

**Standard Operating Procedure for
Strengthening the U.S. Response to Resistant Gonorrhea (SURRG) Program**



Antibiotic Resistant Gonorrhea Outbreak Response Plan

**Guilford County Department of
Health and Human Services
Division of Public Health**

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Purpose

The purpose of this document is to outline the North Carolina (NC) Strengthening the United States Response to Resistant Gonorrhea (SURRG) Team plan to respond to an outbreak of antibiotic resistant gonorrhea (ARGC). For the purposes of this document, ARGC is an all-encompassing term for a strain of gonorrhea that is resistant to the CDC-recommended treatment regimen and includes ceftriaxone-resistant *Neisseria gonorrhoeae*, multidrug-resistant (MDR) gonorrhea, or extensive drug resistant (XDR) gonorrhea. Through the Strengthening the US Response to Resistant Gonorrhea (SURRG) program, a CDC-supported multisite project to expand antibiotic susceptibility testing (AST) surveillance, NC Department of Health and Human Services (DHHS) partners with the Guilford County Department of Health and Human Services – Division of Public Health (GCDHHS-DPH) (NC SURRG) to gather data on *N. gonorrhoeae* AST samples collected in STD clinic and non-STD clinic settings. The outbreak response detailed in this plan will focus efforts within the local SURRG jurisdiction of Guilford County, North Carolina. The NC SURRG ARGC response plan will provide the framework for four main factors, including outbreak preparedness, response management, outbreak case investigation, and outbreak recovery.

Jurisdictional Description

Geography

Guilford County is a Major Metropolitan Statistical Area (MMSA), the third most populous county in North Carolina with approximately 542,410 people (Census, 2022). It is in the north central area of the state and is a part of the Piedmont Triad. The Piedmont Triad is primarily made up of three cities - Winston Salem, Greensboro and High Point, the latter two are in Guilford County. This area has historically served as one of the major manufacturing and transportation hubs of the Southeast. Greensboro is centrally located in Guilford County and High Point is to the Southwest.

Demographics, Health and Well-being in Guilford County

Guilford County's population is 36% black, 55% white, 9% Hispanic, and 5% Asian but in the historically segregated Eastern region of the Greensboro MSA the trends reverses, and we see the racial composition becomes 63% black, 25% white, 8% Hispanic, and 3% Asian (Census, 2021). The life expectancy in Guilford County varies by up to 20 years depending on the census tract in which one lives. Low life expectancy, low educational attainment, high poverty areas of the county are also areas with higher concentrations of African Americans and other racial/ethnic minorities, creating areas of concentrated disadvantage that have negative impacts on population health. Guilford county ranked 15th in North Carolina for gonorrhea rates in 2021.

The Guilford County Department of Health and Human Services (DHHS) Division of Public Health (GCDPH) has over 440 employees that work in one of five (5) locations. High Point and Greensboro facilities have STD clinic services including a dedicated teen clinic (JUSTTeens). GCDPH in collaboration with Wake Forest University School of Medicine and NC DHHS (collectively referred to as NC SURRG) have supported enhanced gonorrhea surveillance through AST in both the STD and non-STD clinic setting, of individuals with genital and extra-genital infections and in cases of disseminated gonococcal infections (DGI) since the site was established in 2017, promoting the well-being of the jurisdiction's residents.

Applicability & Scope

The majority of the groundwork involved in an ARGV outbreak response will be conducted by individuals from the GCDPH in collaboration with relevant NC SURRG and NC DHHS team members. The latter supported by the CDC SURRG program. The organization leading the outbreak response will depend on the scope. For outbreaks limited to Guilford County, GCHD will lead the outbreak response with close support from NC DHHS (Table 1) and laboratory support from NC SURRG and NC State Laboratory of Public Health (Table 2). If the outbreak involves more than one jurisdiction, NC DHHS will take the lead on coordinating the cross-jurisdictional needs of the outbreak response while supporting each county as they run the individual on the ground responses.

Table 1. Guilford County DHHS Division of Public Health and North Carolina Department of Health and Human Services outbreak response teams

Guilford County DHHS Division of Public Health	NC DHHS
<ul style="list-style-type: none"> • Health Director • Medical Director • Core Command Team (liaison officer, safety officer, public information team) • Public Health Command Team (Operations, Planning, Logistics, Finance) • Operations Team (Clinical, Allied Health, Community Health, Guilford County EMS) 	<ul style="list-style-type: none"> •HIV/STD/Viral Hepatitis Division Director •NC STD Program/Field Services Director •NC STD Epidemiologist •NC State Public health Laboratory Director •Office of Public Affairs (OPA) Director •NC STD Program Finance Manager

Abbreviations: HIV, human immunodeficiency virus; STD, sexually transmitted disease

At the local level, the ARGV outbreak plan applies to GCDPH STD clinics, laboratory, and unified incident command team. Positions included in outbreak response efforts include:

Table 2. North Carolina State Laboratory of Public Health and North Carolina Strengthening the U.S. Response to Resistant Gonorrhea outbreak response teams

NC State Laboratory of Public Health	NC SURRG
<ul style="list-style-type: none"> • Assistant Director, Infectious Diseases • Bacterial Infections Program Director • SLPH Finance and Purchasing Manager 	<ul style="list-style-type: none"> • Medical Director • SURRG Lab director • Program Director and Finance Manager • SURRG Epidemiologist/Epidemiology Coordinator • SURRG Clinical (Disease Investigation Specialist and provider)

Non-STD clinics that are SURRG partners who would also be involved in the outbreak response include High Point Regional Hospital (Atrium Health Wake Forest Baptist), Moses Cone Hospital - Emergency Department, Cone Health Women's and Children's Hospital, and Wesley Long Hospital - Emergency Department—all of which are located in Guilford County, North Carolina. These partner locations have staff members trained on the proper way to collect *N. gonorrhoeae* samples for culture and submission for transport via an established courier for the SURRG program, and can train further staff as needed with the assistance of a Just-in-Time training packet created for SURRG and potential ARGC outbreaks. This training has been included as an Appendix to the response plan, [Appendix J: Just-in-Time Training for ARGC Outbreaks](#).

Objectives

The ARGC outbreak plan will provide guidance to GCDPH on how to prepare and respond to an outbreak in the local jurisdiction. Specific steps that the local jurisdiction may take in their response efforts will be outlined by the local jurisdiction; this outbreak plan provides NCDHHS staff guidance on how to *support* the response operation at the local level. This plan may also be applicable to an outbreak that includes multiple counties or regions within the state of North Carolina. The main objectives for the ARGC outbreak plan include:

- Use enhanced surveillance systems to identify cephalosporin-resistant infections in a timely manner
- Take steps to prepare for an outbreak situation well in advance of the actual event, including the development and testing of the rapid outbreak response with a tabletop exercise
- Organize the management of staff and logistics for an effective and rapid outbreak response
- Effectively and rapidly respond to the outbreak and stop the spread of disease
- Complete an after-action report to identify gaps in the outbreak response and action items to improve future response efforts

- Make necessary adjustments to the plan as needed and note in the document's Revision History
- Definitions related to an ARGC outbreak can be found in [Appendix A](#).

Outbreak Preparedness and Surveillance

Defining what constitutes an outbreak in relation to ARGC is essential in determining the existence of an outbreak. In the context of STDs and antibiotic resistance for this plan, there are three scenarios that would establish definitions for new cases of ARGC: suspect, probable, and confirmed. All three types of case definitions would warrant an outbreak response, providing additional assistance for clinical case management and partner services investigations, to differing extents based on the size and epidemiological characteristics of the sexual network involved.

Working Case Definition: Suspect and Probable ARGC Cases

Based on the CDC's [Cephalosporin-Resistant *Neisseria gonorrhoeae* Public Health Response Plan](#) (2012), cases of ARGC can be defined as either suspect or probable. For Guilford County's outbreak response plan, either definition will trigger an outbreak response.

Although there have been cases of ceftriaxone-resistant *N. gonorrhoeae*, MDR gonorrhea, and XDR gonorrhea identified around the world, there is currently no widely accepted case definition for any of these types of ARGC. For the purposes of this outbreak plan, ARGC cases can be defined by *either* clinical *or* lab criteria (suspect case) (Table 3), or *both* clinical *and* lab criteria (probable case) (Table 4). Below the criteria for both types of cases are listed:

Table 3. Clinical and laboratory criteria for a suspected ARGC case

Suspect Case ARGC

A suspect case of ARGC fulfills *either* the clinical criteria *or* lab criteria as described below:

Clinical Criteria (all of the below)

- Patient had laboratory-confirmed *N. gonorrhoeae* infection
- Patient received CDC-recommended dual therapy treatment
- Patient subsequently had a positive *N. gonorrhoeae* test result (positive culture ≥ 72 hours or positive nucleic acid amplification test (NAAT) ≥ 7 days after treatment)
- Patient did not engage in any sexual activity in the 3-5 days following treatment

Laboratory Criteria

- Antimicrobial susceptibility testing (AST) of pre- or post-treatment isolate demonstrates ceftriaxone minimum inhibitory concentration (MIC) ≥ 0.5 $\mu\text{g/mL}$

Table 4. Clinical and laboratory criteria for a probable ARGC case

Probable Case ARGC

A probable case of ARGC fulfills **both** the clinical criteria **and** lab criteria as described below:

Clinical and Laboratory Criteria

- Patient had laboratory-confirmed *N. gonorrhoeae* infection
- Patient received CDC-recommended treatment
- Patient subsequently had a positive *N. gonorrhoeae* test result (positive culture ≥ 72 hours or positive NAAT ≥ 7 days after treatment)
- Patient did not engage in sexual activity in the 3-5 days following treatment
- Antimicrobial susceptibility testing (AST) of pre- or post-treatment isolate demonstrates ceftriaxone MIC ≥ 0.5 $\mu\text{g}/\text{mL}$

Note: Testing at 7 days might result in an increased likelihood of false positive tests, so if the NAAT is positive, effort should be made to perform a confirmatory culture before retreatment, especially if a culture was not already collected.

If suspect or probable ARGC cases are detected, preparations should be made to activate the outbreak plan. Sexual contacts of ARGC cases should be treated with the same regimen as the index patient at the time they present for testing with both culture and NAAT specimens. For the purposes of this document, confirmed cases (Table 5) of ARGC will be defined as:

Table 5. Clinical and laboratory criteria for a confirmed ARGC case

Confirmed Case ARGC

A confirmed case of ARGC meets all the following criteria:

Clinical and Laboratory Criteria

- Patient was considered to be a probable ARGC case and was treated with dual therapy of gentamicin and azithromycin
- ARGC infection symptoms persist 3-5 days post treatment or test of cure (TOC) result is positive for *N. gonorrhoeae*

Note: NCSURRG should consult with CDC once cases are confirmed, as treatment options for these cases will depend on MIC results from culture specimen collected at the time of TOC and the discretion of the CDC.

Cases could be detected outside the local SURRG jurisdiction but within the state of North Carolina if a non-SURRG provider contacts NCDHHS about a potential treatment failure. If this should occur, SURRG staff should determine if the case meets the working definition of either a suspect or probable ARGC case before initiating the outbreak plan. The SURRG staff who will evaluate ARGC cases include the SURRG Epidemiologist,

with oversight from the SURRG project Primary Investigator, and NCDHHS' STD Program Medical Director.

Enhanced GC Surveillance with SURRG

Surveillance trends of antibiotic resistance in gonorrhea have been well documented for the past three decades through the national Gonococcal Isolate Surveillance Project (GISP). However, this only monitors trends among men with urethral infections presenting in an STD clinic setting. The local jurisdiction in Guilford County, North Carolina, participates in SURRG, which supports enhanced gonorrhea surveillance through AST in both the STD and non-STD clinic setting, of males and females with genital and extra-genital infections. This additional clinical laboratory surveillance will enhance the likelihood of detecting an ARGC infection in a timely manner and improve the overall effectiveness of an outbreak response.

The SURRG project also supports the development of data management processes that would enhance surveillance in a digital capacity. Increasing the timeliness that STD testing results can be processed in an electronic medical record and entered into a surveillance system enables quicker detection of suspect and probable ARGC cases. Data entry support staff are crucial to ensuring AST results are updated in the system in a timely manner.

Preparation for Outbreak Situations

Partnerships and Facilities

GCDPH partners with both local STD clinics (in Greensboro and High Point) and non-STD clinic sites in the emergency department setting, including High Point Regional Hospital (Atrium Wake Forest Baptist Health), Moses Cone Hospital Emergency Department, Cone Women's and Children's Hospital, and Wesley Long Hospital Emergency Department. All of these sites have established a protocol through the SURRG project to collect AST samples on patients. These protocols could in turn be used during an outbreak situation to collect samples, presumptively treat patients, and provide referrals to Disease Intervention Specialists (DIS) for partner services and elicitation. A list of facility addresses for the NCSURRG STD, non STD sites, SURRG lab, and supporting NC State Laboratory of Public Health (NCSLPH) can be in [Appendix C](#).

STD Clinic Services

The Guilford County DHHS Division of Public Health STD Clinics are high-capacity clinics capable of seeing dozens of patients per day and could collect culture samples for direct plating (provider collected STD site) or via E swab (self-collection) during an outbreak. Patients from any county can be seen at these clinics regardless of ability to pay. These clinics provide full-service STD resources to the local area, including a full panel of STD screening, treatment options, and point of care (POC) tests for gonorrhea (GC), syphilis, and HIV. In addition to testing for chlamydia (CT), and

herpes. Patients affected by more than ARGC can be referred for proper care. Referrals for primary care, substance use disorder management, antiretroviral rapid start, and social services are also available. Onsite services including HIV PrEP, HIV PEP, family planning, and primary care are available to encompass the care needs of patients impacted by ARGC.

Staff, including non-SURRG DIS, outreach personnel, and clinical staff, will receive outbreak response training to ensure they are deployable when needed to support outbreak response efforts. DIS and outreach technicians are capable of collecting samples and/or conducting screenings in the field for GC/CT, syphilis, HIV, and Hepatitis C. Currently GCDPH is in possession of three mobile units and these mobile units may be utilized for screening/examination and treatment to allow staff to take resources to the individuals and communities most in need. Capacity will be limited to specimen collection and treatment with available empirical options.

Non-STD SURRG Clinics

NCSURRG has established AST testing in non-STD clinic settings in Guilford County that could assist with the extra volume of testing needing during an outbreak response. A list of all non-STD SURRG sites in Guilford County and their locations/contact information can be found in [Appendix C](#).

Supplies

Specimen collection from patients is two-fold: NAATs for screening purposes and BBL E-swab™ for culturing and AST if direct plating is not feasible. NCSURRG's purchasing department in conjunction with the public health laboratory (PHL). Inventory management is handled through the administrative team within the clinic and the electronic inventory system of the PHL. Standard clinical equipment and personal protective equipment (PPE) are ordered and cataloged through this system. All supplies pertaining to AST are purchased solely by the laboratory, including Chocolate II agar, E test strips, API-NH kits, and all necessary reagents to prepare, test, and store specimens. Ceftriaxone is purchased at competitive public health prices through HRSA's 340B Drug Pricing Program.

Field staff and DIS should be prepared for specimen collection and off-site patient registration during an outbreak situation. Treatment options are limited with non-medical staff, but self-collected swabs, blood collection kits, safe sex products, and referral paperwork are all expected to be on-hand.

Communication between the field staff and outbreak team managers is pivotal and will be further defined in the [Outbreak Activation](#) section. Work-issued cell phones, mobile internet hotspots, and laptops/tablets are effective ways to keep staff in constant contact for updates and safety.

Any supplies that field staff would need to ensure streamlined communication during the outbreak, such as walkie-talkies or 2-way radios, can be provided by the Emergency Operations Center (EOC). Additional cell phones, laptops, and office printers can also be provided for field staff by the EOC.

Medications

The CDC sets current standards for treatment of uncomplicated gonorrhea. The most updated CDC Treatment Guidelines, *as of December 2020*¹, and the updated CDC STI Treatment Guidelines should be consulted for alternative treatments².

Table 6. Treatments for uncomplicated urogenital and rectal GC infections

Condition	Treatment Regimen
Uncomplicated urogenital or rectal GC Infections	<i>Ceftriaxone 500mg IM*</i>
If Ceftriaxone not available	<i>Oral Cefixime 800mg*</i>
If Cephalosporin allergy	<i>Gentamicin IM 240mg + oral azithromycin 2g</i>

*If healthcare provider cannot rule out chlamydia coinfection, oral doxycycline 100mg BID for 7 days is recommended in addition to the gonorrhea treatment. Doxycycline should not be used for pregnant women.

Intramuscular injection is abbreviated as IM.

Per the CDC, suspected treatment failures first should be retreated routinely with the recommended regimen (ceftriaxone 500 mg IM), because reinfections are more likely than actual treatment failures. If the healthcare provider thinks a treatment failure is more likely as the patient has abstained from sexual activity for the recommended timeframe and was likely not re-exposed to the infection, relevant clinical specimens should be obtained for culture, NAAT, and AST before retreatment.

¹ https://www.cdc.gov/mmwr/volumes/69/wr/mm6950a6.htm?s_cid=mm6950a6_w

² <https://www.cdc.gov/std/treatment-guidelines/default.htm>

Dual treatment with single doses of intramuscular gentamicin 240 mg plus oral azithromycin 2 g can be considered, particularly when isolates are found to have elevated cephalosporin MICs. Locally, clinical staff favor the dual treatment with gentamicin (Table 7).

If the infection persists after treating with the dual therapy of gentamicin and azithromycin, it is considered a **confirmed treatment failure**. Depending on the MIC results from the culture samples collected at the TOC, different treatment regimens will be considered (see table below). The timing and collection of culture samples is further outlined in the [Outbreak Response Management](#) section.

Table 7. Treatment regimens when ARGC treatment failure is suspected, probable, or confirmed

Condition	Treatment Regimen
Suspect or Probable ARGC Treatment Failure	<i>Gentamicin IM 240mg + oral azithromycin 2g</i>
Confirmed ARGC Treatment Failure	
If positive TOC and only <i>reduced</i> susceptibility to ceftriaxone	<i>Ceftriaxone 1g IM + oral azithromycin 2g</i>
Ceftriaxone-resistant, MDR, or XDR Gonorrhea	<i>Consult CDC (optional: IV Ertapenem 1g daily for 3 days)</i>

As a note, using gentamicin to treat pharyngeal ARGC-related infections may not successfully clear the infection. A TOC should be performed up to 14 days after treatment, with both NAAT and culture at all relevant anatomic sites.

All of the above listed medications can be administered in a clinic, emergency department, or physician's office setting. The NCSURRG program has access to three emergency departments where IV carbapenems could be administered. Coordination between medical staff is key to ensure complete care.

Epi interview questions

Traditional DIS interviews center on partner services and halting the spread of infection. While this is critical in an outbreak situation, it is also imperative to identify venues and locations that may lead to increased screening opportunities. Staff will be more mobile during an outbreak and identifying locations of interest will allow staff to respond more quickly to leads identified by DIS investigations.

Altering DIS investigation questions to be more aligned with the SURRG investigation methods may produce more applicable information for rapid responses. [Appendix D](#) highlights the SURRG data elements captured during a DIS interview. If there are ongoing public health crises, such as the SARS- CoV-2 pandemic that began in 2020 and the monkeypox outbreak of

2022, additional restrictions may be enforced when it comes to field investigations and mobile testing. State and local staff should follow the most current local guidelines when working in the field.

Outbreak Plan Activation

Generally, an infectious disease outbreak response plan is activated once disease levels exceed what is expected in a specific jurisdiction. In the case of STDs, ARGC is so rare, it is hard to define what is expected. For this document, we are defining the expectation of a case of ARGC as zero, and therefore one case would activate the ARGC outbreak plan. In order to detect ARGC cases— suspect or probable— there are two different methods of reporting involved. For suspect or probable cases that meet clinical criteria for ARGC, *clinical providers will report these to NCDHHS* via the SURRG Epidemiology Coordinator or the NCDHHS TATP Nurses reporting to the NC STD Prevention Program Medical Director, and the Epidemiology Coordinator can initiate the outbreak response plan to follow up if the clinical treatment failure is confirmed. Potential cases that meet the laboratory criteria for ARGC will be *reported to the Epidemiology Coordinator directly from the NCSURRG PHL*, per the standard SURRG protocol in the local jurisdiction.

Notification of Leadership

Once the outbreak response plan has been initiated, the Epidemiology Coordinator should notify leadership at the state and local level of the growing situation within 24 hours to convene the initial command meeting. Members of NCDHHS leadership, including the **State Epidemiologist, HIV/STD/Viral Hepatitis Division Director**, and the **STD Prevention Program Medical Director**, will form the **Policy Group** during the outbreak response. These team members will advise the **Incident Command team**, as well as assist in the decision-making process. The initial meeting will allow the **Policy Group**, the Unified Incident Command Team (including the **SURRG Epidemiology Coordinator**), and the **Health Director at the Guilford County DHHS Division of Public Health and the Medical Director of NCSURRG** to come to a consensus on outbreak priorities and a collective set of incident objectives. The initial command meeting will also be the time to establish a **Joint Information Center (JIC)**. The JIC will consist of staff at both county and state levels, including the positions of **GCDPH Public Information Coordinator**, and **GCDPH and NCDHHS subject matter experts**. Specific responsibilities for the JIC will be defined later in the plan. A comprehensive list of names and contact information for all leadership can be found in [Appendix E](#). Communication about outbreak plan activation from the Epidemiology Coordinator to leadership will occur within 24 hours of ARGC case detection and will be through both email and phone. If leadership do not respond to the notification for any reason, the Epidemiology Coordinator will try again until a response is made.

Notification of ARGC Outbreak Response Team

During an STD-related outbreak, individuals across multiple disciplines are involved in the response efforts. The ARGC Outbreak Response team assists with specimen collection, surveillance management, case investigations and partner services, and prevention measures. The roles and responsibilities of each team member are described in the next section, and also listed in [Appendix F](#).

Incident Command System (ICS) Management

Once the ARGC outbreak response plan has been initiated, the Epidemiology Coordinator will convene the initial command meeting. This will establish incident command systems at both the state and county, with the **Policy Group** overseeing the response. A member of the Policy Group from the NC DHHS may **participate in the Unified Incident Command**, with several teams under this position, including Communications, Logistics, Operations, and Planning (Figure 2). Communications will be overseen by the Public Information team at GCDPH, who also supports the JIC. This position has direct communication with the CDC, and will work with NCDHHS's Office of Public Affairs (OPA) on external messaging. The Planning team will be led by the *GCDPH EOC* and Logistics will be led by the *Operations Director* within the same division. The *SURRG Epidemiology Coordinator in collaboration with the Unified Incident Command* will lead Operations, as they are the subject matter expert for ARGC and will oversee the groundwork at NCSURRG. Responsibilities for these manager-level roles will be defined under [Roles and Responsibilities](#).

The role of **NCSURRG Incident Commander** may be filled by a member of the GCDPH leadership team or a designated staff member of their choosing. . This position at NCSURRG may shift in the future, depending on background in emergency preparedness and outbreak response efforts. Additional incident command roles will be defined at the state and county levels under the Outbreak Response Management section. After the initial command meeting, daily meetings will be held for individual ICS groups. Corresponding Unified ICS meetings will be held to obtain report updates from county and state level team members on the progress of the outbreak response. Further details on ICS command meetings are outlined in the [Meetings and ICS](#) section.

Existing Partnerships

Pre-established partnerships for SURRG within the Health Department and with outside agencies will assist with an ARGC outbreak in North Carolina. Internal NCDHHS partnerships, especially with other infectious disease divisions who have managed outbreaks in the past, could provide valuable insight to the SURRG team. The HIV/STD/Viral Hepatitis Division at NCDHHS have been directly involved in the management of outbreaks of HIV and viral hepatitis in North Carolina. NCDHHS SURRG staff have

contacts within both divisions and can rely on these staff members to provide support and technical knowledge on the public health response to an infectious disease outbreak. NCDHHS SURRG also has a partnership with the division of emergency preparedness at the State and will rely on this partnership to streamline efficient communication during an extensive ARGC outbreak that requires the initiation of the ICS management structure. Points of contact for internal partnerships are included in [Appendix G](#).

External partnerships with local community based organizations—established in the [Preparedness](#) section—will be important in assisting with potential target testing during an ARGC outbreak, especially if sexual network based in a close geographic location is identified.

Outbreak Response Management

Once an ARGC outbreak has been declared, the local jurisdiction may use the following sections as guidance to the management of the response, especially in regard to the clinical management of new cases and their sexual partners. The response will be overseen at the state level, with ICS at both NCDHHS and NCSURRG, since most of the groundwork will be conducted by NCSURRG ICS staff. Selected outbreak ICS managers will coordinate groundwork for their team by specialty area, including surveillance, clinical services, laboratory services, DIS investigations, outreach, logistics, and communication. Team managers will communicate feedback from response efforts at the daily outbreak briefing meetings to their **incident commander**, which will be discussed further in the [Incident Command Meeting](#) section. Roles for outbreak support at NCDHHS will also be defined below.

Roles and Responsibilities

In the event that the outbreak response plan is initiated, NCDHHS will communicate with CDC SURRG project staff about the nature of the situation and continue to manage the outbreak at the state and local level. The organizational chart for the response is found in [Appendix H](#). Responsibilities will be delegated by the Incident Commander to all managers and their discipline's team members. [Appendix I](#) provides a brief description of roles and responsibilities for each discipline team at NCSURRG, as well as who they would report to during the response.

All the NCSURRG outbreak activities will be overseen by the Operations manager as part of the Unified Incident Command Team. The Unified Incident Command Team consists of members of GCDPH, NCDHHS, and NC SURRG in collaboration with other relevant agencies. Responsibilities for all team managers are as follows.

- **Operations:** *Director of Operations (SURRG Epidemiology Coordinator) will:*
 - *Oversee the operations at NCSURRG during the ARGV outbreak*
 - *Communicate response effort needs for outbreak response*
 - *Act as a liaison to the EOC*
- **Planning:** *Director of Planning (GCDPH EP Planning Supervisor) will:*
 - *Schedule meetings for the Policy Group and Unified Incident Command Team*
 - *Facilitate location and presentation of information at team meetings*
 - *Use information obtained from Operations Manager on NCSURRG response efforts and updates from the Policy Group to write outbreak response situation reports*
 - *Fulfill any other duties delegated to the Planning team from the Unified Incident Commander*
- **Communications:** *Director of Communications (GCDPH) will:*
 - *Act as a member of the JIC during the ARGV outbreak response*
 - *Provide team members with support in communication to the media or outside agencies around ARGV with approval from the NOPA*
 - *Draft talking points for the Policy Group to present to any government agency offices that inquire about response efforts, coordinate with NCDHHS STD Program for these*
 - *Assist in drafting, proofreading, and getting approval for IHANs during outbreak around ARGV*
 - *Fulfill any other duties delegated to the Communications team from the Unified Incident Commander*
- **Logistics:** *Director of Logistics (GCDPHEP Operations Director) will:*
 - *Assist in fulfilling any supply requests that are outside the scope of the local NCSURRG repository*
 - *Coordinate with other government agencies or hospitals to obtain additional medications needed for treatment of ARGV at the request of NCSURRG*
 - *Fulfill any other duties delegated to the Communications team from the Unified Incident Commander*

DIS Field Investigations

In order to control the ARGV infection during an outbreak, the state and county (when applicable) DIS will work to interview patients and collect information about their sexual partners and social contacts who make up their “sexual network”. Finding the partners and getting them in for testing and treatment will assist in identifying the flow of the infection through the network and how transmission can be eventually stopped if enough contacts are treated.

DIS will follow the standard operating procedure (SOP) for SURRG DIS investigations and provide updates to case investigations every 48 hours through updates to the DIS manager as well as through data entry into North Carolina’s Electronic Disease Surveillance System (NCEDSS) and the SURRG Investigation Database (SID). If a DIS is having difficulty locating a person, a certain number of attempts to locate them have been established in the SOP for DIS investigations. This is outlined further in [Appendix I: SURRG DIS](#)

Investigation Timeframes.

These standards were developed based off existing local jurisdiction standards for infectious syphilis cases, and therefore correspond with a level of urgency akin to an outbreak. If a person was a sexual contact to a resistant case of gonorrhea, it is imperative that they are located for treatment. As long as the DIS complete the required number of attempts for SURRG case investigations, this should be sufficient for outbreak purposes.

The questions in the DIS interview are listed in [Appendix D](#). Data from these interviews is uploaded into the state surveillance system, NCEDSS, as well as added to a local SURRG Investigation Database (SID). Surveillance team members will be able to extract data from both NCEDSS and SID for analysis during the outbreak.

Although there are four physical locations where SURRG testing can be performed in North Carolina, contacts to ARGC cases will be referred to Guilford County STD Clinics for testing and treatment. If they cannot make it to the clinic, mobile field sample collection will be used by the GCHD outreach team, DIS, or SURRG Clinician to collect culture samples via E swab.

If cases related to the ARGC outbreak are detected outside of the local SURRG jurisdiction and the ICS management system is enacted, the EOC is able to request assistance from the STD Prevention Program Director so that North Carolina state-funded DIS are able to perform the duties of the SURRG DIS in the outlying counties. A list of State DIS are included in [Appendix J](#). If cases or contacts are located in other neighboring states, the SURRG Epidemiology Coordinator will coordinate with the NCDHHS STD Prevention Program Director to contact other state STD program directors about the outbreak. A list of neighboring jurisdiction STD program directors and site contacts is available in [Appendix G](#).

In order to shift priority of partner services to ARGC-related outbreak cases, once the outbreak response plan is initiated, regional DIS offices will be contacted to assist as needed in collaboration with the SURRG DIS. The Surveillance team will coordinate with the DIS Managers to clear the SURRG DIS' task lists.

Clinical Management of Cases and Sex Partners

In regard to the clinical management of gonorrhea treatment failures related to antibiotic resistance, including ceftriaxone-resistant gonorrhea, MDR gonorrhea, and XDR gonorrhea, the optimal approaches have yet to be defined. Normally, when a suspected treatment failure is likely due to reinfection, retreatment with ceftriaxone 500 mg IM is recommended. These suspected treatment failures are most often the result of the patient not observing the timeframe for abstaining from sexual contact with untreated sex partners. At the time of retreatment, culture for AST should also be collected at all anatomical sites of exposure. Between 7 and 14 days after

treatment, the patient should have a TOC culture and NAAT sample collected at all anatomical sites of exposure—per local SURRG jurisdiction protocol.

When suspect or probable treatment failures are detected, the recommended treatment regimen changes to **gentamicin 240mg IM plus oral azithromycin 2g**. A TOC should be collected 14 days after treatment to ensure the infection has been successfully eradicated. If the TOC comes back positive and E test results indicate only *reduced susceptibility* to ceftriaxone, the patient should be treated with **ceftriaxone 1g IM plus oral azithromycin 2g**. If, however, the TOC comes back positive and the sample has an MIC indicating *complete resistance* to ceftriaxone, NCDHHS will collaborate with local infectious disease experts or the CDC on the appropriate treatment regimen. A potential treatment option at this point could be **ertapenem IV 1g once daily for three days**.. Depending on the full MIC results for the sample, the infection at this point could be classified as ceftriaxone-resistant, MDR, or XDR gonorrhea.

It is important to note that once a case has reached the confirmed treatment failure stage, clinical management is handled by medical staff and there is less DIS involvement outside of tracking down the case's partners and social contacts in their "network". Sex partners from the preceding 60 days should have culture samples collected from all anatomical sites of exposure and be presumptively treated using the same regimen that successfully treated the original case. TOC should be collected on the partners as well for good measure, with mobile field testing being available with E swabs by DIS, outreach, and clinical team members.

Epidemiological Analysis

As cases are identified in an outbreak and subsequent partners and social contacts within the ARGC network are interviewed and tested, a clearer picture may emerge of risk factors associated with the resistant strain of gonorrhea involved in the outbreak. Important questions to consider when interviewing patients would be:

- Did the patient travel to a specific location and have sex with someone from that area and/or did their sex partners travel recently?
- Did the patient have sex recently with a commercial sex worker?
- Are the patients having sex at a common local location (i.e. bathhouse, sex party)?
- Are there any emerging behavioral or demographic risk factors within the network?

All the above questions are captured in the extended SURRG investigation by DIS during their case investigations and contact tracing activities. The responses will be documented in the North Carolina Electronic Disease Surveillance System, which is capable of capturing all important data on cases, sex partners, and social contacts. A comprehensive list of these questions are

included in [Appendix D](#). Plotting the cases over time with an epidemic curve could provide further insights on transmission patterns of new infections.

Partnerships/Outreach

Patient responses during the DIS investigation, along with their self-reported risk factors, could be used to identify potential sub-groups of people who are at higher risk for the ARGC-related infection. Using local pre-existing STD testing partnerships, the outbreak response team could coordinate targeted screening of these people and collect field samples for culture/AST via E swab.

Outreach and Surveillance managers will coordinate targeted screening based on epidemiological data available at different stages of the outbreak. As additional patient data is collected and analyzed by the Surveillance team, updates should be relayed to inform ongoing efforts for testing during an active, *fluid* outbreak.

Meetings and ICS

Regular meetings (*daily and/or as needed*) of ICS staff at the county will be held in order to foster communication and efficient sharing of information. The NCSURRG Liaison Officer (**NCSURRG Field Operations Supervisor and/or NCSURRG STD Program Manager**) will act as an information bridge between the county ICS and the state ICS. The Liaison Officer will provide summaries to the Unified Incident Commander *either daily and/or as needed*, so PowerPoint slides may be prepared for presentation at the ICS meeting. This information will keep state and local teams in the loop of response efforts during the outbreak.

Daily ICS meetings will be held at GCDPH or virtually, to provide general case updates and evolving epidemiological information surrounding the ARGC outbreak strain. The Policy Group will be present at these meetings. It is not necessary for NCSURRG field staff to be present at the command meetings.

Command central-style meetings can be an effective way to bring all the players to the table and provide updates across team members stationed at headquarters and in the field. Some topics that will be covered in these meetings include:

- Updates to case definition (*Surveillance*)
- Developments and updates to media messaging and strategies (*Communication*)
- Discussions of political sensitivities or possible stigma associated to the outbreak and/or response (SURRG Medical Director and *STD Program Director*)
- Resources that are available and those that are still needed in the field (*Epidemiology Coordinator*)

- Status of the outbreak, successes and barriers (*Emergency Preparedness*)

Note, this is not a comprehensive list of topics to cover. As the outbreak changes, additional feedback will need to be communicated between NCDHHS and CDC. If cases do not respond to treatment with gentamicin/azithromycin, CDC will be updated. Medical staff may seek guidance from the CDC on clinical management of patients who are not responding to gentamicin, or if they have any questions about submitting samples to the NCSURRG PHL for shipment to the CDC Microbiology Lab.

Communication

During an ARGC outbreak, communication between leadership and middle managers, as well as between middle managers and field staff, will support an efficient public health response in the affected communities. Information presented at ICS daily meetings (as outlined above) will be used by the JIC including the Office of Public Affairs (OPA) at NCDHHS to determine what facts surrounding disease risk and avoiding the spread of the infection need to be communicated to the public. OPA and the NCDHHS STD program will collaborate on appropriate messaging.

As the outbreak evolves, information around ARGC cases will need to be communicated to healthcare providers both within the local jurisdiction and across the rest of the state. This will ensure consistent information, especially around recognizing symptoms of potential treatment failures and talking points providers can use to discuss the recent sexual history of their patients. This information can be sent through the North Carolina Health Alert Network (NCHAN) at NCDHHS through the JIC. The SURRG Epidemiology Coordinator will prepare an NCHAN regarding the ARGC outbreak, which will then be reviewed by the State Epidemiologist and STD program leadership prior to distribution.

If local agencies reach out to NCDHHS about additional information regarding the outbreak response, the Epidemiology Coordinator can communicate this through the NCSURRG Liaison Officer, so that the NCSURRG Operations Manager may arrange site visits to these agencies to provide appropriate outbreak response updates to agency leadership, especially if the agency works with identified at-risk populations for ARGC. Along with the NCHAN regarding the ARGC outbreak, weekly updates from NCDHHS ICS and NCSURRG ICS should be communicated to local healthcare providers by the Unified Command JIC through an email distribution list. This will keep frontline staff aware of any changes in case definition or unique symptoms being reported by ARGC cases which will support more rapid identification and reporting of additional cases.

Any media requests that arise during the outbreak response will be communicated to the JIC and staff at NCDHHS OPA immediately to be completed at their discretion. STD information is a sensitive topic, and maintaining patient confidentiality by all public health officials and healthcare

staff is of the utmost importance. Field staff must refrain from directly communicating to the public, such as via social media or directly with media officials and report any request for information directly to NCSURRG leadership and up to JIC. Staff must also refrain from using sensationalized lingo to refer to ARGC, such as “super gonorrhea”.

During the outbreak response, NCDHHS ICS will coordinate with CDC about case information. OPA and other NCDHHS leadership will attend these debriefing meetings as needed. Contact information for the Director of OPA can be found in [Appendix E](#), including office and cell phone numbers, and email.

Data Security

NCDHHS has developed protocols and policies to ensure the reporting and handling of PHI is secure and adheres to federal guidelines. Selected staff throughout the State have appropriate access to view laboratory and investigation data, when appropriate. In the event of an outbreak, all NCDHHS developed guidelines pertaining to data submission, follow-up, and storage will be followed appropriately.

If it is determined that data entry or access is insufficient during an outbreak, new staff access may be needed. NCDHHS has an onboarding process to add new users to the state surveillance system. A new profile with specific privileges may need to be created to limit the access of the new staff and to make removal of PHI rights easier post-outbreak.

Outbreak Recovery

As it is difficult to establish thresholds for detecting “outbreaks” of ARGC due to true treatment failures being so rare, there is no precedent set for when an ARGC outbreak response would be considered complete. For the purposes of GCDPH’s outbreak response plan, we will consider the outbreak response complete once all partners have been pursued to the fullest extent **and no new ARGC cases have been reported in a 60-day time window.**

In order to evaluate the outbreak response, a debrief meeting will be held within 7 days of the completion of the response. The meeting will be held at GCDPH at a TBD time. Surveillance, DIS, and Clinical managers will compile information on their respective response efforts and give to the Liaison Officer who will give to the Unified Incident Commander to present at the debriefing. Some of the information that will be presented includes but is not limited to:

- Number of contacts and clusters initiated and the percent examined as a result of the outbreak response— *Surveillance*
- Number of new cases identified as a result of the outbreak response, by provider type (SURRG STD clinic, SURRG non-STD clinic, non-SURRG clinic, hospital, out of jurisdiction facility)— *Surveillance*

- Ratio of cases that were identified through active versus passive surveillance during the outbreak— *Surveillance*
- Number of partners that were unable to locate, test, and treat— *Surveillance*
- Number of sex partners and clusters receiving preventive treatment during the outbreak— *DIS*
- Increase in clinic attendance during the outbreak in STD clinics within the target area— *Clinical*
- Any potential barriers that were identified in the outbreak response— *Emergency Preparedness*

An After-Action report will be compiled jointly by the STD and Emergency Preparedness staff at GCDPH and NCDHHS within 30 days of the completion of the outbreak response. NCSURRG and CDC may provide supportive feedback for the report if necessary. NCDHHS will consult with points of contact from either organization if needed. The finalized report will be distributed to all outbreak response team members. The template for the After Action report can be found in [Appendix N](#).

Appendix

- A. Definitions
- B. Contact Information for Community Organization Partners
- C. NCSURRG STD and Non-STD Clinic SURRG Site Information
- D. SURRG DIS/Epidemiological Interview Data
- E. Outbreak Response Leadership Contact Information
- F. ARGC Outbreak Response Team
- G. Neighboring state STD program directors and site contacts
- H. ARGC Outbreak Response Team Organizational Chart
- I. Roles and Responsibilities Checklist
- J. SURRG DIS Investigation Timeframes
- K. Just-in-Time Training for ARGC Outbreaks
- L. State DIS Contact Information
- M. State STD Program Director Contact Information
- N. After-Action Report Template

Appendix A: Definitions

Antibiotic

A medicine that kills or inhibits the growth of bacteria. In medical usage, antibiotics refer specifically to antibacterial medicines that are produced naturally by a microorganism (such as penicillin).

Antibiotic Resistant Gonorrhea (ARGC)

A general designation of a gonococcal infection that demonstrates resistance to at least one antimicrobial agent. While a useful term for communicating with the general public, the clinical and public health importance of the infection is better conveyed to providers and public health officials by labeling the infection with the specific antimicrobials to which the infection is resistant (such as ceftriaxone-resistant *Neisseria gonorrhoeae*—see below)

Antibiotic Susceptibility Testing (AST)

Used to determine which antibiotics can stop (inhibit) a particular bacteria (*N. gonorrhoeae*) from growing on an agar plate. Also referred to as Etesting. Locally includes azithromycin, ceftriaxone, and cefixime.

Antimicrobial

A broad category of medicines that kill or inhibit the growth of microorganisms, and includes antibacterials, antivirals, and antifungals. Antimicrobials can be produced naturally by a microorganism (referred to as antibiotics) or can be synthetically produced. “Antimicrobial” is more precise than “antibiotic” when describing cefixime, ceftriaxone, and azithromycin; however, “antimicrobial” and “antibiotic” are often used interchangeably.

ARLN

The Antimicrobial Regional Laboratory Network is a network of regional public health laboratories equipped to respond to emerging health threats and provide cutting-edge antimicrobial resistance laboratory support. The ARLN has capacity for culture-based antimicrobial susceptibility testing and genomic sequencing.

Azithromycin

A broad-spectrum oral antibiotic, among the macrolide family, *that as of December 2020* is no longer used in the first-line dual treatment for GC. Common brands names include Zithromax, AzaSite, and Zmax.

Cefixime

A cephalosporin oral antibiotic used as an alternative GC treatments. Common brand name is Suprax.

Ceftriaxone

A cephalosporin antibiotic that can be delivered intramuscularly/intravenously which is currently the first-line treatment for GC. Common brand name is Rocephin.

Ceftriaxone-Resistant *Neisseria gonorrhoeae*

A gonococcal infection that demonstrates laboratory-based antimicrobial resistance (as evidenced by substantially elevated minimum inhibitory concentrations by AST, such as MICs ≥ 1.0 $\mu\text{g/ml}$) and which may have been unsuccessfully treated with recommended ceftriaxone-based therapy.

Centers for Disease Control and Prevention (CDC)

Federal agency that provides management and financial support for the SURRG program

Cephalosporin

A large group of antibiotics derived from the mold *Acremonium* (previously called *Cephalosporium*), including third-generation cephalosporins Ceftriaxone and Cefixime.

Clinical and Laboratory Standards Institute (CLSI)

A not-for-profit organization that sets performance standards for AST

Culture

A laboratory method of growing bacteria by letting them reproduce in culture medium under controlled laboratory conditions. Bacterial cultures are used to determine the type of organism, the abundance of organisms in the sample, and the viability of the organism (can help distinguish an active gonococcal infection from residual DNA [detected by NAAT] from a successfully treated infection). *N. gonorrhoea* culture provides a specimen for antibiotic susceptibility testing (AST).

Disease Intervention Specialist (DIS)

A public health investigator employed by NCSURRG who follows up on new cases of STDs in the local jurisdiction and provides disease intervention and partner services to all those exposed to the disease.

Disseminated Gonococcal Infections (DGI)

DGI occurs when the sexually transmitted pathogen *Neisseria gonorrhoeae* invades the bloodstream and spreads to distant sites in the body, leading to clinical findings such as septic arthritis, polyarthralgia, tenosynovitis, petechial/pustular skin lesions, bacteremia, or, on rare occasions, endocarditis or meningitis.

eGISP

The Enhanced Gonococcal Isolate Surveillance Project strengthens surveillance of resistant gonorrhea and increases state and local capacity to detect and monitor it. In select STD clinics, eGISP collects samples from men with gonococcal urethritis as well as from women and extragenital sites. These specimens are sent to regional laboratories for susceptibility testing.

Ertapenem

Ertapenem is a [carbapenem antibiotic](#) that is delivered intravenously. Ertapenem is a last round treatment for gonorrhea cases that are resistant to cephalosporins. A common brand name is Invanz.

E swab

A collection and transport system that maintains viability of bacteria at room and refrigerator temperature for up to 48 hours prior.

Etest

Epsilon meter test (Etest) is an 'exponential gradient' method of determining of antimicrobial susceptibility. Etest consists of a predefined gradient of antibiotic concentrations on a plastic strip and is used to determine the Minimum Inhibitory Concentration (MIC) of antibiotics.

GISP

The Gonococcal Isolate Surveillance Project monitors U.S. antibiotic resistance trends in gonorrhea. Through the collaborative effort of selected STD clinics and their local laboratories, regional laboratories, and CDC, GISP's collected data helps ensure gonorrhea receives the right antibiotic treatment. GISP monitors antimicrobial susceptibility of approximately 5,000 male gonococcal urethritis cases seen in 26 STD clinics.

Health Alert Network (HAN)

CDC's Health Alert Network (HAN) is CDC's primary method of sharing cleared information about urgent

public health incidents with public information officers; federal, state, territorial, tribal, and local public health practitioners; clinicians; and public health laboratories.

Incident Command Structure (ICS)

An incident management structure is a predetermined organizational structure used to manage the planning, operational, logistical, financial, and administrative components of an outbreak event. The ICS is an essential tool for command, control, and coordination of resources during an outbreak.

North Carolina State Department of Health and Human Services (NCDHHS)

The state agency that employs the staff who oversee the SURRG project in North Carolina, as well as the STD prevention program for the state

Guilford County DHHS Division of Public Health (NCSURRG)

The health department which partners with NCDHHS as the local jurisdiction for SURRG in Guilford County, North Carolina; includes the public health laboratory, the Guilford Health Department STD clinic, and SURRG DIS

Minimum inhibitory concentration (MIC)

The lowest antibiotic concentration that inhibits visible growth of bacteria in the laboratory. AST by Etest and agar dilution generate results in MICs.

Multidrug Resistance/ Extensively Drug Resistance

[Multidrug resistance is antimicrobial resistance](#) shown by a species of [microorganism](#), such as bacteria, to multiple [antimicrobial](#) drugs. Extensively drug-resistance TB (XDR TB) is a rare type of multidrug-resistance in which bacteria are resistant to first and second line treatment options.

Nucleic Acid Amplification Test (NAAT)

Nucleic acid amplification testing is a laboratory technique that can detect very small amounts of DNA or RNA in test samples. NAATs test this DNA or RNA to identify specific bacteria, such as *N. gonorrhoeae* and *C. trachomatis*.

Reduced Susceptibility (RS)

A breakpoint determined by CDC SURRG protocol for antibiotics used to treat gonorrhea that indicates a greater concentration of drug is potentially needed to adequately treat the infection; determined as azithromycin ≥ 2.0 $\mu\text{g/mL}$, cefixime MIC ≥ 0.25 $\mu\text{g/mL}$, and ceftriaxone MIC ≥ 0.125 $\mu\text{g/mL}$

Resistant

In relation to the AST results of the drugs for treating gonorrhea; determined by CLSI for azithromycin as MIC ≥ 256 $\mu\text{g/mL}$

Strengthening the U.S. Response to Resistant Gonorrhea (SURRG)

A CDC-supported multisite project to expand antibiotic susceptibility testing (AST) surveillance in the United States, North Carolina is 1 of 8 sites across the country that host the project

Test-of-Cure (TOC)

A culture (and simultaneous NAAT) collected 8 days after proper treatment of RS gonorrhea to determine if the patient is cleared of the infection, or a follow-up test needed after a treatment failure

Treatment Failure

A clinically defined condition (see [Outbreak Definition for ARGC](#) for clinical standards) where the treatment of a gonorrhea infection has failed

Appendix C: STD and Non-STD Clinic SURRG Site Information

Partnerships and Facility Address

Moses Cone Hospital Emergency Department (Non-STD Site)	1121 North Church Street, Greensboro, North Carolina
Guilford County DHHS – Public Health Greensboro STD Clinic (NCSURRG Site)	1100 E Wendover Avenue, Greensboro, North Carolina
Guilford County DHHS – Public Health High Point STD Clinic (NCSURRG Site)	501 E Green Drive, High Point, North Carolina
High Point Regional Hospital Emergency Department (Atrium Health Wake Forest Baptist) (Non-STD Site)	601 North Elm Street, High Point, North Carolina
NC State Laboratory of Public Health	4312 District Drive, Raleigh, North Carolina
Wesley Long Hospital Emergency Department (Non-STD Site)	2400 West Friendly Avenue, Greensboro, North Carolina
Cone Women’s and Children’s Hospital Emergency Department (Non-STD Site)	1121 North Church Street, Greensboro, North Carolina

Appendix D: SURRG DIS/Epidemiological Interview Data

-Obtained via the EMR

- Patient ID
- Event ID/Case ID of case-patient
- Date of Case Assignment
- Date of Case Interview
- Case Disposition
- Case Disposition of Partner Services/SURRG Interview
- Case Type
- Interview Type at time of first interview
- State of residence
- City of residence
- County of residence
- Coordinates of residence
- Census tract of residence
- Age in years
- Gender
- Sex at birth
- Ethnicity: Hispanic or Latino
- Race
- Sexual orientation
- Insurance status
- Pregnancy Status
- Employment status
- Education level
- Military Status

-Obtained via questions

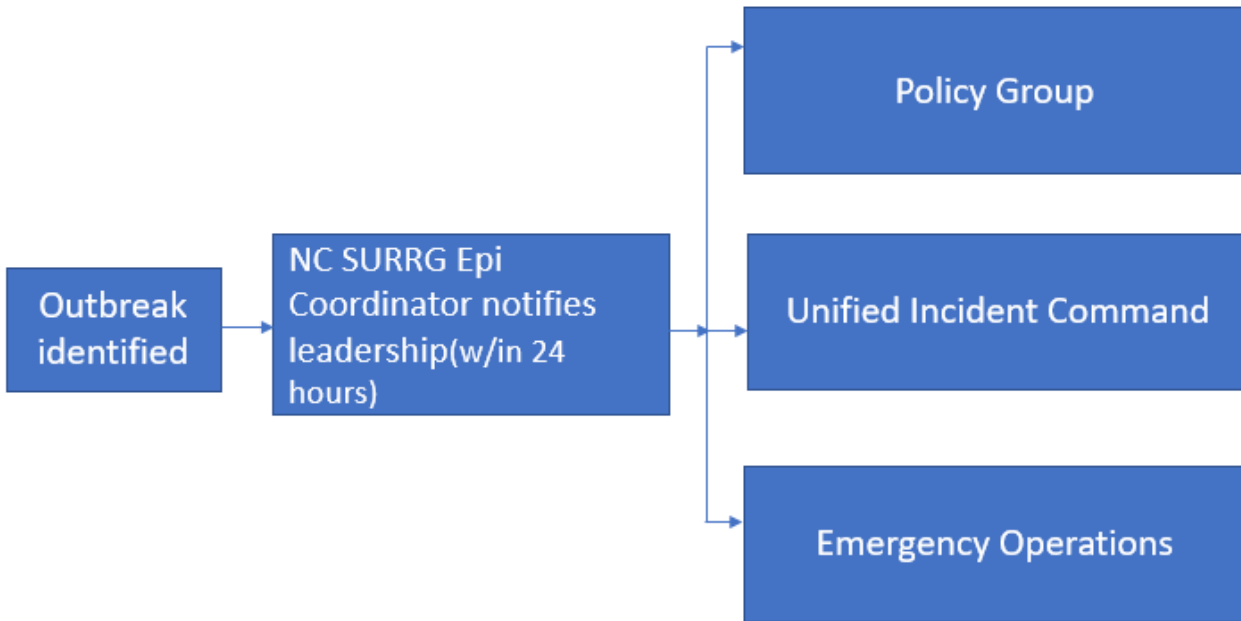
- In the past 2 months:
 - No. of male sex partners?
 - No. of female sex partners?
 - No. of transgender sex partners?
 - No. main partners?
 - No. anonymous partners?
 - No. casual partners?
 - Performed insertive anal sex?
 - Received/Receptive anal sex?
 - Performed oral sex?
 - Receptive oral sex?
 - Vaginal sex?
- How often do you use drugs before or during sex to make sex easier, last longer, or feel better?
- Have you used cocaine/crack (before sex) in the past 2 months? [indicate yes, if used "Speedballs" (heroin & cocaine combined)]

- Have you used speedball (before sex) in the past 2 months? [indicate yes, if used “Speedballs” (heroin & cocaine combined) or “goofballs” (heroin and meth combined)]
- Have you used methamphetamines (e.g. crystal, "tine", "meth", "speed") (before sex) in the past 2 months?
- Have you used Ecstasy, E, Molly, MDMA, GHB, or Special K (before sex) in the past 2 months?
- Have you used poppers/nitrates (before sex) in the past 2 months?
- Have you used prescription pain killers (e.g. oxycodone, Vicodin) (before sex) in the past 2 months?
- How many times in the past 2 months did you have sex with two or more other people at the same place, like a threesome, or at a bathhouse or sex party?
 - Where did the last group sex (or multiple-person sex) event/encounter take place?
 - How many people attended this last group sex (or multiple-person sex) event/encounter?
 - How did you find out about/or get connected with this recent group sex (or multiple-person sex) event/encounter?
- In general, how important is it to you to avoid getting gonorrhea?
- Have you ever been diagnosed with gonorrhea (before this recent infection)?
 - Have you been diagnosed with gonorrhea (before this recent infection) in the past year?
- Documented GC History in case reports/EMR
- Documented GC History in past year in case reports
- In the past year, how many times did you get tested for STDs when you didn't have any symptoms?
- Where have you gone most often in the past year for STD or other sexual healthcare?
- In the past year, what has been your primary source of non-STD related healthcare?
- Have you ever tested for HIV?
- When was your last HIV test? [test date (YYYY/MM)]
- HIV status (documented or self-report)
 - If HIV-negative, is the patient currently using PrEP?
 - If HIV-negative and not currently on PrEP: Was the patient offered or referred for a PrEP consultation today (if eligible)?
- If HIV-positive: Is the patient currently receiving HIV medical care (in the past 12 months)?
- Most recent viral load self-reported
- If HIV-positive and not currently receiving HIV medical care: Was person referred to HIV care today?
- Have you taken any antibiotics in the past 2 months?
 - If yes: name of the antibiotic(s) taken in the past 2 months (choose all that apply)?
 - Azithromycin?
- If you had symptoms from the most recent episode of gonorrhea, how are your symptoms now?
- How many other (unnamed) people did you have sex with in the last 2 months?
 - How many of these unnamed partners you would consider main or primary sex partners?
 - How many of these unnamed partners are anonymous?
 - Casual sex partner= # unnamed – (#unnamed main + #unnamed anonymous)
 - With how many of these unnamed partners do you spend time or socialize apart from when you meet to have sex?
 - How many of these unnamed partners are a different race than you?
 - How many of these unnamed partners are Latino or Hispanic?

Appendix E: Outbreak Response Leadership Contact Information

SURRG Medical Director	Dr Candice J McNeil	336-716-4556
SURRG Lab Director	Dr Elizabeth Palavecino	336-716-2638
SURRG Epidemiology/Data Manager/Center of Excellence Director	Michael Dewitt	
SURRG Program Director	Cindy Toler	336-202-8018
Guilford County DHHS Public Health Director	Dr Iulia Vann	336-641-6026
Guilford County DHHS Public Health Medical Director	Dr Annette Bey	336-641-8415
Guilford County DHHS Public Health Clinical Nursing Director	Latanya Pender RN	336-641-7657
Guilford County DHHS Public Health STD Clinical Nursing Manager	Vonda Pabon RN	336-641-6601
Guilford County DHHS Public Health Laboratory Manager	Dianne Jackson	336-641-4607
Guilford County DHHS Public Health Laboratory SURRG Laboratory	Parrish Webber MPH	336-641-6823
Guilford County DHHS Public Health SURRG on site clinician	Andrea Lewis PA-C	
Guilford County Disease Intervention Specialist	Brandy Sessoms	336-641-3250

Appendix F: ARGC Outbreak Response Notification of Leadership

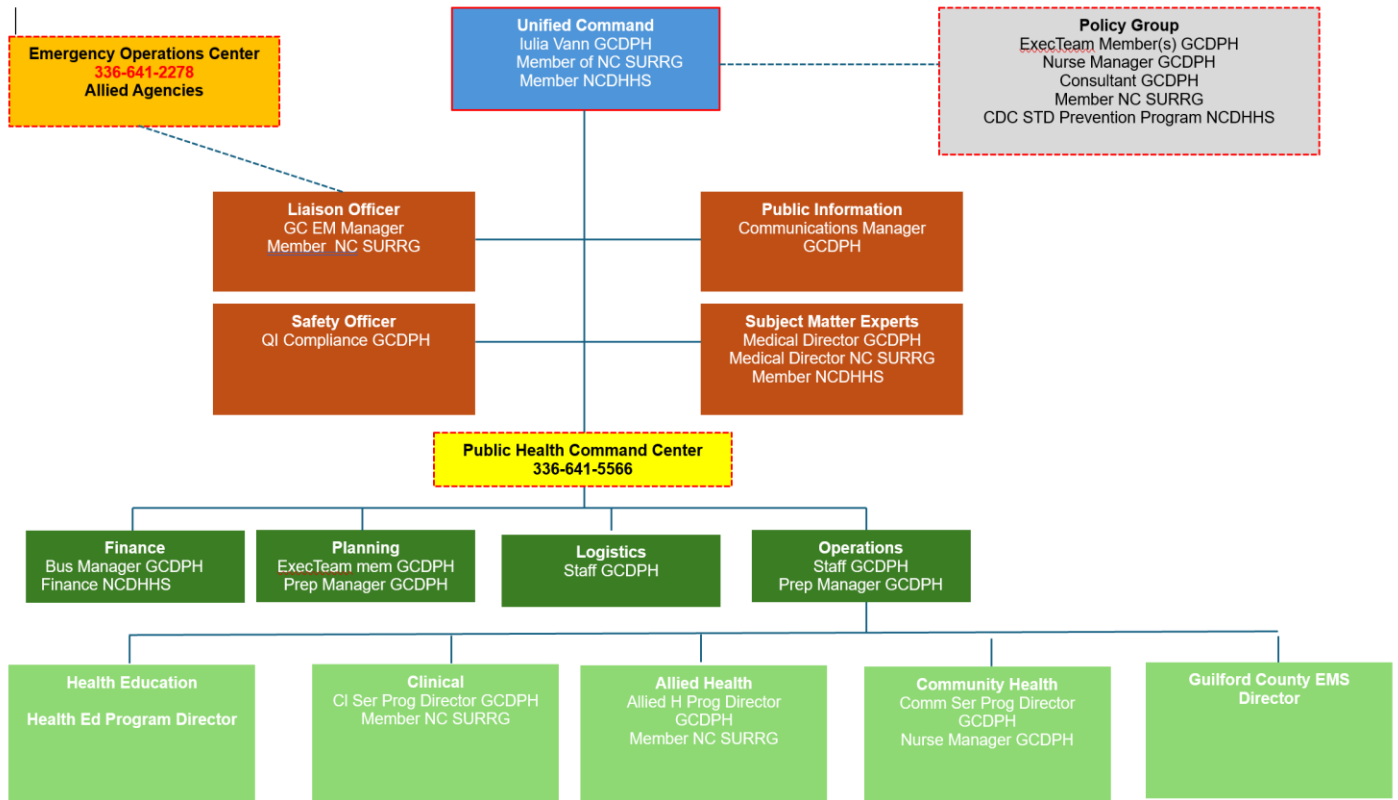


F.1.

***Key leaders**Appendix G: Neighboring Jurisdiction STD Program Directors/Health Directors and Site Contacts

Rockingham County Public Health Director	Trey Wright	fwright@co.rockingham.nc.us 336-342-8100 ext. 8145
Forsyth County Public Health Director	Joshua Swift	swiftjr@forsyth.cc 336-703-3099
Alamance County Public Health Director	Tony Lo Giudice	Tony.LoGiudice@alamance-nc.com
Randolph County Public Health Director	Tara Aker	Tara.Aker@randolphcountync.gov 336-318-6217
Davidson County Public Health Director	Lillian Koontz	Lillian.Koontz@DavidsonCountyNC.gov 336-242-2349

Appendix H: ARGC Outbreak Response Team Organizational Chart



Appendix I: Roles and Responsibilities Checklist

County-Level			
Suggested Position*	Role in ARGC Outbreak Plan	Responsibilities	Reports to
STD Clinic Medical Director	BFC Incident Commander	<ul style="list-style-type: none"> Oversee operations at the STD clinic Receive reports from all response managers, including Surveillance, Clinic, Laboratory, DIS, Outreach, Operations, Communications, Finance/Admin Managers Communicate efforts to the response director of Operations at NCDHHS Provide any medical consultation needed on ARGC cases; communicate clinical update to CDC as needed 	Health Officer (provide updates to director of Operations at NCDHHS)
NCSURRG Coordinator of STD Epidemiology	Surveillance Manager	<ul style="list-style-type: none"> Store, clean, and maintain data on cases Analyze ARGC case data Provide epidemiology updates to the Incident Commander as needed Define responsibilities for the Surveillance support team (Surveillance managers, data entry techs) as needed 	BFC Incident Commander
NCSURRG Surveillance staff, Data entry staff	Surveillance Support Team	<ul style="list-style-type: none"> Ensure lab results for ARGC cases are entered as soon as possible Communicate directly with IU NAAT lab to get any results processed into the EMR sooner Redirect other non-priority GC or syphilis cases out of the SURRG DIS' queue as directed by the Surveillance Manager Perform any other duties as assigned by manager 	Surveillance Manager
BFC Clinical Nurse Supervisor	Clinic Manager	<ul style="list-style-type: none"> Ensure collection of SURRG specimens at the STD clinic and non-STD partner sites (via communication with Asst. Clinic Managers) Ensure collection guidelines are being followed by appropriate staff and evaluate difficult processes for areas of improvement Provide NCSURRG Policy Stat policy on specimen collection technique and transportation to all relevant clinical staff Report any potential treatment failures seen by their assistant managers directly to the Incident Commander Define responsibilities for the clinic support team as needed 	BFC Incident Commander
SURRG Project Point of Contact at Non-STD Partner Sites (Eskenazi ED, Community East ED, Community East IDC)	Clinic Support Team: Assistant Clinic Managers	<ul style="list-style-type: none"> Ensure collection of SURRG specimens Provide updates to the Clinic Manager at BFC as needed Report any potential treatment failures directly to the Clinic Manager Report any supply needs to the NCSURRG Operations Manager 	Clinic Manager

		<ul style="list-style-type: none"> • Perform other duties as defined by the Clinic Manager 	
NCSURRG PHL Clinical Lab Manager	Laboratory Manager	<ul style="list-style-type: none"> • Oversee the transporting, receiving, processing, and resulting of gonorrhea samples submitted by SURRG sites • Supervise the AST lab technician who performs the identification testing for N. gonorrhoeae samples • Ensure reduced susceptibility samples are reported to the Incident Commander • Define responsibilities for the laboratory support team as needed 	BFC Incident Commander
SURRG GC Lab Technician, other AST lab technicians	Laboratory Support Team	<ul style="list-style-type: none"> • Follow NCSURRG Policy Stat guidelines on the preparation of AST cultures via Etest for processing isolated ARGC cultures • Report MIC values for all AST results from ARGC cases to the SURRG Epidemiology Coordinator per standard SURRG protocols, even if the MIC values do not meet alert thresholds • Perform other duties as defined by the Laboratory Manager 	Laboratory Manager
Field Operations Supervisor	DIS Manager	<ul style="list-style-type: none"> • Oversee gonorrhea case investigations during the outbreak • Ensure patients are treated appropriately, receive partner services, and any necessary referrals • Ensure partners and second-generation partners that are elicited during DIS interviews are brought into the clinic for testing and preventative treatment. • Define responsibilities for the DIS team as needed 	BFC Incident Commander
SURRG DIS, other DIS	DIS Team	<ul style="list-style-type: none"> • Locate patients that are ARGC cases and partners/social contacts per the local SURRG jurisdiction SOP (timeframes in Appendix J) • Conduct SURRG case investigation interviews on ARGC cases, partners, and social contacts • Elicit partner and social contact information from ARGC cases • Enter case investigation information into surveillance system (NBS) and the SURRG Investigation Database (SID) • Perform field testing and assist field clinicians in collecting SURRG culture swabs on mobile unit, at the discretion of the DIS Manager • Perform other duties as defined by the DIS Manager 	DIS Manager
NCSURRG Outreach and Screening Coordinator	Outreach Manager	<ul style="list-style-type: none"> • Oversee the potential targeted testing needed during an outbreak response in relation to a sub-population who is adversely affected by ARGC as defined by the Surveillance Manager 	BFC Incident Commander

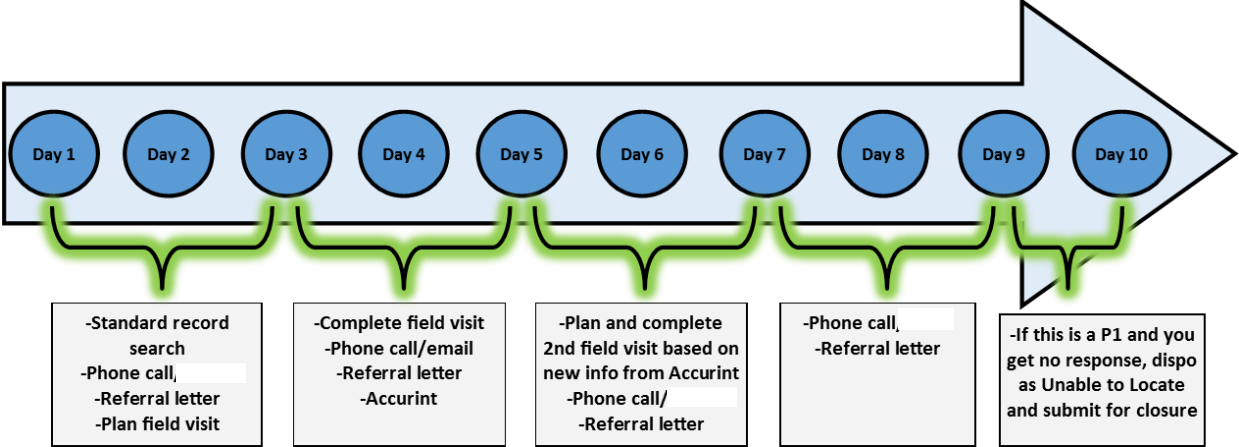
		<ul style="list-style-type: none"> • Transport outreach team members, DIS, and appropriate field clinical staff in outreach van during targeted testing • Provide reports to the Incident Commander from testing of affected populations • Define responsibilities for Outreach support team as needed 	
SURRG Outreach Technician, other outreach techs	Outreach Support Team	<ul style="list-style-type: none"> • Assist in field testing during ARGC outbreak response • If cross-trained as DIS, assist in interviewing patients, partners, and social contacts, at the discretion of the DIS Manager • Work with Outreach Manager to brainstorm potential new areas to do field testing for ARGC • Perform other duties as defined by the Outreach Manager 	Outreach Manager
STD Program Manager	Operations Manager	<ul style="list-style-type: none"> • Become the Point of Contact for healthcare providers/ hospitals that are not already SURRG partner sites • Meet with healthcare providers/ leaders of community-based organizations to provide ARGC testing supplies, provider education on sample collection and treatment guidelines, and patient education on gonorrhea and antibiotic resistance • Oversee the supply need at the STD clinic and the non-STD clinic partner sites and coordinate with the Laboratory Manager to order and transport new supplies • Ensure enough staff are available in the STD clinic to assist with the potential overflow of testing and communicate to Incident Commander when capacity may be reached. • Define roles for their team members as needed 	BFC Incident Commander
NCSURRG Public Information Coordinator	Communications Manager	<ul style="list-style-type: none"> • Field requests from the media around the ARGC outbreak and report directly to the Incident Commander and Director of Communications at NCDHHS's ICS • Coordinate with NCDHHS's ICS Director of Communication to have consistent messaging during the outbreak response • Ensure advisory/alerts are distributed to healthcare providers across the state of North Carolina (via the North Carolina Health Alert Network (IHAN)) and potentially to neighboring states in relation to the outbreak 	BFC Incident Commander, Director of Communication (NCDHHS ICS)
Director, NCSURRG Operations	Finance/Admin Manager	<ul style="list-style-type: none"> • Oversee notification of NCSURRG Health Officer of outbreak progress via BFC's Incident Commander • Provide support for fund appropriation through grants/finance as needed 	BFC Incident Commander, NCSURRG Health Officer

		<ul style="list-style-type: none"> Assist in NCSURRG employee payroll questions during outbreak Define responsibilities for team members as needed 	
State-Level			
State Epidemiologist, Deputy State Epidemiologist (or another member of the Policy Group)	NCDHHS Incident Commander	<ul style="list-style-type: none"> Oversee operations at NCDHHS Receive reports from all response directors, including Operations, Communications, Planning, and Logistics Directors Communicate response efforts to direct supervisor Be liaison between state/local health department and Governor's office if "emergency declaration" is needed for additional resources at the federal level Be available for update meetings with CDC that will be led by response Director of Operations at NCDHHS (SURRG Epidemiology Coordinator) 	State Epidemiologist or State Health Commissioner
State Epidemiologist, Deputy State Epidemiologist, Division Director (HIV/STD/VH), STD Program Director	NCDHHS Policy Group	<ul style="list-style-type: none"> Provide consultation to the response Operations Director on available resources from leadership and OPA during response 	State Epidemiologist
SURRG Epidemiology Coordinator	Operations Director	<ul style="list-style-type: none"> Provide updates to the Policy Group on operations at NCSURRG during the ARGC outbreak Communicate response effort needs from NCSURRG to the appropriate NCDHHS Incident Command Team director Act as the subject matter expert of ARGC and provide knowledge support to EP team members around gonorrhea and sexual health Maintain communication with SURRG project officers at the CDC on the status of the outbreak Work with Communications Director to identify any needs for dispersal of health alerts or external communication regarding the outbreak 	Incident Commander, NCDHHS Policy Group
SURRG Direct Assistance Epidemiologist	Communications Director	<ul style="list-style-type: none"> Act as a member of the JIC during the ARGC outbreak response Provide NCDHHS and NCSURRG team members with support in communication to the media or outside agencies around ARGC with approval from NCDHHS's OPA Draft talking points for NCDHHS Policy Group to present to any government agency offices that inquire about response efforts, coordinate with NCDHHS STD Program for these 	Incident Commander, NCDHHS Policy Group

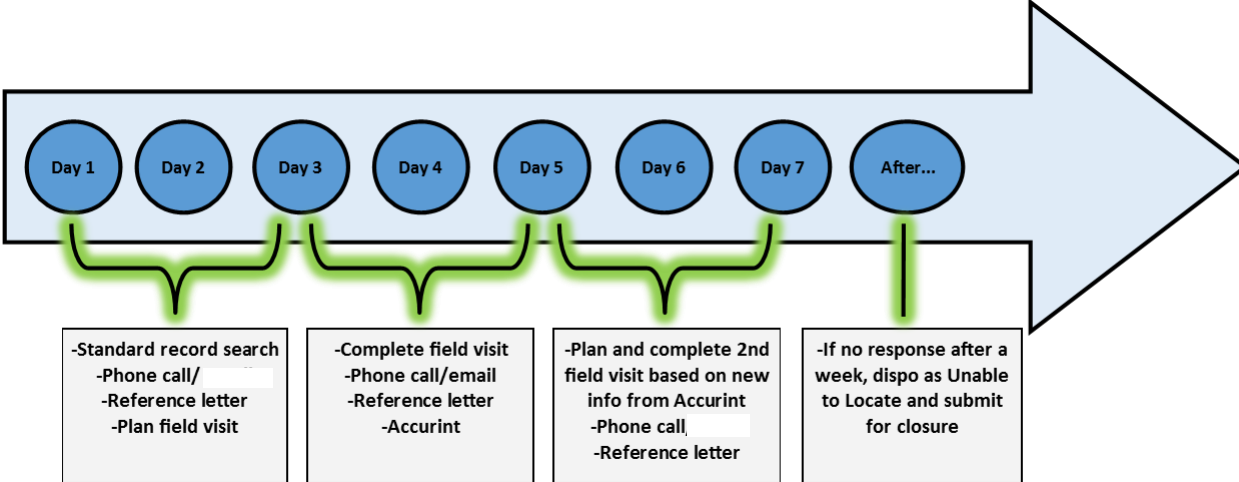
		<ul style="list-style-type: none"> • Assist in drafting, proofreading, and getting approval for IHANs during outbreak around ARGC • Fulfill any other duties delegated by the NCDHHS Incident Commander 	
NCDHHS EP Planning Supervisor	Planning Director	<ul style="list-style-type: none"> • Schedule meetings for the NCDHHS Policy Group and NCDHHS Incident Command Team • Facilitate location and presentation of information at team meetings • Use information obtained from Operations Manager on NCSURRG response efforts and updates from NCDHHS Policy Group to write outbreak response Situation Reports • Fulfill any other duties delegated by the NCDHHS Incident Commander 	Incident Commander, NCDHHS Policy Group
NCDHHS EP Operations Director	Logistics Director	<ul style="list-style-type: none"> • Assist in fulfilling any supply requests that are outside the scope of the local NCSURRG repository • Coordinate with other government agencies or hospitals to obtain additional medications needed for treatment of ARGC at the request of NCSURRG • Fulfill any other duties delegated by the NCDHHS Incident Commander 	Incident Commander, NCDHHS Policy Group

Appendix J: SURRG DIS Investigation Timeframes

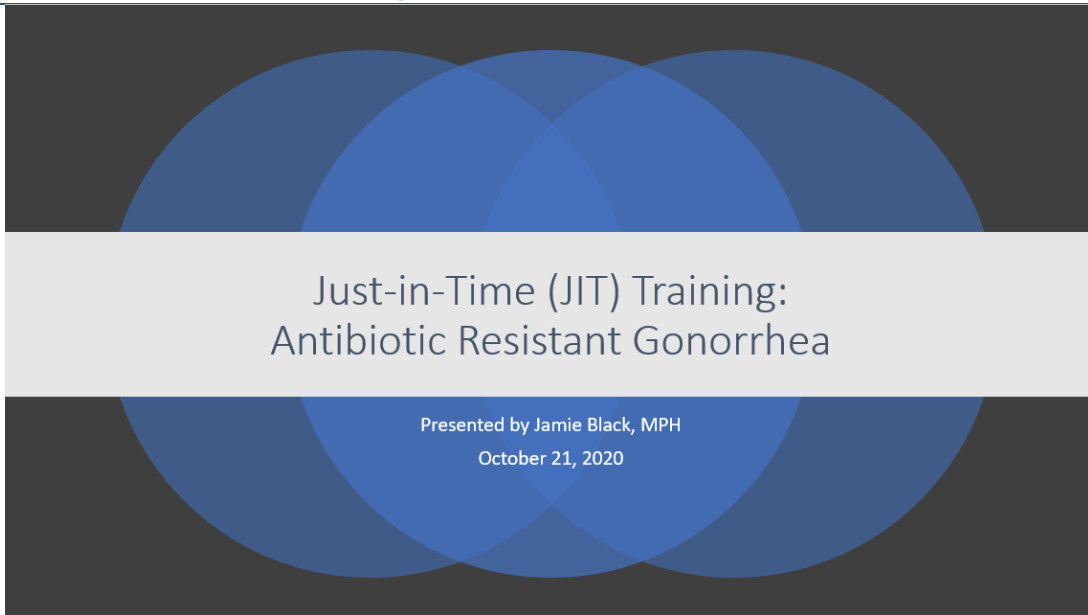
Making Contact with Cases



Making Contact with GC Negative Contacts

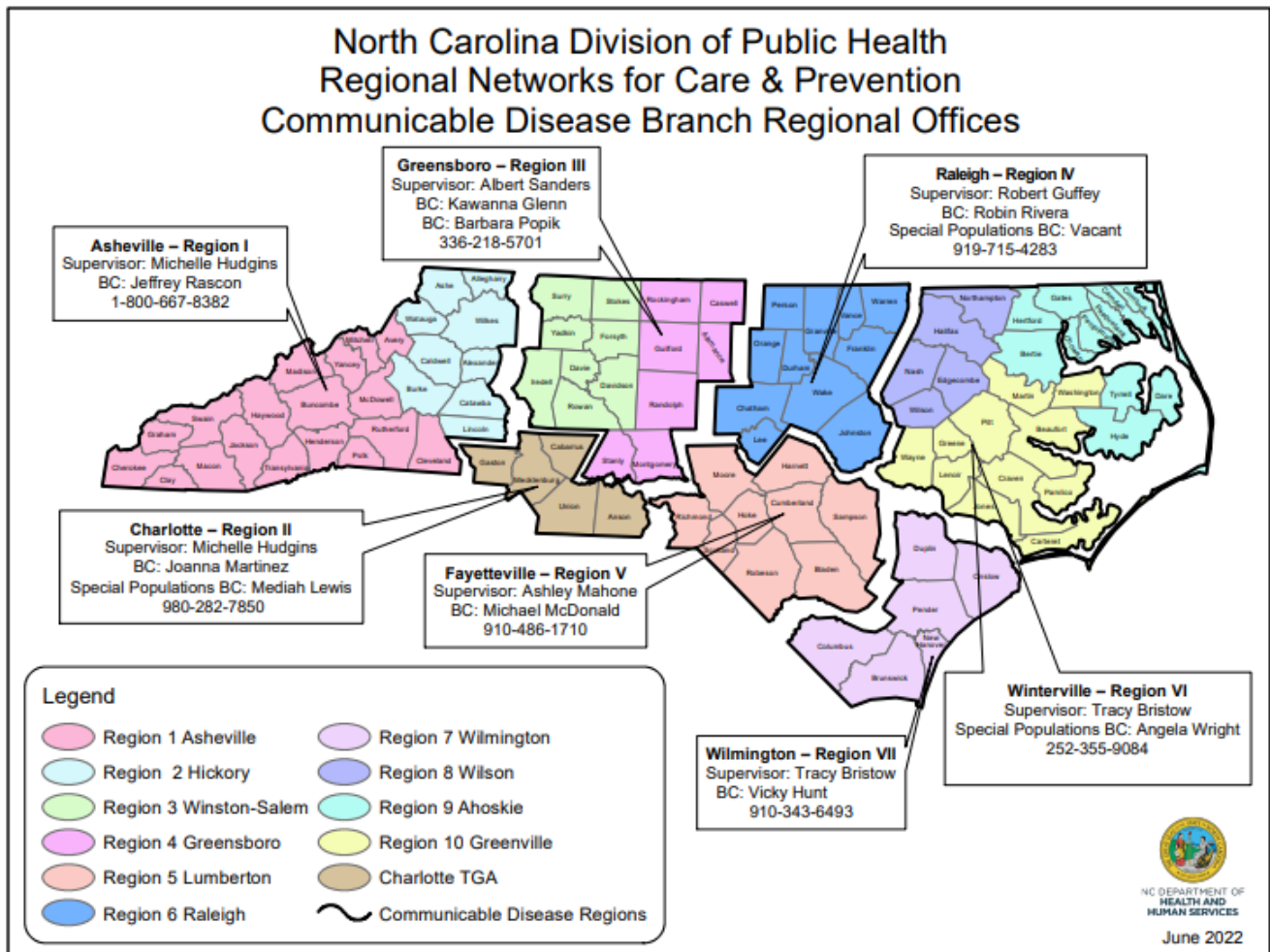


Appendix K. Just-in-Time Training for ARGC Outbreaks



JIT ARGC Training Presentation: R:\HIV\STDusers\SURRG\ARGC Pilot\Post-TTX

Appendix L: State DIS Contact Information



Appendix M: State STD Program Contact Information

N.C. HIV/STD Prevention and Care Unit at:

N.C. Department of Health and Human Services

Division of Public Health, Communicable Disease Branch

HIV/STD Prevention and Care Unit

1905 Mail Service Center, Raleigh, NC 27699-1905

Telephone: 919-733-3419

Fax: 919-733-0490 / Secure Fax: 919-715-4699

Appendix N: After-Action Report Template

Name of the outbreak:

Location:

Dates:

Staff Hours Contributed:

Total travel costs:

Collaborating Entities:

Goals and Objectives:

Executive Summary: Summary of the outbreak response, information should include:

- Dates when the outbreak response was initiated and deactivated
- Activities performed during response
- Total # of new cases identified
- Outcome or disposition of those cases
- # of contacts identified (dispositions)
- Contact index and cluster index
- # of cases identified as result of investigation activities
- Disposition of contacts

Successes:

Challenges:

Recommendations for Improvement: