

Intervention to Nursing Home Physicians and Staff, and Its Effect on Antibiotic Use and Antimicrobial Resistance Within the Institution

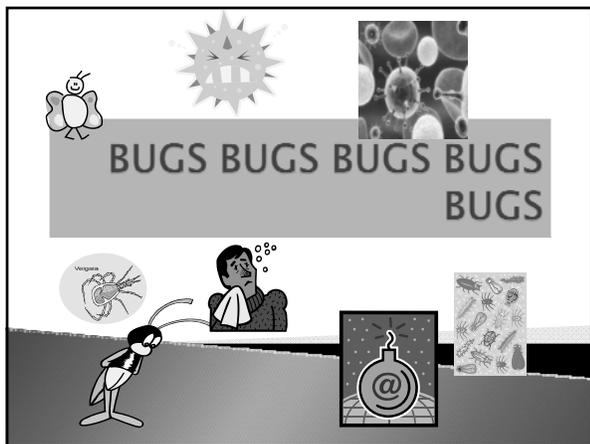


Joe Boero MD , Karen Haegerl RN
Park Manor Nursing Home
Park Falls, WI 4/9/11

WE ARE THE HEART OF OUR ESOP

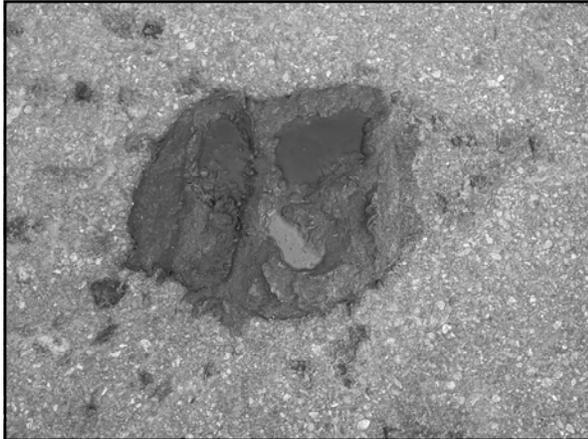
Park Manor Nursing Home

- ▶ 147 bed skilled nursing facility in Northern Wisconsin.
- ▶ Owners Wanda Preisler-Nutting and Mel Lynn
- ▶ ESOP (Employee Stock Ownership Plan) was started in September of 1998 and we became 100% employee owned December 31, 2009.
- ▶ Our philosophy is that we are all a part of the organization and all take an active roll in the organization.
- ▶ 168 Employees
- ▶ As far as we know we are the only 100% ESOP nursing home in the nation.



A Case Study 2006–2010

- ▶ An Intervention to Effect Physician Antibiotic Prescription Behavior in a Nursing Home
- ▶ Intervention to Influence Consistent Attention to Infection Control Measures in nursing home personnel.
- ▶ The Effect on Antibiotic Use, Bacterial Isolation in Clinical Specimens, and Antibiotic Sensitivity Patterns



MRSA associated skin infection in Staff

Staff Year	Month	Number
2006	January	1
	February	1
	March	1
	April	1
	May	1
	June	1
	July	10
	August	2
	September	2
	October	1
	November	1
	December	1
2007	January	2 1 repeater
	February	1 repeater
	March	1
	April	2
	May	2
	June	1
	July	1
	August	1 repeater





KAREN HAEGERL, RN

- ▶ Started at Park Manor Nursing Home in September of 1982 as a nurse aide.
- ▶ Became a Licensed Practical Nurse in 1987, attend college at Gogebic Community College in Ironwood Michigan.
- ▶ Became a Registered Nurse in 1992, attend the same college.
- ▶ Infection Control Nurse (now call Infection Control Preventionist) since 2001.
- ▶ Pharmacy Nurse since 2001.



KAREN HAEGERL, RN

- › Teach an independent Certified Nurse Aide Course call Care Aide since 1988.
- › Karen is involved in the survey process. When surveyors come to our building, I help in gathering information, speak with surveyors, and assist with plans of correction.
- › Karen is part of the Quality Improvement Committee.
- › Karen is Co-MDS Coordinator.
- › Karen is a Case Manager and train nursing staff in case management. (we have all nurses participate in case management, each nurse is assigned a group of residents and they help co-ordinate their over all plans of care.)



Problem with an Outbreak and What We Did

- Problem noticed in both staff and residents in July 2006
- Closely analyzed the antibiograms, by residents, by units, by room and staff by unit they work within
- Began tracking antibiotic use in resident and attending physician-Rainbow Spreadsheet
- Price County Public Health involved in October 2006
- Staff inservice by Dr. Boero Medical Director December 2006
- Dr. Chris Crnich infectious disease consultant was contacted. He came to Park Manor February 2007 and toured our facility and reviewed policies and procedures that were in place and made recommendations.

And, What We Did, cont.

- › We investigated our current EPA disinfectants.
- › We discontinued use of hypoallergenic laundry detergent.
- › We changed policies related to Resident Activities.
- › Reviewed and revised policies and procedures for contact isolation (dedicated equipment).
- › Cloth aprons C.N.A.'s use stopped.
- › New cart for transporting isolation linen to laundry from floor.
- › We did attempt some decolonization with staff and residents.
- › Dr. Boero Medical Director wrote letters to physicians in December 2006, June of 2007 and Sept 2008.
- › After the letters, follow up urines were obtained for the most part only if symptoms persisted
- › The start of antibiotics based solely on pyuria was stopped for the most part.
- › One physician who continued to treat based solely on pyuria and obtained multiple follow up urines without symptoms had an individual letter written.

..., And What We Also Did.

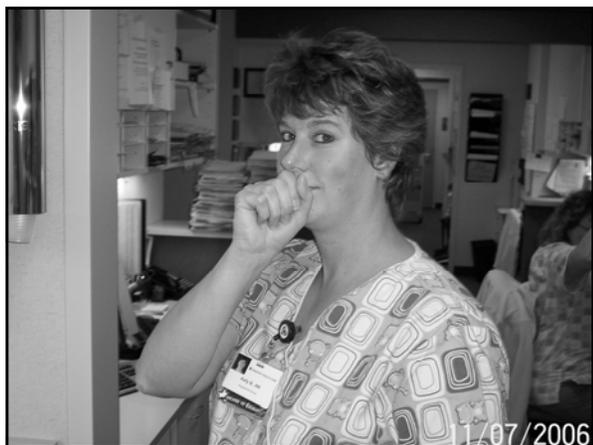
- ▶ In February 2007 Price County Public Health, Park Manor Nursing Home, Flambeau Hospital began meeting together to attempt to coordinate good infection control practices to avoid cross contamination from facility to facility.
- ▶ Flambeau Hospital began doing rapid nares cultures on all patients who come from the nursing home in 2008.
- ▶ Our chronic MRSA carriers are kept on contract precautions.
- ▶ We currently have 20 residents who are considered chronic carriers with average census of 100. We usually average 18-20 during the course of the year.

Medical Director's Role F-Tag 501

"The Medical Director helps the facility identify, address and resolve medical and clinical concerns and issues that affect resident care related to provisions of services by physicians and other licensed health care providers."

Medical Director's participation

In-service to nursing staff Nov 2006
Letter to physicians Dec 2006
Lunch with Physicians Jan 2007
Follow-up letter June 2007
Follow-up Letter Sept 2008







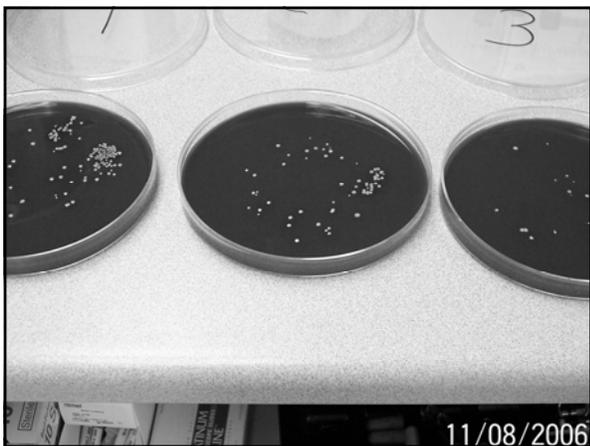


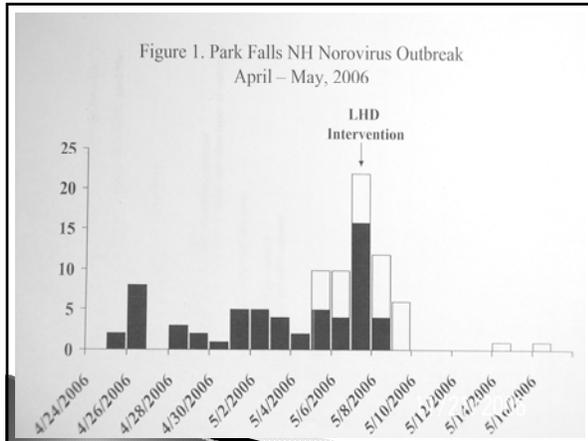


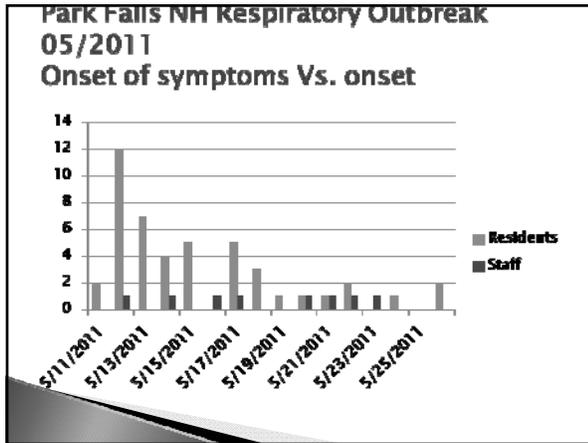












Letter to Physicians December 2006

- Gentle scrutiny of your antibiotic usage
- > 50% empiric antibiotic use is a quinolone
- Note copy of our antibiogram sensitivity pattern
- You will be cued: Change antibiotic if sensitivity pattern does not match your first choice
- You will be cued to stop unnecessary antibiotics

Letter to Physicians December 2006

- Please read "Managing Urinary Tract Infection: Guide for Nursing Home Practitioners" Annals of Long Term Care 2005 September
- Consider local wound care to MRSA colonized wounds rather than Vanco
- Introduced Paula Kock, RN as Certified Wound Care Nurse
- Invitation to participate in institutional infection control committee

Free Lunch Jan 2007

Rainbow Spreadsheet

Letter to Physicians June 2007

- Follow-up from Dec 2006-Thank you
- Significantly less use empiric quinolone except for one
- Most are responding to our nurse's cues
- Most have been comfortable with not treating asymptomatic bacteriuria
- May be receiving requests for surveillance cultures on your residents or our staff who are your patients
- Please consider becoming a member of our infection control committee
- "...the responsibility for multi-drug resistant pathogens lies with those of us who prescribe within our community"

"Dear Dr. Outlier,

You're the outlier in Antibiotic usage for UTI at PMNH.... Your practice is the last holdout for use of antibiotics in Sterile pyuria and empiric quinolone therapy.... Please consider your approach.... I would be happy to speak with you directly or electronically....

Sincerely,
Joe Boero MD
dr.boero@pfrmc.com

CC: Regional Medical Director.

Physician Follow-up Letter Sept 2008

- Floroquinolone usage is now rarely empiric choice for suspected uti and you have been diligent about stopping or changing antibiotics based on culture results
- However..., in last six months, review of antibiotic usage in suspected resp infection, Quinolone is the most commonly chosen agent
- Please consider non-bacteriologic etiology of fever, cough, tachycardia, hypoxia in your patients before reflexive use of antibiotics
- Treatment of Bacteriuria in Older Adults:Still Room for Improvement Crnich C, Drifka P JAMDA Oct 2008

And This is What
We've Found

Antibiotic Utilization Frequency

YEAR	# ABX	# RES	Rx/RES	# RES days	# Rx/Kdays
2006	503	135	3.73	42816	11.75
2007	400	130	3.08	37450	10.68
2008	343	162	2.12	35614	9.63
2009	360	155	2.32	37031	9.72
2010	351	119	2.95	35353	9.93

PARK MANOR ANTIBIOTIC USE

	AMOX	AMP	AUG	CIPRO	CLINDA	DICLO	DOXY	REFL	LEVA	MACRO	MISC	TETRA	TMP	3G CEPH	VANCO	ZINNO
2006	11	21	25	40	24	4	5	52	158	30	17	4	31	34	18	29
2007	17	5	32	10	14	4	36	7	102	54	21	4	61	6	15	12
2008	16	9	34	18	4	1	17	30	77	47	10	2	33	19	8	18
2009	16	14	20	17	2	2	11	39	84	55	28	0	27	6	12	27
2010	22	8	11	23	3	2	24	33	68	57	16	7	25	10	8	34

E coli sensitivity

Year	# of isolates	Organism	ampicillin	cefazolin	ciprofloxacin	nitrofurantoin	Imx/sulf	levofloxacin	ceftriax
2006	27/145	E. Coli	63	96	17	80	89	81	4
2007	36/116	E. Coli	50	70	31	100	67	56	31
2008	43/200	E. Coli	54	85	51	81	71	61	71
2009	41/160	E. Coli	51	84	56	91	63	63	77
2010	40/179	E. Coli	48	90	45	93	68	58	78

Proteus Susceptibility

Year	# of Isolates	Organism	AMP	CEPAZOL	CIPRO	nitro	TMXSULF	levogu	ceftriaxone
2006	14/145	Proteus mirabilis	100	100	0	0	100	50	
2007	20/116	Proteus mirabilis	100	95	15	0	95	55	25
2008	15/160	Proteus mirabilis	73	80	--	--	93	20	67
2009	12/200	Proteus mirabilis	67	67	17		83	33	50
2010	4/179	Proteus mirabilis	50	50			100	25	25

Enterococcus Sensitivity

Year	# of Isolates	Organism	Nitrofurantoin	levoflox	vanco	pcn
2006	31/145	Enterococcus	80	3	51	80
2007	15/116	Enterococcus	86	--	100	55
				AMPICILLIN		
2008	22/160	Enterococcus	86	55	95	36
2009	26/200	Enterococcus	73	69	100	15
2010	8/179	Enterococcus	88	63	100	25

St Aureus Susceptibility

Year	# of Isolates	Organism	cefazol	oxacil	vanco	nitro	tmxsulf	tcn
2006	14/145	St Aureus	7	0	--	100	100	100
2007	9/116	St Aureus	0	0	22	40	100	100
2008	10/160	St Aureus	10	10	50	10	100	100
2009	15/200	St Aureus	26	26	100	60	100	100
2010	6/179	St Aureus	16	16	100	50	100	100

MRSA related sores in Staff

2006	15
2007	9
2008	0
2009	0
2010	1

MRSA related sores in Residents

2006	23
2007	17
2008	6
2009	1
2010	0

Dx 995.91, 790.7 Uroespsis and Bacteremia

2006	0
2007	0
2008	1
2009	1
2010	3

SUMMARY

- Within routine infection control efforts an emerging problem was identified
- A plan of intervention was formulated
- Our consultant saw things we hadn't considered
- Dedication to infection control measures was stressed to staff and attending physicians
- Medical Director provided physician leadership and facilitated attending physician participation
 - F501 Medical Director fulfilled his responsibility for the coordination of medical care and the implementation of resident care policies was based on current standards of practice

Summary, cont.

- Bulk of work day-to-day adherence to the plan is credited to the strong support of the administrative team and the ladies and gentlemen in the trenches
- We believe our follow-up data supports a degree of successful outcome from the project
- Change happens slowly
- It is difficult to reason with prejudice when prejudice is not born in reason