

Community-associated MRSA:
A survey of MA lab directors and
infection control practitioners

Linda Han, MD, MPH

Director, Bacteriology Laboratories

State Laboratory Institute, MA DPH

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Background

- Emergence of CA-MRSA well-documented in literature, but disease burden in MA is ill-defined
- Can we take advantage of existing resources to build a lab-based sentinel surveillance system for CA-MRSA in MA?

Objectives

- To assess interest and usefulness of CA-MRSA surveillance data at hospitals
- To identify obstacles to hospital participation in CA-MRSA surveillance
- To identify CA-MRSA-related lab services that would be useful to hospitals
- To strengthen communications and collaborations between SLI and clinical laboratories in MA

Methods

- Two self-administered surveys with overlapping sets of questions
- Sent to 65 acute care hospitals in MA
- Survey 1: to microbiology laboratory director or supervisor
- Survey 2: to infection control director or practitioner
- Distributed by email, with one follow-up by snail mail

Results

- Response rates
 - 85 (67%) of 127 surveys completed
 - 59 (91%) of 65 hospitals represented
 - 37 (59%) of 63 ICP surveys completed
 - 48 (75%) of 64 lab directors surveys completed
- Poor representation from NE region of MA (5/12 hospitals)

Results of ICP survey

ICPs having electronic access to each component of the CA-MRSA case definition

Component	No./total ICPs	%
Outpt vs inpt status	36/37	97%
Days between admission and culture	36/37	97%
Indwelling catheter	12/37	32%
Hospitalization past year	35/37	95%
LTCF past year	8/37	22%
Surgery past year	34/37	92%
Dialysis past year	13/37	35%
MRSA infection past year	26/37	70%

CA-MRSA case definitions used by hospital ICP departments

- Among 37 ICPs surveyed, 24 (65%) routinely make efforts to distinguish CA from HA-MRSA
- Few hospitals share the same case definition for CA-MRSA
- Next page shows different components of case definitions used, extracted from free text field in the survey

Components of CA-MRSA case definitions used by ICPs

hospital number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	21	23
outpatient																			X	X			X
<48 hr from admit	X	X	X														X			X	X		X
<72 hr from admit				X									X			X			X				
no indwelling catheter																							X
no home IV or wound care																						X	
no past MRSA																	X						X
no past hospitalization					X						X	X						X					
no hosp'n in last 3 days						X																	
no hosp'n in last 2 wk							X									X							
no hosp'n at this facility in last 1 mo								X						X		X							
no hosp'n >2 d in last 3 mo																					X		
no hosp'n in last 6mo																						X	
no hosp'n in last 1yr													X										X
no hosp'n recently																				X			
no stay in long-term care facility (LTCF)											X	X						X					
no LTCF in last 1 mo													X										
no LTCF in last 6 mo																						X	
no LTCF in last 1yr													X										X
no dialysis/chemo in last 1mo																					X		
no dialysis in last 6 mo																						X	
no dialysis in last 1yr																							X
no surgery in last 6 mo																						X	
no surgery in last 1 yr																							X
no surgery with hardware in last 1yr																X							
no healthcare exposure													X					X					
first culture of a site																			X				
anything NOT healthcare-associated									X														
anything not HA at this facility										X							X						

Results of lab director survey

Routine reporting of MRSA isolates by lab to hospital ICP department

- 27 (56%) of 48 labs report all MRSA isolates from all patients
- 14 (29%) of 48 labs report MRSA isolates from inpatients only
- 7 (15%) of 48 labs report first MRSA isolate from any patient

Hospital labs currently tabulating number of MRSA isolates each month

- 21 (44%) of 48 labs currently determine number of MRSA isolates identified each month
- Among those who do not currently collect these data, 12 (43%) of 28 would be able to do so in $<1/2$ hr

Hospital labs currently tabulating number of first-time MRSA isolates each month

- 22 (46%) of 48 labs currently determine the number of MRSA isolates cultured for the first time from any given patient
- Among those who do not currently collect these data, 6 (23%) of 26 would be able to do so in $<1/2$ hr

No. of hospital labs reporting different percentages of MRSA isolates from outpatient sites






% MRSA isolates from outpt sites	No. labs	% total labs
0 – 25%	19	40%
26 – 50%	11	23%
51 – 75%	4	8%
76 – 100%	1	2%

No. of hospital labs that can easily collect data useful for CA-MRSA surveillance






Data	No. of labs	% total labs
DOB	41	86%
Inpt vs outpt status	39	81%
Source	44	92%
Days between admission and culture submission	20	42%
MRSA in past year	12	25%

Results of survey questions
administered to both ICPs and
lab directors






Usefulness of knowing more about locally circulating CA-MRSA strains

Usefulness	No.	%	
1 (least)	4	4.7%	
2	5	5.9%	
3	22	25.9%	
4	28	32.9%	
5 (most)	26	30.6%	
Total	85	100.0%	






Importance of emergence of CA-MRSA as a public health problem

IMPORTANCE	No.	%	
1 (least)	2	2.4%	
2	4	4.7%	
3	30	35.3%	
4	31	36.5%	
5 (most)	18	21.2%	
Total	85	100.0%	

Usefulness of knowing about trends in CA-MRSA prevalence

Usefulness	No.	%	
1 (least)	3	3.5%	
2	4	4.7%	
3	21	24.7%	
4	32	37.6%	
5 (most)	25	29.4%	
Total	85	100.0%	

Usefulness of knowing PFGE patterns of circulating MRSA isolates from your hospital

Usefulness	No.	%	
1 (least)	7	8.2%	
2	7	8.2%	
3	22	25.9%	
4	18	21.2%	
5 (most)	31	36.5%	
Total	85	100.0%	

Significant differences in responses of ICPs and lab directors

	ICP response (median)	Lab response (median)	p-value
Importance of emergence CA-MRSA	4.0	3.0	0.005
Usefulness circulating CA-MRSA strains	4.5	4.0	0.003
Usefulness trends CA- MRSA prevalence	4.5	4.0	0.01
Usefulness PFGE patterns circulating MRSA strains	5.0	3.0	0.0005

CA-MRSA lab services that would be of greatest use to hospitals

- PFGE of selected isolates
- Identification of CA-MRSA virulence genes
- Rapid MRSA screening test
- Compilation of data from other regions
- Notification about outbreaks occurring in specific populations
- Distribution of results of this survey

Study limitations

- Results are biased towards respondents respondents with greater interest in and/or awareness of CA-MRSA
- Surveys distributed to only 1 ICP and 1 lab director at each hospital
- Use of electronic survey restricts ability of respondents to add qualifying comments

Conclusions

- Awareness and concern re CA-MRSA exists at hospitals throughout MA
- Most labs already report MRSA cases to ICPs, and many already compile monthly MRSA stats
- Most ICPs already make an effort to distinguish HA- from CA-MRSA
- Lack of uniformity in CA-MRSA definitions used at hospitals
- Lack of ready access to key components of the CDC CA-MRSA case definition

Future questions

- Are there accurate proxy indicators of CA-MRSA that are also easily accessible?
 - Young age?
 - Outpatient?
 - Wound and skin sources?
- How good are laboratory-based indicators for CA-MRSA? Are laboratory indicators better than clinical indicators?
- Is a lab-based sentinel surveillance system for CA-MRSA feasible/achievable?

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