INTRODUCTION TO QUALITY IMPROVEMENT TOOLS: CHANGING PROCESSES TO IMPROVE OUTCOMES

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Quality Improvement Methodology

Late 1990s: Major transformation

- Measuring mistakes → process redesign
- Traditional outcomes research tools
  - Before and after
  - Intervention and control groups
  - Rigorous statistical analysis
- → Emphasis on rapid assessment, dynamic implementation, & simpler techniques to measure progress in closing quality gaps
- Far less academic and more results-oriented

From Industry: Lean Methodology

- Within healthcare services the core idea is to maximize **patient value** while minimizing waste

- Lean approach changes the focus of management from optimizing separate technologies, assets, and vertical departments to optimizing the **flow** of products and services through entire system

- Map out processes and identify value and non-value added steps, and eliminate waste.

Lean – Some Key Principles

- Base decisions on long-term philosophy at the expense of short term financial goals
- Create continuous flow to bring problems to the surface
- Level out the work load
- Standardized tasks and processes are the foundation for continuous improvement and employee empowerment

Some Tools of Quality Improvement: Process Mapping & PDSA

"Every process is perfectly designed to get the results it gets"

-Paul Batalden

- The Three Questions:
  - What are we trying to accomplish?
  - How will we know that a change is an improvement?
  - What changes can we make that will result in an improvement?

Process Mapping

Whenever there is a **health outcome for a patient,** there is a process. Our challenge lies in seeing it.

Process Mapping?

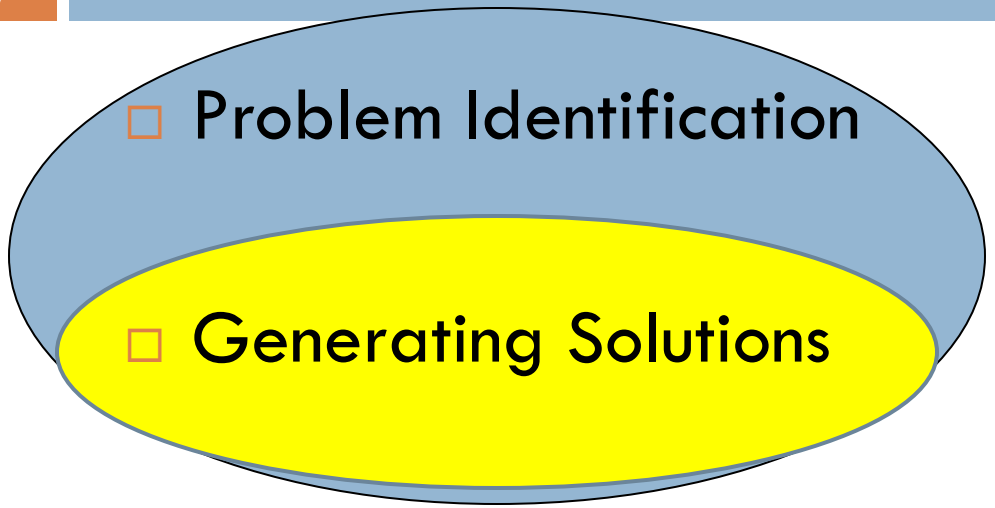
What is Process Mapping? (aka: Value Stream mapping)

It's a tool used to identify value and reduce waste (muda)

Muda?

Muda is the Japanese word for waste. But not waste defined in a traditional way. Waste is anything that does not provide value to the patient, for example: waiting, travel, misdiagnosis, stock-outs

How does Process Mapping help?



- Test
- Disseminate

Benefits of Process Mapping

- Puts a spotlight on waste
- Streamlines work processes
- Defines and standardizes the steps and sequence
- Promotes deep understanding
- Builds consensus
- Key tool for continuous quality improvement

Process Mapping can help us reach our goals of improving health outcomes by improving quality through increased communication between health facility managers and staff

Look for areas for improvement

- Is the process standardized, or are the people doing the work in different ways? Eg. Prenatal care
- Are steps repeated or out of sequence?
- Are there steps that do not add value to the output?
- Are there steps where errors occur frequently?

To Make A Process Map

Five Steps For Process Mapping

1. Decide which care process to map.

2. Collect information and create a map

3. Analyze the current process map with local managers and staff

4. Create future process map and work towards it by implementing tests of change

5. Continuous small-scale improvement over time

Step 1: Decide which service process to map

An example from Mozambique

We chose to map the flow of patients who had been identified as HIV+ and were referred to the HIV/AIDS treatment clinic for assessment. We followed these patients through their care pathway as they received care and treatment for the HIV/AIDS infection.

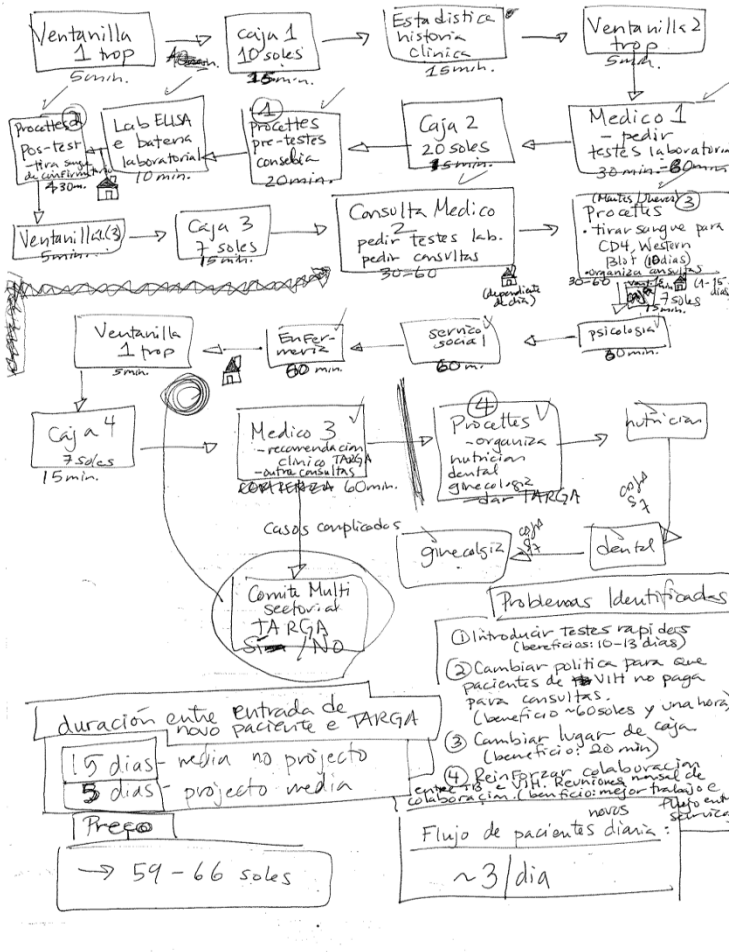
Step 2: Collect information & create a current process map

"The process as it currently exists"

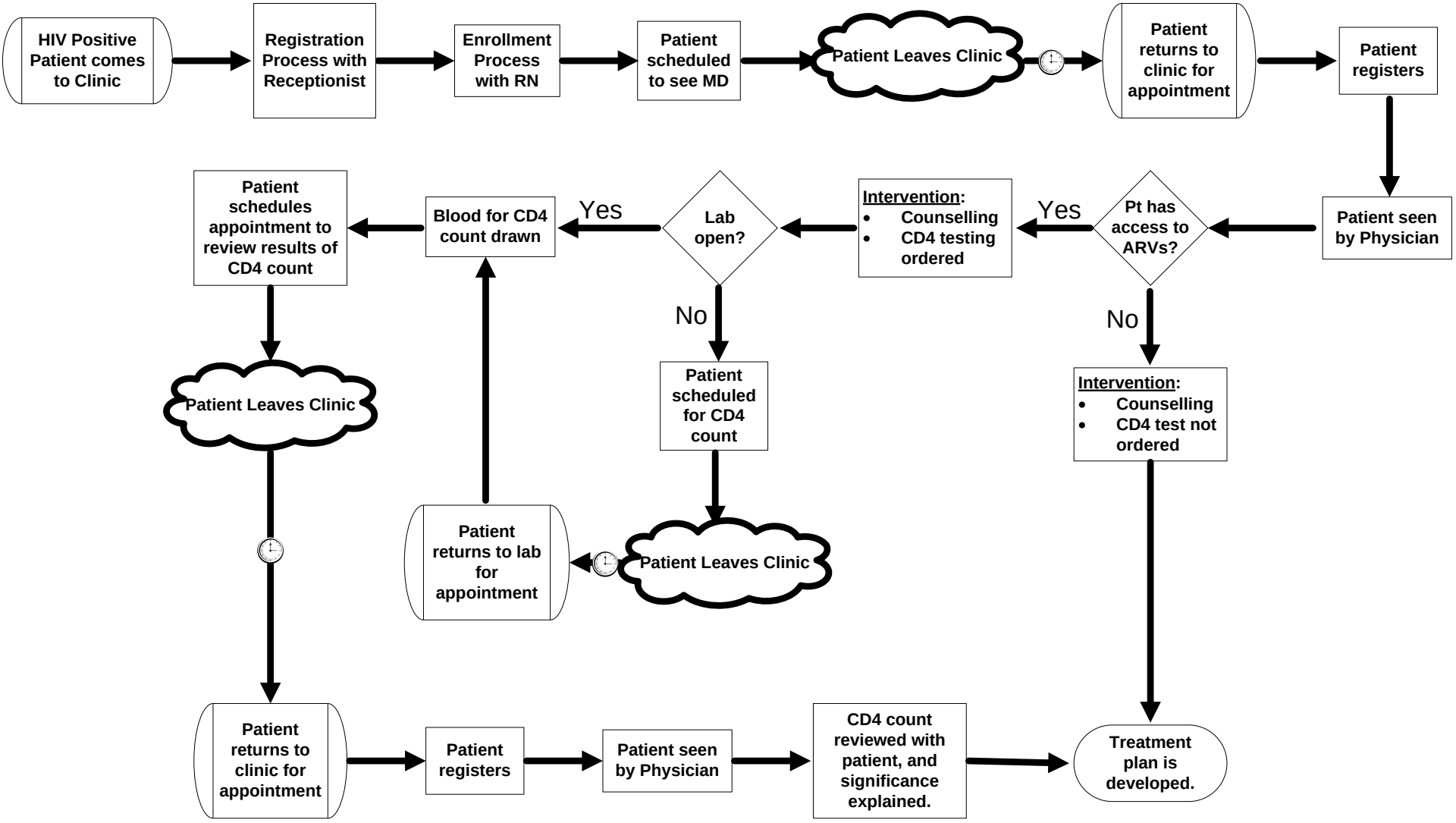
Starting when the HIV positive patient comes to the clinic and the patient is registered by the receptionist we followed the path that each patient takes. We talked to the staff responsible at each point. Detailed note taking is necessary.

Next, we draw the map— first by hand and then on the computer.

Example of a hand drawn map



Process Mapping the Initial Workflow



Step 3: Assess the current process map with local managers and frontline health professionals

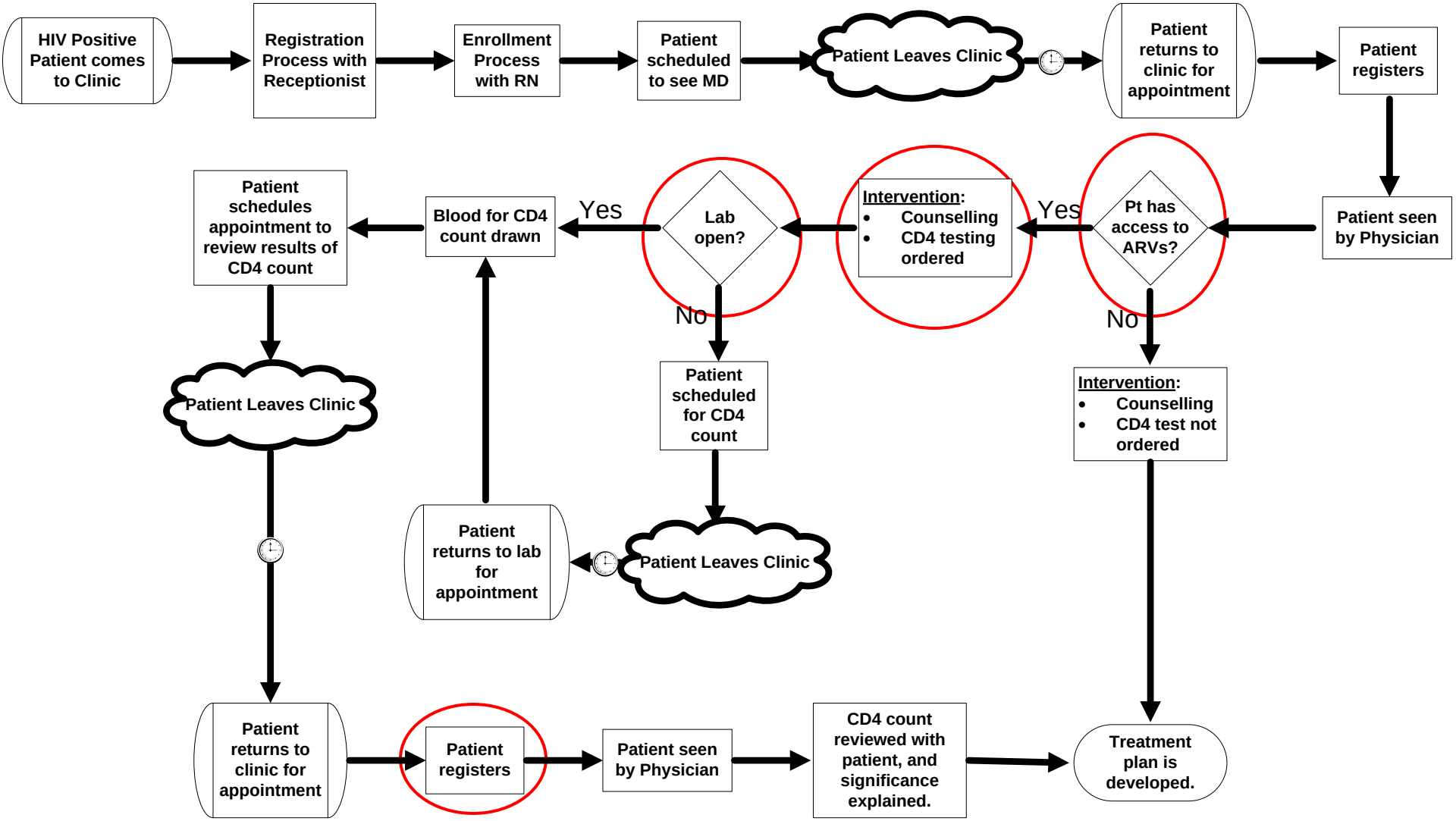
Assessing the current process map with the goal of improving patient flow by looking for steps that:

i) Definitely add value
ii) Add no value, but are unavoidable
iii) Add no value, but are avoidable

(Source: Womack and Jones)

After making a process map, the next day we return to the health center and discussed it with health workers to ensure its accuracy. Together we consider how the map could be used to make improvements to the system.

Process Mapping: Potential Areas for Improvement



Step 4: Future Map & Tests of Change

Create future process map and work towards it by implementing tests of change. (“Plan-Do-Study-Act” or PDSA cycles)

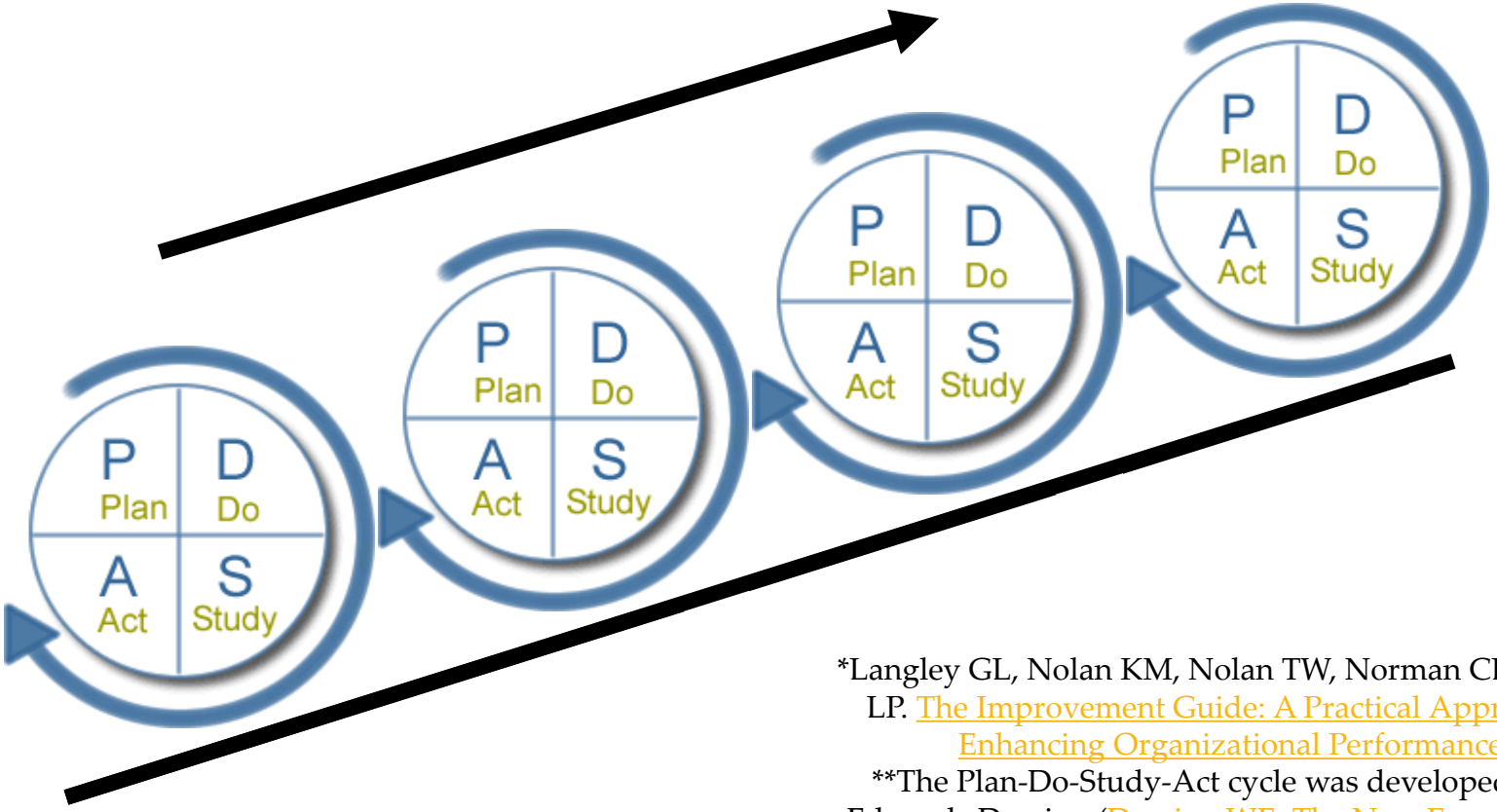
Use the map and the data as a guide to figure out where change can be most effective. Track changes in indicators to determine the effects of the change as the process moves forward

The PDSA Cycle—Testing Change in a Real World Setting

- Plan:
  - Design workflow changes;
  - Identify tools to support the new workflow;
  - Decide what to measure & how
- Do: Implement plan
- Study: Look at what was measured; figure out what it means
- Act: Fix the things didn't work the first time and retest until it works right

Step 5: One PDSA Cycle isn't enough (continuous quality improvement)

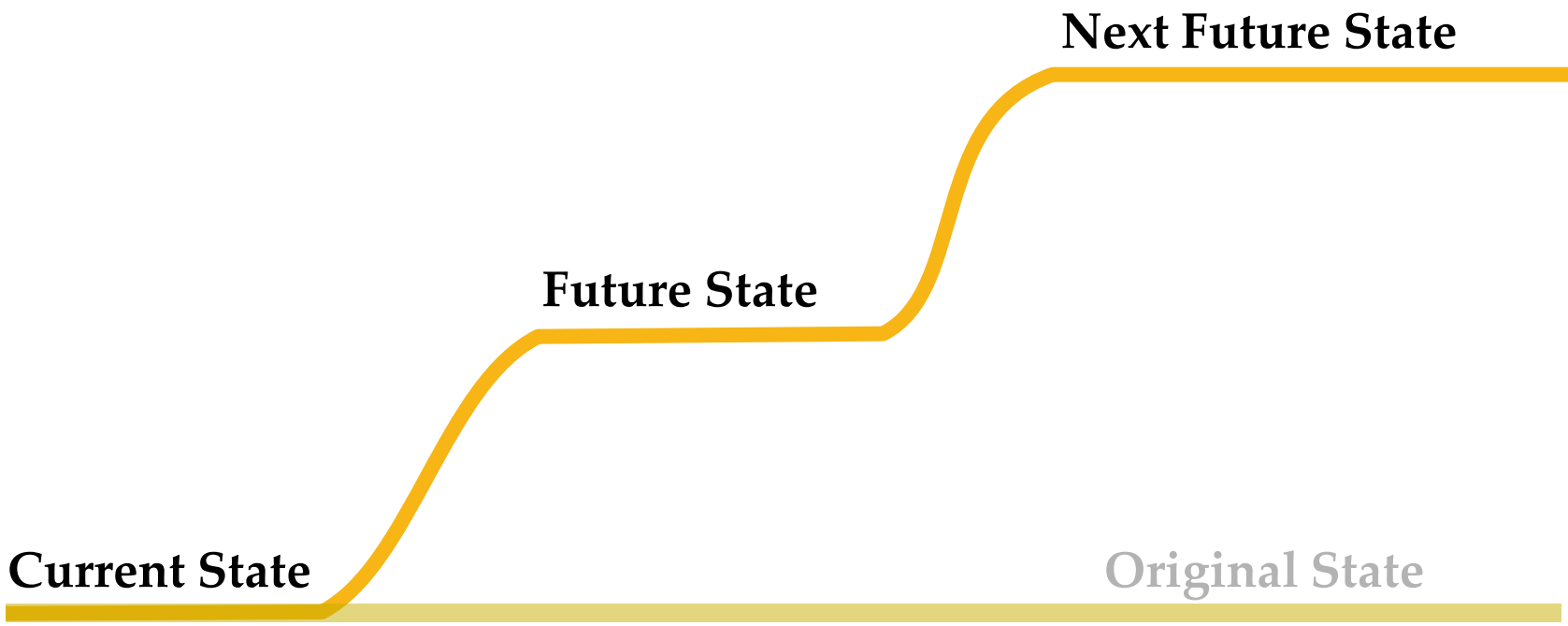
The cycles are linked for continuous improvement



*Langley GL, Nolan KM, Nolan TW, Norman CL, Provost LP. The Improvement Guide: A Practical Approach to Enhancing Organizational Performance.

**The Plan-Do-Study-Act cycle was developed by W. Edwards Deming (Deming WE. The New Economics for Industry, Government, Education.).

Process Mapping/PDSA Steps



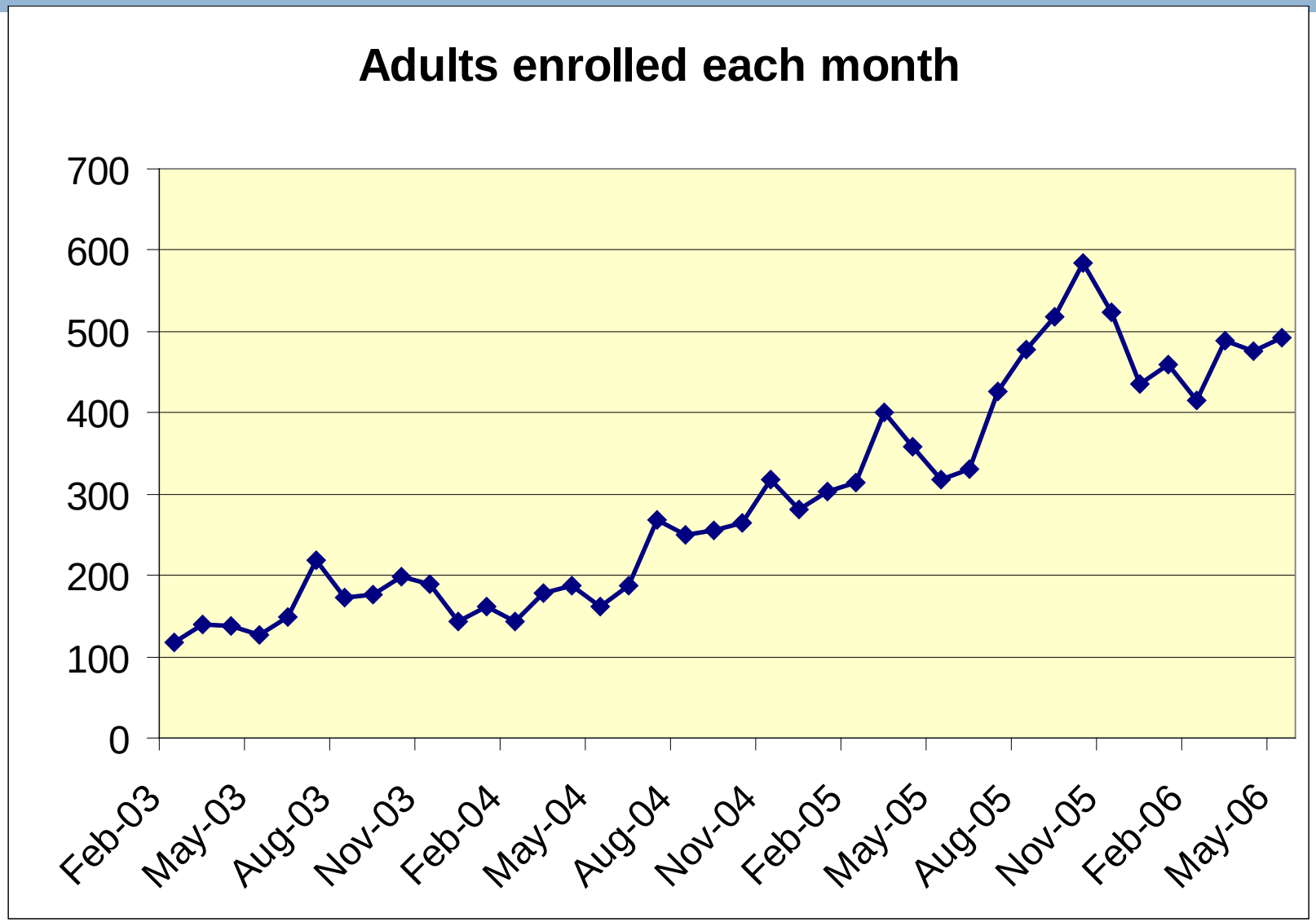
Example: Using Process Mapping to improve outcomes in Beira, Mozambique (2004)

- Approximately 500 HIV positive patients newly enrolled each month and increasing
- Only 10% were having their CD4 counts done within 1 month of enrollment
- A registry existed to track patients
- Resources to buy reagents for CD4 testing were scarce
- Only those patients with $ for drugs were tested for the level of the virus in their blood

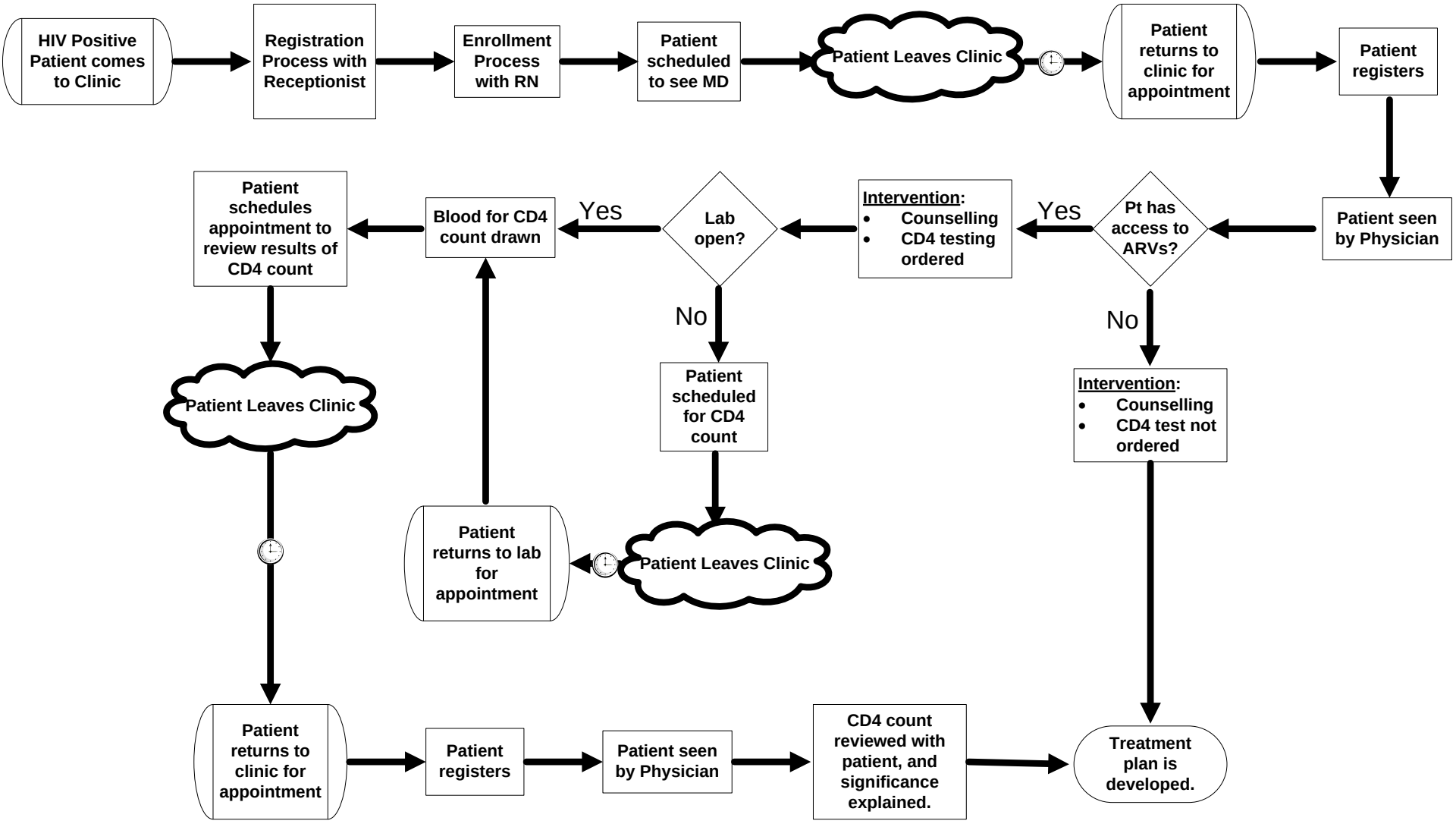
PDSA Cycle in Beira, Mozambique

- What were we trying to accomplish?
  - All HIV positive patients would have a CD4 count within 1 month of presenting to the clinic
- How would we know that a change was an improvement?
  - The percent of patients with CD4 count would rise from 10% and approach 100%
- What changes could we make that would result in an improvement?
  - Remove barriers to testing
  - Remove non-value added steps from the workflow

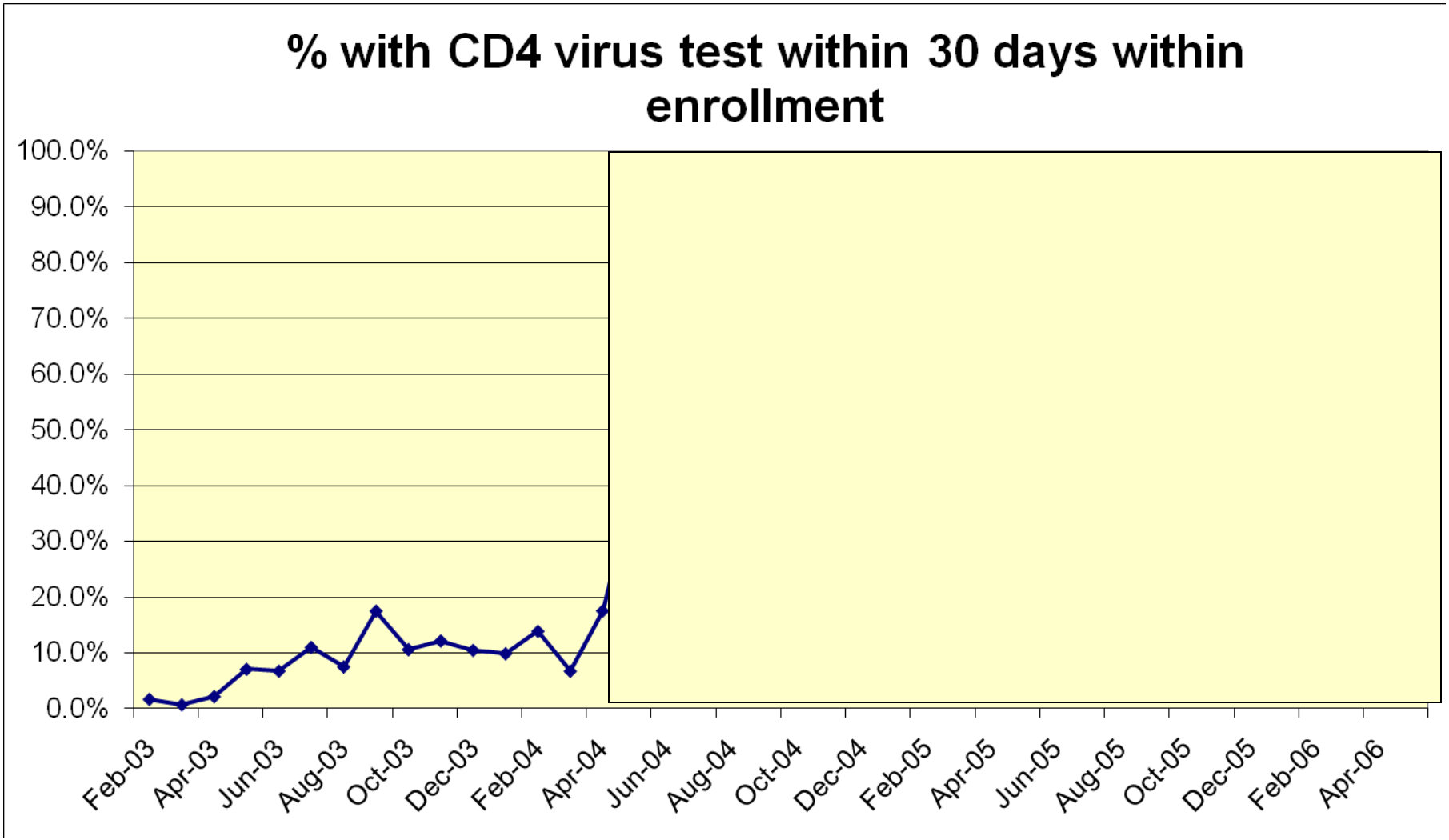
Steady enrollment growth

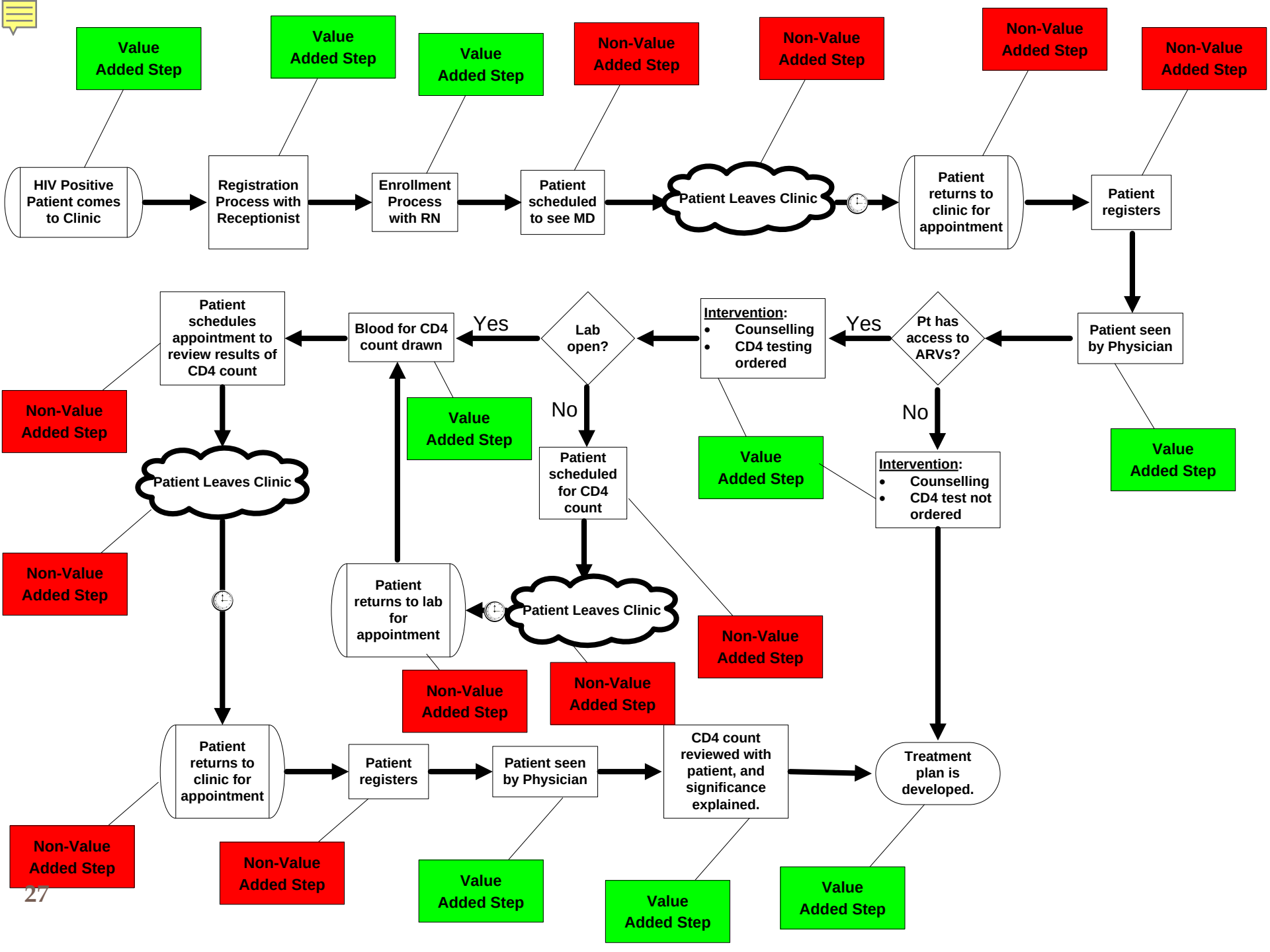


Process Mapping the Initial Workflow

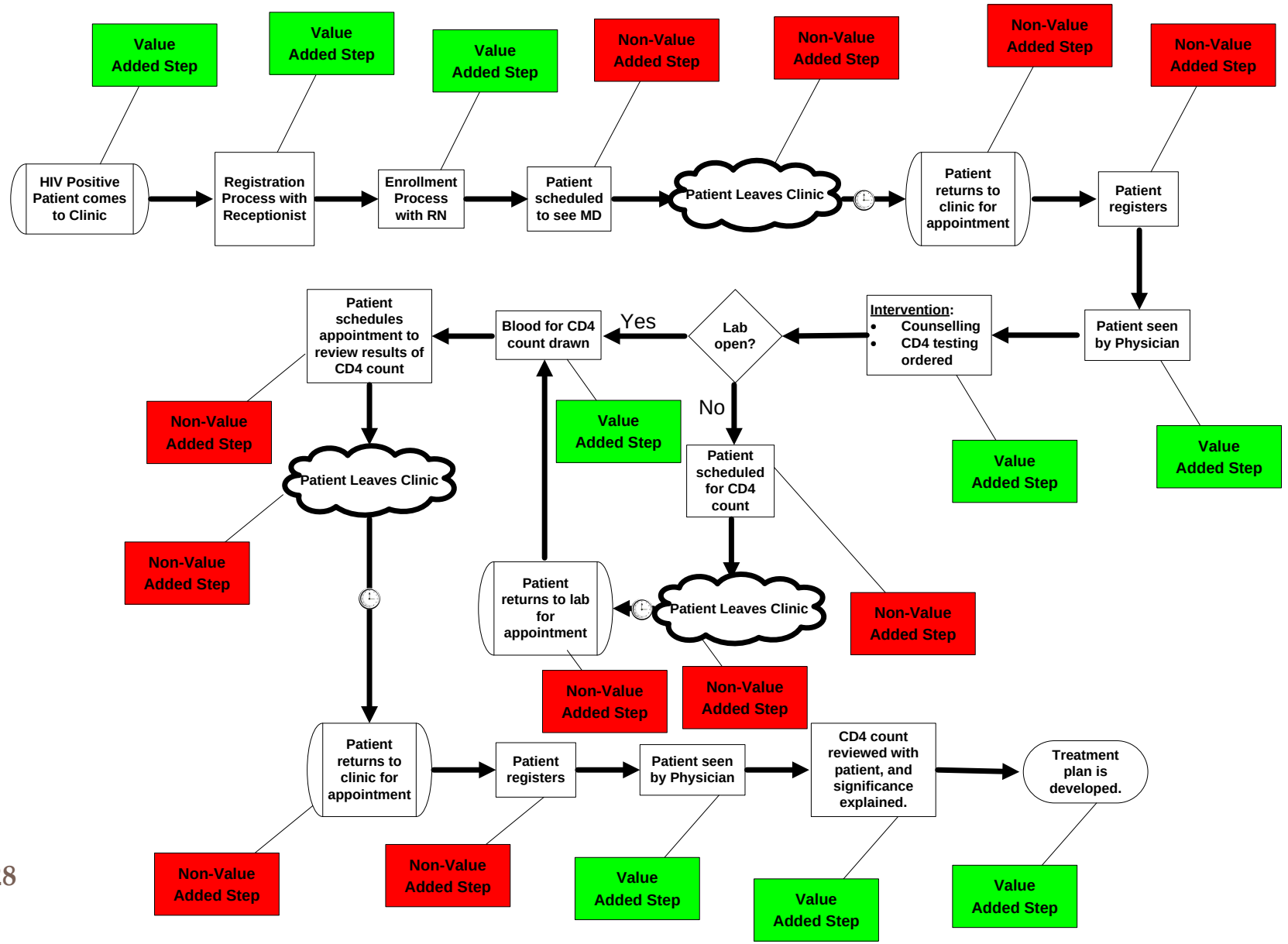


Outcome of a process perfectly designed get 10% CD4 Testing

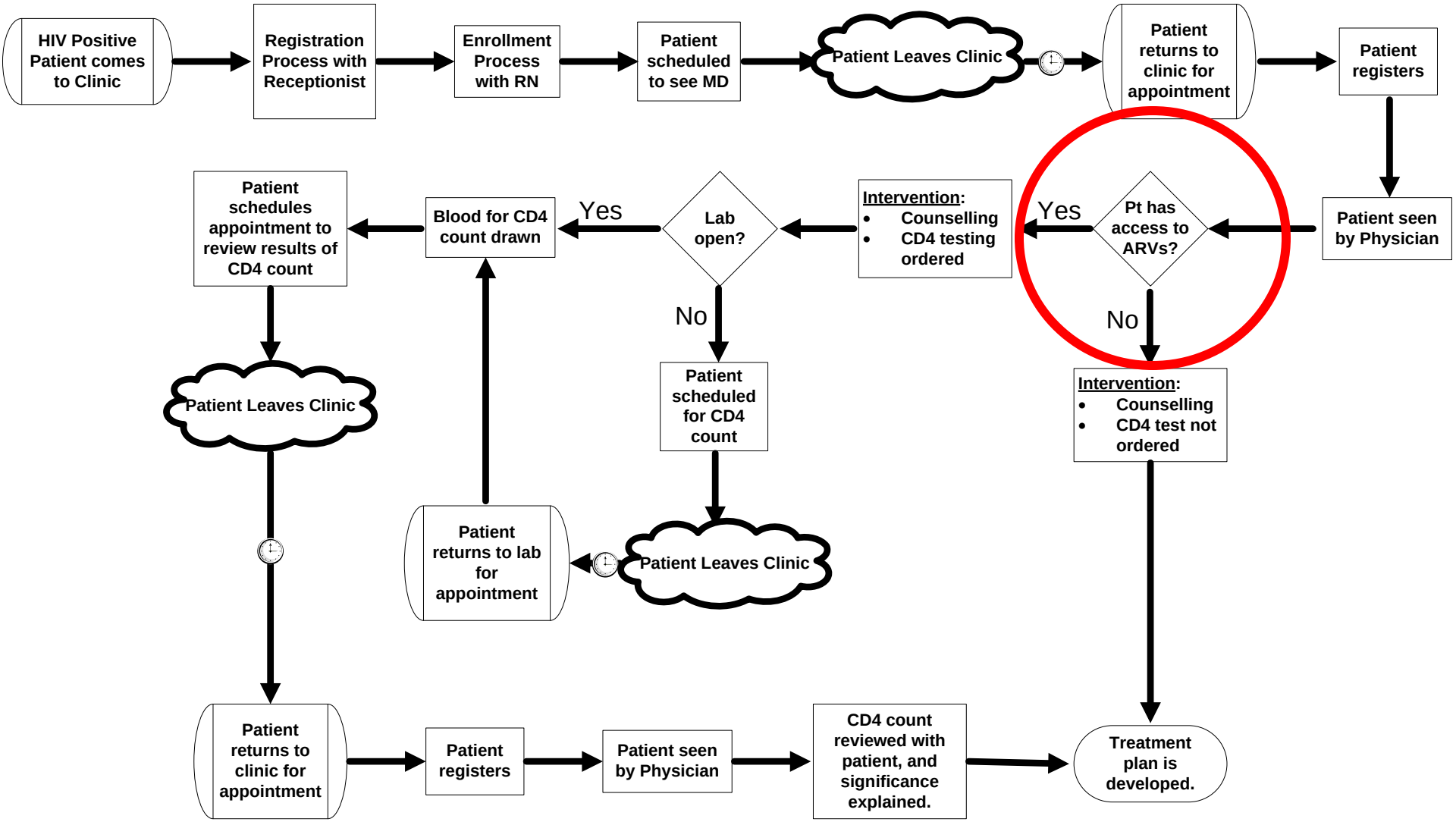



Value Added Step
Value Added Step
Value Added Step
Non-Value Added Step
Non-Value Added Step
Non-Value Added Step
Non-Value Added Step
HIV Positive Patient comes to Clinic
Registration Process with Receptionist
Enrollment Process with RN
Patient scheduled to see MD
Patient Leaves Clinic
Patient returns to clinic for appointment
Patient registers
Patient seen by Physician
Value Added Step
Pt has access to ARVs?
Yes
Intervention:
Counselling
CD4 testing ordered
Value Added Step
Lab open?
Yes
Blood for CD4 count drawn
Value Added Step
Patient schedules appointment to review results of CD4 count
Non-Value Added Step
Patient Leaves Clinic
Non-Value Added Step
No
Intervention:
Counselling
CD4 test not ordered
No
Patient scheduled for CD4 count
Non-Value Added Step
Patient Leaves Clinic
Patient returns to lab for appointment
Non-Value Added Step
Non-Value Added Step
Patient returns to clinic for appointment
Non-Value Added Step
Patient registers
Non-Value Added Step
Patient seen by Physician
Value Added Step
CD4 count reviewed with patient, and significance explained.
Value Added Step
Treatment plan is developed.
Value Added Step

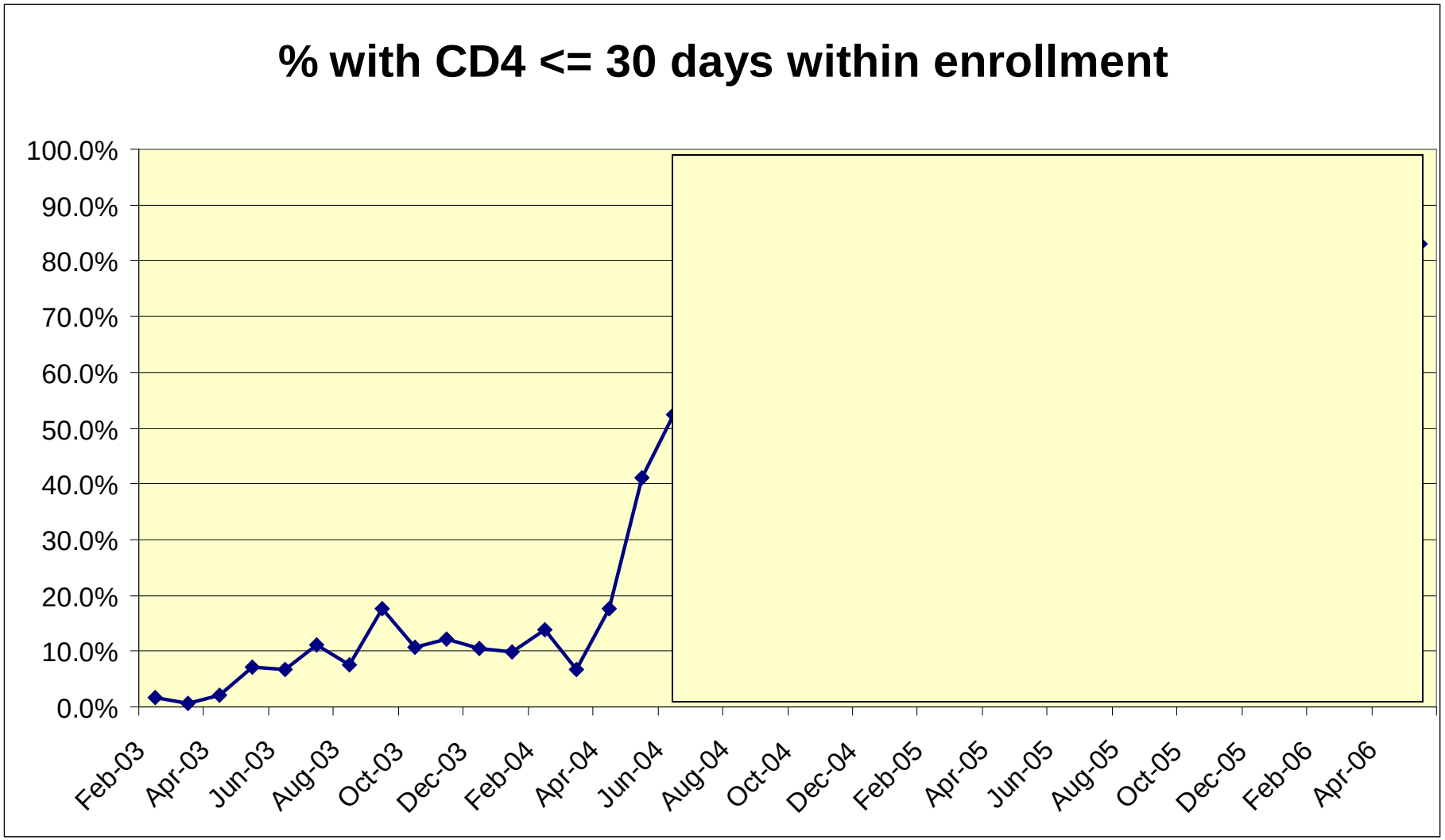
Remove the barrier



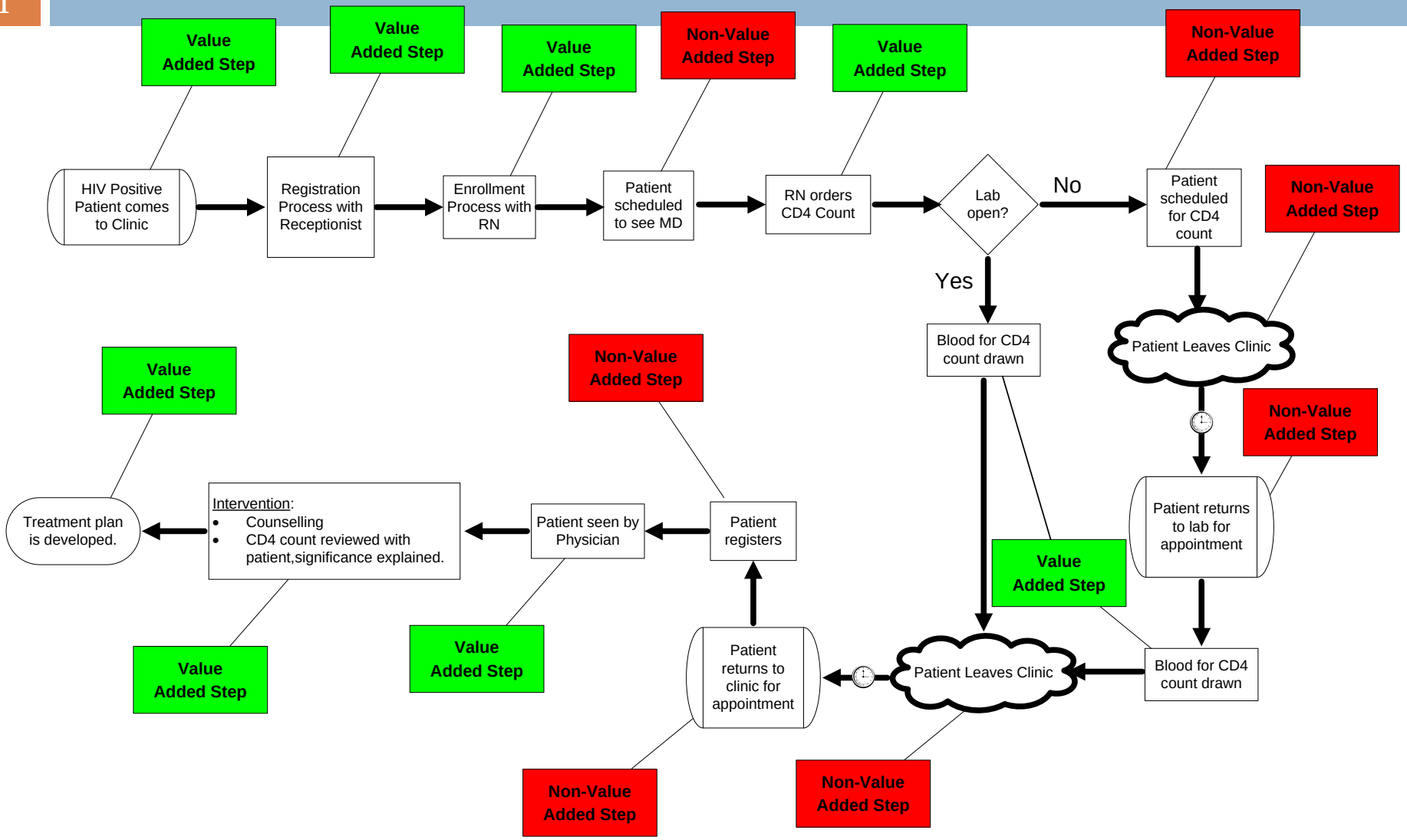
Major System Barrier to CD4 Testing: Drugs!



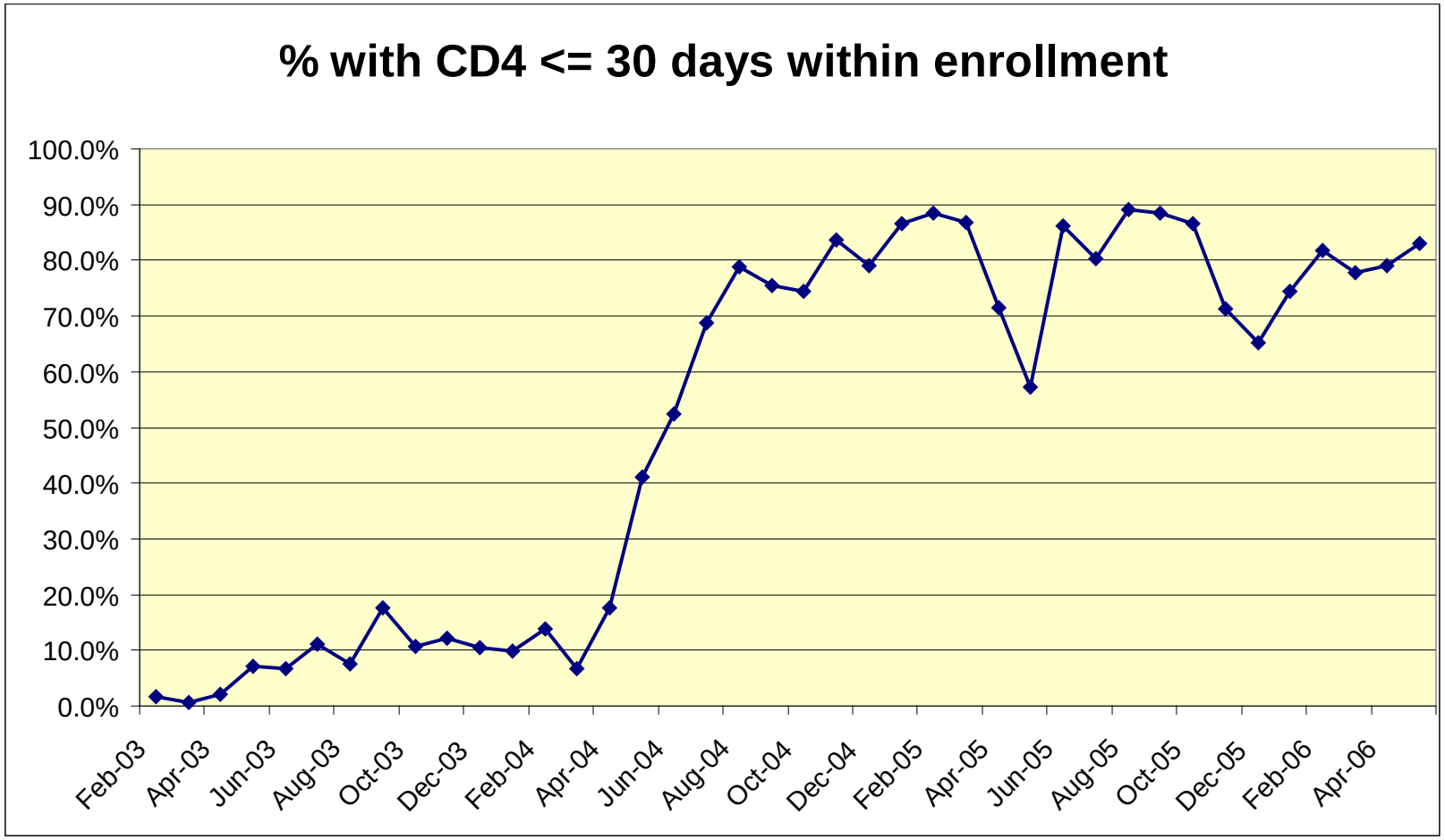
Outcome after ART barrier is removed



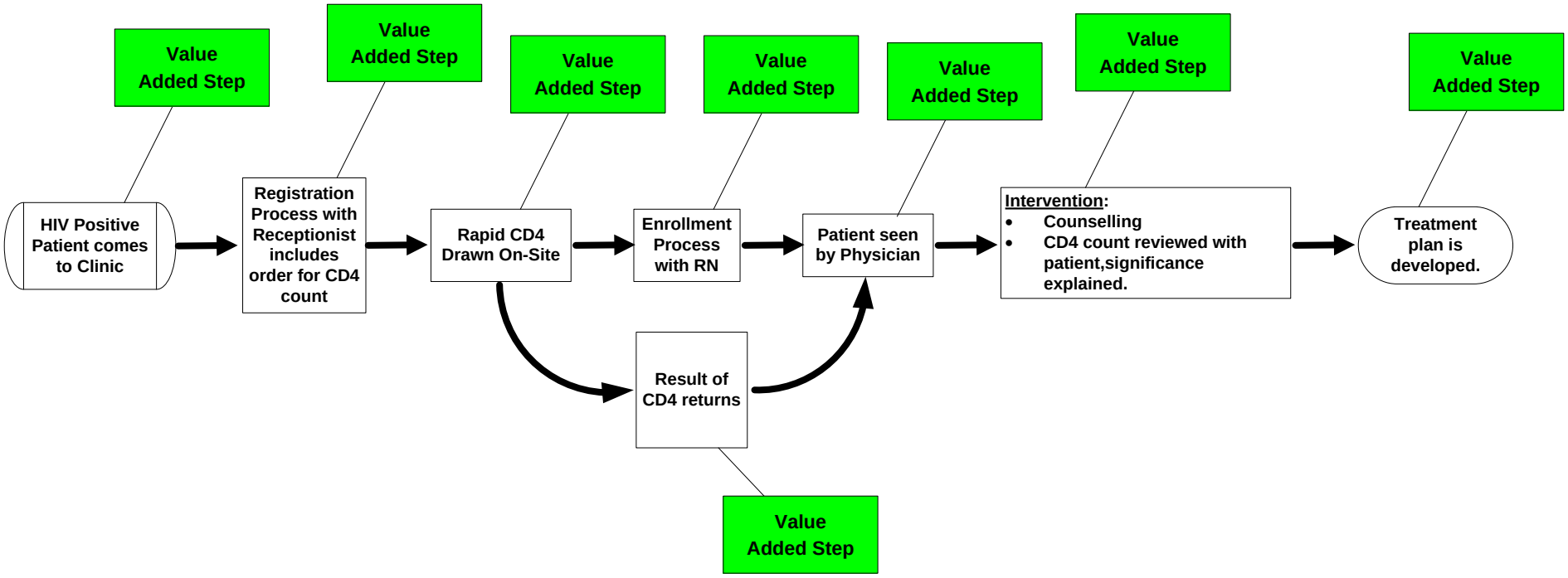
Task shift CD4 ordering to nurses



Outcome after CD4 count order is "automatic"



What would Toyota do?



OR course, MOH, Dili, Timor Leste, 11/2010

QUESTIONS?