Montana Antibiotic Stewardship Collaborative

Presented by Jack King, Director, MT Flex Program

MT ABS Collaborative

Goals:

- **Project Goal:**
  - Implement the core elements established by the Centers for Disease Control and Prevention (CDC) that represent an antibiotic stewardship program (7 inpatient and 4 outpatient) in 85% of the recruited hospitals and clinics in Montana by the end of 2018

- **Outcome Goal:**
  - Reduce C. *difficile* rates across Montana by 10% by December 2018. Baseline= 4.88

- **Process Goal:**
  - Establish Days of Therapy for antibiotic (NQF 2720) usage as a standard measure for inpatient facilities across Montana. Goal: 75% of recruited inpatient facilities will report this measure by December 2018.

Montana ABS Collaborative

➡ **Formed in February 2017**

Mission:

Align and streamline strategies, services, education and hands on technical assistance to eliminate duplication of effort, reduce costs and deliver efficient, effective and high value-added ABS services to hospitals and clinics in Montana.

Benefits:

➡ Reduce duplication of efforts

➡ Promote continuity between inpatient, outpatient and long term care settings in the health systems

➡ Resources created/reviewed/promoted by multidisciplinary collaborative team

➡ Increase networking opportunities and access to all Montana healthcare providers

MT ABS Collaborative

Partners
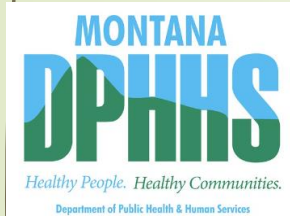
- **Montana Health Research & Education Foundation (MHREF) of Montana Hospital Association (MHA)**
    - **Health Research & Educational Trust (HRET)/ Hospital Improvement Innovation Network (HIIN)**
    - **States Targeting Reduction in Infections via Engagement (STRIVE)**
    - **MT Flex**
- **Montana Department of Public Health & Human Services (MDPHHS)**
    - **Communicable Disease Epidemiology**
- **Mountain Pacific Quality Health – Quality Innovation Network (QIN)/Quality Improvement Organization (QIO) – Outpatient Antibiotic Stewardship**
- **Montana State University - Office of Rural Health Area Health Education Centers (AHEC) – Small Rural Hospital Improvement Program (SHIP)**
- **University of Montana/Skaggs School of Pharmacy**

MT ABS Collaborative, continued

Additional Stakeholders

- Montana Healthcare Association (Long Term Care)
- Montana Primary Care Association
- Montana Infectious Disease Physician's Network
- Montana Family Pharmacy Network
- Montana Pharmacists Association
- Montana Association of Professionals in Infection Control

MT ABS Collaborative, to date

- **54 facilities enrolled (out of 59 CAH and IPPS facilities)**
  - **13/13 Inpatient Prospective Payment Systems (PPS)**
  - **41/46 Critical Access Hospitals (CAHs)**
- **Recruited 85 outpatient settings**
  - **89% implemented the 4 outpatient core elements**
- **Created and delivered joint education, resources and communication**
  - **Single MT ABS Resources webpage**
  - **MT ABS Blog – 28 articles posted**
  - **Joint education**
    - **10 webinars – 385 participants**
    - **3 in-person workshops – 130 participants**

MT ABS Collaborative Accomplishments

- **National Healthcare Safety Network (NHSN) Annual Facility Survey (FAS)**

Data for CAHs	2016	2017
Reporting: Submitted Facility Annual Survey (FAS)	18/48 (37.5%)	34/48 (71%)
Performance: Implemented All 7 Core Measures	7/18 (39%)	17/34 (50%)

- **Established statewide C. *difficile* clinical pathway**

- **Established baseline data for evaluation measures**

- **Created ABS Tracking Tool**

MT ABS Collaborative, again

Next Cycle:

- **Expanded Training**
  - **Montana Echo – Utilizing State Infectious Disease Physician Network**
  - **Statewide Clinical Pathway for Urinary Track Infections (UTIs)**
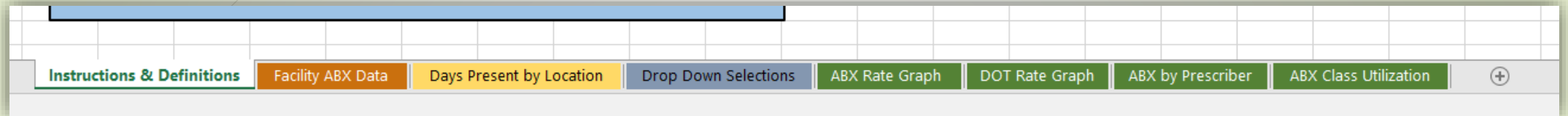 - **Systemized and standardized "Actions" based upon universal Days of Therapy measures**

ABS Tracking Tool

ABS Tracking Tool Development

- Goal: Create a tool that can be easily modified by the user to meet the needs of any ABS program - beginning, intermediate or advanced

- Developed in recognition that most hospitals would not be able to attain electronic submission of AU/AR data to NHSN

- Allows users to track additional core elements of ABS

- Provides reports for ABS teams/Hospital Staff

- Utilizes drop down menus when possible to promote consistency and ease of use

- Kitty Strowbridge, St. Luke Community Healthcare, Ronan, MT found a tracking tool that would become the foundation: Rochester Patient Safety C. difficile Prevention Collaborative *Antibiotic Tracking Worksheet*

- Tool Development: Jamie Schultz, MT Flex Program

- Collaboration:
  - Jamie, Kitty and St. Luke's Infection Preventionist, Brooke Pieper, with the help of Tom Vincent from Mountain Pacific Quality Health worked to modify the tool to align with NHSN AUR module measures & definitions and track best practices for an ABS program in a user friendly format

The Tool Contents

Instructions & Definitions | Facility ABX Data | Days Present by Location | Drop Down Selections | ABX Rate Graph | DOT Rate Graph | ABX by Prescriber | ABX Class Utilization

- **Instructions & Definitions**

- **Facility ABX Data- The actual data collection spreadsheet**

- **Days Present by Location- the table for entering Days Present for chart calculations**

- **Drop Down Selections**

- **Charts that are created:**
  - **ABX Rate**
  - **Days of Therapy (DOT) Rate**
  - **ABX by Provider**
  - **ABX Class Utilization**

Instructions & Definitions

Definitions:

1) DOT = Days of Antibiotic Therapy
2) Fever = temp of 100 F, repeated > 99F or > 2 degrees above baseline
3) Urinary tract symptoms = dysuria, new onset incontinence, new onset frequency, urgency, suprapubic pain, gross hematuria, and costovertebral (CVA) pain or tenderness

Instructions for entering "Patient ABX Data":

Please fill each row out on the "Facility ABX Data" tab for any patient who is started on antibiotics for an infection.
- If the same patient was started on more than one antibiotic for the same infection, record each antibiotic on a separate row.
- Every time an antibiotic is stopped and restarted, start that antibiotic again on a new row.
- Ideally the information needed to complete this form will be obtained from the 24 hour report and chart review.
- Use drop down choices as much as possible. If your choice is not listed on the drop down menu, then type in your response.
- Any columns not highlighted or from "O" to "AB" may be hidden if the data is not going to be currently tracked. This may help reduce the size of the tool and eliminate unwanted columns.
- Yellow Highlighted columns are used for calculations, do not hide these columns if reducing size of data collection

Manually enter Patient Days Present data on the second tab in order to calculate ABX Rate, DOT Rate and ABX by Prescriber

Instructions for updating selections for "Drop Down Selections":

(For any column on the "Facility ABX Data" tab that has a drop-down menu available)
Go to Drop Down Selections " tab (columns are in same order as on the "Facility ABX data" tab)
- To add additional selections: click on next available blank cell under the desired column heading and enter new selection- the box indicated the number of available fields for that column
- To delete or edit current selections: highlight cell in list and type in new selection
- New selections should automatically appear in drop down menus on "Facility ABX Data" tab
- Columns filled in grey align with NHSN definitions- do not recommend changing these selections

Use drop down choices as ... menu, type in your respon...

Instructions for "Days Present by Location":

For patient care location-specific analyses, days present is calculated as the **number of patients who were present for any portion of each day of a calendar month in any patient care location.**

Days Present per month will need to be manually added monthly on "Days Present by Location" tab. Use daily census for each location to calculate monthly total.

Detailed instructions for:

- **Entering Data on the spreadsheet**
  - **Definitions of spreadsheet elements**
  - **McGeer's Criteria for UTI Symptoms and Assessment**
  - **Link to NHSN's UTI Criteria**
- **What needs to be entered for "Patient Days Present"**
- **Customizing the Drop Down Selections**

UTI Symptom Criteria | UTI Assessment (revised Mcgeer criteria) OR click here for NHSN criteria | UTI Culture Criteria

Patient **without** indwelling catheter:
... ing or tenderness o the testes, epididymis, or prostate

... and at least **one** of the symptoms below (new or increased) :
...) pain or tenderness

... mptoms below (new or increased):

Urinary incontinence

Patient **with** indwelling catheter:
At least one of the symptoms listed below:
- *Fever, rigors or new-onset hyptension, with no alternate site of infection
- *Acute change in mental status or acute functional decline, with no alternate diagnsos
  AND leukocytosis
- *New-onset suprapubic pain or CVA pain or tenderness
- *Purulent discharge from around the catheter
  or acute pain, swelling or tenderness of the testes, epididymis, or prostate

1) Specimen collected from clean catch voided urine and positive culture with no more than 2 species of microorganisms, at least one of which is a bacterium of ≥10^5 CFU/m
OR
2) Specimen collected from in/out straight catheter and positive culture with any number of microorganism, at least one of which is a bacterium of ≥10^2 CFU/m
OR
3) Specimen collected from an indwelling catheter* and positive culture with ≥10^5 CFU/m of any microorganism

*If catheter has been in place for >2 weeks, change catheter before obtaining urine sample

Facility ABX Data: Patient & Antibiotic Utilization Information

Patient Identifier	Patient Location Upon Admit	Date Admitted to Hospital	Patient Status upon Admit	During stay, if patient status changed, what to?	Date of Status Change	Date Discharged from Hospital	Antibiotic Name	Antibiotic Class	Route ABX Administered	ABX Start Date	Abx End Date	DOT	Prescriber
	Enter Patient Name, #, etc.	*Drop Down*	*select date from Calendar or enter manually*	*Drop Down*	*Click on cell and select date from Calendar or enter manually (cells are formatted for date)*	*Drop Down*	*Automatically Populated*	*Drop Down*	*Click on cell and select date from Calendar or enter manually (cells are formatted for date)*	*Calculated from ABX dates*	*Drop Down*
Patient 1	Acute Care (Obs, Acute, Med/Surg, Skille	3/7/2018	Observation	Acute Care/Med Surg	3/8/2018	3/15/2018	AMPHOTERICIN B LIPOSOMAL	Polyenes	IM	3/7/2018	03/09/18	3	Dr. 1
Patient 2	LTC	3/20/2018	LTC			3/29/2018	AMIKACIN	Aminoglycosides	Digestive	3/21/2018	03/23/18	3	Dr. 4
Patient 3	LTC	3/26/2018	LTC			3/30/2018	AMPICILLIN	Penicillins	Respiratory	3/27/2018	03/31/18	5	Dr. 3
Patient 4	Acute Care (Obs, Acute, Med/Surg, Skille	2/1/2018	Acute Care/Med Surg			2/3/2018	AZTREONAM	Monobactams	IV	2/1/2018	02/03/18	3	Dr. 2
Patient 5	Acute Care (Obs, Acute, Med/Surg, Skille	2/6/2018	Acute Care/Med Surg	Swing Bed	2/7/2018	2/10/2018	AMPICILLIN	Penicillins	IV	2/6/2018	02/10/18	5	Dr. 1
Patient 6	LTC	2/12/2018				2/23/2018	ZANAMIVIR	Neuraminidase inhibitors	Digestive	2/12/2018	02/23/18	12	Dr. 4
Patient 7	LTC	2/26/2018				2/28/2018	TEDIZOLID	Oxazolidinones	Respiratory	2/26/2018	02/28/18	3	Dr. 3
Patient 8	LTC	1/1/2018				1/5/2018	TEDIZOLID	Oxazolidinones	IM	1/1/2018	01/05/18	5	Dr. 2
Patient 9	Acute Care (Obs, Acute, Med/Surg, Skille	1/8/2018				1/19/2018	TEDIZOLID	Oxazolidinones	IV	1/8/2018	01/19/18	12	Dr. 1
Patient 10	Acute Care (Obs, Acute, Med/Surg, Skille	1/15/2018				1/17/2018	CLINDAMYCIN	Lincosamides	IV	1/15/2018	01/17/18	3	Dr. 4
Patient 11	LTC	4/2/2018				4/4/2018	LEVOFLOXACIN	Fluoroquinolones	Digestive	4/2/2018	04/04/18	3	Dr. 3
Patient 12	Acute Care (Obs, Acute, Med/Surg, Skille	5/22/2018				5/25/2018	IMIPENEM/ CILASTATIN	Carbapenems	Respiratory	5/22/2018	05/25/18	4	Dr. 2
Patient 13	LTC	5/8/2018				5/10/2018	ITRACONAZOLE	Azoles	IM	5/8/2018	05/10/18	3	Dr. 1
Patient 14	Acute Care (Obs, Acute, Med/Surg, Skille	4/10/2018				4/13/2018	ITRACONAZOLE	Azoles	IV	4/10/2018	04/13/18	4	Dr. 4
Patient 15	LTC	4/16/2018				4/19/2018	CEFOXITIN	Cephalosporins	IV	4/16/2018	04/19/18	4	Dr. 3
Patient 16	Acute Care (Obs, Acute, Med/Surg, Skille	5/28/2018				5/31/2018	CEFOXITIN	Cephalosporins	Digestive	5/28/2018	05/31/18	4	Dr. 2
Patient 17	LTC	6/2/2018				6/8/2018	AMANTADINE	M2 ion channel inhibitors	Respiratory	6/3/2018	06/08/18	6	Dr. 1
Patient 18	Acute Care (Obs, Acute, Med/Surg, Skille	3/14/2018				3/16/2018	AMANTADINE	M2 ion channel inhibitors	IM	6/6/2018	06/12/18	7	Dr. 4
Patient 19	Acute Care (Obs, Acute, Med/Surg, Skille	6/21/2018				6/29/2018	AMIKACIN	Aminoglycosides	IM	6/6/2018	06/21/18	16	Dr. 3
							Select ABX	#N/A				1	

Facility ABX Data

- **Elements used for creating charts in yellow**
- **Interactive calendars**
- **Available drop down selections aligned with NHSN recommendations and measures**
  - **Antibiotic Name**
  - **Antibiotic Class- Auto populates from ABX name**
  - **Route Administered**
  - **Primary Indication**
  - **Symptoms**
  - **Culture Results**
- **Additional ABS Program Tracking**
  - **Calculated DOT**
  - **ABX by Prescriber**
  - **48 Hour Re-assessment**
  - **Pharmacy Recommendations**

Drop Down Selections

- Columns match Facility ABX Data columns

- Contents can be modified by user (instructions provided)

- Contents align with NHSN measures and recommendations

To customize your drop down selections, simply add items to any existing list (up to the number of items allowed within the box) or remove items from the list, or replace existing contents with your specific choices by clicking on the cell and entering the new data or clearing the contents. *Remember to refresh all of your tables and charts if you change your content.*
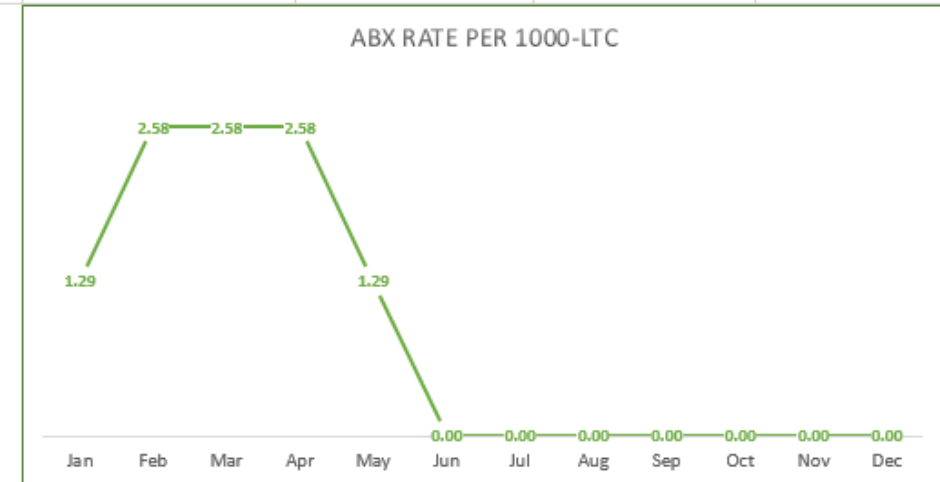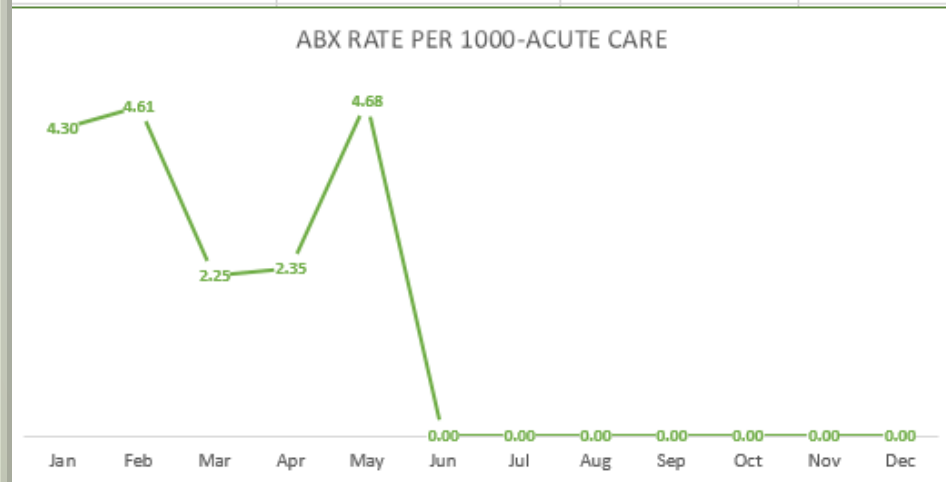
Patient Name	Patient Location Upon Admit	Date Admitted to Hospital	Patient Status upon Admit	During stay, if patient status changed, what to?	Date of Status Change	Date Discharged from Hospital	ABX Name	ABX Class	Route ABX Administered	ABX Start Date	Abx End Date	DOT	Prescriber
	Acute Care (Obs, Acute, Med/Surg, Skilled Swing, OB)						AMANTADINE		IV				
			Acute Care/Med Surg	Acute Care/Med Surg				M2 ion channel inhibitors					Dr. 1
	LTC		Observation	Observation			AMIKACIN	Aminoglycosides	IM				Dr. 2
							AMOXICILLIN		Digestive				
			Swing Bed	Swing Bed				Penicillins					Dr. 3
							AMOXICILLIN/ CLAVULANATE	B-lactam/ B-lactamase inhibitor combination	Respiratory				
			LTC	LTC			AMPHOTERICIN B	Polyenes					Dr. 4
			OB	OB			AMPHOTERICIN B LIPOSOMAL	Polyenes					
				test			AMPICILLIN	Penicillins					
							AMPICILLIN/ SULBACTAM	B-lactam/ B-lactamase inhibitor combination					
							ANIDULAFUNGIN	Echinocandins					
							AZITHROMYCIN	Macrolides					
							AZTREONAM	Monobactams					
							CASPOFUNGIN	Echinocandins					

Do Not Alter these Columns- Aligned with NHSN

ABX Rate Graph

Month	Total ABX Start Date	Patient Days Present-Acute Care	Rate Per 1000
Jan	2	465	4.30
Feb	2	434	4.61
Mar	1	445	2.25
Apr	1	425	2.35
May	2	427	4.68
Jun	2	0	#DIV/0!
Jul	0	0	#DIV/0!
Aug	0	0	#DIV/0!
Sep	0	0	#DIV/0!
Oct	0	0	#DIV/0!
Nov	0	0	#DIV/0!
Dec	0	0	#DIV/0!

Month	Total ABX Start Date	Patient Days Present-LTC	Rate Per 1000
Jan	1	775	1.29
Feb	2	775	2.58
Mar	2	775	2.58
Apr	2	775	2.58
May	1	775	1.29
Jun	1	0	#DIV/0!
Jul	0	0	#DIV/0!
Aug	0	0	#DIV/0!
Sep	0	0	#DIV/0!
Oct	0	0	#DIV/0!
Nov	0	0	#DIV/0!
Dec	0	0	#DIV/0!

ABX RATE PER 1000-ACUTE CARE

ABX RATE PER 1000-LTC

Patient Location Upon Adm Acute Care (Obs, Acute, M /Su

Patient Location Upon Adm LTC

Months	Count of ABX Start Date
Jan	2
Feb	2
Mar	1
Apr	1

Months	Count of ABX Start Date
Jan	1
Feb	2
Mar	2
Apr	2

DOT Rate Graph

Month	DOT/Month	Patient Days	Rate/1000
Jan	15	465	32.26
Feb	8	434	18.43
Mar	3	445	6.74
Apr	4	425	9.41
May	8	427	18.74
Jun	23	0	#DIV/0!
Jul	0	0	#DIV/0!
Aug	0	0	#DIV/0!
Sep	0	0	#DIV/0!
Oct	0	0	#DIV/0!
Nov	0	0	#DIV/0!
Dec	0	0	#DIV/0!

Month	DOT/Month	Patient Days Present-LTC	Rate/1000
Jan	5	775	6.45
Feb	15	775	19.35
Mar	8	775	10.32
Apr	7	775	9.03
May	3	775	3.87
Jun	6	0	#DIV/0!
Jul	0	0	#DIV/0!
Aug	0	0	#DIV/0!
Sep	0	0	#DIV/0!
Oct	0	0	#DIV/0!
Nov	0	0	#DIV/0!
Dec	0	0	#DIV/0!

DAYS OF THERAPY - ACUTE CARE

Jan 32.26, Feb 18.43, Mar 6.74, Apr 9.41, May 18.74, Jun 0.00, Jul 0.00, Aug 0.00, Sep 0.00, Oct 0.00, Nov 0.00, Dec 0.00

— Rate/1000

DAYS OF THERAPY - LTC

Jan 6.45, Feb 19.35, Mar 10.32, Apr 9.03, May 3.87, Jun 0.00, Jul 0.00, Aug 0.00, Sep 0.00, Oct 0.00, Nov 0.00, Dec 0.00

— Rate/1000
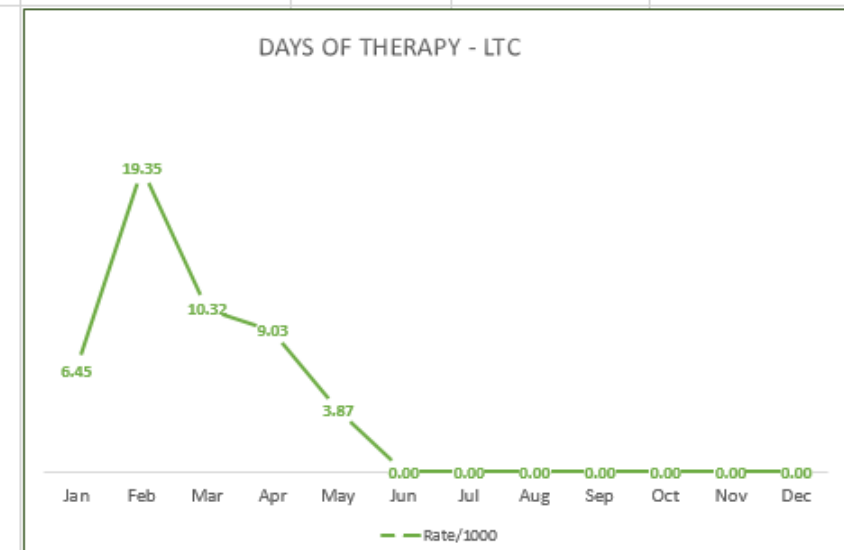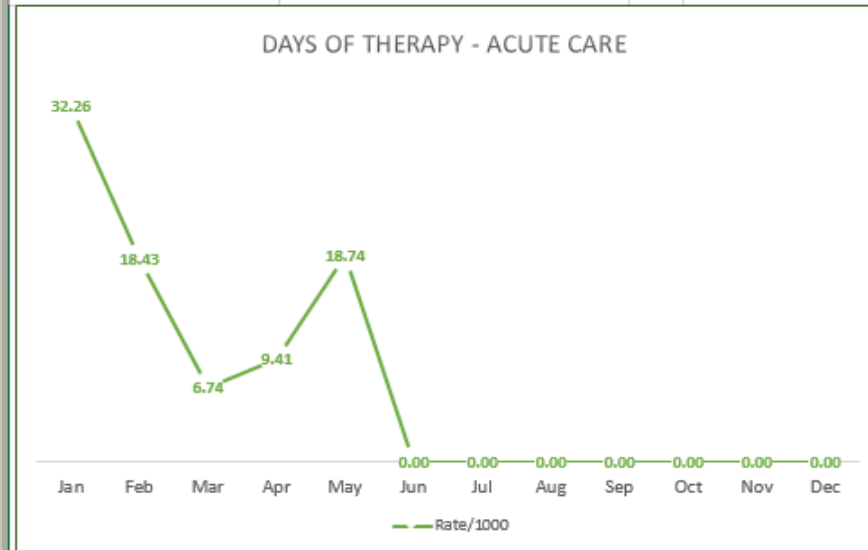
Acute Care (Obs, Acute, Med/Surg, Patient Location Upon Adm Skilled Swing, OB)

Patient Location Upon Adm LTC

Months	Sum of DOT
Jan	15
Feb	8

Months	Sum of DOT
Jan	5
Feb	15

ABX/Month by Prescriber

Antibiotics/Month by Prescriber
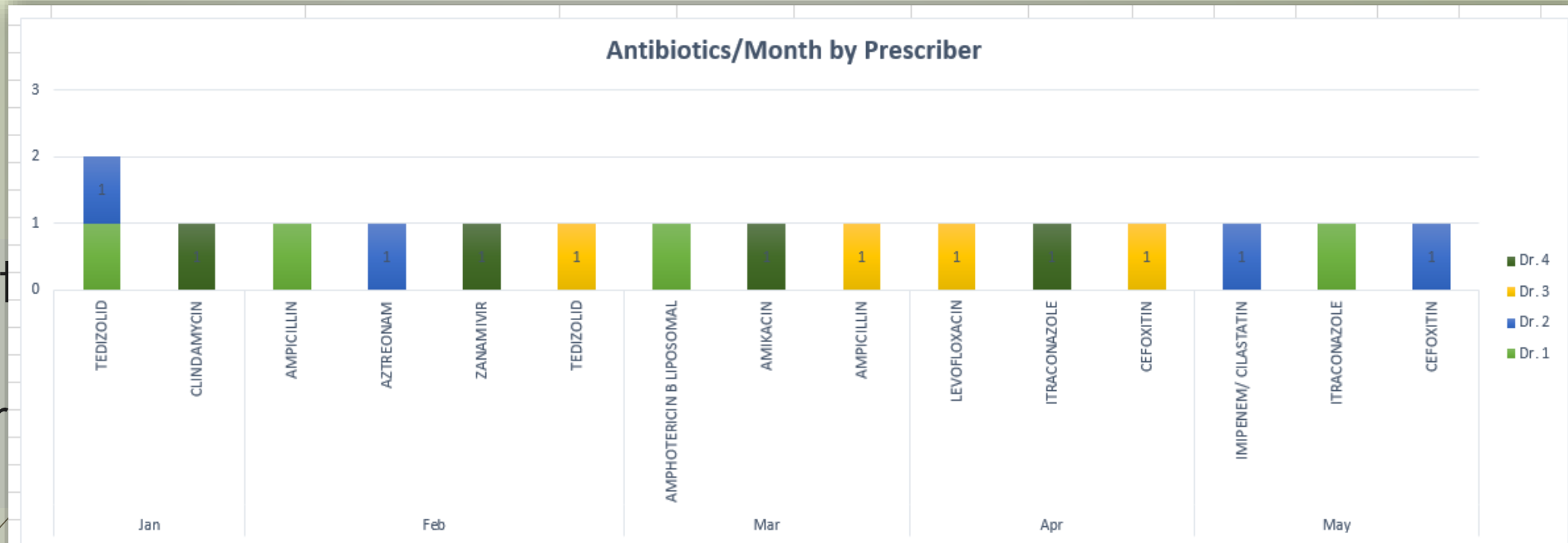
Count of Antibiotic Name		Prescriber				
Months	Antibiotic Name	Dr. 1	Dr. 2	Dr. 3	Dr. 4	Grand Total
⊟Jan	TEDIZOLID	1	1			2
	CLINDAMYCIN				1	1
Jan Total		**1**	**1**		**1**	**3**
⊟Feb	AMPICILLIN	1				1
	AZTREONAM		1			1
	ZANAMIVIR				1	1
	TEDIZOLID			1		1
Feb Total		**1**	**1**	**1**	**1**	**4**
⊟Mar	AMPHOTERICIN B LIPOSOMAL	1				1
	AMIKACIN				1	1
	AMPICILLIN			1		1
Mar Total		**1**		**1**	**1**	**3**

ABX Class Utilization by Month

Antibiotic Class Utilization
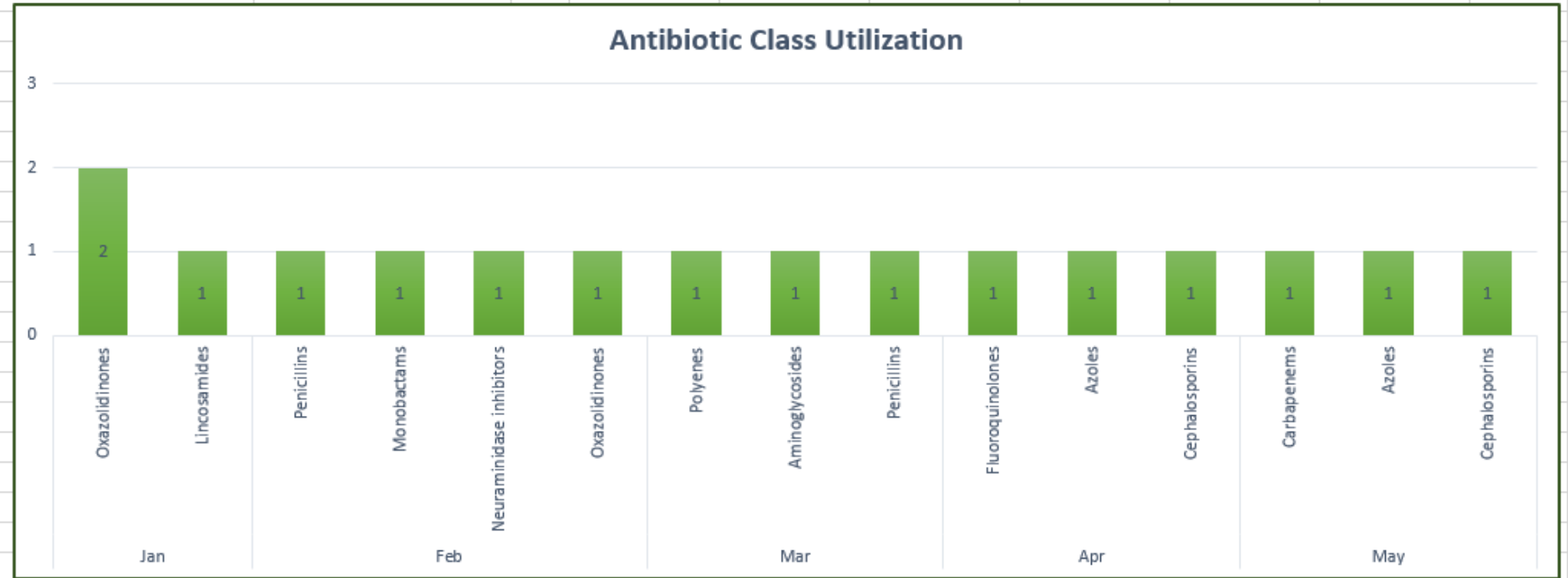
Count of Antibiotic Class		
Months ⊽	**Antibiotic Class** ⊽	**Total**
⊟ **Jan**	Oxazolidinones	2
	Lincosamides	1
Jan Total		**3**
⊟ **Feb**	Penicillins	1
	Monobactams	1
	Neuraminidase inhibitors	1
	Oxazolidinones	1
Feb Total		**4**
⊟ **Mar**	Polyenes	1
	Aminoglycosides	1
	Penicillins	1
Mar Total		**3**
⊟ **Apr**	Fluoroquinolones	1
	Azoles	1
	Cephalosporins	1

Click Refresh each time you look at the graphs to make sure any newly entered data has been updated. To do this, right click anywhere on these data tables. Then select "Refresh".
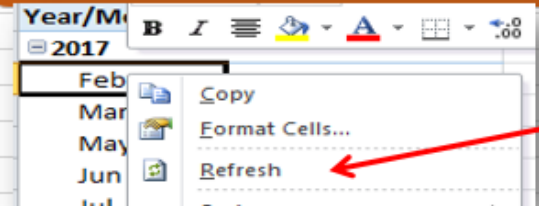
Year/Mo
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Feb
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📋 Copy
🗐 Format Cells...
📋 Refresh

MT ABS Collaborative, final

Resources

- **[MT ABS Resources webpage](#) (link)**
  - MT Antibiotic Stewardship Program Tracking tool- antibiotic usage (AU), Days of Therapy (DOT) spreadsheet and video/demo
  - MT ABS Collaborative and other ABS links and resources
  - Upcoming and previously presented MT ABS Collaborative educational events
- **[MT ABS Blog](#) (link)**

MT Flex Contacts

- **Jack King, Flex Grant Director
  jack.king@mtha.org**
- **For help with the ABS Tracking Tool:**
  - Jamie Schultz, Rural Hospital Improvement Coordinator
    jamie.schultz@mtha.org