Concepts and Principles of Quality Improvement

Bruce D. Agins, MD MPH

HEALTHQUAL; Institute for Global Health Sciences

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QUALITY OF TB CARE

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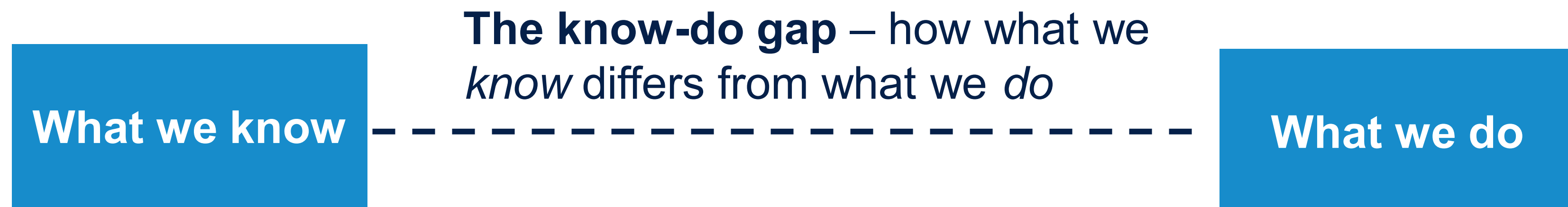
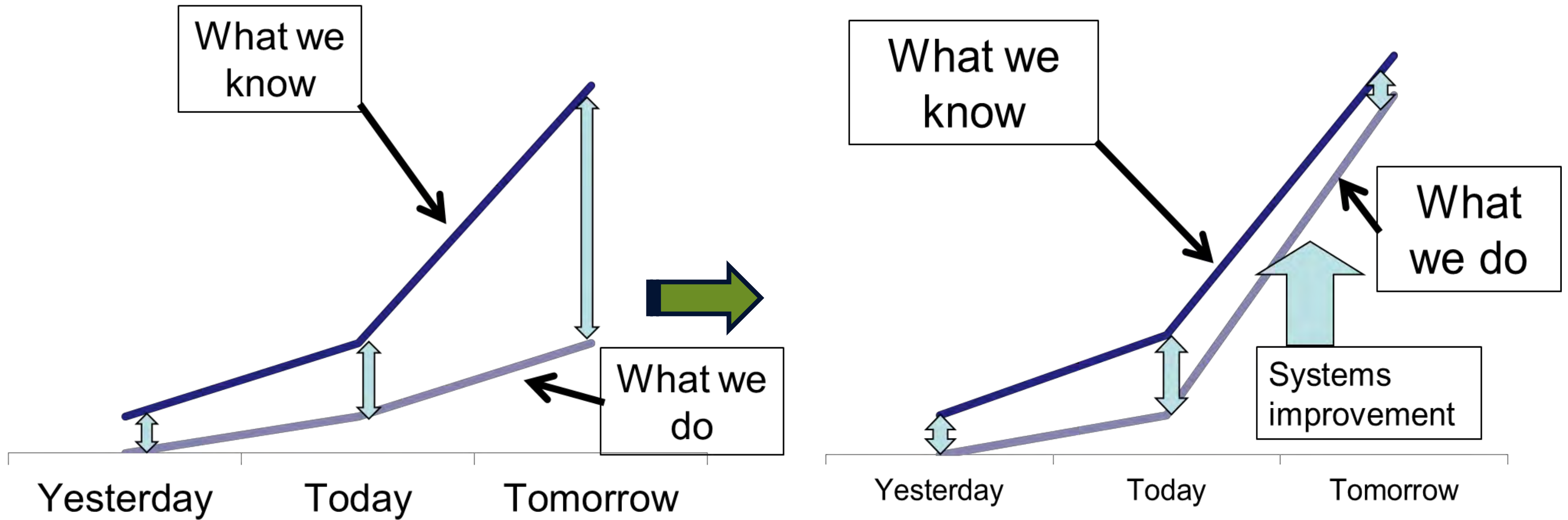
The “know-do” gap

“Health care interventions that are known to work and save lives are not being implemented for every patient every time. **We must address this gap between knowing and doing.”**



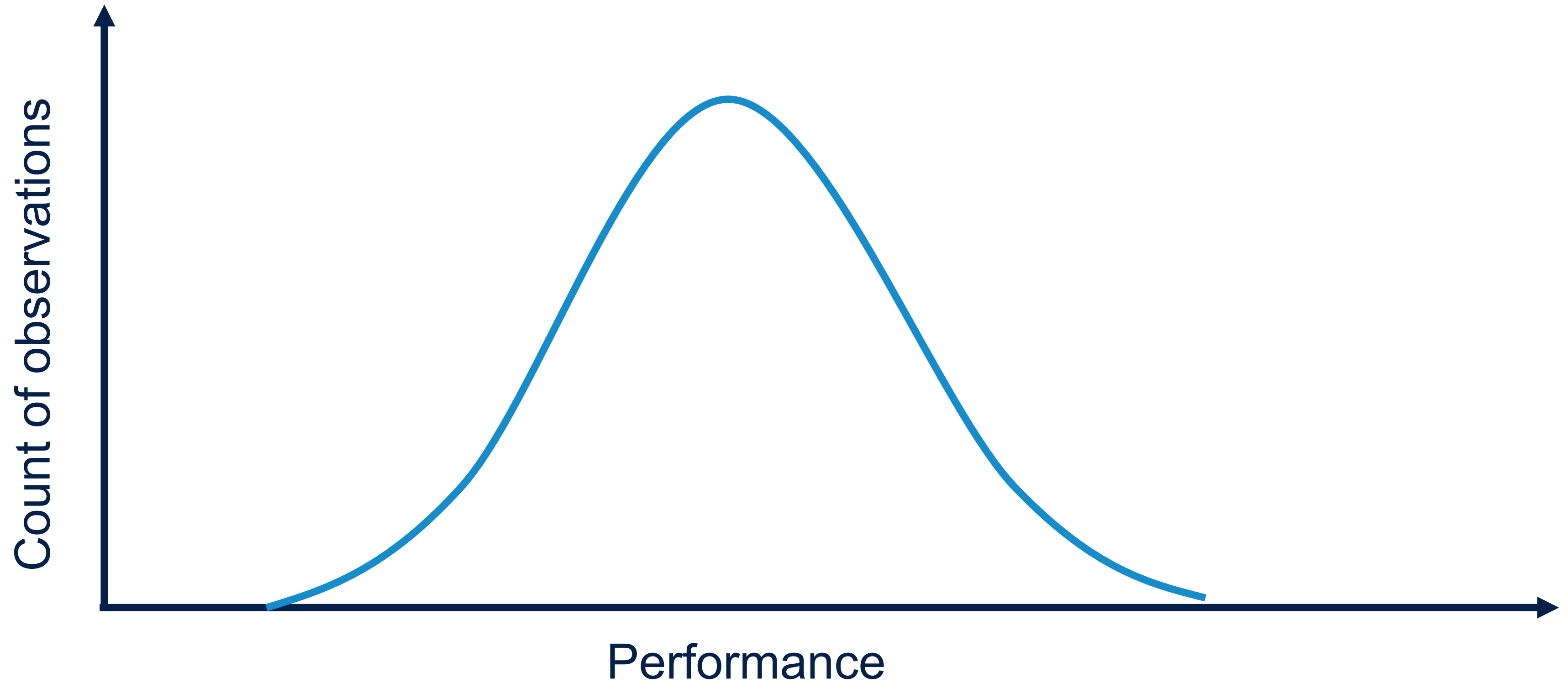
We need to do the **right** things, in the **right** places, at the **right** time.

Closing the “know-do” gap



Source: Project Fives Alive!

Quality assurance vs. quality improvement



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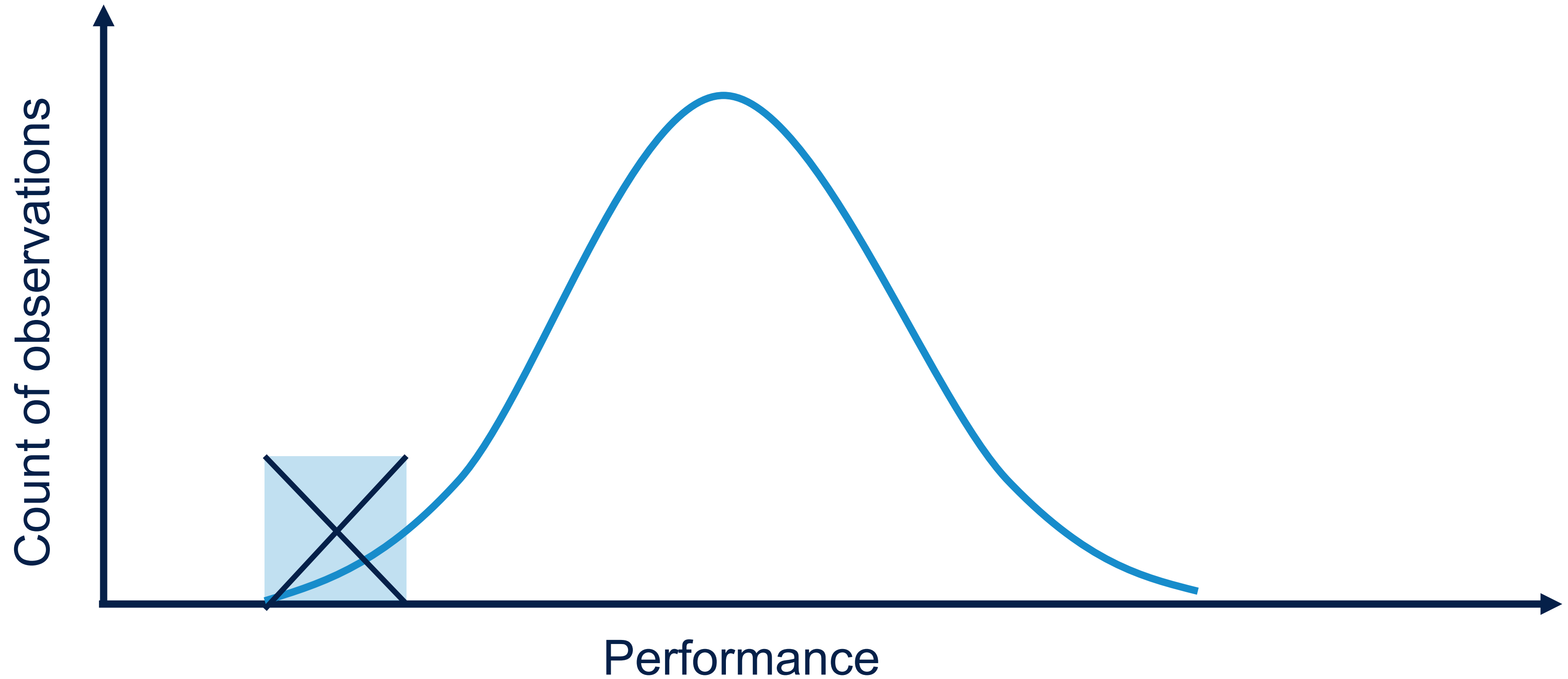
Quality assurance—pruning the “bad apples”



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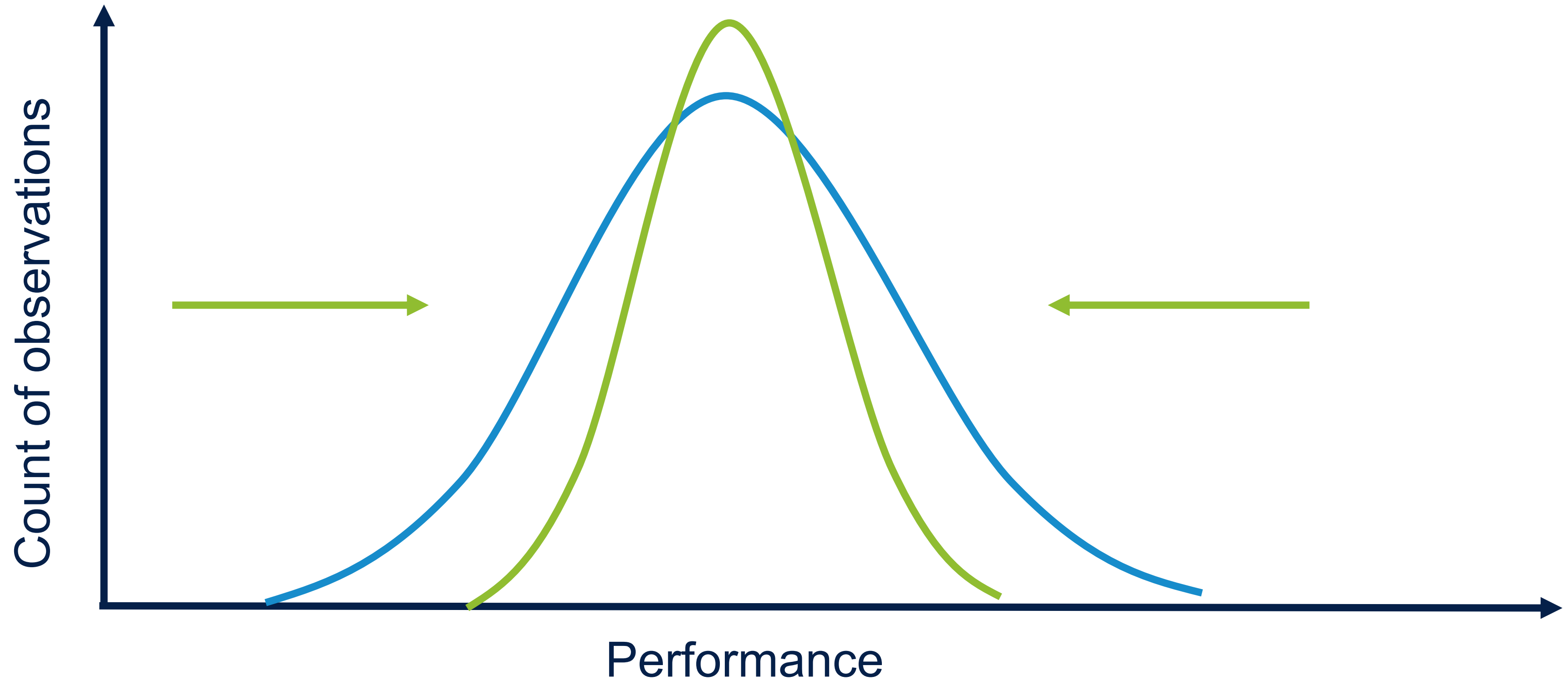
Quality improvement—reducing variation



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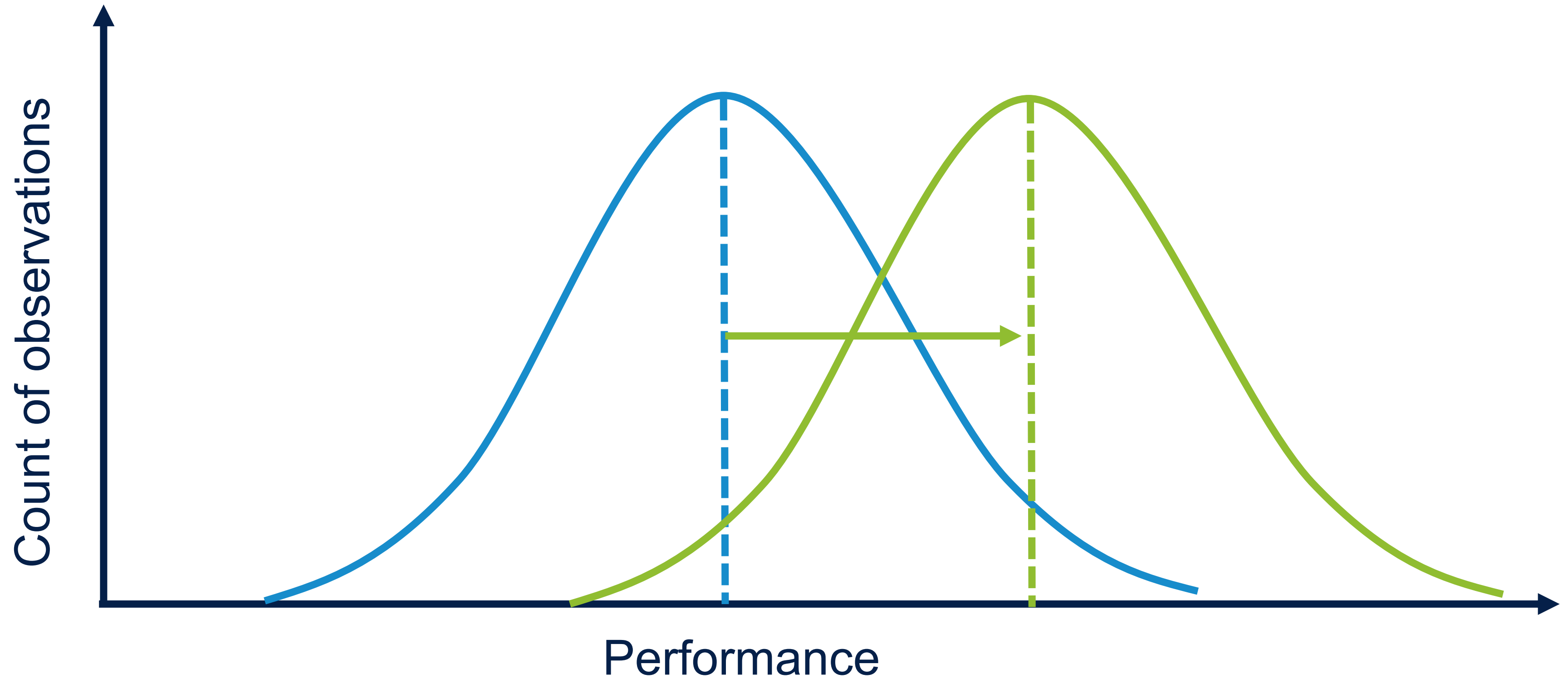
Quality improvement—moving the curve



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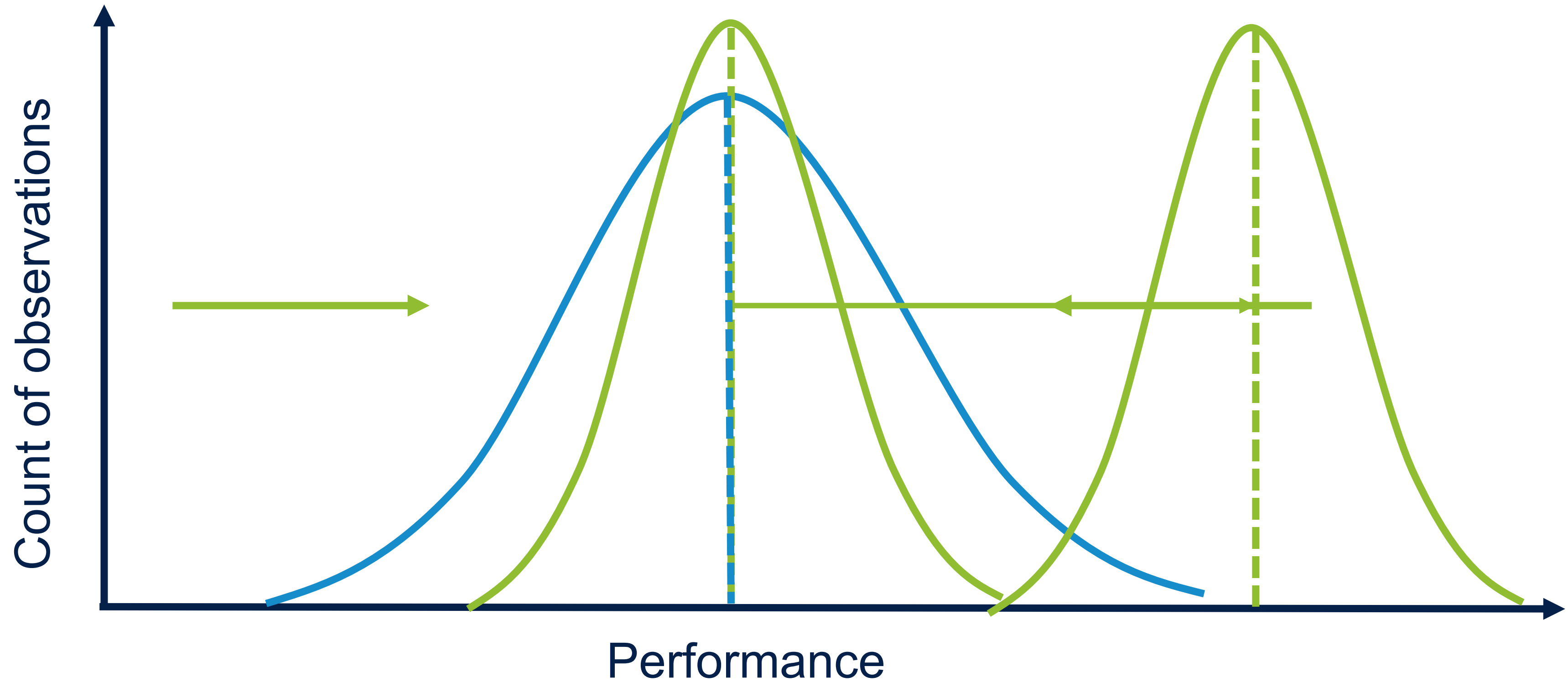
Quality improvement—putting it all together



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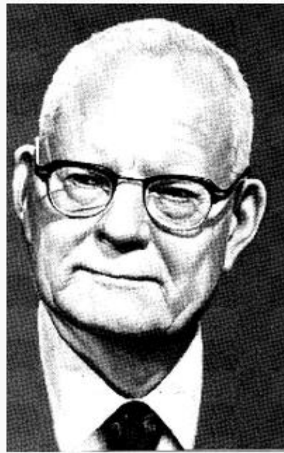
Seminal figures in QI history

Walter Shewhart

Variation & PDSA



W. Edwards Deming

TQM and CQI

Joseph Juran

Juran Trilogy

Masaaki Imai

Kaizen

Avedis Donabedian

Healthcare quality

Contemporary QI Opinion Leaders

Don Berwick
IHI

Paul Batalden
Dartmouth

Brent James
Intermountain Health

Mary Dixon-Woods
Cambridge University

Atul Gawande
Haven

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Quality improvement principles

Fundamental concept of improvement:

"Every system is perfectly designed to achieve exactly the results it achieves."

Principles of improvement:

1. Understanding work in terms of processes and systems
2. Developing solutions by teams of providers and patients
3. Focusing on patient needs
4. Testing and measuring effects of change
5. Peer learning

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QUESTION: In which discipline did QI start?

A. Laboratory science
B. Automobile manufacturing
C. Health care
D. Statistics
E. Communication

Walter Shewhart

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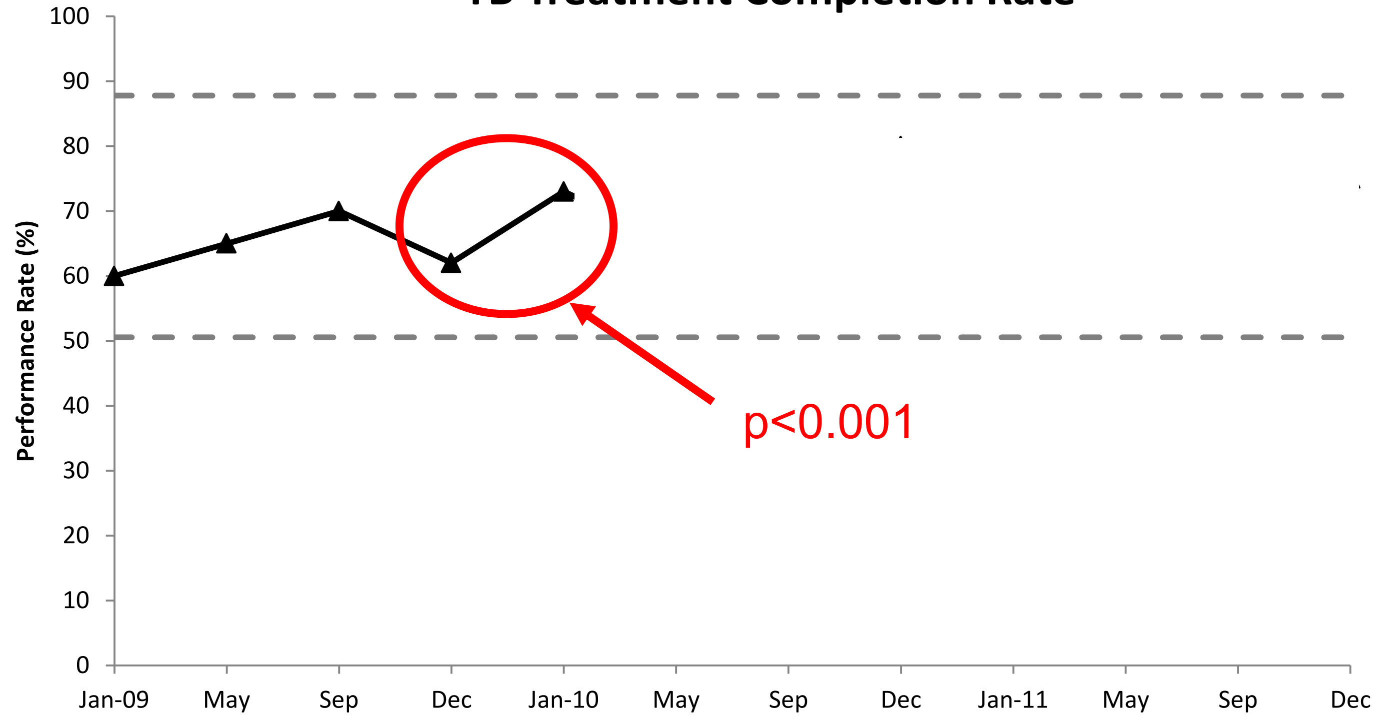

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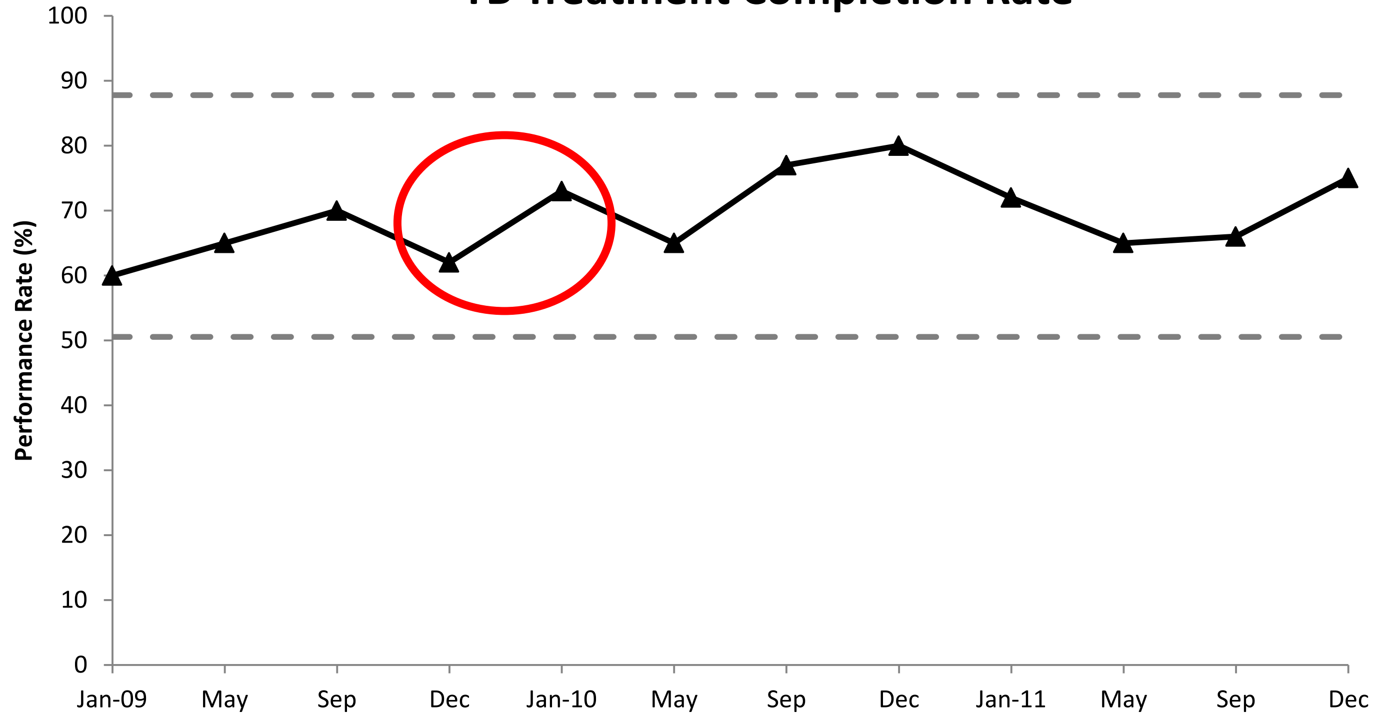

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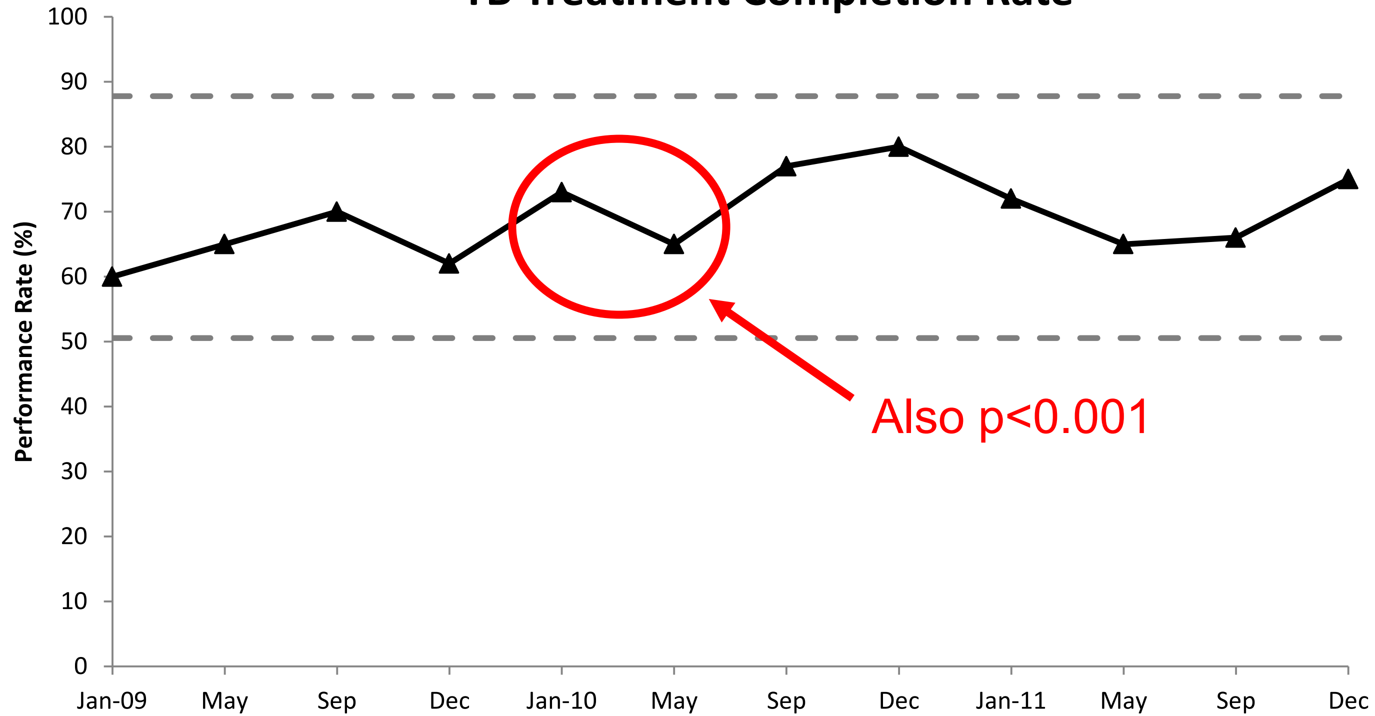

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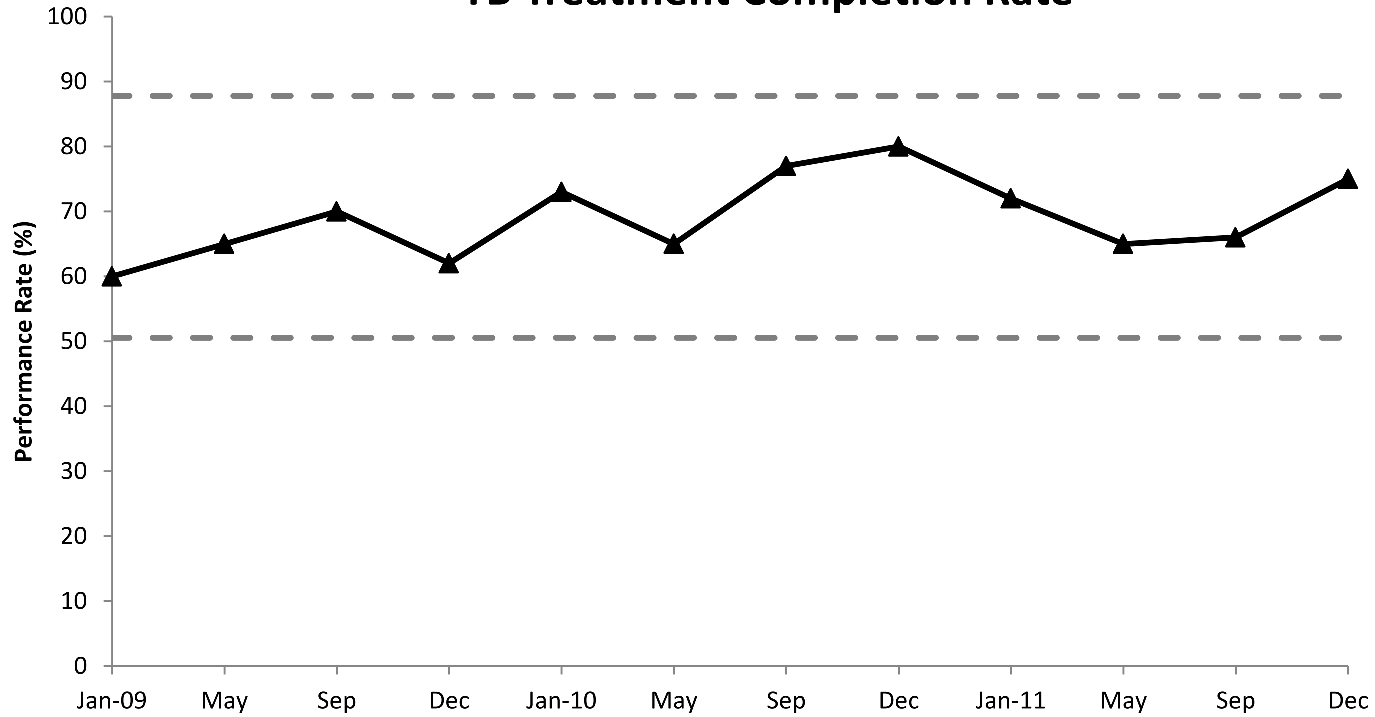

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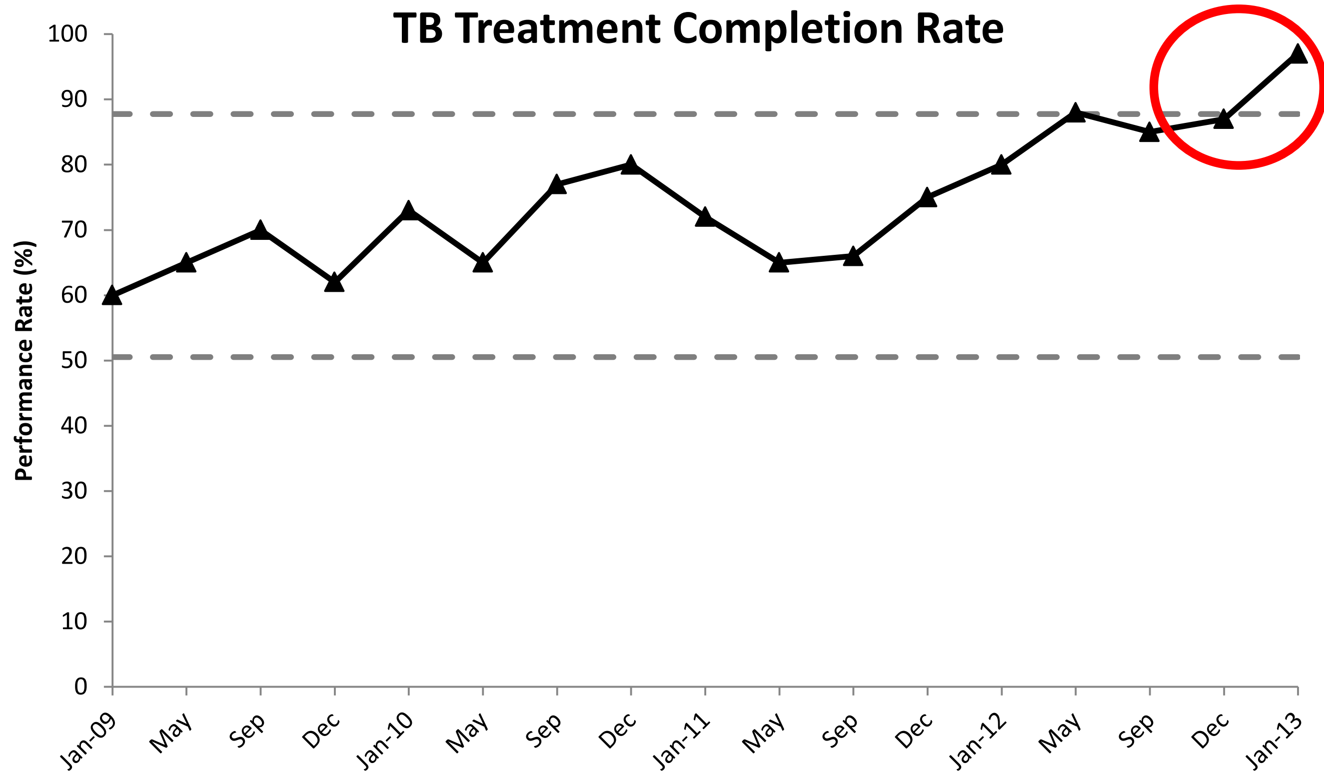

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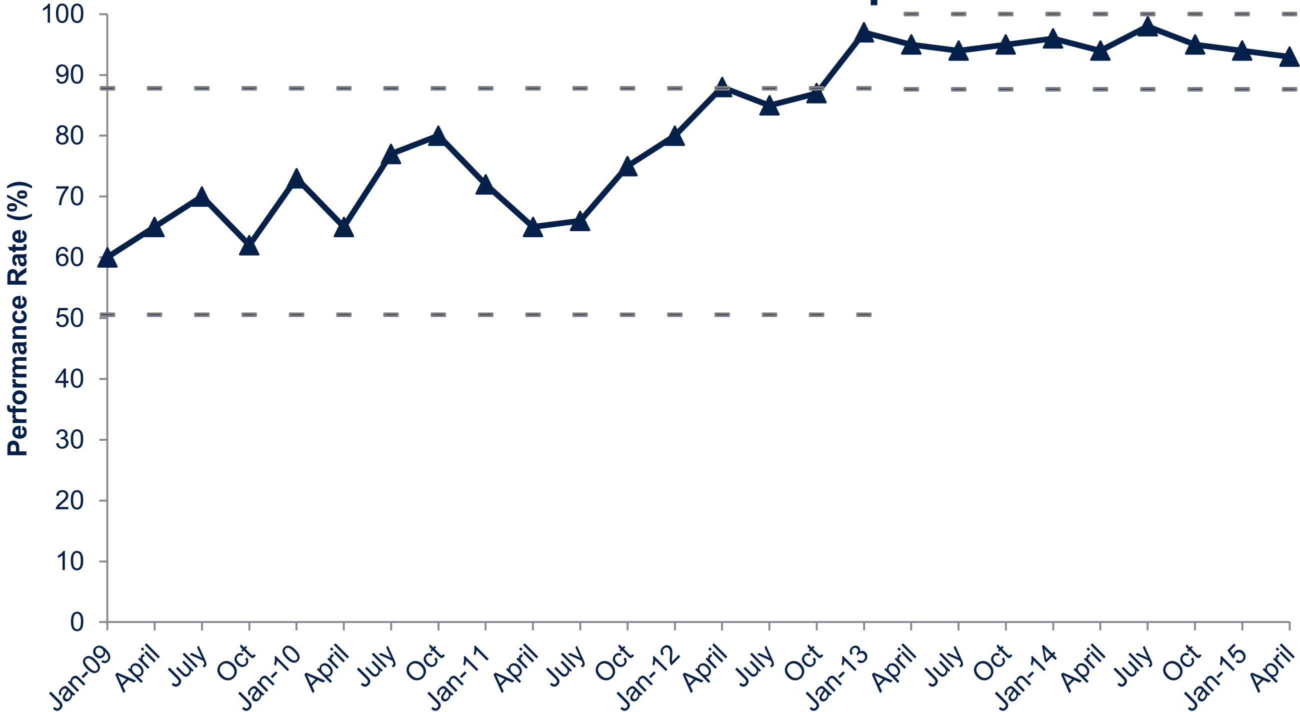

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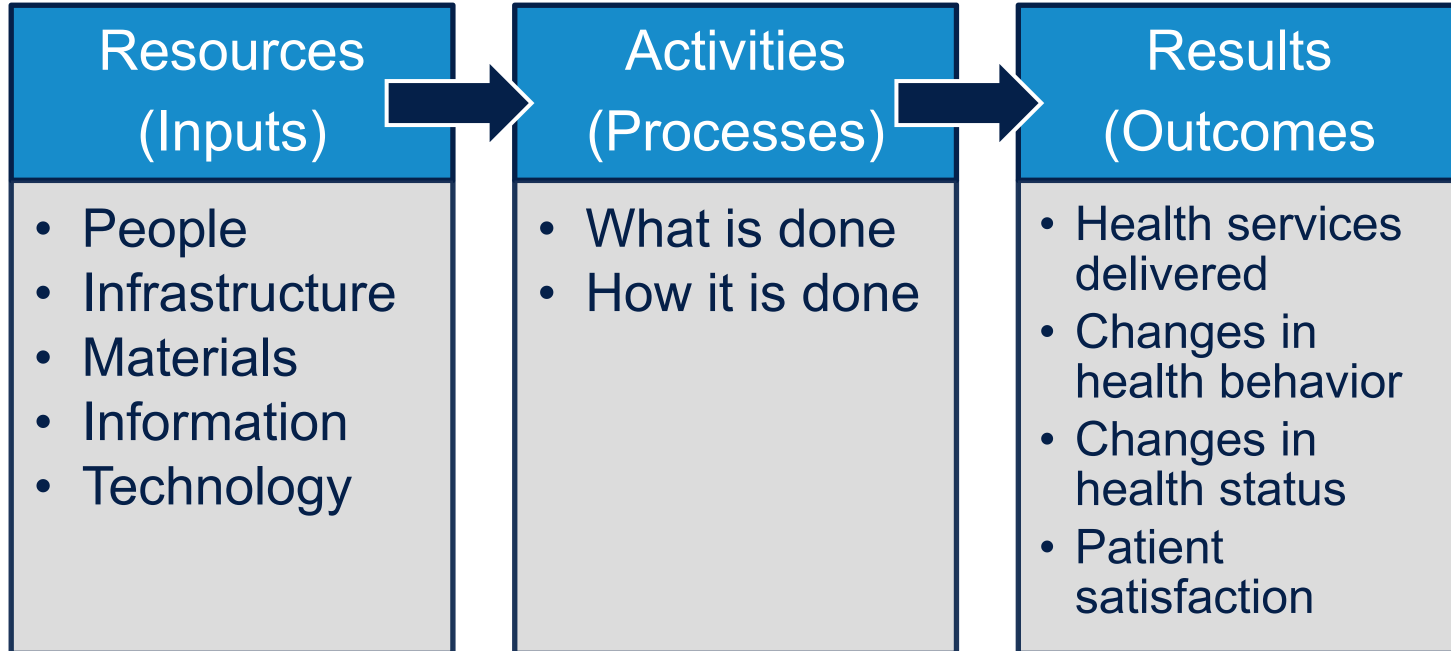
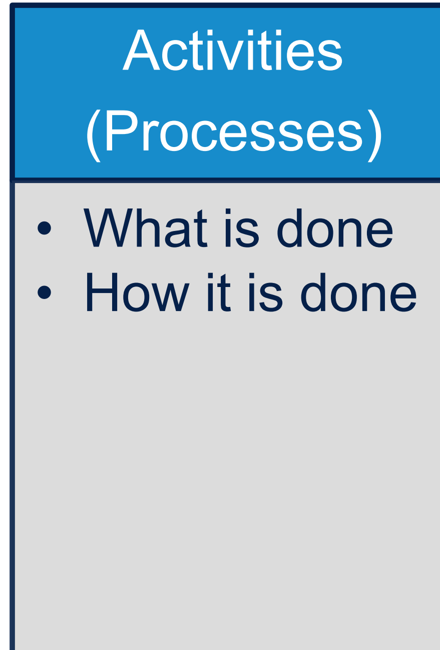
Systems thinking



Source: Donabedian, A. *Explorations in Quality Assessment and Monitoring Vol. 1. The Definition of Quality and Approaches to Its Assessment.* Ann Arbor, MI: Health Administration Press, 1980.

Systems thinking



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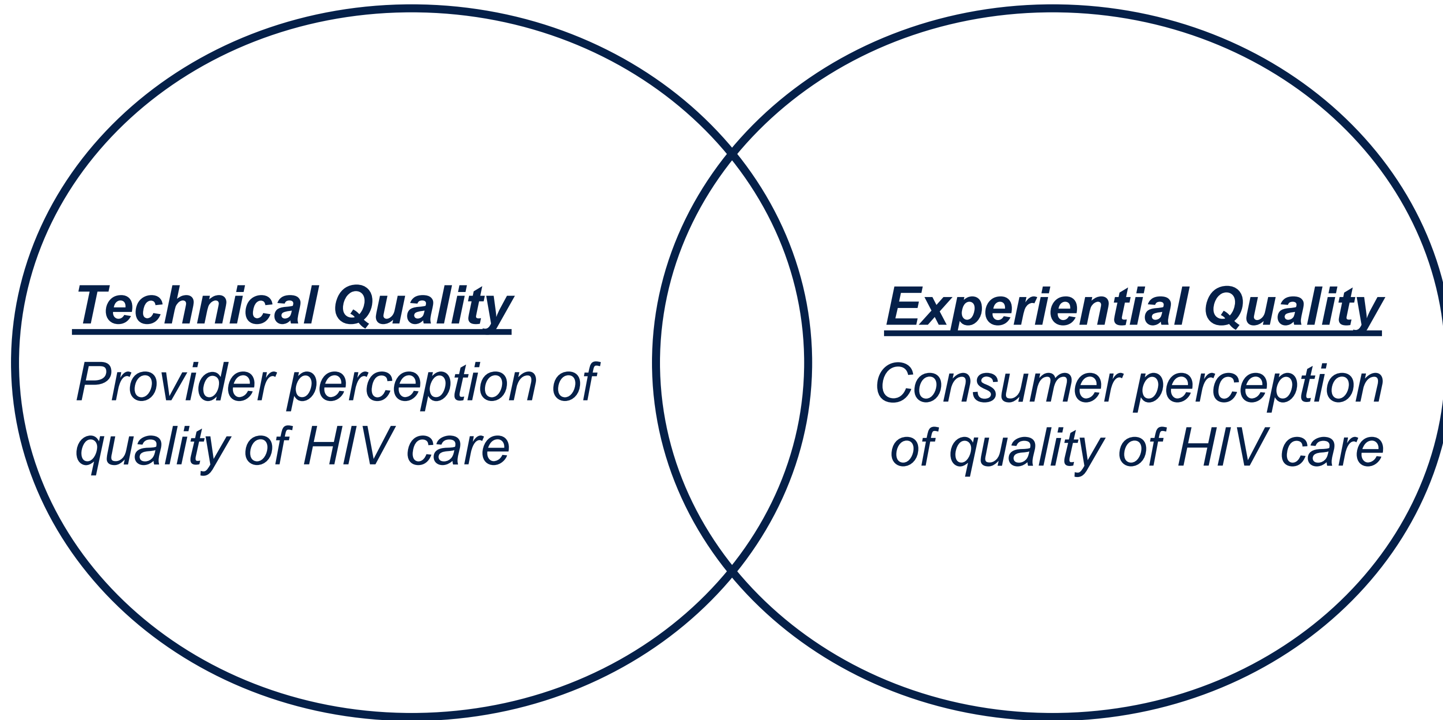
Dimensions of quality



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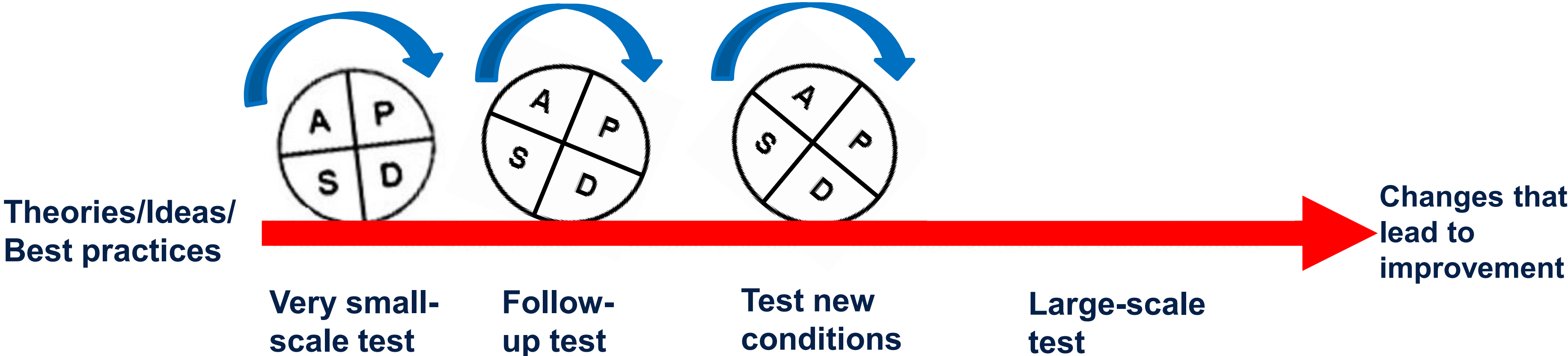
Linking PDSAs to performance measures



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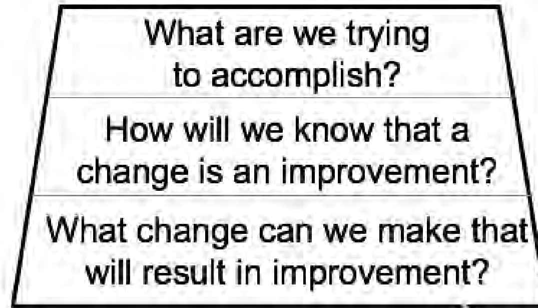
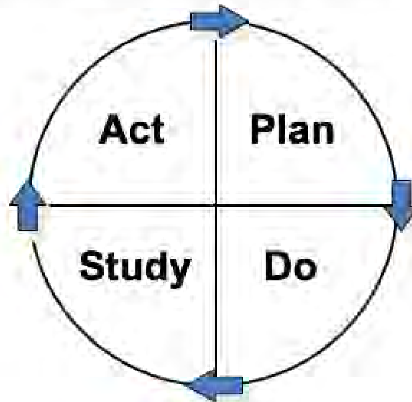
The Model for Improvement (PDSA)





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The Model for Improvement (PDSA)

What are we trying to accomplish?

How will we know that a change is an improvement?

What change can we make that will result in improvement?

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The Model for Improvement (PDSA)

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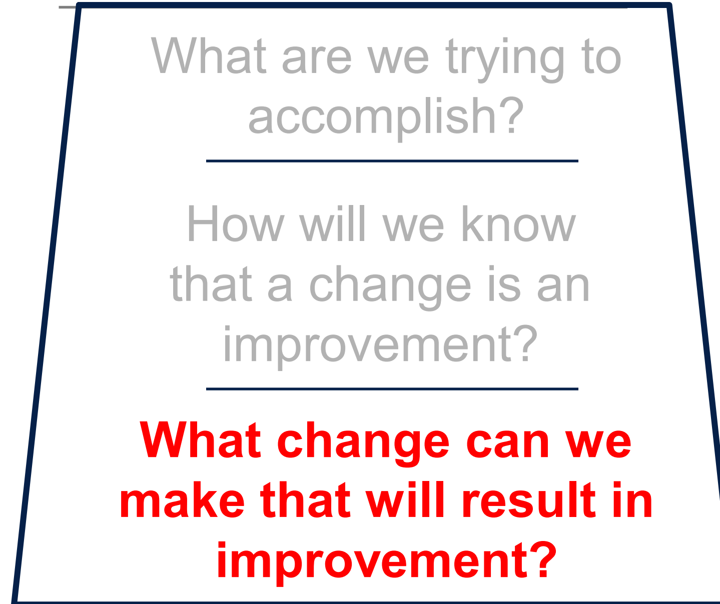

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PROBLEM: What is the problem or gap we've identified in our system?

PDSA

AIM:
What process or outcome are we trying to improve?

ACT

- Do we adopt, adapt, or abandon the change?
- What needs to be modified before the next PDSA cycle?
- What should the next PDSA cycle test?

PLAN

- What change are we testing?
- Who are we testing the change on?
- When are we testing?
- Where are we testing?
- What data do we need to collect?
- Who will collect the data?
- When will the data be collected?
- Where will the data be collected?

STUDY

- Analyze all data, and summarize lessons learned.
- Did the change result in measurable improvement?

DO

- What was done to implement the change?
- Was the change implemented as planned?
- What where the barriers to implementation?
- Was the change acceptable to staff and patients?

MEASUREMENT:
How will we know that a change will result in improvement?

PROBLEM: Incorrect contact information in patient care booklet, leading to difficulties physically or telephonically tracing loss-to-follow-up clients.

PDSA 1

AIM:
We aim to improve loss-to-follow-up rates by updating contact information and tracing LTFU clients

PLAN

What: Update contact information in 70 patient care booklets
Who: 1 community health worker will update client contact information
Where: Clinic registration area
When: One week, March 1-7, 2017

DO

- 1 CHW from Project HOPE was assigned to update contact information
- Barriers to implementation included low rapport between CHW and some clients; poor documentation of updated information; existing workload of CHW

STUDY

- Between March 1-7, 2017, only 3 (4%) of the expected 70 patient care booklets were updated
- Rates of loss to follow-up pending in April

ACT

- The change was *adapted*.
- The next PDSA will enlist 2 additional CHWs to assist in updating client contact information, and outcomes will be re-measured

MEASUREMENT:

- Number of patient care booklets with updated contact information
- Proportion of active caseload that is LTFU

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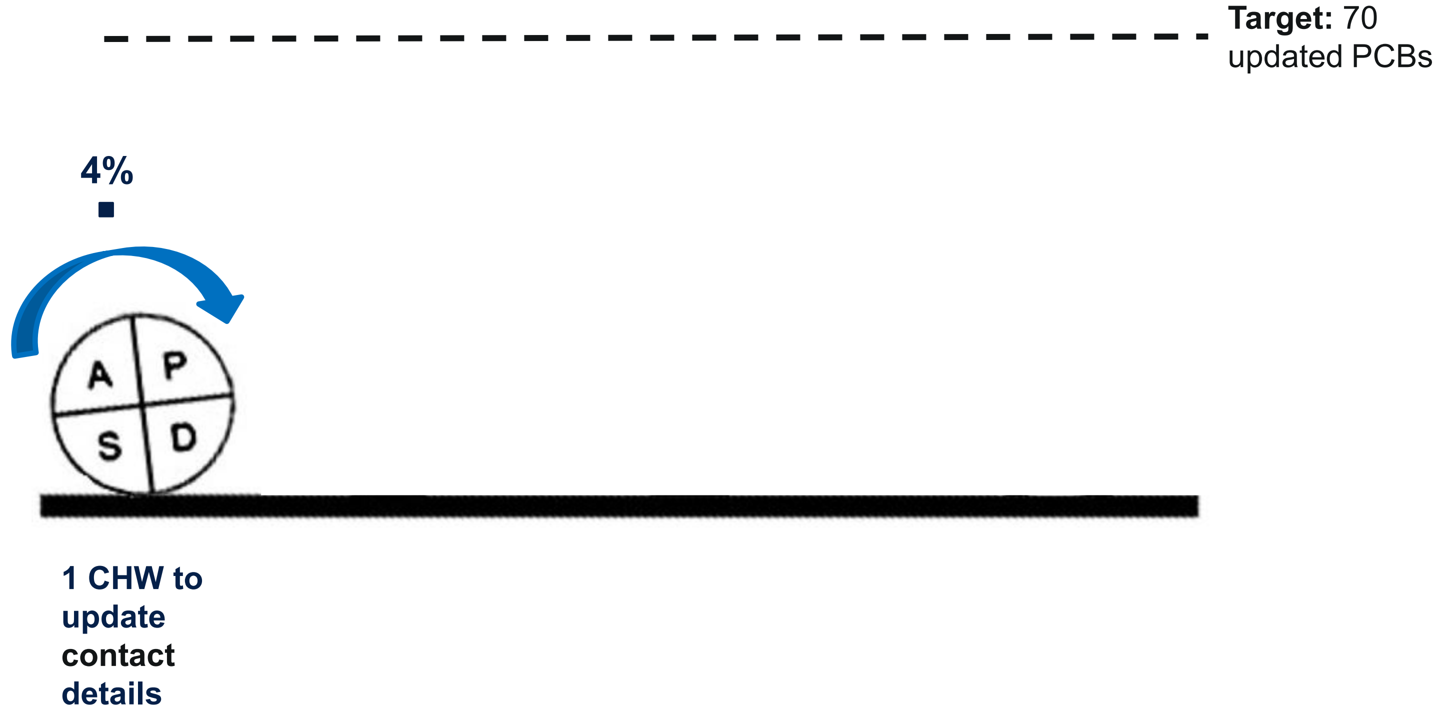
PDSA 1



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PROBLEM: Incorrect contact information in patient care booklet, leading to difficulties physically or telephonically tracing loss-to-follow-up clients.

PDSA 2

AIM:
We aim to improve loss-to-follow-up rates by updating contact information and tracing LTFU clients

PLAN

What: Update contact information in 70 patient care booklets
Who: 3 community health workers will update client contact information
Where: Clinic registration area
When: One week, March 8-14, 2017

DO

- 3 CHWs from Project HOPE and TCE were assigned to update contact information
- Barriers to implementation included low rapport between CHWs and some clients; poor documentation of updated information; some clients providing false information

STUDY

- Between March 8-14, 2017, only 40 (57%) of the expected 70 patient care booklets were updated
- Rates of loss to follow-up pending in April

ACT

- The change was *adapted*.
- The next PDSA will enlist the entire clinic team to assist in updating client contact information, and outcomes will be re-measured

MEASUREMENT:

- Number of patient care booklets with updated contact information
- Proportion of active caseload that is LTFU

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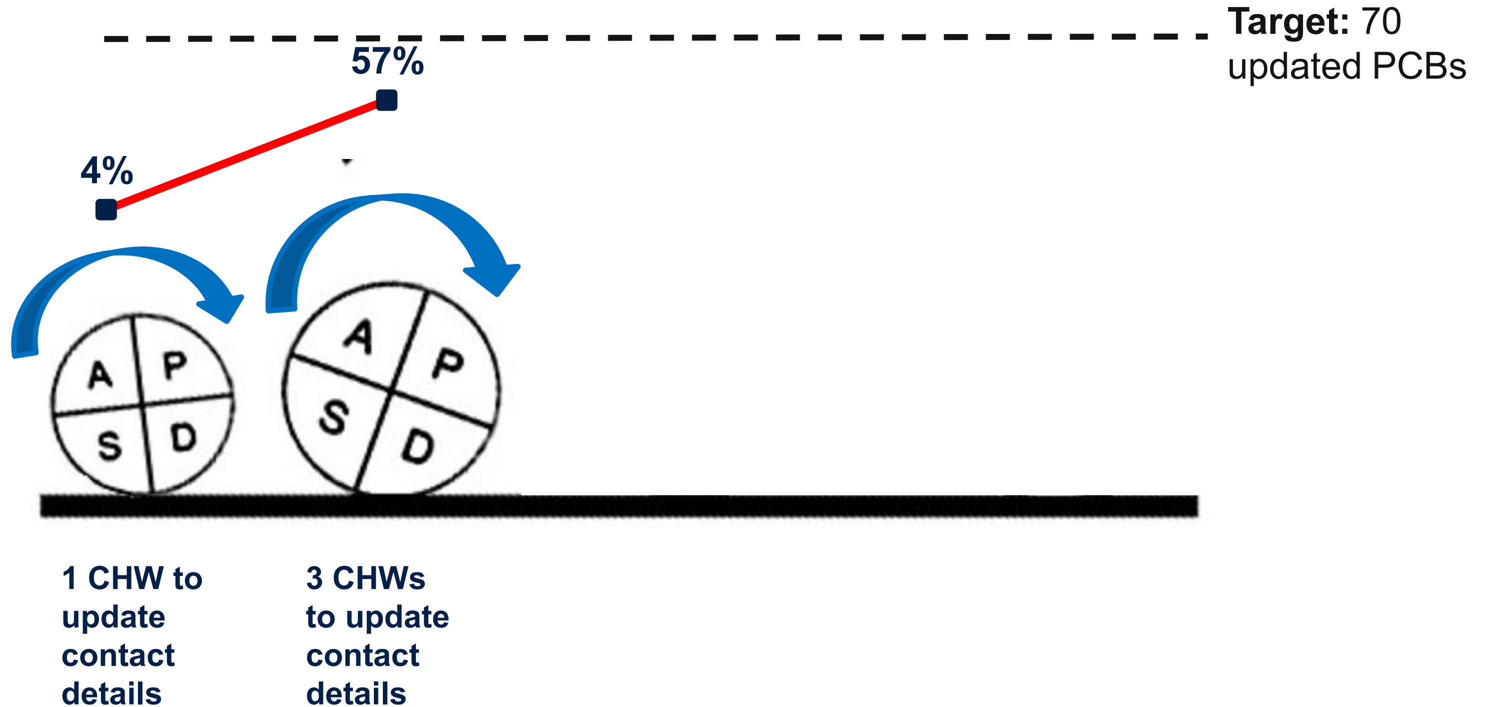
PDSA 2



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PROBLEM: Incorrect contact information in patient care booklet, leading to difficulties physically or telephonically tracing loss-to-follow-up clients.

PDSA 3

AIM:
We aim to improve loss-to-follow-up rates by updating contact information and tracing LTFU clients

ACT

- The change was *adopted*
- The change was implemented and an SOP was drafted for updating of patient contact information

PLAN

What: Update contact information in 70 patient care booklets
Who: Entire clinic team will update client contact information
Where: Clinic registration area
When: One week, March 15-21, 2017

STUDY

- Between March 15-21, 2017, 90 (129%) of the expected 70 patient care booklets were updated
- Rates of loss to follow-up pending in April

DO

- Entire clinic team was assigned to update contact information

MEASUREMENT:

- Number of patient care booklets with updated contact information
- Proportion of active caseload that is LTFU

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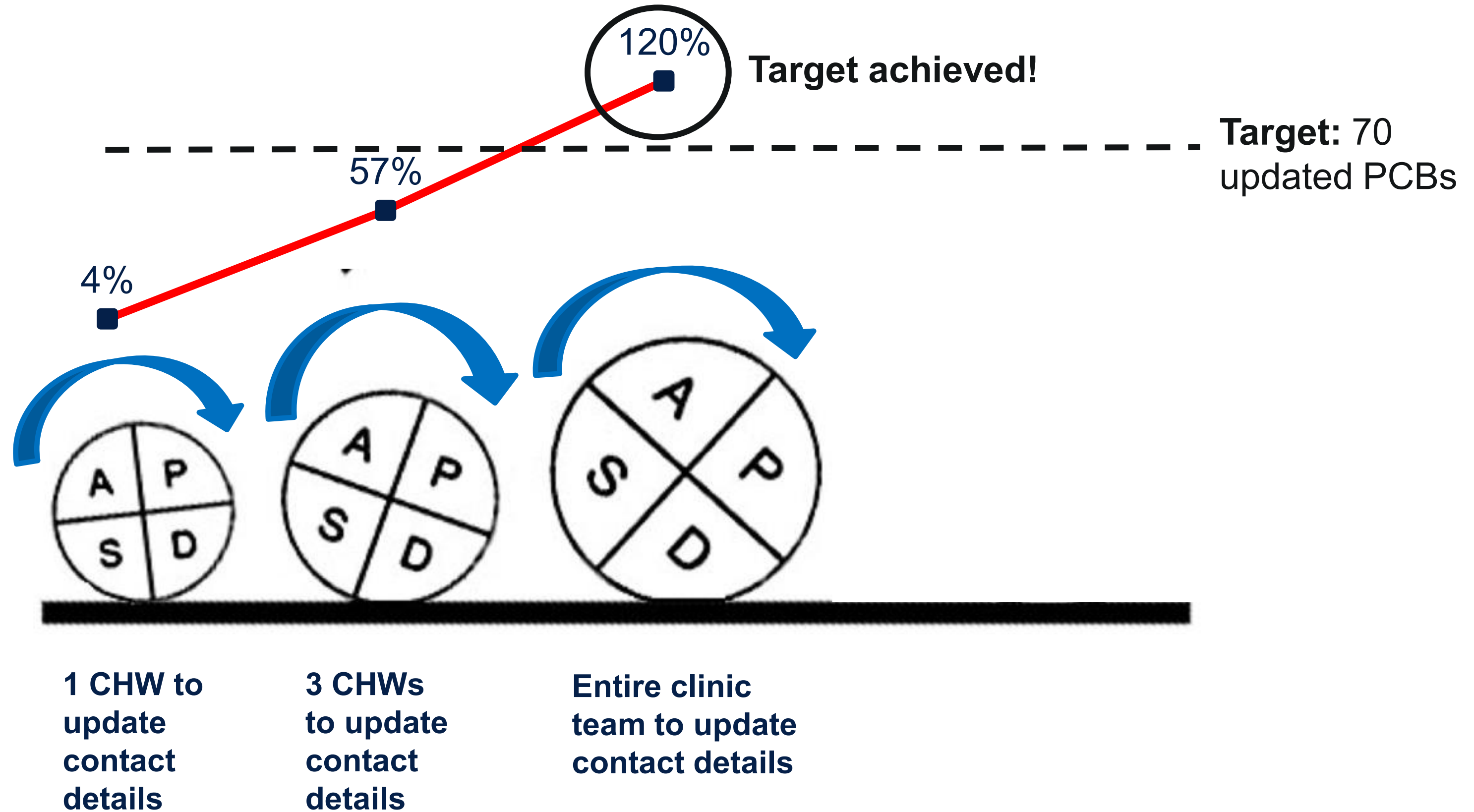
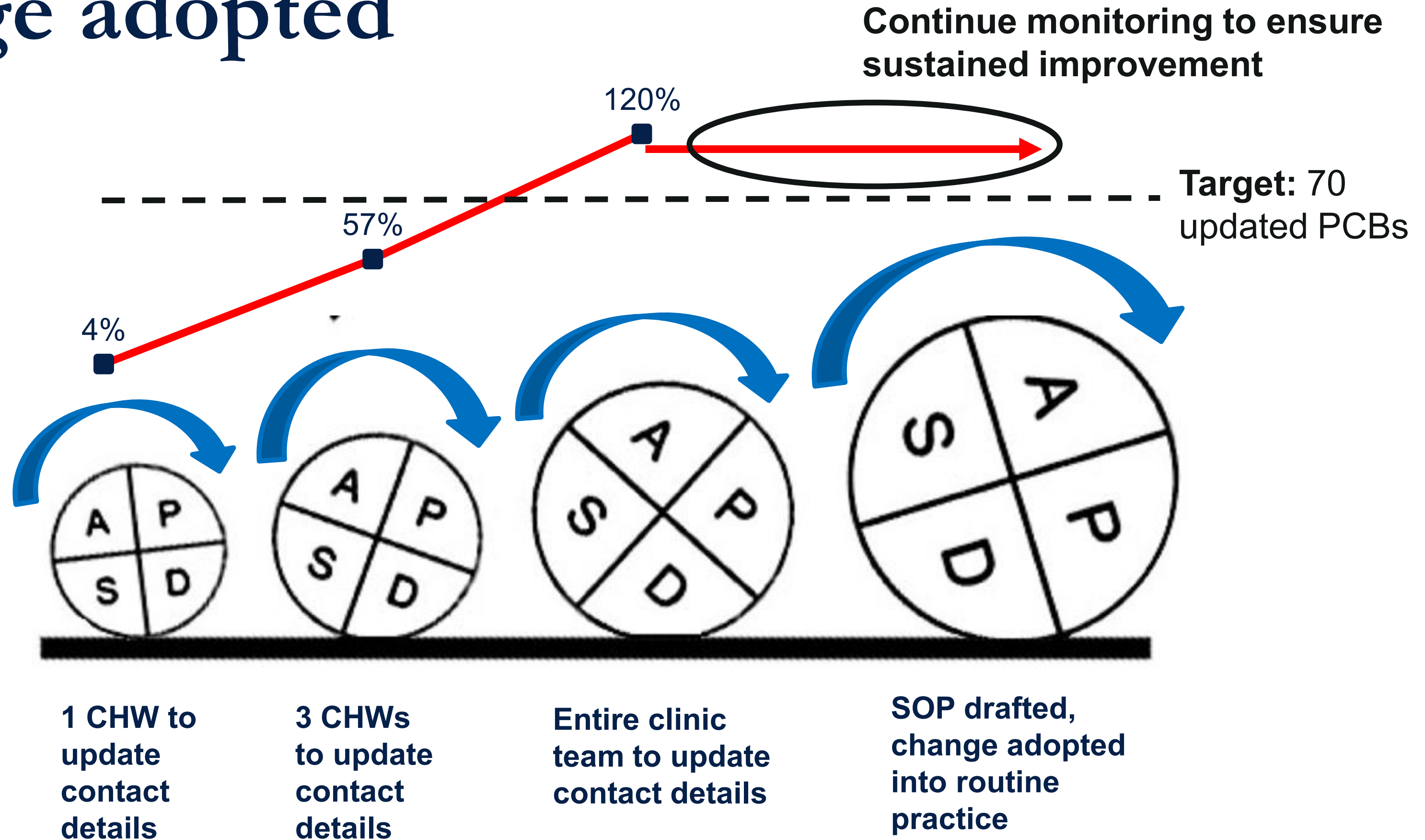
PDSA 3



Change adopted



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Quality improvement in simple terms

- Understanding variation
- Systems thinking
- Voice of the patient: user experience
- Continuous cycles of measurement to assess effect of changes

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Programming for Quality Improvement in HIV/AIDS:

Are lessons from two decades of QI implementation in low- and middle-income countries exportable to National TB Programs?

Bruce D. Agins, MD MPH;
Director, HEALTHQUAL Institute for Global Health Sciences
University of California, San Francisco

Overview

- The problem: bridging the “know-do” gap to achieve HIV epidemic control
- The task: building health system capacity to sustainably assess, assure, and improve quality
- The execution: learning to implement quality management programming in low- and middle-income countries
- The way forward: implementing and sustaining HIV quality management in the era of UHC

The “know-do” gap

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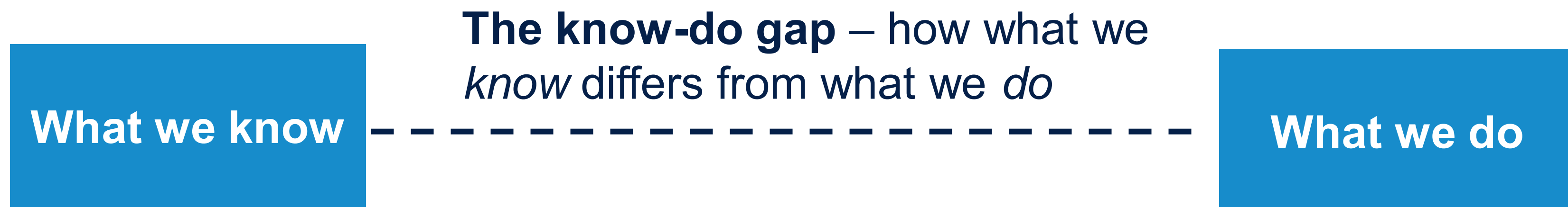

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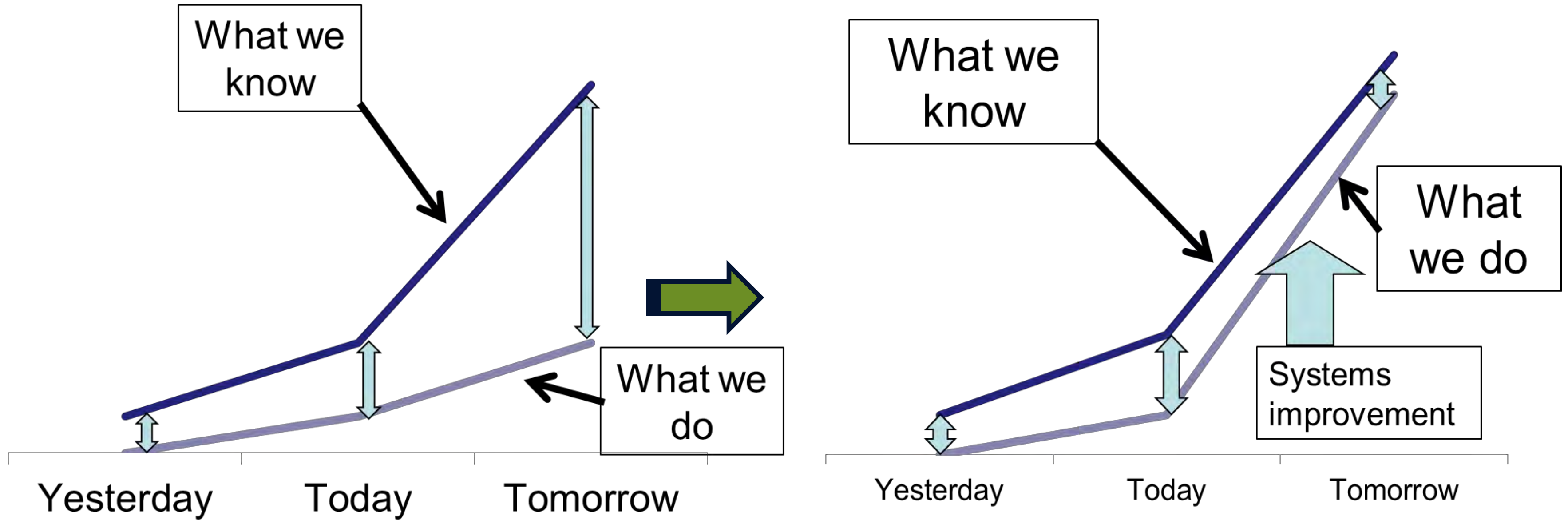
Closing the “know-do” gap



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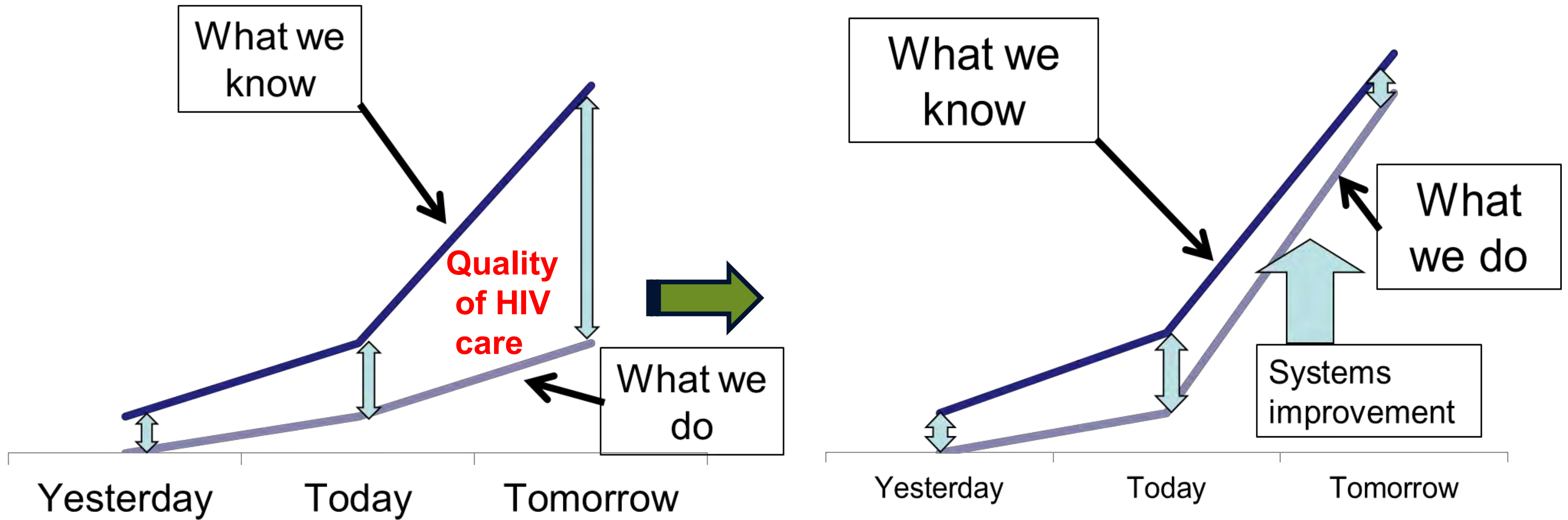
Closing the "know-do" gap



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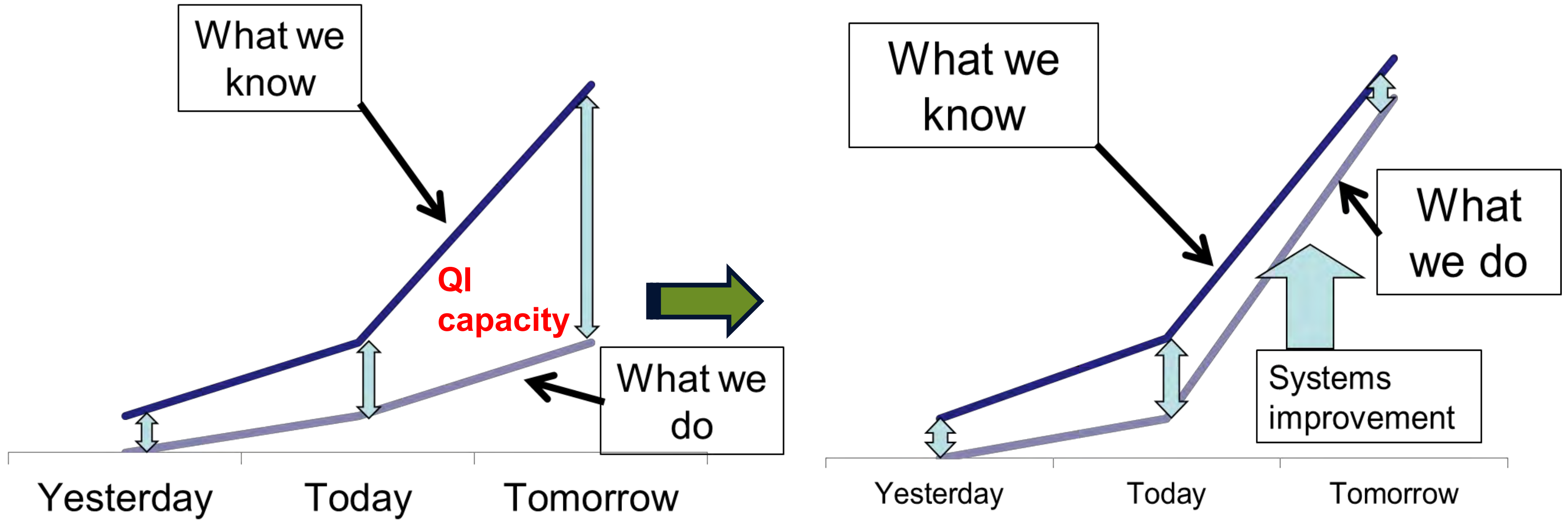

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2018—Three key themes from the year of global quality reports

Theme 1: Poor quality of care imperils global efforts to achieve Sustainable Development Goals.

Theme 2: Health systems need to measure outcomes and what matters most to people.

Theme 3: Assuring—and improving—the quality of care requires system-wide action: a shared vision of quality, a coordinated quality strategy, continuous learning, and a clear structure of accountability.

The problem: closing the "know-do" gap in HIV care to achieve epidemic control

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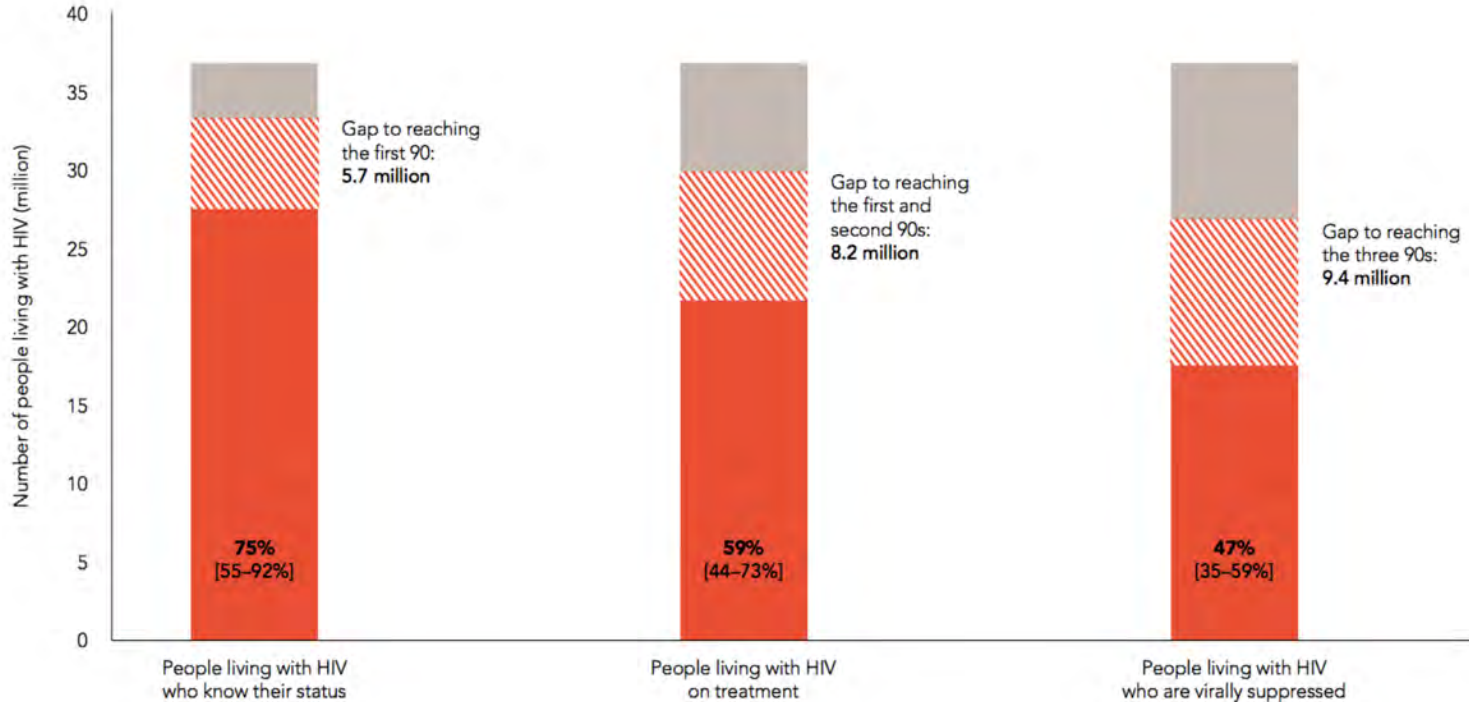
The global HIV response: great strides, lingering gaps



Source: UNAIDS. 2018. *Miles to go: closing gaps, breaking barriers, righting injustices*

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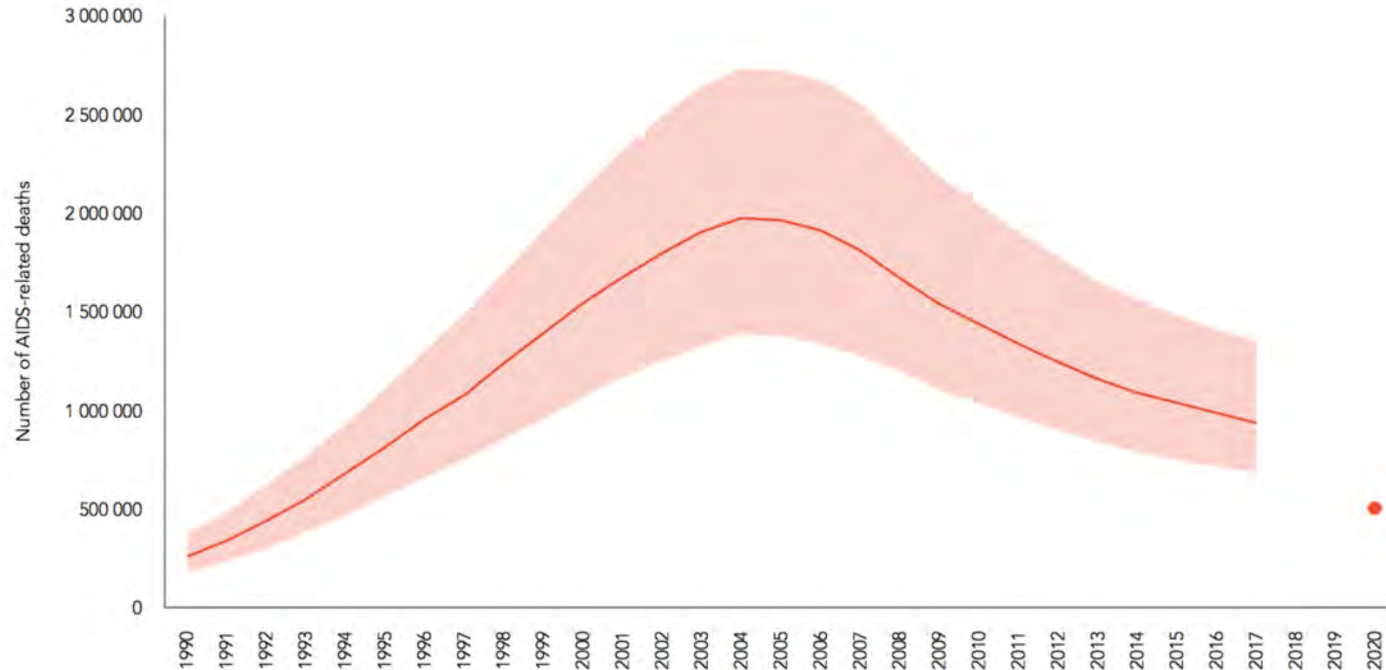

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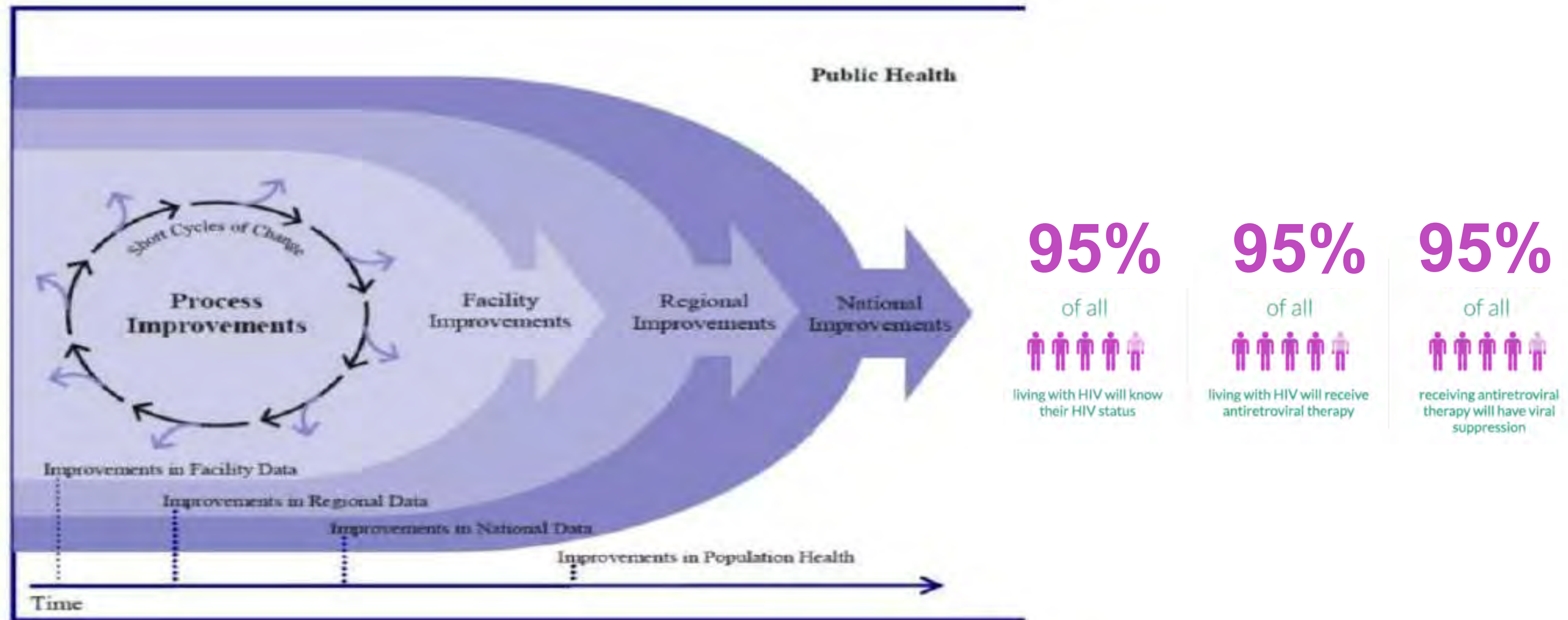
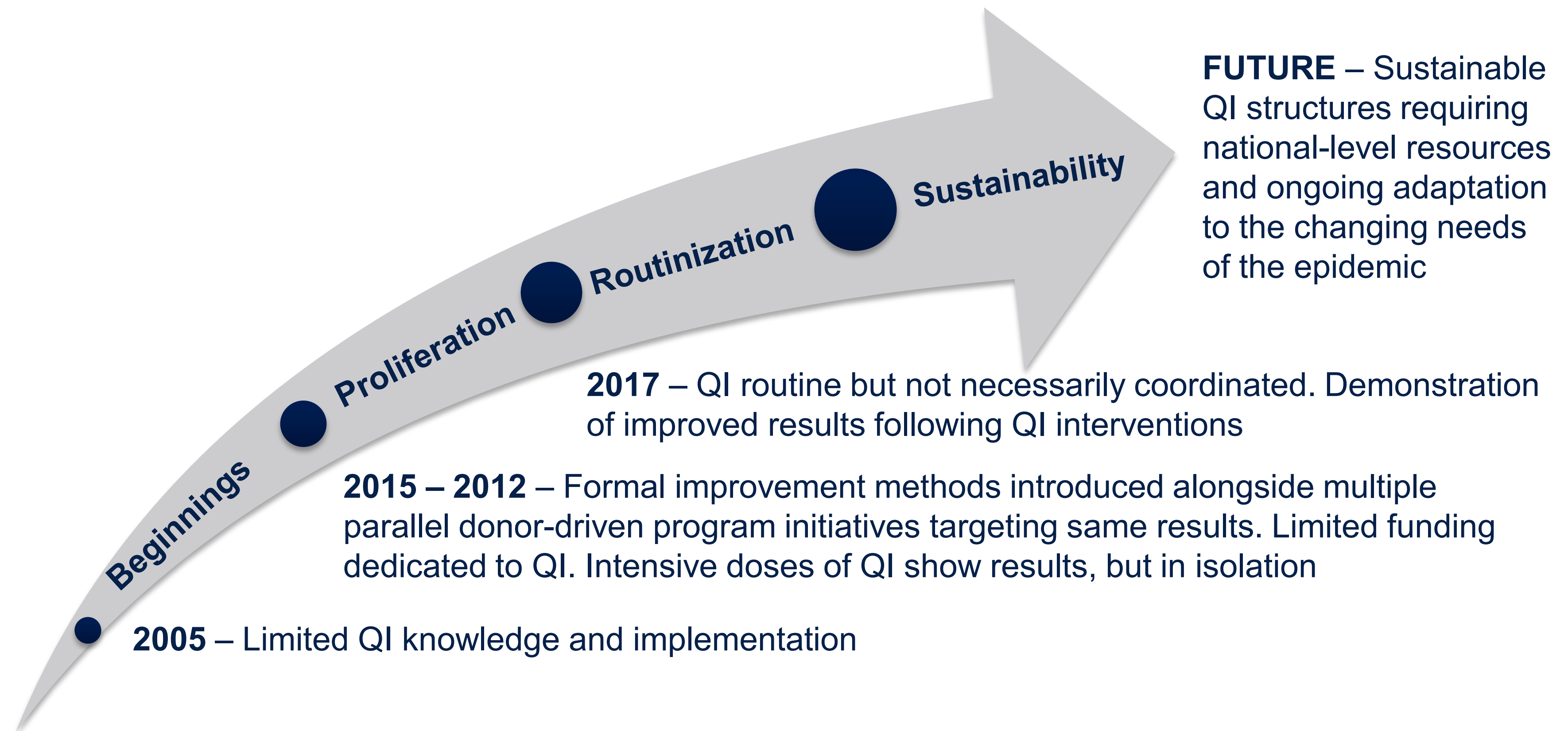
Applying QI to UNAIDS' 95-95-95 targets



The global HIV quality response



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The task: building health system capacity to *sustainably* assess assure, and improve quality

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A framework for system-wide action on quality

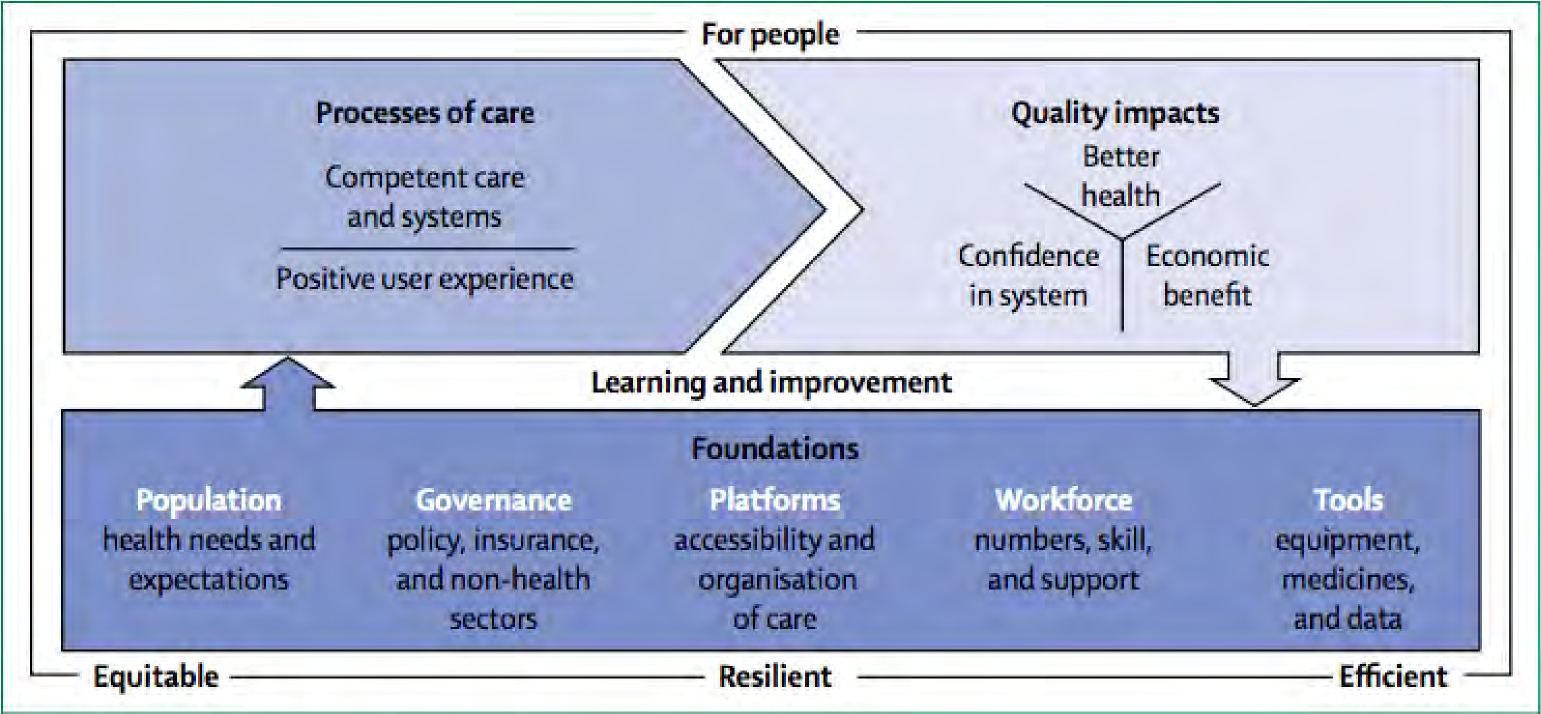

Figure 1: High-quality health system framework

HQSS The Lancet Global Health Commission on High Quality Health Systems in the SDG Era

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Building the foundations of high-quality health systems

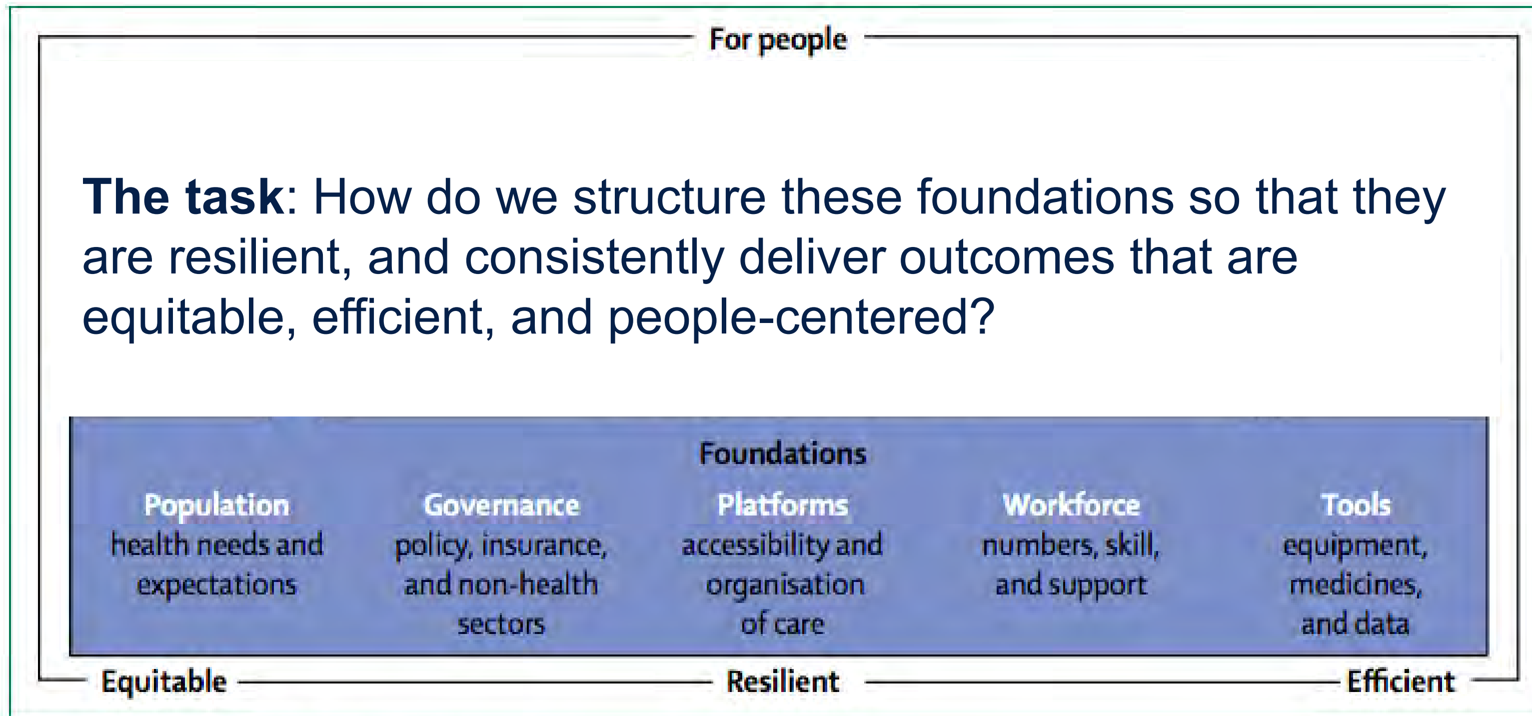

Figure 1: High-quality health system framework

HQSS The Lancet Global Health Commission on High Quality Health Systems in the SDG Era

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Quality management (QM) is a structural umbrella over all processes and activities related to QA and QI. QM is responsible for the coordination and facilitation of these activities in an organization. Specifically, QM is involved in the selection of health care quality personnel, the allocation of other resources, the monitoring and evaluation of plans, and the launching of improvement teams.

—World Health Organization (EMRO). 2004. *Quality improvement in primary health care: a practical guide.*

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Quality management—key program elements

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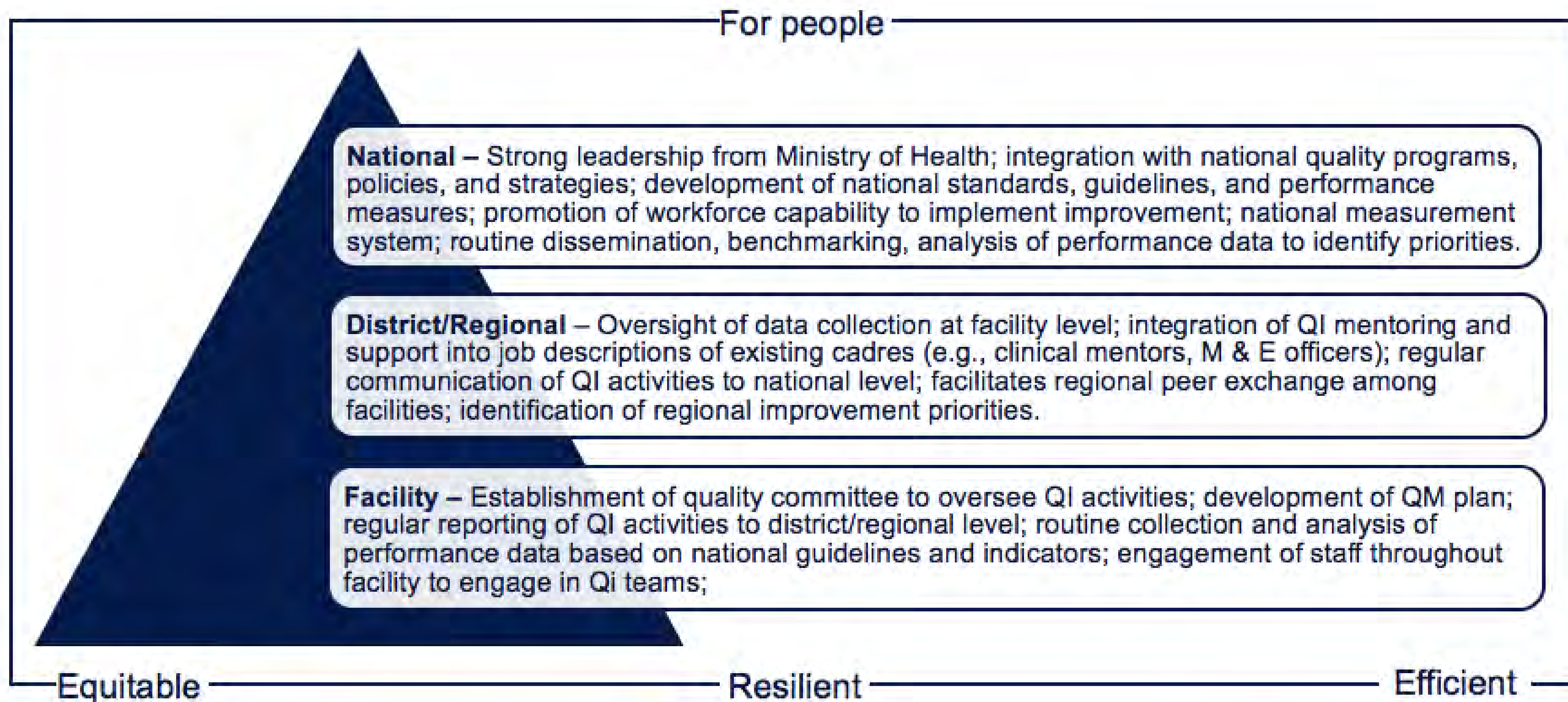
Embedding QM activities at all levels of the health system



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The execution: learning to implement quality management in LMICs

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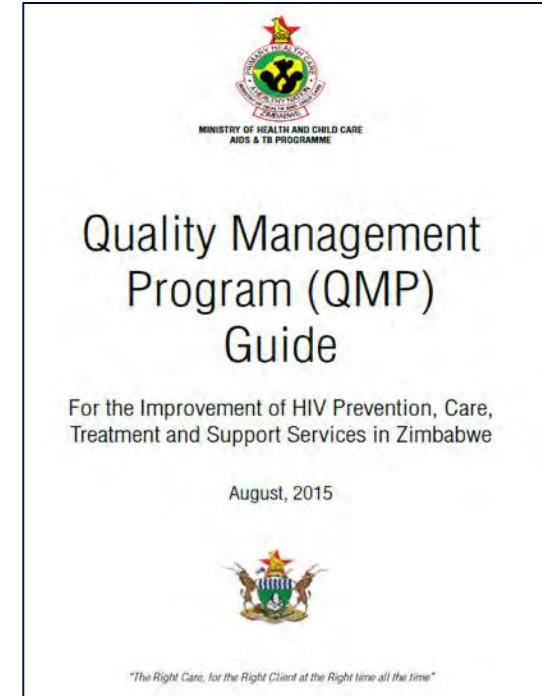
Quality management planning

Zimbabwe: QM planning and coordination

- HIV Quality Management Strategy developed through sector-wide engagement of stakeholders by national program. Accompanying guide and training program established in conjunction with partners, defining expectations for HIV care and treatment programs.
- Donor-supported HIV Quality Management Program is led at national level and implemented through integrated provincial and district systems.



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Organizational infrastructure

Viet Nam: linking facility, district, and provincial cadres

Source: Cosimi et al. *BMC Health Serv Res*. 2015;15:269

- Establishment of national TWG for HIVQUAL (Decision no 68/QĐ-AIDS)
- Provincial level:
  - ✓ 30 quality management steering committees
  - ✓ 30 provincial TWGs
  - ✓ 172 quality groups in hospitals/medical centers
- District HIV clinics are coached by provincial coaching teams, who receive mentorship and training in QI implementation from national program staff

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Performance measurement

Guyana: Benchmarking for improvement

INDICATOR	N	Visit twice in 6 months	CD4 during last 6 months	ARV Medication	Adherence Assessment	Assessed for active TB	CTX prophylaxis	Wt every visit	Height every visit	Head circ every visit	Wt for age plot every visit	Dev milestones every visit	Temp each visit	Pulse each visit	BP each visit
NATIONAL	1447	85%	80%	74%	79%	94%	78%	94%	87%	81%	73%	81%	87%	89%	91%
NCTC	210	96%	87%	82%	94%	100%	88%	100%	33%	0%	0%	0%	92%	92%	96%
MOBILE	44	68%	80%	100%	93%	98%	88%	NA					98%	95%	100%
CHEST	56	84%	66%	56%	18%	NA	88%	NA					27%	55%	59%
ENMORE	16	69%	33%	100%	100%	100%	100%	NA					100%	100%	100%
WUDH	92	95%	79%	88%	48%	83%	89%	50%	0%	0%	50%	0%	67%	71%	70%
BARTICA	43	74%	77%	71%	58%	10%	63%	NA					79%	81%	79%
WDRH	119	82%	81%	65%	91%	100%	59%	94%	61%	7%	0%	94%	96%	96%	97%
DAVIS	142	82%	91%	84%	65%	100%	86%	81%	65%	56%	0%	0%	77%	88%	91%
SKELDON	71	87%	85%	43%	89%	99%	63%	33%	33%	0%	0%	0%	96%	96%	95%
SUDDIE	86	84%	88%	88%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%
ROSIGNOL	32	94%	74%	71%	90%	100%	86%	50%	0%	0%	0%	100%	81%	90%	100%
NAFHC	127	91%	79%	66%	100%	100%	64%	100%	100%	70%	90%	90%	100%	100%	98%
DOROTH BAILEY	256	78%	77%	67%	82%	95%	75%	97%	97%	96%	97%	97%	83%	79%	91%
CAMBELLVILLE	104	85%	71%	78%	100%	100%	31%	100%	100%	0%	100%	100%	97%	97%	98%
BETERVERWAGTING	49	86%	73%	82%	71%	95%	83%	100%	50%	0%	0%	0%	94%	94%	96%

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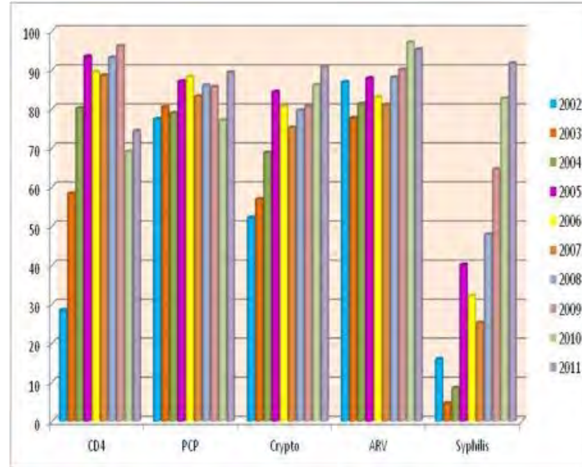
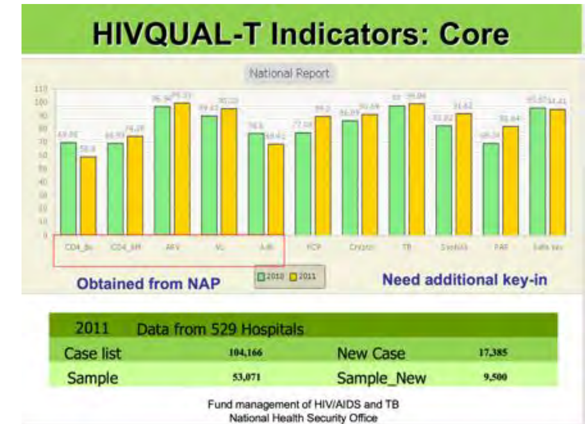
Performance measurement

Thailand: HIVQUAL-T data, 2002-2011

Yr	No. Hospital	Caselist	Sample
2006	233	48,879	10,916
2007	651	93,639	35,448
2008	658	118,775	41,673
2009	701	138,844	48,624
2010	656	117,640	42,574
2011	529	104,166	53,071





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Performance measurement

Bi-directional data feedback

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Performance measurement

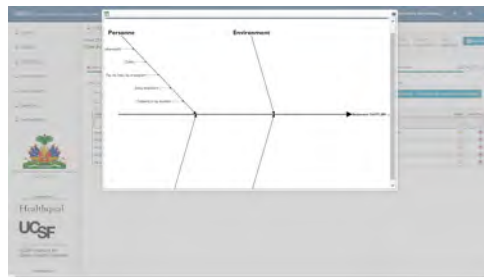
Haiti: enabling data-driven improvement

- ***Système Intégré de Gestion d'Healthqual d'Haiti*** (SIGHH) offers a centralized platform to monitor HIV quality initiatives across multiple domains—QM program infrastructure, QI projects, QI coaching, CHW service data, and performance measurement. '
- Integration of data systems (SIGHH, M & E) enables national program to target low-performing sites for focused technical assistance and mentoring, and link facility performance to population health data.

Performance measurement

QM program

QI projects



QI coaching

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Knowledge management

Haiti: fostering continuous learning

- National forums are convened on an annual basis to share successful interventions, recognize top performers, refresh QI knowledge, and troubleshoot implementation challenges.

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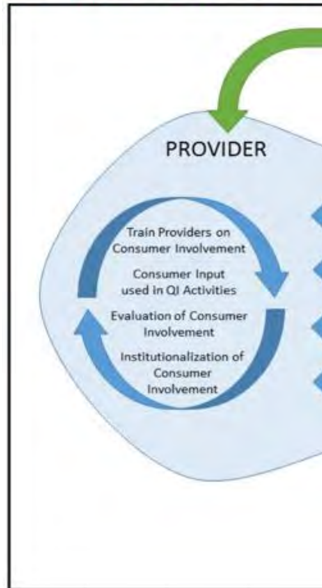
Patient and community involvement

New York, USA: involving consumers in policy



NYS HIV Quality Management Program Community Input Structure

AIDS Institute HIV Quality Management Program
Creation, implementation of QI indicators

- **Clinical Advisory Committee (QAC)**
  Input on statewide performance measures, clinical priorities, QI projects
- **Adult Consumer Advisory Committee (CAC)**
  Input on performance measurement, QI projects, and consumer healthcare education
- **Young Adult Consumer Advisory Committee (YACAC)**
  Input on quality health care and prevention services provided to young adults

)R FACILITY QM

involve consumers in QM
r meetings, patient surveys,
ining/skills building on QI/QM

discussing quality during

activities is *documented*,
and establish priorities for

e of successes and
he QM program activities
tion between patients and
ent.

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Patient and community involvement

Valuing the patients' journey

PopART Office
Toilets
Store Rooms
Laboratory
Screening Room
Pharmacy
Toilets
Waiting Area
PMTCT Data Room
'Outside in the Clinic'
Car Park
Toilets
Guard Room
Registry Rooms
Adherence room
Waiting Area
Consultation Rooms
Pharmacy
Data Room
Registry Room
Toilets
ART Department

Source: Bond V, et al. 2019. "'Being seen' at the clinic…" *Health Place.*

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Patient and community involvement

Valuing the patients' journey

HIV PATIENT TREATMENT EXPERIENCE* | BIG PICTURE THINKER

*This journey map is based on the experiences of people living with HIV infection in Shinyanga, Tanzania.

PHASES: Suspicion; Diagnosis; Initial Disclosures; Early Awareness; 1st ART Decision; Early ART Experience; 2nd ART Decision; Learning and Coping; Long Term Behavior

EMOTIONS: Anxiety; Doubt; Fear; Fear; Concern about children and family; Trust in healthcare providers; Worries about what neighbors will think; Anxiety; Self doubt; Acceptance; Worries about side effects and stigma; Anxiety; Fully committed to treatment plan; Short term side effects; Fear of others recog. side effects; Relief at symptoms subsiding and ability to work; Motivation to support family; Belief in value of ART and ability to cope; Acceptance that ART is a normal part of life

Key times to intervene

ACTIONS: Feels ill, visits traditional healer, then clinic; Consults family; Consults health staff; Accepts diagnosis; Tells 2-3 close family members; Tries to attend all adherence counseling sessions; Can't find escort, repeats sessions; Consults other patients; Sets goal with health staff to take ART; Seeks support from partner for side effects; Sometimes takes pills late but largely adheres; Tells extended family; Keeps taking ART; Consults health staff for side effects; Asks family to remind to take ART; Devises way to discreetly carry pills when traveling; Good adherence to ART and ongoing clinic visits; Motivates close friends/ family to get tested

Source: Rao A, McCoy S. 2015. "Fostering behavior change for better health." *Stanford Social Innovation Review*

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Patient and community involvement

Lao PDR: translating patient feedback into improvement

- Patient feedback is collected through comment boxes
- Summary analysis is shared with clinic staff for translation into priorities for quality improvement
- Specific complaints are handled by leadership
- Information is shared with national quality program and satisfies requirements for health care facilities as part of the "5 Goods 1 Satisfaction" framework

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Namibia: building capacity for QI across all levels

REPUBLIC OF NAMIBIA

Ministry of Health and Social Services

Quality Management capacity Building Framework

Contents

1 FRAMEWORK FOR COORDINATION AND SUPPORT OF CAPACITY BUILDING INITIATIVES ON QUALITY MANAGEMENT ....

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1.2.1 Generic QM training: ....

1.2.2 Training of Trainers for QM ....

1.2.3 QM coaches training ....

1.2.4 Consumer/Patient involvement training ....

1.3 CERTIFICATION AS A TRAINER ....

1.3.1 Generic QM training: ....

1.3.2 Training of Trainers for QM ....

1.4 CERTIFICATION AS A QUALITY MANAGEMENT COACH ....

1.5 COACHING AND MENTORING IN QM ....

1.6 PEER-LEARNING (SHARED-LEARNING) ....

1.6.1 Example of Peer learning network in MoHSS Namibia ....

1.7 MONITORING AND EVALUATION ....

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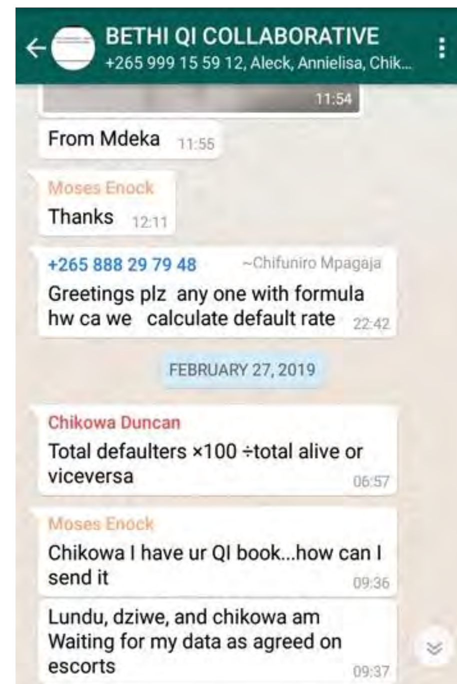
Supporting improvement

Malawi: supporting improvement through WhatsApp

- A WhatsApp group was created as part of a large-scale improvement initiative in Blantyre. Key objectives of the group included:
  - ✓ Provision of remote quality improvement coaching and oversight
  - ✓ Scheduling of initiative events and coaching visits
  - ✓ Facilitation of peer learning and exchange related to QI and the HIV treatment cascade
  - ✓ Routine submission of performance measurement data
  - ✓ Development of peer-driven accountability and encouragement



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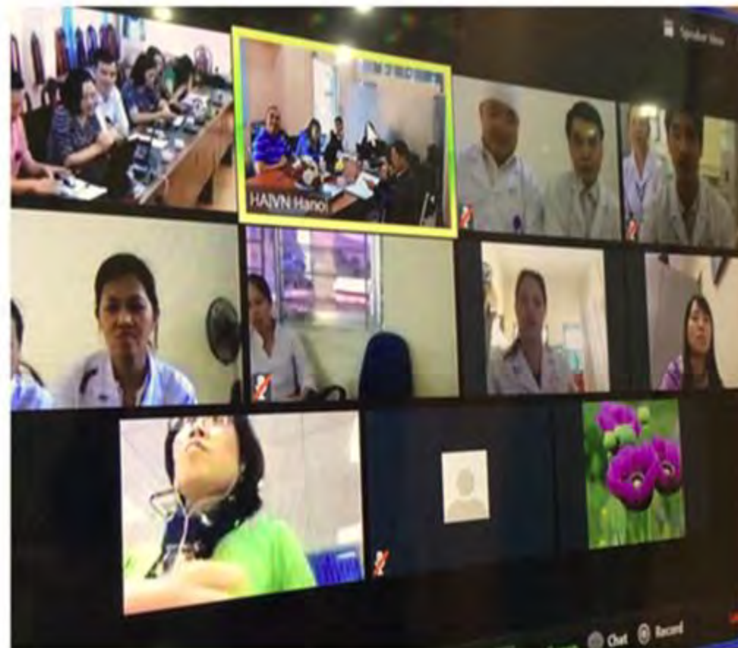
Supporting improvement

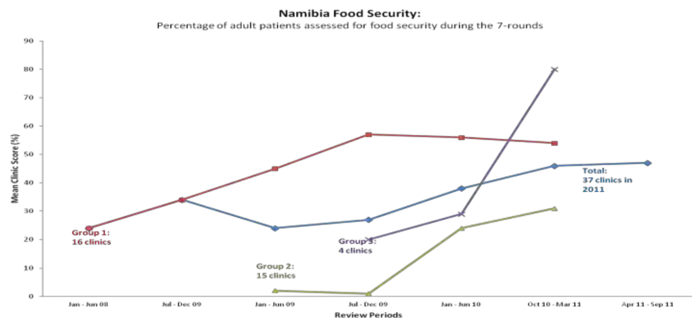
Viet Nam: supporting improvement through regional coaching networks

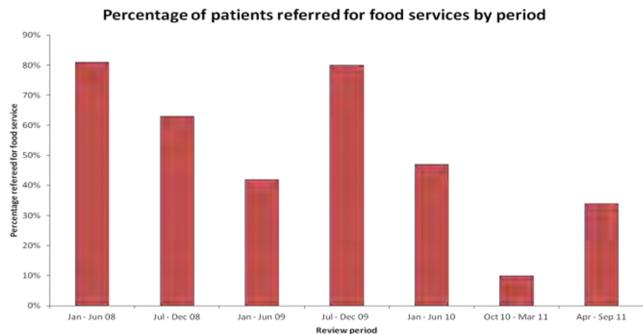
- National coaching program with gradual transfer of technical support to provinces.
- National TWG meetings to discuss QI coaching led by MOH.
- Frequency: 2-3 visits every 6 months, supplemented by monthly web-based assistance.
- Coaching:
  - ✓ Support the provinces and sites to develop QM plans
  - ✓ Monitoring QI implementation
  - ✓ Site-level support for data collection



Supporting improvement

Namibia: indicators, priorities and measurement cycles:
A national quality improvement initiative addressing food insecurity





INTERVENTIONS

- Training of HCWs on importance of issue & measuring -- Health education to patients/clients (specifically on alcohol abuse)
- Devise basic, simple food security screening tools
- Improve documentation system
- Reorganize patient flow to streamline assessment
- Identification of focal person to conduct assessments
- Referrals, documentation/follow-up of patients needing food supplementation to NGOs
- Arrange effective referral system
- Strengthen integration of social workers into care teams to assess food security
- Initiation of nutrition gardens
- Soup kitchen corners (nutritional education)

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Supporting improvement

Namibia: large-scale collaborative improvement

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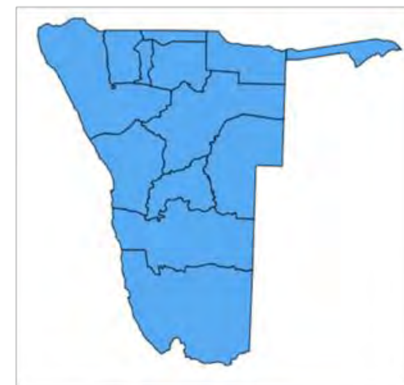
Achievement of outcomes

Namibia: scale-up and spread for maximal impact

- Quality improvement collaborative (NAMPROPA) produced significant improvements in care engagement, viral load monitoring, and viral load suppression, and creation of an evidence-based package of interventions. This initiative is being scaled up nationwide across all ART sites to maximize impact.

Scale-Up Strategy for NAMPROPA Activities



NAMPROPA
3 Regions, 24 Facilities

Scale-Up Wave 1
3 Regions, 43 Facilities

Scale-Up Wave 1
3 Regions, 43 Facilities

Scale-Up Wave 2
14 Regions, 72 Facilities

Scale-Up Wave 2
14 Regions, 72 Faci

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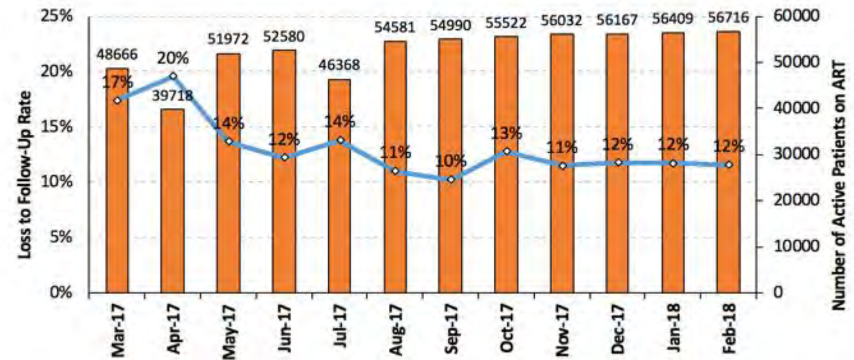
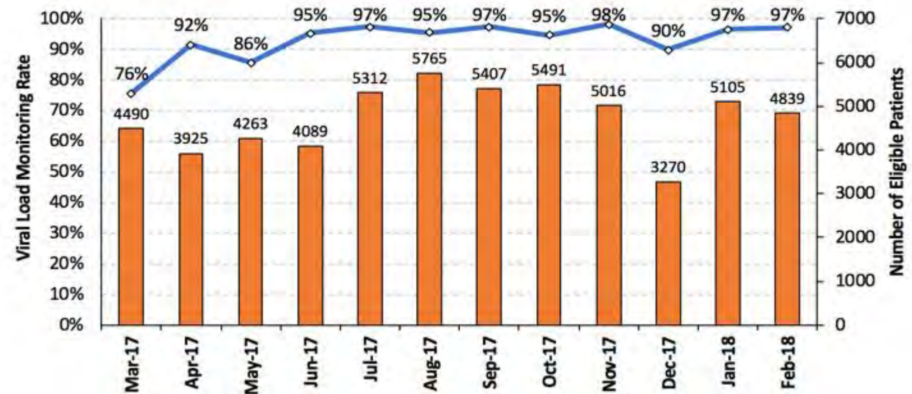
Achievement of outcomes

NAMPROPA: Results

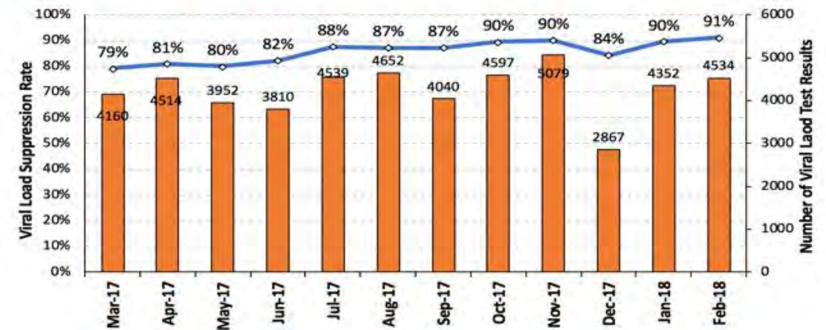
Number of Active Patients on ART and Loss to Follow-Up Rate—NAMPROPA



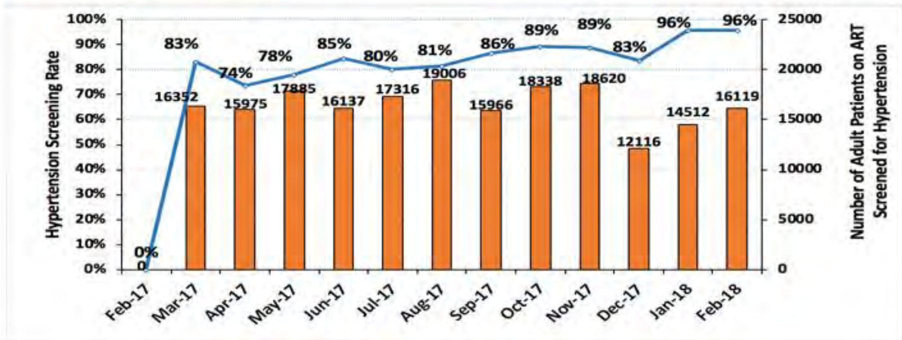
Number of Patients on ART Eligible for a VL Test and VL Monitoring Rate—NAMPROPA



Number of Patients on ART who Received a VL Test Result and VL Suppression Rate—NAMPROPA



Number of Adult Patients on ART and Hypertension Screening Rate—NAMPROPA



Achievement of outcomes

Zimbabwe: results of ART4ALL

	Percentage initiated on the same day of diagnosis	Number of new to care clients
Feb-17	54%	1441
Mar-17	61%	1759
Apr-17	60%	1210
May-17	62%	1266
Jun-17	59%	930
Jul-17	65%	791
Aug-17	58%	1498
Sep-17	67%	1420
Oct-17	73%	1646
Nov-17	74%	1593
Dec-17	72%	1308
Jan-18	79%	1781
Feb-18	79%	1383
Mar-18	77%	1735
Apr-18	75%	1367
May-18	78%	1385
Jun-18	81%	1428
Jul-18	76%	1307
Aug-18	77%	1407

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Leadership

Namibia: organizing stakeholders around quality

National TB Program

National QM Program

National HIV Program

KNCV

CDC

Project Hope

USAID

IntraHealth

I-TECH

UCSF HEALTHQUAL

NamLiVE

Committed to Quality Patient Care

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HIV quality improvement: further reading

Do quality improvement initiatives improve outcomes for patients in antiretroviral programmes in low- and middle-income countries? a systematic review

Hargreaves, S[1,+]; Rustage, K[1,+]; Nellums, LB[1,+]; Bardfield, JE[1]; Agins, B[1]; Barker, P[1]; Massoud, M R[1]; Ford, N P[1]; Doherty, M[1]; Dougherty, G[1]; Singh, S[*,1]

JAIDS Journal of Acquired Immune Deficiency Syndromes: May 29, 2019 - Volume Publish Ahead of Print - Issue - p
doi: 10.1097/QAI.0000000000002085
Critical Review: PDF Only

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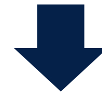
Implementation challenges

- Committed resources at national level: material and human
- Never-ending staff turnover
- Limited data system infrastructure and available to produce *meaningful and actionable* data
- Lack of QI capacity
- Shifting political landscapes
- Inadequate knowledge management and peer learning platforms
- Multiple implementing partners supporting facilities: donor confusion
- Codification of the QM program with adequate resources in the Ministry of Health

Aligning disease-specific aims with a shared vision of quality

HIV treatment target



National HIV indicators

Shared vision of quality

Source: Champasak Provincial Hospital, Lao PDR

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The way forward: sustaining HIV quality management in the era of UHC

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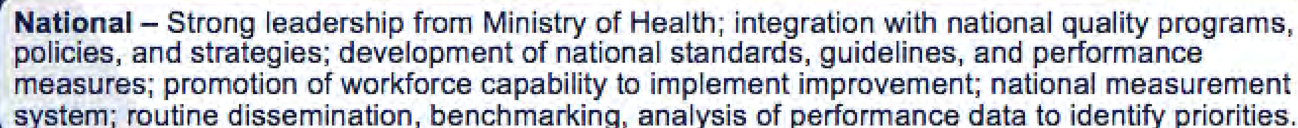
A roadmap to sustainability

- Local vigilance with continuous monitoring
- National leadership and infrastructure: a formal quality management program
- Data-driven focus on responding to gaps and achieving outcomes
- Local cadres of quality professionals who have opportunities for ongoing training
- Organized knowledge management systems that engage professional and private sectors, fostering communities of practice and learning exchanges
- Donor management
- Integration of disease-specific quality initiatives with national frameworks, policies and strategies

Coda: embedding QM activities at all levels of the health

For people



District/Regional – Oversight of data collection at facility level; integration of QI mentoring and support into job descriptions of existing cadres (e.g., clinical mentors, M & E officers); regular communication of QI activities to national level; facilitates regional peer exchange among facilities; identification of regional improvement priorities.

Facility – Establishment of quality committee to oversee QI activities; development of QM plan; regular reporting of QI activities to district/regional level; routine collection and analysis of performance data based on national guidelines and indicators; engagement of staff throughout facility to engage in Qi teams;

Equitable — Resilient — Efficient

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Universal health coverage without quality: an empty promise

"Without quality, universal health coverage (UHC) remains an ***empty promise*** […] Quality is not a given. It takes vision, planning, investment, compassion, meticulous execution, and rigorous monitoring, from the national level to the smallest, remotest clinic."

—Dr. Tedros Adhanom Ghebreyesus. "How could health care be anything other than high quality?" *Lancet Global Health.* 2018;6(11):PE11140-E1141.

Quality for all, not just quality for some

How can we apply lessons learned from guaranteeing high-quality health care for people living with HIV to guaranteeing high-quality health care for all?

TARGET 3.8
Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all *(9)*.

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