



Six Sigma DMAIC Improvement Story

Green Belt Project Objective:
**To Reduce the Time to Close
Animal Bite Cases**

Last Updated: 1-28-14

Team: ***Team 7th SIGMA***

Mario Santana (Co-Tm Ldr) Sean Gallagher (Co-Tm Ldr)

Mike Sarasti Ileen Delgado Luis Salgado

Gary Boyett, Jr. Haikel Marrero

Alex Munoz (Sponsor)



Select Problem and Identify Project Charter

The project was assigned by animal Services Mgmt & the team developed a Project Charter.

Project Charter	
Business Case	<i>Project Name:</i> To Reduce Time to Close Animal Bite Cases 2. ✓
	<i>Problem/Impact:</i> Delayed Case Closures delays citizens having Bite information concerning rabies and keeps them in a state of Limbo in terms of next steps and continuing on with normal life activities. Health Dept also received late notification of quarantine results. 1. ✓
	<i>Expected Benefits:</i> Reduced backlog of calls to 311; reduce inquiries on outstanding cases; reduce exposure to post bite treatments
Objectives	<i>Outcome Indicator(s)</i> Q1- % of Animal Bite Cases Closed in 14 days
	<i>Proposed Target(s)</i> Target= 90%
	<i>Time Frame:</i> Oct 2013 through Feb 2014
	<i>Strategic Alignment:</i> Promotes Public safety
Scope	<i>In Scope:</i> Miami Dade Animal Bite Cases
	<i>Out-of-Scope:</i> Other Cases
	<i>Authorized by:</i> Alex Munoz, Director of Animal Services Dept
Team	<i>Sponsor:</i> Alex Munoz, Director of Animal Services Dept
	<i>Team Leader:</i> Mario Santana, Sean Gallagher
	<i>Team Members:</i> Mike Sarasti, Ileen Delgado, Luis Salgado, Gary Boyett, Haikel Marrero
	<i>Process Owner(s):</i> Alex Munoz, Director of Animal Services Dept
	<i>Mgmt Review Team:</i> Deputy Mayor for Animal Services, Alex Munoz
Schedule	<i>Completion Date:</i> 28-Feb-14
	<i>Review Dates:</i> Monthly and Final Review in February 2014
	<i>Key Milestone Dates:</i> See Action Plan



Hidden Costs of Late Animal Bite Case Closures

The team identified costs associated with delayed Case Closures. These costs include:

- Revisits/Retries of visits to the victims and pet Owner to secure data, issue quarantine orders and check on delays= $(100 \text{ Late Cases per mo}) \times (2 \text{ extra visits per case}) \times (1 \text{ hour total time related to visit}) \times (\$35/\text{Hr loaded ACO pay rate}) \times (12 \text{ months}) = \mathbf{\$84,000}$
- Additional Inquiries from victim , family members or Health Dept about delayed open case (311 Call Center Specialists time) = $(100 \text{ Late Cases per mo}) \times (1.5 \text{ 311 Calls per late case}) \times (10 \text{ min for 311 spec \& ACO}) \times (\$35/\text{Hr loaded ACO Pay rate}) / 60 \text{ min per hr} \times (12 \text{ Mo}) = \mathbf{\$10,500}$

Total.....\$94,500

Note: Does not include mileage for extra visits, backlog of cases having to be managed and sorted through daily checking status, or customer dissatisfaction.

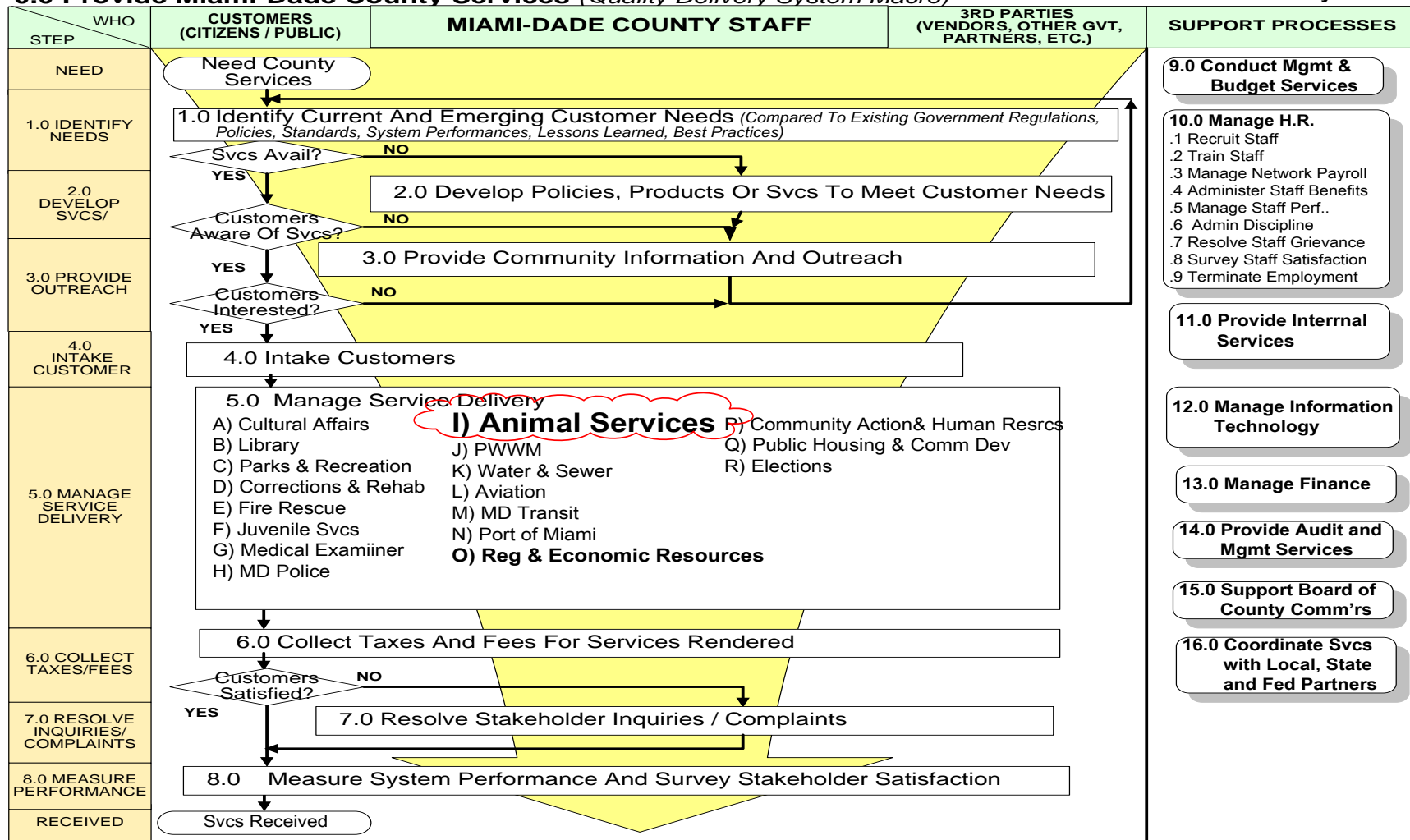


Review Miami-Dade's Quality Delivery System

We noted where our process "fits" in the MD Quality Delivery System.

0.0 Provide Miami-Dade County Services (Quality Delivery System Macro)

Process Owner: Mayor



The team will focus on a Collection Process in the Aviation Area



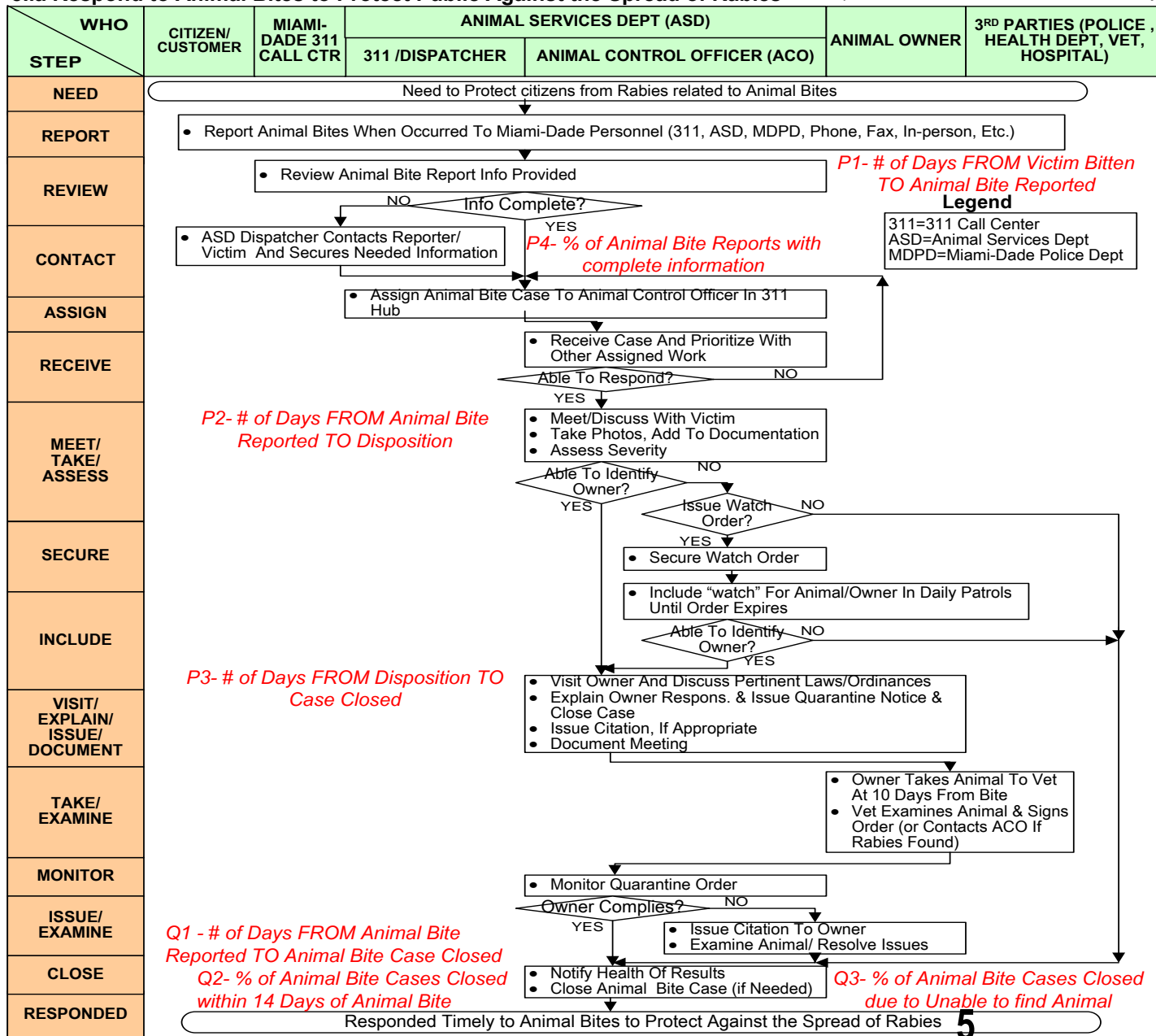
Review Process Flow Chart

The team constructed a Process flow chart describing the Process.

The team next looked closer at how to capture **indicator data**.

51.a Respond to Animal Bites to Protect Public Against the Spread of Rabies

(Process Owners: Dir of Animal Services Dept)



P1- # of Days FROM Victim Bitten TO Animal Bite Reported

Legend

311=311 Call Center
ASD=Animal Services Dept
MDPD=Miami-Dade Police Dept



Identify Data Collection Needs

The team developed a data collection spreadsheet...each row is an **Customer Account**.

Miami Dade Animal Bite Case Process Summary

BCB	DEMOGRAPHICS																
	WHO				WHERE	WHAT	WHO	WHERE		WHO							
Line #	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
	Name of Victim	Gender	Victim DOB	VICTIM AGE at time of Bite	Body Part Bitten	Type of Compliance	Animal Control Officer ID#	Bite Locn Zipcode	Bite Location Type	Owner(s) Gender	Owner DOB	OWNER AGE at time of Bite	Police Assistance?	Stray/Owned?	Animal Breed	Animal Gender	Spay or Neutered?
	%F			Avg				Avg		%F Only		Avg	%Y	%Ownr	%Pit	%Male	%Y
	33.3			9.4				32,696.0		0.0		32.3	66.7	66.7	33.3	33.3	50.0
1	Sam White	Male	3/1/10	3.6	Hand	Leash	231	33212	Field	Male			Y	Stray	Pit Bull	Unkn	Unkn
2	Ben Dover	Fema	4/1/01	12.6	Head	Control	453	33421	Owner Pr	Male, Fem	4/1/67	46.6	N	Owner	Daushand	Male	N
3	Jim Nasium	Male	10/29/01	12	Leg	Quarantine	232	31455	Terrier	Female	10/29/95	18	Y	Owner	Terrier	Female	Y

MILESTONE DATES												DURATION					OUTCOMES			BB			
S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE= W-S	AF= AA-W	AG= AB-AA	AH= AC-AB	AI= AD-AC	AJ= AD-W	AQ	AR='Y' if AJ<=14		BA		
1- Victim Bitten		2- Bite Report Received				3- ACO Met with Victim		4 ACO Met with Owner		5- Vet Signed Quarantine		6- Case Closed		Victim Bitten TO	Bite Rpt Received TO	ACO Met with Victim TO	ACO Met with Ownr TO	Vet Signed Quarntn TO	Bit Rpt Received TO	Initial Report Had Complete Info?	Case Closed in 14 Days From Report?	Unable to Find Animal?	Comments
Date	Time	Day	HR	Date	Time	Day	HR	Date	Date	Date	Date	Bite Rpt Received	ACO Met with Victim	ACO Met with Ownr	Vet Signed Quarntn	Case Closed	Case Closed	Case Closed	%Y	%Y	%Y		
		%Mo	Avg			%Mo	Avg					Avg # of Days					%Y	%Y	%Y				
		0.0	10.7			0.0	10.7					3.0	0.7	2.0	7.3	3.0	13.0	66.7	66.7	66.7			
												P1	P2	P3	P4	P5	Q1	P6	Q2	Q3			
6/2/13	9:30 AM	Su	9	6/5/13	9:30 AM	We	9	6/6/13	6/7/13	6/16/13	6/17/13	3	1	1	9	1	12	Y	Y	Y			
10/1/13	10:30 AM	Tu	10	10/3/13	10:30 AM	Th	10	10/3/13	10/3/13	10/15/13	10/21/13	2	0	0	12	6	18	N	N	N			
8/21/13	1:30 PM	We	13	8/25/13	1:30 PM	Su	13	8/26/13	8/31/13	9/1/13	9/3/13	4	1	5	1	2	9	Y	Y	Y			

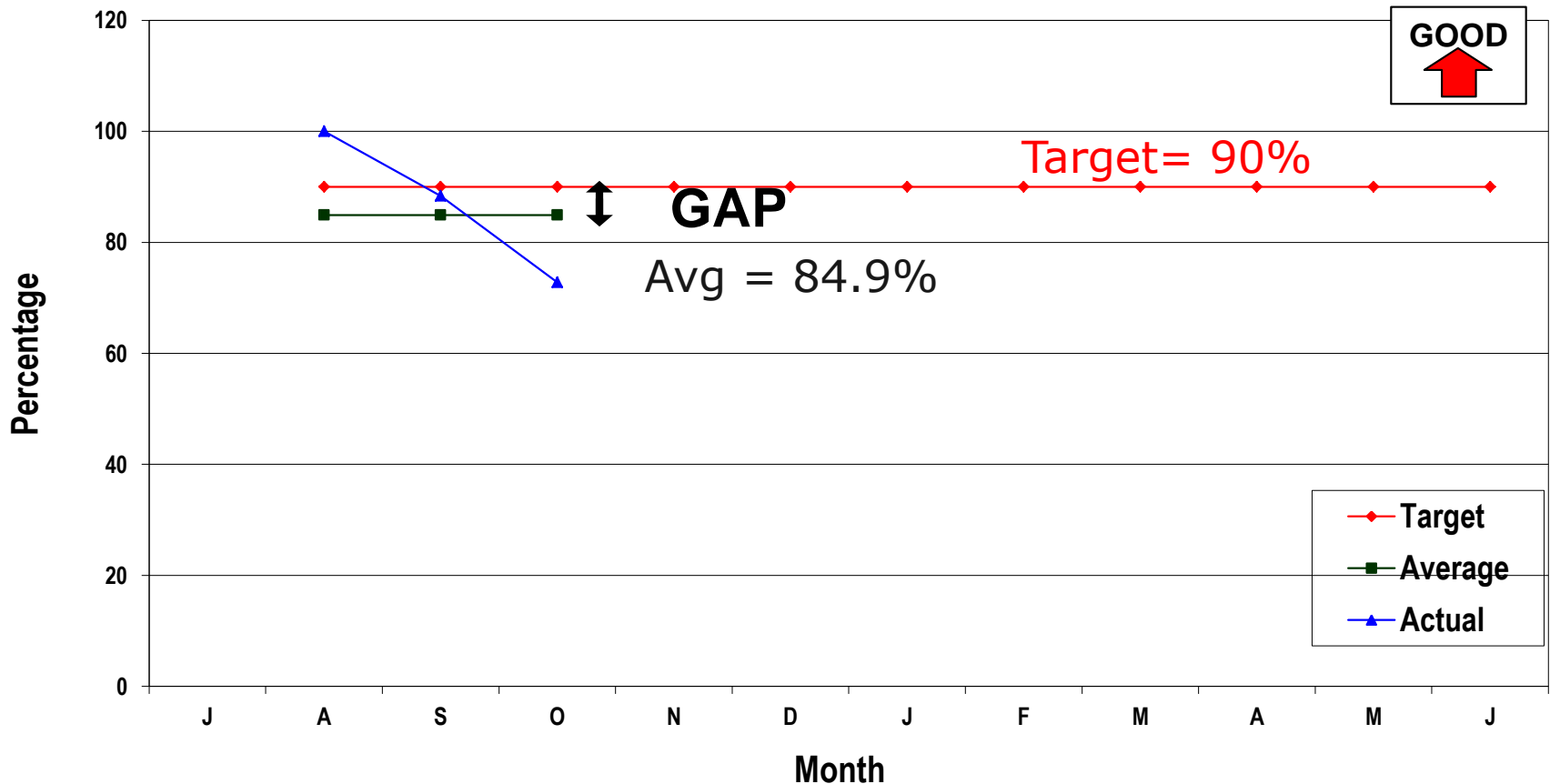


Review Selected Indicator

The team collected Q1 indicator data and reviewed performance trends:

3. ✓

Q2- % of Animal Bite Cases Closed within 14 Days of Animal Bite

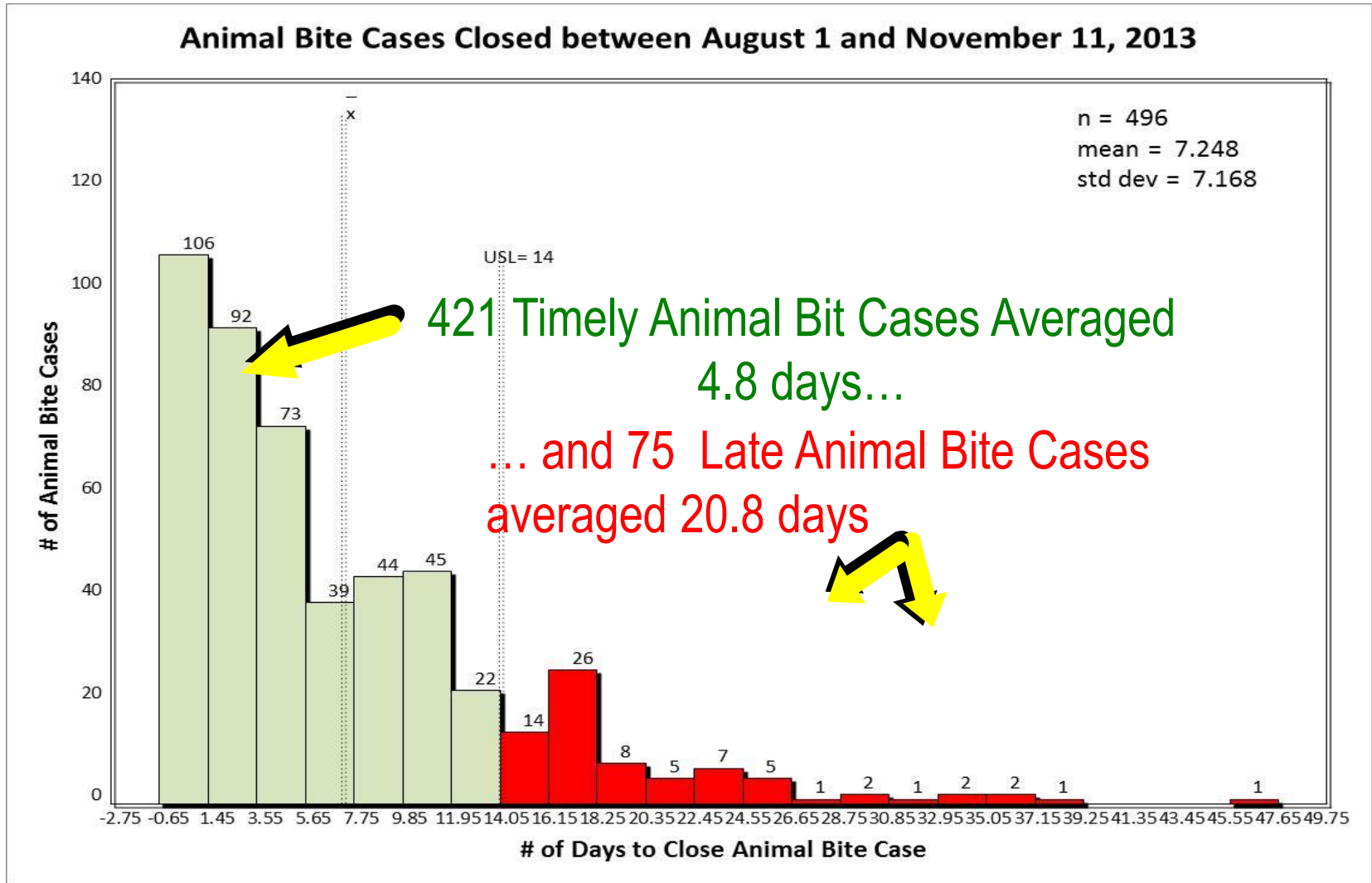


The team next looked closer at the Gap.



Stratify the Problem

The team stratified Animal Bite Cases using a histogram and found...



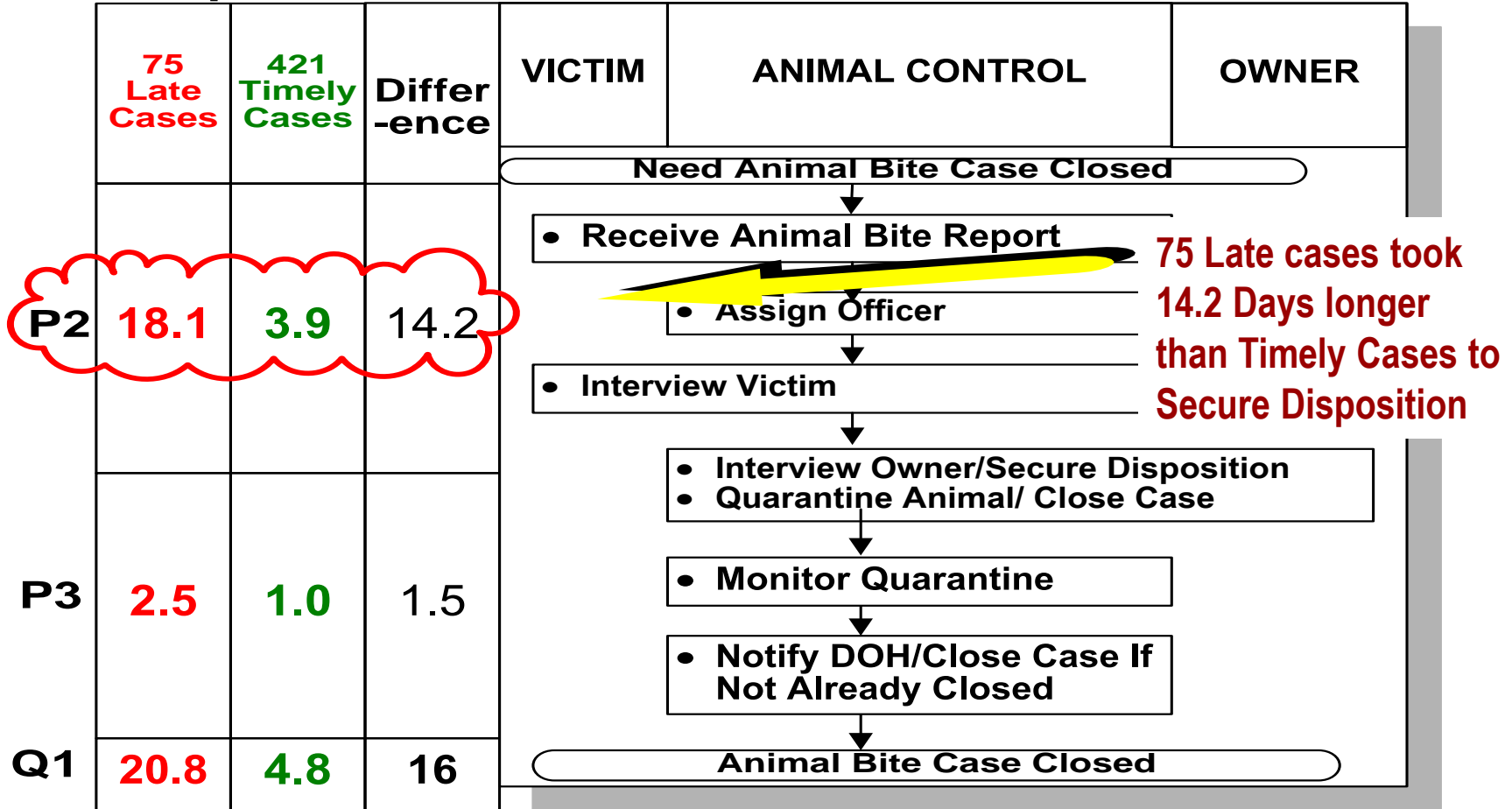
The team looked closer at comparing the **Late** to the **Timely** Cases.



Stratify the Problem

The team compared the **LATE Cases** to the **TIMELY Cases** and found...

Respond to Animal Bites and Protect Public



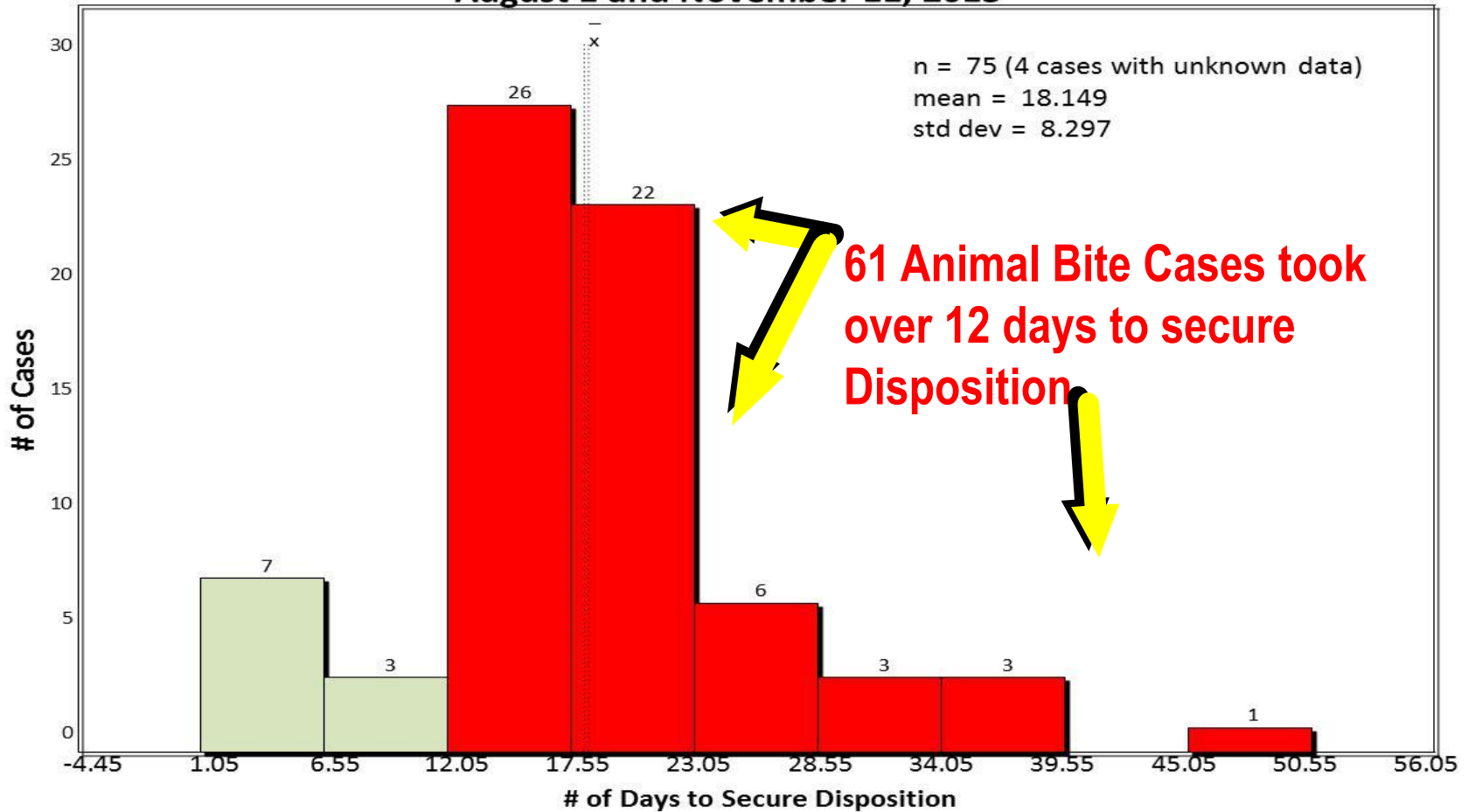
The team looked more closely at the 75 LATE Animal Bite Cases in the first step of securing disposition.



Stratify the Problem

The team stratified the 75 Late Cases for the disposition process step and found...

Animal Bite Cases Closed late (> 14 Days) between August 1 and November 11, 2013



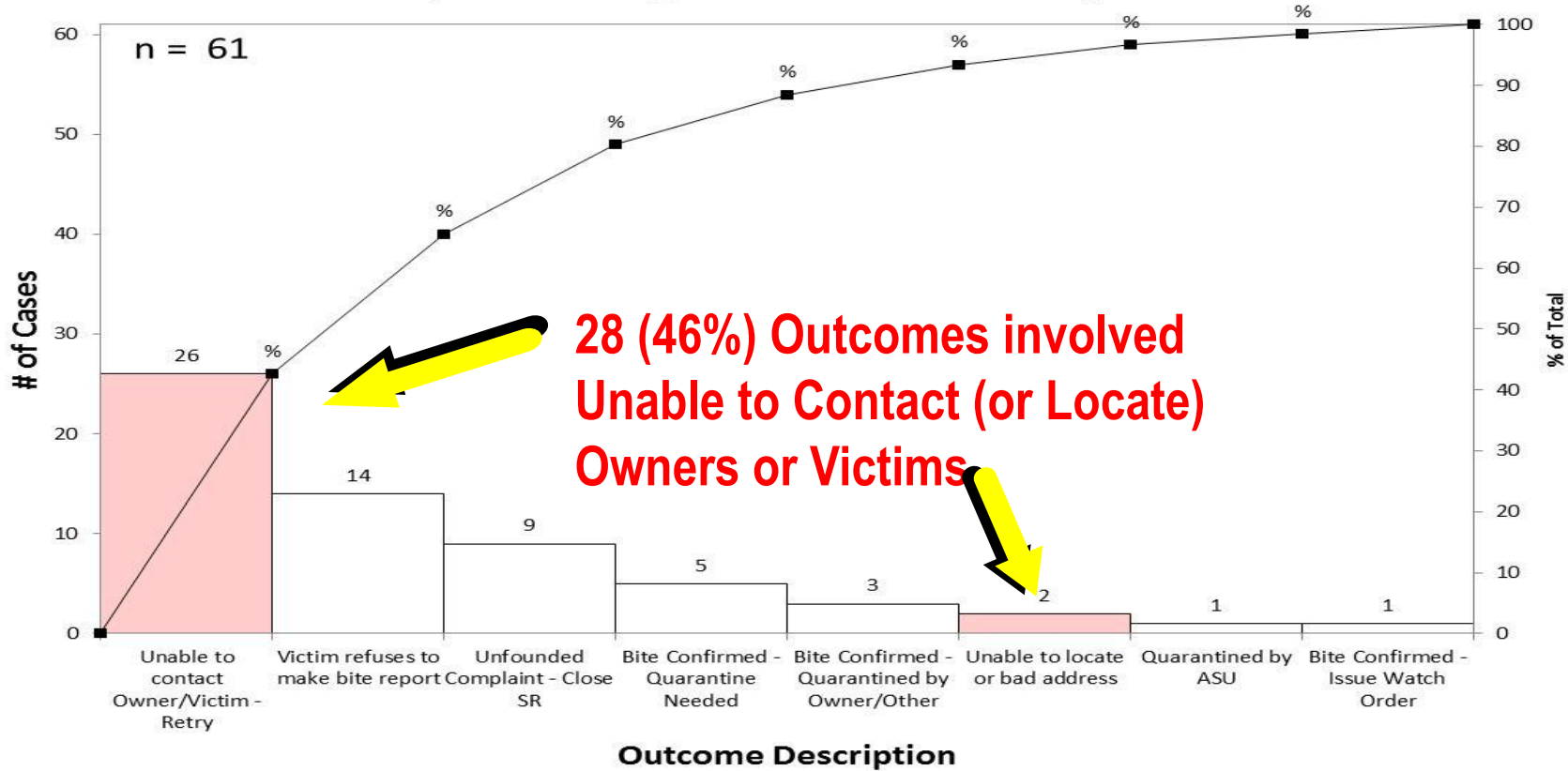
The team looked closer at these 61 Cases.



Stratify the Problem (Continued)

The team stratified the 61 case Dispositions many ways and found **5.,6.,7.,8.** 

Animal Bite Cases Closed late (> 14 Days) and Taking > 12 Days to Secure Disposition -August 1 and November 11, 2013



Problem Statement: "28 Animal Bite Cases Closed from 8/1/13 thru 11/11/13 that Took > 14 to Close AND >12 days to secure Disposition involved Outcomes of Unable to Locate or Contact Victim/Owner"



Identify Potential Root Causes

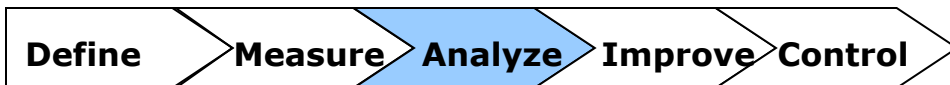
The team reviewed 27 Case documentations and interviewed involved staff before conducting Single Case Bore Analysis.

Single Case Bore Analysis

Problem Statement: "28 Animal Bite Cases Closed from 8/1/13 thru 11/11/13 that Took > 14 to Close AND >12 days to Secure Disposition involved Outcomes of Unable to Locate or Contact Victim/Owner"

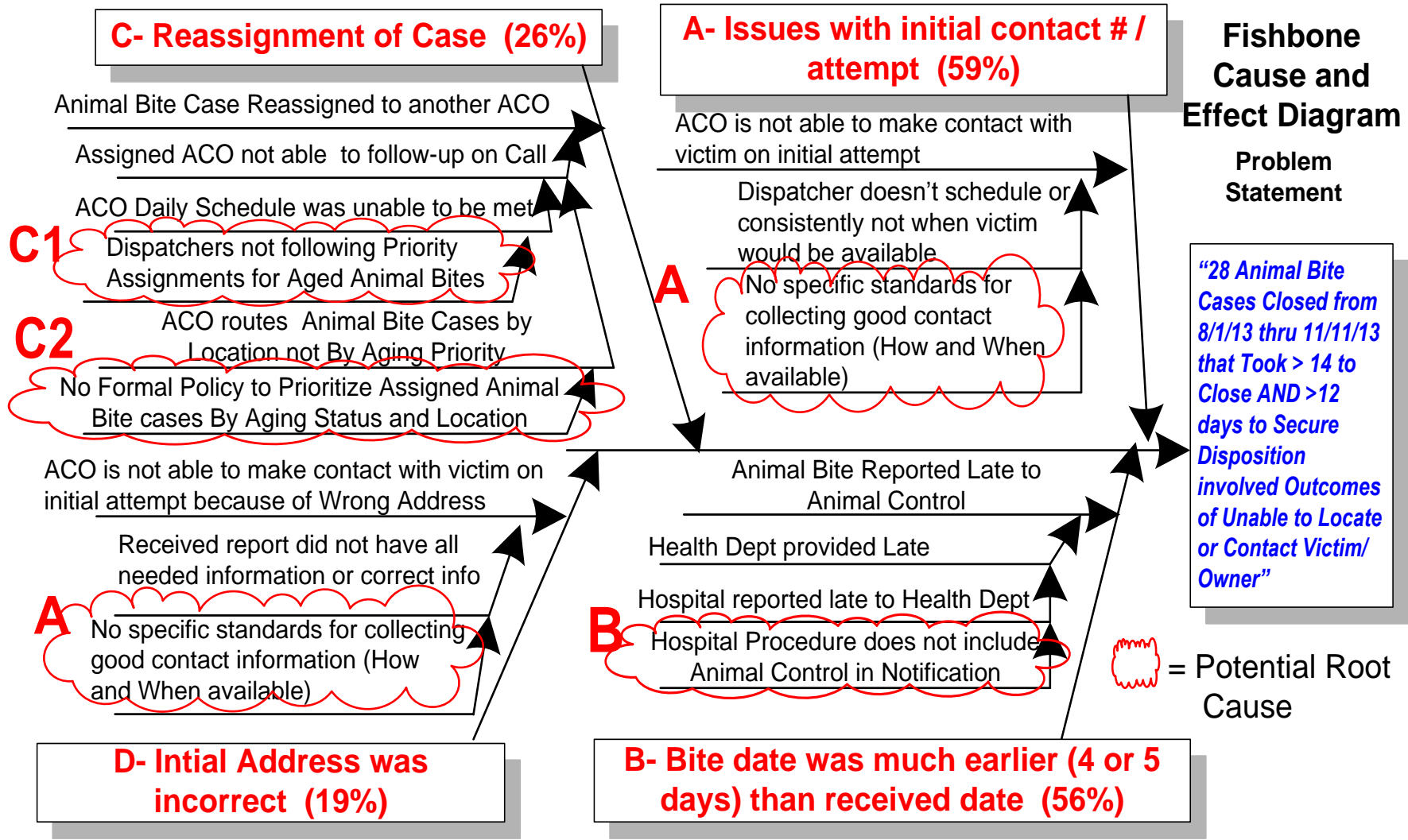
Reasons or Factors (That possibly contributed to Case Closings)		Sampled 27 of 28 Animal Cases																				Total	Percentage							
		13-10070225	13-10070554	13-10085014	13-10085042	13-10085258	13-10085284	13-10086199	13-10087054	13-10087322	13-10089934	13-10089955	13-10090235	13-10090271	13-10091157	13-10091827	13-10093824	13-10093864	13-10098148	13-10098149	13-10098768			13-10100190	13-10100211	13-10105595	13-10109993	13-10112601	13-10115176	
D	1) Intial Address was incorrect						X	X		X												X		X					5	19%
B	2) Bite date was much earlier than received date	X	X		X		X	X	X		X	X	X	X		X	X							X			X		15	56%
A	3) Issues with initial contact # /attempt	X	X		X	X		X	X		X				X				X	X	X	X		X		X	X		16	59%
	4) Scheduling error			X																							X		2	7%
	5) Unaccessible location															X											X		2	7%
	6) Owner/victim not home - correct address					X	X												X							X			4	15%
C	7) Reassignment of case	X	X			X	X	X		X																X			7	26%

The team next looked closer at these factors.

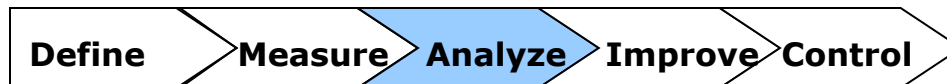


Identify Potential Root Causes

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



The team next looked to verify these four (4) Potential Root Causes.

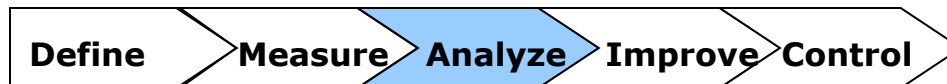


Verify Root Causes

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

Root Cause Verification Matrix		
Potential Root Cause	How Verified?	Root Cause or Symptom
A No specific standards for collecting good contact information (How and When available)	Team reviewed Health Department Faxed Forms and 311 Hub Forms for reporting Animal Bites and Verified there was not consistent or thorough contact information on forms that was needed for contacting Victims	Root Cause
B Hospital Procedure does not include Animal Control in Notification	Reviewed procedures and verified Hopital only notifies DOH	Root Cause
C1 Dispatchers not following Priority Assignments for Aged Animal Bites	Reviewed SOPs and Interviewed Dispatchers and Observe Unassigned Lists and verified no consistent following of procedures.	Root Cause
C2 No Formal Policy to Prioritize Assigned Animal Bite cases By Aging Status and Location	Reviewed SOPs and Interviewed ACOs and verified no written procedure that is followed to prioritize aging Animal Bite cases.	Root Cause

All four (4) were validated as root causes.



Identify and Select Countermeasures

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

Countermeasures Matrix				Legend:			
Problem Statement	Verified Root Causes	Countermeasures	Ratings				
			Effectiveness	Feasibility	Overall	Take Action? Yes/No	
<p>“8 Animal Bite Cases Closed from 8/1/13 thru 11/11/13 that Took > 14 to Close AND >12 days to Secure Disposition involved Outcomes of Unable to Locate or Contact Victim/Owner”</p>	<p>A1 - No specific standards for collecting good contact information (How and When available)</p>	A1- Dispatcher to Collect All Victim interview Info at time of Report	5	4	20	Y	
		A2- Establish On-Line Interview Template that Victims / Owners could fill out and attach photos (possibly eliminate meeting in field)	5	2.5	12.5	Y	
		A3- Include Required Fields on Enhanced Dispatcher Checklist on SRs	5	5	25	Y	
		A4- Establish Times on certain Days that Officers schedule to Respond to Animal Bite reports	5	5	25	Y	
		A5- Revise Health Dept Form to better collect Contact information	5	2.5	12.5	Y	
	B - Hospital Procedure does not include Animal Control in Notification	B1- Revise Hospital Procedure to include (or make ASD the Fax Contact and ASD notifies DOH) Animal Services Notification at time of DOH Notification	5	3	15	Y	
	C1 - Dispatchers not following Priority Assignments for Aged Animal Bites	C1 - Provide Refresher Training on Procedure for Assigning Aging Animal Bite Cases	5	5	25	Y	
	C2 - No Formal Policy to Prioritize Assigned Animal Bite cases By Aging Status and Location	C2- Update SOP for assigning Animal Bite cases by Aging status and Location for Assgning and Working Animal Bite Cases	5	5	25	Y	

The team selected 8 countermeasures for implementation.



Identify Barriers and Aids

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

Countermeasure(s): Implement 8 Countermeasures to Close Cases Sooner

Barriers		Aids
Impact (H, M, L)	Forces against Implementation	Forces For Implementation
M	1) Push Back from DOH <i>(Supported by Aid:A,B,C,D)</i>	A) Management very supportive of team's efforts
H	2) Push Back from Hospitals <i>(Supported by Aid:A,B,C,D)</i>	B) More Timely Closing of Cases
L	3) IT issues fo On-Line Template <i>(Supported by Aid:A,B)</i>	C) Common Legal requirement to investigate Animal Bites D) Same Customers

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



Develop and Implement Action Plan

Legend:
 ■ = Actual
 □ = Proposed

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

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WHAT: Implement 8 Countermeasures to Close Animal Bite Cases Sooner

HOW	WHO	WHEN									
		2014									
		Dec	Jan	Feb	Mar	April	May	Jun	Jul	Aug	
1. Develop Countermeasures:											
A1- Dispatcher to Collect All Victim interview Info at Report	Sean	█			Completed 1/22/14						
A2- Establish On-Line Interview Template that Victims / Owners could fill out and attach photos (possibly eliminate meeting in field)	Mike	█			Development completed 2/28/14						
A3- Include Required Fields on Enhanced Dispatcher Checklist on SRs	Mike	█					4/30/14				
A4- Establish Times on certain Days that Officers schedule to Respond to Animal Bite reports	Sean	█		Completed 1/22/14							
A5- Revise Health Dept Form to better collect Contact information	Gary/Sean/DOH	█					4/30/14				
B1- Revise Hospital Procedure to include (or make ASD the Fax Contact and ASD notifies DOH) Animal Services Notification at time of DOH Notification	Gary/ Sean/DOH	█					4/30/14				
C1 - Provide Refresher Training on Procedure for Assigning Aging Animal Bite Cases	Sean/ Gary/ Sam	█		Completed 1/22/14							
C2- Update SOP for assigning Animal Bite cases by Aging status and Location for Assgning and Working Animal Bite Cases	Sean/ Gary/ Sam	█					3/31/2014				
2. Secure Management Approval of Countermeasures (share benefits and cost savings)	Team						4/30/14				
3. Communicate/Train Staff in Countermeasures and related policies/procedures (share Improved Service & cost savings and serving common customers for DOH and Miami-Dade)	Team		█			3/30/14					
4. Implement Countermeasures and Pilot	Team		█			3/31/14					
5. Review Pilot and determine Benefits and adjust as necessary and present results to management	Team		█				4/30/14				
6. Establish On-going responsibilities and standardize countermeasures into operations	Team		█							On-going	



Review Results

17.,18.,19.,20. 

The team collected indicator data and reviewed results of its countermeasures

Q2- % of Animal Bite Cases Closed within 14 Days of Animal Bite



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



Standardize Countermeasures

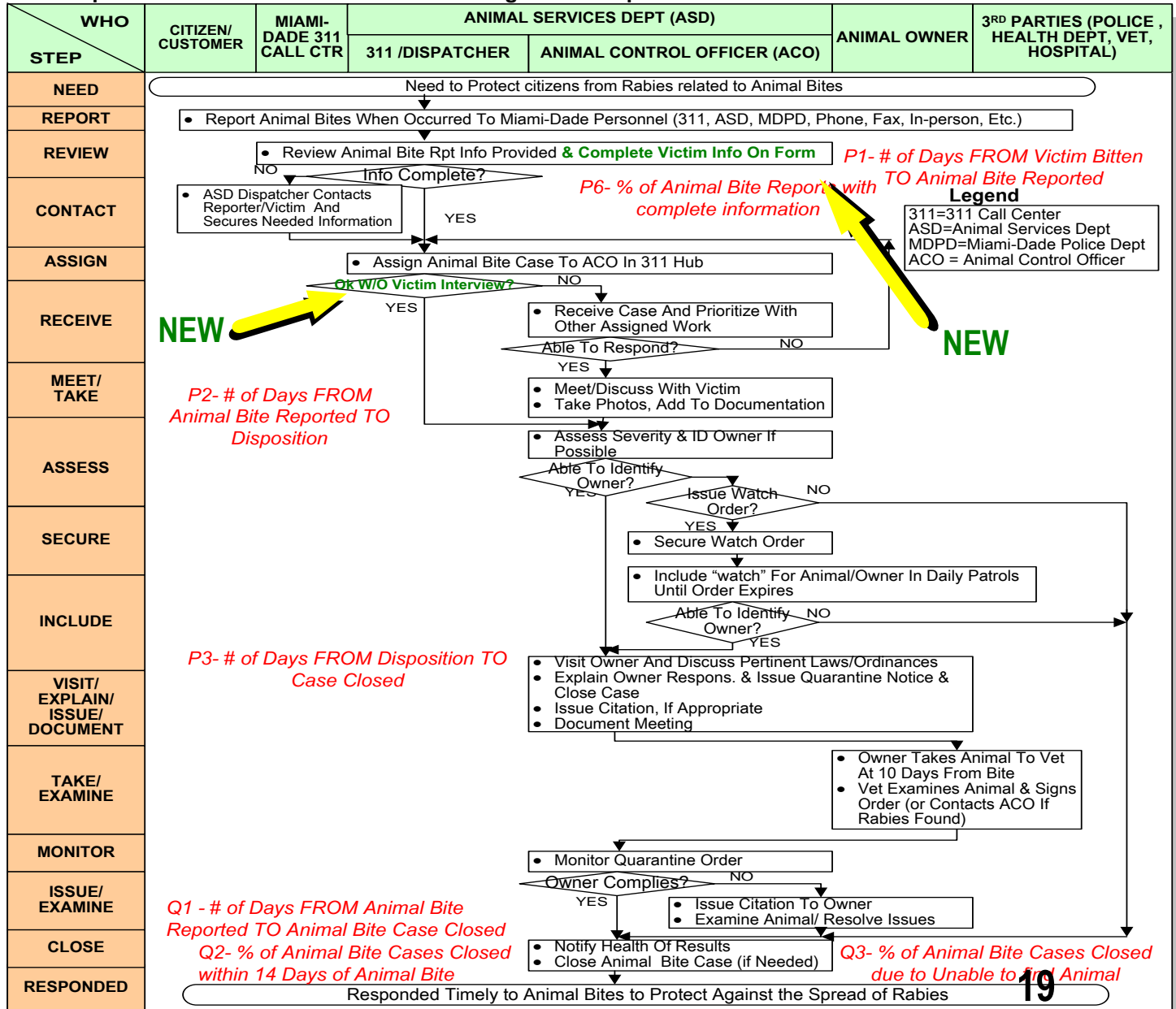
21.,22.,23.

The team revised indicators and incorporated the improvements into the Process flowchart.

The team looked to standardize the Indicator monitoring

51.a Respond to Animal Bites to Protect Public Against the Spread of Rabies

(Process Owners: Dir of Animal Services Dept)



Standardize Countermeasures

The team Developed a Process Control System (PCS) to monitor the process on-going.

Process Control System						
Process Name: 5l.a Respond to Animal Bites to Protect Public Against the Spread of Rabies			Process Owner: Director of Animal Services Dept			
Process Customer: Animal Bite Victim and Relatives; Dept of Health; Taxpayers and General Public			Critical Customer Requirements: Disposition Case and Close Case Timely			
Process Purpose: Document and Quarantine Animals that have bitten Public			Current Sigma Level: TBD		Outcome Indicators: Q1, Q2, Q3	
Process and Quality Indicators			Checking / Indicator Monitoring			Contingency Plans / Misc. • Actions Required for Exceptions • Procedure References
Process Indicators		Control Limits	Data to Collect	Timeframe (Frequency)	Responsibility	
Quality Indicators		Specs/ Targets	What is Checking Item or Indicator Calculation	When to Collect Data?	Who will Check?	
P1	# of Days FROM Victim Bitten TO Animal Bite Reported	TBD	(Date Animal Bite Reported)-(Date Victim Bitten)	By Event	Sean	Escalate to Supv Mgt Report
P2	# of Days FROM Animal Bite Reported TO Disposition	TBD	(Date Disposition)-(Date Animal Bite Reported)	By Event	Sean	Escalate to Supv Mgt Report
P3	# of Days FROM Disposition TO Case Closed	2	(Date Animal Bite Case Closed)-(Date Disposition)	By Event	Sean	Escalate to Supv Mgt Report
P4	% of Animal Bite Reports with complete information	2	100*(# of Animal Bite Reports with complete information)-(# of Animal Bite Reports)	Monthly	Sean	Escalate to Supv Mgt Report
Q1	# of Days FROM Animal Bite Reported TO Animal Bite Case Closed	2	(Date Animal Bite Case Closed)-(Date Animal Bite Reported)	By Event	Sean	Escalate to Supv Mgt Report
Q2	% of Animal Bite Cases Closed within 14 Days of Animal Bite	2	100*(# of Animal Bite Cases Closed within 14 Days of Animal Bite)-(# of Animal Bite Reports)	Monthly	Sean	Escalate to Supv Mgt Report
Q3	% of Animal Bite Cases Closed due to Unable to find Animal	2	100*(# of Animal Bite Cases Closed due to Unable to find Animal)-(# of Animal Bite Reports)	Monthly	Sean	Escalate to Supv Mgt Report

Approved: _____ Date: _____ Rev #: _____ Rev Date: _____

The team looked ahead to the future.



Lessons Learned

- 1) The Stratification (Drill-down) process using Paretos and Histograms was very important in allowing the data to direct the team to the root cause area.
- 2) The DMAIC Story Process was very useful in assisting the team in a systematic way to identify and address root causes(s)
- 3) It is important to identify Subject Matter Experts (SMEs) early in the process to help the team out in the area the data will take the team for root causes.
- 4) The team learned that not every problem needs to be solved with more resources.

Next Steps

- 1) Continue to monitor the countermeasures and performance results.

