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Creating an EHR-based Antimicrobial Stewardship Program

Session #257, March 8, 2018

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Methodist Hospital of Southern California

COMMITMENT

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Conflict of Interest

David Ratto, M.D.

Has no real or apparent conflicts of interest to report.

Conflict of Interest

Kyle Frandsen

Has no real or apparent conflicts of interest to report.

Agenda

- Introduction and definitions
- Learning objectives
- Purpose and goals.
- Design plans: Advanced patient lists, order sets, messaging ability, isolation, SIRS, IV-PO, no duplicates, Improve patient data review process
- Final design
- Implementation and example of processes
- Results/outcomes
- Additional thoughts
- Questions?

Learning Objectives

- Design and implement an in-house Antimicrobial Stewardship Program utilizing our present EHR
- Design and implement a means to identify all patients who meet specified criteria for potential antibiotic interventions
- Assess the impact, financial and quality wise, of developing an integrated EHR based antimicrobial stewardship program
- Definition of an MLM and how their implementations can be used to improve quality of care
- Describe the processes necessary to have an accredited antimicrobial stewardship program

Definitions

- **ASP:** Antimicrobial Stewardship Program is a coordinated program that promotes the appropriate use of antimicrobials. Antimicrobial stewardship refers to coordinated interventions designed to improve and measure the appropriate use of antimicrobials. They are now mandated by Joint Commission and multiple other agencies.
- **MLM:** Medical Logic Module. A series/set of code that when an action or a series of actions occurs it instructs the system to perform another action or series of actions.

Tabs, Columns, Drop-down Boxes

Allergies: PCN

MM Worklist | Message Queue | Review Queue | Patient List | Patient Info | Orders | Results | Documents | Flowsheets | Clinical Sur

New Visit | Modify | Delete | Delete | Flag | Flag | Select | Save Selected | Remove Selected | Select Visit | Define | Save Sort | Reset Sort
List | Visit List | Current List | Visit List | New On | New Off | All Visits | Visits | Visits | List Column | Sort Order | Order | Order

Current List: 1 ANTIBIOTIC 48

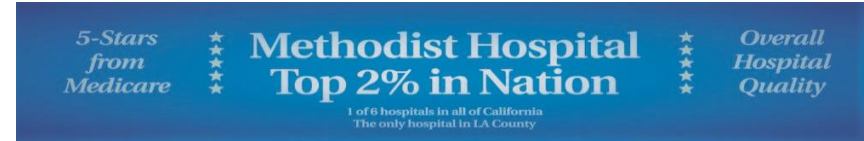
Select All Patients 26 Visit(s) Save Selected Patients.

Current Location	Msg For Pharm	Provider	Hospitalist
1 ANTIBIOTIC 48			
1 C DIFFICILE			
1 DAY 7 ANTIBIOTICS			
2T-225-A B 1 MULTIPLE ANTIBIOTICS		Chiu, Peter	Guruswamy
2T-243-A H 1 RESTRICTED ANTIBIOTICS		Li, Jennifer	
2T-243-A H 1 Tower		Li, Jennifer	
3N-N364-A N 1 VANCOMYCIN		Chi, Pe	
3N-N377-A G 2 Tower		AHMG, GROUP	Dr Chiang 898-8302
3T-318-A C 3 North		Lawrence, Kevin	robert siew
4N-N452-A B 3 Tower		Gazarian, Levon	
4N-N460-A S 4 North		AHMG, GROUP	Dr Chiang 898-8302
4N-N465-A P 4 Tower		Khilnani, Haresh	
4N-N467-A Z 5 North		AHMG, GROUP	Annie 8309 / Dr Chiang
4N-N476-B H 5 Tower		Chien, Oscar	

The screenshot shows a medical software interface with a 'Current List' dropdown menu on the left and a table of patient visits on the right. The dropdown menu is highlighted with a red box and contains a list of allergies, with '1 ANTIBIOTIC 48' selected. The table has columns for 'Current Location', 'Msg For Pharm', 'Provider', and 'Hospitalist'. Three green arrows point to specific rows in the table: one to the '1 RESTRICTED ANTIBIOTICS' row, one to the '1 VANCOMYCIN' row, and one to the '1 Tower' row.

Methodist Hospital of Southern California

- 368 bed community hospital.
- Private, not for profit.
- Stand alone hospital.
- Between a national Cancer Center and the second-largest private hospital in Los Angeles County.
- Stroke center, STEMI center, bariatric center, Rehabilitation center, neurosurgery and cardiac surgery.
- **Five-star CMS hospital for safety and quality.**
- **CPDH antimicrobial stewardship advanced mentor program**



Methodist Hospital of Southern California

Congratulations to our doctors, nurses and staff
Ranked #8 in the U.S.
for Patient Safety, Quality & Efficiency
Among 537 hospitals with 400+ beds



- In 2011, the hospital led by the Chief Medical officer and the Medical Executive Committee with the full backing of the medical staff decided that our goal would be to make Methodist Hospital the safest hospitals in America. As a small stand alone hospital we felt this was doable

David Ratto M.D.

- Chief Medical Information Officer @ Methodist Hospital Southern California.
- Board-certified: Clinical Informatics, Pulmonary and Internal Medicine.
- Practice: Hospitalist medicine as well as Pulmonary and Critical Care.
- Medical Director and Chairman of Pharmacy and Therapeutics @ Methodist Hospital.
- Chairman of Health Information and Technology committee at Methodist hospital(HITC).

Development team

- Gary Russell: Chief Information Officer.
- Kyle Frandsen: Senior Clinical Analyst and MLM developer.
- Cristina Arbizu: Senior Clinical Analyst, clinical summary developer and patient list views.
- Matt Brideson: Clinical Informatics manager, now with Allscripts.
- Xiao Liu: IT pharmacy analyst.
- Dorothy Wong: Director of Pharmacy.
- Michelle Chan: Infectious Disease pharmacist.
- Gary Mattison: Interface Programmer.
- Joel Streng M.D.: Medical Director Infection Control

Purpose and goals of project

- Presently, we are an ASP program Advanced Mentoring program in California. We wish to maintain this status.
- Optimize infectious disease management through use of EHR.
- To reduce the cost of patient care by limiting the use of un-necessarily expensive antibiotics when lower cost alternatives will do the job
- To minimize the over utilization of antibiotics, contributing to increased antibiotic resistance
- Under papers system, could not meet the minimum requirements of a daily 48 hour review of all patients started on antibiotics.
- Papers system estimated to take greater than 8 hours per day, 365 days a year.
- Cost estimates for outside vendor range between \$250,000 – \$350,000. Plus our implementation costs. i.e. not cost effective.
- We could also not find anything that truly met our needs.
- We thought it would be easier to do.
- Pride and frankly it is in our culture to build. (Cool things)

Obstacles.

- Loss of a physician champion.
 - Difficult to replace.
 - Replacement although equally competent and easy to work with lacks vision and passion.
- Design issues.
 - Issue of duplicate patients on lists.
 - Communication between all sides especially with needs, ability within the EHR and design features.
 - Adoption and utilization of new design over prior processes.
 - More design arguments on this project than any prior project. People had very strong opinions on how they wanted the end product to look and function.

Culture versus strategy


- Pharmacists view versus M.D. view.
- Antibiotic indications. Simple versus complex.
- Pharmacists view versus ASP view of clinical summary.
- Other stories.
 - Use of Secure Messaging.

Design plans

- Advanced patient lists
- Improved clinical summary tab
- Custom health issues
- multiple new MLMs
- Improve processes i.e. automated orders.
- Improved orders view
- Follow the CDC guidelines


ASP rules and mandates

- CMS
- DPHS state of California.
- Joint Commission and CDC.
- Infectious disease Society.



Checklist for
Core Elements
of Hospital Antibiotic
Stewardship Programs

National Center for Emerging and Zoonotic Infectious Diseases
Division of Healthcare Quality Promotion



Design outcomes and added features

- Allscripts SCM is open source software that allows us to do a significant amount of customization

Advanced patient lists

- 48 hour antibiotic timeout.
- 7 days of antibiotics.
- 3 or more antibiotics.
- IV to PO conversion.
- Restricted(expensive) antibiotics.**

Current List: **ANTIBIOTIC 48** (41 Visit(s))

SIRS	Cur Loc	Msg For Pharm	Pharmacy Notes	Provider	Hospitalist
	1 C DIFFICILE			Garimella, Sree	
	1 DAY 7 ANTIBIOTICS			Moon, Daniel	
	1 MULTIPLE ANTIBIOTICS			Chen, Kuanche...	
	1 RESTRICTED ANTIBIOTICS			Chiu, Peter	
	1 Tower			AHMG, GROUP	Dr Huang 898-8305
1	2 Tower			O'Toole, Marti...	
	2T-22 3 North			AHMG, GROUP	Dr Huang 898-8305
	2T-22 3 Tower			Antosz, Vincent	
	2T-24 4 North			Doraiswamy, A...	
1	2T-24 4 Tower			AHMG, GROUP	Dr Tiganu 898-8239
	2T-24 5 North			Balacuit, Peter	
	3N-N 5 Tower			Guruswamy, R...	
	3N-N Atia Shah				
	3N-N364-A				

Added features

- IV to PO conversion.

The screenshot displays a medical software interface with a navigation bar at the top containing tabs for Patient List, Orders, Results, Patient Info, Documents, Flowsheets, Clinical Summary, and Active Meds. Below the navigation bar is a toolbar with various icons. The main area is divided into two sections. On the left, a 'Current List' dropdown menu is open, showing a list of patient names and locations. The option '*ML IV to PO' is highlighted in blue and circled in red. On the right, there is a 'Select All Patients' button, a '9 Visit(s)' indicator, and a 'Save Selected Patients...' button. Below these buttons is a table with the following data:

SIRS	Current Location	Visit Status	Admit Date	Nurse	Provider
	2T-236-A	DSC	Aug-08-...	MICHELLE 8538	Yeh, Shye Ren
	2T-241-A	DSC	Jul-11-2...	MARY 8125	Chieng, An Pang
	3T-321-A	DSC	Aug-04-...	8431 LINDSAY	Liang, Scott
	4T-410-A	DSC	Jul-23-2...	Lynda 8142/Shue	Khan, Fauzia
	4T-424-A	DSC	Jun-15-2...	Madeline 8144/Ana M.	Barnhart, C Rodney
	4T-439-A	DSC	Aug-01-...		Alano MD, Diana
	CCM-CC02-A	DSC	Aug-05-...	TANYA MEECHUKANT/...	Gilani, Durdana
	CCM-CC07-A	DSC	Aug-04-...	MECHELLE	Yue DO, Jimmy
	CCM-CC08-A	DSC	Aug-03-...	BARBARA	Chen, MD, Andy

IV → PO conversion

- IV to PO screening criteria.
- Antibiotics > 48 hours.
- PO meds or G-tube feedings.
- White blood cell count 5 – 12,000.
- Temperature less than 100°C > 48 hours
- Note to consider switch to:
 - M.D., ID, pharmacists.
 - Change to PO.
- Exclusions:

Exclusion criteria: checklist below given to pharmacists to review

Exclusion criteria

Patients with unreliable response to oral medications (severe nausea or vomiting)
Unable to swallow or unconscious
Strict (nothing per oral) for a procedure
GI obstruction, malabsorption, active GI bleeding, paralytic ileus or severe diarrhea
Unresponsive to previous oral therapy
Patients with grade 3 or 4 mucocytosis
Patients whose disease state that does not support oral therapy (meningitis, infective endocarditis, infection of a prosthetic device, osteomyelitis, sepsis, severe cellulitis, bronchiectasis, pneumonia with AIDS)
Documented pseudomonal infection and/or on IV antibiotic for <24 hours
Candidemia treated less than 7 days
Seizure and risk of aspiration
Hypotension or shock
Patient refuses oral medication as mentioned in charts
Immunocompromized patients (febrile neutropenia, on cancer chemotherapy, posttransplant, functional asplenia)

Clinical Summary Top

View: Pharmacy Antibiotic Stewardship		1 week		Sep-14-2017 10:42 To Sep-21-2017 10:42																																																																																																																																																																
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Clinical summary tab: bottom view

Result	Value	Range	Result Date	PO Diet	Item Info	Value	Authore...	Entered By	Entered On...	Last Update
Glucose-POCT	106	[70-99 mg/dL]	Jun-19-2017...	Diet/N...	tube...	Jun-18...	Martinez...		Jun-19...	
Sodium	132	[135-145 mmol/L]	Jun-18-2017...	Diet/F...	good	Jun-18...	Martinez...		Jun-19...	
Potassium Levels	Glucose-POCT	[3.5-5.5 mmol/L]		Intake...	100%	Jun-18...	Martinez...		Jun-19...	
Chloride Levels	94	[98-108 mmol/L]		Fluids	adeq...	Jun-18...	Martinez...		Jun-19...	
Bicarbonate	21.0	[24.0-34.0 mmol/L]								
Glucose	116	[70-99 mg/dL]								
BUN	18	[8-20 mg/dL]								
Creatinine	0.6	[0.5-1.2 mg/dL]								
Calcium Levels	7.6	[8.4-10.2 mg/dL]								
GFR Non African...	95.26	[>60.0...]								
GFR African...	115.26	[>60.0...]								
White Blood Count	17.1	[4.8-10.8 Th/cmm]	Jun-18-2017...							
Red Blood Count	2.88	[4.20-5.40...]								
Hemoglobin	8.5	[12.0-16.0 g/dL]								

Order Name	Value	Abn	Result Date	Text
Culture, Urine			Jun-07-2017 18:07	
Comment		N	Jun-05-2017 04:50	No growth in two...
Blood Culture		N	Jun-04-2017 15:12	No growth in five...
Comment		N	Jun-04-2017 12:20	No growth in five...
Blood Culture		N	Jun-02-2017 19:51	No growth in five...
Comment		N	Jun-02-2017 19:39	No growth in five...
Culture, Urine				
Comment		N		Insignificant colony...
Organism		N		Streptococcus...
Comment		N		40,000 CFU/mL
Ampicillin		N		S <=0.25
Cefazolin		N		S >=8
Clindamycin		N		R >=8
Cultures re-evaluatio...				

Order	Category	Significant Date	Status
Diet Preferences , LIKES: chocolate flavor...	Diet	Jun-11-2017 15:18	Discontinued
Diet Preferences , LIKES: pls send EVERY meal...	Diet	Jun-08-2017 15:22	Discontinued
NPO Now, except oral medications	Diet	Jun-03-2017 04:36	Discontinued
Restraints Soft Wrist - Right	Nursing	Jun-19-2017 06:48	Active
Additional Nursing Increase TF to 40 ml/hr.	Nursing	Jun-19-2017 05:16	Active
Piperacillin-Tazobactam inj [ZOSYN]	Pharmacy - IVPBs	Jun-05-2017 08:58	Active
Dextrose 5%-NaCl 0.45% 1,000 mL with...	Pharmacy - IVs	Jun-15-2017 18:00	Active
Dextrose 5%-NaCl 0.45% + KCl 20 mEq/L...	Pharmacy - IVs	Jun-15-2017 07:41	Active
Dextrose 5% 1,000 mL	Pharmacy - IVs	Jun-03-2017 04:41	Active
Metoprolol Tartrate tab [LOPRESSOR]	Pharmacy - Meds	Jun-13-2017 21:00	Active
HydRALAZINE inj [APRESOLINE]	Pharmacy - Meds	Jun-13-2017 16:44	Active
HYDROcodone 5 mg-Acetaminophen 325 mg...	Pharmacy - Meds	Jun-13-2017 15:11	Active
Lidocaine 1% inj [XYLOCAINE 1%]	Pharmacy - Meds	Jun-12-2017 00:00	Active
Glycerin (Adult) supp	Pharmacy - Meds	Jun-10-2017 17:05	Active
Ondansetron inj [ZOFRAN]	Pharmacy - Meds	Jun-10-2017 17:04	Active
Aluminum 2,400 mg-Magnesium 2,400 mg...	Pharmacy - Meds	Jun-09-2017 16:35	Active
Lidocaine 2% topical jelly [XYLOCAINE 2%]	Pharmacy - Meds	Jun-08-2017 18:10	Active

Medication	Status	Last Given	Stop Date
Piperacillin-Tazobactam inj [ZOSYN]	Active	Jun-19-2017 08:25	Jun-19-2017 23:59
Dextrose 5%-NaCl 0.45% 1,000 mL with...	Active	Jun-18-2017 18:05	Sep-13-2017 23:59
Dextrose 5%-NaCl 0.45% + KCl 20 mEq/L...	Active		Sep-13-2017 23:59
Dextrose 5% 1,000 mL	Active		Sep-01-2017 23:59

Item Name	Author	Entered date	Last Update date	Item	Item Info	Value	Authored	Entered By	Entered On Behalf	Last Update
Progress Note	Shah, Atia	Jun-16-2017...	Jun-16-2017...	IV Device	[WDL...	WDL	Jun-19...	Kurniawan, ...		Jun-19...
Progress Note	Shah, Atia	Jun-15-2017...	Jun-15-2017...							
Progress Note	Shah, Atia	Jun-14-2017...	Jun-14-2017...							
Consultation	Day, I-Kawei	Jun-13-2017...	Jun-13-2017...							

Temperature	Value	Unit
Temperature in Fahrenheit (degrees F)	98.0	degrees F
Temperature in Fahrenheit (degrees F)	97.8	degrees F
Temperature in Fahrenheit (degrees F)	98.4	degrees F

HR, BP, and Respirations	Value	Unit
Heart Rate	84	b/min
Systolic Blood Pressure	125	mmHg
Diastolic Blood Pressure	50	mmHg
Respiratory	16	breaths/min

..Antibiotics Order View

- Advanced orders tab view

CCC-CC38-A
 Admit Date: Jun-10-2017 Isolation: Isolation Level: Ht: 75.984 in Wt: 99 kg (Jun-19-2017) Shah, Kirit
 Allergies: Flagyl, lorazepam, penicillin, vancomycin, Coconut, Peanuts, Seafood Intolerances: BMI: 26.6
 GMLOS (days): Visit Reason: ALTERED
 Code Status: FULL CODE MVP: NIHSS=

Patient List Orders Results Patient Info Documents Clinical Summary Clinical Data Viewer Scanned Documents EKG Active Meds

Options Panel
 Chart Selection
 This chart All available charts
 Date Range
 Based on date: Ordered Entered
 From: Jun-10-2017
 To:
 Retain selections for next patient
 Display Format
 [Modified] Anti-Infective Medication
 Filters
 Status/Priority: No Status/Priority Filter
 Order Selection: Anti-Infective Medications
 Department: No Department Filter
 Rx Verified: All
 Display Styles
 Group/Sort Orders by: Department and Order Name
 Show
 Visit details Health issues
 Requested by Linked set details
 Set/Path details Pharmacy info

Some orders may not be shown for this chart for order dates from Jun-10-2017; Display Format: [Modified] .Anti-Infective Medication; Filtered by: Order Selection: Grouped/Sorted by: Department and Order Name

Order Summary

Order Summary	Order Date	Status	Stop Date
Pharmacy - IVPBs			
<input type="checkbox"/> Aztreonam inj - [AZACTAM] 2 gm IVPB once Indication: Pneumonia (Hospital-Acquired, Ventilator Associated, or Health-Care Associated) Requested by: Burke, James (MD)	Jun-10-2017 17:04	Completed	Jun-10-2017 18:12
<input type="checkbox"/> Cefepime inj - [MAXIPIME] 1 gm IVPB Q24H Indication: Pneumonia Requested by: Philip, Rajiv (MD)	Jun-10-2017 21:27	Discontinued	Jun-12-2017 08:18
<input type="checkbox"/> Cefepime inj - [MAXIPIME] 1 gm IVPB Q12H Prescriber Instructions: Original start 6/10 Indication: Pneumonia Requested by: Philip, Rajiv (MD); Entered by: Lei, Tina Tin (Pharmacist)	Jun-12-2017	Discontinued	Jun-13-2017 15:28
<input type="checkbox"/> Fluconazole inj - [DIFLUCAN] 100 mg IVPB <User Schedule> (every 1 day; 14:00) Indication: Yeast in the lungs/PNA Requested by: Philip, Rajiv (MD)	Jun-13-2017	Discontinued	Jun-13-2017 15:28
<input type="checkbox"/> Fluconazole inj - [DIFLUCAN] 300 mg IVPB once Prescriber Instructions: ADDITIONAL DOSE FOR TOTAL (100MG PREVIOUSLY +300MG NOW) = 400MG TODAY Indication: sepsis Requested by: Jiang, Hua (MD); Entered by: Vuu, Linda (Pharmacist)	Jun-13-2017 17:00	Completed	Jun-13-2017 16:37
<input type="checkbox"/> Fluconazole inj - [DIFLUCAN] 400 mg IVPB <User Schedule> (every 1 day; 17:00) Prescriber Instructions: STARTED 6/13/17 Indication: sepsis Requested by: Jiang, Hua (MD)	Jun-14-2017	Active	Jun-20-2017
<input type="checkbox"/> Meropenem inj - [MERREM] 1 gm IVPB <User Schedule> (every 1 day; 04:00 16:00) Indication: Intra-abdominal Infection; Pneumonia Requested by: Jiang, Hua (MD)	Jun-13-2017	Active	Jun-20-2017
<input type="checkbox"/> Tobramycin inj - [NEBCIN] 180 mg IVPB once Indication: Pneumonia Requested by: Burke, James (MD); Entered by: Chiaramonte, Candice (Pharmacist)	Jun-10-2017 17:32	Completed	Jun-10-2017 18:44
<input type="checkbox"/> Tobramycin Pharmacy to dose Prescriber Instructions: **ER ORDER, RE-ORDER ON ADMISSION, IF APPROPRIATE** Administration Instructions: Indication(s): Pneumonia (Hospital-Acquired, Ventilator Associated, or Health-Care Associated) Requested by: Burke, James (MD)	Jun-10-2017 17:04	Discontinued	Jun-10-2017 21:12

Custom Health Issue

Allergy - Drug: cephalosporins, Morphine Sulfate

Discontinue Health Issue showing - Health Issue Types (All); Status (Active Only); Entered By (All)

Health Issues My Ranked Past Surgical

H	Health Issue	Code	ICD-9	ICD-10	SNOMED CT	Type	Onset Date
-	AntimicrobialAS (1)						
+	Antimicrobial Stewardship Review: ANTIBIOTICS H...					AntimicrobialAS	
-	Complaint_ECLP (1)						
+	LEFT LOWER PNA					Complaint_ECLP	
-	Geometric LOS (1)						
+	4.9					Geometric LOS	
-	Admit Reason (1)						
+	LEFT LOWER PNA					Admit Reason	
-	Admitting Dx (1)						
+	H Shortness Of Breath	R06.02	786.05	R06.02	267036007	Admitting Dx	
-	Working Dx (3)						
+	H Pneumonia, Unspecified Organism	J18.9	486	J18.9	233604007	Working Dx	
+	H Sepsis, Unspecified Organism	A41.9	038.9	A41.9	91302008	Working Dx	
+	H Chronic Respiratory Failure, Unsp W Hypoxia Or H...	J96.10	518.83	J96.10	39871006	Working Dx	
-	Isolation (1)						
+	H MRO/KPC/MRV URINE					Isolation	
-	Code Status (1)						
+	DNR: Do Not Resuscitate (No CPR)					Code Status	

Custom columns we created

SIRS	Current Location	Patient Name	Age	Msg For Pharm	Pharmacy Notes	Provider	Hospitalist	Health Issue Type	Health Issue	Health Issue Description	
■	2T-225-A		93y			Chiu, Peter	Guruswamy	AntimicrobialAS	Antimicrobial Stewardship Review: ANT...	Antimicrobial Stewardship Review: ANTIBIOTL...	F
	2T-236-A		76y			Laster, Daniel		AntimicrobialAS	Antimicrobial Stewardship Review: ANT...	Antimicrobial Stewardship Review: ANTIBIOTL...	A
■	3N-N352-A		87y			AHMG, GROUP	Dr Huang 898-8305	AntimicrobialAS	Antimicrobial Stewardship Review: ANT...	Antimicrobial Stewardship Review: ANTIBIOTL...	K
	3N-N364-A		86y			Chi, Peter		AntimicrobialAS	Antimicrobial Stewardship Review: ANT...	Antimicrobial Stewardship Review: ANTIBIOTL...	L

Custom column for pharmacist notes

Current List: 1 ANTIBIOTIC 48 Select All Patients 29 Visit(s) Save Selected Patients...

SIRS	Current Location	Patient Name	Age	Msg For Pharm	Pharmacy Notes	Provider	Hospitalist	Health Issue Type	
	2T-225-A		93y			Chiu, Peter	Guruswamy	AntimicrobialAS	Antimicrobia
	2T-236-A		76y						robia
	3N-N352-A		87y						robia
	3N-N364-A		86y						robia
	3N-N367-A		73y						robia
	3T-318-A		81y						robia
	4N-N452-A		61y						robia
	4N-N453-A		59y						robia
	4N-N455-A		86y						robia
	4N-N455-A		86y						robia
	4N-N460-A		58y						robia
	4N-N465-A		77y						robia
	4N-N475-A		75y						robia
	4N-N476-B		58y						robia
	4N-N477-B		85y						robia
	4N-N478-B		85y						robia
	4N-N479-B		29y						robia

Miscellaneous Data Maintenance - Hubert, Nancy

ER_Ext: lko

ER_MD: Khan, Huma

SIRS/Sepsis Warning: [dropdown]

Last System-Sugg Education Dt: [text box]

Pharmacy Notes: [text box]

Nurse: WILSON-1333/BEATRIZ

Hospitalist Name And Phone: [text box]

#_Code Status: [dropdown]

OK Cancel Help

Custom column for pharmacy notes

Current List: 7 Visit(s)

SIRS	Current Location	Patient Name	Provider	Hospitalist	Admit Date	Visit Reason	Pharmacy Notes
	1E-P178-A	Test, Weightlm5	Alexander, Ma...		May-09-...	UTI	Hello. Put notes here.
	1T-122-A	Training, Nicu1 Test	Bishara, Nader		Aug-24-...	PREMATURITY	
	3N-N352-A	Test, Abc102			Sep-28-2...	CHEST PAIN	
	5N-N556-A	Test, Abc104	Chou, Cindy		Sep-30-2...	PREGNANCY	
✔	5T-509-A	Training, Md Aaron	Ratto, David		Nov-10-...	ABD PAIN	
	CCR-CC11-F	Qqdanalyst, Test9	Ratto, David		Mar-14-...	SEPSIS	
	NICU-NI12...	Paltrow, Bruce K-test	Thomas, George		Mar-17-...	EPCS	this patient is going ho...

MLMs

- SIRS
- Antibiotic indication pop up.
- Isolation orders
- Clinical summary antibiotics.
- CBC/CMP timeline
- Repeat lactate level, stat in 4 hours if value > 2.0.
- Health issues list and advance patient lists

Added features: SIRS columns



SIRS CRITERIA MET

Jun 19 2017 4:37AM

Qualifying Category	Flag Value	Latest Value	Latest Entry
Temperature	36.6C / 97.9F	36.8C / 98.2F	Jun 19 2017 8:00AM
Heart Rate	101	110	Jun 19 2017 8:00AM
Respiratory Rate	20	20	Jun 19 2017 4:00AM
pCO2	N/A	N/A	N/A
White Blood Count	17.1 Th/cmm	17.1 Th/cmm	Jun 18 2017 6:17PM
% Bands	10 %	10 %	Jun 17 2017 9:47AM
Systolic BP	151	106	Jun 19 2017 8:00AM
Diastolic BP	67	78	Jun 19 2017 8:00AM

Is there a known or suspected source of infection ?


References

YES


NO

UNKNOWN

Automated isolation orders


[REDACTED] 3N-N350-A Alar
Admit Date: May-19-2017 **Isolation: C.DIFF+ MDRO URINE** **Isolation Level: C. difficile** **Ht:** 61.969 in **Wt:** kg 0
Allergies: No Known Medication Allergy **Intolerances:**

Patient List Orders Results Patient Info Documents Flowsheets Clinical Summary Active Meds



Current List: 1 DAY 7 ANTIBIOTICS Select All Patients 13 Visit(s) Save Selected

Current Location	Patient Name	Age	Gender	Birthdate	Patient ID / Visit Number	Nurse
2T-212-A	[REDACTED]	24y	Male	Jul-09-1992	724875/0020406229	MARY 8123
2T-228-A	[REDACTED]	73y	Female	May-24-1944	427529/0020418067	ERICKA 8152
2T-243-B	[REDACTED]	83y	Female	Jan-04-1934	721913/0020378378	LINDSAY 8143
3N-N350-A	[REDACTED]	77y	Female	Mar-01-1940	052473/0020389086	GIGI 1334
3N-N356-A	[REDACTED]	61y	Male	May-05-1956	723821/0020365284	AILYN 1332

Pop-up antibiotic indication

The screenshot shows a medical order form for Ceftriaxone inj. The form includes fields for patient demographics (Ht, Wt, BSA, BMI), brand name (ROCEPHIN), dosing information, and a 'Stop After' field set to 7 doses. A pop-up window titled 'Select Indication(s):' is overlaid on the form, listing several infection types with checkboxes: Bloodstream Infection, Endocarditis, Intra-abdominal Infection, Meningitis, Osteomyelitis, Pneumonia, Skin/Soft Tissue Infection, and Urinary Tract Infection. The 'Stop After' field and a small icon on the right side of the form are highlighted with red boxes.

- ID and pharmacists input to design simpler.
- Wish to use Johns Hopkins and UCSF indications.
- Future link to Health Issues & ICD 10

Additional features: Pneumonia order set.

Test_Orm
 3N-N359-A
 Allergies: No Known

302750 / 0001553106 50y (Apr-04-1967) Male

Test_Orm
 3N-N359-A
 Allergies: No Known Allergies

302750 / 0001553106 50y (Apr-04-1967) Male

Requested By: Me
 Date: _____
 Session: _____
 Type: Standard
 Manual Entry

MED Pneumonia, Adult [5 orders of 198 are selected]

***** ANTIBIOTICS - ADMINISTER ANTIBIOTICS WITHIN 4 HOURS AFTER ADMISSION.

ANTIBIOTICS IN EACH OF THE BOXES BELOW ARE RECOMMENDED BY THE JOINT COMMISSION AND SHOULD BE ORDERED TOGETHER.

**** LUNG - NON-ICU

LUNG-NON-ICU (Community Acquired)

- Azithromycin inj (- 500 mg IVPB QDAY)
- Ceftriaxone inj (- 1 gm IVPB QDAY)

PCN/CEPHALOSPORIN allergy

- Moxifloxacin tab (- 400 mg PO Q24H)
- Moxifloxacin inj (- 400 mg IVPB Q24H)

**** LUNG - ICU

LUNG-ICU (Community Acquired)

- Azithromycin inj (- 500 mg IVPB QDAY)
- Ceftriaxone inj (- 1 gm IVPB QDAY)
- Vancomycin Pharmacy to dose (- MRSA risk/ceftriaxone-resist. S.pneumo)

PCN/CEPHALOSPORIN allergy_

- Aztreonam inj (- 1 gm IVPB Q8H)
- Moxifloxacin inj (- 400 mg IVPB Q24H)
- Vancomycin Pharmacy to dose (- MRSA risk/ceftriaxone-resist. S.pneumo)

**** LUNG - HOSPITAL ACQUIR. VENT/HEALTH CARE ASSOC

LUNG-(Hoap/SNF Acq; Vent Assoc)

- Piperacillin-Tazobactam inj extended infusion (- 3.375 gm IVPB Q8H)
- Tobramycin Pharmacy to dose
- Vancomycin Pharmacy to dose

PCN/CEPHALOSPORIN allergy_

- Aztreonam inj (- 2 gm IVPB Q8H)
- Tobramycin Pharmacy to dose
- Vancomycin Pharmacy to dose

**** LUNG - PSEUDOMONAS RISK

LUNG-PSEUDOMONAS (Community Acquired)

- Azithromycin inj (- 500 mg IVPB QDAY)
- Piperacillin-Tazobactam inj extended infusion (- 3.375 gm IVPB Q8H)
- Tobramycin Pharmacy to dose

PCN/CEPHALOSPORIN allergy_

- Aztreonam inj (- 2 gm IVPB Q8H)
- Moxifloxacin inj (- 400 mg IVPB Q24H)
- Tobramycin Pharmacy to dose

**** LUNG - ASPIRATION PNEUMONIA

ASPIRATION PNEUMONIA

- Ceftriaxone inj (- 1 gm IVPB QDAY)
- Clindamycin inj (- 600 mg IVPB Q8H)

PCN/CEPHALOSPORIN allergy_

- Aztreonam inj (- 2 gm IVPB Q8H)
- Clindamycin inj (- 600 mg IVPB Q8H)

***** END ANTIBIOTIC SECTION

Drug Info


OK Cancel

Additional features: Sepsis order set.

Date: Time:

Session
Type: Reason:

Manual Entry Searching for ...

Order	Cost
 Sepsis (MED Severe Sepsis / Septic Shock)	

Additional features: Sepsis order set.

MED Severe Sepsis / Septic Shock [30 orders of 372 are selected]

To Be Completed within 3 hours
 The goal is to perform all indicated tasks 100% of the time within the first 3 hours of identification of severe sepsis.
 THE TASKS ARE:
 1. Measure Lactate level
 2. Obtain blood cultures prior to antibiotic administration
 3. Administer a broad-spectrum antibiotic within 1 hour
 4. Administer 30 mL/kg of crystalloid for hypotension or lactate > or = 4

To Be Completed within 6 hours
 Efforts to accomplish these goals should begin immediately but items may be completed within 6 hrs of presentation for pts with severe sepsis or septic shock
 1. Start vasopressors if unresponsive to IV fluids to keep MAP > or = 65 mmHg
 2. If persistent hypotension despite IV fluids or lactate > or = 4:
 --- Measure CVP or perform ultrasound of IVC
 --- Measure ScvO2
 3. Remeasure lactate if initial lactate was elevated

ADMIT TO

Order	Patient Status Upon Admission	Level of Care
<input checked="" type="checkbox"/> Admit to	Inpatient	Reasonable expectation, Critical Care

DIAGNOSIS

Sepsis Severe Sepsis Severe Sepsis with septic shock Severe Sepsis with Acute Organ Dysfunction

Additional diagnosis details

CODE STATUS

Code Status

CONSULTATIONS (TYPE IN NAME)

Order	Physicians called
<input checked="" type="checkbox"/> Physician(s) consult called: (Pulmonologist Intensivist)	*
<input type="checkbox"/> Physician(s) consult called: (- Infectious Disease)	

GOALS WITHIN 1st 6 HOURS

Nursing [Frequency:] Target hemodynamic goals:
 1. Maintain CVP 8 - 12 mmHg
 2. Maintain MAP >=/= 65 mmHG, SBP >=/= 90 mmHG
 3. Maintain central venous oxygen saturation (ScvO2) >=/= 70%, or mixed venous oxygen saturation (SvO2) >=/= 65%
 4. Maintain urine output >=/= 0.5 mL/kg/hr

Notify MD [Frequency:]
 1. Central Venous Pressure is <8 mmHg or >15 mmHg
 2. SBP < 90 or MAP < 65
 3. Hemoglobin < 7 g/dL
 4. Central venous O2 saturation (ScvO2) < 70%, or mixed venous O2 saturation (SvO2) < 65%
 5. O2 saturation < 92% or inspiratory plateau pressure (IPP) > 30cm H2O for mechanically ventilated patients
 6. Lactate level of > 4 mmol/L

EARLY GOALS 1ST 6 HOURS

Additional features: Sepsis order set.

MED Severe Sepsis / Septic Shock [30 orders of 372 are selected]

ANTIBIOTICS IN EACH OF THE BOXES BELOW ARE RECOMMENDED AND SHOULD BE ORDERED TOGETHER

***** ANTIBIOTICS - KNOWN SOURCE OF INFECTION

***** INTRA ABDOMINAL

INTRA-ABDOMINAL (Community Acquired)

Ceftriaxone inj (- 1 gm IVPB QDAY)

metRONIDAZOLE inj (- 500 mg IVPB Q8H)

Piperacillin-Tazobactam inj extended infusion (- 3.375 gm IVPB Q8H)

if PCN/CEPHALOSPORIN allergy..

Aztreonam inj (- 1 gm IVPB Q8H)

metRONIDAZOLE inj (- 500 mg IVPB Q8H)

***** LUNG - COMMUNITY ACQUIRED

LUNG-ICU (Community Acquired)

Ceftriaxone inj (- 1 gm IVPB QDAY)

Piperacillin-Tazobactam inj extended infusion (- 3.375 gm IVPB Q8H)

Azithromycin inj (- 500 mg IVPB QDAY)

Vancomycin Pharmacy to dose (- MRSA risk/ceftriaxone-resist. S.pneumo)

if PCN/CEPHALOSPORIN allergy..

Aztreonam inj (- 1 gm IVPB Q8H)

Moxifloxacin inj (- 400 mg IVPB Q24H)

Vancomycin Pharmacy to dose (- MRSA risk/ceftriaxone-resist. S.pneumo)

***** LUNG - PSEUDOMONAS RISK

LUNG-PSEUDOMONAS (Community Acquired)

Azithromycin inj (- 500 mg IVPB QDAY)

Piperacillin-Tazobactam inj extended infusion (- 3.375 gm IVPB Q8H)

Tobramycin Pharmacy to dose

if PCN/CEPHALOSPORIN allergy..

Aztreonam inj (- 2 gm IVPB Q8H)

Moxifloxacin inj (- 400 mg IVPB Q24H)

Tobramycin Pharmacy to dose

***** SKIN/SOFT TISSUE (Mild = Non-limb threatening; Severe = Limb-threatening, chronic diabetic foot)

SKIN/SOFT TISSUE (Mild)

Piperacillin-Tazobactam inj extended infusion (- 3.375 gm IVPB Q8H)

Vancomycin Pharmacy to dose

if PCN/CEPHALOSPORIN allergy..

INTRA-ABDOMINAL (Hosp/SNF Acquired)

Piperacillin-Tazobactam inj extended infusion (- 3.375 gm IVPB Q8H)

if PCN/CEPHALOSPORIN allergy..

Aztreonam inj (- 1 gm IVPB Q8H)

metRONIDAZOLE inj (- 500 mg IVPB Q8H)

Vancomycin Pharmacy to dose

***** LUNG - HOSPITAL ACQUIR, VENT/HEALTH CARE ASSOC

LUNG-(Hosp/SNF Acq; Vent Assoc)

Piperacillin-Tazobactam inj extended infusion (- 3.375 gm IVPB Q8H)

Tobramycin Pharmacy to dose

Vancomycin Pharmacy to dose

if PCN/CEPHALOSPORIN allergy..

Aztreonam inj (- 2 gm IVPB Q8H)

Tobramycin Pharmacy to dose

Vancomycin Pharmacy to dose

***** LUNG - ASPIRATION PNEUMONIA

ASPIRATION PNEUMONIA

Ceftriaxone inj (- 1 gm IVPB QDAY)

Clindamycin inj (- 600 mg IVPB Q8H)

Piperacillin-Tazobactam inj extended infusion (- 3.375 gm IVPB Q8H)

if PCN/CEPHALOSPORIN allergy..

Aztreonam inj (- 2 gm IVPB Q8H)

Clindamycin inj (- 600 mg IVPB Q8H)

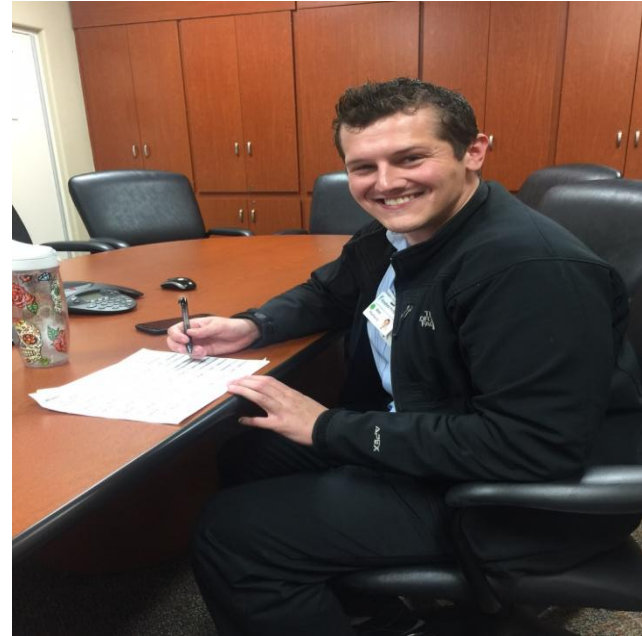
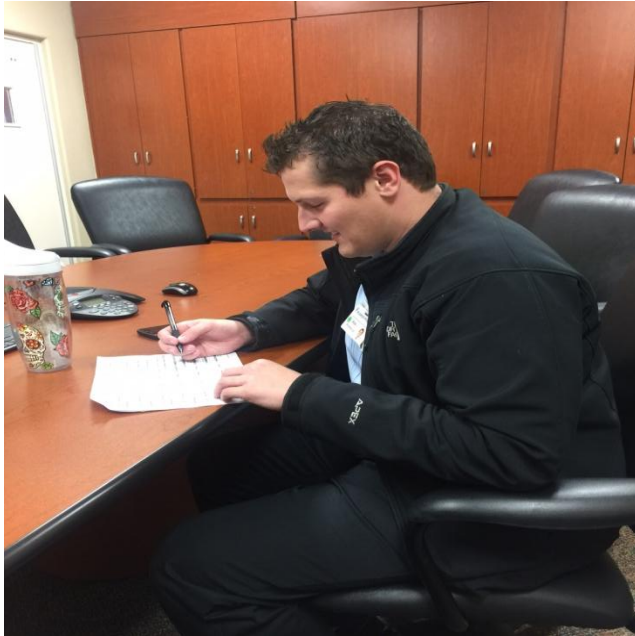
SKIN/SOFT TISSUE (Severe)

Piperacillin-Tazobactam inj extended infusion (- 3.375 gm IVPB Q8H)

Vancomycin Pharmacy to dose

if PCN/CEPHALOSPORIN allergy..

ASP pharmacists processes prior to implementation



METHODIST HOSPITAL **Miscellaneous Antibiotics**

Unit	Patient Name	MRN	Room	Drug Dose	Start Date	Admit Date	User
3N	[REDACTED]	067884	3N-N360-A	Ceftriaxone inj [ROCEPHIN] 1 gm IVPB QDAY Indication: Infection	10/26/2016 12:03:00 PM	10/26/2016 3:34:45 AM	Nguyen, Julian
	[REDACTED]	698849	3N-N374-A	Azithromycin inj [ZITHROMAX] 500 mg IVPB QDAY	10/24/2016 6:53:51 AM	10/24/2016 2:17:00 AM	Iqbal, Muhammad
	[REDACTED]	049630	3N-N378-A	Azithromycin inj [ZITHROMAX] 500 mg IVPB QDAY	10/24/2016 10:19:00 PM	10/20/2016 11:37:00 PM	Weng, Josh
	[REDACTED]	712879	3N-N355-A	Ceftriaxone inj [ROCEPHIN] 1 gm IVPB QDAY Indication: Infection	10/24/2016 11:23:00 AM	10/22/2016 6:30:00 PM	Huang, Phyu Phyu
	[REDACTED]	712726	3N-N378-B	Ceftriaxone inj [ROCEPHIN] 1 gm IVPB <User Schedule> (every 1 day: 18:00), Stop after 7 Doses Indication: Infection	10/22/2016 6:01:00 PM	10/19/2016 5:24:00 AM	Chang, Elisa
	[REDACTED]	530447	3N-N373-B	Ceftriaxone inj [ROCEPHIN] 1 gm IVPB <User Schedule> (every 1 day: 23:00) Indication: Infection	10/26/2016 10:08:00 PM	10/26/2016 11:21:01 AM	Wei, Hongsheng

ASP pharmacists processes prior to implementation

- Up to 6 different lists.
- 1 – 8 pages each

ASP pharmacists processes prior to implementation

METHODIST HOSPITAL **Miscellaneous Antibiotics**

Unit	Patient Name	MRN	Room	Drug Dose	Start Date	Admit Date	User
3N	██████	067884	3N-N360-A	Ceftriaxone inj [ROCEPHIN] 1 gm IVPB QDAY Indication: Infection	10/26/2016 12:03:00 PM	10/26/2016 3:34:45 AM	Nguyen, Julian
	██████	698849	3N-N374-A	Azithromycin inj [ZITHROMAX] 500 mg IVPB QDAY	10/24/2016 6:53:51 AM	10/24/2016 2:17:00 AM	Iqbal, Muhammad
	██████	049630	3N-N378-A	Azithromycin inj [ZITHROMAX] 500 mg IVPB QDAY	10/24/2016 10:19:00 PM	10/20/2016 11:37:00 PM	Weng, Josh
	██████	712879	3N-N355-A	Ceftriaxone inj [ROCEPHIN] 1 gm IVPB QDAY Indication: Infection	10/24/2016 11:23:00 AM	10/22/2016 6:30:00 PM	Huang, Phyu Phyu
	██████	712726	3N-N378-B	Ceftriaxone inj [ROCEPHIN] 1 gm IVPB <User Schedule> (every 1 day: 18:00) Stop after 7 Doses Indication: Infection	10/22/2016 6:01:00 PM	10/19/2016 5:24:00 AM	Chang, Elisa
	██████	530447	3N-N373-B	Ceftriaxone inj [ROCEPHIN] 1 gm IVPB <User Schedule> (every 1 day: 23:00) Indication: Infection	10/26/2016 10:08:00 PM	10/26/2016 11:21:01 AM	Wei, Hongsheng

METHODIST HOSPITAL **Broad Spectrum Antibiotics**

Unit	Patient Name	MRN	Room	Drug Dose	Start Date	Admit Date	User
3N	A ██████	712982	3N-N375-B	Piperacillin-Tazobactam inj extended infusion [ZOSYN] 3.375 gm IVPB Q8H	10/27/2016 12:00:00 PM	10/24/2016 6:03:00 PM	Kim, Karen Eugin
	██████	031722	3N-N371-B	Piperacillin-Tazobactam inj extended infusion [ZOSYN] 3.375 gm IVPB Q8H Indication: Infection	10/27/2016 8:00:00 AM	10/27/2016 1:23:00 AM	Chen, Pai-Hsiang
	██████	303380	3N-N362-A	Aztreonam inj [AZACTAM] 1 gm IVPB Q8H	10/26/2016 9:17:00 PM	10/26/2016 3:30:35 PM	Davis, Hugh
	██████	032214	3N-N366-A	Cefepime inj [MAXIPIME] 1 gm IVPB Q24H	10/25/2016 12:00:00 AM	10/22/2016 7:32:43 AM	Truong, Edward
	██████	712938	3N-N377-B	Piperacillin-Tazobactam inj extended infusion [ZOSYN] 3.375 gm IVPB Q8H Indication: Infection	10/24/2016 12:00:00 AM	10/23/2016 6:57:00 PM	Khan, Fauzia
	██████	712999	3N-N372-B	Piperacillin-Tazobactam inj extended infusion [ZOSYN] 3.375 gm IVPB Q8H Indication: Infection	10/26/2016 4:00:00 PM	10/24/2016 9:22:00 PM	Lee, Arlene

ASP pharmacist processes slide 1

File Registration Pharmacy View GoTo Actions Preferences Tools

Previous Next Refresh Find Find Enter Enter More Header Allergies Health Worklist Task Flowsheet Print Historical Outpatient Order Prescription Micromedex NeoFax
Patient Patient Screen Patient Visit Order Document Info Summary Issues Manager Viewer Manager Reports Record Medication Review Reconciliation Writer

No patient visit selected.

Patient List Orders Results Patient info Documents Flowsheets Clinical Summary Active Meds

Current List: 1 ANTIBIOTIC 48

Select All Patients 49 Visit(s) Save Selected Patients...

SIRS	Cu	Loc	Birthdate	Provider	Hospitalist	Admit Date	Visit Reason	Msg For Pharm	Health Issue Type
		1 DAY 7 ANTIBIOTICS	Feb-27-1953	AHMG, GROUP	Dr Yong 8314	Jun-02-...	LEFT ARM/BILATERAL L...		AntimicrobialAS
		1 MULTIPLE ANTIBIOTICS	Apr-26-1949	Garza, Ana Ma...		Jun-01-2...	RECTAL CA		AntimicrobialAS
		1 Tower	Sep-21-1938	AHMG, GROUP	Dr Yong 8314	May-25-...	FREQUENT FALLS.....		AntimicrobialAS
		2 Tower	Sep-27-1941	Pradhan, Ben		Jun-05-2...	LUMBAR SPINAL STEN...		AntimicrobialAS
		3 North	Jan-04-1934	Schlaerth, Alan		May-18-...	OVARIAN CA		AntimicrobialAS
		4 North	Oct-01-1921	Chen, Pai-Hsia...		Jun-03-2...	WEAKNESS , ABDOMIN...		AntimicrobialAS
		5 Tower	May-05-1956	AHMG, GROUP	Dr Chiang 8302	May-09-...	STROKE INFARCTION; R...		AntimicrobialAS
		5 Tower	Oct-03-1953	AHMG, GROUP	Dr Yong 8314	May-31-...	CHEMICAL FACE BURN		AntimicrobialAS
		Atia Shah	Nov-25-1953	AHMG, GROUP	Arlene 8306 / Dr C...	Jun-03-2...	BACTEREMIA, SEPSIS, P...		AntimicrobialAS
		C1 Rx Dosing	Jun-07-1956	AHMG, GROUP	Arlene 8306 / Dr C...	Jun-04-2...	ABDOMINAL PAIN, CHE...		AntimicrobialAS
		C2 Rx Dosing	Oct-21-1945	Gazarian, Levon		May-31-...	COPD,EXACERBATION, P...		AntimicrobialAS
		C3 Rx Dosing	Sep-05-1946	Antosz, Vincent		Jun-03-2...	COLITIS		AntimicrobialAS
		70y Male	Nov-10-1930	AHMG, GROUP	Dr Yong 8314	May-31-...	SEPSIS, PNA		AntimicrobialAS
		75y Female	Dec-03-1941	Wogensen, Ke...	peter chi	May-25-...	DEBILITY ILEOSTOMY R...		AntimicrobialAS
		103y Female	Aug-09-1913	Chwa, Eric		May-27-...	PNEUMONIA, HYPOXIA,...		AntimicrobialAS
		83y Female	Jul-10-1933	Wang, Lynn		Jun-02-2...	SEPSIS,PNA,PELVIC MA...		AntimicrobialAS
		59y Male	Dec-26-1957	AHMG, GROUP	Dr Yong 8314	Jun-04-2...	PNA,HYPOXEMIA,METH...		AntimicrobialAS
		89y Female	Sep-14-1927	Liu, Dennis		May-13-...	CHF; HYPOXIA; LLL PNE...		AntimicrobialAS
		91y Male	Oct-08-1925	Chi, Peter		Jun-05-2...	LEFT LOWER PNA		AntimicrobialAS
		78y Male	May-30-1939	AHMG, GROUP	Dr Yong 8314/ Arle...	Jun-05-2...	SEPSIS, METS TO COLO...		AntimicrobialAS
		82y Male	May-06-1935	Mahmood, Asif		Jun-02-2...	COUGH.....		AntimicrobialAS
		84y Female	Aug-16-1932	Ho, Glenn		Jun-01-2...	PYELONEPHRITIS R/O S...		AntimicrobialAS
		52y Female	Nov-27-1964	Chen, Pai-Hsia...		Jun-05-2...	PNEUMONIA		AntimicrobialAS
		89y Female	Jul-27-1927	Gill, Sukhpal		Jun-05-2...	HYPERKALEMIA		AntimicrobialAS
		76y Male	Aug-09-1940	Bhasin, Nitin		Jun-02-2...	FEVER.....		AntimicrobialAS

ASP pharmacists processes slide 2

4N-N451-A 402520 / 00204045
 Admit Date: May-27-2017 Isolation: MRSA NARES Isolation Level: Ht: 60.984 in Wt: kg 0 Chwa, Eric
 Allergies: PCN Intolerances:

Patient List Orders Results Patient Info Documents Flowsheets Clinical Summary Active Meds

Current List: 1 ANTIBIOTIC 48 Select All Patients 49 Visit(s) Save Selected Patients...

SIRS	Current Location	Patient Name	Age	Gender	Birthdate	Provider	Hospitalist	Admit Date	Visit Reason	Msg For Pharm	Health Issue Type
	2T-218-A		64y	Female	Feb-27-1953	AHMG, GROUP	Dr Yong 8314	Jun-02-2...	LEFT ARM/BILATERAL L...		AntimicrobialAS
	2T-220-A		68y	Female	Apr-26-1949	Garza, Ana Ma...		Jun-01-2...	RECTAL CA		AntimicrobialAS
	2T-222-A		78y	Male	Sep-21-1938	AHMG, GROUP	Dr Yong 8314	May-25-...	FREQUENT FALLS.....		AntimicrobialAS
	2T-242-A		75y	Male	Sep-27-1941	Pradhan, Ben		Jun-05-2...	LUMBAR SPINAL STEN...		AntimicrobialAS
	2T-243-B		83y	Female	Jan-04-1934	Schlaerth, Alan		May-18-...	OVARIAN CA		AntimicrobialAS
	3N-N355-A		95y	Female	Oct-01-1921	Chen, Pai-Hsia...		Jun-03-2...	WEAKNESS , ABDOMIN...		AntimicrobialAS
	3N-N356-A		61y	Male	May-05-1956	AHMG, GROUP	Dr Chiang 8302	May-09-...	STROKE INFARCTION; R...		AntimicrobialAS
	3N-N357-A		63y	Female	Oct-03-1953	AHMG, GROUP	Dr Yong 8314	May-31-...	CHEMICAL FACE BURN		AntimicrobialAS
	3N-N363-A		63y	Male	Nov-25-1953	AHMG, GROUP	Arlene 8306 / Dr C...	Jun-03-2...	BACTEREMIA, SEPSIS, P...		AntimicrobialAS
	3N-N365-A		61y	Female	Jun-07-1956	AHMG, GROUP	Arlene 8306 / Dr C...	Jun-04-2...	ABDOMINAL PAIN, CHE...		AntimicrobialAS
	3N-N367-A		71y	Male	Oct-21-1945	Gazarian, Levon		May-31-...	COPD,EXACERBATION,P...		AntimicrobialAS
	3N-N372-B		70y	Male	Sep-05-1946	Antosz, Vincent		Jun-03-2...	COLITIS		AntimicrobialAS
	3N-N377-B		86y	Male	Nov-10-1930	AHMG, GROUP	Dr Yong 8314	May-31-...	SEPSIS, PNA		AntimicrobialAS
	3T-320-B		75y	Female	Dec-03-1941	Wogensen, Ke...	peter chi	May-25-...	DEBILITY ILEOSTOMY R...		AntimicrobialAS
	4N-N451-A		103y	Female	Aug-09-1913	Chwa, Eric		May-27-...	PNEUMONIA, HYPOXIA,...		AntimicrobialAS
	4N-N453-A		83y	Female	Jul-10-1933	Wang, Lynn		Jun-02-2...	SEPSIS;PNA;PELVIC MA...		AntimicrobialAS
	4N-N464-A		59y	Male	Dec-26-1957	AHMG, GROUP	Dr Yong 8314	Jun-04-2...	PNA,HYPOXEMIA,METH...		AntimicrobialAS
	4N-N465-A		89y	Female	Sep-14-1927	Liu, Dennis		May-13-...	CHF; HYPOXIA; LLL PNE...		AntimicrobialAS

ASP pharmacists processes slide 3

- ..Antibiotics order view

CCC-CC38-A
Admit Date: Jun-10-2017 Isolation: Isolation Level: Ht: 75.984 in Wt: 99 kg (Jun-19-2017) BMI: 26.6 Shah, Krit
Allergies: Flagyl, lorazepam, penicillin, vancomycin, Coconut, Peanuts, Seafood Intolerances:
GMLOS (days): Code Status: FULL CODE Visit Reason: ALTERED MVP: NIHS=

Options Panel
Chart Selection
Date Range
Filters
Status/Priority: No Status/Priority Filter
Order Selection: Anti-Infective Medications
Department: No Department Filter
Rx Verified: All
Display Styles
Group/Sort Orders by: Department and Order Name

Order Summary
Pharmacy - IVPBs

Order	Order Date	Status	Stop Date
Aztreonam inj - [AZACTAM] 2 gm IVPB once Indication: Pneumonia (Hospital-Acquired, Ventilator Associated, or Health-Care Associated) Requested by: burke, James (MD)	Jun-10-2017 17:04	Completed	Jun-10-2017 18:12
Cefepime inj - [MAXIPIME] 1 gm IVPB Q24H Indication: Pneumonia Requested by: Philip, Rajiv (MD)	Jun-10-2017 21:27	Discontinued	Jun-12-2017 08:18
Cefepime inj - [MAXIPIME] 1 gm IVPB Q12H Prescriber Instructions: Original start 6/10 Indication: Pneumonia Requested by: Philip, Rajiv (MD); Entered by: Lei, Tina Tin (Pharmacist)	Jun-12-2017	Discontinued	Jun-13-2017 15:28
Fluconazole inj - [DIFLUCAN] 100 mg IVPB <User Schedule> (every 1 day 14:00) Indication: Yeast in the lungs/PNA Requested by: Philip, Rajiv (MD)	Jun-13-2017	Discontinued	Jun-13-2017 15:28
Fluconazole inj - [DIFLUCAN] 300 mg IVPB once Prescriber Instructions: ADDITIONAL DOSE FOR TOTAL (100MG PREVIOUSLY +300MG NOW) = 400MG TODAY Indication: sepsis Requested by: Jiang, Hua (MD); Entered by: Vu, Linda (Pharmacist)	Jun-13-2017 17:00	Completed	Jun-13-2017 16:37
Fluconazole inj - [DIFLUCAN] 400 mg IVPB <User Schedule> (every 1 day 17:00) Prescriber Instructions: STARTED 6/13/17 Indication: sepsis Requested by: Jiang, Hua (MD)	Jun-14-2017	Active	Jun-20-2017
Meropenem inj - [MERREM] 1 gm IVPB <User Schedule> (every 1 day 04:00 16:00) Indication: Intra-abdominal Infection; Pneumonia Requested by: Jiang, Hua (MD)	Jun-13-2017	Active	Jun-20-2017
Tobramycin inj - [NEBCIN] 180 mg IVPB once Indication: Pneumonia Requested by: Burke, James (MD); Entered by: Chiaramonte, Candice (Pharmacist)	Jun-10-2017 17:32	Completed	Jun-10-2017 18:44
Tobramycin Pharmacy to dose - Prescriber Instructions: **ER ORDER, RE-ORDER ON ADMISSION, IF APPROPRIATE** Administration Instructions: Indication(s): Pneumonia (Hospital-Acquired, Ventilator Associated, or Health-Care Associated) Requested by: Burke, James (MD)	Jun-10-2017 17:04	Discontinued	Jun-10-2017 21:12

IT-00-01-D [Local] (8.2.450.7106) vpscmhc Ratto, David (MD) 06/19/2017 09:18 000:

ASP pharmacists processes slide 4

View: Pharmacy Antibiotic Stewardship | 1 week | Sep-14-2017 10:42 To Sep-21-2017 10:42

Antibiotics Administered Start of Chart Sep-14-2017 10:42 To Sep-21-2017 10:42

Antibiotics Administered

Sep-21-2017 Ciprofloxacin inj(1 dose(s)):
 Sep-20-2017 Cefepime inj(1 dose(s)): Ciprofloxacin inj(2 dose(s)):
 Sep-19-2017 Cefepime inj(1 dose(s)): Ciprofloxacin inj(2 dose(s)):
 Sep-18-2017 Cefepime inj(1 dose(s)):

Current Health Issues Start of Chart To Sep-21-2017 10:42

Health Issue	Onset Date	Provider Name	Role	Admit Date	Diagnosis	Type/Care Level
Geometric LOS		Chien, Oscar (MD)	Admitting	Sep-05-2017 16:35	ACUTE VDRF	Inpatient/Medical Care
20.1		Chien, Oscar (MD)	Attending	Jan-01-2016 18:54	HYPOTENSIVE; ALOC; HYPOTHERMIA...	Inpatient/Medical Care
Admit Reason		Shen, Ted (MD)	Ordered	Sep-30-2015 09:00	ABDOMINAL PAIN, INFECTED G-TUBE...	Inpatient/Medical Care
ACUTE VDRF		Yamada, Alan (MD)	Ordered	Aug-08-2015 20:42	RESPIRATORY...	Inpatient/Medical Care

CBC Last 5

Result Name	Sep-16-2017 06:13	Sep-16-2017 07:46	Sep-17-2017 06:39	Sep-19-2017 10:55	Sep-21-2017 07:08
White Blood Count	10.5		11.1 (H)	8.8	5.2
Hemoglobin	11.7 (L)		11.2 (L)	10.0 (L)	10.8 (L)
Hematocrit	33.8 (L)		32.7 (L)	30.0 (L)	31.8 (L)
Platelet Count	218		241	270	281
% Bands		23.0			
% Basophils		0.0	0.4	0.8	0.7
% Eosinophils		1.0	0.4	2.4	2.3
% Lymphocytes		5.0	13.2	20.8	23.2
% Monocytes		3.0	10.2	14.1	13.3

BMP/CMP Last 5

Result Name	Sep-14-2017 09:34	Sep-15-2017 06:05	Sep-16-2017 06:23	Sep-19-2017 05:29	Sep-20-2017 05:15
Sodium	139	137	142	139	139
Potassium Levels	2.6 (LL)	4.1	4.1	3.5	3.9
BUN	14	11	15	34 (H)	32 (H)
Creatinine	0.9	2.6 (LL)	0.9	1.3 (H)	1.1
Glucose	95	81	105 (H)	105 (H)	84
A/GM					
Albumin					
Alkaline Phosphatase					
ALT					

Culture Results -ReportByOrder Start of Chart To Sep-21-2017 10:42

Result	Order Name	Value	Abn	Result Date	Text
Exam	Culture, Respiratory		N	Sep-18-2017 14:40	GRAM STAIN SMEAR
Comment			N		Rare -...
	Blood Culture			Sep-18-2017 11:01	
Comment			N		No growth after...
	Blood Culture			Sep-18-2017 10:57	
Comment			N		No growth after...
	MRSA Screening (PCR)			Sep-18-2017 05:00	
Comment			N		MRSA DNA NOT...
	Culture, Respiratory			Sep-18-2017 05:00	
Exam			N		GRAM STAIN SMEAR
Organism			N		Alcaligenes...
Comment			N		Rare
	Culture, Respiratory			Sep-18-2017 05:00	
Exam			N		GRAM STAIN SMEAR
Organism			N		Alcaligenes xylosoxidans...
Comment			N		Rare
	Culture, Urine			Sep-15-2017 03:20	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-15-2017 03:20	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
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	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
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	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
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	Culture, Urine			Sep-06-2017 10:11	
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Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
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	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
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	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
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	Culture, Urine			Sep-06-2017 10:11	
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	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
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Exam			N		CL DIFFICILE A/B
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	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
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	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...
	Culture, Urine			Sep-06-2017 10:11	
Exam			N		CL DIFFICILE A/B
Comment			N		Insignificant colony...

ASP pharmacists processes slide 5

View Pharmacy Antibiotic Stewardship | 1 week | Jun-01-2017 12:41 To Jun-08-2017 12:41

All Lab Results - ReportByOrder

Result	Value	Range	Result Date
Sodium	126	[135-145 mmol/L]	Jun-08-2017 05:31
Potassium Levels	3.7	[3.5-5.5 mmol/L]	
Chloride Levels	91	[98-108 mmol/L]	
Bicarbonate	28.0	[24.0-34.0 mmol/L]	
Glucose	86	[70-99 mg/dL]	
BUN	32	[8-20 mg/dL]	
Creatinine	0.9	[0.5-1.2 mg/dL]	
Calcium Levels	8.7	[8.4-10.2 mg/dL]	
GFR Non African...	57.14	[>60.0...]	
GFR African-American	69.14	[>60.0...]	
Magnesium Levels	2.1	[1.6-2.6 mg/dL]	Jun-08-2017 05:31
Sedimentation Rate	28	[0-15 mm/hr]	Jun-08-2017 05:31
White Blood Count	14.0	[4.8-10.6 TH/cmm]	Jun-08-2017 05:31

PO Diet Jun-06-2017 12:41 To Jun-08-2017 12:41

Item Info	Value	Authorized	Entered By	Entered On	Reball	Last Update
Diet/Nut...	dysph...	Jun-08...	Seong, Song (RN)	Jun-08...		
Intake (%)	25%	Jun-06...	Santos...	Jun-06...		

Temperature Jun-05-2017 12:41 To Jun-08-2017 12:41

Date/Time	Temperature (F)
6-Jun-17 0:00	98.0
6-Jun-17 2:00	98.0
6-Jun-17 4:00	98.0
6-Jun-17 6:00	98.0
6-Jun-17 8:00	98.0
6-Jun-17 10:00	98.0
6-Jun-17 12:00	98.0
6-Jun-17 14:00	98.0
6-Jun-17 16:00	98.0
6-Jun-17 18:00	98.0
6-Jun-17 20:00	98.0
7-Jun-17 0:00	98.0
7-Jun-17 2:00	98.0
7-Jun-17 4:00	98.0
7-Jun-17 6:00	98.0
7-Jun-17 8:00	98.0
7-Jun-17 10:00	98.0
7-Jun-17 12:00	98.0
7-Jun-17 14:00	98.0
7-Jun-17 16:00	98.0
7-Jun-17 18:00	98.0
7-Jun-17 20:00	98.0
8-Jun-17 0:00	98.6
8-Jun-17 2:00	98.6

HR, BP, and Respirations Jun-07-2017 12:41 To Jun-08-2017 12:41

Date/Time	Heart Rate	Systolic Blood Pressure	Diastolic Blood Pressure	Respiratory
7-Jun-17 18:00	85	144	45	18
7-Jun-17 19:48	85	144	45	18
7-Jun-17 20:00	85	144	45	18

Culture Results - ReportByOrder Start of Chart To Jun-08-2017 12:41

Result	Order Name	Value	Abn	Result Date	Text
Comment	MRSA Culture		N	Jun-05-2017 06:00	No growth of methicillin...
Comment	MRSA Culture		N	May-29-2017 12:00	No growth of methicillin...
Strep Pneumo, Urine	Strep Pneumo, Urine	NEGATIVE	N	May-27-2017 18:25	
Legionella Antigen, Urine	Legionella Antigen, Urine	NEGATIVE	N	May-27-2017 18:25	
Blood Culture	Blood Culture		N	May-27-2017 16:55	No growth in five days.
Blood Culture	Blood Culture		N	May-27-2017 16:45	No growth in five days.

All Current Orders Jun-07-2017 12:41 To Jun-08-2017 12:41

Order	Category	Significant Date	Status
Ensure Enlive Supplement Various Flavors With...	Diet	Jun-03-2017 13:05	Active
Prosource Liquid Protein 15gm per packet QDAV...	Diet	Jun-03-2017 13:04	Active
Dysphagia (Pureed with Honey Thick Liquids)	Diet	Jun-01-2017 12:02	Active
Ensure Pudding Various Flavors With Meals, TID	Diet	May-31-2017 10:04	Active
ED Disposition , Discharge Time: 18:48, Discharge...	Informational	May-27-2017 20:23	Active
Code Status DNR, Do Not Resuscitate (No CPR)	Nursing	Jun-02-2017 13:23	Active
Pressure Ulcer Care Stage I Coccyx	Nursing	May-30-2017 11:02	Active
Rx Intervention Other Med Clarification - Dose	Pharmacy - Interventions	Jun-06-2017 10:27	Active
Rx Intervention Other Med Change - Renal dose...	Pharmacy - Interventions	Jun-02-2017 11:23	Active
Rx Intervention Antibiotic - Zosyn Med Addition ...	Pharmacy - Interventions	May-28-2017 15:16	Active
Rx Intervention Other Med Screening - Home...	Pharmacy - Interventions	May-27-2017 19:46	Active
Vancomycin inj [VANCOCCIN]	Pharmacy - IVPBs	Jun-05-2017 16:00	Active
Vancomycin Pharmacy to dose	Pharmacy - IVPBs	May-30-2017 12:23	Active
Astreanin inj [AZACTAM]	Pharmacy - IVPBs	May-28-2017 15:00	Active
Methylprednisolone Sodium Succinate inj. [SOLU...	Pharmacy - Meds	Jun-07-2017 00:00	Active
Valisartan tab [DIOVAN]	Pharmacy - Meds	Jun-06-2017 14:55	Active
Amoxicillin tab [AMOXICILIN]	Pharmacy - Meds	Jun-03-2017 23:13	Active

ASP pharmacists processes slide 6

Culture Results - ReportByOrder					All Current Orders				
Result	Order Name	Value	Abn	Result Date	Text	Order	Category	SignificantDate	Status
	MRSA Culture			Jun-05-2017 06:00		Ensure Enlive Supplement Various Flavors With...	Diet	Jun-03-2017 13:05	Active
Comment	MRSA Culture		N	May-29-2017 12:00	No growth of methicillin...	Prosource Liquid Protein 15gm per packet QDAY...	Diet	Jun-03-2017 13:04	Active
Comment	MRSA Culture		N	May-29-2017 12:00	No growth of methicillin...	Dysphagia (Pureed with Honey Thick Liquids)	Diet	Jun-01-2017 12:02	Active
Strep Pnemo, Urine	Strep Pnemo, Urine	NEGATIVE	N	May-27-2017 18:25		Ensure Pudding Various Flavors With Meals, TID	Diet	May-31-2017 10:04	Active
Legionella Antigen, Urine	Legionella Antigen, Urine	NEGATIVE	N	May-27-2017 18:25		ED Disposition - Discharge Time: 18:48, Discharge...	Informational	May-27-2017 20:23	Active
Comment	Blood Culture	NEGATIVE	N	May-27-2017 16:55	No growth in five days.	Code Status DNR: Do Not Resuscitate (No CPR)	Nursing	Jun-02-2017 13:23	Active
Comment	Blood Culture	NEGATIVE	N	May-27-2017 16:45	No growth in five days.	Pressure Ulcer Care Stage I Coccyx	Nursing	May-30-2017 11:02	Active
Comment	Blood Culture	NEGATIVE	N	May-27-2017 16:45	No growth in five days.	Rx Intervention Other Med Clarification - Dose	Pharmacy - Interventions	Jun-06-2017 10:27	Active
Comment	Blood Culture	NEGATIVE	N	May-27-2017 16:45	No growth in five days.	Rx Intervention Other Med Change - Renal dose...	Pharmacy - Interventions	Jun-02-2017 11:23	Active
Comment	Blood Culture	NEGATIVE	N	May-27-2017 16:45	No growth in five days.	Rx Intervention Antibiotic - Zosyn Med Addition ...	Pharmacy - Interventions	May-28-2017 19:16	Active
Comment	Blood Culture	NEGATIVE	N	May-27-2017 16:45	No growth in five days.	Rx Intervention Other Med Screening - Home...	Pharmacy - Interventions	May-27-2017 19:46	Active
Comment	Blood Culture	NEGATIVE	N	May-27-2017 16:45	No growth in five days.	Vancocycin inj [VANCOCCIN]	Pharmacy - IVPBs	Jun-05-2017 16:00	Active
Comment	Blood Culture	NEGATIVE	N	May-27-2017 16:45	No growth in five days.	Vancocycin Pharmacy to dose	Pharmacy - IVPBs	May-30-2017 12:23	Active
Comment	Blood Culture	NEGATIVE	N	May-27-2017 16:45	No growth in five days.	Aztreonam inj [AZACTAM]	Pharmacy - IVPBs	May-28-2017 15:00	Active
Comment	Blood Culture	NEGATIVE	N	May-27-2017 16:45	No growth in five days.	Methylprednisolone Sodium Succinate inj. [SOLU...	Pharmacy - Meds	Jun-07-2017 00:00	Active
Comment	Blood Culture	NEGATIVE	N	May-27-2017 16:45	No growth in five days.	Valartan tab [DIOVAN]	Pharmacy - Meds	Jun-06-2017 14:55	Active
Comment	Blood Culture	NEGATIVE	N	May-27-2017 16:45	No growth in five days.	caRVEDILOL tab [COREG]	Pharmacy - Meds	Jun-02-2017 22:13	Active

Current Medications					All X-Ray Results - ReportByOrder				
Medication	Status	Last Given	Stop Date	Result Date	Order Name	Result	Value	Text	
Rx Intervention Other Med Clarification - Dose	Active			Jun-08-2017 07:38	Xray Chest 1 View, AP or PA	Xray Chest 1 View, AP or PA		PROCEDURE: XRAY CHEST...	
Rx Intervention Other Med Change - Renal dose...	Active			Jun-06-2017 07:15	Xray Chest 1 View, AP or PA	Xray Chest 1 View, AP or PA		PROCEDURE: XRAY CHEST...	
Rx Intervention Antibiotic - Zosyn Med Addition ...	Active								
Rx Intervention Other Med Screening - Home...	Active								

MD Documents				Central Line Assessment/Intervention				CPAP/BIPAP/Ventilator									
Document Name	Author	Entered date	Last update date	Item	Item Info	Value	Authorized	Entered By	Entered On Behalf	Last Update	Item	Item Info	Value	Authorized	Entered By	Entered On Behalf	Last Update
Progress Note	Eu, Pang-Chieh Jerry	Jun-08-2017 10:02	Jun-08-2017 10:02	IV Device	[WDL...	WDL	Jun-08-...	Seong, Song (RN)		Jun-08-2017...							
Progress Note	Chwa, Eric	Jun-08-2017 09:11	Jun-08-2017 09:11														
Progress Note	Eu, Pang-Chieh Jerry	Jun-07-2017 14:29	Jun-07-2017 14:29														
Progress Note	Chwa, Eric	Jun-07-2017 12:21	Jun-07-2017 12:21														

ASP pharmacists processes slide 7

View: Pharmacy Antibiotic Stewardship | 1 week | Jun-01-2017 12:41 To Jun-08-2017 12:41

Magnesium Levels	2.1	[1.6-2.6 mg/dL]	Jun-08-2017 05:31
Sedimentation Rate	28	[0-15 mm/hr]	Jun-08-2017 05:31
White Blood Count	14.0	[4.8-10.8 Th/cmm]	Jun-08-2017 05:31

Culture Results - ReportByOrder

Result	Order Name	Value	Abn	Result Date
Comment	MRSA Culture		N	Jun-05-2017 06:00
Comment	MRSA Culture		N	May-29-2017 12:04
Strep Pnemo, Urine	Strep Pnemo, Urine	NEGATIVE	N	May-27-2017 18:22
Legionella Antigen, Urine	Legionella Antigen, Urine	NEGATIVE	N	May-27-2017 18:22
Comment	Blood Culture		N	May-27-2017 16:55
Comment	Blood Culture		N	May-27-2017 16:44

Result Extended Text

PROCEDURE: XRAY CHEST 1 VIEW, AP OR PA
 6/06/2017, 7:15

COMPARISON: Methodist Hospital, DIA, XRAY CHEST 1 VIEW, AP OR PA,
 6/06/2017, 7:15

INDICATIONS: Congestive heart failure; Pneumonia; Pleural effusion

FINDINGS: The heart is enlarged. There is ipsilateral vascular congestive changes with bilateral edema and effusions. The bones are unremarkable in appearance.

CONCLUSION: Pulmonary vascular congestion. Bilateral edema and effusions. No significant change.

OK

Current Medications | Jun-06-2017 12:41 To Jun-08-2017 12:41

Medication	Status	Last Given	Stop Date
Rx Intervention Other Med Clarification - Dose	Active		
Rx Intervention Other Med Change - Renal dose...	Active		
Rx Intervention Antibiotic - Zosyn Med Admition ...	Active		
Rx Intervention Other Med Screening - Home...	Active		

MD Documents | Start of Chart To Jun-08-2017 12:41

Document Name	Author	Entered date	Last update date
Progress Note	Eu, Pang-Chieh Jerry	Jun-08-2017 10:02	Jun-08-2017 10:02
Progress Note	Chwa, Eric	Jun-08-2017 00:11	Jun-08-2017 00:11
Progress Note	Eu, Pang-Chieh Jerry	Jun-07-2017 14:29	Jun-07-2017 14:29
Progress Note	Chwa, Eric	Jun-07-2017 12:21	Jun-07-2017 12:21

All X-Ray Results - ReportByOrder | Jun-06-2017 12:41 To Jun-08-2017 12:41

Result Date	Order Name	Result	Value	Text
Jun-08-2017 07:38	Xray Chest 1 View, AP or PA	Xray Chest 1 View, AP or PA		PROCEDURE: XRAY CHEST...
Jun-06-2017 07:15	Xray Chest 1 View, AP or PA	Xray Chest 1 View, AP or PA		PROCEDURE: XRAY CHEST...

Central Line Assessment/Intervention | Jun-07-2017 12:41 To Jun-08-2017 12:41

Item	Item Info	Value	Authored	Entered By	Entered On Behalf	Last Update
IV Device	[WDL...]	WDL	Jun-08-...	Seong, Song (RN)		Jun-08-2017...

CPAP/BiPAP/Ventilator | Jun-07-2017 12:41 To Jun-08-2017 12:41

Item	Item Info	Value	Authored	Entered By	Entered On Behalf	Last Update

ASP pharmacists processes slide 8

The screenshot displays a medical software interface with a sidebar on the left and a main content area on the right. The sidebar contains several sections: 'View: Pharmacy Antibiotic Stewardship', 'Culture Results - ReportByOrder', 'Current Medications', and 'MD Documents'. The main content area shows a progress note for a patient at Methodist Hospital of Southern California, dated June 07, 2017. The note includes patient demographics, a list of current medications, and a detailed clinical history with subjective and objective findings. At the bottom, there is a 'LABORATORY REPORT' section.

View: Pharmacy Antibiotic Stewardship

Magnesium Levels 2.1 [1.6-2.6 mg/dL]
Sedimentation Rate 28 [0-15 mm/hr]
White Blood Count 14.0 [4.8-10.8 Th/mm³]

Culture Results - ReportByOrder

Result	Order Name
MRSA Culture	MRSA Culture
Comment	MRSA Culture
Comment	MRSA Culture
Strep Pneumo, Urine	Strep Pneumo, Urine
Legionella Antigen, Urine	Legionella Antigen, Urine
Comment	Blood Culture
Comment	Blood Culture

Current Medications

Medication

- Rx Intervention Other Med Clarification - Dose
- Rx Intervention Other Med Change - Renal dose...
- Rx Intervention Antibiotic - Zosyn Med Addition ...
- Rx Intervention Other Med Screening - Home...

MD Documents

Document Name	Author
Progress Note	Eu, Pang-Chi
Progress Note	Chwa, Eric
Progress Note	Eu, Pang-Chi
Progress Note	Chwa, Eric

[Date of Service: Jun-07-2017 10:53, Authored: Jun-07-2017 10:53] Progress Note
[Charted Location: 4N-N451-A]- for Visit: 0020404919. [Signed by: Chwa, Eric
(MD)Jun-08-2017 01:20]; [Entered by: System, Sys (MD) Jun-08-2017 00:11] [Updated by:
System, Sys on Jun-08-2017 00:11] General, Complete, Revised, Signed in Full, General

METHODIST HOSPITAL OF SOUTHERN CALIFORNIA
300 W Huntington Dr * Arcadia CA 91007
626.898.8000 * 626.445.4441
[Report Status = ** FINAL **]

METHODIST HOSPITAL Patient Name: [REDACTED]
300 W Huntington Drive MR#: 402520
ARCADIA, CA, 91007 Unit: 4N N451 A Acct#: 0020404919
Location: MED
PATIENT PROGRESS NOTES
Unit: 4N N451 A
Attending Physician: Eric Chwa
Date of Birth: 08/09/1913
Admission Date: 05/27/2017
Discharge Date:

CC:

DATE OF SERVICE: 06/07/2017

TIME:
1030 hours.

SUBJECTIVE:
Patient is mildly confused and no shortness of breath. Improved
appetite. Bowel movement twice early this morning.

OBJECTIVE:
GENERAL: Patient is awake.
VITAL SIGNS: Temperature 98, heart rate 78 and regular, respiratory
rate 18, blood pressure 128/50 to 150/50.
NECK: No jugular venous distention.
NECK: Supple.
LUNGS: Decreased bibasilar breath sound with left more than right
rales basally.
HEART: S1, S2. Regular rhythm.
ABDOMEN: Soft. No tenderness.
EXTREMITIES: Decreased edema.

LABORATORY REPORT:
Sodium 127, potassium 3.8, chloride 92, bicarb 27, BUN 27, creatinine

JNS | Page: 1 Line: 13 Col: 1

Need Help?

ASP pharmacists processes slide 9

Allergy - Drug: cephalosporins, Morphine Sulfate

Discontinue Health Issue showing - Health Issue Types (All); Status (Active Only); Entered By (All)

Health Issues My Ranked Past Surgical

H	Health Issue	Code	ICD-9	ICD-10	SNOMED CT	Type	Onset Date
-	AntimicrobialAS (1)						
+	Antimicrobial Stewardship Review: ANTIBIOTICS H...					AntimicrobialAS	
-	Complaint_ECLP (1)						
+	LEFT LOWER PNA					Complaint_ECLP	
-	Geometric LOS (1)						
+	4.9					Geometric LOS	
-	Admit Reason (1)						
+	LEFT LOWER PNA					Admit Reason	
-	Admitting Dx (1)						
+	H Shortness Of Breath	R06.02	786.05	R06.02	267036007	Admitting Dx	
-	Working Dx (3)						
+	H Pneumonia, Unspecified Organism	J18.9	486	J18.9	233604007	Working Dx	
+	H Sepsis, Unspecified Organism	A41.9	038.9	A41.9	91302008	Working Dx	
+	H Chronic Respiratory Failure, Unsp W Hypoxia Or H...	J96.10	518.83	J96.10	39871006	Working Dx	
-	Isolation (1)						
+	H MRO/KPC/MRV URINE					Isolation	
-	Code Status (1)						
+	DNR: Do Not Resuscitate (No CPR)					Code Status	

ASP pharmacists processes IV to PO

9 Visit(s)

SIRS	Current Location	Visit Status	Admit Date	Nurse	Provider
	2T-236-A	DSC	Aug-08-...	MICHELLE 8538	Yeh, Shye Ren
	2T-241-A	DSC	Jul-11-2...	MARY 8125	Chieng, An Pang
	3T-321-A	DSC	Aug-04-...	8431 LINDSAY	Liang, Scott
	4T-410-A	DSC	Jul-23-2...	Lynda 8142/Shue	Khan, Fauzia
	4T-424-A	DSC	Jun-15-2...	Madeline 8144/Ana M.	Barnhart, C Rodney
	4T-439-A	DSC	Aug-01-...		Alano MD, Diana
	CCM-CC02-A	DSC	Aug-05-...	TANYA MEECHUKANT/...	Gilani, Durdana
	CCM-CC07-A	DSC	Aug-04-...	MECHELLE	Yue DO, Jimmy
	CCM-CC08-A	DSC	Aug-03-...	BARBARA	Chen, MD, Andy

Current List *ML IV to PO

- Jiang
- Khodadadi
- L&D
- NICU
- Nursery
- OBS
- Outpatient Surgery
- PE - Rehab
- Philip,Rajiv
- Philips
- PW - TCU
- R. Joo
- Surgery
- *ML IV to PO

The little things that we believe that add up

- Limiting number of days of antibiotics.
- Quinolone restrictions.
- Proton pump inhibitor restrictions.
- Handwashing educational campaign and monitoring.
- Foley catheter removal orders.

Improved outcomes

- ASP advanced patient lists/clinical summary:
 - 48 hour timeout: Able to complete **in 4 hours or less**, prior to this unable to complete; 8+ hours Pharmacist time.
 - Pharmacist interventions increased by 43% in 1st full quarter of initiation. And spent less time doing it. 95% of interventions result in a significant change.
 - Antibiotic X 7 days: faster review time, pharmacists now skip if active ID consult = no further review.
 - Multiple antibiotic has allowed faster discontinuation of unnecessary antibiotics as soon as the cultures return.
 - IV → PO conversion: still being evaluated.

Improved outcomes

- ASP program overview results:
 - Decreased antibiotic costs
 - Decrease infections like C. difficile.
 - Decreased MRSA rate.
 - Improved antibiotic susceptibility on antibiogram.
 - Pharmacists able to **complete the 48 hour antibiotic rule** in 4 hours or less for all patients.
 - Goal is that with all enhancements every hospitalized patient on antibiotics could be evaluated in approximately 2 hours, saving in pharmacists time at least 6 hours per day. 2200 hrs. per year or almost 2 FTEs.

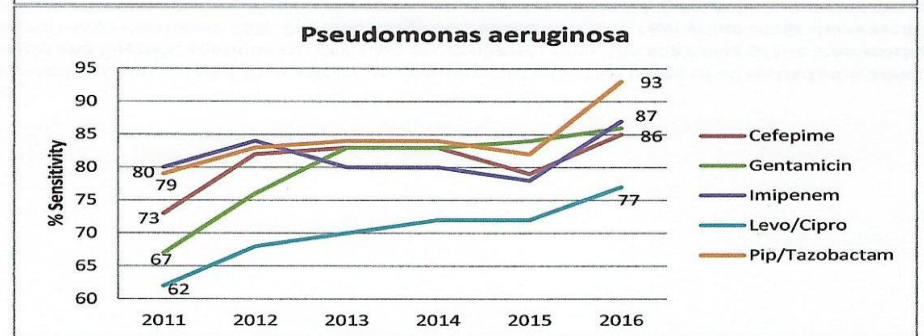
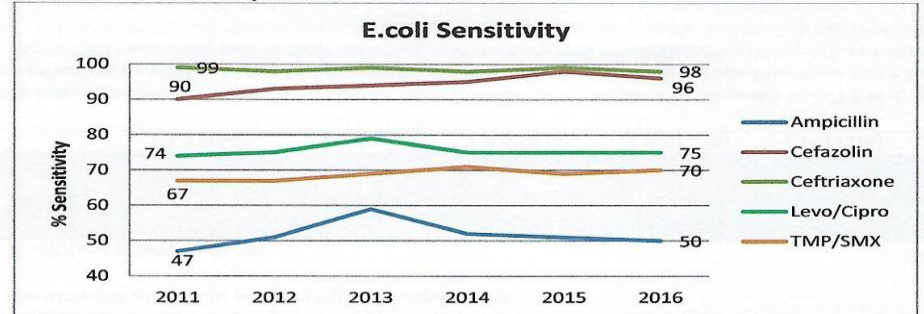
Improved outcomes overall

- C. difficile infection rates have dropped significantly from 64 cases in 2015 to 19 cases in 2016 as a result of a joint effort between infection control, nursing and the antibiotic stewardship team
- Antibiotic usage decreased in 8 of the top 10 antibiotics. The usage of ceftriaxone, cefepime and aminoglycosides decreased most significantly with a 20% decrease. In addition, usage decreased 16% for meropenem, and 7% for azithromycin.
- The usage of daptomycin and linezolid continues to decrease every quarter since the beginning of the stewardship program. Daptomycin usage decreased 25%, linezolid usage decreased 15%, and tigecycline usage decreased 16%.

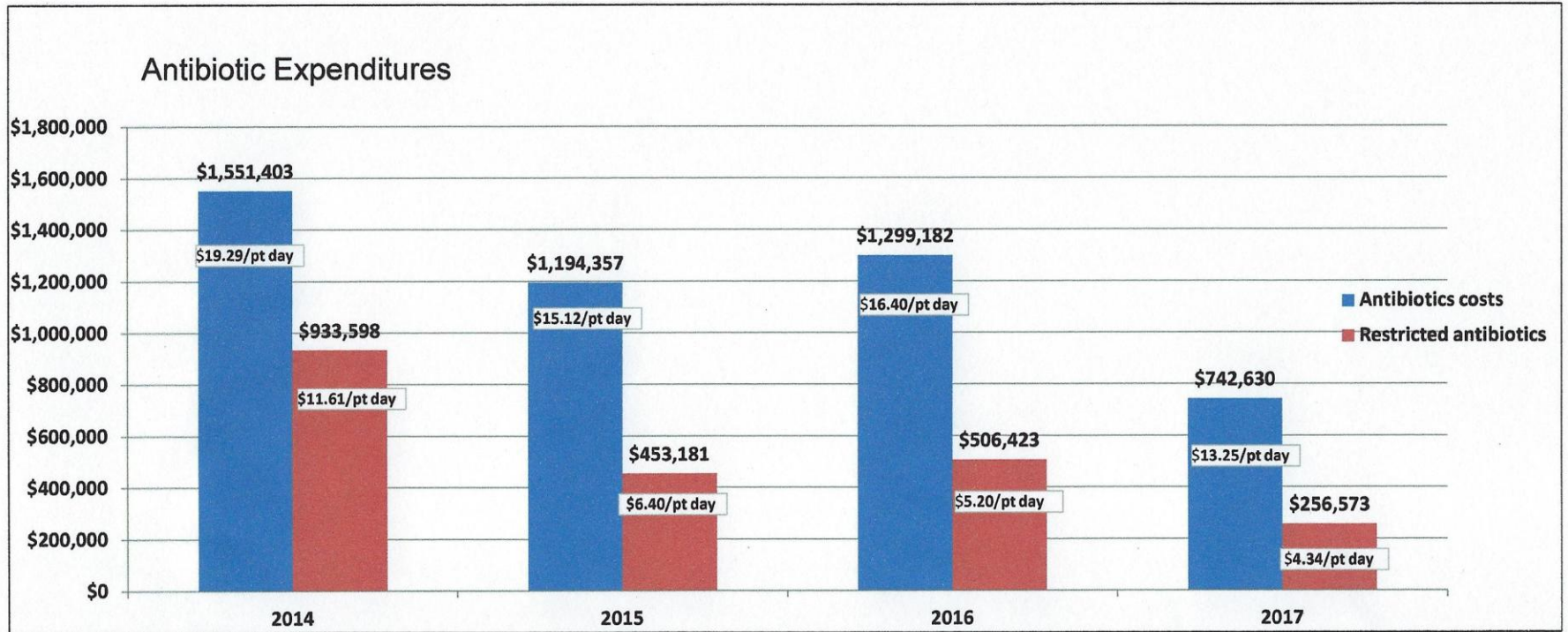
Antimicrobial sensitivity trends: Improved

- Analysis :
- E.coli and P. aeruginosa are the two most common gram-negative pathogens causing infections at Methodist Hospital. Since 2011, E.coli sensitivities to cefazolin have increased 6% and sensitivities to ceftriaxone remain high at 98%.
- Sensitivities for Pseudomonas which is typically recovered from hospital-acquired infections have also improved within the last 5 years. Pseudomonas sensitivities for all 5 antibiotics have improved dramatically since 2011.
- Sensitivities have increased 20% for Zosyn and gentamicin, 15% for quinolones, and 13% for cefepime.

Antimicrobial Sensitivity Trends

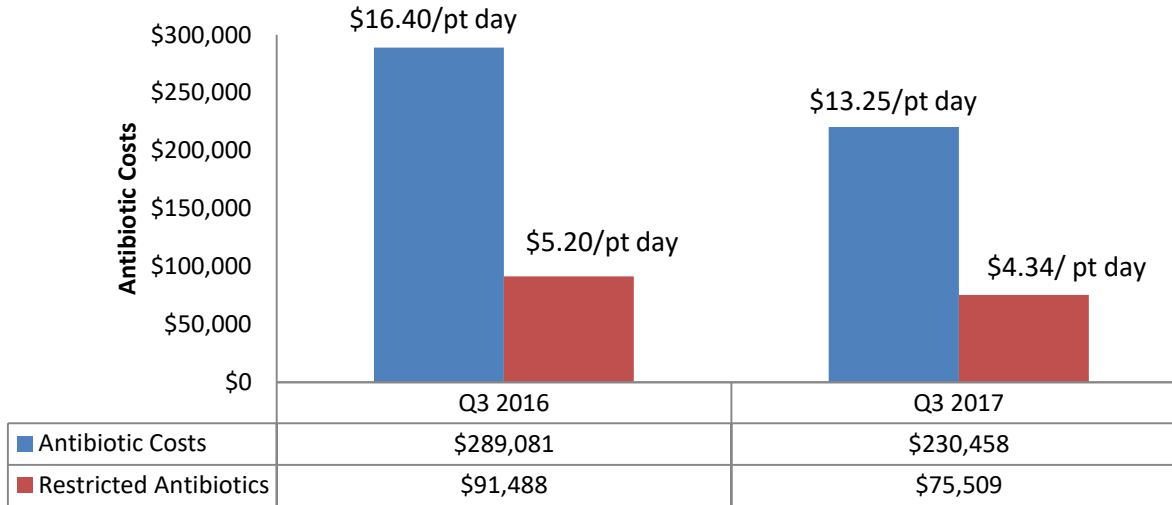


Pharmacy cost savings slide



Pharmacy cost savings slide

Antibiotic Expenditures Q3 2016 and Q3 2017



Pharmacy cost savings

- Direct cost savings is over \$600,000 since 2014.
- Present implementation has saved approximately \$250,000 per year.
- This does not include indirect costs.
- No maintenance fees
- Saving 2 pharmacy FTE

Informaticisms

- Speed is everything. (Definitely, the 1st rule/law of Informatics)
- In remodeling it is twice as long and twice as much money. In computer programming it is 4 times as long and 4 times as much money.
- The efficient IT theory: If it was easy to do, it would have already been done.
- This is not an IT problem, this is a people problem. You cannot use IT to fix people process issues.
- Culture (a.k.a. habits) beat strategy (a.k.a. improved processes) all the time.
- My own personal philosophy is nothing great ever came in on time or under budget. Starting with the pyramids.

Thank you

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Questions

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