Rooms for rent
TEETH PULLED
DENTIST OFFICE
MEMBER OF THE PAINLESS DENTIST ASSOCIATION
WE ARE GAS
OPEN NO WAITING
WALK IN
PARK IN REAR
TOOTH FACTORY
LOVE A DENTIST
GONE GOLFING
GUM ST.
Tooth Fairies Keep Out
NO BILLS POSTED
EMERGENCY
NO PARKING

General Anesthesia
(if you wish to tip toe beyond your ten minutes of “deep sedation” techniques)

Lee M. Lichtenstein DMD PA
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www.SleepDentistryNJ.com
Holmdel, NJ
(open door policy)

Saint Apollonia

The legend of Saint Apollonia has been a source of comfort to toothache sufferers since early in the Middle Ages. During the eighteenth century, the patronage of this Saint was extended to include the dental profession.

The story of Apollonia begins in the year 249 A.D., a period when the Christians of Alexandria were being sorely persecuted for their religious convictions. Bishop Dionysius, in a letter describing their

dental profession.

The story of Apollonia begins in the year 249 A.D., a period when the Christians of Alexandria were being sorely persecuted for their religious convictions. Bishop Dionysius, in a letter describing their sufferings, relates how Apollonia was tortured in an effort to force from her a renunciation of her faith. For her defiance, she was stoned, as a result of which her teeth were knocked out and her jaws broken. Subsequently, on being threatened with death at the stake, she appeared to be ready to relent but, on being released from her chains, she cast herself into the flames to die a martyr's death.

In the fifteenth century Apollonia motif reproduced here, the hand laid on the swollen cheek of the suf-

Presentation for the NJDSA, October 5, 2016

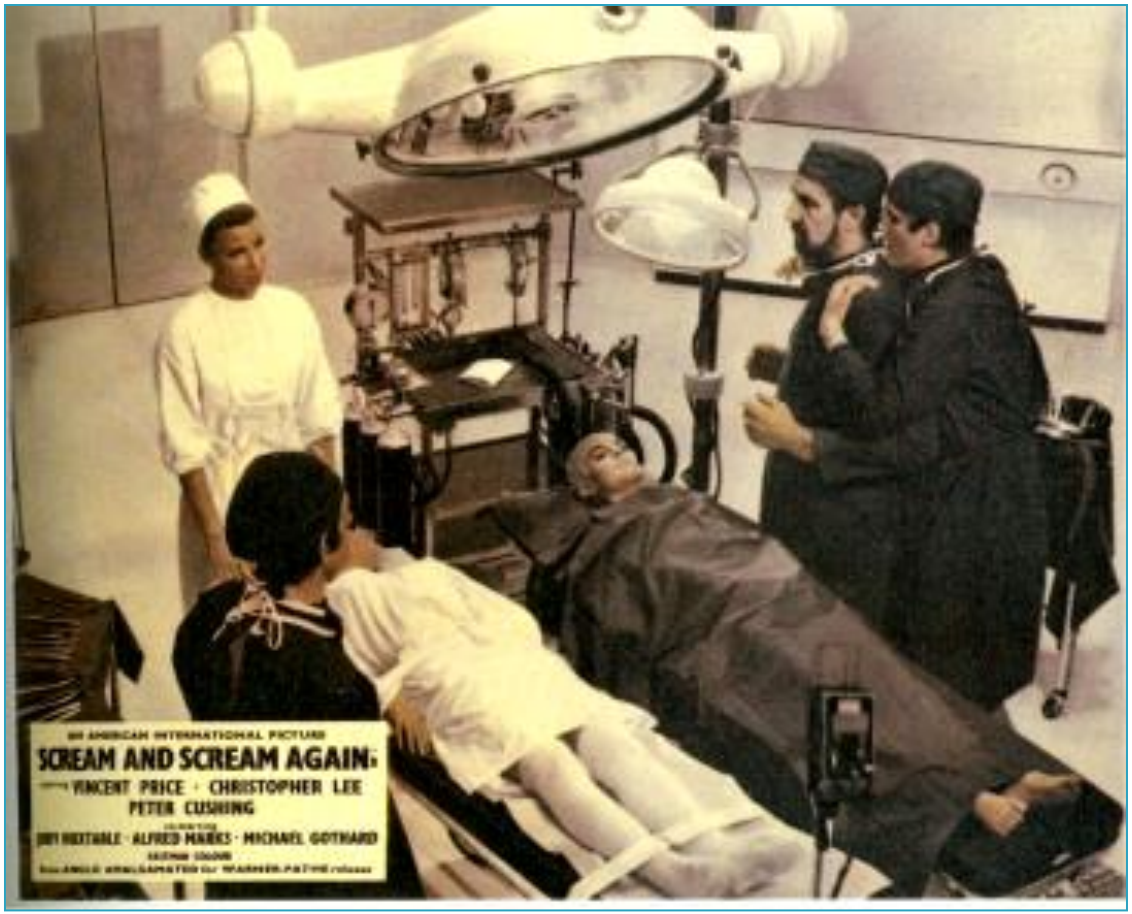
- "Incorporating General Anesthesia to Treat Difficult Patients into Contemporary Dental Practice"
- Patient groups, patient selection – what kinds of people can be helped, what types of problems seen?
- What dental procedures can be done?
- How is the general anesthesia done?
- (Show the pictures!!!)

- drlichtenstein@verizon.net
- www.SleepDentistryNJ.com
- 732-739-3337

What do I do?

- Local anesthesia, regular & advanced
- TLC, headphones, blue towels, hold hands
- Nitrous Oxide
- "pills" "pills" "pills" (that's another lecture)
- Moderate sedation (covered elsewhere)
- Deep sedation (as it morphs into GA)
- General anesthesia (the real thing)

Me at work in my operatory!



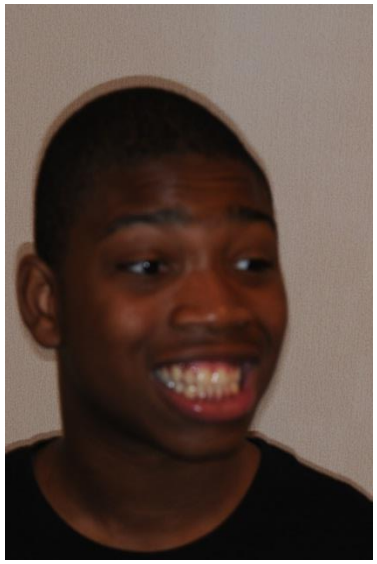
Today we are doing the full brain transplant procedure

What patients & problems? *more*

- Autism & ASD
- ADD/ADHD
- Alzheimer's disease & other dementia
- Acute fears, anxieties & phobias
- Parkinson's disease & other tremor conditions

Fraternal twins, age 14, extreme autism, difficult to get started, had father assist. (full team in room)

09-08-2015



09-18-2015

patients & problems

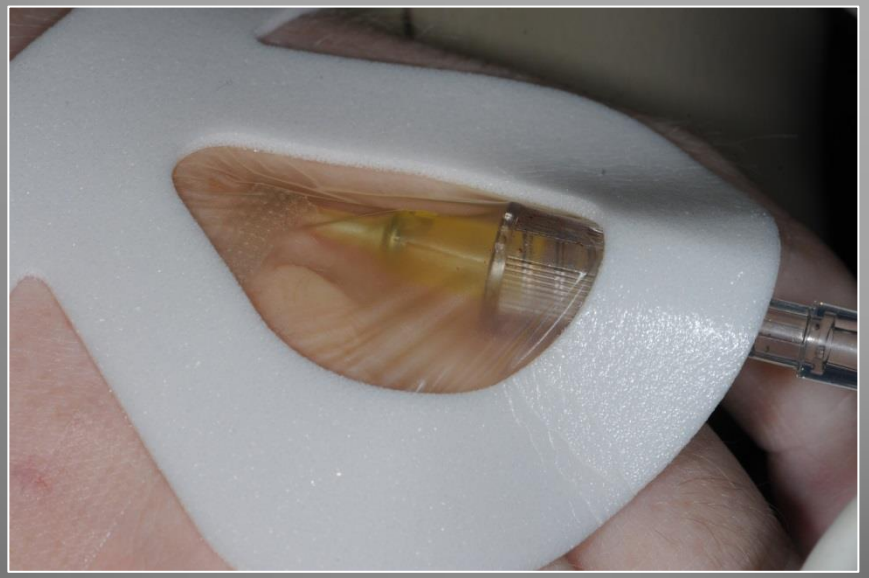
- Developmental disabilities (Down syndrome)
- Psychiatric disorders*
- Communication difficulties (blind, hearing impaired)
- Inability to understand & follow simple instructions
- Problems with local anesthesia, including difficulties

"getting numb" & "I don't want to be numb!"

Special needs, Rubenstein-Taybi syndrome, intermittent explosive aggressive behavior disorder

08-28-2015 appt

A most difficult IV



Tell the story of the original referral

Some patients don't want to pay for any anesthesia at all!!!

still more patients & problems

- Hyperactive gag reflexes
- Limited oral opening, TMJ/TMD situations
- Extensive treatment
- Inability to cooperate
- CP & neuromuscular concerns
- "*the ultra-phobics*"

The uncooperative child will require general anesthesia

Prototype early BIS monitor 1950's

Current generation BIS monitor (01/19/2012)

Short cases? Long cases? Airways?

- Short cases – 99% of the time "open airway" techniques
- "*Pick the chin up*"
- *"PICK THE CHIN UP!!!!!"*
- Head, neck, jaw thrust & related maneuvers
- 1 L bag under shoulders (wrap in surgical towel)
- Nasal airways & related devices

Long cases; *I do long cases*

- If it's DS and a great patient and a very easy airway "open" and use a few tricks if needed
- If it's (real) GA, regardless of patient, and a long case, I will evaluate and place a nasotracheal tube
- If it is determined to be a difficult airway, I will evalutate and have several techniques available to place a nasotracheal tube

The Doctor must measure the correct head and nasal hood sizes (Dr. L at work) and determine the correct NETT tube size

Lists of anesthesia agents

- Inhalation:
  - Nitrous Oxide, Oxygen, Sevoflurane, Isoflurane
- IM: *"induction facilitating"*
  - Ketamine, Midazolam
- Oral: *"pre-induction facilitating"*
  - Midazolam, Diazepam, Triazolam, Hydroxyzine, Diphenhydramine, Hydrocodone, Ketamine, Alprazolam

Lists of anesthesia agents, cont'd

- IV: titrated, bolus, continuous infusion (pumps), empirical amount
  - Benzos: Midazolam, (*Diazepam*)
  - Opioids: Fentanyl, Remifentantil, Alfentanil, Hydromorphone, (*Meperidine, MS*)
  - Propofol (still use a little 'Brevital')
  - Sedative, antihistamine: Hydroxyzine, Promethazine, Diphenhydramine
  - Major tranquilizer: Droperidol, Dexmetomidine
  - Antiemetic: Odansetron
  - Steroids: Dexamethasone, Solu-Cortef
  - NSAIDs: Ketorolac, Ibuprofen (*'Caldolor'*)

Injectable ibuprofen (must dilute)

Monitoring *(minimum to maximum)*

Short DS / GA:

- NIBP (2.5 - 3 - 5 minute cycle), Pulse Oximeter

  ECG – lead II, Capnography
- Agent analysis if using vaporizer: Inspired agent %, Exhaled agent %, Oxygen analysis %, Nitrous Oxide analysis %
- Stethoscope, Watching "Bag" & patient
- *"once in a great while"* – BIS

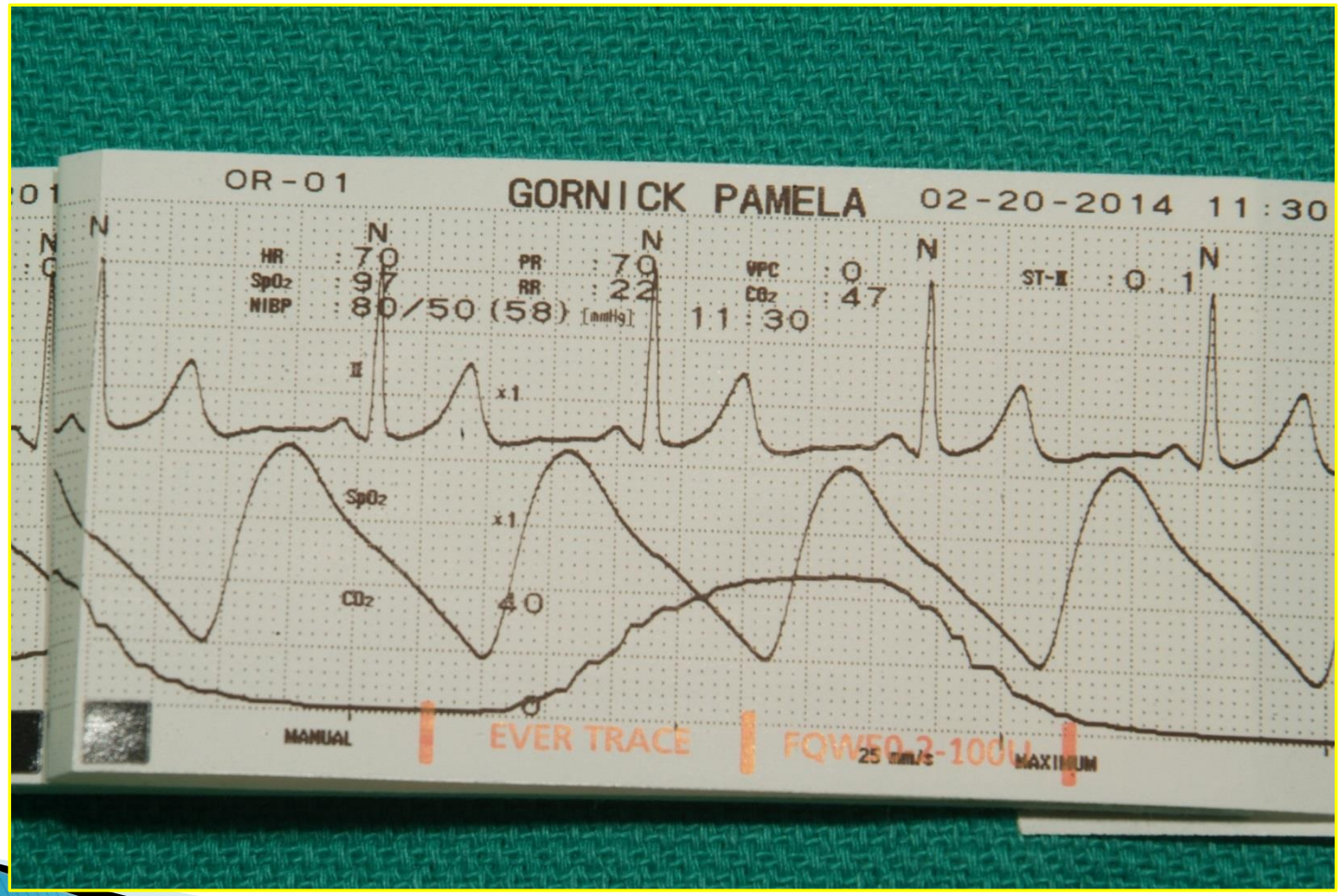
Monitoring *(minimum to maximum)*

Medium & Long DS / GA

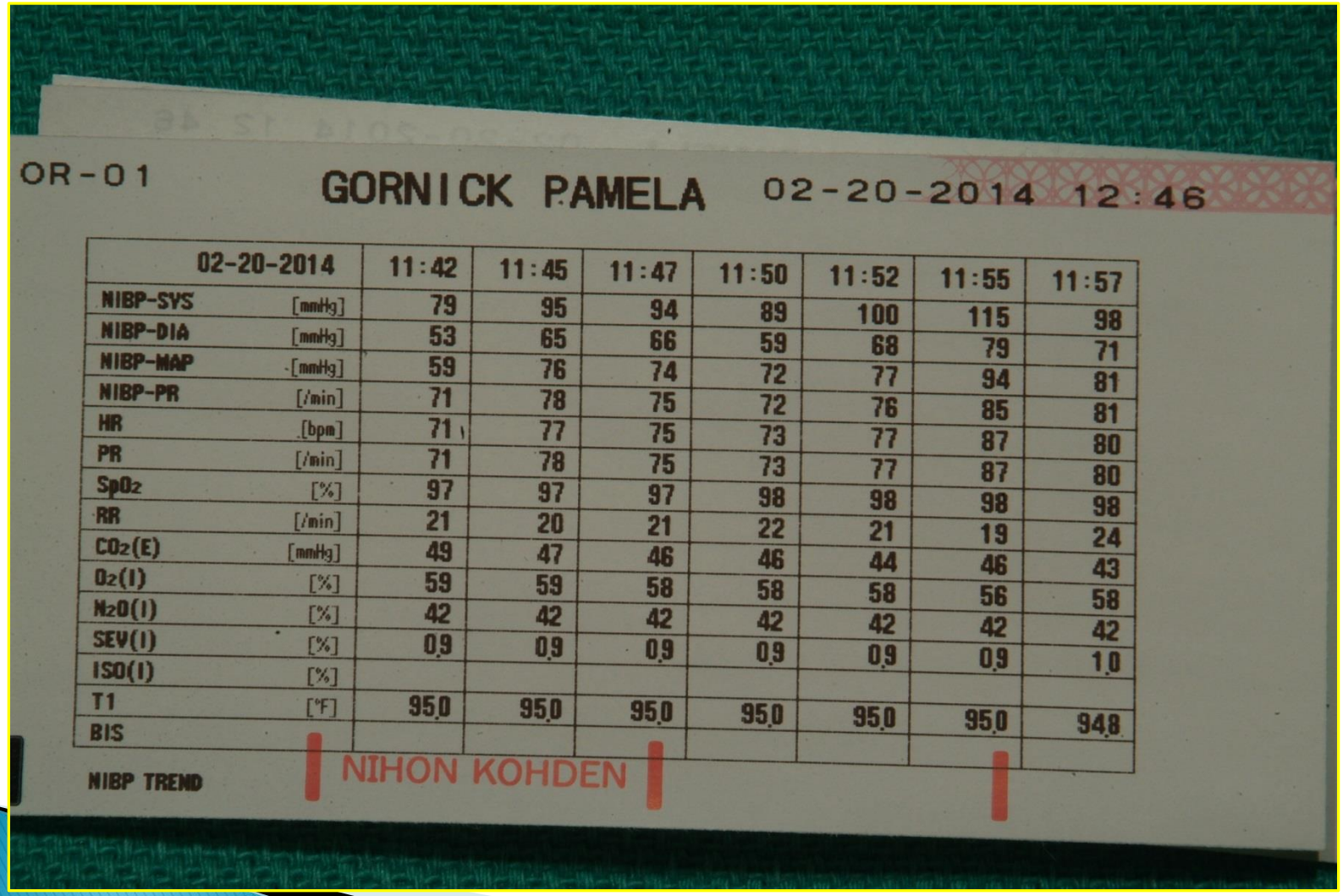
- NIBP (2.5 – 3 - 5 minute), Pulse Ox, ECG – lead II, Capnography
- Agent analysis, using vaporizer: Inspired agent %, Exhaled agent %, Oxygen analysis %, Nitrous Oxide analysis %
- Temperature (axilla)
- Stethoscope, Watching "Bag" & patient
- BIS (often for DS, always for GA)

Current anesthesia vital signs monitor

vital signs printout strip: ecg, pulse-ox, capno, pulse, respir rate, bp, date & time, name



Tabular vital signs printout



OR-01 GORNICK PAMELA 02-20-2014 12:46

02-20-2014		11:42	11:45	11:47	11:50	11:52	11:55	11:57
NIBP-SYS	[mmHg]	79	95	94	89	100	115	98
NIBP-DIA	[mmHg]	53	65	66	59	68	79	71
NIBP-MAP	[mmHg]	59	76	74	72	77	94	81
NIBP-PR	[/min]	71	78	75	72	76	85	81
HR	[bpm]	71	77	75	73	77	87	80
PR	[/min]	71	78	75	73	77	87	80
SpO2	[%]	97	97	97	98	98	98	98
RR	[/min]	21	20	21	22	21	19	24
CO2(E)	[mmHg]	49	47	46	46	44	46	43
O2(I)	[%]	59	59	58	58	58	56	58
N2O(I)	[%]	42	42	42	42	42	42	42
SEV(I)	[%]	0.9	0.9	0.9	0.9	0.9	0.9	1.0
ISO(I)	[%]							
T1	[°F]	95.0	95.0	95.0	95.0	95.0	95.0	94.8
BIS								

NIBP TREND NIHON KOHDEN

Current generation BiS monitor

How to start a case!

- Uncooperative children and small adolescents: IM Ketamine & Midazolam combo (antisialogouge later)
- **Uncooperative** (**larger**) children and adolescents:

  Oral agents 30-60 minutes early if possible, then IM
- Have parents, care givers help with oral meds, hold for IM injection/s
- Mask (start) induction: nasal hood, full face mask
- Start IV, place monitors
- Continue full induction, airway securing

Really long term Halothane exposure in the early days.

The scientists never saw this before. They could only call it halothane headatitis. Sniffing became outlawed.

This is Dr. Lichtenstein really early in the morning, before his coffee! (*we have switched to decaf)*

Case Preparations

- Reviews of the medical history
  - At initial appointment, at consult, prior to case
- Request for "H&P" (***'evaluation', not 'clearance'***) to:
  - General practitioner, internal med, cardiologist, neurologist
  - Endocrinologist, pulmonologist, pediatrician, hematologist
- Request for labwork:
  - CBC with differential
  - Metabolic profile with electrolytes
  - ECG with interpretation
  - PFTs with interpretation
- Call the referring dentist

Case Preparations, more

- Pre-Anesthesia instructions:
  - NPO rules, (your practice may vary)
  - No solids for 6+ hours or since midnight
  - A 'light dinner'
  - Clear fluids three (3) hours before appt (*'concept of 3 hours'*)
  - **No Orange Juice, No Milk, No Milk Products** (*add your own*)

Case Preparations, more

- Regular medications taken early (i.e. blood pressure)
- Antibiotics (pre-op) taken ~2 hours early
- Review aspirin, coumadin, 'Plavix', 'Aggrenox' (*aspirin & dipyridamole)*, nsaids (*stop for week? hold for a day? adjust?*)
- Sudden, acute "chest cold", "sore throat", "URI"
  - *"I'm coming down with…"* evaluate children – for severity
  - If in doubt, check & listen (*Yes, I have cancelled a case.*)

Case Preparations, more

- What to wear:
  - Short sleeve shirt or blouse, buttons/zipper all the way (front)
  - No undershirt (so I can put ecg electrodes on)
  - Loose comfortable old clothes *(my old shirts)*
  - No 'flip-flops' *(they do flip, flop & fall!)*
  - Sneakers are OK
  - Spike heels have ripped up my chair
  - Cotton, not slippery ballistic nylon

Case Preparations, more

- Do not wear cosmetics, jewelry, contact lenses
- Do not wear nail polish (*we have acetone & NP remover*)
- Responsible person to take patient home (maybe 2)
- The patient is not to drive (or use hazardous device)
- Consider who may stay as care giver to patient
- Consider the prescriptions ahead of time

Very heavy gel nail polish (put on day before) pulse ox had erratic readings, place on big toe

Case Preparations, more

- Pre-appointment management – oral sedation beforehand to reduce anxiety, decrease combativeness
- Consider length of case: *full chair plastic drapes, cloth drapes*
- Patient to bring extra set of pants & underwear
- Correct number of personnel
- Extra, 'old' set of scrubs for the travel home
- Ice/cold packs to go
- Coffee, tea, soda, cookies & cake for family
- Internet access for family *(turn the TV on)*

Helpful hints

- Documentation for need for general anesthesia
- See the Aetna website (copy verbatim)
- ***"the patient is not treatable / manageable in the normal, traditional , conventional dental office setting and must be treated under sedation or general anesthesia"***
- Letters from referring dentists, family physician, psychologist, etc.
- Make thorough and complete anesthesia records, vital signs recordings, ecg strip printouts, digital pictures

How about some sample "regular" cases:

- Prior patient requiring GA for molar RCT returned for RCT #20, normal anatomy & airway
- Female, age 61, 5'8", 145 lbs, stopped smoking long ago
- No meds, has anxiety attacks at dentist
- Premed: triazolam 0.25 mg (sl) (in office, 1 hour before)
- TLC, N_2O/O_2, start IV (22 ga R hand, LRD500), monitors
- Midazolam 2.5 mg + 2.5 mg, Sevo 0.2% - 0.4%, LA
- Afrin, nasal airways L, #24 – 30 w/ lido, RD, pack
- Ondansetron (4 mg), Dex (5 mg), Ketor (30), 100% O_2
- Good recovery (case took long time, had to drill through zirconium crown)

Another regular case:

- Male, age 64, prior molar RCT under GA, extreme hyperactive gag reflex, needs #31 restored, also needs #3 RCT start (*why do they always wait until they get to the office to tell you another tooth is hurting???*)
- 6' 0", 205 lbs, hypertension, transient cerebral ischemia, hyperlipidemia, CAD, s/p LAD PCI (stent), ASA & Ticagrelor anticoagulants (cannot stop), H&P from internist & cardiologist *("NO epinephrine!!")*
- Premed: triazolam 0.25mg & hydroxyzine 50mg
- TLC, N2O/O2 start IV 22 ga L hand, monitors,

- Midazolam 2mg, Sevo 1% - 8% (intubation)→ Forane 0.7-0.5%, prop/alfenta 200/1000
- Back to Sevo for last hour (1.0% - 0.8%)
- Nasal airways R w/lido, #26-36 (slow & easy)
- f/o Mac 4 flexi, LTA 2% lido 5 cc, #7.5 nrae R, 2 cc air to cuff, eyes- oint & taped, head wrapped & padded, blanket on, Salem Sump NG # 16 Fr, remove gastric secretions, LA (note, "large" tongue, difficult access), RD & pack, Dex 5 mg, Odan 4 mg, 100% O2, extubate
- Good recovery, now has to make appt for del of crown & rct #3
- When??

Some Real Clinical Cases (LML's)

"the little old lady from Pasadena"

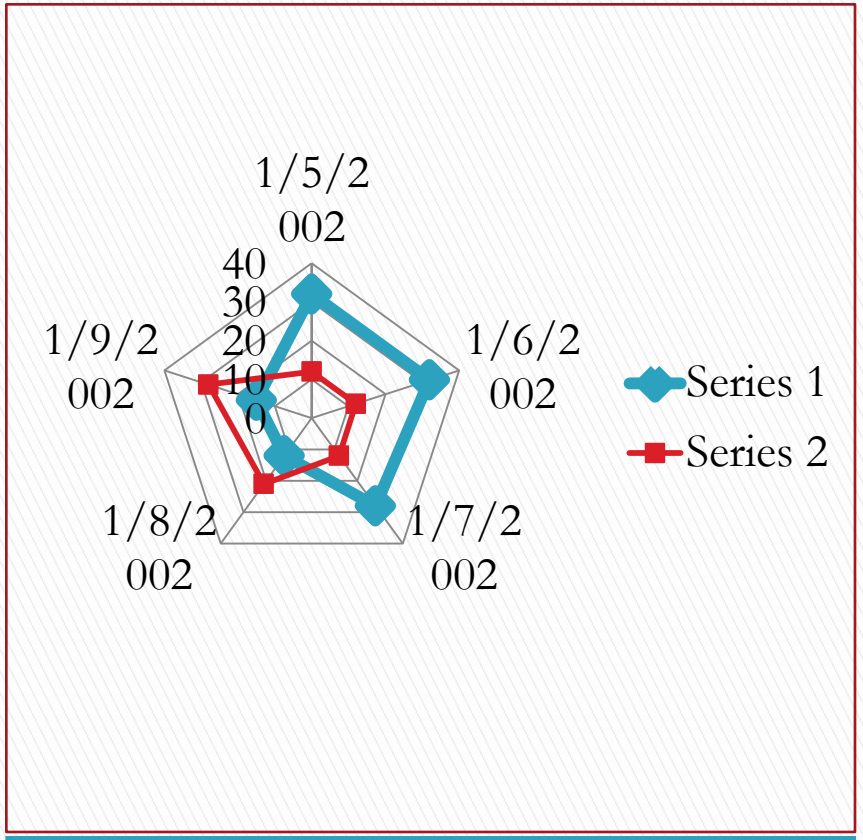
- April 2016, new patient appointment, female, age 64
- Didn't like the previous dentist who gave her the blue pill
- Didn't like the other previous dentist when meeting him
- Found LML online (website)
- Needs badly decayed and abscessed teeth removed
- ***"I have to be put out!!!"***
- ***"I have episodes, something with my heart…"***
- **"I suspect the problem with my heart is more serious than I thought…" "my heart was racing… on LBI"**

"Go Granny, Go Granny, Go Granny, Go!"

- Went to "the cardiologist" --- "he wanted to do more tests" ---- "I didn't go back!"
- "I know my teeth suck!" --- "I almost did not come this morning" --- "I don't take care of myself"
- Reviewed the regular med hx: high blood pressure, but not treated, non-smoker, "way out of breath"
- Takes 'Prilosec OTC'
- We did our regular digital pan, BW & PAs
- We did our regular vital signs first (BP & pulse) – but –
- It wasn't right (respects to Jan & Dean)

Go Granny Go???

16	12:12	12:13	12:16	12:18
mHg]	87	105	86	71
mHg]	57	82	72	54
mHg]	60	93	82	64
min]	182	179	185	184
min]	188	188	189	185
[%]	96	96	97	97
min]	---	---	---	---



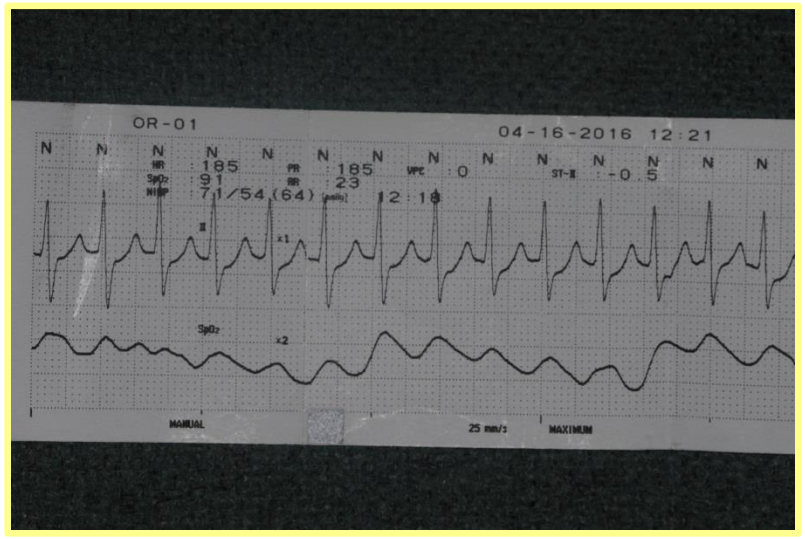
BP is all over, pulse is way up, O2 sat is normal

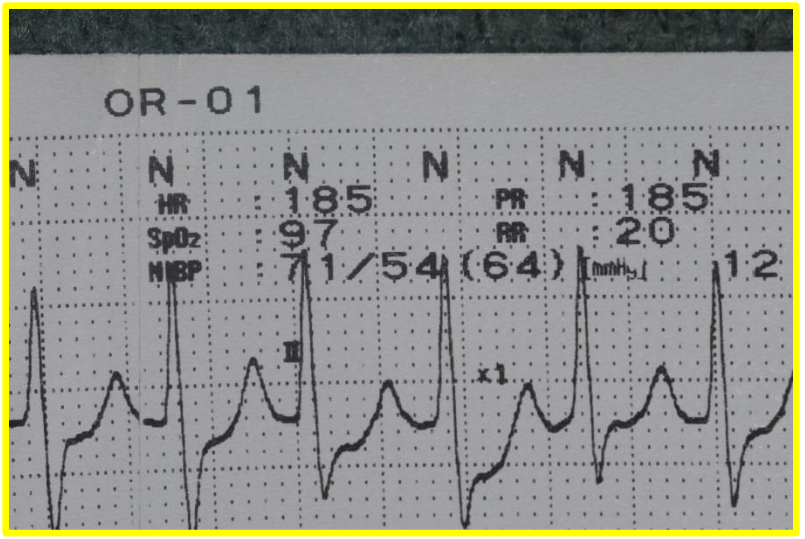
What is going on here!!??!!

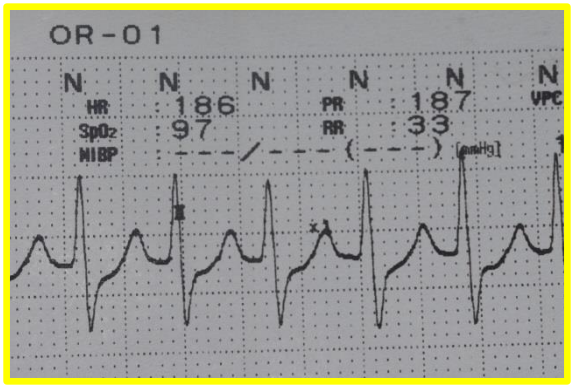
Go Granny Go, (before you are gone!)

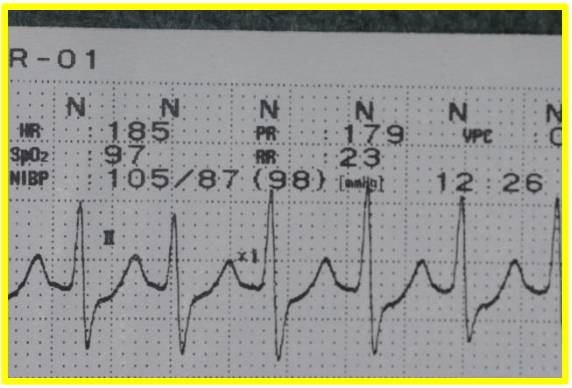
- She is sitting in the dental chair in no distress
- A little short of breath
- My mind – the wheels are spinning
- I think I know…
- But, to be sure…
- For the first time in a very long time –
- I'm gonna hook her up and run a strip (or 2 or 7)
- So, here is what I got:

Lead II for Granny (later Lead II for LML)









What is this?

Granny's Lead II, What is it?

- **SVT** (supraventricular tachycardia) **stable**
- (very first walk-in NP this way)
- Ask if she feels faint (No.)
- Ask if she would like to go to the ER (Bayshore Hosp is right next to my office) (4 times) (**No!**)
- We offer to take her (**No!**)
- *We need to get this taken care of, before we take out any teeth and put you to sleep*
- She said she will see the cardiologist

Granny, goes to the cardiologist

- She went to the cardiologist (eventually)
- [Cardiologist said ~ *"What does the dumb dentist want? Your blood pressure is OK."* Then she showed him the strips. By that time the SVT spontaneously converted to NSR.]
- We did follow-up consult in June
- We did surgical removal of teeth (roots & stuff) in Aug with DS/GA
- NIBP (2.5 min), ECG-II, Pulse-Ox, Capno, Gas Analysis, BIS, Stethoscope, (G-I-M-CP) technique

Granny's anesthesia

- "God Is My Co-Pilot"

Granny's anesthesia

- N_2O/O_2 2l / 3l, NIBP
- IV started R arm 22 ga. catheter, NS 500
- Rest of monitors, move the large "granny hair bun" up
- Midazolam 1 + 1 mg, Fentanyl 25 + 25 ug, Brev 20 mg
- 1000 cc bag under shoulders, Afrin, nasal airways w/lido R side, #20 - #28, good airway, Sevo @ 1.0 – 1.2% delivered; lido 2% 1:100k (2), mep 3% (2)
- (vitals signs *good*) – do procedure
- Recovers very well
- *(LML recovered very well later)*

Real cases

- Pediatric patient
- age 5, male, hx of seizures, autism, apraxia of speech
- Allergies: peanuts
- Meds: trileptal 300mg bid, prednisone, ranitidine
- At prior dentist, "was OK with 'gas' one time" minimal tx, no x-rays taken, (probably minimal px & fl)
- Referred to Dr. L with note, "now has at least 2 cavities"
- Wt: 45 lbs., Ht: 46.5 in,
- Had pediatrician do H&P, evaluation, labwork, copy of ED report – seizures 10/01/2011

Pediatric & special management cases, typical flow pattern & time line

- Arrive to office, check npo status, to rest room, answer questions, 'meet & greet' other parent, relatives
- One parent (if capable) to tx room, holds child in arms, in dental chair if possible (plastic drapes on chair)
- IM ketamine (~ 1.0 mg/lb) & midazolam (empirical, based on 'activity'), deltoid
- 4 – 8 minutes onset, reduces "separation anxiety" for parents, escort parent to reception room
- Parent(s) can see that everyone is focusing on the child

flow pattern

- Place N_2O/O_2 nasal hood, occasionally full face mask
  - Connected to capnograph (A)
  - Add Sevoflurane
  - Place NIBP cuff
- Start IV (20, 22 ga catheter, 24 if necessary) (minidrip)
- Place other monitors
  - Pulse oximeter
  - ECG- lead II
  - Temperature probe (axilla)
- Reposition chair & patient

Flow pattern

- Switch to full face mask
  - Capnograph B, agent analysis, O_2 & N_2O analysis
- Sevoflurane concentration up
- Nasal airways with lidocaine viscous oral 2%, 'Afrin'
- Laryngoscopy, f/o (h/o) Mac flexi tip (Heine)
- LTA (lidocaine 4%, 1^+ cc), 60 – 90 seconds wait
  - **(2016, use of homemade LTA w/ 1%, 2% & 4% lido)**
- Nasal intubation (DVL or blind), confirmation/s
  - Visualization of tube between vocal cords
  - $EtCO_2$ confirmation
  - Stethoscope, vapor in tube, chest & bag movement

Flow pattern

- Tape & secure tube
- Eyes – ointment & taped
- Place BIS electrodes (extra gel)
- Wrap & pad head, tubing taped
- "easy" Velcro to maintain position of arms, legs
- Surgical towels & blanket placed
- Salem sump NG, remove gastric secretions
- Staff positioning

Flow pattern

- Anesthesia maintenance:
  - sevoflurane/isoflurane
  - propofol on pump, possible remifentanil, alfentanil, ketamine, midazolam added
  - possible small amount of promethazine
  - possible dexmedetomidine
- Termination phase
  - switch to sevoflurane, tapering
  - switch to propofol straight or mixture, tapering
  - anti-emetic (odansetron), if appropriate
  - final suctioning, NG tube
  - 100% O_2, extubate, monitor recovery, parent to room, discharge

extras

- Give a little LA at areas of tx or pulpotomy
- Patient to rest room prior to leaving if possible
- (*the bill is paid*)
- Multiple reviews of post-op instructions
- Staff escorts patient to car, with parents, guardian
- Telephone call follow-up post-op that afternoon, evening, next day (written log book)
- Thank you to referring practice, if appropriate
  - Refer back, refer elsewhere, we keep
- December gift (*'Wine Country' basket*) to referring practice

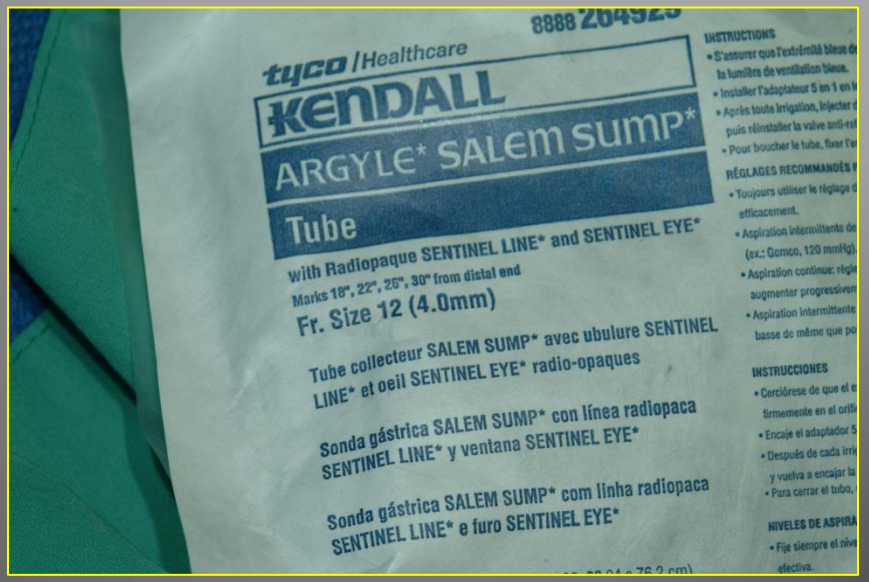
The Registered Dental Hygienist is allowed to give injections in some states (NJ)

Post op pain control, for root canal work!

Pediatric GA

Pediatric GA

Pediatric GA



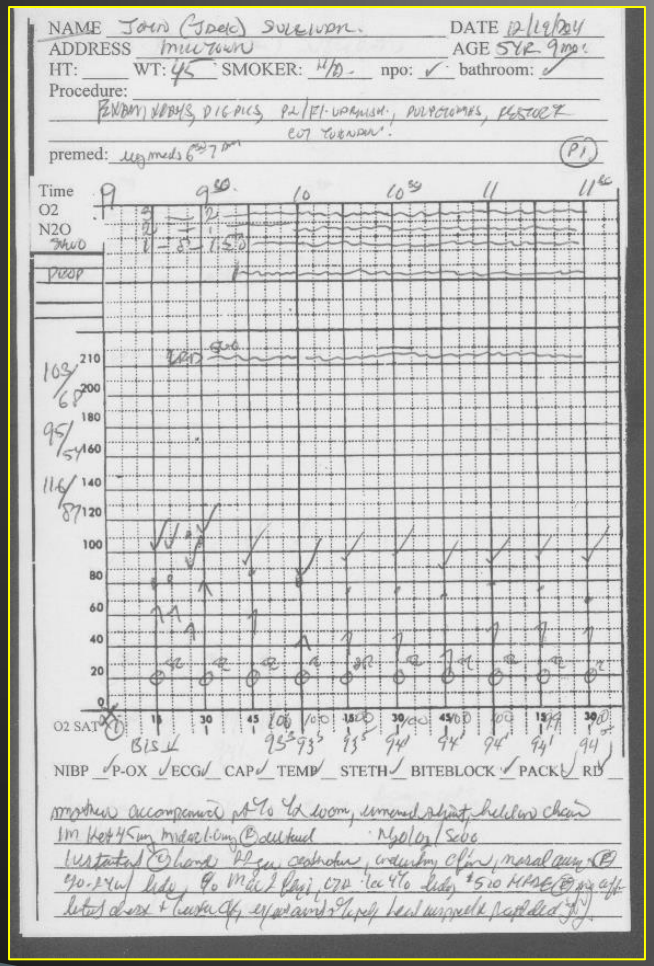
Pediatric GA

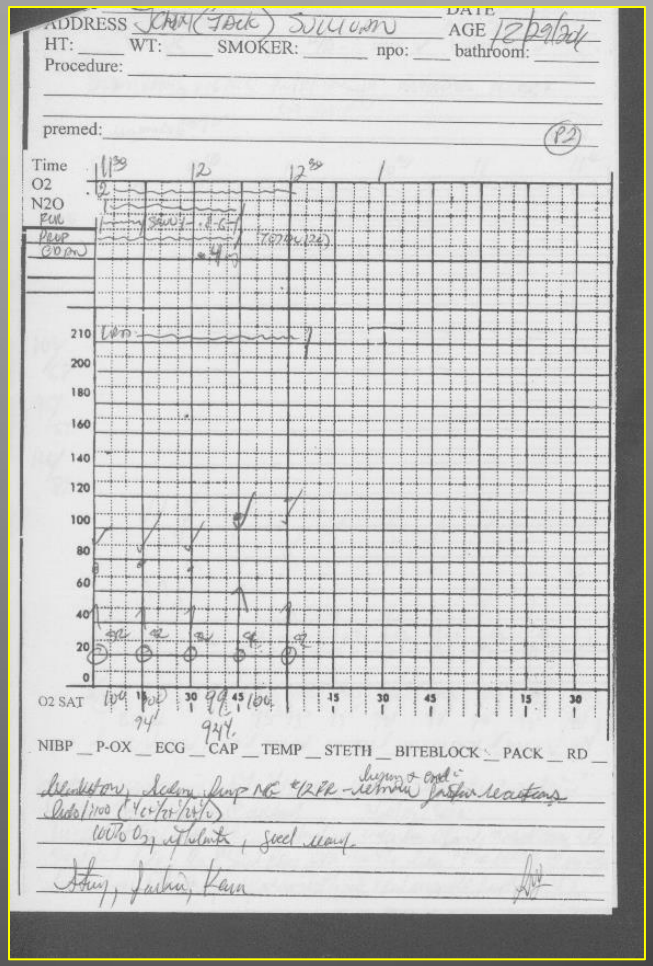
Pediatric GA – *value added services*

Pediatric GA

Pediatric GA

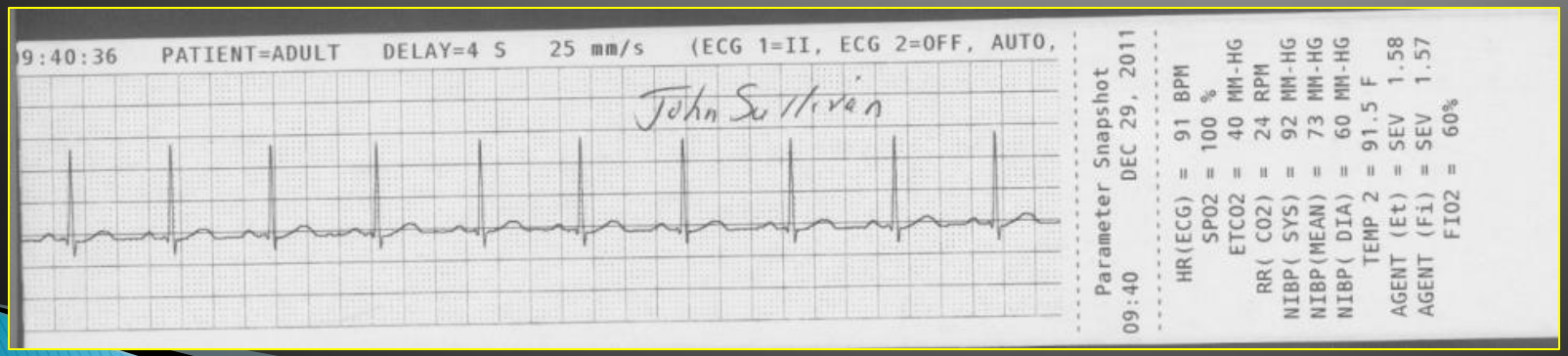
Typical anesthesia record (pediatric case)





#	DATE:	TIME:	HR(SRC)	SPO2	ETCO2	RR(SRC)	NIBP SYS/DIA MEAN	TEMP 2	AGENTS>>	Et ID	Et %	Fi ID	Fi %	FIO2	#	DATE:
#															#	
#	DEC 29	9:09	---(NIBP)	---%	0	0(CO2)	---/--- <--->	UND		X	---	X	---	21%	#	DEC 29
#	DEC 29	9:13	---(NIBP)	---%	0	0(CO2)	---/--- <--->	UND		X	---	X	---	21%	#	DEC 29
#	DEC 29	9:17	---(SPO2)	---%	0	0(CO2)	---/--- <--->	UND		X	---	X	---	21%	#	DEC 29
#	DEC 29	9:21	84(SPO2)	92%	0	0(CO2)	103/ 68 < 83>	UND		X	---	X	---	21%	#	DEC 29
#	DEC 29	9:25	82(ECG)	94%	0	0(CO2)	95/ 54 < 71>	UND		SEV	4.38	SEV	4.38	51%	#	DEC 29
#	DEC 29	9:29	116(ECG)	96%	18	32(CO2)	116/ 87 <100>	UND		SEV	5.47	SEV	6.00	58%	#	DEC 29
#	DEC 29	9:33	103(ECG)	96%	23	29(CO2)	98/ 55 < 72>	89.7		SEV	1.64	SEV	1.62	61%	#	DEC 29
#	DEC 29	9:37	90(ECG)	93%	25	24(CO2)	97/ 53 < 69>	90.1		SEV	1.58	SEV	1.62	62%	#	DEC 29
#	DEC 29	9:41	89(ECG)	100%	40	23(CO2)	92/ 60 < 73>	91.7		SEV	1.53	SEV	1.56	60%	#	DEC 29
#	DEC 29	9:45	91(ECG)	100%	39	23(CO2)	88/ 49 < 64>	92.8		SEV	1.52	SEV	1.58	60%	#	DEC 29

#	DATE:	TIME:	HR(SRC)	SPO2	ETCO2	RR(SRC)	NIBP SYS/DIA MEAN	TEMP 2	AGENTS>>	Et ID	Et %	Fi ID	Fi %	FIO2
#														
#	DEC 29	10:29	80(ECG)	100%	38	21(CO2)	91/ 45 < 60>	93.7		ISO	0.66	ISO	0.79	57%
#	DEC 29	10:33	79(ECG)	100%	38	20(CO2)	88/ 43 < 57>	93.9		ISO	0.57	ISO	0.83	57%
#	DEC 29	10:37	77(ECG)	100%	36	19(CO2)	83/ 40 < 56>	94.1		ISO	0.42	ISO	0.84	57%
#	DEC 29	10:41	80(ECG)	100%	39	19(CO2)	85/ 34 < 57>	94.1		ISO	0.61	ISO	0.79	57%
#	DEC 29	10:45	77(ECG)	100%	37	19(CO2)	84/ 38 < 57>	94.1		ISO	0.39	ISO	0.73	55%
#	DEC 29	10:49	79(ECG)	100%	37	20(CO2)	84/ 40 < 57>	94.1		ISO	0.46	ISO	0.78	55%
#	DEC 29	10:53	76(ECG)	99%	36	19(CO2)	83/ 37 < 53>	94.1		ISO	0.36	ISO	0.55	55%
#	DEC 29	10:57	80(ECG)	100%	38	20(CO2)	86/ 45 < 61>	94.1		ISO	0.49	ISO	0.71	55%
#	DEC 29	11:01	80(ECG)	100%	37	21(CO2)	88/ 46 < 61>	94.1		ISO	0.38	ISO	0.51	55%
#	DEC 29	11:05	75(ECG)	100%	37	20(CO2)	89/ 44 < 59>	94.1		ISO	0.46	ISO	0.78	55%



more “how to do”

- Vaseline to lips (often)
- hydrocortisone cream to nose (often)
- hypoallergenic tape

Adult, DS-GA, "open airway" (nasal airways & support)

- Request for RCT #29 under GA

  ("I want to go to sleep!")

- Female, 30yr, 5' 5", 270 lb., depression & anxiety; prozac, mononessa (estrogen & progestin), past psychological issues (suicidal 2008); allergy to PCN; [did in-house evaluation] **(Morbid Obese, calculated BMI = 44.9)**
- Non smoker, **anti-anxiety pills did not work**
- ***"knock me out all the way!"***
- Request for add'l RCT #20 on day of procedure

Adult DA / GA:

- Premed, 1 hour early: triazolam 0.25mg,

hydroxyzine 25mg x 2, diphenhydramine 25mg, hydrocodone/apap 5 /325mg ("little pills")

- Add'l BW & PA x-rays, percussion tests, extend appt time
- Regular pre-anes routine
- N2O/O2 (2l/3l), start IV, Sevo induction, position patient & chair, bite block, RD, monitors, draping
- Afrin, nasal airways with lido, #28-32, good airway
- Good airway support

Basic nasal airway setup

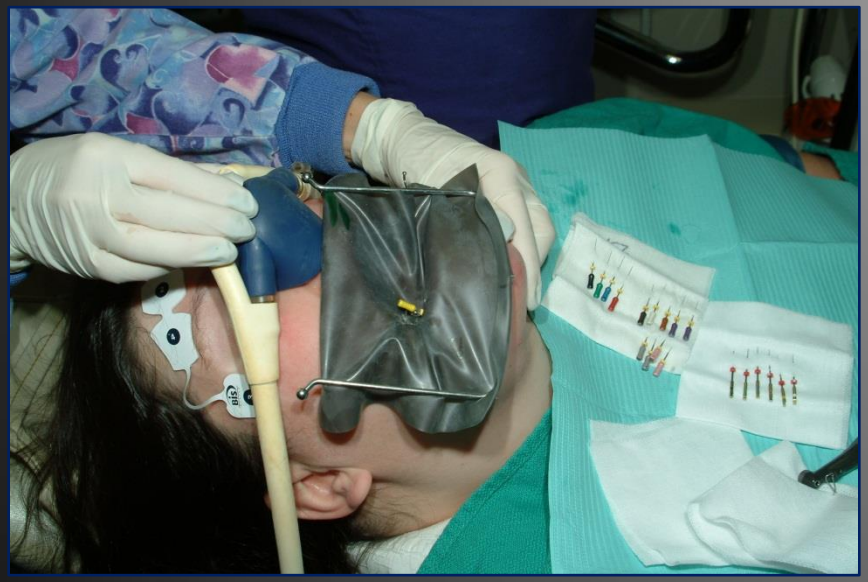
Pediatric intubation tray setup - basic

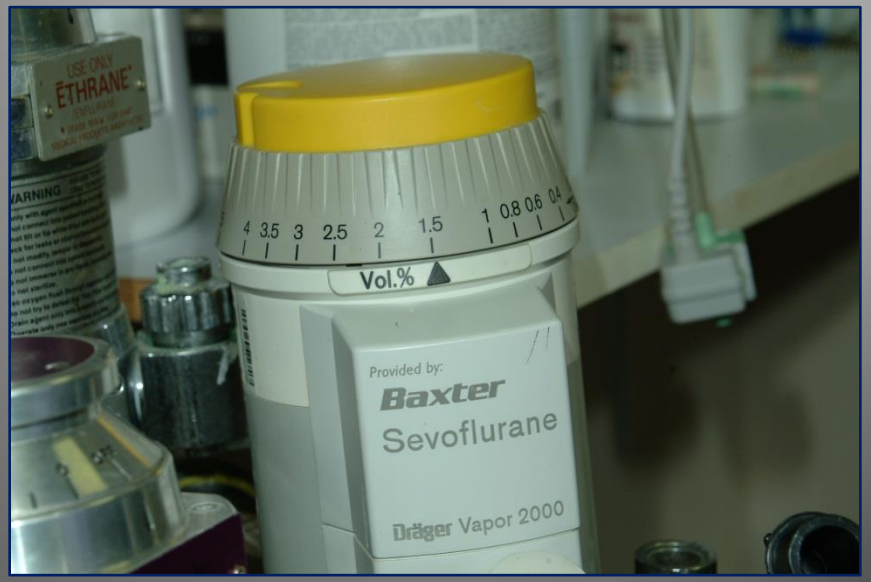
Adult DS / GA:

- Sevo range 0.4 – 1.5 - 1.0 – 0.7%
- Prop 200/ketamine 50/remi 50, pump
- Diaz 10 mg at start (older technique)
- Midaz 2.5 mg & 2.5 mg mid-case
- LA: mep 3% (2), lido 2% 1:100k (2), art 4% 1:100k (2)
- At completion: odan 4 mg, ketorolac 60 mg, dex 4 mg
- 100% O2, good recovery

Adult GA, "open airway", combo techniques

Not seen: "the bite block", "the nasal airway", 1000 cc bag under shoulders, the muscles in Jackie's arms, the Velcro helpers, my coffee mug





Adult GA for RCT, intubated, airway management

- Referral from endodontist for RCT #30 under GA
- Male, 56 yr, 6', 200 lb, non-smoker, HBP, anxiety, hx of panic attacks (on airplanes, elevators)
- Meds: bisoprolol, caduet, lorazepam
- Had panic attack in endo office due to: claustrophobia, use of rubber dam & situation
- Pre-anes evaluation [in house]
- Pre-op antibiotic (amox 500 qid start day prior)
- (*btw, #30 was extremely calcified, orifices & canals*)

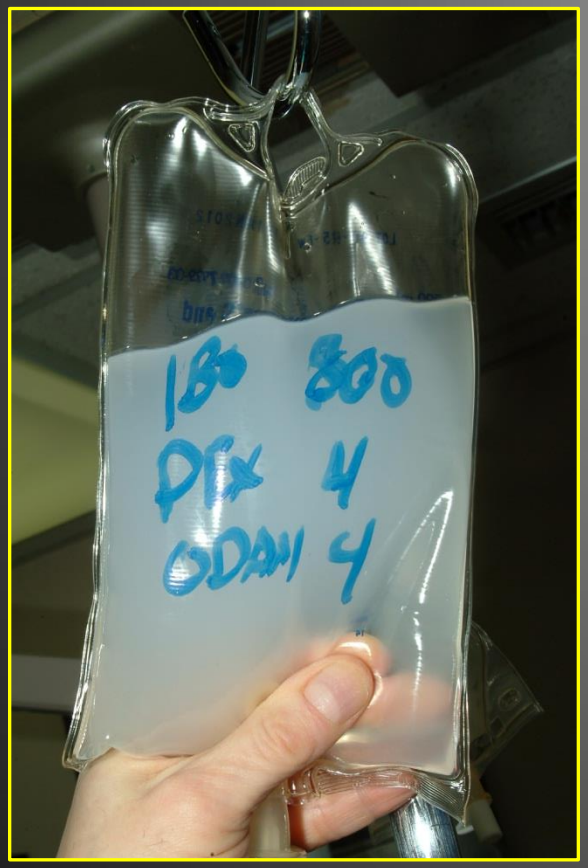
Adult GA for RCT, intubated, airway management *done 01/06/12*

- Pre-op oral sedation to calm patient to get him into tx rm
  - diaz 10mg, hydrox 25 mg, diphen 25 mg, hydro-c 5 mg (1 hr early)
- TLC to place nasal hood, N_2O/O_2 to calm patient further
- IV started right ACF, 20 ga catheter, diaz 10 mg to further calm & relax patient, place NIBP, wait for effect
- fentanyl 50 ug, midaz 2.5 mg, sevo 1% - 8% - 1%
- Place add'l monitors, induction, afrin, nasal airways #26 – 36 with lido oral viscous (right)
- f/o (h/o light) Mac 4 flexi tip, LTA 4 cc 4% lido (90 sec)

Adult GA for RCT, intubated, airway management

- #7.5 NRAE, (direct vision, Mac 4 flexi), 2 cc air to cuff, confirmed multiple ways
- eyes –oint & taped, head wrapped & padded, blanket & drapes on
- switch to forane 0.7% (~30 min)
- switch back to sevo 1% taper down to 0.4%
- propofol/alfentanil: 200mg/1000ug, taper up
- odansetron 4 mg, dex 4 mg, ibu 800 ('caldolor') to iv bag (LRD 500) (have to dilute)

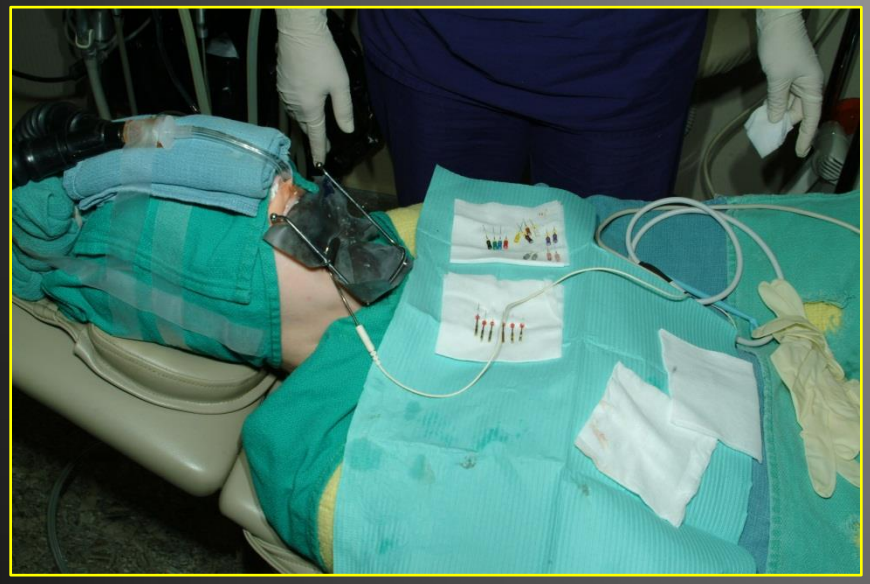
Typical: nsaid, anti-emetic, steroid



Special adult case GA

Request for GA to removed completely decayed #19 (had RCT, not restored)
Female, age 37, 5' 9", 145 lbs. (pcn allergy?)
Heavy past smoking history 1+ ppd x 15 yrs
Reflex Sympathetic Dystrophy/CRPS
Meds: Neurontin, Ketamine cream, IV Ketamine infusion (anesthesiologist), Dilaudid & Percocet, Flexeril, Tramadol
IV, catheter, R arm, all monitoring inc BIS
Midazolam 2.5 mg, Fentanyl 25 mg, N2O/O2/Sevo (3l/3l/2-3%) nasal airways
Propofol 200 mg (via pump, 50 – 100 umg/kg/min)
LA: lido2% 1:100k (2), mep3% (1), marc (1)
odan 2 mg, dexameth 5 mg, ketor 60mg
Fast recovery, awake and ready for discharge in record time. Pharmacist called on pcn allergy, changed to clindamycin

Adult GA for RCT (molar or "difficult"), intubated, airway management, typical case setup

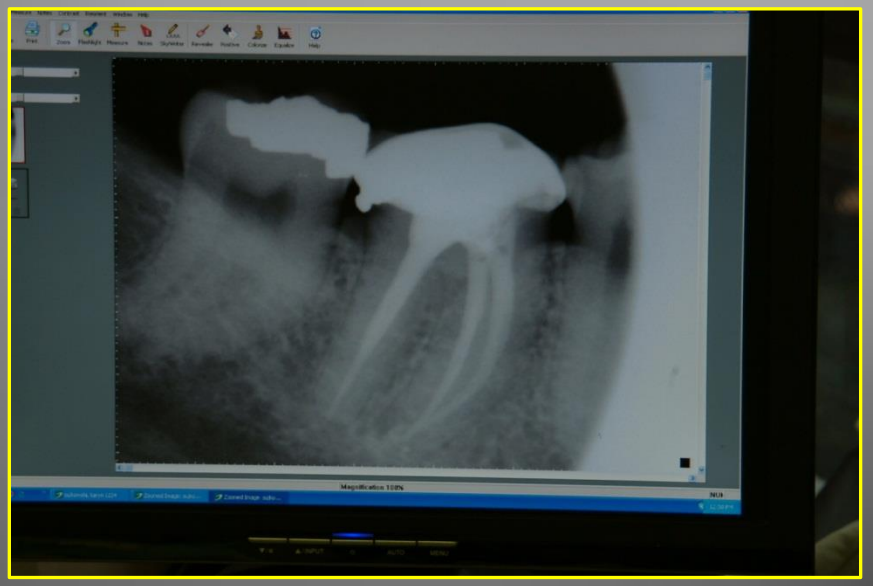


- Head wrapped & padded
- Blanket & drapes
- Rubber dam
- Hand files to access & measure, Root ZX & digital x-ray
- Rotary NiTi for instrumentation (Brassler)
- LA
- odan, dex, ketor or ibu, ice

Adult GA for RCT, intubated, airway management, add'l male, 50's, ASA I, non-smoker, severe panic attacks, claustrophobia, referred by endodontist, #30 (very calcified)

- Use rubber dam for all RCT
- Salem Sump NG #18 Fr, suction gastric secretions
- LA – mep 3% (1), lido 2% 1:100k epi (1)
- 100% O_2 good recovery, extremely fast, extubate fast
- ***"I want to sit up"*** **in the chair, when already sitting up**
- Post-op telephone follow-up, did well, sleeping

Female, 30's, mult previous back surgeries, high tolerance, (takes dilaudid 2 mg), non-smoker, request for GA for rct #4, retx rct #30



Anticipated high tolerance GA

- 5’ 2”, 130 lbs., synthroid 0.88 ug, past surg: removal of left TMJ chondromatosis, spinal fusion x 2,
- Pt requested 4 teeth to be tx’d, needed only 2
- Premed 1 hour early: diaz 10mg, ben 25mg, alpraz .5mg, hydrox 50mg, hydro-c 5mg
- N2O/O2, iv 20 ga cath R acf, induction, afrin, nasal airways, #26-34 w/ lido L
- f/o Mac 3 flexi, LTA 4cc 4% lido, #6.5 nrae L

Anticipated high tolerance GA

- Test dose midaz 5 mg, "calmed" patient, sedated slightly
- Add: drop 0.625mg, prometh 6.25mg, fentanyl 50 ug
  - Sedated smoothly, but not asleep, still talking
- N2O/O2 3/2, add sevo 1% -> 8% (intubation) -> 1%
- Switch to Forane 0.5% (LA: mep3%, lido2% 1:100, marc)
- Propofol 200 mg / alfentanil 1000mg, pump
- 35 minutes before end of case, switch back to sevo 0.5%
- Taper down gas, increase prop/alf

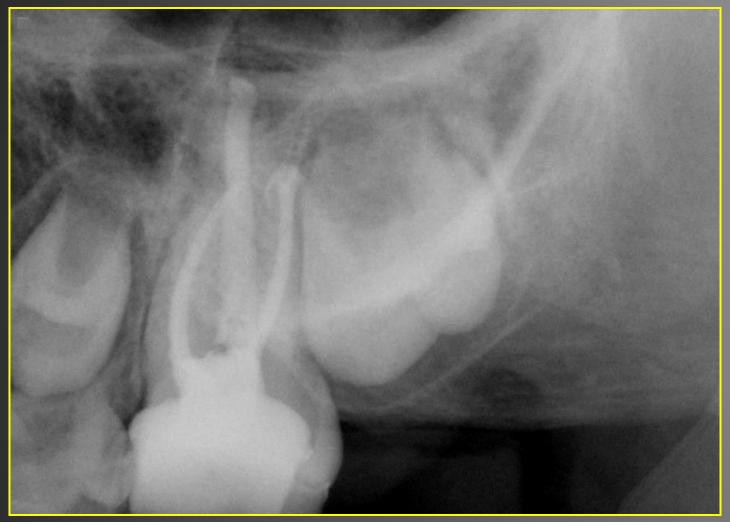
Anticipated high tolerance GA

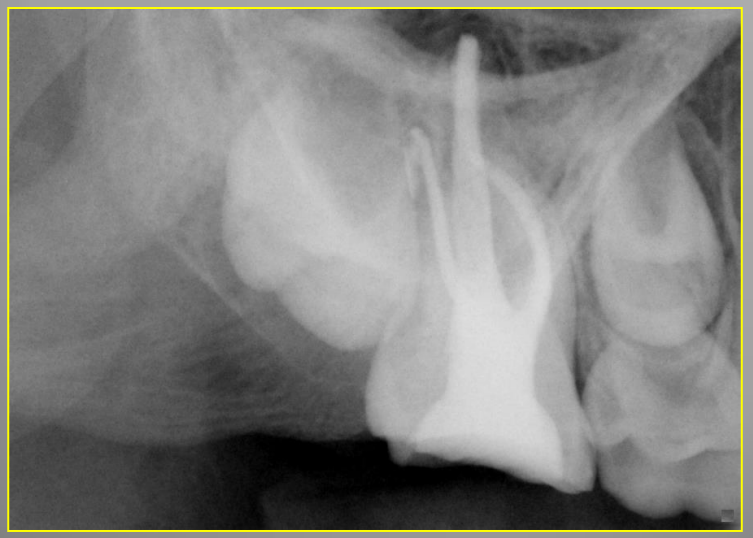
- Salem Sump NG #16 Fr
- Ibu 800mg, odansetron 4 mg, dexameth 4mg to iv bag
- 100% O2, extubate
- Extremely fast recovery

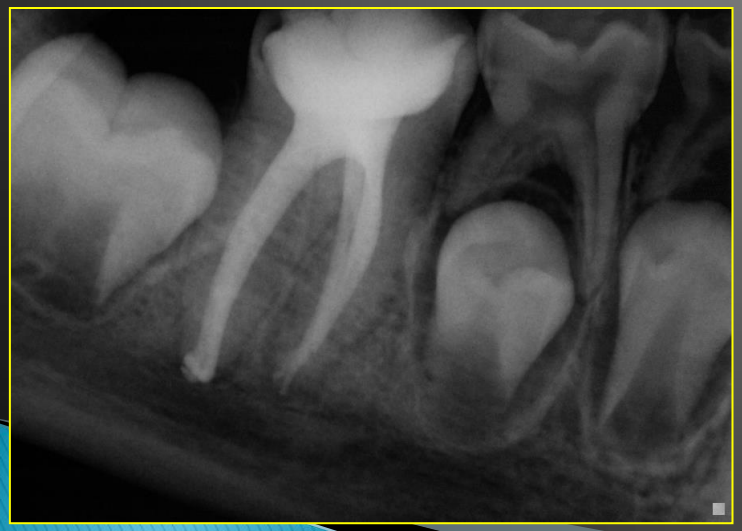
C&B work under GA, same as 'regular'

Male, 60's extreme hyperactive gag reflex, all major tx done under GA, #14 HN gold ¾ crown (bruxism)

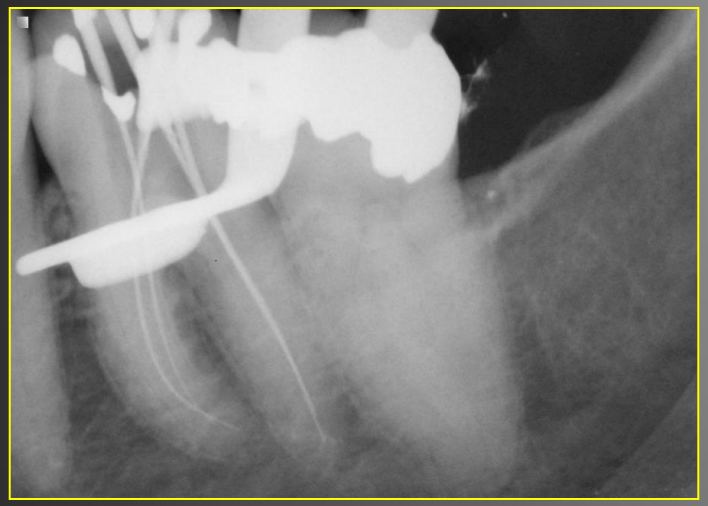
9 year old boy, RCTs #3, 14, 19 done under GA







Female age 60, wants all tx done under GA, RCT #19 4 canals



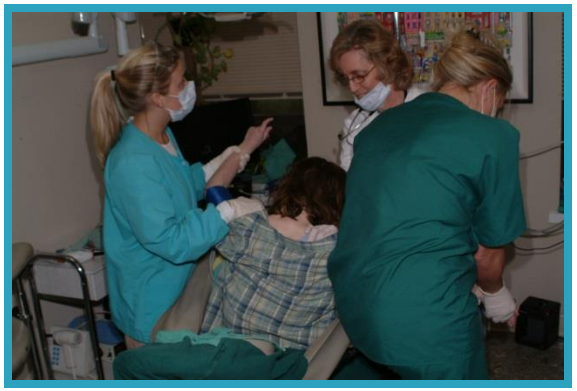
Male age 45, autism, for sc/rp, had perio surg by LML, "shared" with periodontist for "cleanings"

Extremely difficult, special needs, CP, combative

- Female, young adult, CP, wheelchair, mentally challenged
- LDV, a decade ago
- Caries
- Periodontal disease, class III, areas of NUG, extreme mouth odor
- Bruxism, tongue thrust, finger biting

Into chair in tx room, IM Ketamine & Midazolam, intubate, prep in normal manner

Recovery, fighting, settles down



One of my top 10 patients of all time in the most impossible category!!!

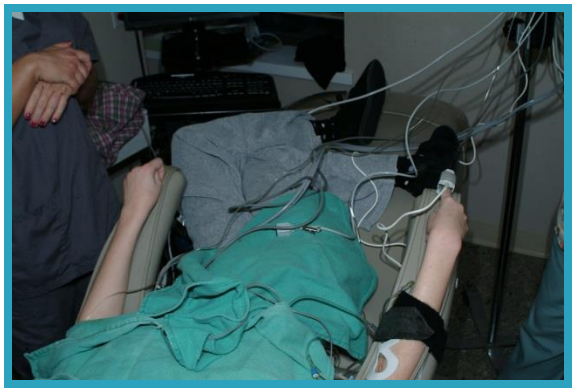
- Female, 30's
- CP, wheelchair
- Craniofacial anomalies, contractures, etc.
- Mouth breathing
- Limited nasal opening
- No oral hygiene
- Special feeding technique
- And much more

What to look for

- Evaluate the airway
- Evaluate the airway
- Evaluate the airway
- "They are going to FL for the winter, will return in the spring"

“Spring came”

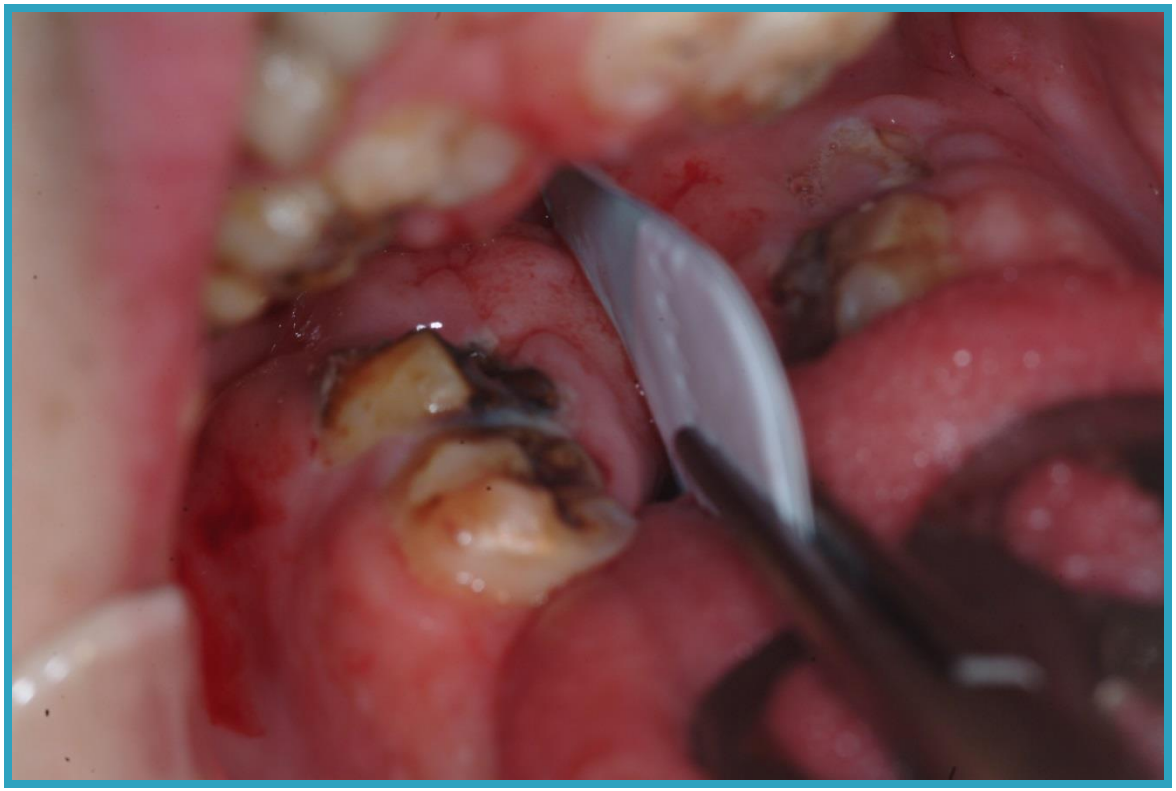
The process



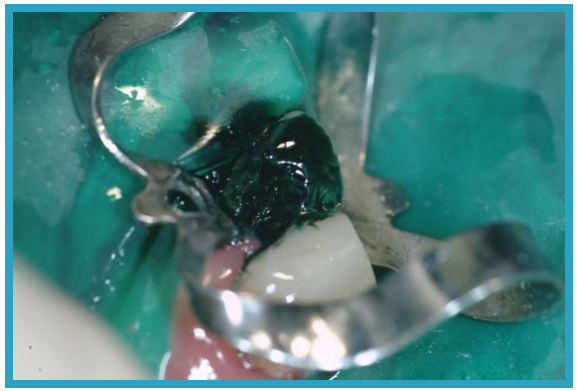
proceeding

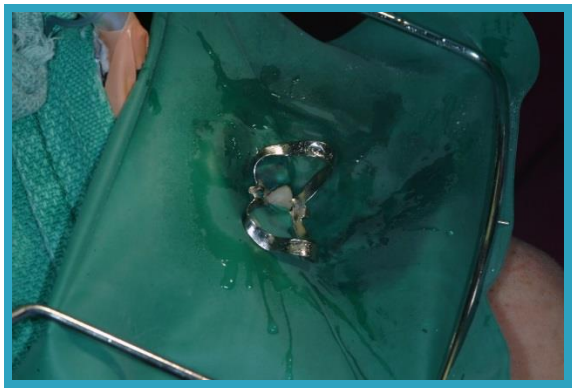
proceeding

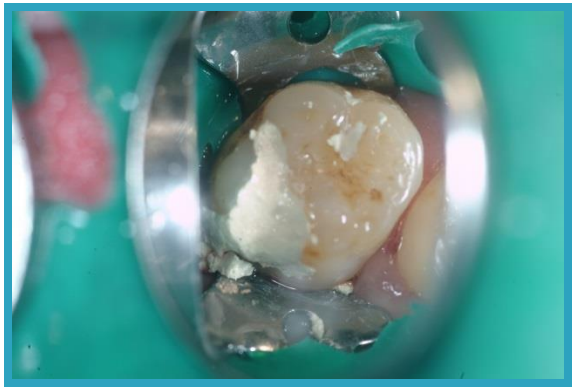
“Airway?” “What Airway?”



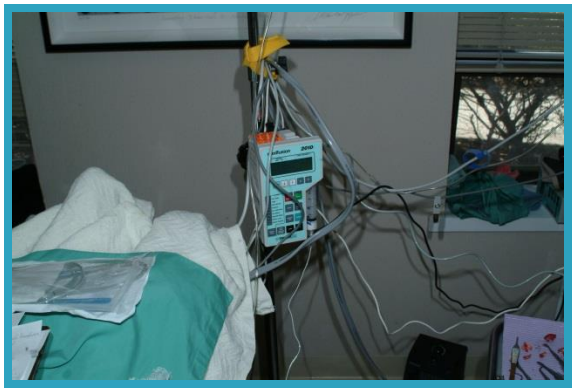
treatment

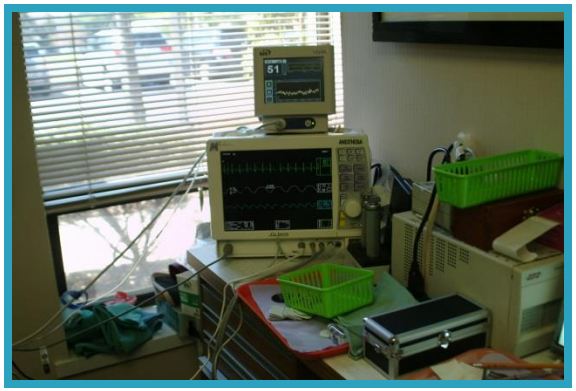


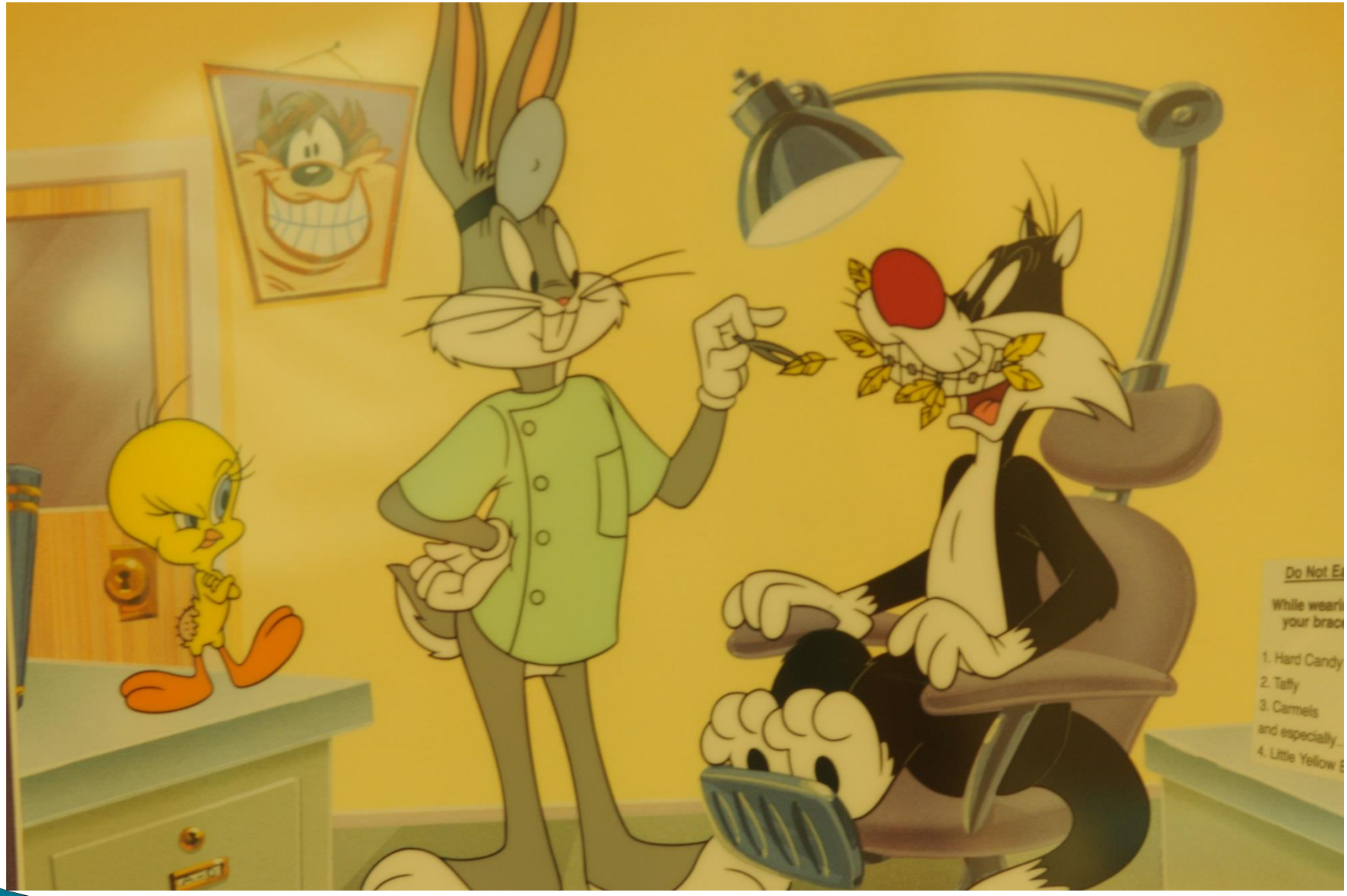




Made it to the end






Do Not Ea
While wearin
your brace
1. Hard Candy
2. Taffy
3. Carmels
and especially
4. Little Yellow

When you know you are going to have a difficult day!

- Male, age 13, 138 lbs, 5'8", autism, completely non-controlled, hyperactive, behavior issues
- Seizure disorder, gran mal, Lamictal 125 mg bid, Topamax 150 mg bid, Risperidone 1 mg,
- Parents described hx of trauma 3+ years prior
- Had several temp crowns on #7, fall off
- Facial swelling, to ER, physician Rx "amoxicillin" (Augmentin), referred to dentist (pediatric dentist)
- Pediatric dentist unable to treat, ref to LML

Difficult day cases : special needs

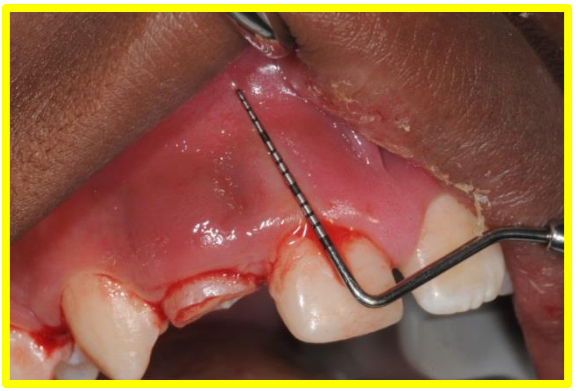
- Consult, parent(s) not the best historians
- (leaving for Bahamas in one week) (*rush, rush, rush*)
- One (1) x-ray taken 3 years ago, no other x-rays ever taken
- The "look-see" exam in reception room as patient bouncing wall to wall, father took to car
- Evaluation done by pediatrician (had records), labs
- Attempt to calm with oral premeds failed (spit onto wall)
- Used both parents to bring to tx room, "sandwich technique" at dental chair
- IM ketamine (100 mg) & midazolam (2.5 mg) R arm

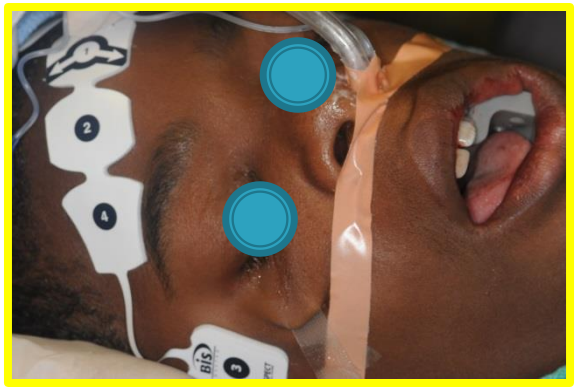
Difficult day, special needs

- Let the parents hold the patient
- Sometimes a bit slower is better, let them appreciate what is going on
- "As thing calm down" – put on BP cuff, start N2O/O2/sevo, start IV, rest of monitors
- Induction, 'afrin', nasal airways, nasal intubation (#6.0 nrae cuff, head wrap, and the regular scenario
- Sevo/Forane & propofol/remi (200mg/100mcg, pump)
- Take fmx, exam, perio chart
- #7 & #8 had trauma, PAP at both, TP: to do RCTs

- Appeared that minimal preventive tx was performed in the past (minimal meaning little to none)
- Perio pockets 5 – 10 mm
- No decay
- #7 – 14 mm buccal pocket, drainage
- #8 – 15 mm buccal pocket, drainage
- RCTs done, sc/rp 4 quads
- Will need restor tx in future
- Recovery – just as tough as induction, difficult to manage, called in parents
- *(I was exhausted for the day!!)*

“another tough day at black rock”





FLOSS
Mouth WASH
Tooth PASTE
BEST DENTIST IN TOWN!
148/200
HAPPY DENTIST VISIT

How much to you need to give to get started????

Enough!!!!

A case to define "*enough*"

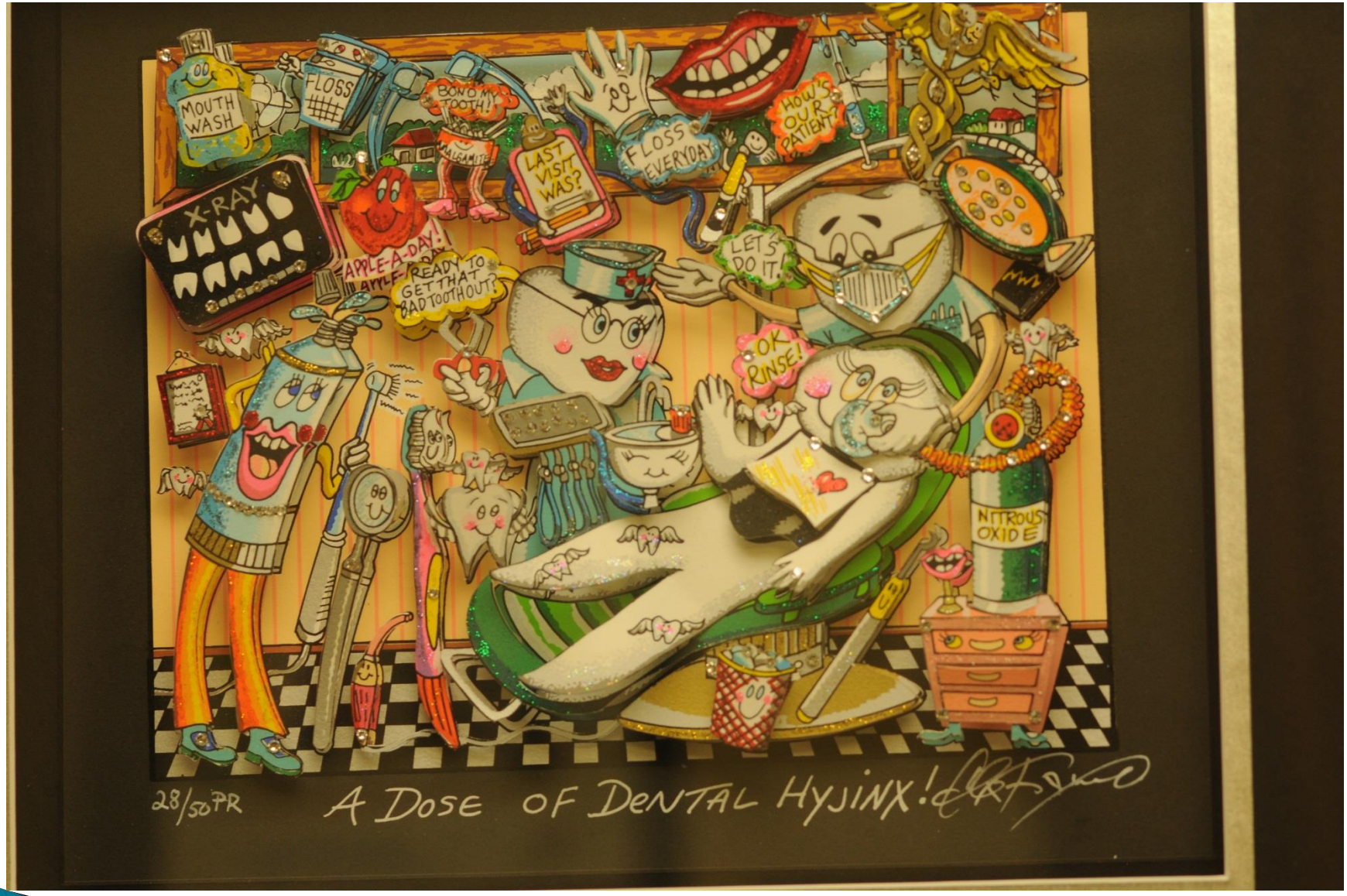
- Female, age 25, 5'/ 2", 115 lbs, epilepsy, gran mal seizures, "Drauet Syndrome", "can pass out" – vagus nerve stimulator implanted in chest, magnet control, mentally impaired, Topamax, Zarontin, Fycompa
- Mother no longer wants to go to "insurance dentist"
- 'emergency' - need RCT #8, #9, perio problems
- Get H&P and labs
- Schedule to do case
- Mother extremely helpful

- Mother helps with transfer to dental chair (1st GA appt)
- Helps to hold patient still for IV start, (22 ga catheter R hand) patient extremely strong and moving, not able to place nasal hood, not able to place BP cuff
- Expected 'normal' amount of midazolam to get started, maybe a little more
- Gave 5 mg - no effect, 5 more – no effect, 5 more – no effect, and so on… over 30 minutes.

- Until the **total reached 35 mg**, and she "softened" – not asleep, not sedated, just enough so monitors could be placed
- face mask placed, N2O/O2/sevo, promethazine (total 25 mg), hydroxyzine (total 50 mg), ketamine 25mg, prop/remi 200
- #6.0 nrae L side,
- good recovery, fast, gave meperidine 5 mg for a little post anes shaking

Prior anesthesia experience helpful…

- 2nd GA appt, mother helps, same way, IV started
- This time 10 mg midazolam per titrated dose, and a little quicker
- **Total 50 mg midazolam** over 15 – 20 minutes
- Fentanyl 50 mcg, promethazine 12.5 mg
- Similar overall technique, prop/alf (200 mg/1000 mcg)
- #6.0 nrae, R side, 2 cc air to cuff, monitors, head wrap
- Good recovery, fast, a little post anes 'shakes' – meperidine 10 mg


MOUTH WASH
FLOSS
BOND MY TOOTH!
AMALGAMITE
LAST VISIT WAS?
FLOSS EVERYDAY
HOW'S OUR PATIENT?
X-RAY
APPLE-A-DAY!
READY TO GET THAT BAD TOOTH OUT?
LET'S DO IT!
OK RINSE!
NITROUS OXIDE
28/50 PR
A DOSE OF DENTAL HYJINX!

Where to buy what at a good price