

Strengthening **L**aboratory **M**anagement **T**oward **A**ccreditation

Module 1:

Productivity Management

Key Message ...

My lab delivers service smoothly and efficiently.

Desired Outcome

- **Efficient workflow**
- **Evenly distributed workload**
- **Uninterrupted service delivery**

Discussion

- What does the laboratory produce?
- What is its product?



The product we are selling is **INFORMATION**

- Accurate, reliable results
- The right test on the right patient at the right time
- Laboratory information within a quality system produces increased knowledge and better patient care



Why is no result better than a wrong result?



Desired Outcome

- Efficient Workflow
- Evenly Distributed Workload
- Uninterrupted Service



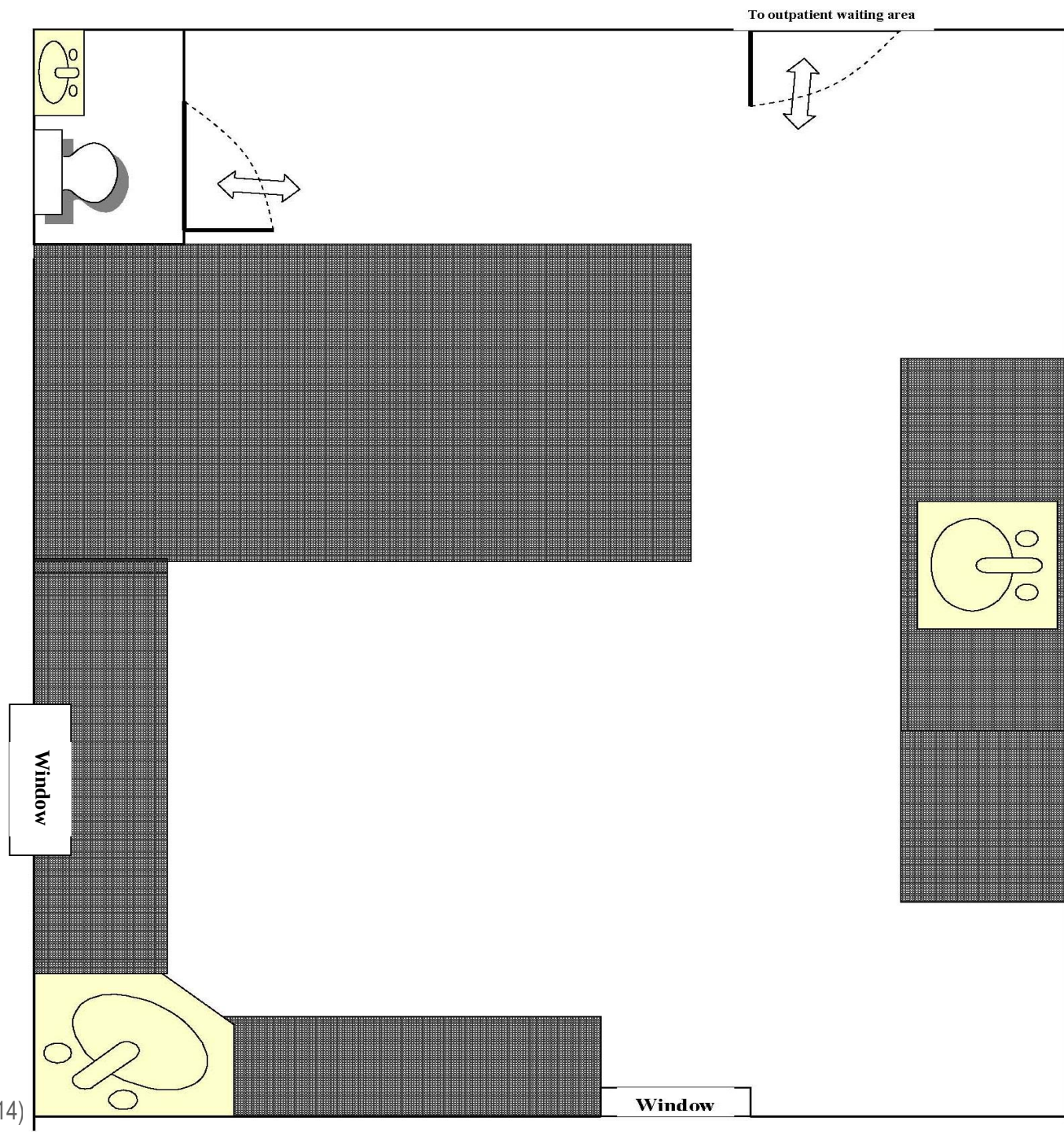
Tasks that Contribute to Efficient Workflow

- 1.1 - Organize the laboratory and coordinate work space to allow for smooth, efficient service operations.
- 1.2 - Design workflow for optimal productivity.

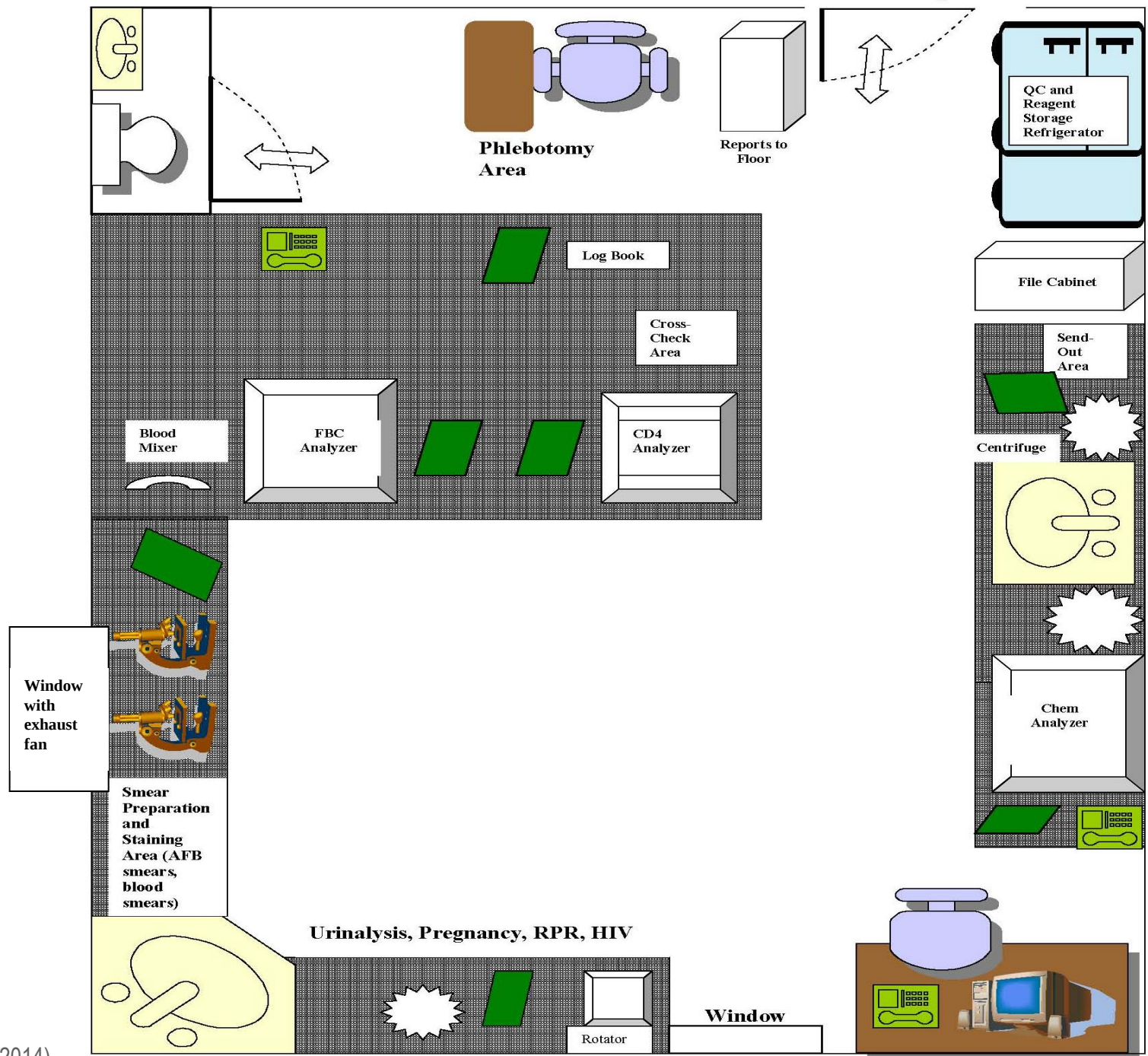
Process + Structure = Outcome

- Optimal laboratory design involves two factors:
 - Process
 - Workflow path designed around the steps of the process to be performed in that space
 - The specimen flow through the laboratory that originates with the clinician's order and ends with the lab result returned to the clinician.
 - Structure
 - Physical layout of the allotted space
 - Overall Laboratory Floor Plan
 - Individual Workstations
- The desired outcome is improving workflow by reducing or eliminating waste
 - Wasted Time
 - Wasted Effort
 - Wasted Movement

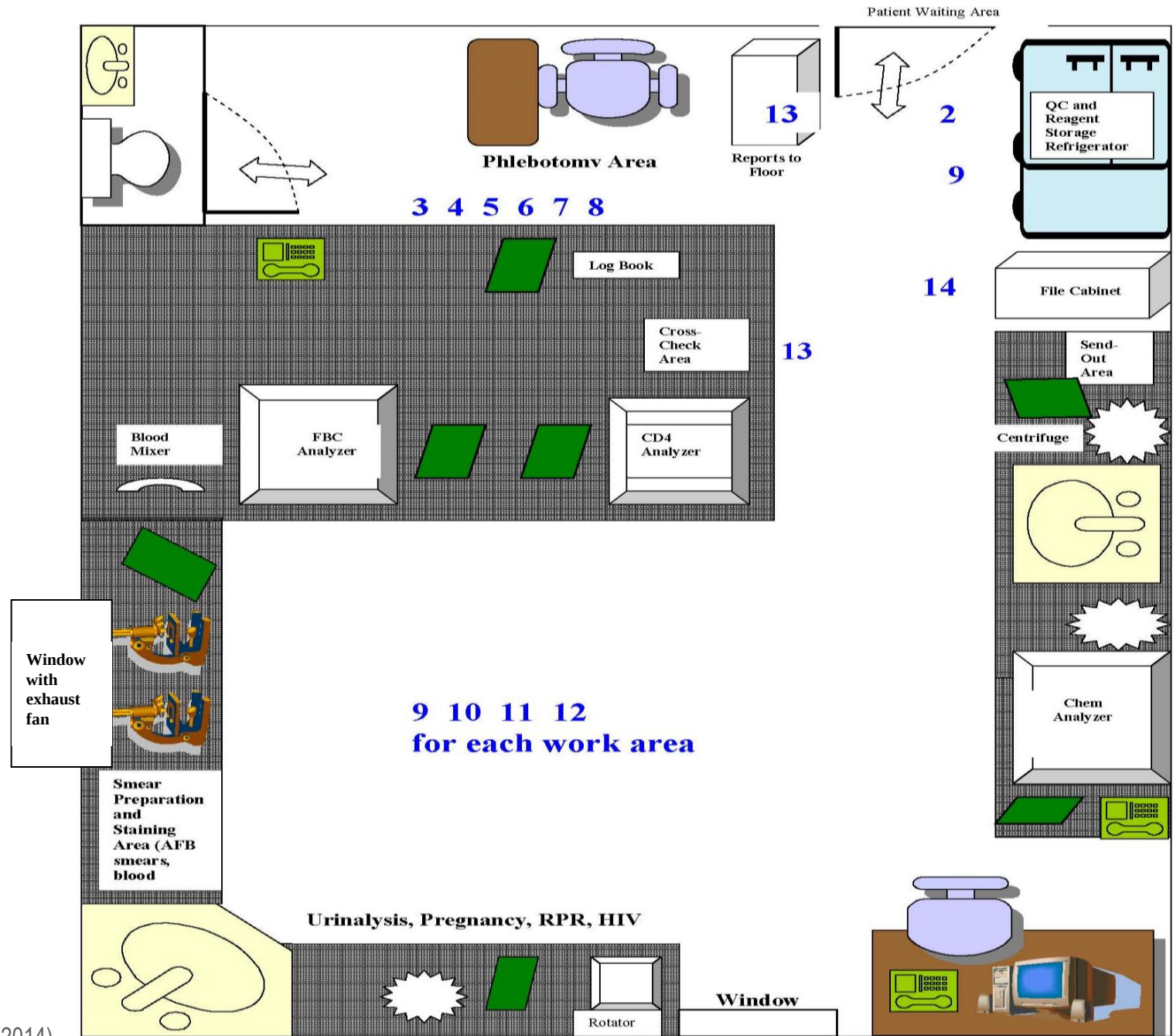
Laboratory Floor Plan



Floor Plan with Equipment and Designated Work Areas



Floor Plan with Process Steps



Activity: Process + Structure = Outcome

Purpose

To design a laboratory layout with regard to the workflow using the provided floor plan.

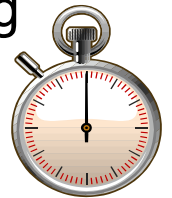
What will you need?

- Worksheet 1: Floor Plan
- Worksheet 2: Equipment Cut-outs
- Worksheet 3: Diagram with Equipment
- Handout 4: Observed Steps
- Scissors, glue sticks, and pencils with erasers

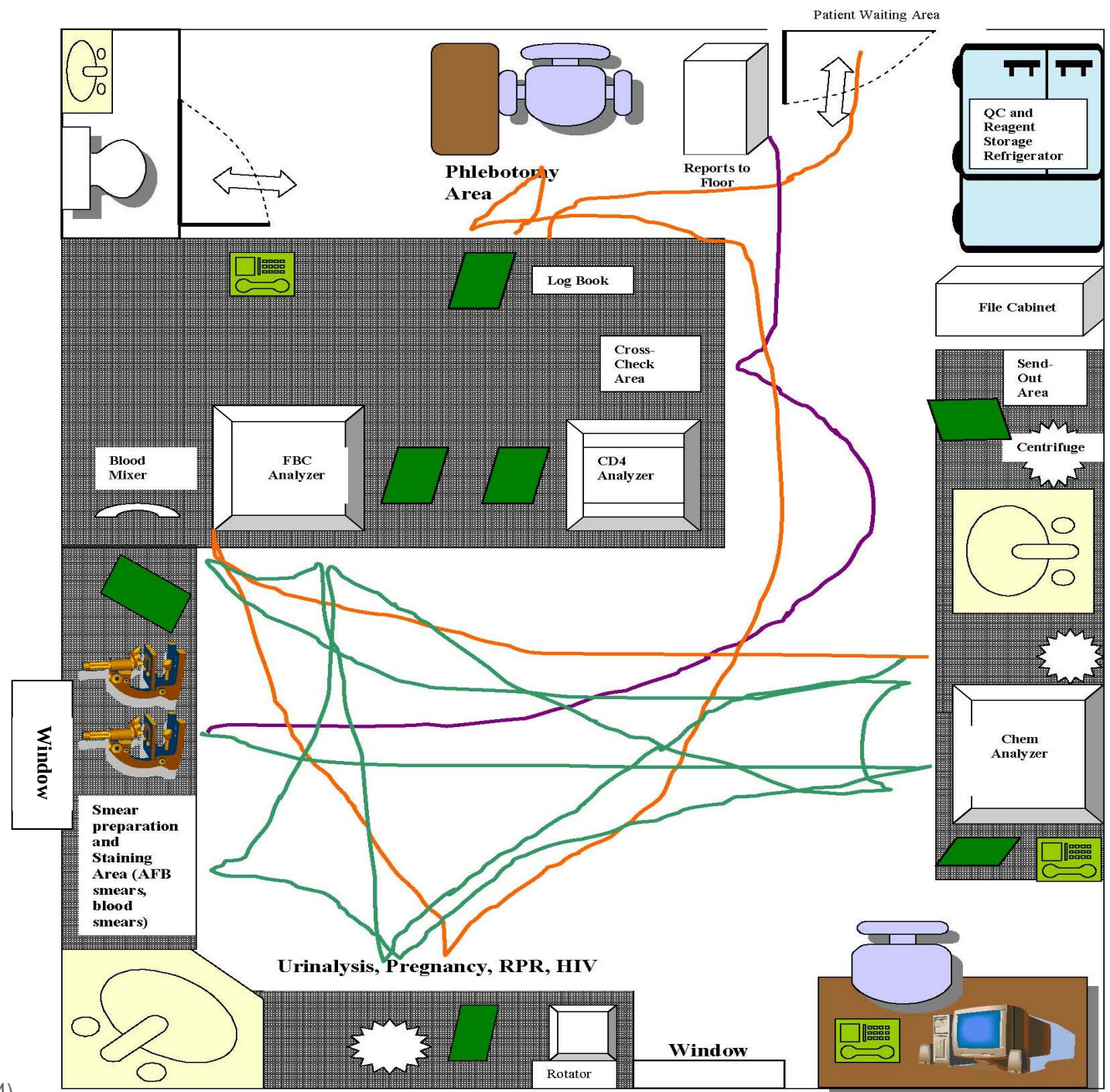
What will you do?

- I. Divide into groups of 3-5 to:
 - Cut-out objects (Worksheet 2) and place them into the floor plan (Worksheet 1)
 - Collaborate and design one laboratory layout with your group
 - Designate specific workstation areas in your group's floor plan
- II. Work individually to:
 - Trace the movement of the technologist onto Worksheet 3 using the steps from Handout 4
- III. Resume group work to:
 - Trace the movement of the technologist onto the group's floor plan using Handout 4

35 minutes



Floor Plan with Spaghetti Diagram

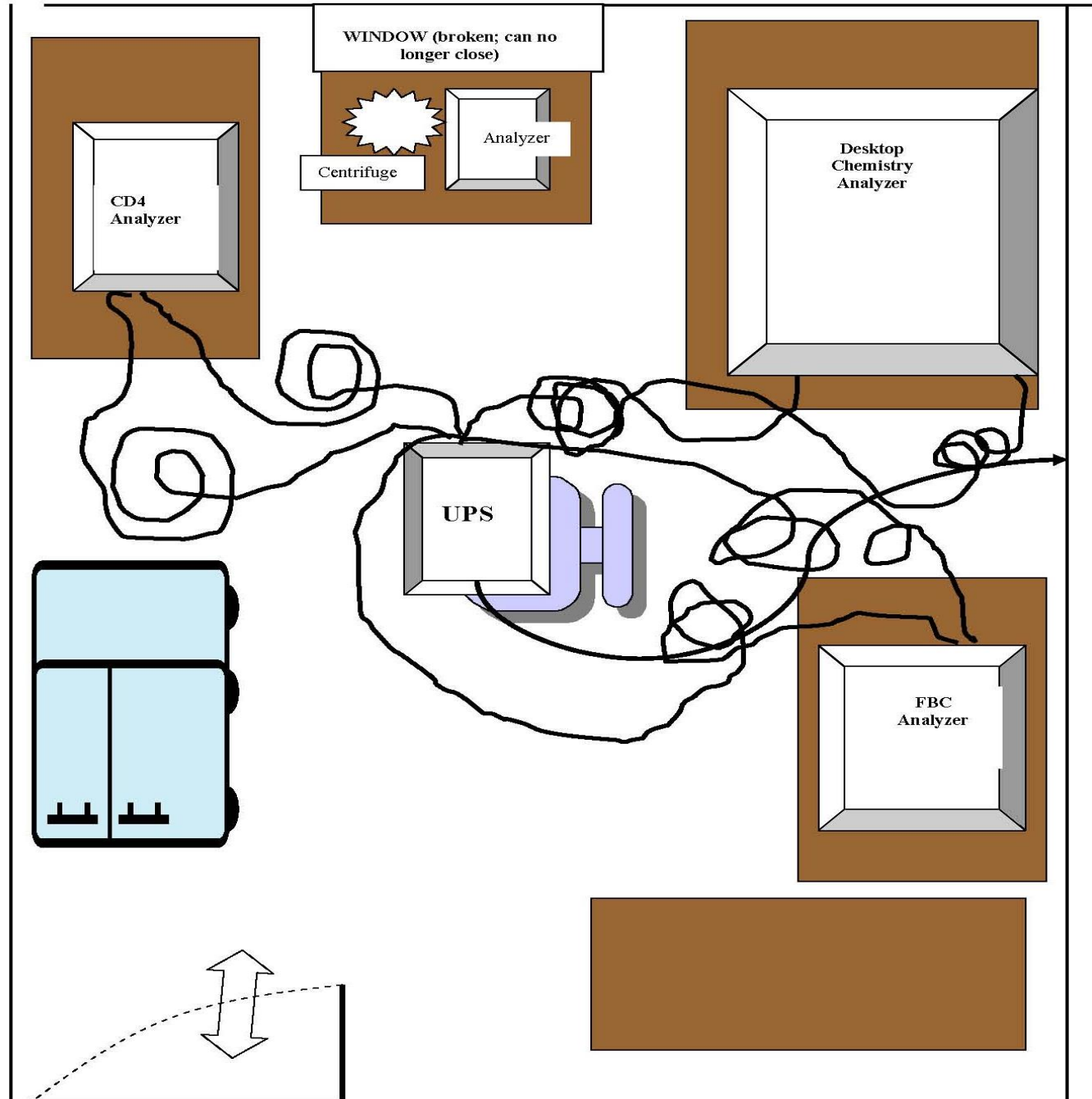


It is a manager's responsibility to provide a safe and productive work environment.

IMPROVING A PROBLEM FLOOR PLAN



Hazardous Laboratory Layout



Checklist Item 12.4

Is the physical work environment appropriate for testing?

- Are wires and cables properly located and protected from traffic?
- Is equipment placed appropriately (away from water hazards, out of traffic areas)?



Activity: Improving a Problem Floor Plan

Purpose

To identify hazardous elements in a laboratory layout and to redesign this layout to address the issues.

What will you need?

- Worksheet 1: Floor Plan
- Worksheet 2: Equipment Cut-outs
- Scissors, glue sticks

What will you do?

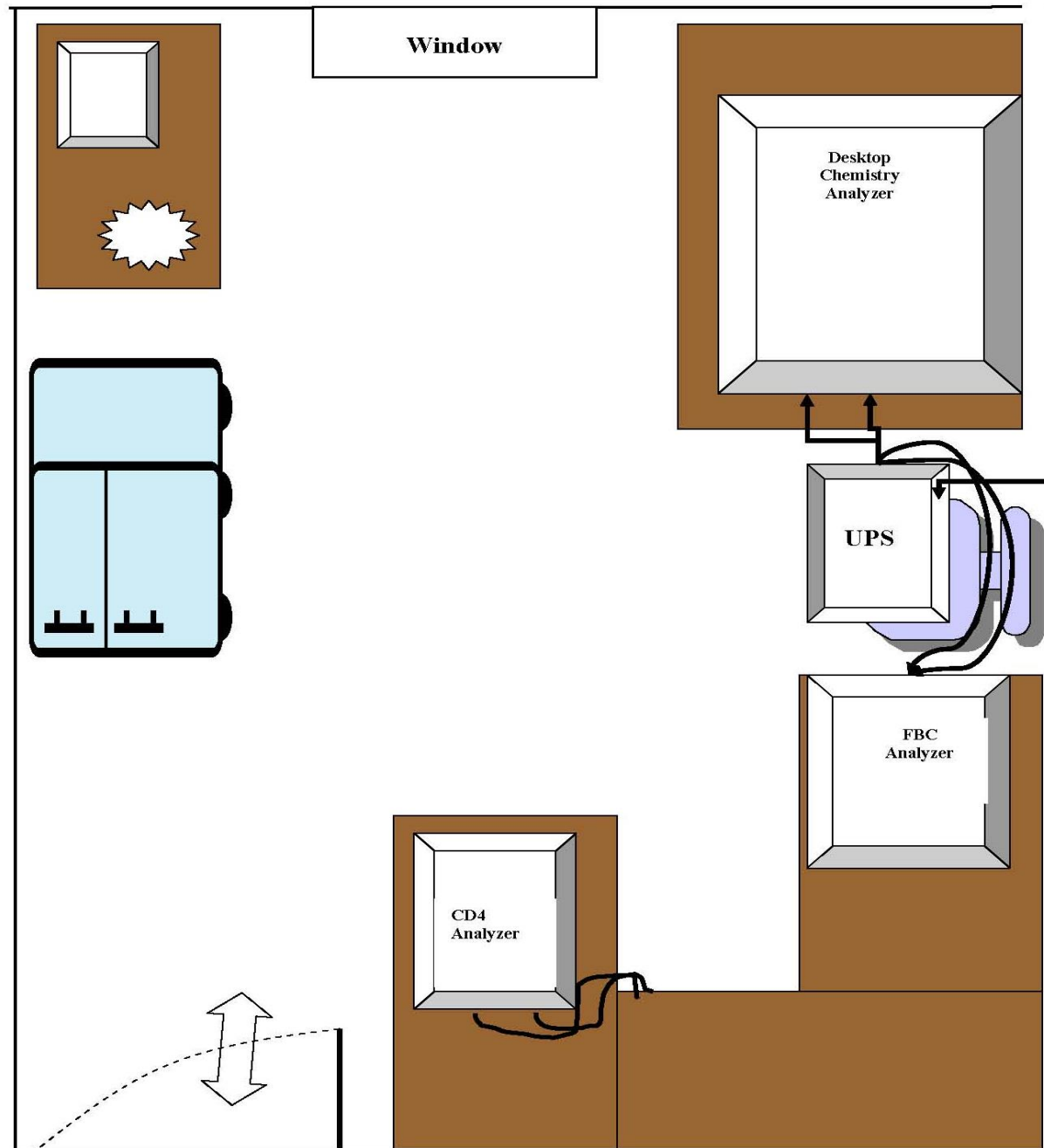
Divide into groups of 3-5 to:

- Cut-out objects and place them into the floor plan using Worksheets 1 & 2
- Collaborate and redesign the laboratory layout with your group



15 minutes

Suggested Redesign of Layout



Let's explore your laboratory layout.

MAPPING OUT THE FLOOR PLAN OF YOUR LABORATORY

Activity: Mapping Out the Floor Plan of Your Laboratory

Purpose

To create the floor plan of your laboratory using cut-out pieces

What will you need?

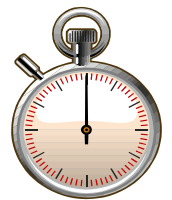
- Worksheet 1: Cut-outs for Unmovable Items
- Worksheet 2: Cut-outs for Workbench
- Worksheet 3: Cut-outs for Movable Items
- Construction paper, scissors, glue sticks, pencils with eraser

What will you do?

Work individually to:

- Draw permanent structure on construction paper (walls, doors, windows, electrical outlets)
- Use cut-out pieces to indicate the placement of unmovable objects (basins, benches) using Worksheets 1 & 2
- Use cut-out pieces to indicate the movable objects (instruments) using Worksheet 3
- Use a pencil to mark workflow by following a sample

35 minutes



Activity: Redesigning The Floor Plan of Your Laboratory

Purpose

To redesign your laboratory layout to improve the workflow by repositioning movable items in your floor plan.

What will you need?

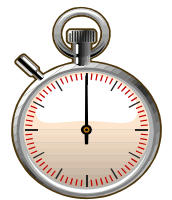
- Floor plan you created
- Cut-out pieces/symbols, glue stick, and pencils with erasers
- Job Aid 1: Guiding Principles for Laboratory Layout

What will you do?

Work individually to:

- Erase the pencil-marked workflow in the floor plan from the previous activity
- Re-position the movable cut-out pieces until you find the best layout for your lab's floor plan
- Use a pencil to mark the new work flow path created by the redesigned layout.

10 minutes



Process + Structure = Outcome

- Optimal laboratory design involves two factors:
 - Process
 - Workflow path designed around the steps of the process to be performed in that space
 - The specimen flow through the laboratory that originates with the clinician's order and ends with the lab result returned to the clinician.
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 - Individual Workstations
- The desired outcome is improving workflow by reducing or eliminating waste
 - Wasted Time
 - Wasted Effort
 - Wasted Movement

Activity: Making a Cup of Tea

Purpose

To demonstrate the role organization plays in the workstation set-up by performing a daily task, making a cup of tea

What will you need?

Items to make a cup of tea

What will you do?

- Two volunteers will be selected to demonstrate this activity
- If requested, assist the volunteer with the disorganized workstation
- Participate in the classroom's discussion



11 minutes

Activity: Workstation Set-up

Purpose

To create and organize an efficient and productive workstation using elements developed from each module.

What will you do?

- Participate in the classroom's discussion
- Integrate key concepts from earlier activities

What will you need?

- Laboratory Accreditation Preparedness Checklist



15 minutes

Process + Structure = Outcome

- Optimal laboratory design involves two factors:
 - Process
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Activity: Whisper Down the Alley

Purpose

To identify the most efficient way to accurately communicate a message to a group of people

What will you need?

Messages

What will you do?

Divide into two teams

- Round 1: Line up in the front of the room. Each person whispers the message as they understand it to the next person. The last person states the message out loud.
- Round 2: Repeat the activity with a new message. However, this time see how much faster you can do it without broadcasting the message while keeping it accurate.
- You will be timed for each round.

12 minutes



Activity: What are the Benefits of a Standardized Process?

Purpose

To demonstrate the benefits of standardizing processes and procedures in the laboratory

What will you need?

Volunteers will need a pen/pencil to complete the process steps.

What will you do?

- Three volunteers will be selected to demonstrate this activity
- Participate in the classroom's discussion



10 minutes

Desired Outcome

- Efficient Workflow
- Evenly Distributed Workload
- Uninterrupted Service



Task that Contributes to Evenly Distributed Workload

1.3 - Prioritize and assign work according to:

- personnel skill level
- workloads
- completion timeframe.

Assigning personnel to specific workstations

DUTY ROSTER

Laboratory Staffing Schedule

DAY	DATE	DAY DUTY	EVENING DUTY
Monday	1/2/2009	Tech B, Tech C, Tech D, Lead Tech	Tech A
Tuesday	2/2/2009	Tech A, Tech C, Tech D, Lead Tech	Tech B
Wednesday	3/2/2009	Tech A, Tech B, Tech C, Tech D,	Lead Tech
Thursday	4/2/2009	Tech B, Tech C, Tech D, Lead Tech	Tech A
Friday	5/2/2009	Tech A, Tech C, Tech D, Lead Tech	Tech B
Saturday	6/2/2009	Tech A, Tech C,	Tech B
Sunday	7/2/2009	Tech A, Tech B	Tech C
Monday	8/2/2009	Tech B, Tech C, Tech D, Lead Tech	Tech A
Tuesday	9/2/2009	Tech A, Tech C, Tech D	Tech B
Wednesday	10/2/2009	Tech A, Tech B, Tech D	Tech C
Thursday	11/2/2009	Tech C, Tech D, Lead Tech	Tech A
Friday	12/2/2009	Tech A, Tech B, Tech D, Lead Tech	Tech C
Saturday	13/2/2009	Tech B, Tech C	Tech A
Sunday	14/2/2009	Tech D, Lead Tech	Tech A
Monday	15/2/2009	Tech A, Tech D, Lead Tech	Tech B
Tuesday	16/2/2009	Tech A, Tech B, Tech D, Lead Tech	Tech C
Wednesday	17/2/2009	Tech B, Tech C, Tech D, Lead Tech	Tech A
Thursday	18/2/2009	Tech A, Tech B, Tech D, Lead Tech	Tech C
Friday	19/2/2009	Tech A, Tech C, Tech D, Lead Tech	Tech B
Saturday	20/2/2009	Tech C, Tech D	Tech A
Sunday	21/2/2009	Tech B, Tech D	Tech C
Monday	22/2/2009	Tech A, Tech B, Tech C, Tech D,	Lead Tech
Tuesday	23/2/2009	Tech B, Tech C, Tech D, Lead Tech	Tech A
Wednesday	24/2/2009	Tech B, Tech C Lead Tech	Tech A
Thursday	25/2/2009	Tech B, Tech C, Tech D, Lead Tech	Tech A
Friday	26/2/2009	Tech B, Tech D, Lead Tech	Tech A
Saturday	27/2/2009	Tech D, Lead Tech	Tech B
Sunday	28/2/2009	Tech C, Tech D,	Tech B

Workstation Assignments

HIV	rapid HIV testing
UA	routine urinalysis, pregnancy
TB	AFB testing
FBC, BS	full blood count, malaria smears
RPR	RPR and additional serology testing
Phleb	phlebotomy, glucometer, lactate

Laboratory Duty Roster (Workstation Assignments)

	Monday 1/2/2009	Tuesday 2/2/2009	Wednesday 3/2/2009	Thursday 4/2/2009	Friday 5/2/2009
Lead Tech	HIV, UA	FBC, BS	Evening	FBC, BS	RPR, Phleb
Tech A	Evening	RPR, Phleb	HIV, UA	Evening	FBC, BS
Tech B	TB	Evening	FBC, BS	RPR, Phleb	Evening
Tech C	FBC, BS	HIV, UA	TB	HIV, UA	TB
Tech D	RPR, Phleb	TB	RPR, Phleb	TB	HIV, UA

Laboratory Staffing Schedule

DAY	DATE	DAY DUTY	EVENING DUTY
Monday	1/2/2009	Tech B, Tech C, Tech D, Lead Tech	Tech A
Tuesday	2/2/2009	Tech A, Tech C, Tech D, Lead Tech	Tech B
Wednesday	3/2/2009	Tech A, Tech B, Tech C, Tech D,	Lead Tech
Thursday	4/2/2009	Tech B, Tech C, Tech D, Lead Tech	Tech A
Friday	5/2/2009	Tech A, Tech C, Tech D, Lead Tech	Tech B
Saturday	6/2/2009	Tech A, Tech C,	Tech B
Sunday	7/2/2009	Tech A, Tech B	Tech C
Monday	8/2/2009	Tech B, Tech C, Tech D, Lead Tech	Tech A

Laboratory Duty Roster (Workstation Assignments)

	Monday 1/2/2009	Tuesday 2/2/2009	Wednesday 3/2/2009	Thursday 4/2/2009	Friday 5/2/2009
Lead Tech	HIV, UA	FBC, BS	Evening	FBC, BS	RPR, Phleb
Tech A	Evening	RPR, Phleb	HIV, UA	Evening	FBC, BS
Tech B	TB	Evening	FBC, BS	RPR, Phleb	Evening
Tech C	FBC, BS	HIV, UA	TB	HIV, UA	TB
Tech D	RPR, Phleb	TB	RPR, Phleb	TB	HIV, UA

FBC & BS Workstation Duties	
Daily	Weekly/Monthly/ As-Needed
§ Perform all daily maintenance on analyzer and document in log	§ Perform, verify, and document calibration as needed
§ Perform daily analyzer system checks; verify acceptability and document	§ Analyze and report EQA testing
§ Perform daily QC; verify acceptability and document	§ Change stain as needed and verify its performance
	§ Monitor performance of new lots

Four Factors That Affect Duty Rosters

- Testing Menu
- Workload
- Personnel Available
 - # of Staff
 - Skill Level
 - Hours Worked
- Operational Hours

TEST MENU	WORKLOAD
HIV Rapid Testing	75 per day
RPR Syphilis Serology	40 per day
Malaria Smear	15 per day
Phlebotomy	80 per day

- Personnel - three staff members competent in all areas
- Operational Time - 8:00 am to 4:00 pm, Monday through Friday
- More than one task can be assigned to a staff member
- Symbols used in the duty roster:
 - P= Phlebotomy
 - H = HIV
 - R= RPR
 - MS = Malaria Smear
- Create a duty roster for the upcoming week:

	Mon	Tues	Wed	Thurs	Fri
Staff A					
Staff B					
Staff C					

Activity: How Do You Assign Personnel to Tasks?

Purpose

To create a duty roster based on a lab's testing menu, workload, personnel available and operational hours

What will you need?

- Handout 1: Duty Scheduling Scenario
- Handout 2: Workload Statistics
- Handout 3: Workstation Assignments
- Worksheet: Duty Roster Schedule

What will you do?

Work in pairs to:

- Create a duty roster (Worksheet) for the next two weeks based on the scenario (Handouts 1 & 2)
- Discuss “What If” scenarios involving your duty roster



20 minutes

Workstation Assignments

HIV	rapid HIV testing
UA	routine urinalysis, pregnancy
TB	AFB testing
FBC, BS	full blood count, malaria blood smears
RPR	RPR
Phleb	phlebotomy, glucometer

Laboratory Duty Roster (Workstation Assignments)

	Monday 1/2/2009	Tuesday 2/2/2009	Wednesday 3/2/2009	Thursday 4/2/2009	Friday 5/2/2009
Lead Tech	HIV, UA	FBC, BS	Evening	FBC, BS	RPR, Phleb
Tech A	Evening	RPR, Phleb	HIV, UA	Evening	FBC, BS
Tech B	TB	Evening	FBC, BS	RPR, Phleb	Evening
Tech C	FBC, BS	HIV, UA	TB	HIV, UA	TB
Tech D	RPR, Phleb	TB	RPR, Phleb	TB	HIV, UA

Daily HIV TAT	28 min	45 min	26 min	53 min	27 min
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Target HIV TAT 30 minutes
Average HIV TAT for the week 36 min

Conscious use of time will assist a manager to be well organized and well prepared.

MANAGEMENT CALENDAR

The Calendar Allows a Manager to:

- Balance and prioritize tasks
- Coordinate and schedule these tasks
- Communicate task assignments

Activity: Creating a Management Calendar

Purpose

To use the calendar as a tool to balance, prioritize, coordinate, and schedule laboratory tasks.

What will you do?

Work individually to populate the calendar (Worksheet) with task from Handout 1.

What will you need?

Handout 1: Tasks To Be Scheduled
Worksheet: Calendar



25 minutes

Time Management Tools

- Duty Roster and Calendar
- Allow a manager to:
 - Be prepared for meetings.
 - Minimize time wasted on non-productive and non-essential issues.
 - Be aware of existing commitments.
 - Understand capacity to address:
 - New assignments
 - Prioritize assignments
 - When to say ‘No’
 - Plan each day’s work efficiently and effectively.
 - Assure that no task (large or small) is neglected.

Desired Outcome

- Efficient Workflow
- Evenly Distributed Workload
- **Uninterrupted Service**



The Laboratory Staff

- Well trained laboratory staff are:
 - the most important part of a quality system
 - the laboratory's greatest asset
- Success of a quality system is dependent on:
 - Staff knowledge and skills
 - Staff motivation and commitment to following the quality system process



Staff Development

- Job Description
- Orientation Program
- Continuing Education/Training
- Competency Assessments
- Personnel Files



Tasks that Contribute to Uninterrupted Service

- 1.4 - Assess personnel competency against standards and determined corrective action and training needs.
- 1.6 - Meet with staff individually to communicate expectations, provide feedback, coaching, or on-the-job training to ensure competency and productivity.
- 1.7 - Provide/coordinate new-hire orientation and training to staff.

Activity: Competency Assessment

Purpose

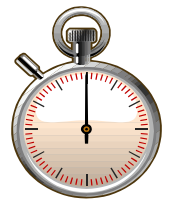
Competency assessment is important in assuring the quality of the laboratory output. This activity provides suggested policy and guidelines for implementing competency assessment

What will you do?

- Read Handout: Policy
- Complete Worksheet: Quiz
- Participate in the classroom review and discussion of Worksheet: Quiz

What will you need?

- Handout: Competency Evaluation Policy
- Worksheet: Competency Evaluation Quiz



Overnight +15 minutes

Tasks that Contribute to Uninterrupted Service

- 1.5 - Conduct weekly staff meetings to coordinate activities, review laboratory operations, reward success, celebrate accomplishments, and resolve issues.
- 1.11 - Implement measures to motivate staff to improve quality of work and productivity.

Guiding Principles of Quality Assurance

- Focus on the needs of the users
- Focus on processes to increase the productivity of work
- Use data to improve services
- **Use teams to improve quality**
- **Improve communication**

Activity: Planning and Conducting a Staff Meeting

Purpose

Effective staff meetings yield a cohesive and informed staff working together toward shared institutional goals. This activity provides guidelines for conducting the meeting and building an agenda.

What will you need?

- Job Aid 1: Tips for Planning and Conducting a Staff Meeting
- Job Aid 2: Staff Meeting Agenda Template
- Worksheet: Topics for Staff Meeting Agenda

What will you do?

- Read Job Aid 1: Tips – Select one tip that you will use in your staff meetings
- Complete Worksheet: Topics – Add topics to the worksheet as you note them over the course of the workshop
- Participate in the classroom discussion



Throughout Workshop +
15 minutes

Task that Contributes to Uninterrupted Service

- 1.7 - Provide/coordinate new-hire orientation and training to staff.
- 1.8 - Maintain and update personnel records.
- 1.11 - Implement measures to motivate staff to improve quality of work and productivity.

Activity: Creating a Personnel File

Purpose

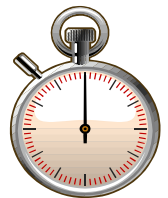
Managing human resources requires documentation and organization of a significant amount of information. You will provide rationale for including information in a personnel file. Inappropriate information will be identified.

What will you need?

- One potential document for personnel files per person, provided by the facilitators
- Job Aid: General Guidelines for Personnel Files

What will you do?

- Stand up and read the title of your document.
- Present your rationale for including the document in a personnel file.
- Identify any document that does not belong in a personnel file.
- Participate in the classroom discussion.
- Review Job Aid



35 minutes

Tasks that Contribute to Uninterrupted Service

- 1.9 - Create a work plan and budget based on personnel, test, facility, and equipment needs.
- 1.10 - Create/review/forward reports on laboratory operations to upper management.

Tasks that Contribute to Uninterrupted Service

- 1.12 - Develop and implement laboratory improvement plans based on best practices and feedback from staff, patients, customers, quality indicators, and external assessment.
 - Cross-cutting: Improvement Project Planning
 - Cross-cutting: Reporting Improvement Projects
- 1.13 - Communicate to upper management regarding personnel, facility, and operational needs
 - Cross-cutting: Balanced Scorecard

Communicating with Management

■ Management Levels

- Laboratory Director
- Hospital Administration
- Other Departments (Pharmacy, Radiology, Nursing)

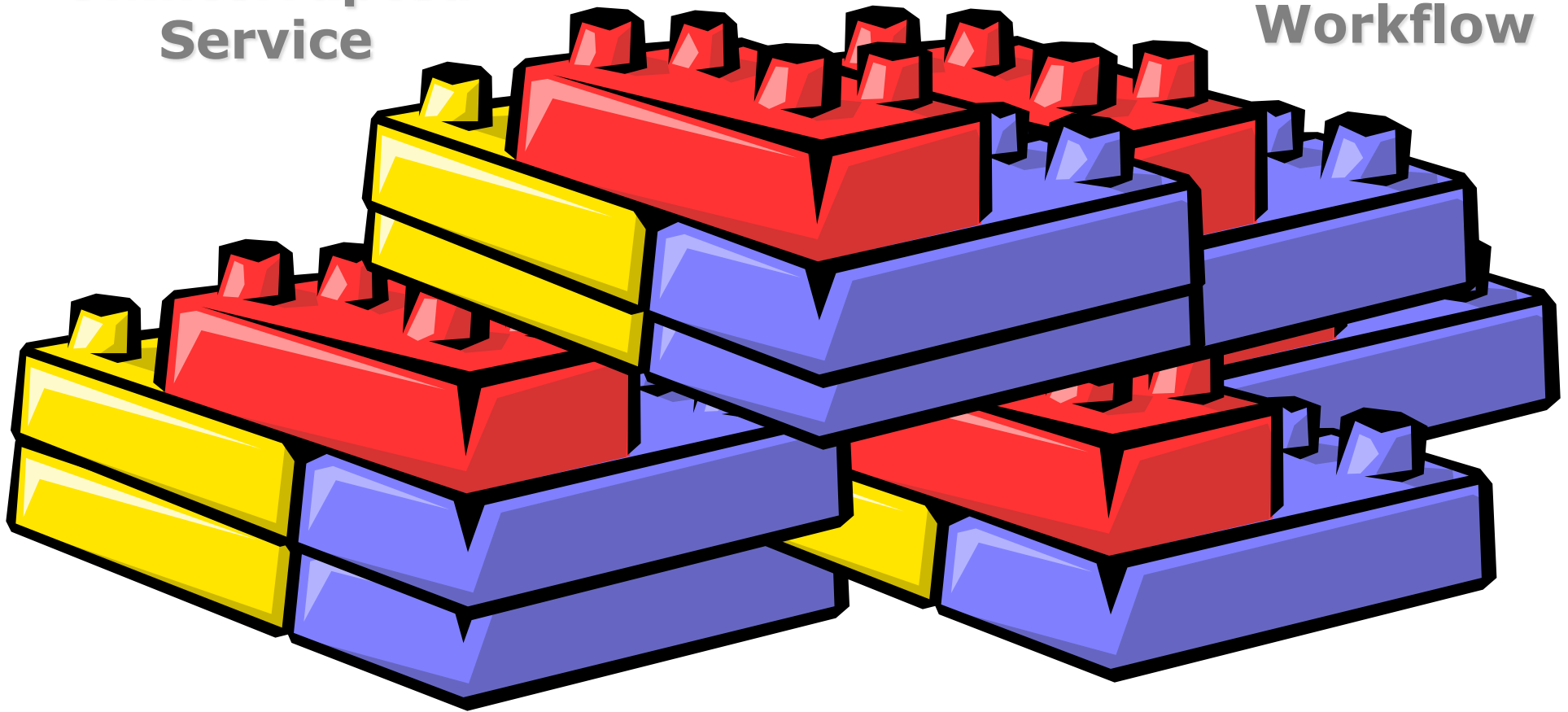
■ Reports

- Operational Plans and Budget Proposals Addressing Future Needs
- Testing Volumes
- Turn-Around Times (TAT)
- Specimen Acceptability (on-site or referred)
- Improvement Projects
- External Quality Assessment (EQA) Scores
- Client Satisfaction Survey Summaries

Building Blocks of a Productive Laboratory

**Uninterrupted
Service**

**Efficient
Workflow**



**Evenly distributed
workload**

Activity: What Would You Do?

Purpose

To integrate the module's lessons and apply them to the case scenario.

What will you need?

Case study scenarios

What will you do?

Divide into groups of 4-5

- Select a spokesperson for your group
- Formulate specific action steps to address the scenario.
- The group's spokesperson presents the proposed steps during the 2 minute class report.



5 minutes

What Would You Do?

You are the only staff member available to attend an in-service training seminar on instrument maintenance. You are responsible to train your coworkers using your notes from the training and the instrument operator's manual.

- List the steps you will take to assure the staff is fully trained.
- How will you document the training?

What Would You Do?

After arriving at work at 8 AM, you already notice a long outpatient queue. By 8:30 AM, the queue is even longer and two workstation daily set-ups have not yet been completed. Both workstations have already received their first batch of patient specimens ready for analysis. You discover that the personnel assigned to the workstations are reading the morning newspaper.

As the laboratory manager, how will you handle this situation?

Tasks

- Organize the laboratory and coordinate work space to allow for smooth, efficient service operations.
- Design workflow for optimal productivity.
- Prioritize and assign work according to personnel skill level, workloads, and completion timeframe.
- Assess personnel competency against standards and determined corrective action and training needs.
- Meet with staff individually to communicate expectations, provide feedback, coaching, or on-the-job training to ensure competency and productivity.

Tasks

- Provide/coordinate new-hire orientation and training to staff.
- Conduct weekly staff meetings to coordinate activities, review laboratory operations, rewards success, celebrate accomplishments, and resolve issues.
- Implement measures to motivate staff to improve quality of work and productivity.
- Maintain and update personnel records.

Tasks

- Create a work plan and budget based on personnel, test, facility, and equipment needs.
- Create/review/forward reports on laboratory operations to upper management.
- Develop and implement lab improvement plans based on best practices and feedback from staff, patients, customers, quality indicators, and external assessment
- Communicate to upper management regarding personnel, facility, and operational needs