

# TRAINING AND EDUCATION IN THE BLOOD BANK

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From Student to New Employee  
to Seasoned Veteran

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# Objectives

At the end of the session, the attendee will be able to:

- Differentiate the goals of a student, a new employee, and a seasoned veteran
- Identify at least two methods to increase cognitive and psychomotor performance in students and new employees
- Integrate onboarding into new employee training
- Create opportunities for continued education at your organization

# To Train

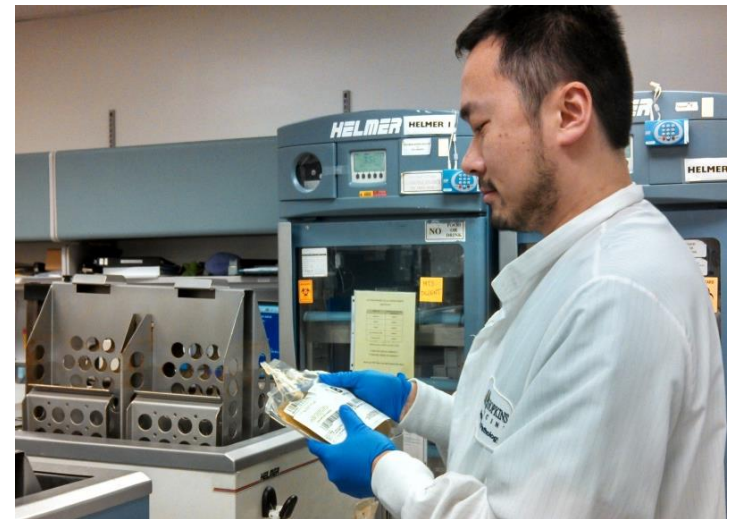
## Definition:

- the act of teaching a person a particular skill or type of behavior
- be taught through instruction and practice
- entice (someone) by offering pleasure or a reward



# Adult Learners

- Materials must be practical and relevant
  - Give specific **examples** that are important to the learners
- Concepts must be concrete and tangible
  - Illustrate ideas through **hands on** or **observation**
- Active involvement
  - Learn by doing
- Self-directed
  - Apply experience
  - **Independence**



# Training in Medicine

**See One,**

Observation & Explanation

**Do One,**

Reflection & Practice

**Teach One**

Mastery & Share

# Considerations for See One, Do One, Teach One

- Priority of Teaching/Turn around time?
- How often is the procedure done?
- How critical is accuracy?
- Bad Trainer?
- Patient Safety?
- Environment?

# Make a Training Plan

- Who is being trained?
- Who can be a trainer?
- What are the goals of training?
- What are they being trained on?
- What is the training time frame?
- How are we going to do it?

# Trainee

- Student
  - Not working the bench – Observer
  - MLS/MLT students, Medical Students, Residents, & Fellows
- New Employee
  - Working the Bench
  - New to this laboratory environment
- Seasoned Veteran
  - Working in **YOUR** laboratory environment for 2 or more years
  - SBB students





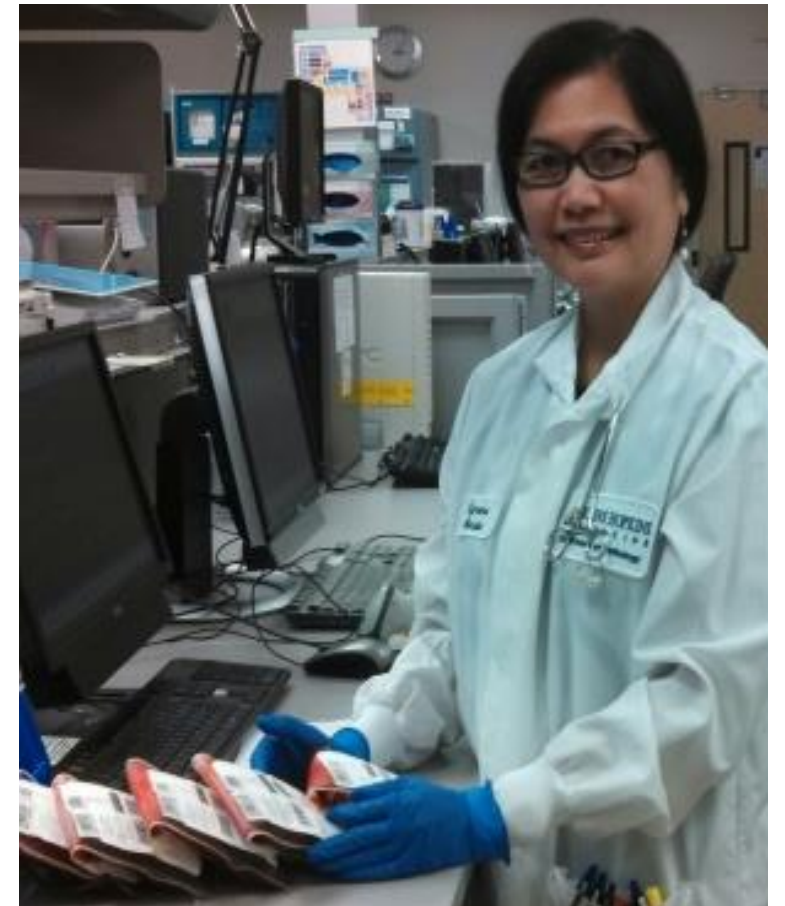
# Trainer Selection

- Not everyone who is a good tech is a good trainer
- Evaluate their Knowledge and Experience level
- Characteristics of a Good Trainer
  - Enthusiastic
  - Knowledgeable
  - Caring
  - Organized
  - Humorous
  - Adaptable



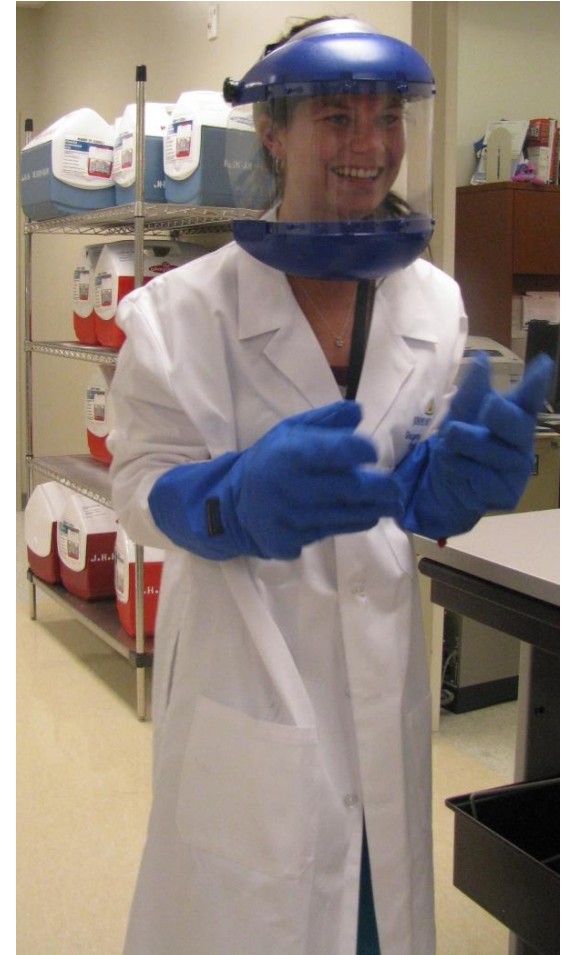
# Goal of the Trainer

- Provide Knowledge and Experience to:
  - Pass Examination/Boards
  - Bridge Knowledge Gaps
  - Improve Productivity of the Team
  - Retention



# Goal of the Trainee

- Student
  - Advance Education and Experience to get a job/career
  - Learn Something New
  - Improve Self-confidence
- New Employee
  - Perform functions of their job so they can get paid
  - Improve Self-Confidence
  - Career Enjoyment
- Seasoned Veteran
  - Rewarded/Valued as a Person
  - New Opportunities/Responsibilities



# What are they being trained on?

- Objectives:
  - Be specific to the trainee
    - MLS/MLT Student
    - Resident/Fellow (Pathology or other specialty)
    - New Employee
    - New Method, Process or System
- Topics:
  - General Concepts/Overview
  - Facts
  - Perform a test or task and Interpretation
  - Problem Solving/Decision Making

# What is the training time frame?

- How much time will the trainee have available?
  - Minutes to Hours
  - Days
  - Weeks
  - Months
- Prioritize training topic & methods based on time available

# Domains of Learning

- Cognitive - Knowledge
  - Example: Antigen Frequencies
- Psychomotor - Skills
  - Example: Performing a Type & Screen
- Affective – Feeling
  - Example: Discuss antibody problems with patient care provider and acknowledges their concerns for procurement of blood products.

# Cognitive

Level of Understanding	Description	Example Verbs	Methods/ Activities
<b>Knowledge</b>	Remembering Learned Material	Define, Describe, Name	Reading, Flash cards, Repetition
<b>Understanding/ Comprehension</b>	Meaning of Material	Explain, Summarize, Give Examples	Interpret Data, Questioning, Rewrite
<b>Application/ Applying</b>	Use Learned Material	Demonstrate, Solve, Show	Calculations, Case Studies
<b>Analysis/ Analyzing</b>	Breakdown into components	Differentiate, Illustrate	Troubleshooting, Case Studies
<b>Synthesis/ Creating</b>	Put together form a new whole	Combine, Generate, Modify	Create Flowchart, Presentation, SOPs
<b>Evaluation/ Evaluating</b>	Judge the value of material	Appraise, Criticize, Justify	Critique of an Article, Method or Decision

# Psychomotor

- **Performing a task**
  - Adherence to Procedure
  - Accuracy
  - Speed
- **Methods**
  - Direct Observation
  - Blind Samples
- **Satisfactory/ Unsatisfactory**





# Affective

- **Attitude**

- Work ethic
- Initiative
- Patient
- Receptive
- Interpersonal Skills
- Courteous
- Caring

- **Demonstrate**

- Punctual
- Volunteer
- Good Customer Service
- Team Work
- Give & Receive Constructive Criticism
- Positive Attitude
- Self Evaluate
- Motivated

# Training Focus based on Learning Domains

- Student
  - Major Focus on Cognitive
- New Employee
  - Major Focus on Psychomotor
- Seasoned Veteran
  - Major Focus on Affective

# Learning Preferences

- How the learner receives new information
- Most people have a dominant learning preference
- Present new information that utilizes all the Learning Styles
- Visual, Auditory, and Kinesthetic Learning Styles (VAK)
  - Survey to determine learning style

# Visual Learning Style



- Learning through **Seeing**
  - Characteristics:
    - Sit up front
    - Take detailed notes
    - Think in pictures
    - **Like to Highlight text**
    - Remembers Faces but not names
    - Remember Facial expressions
    - Good Writers & Designers

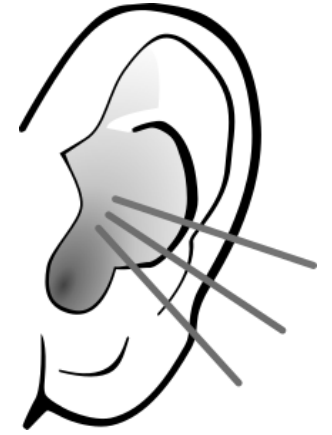
- Preferences:
  - Observations
  - Written Materials & Instructions
  - **Use colors to emphasize importance**
  - Videos
  - Graphic Organizers (charts)
  - Written questions
  - Powerpoint & Handouts
  - Diagrams & Flowcharts

Step 1

Step 2

Step 3

# Auditory Learning Style



- Learn through Listening

- Characteristics:

- Record classes
- Reading aloud
- Recite information
- Repeat
- Remembers Names not Faces
- Distracted by Noise
- Remembers Tone of Voice
- Good Speakers

- Preferences:

- Verbal Instructions/Explanations
- Discussions
- Story Telling
- Talk about what is important
- Ask them questions
- Audible Alarms
- Study Groups
  - Brainstorming
  - Songs/poems
- Podcasts/Teleconferences



# Kinesthetic Learning Style

- Learn through moving, doing and touching
  - Characteristics
    - Can't sit still
    - Distracted if not doing
    - Take frequent study breaks
    - Stand to Work
    - Touch & Feel
    - Highlight reading
    - Remembers what was done
  - Preferences
    - Hands-on Tasks
    - Role Playing
    - Field Trips
    - Simulations
    - Games
    - Case Studies
    - YouTube Clips



# Planning for Student Training

- What do they need to know? (Cognitive Methods)
  - Boards/Exams or Objectives relevant to their career path
    - Varied based on MLS/MLT or Resident/Fellow/Medical Student
- Plan activities that utilize multiple learning styles
- Independent Practice in a safe space (Psychomotor Methods)
  - Do not look over their shoulder
  - Space to make mistakes with lack of embarrassment
  - All hands-on testing should not be Test of Record
- Have them answer their own questions
  - Boosts confidence
  - “What do you think the answer to that question is?”



# Planning for Resident/Fellow Training Example

- Schedule
  - Introductions, Tour, Safety Review
  - Participate in reviewing
    - Transfusion Reactions and Antibody Cases,
    - Blood & Derivative Management, Massive Transfusion Protocols
  - Observation & Explanation of Bench work
  - Written Questions
  - Case Studies → Discussion (multiple times for Pathology)
  - Oral Presentation
  - QA and Medical Management Meetings



# MLT/MLS Student Laboratory Training Example

- Schedule
  - Introductions, Tour, Safety Review
  - Observation & Explanation of Bench work
  - Written Questions
  - Multiple Blind Samples (Student Bench)
  - Case Studies → Discussion
  - Project (Written paper, Poster or Oral Presentation)
    - Student Chooses

# Observation & Explanation

- Trainer provides the SOP
- Trainer is performing and verbally explaining the steps of the procedure and principle/reason
- Trainer provides examples of troubleshooting equipment or specimen problem solving
- Trainer asks questions to ensure trainee comprehends the principle and the steps



# Written Questions

- Demonstrates what they know
  - Allows time for them to think the question through
  - Less pressure of having the wrong answer
  - If they don't know, they can find the answer
- Questions should be direct, clear, and specific
- Essay/Short Answer Questions
  - Articulate what they know and explain their thought process
- If they get a question wrong, explain why
  - Wrong answers may lead to better understanding of the concept, etc.
- Can use as a study tool later

Assessment #2

Name: \_\_\_\_\_ Date: \_\_\_\_\_ 178 points

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1. Select the **next** test you would choose to perform based on the test results. **Answers used only once.** (10 points)

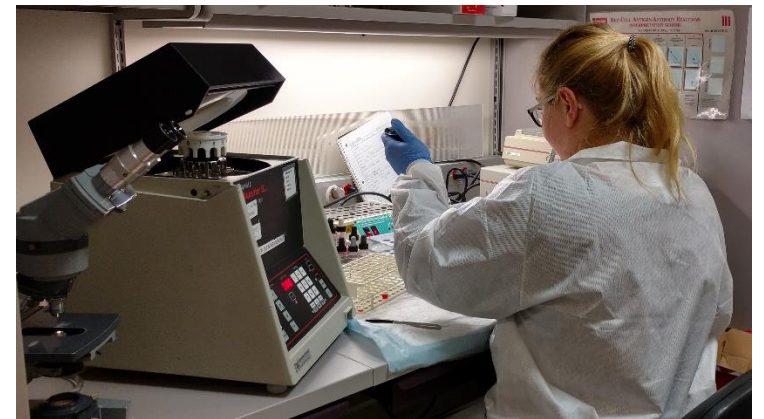
<input type="checkbox"/> Positive Auto control at AHG <input type="checkbox"/> All cells positive in panel including Auto at IS, RT, & 37 but negative at AHG (microscopic: stack of coins) <input type="checkbox"/> One unit is Crossmatch incompatible at AHG <input type="checkbox"/> DAT positive with anti-IgG (recently transfused) <input type="checkbox"/> Positive antibody screen at 22°C, decreasing at 37°C <input type="checkbox"/> ABO discrepancy, lack of ABO antibody in reverse type <input type="checkbox"/> Warm reactive autoantibody (rule out alloantibodies) <input type="checkbox"/> Suspected anti-Sd <sup>a</sup> <input type="checkbox"/> Pregnant woman with anti-D <input type="checkbox"/> Identified anti-E in patient plasma	<table border="0"><tr><td>a. Elution</td></tr><tr><td>b. Phenotype</td></tr><tr><td>c. Titration</td></tr><tr><td>d. Coombs Battery</td></tr><tr><td>e. Adsorption</td></tr><tr><td>f. Neutralization</td></tr><tr><td>g. Saline Replacement</td></tr><tr><td>h. Extended Room Temp Incubation</td></tr><tr><td>i. Direct Antiglobulin Test</td></tr><tr><td>j. Cold Panel or RESt</td></tr></table>	a. Elution	b. Phenotype	c. Titration	d. Coombs Battery	e. Adsorption	f. Neutralization	g. Saline Replacement	h. Extended Room Temp Incubation	i. Direct Antiglobulin Test	j. Cold Panel or RESt
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i. Direct Antiglobulin Test											
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2. Identify 3 enhancement mediums or techniques that may be used in antibody detection: (3 points)
  - 
  - 
  -
3. Red cell sensitization will be observed when the following cells and anti-serum are tested together? (1 point)

a. R <sub>1</sub> R <sub>1</sub> cells and anti-E
b. R <sub>2</sub> r <sup>+</sup> cells with anti-C
c. r <sup>+</sup> r cells and anti-D
d. R <sub>2</sub> r cells and anti-c
4. Which of the following transfusion scenarios would result in the patient having a positive DAT? (1 point)

a. B Rh-positive red cells transfused into a group B Rh-negative patient
b. AB plasma transfused into a group A Rh-positive patient
c. O Rh-positive red cells transfused into a group AB-positive patient
d. O Rh-negative plateletpheresis transfused into a group A Rh-positive patient

# Student Bench (MLS/MLT)

- Routine Testing
  - Type & Screen
  - Segment Confirmation
  - Crossmatching
  - DAT
- Antibody Identification
- ABO/Rh Discrepancies
- Antigen Typing
- Transfusion Reactions
- Rosette Test
- Sickle Typing
- Eluate
- Titer



# Case Studies

Vial	Rh							Kell					Duffy		Kidd		Lewis		P	MNS			Luth- eran		Xg	Special Type	Patient Serum Test Results								
	D	C	c	E	e	f	V	CC	K	k	Kp <sup>a</sup>	Kp <sup>b</sup>	Jk <sup>a</sup>	Jk <sup>b</sup>	Fy <sup>a</sup>	Fy <sup>b</sup>	Jk <sup>a</sup>	Jk <sup>b</sup>	Le <sup>a</sup>	Le <sup>b</sup>	P <sub>1</sub>	M	N	S	s		Lu <sup>a</sup>	Lu <sup>b</sup>	Xg <sup>a</sup>	Xg <sup>b</sup>	RT	15' 37'	Anti- IgG	cc	
1	+	+	0	0	+	0	0	0	+	+	+	0	+	+	+	0	+	0	0	0	0	0	0	0	0	0	0	0	0			0	0	0	0
2	+	+	0	0	+	0	0	0	+	+	+	0	+	+	+	0	+	0	0	0	0	0	0	0	0	0	0	0	0			0	0	0	0
3	+	0	+	+	0	0	0	0	0	+	0	+	+	0	+	0	+	0	+	0	+	0	+	0	+	0	+	0	+			0	0	0	0
4	+	0	+	+	+	0	0	0	0	+	0	+	+	0	0	+	0	0	+	+	0	+	+	+	0	0	0	+			0	0	0	0	
5	0	+	0	+	+	0	0	0	+	+	0	+	+	+	0	+	0	0	+	0	+	0	+	0	+	0	+	0	+			0	0	0	0
6	0	0	+	+	+	0	0	0	0	+	0	+	+	0	+	+	+	0	+	+	0	+	+	+	0	+	0	+			0	0	0	0	
7	0	0	+	+	+	0	0	0	+	+	0	+	+	0	+	+	+	0	+	+	0	+	+	+	0	+	0	+			0	0	0	0	
8	0	0	+	+	+	0	0	0	0	+	0	+	+	+	0	0	+	0	+	+	0	+	+	+	0	+	0	+			0	0	0	0	
9	0	0	+	+	+	0	0	0	0	+	0	+	+	0	+	+	+	0	+	+	0	+	+	+	0	+	0	+			0	0	0	0	
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11	+	0	+	+	+	0	0	0	0	+	0	+	+	0	0	+	+	0	0	+	0	+	+	+	0	+	0	+			0	0	0	0	
AC																																			

- Single & Multiple antibodies
  - Surgical patient
  - Sickle Cell patient
  - Oncology patient
  - Obstetric patient
- ABO/Rh Discrepancies
  - Misdrawn Sample
  - Anti-A<sub>1</sub>
  - Anti-M
  - Transfusion/BMT

- Rouleaux
- ABO & D HDFN
- Transfusion Reactions
  - ABO incompatible
    - RBCs & Platelets
  - Delayed hemolytic
  - Allergic/TACO
- TTD WNV
- Autoantibodies
  - Adsorption

# Planning for New Employee Training

- What do they need to know?
  - Culture of **YOUR** Laboratory
  - How to perform the test/task safely, accurately and in a timely manner
- Orientation/Onboarding
  - Scheduling, Workflow, LIS, Safety, Policies, Regulations & Standards, Communication
- Training Checklist (Documentation & Guidance)
- Read Standard Operating Procedures
- Independent Practice in a safe space (Psychomotor)
  - Do not look over their shoulder
  - Space to make mistakes with lack of embarrassment
  - Familiarize them of test procedures

# Onboarding

- Goal:
  - Employee Retention
- Focus:
  - Employee success
  - Employee Contributes as part of the Team
  - Employee assimilates into Work Environment
- Scheduled Periodic Meetings
  - First Encounter through the First Year of Employment
- New Employee Issues that are addressed
  - Fitting In
  - Feedback
  - Help



# Successful Onboarding

- Ongoing process
- Mentorship Program
  - Select Positive Role Model with Similar Interests
- Planned Meetings at Specific Time Intervals
  - Honest Conversation
- Building a Relationship
- Outcomes:
  - Employee knows what is expected of them
  - Management cares about them and is supportive
  - Employee Recognition





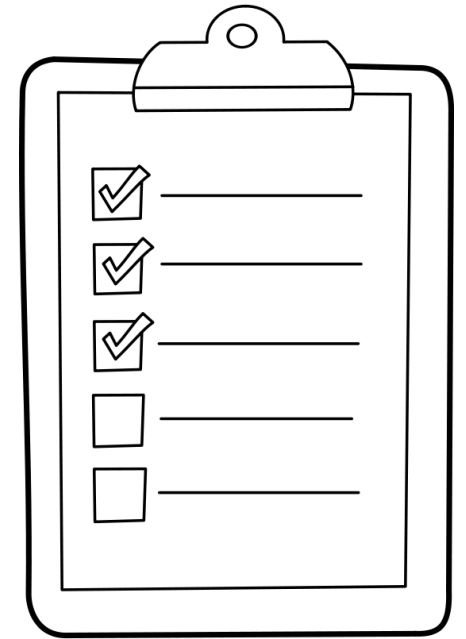
# Onboarding Timeline

- Weekly Meetings
  - First Month
- Monthly Meetings
  - Second to Twelfth Month
- Semiannual Meetings
  - After first year



# Training Checklists

- Are Required to Document Training
- Concise for ease of use
- Should be detailed enough to highlight the important aspects
- Reference the pertinent SOPs



# Training Procedures

- General Outline
- Trainer Requirements
- Allow for Flexibility
  - Trainee requires more time or alternate methods
  - Trainee requires less time
- Define Successful Completion

Appendix A: New Employee Training Schedule

Workstation	Days not covering the workstation with trainer prior to training at workstation	Target days with trainer at workstation*	Target days supervised, without trainer
Donor Processing	0	4	4
Testing	1	5	5-10
Phone/Non-Testing Float	1	0	0
Issue	0	5 (1/2 day Tissue)	5
Accessioning	1	5	5
Component Preparation	0	5	5
Platelets	1	5	5
Hemosafe	0	2	2
Instrument	2 (1 day Troubleshooting)	8	0
Reference Laboratory	0	7 (1/2 day with Lead)	5

# Planning Training & Education for the Seasoned Veteran

- Setting Goals
  - SMART Goals
  - Meet at least every 6 months to assess progress
- Opportunities
  - Continuing Education
  - Networking
  - Projects
  - Be part of Divisional Activities



# Goals

- Individualized
- Adjustable
- Challenging
- Reward for Attaining
  - No Negative outcome for not Achieving it
- SMART goals
  - Specific/Significant
  - Measureable/Meaningful
  - Attainable/Acceptable
  - Realistic/Rewarding
  - Timely/Trackable

# Opportunities

- Individualized
- Rewarding to them
- Possible Career Advancement
- Special Projects
- Meeting New People with common interests
- Community Activities
- Recognition for participation in additional responsibilities



# Activities at the Divisional Level

- Meetings
  - QA
  - Medical Management
  - Patient Safety
- Training Students/New Employees
- Projects
  - QA
  - Research
  - Validation
  - Procedures
- Inspection/Assessment Team

# Activities within the Hospital

- Children Center Trick or Treat Parade
- Group Walks
- Continuing Education
- Lab Week
- Spirit Week
- Diversity
- Offer Tours
- Green Team





# Activities Outside the Hospital

- Book or Food Drives
- Career Day
- Adopt A Class
  - Institutional Program
    - Volunteer Employees go out to local 4<sup>th</sup> & 6<sup>th</sup> grade classes
    - 1 hr / month from November – March
    - Career Day in May – come for tour
    - Themes:
      - 4<sup>th</sup> grade – Goal Setting
      - 6<sup>th</sup> grade – Be PROUD



# Department of Pathology Symposium

- Free Continuing Education event for all Pathology Department Employees & labs sharing our CLIA license
- Attendance is around 450-700 employees
- 35-42 1 hour sessions over 3 days (8:30a - 4:30p)
- On our Main Campus (almost all expenses stayed within the health system)
- PACE accredited
- Webcast select presentations live to hospital in Florida (CEbroker approved)
- Provided a free lunch
  
- Invite all our Laboratories to participate free (other hospitals)
  - Present
  - Attend
  - Volunteer
  - Network with their peers



# Symposium Success

- Employee Satisfaction >90%
  - Maintain Continuing Education requirements
  - Networking
  - Volunteer Opportunities
  - Practice giving presentations (Residents/ Techs)
  - Free food

- Each year attendance increases
- Total Costs Increased Compared to Sending Employees to local meetings
- Cost per Attendee decreased



	Local Meetings		Pathology Symposium			
	2011	2012	2013	2014	2015	2016
Presenters (R/T)			4/4	5/4	8/2	8/5
Total Costs	\$31,737	\$36,743	\$24,835	\$38,159	\$34,806	\$37,749
Attendance	217	277	457	609	666	705
Cost/Attendee	\$146	\$133	\$54	\$63	\$53	\$54
Surveys completed			265	330	256	316
Overall Satisfaction			96%	91%	97%	95%

# Breakdown of Cost of Symposium

Item	2013	2014	2015	2016
Symposium days	3	4	3	3
Educational Sessions	35	42	35	41
Sessions Recorded	3	5	4	7
PACE® Provider Fee	\$600	\$600	\$650	\$650
AV/Recording	\$3,369*	\$4,185*	\$5,365*	\$6,354*
Food	\$9,148*	\$22,327*	\$20,450*	\$22,629*
Printing (Programs/Handouts)	\$5,760*	\$4,087*	\$355*	\$426*
Parking	\$600*	\$530*	\$420*	\$30*
Room Rentals	\$4,760*	\$4,760*	\$4,760*	\$6,260*
Electronic Attendance	--	\$785*	\$2,205*	\$905*
Miscellaneous Costs	\$598	\$885	\$601	\$495

\*Funds kept within institution

# Summary

- Have a General Plan
  - Regulations/Standards or Organizational Requirements
  - Educational Objectives
  - Identify Employer Goals of Education/Training
- Factor in
  - Student/Employee Goals
  - Prior Education & Experience
  - Learning Preferences
  - Interests



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