TUBERCULOSIS QI INITIATIVE IN SOUTH AFRICA

LESSONS FROM IMPLEMENTATION

McGill Summer Institute in Infectious Diseases and Global Health

Date: 21 June 2019

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PRESENTATION OUTLINE

- Background
- TB Cascade
- Considerations for implementation
- Key challenges
- Success factors
- Conclusion

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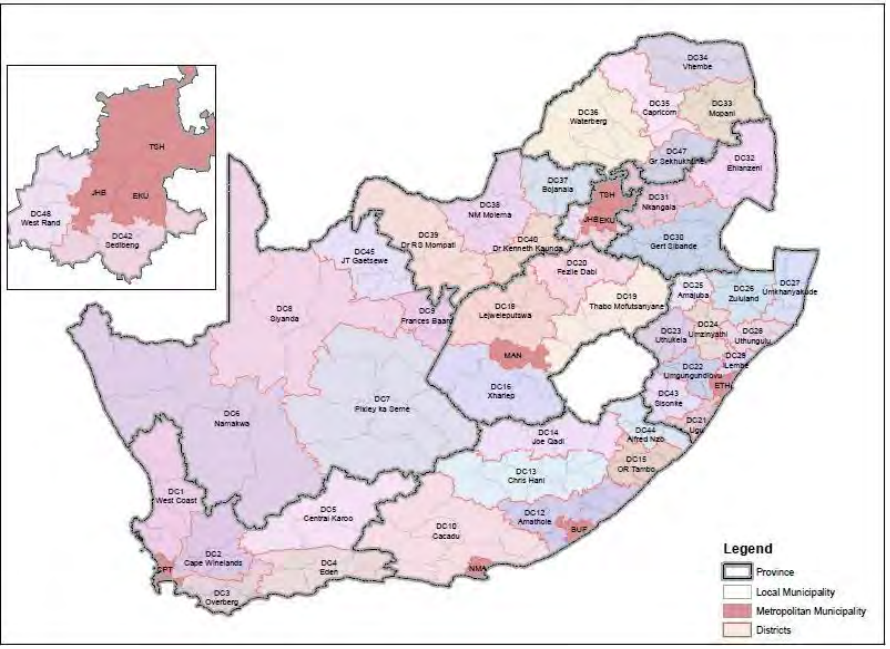
BACKGROUND



Health System Structure

9 Provinces

8 Metropolitan municipalities

44 District Municipalities

~226 Local Municipalities

3 480 PHC facilities, 800 Hospitals

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Estimated Pop: 56 921 500

(STATSSA 2017 Mid year)

TB BURDEN

- Total Notifications: 227 224
- New and relapse: 220 163
- HIV Status known: 94%
  - HIV Positive: 60%
    - On ART: 89%
- Number tested for RR: 150 548
- MDR/RR-TB Diagnosed: 15 986
- MDR/RR-TB Treated: 10 259
- XDR-TB Diagnosed: 747
- XDR-TB Treated: 463
- Child Contacts < 5years on IPT: 79%
- PLHIV (new) on IPT: 53%

BACKGROUND

- The National HIV, TB, STI Strategic Plan 2017-2022 aims to;
  - Decrease deaths due to TB by 50%
  - Decrease incidence of TB by 30%
- Department of Health adopted the 90-90-90 targets for TB by 2020
- Loses across the TB care cascade will impede the attainment of the 90-90-90 targets
- The QI implemented to address the loses across the TB care cascade

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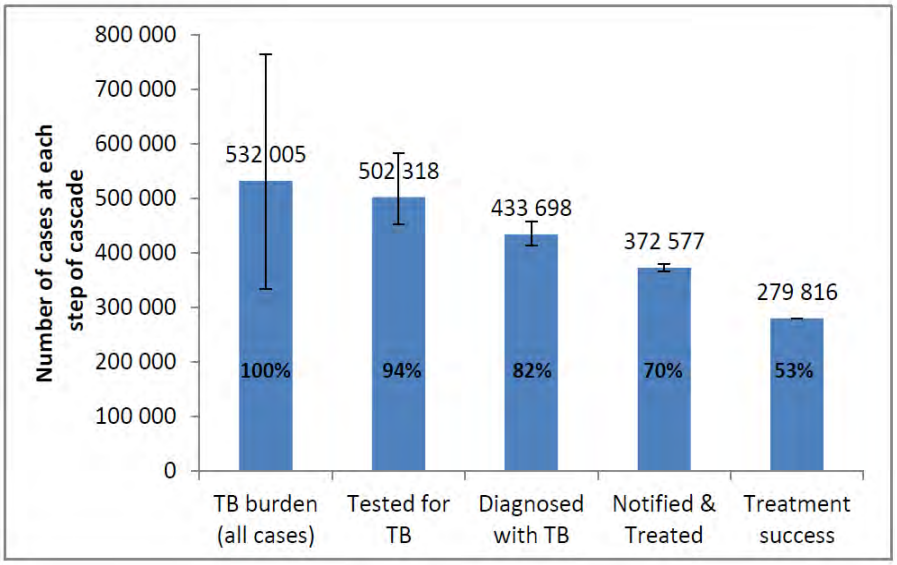
TB CASCADE



Test Access	Initial loss to follow-up	Treatment success
Failure to screen patients attending health facilities	Weak administration at facility (retrieving results, recalling patients, referrals)	Low patient knowledge levels
Insensitive screening algorithm	Poor mechanisms for patient registration	Poor monitoring daily adherence
Failure to test symptomatic patients	No facility incentive to register patients	Inadequate HIV care
Incorrect test / algorithm	Diagnostic delay	Poor pro-active use of data for patient management
Cross-cutting issues		
Lack of integrated data (lab, pharmacy, facilities) and limited use of data to manage continuity of care		
Workflow inefficiency (queues, delays, multiple interactions)		
Poor facility management, quality of care		

Source: 55 published manuscripts, root cause analysis at 4 provincial data workshops (URC-PSP)

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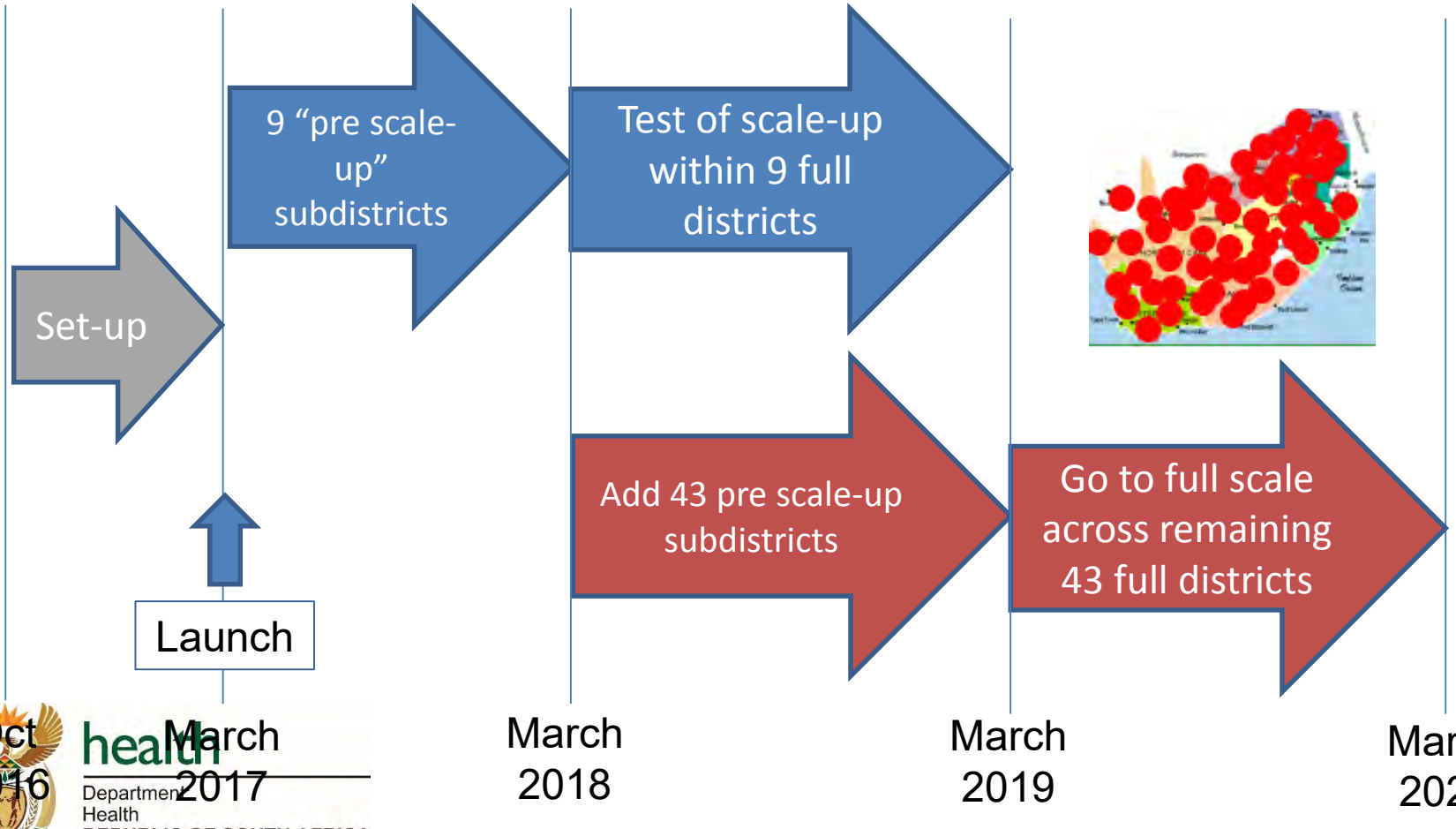
SCALE-UP OF QI INTERVENTIONS

Phased implementation over a period of 4 years from 2017 to cover all 226 sub districts



CRITERIA FOR DISTRICT SELECTION

	High	Medium	Low
TB Case Notification Rate (2015)[1]	> 1 000	500 - 1 000	< 500
Estimated PLHIV[2]	>100 000	100 000 - 50 000	<50 000
TB/HIV Comorbidity[4]	>60%	30-60%	<30%
Rifampicin Resistant TB Lab dianosed[3] (2015)	>500	100 - 500	<100
MDR-TB Lab diagnosed[3] (2015)	>500	100 - 500	<100
Notifications DS-TB[4]	>10 000	5 000 -10 000	< 5 000
Other criteria used			
Presence of a Technical Partner with experience in QI			
Urban/ rural mix			
High burden provinces (KZN, EC,WC,GP)			

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IMPLEMENTING SUB DISTRICTS

Province	Districts	Sub-district	Total # of facilities
KwaZulu Natal	▪ Zululand ▪ UMgungundlovu ▪ EThekwini	▪ Nongoma ▪ UMsunduzi ▪ South	15 36 62
Western Cape	▪ Cape Winelands ▪ West Coast	▪ Drakenstein ▪ Cederberg	26 7
Eastern Cape	▪ OR Tambo ▪ Nelson Mandela Bay	▪ Nyandeni ▪ Region C	49 17
Gauteng	▪ Sedibeng ▪ Ekurhuleni	▪ Emfuleni ▪ North 1 ▪ North 2	26 11 17
	9 districts	**10 sub districts**	**266 facilities**

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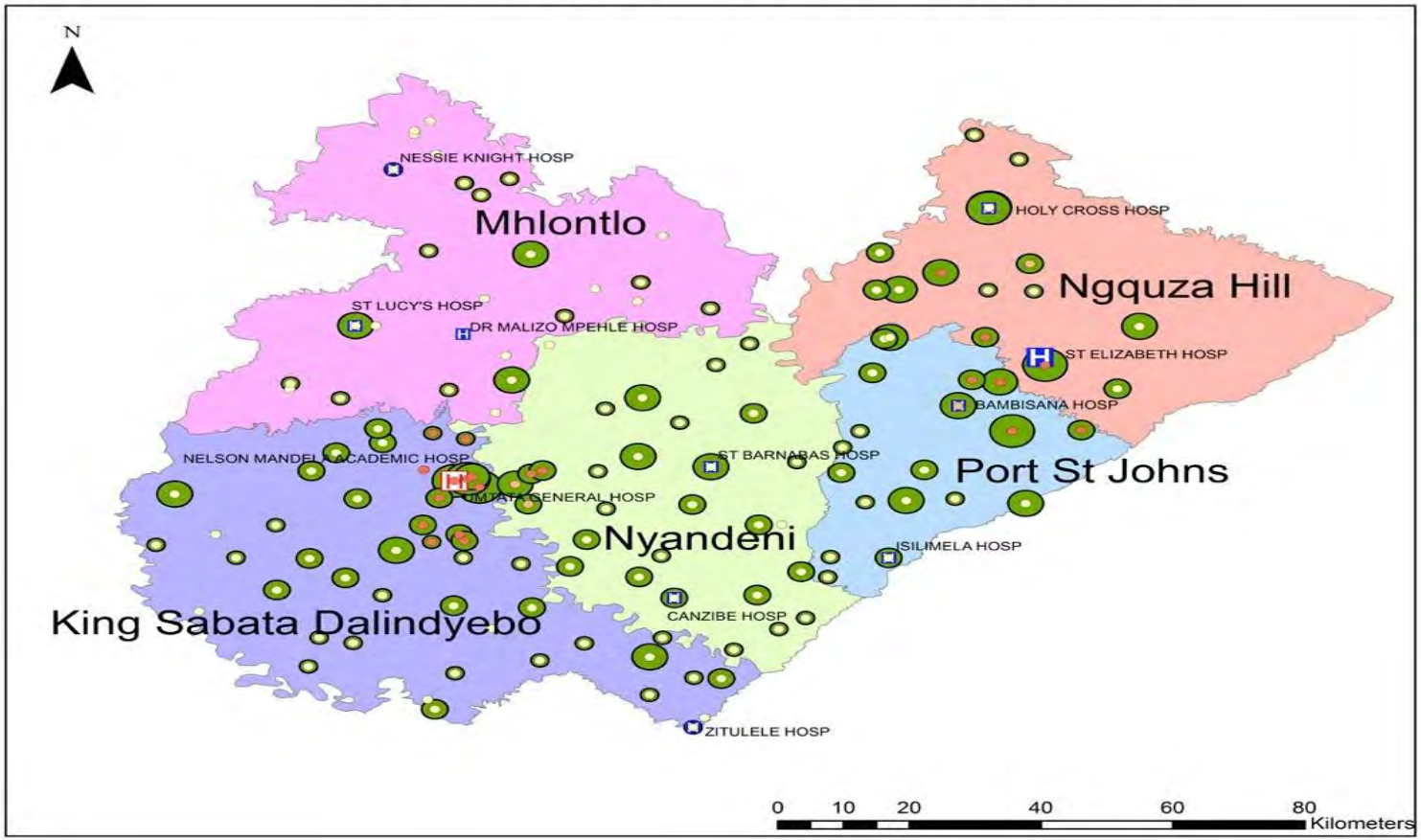
IMPLEMENTATION APPROACH

OR Tambo Clinic TB Hotspots, 2015



High burden sub districts

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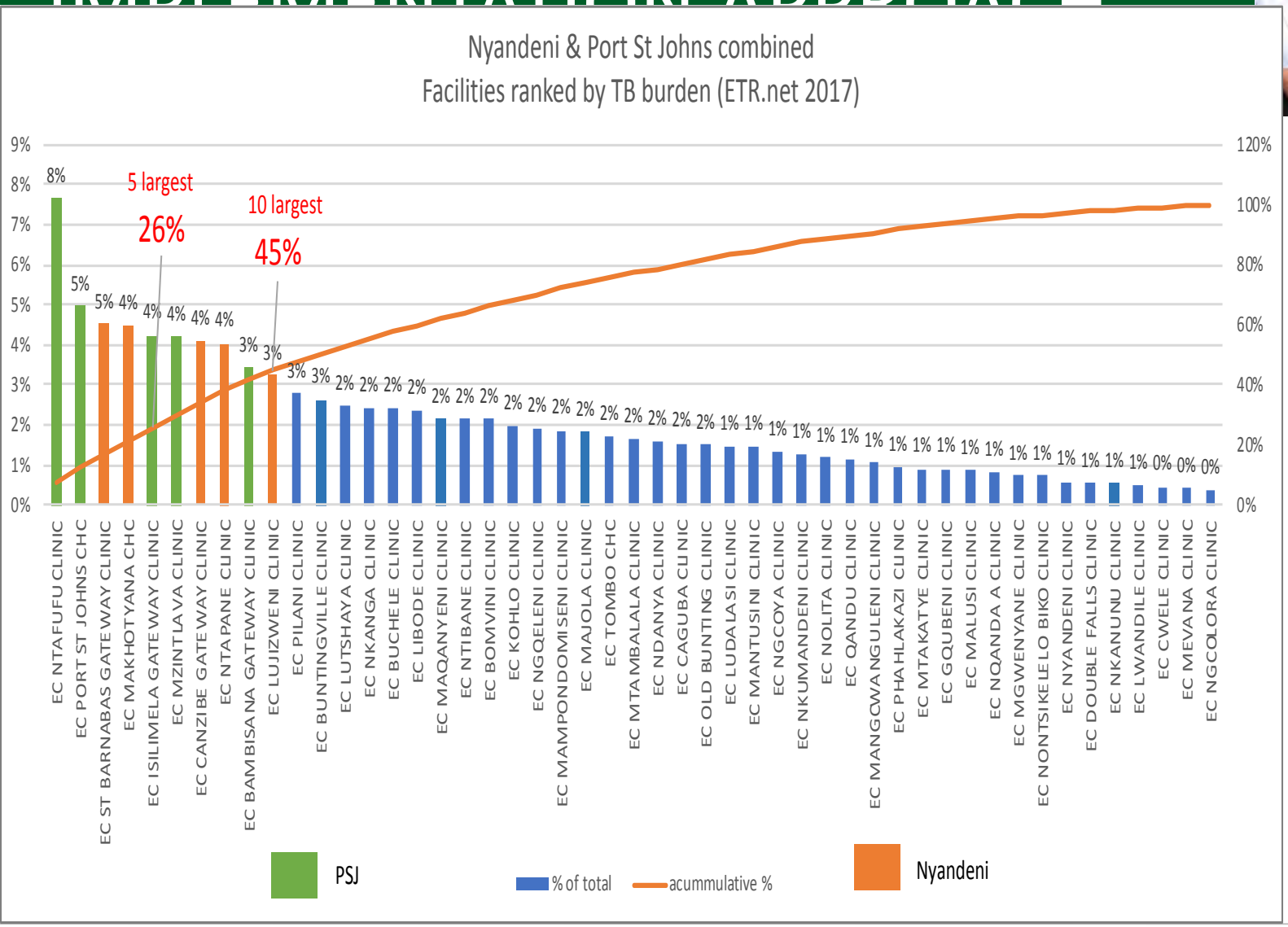
Phila Inspired to live

2030 NDP

IMPLEMENTATION APPROACH

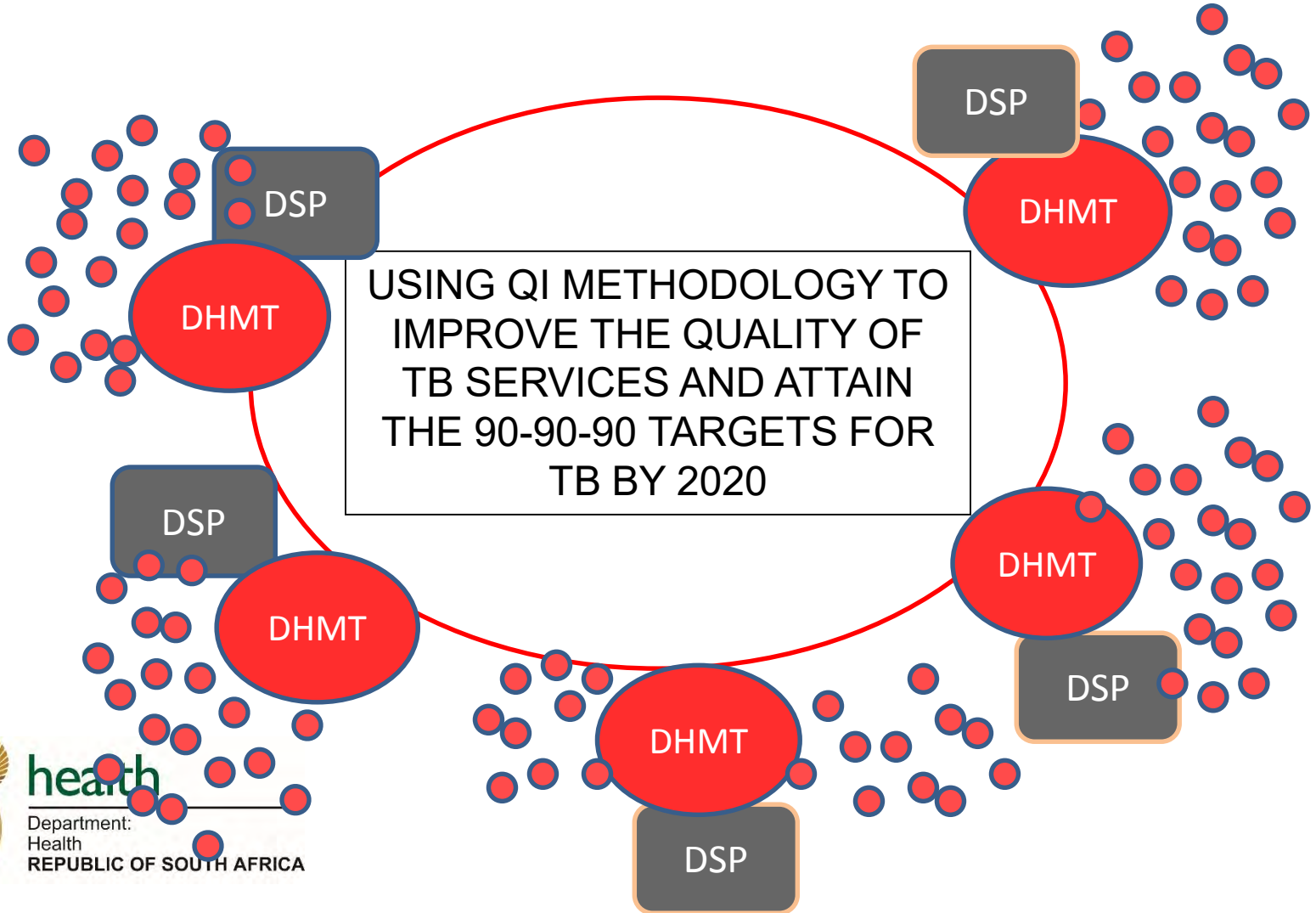


High Burden facilities

IMPLEMENTATION APPROACH

- Test facility specific interventions to address gaps along the TB care cascade
- Finding missing TB patients, linkage and retention in care
- Health system strengthening interventions
- Documentation of ideas/ interventions that work for scale up
- Show impact

APPROACH



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KEY ACTIVITIES

- Development of implementation guides and protocols
  - Clinical, Quality improvement, Data management
- QI capacity building for provincial, district and sub-district managers and partners
  - TB Managers at district/ sub district levels are QI champions
  - QI teams include PHC, QA, managers and Information Officers
- Training of facility staff (Operational Manager, TB nurse/ focal person/ QI Lead, Data capturer) – QI Team
  - QI Methodology
  - Data management

KEY ACTIVITIES (2)

- Quarterly sub-district Learning Sessions/ collaboratives
  - sharing of experiences and lessons learnt
  - Training sessions
- Monthly coaching and mentoring visits
  - Involvement of PHC supervisors, Quality Assurance managers, Facility mentors , technical partners
- Improving processes and efficiencies in health facilities
  - Process mapping
  - Teamwork
- Addressing data gaps
  - Completion of patient records
  - Facility data flow processes
  - Compliance with DHMIS policy
- Clinical, Quality improvement, Data management

FACILITY TB CARE CASCADE AND TARGETS

Case Finding	Linkage to care	Starting Treatment	Retention in Care
Clinic attendees screened for cough (>95%)	Treatment initiated for DS and DR TB within 5 days (95%)	Start all DS TB on Rx (100%)	Patients with DS TB treatment success rate(>90%)
PLWHIV Screened for TB (>95%%)		Start all DR TB on Rx (100%)	DR TB treatment success rate (70%)
Household contacts screened for TB (>95%)		Start all contacts on INH/3HP (100%)	Patients with latent TB infection complete Rx (>70%)
		Start all PLWHIV on INH/3HP (100%)	
TB patients with known HIV status (>95%)		Co-infected patients initiated on ART (100%)	PLWHIV on ART viral suppression (>90%)

RICA

ROOT CAUSE ANALYSIS

LEADERSHIP

- Lack of supervision by OM
- Suboptimal teamwork
- Poor mentoring and couching
- Limited support by DHMT and Partners

CLINIC SYSTEMS

- Medicine Stock outs
- Patient flow
- Data flow not clear
- Poor infrastructure
- Poor tracing of contacts and community linkages
- Poor integrations of services
- No dedicated staff to sort lab results

STAFF RELATED FACTORS

- Eligibility unknown
- Staff attitude and belief
- Poor recording
- Poor history taking
- Lack of integrations
- Poor health education to clients
- Shortage of staff/ overworked
- Laziness
- Resistance
- Lack of program ownership

PATIENT RELATED FACTORS

- Patients' rights
- Stigma
- Alcoholism
- Substance abuse
- Attitude
- Shopping around
- Pill Burden
- Lack of knowledge
- Language barrier
- Poverty
- Religious beliefs
- Denial
- Side effects

DATA MANAGEMENT

- DHIS uses average than median
- TB register in TB room to record TB initiation
- Data element on TB initiation not on PHC tick register
- Lack of data validation
- Poor capturing
- Poor recording
- Lack of understanding of data definitions

SA TBQI DRIVER DIAGRAM

Aim

Assist NDoH reduce TB deaths by 50% and TB incidence by 30% by 2022 through QI Methods

Primary Drivers

Engaged Health System Leadership and Management of Improvement – at Multiple Levels

Case Finding

Linkage to Treatment

Retention in Care

Reliable Data Systems

Secondary drivers

- Tailored capacity building in QI Methods
- Role alignment of relevant officers to support TBQI cadre
- Integration of QI Coaching into routine monitoring visits
- Promote redesign of routine meetings to achieve shared learning focus – cluster meetings etc.
- Integrate TB care performance review into management meetings
- Actively promote high quality data for TB care
- Active use of TB data for decision making
- Focused supervision and support

- **Effective** TB Screening
- Increase TB Screening ~~Access Points~~ coverage
- Effective contact tracing system
- Improve sputum collection & testing
- Follow up negative sputum results in HIV+ clients
- TB/HIV integration-testing/ART initiation in presumptive TB pxealth Talks – Facility & Community

- Timely Notification system on all sputum test results
- Initiate same day follow up for all TB positive cases
- Recall system – daily, weekly review of waiting for TB treatment and outstanding case identification lists
- Effective facility – community outreach; CCGs/WBOTS
- Partner families and community

- Effective Px. -in-treatment id system – diary, tier, pre-drawn folders
- Pre-appointment patient notification system
- Recall & follow up system – daily, weekly review of missed TB appointments
- Effective tracking systems for transferred/referred patients Intensive TB Px education
- Px – centred care – fast queues etc.
-

- Common understanding of TB data systems & indicators
- Regular data validation at all levels
- Timely data decision support to QI team
- Visual tracking of performance – run charts at facilities And management level
- Dashboard creation for SD learning cluster

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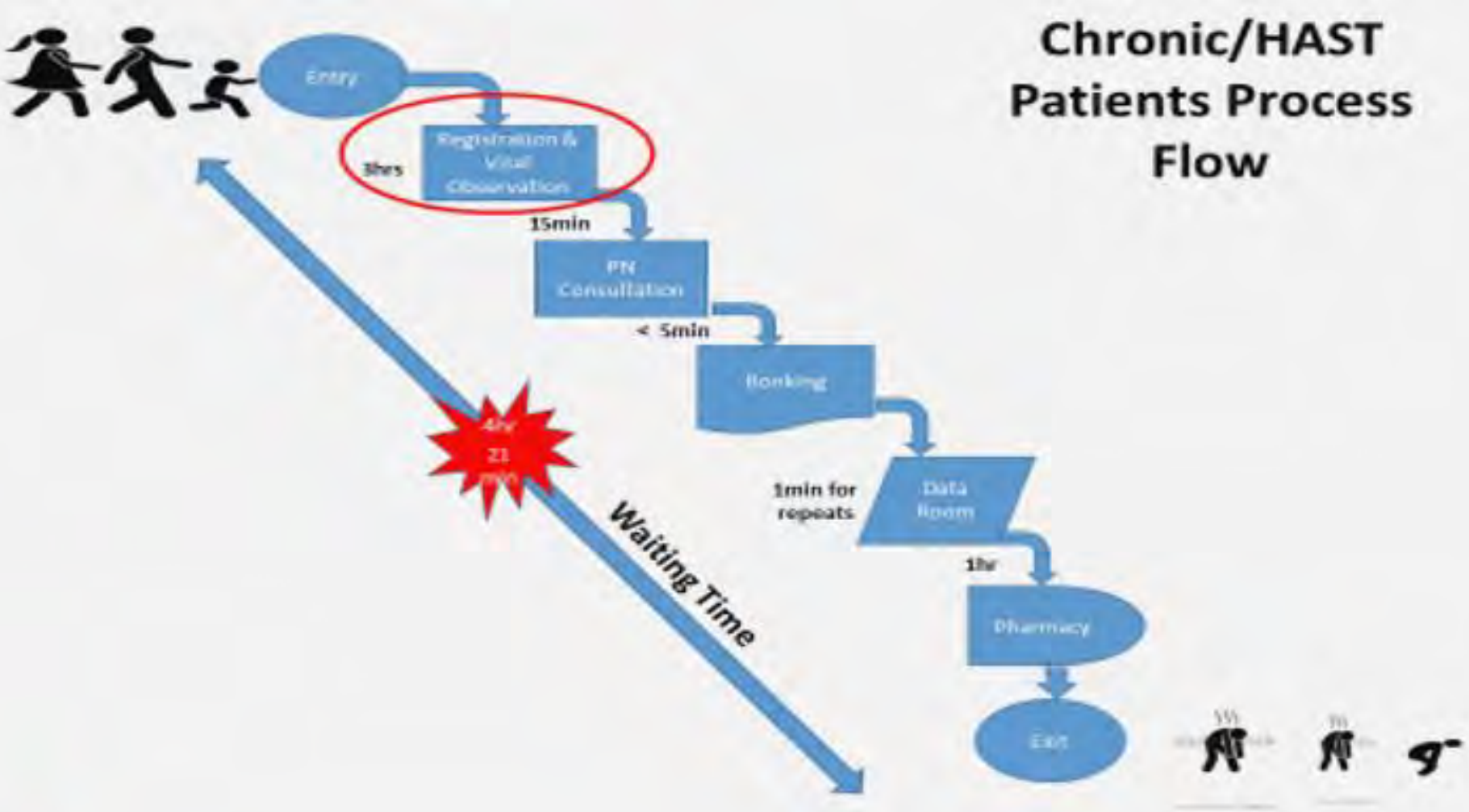
PATIENT FLOW PROCESS



WITS RHI

TB DATA FLOW PROCESS

Facility Data Quality Checklist
TB Data Quality Audit Tool

TIER - TB

TB Patient Record

ELECTRONIC TB REGISTER (ETR)

HEADCOUNT REGISTER (Reception)

COMPREHENSIVE TICK REGISTER (Consulting, Vital signs room)

TB IDENTIFICATION REGISTER (TB/ Consulting Room)

TB REGISTER (TB/ Consulting Room)

WEEKLY TALLY SUMMARY

MONTHLY DATA INPUT FORM

DHIS

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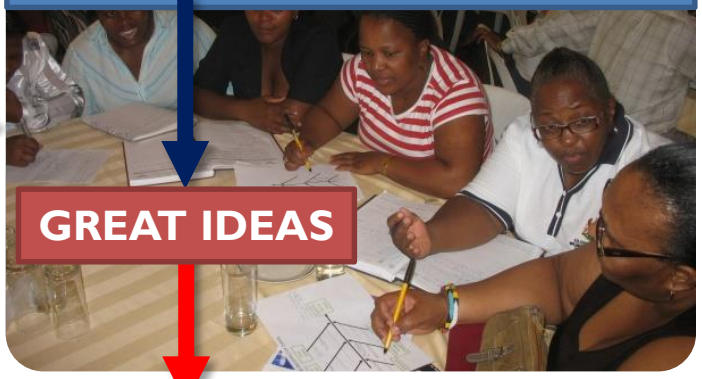
MODEL FOR IMPROVEMENT

PROBLEM

SYSTEM ANALYSIS



GREAT IDEAS

Plan

Do

Study

Act

Test out ideas in a small way before changing everything

IMPLEMENT

SUSTAIN

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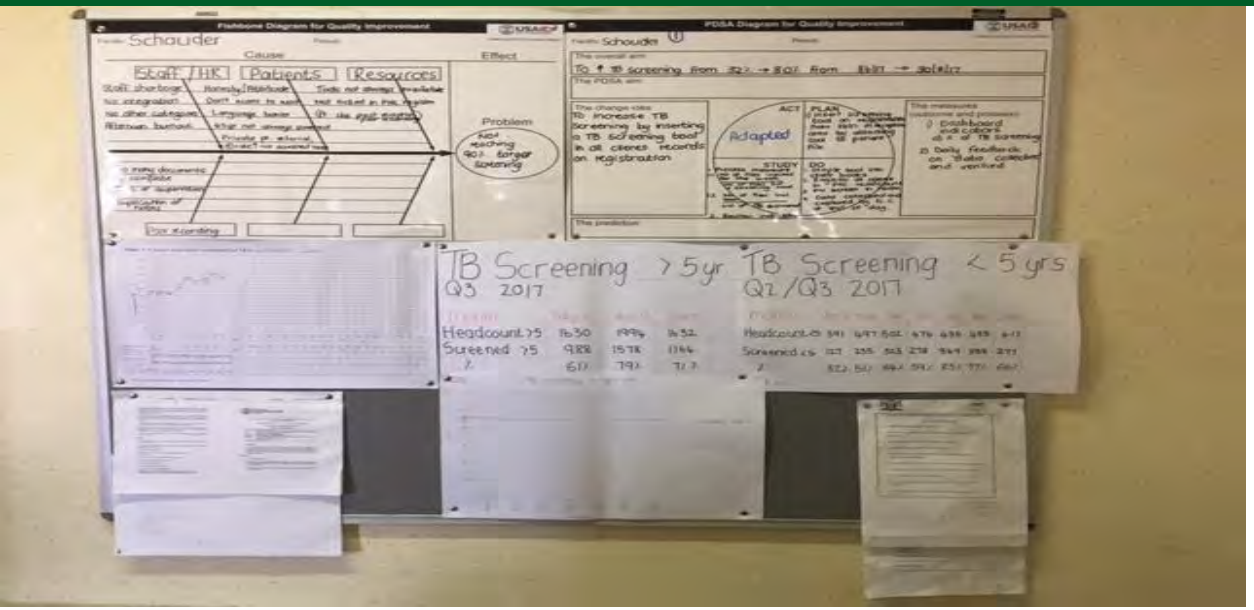
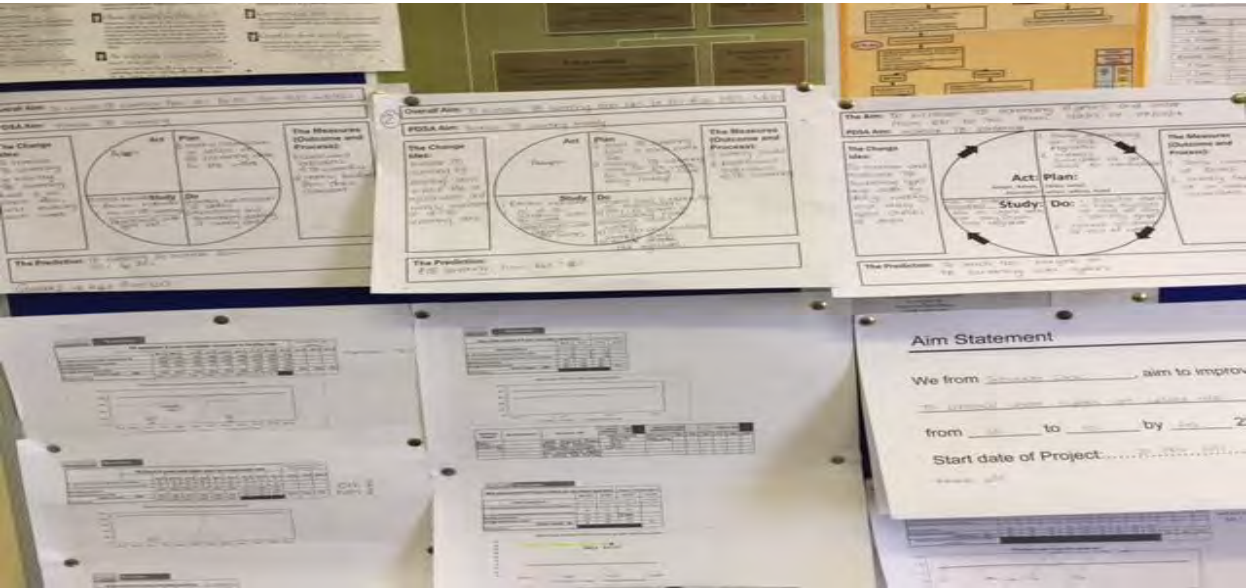
QI PACKAGE

- The package includes;
  - Improving screening in health facilities
  - Improve patient and clinical record flow within the facilities
  - Improve the quality of TB services provided
  - Develop or strengthen the system for tracking patients missing appointment (for treatment start and follow up visits)
  - Strengthen the up and down referral systems between facilities (Clinic - CHC - Hospitals)
  - Establish a contact screening process - facility/ community based , facility tracking mechanism, coordination with CHW
  - FAST implementation in hospitals
  - Urine LAM in hospitals
  - Data management

FACILITY PLANS





- Root cause analysis
- Change idea
- PDSA cycle
- Monitoring through run charts

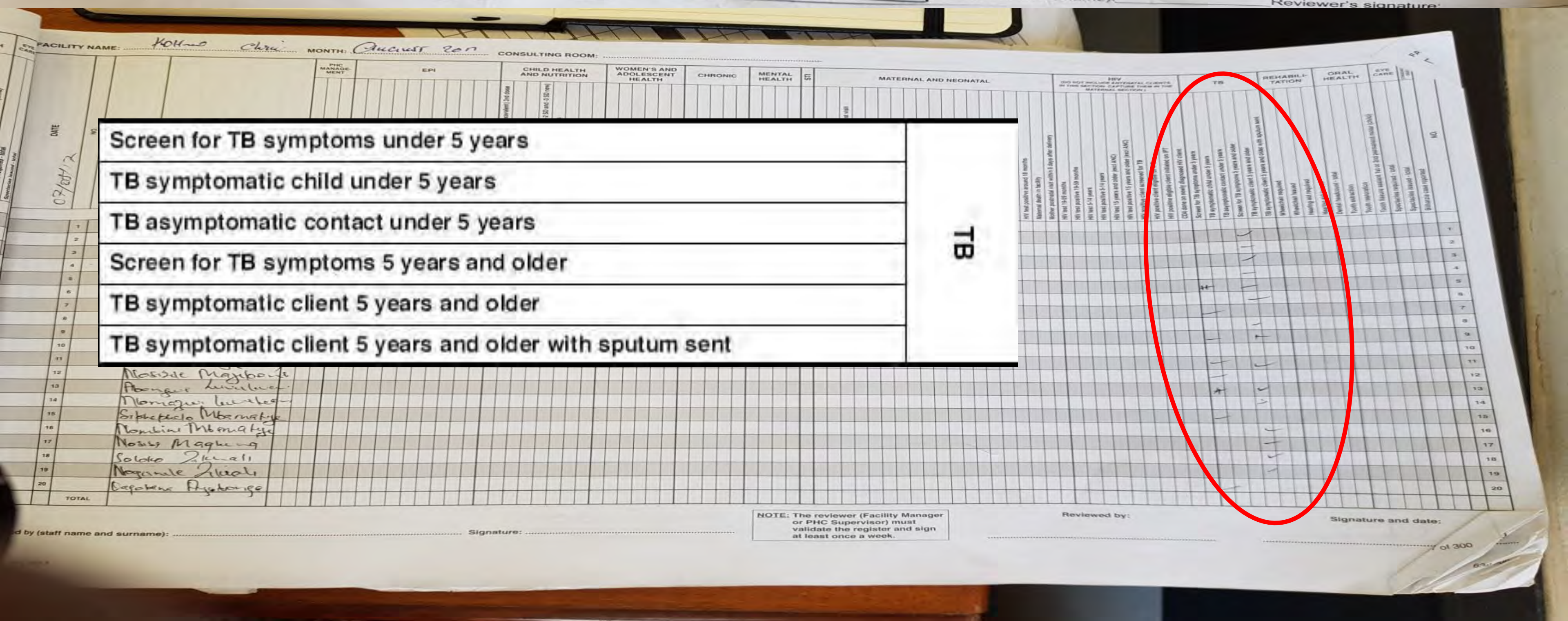
RECEPTION HEADCOUNT REGISTER

FACILITY NAME: Port St Johns CHC MONTH: 06 Oct 17

DATE	NO.	FILE NO.	SEX	AGE	PHC HEADCOUNT UNDER 5 YEARS	PHC HEADCOUNT 5 YEARS AND OLDER	NAME AND SURNAME	ADDRESS	CONTACT NUMBER
	1	769033	M	5			Valentino Mfundisi	Mahenge	
	2	769033	F			24	Sisanda Mabaleka	Green	
	3	769033	F		13		Nangamso Malundana	"	
	4	769033	F		16		Noluto Maki	Ronyeru	
	5		M			53	Sinthembile Makhwekwete	Mqxabukuzi	
	6	06H55 PM	F		29	✓	Nombusiso Jikajika	Mtumbane	0604726964
	7		M	17			Vuyo Khawuta	Caguba	0739142565
07/10/17	8		F	5 yrs		✓	LISEKHO ZWELONKE	MTHUMBANE	
	9		F		24		Nosipho Mnakwa	Lusikisiki	0732394640
7/10/17	10	10H15	F		23	✓	Boniswa Sikoti	Majola PSJ	0738611140
	11		M		10		Makhosolo Zukiso	Mahenge	0788653594
	12		M		49		Neki Zalekile	Mawotsheni	
	13		M		37		Maki Xolile	Mawotsheni	
	14				59		Zakade Busisiwe	Noqekwana	
	15				37		Xolile Maki	Mawotsheni Loc	
			TOTAL			15			-n/n

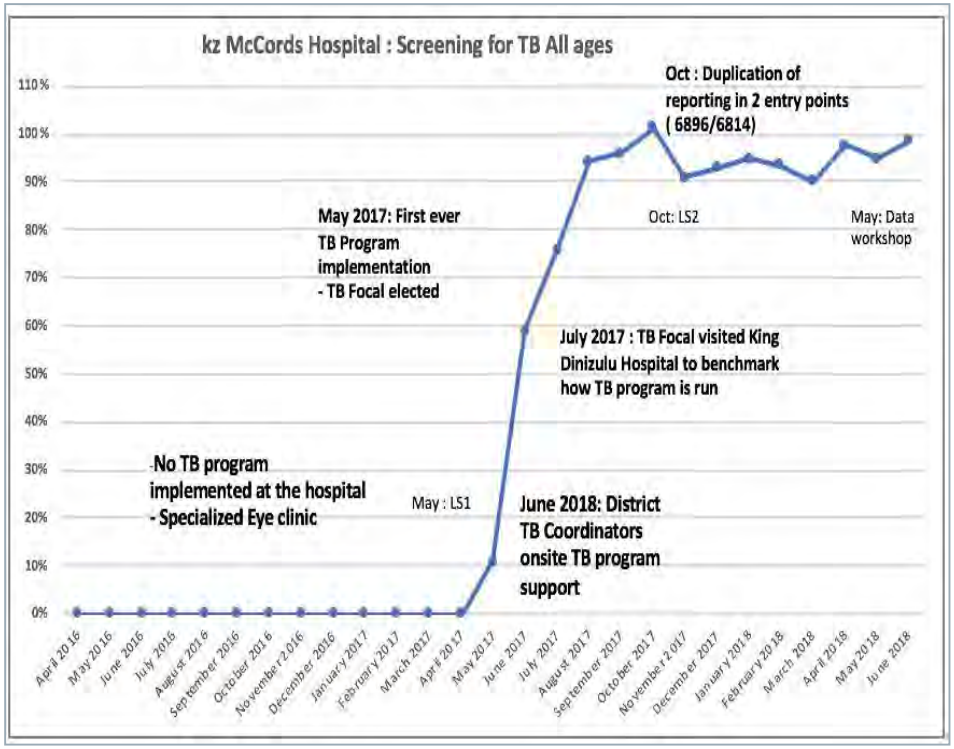
NOTE: The reviewer (facility manager or clinic supervisor) must validate the register and sign at least once a month.

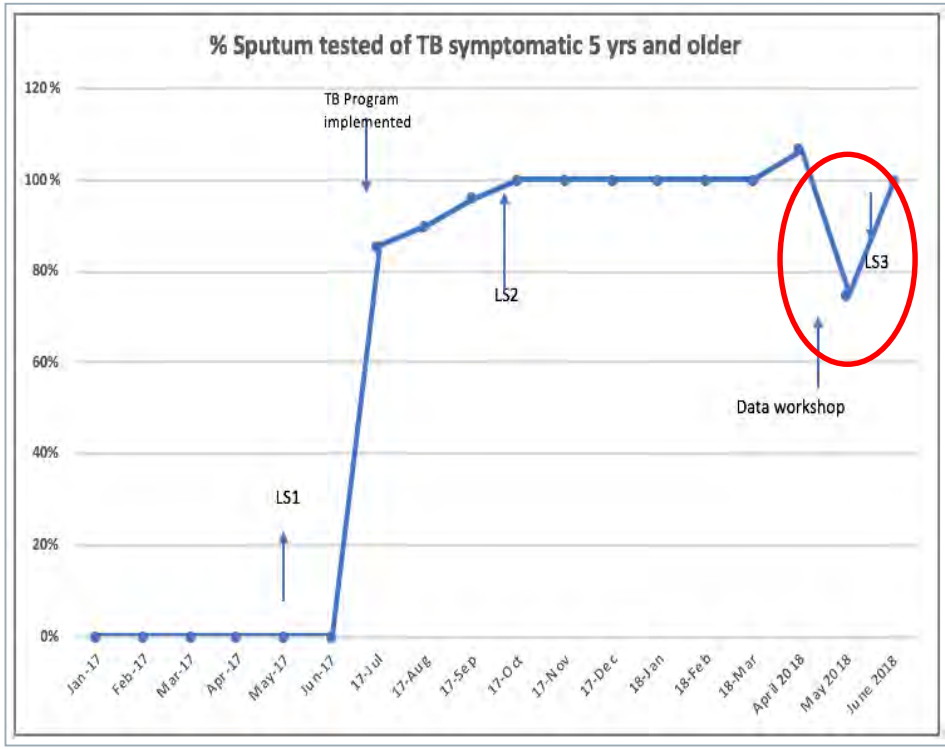
Completed by (staff member's initial and surname): Smpp Signature (staff member): Completed by (Reviewer's name): Reviewer's signature:



Screen for TB symptoms under 5 years	TB
TB symptomatic child under 5 years	
TB asymptomatic contact under 5 years	
Screen for TB symptoms 5 years and older	
TB symptomatic client 5 years and older	
TB symptomatic client 5 years and older with sputum sent	

RESULTS IN A HOSPITAL SETTING – McCORDS HOSPITAL





Increase in screening to more than 90% TB screening.

Improvement in Xpert testing for all symptomatic patients

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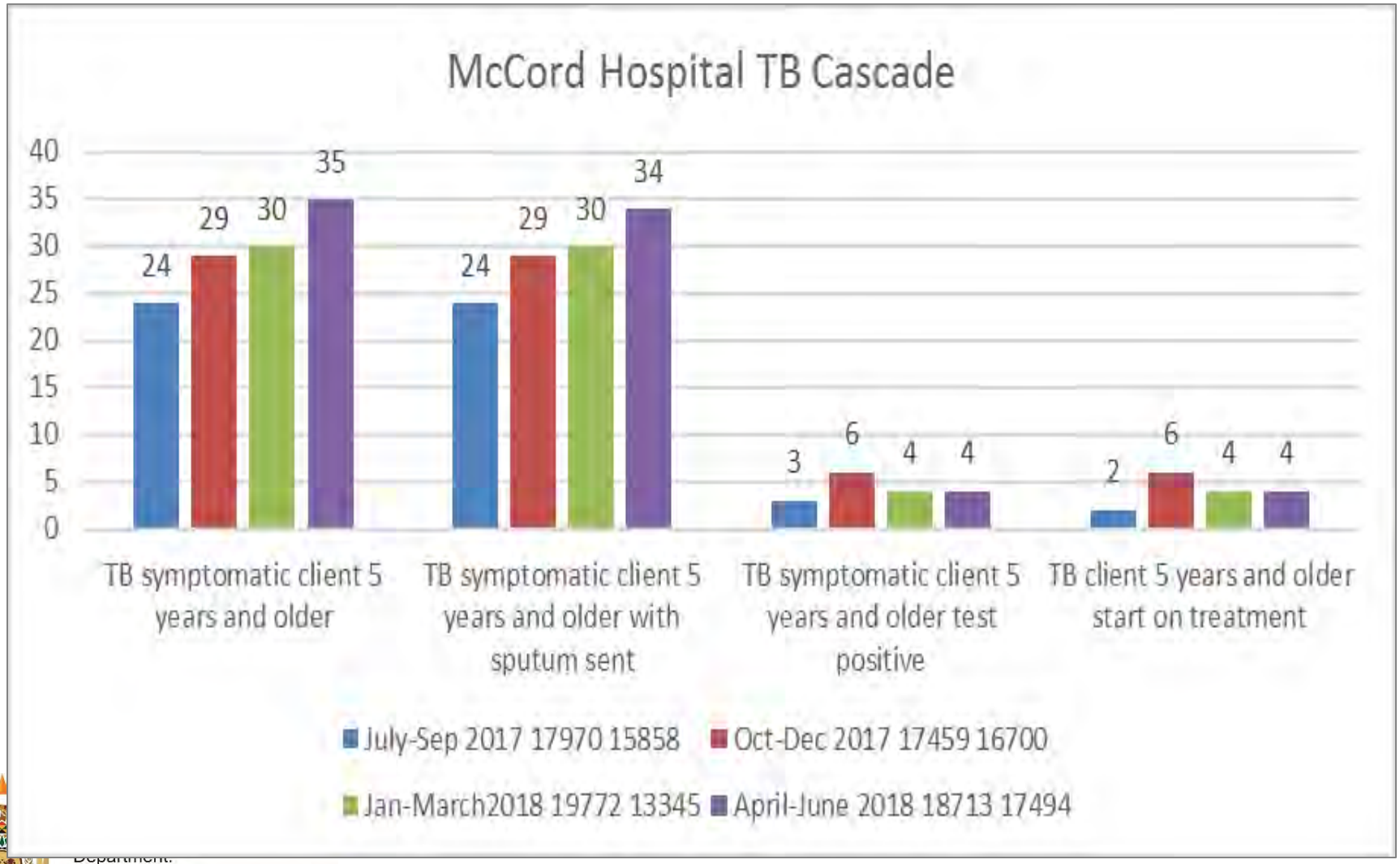
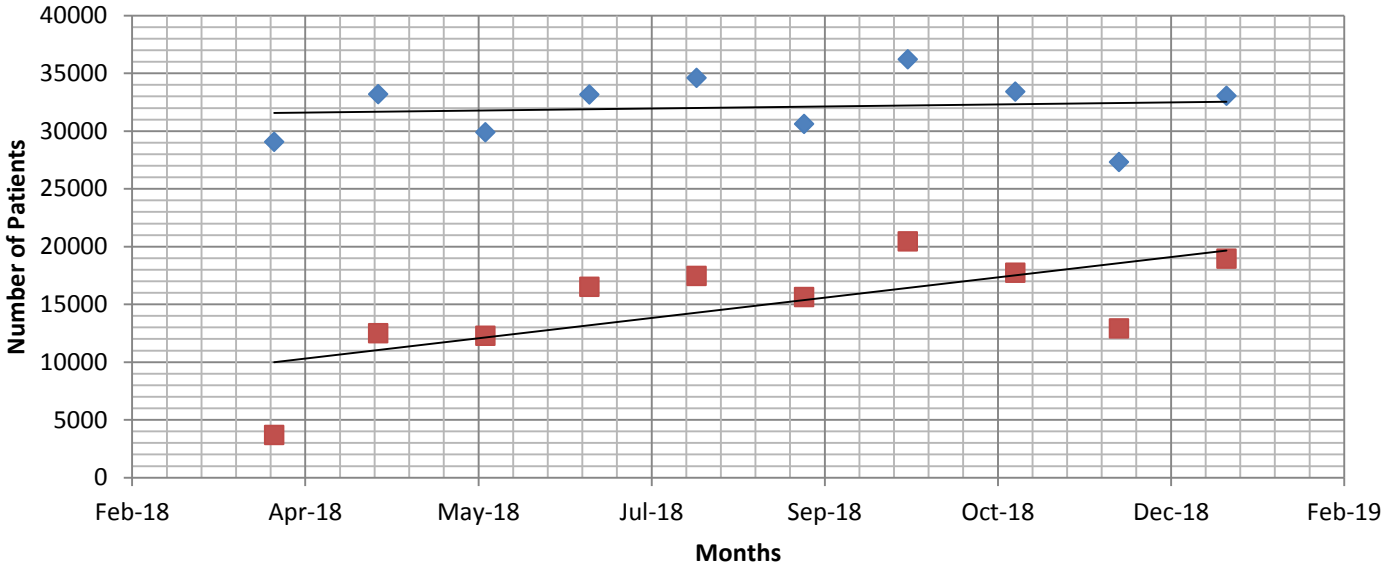
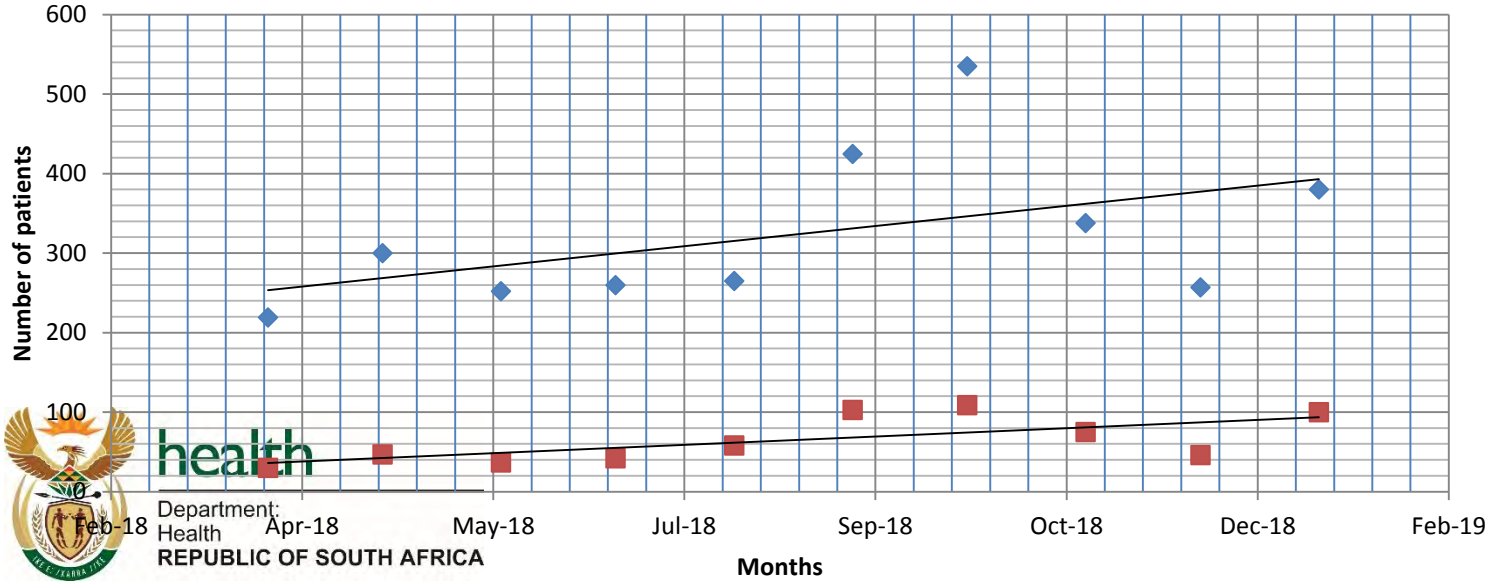
RESULTS (2)


McCord Hospital TB Cascade
40
35
30
25
20
15
10
5
0
24
29
30
35
24
29
30
34
3
6
4
4
2
6
4
4
TB symptomatic client 5 years and older
TB symptomatic client 5 years and older with sputum sent
TB symptomatic client 5 years and older test positive
TB client 5 years and older start on treatment
July-Sep 2017 17970 15858
Oct-Dec 2017 17459 16700
Jan-March2018 19772 13345
April-June 2018 18713 17494

RESULTS IN A HOSPITAL SETTING – ADDINGTON HOSPITAL





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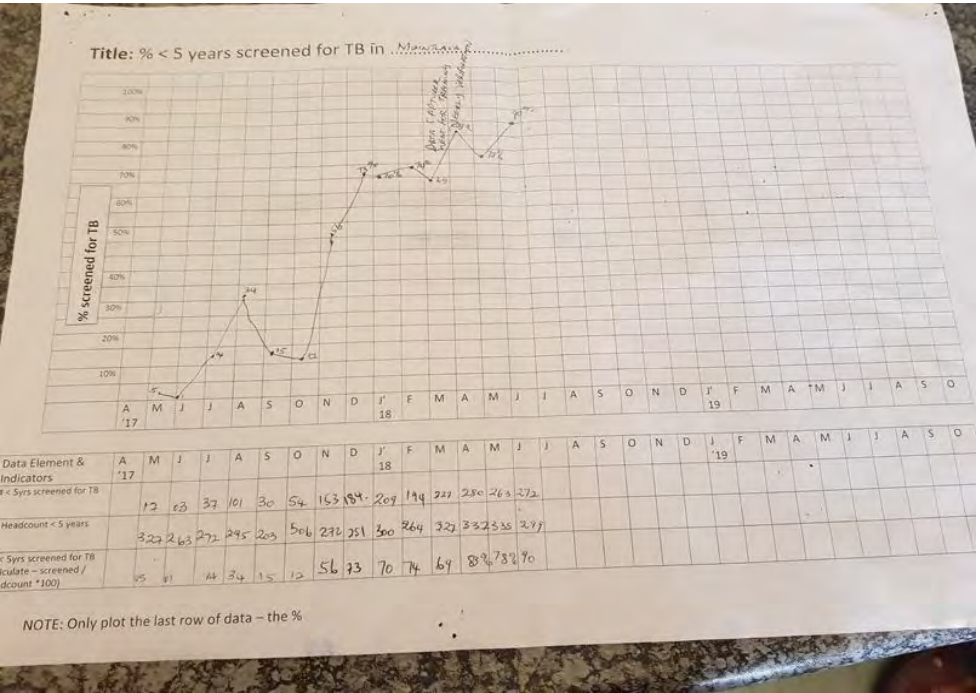
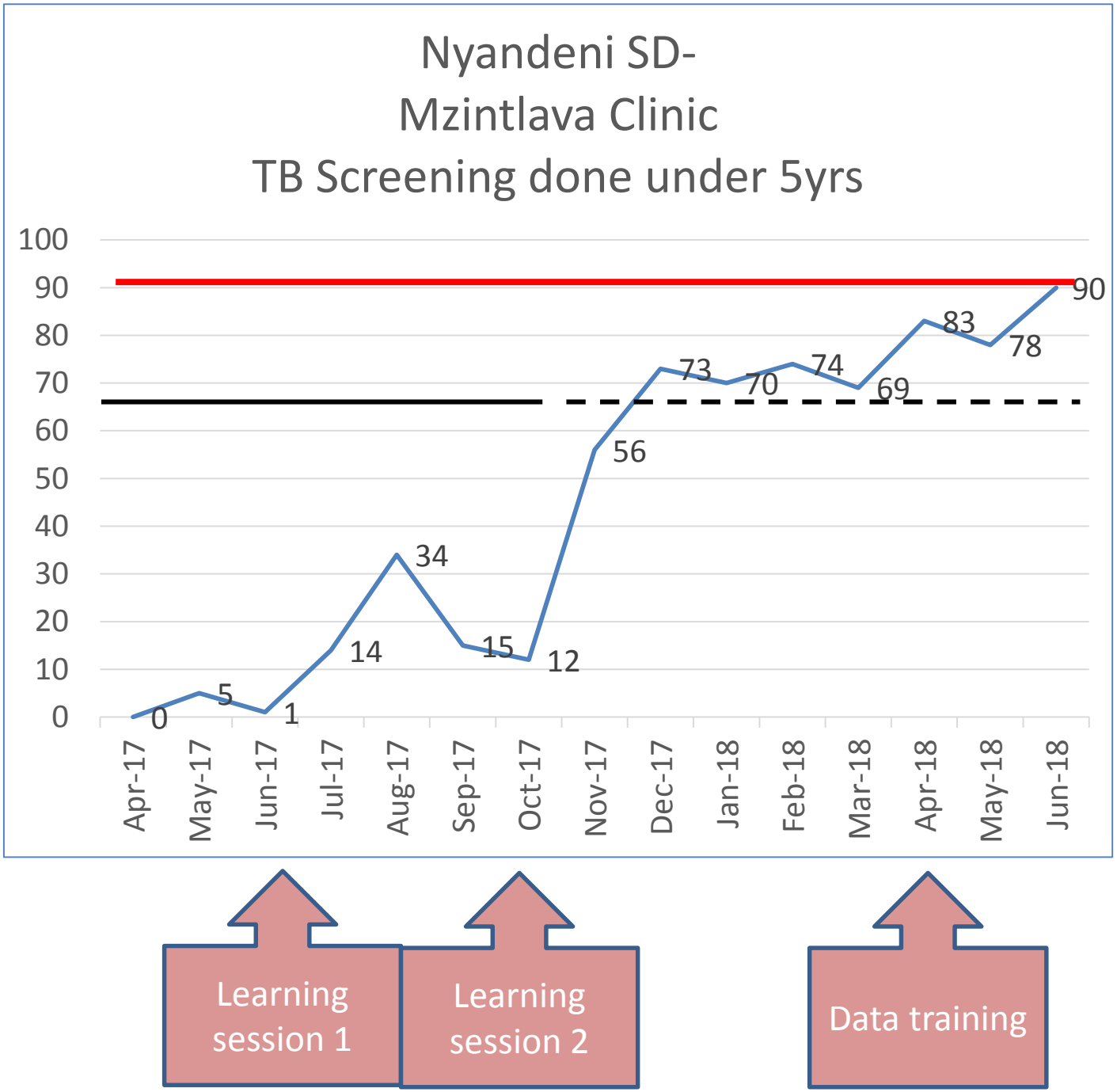
NYANDENI SD- MZINTLAVA CLINIC

AIM

1. To increase TB screening for children under 5yrs from 12% (October 2017) to 90% by 30 April 2018
2. To increase TB screening for children under 5yrs from 83% - 90% by 30 July 2018





Oct 2017
Change idea 1
Tick all children screened < 5yrs in PHC register

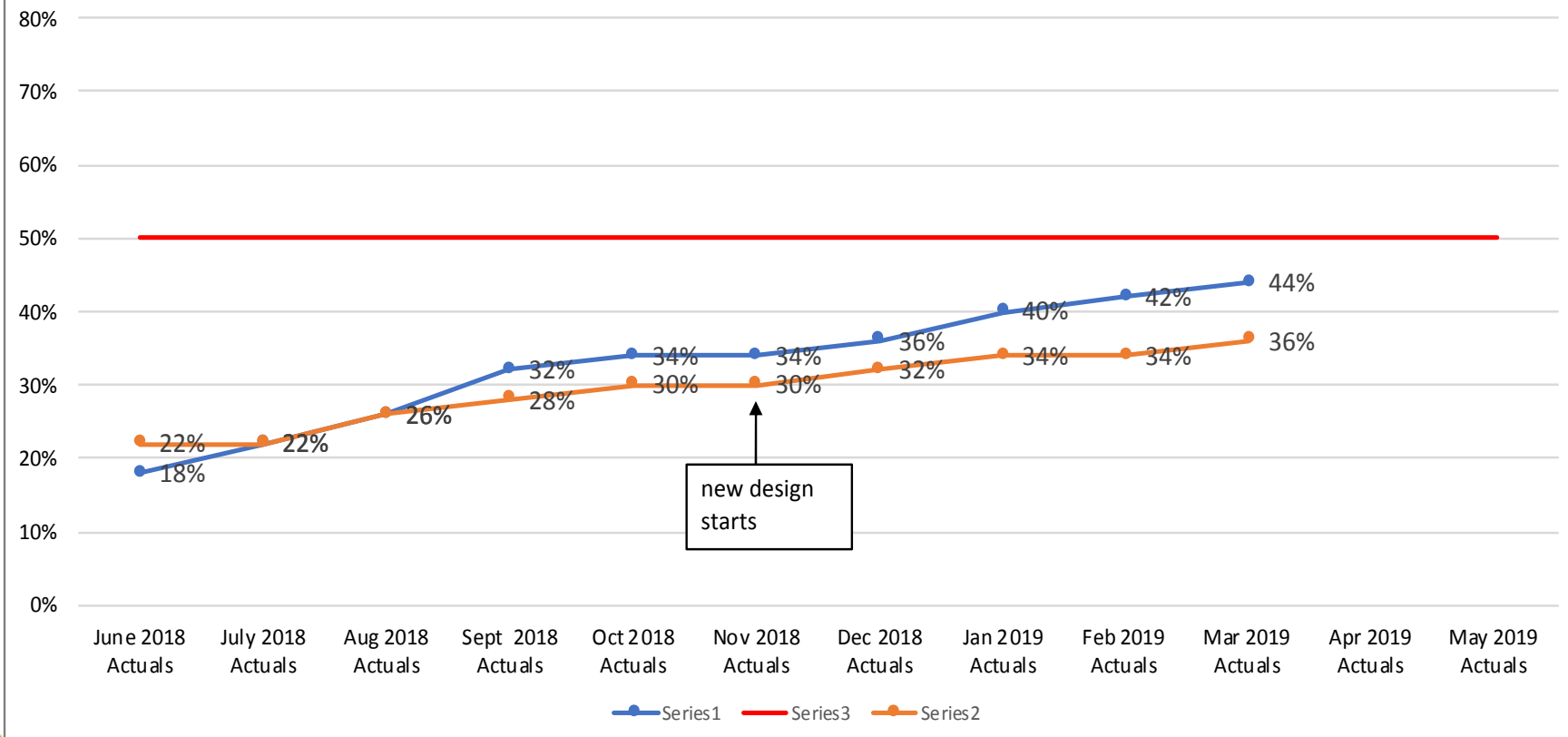
Apr 2018
Change idea 2
Weekly verification of all TB screenings before enter the data in the monthly summary sheet and it is done by the data capturer after data training

CAPACITY BUILDING OF MANAGERS

- Improvement advisors
  - Improvement Advisor Professional Development Program for two senior staff at National Level trained (one TA)
- Four people appointed for QI at national level
- Improvement Coaches
  - 31 trained at National/Provincial/DSP levels (QILM)
  - 78 trained at National/District/DSPs levels (L&FQI)
  - 68 DSPs trained
- Learning Sessions & Facility Coaching
  - 1164 frontline providers trained –LS 1 & 2&3
  - 146 Active Quality Improvement Teams (60%)
  - 380 on site coaching and mentoring visits done
  - 6/7 sub districts trained in data management

PROGRESS

% of the 50 pilot facilities with a significant increase in *the number of* i. TB positive and ii. TB Pos starting TB treatment against the milestone target (DHIS data)



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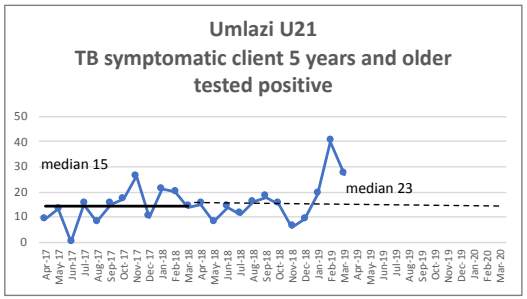
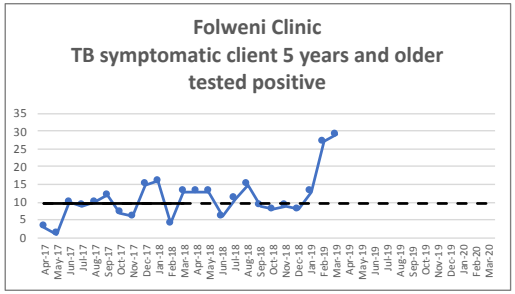
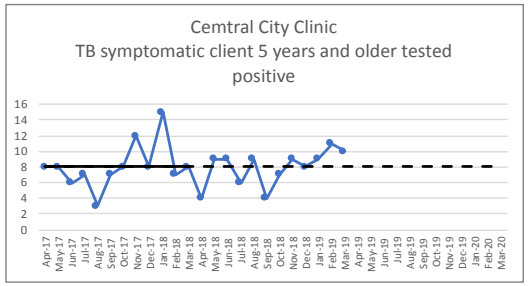
PROGRESS (2)

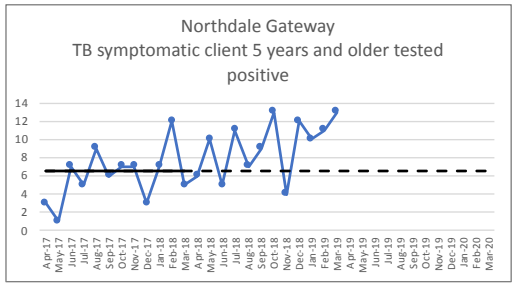
eThekwini



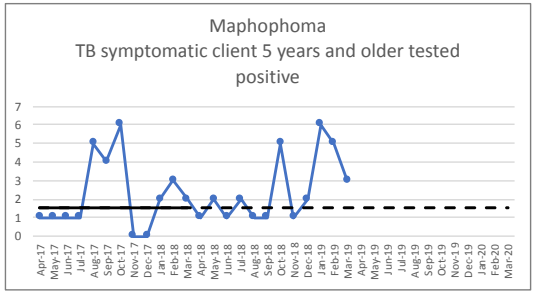


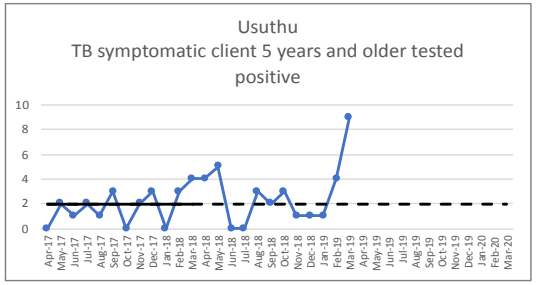
Msunduzi





Nongoma





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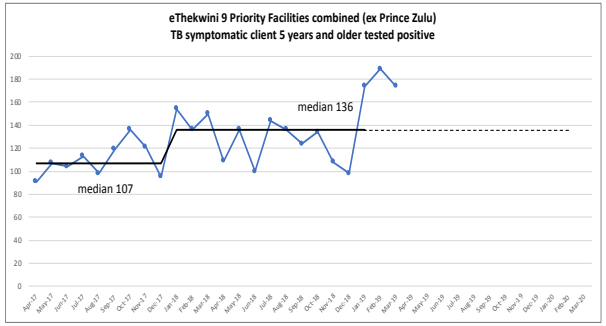
PROGRESS (3)

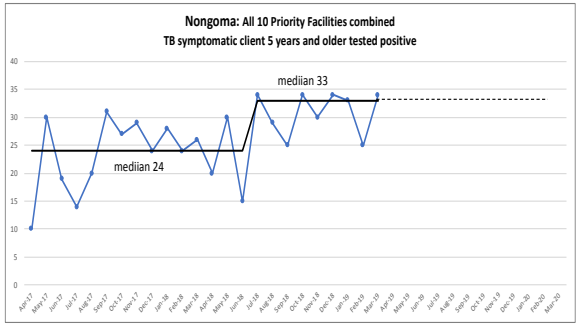
NUMBER TESTED POSITIVE 5YRS AND OLDER

Increases in: eThekwini 27% (107-136), Nongoma 38% (24-33), Msunduzi 49% (79-118), Drankestein 34% (74-99). For all sub districts 22% (348 – 423)

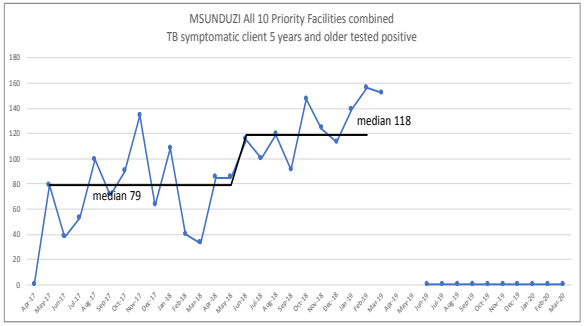
eThekweni



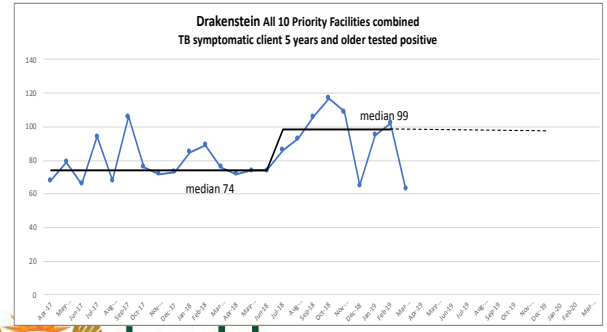
Nongoma



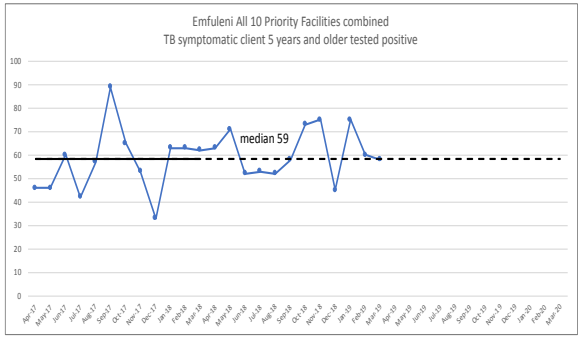
Msunduzi



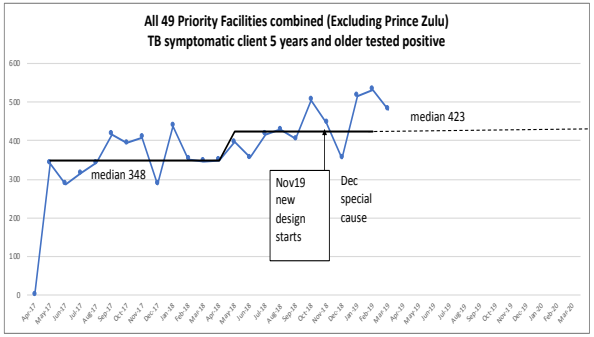
Drakenstein



Emfuleni



All Sub Districts



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CHALLENGES

- Poor patient flow processes resulting in patients missed for screening
- Poor recording in patient records and register
- Multiple entry points result in poor capturing and collation of data
- Non standardisation of patient records (PHC, Hospital) used
- Poor clinician attitudes

CHALLENGES

- Variations in implementation
- Quality of screening still remains weak resulting in a low yield
- Team work at facility level sub optimal
- Quality of data poor
  - Incomplete and incorrect completion of PHC registers
  - Lack of understanding of data elements
  - Missing data elements in PHC tick registers and facility monthly data input forms resulting in these not reported in the DHIS

KEY POINTS FOR SUCCESS

- Management buy-in and ownership at all levels is critical for successful implementation
- Onsite mentorship and coaching
- Targeted approach in facility support
- Sharing of lessons and benchmarking
- Quality data is an essential component for monitoring the success of the project
- Target setting for all levels
- Laboratory alerts for patient tracing for linkage to treatment

TB NOTIFICATION TARGETS

	NEWLY REGISTERED PATIENTS STARTED TREATMENT	MONTHLY NUMBER NEWLY REGISTERED TB PATIENTS STARTED TREATMENT 2018/19						QUARTERLY NUMBER NEWLY REGISTERED 2018/19		CONTRIBUTION TO MISSING CASES 2018/19		
Province, District, SD, Facility	Recommended Quarterly Target	April '18	May '18	June '18	Jul '18	Aug '18	Sept '18	Q1 April '18- June '18	Q2 July '18- Sept '18	Q1 April '18- June '18	Q2 July '18- Sept '18	Cumulative
EASTERN CAPE Total	**12,606**	**3,294**	**3,439**	**3,373**	**3,788**	**3,871**	**3,995**	**10,106**	**11,655**	**677**	**2,226**	**2,903**
MATATIELE LM	178	50	54	46	45	46	37	150	128	17	-5	12
MBIZANA LM	293	70	65	72	85	70	79	207	234	-13	15	2
NTABANKULU LM	250	76	66	82	92	90	81	224	263	37	76	114
UMZIMVUBU LM	306	72	71	77	85	70	79	220	234	-9	6	-3
A NZO DM Total	**1,027**	**268**	**256**	**277**	**313**	**274**	**303**	**801**	**890**	**33**	**122**	**156**

- **Quarterly number newly registered 2018/19**
  - Calculates when data entered for last month of quarter
  - Dashboard:
    - **Red** – Number of patients newly registered for the quarter is **below average quarter last year**
    - **Orange** – Number of patients newly registered for the quarter is **above average quarter last year** but **below target**
    - **Green** - Number of patients newly registered for the quarter is **at or above the target**
- **Contribution to missing cases 2018/19**
  - **Black text** – number of additional newly registered patients **above** quarterly baseline
  - **Red text** – number of additional newly registered patients **below** quarterly baseline

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TESTING TARGETS 2018

District/Sub-district	POSITIVITY RATE	AVERAGE POSITIVITY RATE	TOTAL PEOPLE TESTED IN 2017	TESTING TARGET FOR 2018 (Q1-Q4)	TESTING TARGET FOR 2018 (Q1-Q3)	TOTAL PEOPLE TESTED IN 2018 (Q1-Q3)	% OF TARGET	% OF TARGET (3 QUARTERS)
Eastern Cape	**11.8**	**10.7**	**384232**	**570783**	**428087**	**296745**	**52.0**	**69.3**
Alfred Nzo	**9.3**	**10.7**	**38062**	**44374**	**33280**	**28631**	**64.5**	**86.0**
Matatiele	9.3	10.7	10500	12210	9158	7569	62.0	82.7
Mbizana	6.0	10.7	684	515	386	465	90.4	120.5
Umzimvubu	9.4	10.7	26878	31649	23737	20597	65.1	86.8
Amathole	**8.5**	**10.7**	**54200**	**57839**	**43379**	**35072**	**60.6**	**80.9**
Amahlathi	9.4	10.7	11248	13264	9948	7581	57.2	76.2
Mbhashe	8.8	10.7	15330	16991	12744	10865	63.9	85.3
Mnquma	6.9	10.7	17553	15197	11398	9982	65.7	87.6
Nkonkobe	9.2	10.7	9548	11068	8301	6245	56.4	75.2
Nxuba	20.2	10.7	521	1318	988	399	30.3	40.4
>>>>>>>>>>>>>>>>>>								
Mpumalanga	**11.6**	**10.7**	**123155**	**180029**	**135022**	**87414**	**48.6**	**64.7**
Ehlanzeni	**11.8**	**10.7**	**57256**	**84656**	**63492**	**40379**	**47.7**	**63.6**
Bushbuckridge	10.6	10.7	13665	18108	13581	9382	51.8	69.1
Mbombela	12.0	10.7	23317	35238	26428	16394	46.5	62.0
Nkomazi	13.3	10.7	11693	19476	14607	8351	42.9	57.2
Thaba Chweu	9.7	10.7	3931	4806	3605	2748	57.2	76.2
Umjindi	12.0	10.7	4650	7027	5271	3504	49.9	66.5
>>>>>>>>>>>>>>>>>>								
Grand Total	**10.7**	**10.7**	**2169897**	**2916760**	**2187570**	**1660430**	**56.9**	**75.9**

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EXAMPLE: REQUEST FOR ACTION

NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES
Division of the National Health Laboratory Service

GeneXpert Register - Rifampicin Resistance

Run Date: 20/11/2018 14:01:55

→ Report Name

Gauteng

Report prepared by the National Institute for Communicable Diseases

Note: Rifampicin resistance diagnosed on GeneXpert must be confirmed with a second sputum specimen submitted for culture and drug susceptibility testing.

Interpretation of Sensitivity Profile:
1. Specimen Date: Date on which the specimen was collected from the patient.
2. Test Date: The reviewed date of the first specimen that identified the patient as Rifampicin resistant on GeneXpert.

NICD shall not be responsible for any misrepresentation and/or misinterpretation that may arise from use of this information and/or data.

Patient Name	District	Sub District	Facility	Specimen Type	Taken Date	Reviewed Date	Episode No
Jane Doe	City of Tshwane Metro	Tshwane 1 Health Sub-District	Kt Matubatse Clinic	SPUTUM	15-NOV-2018	16-NOV-2018	MA12345678
John Doe	City of Johannesburg Metro	Johannesburg C	Tshepisong Clinic	SPUTUM	12-NOV-2018	14-NOV-2018	IF123456789

→ Patient Information

Patient Name	Patient Address	District	Sub District	Facility	Folder No	National ID No
Jane Doe		City of Tshwane Metro	Tshwane 1 Health Sub-District	Kt Matubatse Clinic	123-456-7890	
John Doe	1 Modderfontein Road	City of Johannesburg Metro	Johannesburg C	Tshepisong Clinic	123456	

→ Tracing Information

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EXAMPLE: SUMMARY OF GXP-DIAGNOSED R[illegible]-TB

	Total diagnosed	Duplicates (already on treatment)	Total diagnosed - duplicates	Started treatment	Died before treatment	Refused treatment	Moved out	Cannot be traced	Un accounted for	Treatment initiation rate (%)
District 1	133	6	127	84	14	0	0	1	28	66,1
District 2	58	1	57	38	2	1	0	1	14	66,7
District 3	82	2	80	68	2	2	2	2	4	85,0
District 4	26	0	26	21	3	0	0	2	0	80,8
District 5	29	0	29	21	1	0	0	2	5	72,4
Province	**327**	**9**	**318**	**232**	**22**	**3**	**2**	**8**	**51**	**73,0**

*Duplicates = Patients already on treatment

CONCLUSION

- Quality Improvement methodology
  - Data driven process
    - Forces facility staff to analyse and act on data
  - Simplifies processes at facility level
    - Patient flow
    - Data flow
  - Applicable in any program
- Expansion to quality of clinical care and community services
- Different cascade for hospitals is needed

Thank you

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