

Keep the Users in Mind

Ginger Rouse, PharmD, BCPS

Clinical Pharmacy Specialist II, Medical Critical Care

Yale New Haven Hospital

Disclosure

- I have no conflicts of interest to disclose

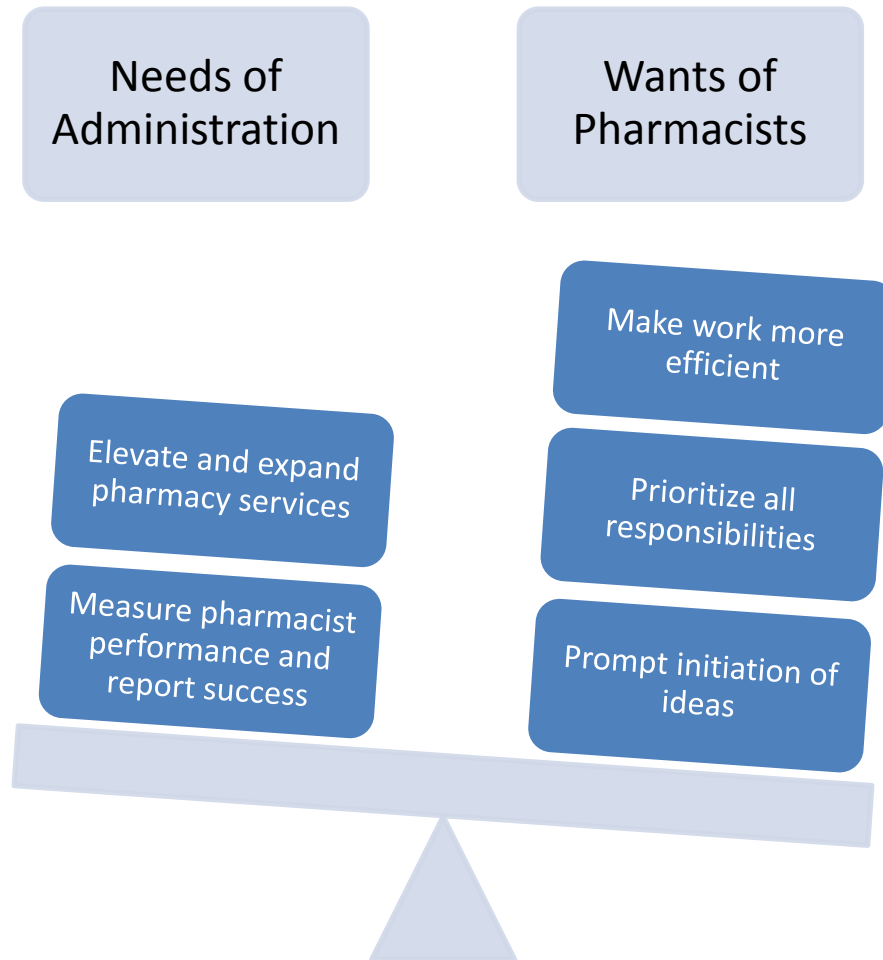
Objective

- Recognize the importance of engaging the end-users from the start of the program

The End Users

- In-touch with day-to-day strengths on units and areas for improvement
 - What will be a success and why
- Understand workflow in-depth
- Actively seek resolutions for patient safety
- Build relationships with nurses and providers which allows for strong collaborations
- Teach the next generation

New Ideas: A Balancing Act



Yale New Haven Health

- Five hospitals
 - Yale New Haven
 - Bridgeport
 - Greenwich
 - Lawrence & Memorial
 - Westerly
- 2,563 licensed beds



Reporting Structure



Clinical Workflow Optimization Committee

- Improve documentation and communication
 - Electronic handoff and intervention-tracking tools
 - Electronic template notes
 - Standard of Practice (SOP) for pharmacist and provider communication
- Health-system leadership meeting
 - Report out to clinical managers and clinical director
 - Focus on Practice Advancement Initiative (PAI)
 - Worked in conjunction to generate new ideas and execute new workflows

Clinical Workflow Optimization Committee

- Health-system committee
 - 15-20 pharmacist members
 - Frontline pharmacists
 - Clinical managers
 - Informatics pharmacists
 - Inpatient representation
 - Surgery, medicine, intensive care, oncology, pediatrics, multispecialty, infectious disease
- Mission Statement
 - To identify opportunities to improve pharmacist clinical workflow and capture pharmacist interventions through review of current data, discussion of identified problem areas, and formulation of proposals for optimization

Committee Factors for Success

- Equal representation from all hospitals
- Engage all team members up front
- Empower staff to seek change and implement ideas
- Provide opportunities to lead co-workers and provide education
- Lead own ideas and responsible for the follow-up
- Recognize staff for job well done

The Problem: Information Overload

Intervention List - for patients currently matching MICU ALL filter

Edit i-Vent |
 New i-Vent |
 Refresh |
 Unit Filters |
 Choose Columns

Unit Filter: MICU ALL OR
 Opened by User: ROUSE, GINGER

Type	Subtype ^{▲3}	Location ^{▲2}	Orders
Hand-Off	Sunday Evening	NP 9-YN9A#9206-9206-A	vancomycin (VANCOCIN) 1 g in dextrose 5 % 250 mL IVPB (...)
Hand-Off	Sunday Day	NP 9-YN9A#9218-9218-A	Vancomycin MAR Level
Hand-Off	Sunday Day	NP 9-YN9B#9224-9224-A	vancomycin (VANCOCIN) 750 mg in dextrose 5 % 250 mL IV...
Identify/label patient own medication		NP 10-YN10B#10224-10224-A	lamoTRigine (LAMICTAL ER) 24 hr tablet 100 mg
Hand-Off	Monday Day	NP 10-YN10A#10216-10216-A	meropenem (MERREM) 1 g in sodium chloride 0.9 % 100 mL...
Hand-Off	Monday Day	NP 10-YN10A#10218-10218-A	enoxaparin (LOVENOX) injection 120 mg
Nutrition Support		NP 10-YN10B#10232-10232-A	Adult/Adolescent Parenteral Nutrition Open Template (RPh/Di...
Hand-Off	Sunday Day	NP 10-YN10B#10226-10226-A	vancomycin (VANCOCIN) 750 mg in dextrose 5 % 250 mL IV...
Drug monitoring	Calcineurin inhibitor monitoring	NP 9-YN9A#9208-9208-A	tacrolimus (PROGRAF) Immediate Release capsule 1 mg; ta...
Formulary Request	Other	NP 9-YN9A#9208-9208-A	defibrotide 500 mg in dextrose 5 % 100 mL
Antibiotic stewardship	Optimize the drug/dose/duration	NP 9-YN9B#9226-9226-A	DAPTOmycin (CUBICIN) 300 mg in sodium chloride 0.9 % 50...
Formulary Request - Antimicrobial	Linezolid	NP 9-YN9B#9232-9232-A	tigecycline (TYGACIL) 100 mg in sodium chloride 0.9 % 100...
Anticoagulation monitoring	Warfarin Monitoring	NP 10-YN10C#10246-10246-A	warfarin (COUMADIN) tablet 2.5 mg
Hand-Off	Monday Day	NP 9-YN9C#9254-9254-A	vancomycin (VANCOCIN) 750 mg in dextrose 5 % 250 mL IV...
Hand-Off	Monday Day	NP 10-YN10A#10206-10206-A	vancomycin (VANCOCIN) 1 g in dextrose 5 % 250 mL IVPB (...)
Drug monitoring		NP 9-YN9B#9240-9240-A	heparin (porcine) injection 63,000 Units; heparin (porcine) inje...
Drug monitoring		NP 10-YN10A#10210-10210-A	valGANciclovir (VALCYTE) tablet 450 mg
Hand-Off	Monday Day	NP 10-YN10A#10210-10210-A	vancomycin (VANCOCIN) 2 g in sodium chloride 0.9 % 500 m...
Hand-Off	Monday Day	NP 10-YN10A#10210-10210-A	enoxaparin (LOVENOX) injection 100 mg; enoxaparin (LOVE...
Hand-Off	Wednesday Day	NP 10-YN10A#10210-10210-A	voriconazole (VFEND) tablet 200 mg; voriconazole (VFEND) t...
Anticoagulation monitoring	Warfarin Monitoring	NP 9-YN9B#9228-9228-A	warfarin (COUMADIN) tablet 5 mg; warfarin (COUMADIN) tab...

The Solution: Streamline Information

▲ Patient	MRN	DOB	Renal Dose Adjustments	IV to Enteral	YNH ANTICOAGULATION Score Column	YNH Vancomycin Scoring	Broad Spectrum Abx Score Column	Antimicrobial Stewardship - TAKE ACTION NOW	Covering Provider	RN
			—	①	0	1	0	—	Rosenblum, Hannah, MD	Elizabeth G (Ph: 000-000-0000); Ana R (Ph: 475-246-1736); Lynn L (Ph: 000-000-0000);...
			—	—	1	0	0	—	Rosenblum, Hannah, MD	Thomas B (Ph: 475-247-2366); Aaron T (Ph: 475-247-2837)
			—	—	1	0	0	⚠	O'Neill, Emilie, MD	Socorro J (Ph: 475-246-1696); Ravinder K
			①	—	0	0	10	—	Laporta, Anna, PA	Claire O (Ph: 475-246-3189); Fallon D (Ph: 475-246-1677)
			—	—	0	1	0	⚠	Haghighat, Leila, MD	Thomas B (Ph: 475-247-2366); Ravinder K; Lindsay K (Ph: 475-246-1698)
			—	—	6	0	0	⚠	O'Neill, Emilie, MD	Christine T (Ph: 000-000-0000)
			—	—	0	0	0	—	Thomas, Alexander William MD	Christina F (Ph: 475-246-5990)

The Solution: Streamline Information

Renal Dose Adjustments : 5,001

Review History

08/24/2018 0821 by Rouse, Ginger, PharmD

Patient on hemodialysis for volume overload, but still has residual renal function. Estimated CrCl is 15 mL/min. Please leave valganciclovir dose as 450 mg q48h for treatment of disseminated CMV.

[Full Review History](#)

Valganciclovir: 1 points - [Last updated: 08/24/18 0821]

Patient Marked As Reviewed: 5,000 points - [Last updated: 08/24/18 0821]

Time Since Reviewed

Serum Creatinine (Last 7 days) (168h ago through now)

Date/Time	Serum Creatinine	Flag	Range
08/24/18 0539	1.68 mg/dL	H	0.40 - 1.30 mg/dL
08/23/18 0523	3.04 mg/dL	H	0.40 - 1.30 mg/dL
08/22/18 0134	1.61 mg/dL	H	0.40 - 1.30 mg/dL
08/21/18 0511	3.75 mg/dL	H	0.40 - 1.30 mg/dL
08/20/18 0522	2.83 mg/dL	H	0.40 - 1.30 mg/dL
08/19/18 1847	2.16 mg/dL	H	0.40 - 1.30 mg/dL
08/19/18 0523	1.44 mg/dL	H	0.40 - 1.30 mg/dL
08/18/18 0523	2.73 mg/dL	H	0.40 - 1.30 mg/dL

Intake/Output

08/22/18 0701 - 08/23/18 0700

	0701-1500	1501-2300	2301-0700	Total
Intake				
I.V.	5	55	60	120
Volume (mL) (sodium chloride 0.9% infusion)	5	55	60	120
Other	--	--	--	--

Expect Barriers to Changing Workflow

- Resistance
 - “I am here every day. Why do I have to leave notes for myself?”
 - “This method is working for me. Why do have to change it?”
 - “This is just one more responsibility I have to add to the list.”
- Time
 - “I’m already fast enough at making and documenting interventions. This will slow me down.”
- Alert Fatigue
 - “I already see too many alerts, I don’t need any more.”

How Did we Engage Frontline Pharmacists?

- Demo of proposed optimization in electronic medical record
 - Need to see ideas first-hand instead of just hearing concept
- Before go-live, had pilot group of frontline pharmacists test to ensure accuracy and report successes and problems
- Time motion studies
- Missed intervention studies
- Clinical scorecard accuracy
 - Understanding the “why” from management

Frontline Champions and Superusers

- Identified strong clinical pharmacists to run reports and provide real-time feedback
- One-on-one education sessions as identified by champion or as requested by pharmacists
- Manager escalation
- Provided clear goals to staff about measures of success
 - Threshold
 - Target
 - Maximum

Staff Education

- Significant education
 - Staff meetings
 - Training videos
 - Safety calls
 - Live demos
- Targeted from different perspectives
 - Managers
 - PGY-1 residents
 - Frontline clinical pharmacists / champions

Pharmacist Feedback

- Made improvements in real-time
 - IV to enteral medications flagging in total parenteral nutrition orders
 - Thiamine doses of >100 mg
 - Piperacillin/tazobactam triggering alert when dosed correctly
 - Renal dose PRN medications triggering alert at high frequency
- Empowered pharmacists to keep reporting issues
 - Saw immediate action
 - Positive impact on workflow

Report of Pharmacist Follow-Up on Units

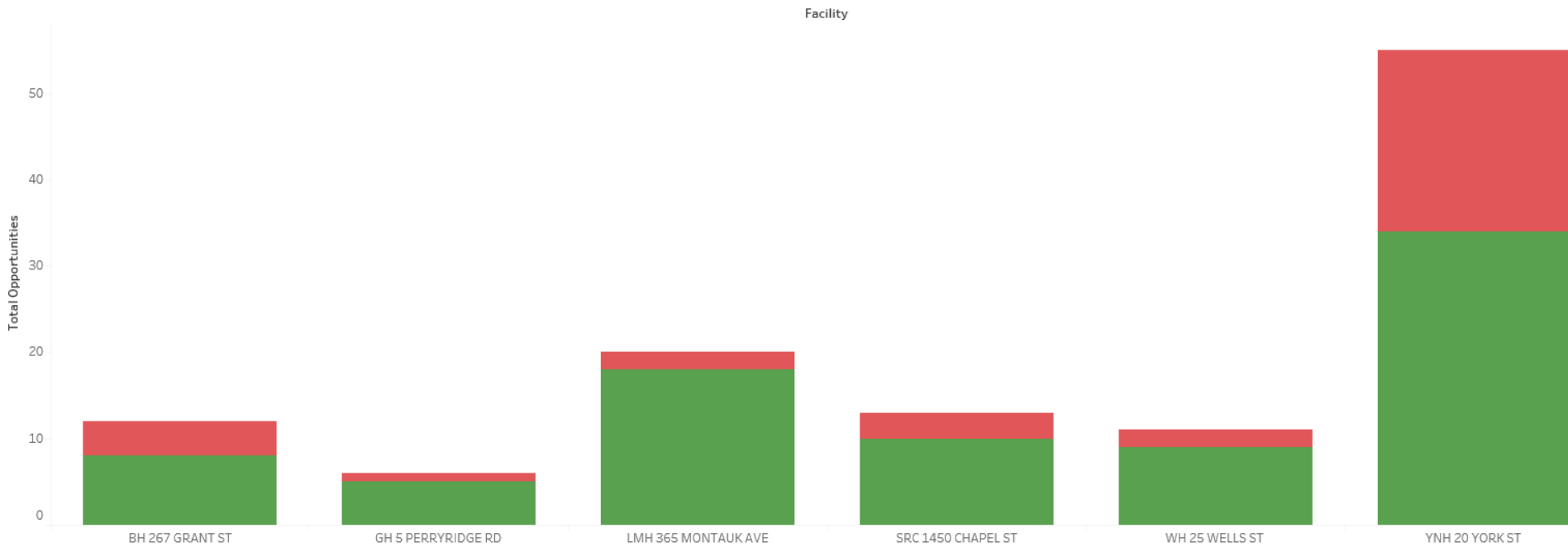


■ Unreviewed opportunities


■ Reviewed opportunities

Report of Health-System Follow-Up

Displaying reporting date: 8/23/2018



 Unreviewed opportunities

 Reviewed opportunities

Summary and Tips

- End-user support is critical for success
- Compromise administrative versus clinical team needs
- **Engage staff in building, testing, and the follow-up of new ideas!**
- Tips
 - Engage end-users as part of initial planning process
 - Pilot units prior to universal go-live
 - Education by strong clinical pharmacists or technicians

Assessment

Question: Which of the following may be a successful method to achieve buy-in of the staff when implementing a new idea?

A. Managers can build and test new ideas and frontline pharmacists or technicians can provide education

B. Engage staff in building, testing, and the follow-up of new ideas

C. Have PGY-1 pharmacy residents provide daily feedback to clinical pharmacists or technicians on their workflow

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