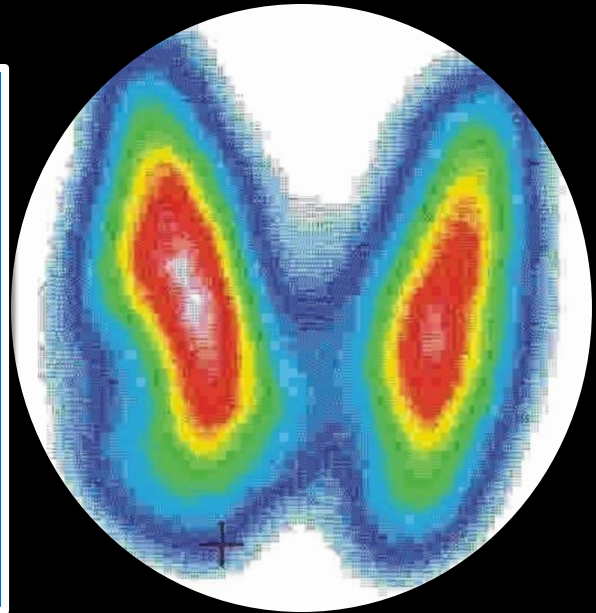


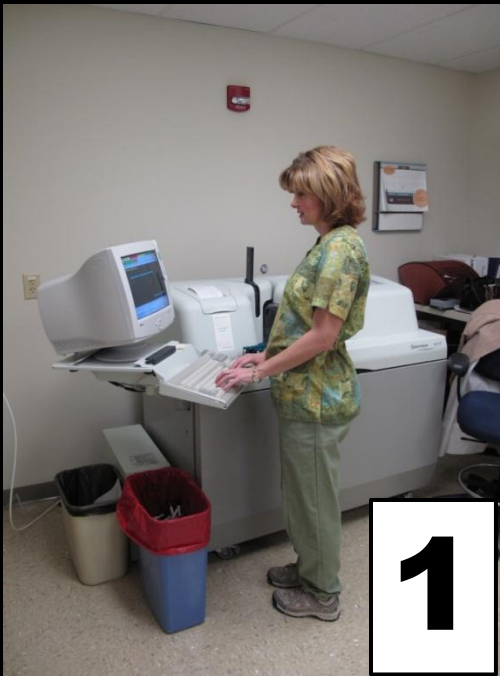
Thyroid practice Enhancements ATA- 2013.



J. Woody Sistrunk, MD

Jackson Thyroid & Endocrine Clinic, PLLC

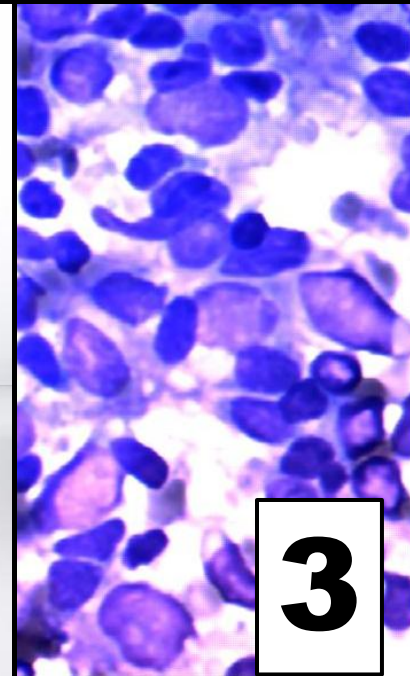
Jackson, Mississippi



1



2



3



4

KEEP THIS IN MIND!!!

THYROIDOLOGY

PRACTICE ENHANCEMENTS

In the order of importance.

2 sections:

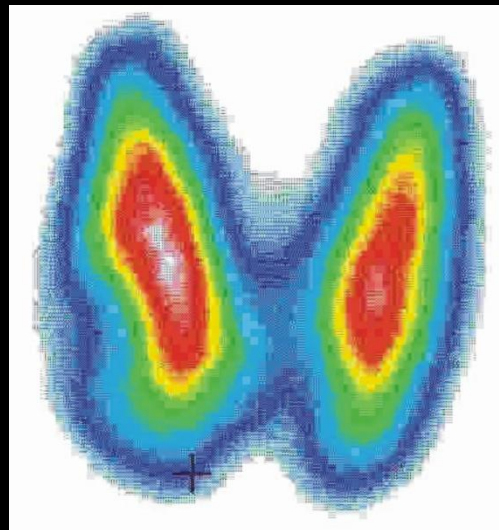
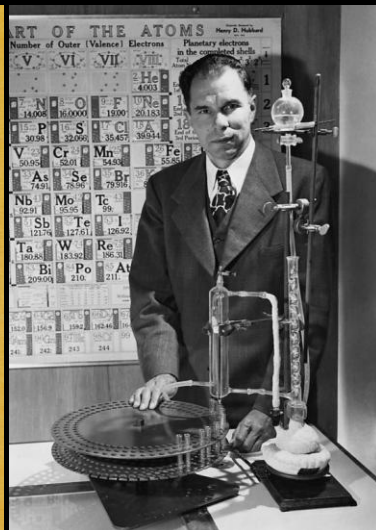
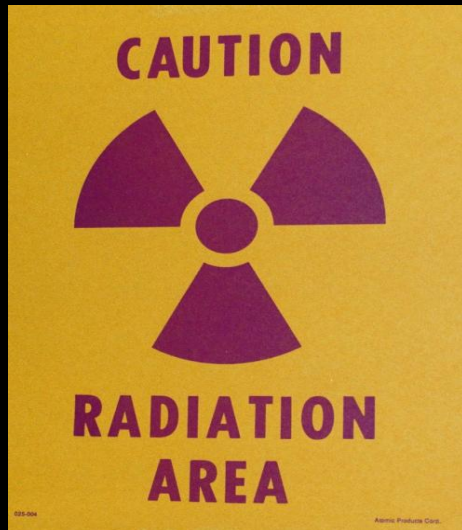
1. An Introduction to Outpatient Nuclear Medicine
2. An Overview of Starting a Clinical Laboratory



Jackson
THYROID &
ENDOCRINE CLINIC, PLLC

J. Woody Sistrunk, MD

St. Dominic West Tower
971 Lakeland Drive, Suite 353
Jackson, Mississippi 39216
Phone: (601) 949-6990
FAX: (601) 949-6105



AN *INTRODUCTION* TO NUCLEAR THYROIDOLOGY IN THE OUTPATIENT PRACTICE OF ENDOCRINOLOGY



J. Woody Sistrunk, MD, FACE, ECNU

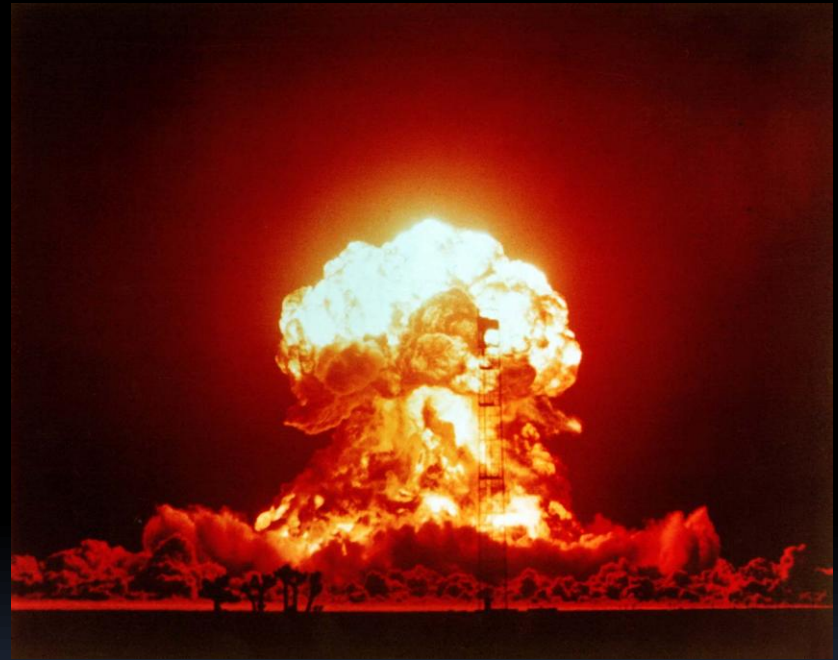
•Radiation Safety Officer



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ENDOCRINE CLINIC, PLLC

Why **Nuclear Medicine** in Endocrinology?

- *Who knows more about the thyroid than an endocrinologist?*
- *Proper safety instructions and reassurance to YOUR patients.*
- *Making sure YOUR patients are treated appropriately.*
- **SAFETY INSTRUCTIONS FROM Hospital NUCLEAR MEDICINE:**
 - *"In that room you will find a metal box.*
 - *In that box you will find a lead container.*
 - *In that container is a pill.*
 - *Take it and leave."*



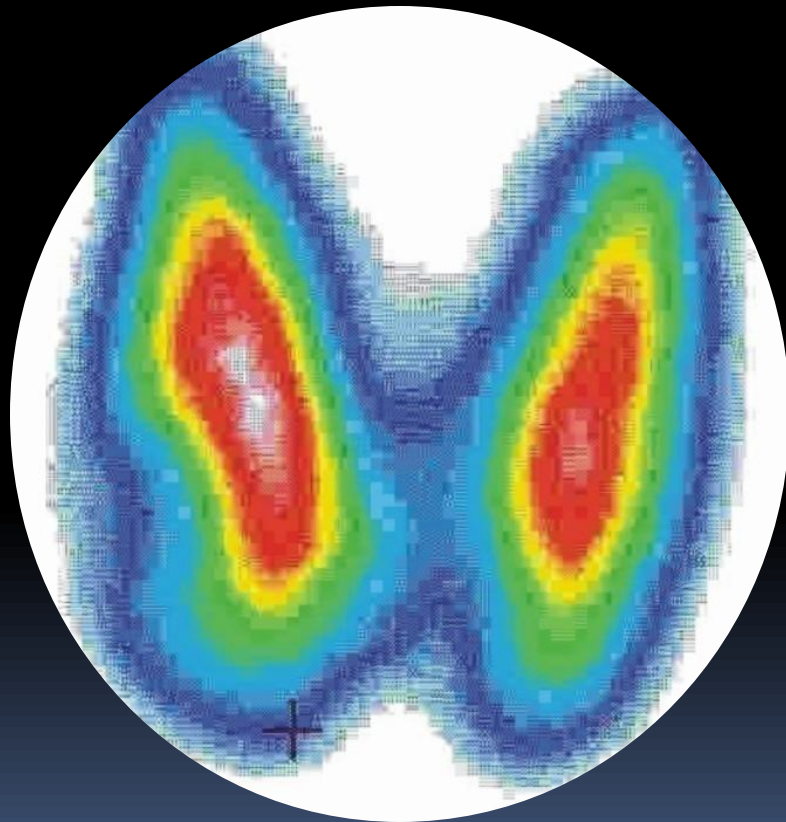
PUBLIC PERCEPTION



DID YOU KNOW THAT ENDOCRINOLOGISTS:

- Can have a Nuclear Medicine Hot lab in the office.
 - ***Thyroid Uptakes***
 - ***Radioactive iodine therapy for hyperthyroidism.***
 - ***Radioactive iodine therapy for thyroid cancer.***
- With these procedures, you become the nuclear medicine physician/technologist.
 - ***Maintaining complete control of quality and decisions of your patients outcomes.***
 - ***Ensuring correct instructions given to patients and safety measures followed.***
 - ***Verifying all questions are answered.***

NUCLEAR MEDICINE IN THE OUTPATIENT PRACTICE OF ENDOCRINOLOGY



OUTLINE

- Licensure
 - AACE Course-
- Equipment

History of ^{131}I Therapy

It is OUR heritage and OUR History!!

- 1946-1970
 - Endocrinology
- 1970-1993
 - Nuclear Medicine
- 1993-Present
 - ♠American Association of Clinical Endocrinologists (AACE) Initiative.

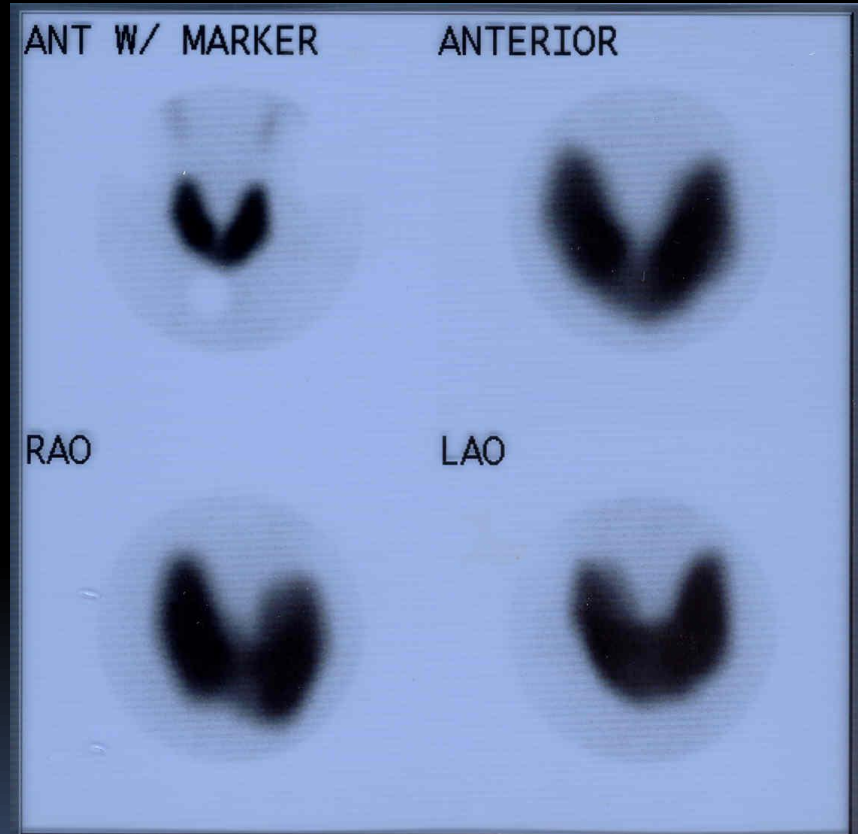


Figure 21. Positioning of scintillation counter tube for ^{131}I uptake test.

Figure 21. Positioning of scintillation counter tube for ^{131}I uptake test.

History— *Nuclear Medicine Era*

- Missed diagnosis
- Failure to discuss other treatments
- Failure to discuss non-thyroid problems
- Misadministration
- Loss to follow-up
- ***"Thyroid uptake is low consistent with hypothyroidism."***
- ***"Thyroid uptake is low, r/o paraneoplastic process."***



LICENSURE/DEFINITIONS

NUCLEAR ENDOCRINOLOGY

Agreement State vs. Non-Agreement State

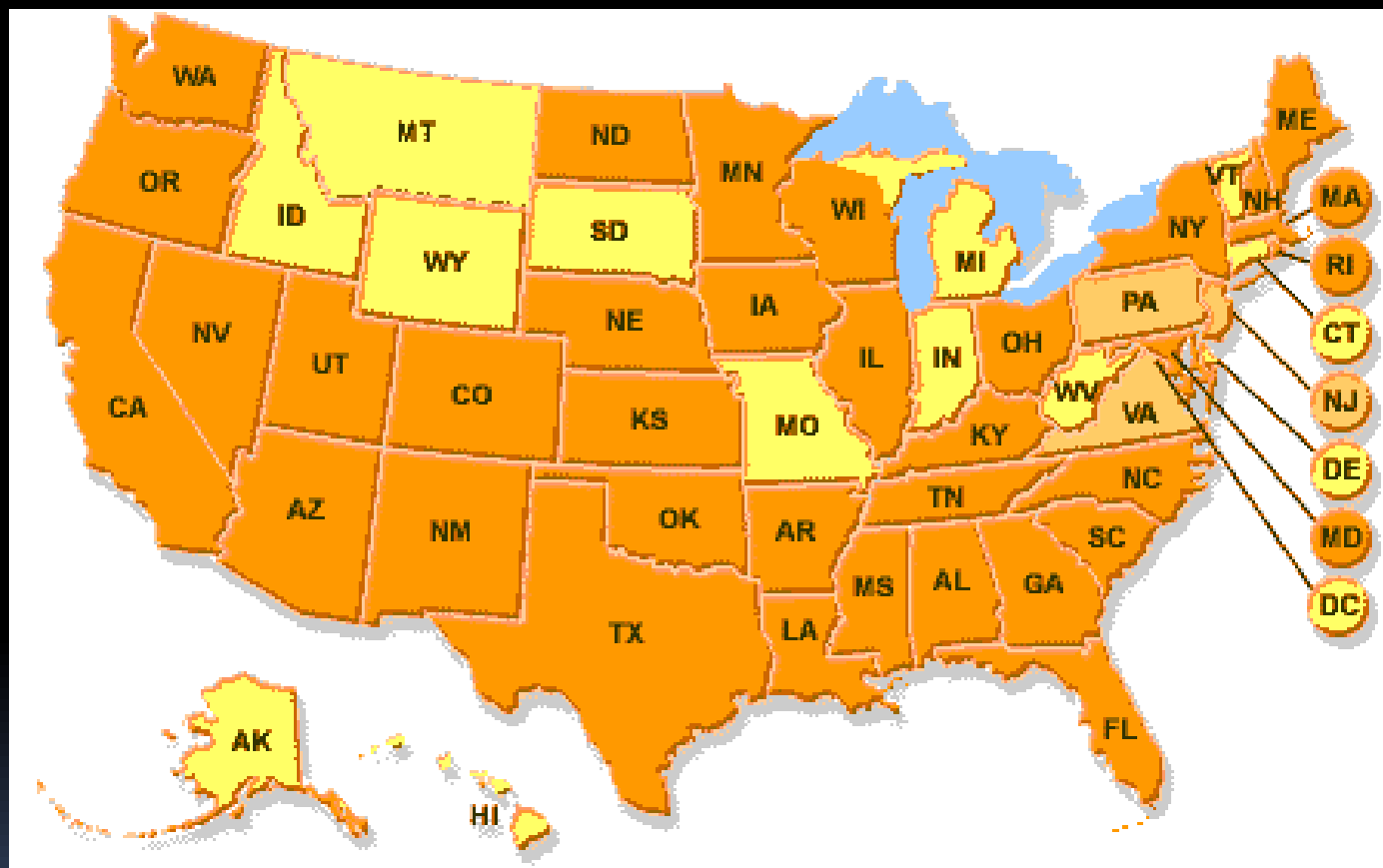
- Agreement State

- A state that has signed an agreement with the Nuclear Regulatory Commission under which the state regulates the use of byproduct, source, and small quantities of special nuclear material in that state.

- Non-Agreement State

- The state is governed by the applicable laws of the ***Nuclear Regulatory Commission (NRC).***

Agreement States



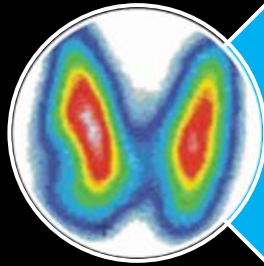
Agreement State

Non-Agreement State

Source: www.nrc.gov

What is a **Radioactive Materials (RAM) License** ?

- Issued to **your clinic**, or the hospital where you have privileges, by the NRC or Agreement State.
- ***Allows the facility to:***
 - ***order***
 - ***receive***
 - ***possess***
 - ***use radioactive materials.***



Who is an Authorized User ?

Authorized Users are physicians listed on the radioactive materials license who are authorized to prescribe and administer particular radiopharmaceuticals for specific diagnostic or therapeutic procedures.

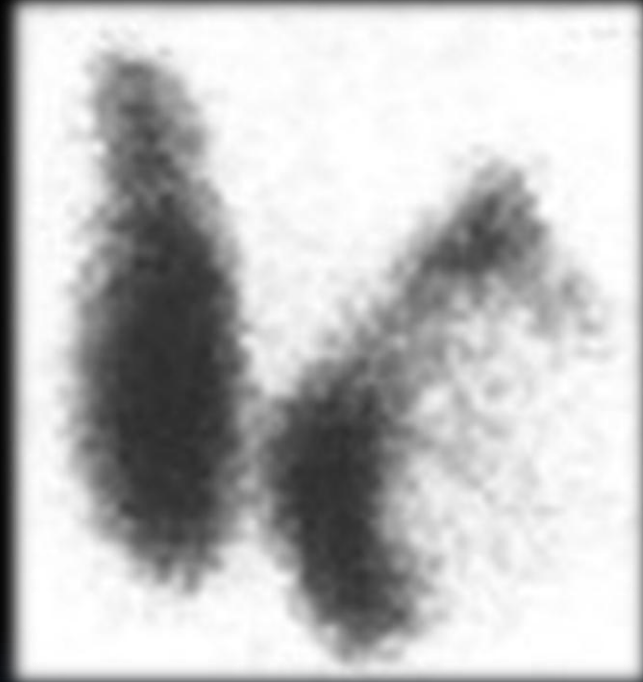
*What will I be able to do as an
Authorized User of Radioactive iodine?*



1. Thyroid Uptakes (I^{131} , I^{123})

2. Radioactive Iodine (I^{131}) treatment for Hyperthyroidism.

3. Radioactive Iodine (I^{131}) treatment for thyroid cancer / remnant ablation.



NOTE: YOU WILL
NOT HAVE
THE ABILITY TO
PERFORM THYROID
SCANS. *****

What Do I Have To Do To Become An Authorized User ?

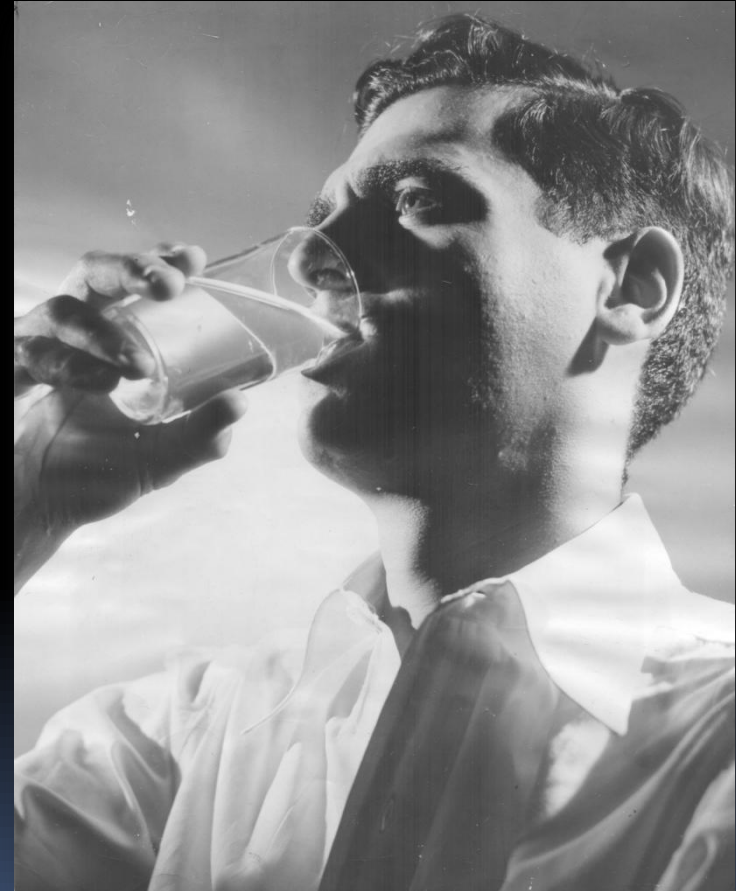
80 hours of classroom instruction with an emphasis on radiation safety, physics and math.

- **AACE 80 HOUR COURSE.**

Board certification by a medical specialty board.

Supervised treatment of 3 patients with less than 33 mCi. (Hyperthyroidism)

Supervised treatment of 3 patients with more than 33 mCi.
(Thyroid cancer).





AACE NUCLEAR MEDICINE COURSE

Kansas City, Missouri

Fall 2013

Go to aace.com for details.



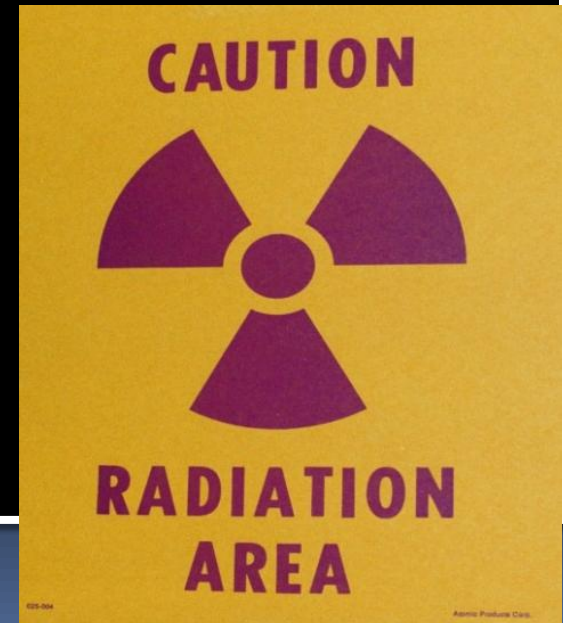
How to Get Started

■ *What to Know?*

- License requirements in your state.
- Equipment required.
- Layout of nuclear medicine hot lab.

■ *Who to contact?*

- State nuclear regulatory agency
- Physicist
- Nuclear Pharmacy



SIMPLE "HOT LAB" LAYOUT



- Essentials include a sink and a few electrical outlets.
- *This can be the same room used for ultrasound exams.*
- The same stretcher can even be used.

Nothing this Fancy, Nothing this complicated.

- No special lead-lined room.
- No special facilities needed.
- *But this is impressive!!!!!!!!!!!!!!*



SIMPLE PROCEDURE ROOM LAYOUT

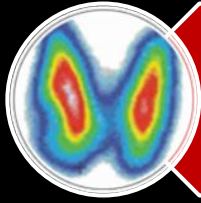
- Essentials include a sink and a few electrical outlets.
- ***This can be the same room used for nuclear medicine and ultrasound exams.***
- The same stretcher can even be used.





SIMPLE PROCEDURE ROOM LAYOUT





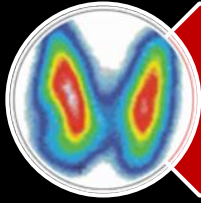
SIMPLE PROCEDURE ROOM LAYOUT





SIMPLE PROCEDURE ROOM LAYOUT





PROCEDURE ROOM MICROSCOPE LAYOUT



EQUIPMENT OVERVIEW

- So now it's time to set up a ***HOT LAB!***
- WHAT WILL I NEED TO PURCHASE??
 - Uptake System
 - Dose Calibrator
 - Geiger Counter

HOW MUCH WILL ALL OF THIS COST??



- Uptake System--
\$10,000-\$14,000
- Dose Calibrator--
\$6000-\$8000
- Neck Phantom-- \$275
- Geiger Counter --
\$1000
- ***Total Hot Lab Setup
\$20,000- \$24,000***

HOW MUCH EXPOSURE WILL I RECEIVE??–



- **Minimal !!! If any.**
- **No liquid!!!!!!**, all capsules arrive as pre-ordered unit doses.
- VERY SAFE♠♠
- HOW DO YOU KNOW IF YOU ARE EXPOSED??
- Film Badges.
- **WEEKLY Bioassay**- which is simply placing the uptake probe over the neck will be performed weekly to confirm that radioactive iodine is not absorbed.

YES, it will pay for itself!!!!!!!!!!!!!!

3 UPTAKES/MONTH= Paying for itself.

- In practice 11 years.

▪ uptakes.	774
▪ I ¹³¹ therapies.	865

- **PERSPECTIVE-**

- **Jackson Thyroid & Endocrine Clinic-- 2011**

▪ Ultrasound only-	1093
▪ US guidance with FNA	305
▪ FNA-	305
▪ Uptakes-	54
▪ Therapies-	45

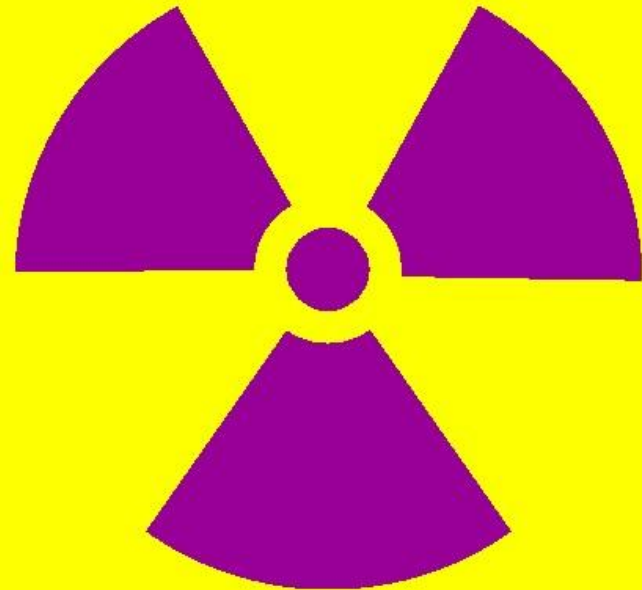
- **♠HENCE, Thyroid Ultrasound is critical first. ♠**

Fellows:

WHILE IN TRAINING

- Pursue all of the requirements needed for licensure.
- Review this talk with more detail at aace.com.
- Get to know the radiation safety officer at your institution (who often times is not a radiologist) and try to be put on the institution license as an **“official user”**.

CAUTION



RADIOACTIVE MATERIALS



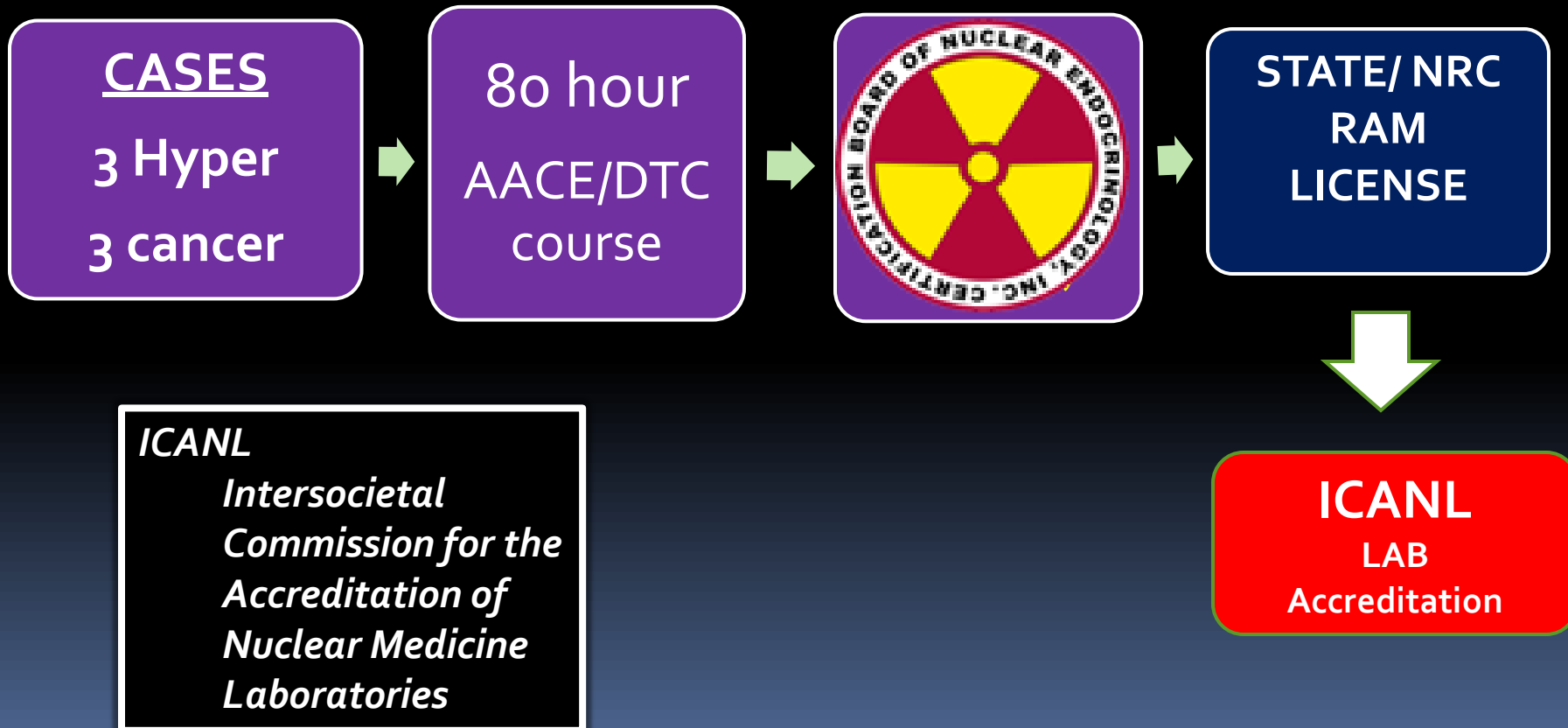
While Interviewing

- Ask about the possibility of you having a “hot lab” and doing your own nuclear medicine procedures.
- *Make sure you have access to a **good** ultrasound machine.*
- ***Be specific with monetary figures, space requirement and the long term money-making potential.***



PATHWAY TO LICENSURE

Certification, Licensure, then Accreditation.



Getting cases:

A PROBLEM AT TIMES

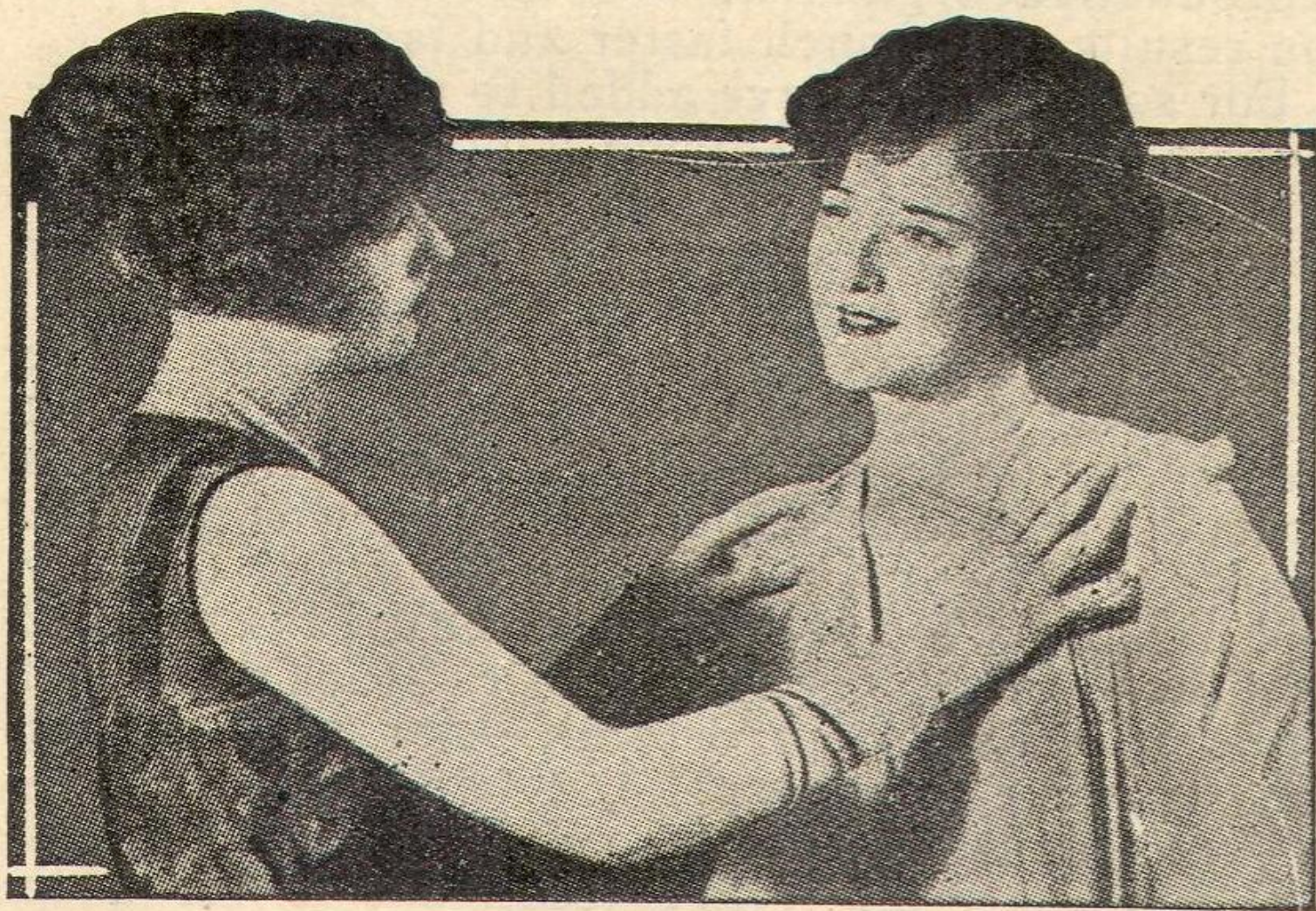
- *While you are still in fellowship*, if you have any desire to become licensed in this, pursue the required cases (3 hyperthyroidism, 3 cancer.)
- Assist with dose decisions, safety instructions administration.
- *Have a preceptor sign the appropriate **NRC preceptor attestation form.***

CONCLUSIONS:

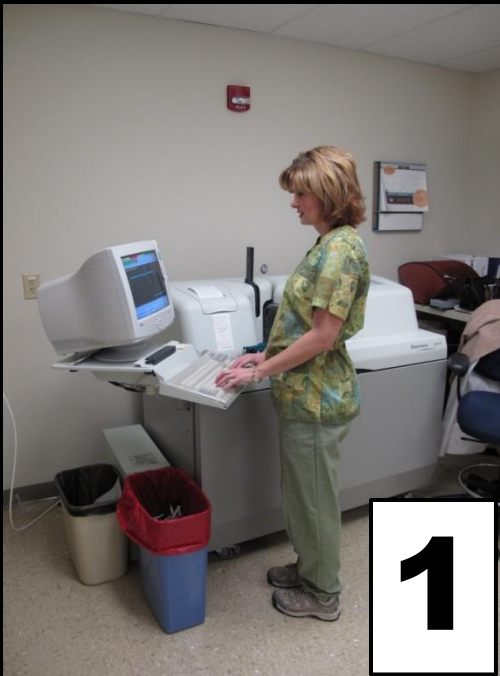
- Thyroid Doctors treating Thyroid Disease.
- A thyroid practice is a reality if you are willing to pursue it.



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www.aace.com



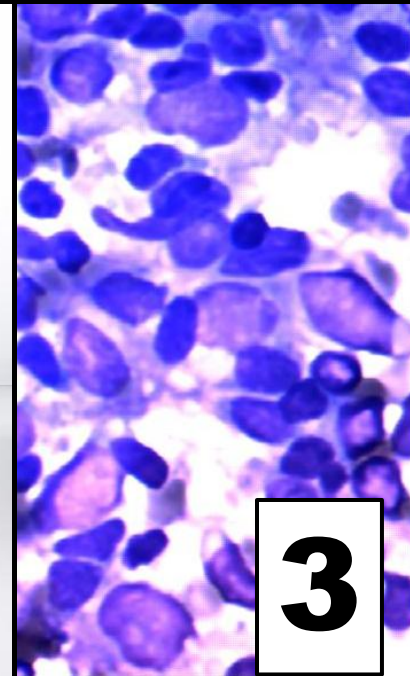
"Yes, my goitre is gone and now I am well and happy."



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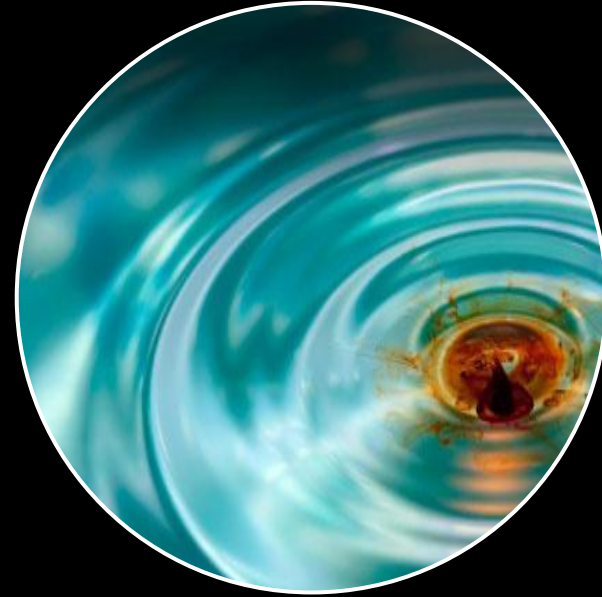


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THYROIDOLOGY

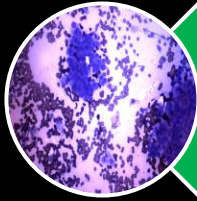
PRACTICE ENHANCEMENTS

In the order of importance.



IN-OFFICE

POINT OF CARE LABORATORY



LAB OUTLINE

1. Licensure
2. Equipment



Never enough equipment in the practice of Thyroidology

WHO IS THIS MAN???



HINTs:

Invented the
radiation film badge

Invented polarized
lenses

Had a role in changing
our lives forever.

Edwin H. Land



- Inventor of :
 - The Polaroid Land Camera
 - Polarized lenses.
 - The radiation film badge.
 - **But what does he have to do with the practice of medicine?**

The Polaroid Camera changed the world.

- Pictures were available immediately.
- *Good, bad, or ugly results were available immediately.*
- No one was able wait for results anymore.
- *Land was responsible for the expectation of the results in clinical medicine anticipated immediately by the patient (and Physician/Endocrinologist.)*



Why Laboratory Medicine??

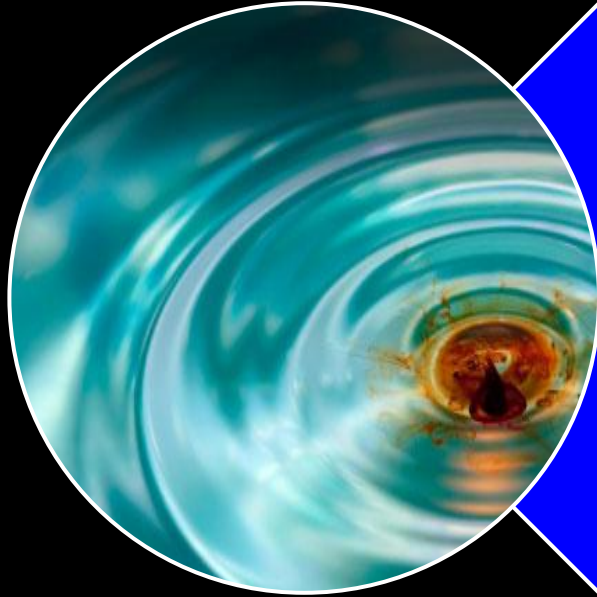
- Laboratory Medicine is essential is the heart of endocrinology.
- *Without lab, we are doomed merely to watch and guess.*

Why Laboratory Medicine in Thyroidology?

- ***“BUT I AM SO OBESE AND TIRED, IT MUST BE MY THYROID!!!!!!!!!!!!!!”***
- ***The decisive “NO”= PRICELESS!!!!!!!!!!!!***

CLIA CERTIFICATION

LABORATORY MEDICINE



LABORATORY
MEDICINE IN THE
CLINICAL
PRACTICE OF
ENDOCRINOLOGY

CLIA CERTIFICATION

What is an OFFICE-BASED LABORATORY?

- Office-Based Laboratory –
 - *Defined as a clinical laboratory used by a fully licensed physician to test specimens collected primarily from patients of the practice.*
 - *It is usually located at the physicians principal sight of care.*



LABORATORY DIRECTOR-

- Responsible for the overall operation of the laboratory and the competency for all laboratory personnel.



HOW DO I BECOME A *LABORATORY DIRECTOR?*

- Certification in anatomic or clinical pathology.
- One year of laboratory training in residency.
- *There's still time for this.*
- **OR**
- 20 hours of CME credits of training on the responsibilities of the laboratory director. – <http://www.cola.org/>

<http://www.cola.org>



This is the location for the Laboratory Directors
Online Course.

WHERE DO I START?

WHAT CAN I DO IN AN OFFICE LAB?

LABORATORY MAKE-UP

- **LABORATORY DIRECTOR- YOU**
 - Responsible for the overall operation of the laboratory and the competency for all laboratory personnel.
 - The first step of getting this designation is to finish the on-line portion of the laboratory course.
- **TECHNICAL CONSULTANT- YOU**
 - Responsible for technical and scientific oversight of the laboratory.
- **CLINICAL CONSULTANT- YOU**
 - The physician that orders the appropriate tests.
- **TESTING PERSONEL- Hopefully someone else.**
 - GED/High School diploma and documented training appropriate to the test being performed.
 - www.cola.org

THYROIDOLOGY WITHOUT LAB IS LIKE FISHING WITHOUT WORMS.

- LAB is critical
- ***But the TSH/Free T₄ is the essential part of the enterprise.***
- ***From vein to results on paper in 20 minutes.***
- Face to face decision making.
 - Are you taking your medicine.
 - I will write your 90 day RX now.
 - A note to PCP, recommending planned follow-up.



A VAST MENU OF TESTS ARE AVAILABLE FOR THE OFFICE-BASED LAB



- TSH/ Free T₄
- Simple Chemistry
- CBC
- COMPLEX LABS:
 - TSH/FT₄
 - HgbA_{1c}
 - MANY OTHERS.
- Clia-Waved Tests.
- ***NOTE: CLIA NOT REQUIRED FOR FNA ADEQUACY!!!!!!!!!!!!***

LABORATORY IMPROVES CLINICAL OUTCOMES

- ***1. FASTER DIAGNOSIS AND TREATMENT.***
- ***2. IMPROVED PATIENT COMPLIANCE.***
- ***3. LABORATORY CAN MODEL THE NATURE OF YOUR PRACTICE.***

"TSH and FREE T₄ in < 30 minutes"

"You're ONE-STOP THYROID SHOP"

What are the advantages of having an in office laboratory??

- **CLINICAL RESEARCH**

- Phase 3 and Phase 4 drug studies are quickly becoming a big part of the private practice of Endocrinology.
- Having a laboratory makes your office a valuable site for data collection in these studies.
- Sites with laboratories are considered “more desirable.”
- **MAKE YOUR LAB WORK FOR YOU!!!!!!**

DISADVANTAGES OF AN OFFICE LABORATORY.

- Costs.
- Regulations.
- Personnel.
 - Technologist
 - Phlebotomist
 - Laboratory Director (MD)

My Current Practice

With POINT OF CARE LAB



- Lab Drawn
- Patient Seen
- Lab Available
- LAB IMPORTED INTO EMR
- EMR Note sent to referring physicians.
- RX written/ wired.
- Disposition MADE!
- Follow-up scheduled.
- **All inside of 30 minutes.**

RESULTS TO PATIENTS

- Patients want results.
- Face to face results cut down on questions and confusion.
- If you see 25 patients a day, you either have to pay the salary of the lab tech who processes the labs or **ANOTHER** nurse that will spend tomorrow tracking down the patient, verifying results, calling the pharmacy, and re-arranging follow-up.
- In the end, make it a time-saving, money making proposition.
- **Set the standard!!!!!!!!!!!!!!**



To Recap—

The Advantages of Having an in office laboratory.

- PATIENT SATISFACTION
- CONVENIENCE
- Changes to treatment regimen can be made ***FACETO FACE.***
- ***Patient understanding*** is clearly better when communicated directly by the physician.
- ***FEWER PHONE CALLS*** or MAILING prescriptions.
- ***FASTER DIAGNOSIS AND TREATMENT.***
- ***LESS ANXIETY WAITING FOR RESULTS.***
- ***Ability to send Obese and Tired to an Internist!***

RECAP– Many Reasons to have a lab in the office.

- ***It's good for the patient.***
 - *Convenient, faster diagnosis and treatment.*
- ***It's good for the practice.***
 - *Improved efficiency, Patient Satisfaction.*
- ***It's good for revenue.***
 - *It keeps the bills paid.*
- ***It's good for the physician.***
 - YOU ARE IN CONTROL!!!!!!!!!!!!!!!!!!!!!!
 - IT MAKES YOU A VALUABLE COMMODITY.

HOW PROFITABLE IS HAVING AN *IN-HOUSE LAB*?

2008 FIGURES. – Jackson Thyroid & Endocrine Clinic, PLLC

<u>LAB TEST</u>	<u>#PERFORMED</u>	<u>YOUR COST</u>	<u>REIMB.</u>
TSH	3217 @ \$1.40	\$4,503.80	\$152,775.
FREE T ₄	3216 @ \$2.25	\$7, 236.00	\$98,455.
Calcium	761 @ \$.17	\$129.00	\$8,302.
HCG(Kit)	86 @ \$1.19	\$102.30	\$1,892.

HOW PROFITABLE IS IT FOR YOU TO BILL FOR YOUR SENDOUT LABS??

2008 FIGURES. Jackson Thyroid & Endocrine Clinic, PLLC

<u>LAB TEST</u>	<u>#PERFORMED</u>	<u>FEE</u>	<u>REIMB.</u>
TPO	601@	\$7212.00	\$22,838.00
TG	382@	\$8404.00	\$35,908.00
TSI	162@	\$9290.00	\$23,166.00
TSHRab	164@	\$8175.40	\$6,396.00
CBC	254@	\$825.00	\$5,334.00
COMP	200@	\$800	\$9,400.00

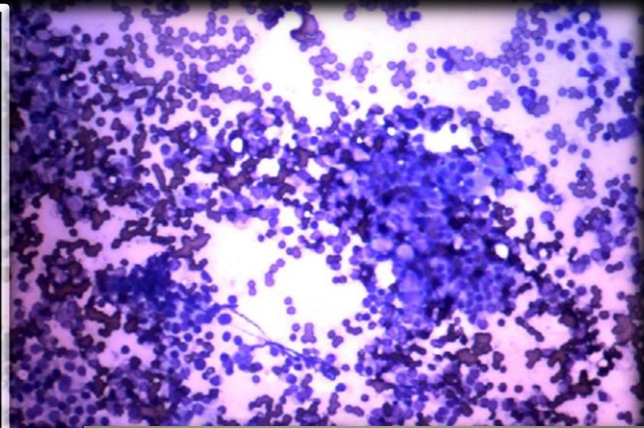
SO WHY DOESN'T EVERYONE HAVE A LAB?????

▪ <u>OTHER COSTS ARE SIGNIFICANT!!!!</u>	
▪ Lab Supplies	\$45,537.34
▪ Service Agreement	\$15,000.00
▪ CLIA	\$188.00
▪ MLE Surveys	\$363.00
▪ Calibration of Equipment	\$176.55
▪ Validation standards	\$946.52
▪ SALARIES	\$73,320.00
▪ REFERENCE LAB	\$95,880.91
▪ TOTAL COSTS	\$246,383.45

On site Microscopy– FNA Adequacy

Another vital laboratory function.

- *FNA adequacy does make a difference in the “point of care” results.*
- *Follicular cells seen in node, then STOP STICKING.*



A GOOD MEDICAL TECHNOLOGIST IS KEY TO THE WHOLE OPERATION.

***FORGET
THE MONEY
MADE ON
LABS,
I COULD PAY
HER SALARY
WITH FNA
ADEQUACY
BILLING
ALONE!!!***



WHAT SHOULD YOU NAME YOUR CLINIC?

- Let them know what you do.
- Have **THYROID** in your clinic name.

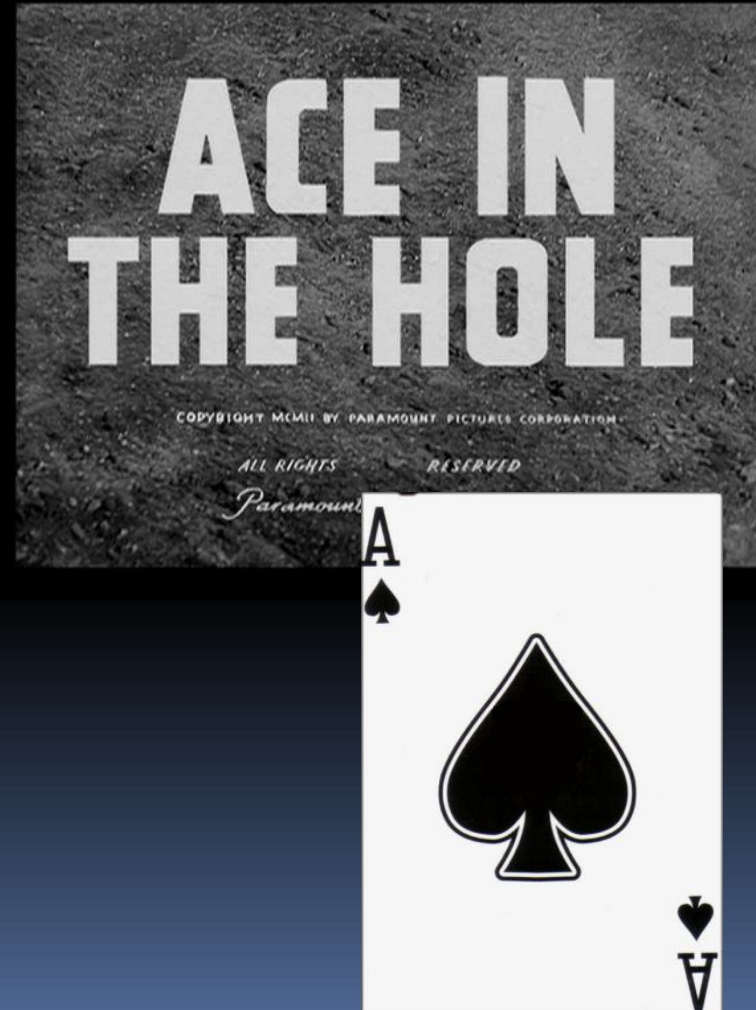


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- *If you have **DIABETES** in your clinic name, you will continue to be a diabetes doctor.*

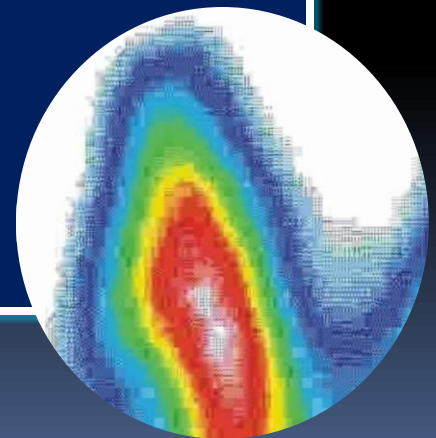
Set yourself apart.

- **WHAT MAKES YOU DIFFERENT FROM THE OTHER ENDOCRINOLOGISTS IN YOUR TOWN??**
- Be the point person.
- ***Be visionary, not reactionary.***
- You may not be able to start off with all of these things, but have a defined plan.



- *“DO SOMETHING YOU LOVE
AND YOU WILL NEVER WORK A
DAY IN YOUR LIFE.”*

- Confucius



"Do the work you love, and you will find joy in it"

• Lawrence Welk

