

# Inpatient Antimicrobial Stewardship Program (ASP) Reporting

---

**LCDR Russell Kern, Pharm.D., BCPS**

USPHS Claremore Indian Hospital

ASP Manager

Clinical Inpatient Pharmacist

Pharmacy Residency Coordinator

---

## Objectives

- Examine accreditation standards needed for ASP reporting
- Attain data necessary to meet the proposed TJC recommendations
- Utilize software to report ASP Days of Therapy (DOT) per 1000 patient days and trend antibiotic use



Proposed Revisions Related to Antibiotic Stewardship  
Hospital (HAP) Accreditation Program

- The Joint Commission (TJC) proposed revisions to the Medication Management (MM) Chapter in July 2021 regarding ASP reporting
- The hospital monitors “antibiotic use by analyzing data on days of therapy per 1000 days present or 1000 patient-days, or by reporting antibiotic use data to the National Healthcare Safety Network’s (NHSN) Antimicrobial Use (AU) Option of the Antimicrobial Use and Resistance Module.”

## Days of Therapy per 1000 patient days DOT / 1000

- Aggregate sum of days for which any amount of antimicrobial agent was administered to individual patients and then adjusted for 1000 patient days

### WHY?

- Hospitals can now better compare their antibiotic usage to other facilities regardless of bed size, census, etc.

JAMA Internal Medicine | Original Investigation

### Estimating National Trends in Inpatient Antibiotic Use Among US Hospitals From 2006 to 2012

James Baggs, PhD; Scott K. Fridkin, MD, MPH; Lori A. Pollack, MD, MPH; Arjun Srinivasan, MD, MPH; John A. Jernigan, MD, MS

**RESULTS** During the years 2006 to 2012, 300 to 383 hospitals per year contributed antibiotic data to the HDD. Across all years, 55.1% of patients received at least 1 dose of antibiotics during their hospital visit. **The overall national DOT was 755 per 1000 patient-days.** Overall antibiotic use did not change significantly over time. The multivariable trend analysis of data from participating hospitals did not show a statistically significant change in overall use (total DOT increase, 5.6; 95% CI, -18.9 to 30.1;  $P = .65$ ). However, the mean change (95% CI) for the following antibiotic classes increased significantly: third- and fourth-generation cephalosporins, 10.3 (3.1-17.5); macrolides, 4.8 (2.0-7.6); glycopeptides, 22.4 (17.5-27.3);  $\beta$ -lactam/ $\beta$ -lactamase inhibitor combinations, 18.0 (13.3-22.6); carbapenems, 7.4 (4.6-10.2); and tetracyclines, 3.3 (2.0-4.7).

National average from 2006-2012  
DOT is **755** per 1000 patient days

## MM.09.01.01 EP 10 & 11

- At this time, IHS sites using RPMS are unable to report data to the NHSN AU
- An ASP Inpatient DOT spreadsheet has been developed to assist with DOT per 1000 patient days reporting

### MM.09.01.01 EP: 10

#### New EP Text:

The hospital reports data about the antibiotic stewardship program to hospital leadership.

Note: Examples of antibiotic stewardship program data include antibiotic resistance patterns, antibiotic prescribing practices, or an evaluation of antibiotic stewardship activities.

### MM.09.01.01 EP: 11

#### New EP Text:

The antibiotic stewardship program monitors the hospital's antibiotic use by analyzing data on days of therapy per 1000 days present or 1000 patient-days, or by reporting antibiotic use data to the National Healthcare Safety Network's Antimicrobial Use Option of the Antimicrobial Use and Resistance Module.

## ASP Inpatient DOT v1.6

- Last version sent to ASP Listserv was v1.3
  - Required the user to manually calculate per 1000 patient days
  - Current version will calculate for you
- Initial RPMS access requirements
  1. Facility needs to be **live with BCMA**
  2. User needs to have **ADT keys** in RPMS
  3. User needs to have **VAFileman access**

## Before using 1<sup>st</sup> time

1. Make sure all drug entries have a dosage & route
2. If you try to import data and get an error, click on "Debug." If you see .MergeCells=True highlighted in yellow, that means you have a missing or bad route in your drug file. Look for a column called "(blank)" in the pivot table displayed when clicking "debug" to find the drug with issues

```
With Range ("E1:E2")
    .HorizontalAlignment = xlCenter
    .VerticalAlignment = xlBottom
    .WrapText = True
    .MergeCells = True
    .Font.Bold = True
```

3. Fix the route in the orderable item menu

- Any Ward with "DAY" or "OB" are excluded with this recipe for Claremore
  - We have the following wards: GMS, ICU, OBST, DAY SURGERY
  - Some sites only have one INPT ward
- This is because our Day Surgery Ward medications show up on BCMA even though they are technically outpatient - IMO
- Our DOT / 1000 is for GMS and ICU only and we exclude OBST patients
- This was a local ASP Committee decision. Your site may differ
- Adjust the "Report Recipe" tab as needed to reflect your facility site

Import Data

Clear Sheets

Start Date:

End Date:

Patient Days for Period:

Before using the first time: Make sure all of your drug entries have a dosage and route. If you try to import data and get an error, click on "Debug." If you see .MergeCells=True highlighted in yellow, that means you have a missing or bad route in your drug file. Look for a column called "(blank)" in the pivot table displayed when clicking "debug" to find the drug with issues.

Any Ward with "DAY" or "OB" are excluded with the recipe as it is. This is because our Day Surgery Ward Medications show up on BCMA and are outpatient medications. OB ward is excluded because nearly all of their Abx use is pre-surgery prophylaxis. If you want to change this, you can modify the recipe in the Report Recipe Tab. You will need to "Unprotect" the sheet first. There is no password.

1. Type the start and end date for your report in the boxes to the right of the "Clear Sheets" button
2. Type the total number of patient days for the period entered in step #1
  - a. ADT (ADT Menu . . . ) -> RM (ADT Reports Menu . . . ) -> ASR (ADT Statistical Reports)
  - b. 2. (Inpatient Statistics by Ward
  - c. Enter exact same start and end date entered in step #1
  - d. Include INACTIVE Wards? - No
  - e. Select Patient Type: -> All
  - f. DEVICE -> HOME (or you can print it or session log if you like)
  - g. From the "DAYS" column, add up all the days for your ward (excluding Obstetrics, Nursery, and Day Surgery)
  - h. Enter total in the box just below the dates entered in step #1
3. Highlight and copy everything (A1 to A78) in the blue Report Recipe tab
4. At the "Select VA Fileman Option" or "Select General Fileman Option:" in RPMS paste what you copied from the Report Recipe tab
5. Start your session log, type 0,180,9999999999999 at the DEVICE prompt, hit enter, after report finishes running, stop session log
6. Click the Import Data button and select file
  - 6.1 On subsequent runs, clear the sheets first
7. Look at reports - (DOT/1000 patient days will display on the Med Qtys (DOT) tab)

Questions or suggestions - send an email to nicholas.sparrow@ihs.gov

<b>Import Data</b>	<b>Clear Sheets</b>	Start Date:	6/1/2021
		End Date:	8/31/2021
		Patient Days for Period:	604

1. Type the start and end date for your report in the boxes to the right of the "Clear Sheets" button

- We use this report with monthly dates for P&T reporting and quarterly dates for Governing Board reports

2. Type the total number of patient days for the period entered in step #1

- ADT (ADT Menu...) -> RM (ADT Reports Menu...) -> ASR (ADT Statistical Reports)
- Inpatient Statistics by Ward
- Enter same start and end date entered in step #1
- Include INACTIVE Wards? – No
- Select Patient Type: -> All
- DEVICE: -> HOME (or you can print or session log if you'd like)
- From the "DAYS" column, add up all the days for your ward(s)
- Enter total in the box just below the dates entered in step#1

ADT Statistics by Ward May 31, 2022 11:41:04 Page: 1 of 2

For Jun 01, 2021 through Aug 31, 2021  
Includes Inpatients, Observations AND Day Surgery

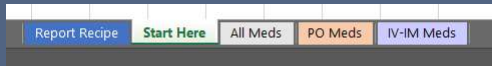
Ward	ADM	TXI	TXO	DSC	DTH	IDAY	DAYS	ADPL	LOSD	LOSA
DS	432	0	0	432	0	419	432	4.70	432 / 0	1
GMS	183	14	10	179	0	9	204	2.22	369 / 1	1
ICUN	37	10	14	26	5	2	400	4.35	220 / 7	8
ISURG	0	0	0	0	0	0	0	0.00	0 / 0	0
OBST	176	0	0	172	0	3	376	4.09	366 / 1	2
PHEG	0	0	0	0	0	0	0	0.00	0 / 0	0
PHEI	1	0	0	1	0	1	1	0.01	1 / 0	1
TOTAL:	829	24	24	810	5	434	1413	15.36	1388 / 1	1

ADM = admissions, TXI = ward transfers in  
 TXO = ward transfer out, DSC = discharges  
 DTH = deaths, IDAY = admitted & discharged same day  
 DAYS = total patient days, ADPL = ave daily patient load  
 LOSD = length of stay for patients discharged: total / average  
 + Enter ?? for more actions

Select Action:Next Screen//

GMS = 204; ICU = 400; Total = 604

3. Highlight and copy everything (cells A1 to A78) in the Blue "Report Recipe" tab



Print	SOLUTIONS
BCMA MEDICATION LOG	SOLUTIONS:
	GENERIC DRUG:
	YES
"NAME^LOCATION^DATE^TIME^MEDICATION^ROUTE"	VA CLASSIFICATION
	CONTAINS
	AM
ASP HEADER	
Y	
A	
	ABCD
Search	1
BCMA MEDICATION LOG	ABCE
PATIENT LOCATION	1
-CONTAINS	ABCF
DAY	1
PATIENT LOCATION	
-CONTAINS	
OB	@ACTION DATE/TIME
PATIENT LOCATION	
-NULL	6/1/2021
DISPENSE DRUG	8/31/2021
DISPENSE DRUG:	
VA CLASSIFICATION	PATIENT NAME_"A";X
CONTAINS	PATIENT LOCATION_"A";X
AM	DATE(ACTION DATE/TIME)"_A";X
	YES
	TIME(ACTION DATE/TIME)"_A";X
	YES
ADDITIVES	ADMINISTRATION MEDICATION_"A";X
ADDITIVES:	ADMINISTRATION MEDICATION:
GENERIC DRUG:	MED ROUTE
YES	
VA CLASSIFICATION	
CONTAINS	BCMA MEDICATION LOG SEARCH
AM	[ASP HEADER

4. At the "Select VA Fileman Option:" or "Select General Fileman Option:" in RPMS paste what you copied from the Report Recipe tab

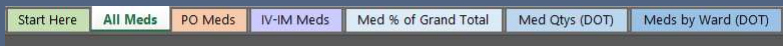
6. Click the Import Data button and select the file you just session logged

- On subsequent runs, clear the sheets first



5. Start your session log, type 0;180;99999999999999999999 at the DEVICE prompt, hit enter, after report finishes running, stop session log

7. Look at reports – (DOT/1000 patient days will display on the Med Qtys (DOT tab)



Count of MEDICATION	Column Labels	PARENTERAL	Grand Total	DOT/1000
ACYCLOVIR	ENTERAL	7	7	12
AMOXICILLIN/CLAVULANATE		8	8	13
AMPICILLIN		1	1	2
AZITHROMYCIN		38	13	51
CEFAZOLIN		18	18	30
CEFDINIR		3	3	5
CEFEPIME		5	5	8
CEFOXITIN/DEXTROSE 2GM		2	2	3
CEFTAROLINE		10	10	17
CEFTRIAXONE		73	73	121
CIPROFLOXACIN		8	8	13
CLINDAMYCIN		2	2	3
DAPTOmycin		2	2	3
DOXYCYCLINE		24	6	30
ERTAPENEM		2	2	3
ERYTHROMYCIN		4	4	7
FLUCONAZOLE		4	4	7
INV-CASIRIVIMAB/IMDEVIMAB		4	4	7
INV-REMDESIVIR		137	137	227
LEVOFLOXACIN		9	9	15
LEVOFLOXACIN/DEXTROSE		18	18	30
MEROPENEM		5	5	8
METRONIDAZOLE		4	10	14
MOXIFLOXACIN		1	1	2
PENICILLIN		4	4	7
PIPERACILLIN/TAZOACTAM		38	38	63
RIFAXIMIN		11	11	18
VANCOMYCIN		51	51	84
<b>Grand Total</b>		<b>110</b>	<b>412</b>	<b>522</b>

- When remdesivir, casirivimab/imdevimab, and acyclovir are matched to the National Drug File, it's drug class is marked as an antimicrobial and not an antiviral
- Out local ASP does not want those medications included in our DOT / 1000 data
- The current report does not have a way to remove these medications so if you do not want these included in your DOT then they must be manually adjusted.

## EXAMPLE: how to adjust DOT /1000 based on antiviral usage

- From previous slide numbers
- Total days of antibiotics was 522 for 604 patient days

Grand Total	110	412	522	864
-------------	-----	-----	-----	-----

Start Date:	6/1/2021
End Date:	8/31/2021
Patient Days for Period:	604

$$522/604 = 864/1000$$

**DOT/1000 = 864**

- How many days of antiviral usage?
  - Acyclovir = 7
  - Casir/imdev = 4\*
  - Remdesivir = 137

$$522 - 148 = 374$$

$$374/604 = X/1000$$

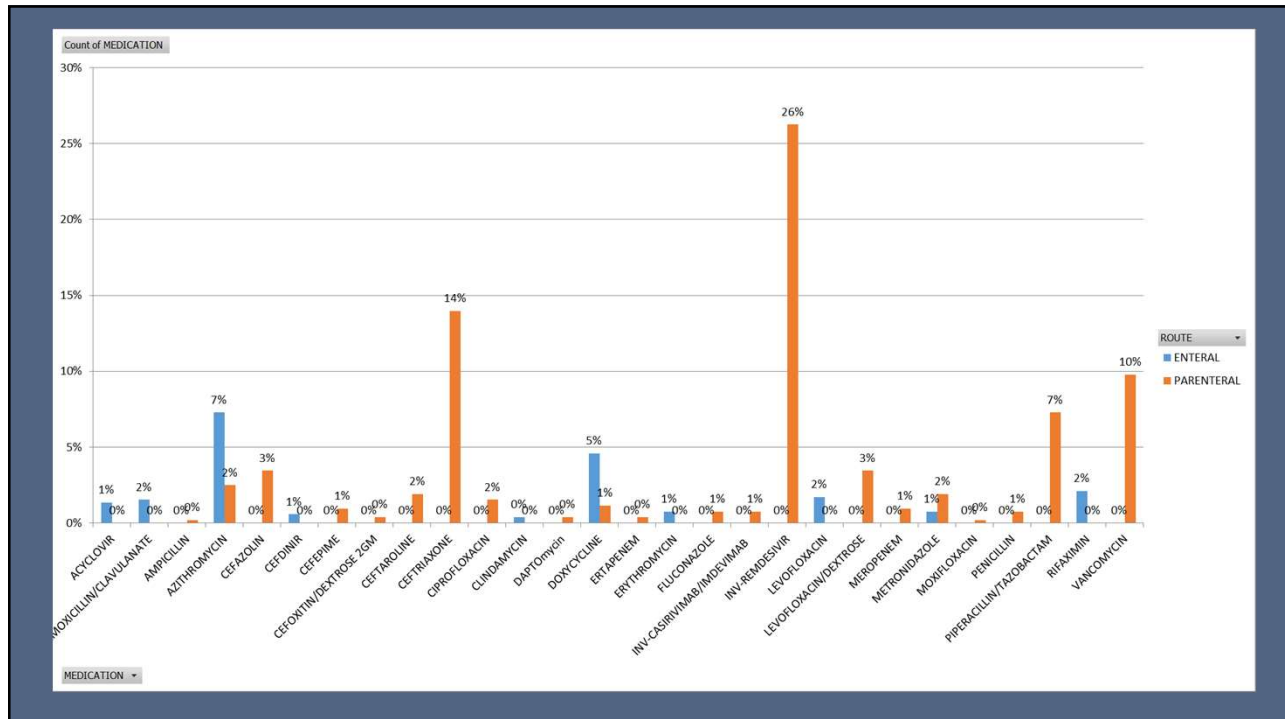
$$X = 620$$

**DOT/1000 = 620**

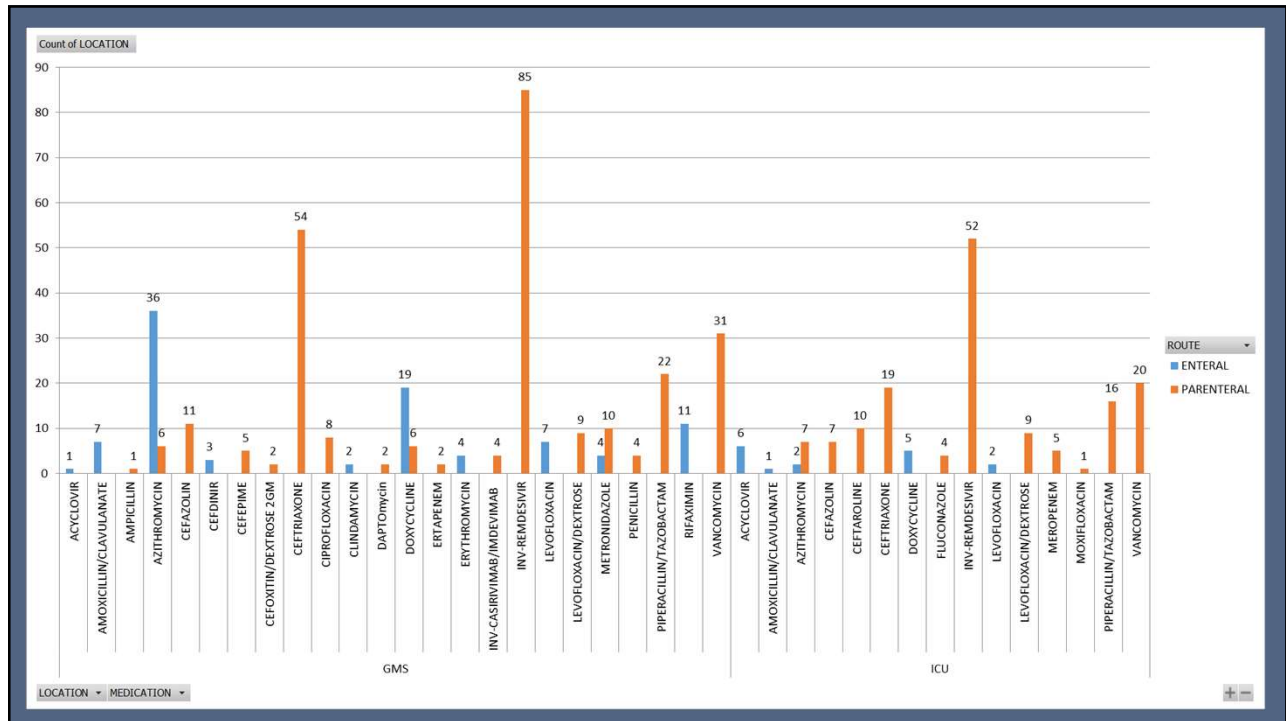
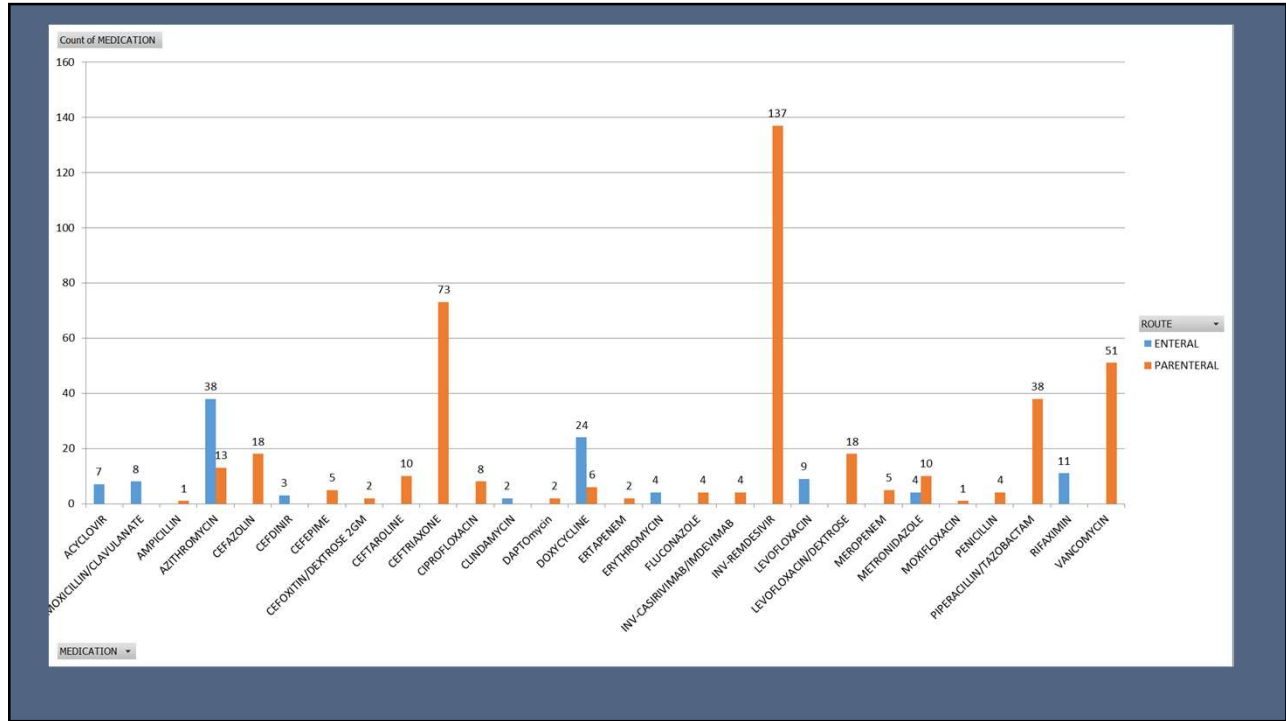
\*Casir/imbev use was used on patients not admitted for COVID-19 although they tested positive

## Additional Charts and Data

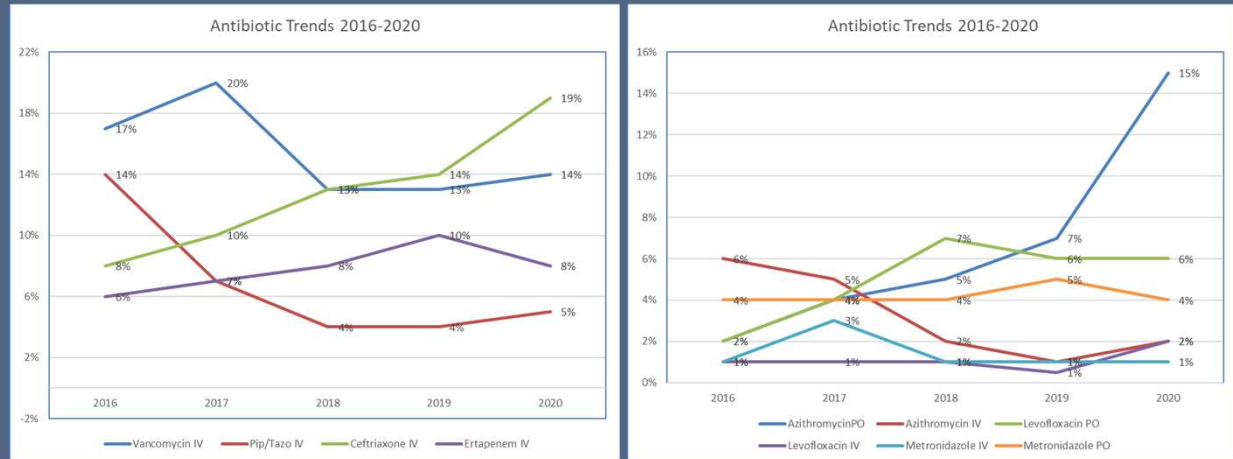
- Antibiotic % of grand total
- Antibiotic quantities – IV, PO, and combined
- Antibiotic usage by ward







Use this program to go back and run reports for as long as you've had BCMA to determine trends over time



Based on ASP initiatives, we saw a **decrease** in vancomycin and piperacillin/tazobactam usage, **increase** in ceftriaxone usage, **increase** in azithromycin PO usage and **decrease** in azithromycin IV usage, **increase** in levofloxacin PO usage. This is data that local administration and area governing boards appreciate

## Summary

- TJC revisions propose monitoring DOT per 1000 patient days
- Utilize the ASP Inpatient DOT v1.6 spreadsheet to gain the data needed for reporting
- Based on your local ASP Committee recommendations, trend the data as needed for your facility – IV & PO usage, DOT/1000 over time, broad-spectrum antibiotic usage, etc.
- Used in combination with last months ASP Webinar by CDR Thoennes and LT Stauffer, you can now have can present outpatient and inpatient ASP outcomes to meet accreditation standards

## Wait... you just thought we were done!

- No new changes to DOT per 1000 patient days but on June 20, 2022, TJC just released new ASP recommendations going into effect January 2023
- No longer a proposed revision, but a new requirement

### Medication Management

**Requirements:** There are 12 new and revised EPs that address antibiotic stewardship. The requirements marked as "new" introduce concepts and expectations that have not been addressed previously. Requirements marked as "revised" include a combination of editorial changes, additional notes to clarify expectations, and EPs that will now apply to all accredited hospitals (deeming lead-in statements have been deleted).

**EP 16 (new):** The antibiotic stewardship program monitors the hospital's antibiotic use by analyzing data on days of therapy per 1000 days present or 1000 patient days, or by reporting antibiotic use data to the National Healthcare Safety Network's Antimicrobial Use Option of the Antimicrobial Use and Resistance Module.

- Special thanks to CAPT Nick Sparrow at the Claremore Indian Hospital for developing the spreadsheet
- Further development and troubleshooting
  - Crow/Northern Cheyenne Hospital ASP
  - Northern Navajo Medical Center ASP
  - Phoenix Indian Medical Center ASP
  - Claremore Indian Hospital ASP
  - CDR Garrett Sims, Marley Tanner, CDR Jamie Kennedy, CDR Dinesh Sukhlall, LCDR Madison Adams, LCDR Russell Kern
- I'm sure there other pharmacists at each site that helped that are not mentioned here – much thanks to all!
- IHS ASP progress is because of our pharmacists across the country. Thanks for all you do and your service to our patients!

- The current ASP Inpatient DOT v1.6 (and new TJC document) will be sent to the ASP Listserv and any further versions will be distributed by the IHS NPC ASP via the Listserv
- Subscribe to the ASP Listserv [here](#)