

Safety and Health Investment Projects FINAL REPORT REQUIREMENTS

The purpose of the final report of your SHIP project is to:

1. Evaluate and document the achievements, challenges, and shortcomings of the project for the constructive benefit of others interested in learning from SHIP projects; and
2. Provide the Division of Occupational Safety and Health with information that shows:
 - the outcomes specified in the project application were met; and
 - the grant was used for the purpose(s) for which it was approved and in accordance with relevant WAC rules and any special conditions or requirements; and
 - the outputs of the project has been disseminated as specified in the application.

The report format has four sections:

1. Cover Sheet
2. Narrative Report (Part I)
3. Financial Information (Part II)
4. Attachments (Part III)

Please provide complete and detailed information in the final report. If you have questions, please call your SHIP grant manager.

REMINDER!!: All products produced, whether by the grantee or a subcontractor to the grantee, as a result of a SHIP grant are in the public domain and can not be copyrighted, patented, claimed as trade secrets, or otherwise restricted in any way.

MRSA Associated with Fire District Medic Units and Fire Station Personnel
2008-XB-00092
03/15/09-09/30/10

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Funding and support for this project has been provided by the State of Washington, Department of Labor & Industries, Safety & Health Investment Projects.

[Grantee] is solely responsible for the content of and views expressed in this report and related materials unless they have been formally endorsed by the Washington State Department of Labor and Industries.

PART I

Final Report Narrative

Organization Profile

For awarded organizations, to include partners and collaborators, provide a brief description of each organization. Mission, vision, and purpose of the organizations may be valuable to include.

University of Washington Department of Environmental & Occupational Health Sciences is within the School of Public Health at the University of Washington. The faculty of the DEOHS study how environmental factors can harm human health and how to identify, prevent, and control these effects. The field concerns itself with: 1) maintaining a safe supply of food and drinking water; 2) discovering the mechanisms of environmentally related diseases; 3) treating and disposing of solid and toxic wastes; 4) reducing air, water, food, and noise pollution; 5) controlling workplace hazards. The department educates undergraduate and graduate students in the area of environmental & occupational health and its goal of working with the public to solve environmental and occupational problems.

Abstract

Present a short overview of the nature and scope of the project and major findings (less than half a page)

The overall goals included: 1) Determine if there was surface contamination of Fire Station surfaces, Medic 1 unit and Fire trucks with methicillin resistant *Staphylococcus aureus* [MRSA] in two stations from two separate western WA Fire Districts; 2) Modify current surface disinfection protocols to reduce levels of MRSA and educate the fire personnel on MRSA including protecting themselves from colonization and infection; 3) Produce and distribute educational materials which will be used to inform and educate fire personnel on prevention. The two stations were sampled for the presence of MRSA and *S. aureus* and the isolates characterized. During the time period between sampling, educational talks were given to personnel; a number of signs reminding personnel to wash their hands were placed around the station. Hand-sanitizers were installed in all the doorways leading from the garage to living quarters and recommendations to disinfect the medic and fire trucks daily were put in place. MRSA was isolated from 44 (4.2%), of 1,064 samples examined and included USA300 isolates, the major cause of community acquired MRSA. The same strains of MRSA were found in both the garage [medic and fire trucks and protective clothing] and the living

quarters. Community and hospital-like MRSA were isolated from the environmental samples and the majority of the nasal MRSA/*S. aureus* isolates were genetically related to the environmental MRSA strains suggesting transmission between personnel and the environmental surfaces may be occurring. The original grant had included sampling fire personnel because if they were colonized it would make it more difficult to reduce MRSA surface levels. However funding was not included in the final grant. Because of its' importance Snohomish county paid to have some of their personnel tested and nasal carriage of MRSA, was 22.5% which is higher than often found in hospital personnel. This strongly suggests that further study on the fire personnel is needed if the MRSA level is to be reduced which will reduce the risk of MRSA colonization and disease.

Purpose of Project	Describe what the project was intended to accomplish.
<p>The project was designed to do the following:</p> <ol style="list-style-type: none"> 1. Determine the level of MRSA contamination on surfaces within the Fire Stations and Fire Apparatuses. 2. Produce educational materials [posters, talks, web based] which will be used for initial and yearly up-dates for Fire Station personnel, and in Fire and EMS Academies and production of posters reminding personnel of appropriate personal hygiene which should be followed, and raising awareness of individual behavioral and stations changes needed to reduce levels of MRSA. Education of personnel on signs of MRSA infections and how the individual could protect themselves against work related MRSA infections. 3. Develop recommendations on best practices for disinfection protocols of surfaces in the Fire Stations and Fire apparatuses. 4. Distribution of educational material state-wide 	

Statement of the Results	Provide a clear statement of the results of the project include major findings and outcomes
<ol style="list-style-type: none"> 1. We successfully cultured the two Fire Stations surfaces and Fire Apparatuses twice. The level of MRSA and <i>S. aureus</i> were not significantly different between the two sampling time periods however during the first sampling 58% of the MRSA positive surfaces were from the Fire Apparatuses while in the second sampling only 22% of the MRSA positive samples were from the Fire Apparatuses. It is not clear if the lower level of contamination at the second sampling time period after new disinfection protocols had been put in place which included daily disinfection vs weekly prior to the study was instrumental in lowering the level of MRSA contaminated surfaces in the Fire 	

Apparatuses or if it was due to other factors. During the first sampling we isolated USA300 but not in the second sampling. Whether this was due to changes in individual behavior and through education or by chance was not clear.

2. Talks were given to Fire personnel at one of the two districts after the first sampling was done and analyzed. The talk was video taped so all members of the station and other stations in the district could receive the information. A similar talk was given to the administration in the second Fire District. Information provided was incorporated into the annual infectious disease updates given at the District. After the second sampling was completed, a talk was given at the regional Firefighter Wellness Coordinator Meeting which is attended by personnel from Fire Districts around the western WA and Oregon region. In the May 2010, a poster presentation was given at the Annual Meeting for the American Society of Microbiology on the work and a manuscript has been accepted for publication in the American Journal of Infection Control.
3. After the initial sampling a change in disinfection protocol was implemented for the Fire Apparatuses. Instead of disinfection once per week the trucks were put on a daily disinfection protocol. New alcohol hand sanitizers were added to the doorways from the garage into the living quarters. New signs reminding personnel to wash their hands were also posted around the Fire Stations.
4. A short piece was written and posted on International Association of Fire Chiefs website [Firefighter/EMT safety, health & survival: MRSA contamination –Not limited to patient contact. <http://www.iafc.org/displayindustryarticle.cfm?articlenbr=43852>]. We are currently setting up a website to provide access to these materials.

Evidence of the results

Demonstrate evidence of how well the results met or fulfilled the intended objectives of the project.

1. Disinfectant protocols for Fire Apparatuses have been changed from weekly to daily.
2. More alcohol hand sanitizers have been installed from garage to living quarters.
3. Fire fighters and administration have been informed on what has been found.
4. Written information has been posted.
5. Other Fire Districts are contacting me asking for information.

Project's promotion of prevention

Explain how the results or outcomes of this project promote the prevention

	of workplace injuries, illnesses, and fatalities?
	<ol style="list-style-type: none"> 1. Education has lead firefighters to seek medical help if they suspect an MRSA infection. 2. Education of clinician serving firefighters has helped reduce the number of relapses of MRSA infections.
Relevant processes	Specify all relevant processes, impact or other evaluation information which would be useful to others seeking to replicate, implement, or build on previous work.
	<ol style="list-style-type: none"> 1. The manuscript in press [See Appendix] lists the methods, results, conclusions, and what further work should be done allowing other to build on what we have accomplished.
Lessons Learned	<p>Provide information on lessons learned through the implementation of your project. Include both positive and negative lessons. This may be helpful to other organizations interested in implementing a similar project.</p> <p><i>Lessons outlined should not relate to SHIP grant processes.</i></p>
	<ol style="list-style-type: none"> 1. Design realistic time lines for development of educational materials. 2. Design realistic time lines when dealing with multiple Fire Districts with different agendas and structures.
Measures to judge success	If relevant, state what measures or procedures were taken to judge whether/how well the objectives were met and whether the project or some other qualified outside specialist conducted an evaluation.
	<ol style="list-style-type: none"> 1. The project had an Advisory Board made up of Fire personnel from the two different Districts. They asked us to provide them with recommendations which were brought to their respective Administration for change.
Uses	How might the products of your

	<p>project be used within the target industry at the end of your project?</p> <p>Is there potential for the products of the project to be used in other industries or with different target audiences?</p>
<ol style="list-style-type: none"> 1. The recommendations for changes in personnel behavior and disinfection protocols generated during the current study can be directly applied to firefighter and fire districts across WA and the USA. 2. These recommendations will also be of great value to other first responders who interact with the same population as does the firefighters. 3. With some modifications which require study, the recommendations may be applicable to other industries which have elevated potential for MRSA infections. 	

Product Dissemination	Outline of how the products of the project have been shared or made transferrable.
<ol style="list-style-type: none"> 1. The website with recommendations and other relevant materials, such as power point presentations and posters is currently being constructed. The relevant materials are in the appendix 2. The short article outlining the results is currently accessible on the web A short piece was written and posted on International Association of Fire Chiefs website [Firefighter/EMT safety, health & survival: MRSA contamination –Not limited to patient contact. http://www.iafc.org/displayindustryarticle.cfm?articlenbr=43852] 	

Feedback	Provide feedback from relevant professionals, stakeholder groups, participants, and/or independent evaluator on the project.
<ol style="list-style-type: none"> 1. The importance of the work is evident by the piece posted on International Association of Fire Chiefs website [Firefighter/EMT safety, health & survival: MRSA contamination –Not limited to patient contact. http://www.iafc.org/displayindustryarticle.cfm?articlenbr=43852] 	

PART II

SAFETY AND HEALTH INVESTMENT PROJECTS ***SHIP Final Expenditure Report*** ***Budget Summary***

Project Title:	MRSA and Fire Station	Report Date:	October 25, 2010
Project # :	2008-XB-00092	Contact #:	(206) 543-8001
Contact Person:	Marilyn Roberts	Project Completion	September 30, 2010
Start Date:	March 27, 2009	Date:	

1.	Total budget for the project		\$ 256,491
2.	Total SHIP Grant Award		\$ 256,491
3.	Total of SHIP Funds Used		\$ 256,491
4.	Budget Modifications (if applicable)		\$ 0
5.	Total In-kind contributions		\$ 0
6.	Total Expenditures (Lines 3 + 4 + 5)		\$ 256,491

Instructions:

- Complete the Supplemental Schedule (Budget) form first (on the next page).
- The final report must include all expenditures from date of completion of interim report through termination date of grant
- Indicate period covered by report by specifying the inclusive dates
- Report and itemize all expenditures during specified reporting period per the attached supplemental schedules
- Forms must be signed by authorized persons (see last page)
- Forward one copy of the report to (Name), **SHIP Project Manager, PO Box 44612, Olympia, WA 98504-4612.**

SAFETY AND HEALTH INVESTMENT PROJECTS
SHIP Final Expenditure Report
Supplemental Schedules (Budget)

Project Title: **MRSA and Fire Station**

Project # : **2008-XB-00092**

Contact Person: **Marilyn Roberts**

Total Award \$: **\$256,491**

Report Date:

October 13, 2010

Contact #:

(206) 543-8001

ITEMIZED BUDGET -- How were SHIP award funds used to achieve the purpose or your project?

	Budgeted for Project	Amount Paid Out	Difference
A. PERSONNEL	\$191,659	\$195,083	(\$3,424)

Explanation for Difference and other relevant information:

Includes Benefits budgeted of \$37,584 and benefits paid out of \$39,407

	Budgeted for Project	Amount Paid Out	Difference
B. SUBCONTRACTOR	\$0	\$0	\$0

Explanation for Difference and other relevant information:

	Budgeted for Project	Amount Paid Out	Difference
C. TRAVEL	\$1,515	\$0	\$1,515

Explanation for Difference and other relevant information:

	Budgeted for Project	Amount Paid Out	Difference
D. SUPPLIES	\$31,000	\$29,053	\$1,947

Explanation for Difference and other relevant information:

	Budgeted for Project	Amount Paid Out	Difference
E. OTHER CONT. SVCS	\$9,000	\$9,038	(\$38)

Explanation for Difference and other relevant information:

	Budgeted for Project	Amount Paid Out	Difference
TOTAL DIRECT COSTS	\$233,174	\$233,141	\$0

Direct costs

	Budgeted for Project	Amount Paid Out	Difference
INDIRECT COSTS	\$23,317	\$23,317	\$0
	Budgeted for Project	Amount Paid Out	Difference
TOTAL SHIP BUDGET	\$256,491	\$256,491	\$0
	Budgeted for Project	Amount Paid Out	Difference
F. IN-KIND	\$0	\$0	\$0
Explanation for Difference:			

PART III

Attachments:

Provide resources such as written material, training packages, or video/audio tapes, curriculum information, etc produced under the grant.

Also include copies of publications, papers given at conferences, etc.

This information should also be provided on a **CD or DVD** for inclusion in the file.

REMINDER!!: All products produced, whether by the grantee or a subcontractor to the grantee, as a result of a SHIP grant are in the public domain and can not be copyrighted, patented, claimed as trade secrets, or otherwise restricted in any way.

Appendix material provided:

1. **Accepted Manuscript: Roberts, M.C., O.O. Soge, D.B. No, N. Beck, and J.S. Meschke.** Isolation and characterization of methicillin-resistant *Staphylococcus aureus* (MRSA) from fire stations in two Northwest fire districts. Am. J. Infect. Control
2. **URL article: International Association of Fire Chiefs website**
"Firefighter/EMT safety, health & survival: MRSA Contamination –Not limited to patient contact"
<http://www.iafc.org/displayindustryarticle.cfm?articlenbr=43852>, 2010.
3. **Power point presentation: Northwest Wellness Coordinator Biannual Meeting "MRSA in Two NW Fire Stations"** Everett WA, March 12, 2010.
4. **EMS Hygiene Posters for Fire Department use**

Items 1-4 combined into a single pdf file

Poster presentation: Roberts, M.C., O.O. Soge, D. No, and J. S. Meschke.
Isolation and molecular characterization of MRSA isolated from fire/medic trucks and fire station living quarters. Abstracts of the 110th Annual Meeting of American Society of Microbiology, San Diego CA May 23-27, 2010.

Poster is a separate file