2012 Military Health System CONFERENCE

Leveraging Information to Improve Patient Access

Heads-Up Display (HUD), Patient Acuity Scoring Tool (PAST), Erlang C Model

The MHS: Healthcare to Health

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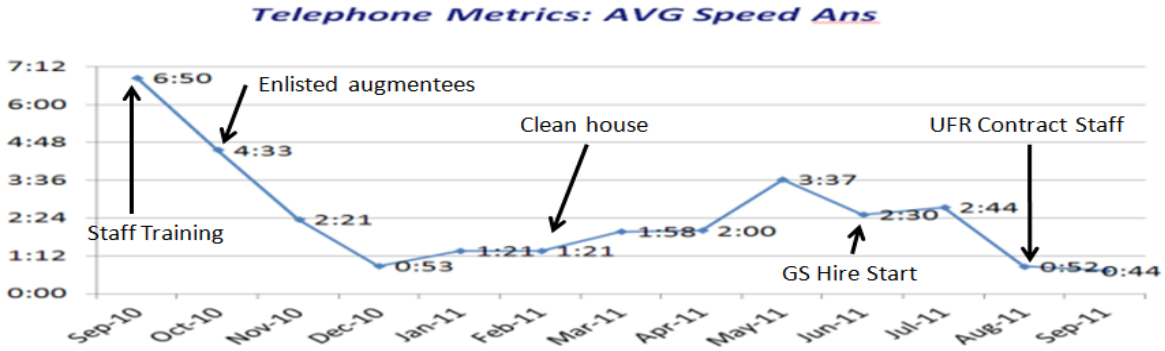
Leveraging Information to Improve Patient Access (Erlang C Model)

- Direct GPM oversight over a previously problematic appointment center
  - Erlang C Model to properly staff Call Center
  - Mentoring/training staff on customer service



Erlang C Call Center Staffing Calculator

Type parameters in the boxes below.

The left hand box calculates the number of agents needed to reach a required service level. Use the right hand box if you want to see statistics for the number of agents that you have.

Calculate the number of agents required to reach an agreed service level:

Incoming call rate	15	calls per half hour
Average call duration	106	seconds
Required service level *Probability of target answer time*	90.0%	
Target answer time	90	seconds
Number of Agents requi	3	

Calculate probability of calls being answered or waiting:

Incoming call rate	15	calls per half hour
Average call duration	106	seconds
Target answer time	15	seconds
Number of agents	5	
Traffic Intensity (Erlang)	0.88	
Probability a call waits *Erlang-C Formula*	0.23%	
Probability call is answered in target time *Service Level*	99.87%	

Agent planner - see at a glance whether you have enough agents for the calls expected:

Average call duration (s): 214

Required service level: 90.00%

Target answer time (secs): 90

Time slot	Agents available	(calls per half hour)	Predicted Service Level	Agents required
06.30 - 07.00	5	15	98.99%	4
07.00 - 07.30	5	43	0.00%	8
07.30 - 08.00	5	44	0.00%	8
08.00 - 08.30	5	42	0.00%	8
08.30 - 09.00	5	44	0.00%	8
09.00 - 09.30	5	42	0.00%	8
09.30 - 10.00	5	39	25.61%	7
10.00 - 10.30	5	43	0.00%	8
10.30 - 11.00	5	43	0.00%	8
11.00 - 11.30	5	36	50.13%	7
11.30 - 12.00	5	29	81.32%	6
12.00 - 12.30	5	31	75.41%	6
12.30 - 13.00	5	26	89.29%	6
13.00 - 13.30	5	25	90.39%	5
13.30 - 14.00	5	37	46.79%	7
14.00 - 14.30	5	34	62.10%	7
14.30 - 15.00	5	31	73.67%	6
15.00 - 15.30	5	30	77.68%	6
15.30 - 16.00	5	21	95.61%	5
16.00 - 16.30			0.00%	0

Leveraging Information to Improve Patient Access (PAST Database)

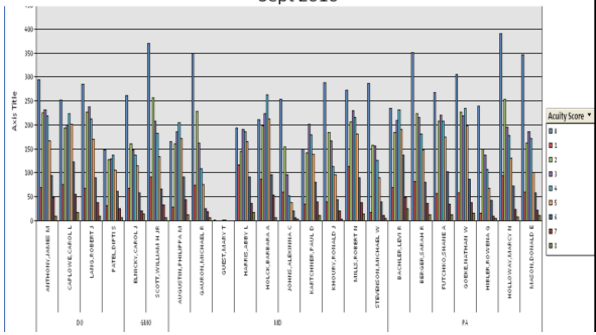
- Balanced Workload across Providers and Clinics via targeted re-empanelment
  - Shifted Family Health patients 13 and under to Pediatrics
  - Shifted high demand patients to Internal Medicine
    - Grouped patients with Patient Acuity Scoring Tool (PAST)
    - PCMs review proposed transfers to ensure coord of care/patient safety

Patient Acuity Scoring Tool

$$Acuity = [[Np + ((Pe-5)*11/mo)^{1/2} + Ee^{1/2}]*5]^{1/2}$$

Family Medicine Panel

Sept 2010



Operation JIGSAW

Reempanelment utilizing the Acuity Tool

STEVENSON,MICHAEL W

PHP Flags	Acuity Score									
Count of DOB	Co									
Row Labels	0	1	2	3	4	5	6	7	8	Grand Total
0	283		76	103	72	46	11	4	1	596
1			78	31	32	24	17	3	1	186
2				18	18	12	8	3	2	61
3					1	6	3	1		11
4									1	1
(blank)	3	17	4	4	3	1	1			33
Grand Total	286	17	158	156	126	89	40	11	5	888

Reempanelment recommendations:	
Simpson (NP)	492
Gauron (MD)	208
Khoury (MD)	93
Kartchner (MD)	95
Total	888

Also taught at Access to Care Seminar and AFMS GPM Course

Leveraging Information to Improve Patient Access (HUD Database)

- Compared projected Supply and Demand to prospectively predict patient access
  - Target based on FHI goal adjusted seasonally
  - Import CHCS schedule into HUD to compare delta of supply vs demand (ATC prediction)

Heads-Up Display Screen Shots

Clinic Group	Days Out	# of w/i ATC (Y = 1 to 10 slots) ACUT	ROUT	WELL	EST <28d	For Weeks Starting On... 10-Oct	17-Oct	24-Oct	31-Oct	07-Nov	14-Nov	21-Nov
DEPLOYMENT HEALTH ASSESSM	47			495		-6	25	25	25	20	25	15
FAMILY HEALTH CLINIC	47	20	423	1841	341	-271	56	-28	-105	-144	17	57
FAMILY MEDICINE RESIDENCY	47	4	3	353	109	-84	-380	-72	-141	-42	-125	-170
FLIGHT MEDICINE CLINIC	17	12	0	24	257	24	42	63	24			
FP BHOP	47			32		8		11	12	12	12	
INTERNAL MEDICINE CLINIC	48	5		0	581	-5	-94	-25	24	59	103	65
MENTAL HEALTH CLINIC	47		5	229	139	-39	-30	-41	-51	-39	-48	-19
PEDIATRICS CLINIC	47	9	45	44	308	-27	-85	-165	-83	4	51	109
SUBSTANCE ABUSE CLINIC	11				0	3	-2	-1				

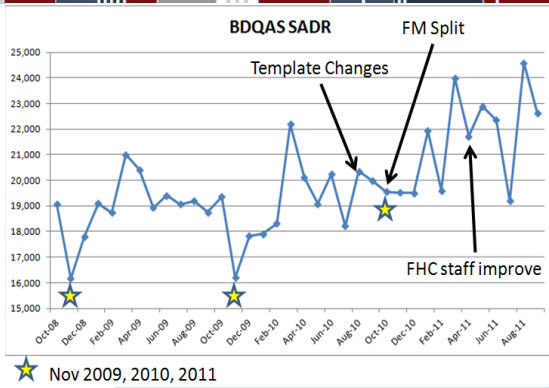
CLOSE

Clinic Group	Days Out	3rd SPEC Days Out excl FROZ	SPEC < 28 days w/FROZ	EST < 28 days w/FROZ
ALLERGY CLINIC	47	31	0	5
CARDIOLOGY CLINIC	60	7	99	
COUMADIN CLINIC	60			125
DERMATOLOGY CLINIC	47	38	0	8
ENDOCRINOLOGY CLINIC	60		0	23
HEMATOLOGY CLINIC	40	20	9	26
INFECTIOUS DISEASE CLINIC	60	12	15	18
NEPHROLOGY CLINIC	47	26	5	3
NEUROLOGY CLINIC	60	12	25	
NUTRITIONAL MEDICINE CLINIC	60	11	19	27
OPTOMETRY CLINIC	49	11	24	59
PHYSICAL THERAPY CLINIC	47	5	227	223
PULMONARY CLINIC	59	5	32	
RHEUMATOLOGY CLINIC	47	27	4	0
AUDIOLOGY CLINIC	47	12	42	48
ENT CLINIC	47	3	19	18
GASTROENTEROLOGY CLINIC	47	17	18	4
GYNECOLOGY CLINIC	47	10	75	457
OPHTHALMOLOGY CLINIC	60	14	29	45
ORTHOPEDICS CLINIC	60	18	54	83
PLASTIC SURGERY CLINIC	60	13	19	29
PODIATRY CLINIC	46	27	12	3
SURGERY CLINIC	49	3	212	171
UROLOGY CLINIC	40	18	33	51

* Now taught in AFMS Access to Care Seminars and AFMS GPM Course *

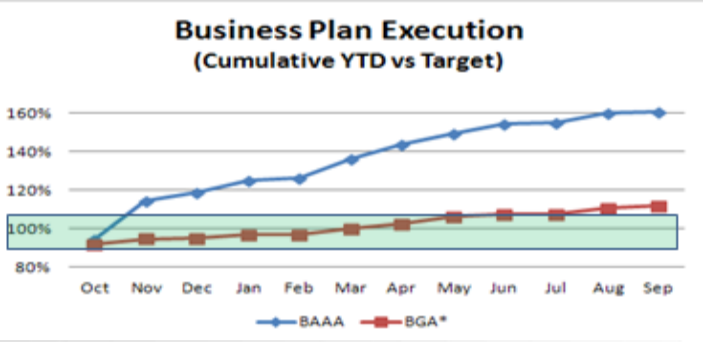
Leveraging Information to Improve Patient Access (AFMS standard)

- Separated Family Med Clinic of 30K patients into distinct programs
  - 25K Family Health Clinic (BGAA)
  - 5K Family Medicine Residency (BGAH)
- Overhauled Clinic Templates: Max Provider Productivity, Improve Access
  - Internal Medicine standard template: From 7 to 14 a day
  - Family Health (non-GME): 18/d



FY11 AFMS Business Plan Execution (% of Target)

#1/15 RVU inpatient MTFs

#2/15 RWP inpatient MTFs

#13/76 RVU all AF MTFs