NEW YORK STATE | Department of Health

HRSA Ryan White HIV/AIDS Program
CENTER FOR QUALITY IMPROVEMENT & INNOVATION

Essential Tools for Improvement: A Practical Overview of Basic Tools for Quality Improvement (Part 2)

Christina Clarke, BSc, MHA

CQII Consultant

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NEW YORK STATE | Department of Health

Center for Quality Improvement & Innovation

- Funded by the HRSA HIV/AIDS Bureau [#U28HA53134].
- Managed by the New York State Department of Health AIDS Institute.
- “Together, we continue to improve the lives of people with HIV across the United States. CQII provides state-of-the-art technical assistance and training to Ryan White HIV/AIDS Program (RWHAP)-funded recipients and subrecipients that measurably strengthen local clinical quality management programs and improve patient care, health outcomes, and patient satisfaction.”

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Learning Objectives

By the end of this session (part two of two), participants will be able to:

1. List the final three (of seven basic quality tools) that should be in every quality improvement (QI) practitioner's toolbox.
2. Describe the purpose and typical use for each of the tools.
3. Analyze concrete examples of how each tool supports improvements in HIV linkage to care, retention to care, and/or viral suppression (VS).
4. Identify an opportunity to apply one of the seven tools.

Recall: The Seven Tools

Part one (September 4th, 2025):

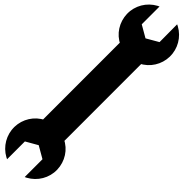
1. Run Chart & Control Charts
2. Cause and Effect Diagram
3. Check Sheet
4. Pareto Chart

Part two:

5. Stratification and Flowchart
6. Scatter Diagram
7. Histogram

A Note

All data is fictious data used for demonstration purposes only.



Tool 5

STRATIFICATION AND FLOWCHART

5. Stratification and Flowchart

- **Purpose:**
  - **Stratification:** Organize or sort data by subgroups.
  - **Flowchart:** Visually lay out or map the steps in a process.

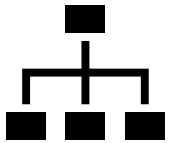
- **When to Use:** Early in QI projects to understand outcomes, processes, and variation, and to be able to develop better change ideas.

- **Note:** Stratification and flowcharts can be combined but can also be considered as separate and distinct tools.

5. Stratification and Flowchart (cont'd)

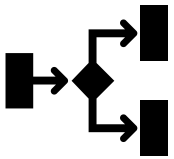
Stratification

- Helps the assessor see the data more clearly by breaking results down into meaningful subgroups (e.g., by age, housing status, etc.)
- Answers the question: *"Where is the variation coming from?"*



Flowchart

- Helps the assessor see the process step by step, where decisions happen, and where things can break down.
- Answers the questions: *"What actually happens?"* or *"What would we like to happen?"*

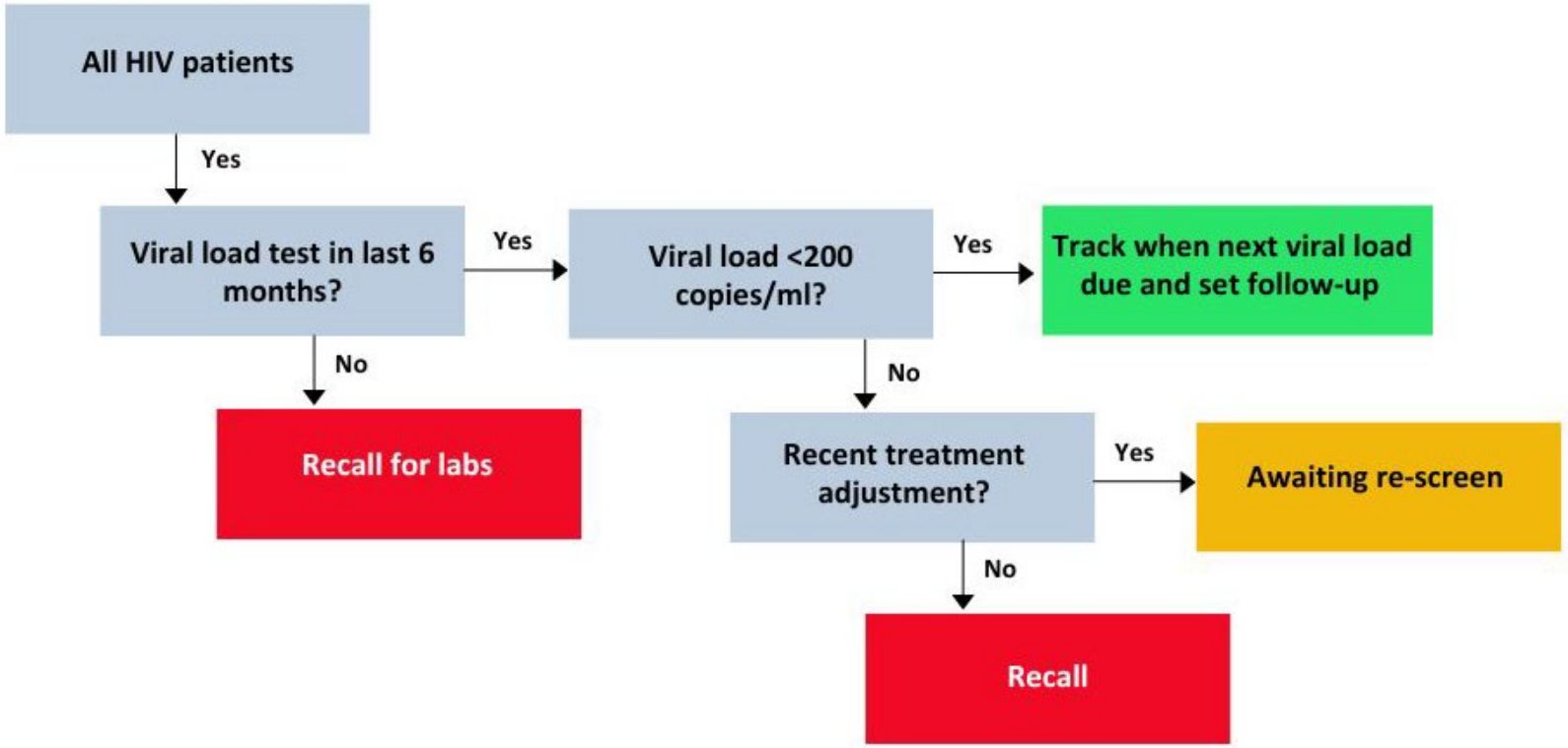


5. Stratification and Flowchart Visual

- Flowchart
  - A branching flow diagram that starts with all patients receiving HIV medical care, then splits into groups, with sub-branches.
  - Can be color coded with red boxes for not meeting care standards or ideal outcomes and green boxes for meeting care standards or ideal outcomes.
- Stratification:
  - Identify sub-populations for further root cause analysis (e.g., why are we not meeting ideal outcomes? Why are we not meeting quality standards?)

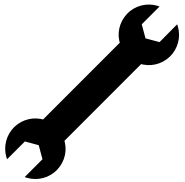
5. Stratification and Flowchart

Flowchart



Stratification

- All patients with HIV.
- Patients no viral load test last six months.
- Not suppressed.
- Others?

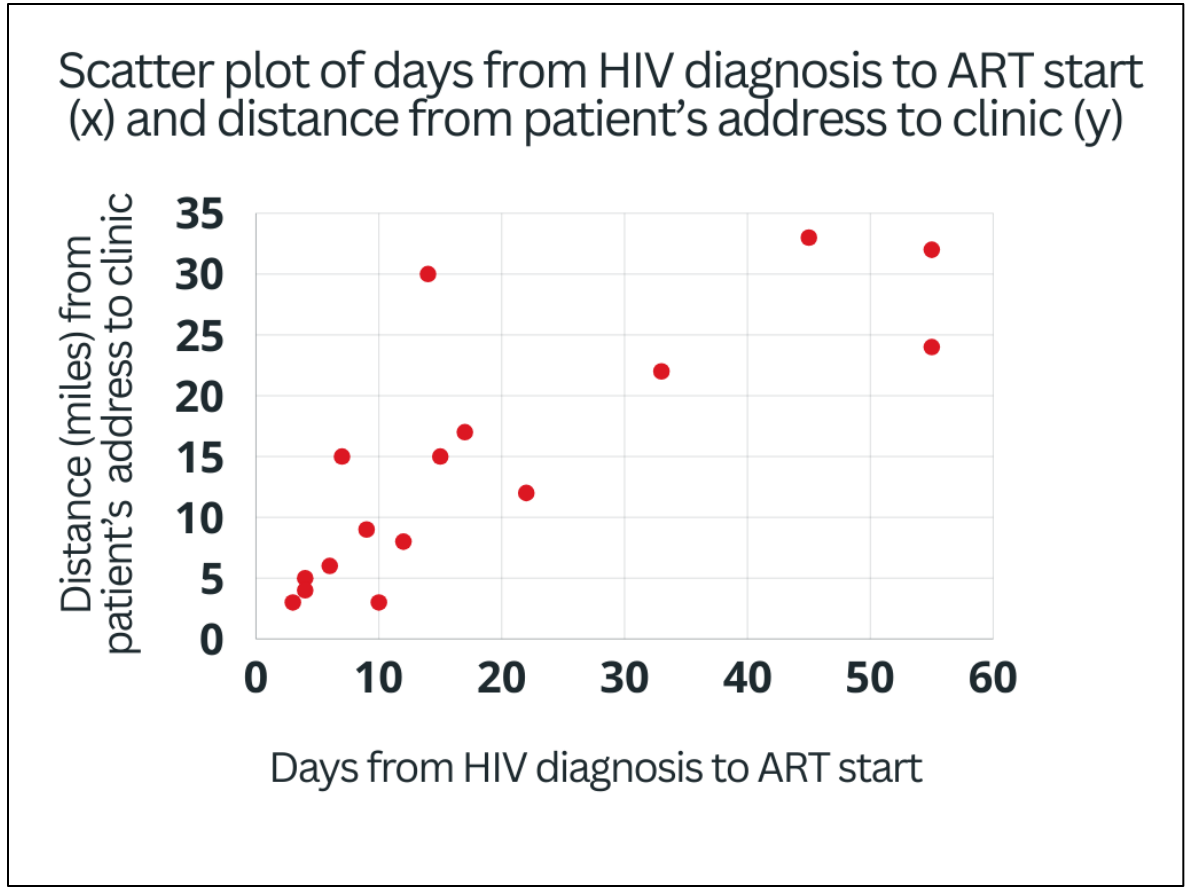


Tool 6

SCATTER DIAGRAM

6. Scatter Diagram

- **Purpose:** To assess for a possible relationship between two variables.
- **When to Use:** When testing for potential relationships and correlations.
- **Visual**: x- and y- axes plot. Can use regression analysis to look at the statistical strength of the relationships.
- Antiretroviral Therapy (ART).

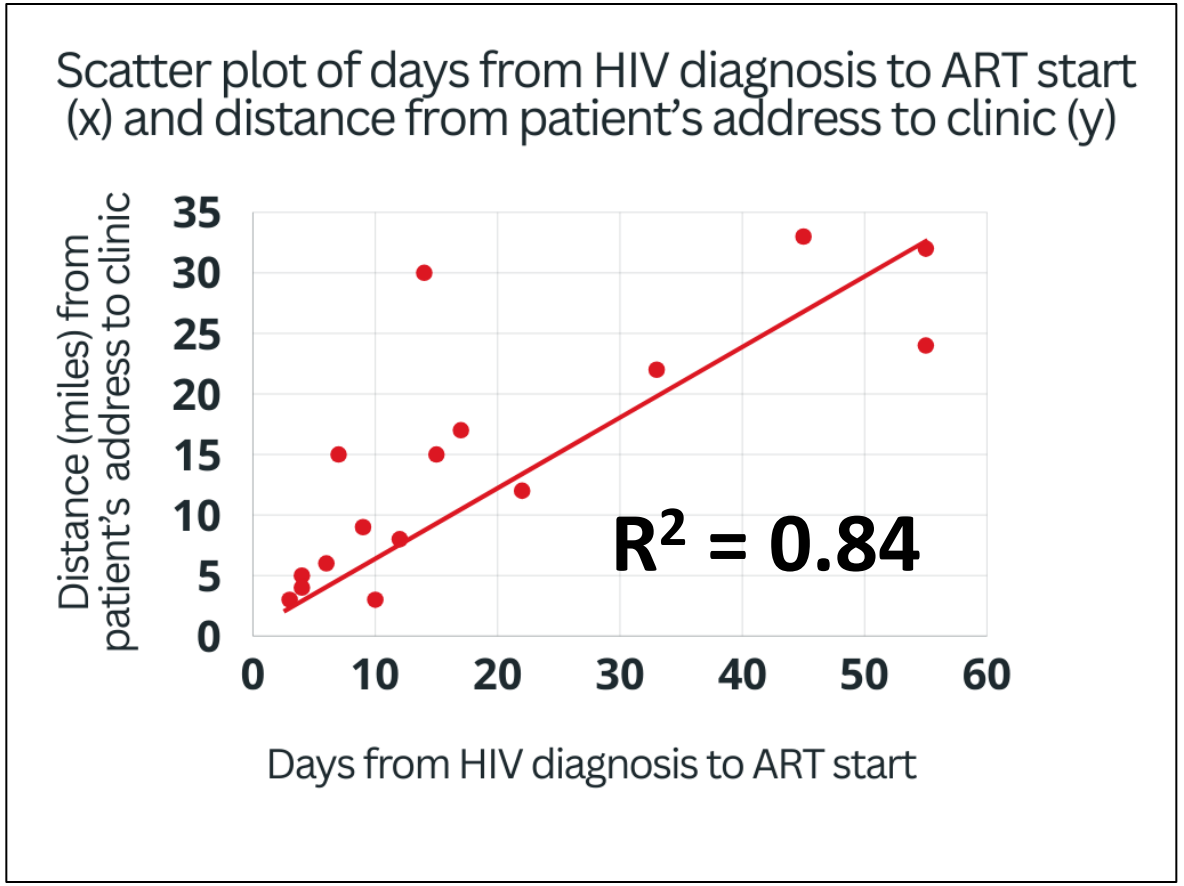


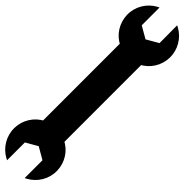
Scatter Diagram: Practical Application in QI

- Used to see the relationship between two different numeric variables on an x (horizonal) and y (vertical) axis.
- Also called a scatter plot.
- It is helpful to understand problems or identify change ideas.
- For example:
  - Is there a relationship between the distance from clinic (x) and the number of missed appointments (y)?
  - Is there any relationship between the number of peer navigator contacts (x) and the viral load at last measure (y)?
  - Is there a relationship between wait-time for third next available appointment (x) and days since last visit (retention) (y)?
  - Is there a relationship between patient reported confidence to manage health conditions score (x) and time to start ART (y)?

Analyzing Scatter Diagrams with Regression Analysis

- Scatter diagrams can be analyzed visually and with regression analysis to represent the relationship strength and direction.
- Example: Regression analysis can show how much longer (in days) it takes to start ART for every additional mile a patient lives from the clinic (if a relationship exists).



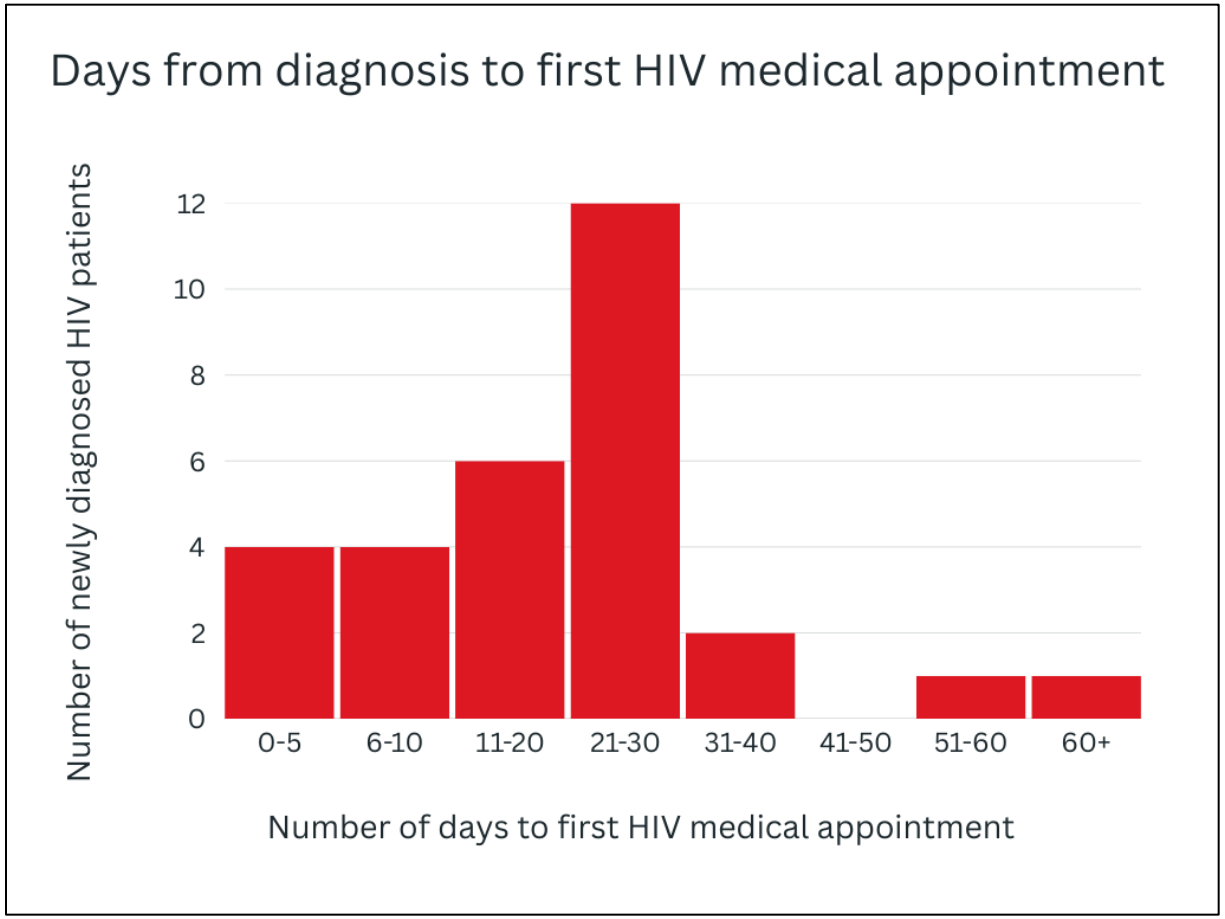


Tool 7

HISTOGRAM

7. Histogram

- **Purpose:** To visualize frequency or number of occurrences of data in a bin.
- **When to Use:** When understanding spread or distribution of variables.
- **Example:** Distribution of days between diagnosis and first care visit (linkage to care).

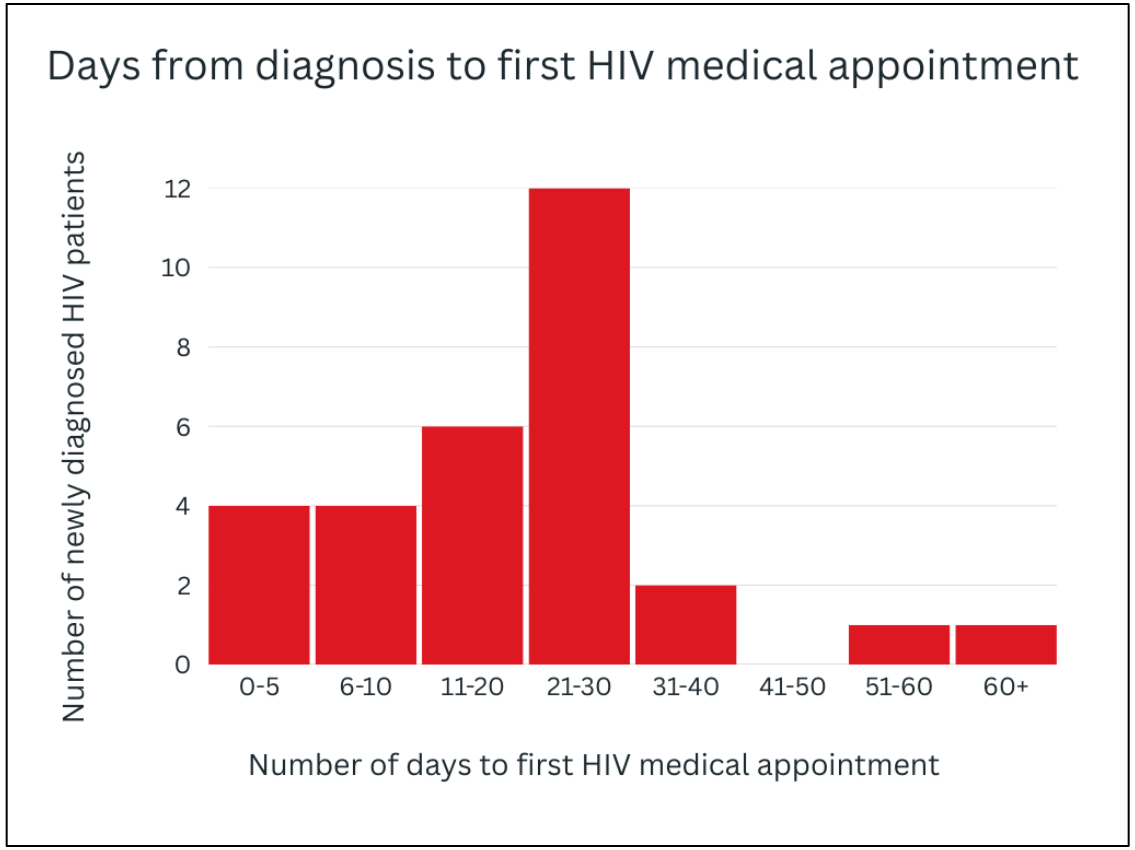


Histograms Visual

- Displays continuous data (e.g., age, time, height, distance, etc.).
- Bars touch each other or are very close to show data continuity.
- Each bar represents a range of values (bins).
- Useful for analyzing data distribution and patterns.

Histogram: Practical Application in QI

- **Aim:** Increase the number of patients linked to care within 30 days of diagnosis.
- **Histogram:** Shows distribution days to linkage.
- **Use:** Understand clinic's performance for meeting quality standards and perform further root cause analysis.



Histogram: Practical Application in QI (continued)

Examples:

- Number of days to reach viral suppression
  - Why: Look for outliers for resistance testing or enhanced adherence support.

- Number of outreach attempts to successful contact.
  - Why: Test and identify different contact methods for outreach clients.

- Days from HIV diagnosis to ART start.
  - Why: Workflow redesign (same-day ART starts, pharmacy integration, etc.).

Discussion

What questions do you have?

Discussion

Which tool are you most curious about trying?

Bringing it All Together: Improving Retention in HIV Care

- **Aim:** Increase the proportion of patients retained in HIV medical care at 12 months from 72% to 85% by March 2026.

- **Problem Statement:** Many patients are missing follow-up visits. Clinic data show wide variation in visit attendance.

Bringing it All Together: Improvement Retention in HIV Care

- **Flowchart**
  - Mapped out the steps from when a patient is diagnosed with HIV to attending a medical visits.
  - Included steps when a patient does not attend a medical visit.
- **Histogram**
  - Displayed distribution of “days since last visit.”
  - Data showed many patients have a visit more than 120 days, highlighting where intervention is most needed.
- **Stratification**
  - Sorted missed visits data by age group and housing status.
  - Found highest non-retention among patients under 30 years of age and unstably housed.
- **Fishbone Diagram**
  - Convened an improvement team, including patients under 30 years of age, to identify root causes to missed visits.

Bringing it All Together: Improvement Retention in HIV Care

- Using these tools, the team identified and tailored improvement ideas like same-day rebooking after no-shows, text message communications for rescheduling, and a peer navigator program for younger patients.

- Run charts would also be used to monitor the effects of changes tested over time on important outcome measures like retention in care.

Discussion

What questions do you have?

Contact Information

Christina Clarke, BSc, MHA

CQII Consultant

New York State Department of Health
AIDS Institute
90 Church Street, 13th floor
New York, NY 10007-2919
cclarke@ideategroup.ca

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