

Six Sigma DMAIC Improvement Story

Green Belt Project Objective:

To Reduce Incidents of Inmate on Inmate Violence

Last Updated: 5-22-15

Team: Violence Stompers

Veronica Salom (Co-Team Leader) Michael Camero (Co-Team Leader)

Wendy Mayes Melissa Johnson Tamara I. Key

Andrew Mullings Pierre Imar

Marydell Guevara (Sponsor)





Lean Six Sigma Problem Solving Process

The team utilized the 5-Step DMAIC problem solving process.

DMAIC Performance Improvement Process

Pr	ocess Step	Description of Toom Activities
Number	Name	Description of Team Activities
1	DEFINE	 Select Problem Identify Project Charter Develop Project Timeline Establish Method to Monitor Team Progress Construct Process Flowchart Develop Data Collection Plan Display Indicator Performance "Gap"
2	MEASURE	Stratify Problem (i.e."Gap")Identify Problem Statement
3	ANALYZE	Identify Potential Root Cause(s)Verify Root Cause(s)
4	IMPROVE	 Identify and Select Improvement(s) Identify Barriers and Aids Develop and Implement Improvement Plan Confirm Improvement Results
5	CONTROL	 Standardize Improvements within Operations Implement Process Control System (PCS) Document Lessons Learned Identify Future Plans





Identify Project Charter

The team developed a team Project Charter.

	Project Name:	To Reduce Incidents of Inmate on Inmate Violence							
Business Case	Problem/Impact:	Inmate on Inmate violence creates many problems including 1) Compromises Safety of Inmates 2) Compromises Safety of Officers 3) Comprimises Safety of Facilities 4) Incurs additional financial burdens to taxpayer: overtime, medical costs, property damage and court costs							
	Expected Benefits:	Reduce Violence; Lower medical costs; increase inmate safety; reduce inmate movement							
	Outcome Indicator(s) Q1 - # of Incidents of Inmate on Inmate Violence								
Objectives	Proposed Target(s)	Target=80 Incidents per month							
Objectives		Dec 2014 through March 2015							
		Supports the Depaartment's mission							
		Inmate on Inmate violence within Miami-Dade County facilities or during custody							
Scope	-	Inmate on Staff Violence; other violence incidents							
		Marydell Guevara							
	Sponsor:	Marydell Guevara							
	Team Leader:	Veronica Salom, Michael Camero							
Team		Wendy Mayes, Melissa Johnson, Tamara Key, Andrew Mullings, Pierre Imar							
		Facility Supervisors (Captains)							
	Mgmt Review Team:								
	Completion Date:	31-Mar-15							
Schedule		Monthly and Final Review in March 31,2015							
	Key Milestone Dates:	See Action Plan							





Develop Project Timeline Plan

The team developed a timeline plan to complete the Project.



WHAT: Complete DMAIC Story Project by March 31, 2015

	Wilhar. Complete Billhio Ctory i roject by march or, 2010										
	DMAIC Story			WHE	EN						
		2012									
	Process Step	Dec	Jan	Feb	Mar	Apr	May				
1_1	Define		_								
•				Completed 1	-9-15	I					
				•							
2	Measure				1 4 10 14 =						
Z .	Measure			Completed	1/9/15						
	A .										
3.	Analyze	Completed 1/30/15									
1	Improve					0/00/45					
7.	inprove					9/30/15					
5.	Control				<u> </u>						
						40/0	.0/4 <i>E</i>				
						12/3	0/15				



Define Measure Analyze Improve Control



Monitor Team Progress

The Team and Management used a Checklist to monitor team progress.

		DMAIC Story Checkpoin	ts
		Objective: Demonstrate the Importance of Improve	ement needs in measurable terms.
	044	The stakeholders' need(s) were identified.	•Team identified an indicator;
	Step 1	2. The problem can be described as an "object" with a "defect" with unknown cause(s) that need to be identified.	
	Define	3. A line graph outcome indicator was constructed that appropriately measures the problem (or gap	
		A schedule for completing the five DMAIC Story steps was developed.	Spreadsheet
		Objective: Investigate the features of the indicator, stratify the	ne problem and set a target for improvement.
	Step 2	5. Data contained or directly linked to the indicator were stratified from various viewpoints (i.e., what where, when and who) and a significant dataset was chosen.	Histograms, Flowchart Stratification,
z	Measure	6. A target for improvement was established based on the stakeholders' need.	Paretos, Bar graph, Problem
PLAN	Moadare	7. The impact of the target on the indicator was determined.	
-		8. A problem statement that describes the "remaining dataset" was developed.	Statement
		Objective: Analyze the stratified data to identi	
	Step 3	Cause and effect analysis was taken to the root level.	Single Case Bore, Fishbone, Root
	Analyze	Potential causes most likely to have the greatest impact on the problem were selected. A relationship between the root causes and the problem was verified with data.	Cause Verification Matrix
	Allalyze		
		12. The impact of each root cause on the gap was determined.	
		Objective: Develop and implement countermeasures to elimi	nate the verified root causes of the problem.
		13. Countermeasures were selected to address verified root causes.	Countermeasures Matrix; Barriers and
		14. The method for selecting the appropriate countermeasures was clear and considered effectiveness and feasibility.	Aids; Action Plan
임	Step 4	15. Barriers and aids were determined for countermeasures worth implementing.	Alas, Action Flan
	otop :	16. The action plan reflected accountability and schedule.	
	Improve	Objective: Confirm that the countermeasures taken impacted the root cau	ses and the problem; and that the target has been met.
	mprove	17. The effect of countermeasures on the root causes was demonstrated.	Before and After Line Graph;
CHECK		18. The effect of countermeasures on the problem (or indicator) was demonstrated.	
강		19. The improvement target was achieved and causes of significant variation were addressed.	Proposed Flowchart
		 The effect of countermeasures on the indicator representing the stakeholders' need was demonstrated. 	
		Objective: Prevent the problem and its root causes from	recurring. Maintain and share the gains.
		21. A method was established to document, permanently change, and communicate the revised process or standard.	Process Control System;
=	Step 5	22. Responsibility was assigned and periodic checks scheduled to ensure compliance with the revised process or standard.	Process Control System,
ACT	0 1 1	23. Specific areas for replication were identified.	
	Control	Objective: Evaluate the team's effectivenes	s and plan future activities.
		24. Any remaining problems (or gaps) were addressed.	Lessons Learned
		25. Lessons learned, P-D-C-A of the Story process, & team growth were assessed & documented.	Z E0330113 Edulition







Hidden Costs of Incidents of Inmate on Inmate Violence

The team identified costs of Inmate on Inmate Incidents.

Est. '14 Cost

1) Monitor and Respond to Incident (2 to 10 officers X 15 min)	1.50 Hours
2) Officers Document Incident (2 to 10 officers X 45 min)	4.50 Hours
3) Medical Assessment (2 officers X 60 min)	2.00 Hours
4) Reviews: Line Supervisor (1 hour + 25% rework issues at 45 min)	1.23 Hours
Shift Commander (1 hr + 25% rework issues at 45 min)	1.23 Hours
Shift Supervisor (1 hour)	1.00 Hour
Admn (XO and Captain)	<u>2.00 Hours</u>
Total	13.46 Hours

Annual Costs = 1,162 Incidents x 13.46 hours x \$30 per hour avg loaded rate =

Annual Costs = \$469,215

*Does not include hospitalization, property damage costs, court costs or DOJ, federal investigations/ outside reviews and audits; community mistrust and negative media attention and increased risks to inmates and officers that incidents create.



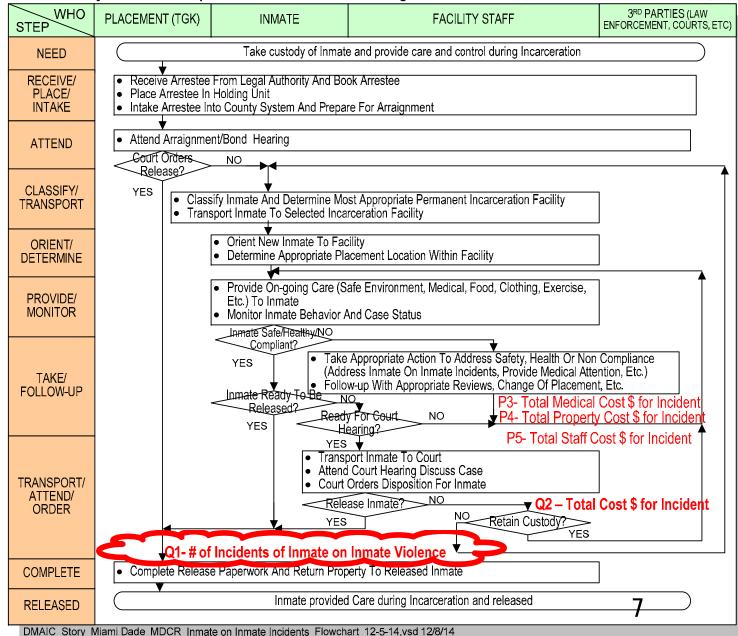


Review Process Flow Chart

The team constructed a Process flow chart describing the Process.

Take Custody of Inmate and provide Care and Control during Incarceration

(Process Owner: Asst Director)



The team next looked closer how to capture indicator data.



Identify Data Collection Needs

The team developed a data collection spreadsheet...

MDCR Inmate on Inmate Incident Report

всв		DEMOGRAPHICS															
	WHO										WHAT		WHERE		WHAT	WHEN	
	В	С	D	Е	F	Н	I	J	K	L	M	N	0	Р	R	S	Т
Line #	Inmate(s) Classific- ation	Inmate(s) Gender(s)	Youngest Inmate Age	Involved Minority(ies)	# o Inmates Involved	All Inmates Already Sentenced?	All inmates had Previous Convictions?	Repeat Offenders involved?	Any Inmate with 1st arrest Involved?	Reason for Incident	Severity of incident	Type of Weapon used	Facilty Inmates Reside at	Inside/ Outside?	Location of incident	Inmate Activity at Time of Incident	Earliest Date of Inmate(s) Intake into Facility
		% F	Avg	%Y	Avg	%Y	%Y	%Y	%Y					% Inside			
		33.3	22.0	33.3	2.0	33.3	33.3	33.3	33.3					33.3			
											_						
1	Level 1	F	21	Υ	1	Υ	Υ	Υ	Υ	Bartering	No Injury	Chair	PTDC	Outside	Basketba	Recreation	1/10/14
2	Level 3	M	24	N	3	N	N	N	N	Girlfriend	Doctor Vis	Knife	TTC	Inside	Cafeteria	Eating	1/26/14
3	Level 1	M	21	N	2	N	N	N	N	Insults	Hospitaliza	Fork	MWDC	Outside	Cell	Sleeping	2/1/14

MILESTONE DATES							ration			Ol	UTCOM	1ES		
									In	cident	Cost I	nforma	ition	
U	V	W	X	Υ	Z	AB=	AD=	AN	AO	AP	AQ	AS	AQ	AW=
						U-T	Z-U			STA	AFF Ho	urs		AT+AU+AV
Da Date	te of Incide Time	ent Mi Hr	Day	Shift	Date Incident File Closed	# of Days Shortest Length of Stay	# of Days to Close Incident File	Medical Costs	Property Costs	Address Incident	Incident Review	Incident Follow-up	-	Total Costs
		Avg	%Mo			Avo	De/S				ıotal			
			33.3			34.0	5.0	\$700.00	\$360.00	8.0	8.0	8.0	\$600.00	\$1,660.00
					P1	P2	Р3	P4				P5	Q2	
1/14/14	8:00 AM	8	Tu	Afternoor	1/20/14							4	00	00
2/3/14	9:30 AM	9	Мо	Day	2/10/14	8	7	\$200	\$200	4.0	4.0	4.0	\$300.00	\$700.00
5/2/14	10:00 PM	22	Fr	Midnite	5/4/14	90	2	\$500	\$10	2.0	2.0	2.0	\$150.00	\$660.00



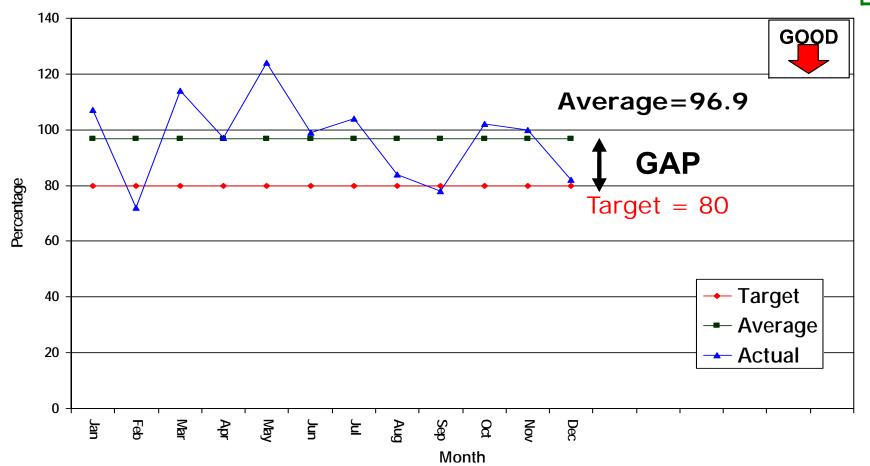


Review Selected Indicator

The team collected Q1 indicator data and reviewed performance trends:







The team next looked closer at the gap.

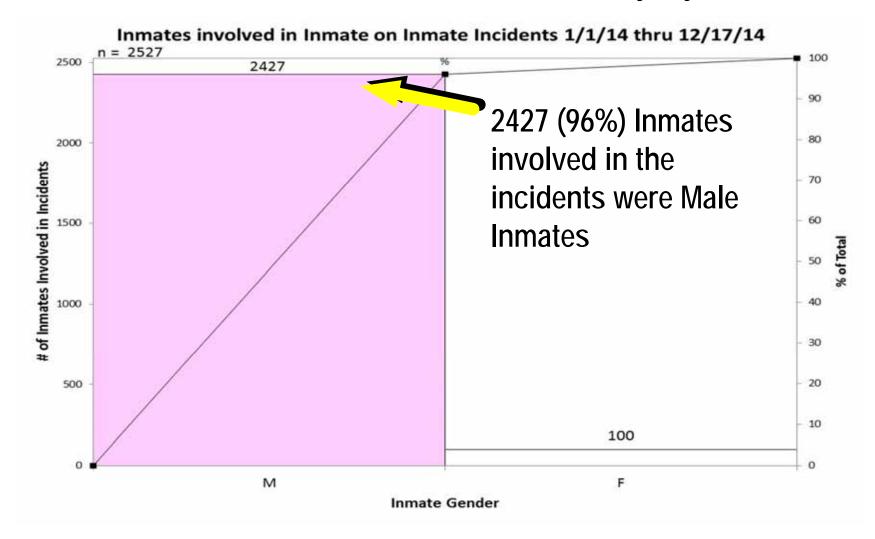








The team stratified the 2014 Inmate on Inmate Incidents many ways and found...



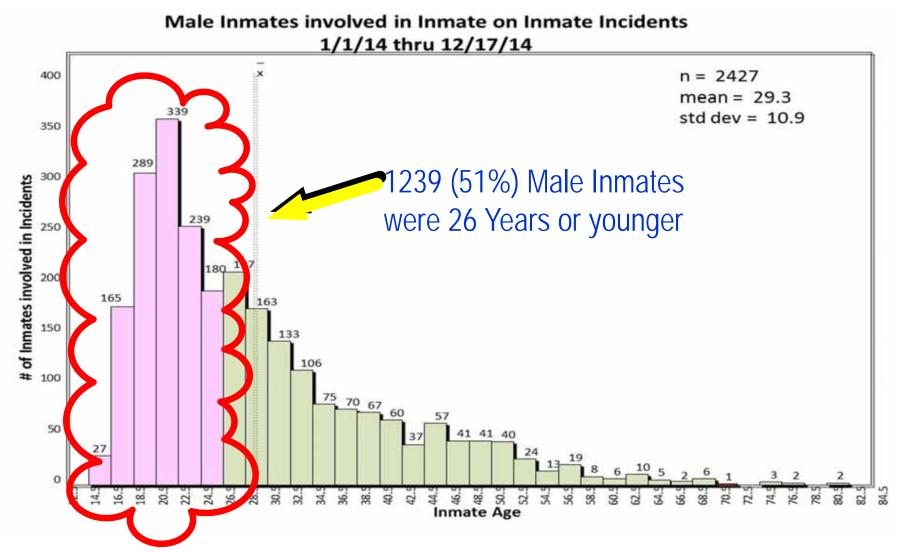


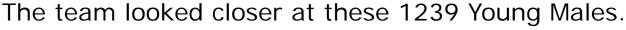






The team stratified the 2427 Male Inmate data many ways and found...



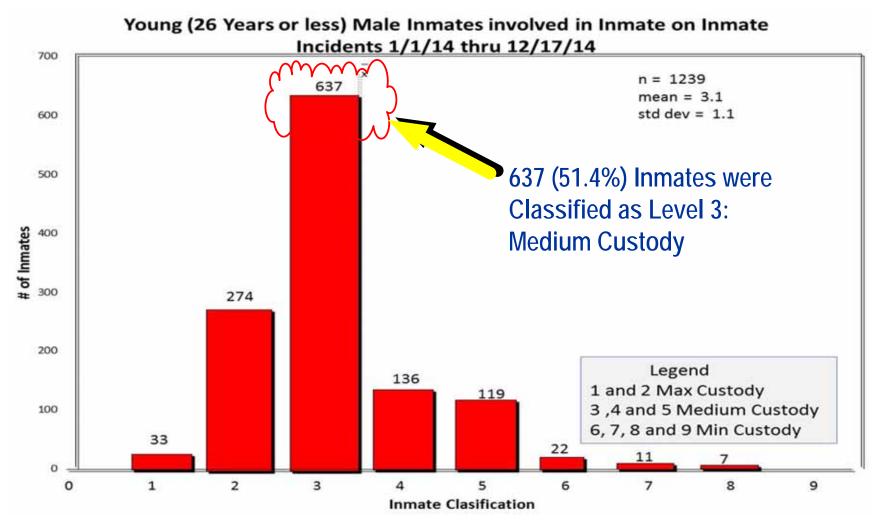








The team stratified the 1079 trips many ways and found...



The team looked closer at these Level 3 Custody Inmates.

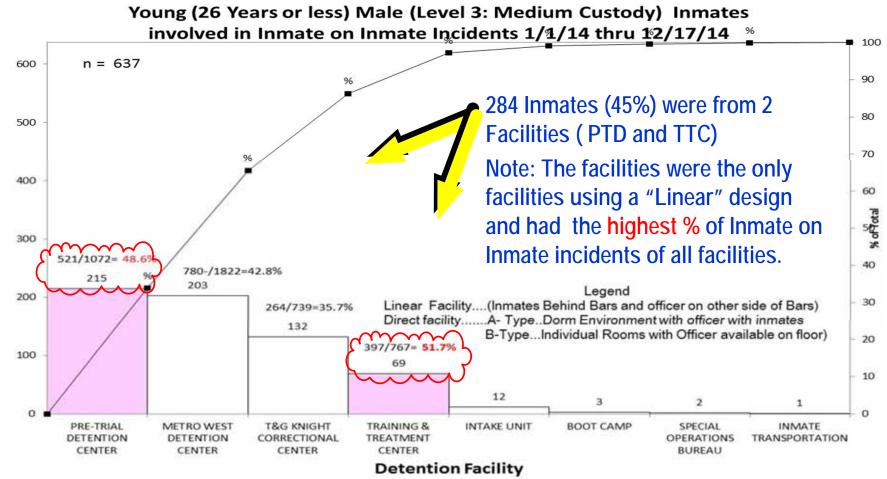








The team stratified the 637 Inmates many ways and found...



Problem Statement: "284 Young (26 Years or less) Male (Level 3: Medium Custody) Inmates involved in Inmate on Inmate Incidents 1/1/14 thru 12/17/14 were from the Linear Facilities: Pre-Trial Detention and Training & Treatment Centers"



Identify Potential Root Causes

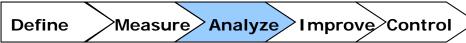


The team sampled 25 of the 284 Incidents and reviewed trip documentation before conducting Single Case Bore Analysis.

Single Case Bore Analysis Problem Statement: "284 Young (<=26 Yrs) Male (Level 3: Med Custody) Inmates involved in Inmate on Inmate Incidents 1/1 thru 12/17/14 were from Linear Facilities: PTD and TTC. Sampled 14 of the 284 Inmate on Inmate Incidents Reasons or Factors (That possibly contributed to the Inmate on Inmate incident) 1) Food Related 29% 2) Stolen Item 14% 3) Lack of Procedure for Commissary when Inmate not 4) Age Difference 29% 5) Mental Health Status 43% 6) Newly Booked 7% 7% 7) Past Association with Inmate 8) Fear (To Get Out of Cell) 21% 9) Gambling 7% 10) Ability to Cover Camera 0% 11) Discourtesy from Inmate 7% 12) Bunk Assignment 0% 13) Lack of Surveillance 14% 14) Television 7% 7% 15) Recreation Yard 0% 16) Undetermined 17) Girlfriend called other inmate 14% 18) Race 14%

The team next looked closer at these four (4) factors.

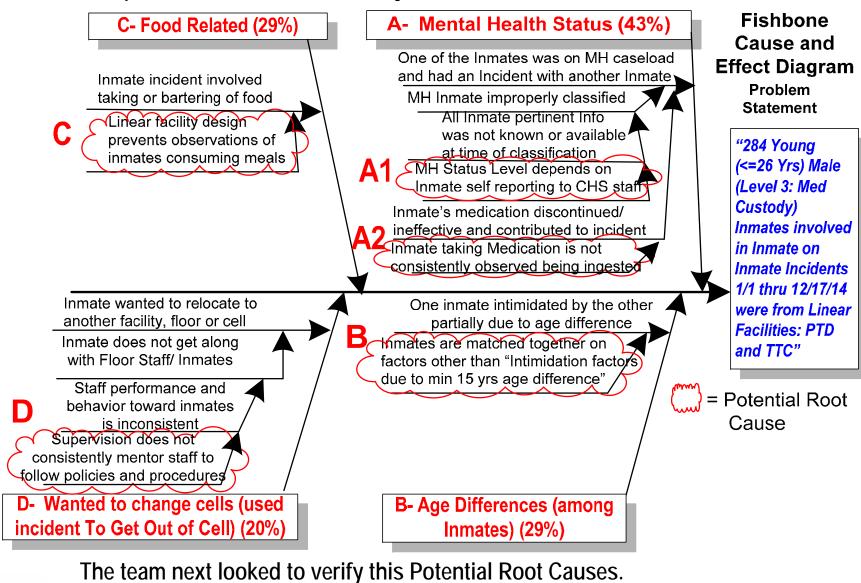




Identify Potential Root Causes

9.,10.

The team completed Cause and Effect Analysis and found...



Inmate on humate Wolence

Define Measure Analyze Improve Control



Verify Root Causes

The team collected data to verify the root causes and found.... 11.,12.

	Roo	t Cause Verification Matrix	
	Potential Root Cause	How Verified?	Root Cause or Symptom
A1	MH Status Level depends on Inmate self reporting to CHS staff	Team reviewed written procedures and policies and training materials around collecting information for MH Status inmates and discussed with CHS and found.	Root Cause
A2	Inmate taking Medication is not consistently observed being ingested	Reviewed procedures and discuss with staff and found.	Root Cause
В	Inmates are matched together on factors other than "Intimidation factors due to min 15 yrs age difference"	Reviewed procedures and discuss with staff and found we do not consistently consider age differences.	Root Cause
C	Linear facility design prevents observations of inmates consuming meals	Reviewed procedures and discuss with staff and found.	Root Cause
D	Supervision does not consistently mentor staff to follow policies and procedures	Reviewed procedures and discuss with staff and found.	Root Cause

...all four (4) were validated as root causes.







Identify and Select Countermeasures

13.,14.

The team brainstormed many countermeasures and narrowed them down to these for evaluation:

	Countermeasure	es Matrix				
			Legend: 5=Extr 4=Very	emely 2	Moderately =Somewhat =Little or None	
Problem Statement	Verified Root Causes	Countermeasures	Effectiveness		Overal Control	Take Action? Yes/No
	A1 - MH Status Level depends on Inmate self reporting to CHS staff	A1- Enhance MH related Questions and follow-up of Inmate responses to validate MH Status level	4	2	8	(Y)
"284 Young (<=26 Yrs) Male (Level 3: Med Custody)	A2 - Inmate taking Medication is not consistently observed being ingested	A2- Refresh Training and Monitor staff performance for observing Medication dispensement	4	5	20 (Y
Inmates involved in Inmate on Inmate Incidents	B - Inmates are matched together on factors other than "Intimidation factors due to min 15 yrs age difference"	B1- Enhance Classification Staff checklist/ placement decision process to include Age difference as a potnetial placment factor	5	5	25	Y
1/1 thru 12/17/14 were from Linear Facilities: PTD and TTC"	C - Linear facility design prevents observations of inmates consuming meals	C1- Increase Officer monitoring including spot checks during meals in linear facilities	3	3	9	(Y)
	D - Supervision does not consistently mentor staff to follow policies and procedures	D1- Review/Clarify Policy and procedures for Officer consistent interaction with inmates and provide refresher training	4	5	20 (Y

The team selected 5 countermeasures for possible implementation.







The team performed Barriers and Aids analysis on the selected Countermeasures.

Countermeasure(s): Implement 5 Countermeasures to reduce Inmate on Inmate

	Barriers	Aids
Impact (H, M, L)	Forces against Implementation	Forces For Implementation
Н	1) Push Back from Staff and internal Culture (Supported by Aid:A,B)	A) Management very supportive of team's efforts
L	2) Limited Resources and Staffing to train staff and	B) Other agencies may be using may be separating by age
	monitor Inmates (Supported by Aid:A,C)	C) County mandated by settlement agreement to improve the incident rate

The team next sought to incorporate this analysis into the team's Action Plan.





Develop and Implement Action Plan

5. Review Pilot and determine Benefits

6. Establish On-going responsibilities

results to management

operations

and adjust as necessary and present

and standardize countermeasures into

Legend:	
= Actual	
= Proposed	

The team implemented an Action Plan for the team's Countermeasures.

16.2

Incidents WHEN WH 2015 HOW 0 Dec April May Jun Feb Jul Aug Develop Countermeasures: 2/28/15 A1- Enhance MH related Questions and follow-Veronica up of Inmate responses to validate MH Status /CHS level staff Melissa A2- Refresh Training and Monitor staff 2/28/15 performance for observing Medication dispensement Tamara/ 2/28/15 Classific **B1-** Enhance Classification Staff checklist/ ation placement decision process to include Age Staff difference as a potnetial placment factor Melissa 2/28/15 C1- Increase Officer monitoring including spot checks during meals in linear facilities Wendy D1- Review/Clarify Policy and procedures for 2/28/15 Officer consistent interaction with inmates and provide refresher training 2. Secure Management Approval of Team 5/28/15 Countermeasures (share benefits and cost savings) 3. Communicate/Train Staff in Team 08/30/2015 Countermeasures and related policies/procedures (share Benefits & cost savings and mandate) 4. Implement Countermeasures and Pilot 08/30/2015





Team

Team

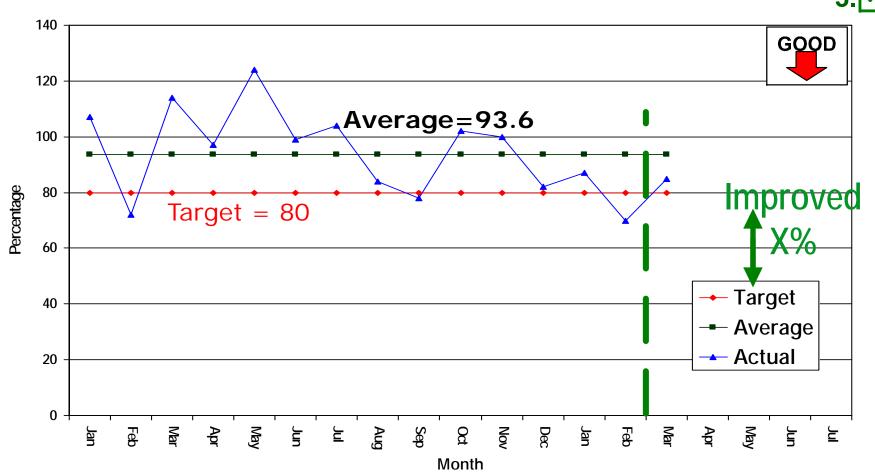


On-going

9/30/

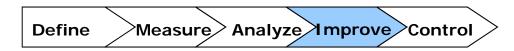
The team updated indicator data and reviewed performance trends:





The team was encouraged by the results and will continue to monitor the countermeasures.

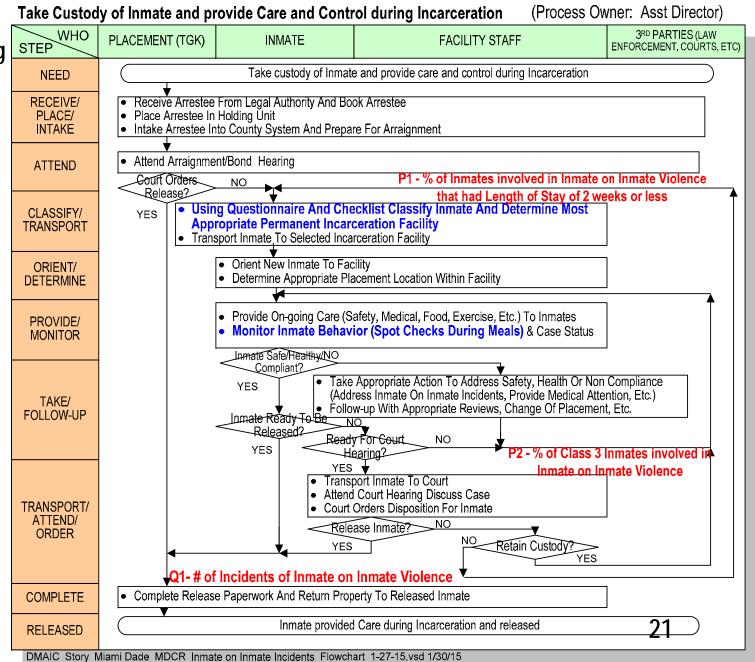




Standardize Countermeasures



The team is recommending these improvements into the Process.





Implement Process Control System

21.,22.,23.

The team developed a Process Control System to better monitor the ongoing process.

	F	Proc	ess C	ontrol Sys	tem		
	ess Name: Take Custody of I de Care and Control during Ind			Process Owner:	Assistant	Director of C	Custody Service
Proce	ess Customer: Inmates, Sta	iff, Tax	payers	Critical Customer resolve incident qu	-		spond timely and
	ess Purpose: Manage Inma carcerated	ates wh	ile they	Current Sigma Le Outcome Indicate			
	Process and Quality Indicators			Checking / Indicate	or Monitorii	ng	Canting was a Diama /
	Process Indicators And	Control Limits	D	ata to Collect	Timeframe (Frequency)	Responsibility	Contingency Plans / Misc. • Actions Required
	Quality Indicators	Specs/ Targets		is Checking Item licator Calculation	When to Collect Data?	Who will Check?	for Exceptions • Procedure References
P1	% of Inmates involved in Inmate on	TBD	100*(# of li	nmates involved in	Monthly	Red Unit	Incident System
	Inmate Violence that had Length of		Inmate on	Inmate Violence that had			
	Stay of 2 weeks or less		Length of S	Length of Stay of 2 weeks or less)/(# of Inmates involved in			
			less)/(# of				
			Inmate on	Inmate Violence)			
P2	P2 % of Class 3 Inmates involved in Inmate on Inmate Violence		3D 100*(# of Class 3 Inmates involved in Inmate on Inmate Violence)/(# of Inmates involved in Inmate on Inmate Violence)		Monthly	Red Unit	Incident System
Q1	# of Incidents of Inmate on Inmate Violence	80	# of Incider Violence	nts of Inmate on Inmate	Monthly	Red Unit	Incident System
Appro	oved:	_ Da	te:	Rev #	<u>+</u>	Rev Da	te:

The team looked ahead to the future.



Define	Measure	e Analyze	Improve	Control



Lessons Learned

- 1) Root cause identification is essential if one is serious in improving Performance
- 2) Data stratification was very important as it took the team to areas not initially thought to be part of the problem.
- 3) Creative Thinking techniques were more valuable in identifying more diverse countermeasures for the team to evaluate.
- 4) Facility Site Visits were valuable for Team Members not familiar with Incarceration facilities
- 5) Flowchart technique helped all team members see the process more clearly and was used to help identify communicate process improvements.

Next Steps

1) Monitor implementation of Countermeasures and Inmate on Inmate performance indicator.





RECOMMENDED COUNTERMEASURES





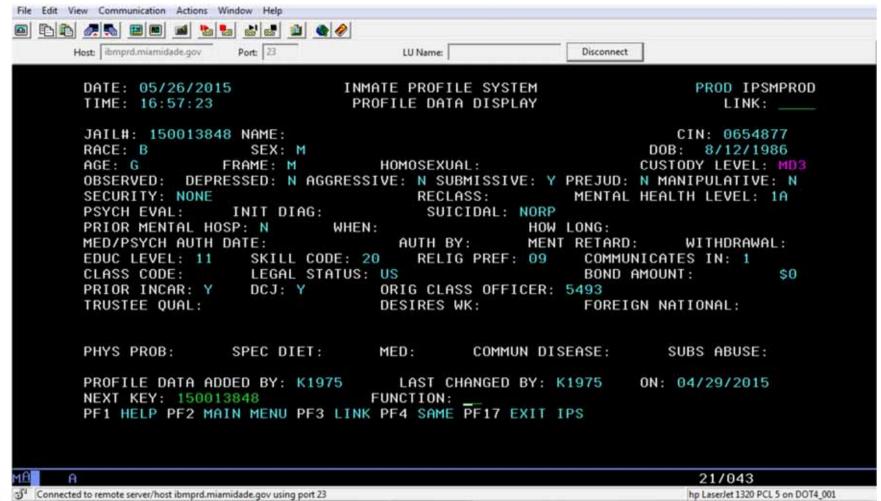
A1 – Enhance Mental Health (MH) related Questions and follow-up on inmate responses to validate MH Status Level

- Measures had already been incorporated to capture MH status via numerous venues
- During intake screening, inmates who are identified by CHS staff with MH issues are fast tracked for immediate full assessment
- •Inmates may self report MH issues for appropriate treatment
- Redistribute policy for MDCR and CHS staff as a reminder of need to observe medication ingestion
- MDCR system now reflects MH status from CHS database
- Records from outside medical providers are requested when MH status is disclosed
- Ancillary reports (Relocation Form and Health Care Incident Addendum) include MH status





A1 – Enhance MH related Questions and follow-up on inmate responses to validate MH Status Level

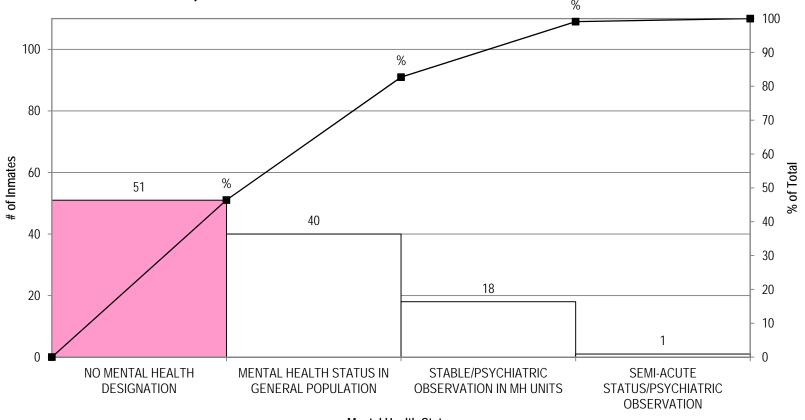


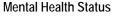




A1 – Enhance MH related Questions and follow-up on inmate responses to validate MH Status Level

Young (26 Years of less) Male (Level 3: Medium Custody) Inmates in Linear Facilities) involved in Inmate on Inmate Incidents 1/1/15 thru 3/31/15









A2 – Refresh training and monitor staff performance for observing medication dispensement

- Redistribute policy for MDCR and CHS staff as a reminder of need to observe medication ingestion
- Conduct CHS and MDCR staff in-service training regarding medication dispensing
- Enhance supervisory spot checks to ensure compliance with medication
- Monitor outcome of facility shakedowns and inspections to determine if medication is being properly dispensed





B1 – Enhance classification staff screening tool regarding housing to include age difference as a potential placement factor

- Request that the new offender management system capture inmate age by housing unit
- Utilize findings to ensure a balanced age group within housing units
- Train staff to identify potential issues related to age differences of inmates housed together
- Train inmates to understand differences regarding generational gaps





C1 – Increase officer monitoring including spot checks during meals in linear facilities

- Develop a policy regarding the feeding of inmates specific to linear facilities
- Conduct a staggered feeding pilot project to better monitor the feeding process
- Direct staff to conduct heightened surveillance during feeding process
- Evaluate alternative feed practices (i.e., direct observation during feeding, centralized feeding location in future facilities)
- Limit inmate workers handling of meal assembly and distribution





D1 – Review/clarify policy and procedures for consistent officer interaction with inmates and provide refresher training

- Provide additional interpersonal skills training to improve communication between staff and inmates
- Initiate regular staff assessment evaluation meetings to discuss deficiencies in the implementation of policies and procedures
- Provide specialized training regarding how "to deal with difficult inmates" and conflict resolution to facilitate dealing with inmates



