geographical area for a finite period of time responsive to the detection of the one or more health conditions within that geographical area;- performing additional testing of individuals within the geographical area within the finite period of time; and allocating additional resources to the geographical area for which the one or more health conditions were detected.

[0016] In a further embodiment, a global laboratory network is provided. The network includes a plurality of networked laboratories having a geographical distribution and configured to provide continuous monitoring of populations, targeted testing, and/or scientific functions, wherein each one of the plurality of networked laboratory is configured to communicate with one or more other ones of the plurality of networked laboratories; and a system monitoring subsystem configured to: receive inputs from the plurality of networked laboratories, and send outputs to one or more of the plurality of networked laboratories in real-time, allocate resources among the plurality of networked laboratories based at least in part on the inputs from the or more laboratories.

[0017] In a further embodiment, a method of pandemic preparedness is provided. The method includes providing one or more tests to detect a known, unknown, or emerging pathogen; and providing, responsive to detection of an unknown or emerging pathogen, real-time results across a global network of infrastructure, the global network of infrastructure being configured to provide testing for the unknown or emerging pathogen and respond to the unknown or emerging pathogen.

[0018] In a further embodiment, a method of tracking a health condition in a population is provided. The method includes providing one or more tests to detect a set of one or more markers relating to the health condition; obtaining results from the one or more tests; and providing the results in real-time across a global network of infrastructure configured to identify and respond to a known, unknown, or emerging risk to health.

[0018a] In a further embodiment, a method of allocating resources within a global bio-surveillance and response system is provided. The method includes obtaining, from a plurality of networked laboratories of the system, a plurality of scorecards indicative of laboratory status; determining, according to the plurality of scorecards, that a first laboratory of the plurality of networked laboratories has a resource deficiency of one or more resources; determining, according to the plurality of scorecards, that a second laboratory of the plurality of networked laboratories

has a resource surplus of one or more resources; and routing one or more resources from the second laboratory to the first laboratory.

[0019] Further features as well as the structure and operation of various embodiments are described in detail below with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] The following figures form part of the present specification and are included to further demonstrate certain aspects of the present invention. The invention may be better understood by reference to one or more of these figures in combination with the detailed description of specific embodiments presented herein.

WHAT IS CLAIMED IS:

~~1. A global bio-surveillance and response system, comprising:~~

~~a first subsystem configured to perform monitoring of one or more health conditions;~~

~~a second subsystem configured to perform one or more scientific functions in response to the first subsystem's detection of the one or more health conditions; and~~

~~a networking platform, wherein the networking platform is configured to communicate information in real-time to and/or from one or both of the first and second subsystems.~~

~~2. The system of claim 1, wherein the networking platform is a web-based platform.~~

~~3. The system of claim 1, wherein the web-based platform is a cloud platform.~~

~~4. The system of claim 1, wherein the first subsystem includes a plurality of cartridge reader testing devices distributed among a geographical area.~~

~~5. The system of claim 1, wherein the first subsystem includes a plurality of Point of Care (POC) devices distributed among a geographical area.~~

~~6. The system of claim 5, wherein the POC devices are configured for location and use at doctor offices, urgent care facilities, and/or other medical field locations.~~

~~7. The system of claim 5, wherein the POC devices are configured to screen individuals for military applications, air travel, and/or sporting events.~~

~~8. The system of claim 1, further comprising a system monitoring subsystem.~~

~~9. The system of claim 1, wherein the first subsystem further includes an independent sample testing subsystem comprising one or more, computers, servers, tablets, and/or mobile devices and bio-instrumentation and configured to report test results.~~

~~10. The system of claim 1, wherein the system further includes a sample collection and testing ordering subsystem comprising one or more computers, servers, tablets, and/or mobile devices configured to operate as part of the first subsystem or the second subsystem and configured to perform one or more of the following functions:~~

~~placing orders on samples to be tested,~~

~~sending samples to a testing location, and~~

~~reviewing results of testing.~~

~~11. The system of claim 1, wherein the second subsystem further includes a sample processing subsystem comprising one or more, computers, servers, tablets, and/or mobile devices and bio-instrumentation, and configured to perform testing of samples.~~

~~12. The system of claim 1, wherein the second subsystem further includes scientific equipment including one or more of high throughput testing, ultrahigh throughput testing, sequencing, assay development, vaccine development, and/or scientific development instrumentation and equipment.~~

~~13. The system of claim 12, wherein the scientific equipment is centralized in relation to one or more major metropolitan areas.~~

~~14. The system of claim 12, wherein the sequencing includes leading edge sequencing and/or nucleic acid sequencing.~~

~~15. The system of claim 12, wherein the high throughput testing can include performing at least 100 million tests per week.~~

~~16. The system of claim 1, wherein the second subsystem further includes one or more of partially automated and fully automated test equipment.~~

~~17. The system of claim 16, wherein the test equipment is arranged into one or more farms, each comprising a plurality of instruments.~~

~~18. The system of claim 17, wherein the instruments with each farm are adapted be configured in one or more of a research mode and a clinical mode, wherein the clinical mode locks out one or more operators from a plurality of features of the instruments that are otherwise available in research mode.~~

~~19. The system of claim 1, wherein the real-time results are provided across a global laboratory network of infrastructure.~~

~~20. The system of claim 1, wherein the system is configured to facilitate a response to a pandemic, epidemic, and/or endemic.~~

~~21. The system of claim 1, wherein the system is configured to provide an epidemiological-based infrastructure for biodosimetry testing and/or radiological events.~~

~~22. The system of claim 21, wherein the radiological events include a nuclear plant meltdown.~~

~~23. The system of claim 1, wherein the system is configured to provide a biological-and/or chemical-defense-based infrastructure for responding to a chemical and/or biological-related attack.~~

~~24. The system of claim 1, wherein the system is configured to utilize one or more ride-share services to facilitate the transportation of samples between collection and testing locations.~~

~~25. The system of claim 24, wherein the system is configured to track the samples through a barcode and/or QR code.~~

~~26. The system of claim 25, wherein sample tracking can be used to determine a manner in which to allocate testing resources within the network.~~

~~27. The system of claim 8, wherein the system monitoring subsystem is configured to monitor the sample tracking.~~

~~28. The system of claim 27, wherein the system monitoring subsystem is configured to communicate with one or more biometric devices for determining vitals of individuals including one or more of body temperature, blood pressure, and/or oxygen saturation values.~~

~~29. The system of claim 1, wherein the first subsystem is configured to perform predictive testing on one or more of face masks, test equipment, and/or environmental surfaces to determine the presence of one or more pathogens.~~

~~30. The system of claim 1, wherein the monitoring of one or more health conditions includes monitoring for one or more biological, chemical, and/or biochemical anomalies.~~

~~31. The system of claim 30, wherein the monitoring includes performing luminescence testing.~~

~~32. The system of claim 31, wherein the luminescence testing includes chemiluminescence testing.~~

~~33. The system of claim 31, wherein the luminescence testing includes electrochemiluminescence testing.~~

~~34. A method for responding to a known, unknown, or emerging health condition, comprising:~~

~~providing targeted testing to detect one or more health conditions among a population to obtain targeted results;~~

~~transmitting the targeted results to a system monitoring subsystem, wherein the targeted results are transmitted in real-time across a distributed network of infrastructure;~~

~~responsive to the targeted results, performing one or more of the following steps:~~

~~increasing the rate of testing among the population to detect the presence of the~~

~~one or more health conditions, and~~

~~increasing the number of individuals tested among the population to detect the presence of the one or more health conditions.~~

~~35. The method of claim 34, further comprising performing an analysis of the targeted results.~~

~~36. The method of claim 34, wherein one or more of increasing the rate of testing and increasing the number of individuals tested are performed with high-throughput testing.~~

~~37. The method of claim 34, wherein one or more of increasing the rate of testing and increasing the number of individuals tested are performed with ultra-high-throughput testing.~~

~~38. The method of claim 34, wherein providing targeted testing further comprises identifying individuals with negative test results that are exhibiting a particular set of symptoms.~~

~~39. The method of claim 34, wherein providing targeted testing further comprises using a cartridge reader network distributed among a geographical area.~~

~~40. The method of claim 39, wherein providing targeted testing further comprises using one or more Point of Care (POC) devices distributed among a geographical area.~~

~~41. The method of claim 40, wherein the POC devices are configured to be located at doctor offices, urgent care facilities, and/or other medical field locations.~~

~~42. The method of claim 40, wherein the POC devices are configured to screen individuals for military applications, air travel, and/or sporting events.~~

~~43. The method of claim 34, further comprising monitoring one or more individuals through a user device configured for user monitoring.~~

~~44. The method of claim 34, further comprising identifying trends in positive test results by a system monitoring subsystem.~~

~~45. The method of claim 34, wherein providing targeted testing further comprises detecting antibodies, antigens, and/or nucleic acids.~~

~~46. The method of claim 34, further comprising transmitting the targeted results via a networking platform.~~

~~47. The method of claim 34, wherein increasing the rate of testing and increasing the number of individuals tested are configured to facilitate a response to a pandemic, epidemic, and/or endemic.~~

~~48. The method of claim 34, wherein providing targeted testing further comprises using further includes detecting one or more biological, chemical, and biochemical anomalies.~~

~~49. The method of claim 48, wherein detecting one or more anomalies includes performing luminescence testing.~~

~~50. The method of claim 49, wherein the luminescence testing includes chemiluminescence testing.~~

~~51. The method of claim 49, wherein the luminescence testing includes electrochemiluminescence testing.~~

1~~52~~. A method of allocating resources within a global bio-surveillance and response system, the method comprising:

receiving information relating to one more available resources of a network of laboratories configured to monitor one or more health conditions in real-time;

analyzing the information based at least in part on one or more selection criteria; and

routing one or more of equipment, test samples, instruments, supplies, and/or personnel

to a selected laboratory among the network of laboratories responsive to analyzing the received information and based on the one or more selection criteria.

253. The method of claim 152, wherein the one or more available resources include testing capacity, current inventory, current supplies, and/or a total number of instruments of a networked laboratory.

354. The method of claim 152, wherein the routing step further includes re-routing one or more of equipment, test samples, instruments, supplies, and personnel that have been previously routed based on the one or more selection criteria.

455. The method of claim 152, further comprising scheduling one or more of testing, personnel allocation, and/or sample transportation within laboratories of the network of laboratories.

556. The method of claim 455, wherein scheduling further comprises receiving commands for establishing rules to allocate resources and/or schedule tasks on a global scale via a global scheduler.

657. The method of claim 455, wherein scheduling further comprises receiving commands for establishing rules to allocate resources and/or schedule tasks on a regional scale via a regional scheduler.

758. The method of claim 657, wherein the regional scheduler further includes allocating resources and/or scheduling tasks within one or more farms of instruments.

859. The method of claim 455, further comprising receiving as an input one or more of a type of test results to be processed and/or frequency to be performed by one or more test sites when determining how to allocate resources and/or schedule tasks.

960. The method of claim 455, further comprising receiving as an input one or more of

staffing schedules and/or performance metrics of one or more facilities and/or sites when determining how to allocate resources and/or schedule tasks.

1061. The method of claim 455, further comprising receiving and managing an allocation of customer orders for equipment, supplies, and/or other resources within the network of laboratories.

1162. The method of claim 152, further comprising dispatching one or more of supplies, test samples, equipment, and/or samples within the network of laboratories.

1263. The method of claim 1162, wherein dispatching further includes procuring and/or distributing inventory and/or equipment between the network of laboratories.

1364. The method of claim 152, further comprising load balancing the network of laboratories, via a load balancing module, wherein the load balancing module employs a combination of real-time algorithms and human analysis to optimize resource allocation and/or task scheduling within the network of laboratories.

1465. The method of claim 1364, wherein the real-time algorithms evaluate one or more of staff levels, supply inventory levels, and/or testing throughput of one or more laboratories and/or other facilities to optimize resource allocation and/or task scheduling within the network of laboratories.

1566. The method of claim 1364, wherein the load balancer further includes minimizing workloads of operators at one or more testing facilities.

1667. The method of claim 1364, wherein the load balancer further includes predicting timing for inventory replenishment of one or more laboratories and/or other facilities within the network of laboratories.

1768. The method of claim 1364, wherein the load balancer further includes optimizing

resource allocation and/or task scheduling based on considerations of proximity of resources to laboratories and/or other facilities.

1869. The method of claim 1364, wherein the real-time algorithm further includes adjusting dynamically based on a change of circumstances, including a site being taken off line and/or a region being made temporarily unavailable.

1970. The method of claim 152, wherein- monitoring the one or more health conditions includes monitoring for one or more biological, chemical, and biochemical anomalies.

2071. The method of claim 1970, wherein the monitoring further includes performing luminescence testing.

2172. The method of claim 2071, wherein the luminescence testing includes chemiluminescence testing.

2273. The method of claim 2071, wherein the luminescence testing includes electrochemiluminescence testing.

~~74. A method for responding to a health-related triggering event, the method comprising:~~

~~providing targeted testing to detect the presence of one or more health conditions among a population exhibiting a defined set of symptoms to obtain targeted testing results;~~

~~transmitting the targeted testing results in real-time to a distributed infrastructure network;~~

~~providing one or more scientific detection tools configured to analyze the one or more health conditions responsive to the targeted testing results; and~~

~~developing a scientific diagnostic tool responsive to analysis of the targeted testing results from the one or more scientific detection tools; and~~

~~distributing one or more of test equipment, scientific detection tools, and scientific diagnostics tools to at least one location within the network of infrastructure responsive to~~

~~providing the one or more scientific detection tools or developing the scientific diagnostic tool.~~

~~75. The method of claim 74, wherein the one or more scientific detection tools include one or more assays.~~

~~76. The method of claim 74, wherein the one or more health conditions includes at least a detected pathogen.~~

~~77. The method of claim 76, wherein the scientific diagnostic tool is configured for creation of direct detection immunoassays of the detected pathogen.~~

~~78. The method of claim 76, wherein the scientific diagnostic tool is configured for sequencing of the detected pathogen.~~

~~79. The method of claim 74, further comprising assessing the one or more health conditions.~~

~~80. The method of claim 74, further comprising providing the targeted testing results in real-time across a global network of infrastructure.~~

~~81. The method of claim 74, wherein the one or more scientific detection tools includes cartridge-based assays.~~

~~82. The method of claim 74, wherein the one or more scientific detection tools include cartridge-based serological testing.~~

~~83. The method of claim 74, wherein the one or more scientific detection tools include cartridge-based assays including antigens tagged with complementary nucleic acid sequences.~~

~~84. The method of claim 74, further comprising manufacturing cartridge-based assays for testing for the presence of one or more specific pathogens.~~

~~85. The method of claim 74, further comprising manufacturing cartridge-based assays for performing serological testing.~~

~~86. The method of claim 85, wherein the cartridge-based assays include an array of antigens directly immobilized on a capture array.~~

~~87. The method of claim 74, further comprising manufacturing proteins and/or antigens related to assays.~~

~~88. The method of claim 74, further comprising developing direct detection immunoassays.~~

~~89. The method of claim 74, wherein the targeted testing includes testing against a standard upper respiratory panel.~~

~~90. The method of claim 74, further comprising sequencing negative results obtained during the targeted testing with sequencing instrumentation.~~

~~91. The method of claim 74, wherein the one or more of the scientific tools are configured for application at an increased frequencies as compared to the targeted testing.~~

~~92. The method of claim 74, wherein the targeted testing further includes pooling of samples, wherein the pooling pool includes at least ten samples.~~

~~93. The method of claim 92, further comprising re-testing individual samples within a pooled sample in response to the pooled sample testing positive.~~

~~94. The method of claim 74, wherein the targeted testing further includes detecting one or more biological, chemical, and biochemical anomalies.~~

95. The method of claim 94, wherein detecting one or more anomalies further includes performing luminescence testing.

96. The method of claim 95, wherein the luminescence testing includes chemiluminescence testing.

97. The method of claim 95, wherein the luminescence testing includes electrochemiluminescence testing.

98. A device for managing a global bio-surveillance and response system, comprising at least one processor configured to execute software instructions to provide:

an information subsystem configured to receive information from at least one subsystem and to facilitate the analysis of the information for providing a response to a health condition in a population; and

a command subsystem configured to provide commands to the at least one subsystem for carrying out the response,

wherein the information subsystem and the command subsystem are configured to receive real-time communications from the at least one subsystem through a web-based platform.

99. The device of claim 98, wherein the response includes providing one or more of equipment, instruments, supplies, and/or personnel to the at least one subsystem.

100. The device of claim 98, wherein the at least one processor is further configured to execute software instructions to output information to a display in a graphical and/or tabular format.

101. The device of claim 98, wherein the at least one processor is further configured to execute software instructions to provide one or more map-based views of real-time results received by one or more of the first subsystem and a second subsystem.

102. The device of claim 101, wherein the one or more map-based views includes views

~~by country, state, province, and/or county.~~

~~103. The device of claim 101, wherein the one or more map-based views provides an aggregated view of testing facilities within the global bio-surveillance and response system.~~

~~104. The device of claim 101, wherein the one or more map-based views provides an aggregated view of testing equipment within the global bio-surveillance and response system.~~

~~105. The device of claim 98, wherein the device is configured to be employed by one or more of local, state, federal government, or other governmental agencies.~~

~~106. The device of claim 98, wherein the information subsystem is configured to provide information access to one or more of hospitals, universities, schools, public and/or private research organizations, governmental agencies, and/or other commercial entities.~~

~~107. The device of claim 98, wherein the real-time communications include real-time test results received from a first subsystem of the at least one subsystem.~~

~~108. The device of claim 98, wherein the real-time communications include time-series tracking and trending of global test results.~~

~~109. The device of claim 98, wherein the real-time communications include information for performing real-time tracking of collection site activities.~~

~~110. The device of claim 98, wherein the real-time communications include status information related to one or more laboratories located within one or more of a first subsystem of the at least one subsystem and a second subsystem.~~

~~111. The device of claim 98, wherein the real-time communications include instrument information relating to the status of one or more instruments located within one or more of a first subsystem of the at least one subsystem and a second subsystem.~~

~~112. The device of claim 98, wherein the real-time communications include manufacturing information relating to the status of one or more manufacturing locations located within one or more of a first subsystem of the at least one subsystem and a second subsystem.~~

~~113. The device of claim 98, wherein the real-time communications include logistic information relating to one or more logistical flow processes occurring within one or more of a first subsystem of the at least one subsystem and a second subsystem.~~

~~114. The device of claim 98, wherein the information includes one or more of real-time geographical test results, time-series tracking, real-time activity at sample collection sites, real-time activities related to use of an app, status of laboratories in the global bio-surveillance and response system, status information of cartridge readers, status information for manufacturing facilities, real-time info on logistics flow in the global bio-surveillance and response system, cartridge distribution points, and/or location of manufacturing centers.~~

~~115. The device of claim 98, wherein the response includes providing personal interaction recommendations at one or more facilities.~~

~~116. The device of claim 98, wherein the response includes providing personal interaction recommendations in one or more geographical areas.~~

~~117. The device of claim 98, wherein the at least one processor is further configured to execute software instructions to facilitate data sharing among testing facilities.~~

~~118. The device of claim 98, wherein the command subsystem is configured to facilitate delivery of supply and/or equipment orders.~~

~~119. The device of claim 98, wherein the command subsystem is configured to provide commands for relocating resources among the global bio-surveillance and response system.~~

~~120. The device of claim 98, wherein the information received by the information subsystem includes luminescence testing information.~~

~~121. The method of claim 120, wherein the luminescence testing includes chemiluminescence testing.~~

~~122. The method of claim 120, wherein the luminescence testing includes electrochemiluminescence testing.~~

~~123. A global bio-surveillance and response system, comprising:~~

~~a subsystem configured to perform monitoring of one or more health conditions, wherein the subsystem includes a plurality of portable testing devices distributed among a geographical area;~~

~~a system monitoring subsystem configured to:~~

~~receive inputs from the subsystem and send outputs to the subsystem in real-time,~~

~~facilitate analysis of the inputs, and~~

~~determine the outputs, responsive to the inputs; and~~

~~a networking platform configured to communicate with a plurality of the portable testing devices in real-time.~~

~~124. The system of claim 123, wherein the system monitoring subsystem is further configured to determine the outputs within a predetermined time period after receiving the inputs.~~

~~125. The system of claim 124, wherein the predetermined time period is less than five minutes.~~

~~126. The system of claim 123, wherein the subsystem is configured to perform tests to screen for one or more known, unknown, and/or emerging pathogens.~~

~~127. The system of claim 123, wherein the networking platform is a cloud platform.~~

~~128. The system of claim 123, wherein the subsystem includes a plurality of cartridge reader testing devices distributed among a geographical area.~~

~~129. The system of claim of 128, wherein the plurality of cartridge reader testing devices includes one or more Point of Care (POC) devices distributed among a geographical area.~~

~~130. The system of claim 129, wherein the POC devices are configured to be located at doctor offices, urgent care facilities, and/or other medical field locations.~~

~~131. The system of claim 129, wherein the POC devices are configured to screen individuals for military applications, air travel, and/or sporting events.~~

~~132. The system of claim 123, wherein the system monitoring subsystem is configured to provide one or more map-based views of real-time results received from the subsystem.~~

~~133. The system of claim 132, wherein the one or more map-based views includes views by country, state, province, and/or county.~~

~~134. The system of claim 132, wherein the one or more map-based views provide an aggregated view of testing facilities within the global bio-surveillance and response system.~~

~~135. The system of claim 132, wherein the one or more map-based views provide an aggregated view of testing equipment within the global bio-surveillance and response system.~~

~~136. The system of claim 123, wherein the system monitoring subsystem is configured to provide access to the one or more of the inputs and the outputs by one or more of hospitals, universities, public and/or private research organizations, governmental agencies, and/or other commercial entities.~~

~~137. The system of claim 123, further comprising an independent sample testing~~

~~subsystem including one or more, computers, servers, tablets, and/or mobile devices and bio-instrumentation, and is configured to report test results.~~

~~138. The system of claim 123, wherein the subsystem configured to perform monitoring of one or more health conditions is further configured to perform monitoring of one or more biological, chemical, and/or biochemical anomalies.~~

~~139. The system of claim 138, wherein the monitoring includes performing luminescence testing.~~

~~140. The system of claim 139, wherein the luminescence testing information includes chemiluminescence testing.~~

~~141. The system of claim 139, wherein the luminescence testing includes electrochemiluminescence testing.~~

~~142. A global bio-surveillance and response system, comprising:~~

~~a first subsystem configured to perform one or more scientific functions in response to a detection by a second subsystem of one or more health conditions, wherein the subsystem includes a plurality of scientific diagnostic equipment;~~

~~a system monitoring subsystem configured to:~~

~~receive inputs from the first subsystem and the second subsystem and sending outputs to the first subsystem and the second subsystem in real-time, and~~

~~facilitate analysis of the inputs to determine the outputs to send to the first subsystem; and~~

~~a networking platform, wherein the networking platform is configured to communicate with the scientific diagnostic equipment in real time.~~

~~143. The system of claim 142, wherein the first subsystem and the second subsystem are the same subsystem.~~

~~144. The system of claim 142, wherein the first subsystem and the second subsystem are different subsystems.~~

~~145. The system of claim 142, wherein the outputs include allocation of resources to the subsystem.~~

~~146. The system of claim 145, wherein the resources include one or more of equipment, instruments, supplies, and/or personnel.~~

~~147. The system of claim 142, wherein the first subsystem is configured to increase the frequency and/or amount of testing and/or assay development in response to the detection of the one or more health conditions.~~

~~148. The system of claim 142, wherein the networking platform is a cloud platform.~~

~~149. The system of claim 142, further comprising a sample processing subsystem, including one or more, computers, servers, tablets, and/or mobile devices and bio-instrumentation, and is configured to perform testing.~~

~~150. The system of claim 142, wherein the second subsystem further includes scientific equipment configured for one or more of high throughput testing, ultrahigh throughput testing, sequencing, assay development, vaccine development, and/or scientific development instrumentation and equipment.~~

~~151. The system of claim 150, wherein the scientific equipment is centralized in relation to one or more major metropolitan areas.~~

~~152. The system of claim 150, wherein the sequencing includes next-generation sequencing and/or nucleic acid sequencing.~~

~~153. The system of claim 150, wherein the high throughput testing includes performing at~~

~~least 100 million tests per week.~~

~~154. The system of claim 142, wherein the second subsystem further includes one or more of partially automated and fully automated test equipment.~~

~~155. The system of claim 154, wherein the test equipment is arranged into one or more farms, each including a plurality of instruments.~~

~~156. The system of claim 155, wherein the instruments with each farm are adapted be configured in one or more of a research mode and a clinical mode, wherein the clinical mode locks out one or more operators from a plurality of features of the instruments that are otherwise available in research mode.~~

~~157. The system of claim 142, wherein the detection of one or more health conditions includes detecting one or more biological, chemical, and/or biochemical anomalies.~~

~~158. The system of claim 157, wherein detecting one or more anomalies includes performing luminescence testing.~~

~~159. The system of claim 158, wherein the luminescence testing information includes chemiluminescence testing.~~

~~160. The system of claim 158, wherein the luminescence testing includes electrochemiluminescence testing.~~

23~~161~~. A method of minimizing the spread of a health condition in a population, the method comprising:

providing targeted testing to detect one or more health conditions among a population within a geographical area, wherein the health conditions are at least one of biological, chemical, and biochemical;

confining the population within that geographical area for a finite period of time

responsive to the detection of the one or more health conditions within that geographical area;

performing additional testing of individuals within the geographical area within the finite period of time; and

allocating additional resources to the geographical area for which the one or more health conditions were detected.

24~~162~~. The method of claim 23~~161~~, wherein the additional resources include one or more of equipment, instruments, supplies, and/or personnel.

25~~163~~. The method of claim 23~~161~~, further comprising performing contact tracing to minimize the spread of the one or more health conditions.

26~~164~~. The method of claim 23~~161~~, further comprising performing predictive and/or artificial intelligence/machine-based learning to predict locations and/or groups of individuals more likely to test positive for the one or more health conditions.

27~~165~~. The method of claim 23~~161~~, further comprising performing recursive testing and/or real-time data analysis of infected and/or potentially affected individuals.

28~~166~~. The method of claim 23~~161~~, wherein performing additional testing further includes one or more of:

increasing a rate of testing among the population to detect the presence of the one or more anomalies, and

increasing a number of individuals tested among the population to detect the presence of the one or more anomalies.

29~~167~~. The method of claim 23~~161~~, wherein the targeted testing is performed by a plurality of cartridge reader testing devices distributed among a geographical area.

30~~168~~. The method of claim 23~~161~~, wherein the targeted testing is performed by a plurality of Point of Care (POC) devices distributed among the geographical area.

31~~169~~. The method of claim 23~~161~~, further comprising performing predictive testing on one or more of face masks, test equipment, and/or environmental surfaces to determine the presence of one or more pathogens.

32~~170~~. The method of claim 23~~161~~, wherein results from the targeted testing and the additional testing are reported in real-time over a web-based platform.

33~~171~~. The method of claim 32~~170~~, wherein the web-based platform is a cloud-based platform.

34~~172~~. The method of claim 23~~161~~, wherein the providing targeted testing of one or more health conditions includes performing luminescence testing.

35~~173~~. The method of claim 34~~172~~, wherein the luminescence testing information includes chemiluminescence testing.

36~~174~~. The method of claim 34~~172~~, wherein the luminescence testing includes electrochemiluminescence testing.

~~175. A global laboratory network, comprising:~~

~~a plurality of networked laboratories having a geographical distribution and configured to provide continuous monitoring of populations, targeted testing, and/or scientific functions, wherein each one of the plurality of networked laboratory is configured to communicate with one or more other ones of the plurality of networked laboratories; and~~

~~a system monitoring subsystem configured to:~~

~~receive inputs from the plurality of networked laboratories, and~~

~~send outputs to one or more of the plurality of networked laboratories in real-time,~~

~~allocate resources among the plurality of networked laboratories based at least in part on the inputs from the or more laboratories.~~

~~176. The network of claim 175, wherein the resources include one or more of equipment instruments, supplies, and/or personnel.~~

~~177. The network of claim 175, wherein the plurality of networked laboratories is configured to continuously monitor one or more populations for the presence of unknown pathogens.~~

~~178. The network of claim 175, wherein the plurality of networked laboratories is configured to identify and/or sequence emerging pathogens.~~

~~179. The network of claim 175, wherein the plurality of networked laboratories is configured to communicate with one or more user devices to pair one or more samples with one or more individuals from whom the samples were collected.~~

~~180. The network of claim 175, wherein the samples include one or more serum, plasma, urine, saliva, csf, fecal, cell supernatants, and/or nasal swab samples.~~

~~181. The network of claim 175, wherein at least one of the plurality of networked laboratories include preexisting commercial laboratories and/or public health facilities.~~

~~182. The network of claim 175, wherein the plurality of networked laboratories includes at least 1,000 geographically distributed laboratories.~~

~~183. The network of claim 175, wherein the plurality of networked laboratories includes tier-1 facilities and tier-2 facilities, further wherein the tier-2 facilities are configured to provide routine and increased-frequency testing.~~

~~184. The network of claim 183, wherein the tier-1 facilities are further configured to provide all services performed by the tier-2 laboratories and assay development services.~~

~~185. The network of claim 183, wherein the tier-1 and/or tier-2 facilities are configured to~~

~~manufacture assay reagents.~~

~~186. The network of claim 175, wherein the plurality of networked laboratories further includes one or more satellite sites, wherein the one or more satellite sites include one or more of patient testing offices, pharmacies, and urgent care facilities.~~

~~187. The network of claim 175, wherein the locations of the plurality of networked laboratories are selected according to proximity to one or more of population centers, transportation facilities, airports, public utility systems, and/or internet infrastructure sites.~~

~~188. The network of claim 175, wherein the locations of the plurality of networked laboratories are selected according to proximity to one or more regions of potential outbreak.~~

~~189. The network of claim 175, wherein the developed assays include direct detection assays.~~

~~190. The network of claim 175, wherein the plurality of networked laboratories is configured to be used as biobanks.~~

~~191. The network of claim 175, wherein the network can further include one or more inventory centers configured to provide supplies and/or equipment to the plurality of networked laboratories located within the network.~~

~~192. The network of claim 175, wherein the targeted testing includes performing luminescence testing.~~

~~193. The network of claim 192, wherein the luminescence testing information includes chemiluminescence testing.~~

~~194. The network of claim 192, wherein the luminescence testing includes electrochemiluminescence testing.~~

~~195. A method of pandemic preparedness, comprising:~~

~~providing one or more tests to detect a known, unknown, or emerging pathogen; and~~

~~providing, responsive to detection of an unknown or emerging pathogen, real-time results across a global network of infrastructure, the global network of infrastructure being configured to provide testing for the unknown or emerging pathogen and respond to the unknown or emerging pathogen.~~

~~196. The method of claim 195, further comprising providing the one or more tests are by cartridge-based assays.~~

~~197. The method of claim 195, further comprising providing one or more scientific detections tools for responding to the unknown or emerging pathogen.~~

~~198. The method of claim 197, wherein the one or more scientific detection tools include cartridge-based serological testing.~~

~~199. The method of claim 197, wherein the one or more scientific detection tools include cartridge-based assay that include antigens tagged with complementary nucleic acid sequences.~~

~~200. The method of claim 197, wherein the one or more scientific detection tools are configured for application at an increased frequency as compared to the frequency of providing the one or more tests.~~

~~201. The method of claim 195, further comprising communicating the real-time results over a networking platform.~~

~~202. The method of claim 201, wherein the networking platform is a cloud-based platform.~~

~~203. The method of claim 195, further comprising providing the one or more tests via a~~

~~plurality of cartridge reader testing devices distributed across a geographical area.~~

~~204. The method of claim 195, further comprising providing the one or more tests via a Point of Care (POC) device network distributed among a geographical area.~~

~~205. The method of claim 204, wherein the POC devices are configured to be located at doctor offices, urgent care facilities, and/or other medical field locations.~~

~~206. The method of claim 204, wherein the POC devices are configured to screen individuals for military applications, air travel, and/or sporting events.~~

~~207. The method of claim 195, further comprising providing a system monitoring subsystem for facilitating communication of test results and/or response to the unknown or emerging pathogen.~~

~~208. The method of claim 195, further comprising providing one or more tests including performing luminescence testing.~~

~~209. The method of claim 208, wherein the luminescence testing information includes chemiluminescence testing.~~

~~210. The method of claim 208, wherein the luminescence testing includes electrochemiluminescence testing.~~

~~211. A method of tracking a health condition in a population, comprising:~~

~~providing one or more tests to detect a set of one or more markers relating to the health condition;~~

~~obtaining results from the one or more tests; and~~

~~providing the results in real-time across a global network of infrastructure configured to identify and respond to a known, unknown, or emerging risk to health.~~

~~212. The method of claim 211, wherein the infrastructure includes a plurality of networked laboratories.~~

~~213. The method of claim 211, wherein the results are provided over a networking platform.~~

~~214. The method of claim 213, wherein the networking platform is a cloud platform.~~

~~215. The method of claim 211, wherein providing the one or more tests includes distributing a plurality of cartridge reader testing devices across a geographical area.~~

~~216. The method of claim 211, wherein providing the one or more tests includes distributing a plurality of Point of Care (POC) devices across a geographical area.~~

~~217. The method of claim 216, wherein the POC devices are configured to be located at doctor offices, urgent care facilities, and/or other medical field locations.~~

~~218. The method of claim 216, wherein the POC devices are configured to screen individuals for military applications, air travel, and/or sporting events.~~

~~219. The method of claim 211, wherein providing the tests includes performing the tests on one or more of partially automated and fully automated test equipment.~~

~~220. The method of claim 219, wherein the test equipment is arranged into one or more networked farms, each farm including a plurality of instruments.~~

~~221. The method of claim 211, further comprising facilitating a response to a pandemic, epidemic, and/or endemic.~~

~~222. The method of claim 211, further comprising providing an epidemiological-based infrastructure for biodosimetry testing and/or radiological events.~~

~~223. The method of claim 222, wherein the radiological events include a nuclear plant meltdown.~~

~~224. The method of claim 211, further comprising providing a biological- and/or chemical-defense-based infrastructure for responding to a chemical and/or biological-related attack.~~

~~225. The method of claim 211, wherein performing the one or more tests includes performing predictive testing on one or more of face masks, test equipment, and/or environmental surfaces to determine the presence of one or more pathogens.~~

~~226. The method of claim 211, wherein providing the one or more tests includes performing luminescence testing.~~

~~227. The method of claim 226, wherein the luminescence testing information includes chemiluminescence testing.~~

~~228. The method of claim 226, wherein the luminescence testing includes electrochemiluminescence testing.~~

~~229. A method of load balancing sample processing across a global bio-surveillance and response system, the method comprising:~~

~~receiving, from a sample collection facility, a test sample processing request;~~

~~obtaining, from a plurality of networked laboratories of the system, a plurality of scorecards, each indicative of a corresponding laboratory status;~~

~~providing, to the sample collection facility, a ranked listing of the plurality of networked laboratories according to the plurality of scorecards;~~

~~receiving, from the sample collection facility, a selection of a networked laboratory;~~

~~notifying the networked laboratory of the selection;~~

~~routing the one or more test samples from the sample collection facility to the networked~~

laboratory of the selection.

230. The method of claim 229, wherein the plurality of scorecards include laboratory evaluation information.

231. The method of claim 230, wherein the laboratory evaluation information includes at least estimated time to result and health score information.

232. The method of claim 231, wherein the estimated time to result is determined according to one or more of personnel availability information, instrument availability information, and shift length information.

233. The method of claim 232, further comprising determining transit times between the sample collection facility and each of the plurality of networked laboratories, and

wherein the estimated time to result further includes a transit time between a sample collection facility and a networked laboratory.

234. The method of claim 230, wherein the health score information is determined according to laboratory system scores indicative of a status of a networked laboratory, the laboratory system scores including one or more of a facility system score, a network system score, a staff system score, an instrument system score, a sample system score, an inventory system score, and a travel conditions system score.

235. The method of claim 234, wherein the health score information is determined according to a weighting of the laboratory system scores, wherein the weighting is inversely related to the value of the laboratory system scores.

236. The method of claim 231, wherein the ranked listing is determined according to the estimate time to result of each of the plurality of scorecards.

237. The method of claim 231, wherein the ranked listing is filtered according to a health

~~score threshold.~~

~~238. The method of claim 231, wherein the ranked listing is tiered according to health scores and ranked within tiers according to an estimated time to result.~~

~~239. The method of claim 231, wherein routing the one or more test samples from the sample collection facility to the networked laboratory includes providing the sample collection facility with shipping information of the networked laboratory.~~

~~240. The method of claim 231, wherein routing the one or more test samples from the sample collection facility to the networked laboratory includes engaging a shipping service to transport the one or more test samples.~~

372~~41~~. A method of allocating resources within a global bio-surveillance and response system, the method comprising:

obtaining, from a plurality of networked laboratories of the system, a plurality of scorecards indicative of laboratory status;

determining, according to the plurality of scorecards, that a first laboratory of the plurality of networked laboratories has a resource deficiency of one or more resources;

determining, according to the plurality of scorecards, that a second laboratory of the plurality of networked laboratories has a resource surplus of one or more resources; and

routing one or more resources from the second laboratory to the first laboratory.

382~~42~~. The method of claim 372~~41~~, wherein the one or more resources include one or more of equipment, test samples, instruments, supplies, consumables and personnel.

392~~43~~. The method of claim 372~~41~~, further comprising:

engaging an external shipping service to perform the routing.

402~~44~~. The method of claim 372~~41~~, further comprising routing one or more resources from a manufacturing facility to the first laboratory.

41~~245~~. The method of claim 37~~241~~, wherein determining that a first laboratory has a resource deficiency is further performed according to an amount of samples scheduled for processing at the first laboratory.

42~~246~~. The method of claim 41~~245~~, wherein determining that a first laboratory has a resource deficiency includes determining a future resource deficiency based on the amount of samples scheduled for processing at the first laboratory.