

TB Infection Control Plan

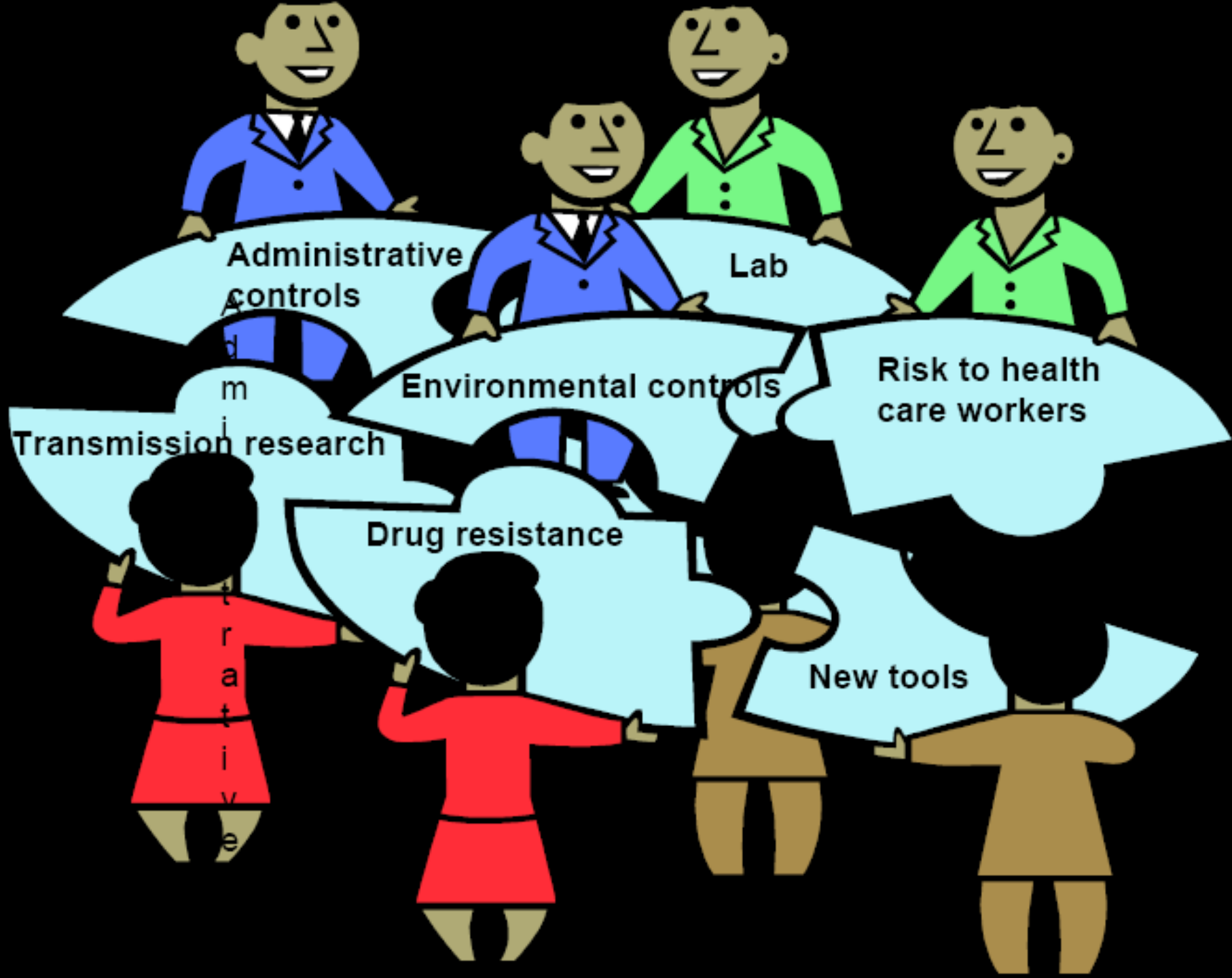
How to develop and implement it



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What is an infection control plan?

- Assigning responsibility and authority
- Conducting risk assessment
- Developing comprehensive written policies and protocols
- Rapidly identifying TB suspects, cases, and those at high risk for M(X)DR-TB
- Separating patients with infectious TB from other patients
- Ensuring diagnosis, treatment, and monitoring



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Implementation of an IC plan

- Implement, monitor, and enforce IC plan
- Educate and train health workers to ensure good work practices
- Counsel and screen health workers periodically
- Evaluate at least annually and revise plan as needed



Assignment of responsibility

- Supervisory responsibility and authority should be delegated to a specific person or team with a designated leader
- Should include expertise in:
 - Infection control
 - Epidemiology
 - Clinical
 - Microbiology
 - Engineering
 - Administration
- IC team becomes responsible for all aspects of the IC program



Risk assessment

- Risk differs between:
 - Geographic regions
 - Facilities within same region
 - Areas within same facility
 - Occupational groups
- Assess risk for:
 - Community overall
 - Facility as a whole
 - Areas within facility
 - Occupational group



Objectives of an IC risk assessment

- Evaluate management of TB infection control program in a facility in order to reduce risk of infection
- Review existing TB infection control protocols and patient flows through the facility
- Evaluate facility environmental controls and maintenance practices, to determine their effectiveness in reducing or preventing the likelihood of TB transmission
- Evaluate compliance with personal protection practices



Steps in assessing risk

- Community:
 - Number of TB cases
 - Drug resistance patterns (new/re-treatment)
- Occurrence of TB and M(X)DR-TB in health workers
- (In prisons (new cases in prisoners))



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Steps in assessing risk (2)

- Facility (for each area):
 - Number of drug resistant cases
 - Patterns of drug resistance
 - HIV prevalence
 - Time from admission to determination of infectiousness to determination of drug resistance
 - Time to correct treatment
 - Time to clinical and bacteriological response



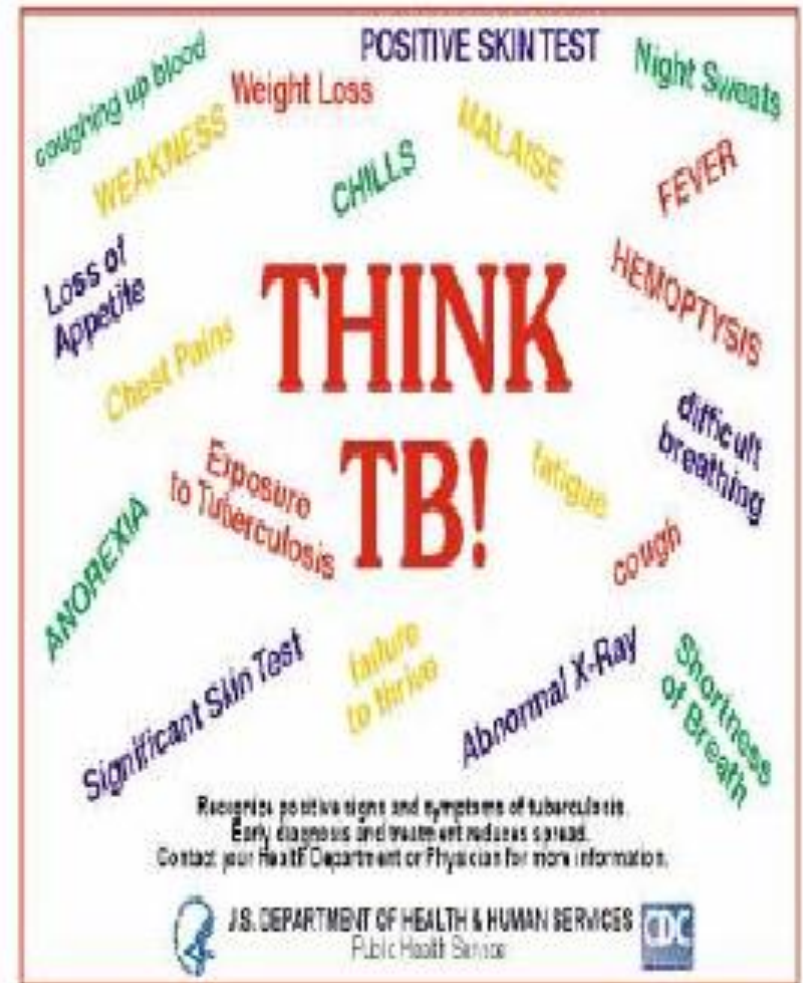
**Base IC plan on degree of risk:
highest priority to interventions with cost impact and
lowest cost**

- **Medium and high risk areas:**
 - Administrative controls
- **High risk areas:**
 - Environmental controls
- **Health workers in high risk areas:**
 - Respiratory protection



C&T and HIV care settings

- THINK TB
- Screen clients by questionnaire
 - TB signs and symptoms
 - TB history
 - TB contact history
- Other infectious diseases

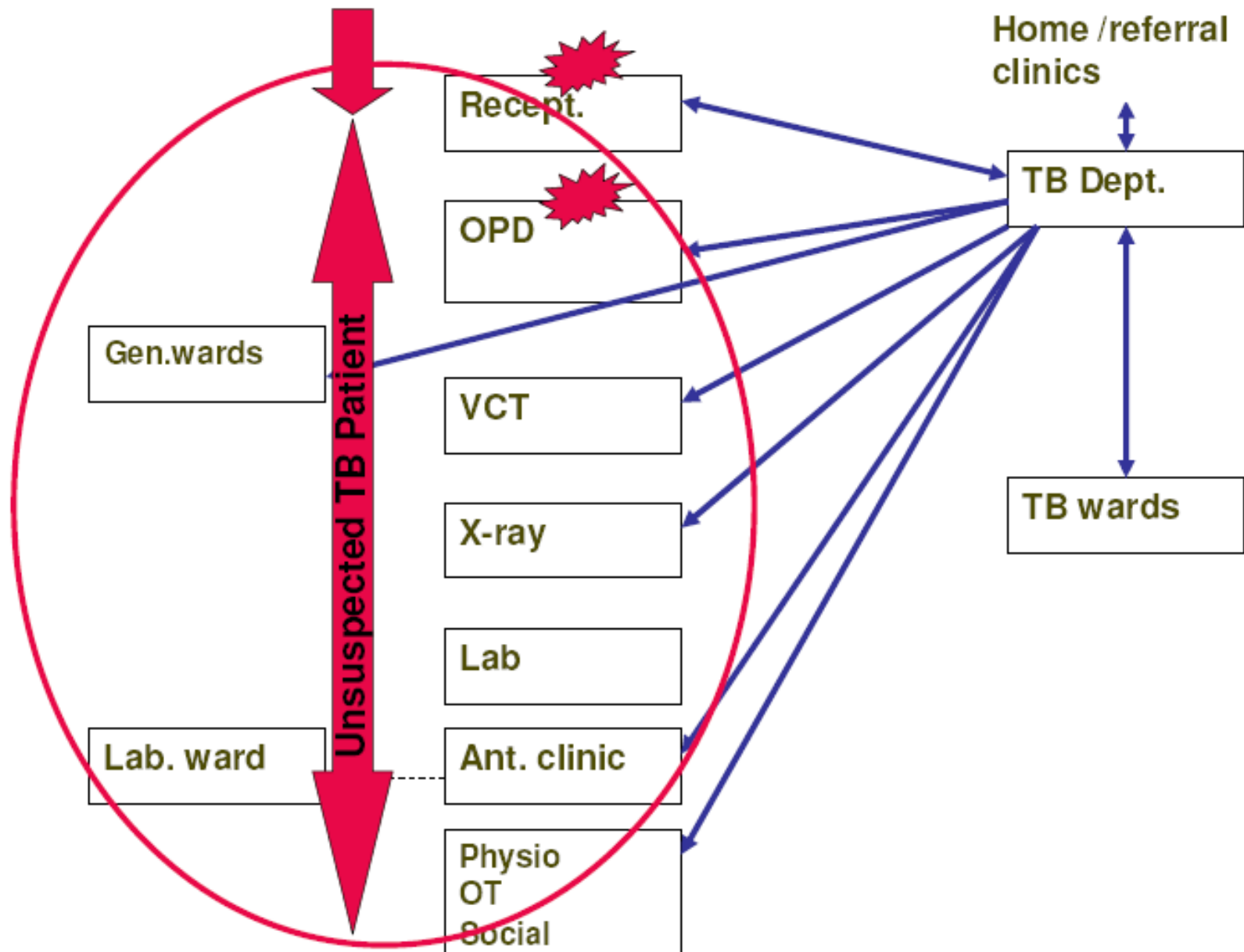


The path of the patient

- Inpatients
- Outpatients
 - Waiting area
 - Consultation
 - VCT
 - Dispensing
- Functional procedures
 - Sputum collection/Sputum induction
 - X-ray
 - Other



Areas visited by TB patients, suspected or confirmed



The path of the specimen

- Sputum collection: Location & procedures
- Storage
- Transportation
- Registration
- Storage
- Processing procedures
- Disposal procedures



Using local TB data

- Smear+ cases
- High risk areas, groups
- Deviations from the norm
- Common mistakes
 - Using absolute numbers (no denominators)
 - Changing case definitions
 - Changing time, place, person, or exposure (not comparing like with like)



Development of a comprehensive, written plan

- Plan should be specific to each facility, area within facility, and group
- Based on level of risk
- Put plan and procedures in writing, easy to understand, and accessible
- Educate staff about the plan – organization, rationale and what is expected of them



Contents of the IC plan (1)

- Specify who has responsibility and authority
 - Implementation and monitoring
- Specify procedures for risk assessment
- Include results of risk assessment
- Assessment of training needs and training plan
- Write out policies for:
 - Triage and evaluation of suspected cases
 - Transfer into and out of designated high-risk areas for TB patients or suspects
 - Monitoring infectiousness (frequency)



Contents of the IC plan (2)

- Write out policies for
 - Special precautions for high risk procedures and locations (sputum collection or induction, bronchoscopy, autopsy, waiting areas, surgery)
 - Use, maintaining and monitoring engineering controls
 - Respiratory protection program
 - Training and use of respiratory protection



Contents of the IC plan (3)

- Write out policies for
 - Educating personnel
 - Implementing the IC plan
 - Screening and management of health workers
 - Ongoing monitoring of the program
 - Annual evaluation of the IC program
 - Resolving problems
- Time-lines and budget



Triage and evaluation

- Routinely ask chronic cough screening questions
- Suspect TB in all patients answering any of the questions with “yes”
- Separate suspects from other patients, prisoners, vulnerable contacts
- Determine infectiousness and drug resistance as rapidly as possible
 - Sputum smear, chest x-ray
 - Culture and susceptibility testing

TB INFECTION CONTROL PATIENT TRIAGE FORM

Date (dd/mm/yy):

Queue number:

1. Health Service that patient requires today (Tick all that apply by indicating with a v):

Medical Clinic	<input type="checkbox"/>
HIV Care and Treatment	<input type="checkbox"/>
Pharmacy/Medication Refill only	<input type="checkbox"/>
TB Clinic	<input type="checkbox"/>
Family Planning/Contraception	<input type="checkbox"/>
Antenatal Care Clinic	<input type="checkbox"/>
Other: Specify	<input type="checkbox"/>

2. Ask the patient the following questions, indicating the patient's response with a v

	YES	NO
1. Have you had a cough for more than 2 weeks?	<input type="checkbox"/>	<input type="checkbox"/>
2. Are you currently under investigation for TB?	<input type="checkbox"/>	<input type="checkbox"/>
3. Are you currently receiving treatment for TB?	<input type="checkbox"/>	<input type="checkbox"/>

If the patient answers “Yes” to ANY question:

- Give patient a tissue
- Instruct on Cough Etiquette
- Direct patient to separate waiting area (if available)
- Direct patient to front of the queue

	Time	Signature
Patient arrival (Triage staff)	<input type="text"/>	<input type="text"/>
Patient consultation (Doctor/Sister)	<input type="text"/>	<input type="text"/>
Patient departure (Pharmacist)	<input type="text"/>	<input type="text"/>

Education and training of staff

The key to infection control!

- Signs and symptoms of TB
- Increased risk of TB with HIV infection
- TB transmission
- Principles and practices of infection control
- Seek active input and participation of staff
 - All different cadres!



Education and training of staff

- Responsibilities of health workers and what is expected of them
- Responsibilities of infection control team
- Responsibilities of the institution



Periodic screening of HCWs

To detect disease early

- Each year for employees
- Medical questionnaire with TB screening questions
- Chest x-ray
- Sputum exam if cough > 2 weeks
- Special consideration for employees with increased individual risk
 - HIV positive, previous TB, diabetes, cancer, on steroids, smoking, silica exposure, suspected M/XDR



Evaluating the IC plan (1)

- Repeat risk assessment
- Measure performance indicators
- Determine time intervals from admission/arrival to:
 - Consultation/departure
 - Report of sputum results
 - Transfer to treatment or isolation unit
 - Report of culture and drug susceptibility results



Evaluating the IC plan (2)

- Measure performance indicators
 - Appropriate transfer into / out of isolation
 - Procedures in isolation unit (doors, masks, etc.)
 - Appropriate treatment and monitoring
 - Maintenance of environmental (engineering) controls

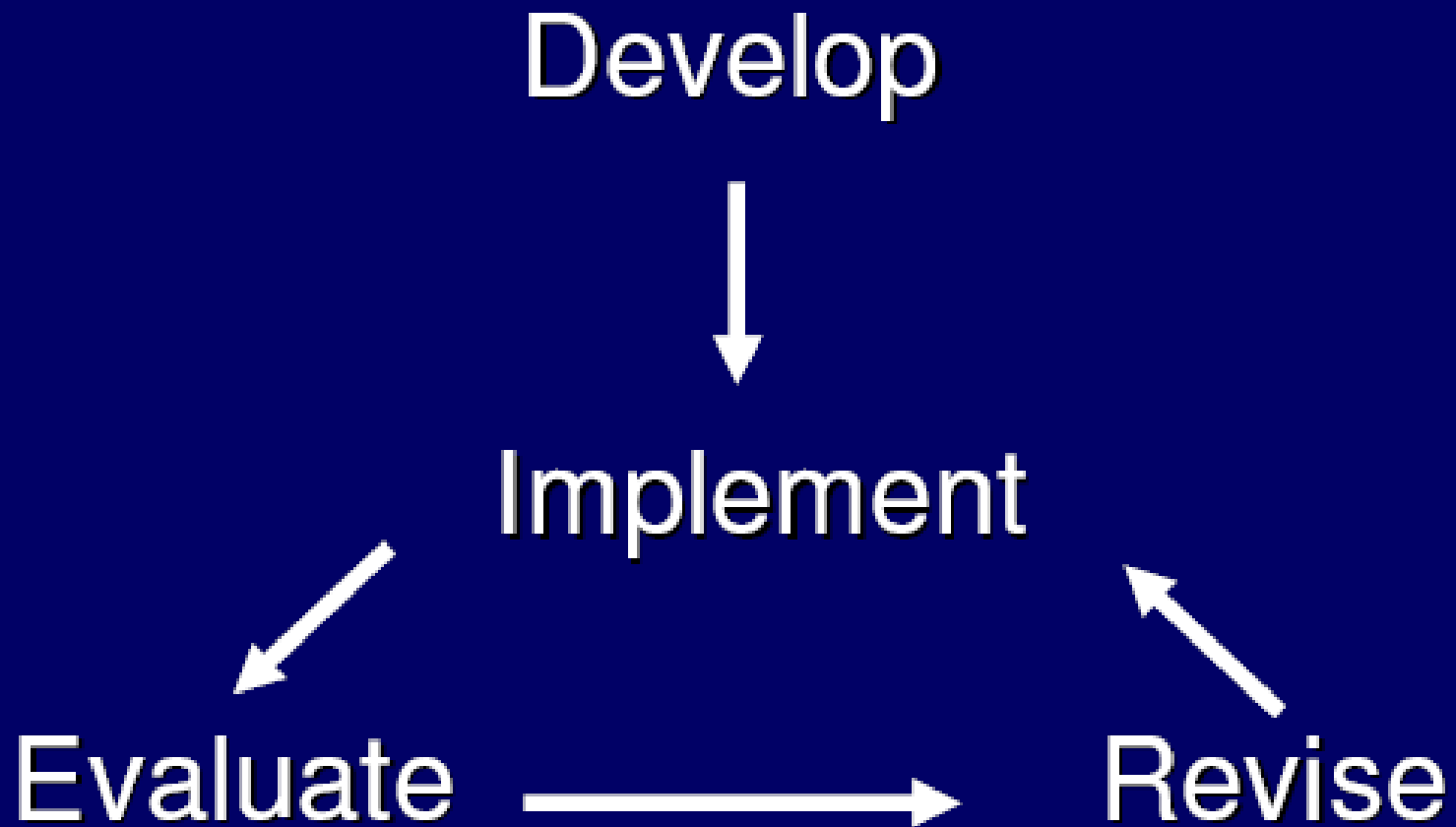


Revise IC plan as needed

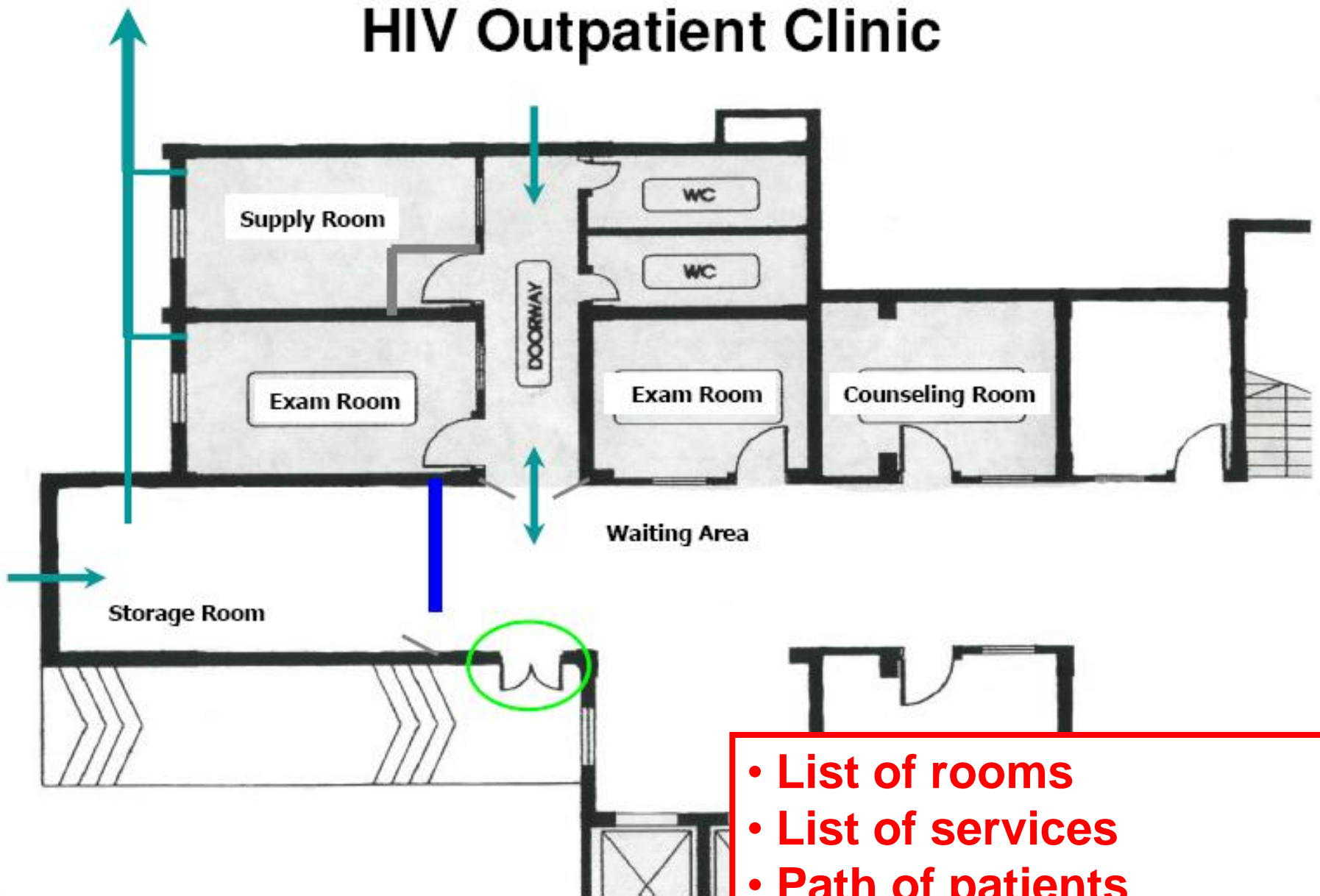
- Updated risk assessment
- Current performance indicators
- Input from health workers
- Resources available
- Problems encountered
- Re-educate health workers



Lifecycle of IC programmes



HIV Outpatient Clinic



- List of rooms
- List of services
- Path of patients
- Optimal path of patients

Sample Infection Control Plan

- Screening to identify persons with symptoms of TB disease, or who report being under investigation or treatment of TB disease
- Providing tissues or face masks to persons with symptoms of TB disease (“TB suspect”) or who report being under investigation or treatment for TB disease (“TB suspects or cases”), and providing waste containers for disposal of tissues and masks
- Placing TB suspects and cases in a separate waiting area
- Triaging TB suspects and cases to the front of the line to expedite their receipt of services in the facility



Sample Infection Control Plan (2)

- Referring TB suspects to TB diagnostic services
- Confirming that TB cases are adhering with treatment
- Using and maintaining environmental control measures
- Educating staff periodically on
 - Signs and symptoms of TB disease
 - Specific risks for TB in HIV-infected persons
 - Need for diagnostic investigation for those with signs or symptoms of TB
- Training and educating staff on TB, TB control, and the TB infection control plan
- Monitoring the TB infection control plan's implementation



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Separation and Isolation Procedures

- Ideally, infectious TB patients should be **isolated** from other patients
- Where isolation is not practical or possible, then **separation** should be attempted
- Limit areas in a facility where exposure to potentially infectious TB patients may occur
- Establish separate wards, waiting areas, or rooms for suspected or confirmed TB patients
- Ideal – Separate buildings with
 - Medical ward and no TB patients
 - TB ward, i.e., patients on anti-TB therapy
 - Suspect TB ward for patients with chronic cough, other symptoms of TB



Example: Measuring Critical Elements in Diagnostic Services

The time interval from:

- Admission to suspicion of TB
- Suspicion of TB to ordering sputum for AFB smears
- Ordering to the collection of sputum
- The examination of the smear to the reporting of results
- The reporting of the laboratory results to the initiation of appropriate treatment

Unnecessary delays in any of these may lead to increased nosocomial transmission



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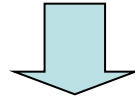
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**CLINIC
LEVEL**

Risk assessment

of infectious pts seen
of MDR cases
Time spent in area
Procedures
Ventilation



Infection control plan

Risk areas
Assessment: TB cases, HIV prevalence, HCW training needs
IC recommendations
Time-line + budget

HCW training

Evaluation

Early ID + Dx

Triage and isolation of suspects

Patient education

Sputum collection

Environmental controls



**HOSPITAL
LEVEL**

Risk assessment

As for clinic level
Both in- and outpatient
settings

**Risk may be
higher in
casualty or
medical wards
than TB
wards!**

Infection control plan

As for clinic level

HCW training

**Early ID + Dx
especially in wards**

Patient education

Sputum collection

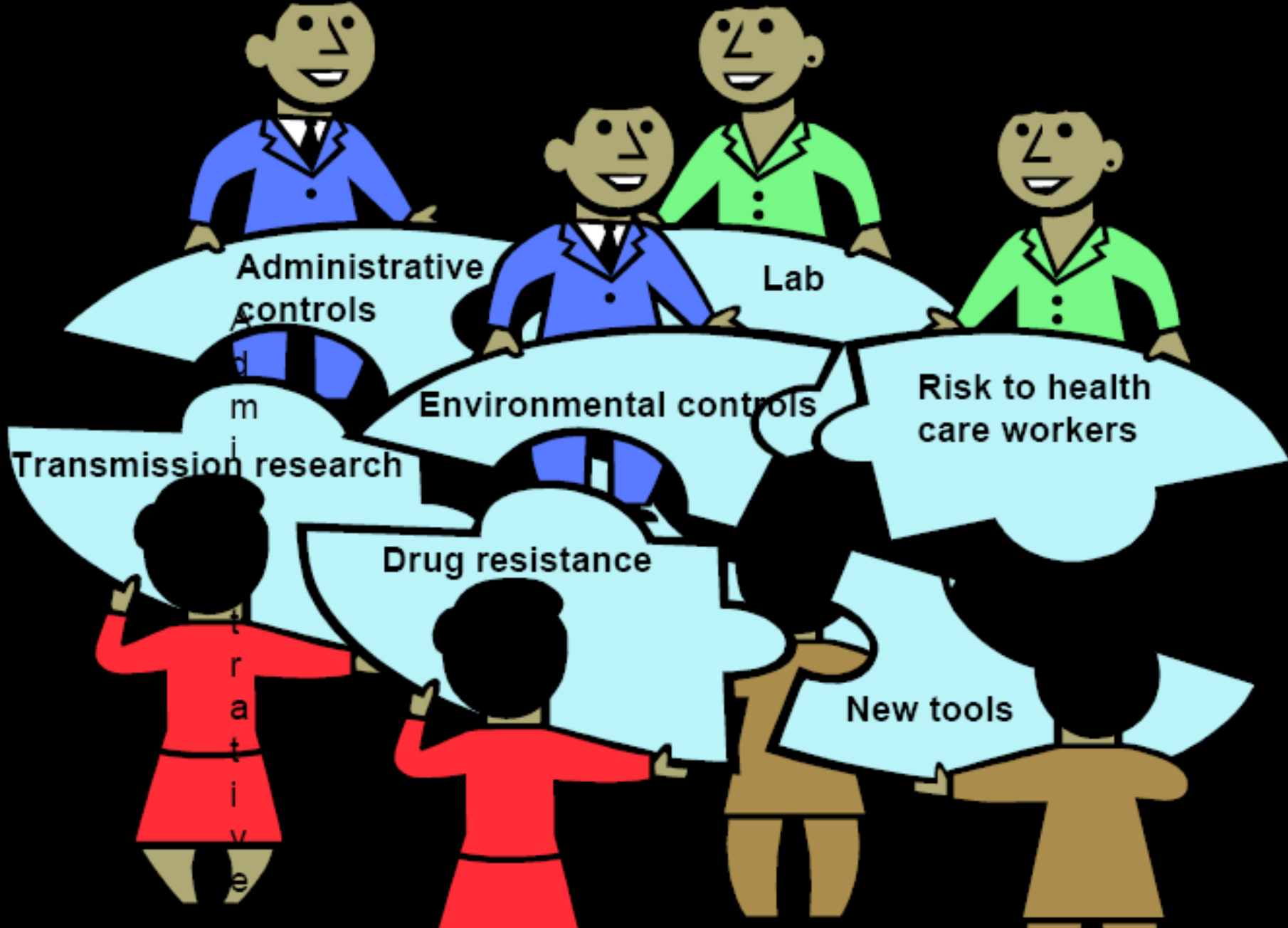
Triage of suspects

Evaluation

Isolation & MDR TB

**In-patient TB Mx
Isolation/environmental
measures**

Out-patient TB Mx



TB Infection control Planning = team-work!