

# Lean And Six-Sigma With Workload Data

# Goal

Give to patients;  
Exactly what they need;  
When they need it;  
Every time;  
Defect free;  
In a safe environment;  
At the lowest cost;  
Without waste.

# Objectives

- Understand how the benefits of lean technology can help with improving performance and productivity
- Describe the role of workflow in lean simulation
- Identify 3 sources of information for identifying lean and workflow
- Understand how lean and workflow were able to adapt to a reduction in manufacturing technology

# "Lean" Methodology (TPS)

- Q START FROM NEED
- Q EVALUATION OF WORK
- Q SUPPORT NEED
  - FLOW PROCESS
  - CUSTOMER (HUMAN TOUCH)
- Q THE "CHECK"
  - INFORMATION
  - TEAM WORK
  - INVESTMENT

## A bit more about "Lean"

- Q WHAT IS "WASTE"
- INVENTORY (WORKS)
- EXTRACTION (EXCESSIVE STOCKS)
- PROCESSING (EXCESSIVE WORKFLOW)
- MOVEMENT
- "DO OVER"

Q WHAT IS THE WORK

Q WHY IS IT

# Why Hospitals are moving to TPS

- Q IMPROVE PATIENT OUTCOME (↓)
- Q DECREASE COST
- Q RETURN TO INTENSIVE DEMAND
- Q ENHANCE PATIENTS DEALING WITH CHRONIC DISEASE
- Q OFFER TECHNOLOGY IN REMOTE MONITORING PROCESSES AND CAPABILITIES
- Q OFFER SPECIALIZATION AND REMOTE MONITORING OF OUR PATIENTS

# Where to begin?

- Q Troubleshooting & Processer
- Workbooks
- Contracts (Reverse City Staff)

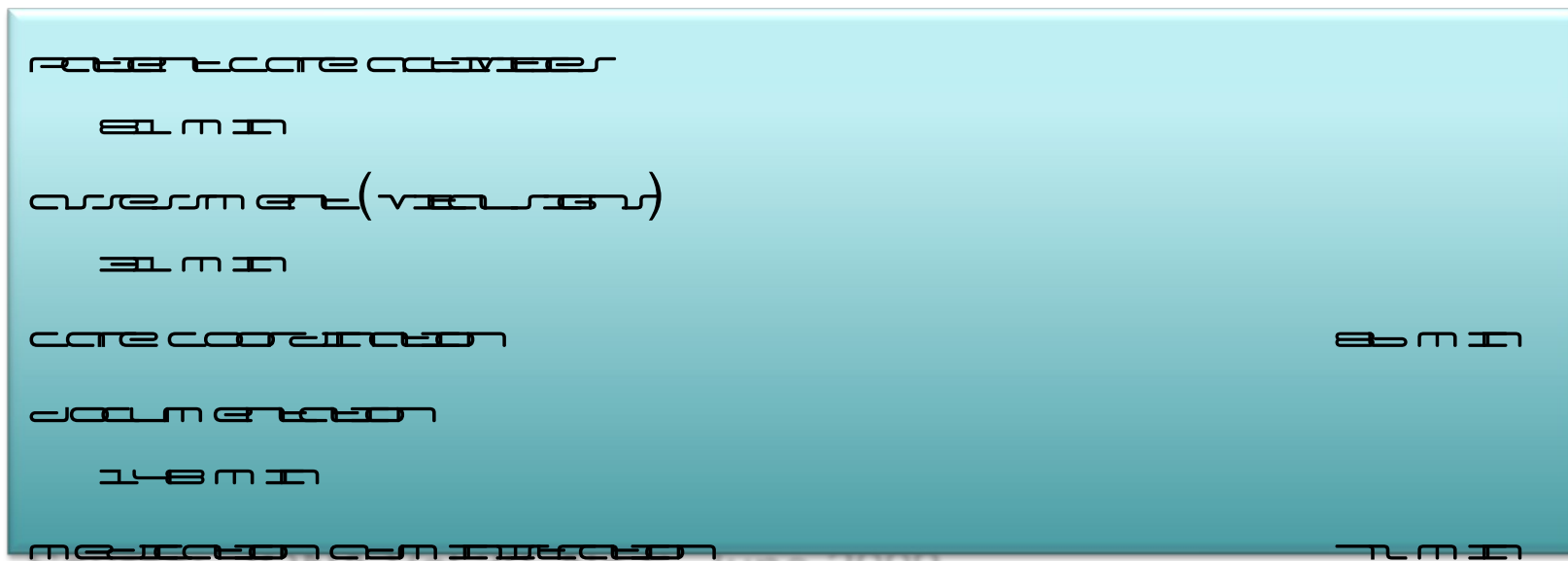
Q SUGGESTION FROM STAFF

Q SUGGESTION FROM REVERSE

Q OBSERVATION

Q OUTCOME & ACTION

# Nursing Practice Time



Source: JONA Vol 39, No 6, June 2009

Note: 35 hospital medical-surgical units in 17 health care systems study sites

Source: JONA Vol 39, No 6, June 2009

Waste

Waking

Locking/Unlocking

Delivering

Non-Critical

Reformulating

Reformulating in Care

Care Instruction/Teaching

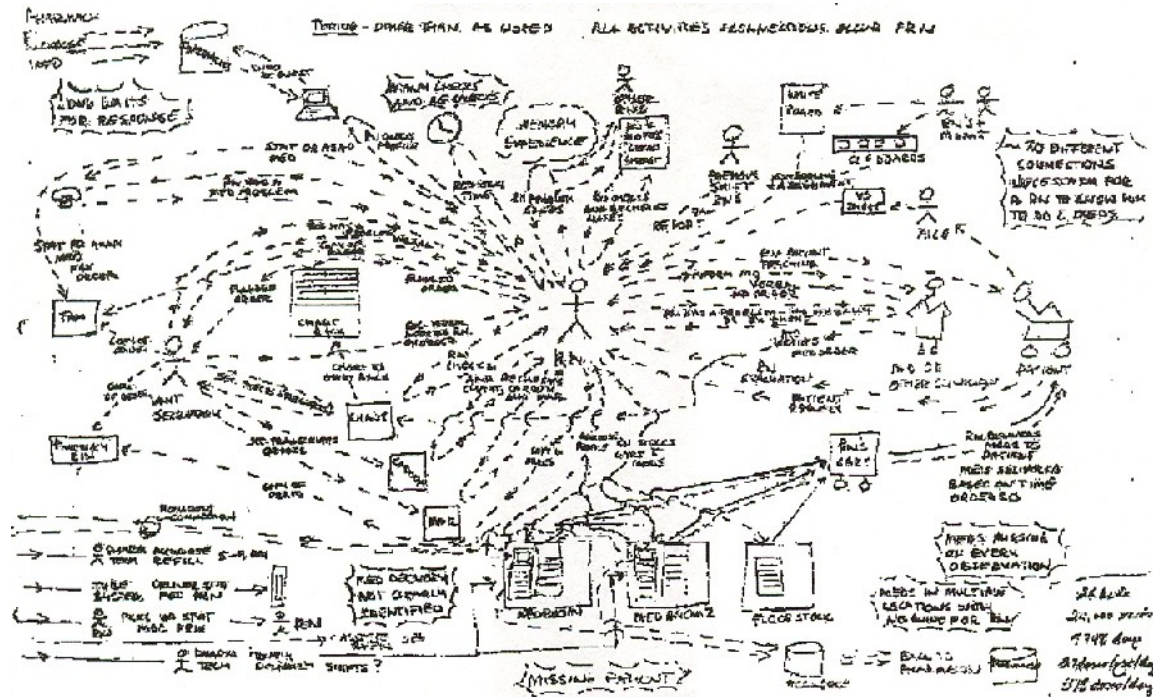


# Processing Information

- Human information processing deals with how people receive, store, integrate, retrieve and use information
- Capacity is about 7 chunks of discrete information
- Working memory stores it in time
- The human capacity to integrate and use the structure and content of complex systems is grossly overestimated

## Complexity (Multiple States)

## EXTRA MEDICATIONS INTERACTION



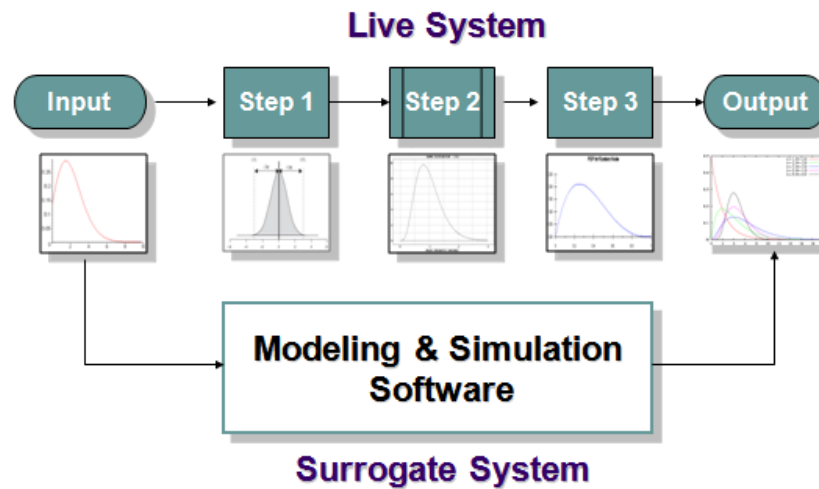
COMPLEX SYSTEMS WITHIN ENVIRONMENT!

FROM: "DRIVING IN PROVEN GET IN RESISTANCE"

# Enablers

What  $\rightarrow$  exists in representing essential aspects of an existing system

## Computational Modeling and Simulation



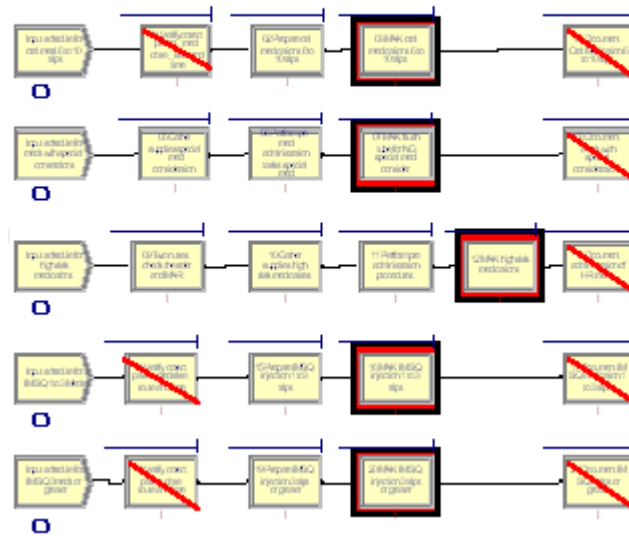
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Law, A. & Kelton, W. (2000). Simulation Modeling and Analysis. Boston. McGraw Hill, NY.

# Another Enabler is Workload Data

FOR EXAMPLE IN PROCESS IN PROVEN ET

## Medication Management



Score Patient Workload for "Patient 1692626": 5B Inpatient Unit - 5B RN Inpatient				
<input type="checkbox"/>		3.38	Count	<input type="checkbox"/> Suctioning
<input type="checkbox"/>		11.26		<input type="checkbox"/> Tracheostomy care
<input type="checkbox"/>		16.89		<input type="checkbox"/> Tracheostomy tube change
<input type="checkbox"/>	<input type="checkbox"/>	4.51	Count	<input type="checkbox"/> Aerosol treatment - minimal supervision
<input type="checkbox"/>	<input type="checkbox"/>	9.01	Count	<input type="checkbox"/> Aerosol treatments - constant supervision
<input type="checkbox"/>		3.38		<input type="checkbox"/> Oxygen/Air therapy therapy - prongs / mask
<input type="checkbox"/>		6.76		<input type="checkbox"/> Oxygen/Air therapy therapy - mist tent / croupette / oxy-hood
<input type="checkbox"/>		13.52		<input type="checkbox"/> Chest physiotherapy by RN
<input type="checkbox"/>		16.89		<input type="checkbox"/> BiPAP
<b>Medication / Fluids</b>				
<input type="checkbox"/>	<input type="checkbox"/>	4.51	Count	<input type="checkbox"/> Oral, gtts, supps, ointments, inhaler per trip
<input type="checkbox"/>	<input type="checkbox"/>	5.07	Count	
<input type="checkbox"/>	<input type="checkbox"/>	4.51	Count	
<input type="checkbox"/>		4.51		
<input type="checkbox"/>		9.01		
<input type="checkbox"/>		14.92		
<input type="checkbox"/>	<input type="checkbox"/>	11.26	Count	
<input type="checkbox"/>	<input type="checkbox"/>	15.77	Count	
<input type="checkbox"/>	<input type="checkbox"/>	6.76	Count	
<input type="checkbox"/>		16.89		
<input type="checkbox"/>		33.79		
<p><b>ASSESSMENT CRITERIA</b></p> <p>This intervention is selected when a patient requires medication by mouth, drops, suppositories, ointments or creams, patches, inhaler (puffer), etc. The frequency is determined by an average number of visits to the patient to give the medications. The PRN medications are estimated based on medication utilization as documented in the patient record.</p> <p><b>OPERATIONAL DEFINITION</b></p> <p>1. Check medication administration record.</p>				
<input checked="" type="checkbox"/>		5.35		<input type="checkbox"/> Safety check list
<input type="checkbox"/>		11.26		<input type="checkbox"/> Restraint care for safety
<input type="checkbox"/>		11.26		<input type="checkbox"/> Increased observations / fall protocol
<input type="checkbox"/>		27.03		<input type="checkbox"/> Isolation precautions
<b>Treatments / Procedures</b>				
<input type="checkbox"/>	<input type="checkbox"/>	11.26	Count	<input type="checkbox"/> Cast Care
<input type="checkbox"/>	<input type="checkbox"/>	5.63	Count	<input type="checkbox"/> Dressing/Pin Care
<input type="checkbox"/>		5.63		<input type="checkbox"/> Dressing change - simple
<input type="checkbox"/>	<input type="checkbox"/>	1.00	Minutes	<input type="checkbox"/> Dressing change - complex
<input type="checkbox"/>		11.26		<input type="checkbox"/> Central line/PICC procedures
<input type="checkbox"/>		9.00		<input type="checkbox"/> Maintenance of epidural/paravertebral analgesia

Score Patient Workload for "Patient 1692626": 5B Inpatient Unit - 5B RN Inpatient				
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<b>Medication / Fluids</b>				
<input type="checkbox"/>		4.51	Count	Oral, gts, supps, ointments, inhaler per trip
<input type="checkbox"/>		5.07	Count	<div>  suppositories, ointments or creams, patches, inhaler (puffer), etc. The frequency is determined by an average number of visits to the patient to give the medications. The PRN medications are estimated based on medication utilization as documented in the patient record. </div>
<input type="checkbox"/>		4.51	Count	
<input type="checkbox"/>		4.51		
<input type="checkbox"/>		9.01		
<input type="checkbox"/>		14.92		
<input type="checkbox"/>		11.26	Count	OPERATIONAL DEFINITION
<input type="checkbox"/>		15.77	Count	1. Check medication administration record.
<input type="checkbox"/>		6.76	Count	2. Prepare medication which includes oral, drops, suppositories, patches, ointments or creams, inhaler, and/or PRNs.
<input type="checkbox"/>		16.89		3. Administer medication as per protocol.
<input type="checkbox"/>		33.79		4. Document.
<input checked="" type="checkbox"/>		5.35		Safety check list
<input type="checkbox"/>		11.26		Restraint care for safety
<input type="checkbox"/>		11.26		Increased observations / fall protocol
<input type="checkbox"/>		27.03		Isolation precautions
<b>Treatments / Procedures</b>				
<input type="checkbox"/>		11.26	Count	Cast Care
<input type="checkbox"/>		5.63	Count	Dressing/Pin Care
<input type="checkbox"/>		5.63		Dressing change - simple
<input type="checkbox"/>		1.00	Minutes	Dressing change - complex
<input type="checkbox"/>		11.26		Central line/PICC procedures
<input type="checkbox"/>		0.00		Maintenance of cervical/cervicobrachial analgesia



# Challenges in Data Acquisition

WHILE THE COLLECTION OF DATA IS EASY, IT TAKES TO PERFORM THE INITIAL WORK IN A PROCESS

- Q TIME CONSUMPTION STUDIES
- Q SUBJECTS WITHIN STUDIES
- Q ELECTRONIC HEALTH RECORDS DISSEMINATION
- Q EXPERIMENTATION
- Q ESTABLISHING A COLLECTION CURVES
- Q WORKING WITH SUBJECTS

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<input type="checkbox"/>	<input type="checkbox"/>	5.07	Count	<input type="checkbox"/> IV medications per medication
<input type="checkbox"/>	<input type="checkbox"/>	4.51	Count	<input type="checkbox"/> Medication infusion
<input type="checkbox"/>	<input type="checkbox"/>	4.51		<input type="checkbox"/> IV intermittent lock maintenance- peripheral
<input type="checkbox"/>	<input type="checkbox"/>	9.01		<input type="checkbox"/> IV/CVC maintenance - 1 -2 lines
<input type="checkbox"/>	<input type="checkbox"/>	14.92		<input type="checkbox"/> IV/CVC maintenance 3 or more lines
<input type="checkbox"/>	<input type="checkbox"/>	11.26	Count	<input type="checkbox"/> Central line tubing change
<input type="checkbox"/>	<input type="checkbox"/>	15.77	Count	<input type="checkbox"/> Blood / blood products
<input type="checkbox"/>	<input type="checkbox"/>	6.76	Count	<input type="checkbox"/> Injections
<input type="checkbox"/>	<input type="checkbox"/>	16.89		<input type="checkbox"/> IV initiate therapy - simple < 20 min
<input type="checkbox"/>	<input type="checkbox"/>	33.79		<input type="checkbox"/> IV initiate therapy - complex > 21 min
<b>Patient Safety Management</b>				
<input checked="" type="checkbox"/>	<input type="checkbox"/>	5.35		<input type="checkbox"/> Safety check list
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<input type="checkbox"/>	<input type="checkbox"/>	9.00		<input type="checkbox"/> Maintenance of epidural/paravertebral analgesia



## So from the "Lean" with IT Perspective in Performance Improvement Activities we:

- Q COMBINE DURABLE CHANGES
- Q BUILT INTO MATURE REVIEW AND APPROVAL
- Q CUSTOMIZE REFERENCE GROUPS
- Q JOIN RULES WITH RULES CHANGES
- Q REDUCE WORK STEPS
- Q REDUCE OUT-OF-CYCLE
- Q PROCESS IN PRACTICE
- Q STOP-PROOF CHANGES
- Q INTEGRATE WITH CYCLE (LIFE CYCLE)
- Q OUTSOURCE IT-BASED CHANGES

## So the Question is...

## THE SUBJECTS

## IN FIFTY HOURS

## Cycle Time & Form Guided Cycle Time Interaction

COSE

+

OF COURSE IN BRITAIN STOPS

## CASE IN REGISTRATION OF FUTURE MEDICATION WITH INTERACTION

# Examine the current state

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<input type="checkbox"/>		9.00		<input type="checkbox"/> Maintenance of epidural/paravertebral analgesia

# Where to look for Workload

Medications / Fluids (select as applicable)						
Oral, supp, topical, gtts 1-6 trips/24 hour	11.6	2207		428.6	63.84%	0.2%
Oral, supp, topical, gtts, PRN 6 or more/24 hours	38.8	3671		2,375.4	66.58%	1.3%
High Risk Meds- Hep/Insulin/PCA/Flolan-11.07	3.9	5301	23885	1,546.0	80.37%	0.9%
Meds with Special considerations-11.06	1.3	5209	42169	909.9	83.38%	0.5%
IM/SQ Injections	25.9	4050		1,747.5	66.58%	1.0%
IVPB/IV push meds/IV lock 1-6 trips/24 hours	38.8	1529		989.4	54.98%	0.6%
IVPB/IV push meds/IV Lock 7-15 trips/24 hours	71.2	3548		4,074.2	75.98%	2.3%
IVPB/IV push meds/IV lock > 15 trips/24 hours	116.5	1530		2,681.6	37.44%	1.5%
Meds with Special considerations-11.06	1.3	328	1938	41.8	5.57%	0.0%
IV Fluid Replacement; bolus q 4 hours	23.3	645		247.9	22.10%	0.1%
IV Maintenance 1-2 lines - peripheral	30.9	6616		3,432.7	98.08%	1.9%
Peripheral IV lines 3or >/ central lines/PICC /TPN	51.8	5316		4,587.2	81.83%	2.6%
Titratable IV Drips q15-30 minutes	124.2	1631		3,355.3	39.63%	1.9%
Titratable IV Drips q1-2hours use for insulin prot	46.6	3207		2,386.3	54.98%	1.3%
Titratable IV Drips q4-6 hours	15.5	2015		714.8	48.58%	0.4%
PCA/Epidural/Flolan	19.4	2181		795.3	39.63%	0.4%
Blood Products Transfusion 11.06	16.2	1126	2063	848.2	36.99%	0.5%
Blood Transfusion/PRBC's/auto infusion 11.07	28.5	729	1351	774.4	30.32%	0.4%
Massive Fluid /blood Resuscitation -16 hours	1,242.4	82		281.6	2.92%	0.2%
Titratable IV Drips q1-2hours use for insulin prot	46.6	153		118.8	4.02%	0.1%
Titratable IV Drips q4-6 hours	15.5	75		19.4	2.74%	0.0%
PCA/Epidural/Flolan	19.4	123		39.8	2.74%	0.0%
Blood Products Transfusion 11.06	16.2	54	124	33.4	1.64%	0.0%
Blood Transfusion/PRBC's/auto infusion 11.07	28.5	43	73	34.6	1.92%	0.0%

CTA4E00A00E

## WHAT DO WE WANT TO OCCUR?

- Q IMPROVED ERM IN SUCCESSION TO REINTERVENTION
- Q DECREASE IN CYCLE TIME REINTERVENTION WITH THE PCRS PROCESS
- Q INCREASE IN PRODUCTIVITY (DECREASE IN TIME) IE, RUNTIME WITHOUT REINTERVENTION
- Q DECREASE IN TOTAL COST REINTERVENTION (IN SUCCESSION TO SERVICES)
- Q WHAT IS THE DIFFERENCE BETWEEN THE COST OF THE INTERVENTION AND THE RESULT?

## Let's examine the steps

- Q THE INTERVENTION
- Q THE STEPS & CATEGORICALITY OF THE INTERVENTION
  - CHECK IN GUIDED BY AN INTERVENTION RECORD
  - REFLECT ON GUIDED
  - CAN INTERVENTION BE REFINED
  - DOCUMENT
- Q EVALUATE FOR THE PROCESS IT IS IN ORDER (IT MAY BE REFINED)  
BECAUSE OF THE FACTS WE HAVEN'T ACCOUNTED FOR

## A WORK ABSTRACTION

- Q WE CAN TEST OUR HYPOTHESIS WITHOUT ACTUALLY IMPLEMENTING IT
- Q WE CAN EXAMINE THE STEPS TO DESIGN IT WHERE THE LOGIC IS AS
- Q JUSTIFY THE STEPS WITH LOGIC
- Q WHAT IS THE RETURN ON INVESTMENT?
- Q ACTUALLY DESIGN IT ON OUR OWN DESKTOP
- Q ACTUALLY DESIGN IT ON OUR DESKTOP BY DESIGNING IT TO BE 100%


## CHECK THE CALCULATES

- Q LATCO'S CUM INTEREST DOES NOT TAKE LONGER THAN THE FIRST PERIOD
- Q LABOUR IS IDENTICALLY COSTLY
- Q THERE IS A LEARNING CURVE
- Q THE MARGINAL COSTS ARE BEING EVALUATED



# STAFF ROSTER TO LOOK!

## NOT SERVICE REPRESENTATIVE

		<b>The Hospital for Sick Children</b> Currently Logged In As: Administrator, System (Administrator)						<a href="#">Patient Search</a> <a href="#">Preferences</a> <a href="#">Logout</a> <a href="#">Help</a>	
GRASP MISProCler®		Workload		Staffing		Reports		Quality	
		Patient Workload		NonRegistered Patients/NSRA		Indirect Workload		Questionnaires	
Unit: <b>5B Inpatient Unit</b>		Date: <b>Thursday, November 12, 2009</b>		Shift: <b>Days</b>		Worksheet: <b>5B NSRA (1/1/2005 - Present)</b>			
Census: 18		Days Per Week: 7		Variable Minutes Per Patient Per Day: 47.32					
Name (Total in Minutes)	Variable / Standard Time Constant	1,504.75	Minutes Per Patient Per Day 47.32	Minutes Per Day 851.85	Days 0.00 (0.00%)	Days 381.63 (57.04%)	Nights 187.63 (32.96%)	Nights 0.00 (0.00%)	
<b>Functional Centre Management</b>		<b>115.75</b>	<b>27.40</b>	<b>493.14</b>	<b>0.00 (0.00%)</b>	<b>306.23 (70.16%)</b>	<b>130.23 (29.84%)</b>	<b>0.00 (0.00%)</b>	
① Make and receive telephone calls	Variable	0.75	5.42	97.50		100.00	30.00		
① Answer call lights and intercom	Variable	0.50	3.61	65.00		100.00	30.00		
① Conduct Inter-rater reliability monitoring	Variable	5.00	0.08	1.43		0.14	0.14		
① Complete incident reports	Variable	5.00	0.08	1.43		0.14	0.14		
① Transcribe Orders	Variable	2.00	5.67	102.00		34.00	17.00		
① Check and add chart forms	Variable	0.50	0.28	5.00		5.00	5.00		
① Prepare chart packets	Variable	10.00	0.83	15.00		0.75	0.75		
① Retrieve/respond electronic messages	Variable	10.00	5.56	100.00		5.00	5.00		
① Prepare referral to support agency	Variable	10.00	0.12	2.14		0.11	0.11		
① Talk with visitors	Variable	0.50	1.69	30.50		40.00	21.00		
① Participate in Drills on Unit	Variable	10.00	0.02	0.36		0.02	0.02		
① Complete transfer and discharge form	Variable	0.50	0.14	2.50		2.50	2.50		
① Complete nursing office report	Variable	30.00	1.67	30.00		0.50	0.50		
① Check for medical orders	Variable	1.00	2.00	36.00		18.00	18.00		
① Attend multidisciplinary program meeting	Variable	30.00	0.24	4.29		0.07	0.07		
<b>Employee Meetings</b>		<b>150.00</b>	<b>1.18</b>	<b>21.26</b>	<b>0.00 (0.00%)</b>	<b>0.14 (50.00%)</b>	<b>0.14 (50.00%)</b>	<b>0.00 (0.00%)</b>	
① Attend staff meetings	Variable	120.00	0.95	17.14		0.07	0.07		
① Participate in performance appraisal	Variable	30.00	0.23	4.12		0.07	0.07		
<b>Caseload Management</b>		<b>40.00</b>	<b>4.44</b>	<b>80.00</b>	<b>0.00 (0.00%)</b>	<b>3.00 (50.00%)</b>	<b>3.00 (50.00%)</b>	<b>0.00 (0.00%)</b>	
① Review staffing for next 24 hours	Variable	10.00	1.11	20.00		1.00	1.00		
① Call in staff	Variable	10.00	1.11	20.00		1.00	1.00		
① Complete team assignment sheet	Variable	20.00	2.22	40.00		1.00	1.00		
<b>Maintenance</b>		<b>27.00</b>	<b>4.33</b>	<b>78.00</b>	<b>0.00 (0.00%)</b>	<b>26.00 (49.06%)</b>	<b>27.00 (50.94%)</b>	<b>0.00 (0.00%)</b>	
① Check emergency cart	Variable	10.00	0.56	10.00			1.00		
① Check narcotic count/Pharmacy check	Variable	10.00	1.67	30.00		1.50	1.50		
① Tidy patient room	Variable	0.50	1.00	18.00		18.00	18.00		
① Recharge batteries	Variable	2.00	0.22	4.00		1.00	1.00		
① Clean up spills	Variable	2.00	0.22	4.00		1.00	1.00		
① Distribute linen	Variable	0.50	0.11	2.00		2.00	2.00		

## Nursing Service Representative (Continued)

Name (Total In Minutes)	Variable / Constant	Standard Time 1,504.75	Minutes Per Patient Per Day 47.32	Minutes Per Day 851.85	Days 0.00 (0.00%)	Days 381.63 (57.04%)	Nights 187.63 (32.96%)	Nights 0.00 (0.00%)
Functional Centre Management		115.75	27.40	493.14	0.00 (0.00%)	306.23 (70.16%)	130.23 (29.84%)	0.00 (0.00%)
① Make and receive telephone calls	Variable	0.75	5.42	97.50		100.00	30.00	
① Answer call lights and intercom	Variable	0.50	3.61	65.00		100.00	30.00	
① Conduct inter-rater reliability monitoring	Variable	5.00	0.08	1.43		0.14	0.14	
① Complete incident reports	Variable	5.00	0.08	1.43		0.14	0.14	
① Transcribe Orders	Variable	2.00	5.67	102.00		34.00	17.00	
① Check and add chart forms	Variable	0.50	0.28	5.00		5.00	5.00	
① Prepare chart packets	Variable	10.00	0.83	15.00		0.75	0.75	
① Retrieve/respond electronic messages	Variable	10.00	5.56	100.00		5.00	5.00	
① Prepare referral to support agency	Variable	10.00	0.12	2.14		0.11	0.11	
① Talk with visitors	Variable	0.50	1.69	30.50		40.00	21.00	
① Participate in Drills on Unit	Variable	10.00	0.02	0.36		0.02	0.02	
① Complete transfer and discharge form	Variable	0.50	0.14	2.50		2.50	2.50	
① Complete nursing office report	Variable	30.00	1.67	30.00		0.50	0.50	
① Check for medical orders	Variable	1.00	2.00	35.00		18.00	18.00	
① Attend multidisciplinary program meeting	Variable	30.00	0.24	4.29		0.07	0.07	
Employee Meetings		150.00	1.18	21.26	0.00 (0.00%)	0.14 (50.00%)	0.14 (50.00%)	0.00 (0.00%)
① Attend staff meetings	Variable	120.00	0.95	17.14		0.07	0.07	
① Participate in performance appraisal	Variable	30.00	0.23	4.12		0.07	0.07	
Caseload Management		40.00	4.44	80.00	0.00 (0.00%)	3.00 (50.00%)	3.00 (50.00%)	0.00 (0.00%)
① Review staffing for next 24 hours	Variable	10.00	1.11	20.00		1.00	1.00	
① Call in staff	Variable	10.00	1.11	20.00		1.00	1.00	
① Complete team assignment sheet	Variable	20.00	2.22	40.00		1.00	1.00	
Maintenance		27.00	4.33	78.00	0.00 (0.00%)	26.00 (49.06%)	27.00 (50.94%)	0.00 (0.00%)
① Check emergency cart	Variable	10.00	0.56	10.00			1.00	
① Check narcotic count/Pharmacy check	Variable	10.00	1.67	30.00		1.50	1.50	
① Tidy patient room	Variable	0.50	1.00	18.00		18.00	18.00	
① Recharge batteries	Variable	2.00	0.22	4.00		1.00	1.00	
① Clean up spills	Variable	2.00	0.22	4.00		1.00	1.00	
① Distribute linen	Variable	0.50	0.11	2.00		2.00	2.00	
① Set up rooms for admission	Variable	2.00	0.56	10.00		2.50	2.50	
Quality Management		27.00	8.36	150.13	0.00 (0.00%)	11.32 (63.61%)	25.32 (36.36%)	0.00 (0.00%)
① Run errands off unit	Variable	6.00	5.00	90.00		8.00	7.00	
① Run errands on unit	Variable	1.00	3.00	54.00		36.00	18.00	
① Move patient to/from another unit	Variable	10.00	0.04	0.71		0.04	0.04	
① Move patient to/from another room	Variable	10.00	0.32	5.71		0.29	0.29	
Students		5.00	1.06	19.12	0.00 (0.00%)	1.91 (50.00%)	1.91 (50.00%)	0.00 (0.00%)

# A WORD ABOUT THE POWER OF GROUPS OF THE WITDOM OF CROWDS (WOTFLOCK GROUPS ARE CLOUTHERS!)

Q PEOPLE WHO DO THE WORK ARE THE BEST PEOPLE TO FIND THE BEST  
IMPROVEMENTS

Q JM ARE GROUPS

- DIVERSE
- INTERDEPENDENT
- DECENTRALIZED
- NEED A STRUCTURED FORM OF
- HAVE SOME GROUP RULES

## WING SIMULATION

### Q

GENERATOR



GENERATE UP FOR FIVE MINUTE



ENTERED PRODUCTION PRODUCTION WASTE IN REM EDITION



CWATER OF GENERATOR AND PRODUCTION WASTE IN REM EDITION

( WATER)



WATER COUNTERS OF CORE GENERATOR

### Q

PRODUCTION



IN HOUSE EXPENSE - IF YOU HAVE IT



IF YOU DON'T HAVE IN HOUSE EXPENSE - LONG LEARNING CURVE

### Q

PRODUCTION

## WORKFORCE

CAN “LEARN” LEADING WORKFORCE AND CUSTOMER SERVICE THE GOVERNMENT  
RECEIVE?

GOAL

GIVE TO PEOPLE;  
EXACTLY WHAT THEY NEED;  
WHEN THEY NEED IT;  
EVERY DAY;  
DIRECTLY;  
IN A SAFE ENVIRONMENT;  
AT THE LOWEST COST;  
WHOLESALE

**SECRET**

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