

# OR Setup & Anesthesia Machine Check

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# Hospital and Department Websites

- [www.tuftsmedicalcenter.org](http://www.tuftsmedicalcenter.org)
- [www.tuftsmedicalcenter.org/anesthesiology](http://www.tuftsmedicalcenter.org/anesthesiology)
- [www.qgenda.com](http://www.qgenda.com) (Schedules and Vacation)
- [www.maskinduction.com](http://www.maskinduction.com) (Pediatric Anesthesia Digital Handbook)
- [www.anesthesiahub.com](http://www.anesthesiahub.com) (Central Anesthesia Resource)
- Evernote (Organized Notes)
- New Innovations (Residency Management Portal)

# Telephone Directory Card

<b>ANESTHESIA</b>		
OFFICE	ZISK-6	6044
OFFICE	FLT-5	6023
CALL STAFF	ZISK-6	0079
CALL RES	PG-5	7303
CALL OR	FLT-5	4854
CALL L&D	RES	3325
CALL L&D	STAFF PG-3	7884
CONF ROOM	ZISK-6	9341
WORKROOM	FLT-5	6024
ASC	WORKROOM	9966
ANES OR	COORD.	4526
OB	WORKROOM	3325
<b>ICU'S</b>		
CCU	PG-6	6407
CTU	PG-5	6129
MIF	N-2	4200
MICU	PG-6	6408
NICU	N-2	5008
PICU	FLT-6	5007
SICU	PRG-5	5807
NCCU	PRG-6	1840
NIMC	PRG-6	1850
<b>CONNECTOR</b>	<b>LABS</b>	
PAGE	4115	CHEM 5818
OFFICE	4110	BLD BANK 6450
<b>EP LABS (SOUTH 3)</b>		
2 RIGHT	9491	ROOM 3 9493
1 LEFT	9492	
<b>ADMINISTRATIVE</b>		
PREOP	SOUTH-5	7538
PAIN CLINIC	SOUTH-5	6208
ADMITTING	PRG-2	6000
INFO		6033
AMB RECP		9980
OR SCHED		6031
PRE-CERT		4414
HELP DESK		6485

<b>OPERATING ROOMS</b>		
DESK	FLT-5	6028
ASC	NORTH-5	7976
L&D DESK	PRG-2	4250
CARDIAC SURG	SOUTH-6	5594
MRI	FLT-ST	4883
SPEC PRO	PRG-4	6332
PHARMACY	FLT-3	2362
<b>OPERATING ROOMS</b>		
ROOM 1	0209	CYSTO 0253
ROOM 2	0210	ROOM 14 0208
ROOM 3	0211	ROOM 15 0199
ROOM 4	0214	ROOM 16 9380
ROOM 5	0226	ROOM 17 9381
ROOM 6	3245	ROOM 18 9382
ROOM 7	0227	ROOM 19 9383
ROOM 8	0228	ROOM 20 9384
ROOM 9	0009	ROOM 21 9385
ROOM 10	0010	ROOM 22 9386
ROOM 11	0232	ROOM 23 9387
ROOM 12	0243	
<b>FLOORS</b>		
NORTH 4		5804
NORTH 6		6002
NORTH 7		1400
NORTH 8		6106
FLTG 7		5005-5006
PRG -7		5500
FARN 6		6141
PRG-5N		6105
PRATT 8		3014
<b>PACU'S</b>		
FLT-5		6020
PH-1(N-5)		9972
PH-II (S-5)		9976-9977
<b>EMERGENCY ROOM</b>		
NORTH 1		5566



Complex  
Environment

# Operating Room Setup

# Operating Room Setup

- **Organization is key!**
- You are the **Master of the Machine**
- Primary **cause** of Machine Malfunction is **failure to check**
- If you **don't understand** something, **ask!**
- **No one gets offended** when you request assistance



Organization is key

# Anesthesia Work Room

Floating Main OR & North 5 OR





# Anesthesia Work Room



# The Anesthesia Cart



Adult Anesthesia Cart

Pediatric Anesthesia Cart

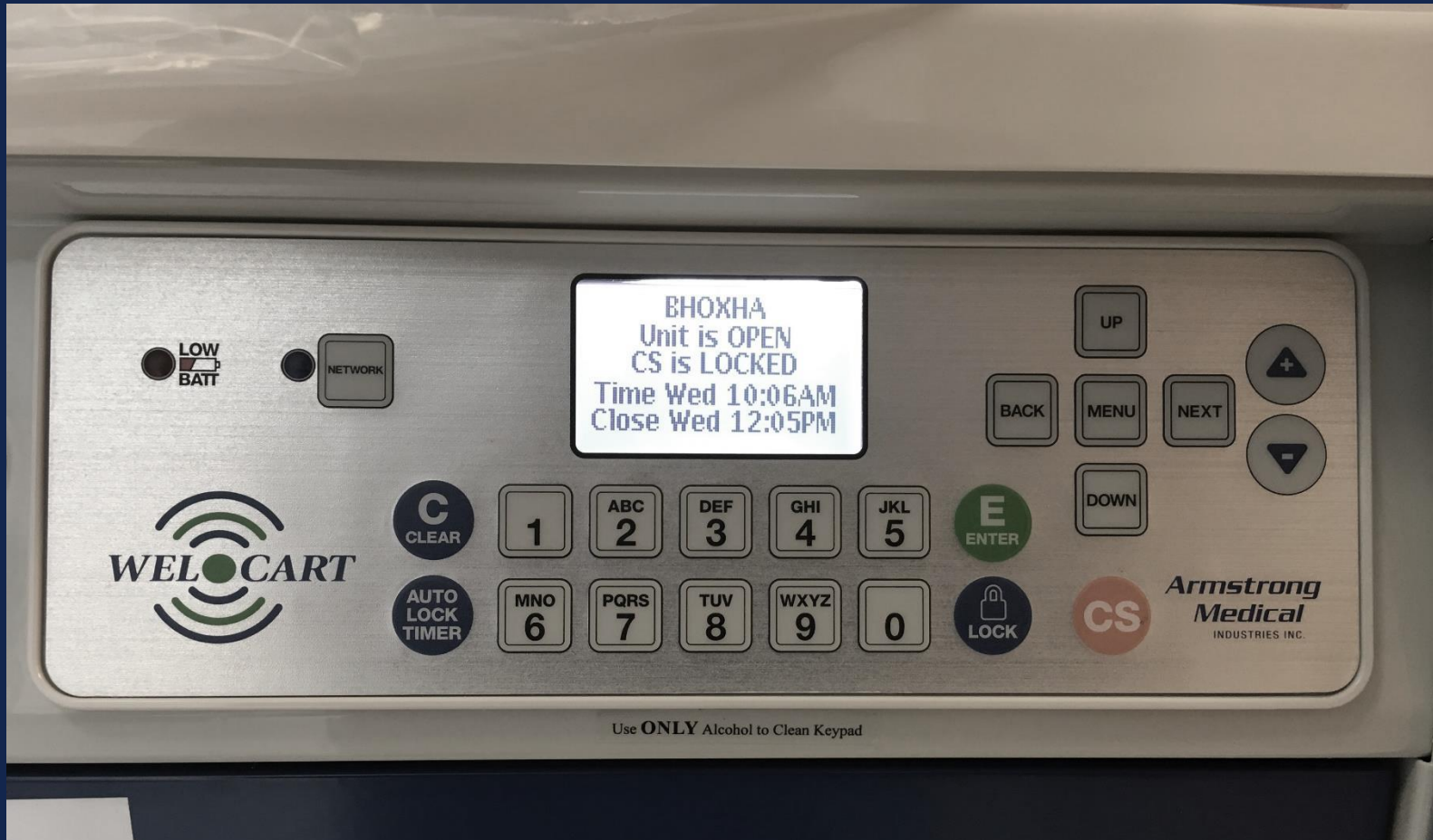
# Badge Access



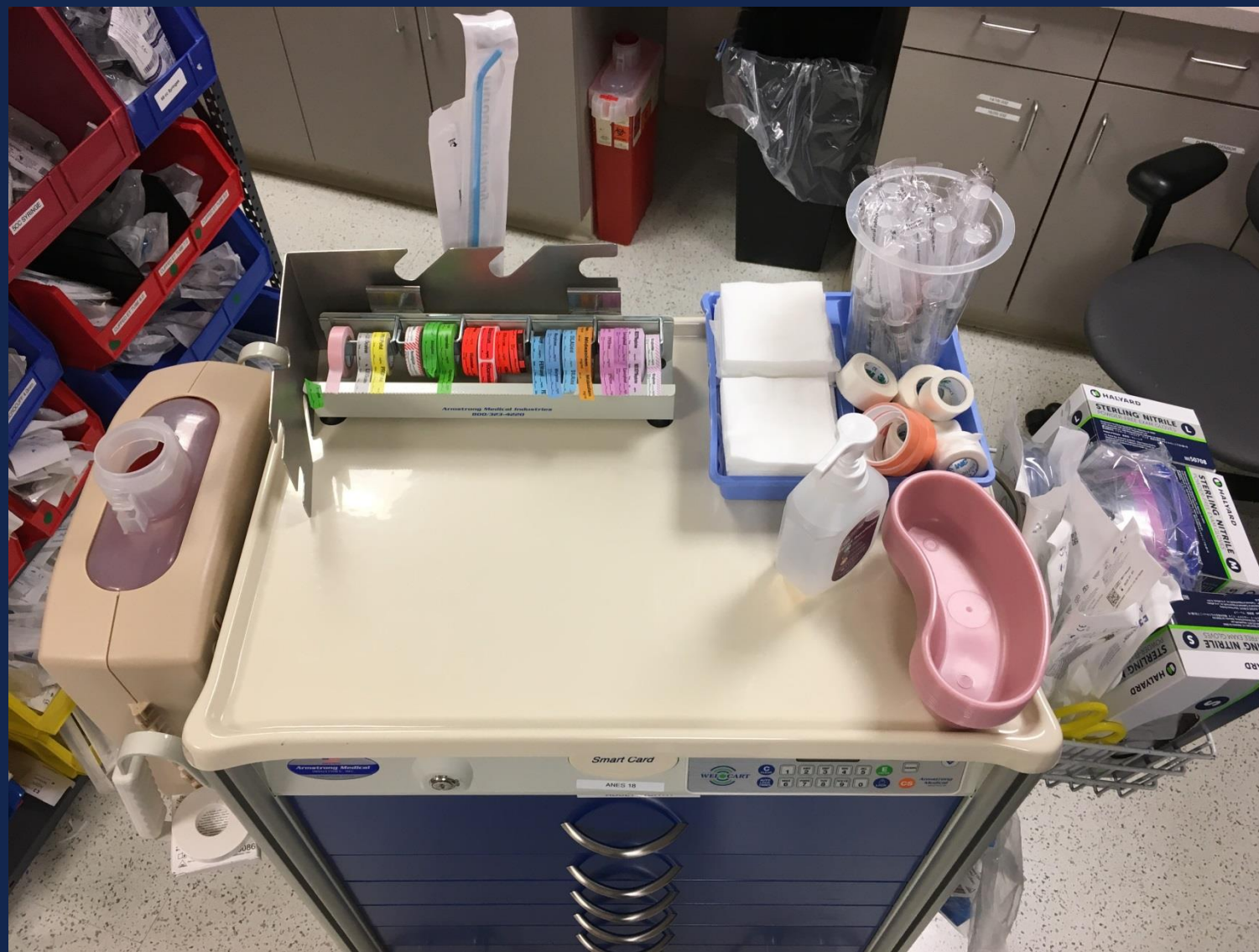
# Badge Access



# Badge Access

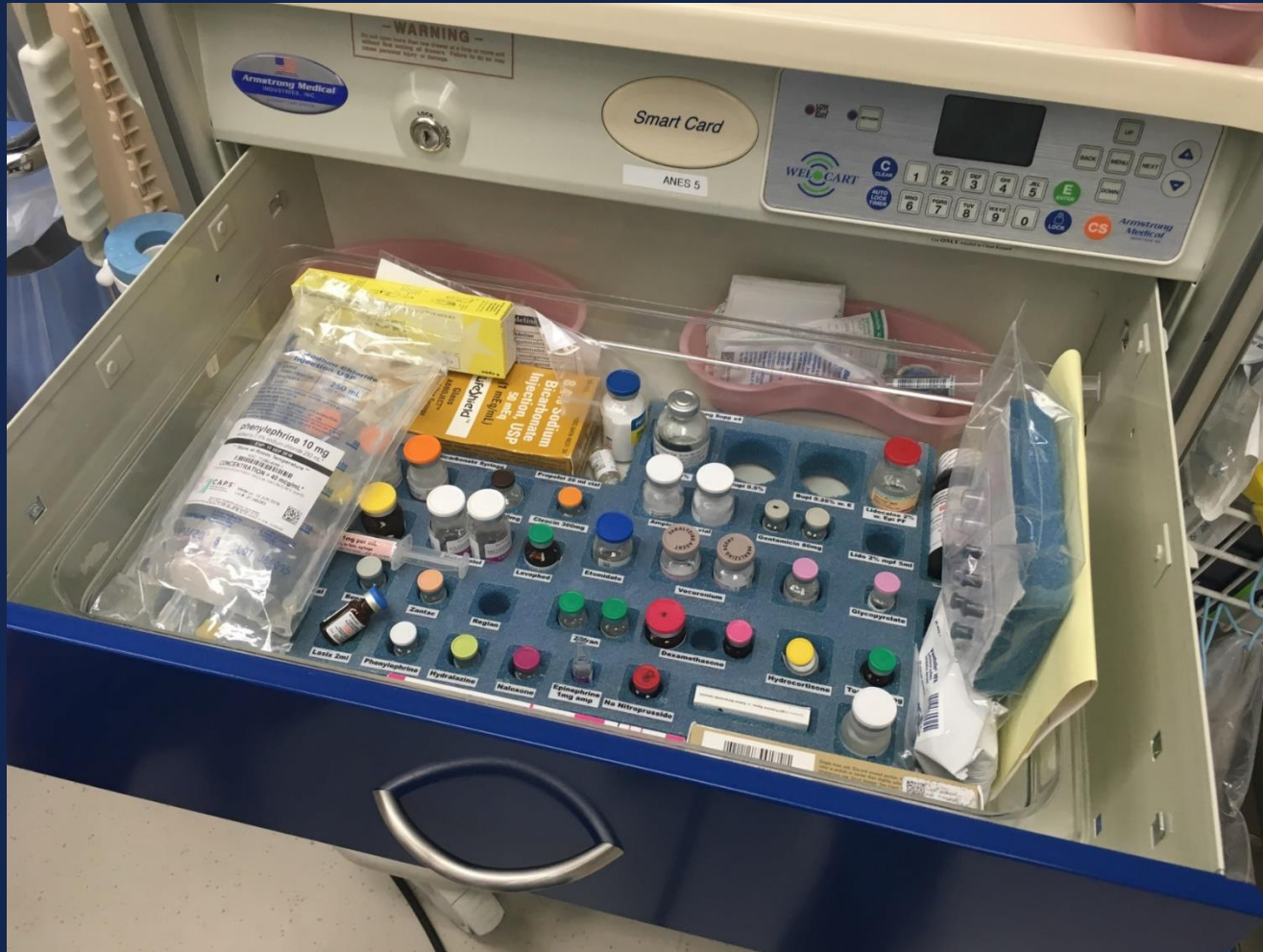


# Top of the Cart



# Anesthesia Drug Tray

(Floating 5 OR + Room 19 only)



Drawer No 1

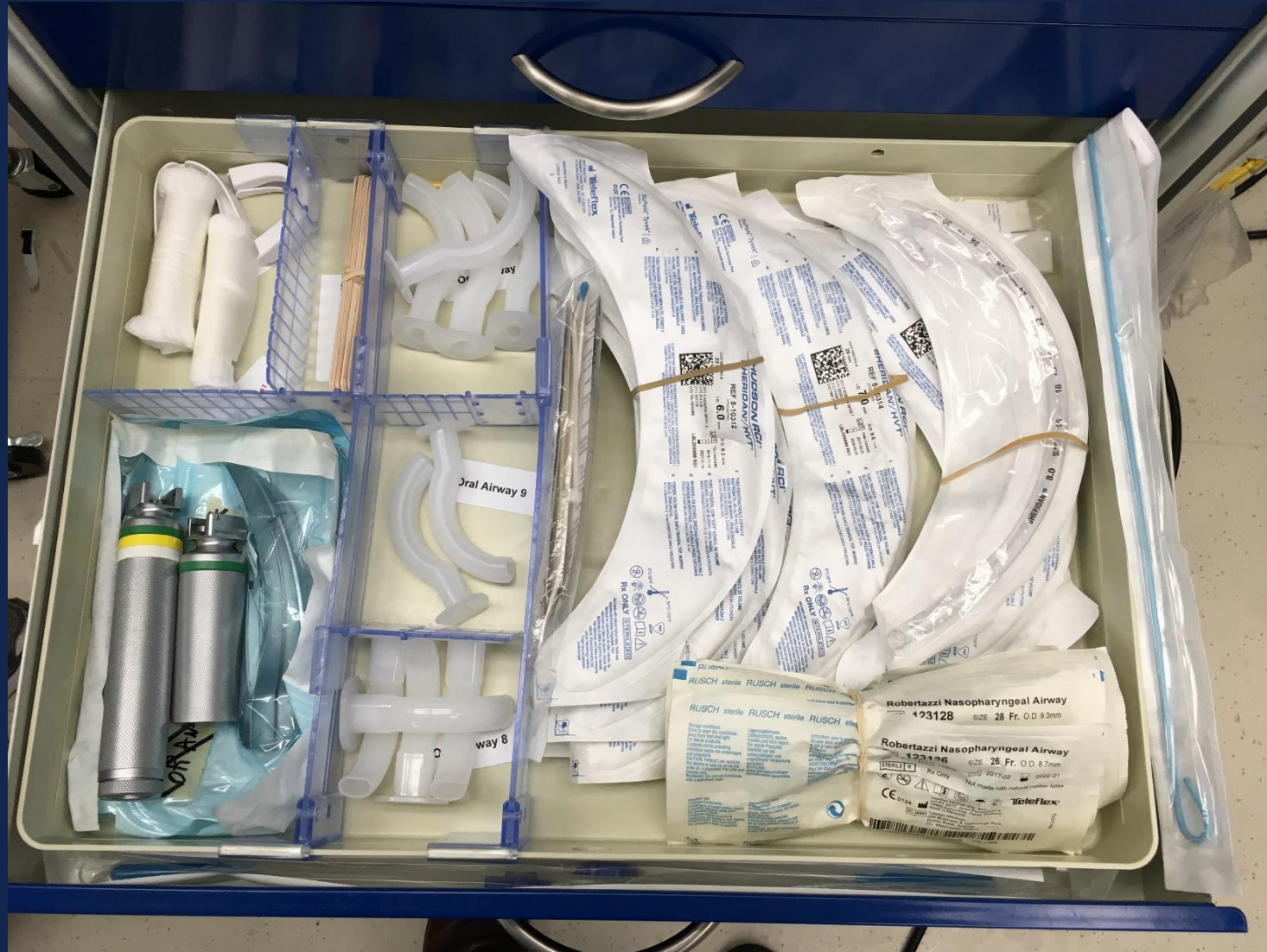
# The Adult Anesthesia Cart



Drawer No 2



# The Adult Anesthesia Cart



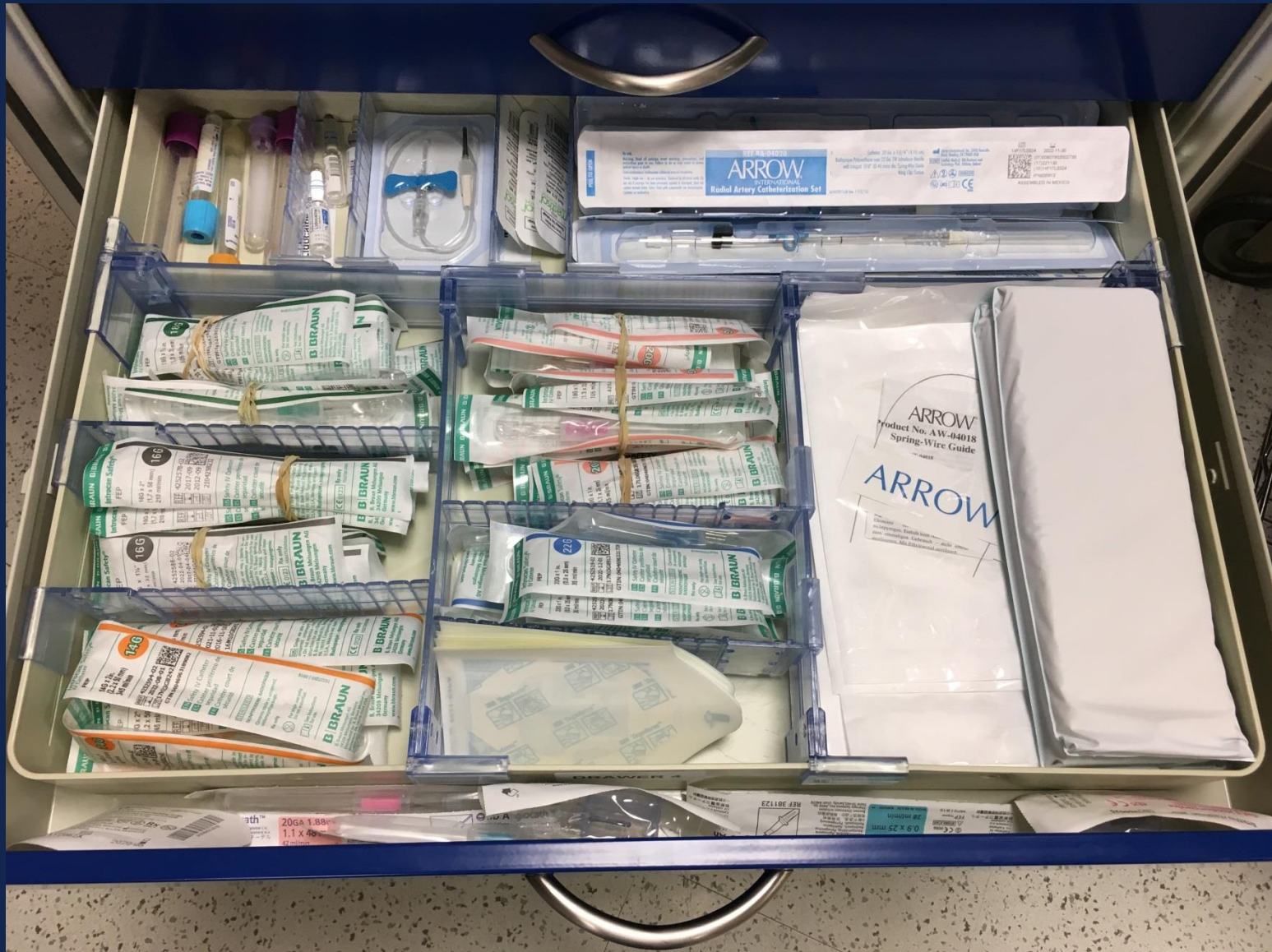
Drawer No 3

# The Adult Anesthesia Cart



Drawer No 4

# The Adult Anesthesia Cart



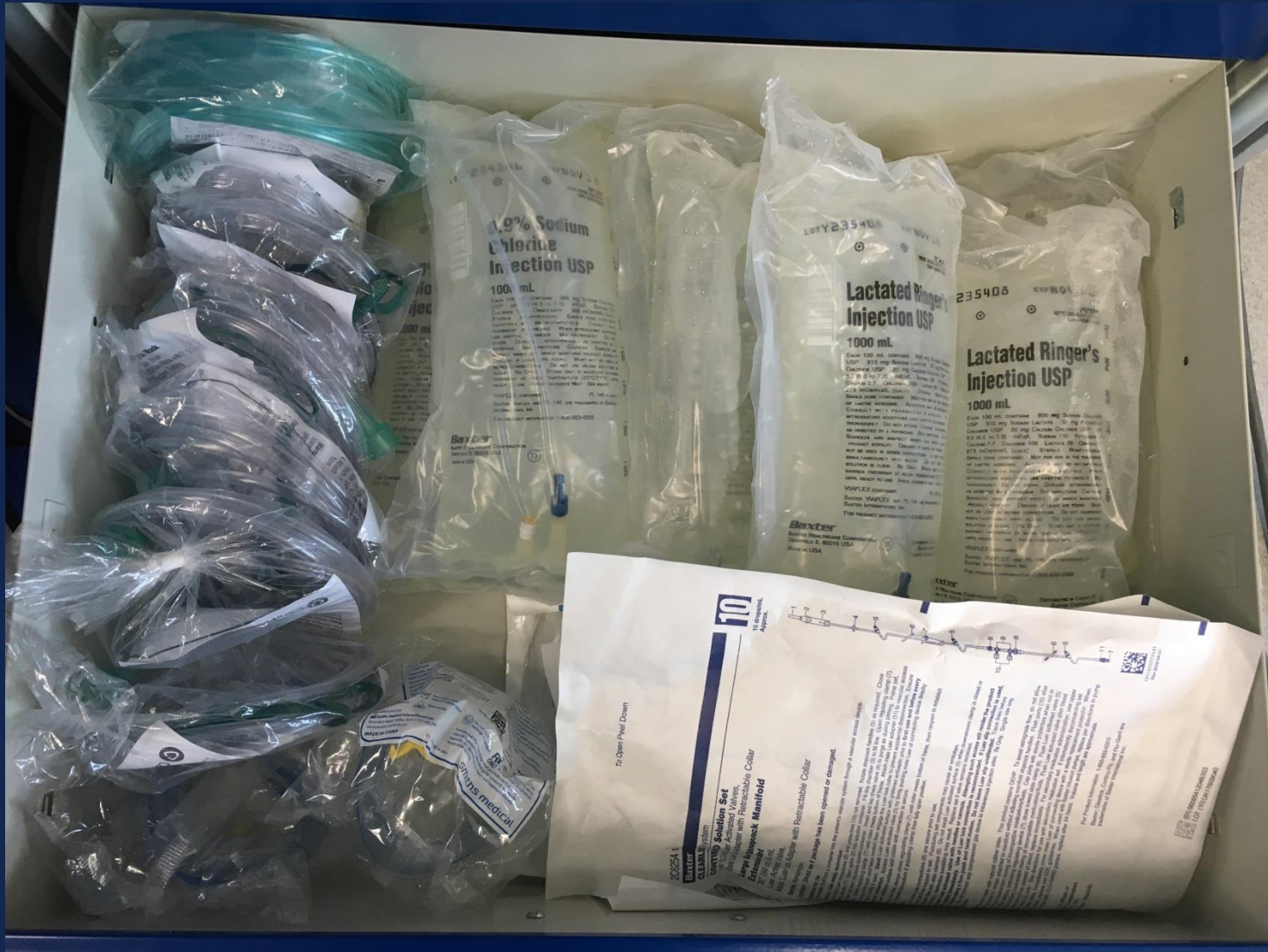
Drawer No 5

# The Adult Anesthesia Cart



Drawer No 6

# The Adult Anesthesia Cart



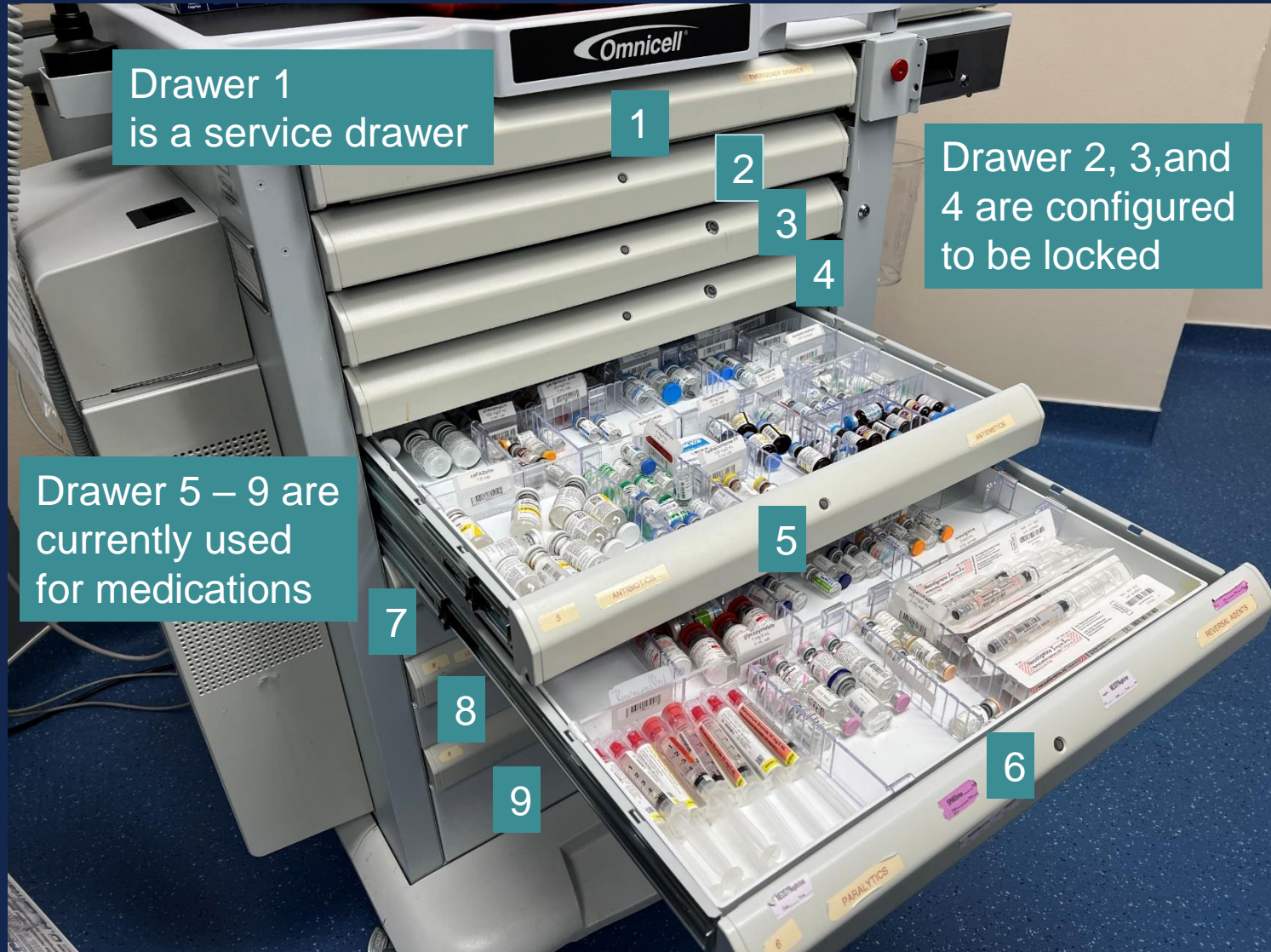
Drawer No 7

# Omnicell Drug Dispensing System

## Codonics Labelling System



# OMNICELL CONFIGURATION IN NORTH OR



# DRAWER 5

## OMNICELL CONFIGURATION IN NORTH OR





# DRAWER 6

## OMNICELL CONFIGURATION IN NORTH OR



# Room Setup “SAAMMI”

- Suction
- Anesthesia Machine Check-out
- Airway Stuff
- Monitors
- Medications
- IV Stuff

# Suction Setup





# Airway Stuff

Gloves

Nasal  
Airway

LMA

Assortment  
of Tape

Tegaderm

OG/NG  
Sump Tube

SurgiLube

Stylett  
ETT

Esophageal  
Temp Probe



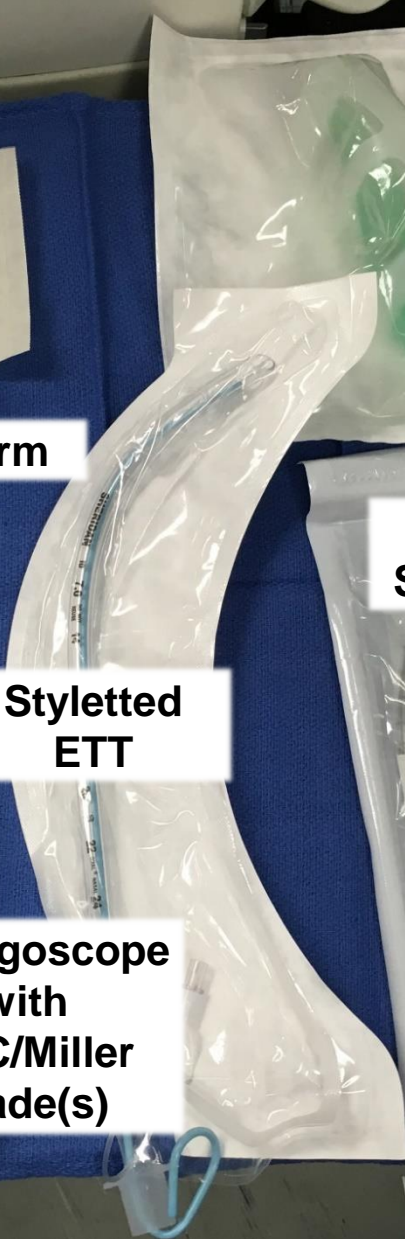
Oral  
Airways



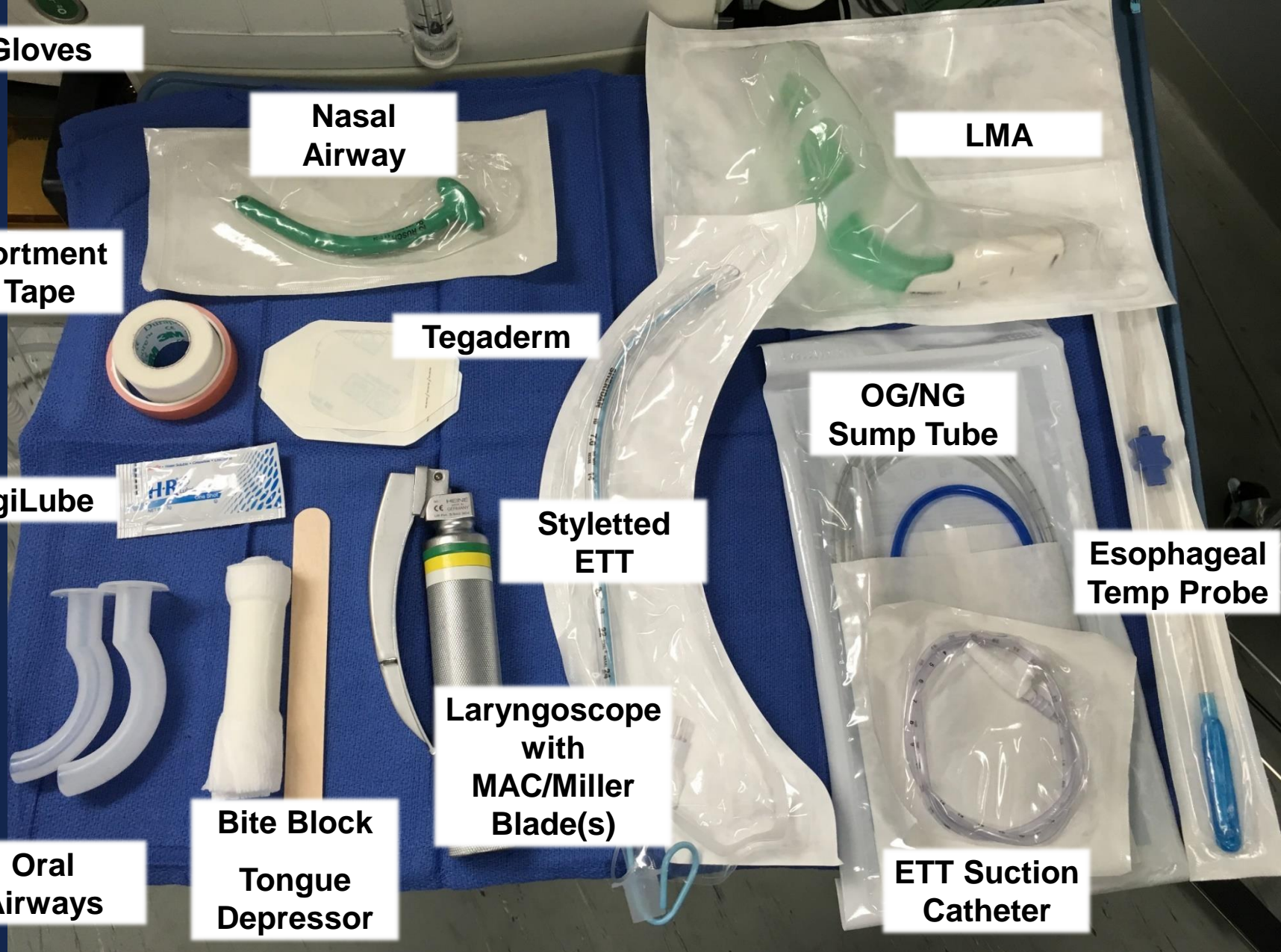
Bite Block  
Tongue  
Depressor



Laryngoscope  
with  
MAC/Miller  
Blade(s)



ETT Suction  
Catheter



# Monitor Controls

## MP 70 Screen 1



# Monitor Controls

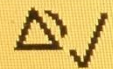
## MP 70 Screen 2

BP

Auto

/s.

XXX



Silence



Alarms  
Off



Monitor  
Standby



Alarm  
Volume



Vitals  
Trend



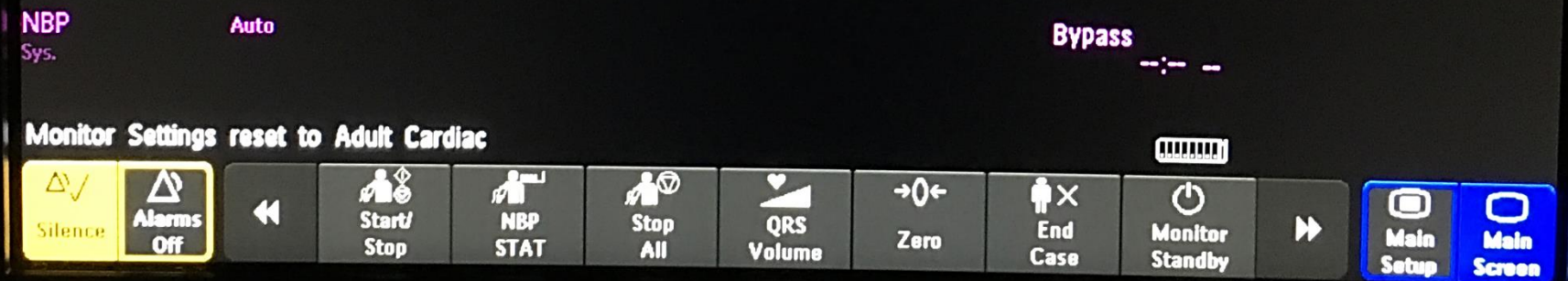
Alarm  
Limits



Hemo  
Calcs

# Monitor Controls

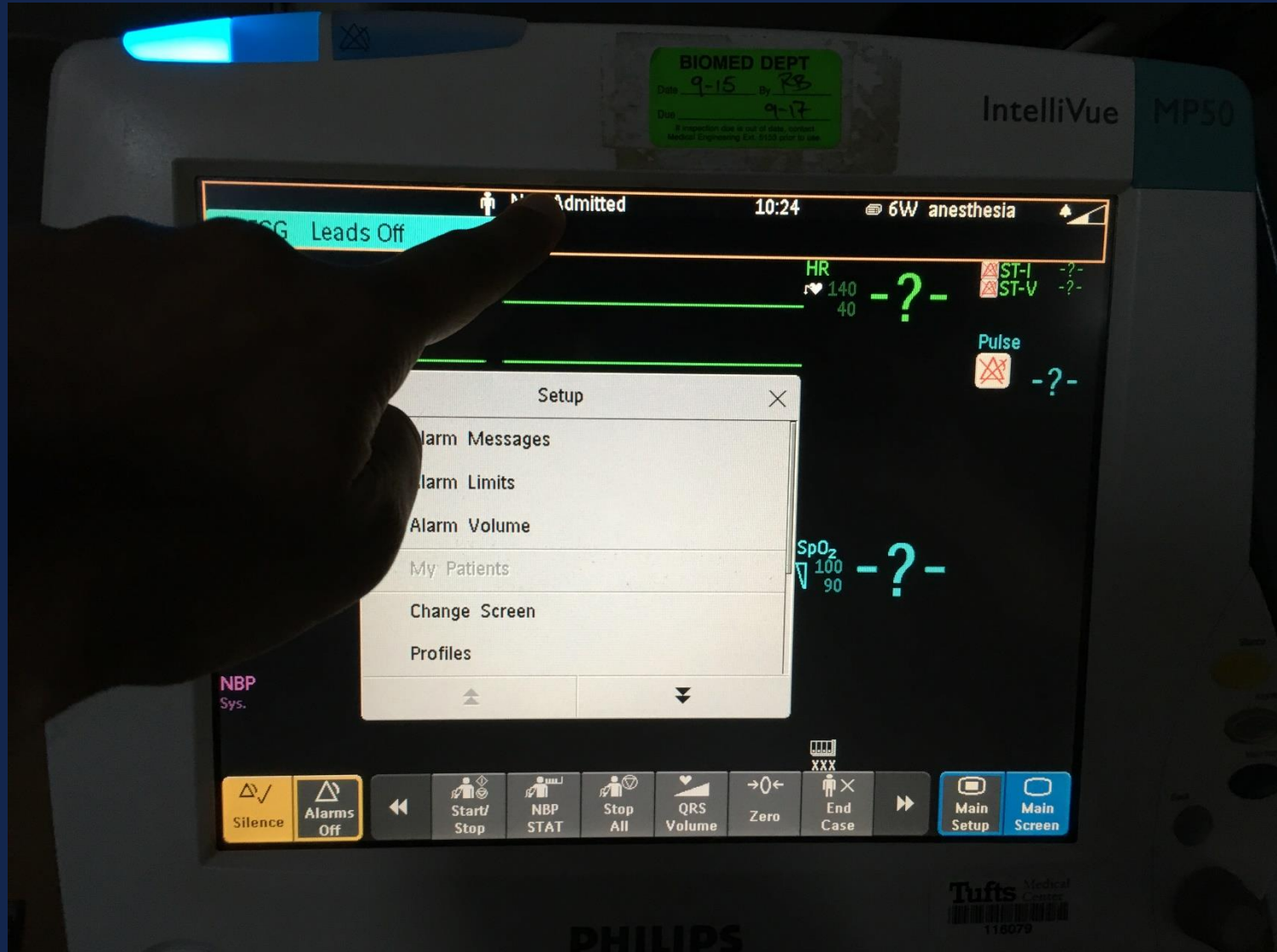
## MP 90 or equivalent



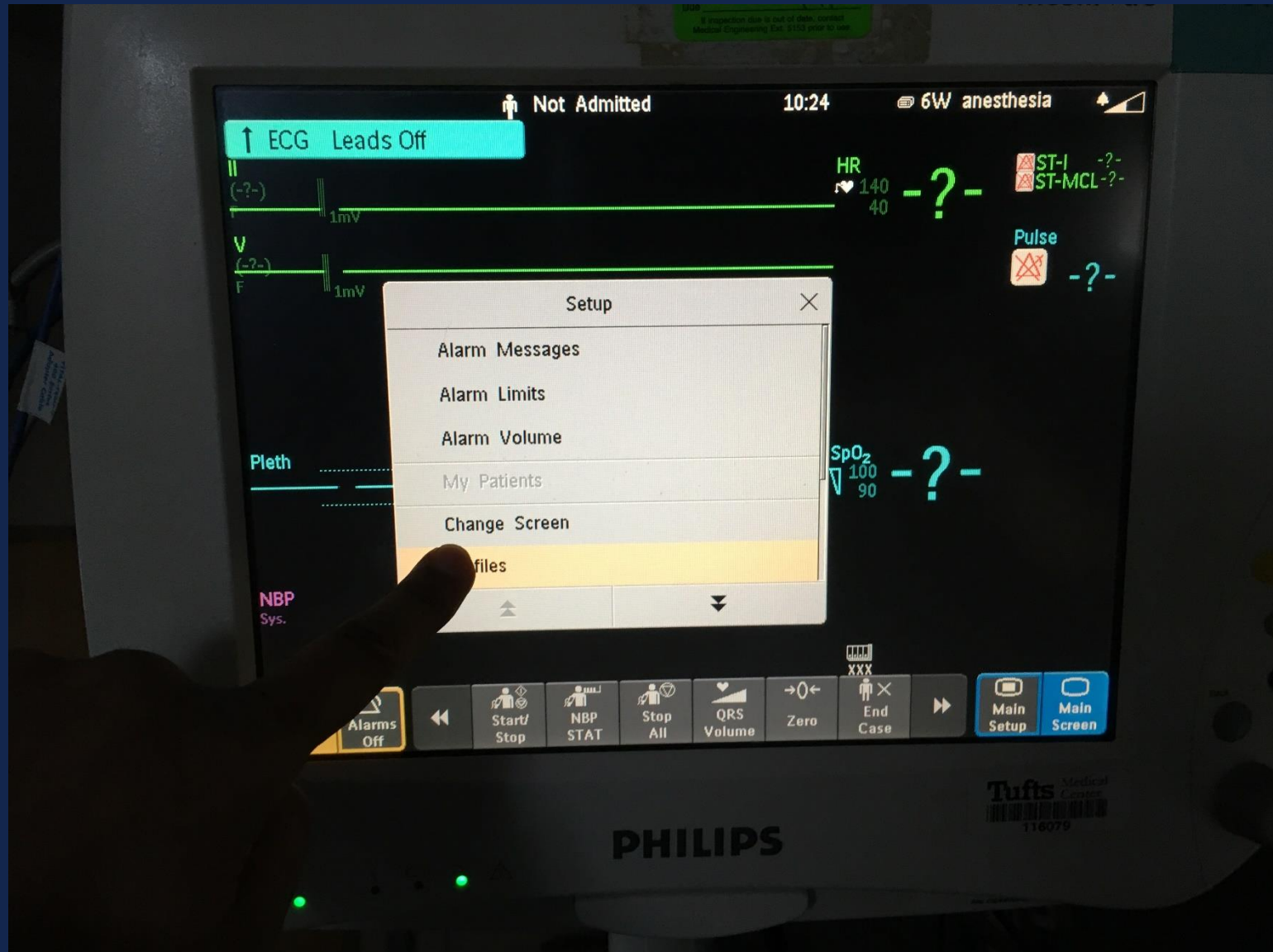
On “**Monitor Standby**” system remembers last settings



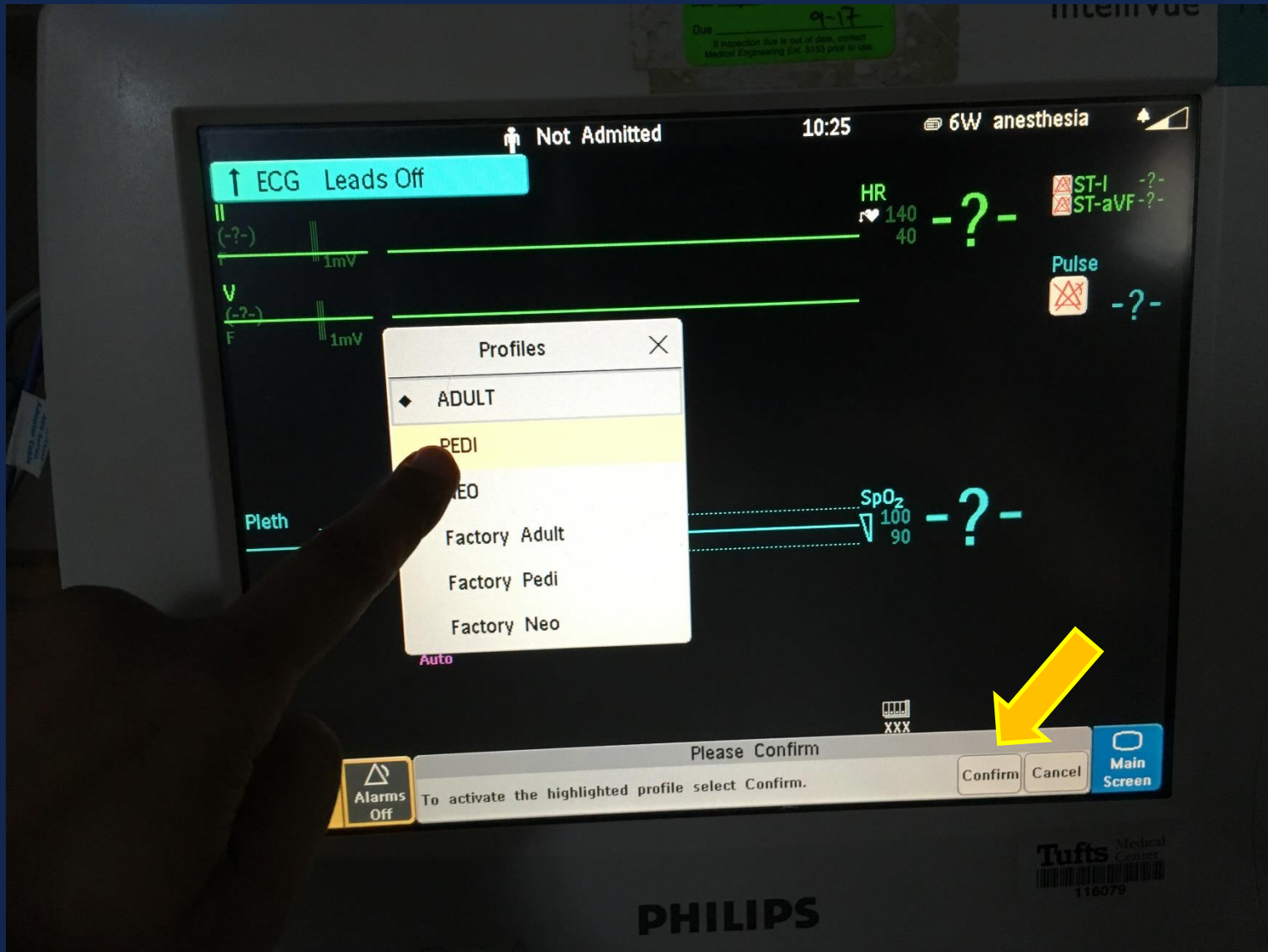
# Monitor PROFILE Setup on MP70



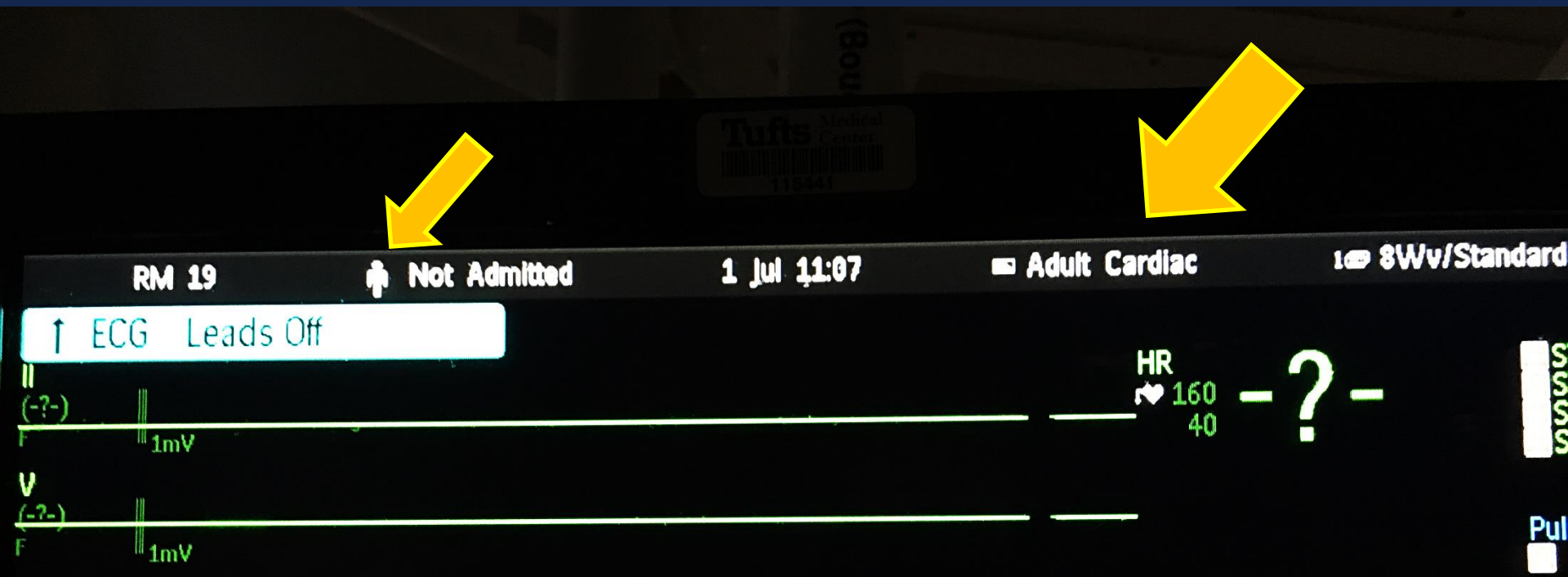
# Monitor PROFILE Setup MP70



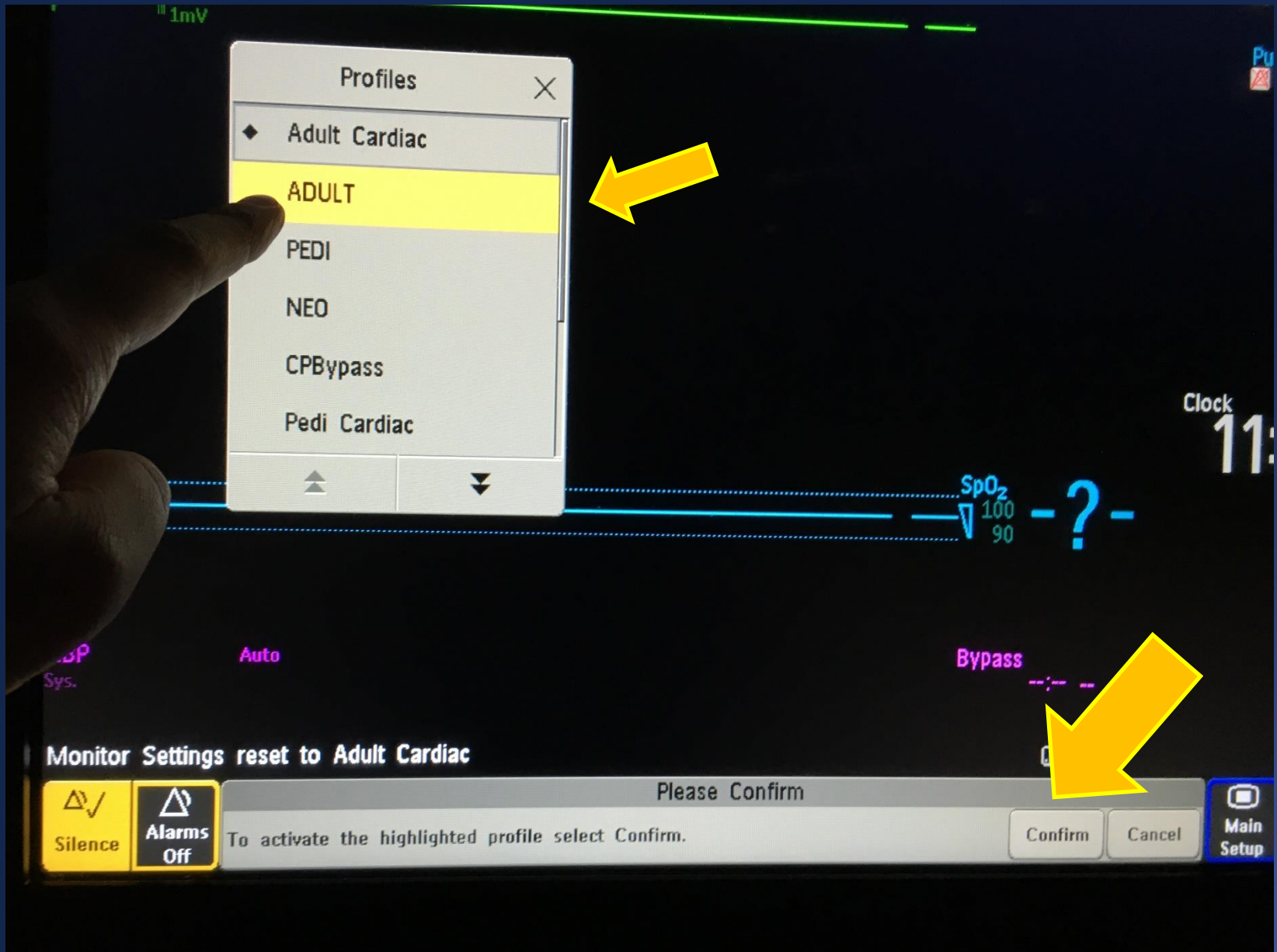
# Monitor PROFILE Setup MP70



# Monitor PROFILE Setup MP 90



# Monitor PROFILE Setup MP90

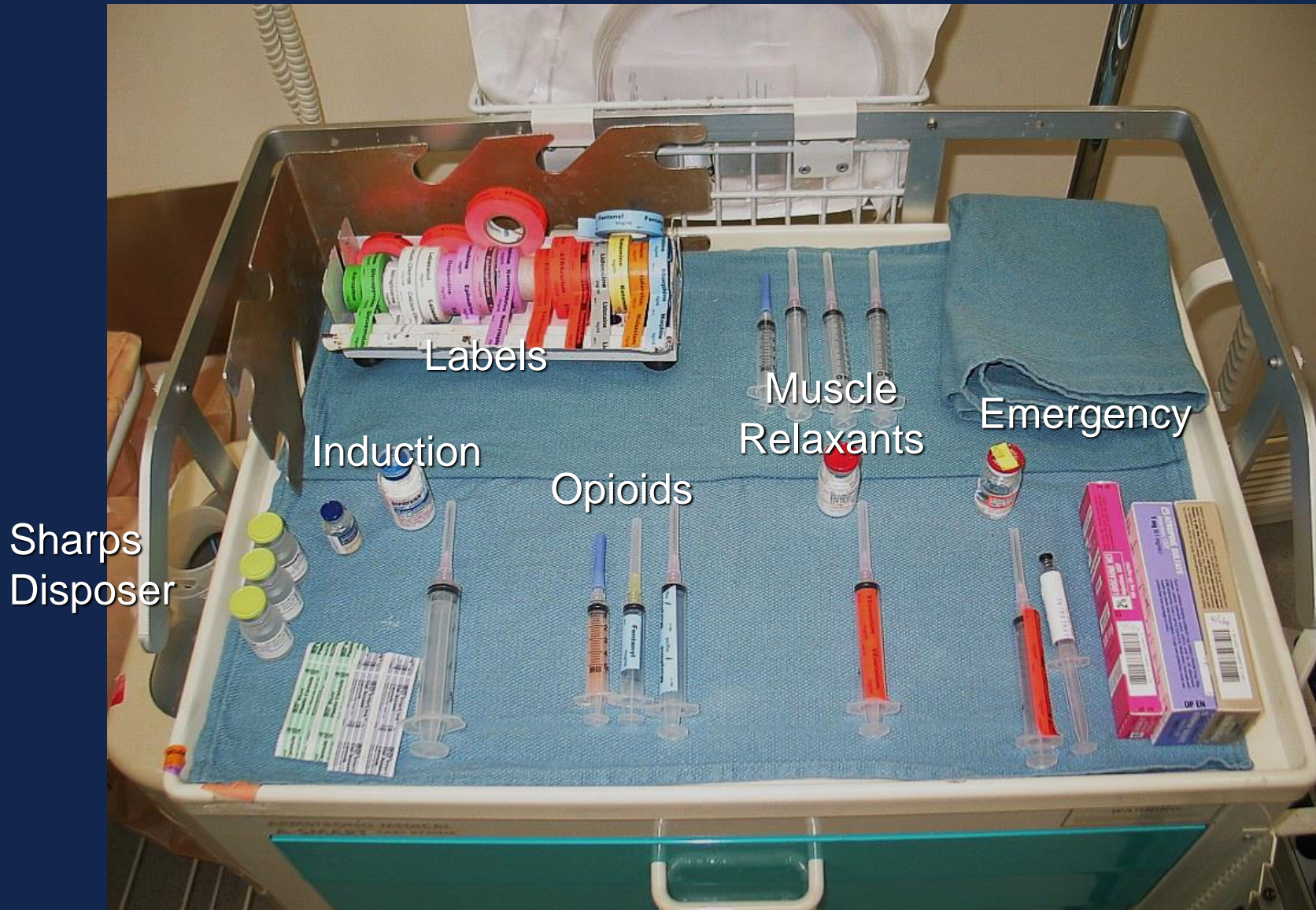


# Anesthesia Drug Tray

(Floating 5 OR + Rm 19 only)



# Medication Desktop



Sharps  
Disposer

Labels

Induction

Opioids

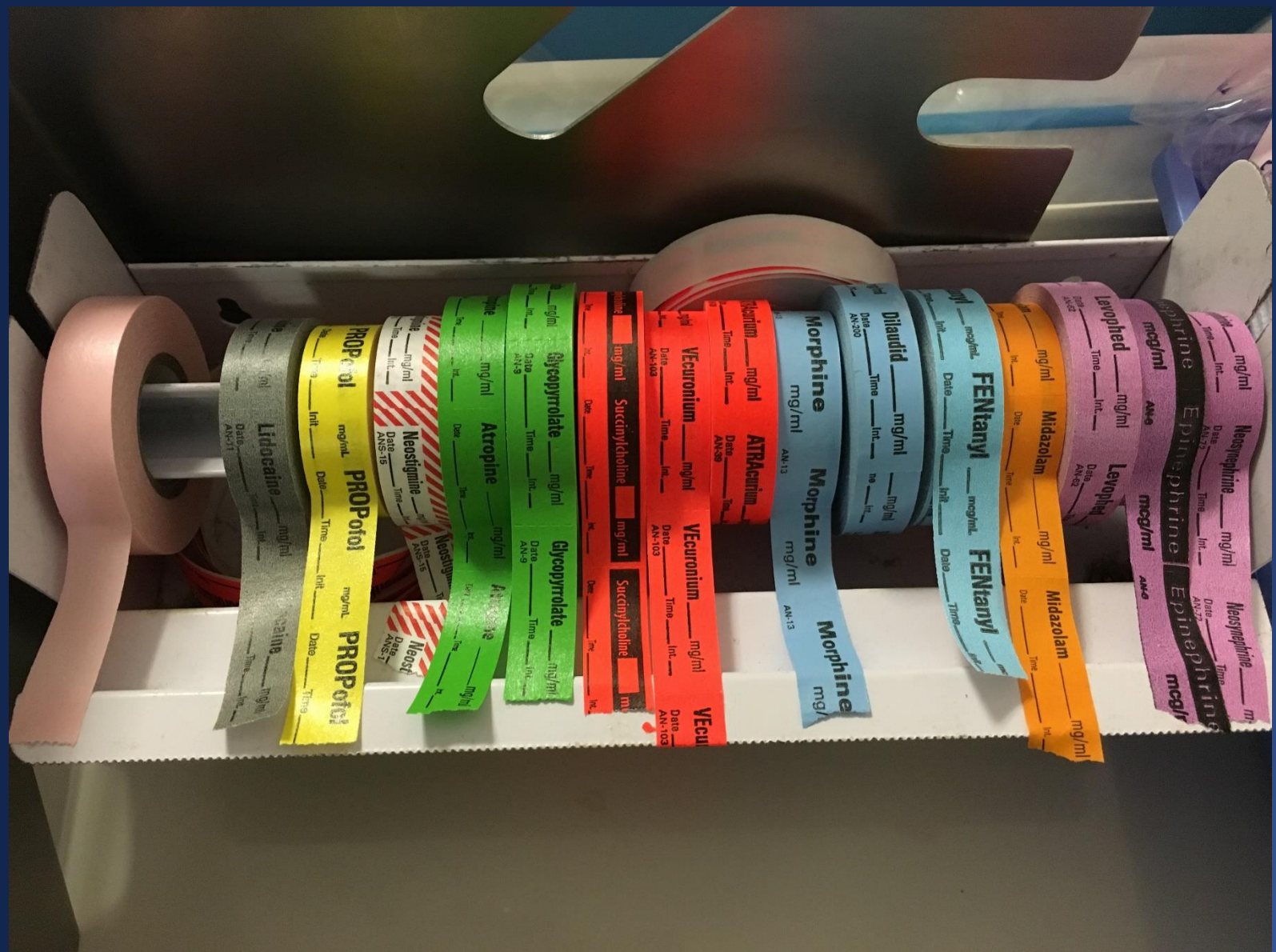
Muscle  
Relaxants

Emergency





# Labels



# IV Tray

IV Catheters

Alcohol Swabs

Tegaderm

Tourniquets

Gauze

Silk Tape

Arm Boards



# Room Setup “BEYOND SAMMI”

- 2 Blankets to position patients head in “Sniffing Position”
- Baer Hugger (forced air) Blankets and Machine
- Fluid Warming Device
- Infusion Pumps
- Transducers for Invasive Arterial and Central Pressure Monitoring
- Backup Ventilation Equipment (Ambu, Mapleson System)
- Precordial Stethoscope

# Setting up the Headrest Pillows / Blankets on the OR Bed

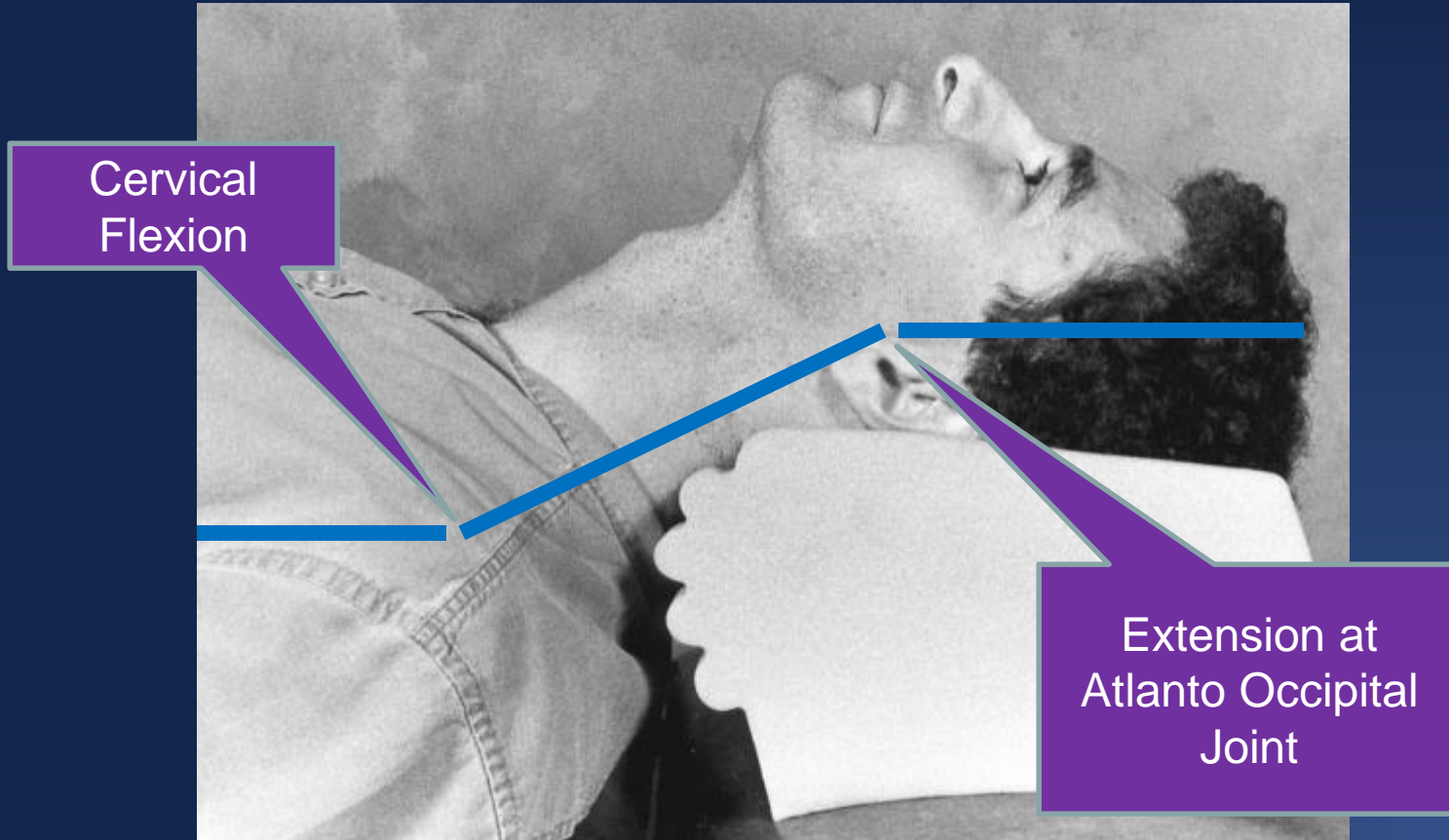


# Setting up the Headrest Pillows / Blankets on the OR Bed



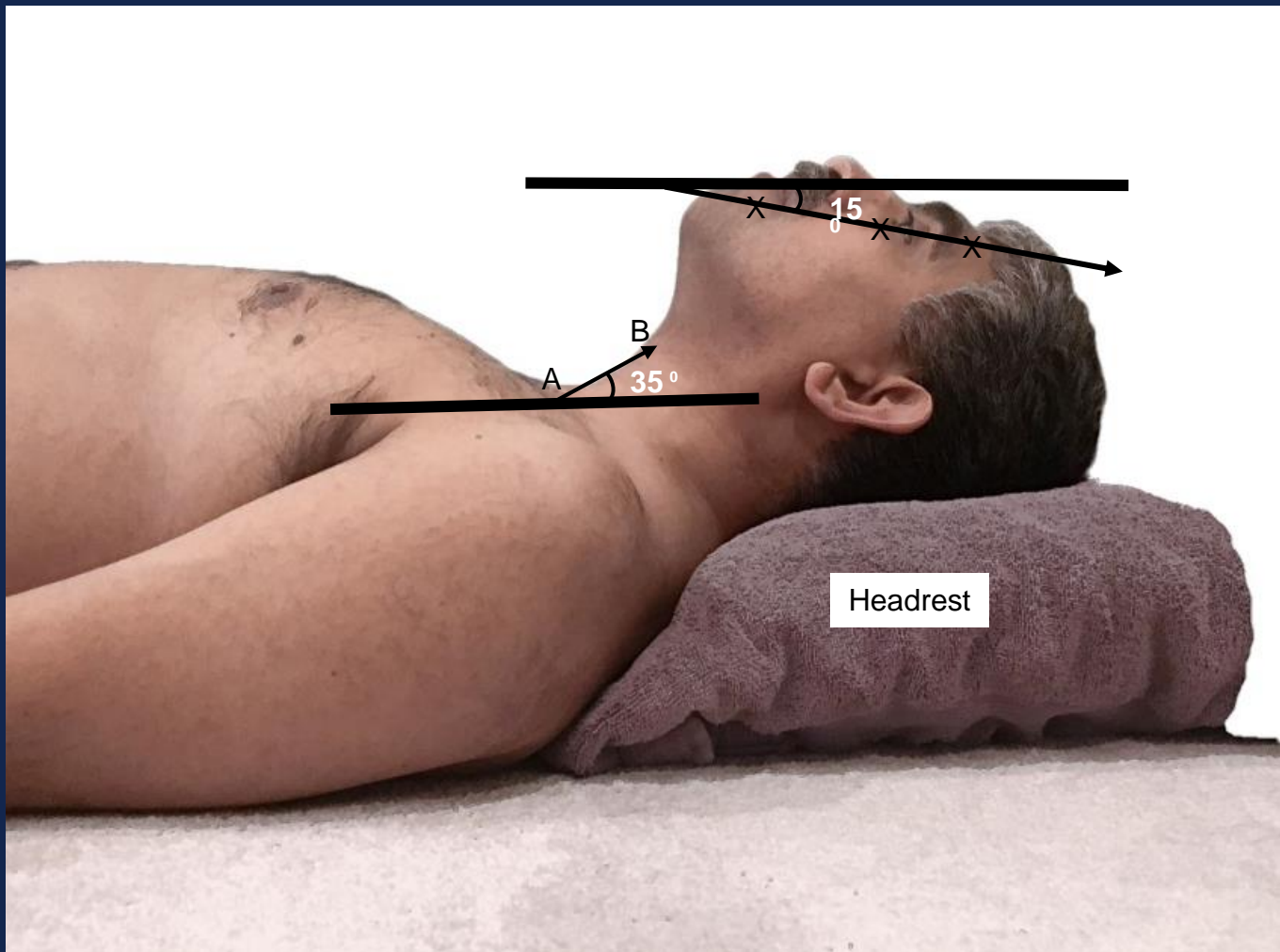
# “Sniffing Position”

Align the Laryngeal and Pharyngeal Axes



# “The Sniffing Position”

Based on Angles Defined by Horten et al





Organization is key

- Patient ID
  - Procedure, site, side marking confirmed with consent
  - Allergies
  - Antibiotic Prophylaxis
  - Equipment/implants available
  - Medications needed on field
  - Blood products
  - VTE prophylaxis
  - Anticipated difficult airway
  - Intended position
  - X-rays/PACS on screen
  - FRA Score
  - Post op plan
  - Does anyone have any concerns?
  - Initiated by surgeon or surgeon
- Patient ID
  - Procedure, site, side confirmed with consent
  - Surgical site mark visible
  - Patient position
  - Are we ready to proceed?
  - Initiated by the attending surgeon



# OR Table Controls



# Smart Infusion Pump



# Smart Infusion Pump



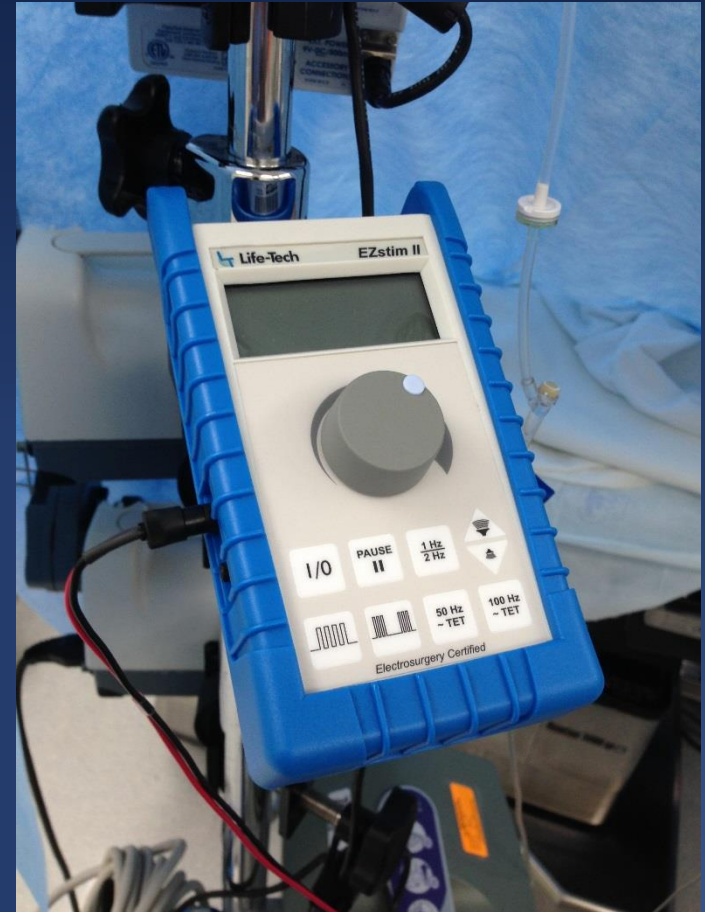
# Syringe Pump



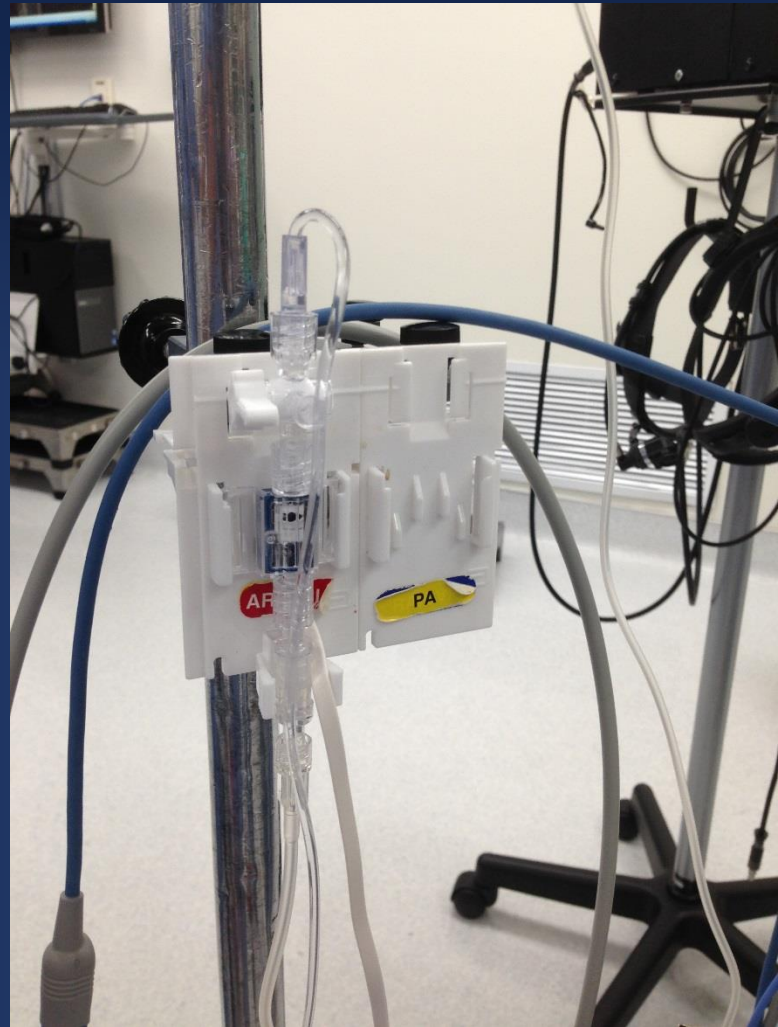
# Fluid Warmer



# Nerve Stimulator



# Pressure Transducer



# Stryker mistral-air “Forced Air Warming System”





# Video Laryngoscopes / Fiber optic Bronchoscopes



# Pre-Anesthesia Machine Checkout Procedure

Apollo Drager System

Fabius Drager System

# Anesthesia Machine Checkout

- In 1993, a pre-anesthesia checkout (PAC) was developed and widely accepted to be an important component of safe anesthesia practice.
- Since that time, new anesthesia delivery systems have been developed that require new checkout procedures.
- Further, new equipment designs are so different that a **SINGLE CHECKOUT PROCEDURE IS NO LONGER APPLICABLE**

# Functions of the Anesthesia Machine

- Convert supply gases from high pressure to low pressure
- Convert liquid agent to gas (vaporizer)
- Delivery of oxygen at concentrations up to 100%
- Deliver gases in a controlled manner
- Reliably provide positive pressure ventilation
- Remove CO<sub>2</sub> from expired gases
- Alert the provider to machine malfunction
- Prevent delivery of a hypoxic mixture

# Components of the Machine

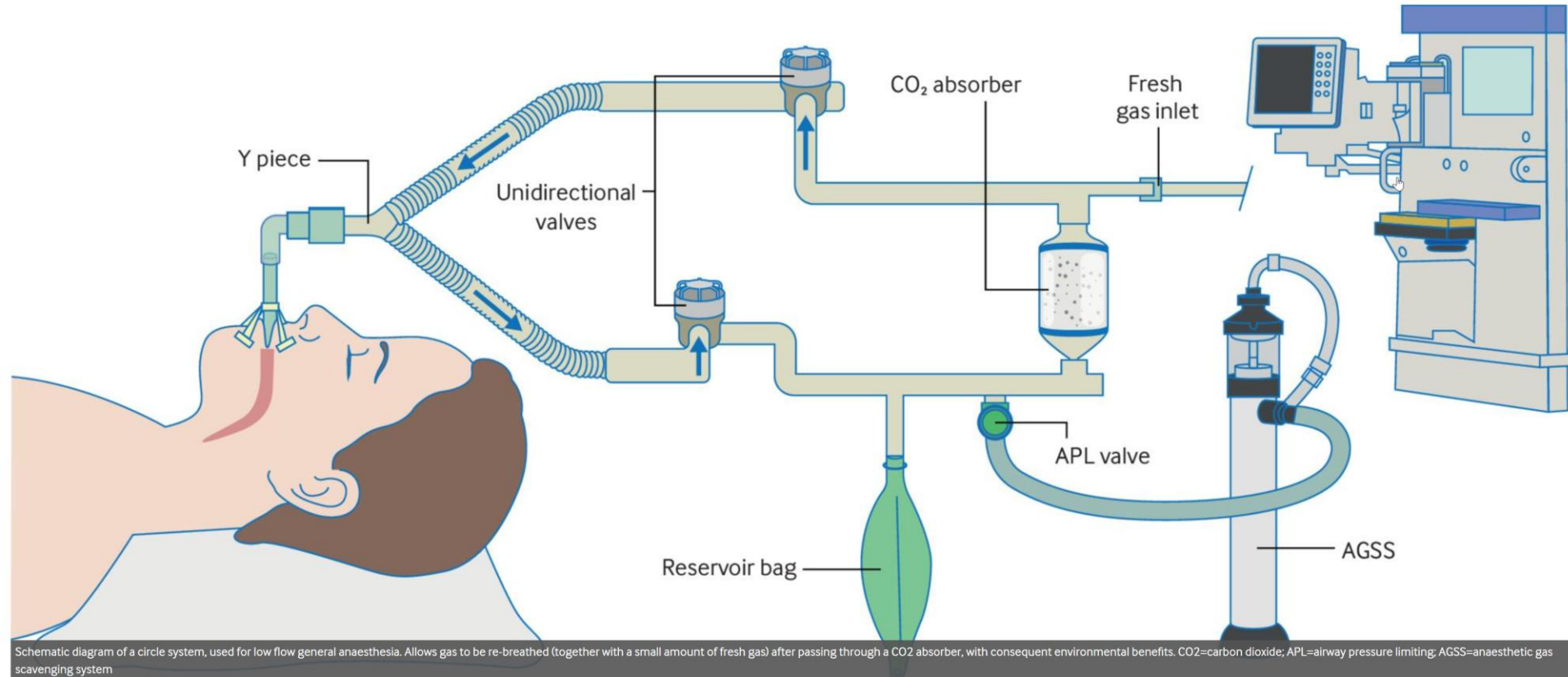
- Sources of Pressurized Gases
- Gas Pressure Regulators
- Gas Flow-meters
- Volatile Agent Vaporizers
- Machine Outlet and Emergency Oxygen
- Breathing System (circuit)
- Ventilator
- CO<sub>2</sub> Absorber
- Scavenging System

# Dräger Apollo

## Anesthesia Workstation

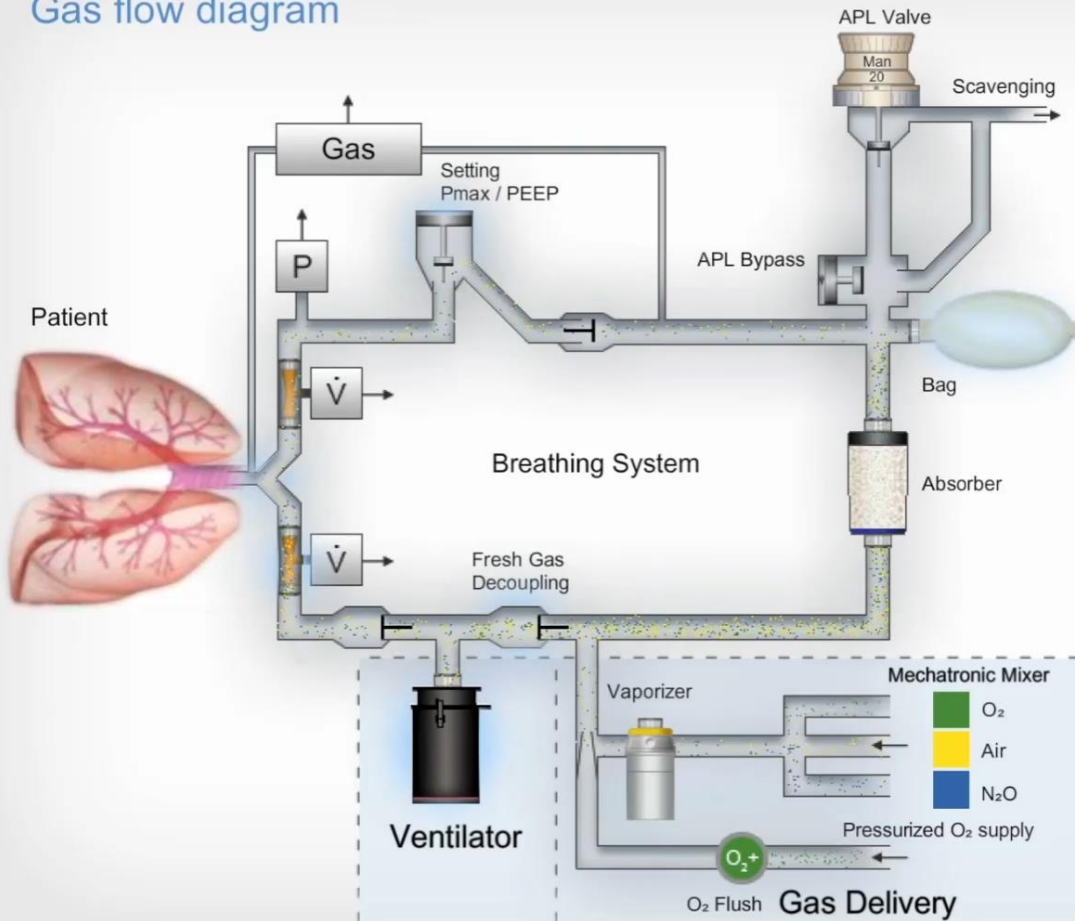


# The Circle System



# Gas Flow Diagram

Gas flow diagram



● Controlled ventilation

● Manual ventilation

● Spontaneous

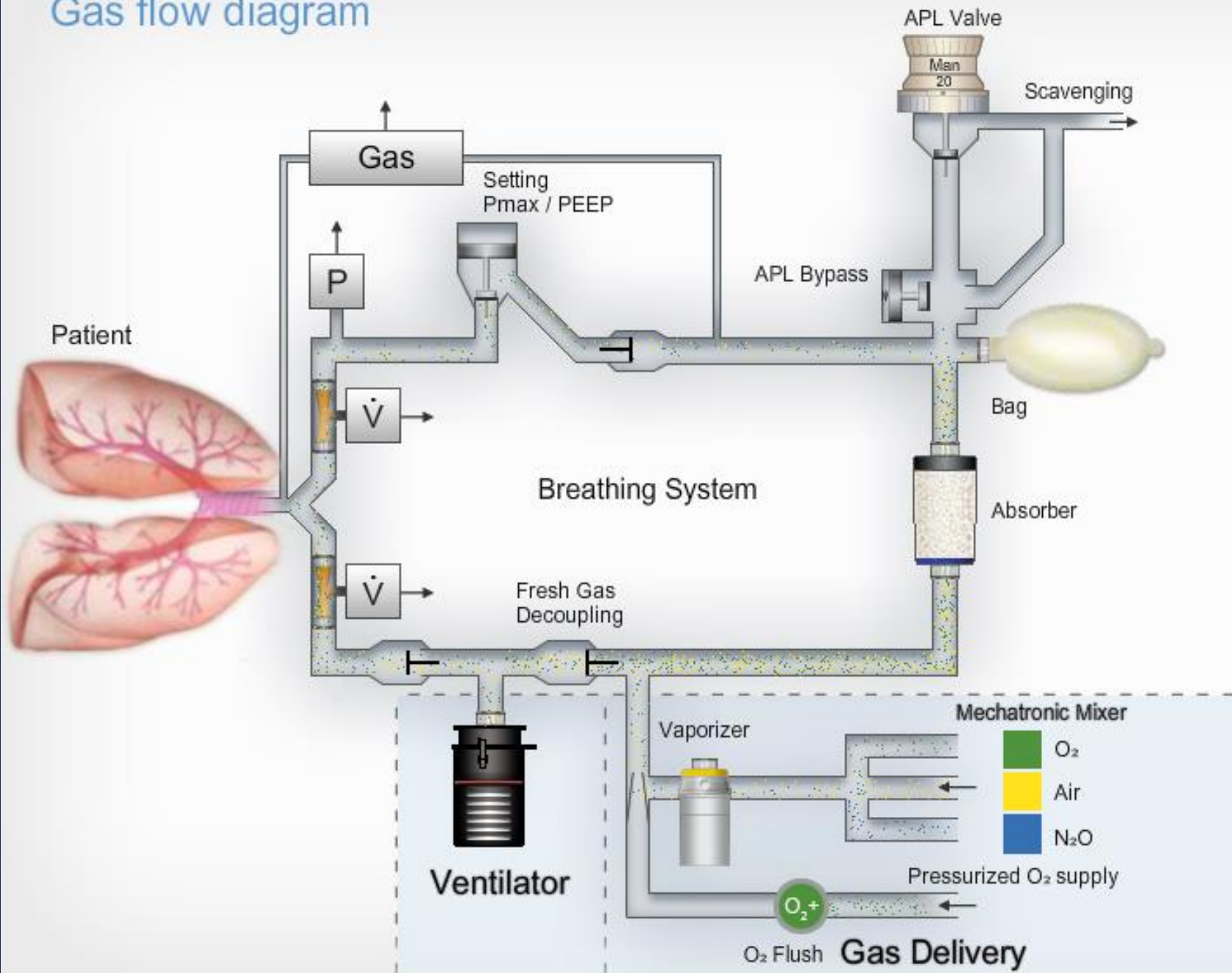
Info **Inspiration** Expiration

- The ventilator piston moves up depending on the set parameters.
- The PEEP/Pmax valve closes to the Pmax value in VC and to the P<sub>insp</sub> in PC.
- The fresh-gas decoupling valve closes.
- The volume goes through the inspiration valve, inspiratory flow sensor, inspiratory hose and the Y-piece into the patient's lung.
- The fresh-gas still flows in the manual breathing bag but not direct to the patient because of the decoupling valve.
- Any excess amount of the gas mixture flows through the one-way valve to the AGSS.

The ventilation pressure is limited by PEEP/Pmax valve.



# Gas flow diagram



# Piston vs. Bellows

- Apollo<sup>®</sup> has the ventilation technology to care for patients of any age and acuity. The E-Vent plus servo controlled high-speed piston ventilator works with great precision to supply a maximum peak flow far in excess of any bellows ventilator, resulting in the kind of performance previously only seen in the ICU. Additionally, unlike a bellows ventilator, it requires no drive gas. The very short response time has clear physiological benefits for your patients while the digital precision helps you make the most of the latest ventilation modes.

## Checkout Procedure

(based on 1993 guidelines)

1. Verify availability of functioning **Backup Ventilation Equipment**
2. Check **High Pressure System**
  - A. Check Oxygen Cylinder Supply
  - B. Check Central Pipeline Supplies
3. Check **Low Pressure System**
  - A. Check Initial Status of Low Pressure System
  - B. Perform Leak Check of Machine Low Pressure System

## Checkout Procedure

(based on 1993 guidelines)

4. Turn the Machine Master Switch to **ON**
5. Test **Flow Meters**
6. Check **Scavenging System**
7. Calibrate **O<sub>2</sub> Monitor**
8. Check **Breathing System**
  - A. Check initial Status
  - B. Perform Leak Check of the Breathing System (*breathing system high pressure check*)

## Checkout Procedure

(based on 1993 guidelines)

9. Test Ventilation Systems and Unidirectional Valves
10. Check, **Calibrate and/or Set Alarm Limits** to all Monitors
11. Check Final Status of Machine
  - A. Vaporizers off
  - B. APL valve open
  - C. Selector Switch to 'Bag'
  - D. All Flow meters to zero
  - E. Patient suction level adequate
  - F. Breathing system ready for use

# Intentional Redundancy

CRITICAL CHECKOUT STEPS benefit from  
INTENTIONAL REDUNDANCY.

(e.g. availability of backup ventilation  
equipment)

# Anesthesia Machine Checkout



Power Button

Dräger  
Apollo  
Anesthesia  
Workstation



# Dräger Apollo Machine Checkout





# Drager Apollo Machine Checkout

1. Verify Backup Ventilation Equipment
2. Verify Suction
3. Turn Machine ON
4. Perform MANUAL Check List as displayed on screen
5. Confirm to initiate Automatic Self Test
6. Prepare Machine for final use

# Drager Apollo Machine Check List

## Apollo

### Check List - Manual

**Gas Supply**

**Pipeline pressure**

- O<sub>2</sub> 54
- Air 43 psi
- N<sub>2</sub>O 0

**Cylinder pressure**

- O<sub>2</sub> 1494
- Air 1552 psi
- N<sub>2</sub>O 0

1. Open cylinder valves to check pressure. Close valves after check.

2. O<sub>2</sub> flush functional?

3. Aux. O<sub>2</sub> flowmeter functional?

**Breathing Hoses**

4. Correctly connected?

**Vaporizers**

5. Correctly locked in pos.?

6. Set to zero?

7. Fill level OK?

8. Safety filler locked?

**Breathing Circuit**

9. Fully assembled?

10. Correctly connected?

11. Gas scavenger connected and flow adjusted?

12. CO<sub>2</sub> absorbent OK?

CO<sub>2</sub> absorb. remain. days: 7

**Miscellaneous**

13. Water trap fill level OK?

14. Suction OK?

15. Emergency resuscitator present and functional?

**breathing system pressure**

0 15 30 45

**Prepare for the Self Test:**

16. Close all flow controls.

17. Occlude the Y-piece.

18. Connect the sample line.

**APL valve check:**

19. Set the APL valve to 30.

20. Press O<sub>2</sub> flush until breathing system pressure stabilizes: it should not exceed 45.

21. Release O<sub>2</sub> flush.

22. Pressure shall not fall below 15.

23. Lift APL valve. Pressure falls to 0?


Press confirm knob to start the automatic self test, or press <Cancel Test> for emergency operation.


Undo Change


Start Self Test

Cancel Test

Cancelled Selftests: 0

 Silence

 Next

 Home


Man. Spont. Vol. Mode Vol. AF Mode Press. Mode Press. Supp.

# Drager Apollo Machine Check List


## Apollo

### Check List - Manual

**Gas Supply**

 Pipeline pressure

O <sub>2</sub>	54	
Air	50	psi
N <sub>2</sub> O	50	

 Cylinder pressure

O <sub>2</sub>	1914	
Air	1900	psi
N <sub>2</sub> O	725	

1. Open cylinder valves to check pressure. Close valves after check.

2. O<sub>2</sub> flush functional?

3. Aux. O<sub>2</sub> flowmeter functional?

**Breathing Hoses**

4. Correctly connected?

**Vaporizers**

5. Correctly locked in pos.?

6. Set to zero?

7. Fill level OK?

8. Safety filler locked?

**Breathing Circuit**

9. Fully assembled?

10. Correctly connected?

11. Gas scavenger connected and flow adjusted?

12. CO<sub>2</sub> absorbent OK?

CO<sub>2</sub> absorb. remain. days: 7

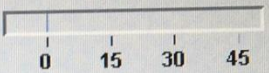
**Miscellaneous**

13. Water trap fill level OK?

14. Suction OK?

15. Emergency resuscitator present and functional?

breathing system pressure



0    15    30    45

**Prepare for the Self Test:**

16. Close all flow controls.

17. Occlude the Y-piece.

18. Connect the sample line.

**APL valve check:**

19. Set the APL valve to 30.

20. Press O<sub>2</sub> flush until breathing system pressure stabilizes: it should not exceed 45.

21. Release O<sub>2</sub> flush.

22. Pressure shall not fall below 15.

23. Lift APL valve. Pressure falls to 0?

Press confirm knob to start the automatic self test, or press <Cancel Test> for emergency operation.

Absorb. changed

Start Self Test

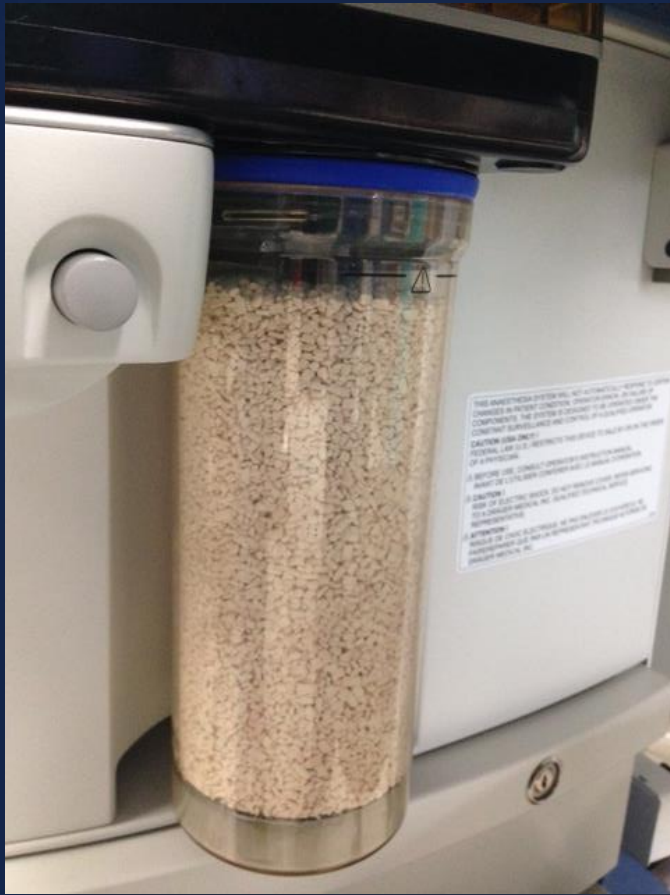
Cancel Test

Cancelled Selftests: 0

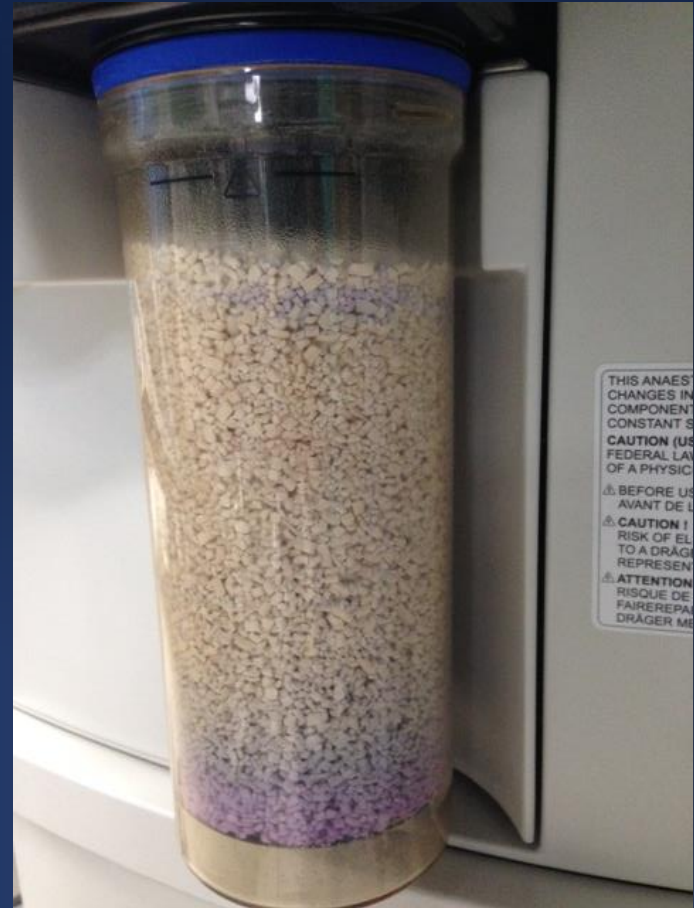
# Anesthesia Machine Checkout

## MANUAL CHECK LIST

1. Gas Supply
  - Pipeline and Cylinder
2. Vaporizers
3. Breathing Circuit
4. Miscellaneous
  - Suction
  - Water Trap
  - CO<sub>2</sub> Absorbent
  - Aux O<sub>2</sub> and Backup Ventilation Equipment



*Fresh CO<sub>2</sub> Absorbent*



*Exhausted CO<sub>2</sub> Absorbent*

Notice the color change and water condensation

# Anesthesia Machine Checkout

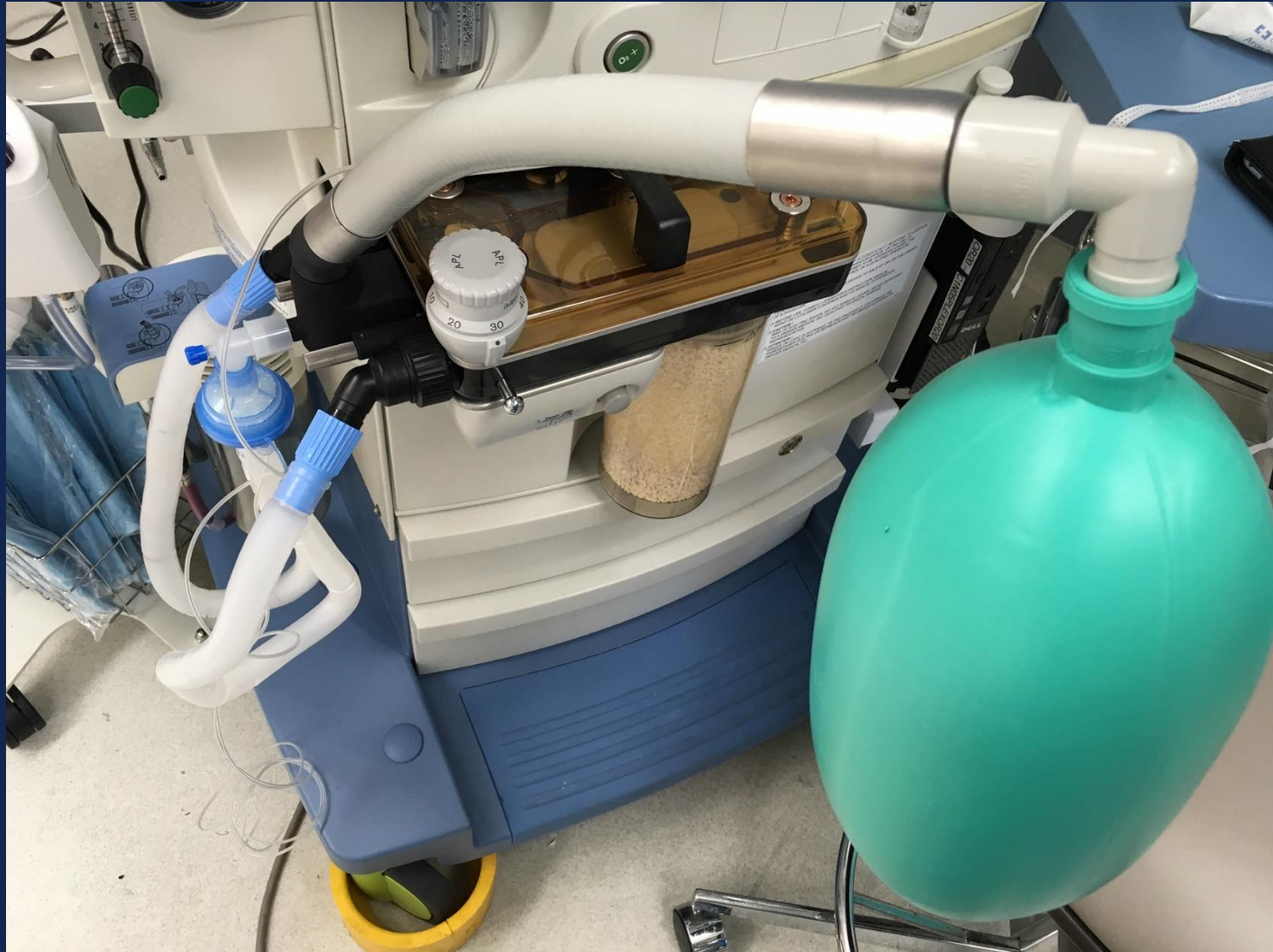
## PREPARE FOR SELF TEST

1. Close all Flow Controls
2. Occlude the Y Piece
3. Connect the Sampling Line
4. APL Valve to 30 cm of H<sub>2</sub>O

1 mm Hg = 1.36 cm H<sub>2</sub>O

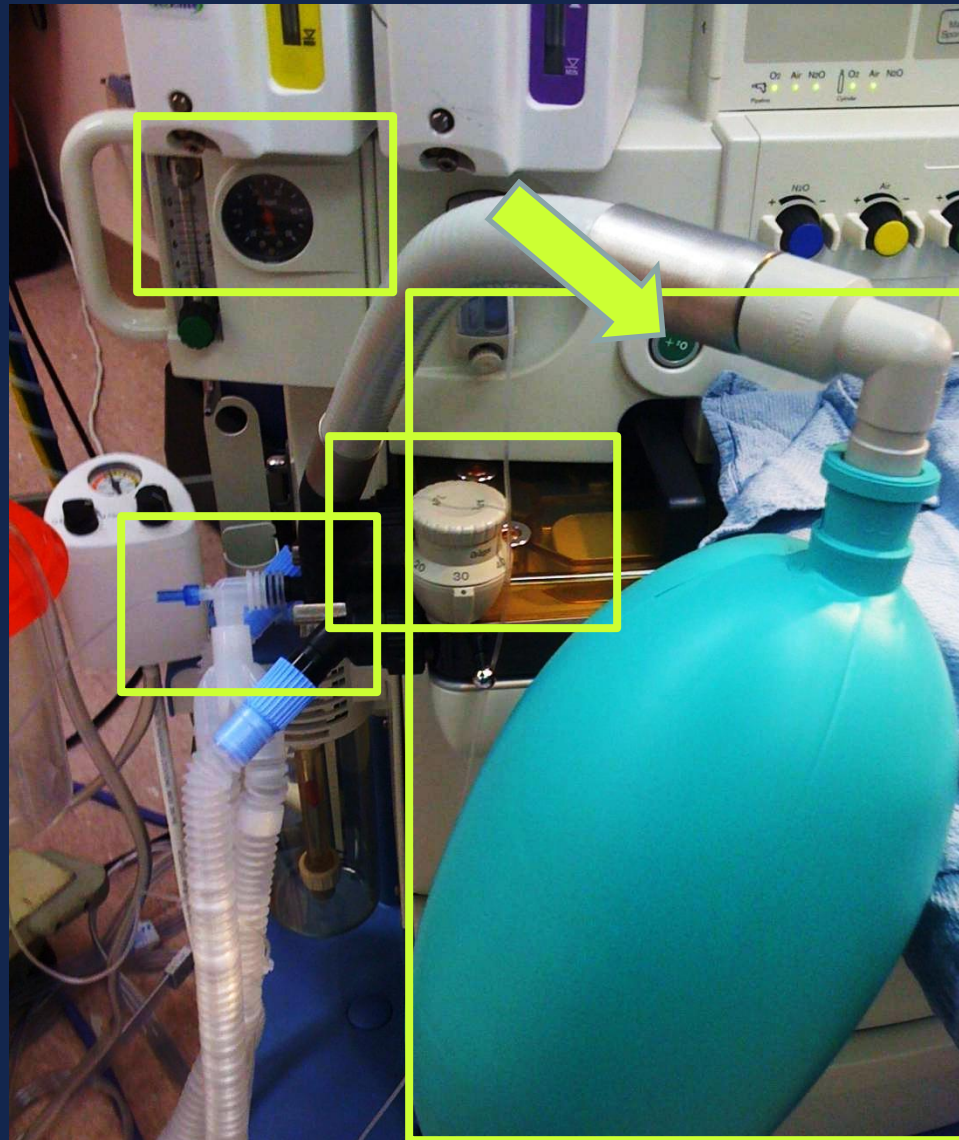
# Drager Apollo Check-out

## APL VALVE CHECK



# Drager Apollo Check-out

## APL VALVE CHECK





# Drager Apollo Check-out

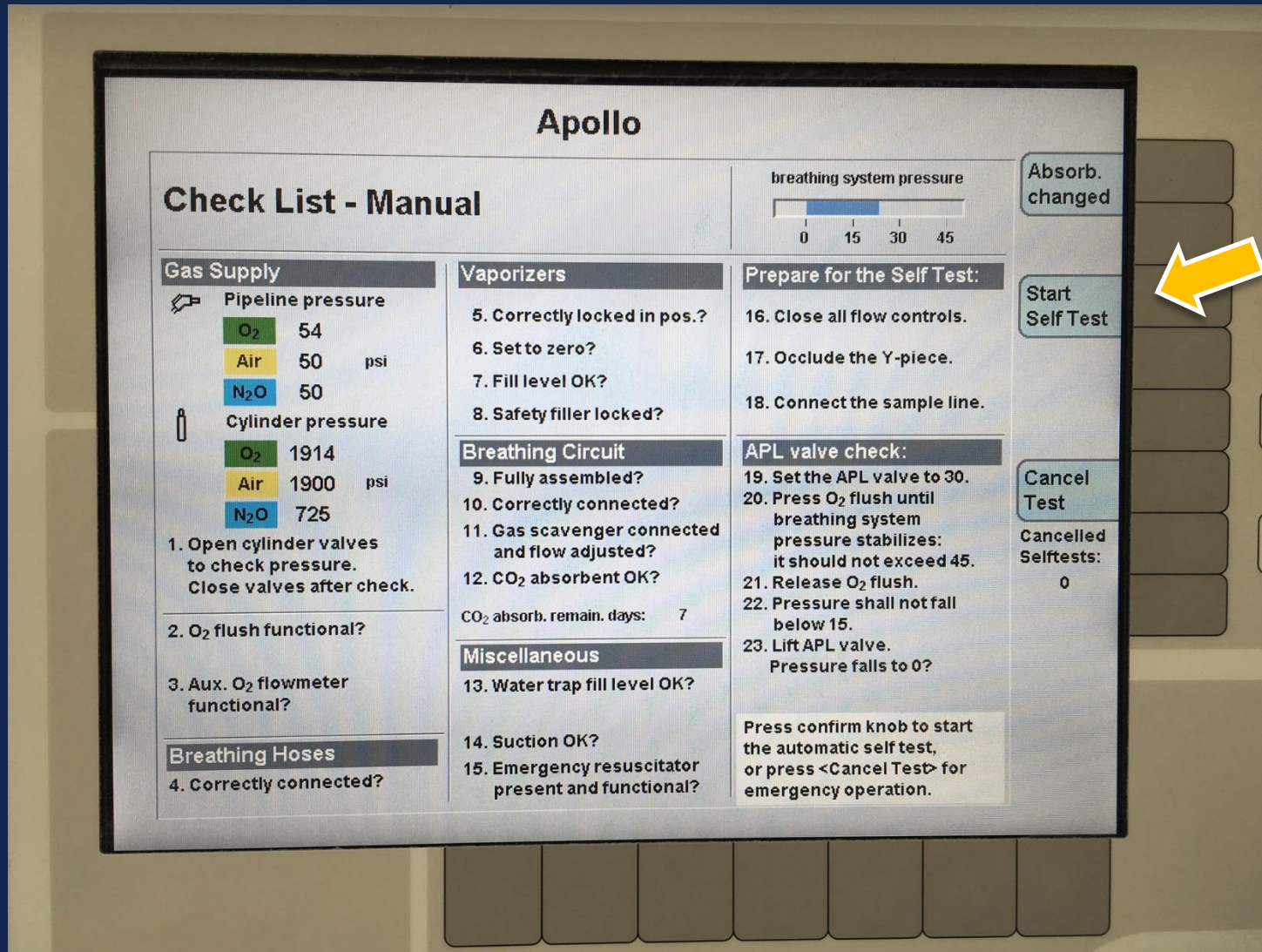
## APL VALVE CHECK



LIFT UP APL  
VALVE TO  
RELEASE

# Anesthesia Machine Checkout

## INITIATE AUTOMATIC SELF TEST



**PRESS TO START SELF TEST**



# Drager Apollo Check-out: AUTOMATIC SELF TEST

## Apollo

### Self Test

62 %

total time approx.: 3 min

#### breathing system pressure

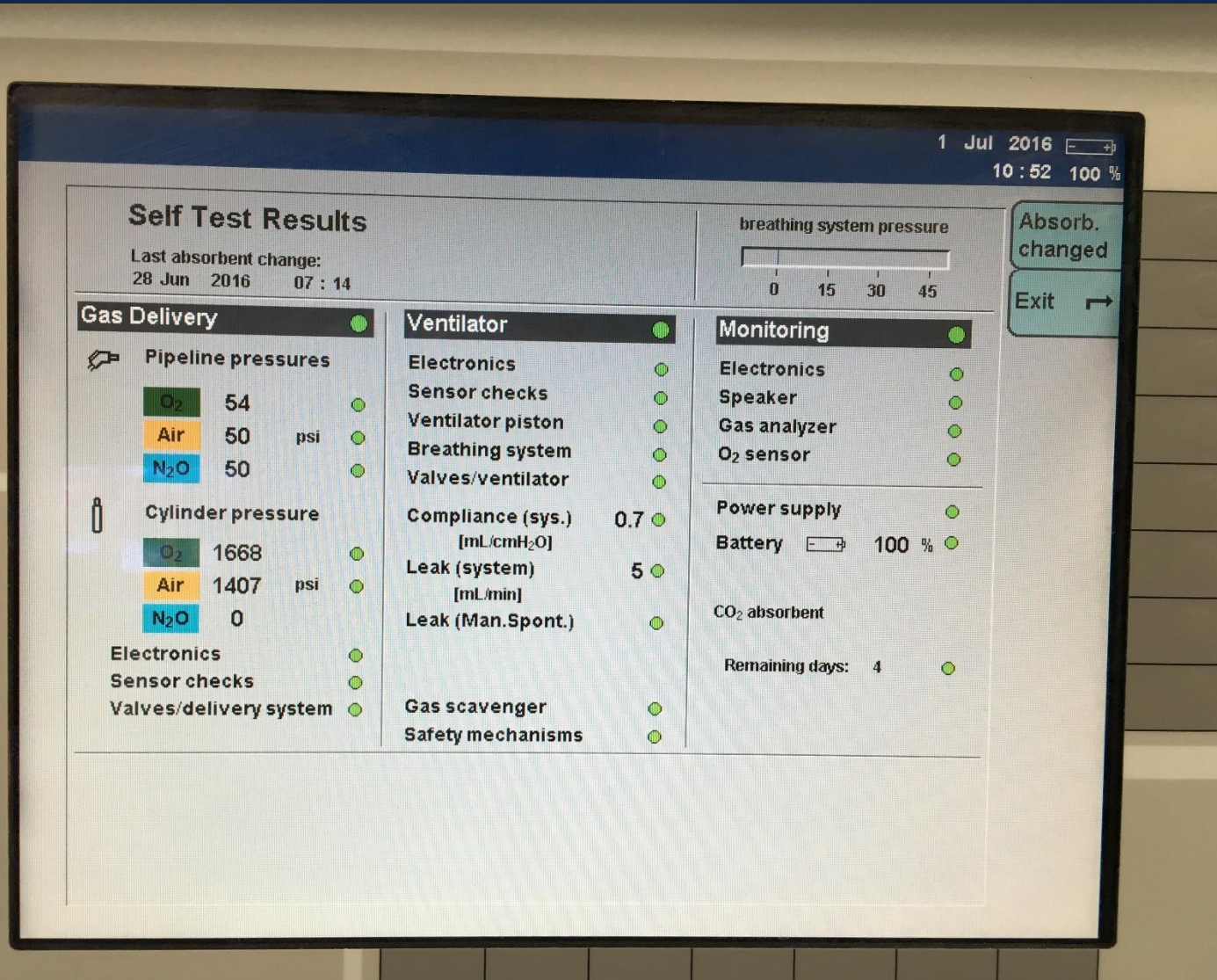
0    15    30    45

Gas Delivery	Ventilator	Monitoring																		
<p> Pipeline pressure</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: #006400; color: white; padding: 2px;">O<sub>2</sub></td> <td style="padding: 2px;">49</td> <td style="text-align: center; padding: 2px;">ⓘ</td> </tr> <tr> <td style="background-color: #ff8c00; color: white; padding: 2px;">Air</td> <td style="padding: 2px;">50    psi</td> <td style="text-align: center; padding: 2px;">●</td> </tr> <tr> <td style="background-color: #00bfff; color: white; padding: 2px;">N<sub>2</sub>O</td> <td style="padding: 2px;">45</td> <td style="text-align: center; padding: 2px;">○</td> </tr> </table> <p> Cylinder pressure</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: #006400; color: white; padding: 2px;">O<sub>2</sub></td> <td style="padding: 2px;">2059</td> <td style="text-align: center; padding: 2px;">ⓘ</td> </tr> <tr> <td style="background-color: #ff8c00; color: white; padding: 2px;">Air</td> <td style="padding: 2px;">1407    psi</td> <td style="text-align: center; padding: 2px;">●</td> </tr> <tr> <td style="background-color: #00bfff; color: white; padding: 2px;">N<sub>2</sub>O</td> <td style="padding: 2px;">0</td> <td style="text-align: center; padding: 2px;">○</td> </tr> </table> <p>Electronics                    ⓘ</p> <p>Sensor checks                ⓘ</p> <p>Valves/delivery system      ⓘ</p>	O <sub>2</sub>	49	ⓘ	Air	50    psi	●	N <sub>2</sub> O	45	○	O <sub>2</sub>	2059	ⓘ	Air	1407    psi	●	N <sub>2</sub> O	0	○	<p>Electronics                    ⓘ</p> <p>Sensor checks                ⓘ</p> <p>Ventilator piston            ●</p> <p>Breathing system            ⓘ</p> <p>Valves/ventilator            ⓘ</p> <p>Compliance (sys.)          ○</p> <p>Leak (system)                ○</p> <p>Leak (Man.Spont.)          ⓘ</p> <p>Gas scavenger                ⓘ</p> <p>Safety mechanisms          ○</p>	<p style="text-align: right; color: green;">●</p> <p>Electronics                    ●</p> <p>Speaker                        ●</p> <p>Gas analyzer                 ●</p> <p>O<sub>2</sub> sensor                      ●</p> <hr/> <p>Power supply                   ●</p> <p>Battery  100 % ●</p>
O <sub>2</sub>	49	ⓘ																		
Air	50    psi	●																		
N <sub>2</sub> O	45	○																		
O <sub>2</sub>	2059	ⓘ																		
Air	1407    psi	●																		
N <sub>2</sub> O	0	○																		

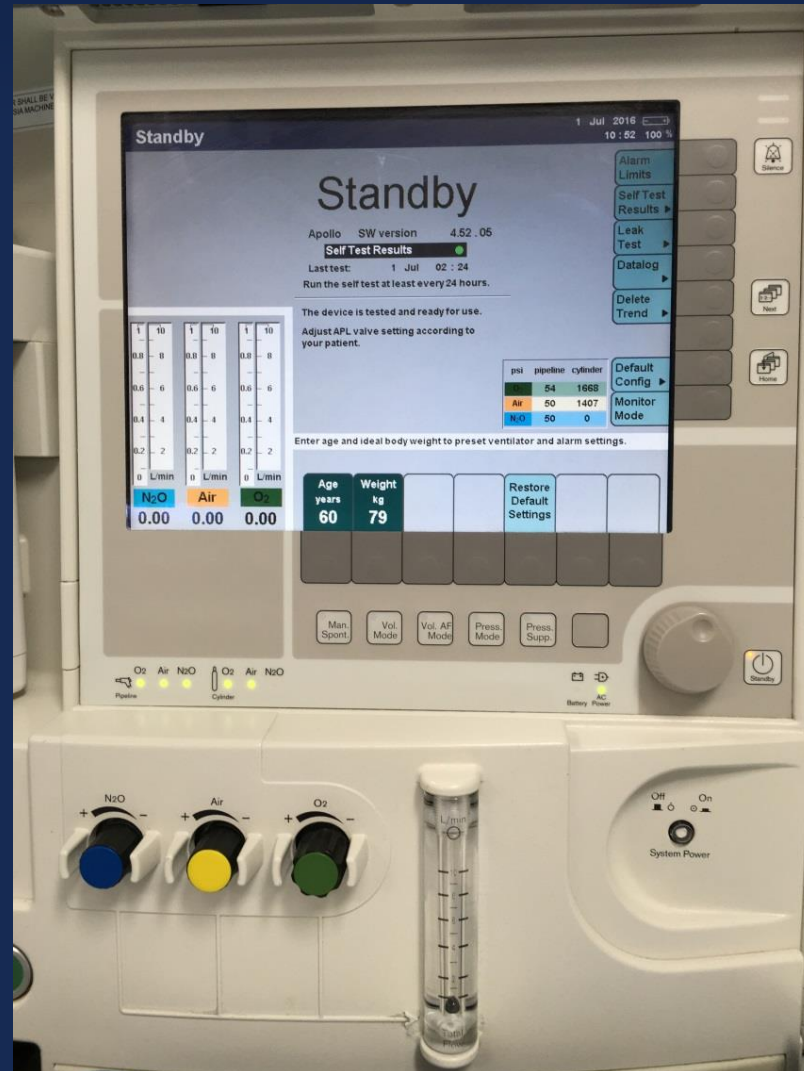
Cancel Test

Cancelled Selftests:  
0

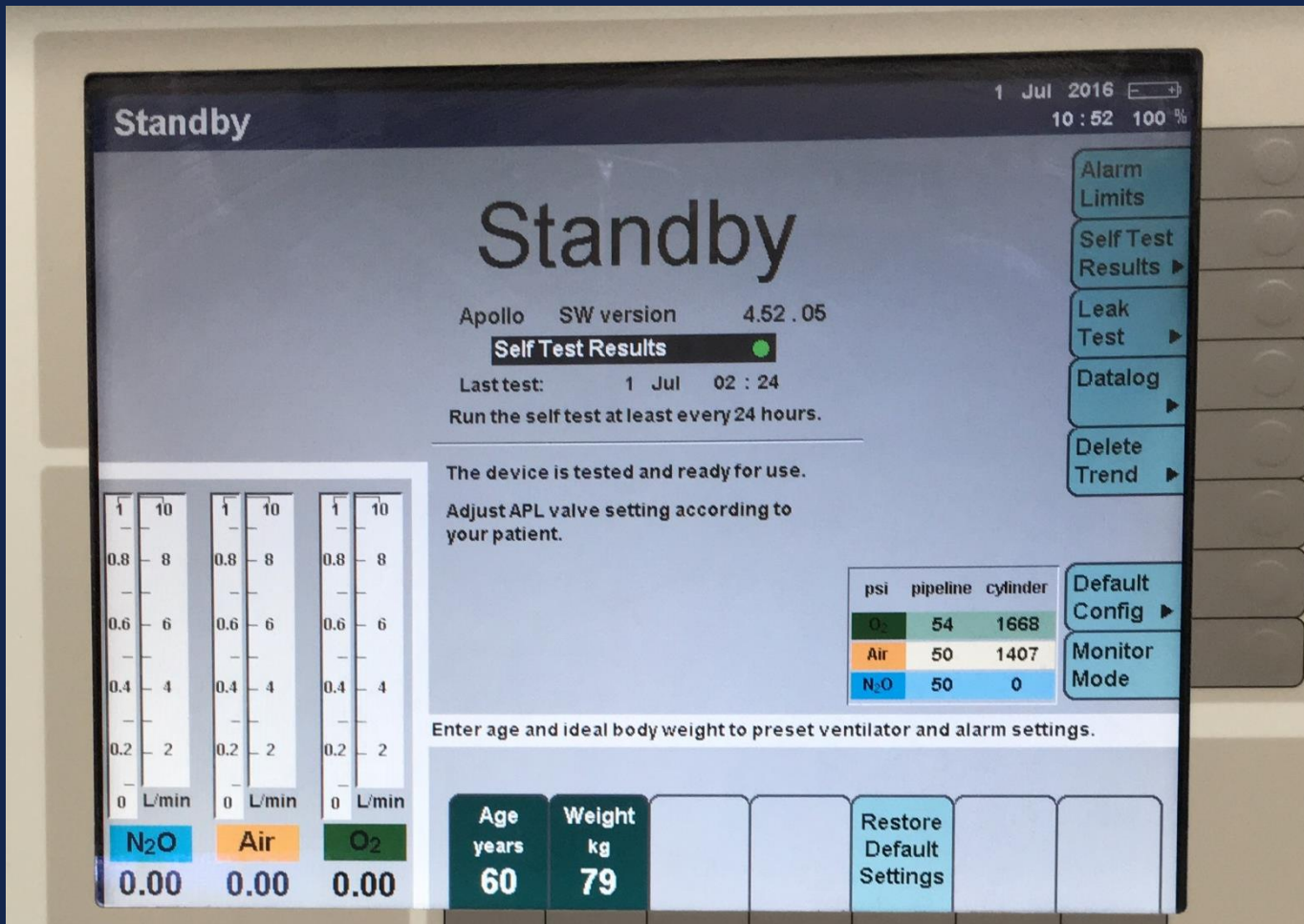
# Drager Apollo Check-out: AUTOMATIC SELF TEST



# Drager Apollo Check-out STANDBY SCREEN



# Drager Apollo Check-out STANDBY SCREEN



# Anesthesia Machine Checkout

## PREPARE MACHINE FOR USE

1. Set all Vaporizers to zero
2. Turn off all flows
3. Verify APL Valve is open (**0 cm of H<sub>2</sub>O**)
4. Verify suction is working
5. Breathing circuit ready for use

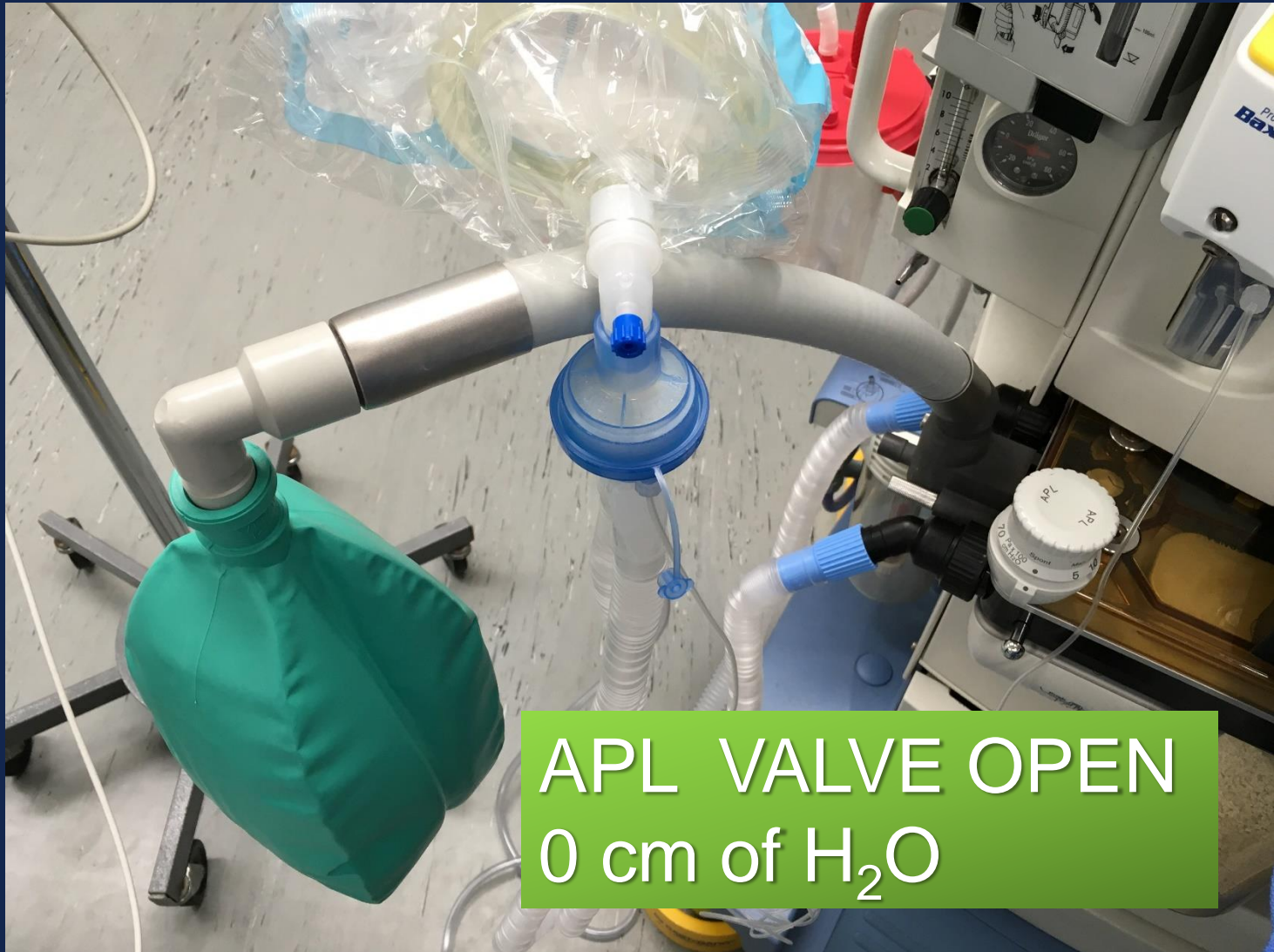
# Drager Apollo Checkout BREATHING CIRCUIT READY FOR USE



APL VALVE OPEN  
0 cm of H<sub>2</sub>O



# Drager Apollo Checkout BREATHING CIRCUIT READY FOR USE



APL VALVE OPEN  
0 cm of H<sub>2</sub>O

# Anesthesia Machine Checkout

## BEFORE EVERY CASE

1. Verify Backup Ventilation Equipment
2. Turn OFF Flow Meters
3. Perform Leak Test
4. Verify Suction is working
5. Verify APL Valve is open (0 cm of H<sub>2</sub>O)
6. Breathing circuit ready for use

Standby

1 Jul 2016 10:52 100%

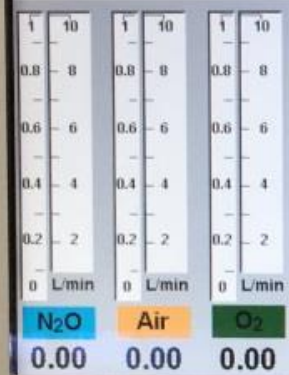
# Standby

Apollo SW version 4.52.05

Self Test Results ●

Last test: 1 Jul 02:24  
Run the self test at least every 24 hours.

The device is tested and ready for use.  
Adjust APL valve setting according to your patient.



	psi	pipeline	cylander
O <sub>2</sub>	54	1668	
Air	50	1407	
N <sub>2</sub> O	50	0	

- Alarm Limits
- Self Test Results ▶
- Leak Test ▶
- Datalog ▶
- Delete Trend ▶
- Default Config ▶
- Monitor Mode

Enter age and ideal body weight to preset ventilator and alarm settings.

Age years	Weight kg		Restore Default Settings	
60	79			

- Man. Spont.
- Vol. Mode
- Vol. AF Mode
- Press. Mode
- Press. Supp.

● O<sub>2</sub> Pipeline   
 ● Air Pipeline   
 ● N<sub>2</sub>O Pipeline   
 ● O<sub>2</sub> Cylinder   
 ● Air Cylinder   
 ● N<sub>2</sub>O Cylinder

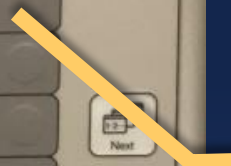
● Battery Power   
 ● AC Power

Standby

N<sub>2</sub>O: + [blue knob] -  
 Air: + [yellow knob] -  
 O<sub>2</sub>: + [green knob] -



OFF [switch]    ON [switch]  
 System Power



**INITIATE  
LEAK TEST**

Standby

1 Jul 2016 10:52 100%

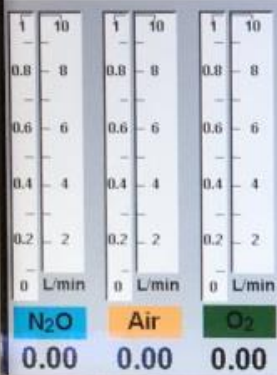
# Standby

Apollo SW version 4.52.05

**Self Test Results** ●

Last test: 1 Jul 02:24  
Run the self test at least every 24 hours.

The device is tested and ready for use.  
Adjust APL valve setting according to your patient.



	psi	pipeline	cyliner
O <sub>2</sub>	54	1668	
Air	50	1407	
N <sub>2</sub> O	50	0	

- Alarm Limits
- Self Test Results ▶
- Leak Test ▶
- Datalog ▶
- Delete Trend ▶

- Default Config ▶
- Monitor Mode

Enter age and ideal body weight to preset ventilator and alarm settings.

Age years	Weight kg			Restore Default Settings	
60	79				

- Man. Spont.
- Vol. Mode
- Vol. AF Mode
- Press. Mode
- Press. Supp.

O<sub>2</sub> Air N<sub>2</sub>O Pipeline  
O<sub>2</sub> Air N<sub>2</sub>O Cylinder

Battery Power AC

Standby

N<sub>2</sub>O Air O<sub>2</sub>

+ - + - + -

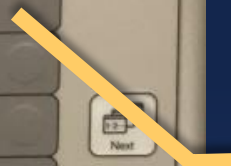


System Power

OFF On



**INITIATE LEAK TEST**

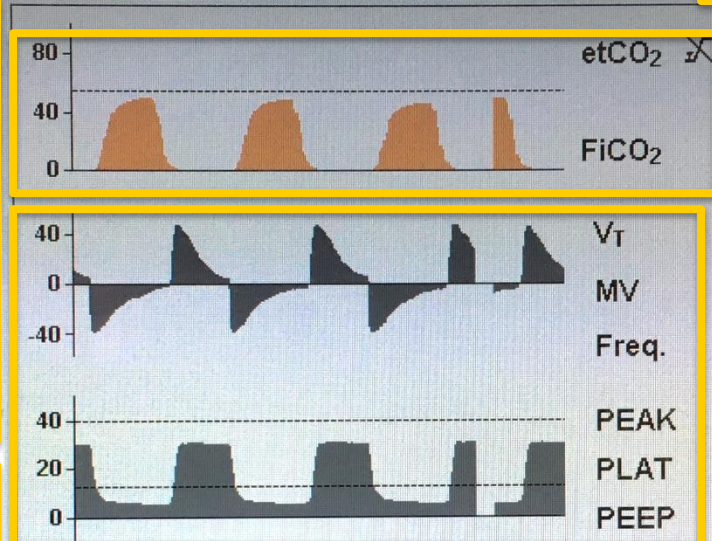


# Drager Apollo DISPLAY

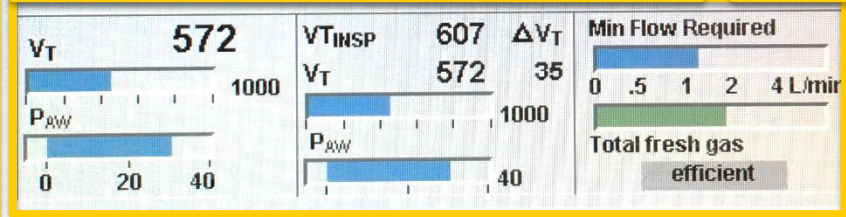
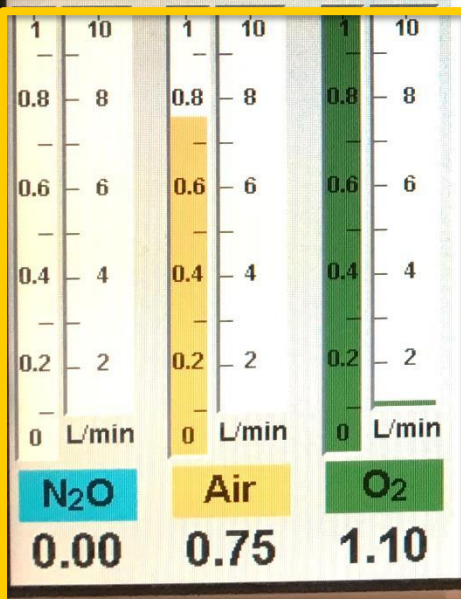
Volume AF sync.

27 Jun 2017 11:06 100%

	insp	exp	
<b>O<sub>2</sub></b> <input checked="" type="checkbox"/>	78	68	%
<b>N<sub>2</sub>O</b>	0	0	%
<b>Sev</b> <input checked="" type="checkbox"/>	2.1	1.9	%
MAC	Age 74	1.1	

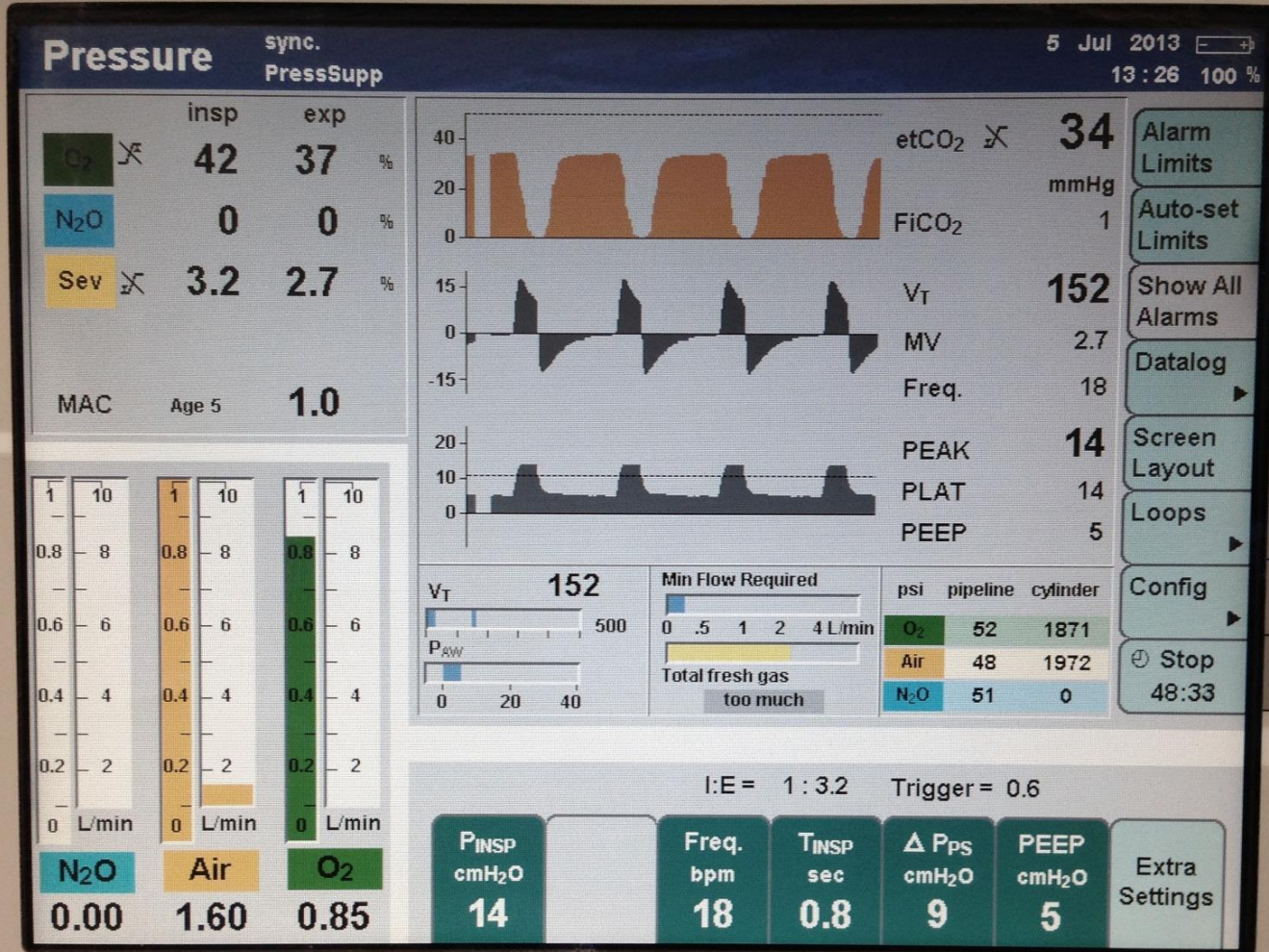


<b>49</b>	Alarm Limits
mmHg	Auto-set Limits
1	Show All Alarms
<b>572</b>	Datalog
6.5	Screen Layout
<b>31</b>	Loops
30	
5	



I:E = 1:1.3		Trigger = 2.0				
<b>P<sub>MAX</sub></b> cmH <sub>2</sub> O	<b>V<sub>T</sub></b> mL	<b>Freq.</b> bpm	<b>T<sub>INSP</sub></b> sec	<b>Δ P<sub>ps</sub></b> cmH <sub>2</sub> O	<b>PEEP</b> cmH <sub>2</sub> O	Extra Settings
<b>40</b>	<b>520</b>	<b>16</b>	<b>1.6</b>	<b>OFF</b>	<b>5</b>	

# Drager Apollo DISPLAY



# Drager Fabius System



# Drager Fabius



**CAUTION**  
TIP OVER HAZARD  
FOR 3rd PARTY EQUIPMENT PLACEMENT  
SEE OPERATOR MANUAL FOR  
APPROVED EQUIPMENT MOUNTING.

**ATTENTION**  
RISQUE DE BASCULEMENT  
VOIR LE MANUEL POUR L'INSTALLATION  
D'ÉQUIPEMENTS PROVENANT D'AUTRES  
FABRICANTS.

Standby 15:24

12	12	
8	8	
4	4	
2	2	
1	1	
.5	.5	
0	0	0
N2O	Air	O2

Last system test run on 07/02/10 15:21  
Sleep Mode will activate in 2 min 14 sec

To start operation press one of the keys  
located to the left of the display

SWU 3.22 CRC 5809

Last Leak/Compl test run on 07/02/10  
System Leak 74 nL/min  
Vent Leak 8 nL/min Compl 1.68 nL/cmH2O

Run System Test	Calibrate Flow Sensor	Calibrate O2 Sensor	Leak/ Compl Test	Access Alarm Log	Restore Site Defaults
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# Anesthesia Safety

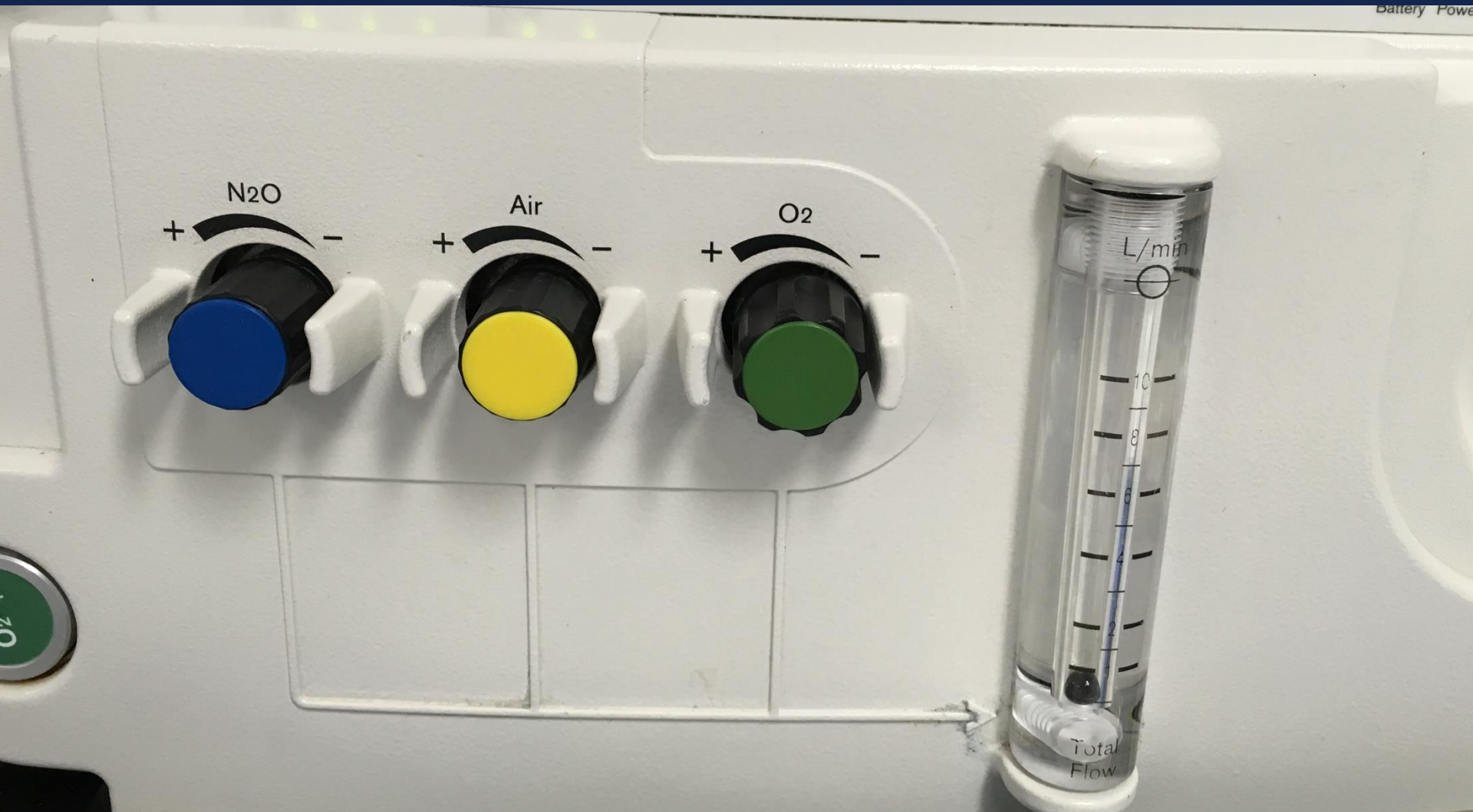
# Anesthesia Safety



# Anesthesia Safety



# Anesthesia Safety



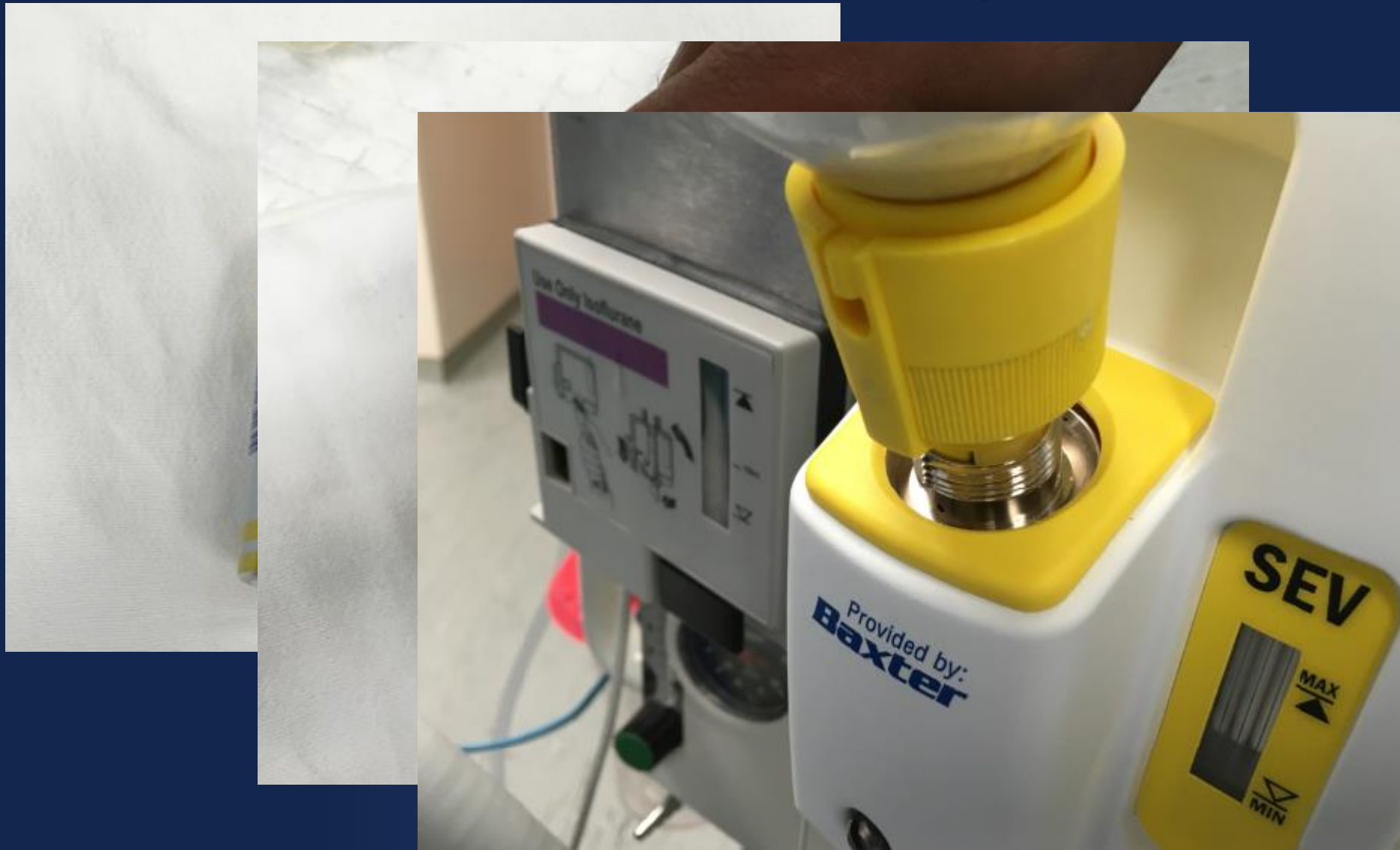
# Anesthesia Safety



# Anesthesia Safety



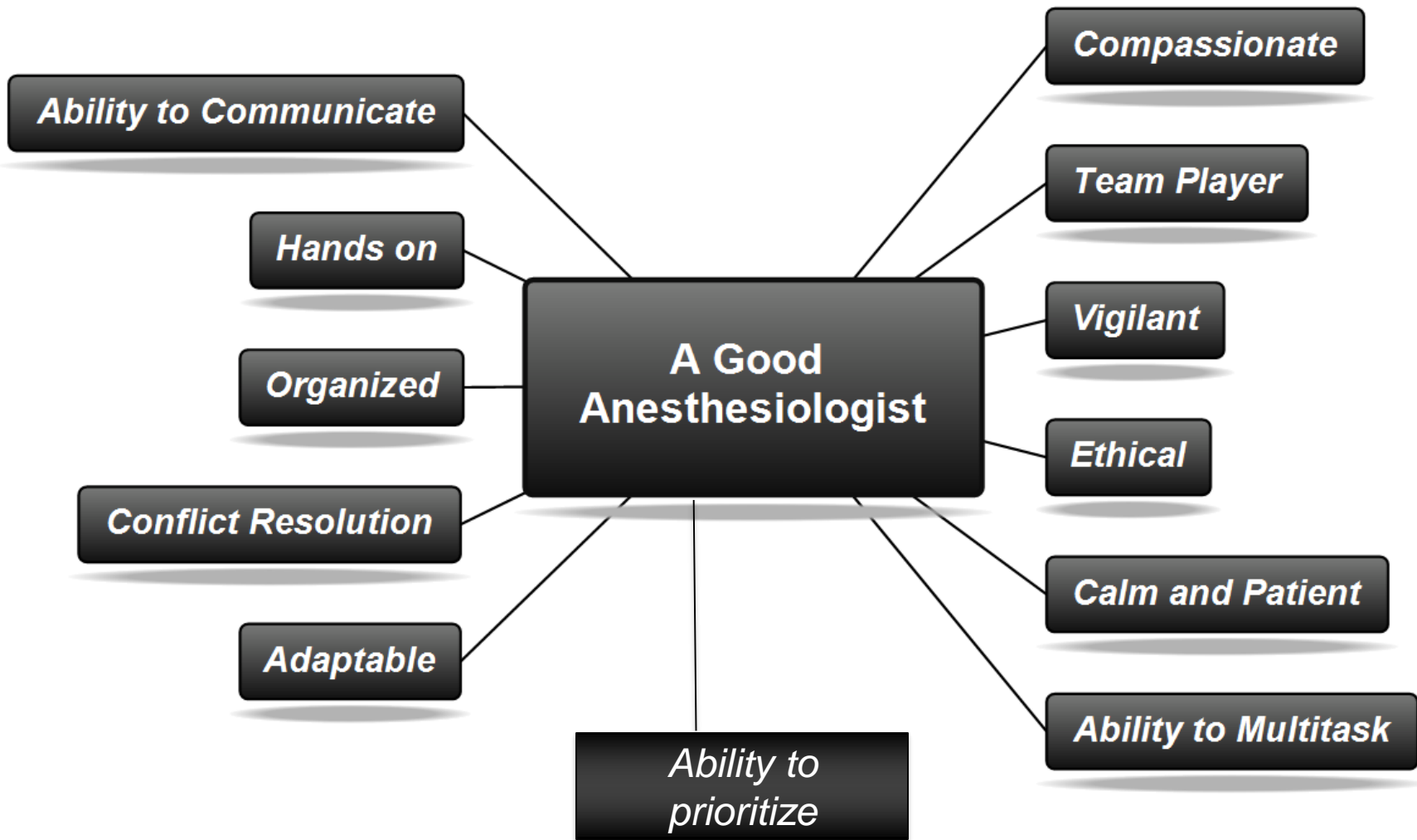
# Anesthesia Safety



# ASA Basic Monitoring Standards

- Standard I
  - Qualified anesthesia personnel shall be present in the room throughout the conduct of all anesthetics
- Standard II
  - During all anesthetics, the patient's oxygenation, ventilation, circulation, and temperature shall be continually evaluated







Thank you  
&  
Welcome