Supplementary Appendix

This appendix has been provided by the authors to give readers additional information about their work.

Supplement to: Huang SS, Singh R, McKinnell JA, et al. Decolonization to reduce postdischarge infection risk among MRSA carriers. N Engl J Med 2019;380:638-50. DOI: 10.1056/NEJMoa1716771

Project CLEAR Trial

Education Versus Education Plus Decolonization to Reduce Post-Discharge Infections in Methicillin-Resistant Staphylococcus aureus (MRSA) Carriers (17-16771)

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CHANGING LIVES BY ERADICATING ANTIBIOTIC RESISTANCE

Decolonization Group

LABioMed

School of Medicine
University of California · Irvine

Harbor-UCLA Medical Center

AHRQ

project CLEAR

CHANGING LIVES BY ERADICATING ANTIBIOTIC RESISTANCE

Mission Statement

Project CLEAR is a clinical trial comparing two different ways to prevent MRSA infection in patients who have been recently discharged from the hospital. You are participating because you have MRSA somewhere on your body, even if you do not have an infection. Having MRSA on the body, also known as "carrying MRSA", can put you at risk for having later infections by this bacterial germ.

We are studying two different ways to prevent MRSA infection because it is not known which one works better. The best way to compare two strategies is to randomly assign participants to each group (that means that study participants do not get to choose which strategy they are assigned).

One group is receiving detailed educational support about good hygiene and cleaning to prevent MRSA infections at home. This educational support will continue for the year following recruitment and hospital discharge. The other group will receive the same detailed education, as well as special soaps and medication to try to remove MRSA from the body. Both groups are equally important in successfully carrying out the trial. It is possible that information about good hygiene and household cleaning is enough to prevent infection without having to deal with the soaps and medicines to remove MRSA. On the other hand, it is possible that the soaps and medicines are helpful and are worth the effort and costs to future patients outside of this trial (in this trial all soaps and medicines are provided for free).

You have been assigned to the Decolonization Group. This group is very important because it will answer whether these products are helpful in preventing MRSA infection in the future. For this reason, it is important for you to do your very best to apply the soap and medication as directed. We know that the Hibiclens® soap, PerioGard® mouthwash, and Bactroban Nasal® ointment have been shown to be helpful in removing MRSA in smaller, shorter studies. We hope to learn if it is helpful in the long run for preventing MRSA infection over the full year following hospital discharge. We know that the year after hospital discharge is an important time for healing and resting, as well as a time when infections are more common.

We thank you for participating in this important study. We look forward to working with you to prevent MRSA infections.

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What to Expect: Calls and Follow Up

Day of Enrollment/Prior to Discharge

- Receive a copy of the signed consent form
- Complete a contact information sheet
- Complete a survey with Project CLEAR study staff
- Have swabs of the nose, throat, armpit/groin, and any wounds taken by Project CLEAR study staff
- Receive a binder containing MRSA educational materials and instructions for soap and medicine to remove MRSA
- Select a follow up clinic location
- Schedule a one month follow up visit at that study clinic
- Prior to discharge, receive decolonization products to remove MRSA
    - Special soap: Hibiclens® (chlorhexidine)
    - Special mouthwash: PerioGard® (chlorhexidine)
    - Special nose medicine: Bactroban Nasal® (mupirocin)

After You Leave the Hospital

- You will be followed in the trial for one year after discharge
- Perform the "Decolonization Protocol" (treatment) which will be done:
    - Twice a month for 6 months
    - Each decolonization treatment lasts for 5 days at a time and includes:
        - Hibiclens® bathing/showering once daily, for 5 days
        - PerioGard® mouthwash twice daily, for 5 days
        - Bactroban Nasal® ointment in both nostrils twice daily for 5 days

- Receive a special calendar and phone call reminders
- Attend follow up study clinic visits 1, 3, 6, & 9 months after enrollment
    - You will be compensated for each visit
    - During each visit:
        - A survey will be completed with clinic study staff
        - Repeat swabs of nose, throat, armpit/groin, and any wounds will be taken by study staff
        - Additional educational material will be given to you
        - Additional decolonization products will be given to you.

- Receive phone calls four times a month for one year following discharge
    - 2 Reminders to begin decolonization protocol (days before start)
    - 2 Reminders to confirm decolonization has begun (days after start)
    - Each call will ask for an update on outcomes
    - After the decolonization treatments end (first 6 months), there will be two calls per month instead of four (last 6 months).
    - Report medical conditions to study staff if you are:
        - Hospitalized for any reason
        - Admitted to a nursing home or rehabilitation center
        - Seen in any outpatient clinic or emergency department visit for possible infection.

      In these cases, medical records will be requested and obtained for the sole purpose of study outcomes (covered in consent form).

Clinic Visits

Your 4 follow up visits can be scheduled at any of the following study clinic sites:

1) University of California, Irvine (undergraduate campus in **Irvine**)
    a. [redacted]
2) University of California, Irvine Medical Center (**Orange**)
    a. [redacted]

3) LA Biomed Research Institute at Harbor-UCLA Medical Center (**Torrance**)
   a. [redacted]

*Parking at all sites is free. See the "What to Expect Calls & Follow Up" tab for maps and directions.

Timing and Payment of Clinic Visits

Visit Number	Time of Visit	Cash Payment
1	One month after enrollment	$25
2	Three months after enrollment	$30
3	Six months after enrollment	$35
4	Nine months after enrollment	$50

Note: there is no reimbursement for travel, only compensation for the visit

What Will Happen at Clinic Visits?

You will be asked to:

- Share any questions
- Confirm current contact information
- Complete a follow up survey with study staff
- Report any recent hospitalizations, as well as outpatient clinic visits for an infection. These are important study goals.
- Allow a study nurse to collect swabs from the same 4 body sites (nose, throat, armpit/groin, and wound if applicable) to be tested for MRSA
- Receive additional MRSA educational materials
- Decolonization Follow Up
    - Receive additional soap and medicine products to remove MRSA
    - Report any concerns or side effects from the soap and medicine

What Will Happen at the End of the Trial?

After all persons in the trial have finished the trial and all analyses are completed and accepted for publication, you will receive a notification about trial findings.

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Follow-up Visit Locations

You can be seen at any of the three different locations for your follow-up visits. The following pages include maps and parking information.

IRVINE **University of California, Irvine – Clinical Research Facility at Hewitt Hall**
Map 1 – General Map of University of California, Irvine Campus
Map 2 – Detailed View of Clinical Research Facility at Hewitt Hall at University of California, Irvine
ORANGE **University of California, Irvine Medical Center – Clinical Research Center**
Map 3 – General Map of University of California, Irvine Medical Center Campus
Map 4 – Detailed View of Clinical Research Center at University of California, Irvine Medical Center
TORRANCE **LA BioMed Research Institute at Harbor – UCLA Medical Center – Liu Research Center**
Map 5 – General Map of LA BioMed Research Institute at Harbor – UCLA Medical Center Campus
Map 6 – Detailed View of Liu Research Center at LA BioMed Research Institute at Harbor – UCLA Medical Center

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Frequently Asked Questions
Decolonization Group

What Does Project CLEAR Mean?

CLEAR stands for Changing Lives by Eradicating Antibiotic Resistance.

Why Was I Asked to Participate in This Trial?

You were chosen because a germ called MRSA was found on your skin and your hospital gave us permission to speak with you.

Who Is Running Project CLEAR?

Infectious Disease physicians from the School of Medicine at the University of California, Irvine and Los Angeles Biomedical Research Institute at Harbor-UCLA Medical Center are leading this project. There is also a clinical and scientific advisory board consisting of experts in medicine and statistics from all over the country.

What Is Decolonization?

Decolonization is the removal of MRSA from your body through the use of special soaps and medication. For MRSA, this means applying topical products to your nose, throat, and skin. If successful, this may reduce your chances of developing a future MRSA infection or re-admission to the hospital.

Can I Choose to Be in the Education or Decolonization Group?

No. Group participants are randomly assigned. You will have a 50-50 chance to be included in either group.

What Is My Commitment and How Will It Impact My Everyday Life?

Your time commitment for the study is one year and the decolonization period lasts for the first six months of the trial. During the decolonization period, Project CLEAR study staff will contact you by phone four times per month to remind you to start your decolonization regimen and to see if you have had any side effects from the products given to you. Additionally, study staff will call you to remind you of your follow-up visits. We will also ask you about any hospitalizations (for any reason) or any outpatient visits you may have had for a possible infection. In the second six months, you will receive twice a month calls to ask about hospitalizations or outpatient visits. You will also go to the study clinic visits 1, 3, 6, and 9 months after enrolling in the study. These follow-up visits will last about 30 minutes and you will be compensated for your time.

Are the Products Safe?

All treatments used in this study - Hibiclens® soap, PerioGard® mouthwash, and Bactroban Nasal® ointment - have been approved by the United States Food and Drug Administration (FDA) for use in adults. Since they are all topical, their safety profile is excellent. However, all medicines and products can cause allergies and side effects. Please see section on Safety & Side Effects for more information.

How Do I Use the Products and How Often?

Please read the pages within the instructions tabs for detailed directions on how to use the study medicine and soap.

The products are required to be used for five-day periods, twice a month, for six months. During these five-day treatment periods, you will use Hibiclens® soap at least once a day and for all other bathing needs, PerioGard® mouthwash twice daily, and Bactroban Nasal® ointment in both nostrils twice daily.

What If I Forget to Bathe with Hibiclens®, Use PerioGard® Oral Rinse, or Apply Bactroban Nasal®?

It depends on how many times you forgot. If you only forgot one day's worth of any treatment (or less than a day's worth for Bactroban Nasal® or PerioGard®) you should use the treatment as soon as possible and then go back to your regular schedule to **complete a total of 5 days (not including the day you missed).**

If you skipped more than one day's worth of any treatment, you will need to restart the 5 days of therapy with all treatments (Hibiclens®, Bactroban Nasal®, PerioGard®) from the start. Remember it is important to make sure you use all 3 products at the same time. **If you need to restart any of these products because you missed more than a day's worth of use, you will need to restart all 3 of them for another 5-day course.**

What Is a Side Effect?

A side effect is a new medical problem that happens during treatment with a drug or other therapy that seems like it is caused by one of the study treatments.

How Do I Report a Side Effect?

Side effects and questions about side effects **can and should be reported** to Project CLEAR study staff by contacting them at: [redacted] or EndMRSA@uci.edu during office hours (8:30am-5pm), Monday through Friday. A Project CLEAR study supervisor can be reached anytime, including after hours or on weekends for **urgent issues that cannot wait until business hours** by paging [redacted]

What If I Run out of Study Product?

You will be given additional product throughout the trial. If you do run out of product **at any time** please contact Project CLEAR study staff at [redacted] or EndMRSA@uci.edu. We will make sure you have enough for all your trial needs.

What if I Am in a Nursing Home, Rehabilitation Center, or Admitted to a Hospital?

Please let us know as soon as possible if you are hospitalized in any of these places since this is a trial outcome. If you are in a nursing home or rehabilitation center, or admitted to a hospital during the trial, please continue with your scheduled regimen for the trial. Please let your treating physicians and nurses know that you are in Project CLEAR and ask them to help you continue with the trial. **Please either call us to contact them or have them call us directly so we can make sure that they are aware of the trial and that they have instructions.**

If you are in a hospital or nursing home during one of your scheduled follow up visits a member of the Project CLEAR study staff will do their best to go to the nursing home, rehabilitation center, or hospital that you are in so that you will not miss your follow up visit. If they do not know that you are hospitalized or cannot schedule a visit with you, your follow up visit may need to be rescheduled to a different time.

How Will My Participation in the Trial Help Me?

We do not know if the decolonization that you receive will be effective for you personally, but it might. Overall, the willingness of you and many others to participate in this trial will give important answers about how best to care for and prevent future infections in persons with MRSA.

Will I Be Able to Find Out About the Results of This Trial?

Yes, we will provide preliminary findings to our participants after all participants have completed the trial and we can analyze the information. Remember that the trial may not end when you finish your follow up time. Overall, we need to recruit almost 2,000 patients into this trial and they all need to finish their one-year follow up period. Although we are recruiting hospitalized patients from all over Orange County and Southern Los Angeles County, we still expect that it will be several years before we know the results of this important trial.

What If I Move or No Longer Wish to Participate?

We have three locations where you go for follow up Project CLEAR clinic visits within Orange County and southern Los Angeles County, but please notify Project CLEAR study staff if you move or no longer wish to participate. If you decide to leave the study, we ask that you please complete an exit survey by phone so we understand your reasons and experience with this trial.

Will I Be Paid for My Participation?

Yes, you will be paid for all the follow up visits that you make. You will receive:

- $25 at the one-month follow-up visit
- $30 at the three-month follow-up visit
- $35 at the six-month follow-up visit
- $50 at the nine-month follow-up visit
- In all, you will earn $140 for finishing the clinical trial

I Would Like to Speak with Someone from Project CLEAR. Is There Someone to Answer My Questions?

Yes. During normal business hours, please contact Project CLEAR study staff by calling toll free at [redacted] emailing us at EndMRSA@uci.edu. A Project CLEAR study supervisor can be reached anytime, including after hours or on weekends for **urgent issues that cannot wait until business hours** by paging ([redacted]

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MRSA Basics

What Is MRSA?

There has been a lot of attention in the news about methicillin-resistant *Staphylococcus aureus*, or MRSA. *Staphylococcus aureus* is a type of bacteria or germ that commonly lives on the skin and in the nose of people. Some people call it "staph" bacteria. Usually, staph do not cause any harm. However, sometimes staph can get inside the body through a break in the skin and cause an infection. Most staph bacteria will be killed with many types of antibiotics. However, MRSA is a form of staph that is resistant to many common antibiotics, and needs more attention if an infection occurs. Most people who have MRSA carry it in their noses without having any problems with an infection.

MRSA used to be found most commonly in hospitals and other medical places such as nursing homes. Today, MRSA is also common in the community. MRSA can be found in places such as gyms, schools, and child care facilities. As more and more people pick up MRSA, this germ has become an important health concern.

There is much to be learned about MRSA. Project CLEAR will help us understand what will work best to prevent MRSA infections in people who have MRSA after they leave the hospital.

How Do You Pronounce MRSA?

MRSA is typically pronounced by saying each letter "M-R-S-A". Some people pronounce MRSA as "mer'-sa". The form of staph that is not resistant to antibiotics is called Methicillin-Sensitive *Staphylococcus aureus* or MSSA (pronounced by saying each letter, "M-S-S-A").

How Did I Get MRSA?

Staphylococcus aureus, or "staph", are germs that commonly live in people's noses and skin. People can become carriers of the antibiotic resistant form of "staph", or MRSA, in several ways. MRSA is spread through physical contact with things or people that have MRSA. This can occur in hospitals and nursing homes, as well as in the community. For example, MRSA can be found in gyms or sporting areas and in child care centers. Because of the many sources of MRSA, it is hard to know how someone picked up MRSA. Taking antibiotics can also make it more likely to pick up a resistant strain of staph.

How Do You Know that I Have MRSA?

Doctors test for MRSA by sending a culture. A doctor may send a culture because a patient isn't feeling well. Doctors sometimes send a culture from a patient's nose. Nose cultures are usually done while a patient is in the hospital. In California, patients in hospitals are required to have nose cultures for MRSA if they have been recently hospitalized, if they are in the intensive care unit, if they will have surgery, if they are on hemodialysis, and if they are nursing home residents.

Does Having MRSA Mean that I Have an Infection?

No. MRSA often live in our noses without causing an infection. Like many other bacteria that live in our nose, throat, and gut, having MRSA without an infection is called *colonization* and is not the same as infection. Most people who are colonized with MRSA do not realize that they have MRSA. However, being colonized with MRSA does increase the risk of a later MRSA infection, which is what this trial is trying to prevent.

What Types of Infections Can MRSA Cause?

MRSA comes from the family of bacteria called *Staphylococcus. Staphylococcus* or "Staph" have been causing infections for hundreds of years across the world.

Infections from MRSA can be very different, such as skin infections or severe blood infections. Skin infections can first look like spider bites or bumps that are red, swollen, painful, or filled with pus. Areas of the body that are covered by hair, like the back of the neck, groin, buttock, armpit, or thighs are common places where these skin infections appear. However, these infections can occur almost anywhere on the body. Skin and deeper infections can also occur in surgical or other wounds.

MRSA can also cause infections in the bloodstream. Infections of the blood are especially dangerous because the blood can carry MRSA around the body. Infections can occur anywhere blood travels in the body. Patients who have intravenous (IV) catheters, such as a "central line" or "PICC" line, may be at risk for MRSA blood infections because these lines cause breaks in the skin and may allow bacteria to enter the bloodstream. MRSA blood infections can also occur in healthy persons without IV catheters and without infections at other areas of their body. Persons with severe MRSA infections are also at risk for MRSA blood infections.

MRSA can also cause infections in other parts of the body. Some other types of MRSA infections include infections of the bone or joint, urine or kidneys, and lung (pneumonia). It is important to know that MRSA does not cause the common cold, "the flu", or "strep throat". Please read the later section, MRSA Treatment, for more information on types of MRSA infections.

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MRSA at Home

How MRSA is Spread in the Home

MRSA are microscopic, invisible Staph germs that cannot be seen with the naked eye. MRSA can be spread when a person touches objects such as towels, bandages, or razors that have touched the skin or wounds of someone infected with MRSA. Even if MRSA is spread to others, MRSA doesn't always cause infection. In fact, many MRSA germs live on people's skin and don't cause infections. However, those MRSA germs can spread to others and can cause infections in the future. People with MRSA on their body that is not causing infection can be said to be "colonized" with MRSA.

There are several things that make MRSA spread. These include skin-to-skin contact between people, having skin breaks such as cuts, scrapes or sores where MRSA might enter the body, touching contaminated items and surfaces, being in crowded conditions where lots of people crowd together and contact one another, and poor hygiene. People may be at higher risk of MRSA in locations where these factors are common. These types of places include hospitals, nursing homes, rehabilitation facilities, athletic facilities, dormitories, military barracks, jails, crowded households, and daycare centers.

Risks from Contaminated Surfaces

MRSA doesn't always cause infection. In fact, many MRSA germs can live on objects and not people. When MRSA lives on an object, that object can be said to be "contaminated" with MRSA. MRSA-contaminated objects may look normal and even clean. MRSA can live on objects for many weeks.

MRSA can get on objects if someone who is colonized or infected with MRSA touches an object. Because MRSA often lives in wounds that are infected, persons with MRSA skin infections need to keep their wounds covered with bandages. Covering infected wounds is the best way to reduce the chance that surfaces will be contaminated with MRSA.

Even if surfaces of objects have MRSA on them, this does not mean that you will pick up MRSA or get an MRSA infection if you touch these surfaces. MRSA is most likely to cause problems when you have a cut or scrape that is not covered with bandages. MRSA can also get into small openings in the skin that may not be noticeable to you.

The best defense against picking up MRSA or preventing later infection among those colonized with MRSA is good hygiene such as hand washing, and regular bathing and showering. Soap and water kill germs like MRSA. Alcohol based hand sanitizers (rubs) such as gels and foams also kill germs like MRSA. Please keep your hands clean by washing them regularly with soap and water or an alcohol-based hand rub, especially after you may have touched something that may be contaminated with MRSA. If you must share medical equipment or gym equipment with others, either disinfect the equipment between use or use clothing or towels as a barrier between you and shared equipment. These are easy ways to decrease your risk of getting MRSA.

Preventing the Spread of MRSA

What can I do to prevent spreading MRSA to others?

- Clean your hands often with soap and water or use an alcohol-based hand sanitizer
- Take regular baths or showers using soap to clean your body
- Showering immediately after activities where you have direct skin contact with people or shared surfaces, such as after physical therapy sessions, rehabilitation sessions, group sports, or exercising at a health club
- Wash your sheets and towels at least once a week
- Change your clothes daily and wash them before wearing again
- Do not share towels, washcloths, razors, or other personal items
- Clean common areas of your home (bathrooms, countertops, etc.) daily with a household cleaner

What should I do about wounds or cuts?

- If you get a cut or scrape on your skin, clean it with soap and water and then cover it with a bandage until healed
- Pus from infected wounds can contain staph, including MRSA, so keeping the wound covered will help prevent the spread to others
- Bandages and tape can be discarded with the regular trash
- Clean your hands immediately after putting on or changing bandages
- Do not touch skin sores; if you do touch a sore, clean your hands right away
- Wear clothes that keep bandages and sores covered, if possible
- Do not participate in contact sports until your wounds or cuts have healed
- Do not go to a public gym, sauna, hot tub or pool until wounds or cuts have healed
- You, your family, and others in close contact should wash their hands frequently with soap and water or use an alcohol-based hand rub, especially after changing the bandage or touching the infected wound

Caring for Yourself

Does it matter how I wash my hands?

- Yes. You have to use soap and rub your hands together for at least 15 seconds to get rid of the bacteria. Washing your hands is the number one way to stop the spread of MRSA
- Also, you can spread MRSA to people you live with if you share towels. Consider having your own hand towel to dry your hands on

How do I clean my hands with alcohol-based hand sanitizer?

If your hands look dirty or if you've used the bathroom, you should use soap and water. Otherwise, if your hands don't look dirty, you can use hand sanitizer as a very effective way to get rid of germs. Don't use the hand sanitizers to clean surfaces or objects. Look for a sanitizer with at least 60% alcohol in it.

- Use enough to cover all the surfaces of your hands
- Apply sanitizer and rub together for at least 15 seconds, getting between the fingers and thumb, and around nails
- Allow your hands to air dry

Always wash your hands thoroughly:

- Before preparing food, eating, or drinking
- After coughing, sneezing, or blowing your nose
- Before and after touching your eyes, nose, mouth, genitals
- Before and after touching any cuts or wounds, including sores, acne, boils, or rashes
- Before and after changing bandages
- After going to the bathroom
- After touching urine, feces (poop), and body fluids—this includes items soiled with body fluids, such as bedding
- After cleaning the bathroom, changing your bedding, and doing laundry
- After touching things other people touch, such as phones, door knobs, computers, shopping carts, gym or rehab equipment

Contact with Family Members

Can I have contact with my family members?

- Naturally, contact with family members is an essential and important part of family life. In general, healthy people are at low risk of becoming infected with MRSA. Therefore, in general, you should not be worried about casual contact - such as kissing, hugging, and touching - as a major way to spread MRSA for both adults and children.

- MRSA is not exchanged through bodily fluids during kissing, sexual intercourse, etc. However, it can be spread through skin-to-skin contact. Touching wounds or cuts are the most worrisome way for spreading MRSA to family members. Cover any skin wounds with a bandage and anyone changing bandages should clean their hands immediately before and after doing this.

Laundry

Routine laundry procedures, detergents, and laundry additives will all help to make clothes, towels, and linens safe to wear or touch. If items have been contaminated by infectious material (blood, pus), these may be laundered separately, but this is not absolutely necessary since laundry detergents kill germs.

Do I need to be careful when I do laundry?

- Yes. Touching dirty clothes and bedding can spread MRSA bacteria
- When touching your laundry or changing your sheets, hold the dirty laundry away from your body and clothes to prevent bacteria from getting on your clothes
- Be particularly careful with laundry that is soiled with body fluids, like blood or drainage from a sore, urine or feces (poop).
    - Wash these items immediately if possible, or place into a plastic bag until it can be washed.
    - If necessary, you can use disposable gloves when handling these

items. If you have cuts or sores on your hands or arms, you should avoid direct contact with these items. If you choose not to use gloves, make sure you wash your hands well for at least 15 seconds with soap and water immediately after handling.
    - Remember to clean your hands with soap and water even if you have been wearing gloves
    - Do not reuse gloves
- Wash your laundry with warm or hot water, use bleach if possible
- Dry in a warm or hot dryer and make sure the clothes are completely dry

How often should I change clothes and bedding?

- Change your sheets and towels at least once a week
- Change your clothes daily
- Do not put dirty clothes or clothes you have just worn back in your closet or drawers until they have been washed

Cleaning

What about cleaning my house?

- Simple daily cleaning is important
- Use a household disinfectant or bleach solution to clean surfaces daily
- Focus on surfaces that touch people's bare skin each day and any surfaces that could come into contact with uncovered infections and that are frequently touched – light switches, doorknobs, phones, toilets, sinks, and kitchen counters
- A simple wipe with a disinfectant wipe will help get rid of MRSA germs
- Wipe or spray the surface or object with the disinfectant and let it dry
- Large surfaces such as floors and walls **have not been directly linked** to the spread of staph and MRSA
- There is no evidence that spraying or fogging rooms or surfaces with disinfectants will prevent MRSA infections more effectively than the targeted approach of cleaning frequently touched surfaces and any surfaces that have been exposed to infections

Disinfectants to use:

Disinfectants effective against *Staphylococcus aureus* or staph are most likely also effective against MRSA. These products are readily available from grocery stores and **you should look for the word "disinfectant".** Some examples include Lysol®, Clorox®, or bleach products as sprays or wipes. **Generic versions of these may be available and less expensive than brand names.**

Keep the bleach solution away from children and don't put it in bottles that could be mistaken for something to drink. While pop up wipes may be the easiest to use, a simple solution of bleach and water is also effective. To make a bleach solution:

- Mix two teaspoons bleach into one quart of water in a spray bottle and label it "bleach solution"
- Make it fresh each time you plan to clean because the bleach evaporates out of the water making it less effective
- Never mix bleach with other cleaners, especially ammonia

How should disinfectants be used to clean?

Always read the label first. Each disinfectant has instructions on the label that tell you important facts:

- How to apply the product to a surface
- If the surface needs to be wiped clean first to remove dirt
- If the surface needs to be rinsed after using disinfectant
- If the disinfectant is safe for certain surfaces
- Whether the product requires mixing with water before use
- Precautions you should take when using the product, such as wearing gloves or aprons or making sure you have good ventilation during application

If body fluids or pus get onto surfaces, you need to do the following:

- Put on disposable gloves, if available
- Wipe up the fluids with a paper towel
- Throw the paper towel in the trash

- Clean the surface thoroughly using disinfectant and a paper towel
- Throw the paper towel in the trash
- Then wipe the surface again with the disinfectant and a new paper towel and let it dry for at least 30 seconds
- Throw the paper towel in the trash
- Remove your gloves and throw them in the trash
- Wash your hands with soap and water

Summary

- MRSA can't be seen on objects
- MRSA can be spread by skin-to-skin contact or by contaminated objects
- Keep any open wounds or cuts bandaged
- Wash your hands often with soap and water or alcohol hand sanitizer
- Launder your clothing and bedding regularly
- Dry all laundry completely in a dryer
- Clean surfaces often touched by people with a disinfectant wipe or spray daily

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MRSA at Work/School

How to Prevent Spreading MRSA to Others at Work or School

When it comes to MRSA at work and school, there are two general concerns that people have. One is "How do I prevent spreading MRSA to others?" The other is "How do I protect myself from getting MRSA from others?" Below, we provide general guidance to help answer these common questions.

Do I need to tell someone at work or school if I have MRSA?

No. You are protected by health privacy rules and you have a **right to not share** personal information. However, if having MRSA is affecting your ability to work or study you should talk to your personal physician and consider discussing your situation with your work supervisor or school advisor.

If I have MRSA and I am feeling well, can I go to work or class?

In general, yes. For the most part, having MRSA does not prevent you from getting your work done. Unless your doctor has told you to stay home, people who have MRSA can usually work or attend class. You should stay home if you have wound drainage ("pus") that cannot be covered and contained with a clean, dry bandage. However, there are a few times when special considerations are needed.

Special Situation #1: Actively draining wounds

- If your wound requires frequent dressing changes, you should discuss this with your school nurse or work supervisor to make sure that you have a clean place to store your supplies and a clean place to change bandages. You will need a place to wash your hands thoroughly with soap and water immediately before and after changing bandages, and you will need a place to throw away used bandages.
- If your wound has drainage or pus that cannot be easily contained with a bandage, you could spread MRSA to others. You should speak with your personal physician and work supervisor about your options to stay home until you heal.
- Try your best to keep wounds covered by both bandages and clothing to keep them protected so they can heal and to prevent any drainage from contacting your work or school environment.

Special Situation #2: Lines for medication

- If you have an intravenous (IV) line for medication and feel well enough to work or go to school, you must ensure that your surroundings and the type of activities you join are safe and clean for your line. You should not get the line wet or sweaty and it should be able to be bandaged and kept clean and free from getting pulled or tangled.

- If you need to give yourself medicine through the line while at school or work, you need a clean place to store your medicine and supplies

and a clean place to access the line. Be sure you can follow all directions given to you by your medical providers about how to take care of your line. You will need a place to wash your hands thoroughly with soap and water immediately before and after touching the line. Avoid having co-workers touch your line.

If I have MRSA, how can I prevent spreading it to my coworkers or classmates?

You can prevent spreading staph or MRSA skin infections by following these steps:

- **Cover your wound.** Keep areas of the skin affected by MRSA covered. Keep wounds that are draining or have pus covered with clean, dry bandages. Pus from infected wounds can contain MRSA, so keeping the infection covered will help prevent the spread to others. Bandages or tape can simply be put in the regular trash.
- **Clean your hands.** You and coworkers or classmates who are in close contact with you should wash hands frequently with soap and warm water or use an alcohol-based hand sanitizer. This is especially important to do before and after changing your own bandage or touching wounds or lines.
- **Do not share personal items.** Avoid sharing work-related or personal items such as uniforms, gear (such as hats, goggles, aprons, tool belts), clothing, towels, or washcloths that have direct contact with your skin. Do not share lotions, jewelry, or makeup.
- **Talk to your doctor.** If you need to talk with occupational health or a school nurse about a potential infection or related problem, be sure to tell them that you have or had a staph or MRSA skin infection.

How to Protect Yourself from Getting MRSA at Work or School

Can I get MRSA from someone at work or school?

Maybe. Remember, anyone around you can carry MRSA. The most common way MRSA is spread is by direct skin-to-skin contact or contact with shared items or surfaces that have come into close contact with skin or infection (e.g., sharing clothing, towels, used bandages, make-up).

Should I avoid doing certain activities at work or school?

In general, the types of interactions you have at work or school are okay. MRSA is not spread by sharing food with others or breathing the same air. However, it is not a good idea to routinely share personal items such as razors or clothing with others.

What if I want to disinfect something at work or school?

You are encouraged to disinfect items at work that are commonly touched or that you feel need to be cleaned. Disinfectant wipes are a good option for cleaning surfaces (Lysol, Clorox, or store-brand wipes that say "disinfecting"). Be sure to read the instructions on the label so you use it safely and know if it is compatible equipment.

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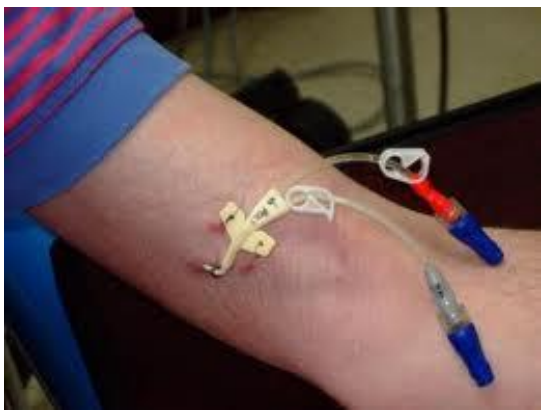
CHANGING LIVES BY ERADICATING ANTIBIOTIC RESISTANCE

MRSA Treatment

MRSA Infections

MRSA can cause many different types of serious infections that need treatment with antibiotics. For example, MRSA can cause pneumonia, skin and wound infections, infections after medical procedures or surgery, and bone and joint infections. When these infections are very serious, they can cause MRSA to appear in the blood – a very serious event that needs urgent medical attention and antibiotics.

Patients who have intravenous (IV) catheters, such as a “central line” or “PICC” line, may be at risk for MRSA blood infections because these lines cause breaks in the skin and may allow bacteria to enter the bloodstream.



MRSA blood infections can also occur in healthy persons without IV catheters and without infections at other areas of their body.

General Signs of Infection

Most MRSA infections have at least one of the below signs of infection. Not all of the signs below will be seen with an infection and not all of the signs below mean that people have an infection with MRSA. This is because other health conditions can also cause these symptoms.

- Fever, chills, or shivering
- Redness or pain at the infected area
- Feeling run down or really tired
- In older patients, sometimes mental confusion can be a sign of infection

Signs of Specific Kinds of Infection

1) **Wound Infections:** The place on the skin where the infection occurred may be red, swollen, puffy, or painful. A yellow or green fluid, called pus, may also be draining from the skin. MRSA skin infections can also look like spider bites or bumps which then become worse and can be filled with pus. MRSA skin infections can also occur at hair follicles (where hairs come out of the skin). These are called boils and can look like blisters.
2) **Pneumonia (MRSA infection in the lungs):** People with pneumonia may find it hard to breathe, feel tired, have pain when coughing or taking deep breaths, have a cough that becomes worse over time, cough up thick yellow or greenish fluid, or have a fever.
3) **Line (catheter) Infections:** The place where the IV line goes into the skin may be painful, red, or have yellow or green fluid, called pus, come out of the skin. People with MRSA line infections can also have shivering when medicines are put through the IV line. Fever is also common in people with MRSA line infections.
4) **Bone and Joint Infections:** At the infected bone or joint, people may have swelling, feel pain or heat, or have difficulty moving the infected bone or joint. Patients may also have a fever with bone and joint infections.

Treatment of MRSA Infections

MRSA infections should always be treated by a doctor. It is important to follow the instructions for treatment that your doctor gives you.

If you have an MRSA infection, your doctor may choose one or more of the following treatments:

1) **Give Antibiotics (by mouth or by vein):** MRSA can defend itself against many antibiotics so MRSA can be difficult to kill. However, there are antibiotics that can remove MRSA and make the infection go away. If your doctor gives you antibiotics, take them exactly as prescribed. Do not stop early, even if you feel better. The last few pills kill the toughest germs. Never take antibiotics without a prescription from your doctor.

2) **Drain the Infection:** Some MRSA infections will make green fluid or pus. This can happen on the skin or inside the body depending on where the infection is. Large amounts of pus need to be drained in order to get rid of the infection. Often both drainage and antibiotics are needed, but for some skin infections, drainage alone can sometimes cure the infection. Only a doctor can tell you exactly what you need to cure an infection.

If you see pus coming from the skin, don't drain the pus yourself. It can be very dangerous to squeeze or poke a skin infection because it can push the bacteria deeper into the skin and make the infection much worse. Also sometimes the pus can come from an area deep in the skin that requires a doctor to help cure. Draining the infection should only be done by a trained health care provider.

If you have an infection drained, you should keep the area covered until it heals. Sometimes your doctor may ask you to come back for a checkup or to change the dressing. Please see the section, **MRSA at Home**, for details on how to practice good hygiene if you have a bandage or dressing.

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CHANGING LIVES BY ERADICATING ANTIBIOTIC RESISTANCE

MRSA and Decolonization

Methicillin-resistant *Staphylococcus aureus* (MRSA) is a germ that is resistant to many common antibiotics. This germ lives in the front of your nose. In fact, nearly 5 million people in the United States carry MRSA in their noses. MRSA may also be found on other parts of your body, such as your throat or skin, including in cuts or wounds.

Removing MRSA from these body areas may be important since people carrying MRSA have a higher chance of developing a future infection with MRSA in another part of their body. This process of removing MRSA from your body is called "decolonization". Decolonization is thought to prevent infection in people that carry MRSA themselves, but it also may prevent them from passing MRSA to other people around them, such as their friends, family, and coworkers.

Since many common antibiotics do not work against MRSA, and because MRSA may live in your nose, throat, armpits, and skin, decolonization often involves several forms of treatment. These different treatments will work together to get rid of MRSA in the different places it may grow. Project CLEAR will use the special soaps and medicines below:

- Bactroban Nasal® ointment (to reduce and remove MRSA in your nose)
- Hibiclens® soap (to reduce and remove MRSA from your skin)
- PerioGard® mouthwash (to reduce and remove MRSA from your throat)

These medicines have been approved by the United States Food and Drug Administration (FDA) for use against MRSA. These medicines are very safe and widely used in hospitals across the country. In fact, smaller, shorter studies have shown that each of these products may be effective in reducing the amount of MRSA on the body and lowering the chances of developing an MRSA infection.

Several studies have looked at the effects of these products during a hospital stay. However, those who leave the hospital with MRSA are at higher risk for MRSA infection for many months up to a full year after leaving the hospital. Through Project CLEAR, we hope to find out whether these three treatments, when repeatedly used together for 6 months, are effective in removing MRSA and preventing infections for a full year after you leave the hospital.

These treatments fight MRSA in the following ways. Bactroban Nasal® ointment contains an antibiotic called mupirocin. Mupirocin works by preventing MRSA from making important proteins it needs to survive. Hibiclens® soap and PerioGard® mouthwash both contain a separate antiseptic called chlorhexidine. Chlorhexidine damages the coat of MRSA so that it is no longer protected from the environment.

Since MRSA can defend itself against antibiotics, it is very important that you use these medicines together and carefully as instructed. On the pages that follow, detailed instructions have been provided for you. Please follow them closely so that these medicines are used safely and effectively against MRSA.

Plan A

project CLEAR

2012

January

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Plan B

2012

January

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CHANGING LIVES BY ERADICATING ANTIBIOTIC RESISTANCE

Hibiclens® Table of Contents

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CHANGING LIVES BY ERADICATING ANTIBIOTIC RESISTANCE

Hibiclens® (Chlorhexidine) Soap
Instructions for Showering

Showering with Hibiclens® (chlorhexidine) helps reduce the amount of MRSA and other germs on your skin. With continued use along with PerioGard® mouthwash and Bactroban NASAL® ointment, it may get rid of MRSA and prevent MRSA infection. Before using Hibiclens®, please review the instructions below and contact Project CLEAR study staff with any questions at [redacted] or EndMRSA@uci.edu.

Special Considerations

- Do not use Hibiclens® if you have an allergy to chlorhexidine-containing products
- Avoid getting Hibiclens® into your eye or ear canal
- If Hibiclens® gets into eyes, flush with water

Before Starting Hibiclens® Showering

Do not share sponge or Hibiclens® with others

- Attach the calendar cling to your bathroom wall or mirror where you can see it every day. This cling is safe on mirrors, walls, and paint and will be easy to remove at the end of the trial.
- Attach the laminated instructions to a wall near your shower so you can see it while you shower
- Remove cap from Hibiclens® bottle and insert pump

- Ensure pump dispenses Hibiclens® smoothly before showering
- Use a new mesh sponge for each 5 day treatment with Hibiclens®

What I Need for Showering with Hibiclens®

1. Hibiclens® bottle and pump
2. Large mesh sponge
3. Two minute timer
4. Clean towel

How To Use Hibiclens®

Use Hibiclens® soap INSTEAD of your regular soap and shampoo. Please **DO NOT USE** other soaps, shampoos, or lotions since many of these products will inactivate Hibiclens® and prevent it from removing MRSA. Only hair conditioner may be used with Hibiclens®. **Lotions compatible with Hibiclens® will be provided upon request.**

- Wet face and hair with water
- With head and hair out of water stream, wash face and hair by pumping Hibiclens® onto hands and firmly massaging onto face and into hair and scalp
    - Ensure Hibiclens® reaches skin around nose. Avoid eyes and ear canal.
- Rinse face and hair with water
- If you use hair conditioner, apply it next, rinse
- Wet the mesh sponge
- Dispense 3 pumps of Hibiclens® onto the wet sponge and rub vigorously into lather
    - Hibiclens® will not lather until you massage Hibiclens® thoroughly into sponge
- Wash body by **turning off shower water** and **FIRMLY MASSAGING** the soapy Hibiclens® sponge onto your skin.
- ****IMPORTANT** for Hibiclens® to work, you should turn the WATER OFF while you lather.**

- Soap all areas of neck with special attention to getting soap between all skin folds
- Wash arms and legs one at a time by massaging skin **THOROUGHLY** with the soapy Hibiclens® sponge
- Then apply soap to chest and back using firm massage
- Then apply soap to abdomen using firm massage
- Then apply soap to hip and groin, followed by genitals and buttocks using firm massage
- Turn on the **2 minute shower timer**. **For the best effect, Hibiclens® needs to remain on all areas of your skin for at least 2 minutes.**
- Reapply soap a **SECOND TIME** to all skin areas from the neck down with firm massage exactly as above.
- Please place special attention to the neck, armpit, groin, areas between the fingers and toes, and all skin folds, including under the breasts for women. Firmly massage Hibiclens® into all skin areas.
- Turn on water after 2 minute timer goes off
- Rinse and pat dry with clean towel

When To Use Hibiclens®

- Use Hibiclens® soap **for all bathing needs (could be more than once a day)** Monday through Friday in the highlighted weeks on the calendar cling. During this time, take at least one shower per day. This means that twice a month, you will use Hibiclens® soap for 5 days in a row (Monday through Friday).

How To Shower Wounds with Hibiclens®

- Hibiclens® is safe on rashes and bruises
- Hibiclens® is safe on wounds or burns that are **not deep or very large**
  - In fact, Hibiclens® is FDA approved as a wound cleanser
- **Do NOT use on deep open wounds**
- Hibiclens® is safe on surgical wounds that are NOT deep or very large. It is safe to use over staples and stitches.
- **Apply gently then rinse with water**

Important Things to Remember

Avoiding Brown Stains

- If you put Hibiclens® (chlorhexidine) liquid **directly onto** bathing towels, wash towels, cloths, or bathtub surfaces and then wash with bleach, a **brown stain may appear due to a chemical reaction between chlorhexidine and chlorine (bleach).**
- **Staining does NOT occur** on towels or clothing if they touch your skin after you have washed with Hibiclens®. Once Hibiclens® binds to your skin, it will not rub off on other things. The staining requires direct contact with the chlorhexidine liquid and later contact with bleach. If you bathe with chlorhexidine, rinse, and then put on clothes or use sheets or towels, a brown stain should not develop after washing with bleach.

Allergic Reactions or Side Effects

- Allergic reactions and skin reactions are rare, but can occur. If you develop a rash or skin irritation that you believe is due to the Hibiclens® (chlorhexidine), discontinue use and contact Project CLEAR study staff at [redacted]). **We encourage you to call if you are unsure and would like to discuss concerns with study staff.**
- **Severe allergic reactions are very rare, but can occur. If you develop an allergic reaction involving severe hives or have any difficulty breathing, call 911 or go to your nearest emergency department.** A Project CLEAR study supervisor can be reached anytime, including after hours or on weekends for **urgent issues** that cannot wait until business hours by paging [redacted]

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CHANGING LIVES BY ERADICATING ANTIBIOTIC RESISTANCE

Hibiclens® (Chlorhexidine) Soap
Instructions for Bathing

Taking a bath with Hibiclens® (chlorhexidine) helps reduce the amount of MRSA and other germs on your skin. With continued use along with PerioGard® mouthwash and Bactroban Nasal® ointment, it may get rid of MRSA and prevent MRSA infection. Before using Hibiclens®, please review the instructions below and contact Project CLEAR study staff with any questions at [redacted] or EndMRSA@uci.edu.

Do not share sponge or Hibiclens® with others

Special Considerations

- Do not use Hibiclens® if you have an allergy to chlorhexidine-containing products
- Avoid getting Hibiclens® into your eye or ear canal
- If Hibiclens® gets into eyes, flush with water

Before Starting Hibiclens® Bathing

- Attach the calendar cling to your bathroom wall or mirror where you can see it every day. This cling is safe on mirrors, walls, and paint and will be easy to remove at the end of the trial.
- Attach the laminated instructions to the wall next to the bathtub so you can see it while you bathe
- Remove cap from Hibiclens® bottle and insert pump
- Ensure pump dispenses Hibiclens® smoothly before bathing

- Use a new mesh sponge for each 5 day treatment with Hibiclens®

What I Need for Bathing with Hibiclens®

1. Hibiclens bottle and pump
2. Large mesh sponge
3. Two minute timer
4. Clean towel

How To Use Hibiclens®

Use Hibiclens® soap INSTEAD of your regular soap and shampoo. Please **DO NOT USE** other soaps, shampoos, or lotions since many of these products will inactivate Hibiclens® and prevent it from removing MRSA. Only hair conditioner may be used with Hibiclens®. **Lotions compatible with Hibiclens® can be provided upon request.**

- Do not dilute
- Wet face and hair with water
- With head and hair entirely out of water, wash face and hair by pumping Hibiclens® onto hands and firmly massaging onto face and into hair and scalp
    - Ensure Hibiclens® reaches skin around nose. Avoid eyes and ear canal.
- Rinse face and hair with water
- If you use hair conditioner, apply it next, rinse
- Wet the mesh sponge
- Dispense 3 pumps of Hibiclens® onto the wet sponge and rub vigorously into lather
    - Hibiclens® will not lather until you massage Hibiclens® thoroughly into sponge
- Wash body by lifting parts of the body out of the bath water and **FIRMLY MASSAGING** the soapy Hibiclens® sponge onto the entire skin before placing back into the water
- **For the best effect, try to keep Hibiclens® soap on skin as long as possible (2 minutes if you can) before rinsing off.** We understand this may not be possible for certain parts of the body so please do the best you can.

- Soap all areas of neck with special attention to getting soap between all skin folds
- Lift arms and legs out of water one at a time and massage skin **THOROUGHLY** with the soapy Hibiclens® sponge
- Then apply soap to chest and back using firm massage while out of the bath water
- Then apply soap to abdomen using firm massage while out of the bath water
- Then apply soap to hip and groin, followed by genitals and buttocks using firm massage while out of the bath water
- Turn on 2 minute timer. **For the best effect, Hibiclens® should remain on all areas of your skin for at least 2 minutes. Do the best you can.**
- Reapply soap a second time to all skin areas from the neck down with firm massage exactly as above. **Keep your soapy body outside the bath water as much as you can while you re-apply Hibiclens®**
- Please place special attention to the neck, armpit, groin, areas between the fingers and toes, and all skin folds, including under the breasts for women. Firmly massage Hibiclens® into all skin areas.
- Rinse after 2 minute timer goes off
- Pat dry with clean towel

When To Use Hibiclens®

- Use Hibiclens® soap **for all bathing needs (could be more than once a day)** Monday through Friday in the highlighted weeks on the calendar cling. During this time, take at least one bath per day. This means that twice a month, you will use Hibiclens® soap for 5 days in a row (Monday through Friday).

How To Bathe Wounds with Hibiclens®

- Hibiclens® is safe on rashes and bruises
- Hibiclens® is safe on wounds or burns that are **not deep or very large**
  - In fact, Hibiclens® is FDA approved as a wound cleanser

- **Do NOT use on deep open wounds**
- Hibiclens® is safe on surgical wounds that are NOT deep or very large. It is safe to use over staples and stitches
- **Apply gently then rinse with water**

Important Things to Remember

Avoiding Brown Stains

- If you put Hibiclens® (chlorhexidine) **directly onto** bathing towels, wash towels, cloths, or bathtub surfaces and then wash with bleach, a **brown stain may appear due to a chemical reaction between chlorhexidine and chlorine (bleach).**

- **Staining does NOT occur** on towels or clothing if they touch your skin after you have washed with Hibiclens®. Once Hibiclens® binds to your skin, it will not rub off on other things. The staining requires direct contact with the chlorhexidine liquid and later contact with bleach. If you bathe with chlorhexidine, rinse, and then put on clothes or use sheets or towels, a brown stain should not develop after washing with bleach.

- Allergic reactions and skin reactions are rare, but can occur. If you develop a rash or skin irritation that you believe is due to the Hibiclens® (chlorhexidine), discontinue use and contact Project CLEAR study staff at [redacted] **We encourage you to call if you are unsure and would like to discuss concerns with study staff.**

- **Severe allergic reactions are very rare, but can occur.** If you develop an allergic reaction involving severe hives or have any difficulty breathing, call 911 or go to your nearest emergency department. A Project CLEAR study supervisor can be reached anytime, including after hours or on weekends for **urgent issues** that cannot wait until business hours by paging [redacted]

project CLEAR

CHANGING LIVES BY ERADICATING ANTIBIOTIC RESISTANCE

Hibiclens® (Chlorhexidine) Soap
Frequently Asked Questions

What If I Forget to Shower with Hibiclens® for Any Reason?

It depends on how many times you forgot. If you forget to shower or bathe with Hibiclens® **for a single day,** you should restart Hibiclens® as soon as possible and then go back to using Hibiclens and all other study products until you have used all three products for a total of 5 days (not counting the skipped day).

If you skipped **more than one day's** worth of Hibiclens®, you will need to restart the 5 days of therapy with all treatments (Hibiclens®, Bactroban Nasal®, PerioGard®) from the start. Remember it is important to make sure you use all 3 products at the same time. **If you need to restart any of these products because you missed more than a day's worth of use, you should continue using all 3 products until you have completed a 5-day course all in a row.**

How Many Pumps of Hibiclens® Should I Use?

Different people may need different amounts of Hibiclens®. For instance, women with long hair may need extra pumps of Hibiclens® to wash their hair. Use as much Hibiclens® as needed to keep the mesh sponge in a full lather while you are applying it to all skin areas. If the lather decreases, apply more Hibiclens®. To wash your entire body, please use **at least** 3 pumps. Much more may be needed to cover all skin areas with a well lathered mesh sponge. Hibiclens® will only lather after being massaged thoroughly into the mesh sponge.

I Am Worried My Hair Is Not Clean. Can I Use My Own Shampoo or Conditioner?

Hibiclens is highly effective in removing bacteria and getting your hair clean. Since shampoos will inactivate Hibiclens® and prevent it from getting rid of MRSA, **please only use Hibiclens® to wash your hair, face, and body during your assigned decolonization weeks. Hair conditioner may be used with Hibiclens®.**

Sometimes I Shower More Than Once per Day. Should I Use Hibiclens® Each Time I Shower or Bathe?

Yes, please use Hibiclens® each time you shower, bathe, or "freshen up," regardless of how many times **during your assigned decolonization weeks**.

I Noticed a Rash on My Skin After Using Hibiclens®. Should I Stop Using Hibiclens®?

A skin rash may occur for many different reasons. A skin rash may be caused by food or medication allergy, infection, or irritation. If you believe that your skin rash may be caused by Hibiclens®, please contact Project CLEAR study staff at [redacted] or EndMRSA@uci.edu to discuss if you should discontinue Hibiclens®. If the rash is mild or you are not sure it is Hibiclens® that is causing the rash, and you wish to continue using Hibiclens®, that is fine. Just let us know, so that we can check on you and make sure your rash is not getting worse.

If the rash is an allergic reaction involving hives or you develop difficulty breathing, please call 911 or go to your nearest emergency department.

I Don't See Lather on My Face. Can I Use My Regular Face Wash?

Since soaps will inactivate Hibiclens® and prevent it from getting rid of MRSA, please only use Hibiclens® to wash your face. Hibiclens® does not lather as much as regular soap, but it actually works better than soap to remove germs. Hibiclens® should replace your regular face wash during your scheduled weeks of Hibiclens® bathing.

I Am on a Medication Prescribed by My Doctor. Should I Stop Taking My Medication in Case It Interferes with Hibiclens®?

No. Please continue using all your regular medications (including skin medications) as prescribed by your doctor. Hibiclens® should not change the way you use prescription medications.

Can I Use Hand Soap to Wash My Hands?

Yes. Although soaps can inactivate Hibiclens®, we understand the frequent need to wash hands during the day. Continue to use available soap or alcohol rub products to keep your hands clean throughout the day. Please note that **hand** soaps are the only soaps that may be used during Hibiclens® treatment weeks.

I Have Dry Skin. Can I Use Skin Lotion?

The ingredients in most skin lotions will inactivate Hibiclens® and prevent it from getting rid of MRSA. The only lotions that can be used with Hibiclens® are *Cetaphil Moisturizing Lotion* and *Eucerin Original Lotion*. Please contact Project CLEAR study staff if you would like these lotions to be provided for you.

Can I Use Shaving Cream, Deodorant, and Hair Products like Hair Gel or Hair Wax?

Yes. Shaving cream, deodorant, hair gel or hair wax can be used during Hibiclens® treatment weeks.

Can I Wear My Regular Cologne or Perfume?

Since the ingredients in perfumes and colognes may inactivate Hibiclens® and prevent it from getting rid of MRSA, please do not use cologne or perfume during scheduled weeks of Hibiclens® bathing.

Can I Use Suntan or Sunscreen Lotion?

Since the ingredients in suntan and sunscreen lotions will inactivate Hibiclens® and prevent it from working against MRSA, please do your best to avoid suntan or sunscreen lotion during scheduled weeks of Hibiclens® bathing. To protect your skin from the sun, please wear sun-protective clothing, hats, or avoid the sun especially when the UV index is at its highest.

Is Hibiclens® Safe to Use on the Groin or Genitals?

Yes. The medication in Hibiclens® has been approved for external use on the groin and genitals by the US Food and Drug Administration (FDA). Please wash these areas thoroughly with Hibiclens® as shown in the instructions. For women, only use Hibiclens® on external genital areas.

Should I Be Concerned about Hibiclens® Having a Stinging Effect on Wounds?

No. Antiseptic over-the-counter products often contain alcohol and will sting when applied to wounds. Hibiclens® is safe on wounds, burns, and surgical wounds that are NOT deep or very large. It is also safe to use over staples and stitches. Hibiclens® is approved as a wound cleanser by the US Food and Drug Administration (FDA). However, please do not use Hibiclens® on **deep open wounds**.

Do I Need Gloves When Using Hibiclens®?

No. Gloves are not needed to touch or handle Hibiclens®. Hibiclens® is approved for use on your skin.

Is It True That Hibiclens® Can Cause a Brown Stain when Mixed with Bleach?

Yes. Since Hibiclens® can sometimes produce a brown stain if it comes into direct contact with bleach, we recommend avoiding bleach or using a **non-chlorine** bleach to wash your clothes during your decolonization weeks.

Staining does NOT occur on clothing or towels if they touch your skin after you have washed with Hibiclens®. Once Hibiclens® binds to your skin, it will not rub off on other things. The staining requires direct contact with the Hibiclens® and later contact with bleach. If you bathe with Hibiclens®, rinse, and then put on clothes or use sheets or towels, a brown stain should not develop after washing with bleach.

Are There Any Important Parts of the Body to Remember when Showering or Bathing with Hibiclens®?

All areas of the skin are important for getting rid of MRSA. However, people are most likely to forget to clean **skin folds**. This is especially important in areas that become sweaty or dirty such as the neck, armpit, groin, skin between the fingers and toes, and all skin folds, including under the breasts for women. Please make sure you remember to wash all areas of your body thoroughly when showering or bathing with Hibiclens®.

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CHANGING LIVES BY ERADICATING ANTIBIOTIC RESISTANCE

Hibiclens® (Chlorhexidine) Soap
Instructions for Sponge Bathing by Care Providers

Bathing with Hibiclens® (chlorhexidine) helps to reduce the amount of MRSA and other germs on your patient's skin. With continued use along with PerioGard® mouthwash and Bactroban NASAL® ointment, it may get rid of MRSA and prevent MRSA infection. Before using Hibiclens®, please review the instructions below and contact Project CLEAR study staff with any questions at [redacted] ([redacted] EndMRSA@uci.edu.

Special Considerations for Patients

- Do not use Hibiclens® if the patient has an allergy to chlorhexidine-containing products
- Avoid getting Hibiclens® into the patient's eye or ear canal
- If Hibiclens® gets into the patient's eyes, flush with water

Do not share study products among patients

Before Starting Hibiclens® Bathing

- Attach the treatment calendar to a wall where it can be seen every day. This cling is safe on mirrors, walls, and paint and will be easy to remove at the end of the trial.
- Keep the laminated instructions in the patient's room so it can be easily used during sponge bathing
- Remove cap from Hibiclens® bottle and insert pump
- Ensure pump dispenses Hibiclens®smoothly before bathing
- Use a new mesh sponge for each 5-day treatment with Hibiclens®

Items Needed for Sponge Bathing Patients with Hibiclens®

1. Hibiclens® bottle and pump
2. Large mesh sponge
3. Two-minute timer
4. Bath basin (as needed)
5. Clean cloths or towels

How to Sponge Bathe with Hibiclens®

Hibiclens® is a replacement for soap and shampoo. Please **DO NOT USE** other soaps, shampoos, or lotions since many of these products will inactivate Hibiclens® and prevent it from removing MRSA. Only hair conditioner is compatible with Hibiclens®. **Lotions compatible with Hibiclens® can be provided upon request.**

- Wash hands with Hibiclens® soap before sponge bathing patient
- Do not dilute Hibiclens®
- Wet patient's face and hair with water using bath basin
- Dampen a clean cloth with water. Pump Hibiclens® onto cloth and firmly massage onto face and into hair and scalp. Ensure Hibiclens® reaches skin around patient's nose.
    - **<u>Avoid eyes and ear canal</u>**
- Rinse off face and hair with clean cloth wet with water. Be careful the rinse water does not enter the ear canal. Hibiclens® should not come into direct

contact with nerves which can happen in patients who have a history of a torn ear drum.

- Wet the mesh sponge with water
- Dispense 3 pumps of Hibiclens® onto wet sponge and rub vigorously into lather
    - Hibiclens® will not lather until you massage Hibiclens® thoroughly into sponge
- Wash patient's body in sections by first wetting skin with water and then **FIRMLY MASSAGING** the soapy Hibiclens® sponge onto wet skin. **For the best effect, try to keep Hibiclens® soap on skin as long as possible (2 minutes if you can) before rinsing off.** We realize this may not be possible for certain areas so please do the best you can.
    - Soap all areas of neck with special attention to getting soap between all skin folds
    - Soap arms and legs one at a time and massage skin **THOROUGHLY** with the soapy Hibiclens® sponge
    - Then apply soap to chest and back using firm massage
    - Then apply soap to abdomen using firm massage
    - Then apply soap to hip and groin, followed by genitals and buttocks last using firm massage
    - Turn on the two-minute timer. **For the best effect, Hibiclens® needs to remain on all areas of your skin for at least 2 minutes.**
    - Reapply Hibiclens® soap a **SECOND TIME** to all skin areas from the neck down with firm massage exactly as above. Keep soap on skin for 2 minutes if possible.
    - Please place special attention to the neck, armpit, groin, areas between the fingers and toes, and all skin folds, including under the breasts for women. Firmly massage Hibiclens® into all skin areas.
    - Rinse off skin with clean cloths wet with water after Hibiclens® has remained on skin for 2 minutes.
    - Pat dry with clean towel as needed

Assistance with Hibiclens® Bath or Shower

Care providers should refer to the "Instructions for Bathing" or "Instructions for Showering" and "Frequently Asked Questions" sections within this tab.

When Care Providers Should Use Hibiclens®

- Use Hibiclens® soap **for all bathing needs (could be more than once a day)** Monday through Friday in the highlighted weeks on the treatment calendar. During this time, at least one bath per day should be given. If localized bathing needs to occur (after soiling, heavy sweating), please continue to use Hibiclens® soap
- This means that twice a month, Hibiclens® soap should be used for 5 days in a row (Monday through Friday)

How to Bathe Wounds with Hibiclens®

- Hibiclens® is safe on rashes and bruises
- Hibiclens® is safe on wounds or burns that are **not deep or very large**
    - In fact, Hibiclens® is FDA approved as a wound cleanser
- **Do NOT use on deep open wounds**
- Hibiclens® is safe on surgical wounds that are NOT deep or very large. It is safe to use over staples and stitches
- **Apply gently then rinse with water**

Important Things to Remember

Avoiding Brown Stains

- If Hibiclens® (chlorhexidine) is applied **directly onto** bathing towels, wash towels, cloths, or bathtub surfaces and then washed with bleach, **a brown stain may appear due to a chemical reaction between chlorhexidine and chlorine (bleach).**
- **Staining does NOT occur** on towels or clothing if they touch skin after it has been washed with Hibiclens®. Once Hibiclens® binds to skin, it will not rub off on other things. The staining requires direct contact with the chlorhexidine liquid and later contact with bleach. If the patient has been

bathed with chlorhexidine, rinsed, and then wears clothes or uses sheets or towels, a brown stain should not develop after washing with bleach.

Allergic Reactions or Side Effects

- Allergic reactions and skin reactions are rare, but can occur. If your patient develops a rash or skin irritation that you believe is due to Hibiclens® (chlorhexidine) discontinue use and contact Project CLEAR study staff at [redacted]. **We encourage you to call if you are unsure and would like to discuss concerns with study staff.**

- **Severe allergic reactions are very rare, but can occur.** If your patient develops an allergic reaction involving severe hives or has any difficulty breathing, call 911 or bring patient to your nearest emergency department. A Project CLEAR study supervisor can be reached anytime, including after hours or on weekends for **urgent issues** that cannot wait until business hours by paging [redacted]

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CHANGING LIVES BY ERADICATING ANTIBIOTIC RESISTANCE

Hibiclens® (Chlorhexidine) Soap
Frequently Asked Questions for Care Providers

Our Bathing Schedule Sometimes Changes. Does the Hibiclens® Bath Have to Be Given at the Same Time Each Day?

No, a bath does not have to be given at exactly the same time each day. However, baths must be given once per day for 5 days during Hibiclens® treatment weeks.

Should I Be Concerned about Hibiclens® Having a Stinging Effect on Wounds?

No. Antiseptic over-the-counter products often contain alcohol and will sting when applied to wounds. Hibiclens® is safe on wounds, burns, and surgical wounds that are NOT deep or very large. It is also safe to use over staples and stitches. Hibiclens® is approved as a wound cleanser by the US Food and Drug Administration (FDA). However, please do not use Hibiclens® on **deep open wounds**.

Is Hibiclens® Absorbed if I Put It on a Wound?

There is minimal to no systemic absorption when using Hibiclens® on a superficial wound. In fact, chlorhexidine is approved for use on wounds and may be particularly important for getting rid of bacteria in a wound.

Can I Use Hibiclens® over a Closed Surgical Incision?

Yes. Hibiclens® can and should be applied over a closed surgical incision to eradicate bacteria and hopefully prevent infection.

Are There Special Instructions for Large Patients?

In order to be effective against MRSA, is important that Hibiclens® be firmly massaged on all skin areas (gently massaged onto wounds). This is particularly important in skin folds of large people since dirt, sweat, and germs can accumulate there. Make sure that Hibiclens® is applied, rinsed and that skin fold areas are allowed to fully dry. Lift skin folds to cover and firmly massage the entire body with Hibiclens®. Sometimes placing rolled towels to prop open skin folds may help with the application or drying process.

For large patients, it is important to use plenty of Hibiclens® so that the mesh sponge is always in full lather. Use as much Hibiclens® as necessary. We will give you more if you run out.

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CHANGING LIVES BY ERADICATING ANTIBIOTIC RESISTANCE

PerioGard® (Chlorhexidine) Mouthwash
Instructions for Use

PerioGard® is a mouthwash containing chlorhexidine that will reduce the amount of MRSA that lives in the throat and may lower your risk for MRSA infection. It also kills the germs on your gums and teeth. Before using, please review all instructions below and contact Project CLEAR study staff with any questions at [redacted] or EndMRSA@uci.edu.

- Use PerioGard® during your assigned weeks of every month (either **1st** and **3rd weeks OR 2nd** and **4th weeks)**
- During these weeks, use ***twice* per day for 5 days (Monday through Friday)**

Special Considerations

- Do not use PerioGard® if you have an allergy to chlorhexidine
- PerioGard® is a mouthwash and is not meant to be swallowed. The small amount that may be swallowed after spitting out the rinse is considered safe.

Things to Remember

- PerioGard® will stick to plaque on teeth, so be sure to brush and floss your teeth **right before** you use PerioGard®. This will avoid any staining of plaque during the 5 days of use.
- Rinse toothpaste completely from your mouth with water before using. Toothpaste can interfere with PerioGard®'s ability to fight MRSA.

- Do not eat and drink right **after** using PerioGard®. PerioGard® works best if you do not eat and drink for an hour or two.
- Do not use any other mouthwash products since they may inactivate PerioGard® and prevent it from fighting MRSA

Instructions for Use

1) Use the cap on the container to measure 15 mL (1/2 fluid ounce)
2) Fill the cap to the "fill line"
3) Swish PerioGard® around in your mouth for at least 30 seconds
4) Spit out. Do not rinse with water immediately after use.
5) Use two times per day, preferably in the morning and evening

Allergic reactions are rare, but can occur. **If you develop mouth irritation, please contact Project CLEAR study staff at** [redacted] If you develop an allergic reaction involving hives or difficulty breathing, call 911 or report to your nearest emergency department.

A Project CLEAR study supervisor can be reached anytime, including after hours or on weekends for **urgent issues that cannot wait until business hours** by paging [redacted]

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CHANGING LIVES BY ERADICATING ANTIBIOTIC RESISTANCE

PerioGard® (Chlorhexidine) Mouthwash
Frequently Asked Questions

How Does PerioGard® Work?

PerioGard® contains the antiseptic, chlorhexidine, which destroys the bacteria that grow in the plaque (coating) that forms on your teeth between brushings. However, PerioGard® does not prevent plaque and tartar from forming, so proper tooth brushing and flossing are still necessary and important.

It is recommended that you brush your teeth very well before using PerioGard® since PerioGard® can stick to plaque and tartar. However, before using PerioGard®, be sure to rinse out all the toothpaste from your mouth and teeth since toothpaste will inactive PerioGard®.

I Forgot to Use PerioGard®. What Should I Do?

It depends on how many times you forgot. If you only forgot one day's worth (or less than a day's worth of use), you should perform mouth washing with PerioGard® as soon as possible and then go back to your regular schedule.

If you skipped more than one day's worth of mouth washing, you will need to restart the 5 days of therapy with all treatments (Hibiclens®, Bactroban Nasal®, PerioGard®) from the start. Remember it is important to make sure you use all 3 products at the same time. **If you need to restart any of these products because you missed more than a day's worth of use, you will need to restart all 3 of them for another 5-day course.**

What Does PerioGard® Taste Like?

Some people get a bitter aftertaste after using PerioGard®. However, please do not rinse your mouth with water or any other mouthwashes immediately after using chlorhexidine, since this may increase the bitterness. Importantly, rinsing with water and other mouthwashes may also decrease the effect of the medicine. In patients that do experience a bitter aftertaste, this effect will become less noticeable after continued use.

Will PerioGard® Affect My Sense of Taste?

PerioGard® may change the way foods taste to you especially if you eat right after using PerioGard®. Sometimes this side effect may last for several hours after you use PerioGard®. In most cases, this effect will become less noticeable as you continue using PerioGard®. When you stop using PerioGard® your taste should return to normal. Not everyone will experience this.

Will PerioGard® Affect My Teeth?

PerioGard® will stick to plaque on teeth, so be sure to brush your teeth well before you use PerioGard®. This will help prevent staining of plaque and tartar in your mouth for the 5 days that you use PerioGard®.

What Happens if I Accidentally Swallow PerioGard®?

In general, the chlorhexidine in PerioGard® will not be absorbed into the bloodstream even if it is swallowed. Swallowing a small amount is not dangerous. However, PerioGard® also has a small amount of alcohol in it. If a large amount is swallowed, the effects would be similar to drinking alcohol. So please keep your PerioGard® bottle away from children. If an accidental overdose occurs, please call poison control (800-222-1222).

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CHANGING LIVES BY ERADICATING ANTIBIOTIC RESISTANCE

Bactroban Nasal® (Mupirocin) Ointment
Instructions for Use

Bactroban Nasal® (mupirocin) is an antibiotic ointment that is FDA approved for use in your nose to get rid of MRSA. Before applying, please review all instructions below and contact Project CLEAR study staff with any questions at [redacted]

- Use Bactroban Nasal® during your assigned weeks of every month (either **1st** and **3rd weeks OR 2nd** and **4th weeks**)
- During these weeks, use ***twice*** **per day for 5 days (Monday through Friday)**

Special Considerations

- Do not use Bactroban Nasal® if you have an allergy to the product
- Avoid contact with eyes

Missed Doses

If you forgot to use Bactroban Nasal® for one day or less, you should restart Bactroban Nasal® as soon as possible and then go back to your regular schedule. Do *not* double up doses. Always restart with the usual dose.

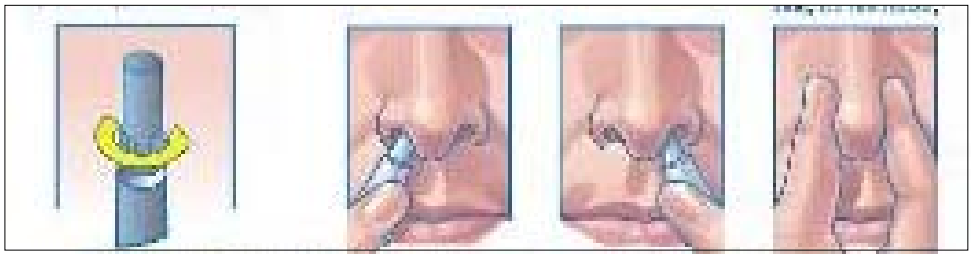
If you skipped more than one day's worth of Bactroban Nasal®, you will need to restart the 5 days of therapy with all treatments (Hibiclens®, Bactroban Nasal®, PerioGard®) from the start. Remember it is important to make sure you use all 3 products at the same time.

If you miss more than a day's worth of use of any of these products, you will need to restart all 3 of them together for another 5-day course.

If you have missed doses and are not sure what to do, contact Project CLEAR study staff at [redacted] or EndMRSA@uci.edu for instructions.

How I Should Use Bactroban Nasal®

1) Tilt your head back
2) Turn cap counter-clockwise to puncture the seal
3) Apply half the tube content directly into each nostril
4) You may use a q-tip to help distribute the ointment
5) Press nostrils together and massage for 1 minute
6) Place used tube into disposal box and bring with you to your next clinic visit
7) Wash your hands with soap and water as soon as you are finished



Allergic reactions are rare, but can occur. **If you develop irritation, please contact the study coordinators at** [redacted] If you develop an allergic reaction involving hives or difficulty breathing, call 911 or report to your nearest emergency department.

A Project CLEAR study supervisor can be reached anytime, including after hours or on weekends for **urgent issues that cannot wait until business hours** by paging [redacted]

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CHANGING LIVES BY ERADICATING ANTIBIOTIC RESISTANCE

Bactroban Nasal® (Mupirocin) Ointment
Frequently Asked Questions

Can I Use Nasal Spray or Other Medicines in My Nose while Using Bactroban Nasal®?

Unless your doctor has prescribed or recommended medicines that go in the nose like nasal sprays, please do not use other medicines or nasal sprays inside the nose on the same days that you are using Bactroban Nasal® ointment. Other nasal products may inactivate Bactroban Nasal® and prevent it from working against MRSA. If your doctor has prescribed or recommended medicines that go into the nose like nasal sprays, continue to use them as prescribed by your doctor.

I Have a Stuffy and/or Runny Nose. Should I Still Use Bactroban Nasal®?

Yes. Please continue using Bactroban Nasal® ointment even if you have a stuffy and/or runny nose. Apply the ointment after you blow your nose. This will reduce the chance that you will need to blow your nose right after you apply the ointment. The medicine will continue to kill MRSA even if you have a cold. Bactroban Nasal® will not have any effect on the common cold. Remember that colds are caused by viruses and MRSA is a bacteria.

Can I Blow My Nose when Using Bactroban Nasal®?

If possible, please do not blow your nose right after applying the Bactroban Nasal® ointment. Blowing your nose right after use may remove the ointment and prevent it from working. About five minutes after applying Bactroban Nasal® to the inside of your nose, it will be fine to blow your nose.

Why Do I Sometimes Feel like Sneezing when I Use Bactroban Nasal®?

Some people feel like sneezing after they use Bactroban Nasal®. This may be because the tube was inserted too deep into each nostril and scratched the inside of their nose with the tube. If this happens to you, please try applying the nasal ointment more gently. If you think you have developed an allergic reaction to Bactroban Nasal®, please contact the study coordinators at 8[redacted]

Does Bactroban Nasal® Ointment Have Any Side Effects?

Side effects for Bactroban Nasal® are rare. If side effects do occur, they may involve minor burning, stinging, pain, or itching. If you think you have developed a serious reaction to Bactroban Nasal®, please stop using the ointment and contact Project CLEAR study staff at [redacted] If you have a severe reaction, go to the nearest emergency department.

I Forgot to Use Bactroban Nasal®. What Should I Do?

It depends on how many times you forgot. If you forgot to use Bactroban Nasal® for one day or less, you should restart Bactroban Nasal® as soon as possible and then go back to your regular schedule. Do *not* double up doses.

If you skipped more than one day's worth of Bactroban Nasal®, you will need to restart the 5 days of therapy with all treatments (Hibiclens®, Bactroban Nasal®, PerioGard®) from the start. Remember it is important to make sure you use all 3 products at the same time. **If you miss more than a day's worth of use of any of these products, you will need to restart all 3 of them together for another 5-day course.**

If you have missed doses and are not sure what to do, contact Project CLEAR study staff at [redacted]) or EndMRSA@uci.edu for instructions.

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CHANGING LIVES BY ERADICATING ANTIBIOTIC RESISTANCE

Safety and Side Effects

Because you are in the Decolonization Group, you will be using mupirocin and chlorhexidine gluconate (CHG) products during the study to reduce and possibly get rid of MRSA on your body. All of the products used in this trial have excellent safety profiles.

Both mupirocin and CHG are only used topically, and are not absorbed into the bloodstream during use. In addition, these FDA-approved products have been used in healthcare for a very long time and are considered safe for use in adults. CHG, which is found over-the-counter, has been used in healthcare for over 50 years. In fact, CHG as an oral rinse is considered the gold standard in dental and oral hygiene.

In the case of mupirocin and CHG, many people have no side effects when using them. However, as with any medication, side effects may occur. With topically applied products like mupirocin and CHG, the most common side effects are irritation at the site of application. The following is a list of each of the study products and the most common side effects that people have reported:

Hibiclens® (Chlorhexidine Gluconate Soap 4.0%)

To date, hundreds of thousands of patients have used the chlorhexidine gluconate soap 4.0% in Hibiclens® for bathing. Local side effects are estimated to happen in less than 1% of patients:

- Skin irritation
- Rash
- Redness of the skin

PerioGard® (Chlorhexidine Gluconate Mouthwash 0.12%)

Local side effects to PerioGard® as a mouthwash are also uncommon and happen in less than 1% of patients. However, PerioGard® will stick to plaque and tartar on teeth, so it is recommended that PerioGard® be used after thorough brushing of the teeth. It is also just as important that the toothpaste be rinsed out of the mouth thoroughly, since toothpaste can prevent PerioGard® from killing bacteria.

Bactroban Nasal® (Mupirocin Ointment)

Side effects to Bactroban Nasal® are uncommon and happen in **1% or less** of patients. Among these, rare side effects include:

- Mild runny nose
- Change in sense of taste
- Sore throat

Severe Allergic Reactions

In **extremely rare** circumstances, severe allergic reactions to chlorhexidine and mupirocin have been reported. **Such serious reactions are so rare that it cannot even be accurately reported.**

However, if you think you might be developing a severe allergic reaction (including hives, severe itching, difficulty breathing, tightness in the chest, swelling of the mouth, face, lips, or tongue), stop the study drug and **immediately** call 911 or go to the nearest emergency department.

A Project CLEAR study supervisor can be reached anytime, including after hours or on weekends for <u>urgent issues that cannot wait until business hours</u> by paging ([redacted]

For less severe side effects, please contact Project CLEAR study staff by calling toll free at [redacted] or emailing us at EndMRSA@uci.edu. **We encourage you to call if you are unsure and would like to discuss concerns with study staff.**

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Hospitalization and Infection – Decolonization

Please report the following to Project CLEAR staff as soon as possible.

- **All hospitalizations (for any reason)**
- **All nursing home and rehabilitation stays**
- **All outpatient visits that involve a possible infection**

1. Report these study outcomes to Project CLEAR study staff **as soon as possible** at [redacted]) or EndMRSA@uci.edu.
2. Please let us know as soon as you are hospitalized or admitted to a nursing home or rehabilitation facility, **especially if it is a week that you should be on the decolonization treatment.** We can explain the trial and give them instructions for decolonization.
3. Please have the following information available when calling study staff:
    - Name and address of the facility (hospital) visited
    - Name of any prescribed antibiotics and number of days taken
    - Number of hours and days lost from work and/or school
    - Amount of any out-of-pocket expenses you had to pay for your hospitalization, nursing home stay, rehab stay, or clinic visit.
    - Date of the beginning of the infection, if you had an infection

We realize you may not know the exact answers to all of these questions. So please don't worry if you can't give us all of the answers to all of these questions. Please just do the best that you can. Your answers are very important to us.

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Dear Doctor,

Your patient, _____ has enrolled in a clinical trial to prevent
Full Name

MRSA infection, and has **been assigned to the Decolonization Group.**

Project CLEAR (Changing Lives by Eradicating Antibiotic Resistance) is a **randomized clinical trial** that recruits MRSA-positive adult patients during admissions to participating Orange County and Southern LA County hospitals or nursing homes.

Project CLEAR is a **post-discharge trial** where patients are randomized to one of two groups and supported for one year following hospital discharge.

- **Education Group:** Participants randomized to this group are provided detailed MRSA education to prevent infection and spread, including cleaning and laundry tips.
- **Decolonization Group:** Participants randomized to this group are provided detailed MRSA education plus decolonization with 1) nasal mupirocin 2) chlorhexidine oral rinse and 3) chlorhexidine body washes. Participants use these products together for 5 days twice a month (a total of 10 days per month) for the first 6 months of the 1-year follow up period. All products are provided for free to trial participants.

It is not currently known whether decolonization is helpful in the post-discharge setting. We do know that the risk of MRSA infection among MRSA carriers is higher in the months following discharge.

We hope this study will determine whether decolonization can reduce infection and re-hospitalization due to MRSA in MRSA carriers. If so, it would provide additional utility for the legislated screening that is required for high risk hospitalized patients in California. Alternatively, this trial may show that detailed education is equally effective.

This trial is led by Dr. Susan Huang who is the Medical Director of Epidemiology and Infection Prevention and a faculty member in the Division of Infectious Diseases at the UC Irvine School of Medicine. Collaborators include Dr. Loren Miller at LA BioMed/Harbor-UCLA, and a national steering committee of MRSA experts. Project CLEAR is federally funded through the Agency for Healthcare Research and Quality.

Please contact Project CLEAR study staff if we can answer any questions or provide additional information about the trial.

Respectfully yours,

The Project CLEAR Team

[redacted]
[redacted]
EndMRSA@uci.edu

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Education Group

LABioMed

School of Medicine
University of California · Irvine

Harbor-UCLA
Medical Center

AHRQ

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Mission Statement

Project CLEAR is a clinical trial comparing two different ways to prevent MRSA infection in patients who have been recently discharged from the hospital. You are participating because you have MRSA somewhere on your body, even if you do not have an infection. Having MRSA on the body, also known as "carrying MRSA", can put you at risk for having later infections by this bacterial germ.

We are studying two different ways to prevent MRSA infection because it is not known which one works better. The best way to compare two strategies is to randomly assign participants to each group (that means that study participants do not get to choose which strategy they are assigned).

One group is receiving detailed educational support about good hygiene and cleaning to prevent MRSA infections at home. This educational support will continue for the year following recruitment and hospital discharge. The other group will receive the same detailed education, as well as special soaps and medication to try to remove MRSA from the body. Both groups are equally important in successfully carrying out the trial. It is possible that information about good hygiene and household cleaning is enough to prevent infection without having to deal with the soaps and medicines to remove MRSA. On the other hand, it is possible that the soaps and medicines are helpful and are worth the effort and costs to future patients outside of this trial (in this trial all soaps and medicines are provided for free).

You have been assigned to the Education Group. This group is very important because it will answer whether practical advice on home cleaning and good hygiene is all you need to do a good job in preventing MRSA infections. We know that the year after hospital discharge is an important time for healing and resting, as well as a time when infections are more common. We believe that educational support during this time will be helpful.

We thank you for participating in this important study. We look forward to working with you to prevent MRSA infections.

Study Investigators & Recruiters

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CHANGING LIVES BY ERADICATING ANTIBIOTIC RESISTANCE

Study Investigators

Susan Huang, MD MPH (Lead)
Loren Miller, MD MPH
Steven Park, MD PhD
James McKinnell, MD
Gail Simpson, MD

Project Coordinators

Raveena Vitela, MA (Supervisor)
Samantha Eells, MPH
Adrijana Gombosev, BS (Supervisor)

Nursing Home Coordinators

Victor Quan, BA (Supervisor)
Diane Kim, BS

Recruiters

Ann Nguyen, BS
Belinda Prado, BS
Brian Lewis, BS
Claudia Cervantes, BA
Courtney Murphy, MA
Donald Bayley, BS
Eric Cui, BS
Isabel Alegria, BS
Ivonne Turner, BA
Katy Preciado, BS
Lauren Heim, MPH
Ramiro Correa
Rupak Datta, MPH
Sean Prendergast, MPH
Stefan Boghossian, BS
Stephanie Glacet, MS
Tabitha Dutciuc, BS
Tiffany Nhi Dam

Central Office

Maureen Schroeder, BA
Nelly Beltran, BA

LABioMed
School of Medicine, University of California · Irvine
Harbor-UCLA Medical Center
AHRQ

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CHANGING LIVES BY ERADICATING ANTIBIOTIC RESISTANCE

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What to Expect
Calls and Follow Up

Day of Enrollment/Prior to Discharge

- Receive a copy of the signed consent form
- Complete a contact information sheet
- Complete a survey with Project CLEAR study staff
- Have swabs of the nose, throat, armpit/groin, and any wounds taken by Project CLEAR study staff
- Receive a binder containing MRSA educational materials
- Select a follow up clinic location
- Schedule a one month follow up visit at that study clinic

After You Leave the Hospital

- You will be followed in the study for one year after discharge
- Attend follow up study clinic visits 1, 3, 6, & 9 months after enrollment
    - You will be compensated for each visit
    - During each visit:
        - A survey will be completed with clinic study staff
        - Repeat swabs of nose, throat, armpit/groin, and any wounds will be taken by study staff
        - Additional educational material will be given to you
- Receive phone calls twice a month for one year following discharge
    - Two follow up calls a month for an update on outcomes

- Report medical conditions to study staff if you are:
  - Hospitalized for any reason
  - Admitted to a nursing home or rehabilitation center
  - Seen in any outpatient clinic or emergency department visit for possible infection.

  In these cases, medical records will be requested and obtained for the sole purpose of study outcomes (covered in consent form).

Clinic Visits

Your 4 follow up visits can be scheduled at any of the following study clinic sites:

1) University of California, Irvine (undergraduate campus in **Irvine**)
   a. [redacted]

2) University of California, Irvine Medical Center (**Orange**)
   a. [redacted]

3) LA Biomed Research Institute at Harbor-UCLA Medical Center (**Torrance**)
   a. [redacted]

*Parking at all sites is free. See "What to Expect Calls & Follow Up" tab for maps and directions.

Timing and Payment of Clinic Visits

Visit Number	Time of Visit	Cash Payment
1	One month after enrollment	$25
2	Three months after enrollment	$30
3	Six months after enrollment	$35
4	Nine months after enrollment	$50

Note: there is no reimbursement for travel, only compensation for the visit

What Will Happen at Clinic Visits?

You will be asked to:

- Share any questions
- Confirm current contact information
- Complete a follow up survey with study staff
- Report any recent hospitalizations, as well as outpatient clinic visits for an infection. These are important study goals.
- Allow a study nurse to collect swabs from the same 4 body sites (nose, throat, armpit/groin, and wound if applicable) to be tested for MRSA
- Receive additional MRSA educational materials

What Will Happen at the End of the Trial?

After all persons in the trial have finished the trial and all analyses are completed and accepted for publication, you will receive a notification about trial findings.

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Follow-up Visit Locations

You can be seen at any of the three different locations for your follow-up visits. The following pages include maps and parking information.

IRVINE **University of California, Irvine – Clinical Research Facility at Hewitt Hall**
Map 1 – General Map of University of California, Irvine Campus
Map 2 – Detailed View of Clinical Research Facility at Hewitt Hall at University of California, Irvine
ORANGE **University of California, Irvine Medical Center – Clinical Research Center**
Map 3 – General Map of University of California, Irvine Medical Center Campus
Map 4 – Detailed View of Clinical Research Center at University of California, Irvine Medical Center
TORRANCE **LA BioMed Research Institute at Harbor – UCLA Medical Center – Liu Research Center**
Map 5 – General Map of LA BioMed Research Institute at Harbor – UCLA Medical Center Campus
Map 6 – Detailed View of Liu Research Center at LA BioMed Research Institute at Harbor – UCLA Medical Center

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Frequently Asked Questions
Education Group

What Does Project CLEAR Mean?

CLEAR stands for Changing Lives by Eradicating Antibiotic Resistance.

Why Was I Asked to Participate in This Trial?

You were chosen because a germ called MRSA was found on your skin and your hospital gave us permission to speak with you.

Who is Running Project CLEAR?

Infectious Disease physicians from the School of Medicine at the University of California, Irvine and Los Angeles Biomedical Research Institute at Harbor-UCLA Medical Center are leading this project. There is also a clinical and scientific advisory board consisting of experts in medicine and statistics from all over the country.

Can I Choose to Be in the Education or Decolonization Group?

No. Group participants are randomly assigned. You will have a 50-50 chance to be included in either group.

What Is My Commitment and How Will It Impact My Everyday Life?

The study will last one year for you. Project CLEAR study staff will contact you by phone two times per month to remind you of your follow-up visits. We will also

ask you about any hospitalizations (for any reason) or any outpatient visits you may have had for a possible infection. You will also go to clinic visits 1, 3, 6, and 9 months after enrolling in the study. These clinic visits will last about 30 minutes and you will be compensated for your time.

Will the Trial Disrupt My Daily Living?

We hope that the educational information we give you will help you improve hygiene and cleaning at home to prevent MRSA spread or infection. In that way, this trial may change some of your habits at home.

Aside from going to the clinic visits and receiving two phone calls during each month, your normal everyday living should not be disrupted. We will help you schedule the clinic visits in advance so that your life will have minimal disruption. Your participation will help doctors decide how to best treat other MRSA-positive patients to prevent infection.

What if I Am in a Nursing Home, Rehabilitation Center, or Admitted to a Hospital?

Please let us know as soon as possible if you are hospitalized in any of these places since this is a trial outcome. Please let your treating physicians and nurses know that you are in Project CLEAR and ask them to help you continue with the trial. **Please either call us to contact them or have them call us directly so we can make sure that they are aware of the trial and that they have instructions.**

If you are in a hospital or nursing home during one of your scheduled follow up visits a member of the Project CLEAR study staff will do their best to go to the nursing home, rehabilitation center, or hospital that you are in so that you will not miss your follow up visit. If they do not know that you are hospitalized or cannot schedule a visit with you, your follow up visit may need to be rescheduled to a different time.

How Will My Participation in the Trial Help Me?

We do not know if the education that you receive will be effective for you personally, but it might. Overall, the willingness of you and many others to participate in this trial will give important answers about how best to care for and prevent future infections in persons with MRSA.

Will I Be Able to Find out about the Results of This Trial?

Yes, we will provide preliminary findings to our participants after all participants have completed the trial and we can analyze the information. Remember that the trial may not end when you finish your follow up time. Overall, we need to recruit almost 2,000 patients into this trial and they all need to finish their one-year follow up period. Although we are recruiting hospitalized patients from all over Orange County and Southern Los Angeles County, we still expect that it will be several years before we know the results of this important trial.

What If I Move or No Longer Wish to Participate?

We have three locations where you go for follow up Project CLEAR clinic visits within Orange County and southern Los Angeles County, but please notify Project CLEAR study staff if you move or no longer wish to participate. If you decide to leave the study, we ask that you please complete an exit survey by phone so we understand your reasons and experience with this trial.

Will I Be Paid for My Participation?

Yes, you will be paid for all the follow up visits that you make. You will receive:

- $25 at the one-month follow-up visit
- $30 at the three-month follow-up visit
- $35 at the six-month follow-up visit
- $50 at the nine-month follow-up visit
- In all, you will earn $140 for finishing the clinical trial

I Would Like to Speak with Someone from Project CLEAR. Is There Someone to Answer My Questions?

Yes. During normal business hours, please contact Project CLEAR study staff by calling toll free at [redacted] or emailing us at EndMRSA@uci.edu. A Project CLEAR study supervisor can be reached anytime, including after hours or on weekends for **urgent issues that cannot wait until business hours** by paging ([redacted]

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MRSA Basics

What Is MRSA?

There has been a lot of attention in the news about methicillin-resistant *Staphylococcus aureus*, or MRSA. *Staphylococcus aureus* is a type of bacteria or germ that commonly lives on the skin and in the nose of people. Some people call it "staph" bacteria. Usually, staph do not cause any harm. However, sometimes staph can get inside the body through a break in the skin and cause an infection. Most staph bacteria will be killed with many types of antibiotics. However, MRSA is a form of staph that is resistant to many common antibiotics, and needs more attention if an infection occurs. Most people who have MRSA carry it in their noses without having any problems with an infection.

MRSA used to be found most commonly in hospitals and other medical places such as nursing homes. Today, MRSA is also common in the community. MRSA can be found in places such as gyms, schools, and child care facilities. As more and more people pick up MRSA, this germ has become an important health concern.

There is much to be learned about MRSA. Project CLEAR will help us understand what will work best to prevent MRSA infections in people who have MRSA after they leave the hospital.

How Do You Pronounce MRSA?

MRSA is typically pronounced by saying each letter "M-R-S-A". Some people pronounce MRSA as "mer'-sa". The form of staph that is not resistant to antibiotics is called Methicillin-Sensitive *Staphylococcus aureus* or MSSA (pronounced by saying each letter, "M-S-S-A").

How Did I Get MRSA?

Staphylococcus aureus, or "staph", are germs that commonly live in people's noses and skin. People can become carriers of the antibiotic resistant form of "staph", or MRSA, in several ways. MRSA is spread through physical contact with things or people that have MRSA. This can occur in hospitals and nursing homes, as well as in the community. For example, MRSA can be found in gyms or sporting areas and in child care centers. Because of the many sources of MRSA, it is hard to know how someone picked up MRSA. Taking antibiotics can also make it more likely to pick up a resistant strain of staph.

How Do You Know that I Have MRSA?

Doctors test for MRSA by sending a culture. A doctor may send a culture because a patient isn't feeling well. Doctors sometimes send a culture from a patient's nose. Nose cultures are usually done while a patient is in the hospital. In California, patients in hospitals are required to have nose cultures for MRSA if they have been recently hospitalized, if they are in the intensive care unit, if they will have surgery, if they are on hemodialysis, and if they are nursing home residents.

Does Having MRSA Mean that I Have an Infection?

No. MRSA often live in our noses without causing an infection. Like many other bacteria that live in our nose, throat, and gut, having MRSA without an infection is called *colonization* and is not the same as infection. Most people who are colonized with MRSA do not realize that they have MRSA. However, being colonized with MRSA does increase the risk of a later MRSA infection, which is what this trial is trying to prevent.

What Types of Infections Can MRSA Cause?

MRSA comes from the family of bacteria called *Staphylococcus. Staphylococcus* or "Staph" have been causing infections for hundreds of years across the world.

Infections from MRSA can be very different, such as skin infections or severe blood infections. Skin infections can first look like spider bites or bumps that are red, swollen, painful, or filled with pus. Areas of the body that are covered by hair, like the back of the neck, groin, buttock, armpit, or thighs are common places where these skin infections appear. However, these infections can occur almost anywhere on the body. Skin and deeper infections can also occur in surgical or other wounds.

MRSA can also cause infections in the bloodstream. Infections of the blood are especially dangerous because the blood can carry MRSA around the body. Infections can occur anywhere blood travels in the body. Patients who have intravenous (IV) catheters, such as a "central line" or "PICC" line, may be at risk for MRSA blood infections because these lines cause breaks in the skin and may allow bacteria to enter the bloodstream. MRSA blood infections can also occur in healthy persons without IV catheters and without infections at other areas of their body. Persons with severe MRSA infections are also at risk for MRSA blood infections.

MRSA can also cause infections in other parts of the body. Some other types of MRSA infections include infections of the bone or joint, urine or kidneys, and lung (pneumonia). It is important to know that MRSA does not cause the common cold, "the flu", or "strep throat". Please read the later section, MRSA Treatment, for more information on types of MRSA infections.

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MRSA at Home

How MRSA is Spread in the Home

MRSA are microscopic, invisible Staph germs that cannot be seen with the naked eye. MRSA can be spread when a person touches objects such as towels, bandages, or razors that have touched the skin or wounds of someone infected with MRSA. Even if MRSA is spread to others, MRSA doesn't always cause infection. In fact, many MRSA germs live on people's skin and don't cause infections. However, those MRSA germs can spread to others and can cause infections in the future. People with MRSA on their body that is not causing infection can be said to be "colonized" with MRSA.

There are several things that make MRSA spread. These include skin-to-skin contact between people, having skin breaks such as cuts, scrapes or sores where MRSA might enter the body, touching contaminated items and surfaces, being in crowded conditions where lots of people crowd together and contact one another, and poor hygiene. People may be at higher risk of MRSA in locations where these factors are common. These types of places include hospitals, nursing homes, rehabilitation facilities, athletic facilities, dormitories, military barracks, jails, crowded households, and daycare centers.

Risks from Contaminated Surfaces

MRSA doesn't always cause infection. In fact, many MRSA germs can live on objects and not people. When MRSA lives on an object, that object can be said to be "contaminated" with MRSA. MRSA-contaminated objects may look normal and even clean. MRSA can live on objects for many weeks.

MRSA can get on objects if someone who is colonized or infected with MRSA touches an object. Because MRSA often lives in wounds that are infected, persons with MRSA skin infections need to keep their wounds covered with bandages. Covering infected wounds is the best way to reduce the chance that surfaces will be contaminated with MRSA.

Even if surfaces of objects have MRSA on them, this does not mean that you will pick up MRSA or get an MRSA infection if you touch these surfaces. MRSA is most likely to cause problems when you have a cut or scrape that is not covered with bandages. MRSA can also get into small openings in the skin that may not be noticeable to you.

The best defense against picking up MRSA or preventing later infection among those colonized with MRSA is good hygiene such as hand washing, and regular bathing and showering. Soap and water kill germs like MRSA. Alcohol based hand sanitizers (rubs) such as gels and foams also kill germs like MRSA. Please keep your hands clean by washing them regularly with soap and water or an alcohol-based hand rub, especially after you may have touched something that may be contaminated with MRSA. If you must share medical equipment or gym equipment with others, either disinfect the equipment between use or use clothing or towels as a barrier between you and shared equipment. These are easy ways to decrease your risk of getting MRSA.

Preventing the Spread of MRSA

What can I do to prevent spreading MRSA to others?

- Clean your hands often with soap and water or use an alcohol-based hand sanitizer
- Take regular baths or showers using soap to clean your body
- Showering immediately after activities where you have direct skin contact with people or shared surfaces, such as after physical therapy sessions, rehabilitation sessions, group sports, or exercising at a health club
- Wash your sheets and towels at least once a week
- Change your clothes daily and wash them before wearing again
- Do not share towels, washcloths, razors, or other personal items
- Clean common areas of your home (bathrooms, countertops, etc.) daily with a household cleaner

What should I do about wounds or cuts?

- If you get a cut or scrape on your skin, clean it with soap and water and then cover it with a bandage until healed
- Pus from infected wounds can contain staph, including MRSA, so keeping the wound covered will help prevent the spread to others
- Bandages and tape can be discarded with the regular trash
- Clean your hands immediately after putting on or changing bandages
- Do not touch skin sores; if you do touch a sore, clean your hands right away
- Wear clothes that keep bandages and sores covered, if possible
- Do not participate in contact sports until your wounds or cuts have healed
- Do not go to a public gym, sauna, hot tub or pool until wounds or cuts have healed
- You, your family, and others in close contact should wash their hands frequently with soap and water or use an alcohol-based hand rub, especially after changing the bandage or touching the infected wound

Caring for Yourself

Does it matter how I wash my hands?

- Yes. You have to use soap and rub your hands together for at least 15 seconds to get rid of the bacteria. Washing your hands is the number one way to stop the spread of MRSA
- Also, you can spread MRSA to people you live with if you share towels. Consider having your own hand towel to dry your hands on

How do I clean my hands with alcohol-based hand sanitizer?

If your hands look dirty or if you've used the bathroom, you should use soap and water. Otherwise, if your hands don't look dirty, you can use hand sanitizer as a very effective way to get rid of germs. Don't use the hand sanitizers to clean surfaces or objects. Look for a sanitizer with at least 60% alcohol in it.

- Use enough to cover all the surfaces of your hands
- Apply sanitizer and rub together for at least 15 seconds, getting between the fingers and thumb, and around nails
- Allow your hands to air dry

Always wash your hands thoroughly:

- Before preparing food, eating, or drinking
- After coughing, sneezing, or blowing your nose
- Before and after touching your eyes, nose, mouth, genitals
- Before and after touching any cuts or wounds, including sores, acne, boils, or rashes
- Before and after changing bandages
- After going to the bathroom
- After touching urine, feces (poop), and body fluids—this includes items soiled with body fluids, such as bedding
- After cleaning the bathroom, changing your bedding, and doing laundry
- After touching things other people touch, such as phones, door knobs, computers, shopping carts, gym or rehab equipment

Contact with Family Members

Can I have contact with my family members?

- Naturally, contact with family members is an essential and important part of family life. In general, healthy people are at low risk of becoming infected with MRSA. Therefore, in general, you should not be worried about casual contact - such as kissing, hugging, and touching - as a major way to spread MRSA for both adults and children.

- MRSA is not exchanged through bodily fluids during kissing, sexual intercourse, etc. However, it can be spread through skin-to-skin contact. Touching wounds or cuts are the most worrisome way for spreading MRSA to family members. Cover any skin wounds with a bandage and anyone changing bandages should clean their hands immediately before and after doing this.

Laundry

Routine laundry procedures, detergents, and laundry additives will all help to make clothes, towels, and linens safe to wear or touch. If items have been contaminated by infectious material (blood, pus), these may be laundered separately, but this is not absolutely necessary since laundry detergents kill germs.

Do I need to be careful when I do laundry?

- Yes. Touching dirty clothes and bedding can spread MRSA bacteria
- When touching your laundry or changing your sheets, hold the dirty laundry away from your body and clothes to prevent bacteria from getting on your clothes
- Be particularly careful with laundry that is soiled with body fluids, like blood or drainage from a sore, urine or feces (poop).
    - Wash these items immediately if possible, or place into a plastic bag until it can be washed.
    - If necessary, you can use disposable gloves when handling these

items. If you have cuts or sores on your hands or arms, you should avoid direct contact with these items. If you choose not to use gloves, make sure you wash your hands well for at least 15 seconds with soap and water immediately after handling.
    - Remember to clean your hands with soap and water even if you have been wearing gloves
    - Do not reuse gloves
- Wash your laundry with warm or hot water, use bleach if possible
- Dry in a warm or hot dryer and make sure the clothes are completely dry

How often should I change clothes and bedding?

- Change your sheets and towels at least once a week
- Change your clothes daily
- Do not put dirty clothes or clothes you have just worn back in your closet or drawers until they have been washed

Cleaning

What about cleaning my house?

- Simple daily cleaning is important
- Use a household disinfectant or bleach solution to clean surfaces daily
- Focus on surfaces that touch people's bare skin each day and any surfaces that could come into contact with uncovered infections and that are frequently touched – light switches, doorknobs, phones, toilets, sinks, and kitchen counters
- A simple wipe with a disinfectant wipe will help get rid of MRSA germs
- Wipe or spray the surface or object with the disinfectant and let it dry
- Large surfaces such as floors and walls **have not been directly linked** to the spread of staph and MRSA
- There is no evidence that spraying or fogging rooms or surfaces with disinfectants will prevent MRSA infections more effectively than the targeted approach of cleaning frequently touched surfaces and any surfaces that have been exposed to infections

Disinfectants to use:

Disinfectants effective against *Staphylococcus aureus* or staph are most likely also effective against MRSA. These products are readily available from grocery stores and **you should look for the word "disinfectant".** Some examples include Lysol®, Clorox®, or bleach products as sprays or wipes. **Generic versions of these may be available and less expensive than brand names.**

Keep the bleach solution away from children and don't put it in bottles that could be mistaken for something to drink. While pop up wipes may be the easiest to use, a simple solution of bleach and water is also effective. To make a bleach solution:

- Mix two teaspoons bleach into one quart of water in a spray bottle and label it "bleach solution"
- Make it fresh each time you plan to clean because the bleach evaporates out of the water making it less effective
- Never mix bleach with other cleaners, especially ammonia

How should disinfectants be used to clean?

Always read the label first. Each disinfectant has instructions on the label that tell you important facts:

- How to apply the product to a surface
- If the surface needs to be wiped clean first to remove dirt
- If the surface needs to be rinsed after using disinfectant
- If the disinfectant is safe for certain surfaces
- Whether the product requires mixing with water before use
- Precautions you should take when using the product, such as wearing gloves or aprons or making sure you have good ventilation during application

If body fluids or pus get onto surfaces, you need to do the following:

- Put on disposable gloves, if available
- Wipe up the fluids with a paper towel
- Throw the paper towel in the trash

- Clean the surface thoroughly using disinfectant and a paper towel
- Throw the paper towel in the trash
- Then wipe the surface again with the disinfectant and a new paper towel and let it dry for at least 30 seconds
- Throw the paper towel in the trash
- Remove your gloves and throw them in the trash
- Wash your hands with soap and water

Summary

- MRSA can't be seen on objects
- MRSA can be spread by skin-to-skin contact or by contaminated objects
- Keep any open wounds or cuts bandaged
- Wash your hands often with soap and water or alcohol hand sanitizer
- Launder your clothing and bedding regularly
- Dry all laundry completely in a dryer
- Clean surfaces often touched by people with a disinfectant wipe or spray daily

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MRSA at Work/School

How to Prevent Spreading MRSA to Others at Work or School

When it comes to MRSA at work and school, there are two general concerns that people have. One is "How do I prevent spreading MRSA to others?" The other is "How do I protect myself from getting MRSA from others?" Below, we provide general guidance to help answer these common questions.

Do I need to tell someone at work or school if I have MRSA?

No. You are protected by health privacy rules and you have a **right to not share** personal information. However, if having MRSA is affecting your ability to work or study you should talk to your personal physician and consider discussing your situation with your work supervisor or school advisor.

If I have MRSA and I am feeling well, can I go to work or class?

In general, yes. For the most part, having MRSA does not prevent you from getting your work done. Unless your doctor has told you to stay home, people who have MRSA can usually work or attend class. You should stay home if you have wound drainage ("pus") that cannot be covered and contained with a clean, dry bandage. However, there are a few times when special considerations are needed.

Special Situation #1: Actively draining wounds

- If your wound requires frequent dressing changes, you should discuss this with your school nurse or work supervisor to make sure that you have a clean place to store your supplies and a clean place to change bandages. You will need a place to wash your hands thoroughly with soap and water immediately before and after changing bandages, and you will need a place to throw away used bandages.
- If your wound has drainage or pus that cannot be easily contained with a bandage, you could spread MRSA to others. You should speak with your personal physician and work supervisor about your options to stay home until you heal.
- Try your best to keep wounds covered by both bandages and clothing to keep them protected so they can heal and to prevent any drainage from contacting your work or school environment.

Special Situation #2: Lines for medication

- If you have an intravenous (IV) line for medication and feel well enough to work or go to school, you must ensure that your surroundings and the type of activities you join are safe and clean for your line. You should not get the line wet or sweaty and it should be able to be bandaged and kept clean and free from getting pulled or tangled.

- If you need to give yourself medicine through the line while at school or work, you need a clean place to store your medicine and supplies and a clean place to access the line. Be sure you can follow all directions given

to you by your medical providers about how to take care of your line. You will need a place to wash your hands thoroughly with soap and water immediately before and after touching the line. Avoid having co-workers touch your line.

If I have MRSA, how can I prevent spreading it to my coworkers or classmates?

You can prevent spreading staph or MRSA skin infections by following these steps:

- **Cover your wound.** Keep areas of the skin affected by MRSA covered. Keep wounds that are draining or have pus covered with clean, dry bandages. Pus from infected wounds can contain MRSA, so keeping the infection covered will help prevent the spread to others. Bandages or tape can simply be put in the regular trash.
- **Clean your hands.** You and coworkers or classmates who are in close contact with you should wash hands frequently with soap and warm water or use an alcohol-based hand sanitizer. This is especially important to do before and after changing your own bandage or touching wounds or lines.
- **Do not share personal items.** Avoid sharing work-related or personal items such as uniforms, gear (such as hats, goggles, aprons, tool belts), clothing, towels, or washcloths that have direct contact with your skin. Do not share lotions, jewelry, or makeup.
- **Talk to your doctor.** If you need to talk with occupational health or a school nurse about a potential infection or related problem, be sure to tell them that you have or had a staph or MRSA skin infection.

How to Protect Yourself from Getting MRSA at Work or School

Can I get MRSA from someone at work or school?

Maybe. Remember, anyone around you can carry MRSA. The most common way MRSA is spread is by direct skin-to-skin contact or contact with shared items or surfaces that have come into close contact with skin or infection (e.g., sharing clothing, towels, used bandages, make-up).

Should I avoid doing certain activities at work or school?

In general, the types of interactions you have at work or school are okay. MRSA is not spread by sharing food with others or breathing the same air. However, it is not a good idea to routinely share personal items such as razors or clothing with others.

What if I want to disinfect something at work or school?

You are encouraged to disinfect items at work that are commonly touched or that you feel need to be cleaned. Disinfectant wipes are a good option for cleaning surfaces (Lysol, Clorox, or store-brand wipes that say "disinfecting"). Be sure to read the instructions on the label so you use it safely and know if it is compatible equipment.

project CLEAR

CHANGING LIVES BY ERADICATING ANTIBIOTIC RESISTANCE

MRSA Treatment

MRSA Infections

MRSA can cause many different types of serious infections that need treatment with antibiotics. For example, MRSA can cause pneumonia, skin and wound infections, infections after medical procedures or surgery, and bone and joint infections. When these infections are very serious, they can cause MRSA to appear in the blood – a very serious event that needs urgent medical attention and antibiotics.

Patients who have intravenous (IV) catheters, such as a “central line” or “PICC” line, may be at risk for MRSA blood infections because these lines cause breaks in the skin and may allow bacteria to enter the bloodstream.

MRSA blood infections can also occur in healthy persons without IV catheters and without infections at other areas of their body.

General Signs of Infection

Most MRSA infections have at least one of the below signs of infection. Not all of the signs below will be seen with an infection and not all of the signs below mean that people have an infection with MRSA. This is because other health conditions can also cause these symptoms.

- Fever, chills, or shivering
- Redness or pain at the infected area
- Feeling run down or really tired
- In older patients, sometimes mental confusion can be a sign of infection

Signs of Specific Kinds of Infection

1) **Wound Infections:** The place on the skin where the infection occurred may be red, swollen, puffy, or painful. A yellow or green fluid, called pus, may also be draining from the skin. MRSA skin infections can also look like spider bites or bumps which then become worse and can be filled with pus. MRSA skin infections can also occur at hair follicles (where hairs come out of the skin). These are called boils and can look like blisters.
2) **Pneumonia (MRSA infection in the lungs):** People with pneumonia may find it hard to breathe, feel tired, have pain when coughing or taking deep breaths, have a cough that becomes worse over time, cough up thick yellow or greenish fluid, or have a fever.
3) **Line (catheter) Infections:** The place where the IV line goes into the skin may be painful, red, or have yellow or green fluid, called pus, come out of the skin. People with MRSA line infections can also have shivering when medicines are put through the IV line. Fever is also common in people with MRSA line infections.
4) **Bone and Joint Infections:** At the infected bone or joint, people may have swelling, feel pain or heat, or have difficulty moving the infected bone or joint. Patients may also have a fever with bone and joint infections.

Treatment of MRSA Infections

MRSA infections should always be treated by a doctor. It is important to follow the instructions for treatment that your doctor gives you.

If you have an MRSA infection, your doctor may choose one or more of the following treatments:

1) **Give Antibiotics (by mouth or by vein):** MRSA can defend itself against many antibiotics so MRSA can be difficult to kill. However, there are antibiotics that can remove MRSA and make the infection go away. If your doctor gives you antibiotics, take them exactly as prescribed. Do not stop early, even if you feel better. The last few pills kill the toughest germs. Never take antibiotics without a prescription from your doctor.

2) **Drain the Infection:** Some MRSA infections will make green fluid or pus. This can happen on the skin or inside the body depending on where the infection is. Large amounts of pus need to be drained in order to get rid of the infection. Often both drainage and antibiotics are needed, but for some skin infections, drainage alone can sometimes cure the infection. Only a doctor can tell you exactly what you need to cure an infection.

If you see pus coming from the skin, don't drain the pus yourself. It can be very dangerous to squeeze or poke a skin infection because it can push the bacteria deeper into the skin and make the infection much worse. Also sometimes the pus can come from an area deep in the skin that requires a doctor to help cure. Draining the infection should only be done by a trained health care provider.

If you have an infection drained, you should keep the area covered until it heals. Sometimes your doctor may ask you to come back for a checkup or to change the dressing. Please see the section, **MRSA at Home**, for details on how to practice good hygiene if you have a bandage or dressing.

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CHANGING LIVES BY ERADICATING ANTIBIOTIC RESISTANCE

Hospitalization and Infection – Education

Please report the following to Project CLEAR staff as soon as possible.

- **All hospitalizations (for any reason)**
- **All nursing home and rehabilitation stays**
- **All outpatient visits that involve a possible infection**

1. Report these study outcomes to Project CLEAR study staff **as soon as possible** at [redacted] EndMRSA@uci.edu.
2. Please let us know as soon as you are hospitalized or admitted to a nursing home or rehabilitation facility.
3. Please have the following information available when calling study staff:
   - Name and address of the facility (hospital) visited
   - Name of any prescribed antibiotics and number of days taken
   - Number of hours and days lost from work and/or school
   - Amount of any out-of-pocket expenses you had to pay for your hospitalization, nursing home stay, rehab stay, or clinic visit.
   - Date of the beginning of the infection, if you had an infection

We realize you may not know the exact answers to all of these questions. So please don't worry if you can't give us all of the answers to all of these questions. Please just do the best that you can. Your answers are very important to us.

Project CLEAR Trial

Education Versus Education Plus Decolonization to Reduce Post-Discharge Infections in Methicillin-Resistant Staphylococcus aureus (MRSA) Carriers (17-16771)

Appendix C

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Table S1. Recruiting Healthcare Facilities, by Recruitment Count and Facility Characteristics

Facility Name	# Recruited	City	County	Teaching Hospital[1]	Trauma Center[1]	Licensed Beds[1]	Annual Admissions[1]
Hospitals							
University of California Irvine Medical Center	366	Orange	Orange	Yes	Level I	411	20582
LAC/Harbor-UCLA Medical Center	322	Torrance	Los Angeles	Yes	Level I	453	19109
Hoag Memorial Hospital Presbyterian	238	Newport Beach	Orange	No	No	443	21665
Torrance Memorial Medical Center	212	Torrance	Los Angeles	No	No	446	23964
Long Beach Memorial Medical Center	210	Long Beach	Los Angeles	Yes	Level II	458	20790
St. Jude Medical Center	187	Fullerton	Orange	No	No	329	13654
Fountain Valley Regional Hospital-Euclid	124	Fountain Valley	Orange	No	No	293	18495
Providence Little Company of Mary-Torrance	95	Torrance	Los Angeles	No	No	442	20013
Mission Hospital Laguna Beach	86	Laguna Beach	Orange	No	No	188	4041
Orange Coast Memorial Medical Center	60	Fountain Valley	Orange	No	No	218	11980
Ventura County Medical Center	57	Ventura	Ventura	No	Level II	223	8656
Downey Regional Medical Center	56	Downey	Los Angeles	No	No	199	9066
St. Mary Medical Center	46	Long Beach	Los Angeles	No	Level II	389	10604

Saddleback Memorial Medical Center	43	Laguna Hills	Orange	No	No	252	12938
Providence Little Company of Mary-San Pedro	14	San Pedro	Los Angeles	No	No	356	6757
Saddleback Memorial - San Clemente	6	San Clemente	Orange	No	No	73	1701
Mission Hospital Regional Medical Center	2	Mission Viejo	Orange	No	Level II	345	15944
Nursing Homes							
Chapman Care Center	5	Garden Grove	Orange	-	-	99	283
Country Villa Plaza Convalescent Center	5	Santa Ana	Orange	-	-	145	332
Royale Healthcare Center	2	Santa Ana	Orange	-	-	131	1984
Villa Elena Healthcare Center	2	Norwalk	Los Angeles	-	-	99	300
Pacific Haven Healthcare Center	1	Garden Grove	Orange	-	-	99	489
Regents Point - Windcrest	1	Irvine	Orange	-	-	59	127
Covington Care Center	0	Aliso Viejo	Orange	-	-	24	379

[1] Data obtained from 2014 OSHPD Utilization Reports

Table S2. Project CLEAR Participant Characteristics at Recruitment Hospitalization, by Group

	Education Group N (%)	Decolonization Group N (%)	P-Value[1]
N	1063	1058	
Mean Age in Years (SD)	56 (17)	56 (17)	0.78
Male	583 (54.8)	565 (53.4)	0.51
Hispanic	339 (31.9)	339 (32.0)	0.94
Race[2]			0.87
White	844/1053 (80.2)	840/1045 (80.4)	
Black	124/1053 (11.8)	132/1045 (12.6)	
Asian	58/1053 (5.5)	47/1045 (4.5)	
American Indian	6/1053 (0.6)	6/1045 (0.6)	
Other	21/1053 (2.0)	20/1045 (1.9)	
Primary Insurance[2]			0.48
Medicaid Insurance	408/987 (41.3)	378/978 (38.7)	
Medicare	132/987 (13.4)	124/978 (12.7)	
Private	259/987 (26.2)	283/978 (28.9)	
Other	188/987 (19.0)	193/978 (19.7)	
Less Than High School Education	210/1028 (20.4)	231/1025 (22.5)	0.59
Bathe Daily or Every Other Day	926/1037 (89.3)	927/1034 (89.7)	0.73
Bathing Assistance Needed	200/1025 (19.5)	224/1013 (22.1)	0.15
Comorbidities[3]			
Diabetes	424/1062 (39.9)	462/1056 (43.8)	0.08
Chronic Obstructive Pulmonary Disease	212/1055 (20.1)	203/1045 (19.4)	0.70
Congestive Heart Failure	145/1055 (13.7)	149/1045 (14.3)	0.73
Cancer	153/1055 (14.5)	161/1045 (15.4)	0.56
Renal Disease	140/1062 (13.2)	134/1056 (12.7)	0.74
Cerebrovascular Disease	115/1055 (10.9)	104/1045 (10.0)	0.48
Liver Disease	81/1055 (7.7)	91/1045 (8.7)	0.39
Charlson Comorbidity Score (mean, SD)	1.7 (1.6)	1.7 (1.6)	0.49

Enrollment MRSA Source			0.79
Nares [4]	580 (54.6)	602 (56.9)	
Wound	320 (30.1)	305 (28.8)	
Respiratory	44 (4.1)	45 (4.3)	
Blood	43 (4.0)	31 (2.9)	
Urine	30 (2.8)	33 (3.1)	
Bone/Joint	16 (1.5)	13 (1.2)	
Other	30 (2.8)	29 (2.7)	
Recruitment Hospitalization [5]			
Hospitalized in Prior Year [3]	595/1046 (56.9)	598/1041 (57.4)	0.80
Nursing Home Stay in Prior Year [3]	165/1043 (15.8)	168/1040 (16.2)	0.84
ICU Stay	188/1055 (17.8)	206/1045 (19.7)	0.27
Surgery	392/1055 (37.2)	399/1045 (38.2)	0.63
Decolonizing Agents Prior to Trial [6]	92/1055 (8.7)	81/1045 (7.8)	0.40
Mupirocin	78/1055 (7.4)	76/1045 (7.3)	0.89
Chlorhexidine	14/1055 (1.3)	5/1045 (0.5)	0.06
MRSA Infection [7]	447/1055 (42.4)	438/1045 (41.9)	0.83
Wound at Discharge	587/1055 (55.6)	588/1045 (56.3)	0.77
Medical Device at Discharge [8]	320/1055 (30.3)	307/1045 (29.4)	0.63
Discharged to Nursing Home	120 (11.3)	116 (11.0)	0.81

[1] T-test performed for continuous variables, chi-square test performed for proportions, Fisher's exact test performed for proportions if numerator ≤ 5.
[2] Reflects respondents to the survey question among participants. Not all participants responded to every question.
[3] Data reflect a positive response to either a survey question or chart review. Not all participants responded to every question, and not all enrollment charts were received from recruiting hospitals despite a signed release request (N=21 missing).
[4] By law, California requires hospitals to screen five patient groups for MRSA on hospital admission (patients who are transferred from a nursing home, hospitalized in the past 30 days, on hemodialysis, undergoing imminent surgery, and admitted to an ICU).
[5] Data reflect chart review from received medical records. Not all recruiting hospitals released participant's medical records to the study despite a signed release request (N=21 missing).
[6] Reflects chart review documentation of mupirocin nasal ointment or chlorhexidine bathing in the recruitment hospitalization, prior to the initiation of the post-discharge trial
[7] Based upon CDC criteria. Infection types provided in **Table S3**
[8] Medical device types provided in **Table S4**

Table S3. Sources of MRSA Infection at Recruitment Admission (by CDC Criteria)

MRSA Infection Type	Education N (%)	Decolonization N (%)
Participants with MRSA Infections	447	438
Skin and Soft Tissue Infection	252 (56.4)	243 (55.5)
Bone and Joint Infection	68 (15.2)	74 (16.9)
Surgical Site Infection	36 (8.1)	37 (8.4)
Pneumonia	27 (6.0)	38 (8.6)
Urinary Tract Infection	24 (5.4)	21 (4.8)
Primary Bloodstream/Vascular	22 (4.9)	18 (4.1)
Abdominal Infection	8 (1.8)	5 (1.1)
Other [1]	10 (2.2)	2 (0.5)
Infection involving bacteremia	77 (17.2)	72 (16.4)

[1] Other infections included reproductive tract infection (6), ear/nose/throat infections, eye infections (4), disseminated infection (1), and central nervous system infection (1)

Table S4. Types of Medical Devices at Discharge from Recruitment Admission

Medical Device	Education N (%)	Decolonization N (%)
Participants with Medical Devices	320	307
Central Venous Catheter	272 (85.0)	248 (80.8)
Urinary Catheter	33 (10.3)	32 (10.4)
Tubes (G-tube, J-tube)	12 (3.8)	9 (2.9)
Drains	3 (0.9)	16 (5.2)
Tracheostomy	0 (0.0)	2 (0.7)

Table S5. Project CLEAR Participant Group Characteristics at Recruitment Hospitalization, by Disenrollment/Lost-to-Follow-Up Status, and Adherence Among Participants in Decolonization Group

	Without Disenrollment or Lost-to-Follow-Up		Disenrolled Plus Lost-to-Follow-Up		Decolonization Group Adherence Level		
	Educ[1] Group N (%)	Decol[2] Group N (%)	Educ[1] Group N (%)	Decol[2] Group N (%)	Full N (%)	Partial N (%)	None N (%)
N	806	765	257	293	637	165	256
Mean Age in Years (SD)	57 (16.9)	56 (16.0)	54 (16.8)	54 (18.6)	53 (15.4)	56 (17.9)	62 (17.8)
Mean Time in Trial (SD)	317 (92.7)	315 (96.8)	72 (81.3)	65 (74.7)	288 (125.5)	292 (103.5)	112 (126.9)
Male	437 (54.2)	420 (54.9)	146 (56.8)	145 (49.5)	343 (53.8)	91 (55.2)	131 (51.2)
Hispanic	266 (33.0)	266 (34.8)	73 (28.4)	73 (24.9)	231 (36.3)	48 (29.1)	60 (23.4)
Race [3]							
White	645 (80.6)	606 (80.3)	199 (78.7)	234 (80.7)	503 (79.8)	134 (82.7)	203 (80.2)
Black	89 (11.1)	93 (12.3)	35 (13.8)	39 (13.4)	85 (13.5)	16 (9.9)	31 (12.3)
Asian	44 (5.5)	37 (4.9)	14 (5.5)	10 (3.4)	28 (4.4)	8 (4.9)	11 (4.3)
American Indian	5 (0.6)	3 (0.4)	1 (0.4)	3 (1.0)	4 (0.6)	0 (0.0)	2 (0.8)
Other	17 (2.1)	16 (2.1)	4 (1.6)	4 (1.4)	10 (1.6.0)	4 (2.5)	6 (2.4)
Primary Insurance [3]							
Medicaid Insurance	325 (42.9)	281 (39.8)	83 (36.2)	97 (35.7)	223 (38.8)	56 (35.4)	99 (40.4)
Medicare	99 (13.1)	89 (12.6)	33 (14.4)	35 (12.9)	58 (10.1)	22 (13.9)	44 (18.0)
Private	205 (27.0)	203 (28.8)	54 (23.6)	80 (29.4)	163 (28.3)	48 (30.4)	72 (29.4)
Other	129 (17.0)	133 (18.8)	59 (25.8)	60 (22.1)	131 (22.8.0)	32 (20.3)	30 (12.2)
Less Than High School Education	168 (21.4)	177 (23.8)	42 (17.3)	54 (19.1)	159 (25.8)	31 (19.4)	41 (16.5)
Bathe Daily or Every Other Day	707 (89.3)	672 (89.5)	219 (89.4)	255 (90.1)	580 (93.1)	133 (82.6)	214 (85.6)
Bathing Assistance Needed	167 (21.3)	167 (22.8)	33 (13.7)	57 (20.4)	96 (15.8)	38 (23.8)	90 (36.4)

Comorbidities [4]							
Diabetes	330 (40.9)	350 (45.8)	94 (36.7)	112 (38.5)	274 (43.1)	71 (43.0)	117 (45.7)
Chronic Obstructive Pulmonary Disease	155 (19.4)	147 (19.4)	57 (22.4)	56 (19.5)	114 (18.2)	32 (19.5)	57 (22.5)
Congestive Heart Failure	109 (13.6)	112 (14.8)	36 (14.2)	37 (12.9)	74 (11.8)	25 (15.2)	50 (19.8)
Cancer	120 (15.0)	119 (15.7)	33 (13.0)	42 (14.6)	77 (12.3)	22 (13.4)	62 (24.5)
Renal Disease	109 (13.5)	96 (12.5)	31 (12.1)	38 (13.1)	71 (11.2)	16 (9.7)	47 (18.4)
Cerebrovascular Disease	88 (11.0)	77 (10.2)	27 (10.6)	27 (9.4)	44 (7.0)	20 (12.2)	40 (15.8)
Liver Disease	58 (7.2)	61 (8.0)	23 (9.1)	30 (10.5)	53 (8.4)	14 (8.5)	24 (9.5)
Charlson Comorbidity Score (mean, SD)	1.7 (1.6)	1.8 (1.6)	1.6 (1.4)	1.6 (1.6)	1.5 (1.5)	1.7 (1.6)	2.2 (1.7)
MRSA Enrollment Source							
Nares [5]	447 (55.5)	431 (56.3)	133 (51.8)	171 (58.4)	334 (52.4)	101 (61.2)	167 (65.2)
Wound	235 (29.2)	230 (30.1)	85 (33.1)	75 (25.6)	211 (33.1)	45 (27.3)	49 (19.1)
Respiratory	40 (5.0)	33 (4.3)	4 (1.6)	12 (4.1)	32 (5.0)	5 (3.0)	8 (3.1)
Blood	31 (3.8)	21 (2.7)	12 (4.7)	10 (3.4)	13 (2.0)	3 (1.8)	15 (5.9)
Urine	21 (2.6)	21 (2.7)	9 (3.5)	12 (4.1)	21 (3.3)	3 (1.8)	9 (3.5)
Bone/Joint	13 (1.6)	9 (1.2)	3 (1.2)	4 (1.4)	8 (1.3)	2 (1.2)	3 (1.2)
Other	19 (2.4)	20 (2.6)	11 (4.3)	9 (3.1)	18 (2.8)	6 (3.6)	5 (2.0)
Recruitment Hospitalization [6]							
Hospitalized in Prior Year [4]	452 (56.6)	431 (57.1)	143 (57.9)	167 (58.4)	342 (54.7)	93 (57.4)	163 (64.2)
Nursing Home Stay in Prior Year [4]	129 (16.2)	122 (16.2)	36 (14.6)	46 (16.1)	75 (12.0)	29 (18.0)	64 (25.2)
ICU Stay	145 (18.1)	142 (18.7)	43 (16.9)	64 (22.3)	106 (16.9)	36 (22.0)	64 (25.3)
Surgery	299 (37.3)	284 (37.5)	93 (36.6)	115 (40.1)	257 (40.9)	52 (31.7)	90 (35.6)
Decolonizing Agents Prior to Trial[7]	72 (9.0)	62 (8.2)	20 (7.9)	19 (6.6)	52 (8.3)	10 (6.1)	19 (7.5)

Mupirocin	63 (7.9)	57 (7.5)	15 (5.9)	19 (6.6)	49 (7.8)	9 (5.5)	18 (7.1)
CHG	10 (1.2)	4 (0.5)	4 (1.6)	1 (0.3)	2 (0.3)	0 (0.0)	3 (1.2)
MRSA Infection [8]	332 (41.4)	312 (41.2)	115 (45.3)	126 (43.9)	278 (44.3)	66 (40.2)	94 (37.2)
Wound at Discharge	442 (55.2)	425 (56.1)	145 (57.1)	163 (56.8)	379 (60.4)	84 (51.2)	125 (49.4)
Medical Device at Discharge [9]	241 (30.1)	220 (29.0)	79 (31.1)	87 (30.3)	172 (27.4)	49 (29.9)	86 (34.0)
Discharged to Nursing Home	95 (11.8)	93 (12.2)	25 (9.7)	23 (7.8)	46 (7.2)	20 (12.1)	50 (19.5)

[1] Education group

[2] Decolonization group

[3] Reflects respondents to the survey question among participants. Not all participants responded to every question.

[4] Data reflect a positive response to either a survey question or chart review. Not all participants responded to every question, and not all enrollment charts were received from recruiting hospitals despite a signed release request (N=21 missing).

[5] By law, California requires hospitals to screen five patient groups for MRSA on hospital admission (patients who are transferred from a nursing home, hospitalized in the past 30 days, on hemodialysis, undergoing imminent surgery, and admitted to an ICU).

[6] Data reflect chart review from received medical records. Not all recruiting hospitals released participant's medical records to the study despite a signed release request (N=21 missing).

[7] Reflects chart review documentation of mupirocin nasal ointment or chlorhexidine bathing in the recruitment hospitalization, prior to the initiation of the post-discharge trial

[8] Based upon CDC criteria. Infection types provided in **Table S3**

[9] Medical device types provided in **Table S4**

Table S6. Pathogens and Pathogen-Specific Rates of First Infections by Group and Adherence

Pathogens of First Infections	Education		Decolonization					
	All Participants		All Participants		Non-Adherent [1]		Adherent [1] (Partial + Full)	
	Infection (N)	Rate Per 10,000 days	Infection (N)	Rate Per 10,000 days	Infection (N)	Rate Per 10,000 days	Infection (N)	Rate Per 10,000 days
CDC Criteria (Any Infection)								
Gram-Positive Pathogens	93	4.11	73	3.27	21	8.84	52	2.60
MRSA	68	3.01	56	2.51	16	6.73	40	2.00
MSSA	9	0.40	4	0.18	2	0.84	2	0.10
Enterococcus species	1	0.04	1	0.04	0	0.00	1	0.05
Streptococcus viridans	3	0.13	3	0.13	0	0.00	3	0.15
Clostridium difficile	12	0.53	9	0.40	3	1.26	6	0.30
Gram-Negative Pathogens	36	1.59	45	2.01	7	2.95	38	1.90
Escherichia coli	13	0.57	20	0.89	3	1.26	17	0.85
Proteus mirabilis	6	0.27	8	0.36	2	0.84	6	0.30
Klebsiella pneumoniae	6	0.27	4	0.18	0	0.00	4	0.20
Pseudomonas aeruginosa	5	0.22	9	0.40	1	0.42	8	0.40
Serratia marcescens	2	0.09	0	0.00	0	0.00	0	0.00
Acinetobacter baumannii	1	0.04	1	0.04	0	0.00	1	0.05
Citrobacter species	1	0.04	0	0.00	0	0.00	0	0.00
Providencia stuartii	1	0.04	3	0.13	1	0.42	2	0.10
Stenotrophomonas maltophilia	1	0.04	0	0.00	0	0.00	0	0.00
Polymicrobial	35	1.55	29	1.30	7	2.95	22	1.10
Polymicrobial with MRSA	24	1.06	21	0.94	6	2.53	15	0.75
Polymicrobial without MRSA	11	0.49	8	0.36	1	0.42	7	0.35
No Organism	88	3.89	60	2.68	14	5.89	46	2.30

Clinical Criteria (Any Infection)								
Gram-Positive Pathogens	87	3.98	67	3.09	20	8.74	47	2.42
MRSA	60	2.75	53	2.44	15	6.56	38	1.96
MSSA	10	0.46	4	0.18	2	0.87	2	0.10
Enterococcus species	2	0.09	0	0.00	0	0.00	0	0.00
Streptococcus viridans	3	0.14	2	0.09	0	0.00	2	0.10
Clostridium difficile	12	0.55	8	0.37	3	1.31	5	0.26
Gram-Negative Pathogens	43	1.97	44	2.03	6	2.62	38	1.96
Escherichia coli	18	0.82	20	0.92	3	1.31	17	0.88
Proteus mirabilis	5	0.23	7	0.32	1	0.44	6	0.31
Klebsiella pneumoniae	9	0.41	5	0.23	0	0.00	5	0.26
Pseudomonas aeruginosa	5	0.23	8	0.37	1	0.44	7	0.36
Serratia marcescens	2	0.09	0	0.00	0	0.00	0	0.00
Acinetobacter baumannii	1	0.05	1	0.05	0	0.00	1	0.05
Citrobacter species	1	0.05	0	0.00	0	0.00	0	0.00
Providencia stuartii	1	0.05	3	0.14	1	0.44	2	0.10
Stenotrophomonas maltophilia	1	0.05	0	0.00	0	0.00	0	0.00
Polymicrobial	37	1.69	28	1.29	7	3.06	21	1.08
Polymicrobial with MRSA	24	1.10	21	0.97	7	3.06	14	0.72
Polymicrobial without MRSA	13	0.60	7	0.32	0	0.00	7	0.36
No Organism	131	6.00	107	4.93	21	9.18	86	4.43

[1] Participants characterized according to their dominant level of adherence. Participants were highly consistent in adherence across follow-up time.

The below table provides monthly values of cumulative infection events for MRSA infection and infection from any cause, and the number of participants that remained free from the infection outcome at each month of trial follow up. “M” indicates month of trial follow up (e.g., Month 0). Differences between the numbers in this table and the number of participants shown at various trial follow up visits in Figure 1 (Randomization and Follow-up of the Participants) is due to many factors including, 1) differences in participants contributing follow up to the trial vs. those that are in the trial and free from the infection outcomes, 2) differences in whether the visit occurred before or after the exact month milestone in the trial (e.g. month 9 values in the table below are calculated at exactly the 9 month date from the date of enrollment while the 9 month visit is based upon a scheduled visit date generally occurring +/- 2 weeks of that date), 3) the date of the last known contact and the definition of loss to follow up. Loss to follow up was defined as the inability to contact participants for three months. If the last known contact occurred within 3 months of the end of the participant trial end date, then the participant would not be considered lost to follow up even if the last known contact was 2 months prior to the participant trial end date. In all cases, data from the last known contact with the patient was used.

Table S7. Monthly Values for Kaplan Meier Curves for Freedom from MRSA Infection and Infection from Any Cause

	M0 [1]	**M1**	**M2**	**M3**	**M4**	**M5**	**M6**	**M7**	**M8**	**M9**	**M10**	**M11**	**M12**
Education Group: MRSA Infections (first)													
Cumulative Events	0	21	38	51	59	70	78	82	84	90	95	98	98
Participants at Risk	1063	934	839	795	749	718	694	660	648	608	557	531	466
Decolonization Group: MRSA Infections (first)													
Cumulative Events	0	11	22	34	41	47	54	57	58	59	63	65	67
Participants at Risk	1058	892	812	765	725	703	671	644	629	592	535	509	452
Education Group: Infections from Any Cause (first)													
Cumulative Events	0	62	103	142	168	187	202	215	225	238	246	250	252
Participants at Risk	1063	895	782	717	663	624	597	559	543	501	456	433	381
Decolonization Group: Infections from Any Cause (first)													
Cumulative Events	0	44	81	112	133	150	161	172	184	192	200	203	207
Participants at Risk	1058	866	765	706	658	628	595	568	543	503	445	426	373

Table S8. Sensitivity Analysis Based Upon Death and Disenrollment Assumptions, Primary Outcome

MRSA Infection by CDC Criteria	No. of Events	HR[1] (95% CI) Decol[2] vs Educ[3]	P-Value
Trial Reported Data	165	0.70 (0.52, 0.96)	0.026
Sensitivity Analysis 1: Imputation for the 6 patients who were excluded post-randomization due to failing to meet study enrollment criteria (no confirmed MRSA). Mean time to infection imputed for the opposite arm to provide "worst case scenario."	171	0.73 (0.54-0.99)	0.043
Sensitivity Analysis 2: Multiple imputation using baseline covariates to impute MRSA times among early exit patients with administrative censoring at 365 days [4]	234 [5]	0.71 (0.53, 0.96)	0.024
Sensitivity Analysis 3: Combined endpoint of death and MRSA infection (time to minimum of death or MRSA)	343	0.83 (0.67, 1.03)	0.096
Sensitivity Analysis 4: Time to MRSA infection and counting any hospitalization after early exit as an MRSA infection event	377	0.97 (0.80, 1.19)	0.800
Sensitivity Analysis 5: Combined endpoint of death and MRSA infection and counting hospitalization after early exit as an event	555	0.97 (0.82, 1.15)	0.750

[1] HR = Hazard Ratio
[2] Decol = Decolonization Arm
[3] Educ = Education Arm
[4] Multiple imputation model based upon Exponential survival fit. Inference based on the multiple imputation variance estimator.
[5] Average number of events observed over M=500 imputed datasets.

Table S9. Adverse Events Associated with Topical Decolonization [a]

Product	Severity [b]	Symptom	Treatment	Days to Resolution	Product Discontinued
Mupirocin 2%	Mild	Runny, itchy nose	None	2	Y
	Mild	Runny nose	None	3	Y
	Mild	Runny nose	None	3	N
	Mild	Congestion	None	1	N
	Mild	Congestion	None	3	N
	Mild	Congestion	None	3	Y
	Mild	Congestion	None	4	Y
	Mild	Congestion	None	5	N
	Mild	Headache	None	1	Y
	Mild	Dizziness	None	1	Y
	Mild	Numb throat, taste change	None	1	Y
	Mild	Loss of smell and taste	None	1	Y
Summary (N=12)	All Mild	Localized	0%	2.3 (mean)	66.7%
CHG 0.12% Mouthwash	Mild	Tongue discoloration	None	4	Y
	Mild	Tingling tongue	None	1	N
	Mild	Tingling of mouth	None	1	Y
	Mild	Teeth staining	None	1	N
	Mild	Teeth staining	None	1	N
	Mild	Teeth staining	None	3	N
	Mild	Teeth staining	None	5	Y
	Mild	Teeth staining	None	7	Y
	Mild	Teeth staining	None	13	N
	Mild	Dry mouth	None	3	Y
	Mild	Oral irritation	None	2	Y

	Mild	Oral irritation	None	13	N
Summary (N=12)	All Mild	Localized	0%	3.7 (mean)	50%
CHG 4% Bodywash	Mild	Itchy, dry hands	None	1 (Resolved with lotion)	N
	Mild	Itchy body	None	1	N
	Mild	Itchy face and neck	None	1	Y
	Mild	Itchy body	None	4	Y
	Mild	Itchy, dry scalp	None	6	Y
	Mild	Dry skin	None	3 (Resolved with lotion)	N
	Mild	Dry, flaky hands and feet	None	10 (Resolved with lotion)	N
	Mild	Burning sensation	None	1 (Resolved with rinsing)	N
	Mild	Rash: trunk	None	1	N
	Mild	Rash: body	None	1	Y
	Mild	Rash: face and neck	None	1	Y
	Mild	Rash: body	None	1	Y
	Mild	Rash: body	None	2	Y
	Mild	Rash: chest	None	3	Y
	Mild	Rash: body	None	3	Y
	Mild	Rash: body	None	3	Y
	Mild	Rash: legs	None	5	Y
	Mild	Rash: body	None	5	Y
	Mild	Rash: scrotal	None	6	N
	Mild	Rash: body	None	10	Y
	Mild	Rash: body	None	11	Y
	Mild	Rash: neck, limbs	None	12	Y
	Mild	Rash and dryness	None	13	Y

	Mild	Rash: leg	None	19	Y
Summary (N=24)	All Mild	Topical	0%	5.1 (mean)	70.8%

[a] Based upon instruction to report any possible, probable, or definite events associated with any decolonization product.

[b] Definitions for grading severity were as follows: 1) mild: topical irritation that resolves on its own without requiring treatment, b) moderate: topical irritation requiring prescription topical or oral therapy for resolution that is not severe, c) severe: topical or systemic symptoms requiring hospitalization or extensive medical follow up for resolution or improvement