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Batch Processing increasing lab effectiveness



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BATCH METHOD

As businesses (laboratories) grow and demand increases, the work flow process is often changed to a “batch method”. Batch methods require that a group of items move through a process together, a stage at a time.



Advantages

The batch method can be an advantage when administered appropriately. It is cheaper to complete a number of items in one go because instruments can be used more effectively, and the staff can specialize in that task.

There are advantages of employees concentrating their skills.

- They become more expert at their tasks, which will in turn increase productivity (output per employee).
- Employees are more familiar with processes and so can find ways of improving them.
- Builds team work among sections and staff meetings become more interactive.



Disadvantages

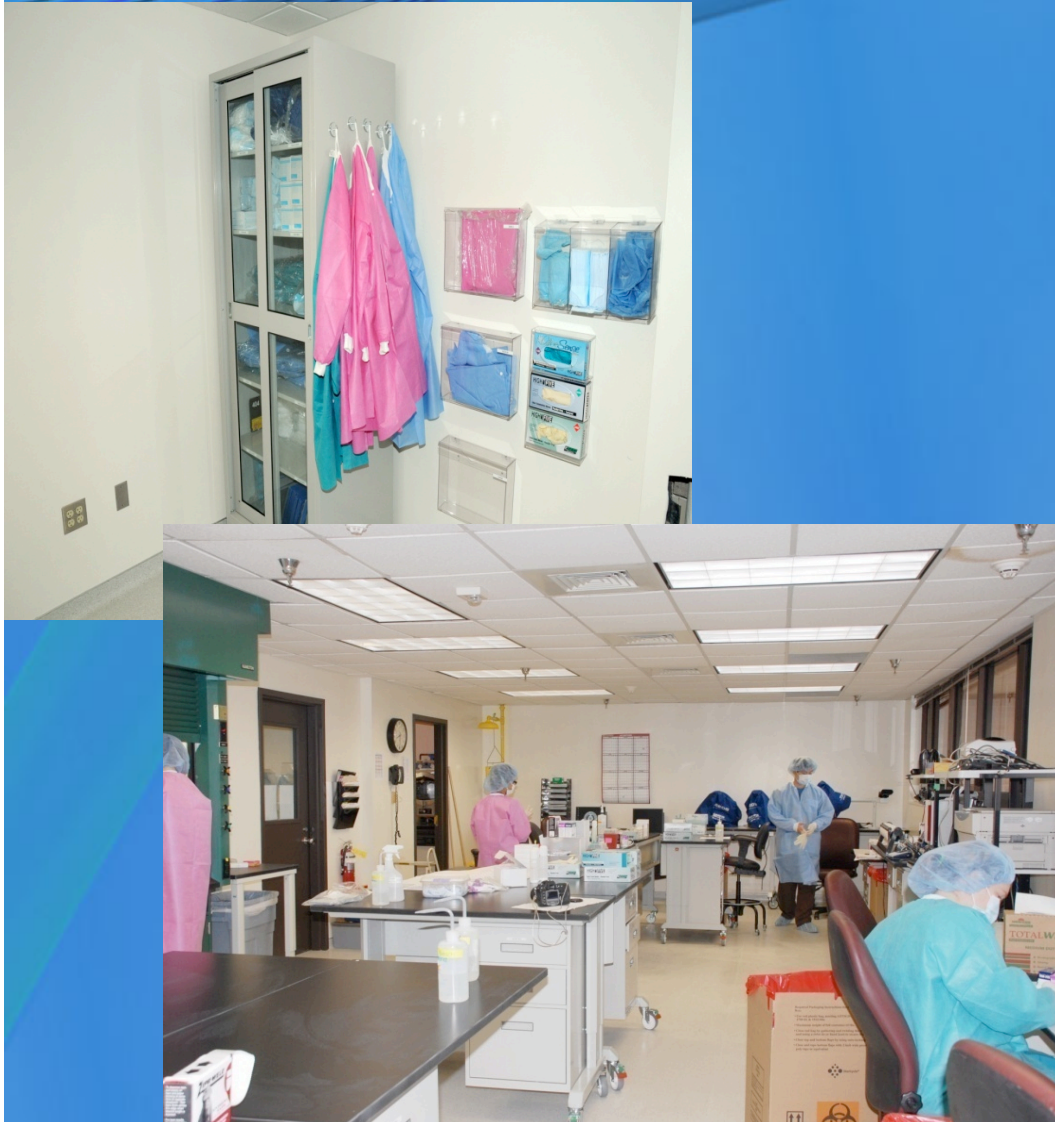
Batch methods can result in the build up of significant “work in progress” (i.e. completed batches waiting for their turn to be worked on in the next operation).

Managers must monitor workflow and foresee bottlenecks in the process. The batch method is not a hands-off process. Batching requires very careful planning to implement in the beginning.

Quality checks/verification steps must be put in place to monitor work product.



Preventative measures.



- Gowning required prior to entering an evidence exam area
- Monthly Swipe test
- Separate sectional Quality group
- In-House databases



Evidence Examination



Items are individually examined.

Areas of interest are identified, tested and documented.

- Presumptive tests
- Confirmatory tests

Samples are prepared for DNA testing and placed on appropriate extraction log.





DNA extraction

DNA EXTRACTION LOG

Analyst: _____
Date: _____
Circle extraction method:
ORGANIC / CHELEX-REG / CHELEX-LOW / DNA IQ

Pre-extraction Verification: _____
Microcon Verification: _____
Collection Tube Verification: _____
Robot Transfer: _____

Extraction batch ID: _____ Hood #: _____

#	CASE # & ITEM DESCRIPTION	Substrate COC From/To Date	Substrate COC From/To Date	MICROCON Y/N	VOLUME (ul)	AMT USED QUANT	AMT USED AMP	AMT REMAINING
	Verified by (date/initial)							
	Verified by (date/initial)							
	Verified by (date/initial)							
	Verified by (date/initial)							
	Verified by (date/initial)							
	Verified by (date/initial)							
	Verified by (date/initial)							
	Verified by (date/initial)							
	Verified by (date/initial)							
	Verified by (date/initial)							
	Verified by (date/initial)							
	Verified by (date/initial)							
	Verified by (date/initial)							
	Reagent Blank	N/A	N/A					

Extract storage: Box Q: _____ Notes: _____

Lot # _____
PC Exp _____ Pro K exp _____
Chelex _____ TE _____
TID: _____

Form #: FB08 016 Rev: 6 Procedure #: FB07 4001-4003, FB07 4005-4006, FB07 4008
Date: 0409 Approved By: Dr. Roger Kahn



Extraction logs

Differentials

Low yield

Regular

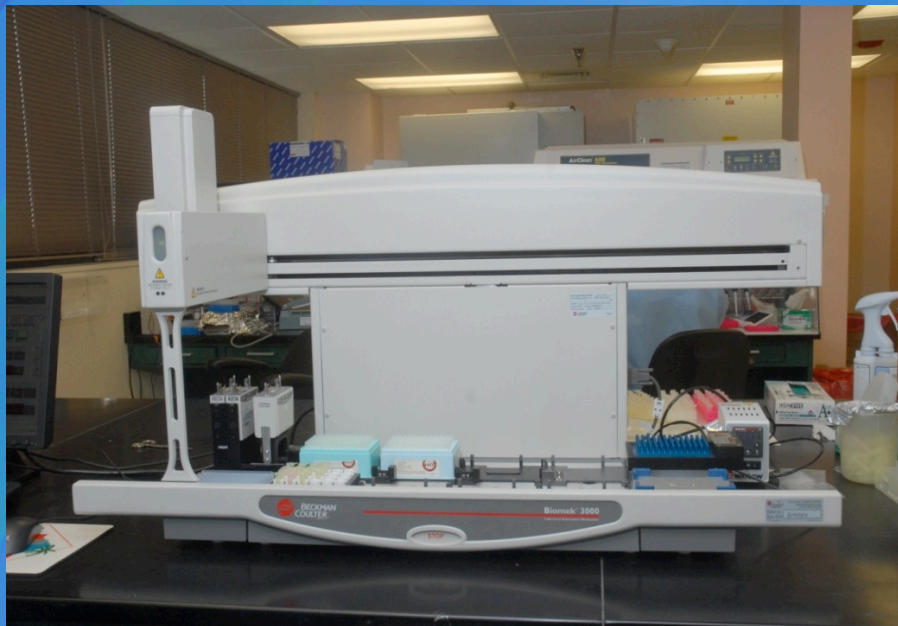
Knowns



Multi-Step DNA Test Process



Purification
Quantization
Amplification





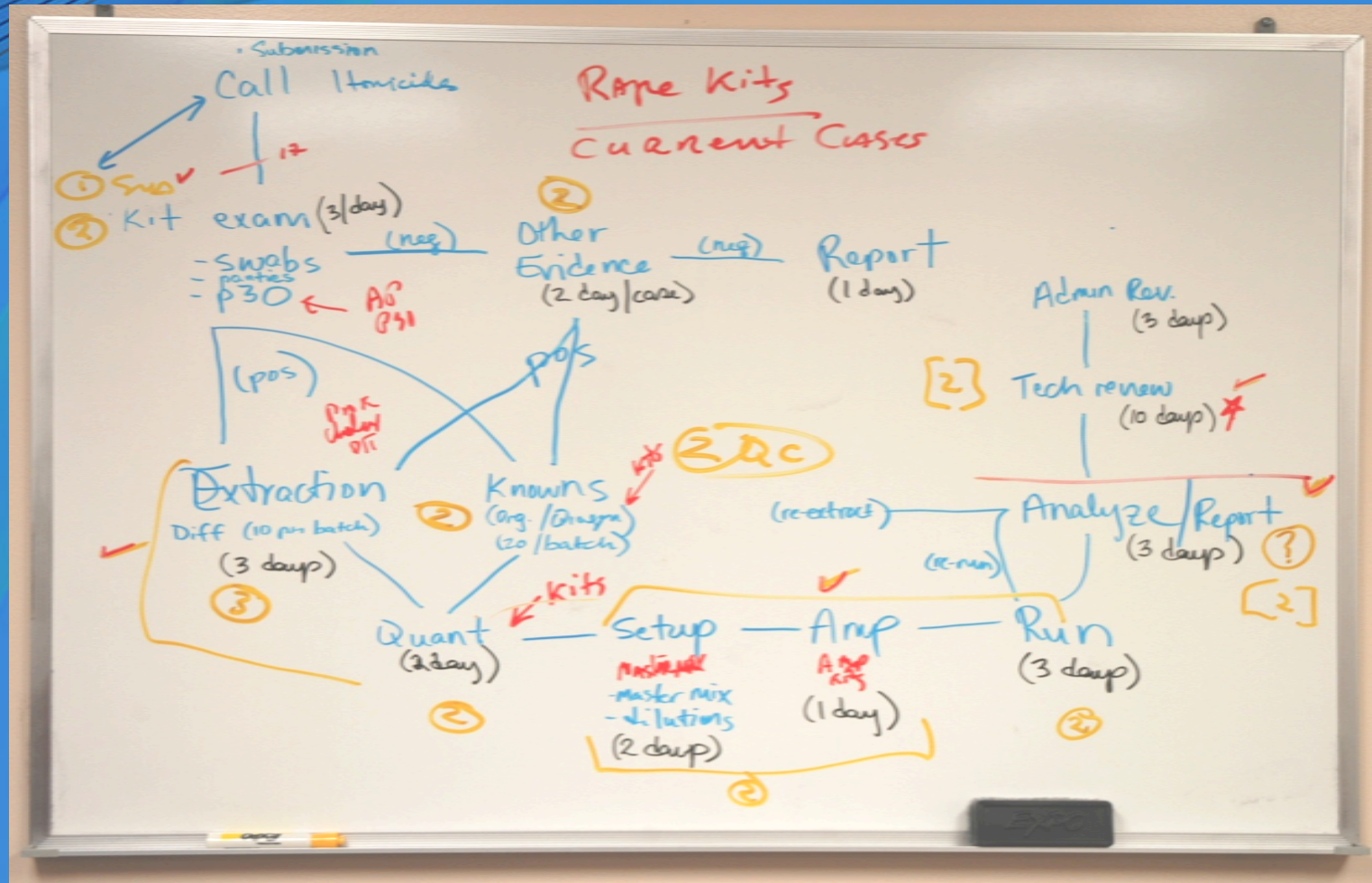
Multi-Step DNA Test Process

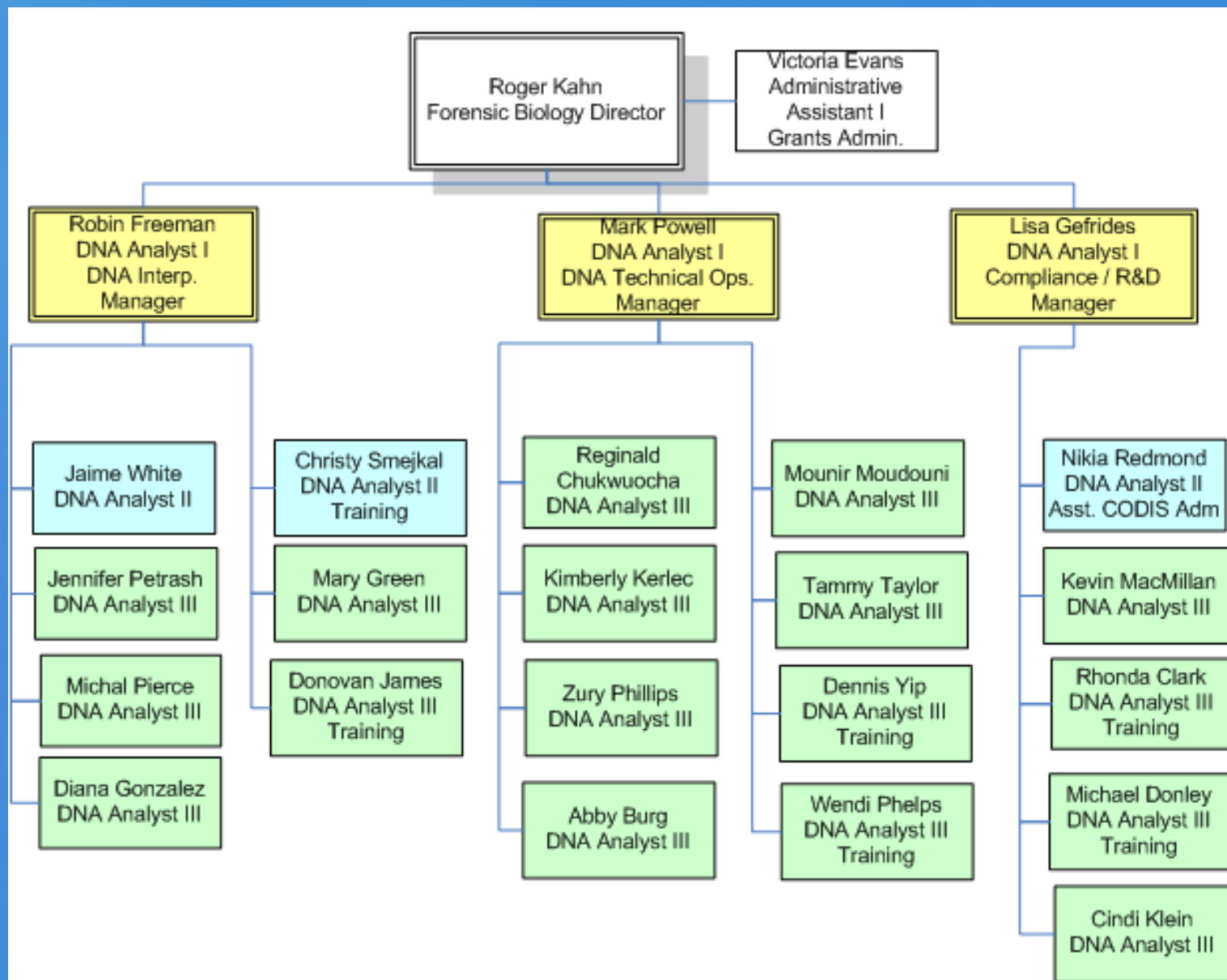
Analysis
Interpretation
Reporting

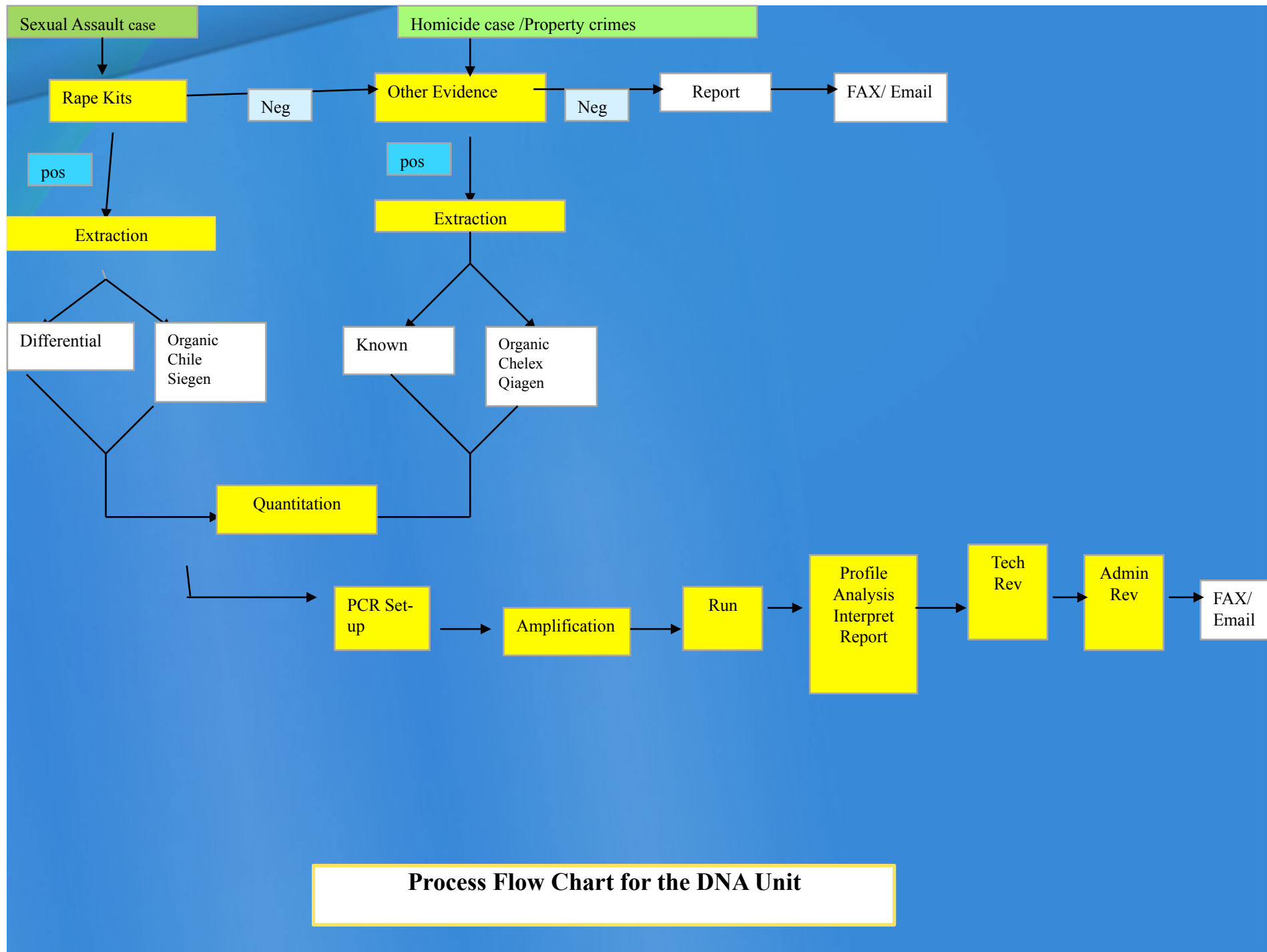




Planning and Implementation







Process Flow Chart for the DNA Unit

Organization of staff using Rotation schedules

SCHEDULE: Mon- Fri: 7-3:30 ART/DDH/LGS/ ACS/KDW LIG/MAD/DOJ (7-3:30) or (8-5:00) AT-TB	Lab Lock	Kits (1) Assigned Projects	Homicide (1) Burglary Property Cut Only (1)	Kit – (Other Evidence) (1)	Other Evidence 3 Minimum Overtime	Case Management	Ext.	Robot	Verificatio ns	Manual PCR/ Run Analyze	Report Writing Review
August 24	4 th fl. LGS LIG 5 th fl. LG	ACS LIG Bleach _____ ART 5:00 Rotation LGS	DDH _____ LGS MAD _____ JBS 3:30-5	DOJ _____ AT TB	ART KDW	JBS/SP Bleach/ Autoclave: Robot	ZP DCY	WP AB Float	Run: RF Paper: CS/DG/ KM	RUC	RPT =MLP// MG TR=RF/JP/JW AR =MP/ CS/ DG/KM
August 25	4 th fl. LGS LIG 5 th fl. LG	ACS Bleach _____ ART 5:00 Rotation LGS	DDH _____ LGS MAD _____ JBS 3:30-5	DOJ _____ AT TB	ART KDW LIG	JBS/SP Bleach/ Autoclave: Robot	WP TET	DCY ZP Float AB Float	Run: RF Paper: CS/DG/ KM	RUC	RPT =MLP// MG TR=RF/JP/JW AR =MP/ CS/ DG/KM
August 26	4 th fl. LGS LIG 5 th fl. LG	ACS Bleach _____ ART 5:00 Rotation LGS	DDH _____ LGS MAD _____ JBS 3:30-5	DOJ _____ AT TB	ART KDW LIG	JBS/SP Bleach/ Autoclave: Robot	WP TET	DCY ZP Float AB Float	Run: RF Paper: CS/DG/ KM	RUC	TR=RF/JP/ JWMLP/MG AR =MP/ CS/ DG/KM
August 27	4 th fl. LGS LIG 5 th fl. LG	ACS Bleach _____ ART 5:00 Rotation LGS	DDH _____ LGS MAD _____ JBS 3:30-5	DOJ _____ AT TB	ART KDW LIG	JBS/SP Bleach/ Autoclave: Robot	WP TET	DCY ZP Float AB Float	Run: RF Paper: CS/DG/ KM	RUC	TR=RF/JP/ JWMLP/MG AR =MP/ CS/ DG/KM
August 28	4 th fl. LGS LIG 5 th fl. LG	ACS Bleach _____ ART 5:00 Rotation LGS	DDH _____ LGS MAD _____ JBS 3:30-5	DOJ _____ AT TB	ART KDW LIG	JBS/SP Bleach/ Autoclave: Robot	WP TET	DCY ZP Float AB Float	Run: RF Paper: CS/DG/ KM	RUC	TR=RF/JP/ JWMLP/MG AR =MP/ CS/ DG/KM



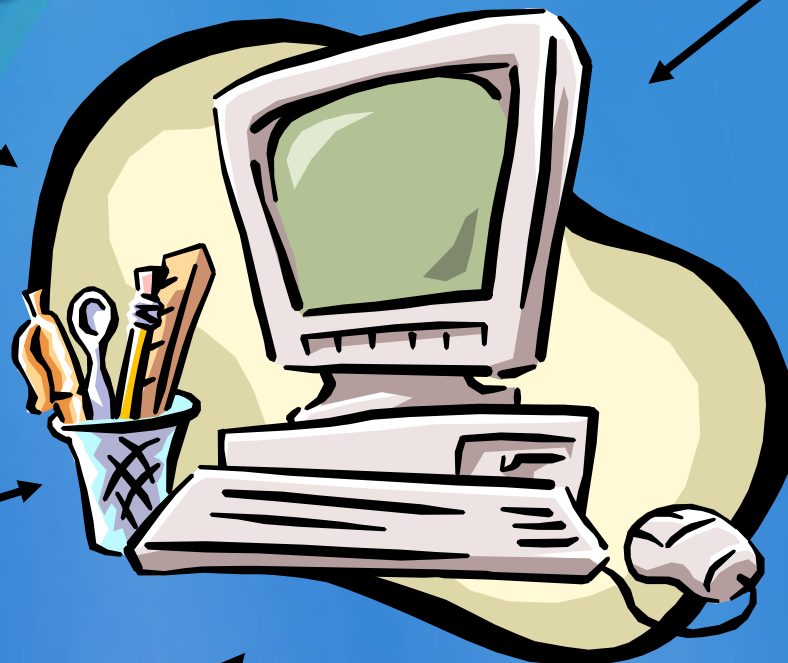
Extraction

Amplification

Quantitation

CE Load/
Analysis

Reporting



A	B	C	D	E	F	G	H	I	J	K	L	M
1	Lab Numbers: Demonstration Data									Lot #/expiration date	Volume	
2												
3	Analyst: KM									Quantifier Kit		
4	Verification:									PCR Reaction Mix (12.5ul)	852.5	
5	System: Human									Primer Mix (10.5ul)	716.1	
6	Date: 1/22/2008									Standards		
7	Reactions: 60									TE		

	1	2	3	4	5	6	7	8	9	10	11	12
8												
9	A	50	NEG	SAMPLE-8	SAMPLE-15	SAMPLE-RB-2	SAMPLE-30	SAMPLE-38				50
10	B	16.7	SAMPLE-1	SAMPLE-9	SAMPLE-16	SAMPLE-23	SAMPLE-31	SAMPLE-39				16.7
11	C	5.56	SAMPLE-2	SAMPLE-10	SAMPLE-17	SAMPLE-24	SAMPLE-32	SAMPLE-RB-3				5.56
12	D	1.85	SAMPLE-3	SAMPLE-11	SAMPLE-18	SAMPLE-25	SAMPLE-33					1.85
13	E	0.62	SAMPLE-4	SAMPLE-RB	SAMPLE-19	SAMPLE-26	SAMPLE-34					0.62
14	F	0.21	SAMPLE-5	SAMPLE-12	SAMPLE-20	SAMPLE-27	SAMPLE-35					0.21
15	G	0.068	SAMPLE-6	SAMPLE-13	SAMPLE-21	SAMPLE-28	SAMPLE-36					0.068
16	H	0.023	SAMPLE-7	SAMPLE-14	SAMPLE-22	SAMPLE-29	SAMPLE-37					0.023

Standards (Expiration date: _____)			
18	1	50ul [stock] + 150ul TE	50.0ng/ul
19	2	50ul [STD 1] + 100ul TE	16.7ng/ul
20	3	50ul [STD 2] + 100ul TE	5.56ng/ul
21	4	50ul [STD 3] + 100ul TE	1.85ng/ul
22	5	50ul [STD 4] + 100ul TE	0.62ng/ul
23	6	50ul [STD 5] + 100ul TE	0.21ng/ul
24	7	50ul [STD 6] + 100ul TE	0.068ng/ul
25	8	50ul [STD 7] + 100ul TE	0.023ng/ul

	A	B	C	D	E
16					
17	Sample		Conc. (ng/μL)	Dilution	RBs
18	SAMPLE-1		0.2440		
19	SAMPLE-2		500.0000	1/100	
20	SAMPLE-3		4.2600		
21	SAMPLE-4		1.9100		
22	SAMPLE-5		3.8000		
23	SAMPLE-6		1.5000		
24	SAMPLE-7		100.0000	1/100	
25	SAMPLE-8		0.1870		
26	SAMPLE-9				
27	SAMPLE-10				
28	SAMPLE-11		0.0016		
29	SAMPLE-RB				X
30	SAMPLE-12		0.1540		
31	SAMPLE-13				
32	SAMPLE-14		0.0218		
33	SAMPLE-15		0.0411		
34	SAMPLE-16		0.0043		

1. Samples are counted to determine the reactions needed.
 2. Kit lot information is stored in the template itself.
 3. By selecting the correct kit, all other lot information is automatically entered.
 4. Master mix volumes are calculated based on reaction count.
- After Importing the Quant data:
5. The required dilutions are automatically calculated.
 6. Reagent Blanks are also automatically recognized.

	A	B	C	D	E	F	G	H	I	J	K	
1	STR AMPLIFICATION WORKSHEET (25µL volumes)											
2												
3	Lab number(s):	Demonstration Data										
4												
5												
6	Date:	1/22/2008									Add Quant Results	
7	Analyst:	KM										
8	Verification:											
9	PROFILER PLUS:	44			COFILER:	41						
10												
11	x 10.5 µL	Reaction mix		462	x 10.5 µL	Reaction mix		430.5				
12	x 0.5 µL	AmpliTaq Gold		22	x 0.5 µL	AmpliTaq Gold		20.5				
13	x 5.5 µL	Primer Set		242	x 5.5 µL	Primer Set		225.5				
14												
15	Thermocycler Used:											
16												
17	Sample	DNA (ng)	Conc. (ng/µL)	Sample Vol. (µL)	TE Vol. (µL)	Dilution	Profiler Plus	CoFiler				
18	SAMPLE-1	1.0	0.2440	10.0	14.4		X	X				
19	SAMPLE-2	1.0	5.0000	5.0	245.0	1/100	X	X				
20	SAMPLE-3	1.0	4.2600	5.0	208.0		X	X				
21	SAMPLE-4	1.0	1.9100	5.0	90.5		X	X				
22	SAMPLE-5	1.0	3.8000	5.0	185.0		X	X				
23	SAMPLE-6	1.0	1.5000	5.0	70.0		X	X				
24	SAMPLE-7	1.0	1.0000	5.0	45.0	1/100	X	X				
25	SAMPLE-8	1.0	0.1870	20.0	17.4		X	X				
26	SAMPLE-9	ND	UND	20.0	0.0		X					
27	SAMPLE-10	ND	UND	20.0	0.0		X					
28	SAMPLE-11	0.0	0.0016	20.0	0.0		X					
29	SAMPLE-RB	ND	UND	10.0	0.0		X					
30	SAMPLE-12	1.0	0.1540	20.0	10.8		X					
31	SAMPLE-13	ND	UND	20.0	0.0		X					
32	SAMPLE-14	0.2	0.0218	20.0	0.0		X					
33	SAMPLE-15	0.4	0.0411	20.0	0.0		X					

59	SAMPLE-RB-3	ND	UND	10.0	0.0		X	
60	POS PP	1.0	0.0984	10.0	0.0		X	
61	POS CO	1.0	0.1270	7.9	2.1			X
62	NEG	0.0	N/A	0.0	10.0		X	X
63								
64								
65								
66								
67	Kit lot #/expiration	0708026 / 08/21/08		0710024 / 11/01/08				
68	Reaction mix lot	0707118		0708119				
69	AmpliTaq Gold lot #/exp.	HV2858 / 09/30/08		HV2860 / 09/30/08				
70	Primer set lot #	0708059		0709037				
71	Control DNA lot #	0706052		0707053				
72	TE	102907RUC		102907RUC				

7. macro in the template allows exported quant data from the ABI 7000 or 7500 to be imported into the template. This data will be used in amplification reaction calculations.

All calculations are performed automatically using the Quant and Dilution data (from the previous worksheets).

- 8. Kit lot information is stored in the template itself
- 9. By selecting the correct kit, all other lot information is automatically entered, including the quant value of the positive control

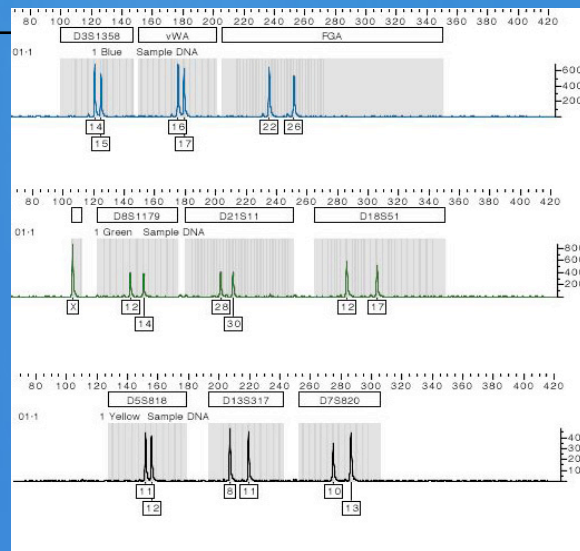
	A	B	C	D	E	F	G	H	I	J	K	L	M
1	PCR Amplification Plate												
2													
3	Lab number(s):	Demonstration Data											
4													
5	Amp Tray ID:	012208KM											
6													
7	Date:	1/22/2008											
8													
9	Analyst:	KM											
10													
11		1	2	3	4	5	6	7	8	9	10	11	12
12	A	SAMPLE-6_PP	SAMPLE-13_PP	SAMPLE-21_PP	SAMPLE-28_PP	SAMPLE-36_PP		SAMPLE-6_CO	SAMPLE-13_CO	SAMPLE-21_CO	SAMPLE-28_CO	SAMPLE-36_CO	
13	B	SAMPLE-7_PP	SAMPLE-14_PP	SAMPLE-22_PP	SAMPLE-29_PP	SAMPLE-37_PP		SAMPLE-7_CO	SAMPLE-14_CO	SAMPLE-22_CO	SAMPLE-29_CO	SAMPLE-37_CO	
14	C	SAMPLE-8_PP	SAMPLE-15_PP	SAMPLE-RB-2_PP	SAMPLE-30_PP	SAMPLE-38_PP		SAMPLE-8_CO	SAMPLE-15_CO		SAMPLE-30_CO	SAMPLE-38_CO	
15	D	SAMPLE-1_PP	SAMPLE-9_PP	SAMPLE-16_PP	SAMPLE-23_PP	SAMPLE-31_PP	SAMPLE-39_PP	SAMPLE-1_CO	SAMPLE-9_CO	SAMPLE-16_CO			
16	E	SAMPLE-2_PP	SAMPLE-10_PP	SAMPLE-17_PP	SAMPLE-24_PP	SAMPLE-32_PP	SAMPLE-RB-3_PP	SAMPLE-2_CO	SAMPLE-10_CO	SAMPLE-17_CO			
17	F	SAMPLE-3_PP	SAMPLE-11_PP	SAMPLE-18_PP	SAMPLE-25_PP	SAMPLE-33_PP		SAMPLE-3_CO	SAMPLE-11_CO	SAMPLE-18_CO			
18	G	SAMPLE-4_PP	SAMPLE-RB_PP	SAMPLE-19_PP	SAMPLE-26_PP	SAMPLE-34_PP	POS_PP	SAMPLE-4_CO		SAMPLE-19_CO			
19	H	SAMPLE-5_PP	SAMPLE-12_PP	SAMPLE-20_PP	SAMPLE-27_PP	SAMPLE-35_PP	NEG_PP	SAMPLE-5_CO	SAMPLE-12_CO	SAMPLE-20_CO			

	A	B	C	D	E	F	G	H	I	J	K	L	M	
1	ABI CE Sample loading plate													
2														
3	Lab number(s):	Demonstration Data												
4														
5	Run ID:	012208KM								Instrument:				
6														
7	Date:	1/22/2008												
8														
9	Analyst:	KM												
10														
11		1	2	3	4	5	6	7	8	9	10	11	12	
12	A	Ladder_PP	SAMPLE-6_PP	SAMPLE-13_PP	SAMPLE-21_PP	SAMPLE-28_PP	SAMPLE-36_PP	Ladder_CO	SAMPLE-6_CO	SAMPLE-13_CO	SAMPLE-21_CO	SAMPLE-28_CO	SAMPLE-36_CO	
13	B	POS_PP	SAMPLE-7_PP	SAMPLE-14_PP	SAMPLE-22_PP	SAMPLE-29_PP	SAMPLE-37_PP	POS_CO	SAMPLE-7_CO	SAMPLE-14_CO	SAMPLE-22_CO	SAMPLE-29_CO	SAMPLE-37_CO	
14	C	NEG_PP	SAMPLE-8_PP	SAMPLE-15_PP	SAMPLE-RB-2_PP	SAMPLE-30_PP	SAMPLE-38_PP	NEG_CO	SAMPLE-8_CO	SAMPLE-15_CO		SAMPLE-30_CO	SAMPLE-38_CO	
15	D	SAMPLE-1_PP	SAMPLE-9_PP	SAMPLE-16_PP	SAMPLE-23_PP	SAMPLE-31_PP	SAMPLE-39_PP	SAMPLE-1_CO	SAMPLE-9_CO	SAMPLE-16_CO	SAMPLE-23_CO	SAMPLE-31_CO	SAMPLE-39_CO	
16	E	SAMPLE-2_PP	SAMPLE-10_PP	SAMPLE-17_PP	SAMPLE-24_PP	SAMPLE-32_PP	SAMPLE-RB-3_PP	SAMPLE-2_CO	SAMPLE-10_CO	SAMPLE-17_CO	SAMPLE-24_CO	SAMPLE-32_CO		
17	F	SAMPLE-3_PP	SAMPLE-11_PP	SAMPLE-18_PP	SAMPLE-25_PP	SAMPLE-33_PP	Ladder_PP	SAMPLE-3_CO	SAMPLE-11_CO	SAMPLE-18_CO	SAMPLE-25_CO	SAMPLE-33_CO	Ladder_CO	
18	G	SAMPLE-4_PP	SAMPLE-RB_PP	SAMPLE-19_PP	SAMPLE-26_PP	SAMPLE-34_PP	POS_PP	SAMPLE-4_CO		SAMPLE-19_CO	SAMPLE-26_CO	SAMPLE-34_CO	POS_CO	
19	H	SAMPLE-5_PP	SAMPLE-12_PP	SAMPLE-20_PP	SAMPLE-27_PP	SAMPLE-35_PP	NEG_PP	SAMPLE-5_CO	SAMPLE-12_CO	SAMPLE-20_CO	SAMPLE-27_CO	SAMPLE-35_CO	NEG_CO	
20	Note: Samples in bold were injected for 10 seconds													
21														
22									Rox Lot					
23									Formamide Lot					
24									PP Allelic Ladder Lot					
25									CO Allelic Ladder Lot					

10. Simple links populate the PCR Amplification Plate Grid

11. Selecting the instrument for injections alters the plate import worksheet that follows

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Container Name	Description	ContainerType	AppType	Owner	Operator							
2	012208KM		96-Well	Regular	KM	KM							
3	AppServer	AppInstance											
4	GeneMapper	GeneMapper_d7dd451ab2a311d993b8000d56d61fe6											
5	Well	Sample Name	Comment	Priority	Sample Type	Snp Set	Analysis Method	Panel	Size Standard	User-Definec	Results Gro	Instrument	Protocol 1
6	A01	Ladder_PP		100	Allelic Ladder		HCME03100	Profiler_Plus_v1	RED 75-400	5_sec_inj	3100_run	5_sec_inj	
7	B01	POS_PP		100	Positive Control		HCME03100	Profiler_Plus_v1	RED 75-400	5_sec_inj	3100_run	5_sec_inj	
8	C01	NEG_PP		100	Negative Control		HCME03100	Profiler_Plus_v1	RED 75-400	10_sec_inj	3100_run	10_sec_inj	
9	D01	SAMPLE-1_PP		100	Sample		HCME03100	Profiler_Plus_v1	RED 75-400	5_sec_inj	3100_run	5_sec_inj	
10	E01	SAMPLE-2_PP		100	Sample		HCME03100	Profiler_Plus_v1	RED 75-400	5_sec_inj	3100_run	5_sec_inj	
11	F01	SAMPLE-3_PP		100	Sample		HCME03100	Profiler_Plus_v1	RED 75-400	5_sec_inj	3100_run	5_sec_inj	
12	G01	SAMPLE-4_PP		100	Sample		HCME03100	Profiler_Plus_v1	RED 75-400	5_sec_inj	3100_run	5_sec_inj	
13	H01	SAMPLE-5_PP		100	Sample		HCME03100	Profiler_Plus_v1	RED 75-400	5_sec_inj	3100_run	5_sec_inj	
14	A02	SAMPLE-6_PP		100	Sample		HCME03100	Profiler_Plus_v1	RED 75-400	5_sec_inj	3100_run	5_sec_inj	
15	B02	SAMPLE-7_PP		100	Sample		HCME03100	Profiler_Plus_v1	RED 75-400	5_sec_inj	3100_run	5_sec_inj	
16	C02	SAMPLE-8_PP		100	Sample		HCME03100	Profiler_Plus_v1	RED 75-400	5_sec_inj	3100_run	5_sec_inj	
17	D02	SAMPLE-9_PP		100	Sample		HCME03100	Profiler_Plus_v1	RED 75-400	10_sec_inj	3100_run	10_sec_inj	
18	E02	SAMPLE-10_PP		100	Sample		HCME03100	Profiler_Plus_v1	RED 75-400	10_sec_inj	3100_run	10_sec_inj	
19	F02	SAMPLE-11_PP		100	Sample		HCME03100	Profiler_Plus_v1	RED 75-400	10_sec_inj	3100_run	10_sec_inj	
20	G02	SAMPLE-RB_PP		100	Sample		HCME03100	Profiler_Plus_v1	RED 75-400	10_sec_inj	3100_run	10_sec_inj	



12. Sample names are automatically imported from the previous worksheet.
13. Sample type and panel are determined by the sample name.
14. Analysis method, size standard and results group are determined by the instrument chosen on the proceeding worksheet.
15. Instrument protocol is decided based on Quantification values.

Productivity Index

Case #



Serology stats



Serology reports



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
1					Serology Statistics												
2	Case	Kit/OE/Cut	Case Type		Blood	Semen	Other	Cut for DNA	Cut for Outource	Pictures Taken	Training	Total	Points		Pages in Report	Points	
3																	
4	J09-3167S1											0	0			0	
5												0	0			0	
6												0	0			0	
7												0	0			0	
8												0	0			0	
9												0	0			0	
10												0	0			0	
11												0	0			0	
12												0	0			0	
13												0	0			0	
14												0	0			0	
15												0	0			0	
16												0	0			0	
17												0	0			0	
18												0	0			0	
19												0	0			0	
20												0	0			0	
21												0	0			0	
22												0	0			0	
23												0	0			0	
24												0	0			0	
25												0	0			0	
26												0	0			0	
27												0	0			0	
28												0	0			0	
29												0	0			0	
30												0	0			0	
31												0	0			0	
32												0	0			0	
33												0	0			0	
34												0	0			0	
35												0	0			0	
36												0	0			0	
37												0	0			0	
38												0	0			0	

Productivity Index

DNA Stats



DNA Reports



	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
1	DNA Stats						Pre-Write				Case Statistics							
2	Ext'd	M'con	QFs	Amps	Inj	Total	items	Points	Agency	Subm	Assigned	Report	Faxed	Anlst TAT	Case TAT	Review		
3																		
4						0		0							0	0		0
5						0		0							0	0		0
6						0		0							0	0		0
7						0		0							0	0		0
8						0		0							0	0		0
9						0		0							0	0		0
10						0		0							0	0		0
11						0		0							0	0		0
12						0		0							0	0		0
13						0		0							0	0		0
14						0		0							0	0		0
15						0		0							0	0		0
16						0		0							0	0		0
17						0		0							0	0		0
18						0		0							0	0		0
19						0		0							0	0		0
20						0		0							0	0		0
21						0		0							0	0		0
22						0		0							0	0		0
23						0		0							0	0		0
24						0		0							0	0		0
25						0		0							0	0		0
26						0		0							0	0		0
27						0		0							0	0		0
28						0		0							0	0		0
29						0		0							0	0		0
30						0		0							0	0		0
31						0		0							0	0		0
32						0		0							0	0		0
33						0		0							0	0		0
34						0		0							0	0		0
35						0		0							0	0		0
36						0		0							0	0		0
37						0		0							0	0		0
38						0		0							0	0		0

Personal statistics calculated in spreadsheet by adding the number of task completed

Tracked daily Monthly metrics

Hours Spent On Other	4			
% Time Spent On Points	47%			
Productivity Index	5.7			
Total Kits Worked	0			
Other Evidence Cases	0			
Cases Sent to Outsource	0			
Cases Sent to DNA	0			
Bone Processing Cases	0		0	
Staincards	0			
Kits Screened	0			
Cases Cut For Outsourcing	0			
Observing / Supervising (enter in minutes)	0		0.0	
Verifications				
Serology Tube verification	0		0	
Tube/Plate verification	0		0	
Quant/AMP paperwork	0		0	
Extraction				
Organic	0		0	
Differential	0		0	
Regular Chelex	0		0	
Low Yield Chelex	0		0	
Gigen Cleanup	0		0	
Microcon	0		0	
total	0			
Manual Quantification				
40-78 samples	0		0	
1-39 samples	0		0	
total	0			
Manual Amplification				
45-90 samples	0		0	
1-44 samples	0		0	
total	0			
3100 Run				
45-90 samples	0		0	
1-44 samples	0		0	
total	0			
3100 Analyze		1 st read	2 nd read	
45-90 samples	0	0	0	0
1-44 samples	0	0	0	0
total	0			
Print/Collate/Photocopy Data				
45-90 samples	0		0	
1-44 samples	0		0	
Reports Issued				
DNA	0		0	
Serology	0		0	
Rework	0			
Reviews				
DNA Tech Review	1		2	
DNA Admin Review	0		0	
Serology Tech Review	0		0	
Serology Admin Review	0		0	
Closed Report	0		0	
Outsource Review	0			
10% Review	0			
Outsource Batches	0		0	
CODIS				
CODIS Review	0		0	
Forensic Hit	0		0	
Offender Hit	0		0	
Conviction/Benchwork	0		0	
Weekly up/download	0		0	
Daily backup	0		0	
Biweekly media exchange	0		0	
Monthly stats	0		0	
Case Correspondence	0		0	
Pretrial Conferences	0			
Cases Testified	0			
Trace Collections	0			
Outside Training Attended	0			
Points Total			2.0	



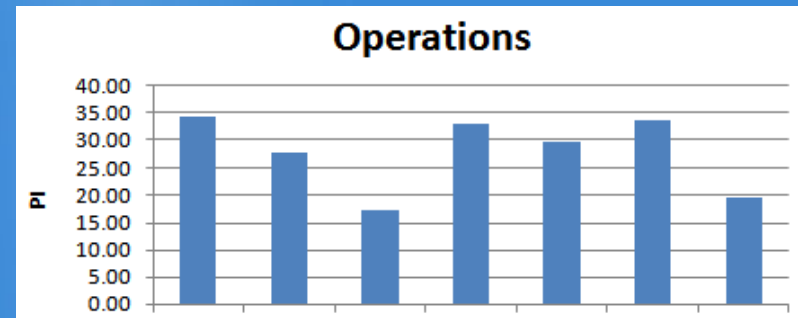
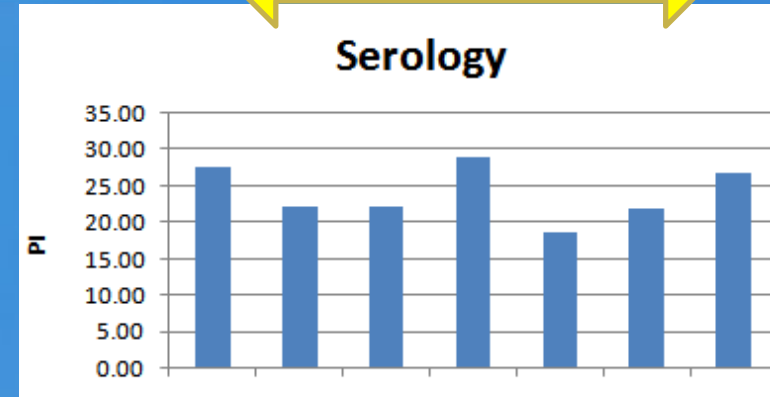
Metrics

Normalized



Serology Analyst	Hours Worked in Lab	Time Spent on Points	% Time on Points	Points	PI
	166.75	148.05	89%	410.8	27.75
	151.1	142.8	95%	317.6	22.24
	157.5	107.2	68%	239.5	22.34
	163.75	153.25	94%	445.9	29.10
	153.5	142.25	93%	265.7	18.68
	156.5	141.05	90%	309.5	21.94
	171.45	157.53	92%	421.9	26.78

Operations Analyst	Hours Worked in Lab	Time Spent on Points	% Time on Points	Points	PI
	153	106.75	70%	366.4	34.32
	176.2	162.2	92%	451.59	27.84
	157.5	88.25	56%	153.3	17.37
	132.5	100.25	76%	330.4	32.96
	144	90.75	63%	271.1	29.87
	149.25	126.75	85%	428.6	33.81
	158.1	138.1	87%	272.75	19.75

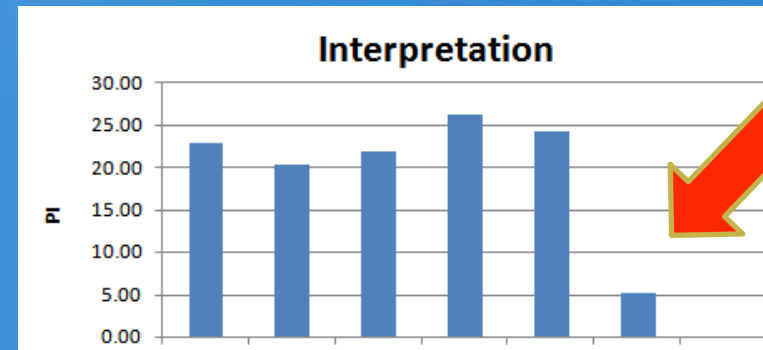




Metrics

Outlier, low PI

Interpretation Analyst	Hours Worked in Lab	Time Spent on Points	% Time on Points	Points	PI
	135	105.25	78%	240.4	22.84
	174	164	94%	333.2	20.32
	163	146.1	90%	320.2	21.92
	168.75	149	88%	392.15	26.32
	150	115	77%	278.2	24.19
	98.5	92.5	94%	47.4	5.12

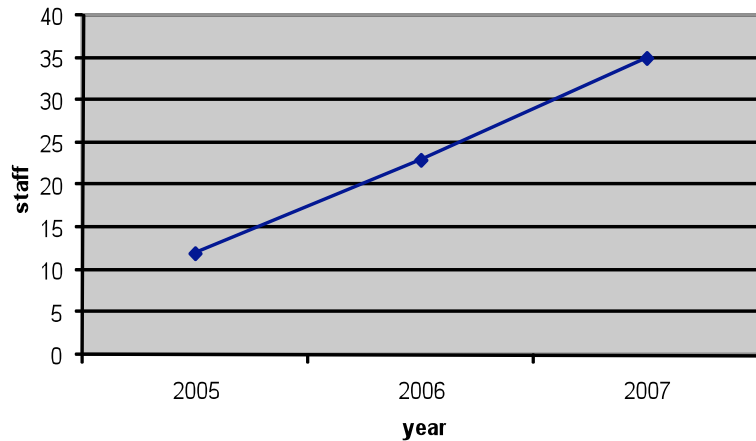


Outlier, High PI

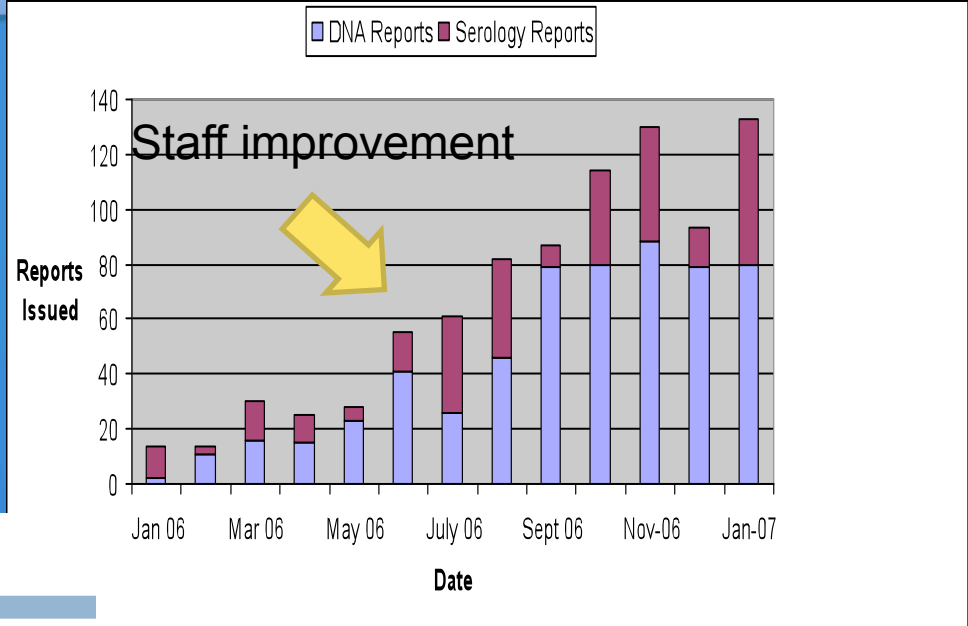
Compliance Analyst	Hours Worked in Lab	Time Spent on Points	% Time on Points	Points	PI
	160.5	41.84	26%	116.4	27.82
	177	66.5	38%	204.3	30.72
	127.5	26	20%	85.5	32.88
	178.8	64.9	36%	285.8	44.04
	164.5	0.2	0%	0.9	45.00
	157.5	107.2	68%	239.5	22.34



Forensic Biology Growth

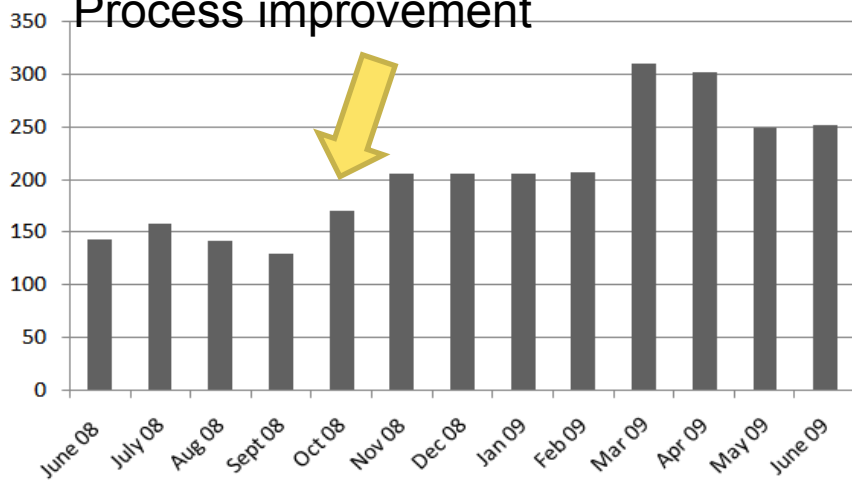


Staff improvement



DNA Reports

Process improvement



no increase in staff number since 2007



Process improvement

- September 2008-2009:
 - ~50% Increased monthly output
 - ~85% Decreased backlog
 - ~25% Increased CODIS monthly hits



Process improvement

- Increased monthly output
 - DNA cases reported September 2008 = 130
 - DNA cases reported September 2009 = 267
- Decreased backlog (>60 days)
 - Backlog as of September 2008 = 1077
 - Backlog as of September 2009 = 163
- Increased CODIS monthly hits
 - CODIS matches September 2008 = 21
 - CODIS matches September 2009 = 86



Thank You

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