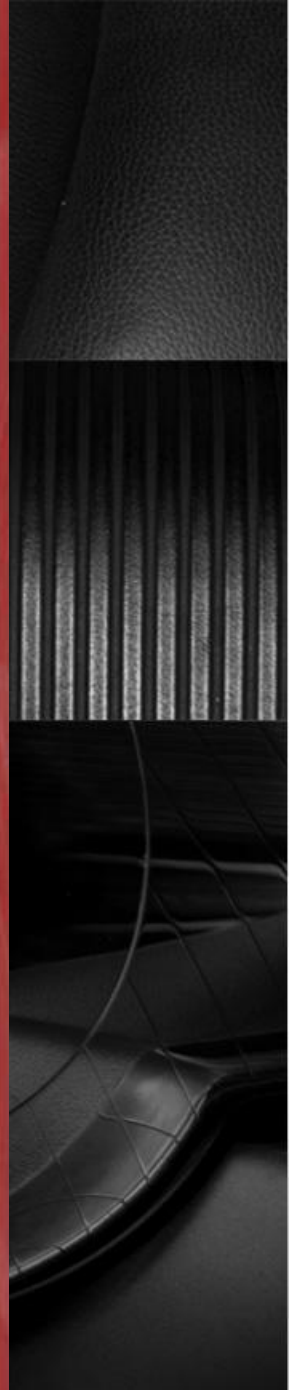


Tell Your Story with a Well-Designed Data Plan

Jackie McFarlin, RN, MPH, MSN, CIC

VA North Texas Health Care System

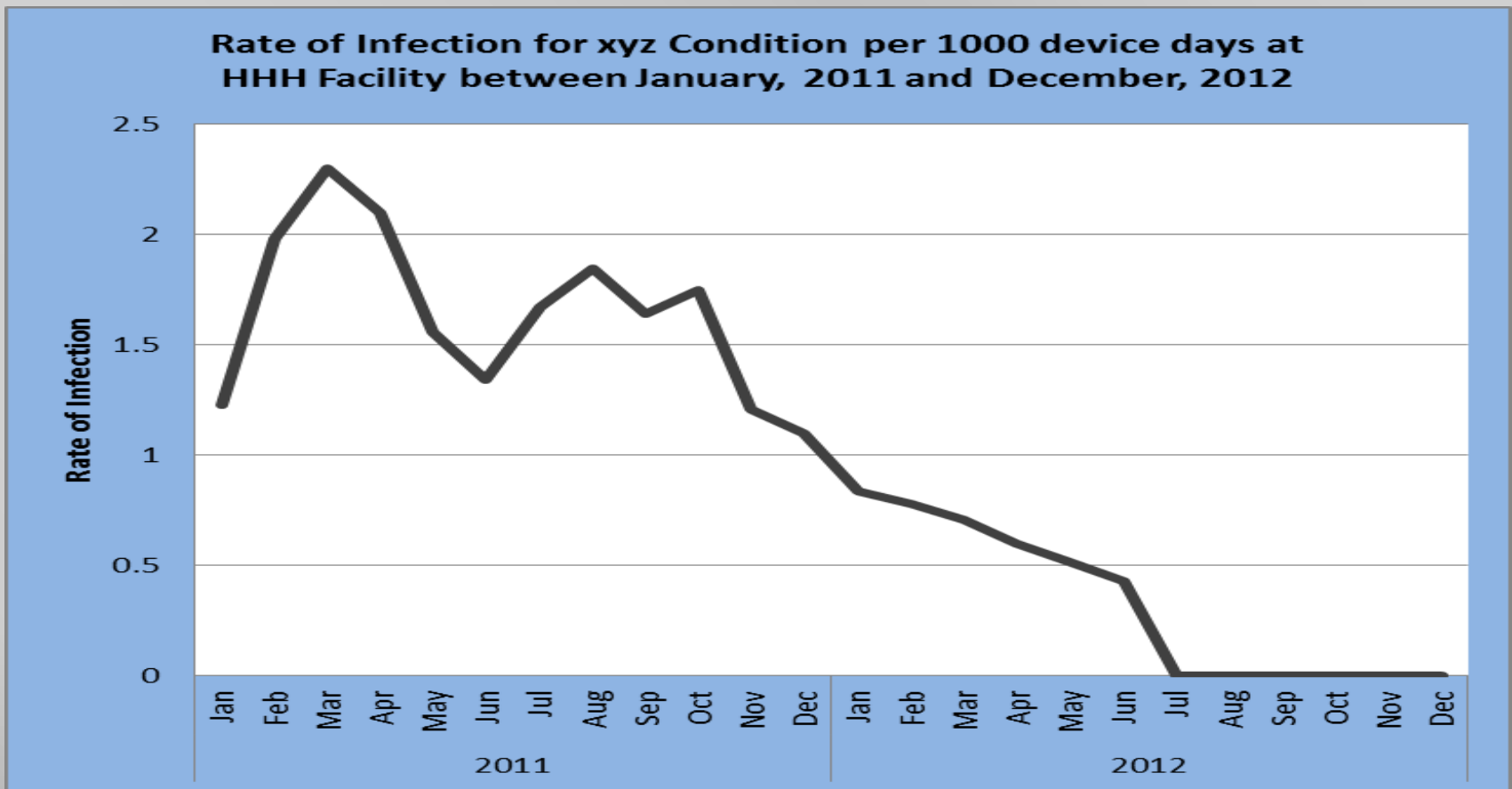




Purposes of Presentation

- Describe the elements of a well designed data plan
- Guidelines for effectively communicating your message with data
- Instructions for converting line lists into graphs
- Methods for translating data into action plans

How often have you seen this picture?

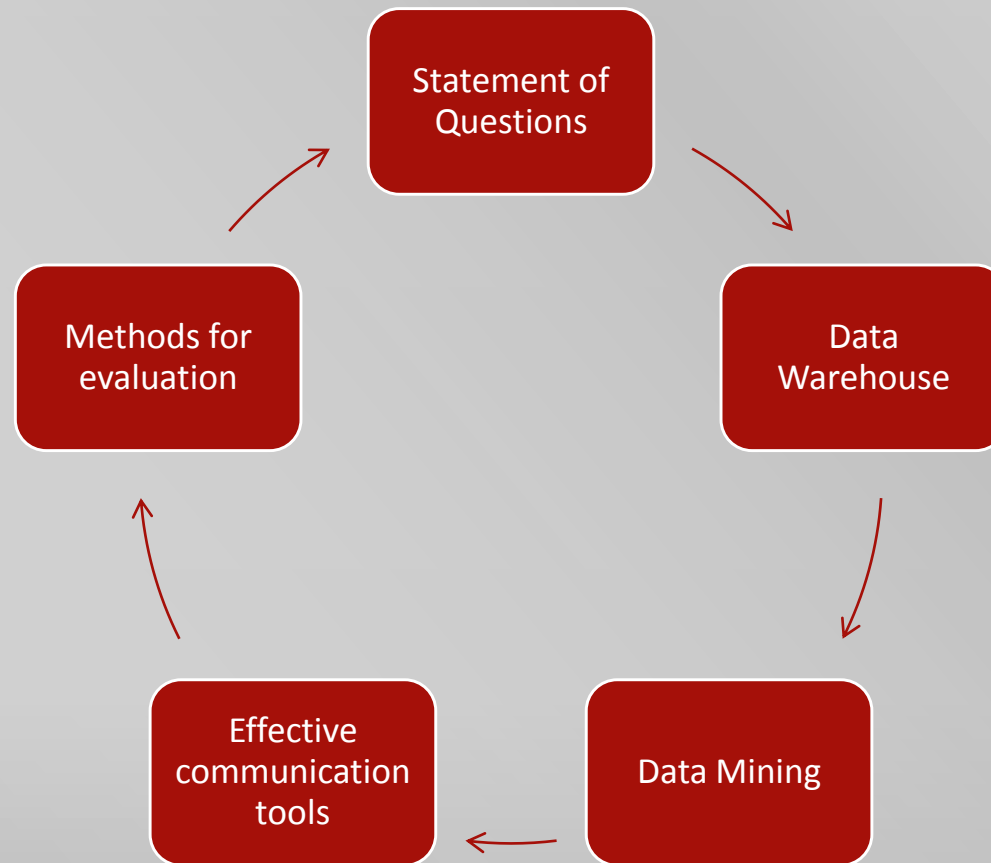




Why a well-designed data plan is needed

- Administrators and regulatory agencies need to know that you have a successful program
- Healthcare workers need to believe that you have a reliable message to help them in their jobs
- Consumers need assurance that your facility is safe and will improve their quality of life
- You need to free up time enabling you to be proactive in the fight against infections

Elements of a well-designed data plan

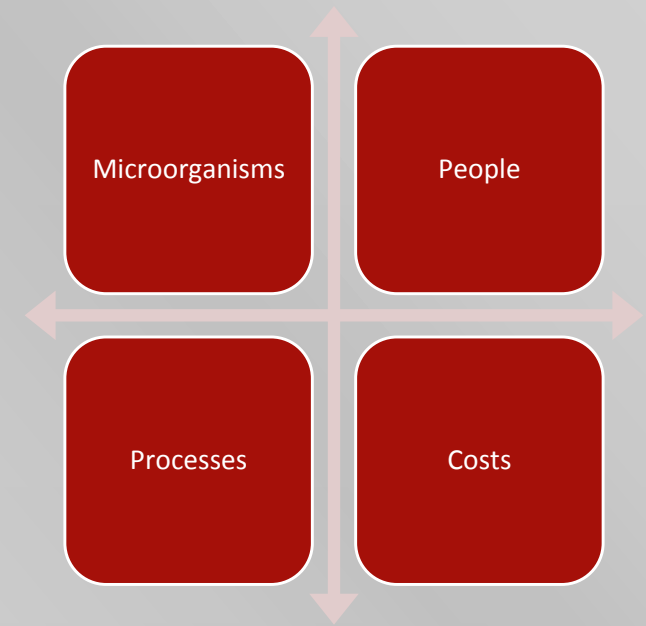


Statement of Questions

- Who needs to know what is happening
- What information do they need to know about your program
- What evidence is needed to support the information
- How will the information be used

Formulating Statement of Questions

- Describe the events in your message
- Explain the relationships
- Control measures and expected outcomes



Concepts:

Microorganisms

- **Type**
 - Pathogen
 - Commensal
- **Trait**
 - MDRO
 - ESBL
 - CRE
 - Reportable
- **Source**
 - Blood
 - Urine
 - Sputum
 - Tissue
- **State**
 - Community Onset
 - Healthcare Facility Associated
 - Healthcare facility onset
 - Colonized
 - Contaminant

People

- **Type**
 - Patients
 - Host factors
 - Diagnoses
 - Medications
 - Staff
 - Role
 - Credentials
- **Location**
 - Inpatient
 - Outpatient

Processes

- **Isolation Precautions**
 - Type
 - Timing
- **Compliance with Clinical Practice Guidelines**
 - Hand Hygiene
 - Environmental Hygiene
 - Isolation Precautions
 - Surgery
 - RME cleaning
 - Bladder Bundles
 - Vascular Access Bundles
 - VAP Bundles
 - Dialysis administration

Costs

- **Patient Care**
- **Infection Preventionist Involvement**

Information



Numbers are essential to an understanding of Performance



Numbers CANNOT speak for themselves



Quantitative stories are always about relationships or differences

Data Warehouse



Contains all of the data pieces you need to answer questions and build relationships

Data Mining



Abstract Data from
Warehouse

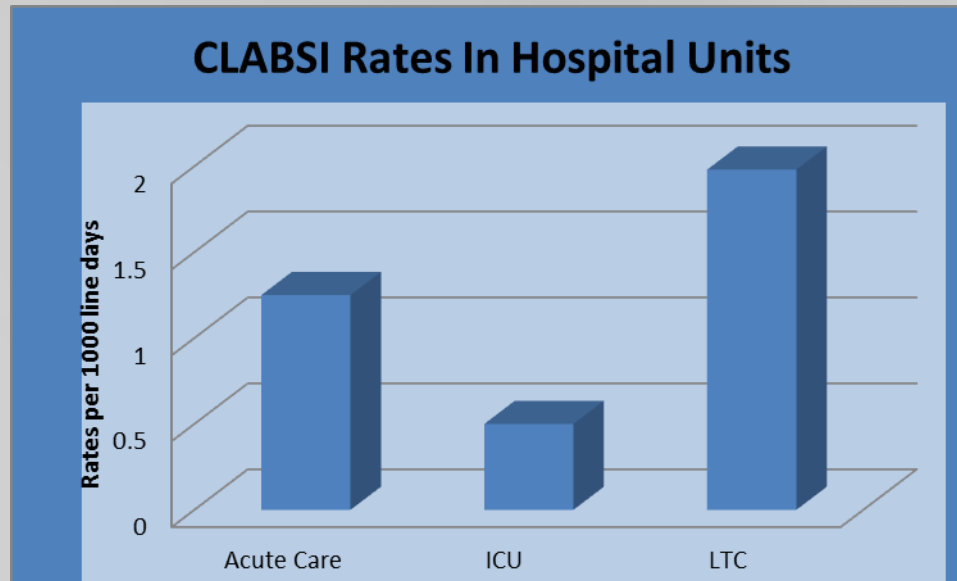
Statically
Analyze the
data

Compare
current and
historical data



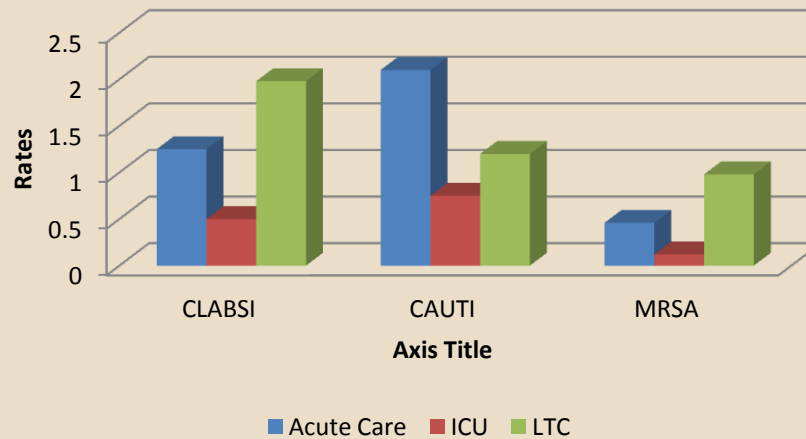
Effective Communication Tools

Data Communication Tools



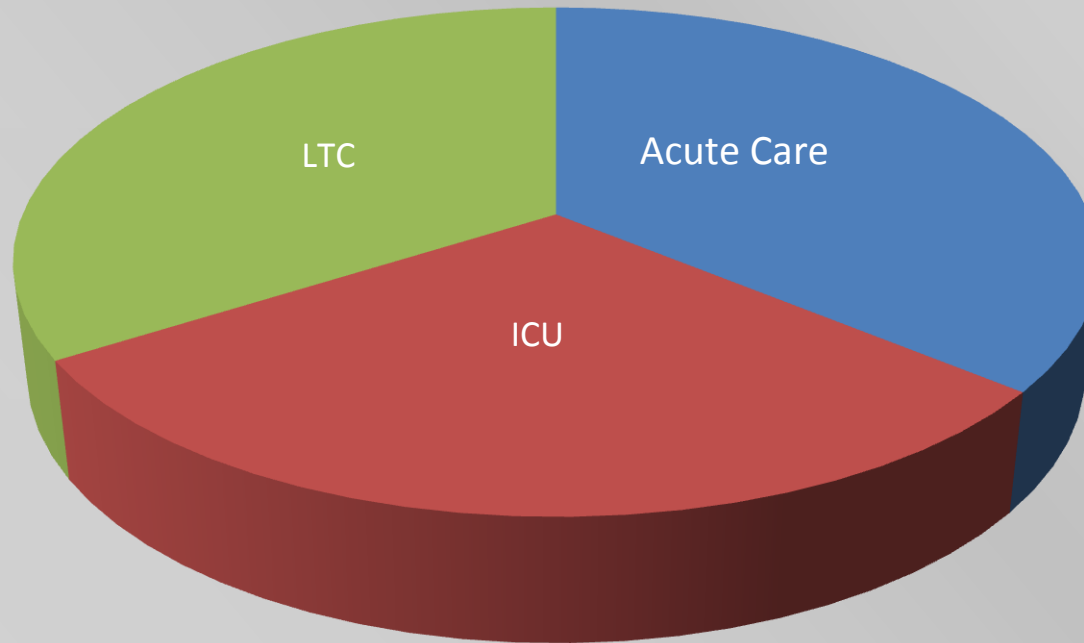
What does your hospital Administrator know about the effectiveness of your program from this graph?

Infection Rates by Hospital Unit



What action will you take based on the data presented in this graph?

Proportion of Infections Occurring in Hospital Locations



What is your highest risk location for infections?



Characteristics of Useful Tables and/or Graphs

- Data must speak to the needs and knowledge level of the audience
- There is eloquence in simplicity
- Tables and graphs need to reveal a meaningful message
- Tables should be used when your message:
 - Requires availability of individual values
 - Involves less than 20 data points
 - Comparisons between summary and detailed values
- Graphs should be used when your message:
 - Focuses on patterns, trends, or exceptions
 - Relationships between whole sets of values are examined



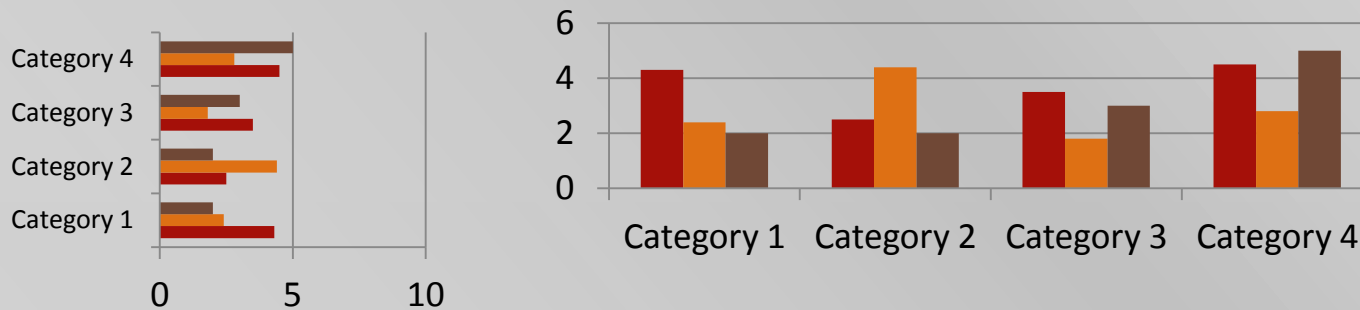
Design Guidelines

- Titles should be complete enough to describe your statement of question
- Data should be graphed or tabled large enough to clearly visualize key points
- Axes of the graphs must both be labeled
- Avoid borders around graphs/legends; 3-D effects; background shading
- Limit the number of variables displayed to three
- Limit use of colors but if used make the central message a darker color
- Use “call boxes” on the graph to indicate events that could have impacted the results

Selecting the Right Type of Graph

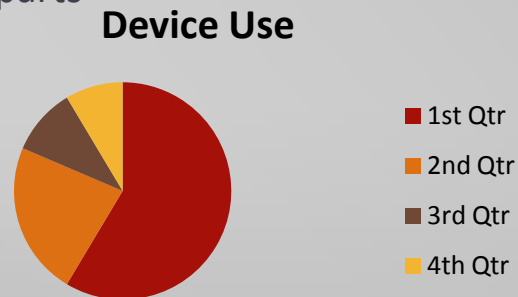
- Bar Charts

- Comparisons between nominal sets of data



- Pie Charts

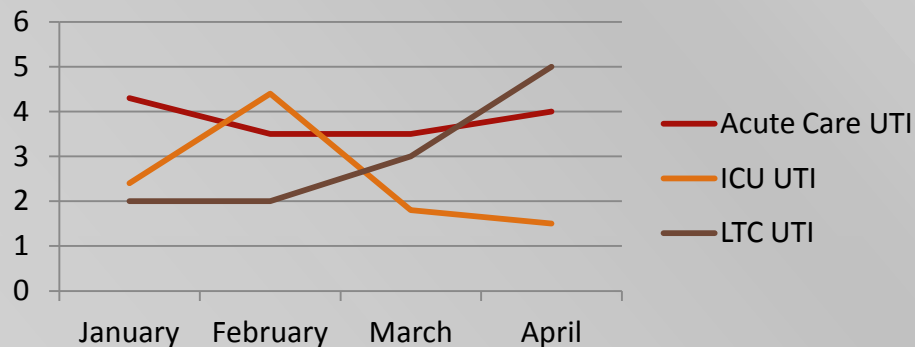
- Partitioning of a whole into parts



Selecting the Right Type of Graph

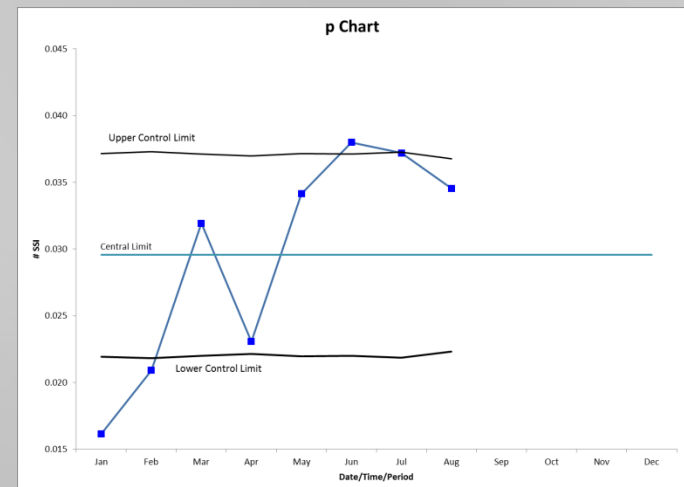
- Line or Run Chart

- Demonstrate the impact of time, or some other interval variable on an outcome



- Statistical Process Control (SPC) Chart

- Predict change in an outcome related to a process





Evaluation Methods

- Routine inter-rater reliability testing
- Routine validity testing
- Audience survey regarding the message needed and given
- Additional statement of questions needed

Converting Data Line Lists into Graphs



Using Excel to Create Graphs

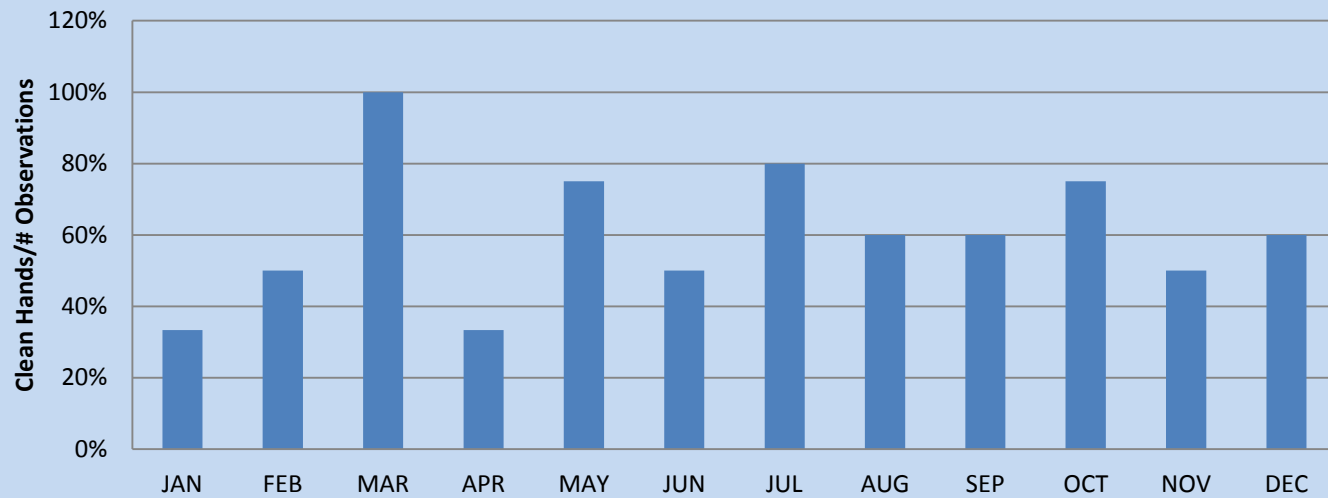
	A	B	C
1	Date	Type of Staff	Clean Hands
2	1/15/2013	TECHNICIAN	Y
3	1/17/2013	PHYSICIAN	N
4	1/18/2013	PHYSICIAN	N
5	2/2/2013	HOUSEKEEPING	N
6	2/14/2013	TECHNICIAN	Y
7	2/20/2013	NURSE	Y
8	2/24/2013	TECHNICIAN	N
9	3/1/2013	NURSE	Y
10	3/5/2013	HOUSEKEEPING	Y
11	3/10/2013	NURSE	Y
12	4/2/2013	PHYSICIAN	Y
13	4/12/2013	TECHNICIAN	N
14	4/20/2013	HOUSEKEEPING	N
15	5/10/2013	HOUSEKEEPING	Y
16	5/17/2013	HOUSEKEEPING	Y
17	5/24/2013	NURSE	Y
18	5/31/2013	PHYSICIAN	N
19	6/1/2013	TECHNICIAN	Y
20	6/14/2013	NURSE	Y
21	6/20/2013	HOUSEKEEPING	N
22	6/28/2013	PHYSICIAN	N
23	7/3/2013	NURSE	N
24	7/11/2013	TECHNICIAN	Y
25	7/16/2013	NURSE	Y
26	7/20/2013	PHYSICIAN	Y
27	7/30/2013	HOUSEKEEPING	Y
28	8/1/2013	HOUSEKEEPING	N
29	8/6/2013	TECHNICIAN	Y
30	8/7/2013	NURSE	Y
31	8/19/2013	PHYSICIAN	N
32	8/28/2013	PHYSICIAN	Y
33	9/7/2013	PHYSICIAN	Y
34	9/10/2013	NURSE	Y
35	9/18/2013	HOUSEKEEPING	Y
36	9/21/2013	TECHNICIAN	N
37	9/22/2013	TECHNICIAN	N
38	10/6/2013	NURSE	Y
39	10/8/2013	PHYSICIAN	N
40	10/11/2013	HOUSEKEEPING	Y
41	10/12/2013	TECHNICIAN	Y
42	11/5/2013	TECHNICIAN	N
43	11/9/2013	PHYSICIAN	N
44	11/16/2013	NURSE	Y
45	11/23/2013	HOUSEKEEPING	Y
46	12/10/2013	PHYSICIAN	N
47	12/11/2013	HOUSEKEEPING	Y
48	12/15/2013	NURSE	Y
49	12/19/2013	TECHNICIAN	Y
50	12/23/2013	NURSE	N

	G	H	I	J	K	L	M	N	O	P	Q	R	S
1		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2	# CLAEAN	1	2	3	1	3	2	4	3	3	3	2	3
3	# OBSERVATIONS	3	4	3	3	4	4	5	5	5	4	4	5
4	% CLEAN	33%	50%	100%	33%	75%	50%	80%	60%	60%	75%	50%	60%

	G	H
1		JAN
2	# CLAEAN	1
3	# OBSERVATIONS	3
4	% CLEAN	33%

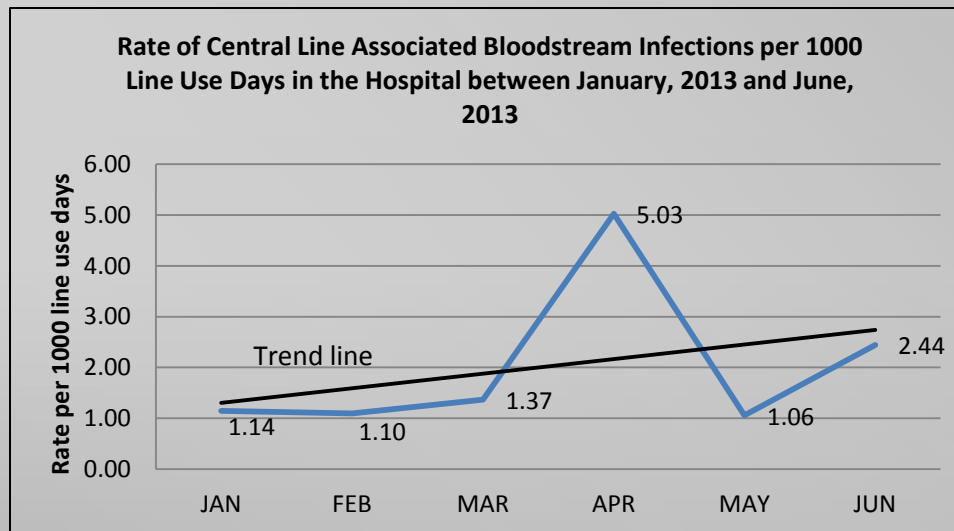
=Countif(c2:c4,"Y")
 =Rows(A2:A4)
 =F2/F3

Proportion of Clean Hands on All Units between January 1, 2013 and December 31, 2013



	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
# CLAEN	1	2	3	1	3	2	4	3	3	3	2	3
# OBSERVATIONS	3	4	3	3	4	4	5	5	5	4	4	5

Date	Unit	Healthcare Associated Infection	CLABSI						
			CENTRAL LINE USE DAYS	874	912	732	796	943	819
				JAN	FEB	MAR	APR	MAY	JUN
1/15/2013	4C	CLABSI	=IF(AND(MONTH(A3)=1,C3="CLABSI"),1,0)	1	0	0	0	0	0
2/20/2013	5B	CLABSI		0	1	0	0	0	0
3/2/2013	1A	CAUTI		0	0	0	0	0	0
3/12/2013	3C	SSI		0	0	0	0	0	0
3/16/2013	1C	CLABSI		0	0	1	0	0	0
3/21/2013	2B	CAUTI		0	0	0	0	0	0
4/6/2013	3A	CAUTI		0	0	0	1	0	0
4/10/2013	4B	SSI		0	0	0	1	0	0
4/18/2013	5C	CAUTI		0	0	0	1	0	0
4/23/2013	2A	CLABSI		0	0	0	1	0	0
5/10/2013	3B	CLABSI		0	0	0	0	1	0
5/16/2013	2C	CAUTI		0	0	0	0	0	0
6/1/2013	1B	CLABSI		0	0	0	0	0	1
6/20/2013	4C	CAUTI		0	0	0	0	0	1
			=SUM(E3:E16)/B21*1000	1.14	1.10	1.37	5.03	1.06	2.44



Analyzing Data to Develop Action Plans





Outcomes of Well-Designed Data Plan

- Stakeholders receive the intended messages about your program
- Predictions emerge from your data in times to take action
- Data based Action plans are developed to guide improvements
- Greater support from Administration and Healthcare Workers