Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

Quality Improvement Division

QI TALK TIME

Building an Irish Network of Quality Improvers

Winning Hearts and Minds: A QI Project Story

Speaker: Paul Rafferty

***30th* May 2017 1-2 pm**

Connect **Improve** **Innovate**

Paul Rafferty

- Paul is an experienced facilitator an improvement coach. He is a faculty member of the RCPI/HSE QID Diploma in Quality and Leadership. He has also delivered training on the RCSI's productive theatre (TPOT) training course.

- He has assisted both Private and Public Hospitals to improve patient's safety, experience, outcomes, cost, access and flow.

- He has led the re-organisation and consolidation of Clinical Directorates in a number of Hospitals. He has worked on health care improvement at a national level, assisting Dr Barry White to establish and manage the National Clinical Programmes, which were designed to provide national clinical leadership

- Paul established Clineffect Consulting in April 2015 focus on specific clinical pathways/services to achieve what they are intended to achieve in terms of patient outcome, safety, experience, access, flow and cost.

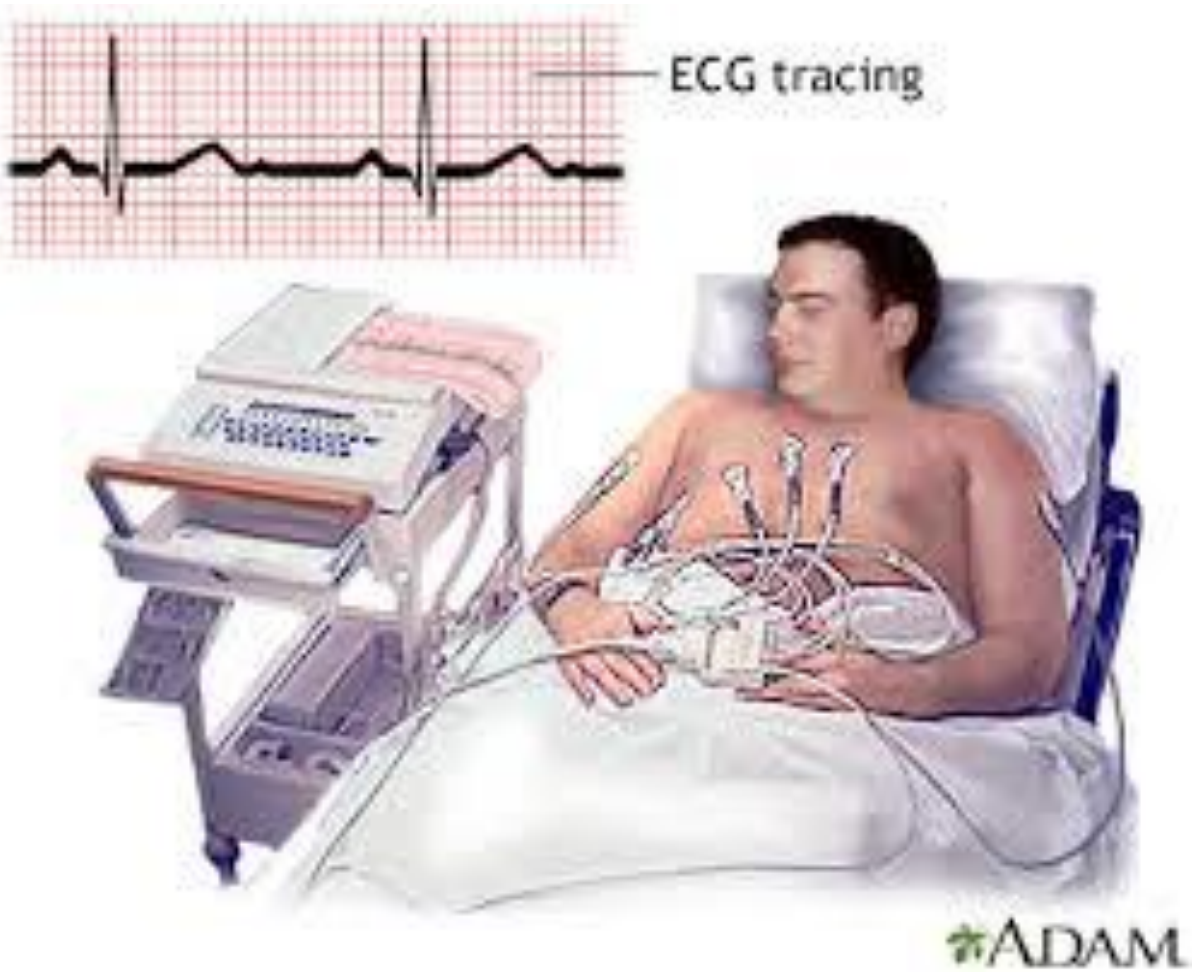
Instructions

- Interactive
- Sound
- Chat box function
  - Comments/Ideas
  - Questions
- Q&A at the end
- **Twitter: @QITalktime**

Clinical effectiveness: the extent to which specific clinical pathways & services achieve what they are intended to achieve.

Using QI tools to win Hearts & Minds

ECHO Service QI Project



ECHO Service

ECHO Service profile	
Number of ECHO Machines	3
Number of Machines working during period:	2
Number of technicians available on average per day:	2
Level of competency of technicians on average: • Fully trained • In training requiring supervision	 1 WTE 1 WTE
ECHO Service Operating Hours:	8:30 to 16:30
Cardiology Clinic Times	Morning & Afternoon clinic every day

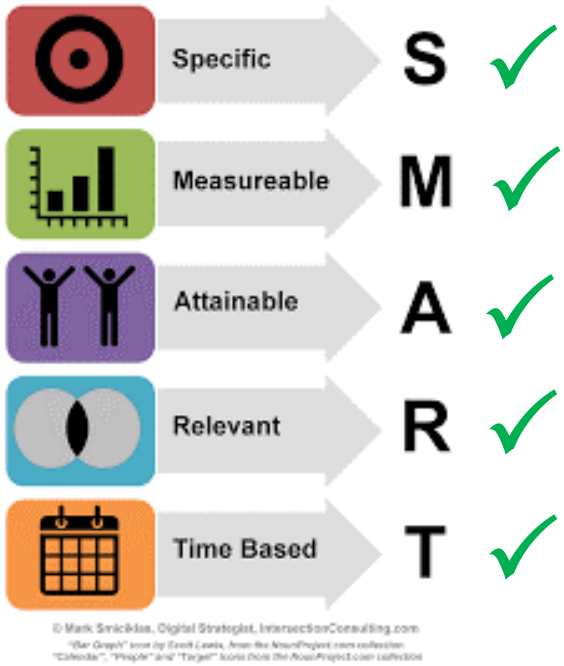
ECHO Service: What is the Opportunity

1) 800 outpatients, referred by multiple specialities, waiting to get an ECHO. Non cardiology OPD patients wait time exceeds 40 – 50 days and longer.

2) Anecdotal evidence that some delayed discharges are due to awaiting ECHO tests only.

3) Timely Access to ECHOs is impacting patient flow in non cardiology related pathways e.g. Hip Fracture, Types of Surgery, etc.

Aim Statement



Increase ECHO service utilisation

from “X” to “Y”

by 24/10/15

for all inpatient and outpatient referrals

ECHO Service: What is the Pain/Opportunity

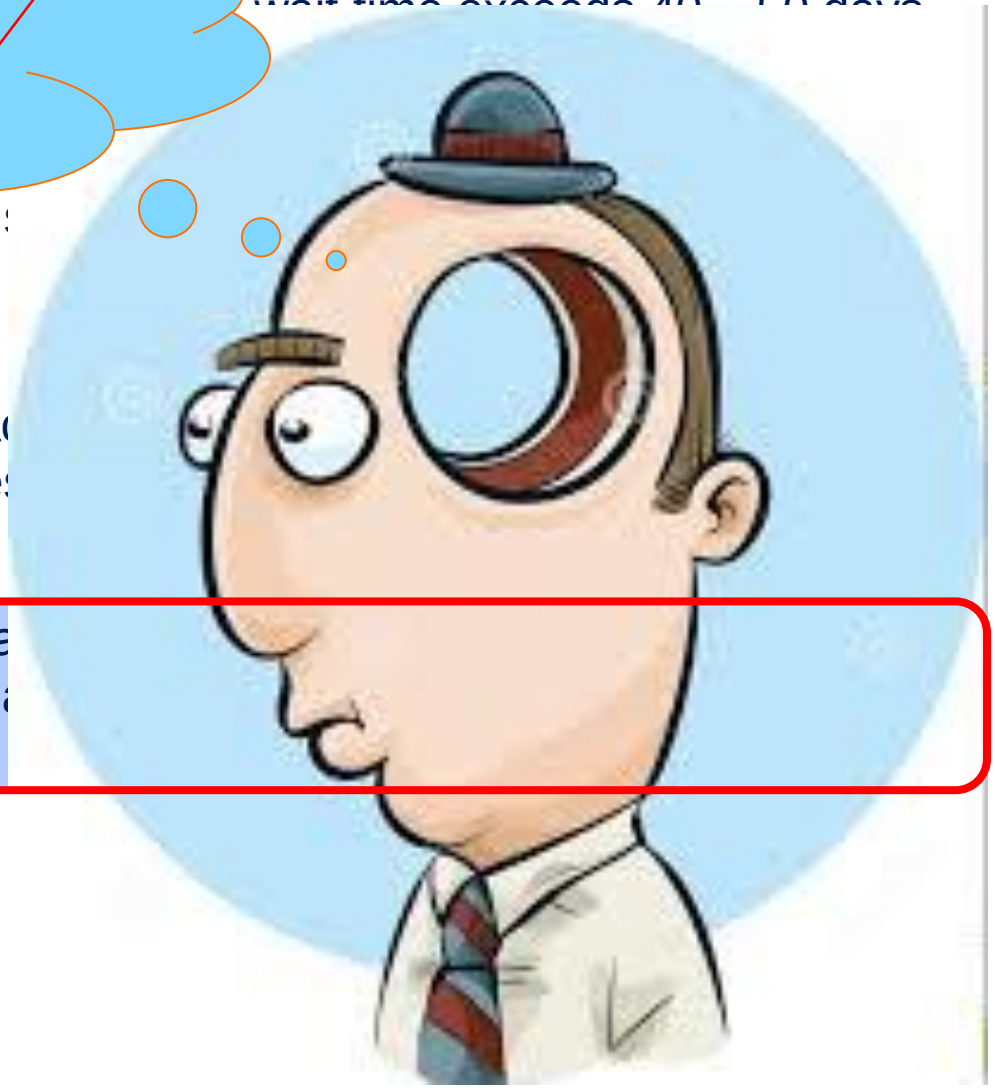
Increase ECHO service utilisation
from "X" to "Y"
by 24/10/15
for all inpatient and outpatient referrals

1) …by multiple specialities, waiting to …wait time exceeds 40 – 50 days

2) There is anecd…idence that …due to awaiting ECHO tests only.

3) Timely Access to ECHOs is impac… pathways e.g. Hip Fracture, Types…

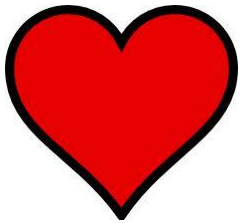
4) The ECHO technician team's mora… out due to unstructured work load a… clinicians directed toward them .



Aim Statement

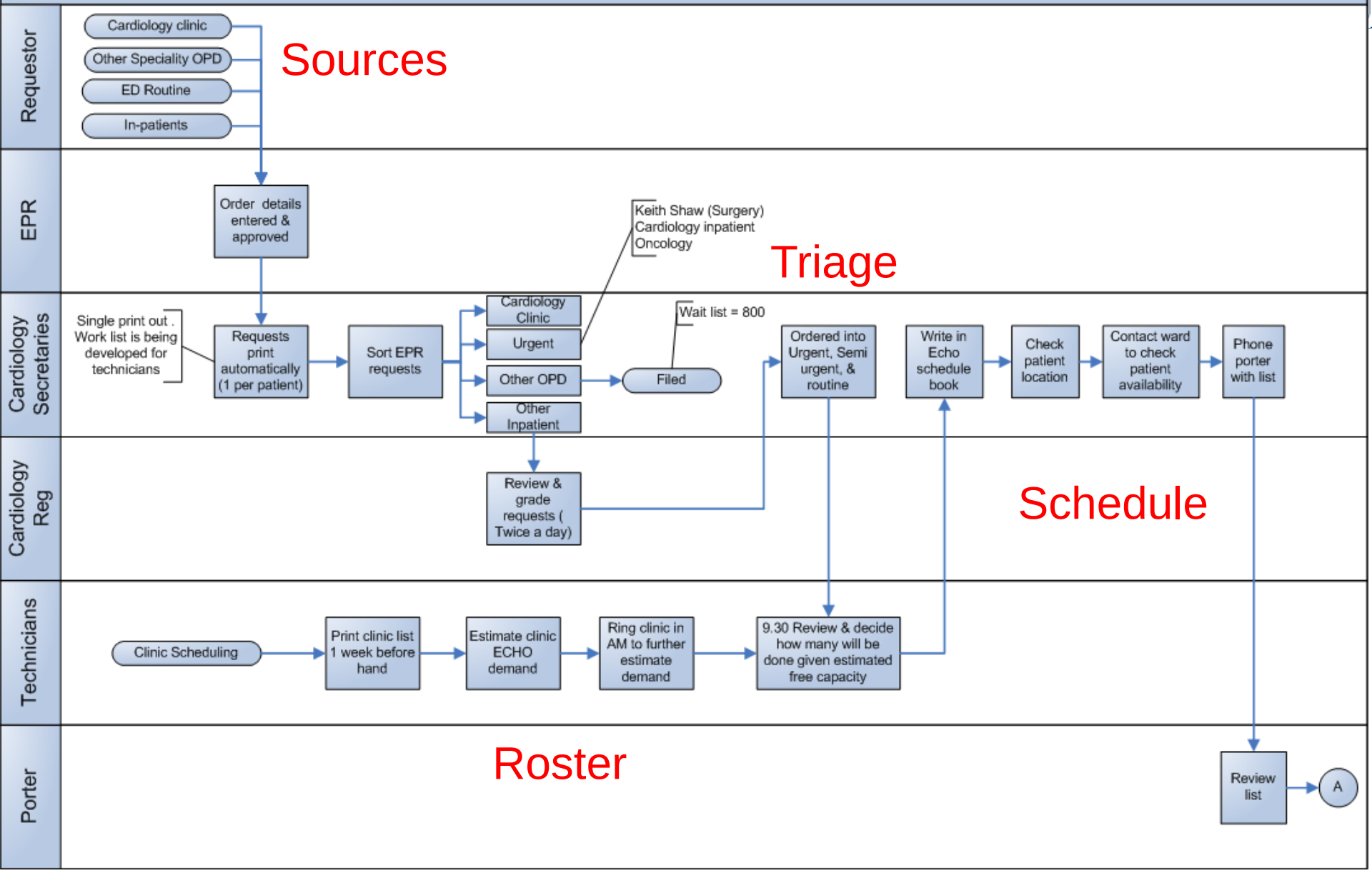
- **Increase ECHO service utilisation from “X” to “Y” by 24/10/15 for all inpatient and outpatient referrals**

- **Ensure ECHO staff can take their breaks**



ECHO Patient Pathway

1.1. Ordering & Scheduling



ECHO Patient pathway

1.2 Assessment & Reporting

Requestor

EPR

Cardiology Secretaries

Cardiology Reg

Technicians

Porter

Review results

Next patient

A

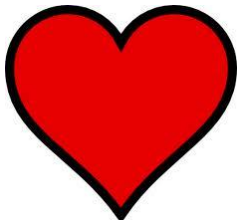
Collect patient

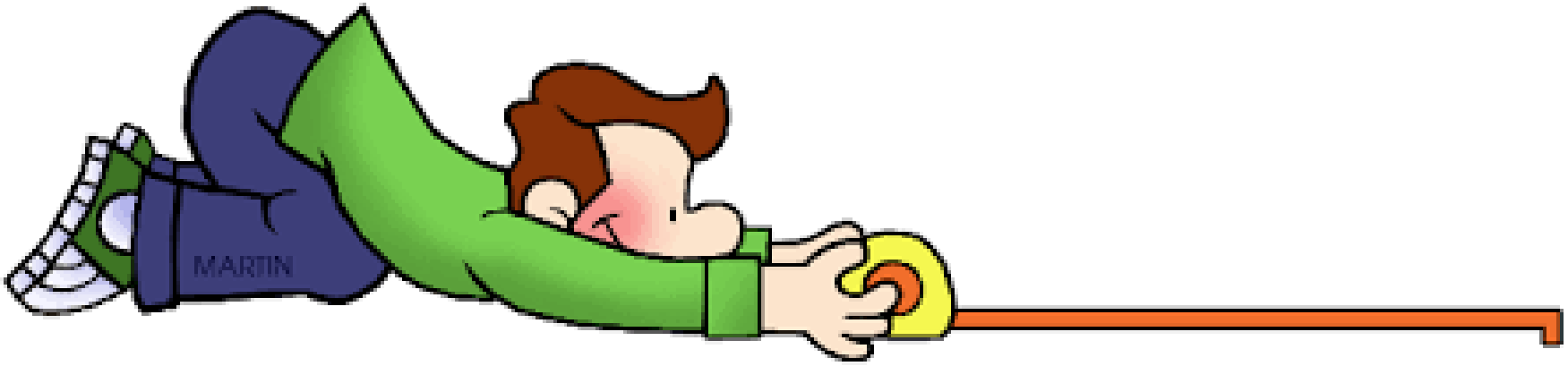
Patient departs

Mapping flow

- Map the pathway & identify issues

- Facilitate a multi-discipline conversation that builds shared ownership for the pathway and the improvement.
- The key skill is facilitation.
- The key output is a list of issues & a more integrated team ……..not the flow chart.




MARTIN

Measurement Plan

Measure title	X or Y	Operational definition	Data source	Sample size	Who collects?	When?	How?	Display type?
Medication error	Y	An adverse (drug) reaction is a response to a medicinal product which is noxious and unintended	Medication error reports	30 incidents	Ward nurse	Start 1/5/14	Review reports end of week	Run Chart showing trend by day

ECHO Project M… Plan

How many Echos do we do a day?
= Current utilisation

Measure title	X or Y	Opera…al definition	…Source	Sample size	Who collects?	When?	How?	Display type?
No. of ECHOs completed per day	Y	Complete = Report sent	Manual Collection	15 Days	ECHO technician	5/8/14 – 28/5/14	Template	Run Chart
No. of ECHOs Completed per WTE	Y	No. of ECHOs divided by the number of whole time equivalents WTW present (WTE = no of hours staff present divided by 8 hours)	Manual Collection		…n	5/8/14 – 28/5/14	Template	Run Chart
No. of ECHOs complete by source of referral	Y	Source of referral = Cardio OPD, othe… patient, ED				…8/14 – …/5/14	Template	Bar Chart
Unmet Demand for ECHOs	X	Wait… for ECH…				…date	Request from manager	State number
Cardio OPD Demand for ECHOs	X	No of Patients referred per Clinic			…ician	5/8/14 – 28/5/14	Template	Table
Time to complete an ECHO	X	Time patient enters ECHO to time Patient leaves + Time to complete report	Manual Coll…	15 Days	ECHO technician	5/8/14 – 28/5/14	Template	Run Chart
ECHO service actual Start & Finish times	X	Start - Time first patient Enters ECHO room Finish = Time last report sent	Manual Collection	15 Days	ECHO technician	5/8/14 – 28/5/14	Template	Run Chart
ECHO Utilisation level	Y	Total time spend doing …HOs divided by total time staff available to d… CHOs	Templat…			5/8/14 – …/5/14	Excel	Run Chart
Wait time for ECHO	X	Time in days from date of referral to data… ECHO				…4 – …14	Template	Frequency Distribution

Where do referrals come from & how many?
= Demand

How long does it take to do an Echo?
= What could are capacity be

Mock the data up first before collecting it

Training Data Tutor - Excel — Rafferty, Paul

File | Home | Insert | Page Layout | Formulas | Data | Review | View | Developer | Tell me what you want to do | Share

Normal | Page Break Preview | Page Layout | Custom Views | Ruler | Formula Bar | Gridlines | Headings | Zoom | 100% | Zoom to Selection | New Window | Arrange All | Freeze Panes | Split | Hide | Unhide | View Side by Side | Synchronous Scrolling | Reset Window Position | Switch Windows | Macros

Workbook Views | Show | Zoom | Window | Macros

O5 | 0

Sources & Volume

Time

	G	H	I	J	K	L	M	N	O	P	Q	R	T	U	V
3	Cardio Cli	OPD	Inpatient	ED	Other	Total Ech	Per WTE	Arrived	patient originally **scheduled** (For inpatients/non cardio OPD) (Wait time)	Scheduled /sent for/ordered	Time patient **"in"** to ECHO room	Time Patient **"out"** of ECHO room	Time to take Echo	Time report finished	Time to do report	Total E Time
4	1								2		09:00	09:14	0:14	09:30	00:16	0
5		1							0		08:50	09:22	0:32	09:35	00:13	0
6		1							29		09:34	09:45	0:11	09:38		0
7			1					09:39	4	09:00	09:42	10:00	0:18	10:16	00:16	0
8			1					10:04	0	09:50	10:05	10:18	0:13	10:30	00:12	0
9			1					10:00	0	09:50	10:50	11:02	0:12	11:16	00:14	0
10			1					11:23	0	10:55	11:23	11:35	0:12	11:45	00:10	0
11			1					11:52	1	10:55	11:53	12:06	0:13	12:15	00:09	0
12			1					11:50	0	11:00	11:50	12:01	0:11	12:06	00:05	0
13		1							10		13:22	13:51	0:29			

Echo Times | No of Echos & per WTE | Echoes by type | Conversion rate from Clinic | Echo rep ...

Ready | 120%

Start | EN | 17:36 29/05/2017

Then create the data collection template

Todays DATE: 19/8

No. (WTE) of technicians rostered to ECHO today : 2 Am
3pm – 2 training.

Patient	Patient initials	Origin of patient: Cardio Clinic	Inpatient	OPD	ED	In patients: Date referral received	In patients: Time called	Non Cardio OPD: Date referral received	Wait time b4 echo	Time patient "in" to ECHO room	Time Patient "out" of ECHO room	Time report completed	Technician	Supervisor	Comment e.g. for scheduled in patients reason for delay between schedule and arrival, reason for cancelation
1	[redacted]	✓		✓				18/8	—	8:53	9:18	9-30	[redacted]	[redacted]	
2		✓		✓				15/7		9:19	9-36	9-48			
3			✓			15/8	9-15	15/8		9-35	9-51	10-02			
4		✓							45mins	10-00	10-12	10-15			ECG 1st and then waiting for echo
5			✓			18/08/14	9-22			9:50	10:20	10:37			
6		✓								10:45	11:10	11-12			ECG 1st
7			✓			6/8/14	10-40			11-10	11-22	11-35			
8		✓							10 35	11-20	11-32	11-40			ECG 1st
9			✓			6/8/14	6-35			11-12	11-33	11-15			sent for 10 35
10			✓			19/03/14				11:34	11-56	12:10			
11			✓			18/8/14	9-22		—	11-35	11-55	12:15			on list from 9-22 arrived 10-40
12			✓			3/7	1Pm		03	13-03	13-12	—			Study done on 4/8/14.
13			✓			18/08/14	10-34			13:06					
14			✓			18/8	10-34		13-00	13-14	13-25	13-35			on list from 10 34.
15			✓	✓				18/8		13:34	13:55				checked PPM
16			✓			19/8			—	13-32	13-44	15-43			
17				✓		31/7		13/7	1-20	13-44	14-14	15-50			GPA 1:30pm
18				✓		04/07		4/7/14	13-50	14:07	14-29				appr 2Pm
19				✓				18/10/13	14-00	14-17	14-30	16-00			GPA 2Pm
20				✓					14 30	14:32	14-59				
21				✓				16/6/14	2Pm	15-~~15~~	15-~~24~~	15-46			- added as extra as pt in for EST.
22			✓			14/8/14	2Pm		~~2Pm~~ 14.34	15-~~05~~	15-29				arrived at 14.34

Number of Patients who attended Cardio clinic today :	17
Number of New Patients :	—
Number of patients referred from cardio clinic today :	

Observations/ comments on how the day went:

On [redacted] on holidays.

2 x pts sent for @ 9-22 Am –

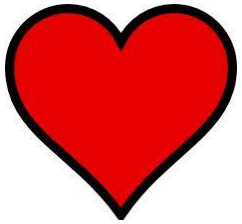
*. 25 mins when one machine idle *

→ 15-45 – 16-30 – reporting echoes

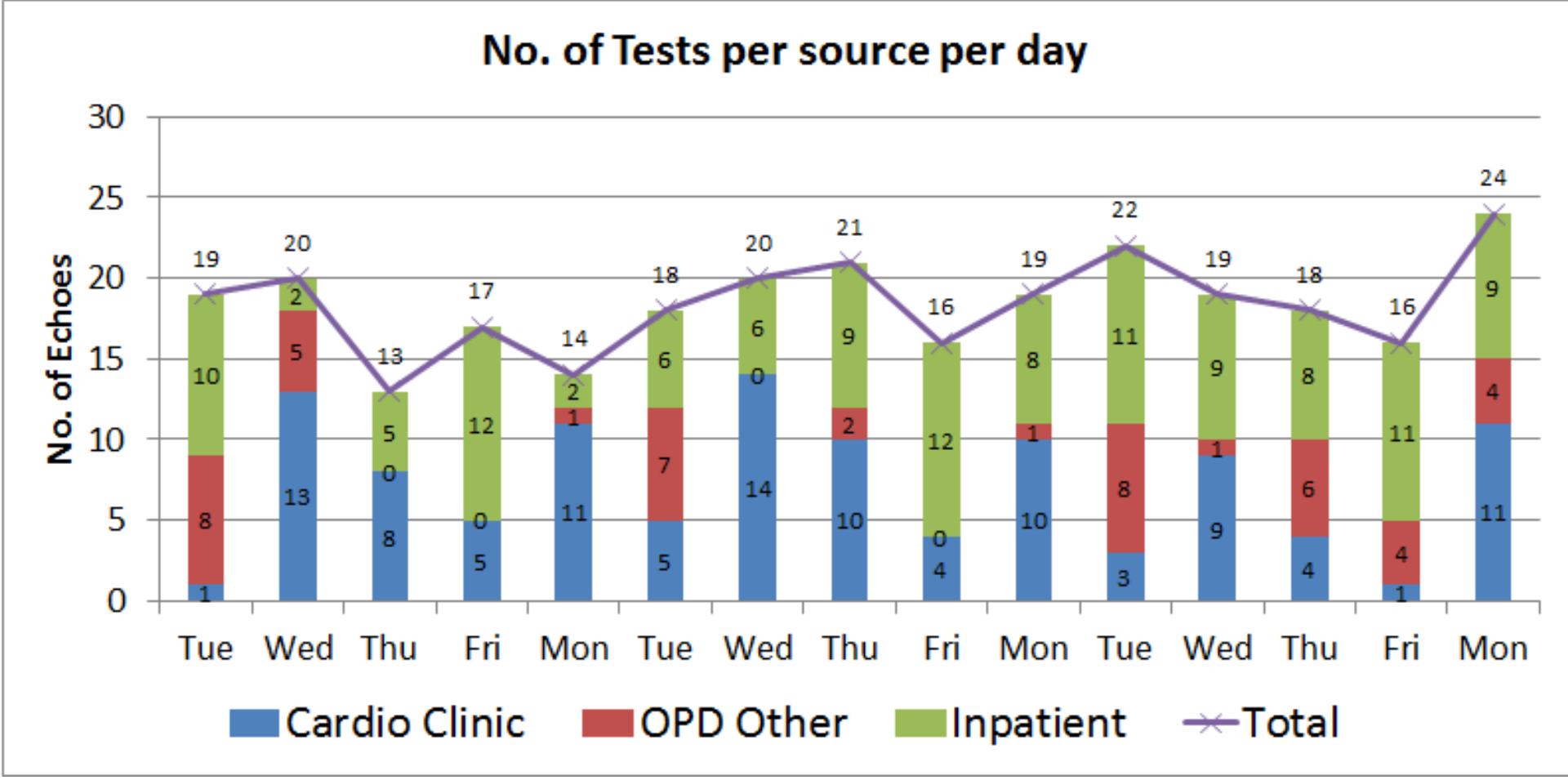
Measurement planning

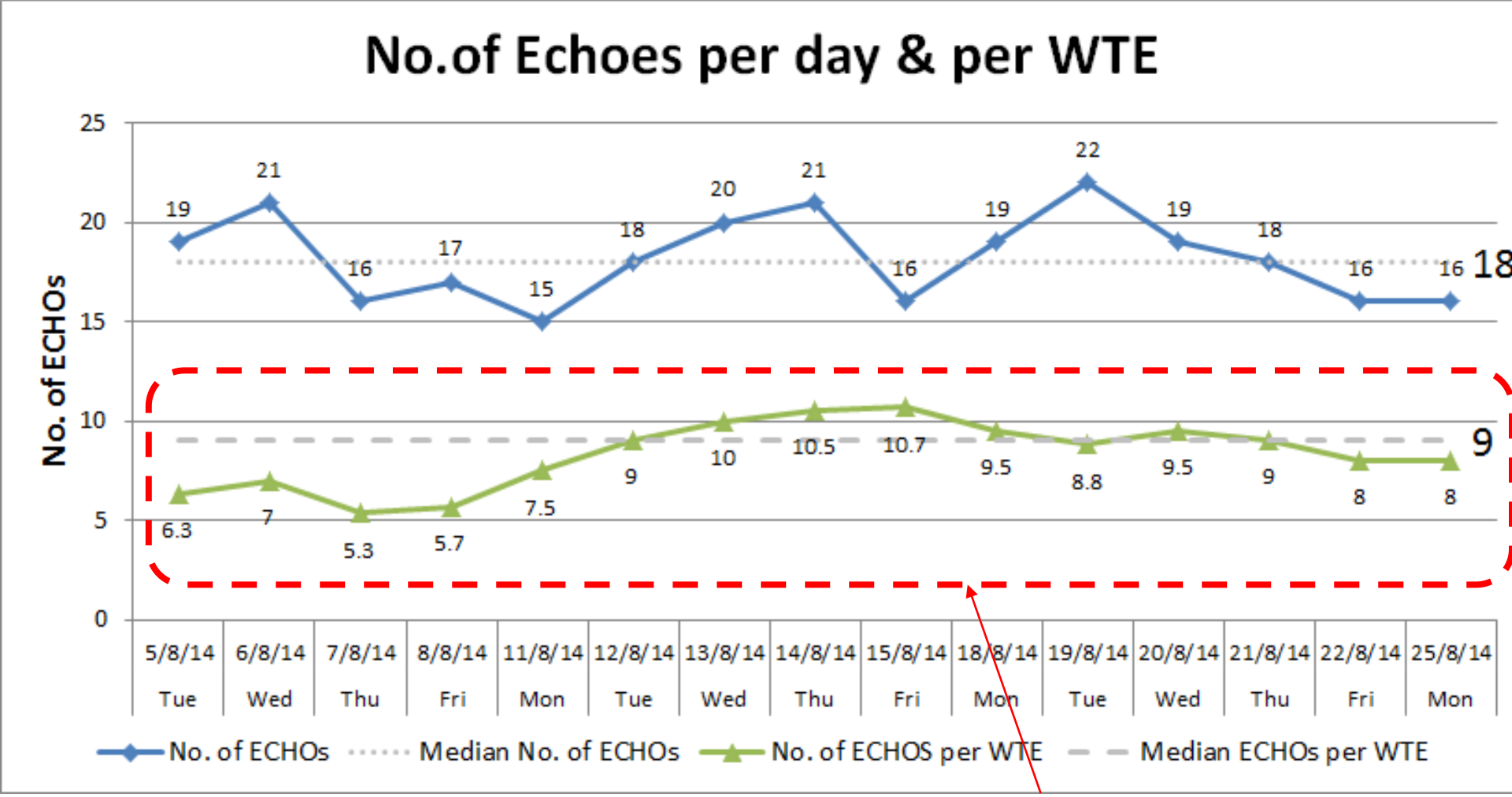
- Be clear about the questions you want to answer and plan what data you require to answer them.

1. Facilitate the service team to agree the measures
2. Use dummy data to model how you want to illustrate the data
3. ……then create the manual collection template so the right data is collected in the right way
4. Huddle with the measurement team every day to check measurement is consistent… adapt the template and show them results real time



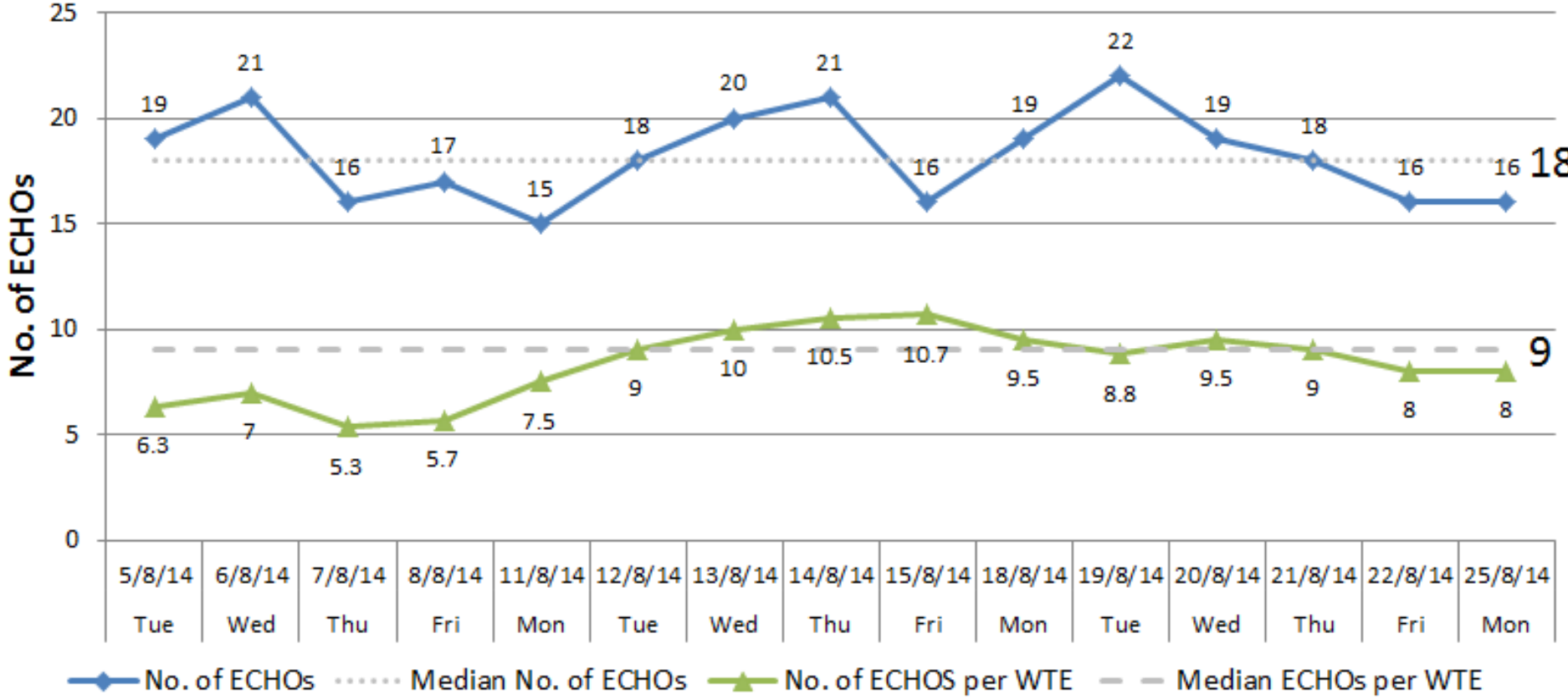
= Builds trust & doesn't waste peoples time


No. of Tests per source per day
No. of Echoes
30
25
20
15
10
5
0
Tue Wed Thu Fri Mon Tue Wed Thu Fri Mon Tue Wed Thu Fri Mon
19 20 13 17 14 18 20 21 16 19 22 19 18 16 24
1 8 10
13 5 2
8 0 5
5 12 0
11 1 2
5 7 6
14 0 6
10 2 9
4 0 12
10 1 8
3 8 11
9 1 9
4 6 8
1 4 11
11 4 9
Cardio Clinic
OPD Other
Inpatient
Total



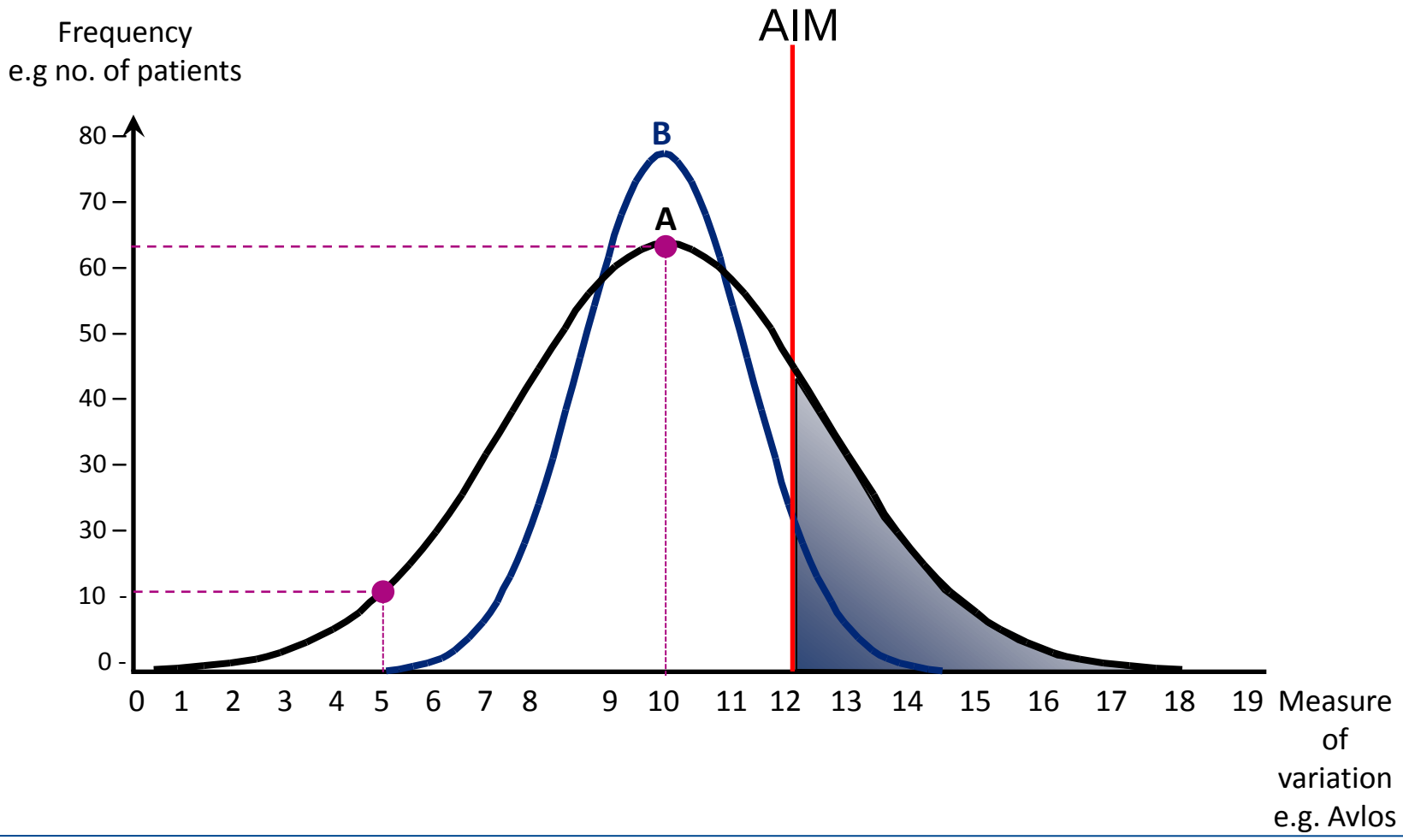
	No. of ECHOs	ECHOS per WTE
Average	18	8
Median	18	9
Std Deviation	2	2

No.of Echoes per day & per WTE

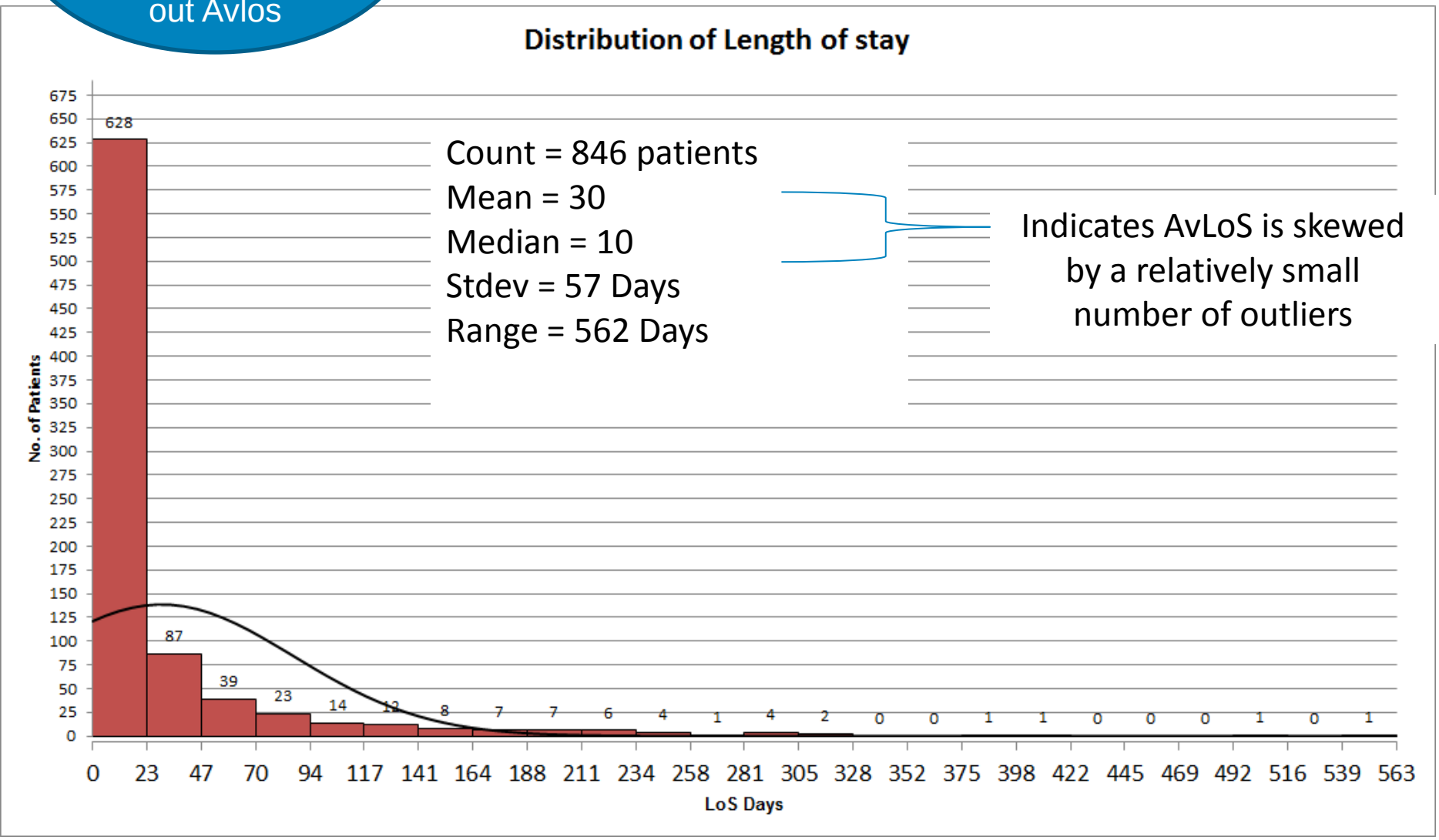


	No. of ECHOs	ECHOS per WTE
Average	18	8
Median	18	9
Std Deviation	2	2

Variation not “average” is the enemy



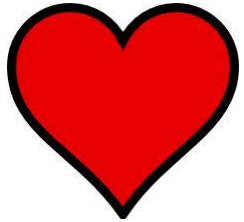
Median Length of stay not bad but significant outliers driving out Avlos



Measurement planning

- Measure & illustrate variation over time

- Measure & illustrate variation in capacity utilisation per WTE over time



- Measure median as well as average – average is a poor measure of comparison

ECHO/ECG Technician WTE & Competency

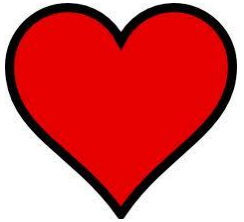
Competency	
Fully trained no supervision	1
Fully trained some supervision	1
In training with supervision	1
Not trained	6.5

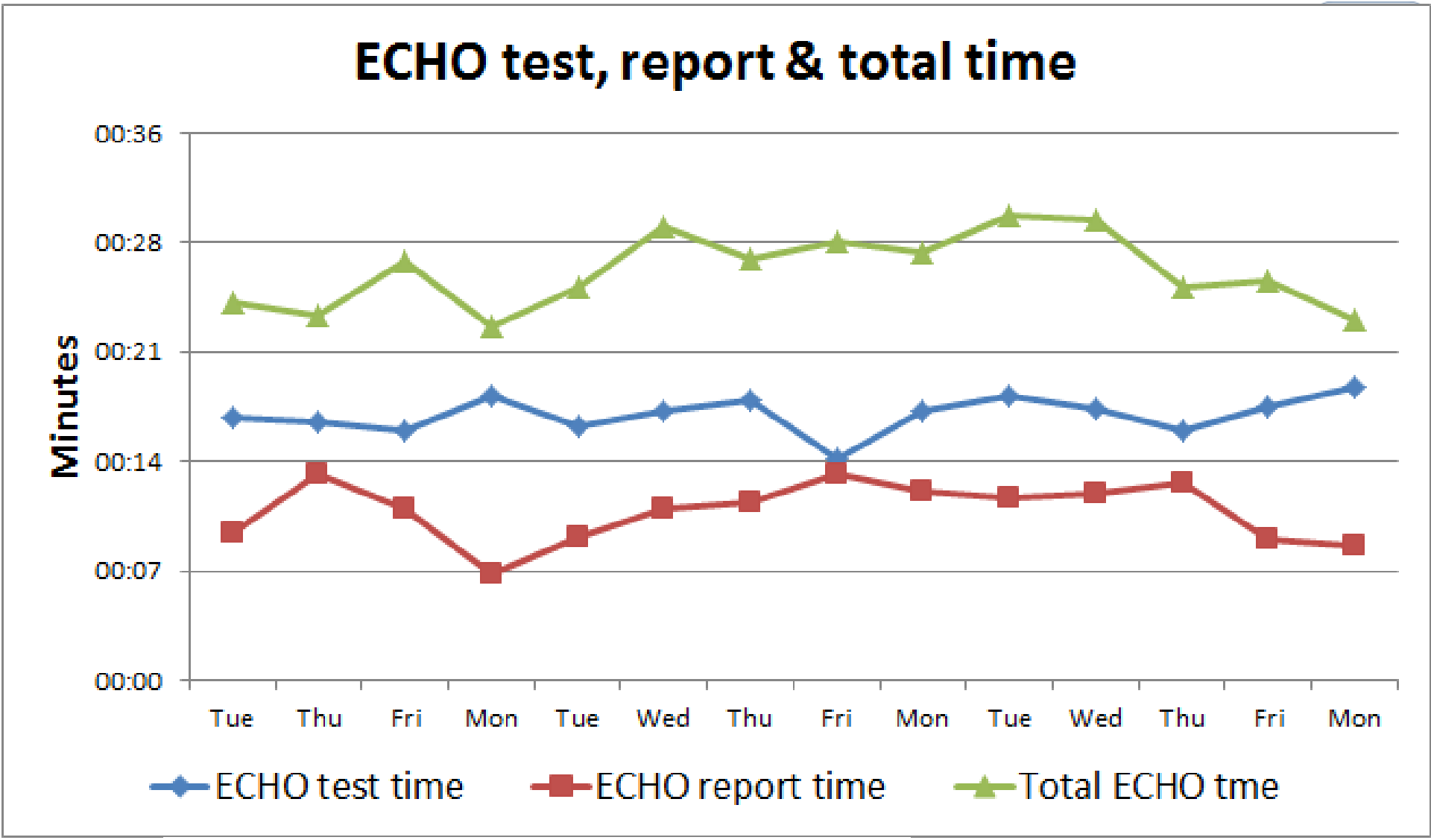
- Key points:
- 68% of available team not trained in ECHO – prevents rotation between ECG & ECHO plus over reliance/pressure on Chief Technician to both train and do ECHOs
- Approval to fill open vacancies but if not skilled new joiners will require training

Measurement planning

- **Measure & illustrate variation**

- **Look for causes of variation everywhere**



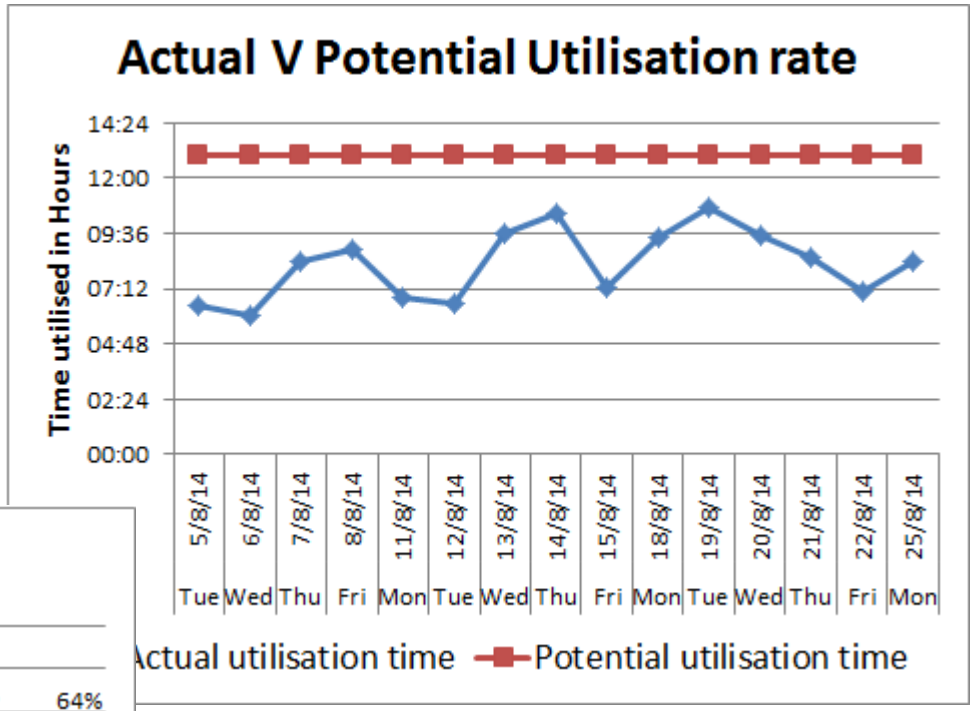


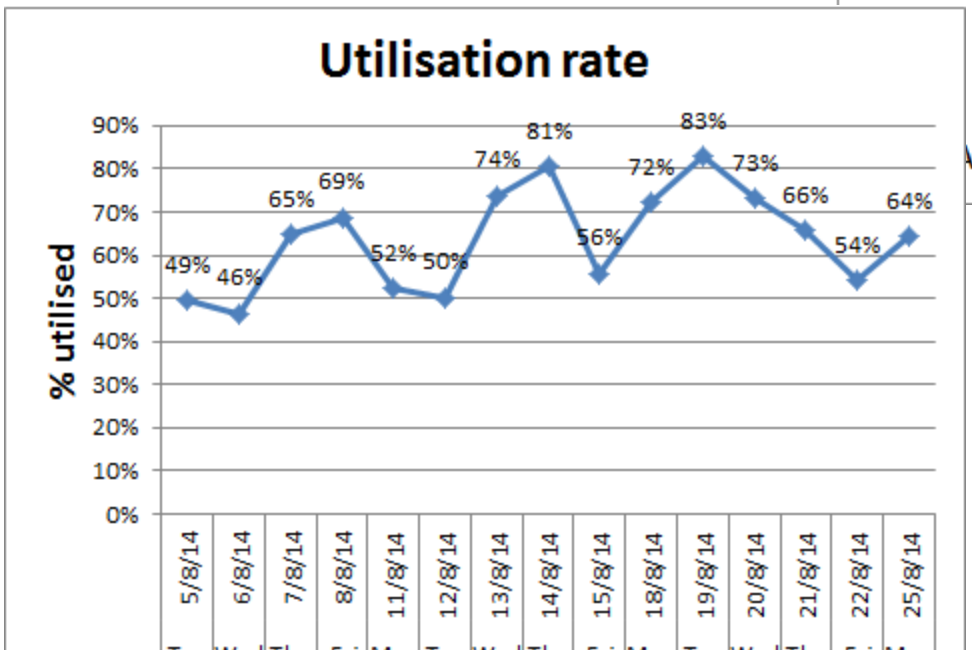
	ECHO test time	ECHO report time	Total ECHO tme
Average	00:17	00:11	00:26

Note: Median times were the same as Average time

What is our current utilisation?

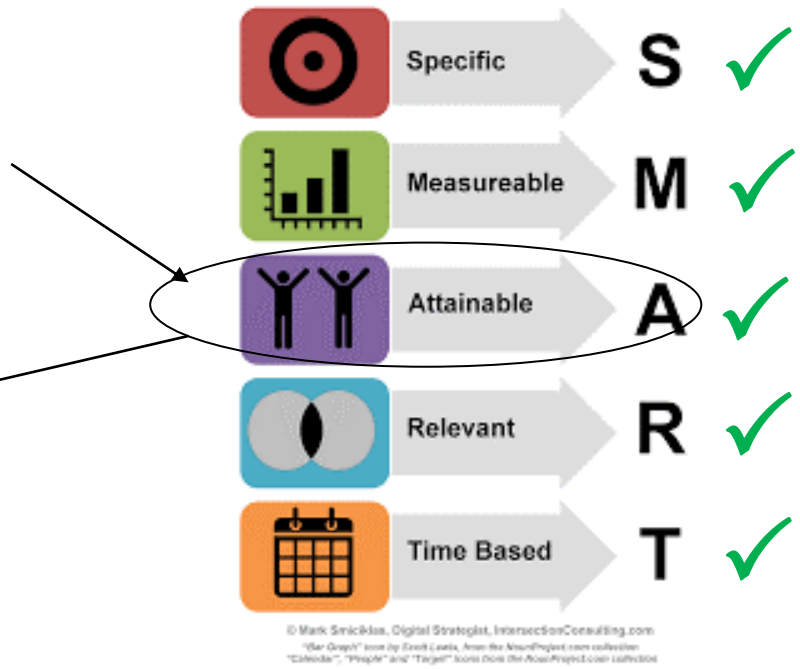
Model for estimating potential utilisation time		
Work day (8:30-16:30)		8 Hrs
Less Lunch	1 Hr	
Breaks x 2	30 Mins	01:30
No. of Hrs if one machine utilised 100% of time		06:30
		X2
No. of Hrs if two machines utilised 100% of time		13:00





What is our potential capacity?

Model based on analysis		
Work day (8:30-16:30)		8 Hrs
Less Lunch	1 Hr	
Breaks x 2	30 Mins	01:30
Available time		06:30
Time to do 1 Echo		26 Mins
Target No of Echos per machine		
One Machine		15
Two Machines		30
Three Machines		45

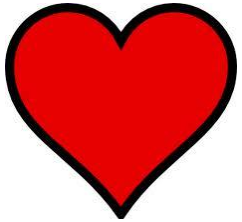


Best Historical Performance		
02/10/2013	2 WTE + 1 Training	25
15/10/2013	2 WTE + 1 Training	26
16/10/2013	2 WTE + 1 Training	29
06/11/2013	2 WTE + 1 Training	27
07/11/2013	2 WTE	26
04/03/2014	2.5 WTE	26
13/01/2014	2 WTE + 1 Training	27
03/06/2014	2 WTE	26
05/06/2014	2 WTE + 1 Training	28

Measurement planning

- Set a measurable evidenced based target

- Facilitate the team in setting their target



Reasons for varition: ECHO Driver Diagram

Primary Drivers	Secondary Drivers	Target Areas of improvement
30 Accurate ECHOS are completed per day (8:30 – 9:30)		
The number of ECHO machines available	- The number of fully trained technicians available	• The number of vacancies • The level of experience of new recruits • **The quality and pace of training**
The level of demand for the service	- Cardio Clinic demand - Other OPD demand - Inpatient demand	• Forecasting demand e.g. 25 to 35% of Cardio Clinic patients require Echo • **Ability to control inappropriate demand using agreed referral criteria**
Optimising available time	- Scheduling	• **Standardised Scheduling practice** • CVIS • Adequate notice to inpatients • Porter availability to bring inpatients to ECHO Dept
Motivated staff	- Work environment - Work load - Staff rotation - Recognition	• HCA to assist with patient prep • **Area to have lunch** • **Ability to take scheduled breaks** • Team working & support from Consultant team • CVIS System
Effective leadership & management	- Effective Cardio team meeting - Visibility of variation - **Operations & change management skills** - **Clinical Leadership**	• **ECHO dashboard** • **Multidiscipline operations management meeting** • Continuous improvement Vs Ad-hoc management

Scenario 1: Afternoon Cardio OPD Clinic

Actual Patient arrival times

Allocating these patients to nearest “25”minute scheduled slot

	Origin of patient			
	Car	OPD	In-P	Time patient "in" to ECHO room
1			1	08:55
2			1	09:21
3		1		08:55
4			1	11:13
5	1			13:27
6	1			13:20
7	1			13:47
8	1			13:59
9	1			14:20
10	1			14:20
11	1			14:36
12	1			14:47
13	1			15:00
14	1			15:10
15	1			15:26
	11	1	3	

ECHO 1

	Start	Referral source	Finish	Time for Test
1	08:30		08:55	00:25
2	08:55	In-patient	09:20	00:25
3	09:20	In-patient	09:45	00:25
4	09:45		10:10	00:25
5	10:10		10:35	00:25
10 Min Tea/Coffee Break				
6	10:45		11:10	00:25
7	11:10	In-patient	11:35	00:25
8	11:35		12:00	00:25
9	12:00		12:25	00:25
1 Hr Lunch Break				
10	13:25	Cardio OPD	13:50	00:25
11	13:50	Cardio OPD	14:15	00:25
12	14:15	Cardio OPD	14:40	00:25
10 Min Tea/Coffee Break				
13	14:50	Cardio OPD	15:15	00:25
14	15:15	Cardio OPD	15:40	00:25
15	15:40	Cardio OPD	16:05	00:25
16	16:05		16:30	00:25
	Cardio OPD	6		
	Other OPD	0		
	In-Patient	3		

ECHO 2

	Start	Referral source	Finish	Time for Test
1	08:30		08:55	00:25
2	08:55	Other OPD	09:20	00:25
3	09:20		09:45	00:25
4	09:45		10:10	00:25
10 Min Tea/Coffee Break				
5	10:20		10:45	00:25
6	10:45		11:10	00:25
7	11:10		11:35	00:25
8	11:35		12:00	00:25
1 Hr Lunch Break				
9	13:00		13:25	00:25
10	13:25	Cardio OPD	13:50	00:25
11	13:50	Cardio OPD	14:15	00:25
10 Min Tea/Coffee Break				
12	14:25	Cardio OPD	14:50	00:25
13	14:50	Cardio OPD	15:15	00:25
14	15:15	Cardio OPD	15:40	00:25
15	15:40		16:05	00:25
16	16:05		16:30	00:25
	Cardio OPD	5		
	Other OPD	1		
	In-Patient	0		

ECHO 3

	Start	Referral source	Finish	Time for Test
1	08:30		08:55	00:25
2	08:55		09:20	00:25
3	09:20		09:45	00:25
4	09:45		10:10	00:25
5	10:10		10:35	00:25
6	10:35		11:00	00:25
10 Min Tea/Coffee Break				
7	11:10		11:35	00:25
8	11:35		12:00	00:25
9	12:00		12:25	00:25
10	12:25		12:50	00:25
1 Hr Lunch Break				
11	13:50		14:15	00:25
12	14:15		14:40	00:25
13	14:40		15:05	00:25
10 Min Tea/Coffee Break				
14	15:15		15:40	00:25
15	15:40		16:05	00:25
16	16:05		16:30	00:25
	Cardio OPD	0		
	Other OPD	0		
	In-Patient	0		

Reasons for varition: ECHO Driver Diagram

Primary Drivers	Secondary Drivers	Target Areas of improvement
The number of ECHO machines available	- The number of fully trained technicians available	• The number of vacancies • The level of experience of new recruits • **The quality and pace of training**
The level of demand for the service	- Cardio Clinic demand - Other OPD demand - Inpatient demand	• Forecasting demand e.g. 25 to 35% of Cardio Clinic patients require Echo • **Ability to control inappropriate demand using agreed referral criteria**
Optimising available time	- Scheduling	• **Standardised Scheduling practice** • CVIS • Adequate notice to inpatients • Porter availability to bring inpatients to ECHO Dept
Motivated staff	- Work environment - Work load - Staff rotation - Recognition	• HCA to assist with patient prep • **Area to have lunch** • **Ability to take scheduled breaks** • Team working & support from Consultant team • CVIS System
Effective leadership & management	- Effective Cardio team meeting - Visibility of variation - **Operations & change management skills** - **Clinical Leadership**	• **ECHO dashboard** • **Multidiscipline operations management meeting** • Continuous improvement Vs Ad-hoc management

30 Accurate ECHOS are completed per day (8:30 – 9:30)

Suggested Next steps

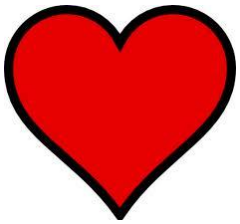
	Action	Resp.	Date
1	Meet with Clinical Director & Ops manager to review and finalise action plan		
2	Present project analysis and recommendations to ECHO technical and Admin staff and Cardiology Consultants and NCHCDs – capture feedback and update recommendations		
3	Develop new skill mix under two scenarios (1) Adjusting existing XX WTEs so that trained te salary cost (i.e. reduce WTE but increase skil (2) Increase skill base without reducing WTE (i.e		
4	Identify means to accelerate ECHO training of exis and professional Echo Training approach /material		
5	Finalise steps/costs to make ECHO room operati		
6	Identify any costs associated with Improve ……off of ECHO room		
7	Cardiologists agree criteria for filtering of ECHO R		
8	Meet IT team to enhance ordering system to filter (Understand if CVIS will need to be integrated to fa		
9	Cardiologists agree new scheduling process and p process		
10	Sign off ECHO measures / targets, design ECHO producing real time reports using CVIS or other sy		
11	Commence Pilot & Implement new scheduling proc		
12	Meet Genera; Manager/CEO to present project findings and full cost benefit case		

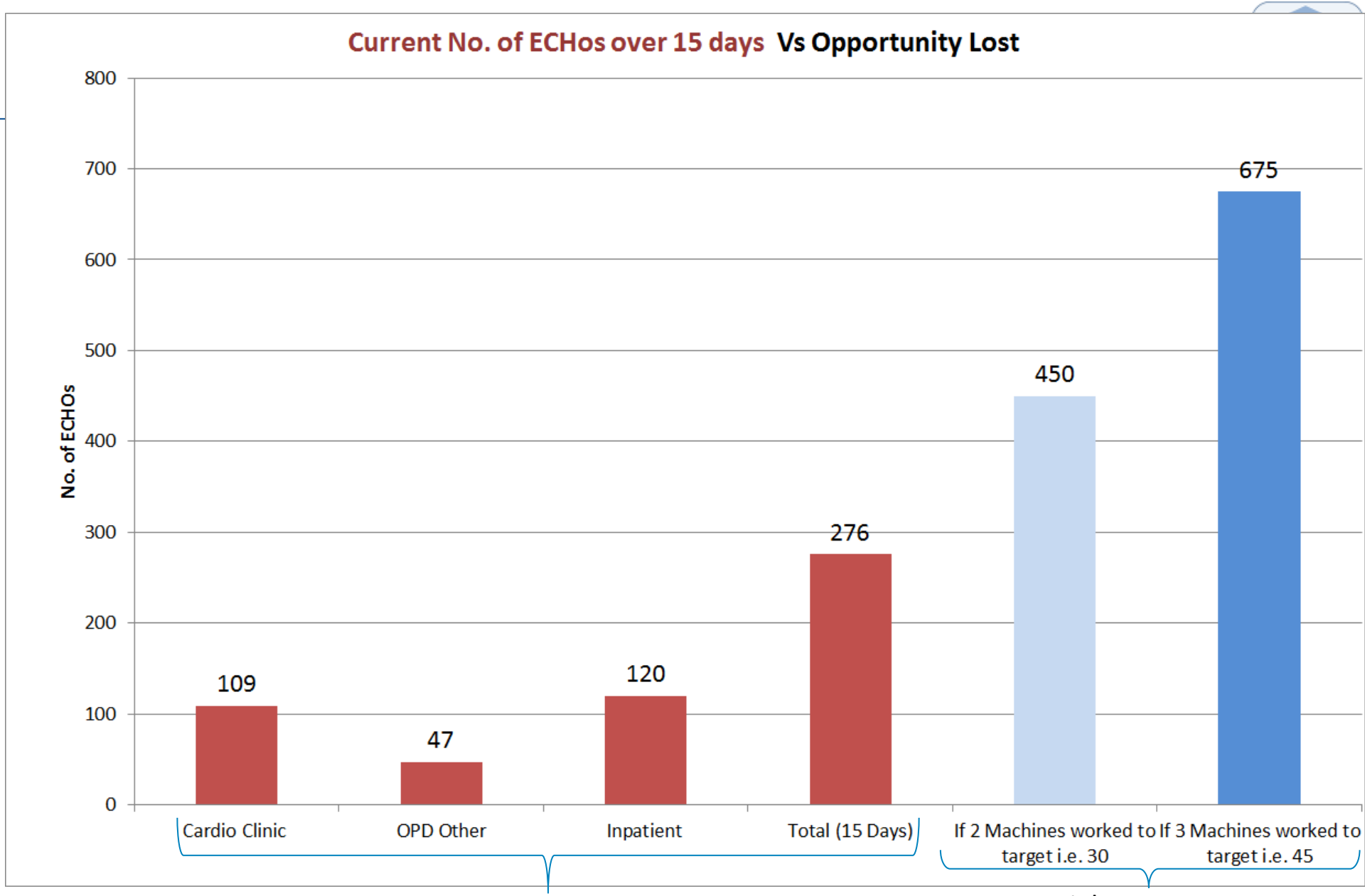
Implementation

- Have an implementation plan that incorporates PDSA cycles and communication with key players

- Have a trackable plan with clear accountability for implementation actions.
- Sell benefits not methodology

  (……but have a methodology)
- Don’t be afraid to try to make change = fun

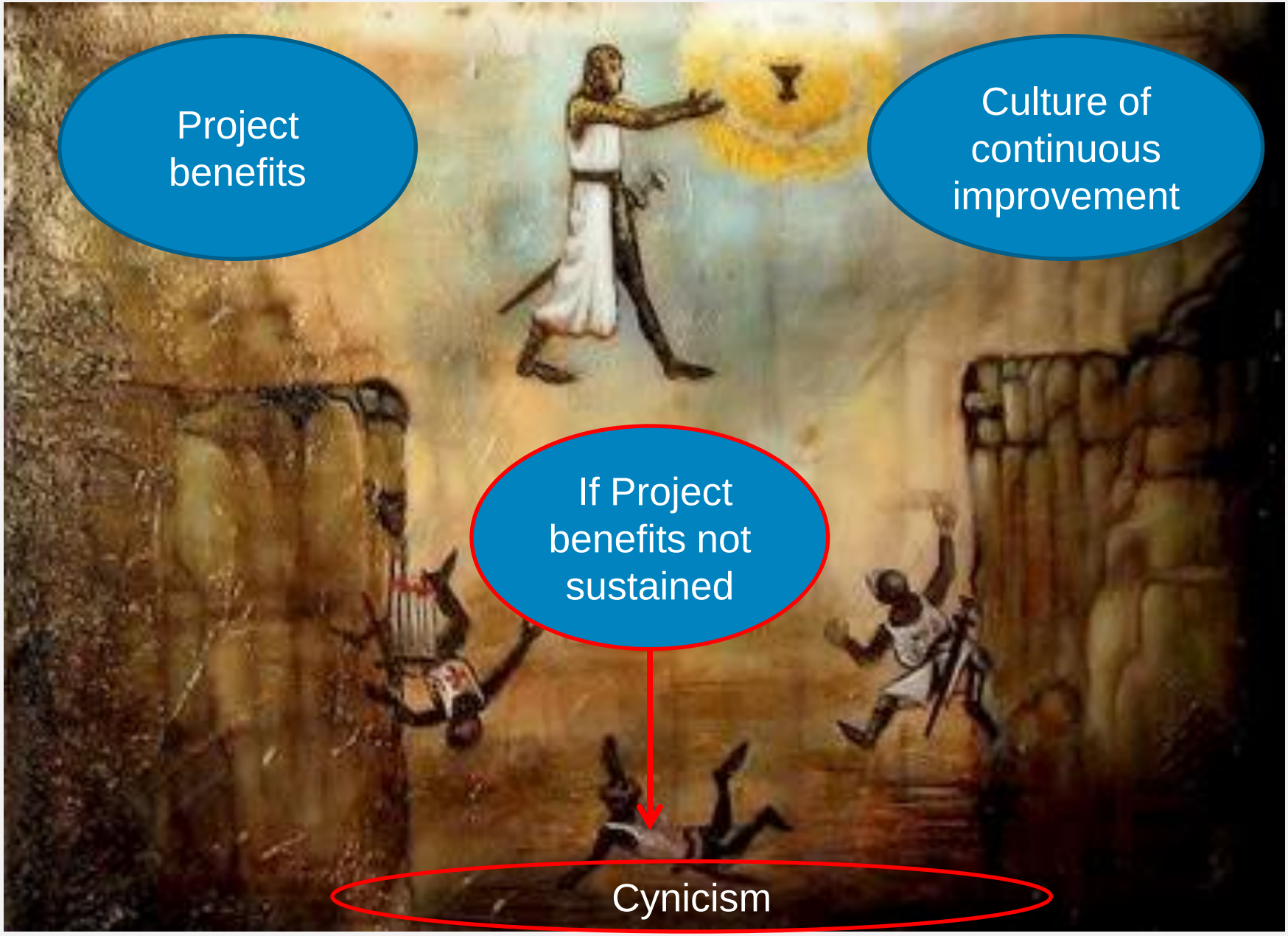


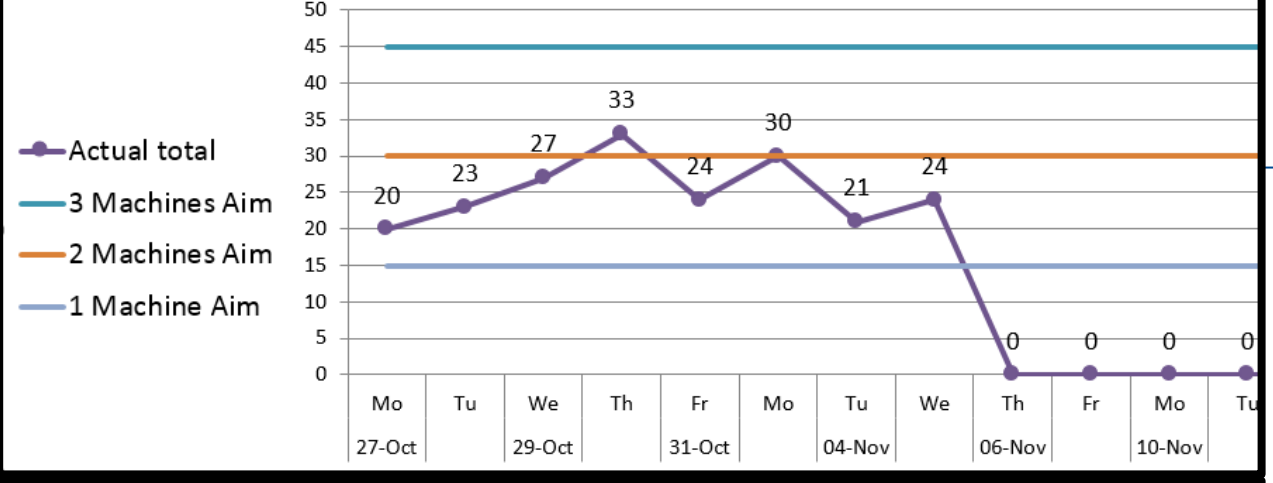


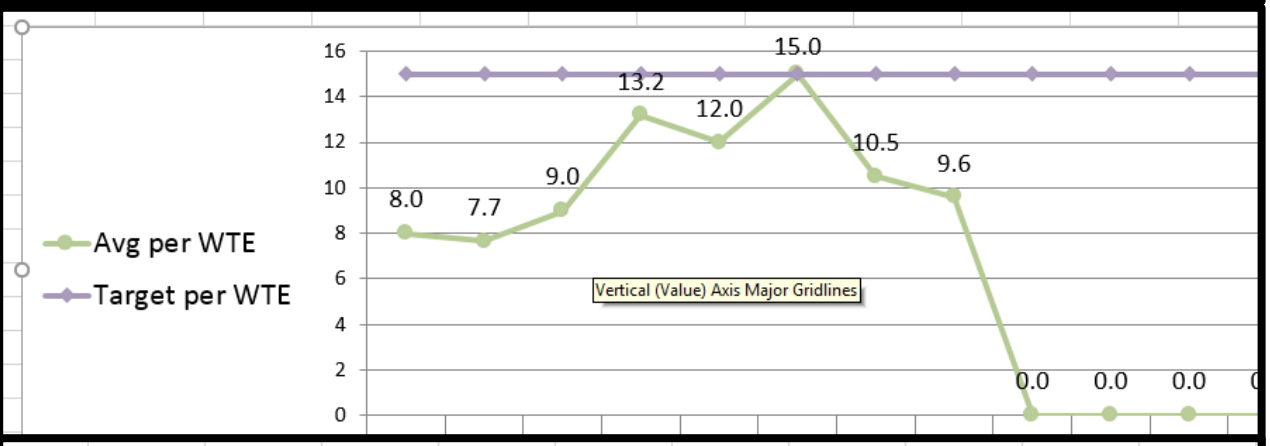
Actual number of ECHOs completed 5/8/14 - 25/8/14 (15 Days)

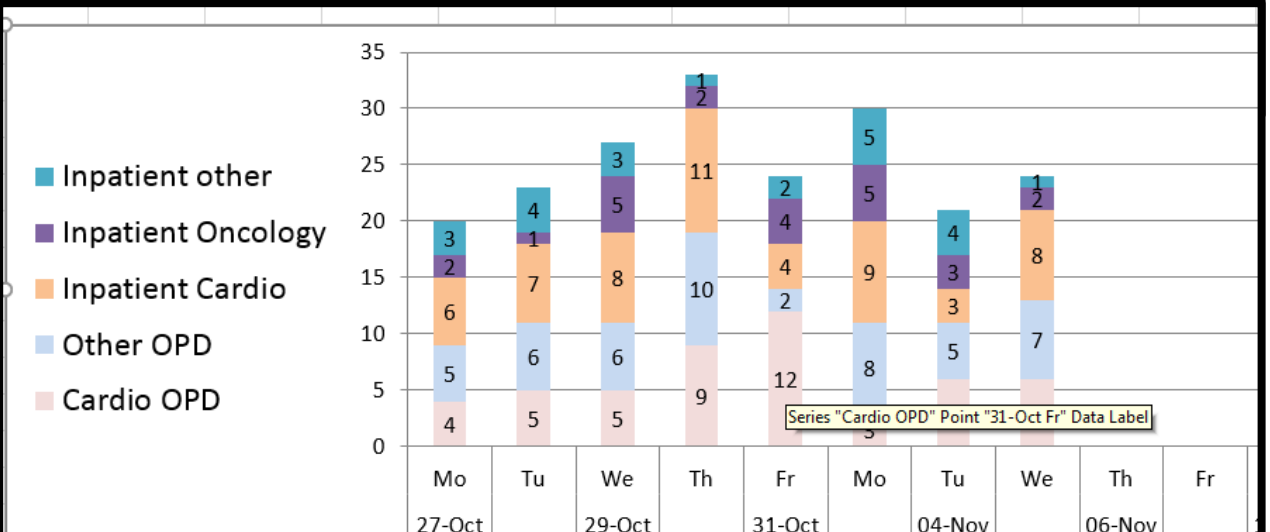
Potential output over same period (15 days) If daily target met

Sustainability









Pathway Dashboard

Governance ?

Summary

Minds	Hearts
• Have an aim statement	• Include staff “pain” in your aims
• Illustrate and analyse the flow using process mapping tools	• Process mapping is about facilitating a team to have a focused conversation so as to build team work and ownership
• Use objective data to avoid subjective analysis	• Plan measurement with the team to build trust and avoid wasting time
• Illustrate variation using run charts and control charts	• Use median and not just average when analysing variation • Look for causes of variation every where – process, people, systems, leadership, etc
• Have an evidenced based target	• Have the team set the target
• Use PDSAs for implementation	• Have a plan and try to make it fun.

Objective: Build a toolkit to influence the Head & The Heart

5%

95%

Data analysis

Measuring Variation

Illustrating variation

- Run Charts
- Pareto charts

Flow analysis

Process mapping
Identifying waste

Demand & capacity managemet

Building the will

Stakeholder Management

Communication planning

Influencing styles

Clinical effectiveness: the extent to which specific clinical pathways & services achieve what they are intended to achieve.

- Follow us on Twitter @QITalktime

- Watch recorded webinars at your convenience on HSEQID QITalktime page

Next Webinar:

Tues June 20th 1-2 pm:

Topic: Tips on engaging patients

Speaker: To be confirmed

Thank you from all the team @QITalktime

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