, all clean and new, and you will turn on the suction. You will want to make sure it will reach a certain pressure, and when you occlude the tube, that pressure will increase. After you use the suction you can turn it off.*

*Something else you will want to check is your auxiliary oxygen supply is working appropriately. You will turn on the flow and you just need to make sure oxygen is flowing appropriately.*

*After your machine has passed all the tests it will be in standby mode and the next thing we can do is the two bag test.*

*Firstly you want to attach your spare (reservoir bag) to one end of the breathing circuit. Then set up the fresh gas flow around 5 and (press) 'start case'. After starting case you will set the APL valve on approximately 30 and you will want to see both (inspiratory and expiratory limb) valves working correctly. After you can confirm that both valves are moving correctly you can*

*squeeze both bags together and what you would like to see is the peak pressure to reach approximately the same value as the APL. Yes you can see it's on thirty.*

*Next thing we need to do is switch on the ventilator and you can see movement in your bag, simulating the lungs. After you have performed this third and last test you can press 'end case' and confirm.*

*After performing a two bag test the next thing you need to do is check that the vaporisers are mounted correctly. In this case we have sevoflurane. Also desflurane and isoflurane are compatible.*

*You check that your soda lime is mounted and at the right level and that the gas outlet is correctly selected. On some machines you would have a manual switch on some you have an electric switch, like this case. If you were to pass from the common gas outlet to the AFGO, you would just need to click on this one, and select the appropriate one.*

*After checking that the gas outlet is correctly selected you want to make sure you have a T-piece on your anaesthetic machine and make sure the settings are appropriate for your patient, like in this case we have a tidal volume of 500, a respiratory rate of 12 and a PEEP of 5.*

*After checking your ventilator the next thing to be done is checking your scavenging system. Usually it's found somewhere on the anaesthetic machine. Like in this case here, in the centre, and it has a flow meter, and you will need to double check that it's actually working appropriately. Like in this case.*

*The next thing you want to check is your monitor. Just tap on your monitor and 'start case' and by using your fresh personal filter, (blows into CO<sub>2</sub> line via fresh filter) you can double check that your CO<sub>2</sub> waveform will create, (places saturation probe onto finger) and you will have sats probe on the monitor.*

*After making sure your alarms are appropriately set what you want to do is make sure your airway trolley is there and set up correctly. Double check what's your plan for the day and what's the plan for the first patient and you want to ensure the layout of the trolley is two blades, size 3 and 4, rescue iGels size 4 and 5, Guedel airways size 2 and 3, cannulation tray, and two ETT tubes size 7 and 8, tube tie and a ten ml syringe and your bougie.*

*Don't forget your: self inflating bag, your common gas outlet, your difficult airway equipment, your resuscitation equipment, and then your TIVA and other equipment.*

*Then in between cases what you want to do is perform the 'two bag test'. Make sure your ventilator is working fine, your airway trolley is set up and ready, your suction is changed and is clean.*

*Now this concludes our safety check for the anaesthetic machine, and what I would like to do now is to do all the checks without stopping and show you how these should be done.*

*(Demonstrates whole check in silence)*

*And at the end of the check I would do my two bag ventilation check.*