

VIKAND

Medical Operations

Position Paper:

Re-Entry into Service

This a LIVING DOCUMENT which will be supplemented and updated periodically with the ongoing information necessary for ships to begin preparing for re-entry and maintain appropriate standards, equipment and training going forward.

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Introduction to VIKAND

VIKAND Medical Solutions is a unique end-to-end provider of medical services to the maritime industry who take a proactive approach to health and wellness. The VIKAND team uses its extensive experience in the industry to turn problems into opportunities, as they drive innovation through discovery, research, networking, and knowledge. With the support of our experienced medical team, who have a thorough understanding of the complexities of a cruise shipboard medical operation, we deliver consistent and comprehensive medical management services and care onboard cruise ships around the world.

Pandemic, Background and Notice

The current global pandemic is an unrivaled situation within the industry, which has resulted in an influx of questions and concerns from our clients around the world. In anticipation of and in response to those questions, our Medical Operations team has been working diligently to maintain and increase their knowledge base regarding current changes in guidelines and recommendations for change. Working with multiple agencies, including, but not limited to: ACEP, CLIA, the CDC, WHO, Public Health England, the US Coast Guard and Flag States as well as reviewing and research port guidelines and changes, our Team is working to provide our clients with the most accurate and up-to-date information available to assist our clients with re-entering cruise operations.

VIKAND's position in the industry as a thought leader allows us to take a proactive approach to assisting the cruise lines as they prepare to begin sailing again. By reviewing current documentation, pending advances in testing and anticipating upcoming new regulatory standards and recommendations, VIKAND can provide the tools to help the cruise lines navigate their way to planning, prevention, and preparedness for the future.

Our Medical Operations Managers, Biomedical Technicians, Supply Chain and Distribution Specialists are working to obtain the latest and most up to date recommendations, guidelines and suggestions from the many agencies involved in the COVID-19 pandemic. As there is no authoritative agency involved in this process, it is imperative that all information being disseminated is reviewed appropriately so that the appropriate information and recommendations can be conveyed to our clients.

As noted, there is not a single authoritative agency involved in the process of re-entry, and as this is an ever-changing situation, our recommendations are based on ACEP guidelines as well as best

practices of the industry standards. That being said, the dynamic status of the COVID-19 pandemic must allow for multiple revisions of any and all guidelines put forward.

In response to client questions/concerns, changes in the industry, updated guidelines and the necessity to plan for future successful sailing VIKAND is providing the necessary information to the cruise lines as the initial educational platform for planning re-entry.

Information will be conveyed to clients and the cruise industry via multi-platform communication.

Direct Communication

VIKAND Shipboard Medical Operations Managers will communicate directly with clients to facilitate release of information that allows for individualized review and tailoring to meet the needs of the specific ships in question. Direct communication will begin with the initial Re-Entry Position Paper which serves as the primary road map for ships re-entry and future sailings, providing the necessary information needed to plan, procure, hire, sail and cruise effectively.

Subsequently, based upon questions from client, current guidelines being developed, research, the changing medical environment, as well as recommendations from authoritative agencies and as it becomes available, VIKAND will provide supplemental documents with detailed information that ships will need for procurement, training, education and maintenance of ship sanitation and safety.

The following initial critical interest list has been developed which will be addressed via supplemental direct communication from the VIKAND Shipboard Medical Operations Managers:

- PPE
- Testing capabilities
- Equipment and Medical Facility needs
- Staffing
 - Clinician needs
 - Clinician training
- Screening
 - Form
 - Processes
 - Staff
- Policy and Procedure
 - Clinical Guidance/Treatment protocols for COVID-19

- ILI/ARI logs
- Ship Layup Protocol
- Sanitation / OPRP
- General Shipboard COVID-19 Training and Awareness Document/CBT
- Pre-Employment Medical Exam Reviews
- Contact tracing
 - Emerging technology and practice
 - Staffing Requirement

VIKAND will provide this direct communication and supplemental documents and updated information via this and other hard copy documents as an interactive communication between the VIKAND Shipboard Medical Operations Managers and clients. As noted, these are LIVING DOCUMENTS and the information researched and received is CHANGING and EVOLVING almost daily. VIKAND is working hard to review and communicate these changes with clients and the industry. VIKAND welcomes input and questions from our clients and they should be directed to the appropriate VIKAND Shipboard Medical Operations Manager.

VIKAND recognizes that each cruise line and ship are unique, and your specialized and individual needs will continue to be managed by your designated Shipboard Medical Operations Manager. To assist with this these documents will be updated as needed to provide current, accurate and appropriate information to our clients.

Indirect Communication

While hard copy document communication will be provided and facilitate a multi-disciplinary approach to the changes within the industry, VIKAND will also provide a web-based set of documents and communication which can be accessed and referenced as needed. This web-based information, the VIKAND Medical Monitor (VMM) will be available to clients. This web-based newsletter format will be updated with the documents and information delivered via hard copy and will also contain additional information needed by clients and cruise lines. Access will be via the VIKAND website by using a designated link that is provided by VIKAND.

The VMM is where you will find sections of interest which will include the initial position paper disseminated to clients and the cruise lines, a section for regulatory & governmental updates and medical resources and information from the critical interest list such as PPE, Testing, Medical equipment and screening to list a few. In addition, VIKAND values your feedback and your VIKAND Shipboard Medical Operation's Managers welcome any questions you have. We will confidentially compile your questions and incorporate them into a frequently asked question

(FAQ) section in the medical resources and information section in the VMM where we can provide answers that all our clients can benefit from. Any and all questions on any subject are strongly encouraged!

The VMM is a living and evolving resource for clients, which will be updated on a regular cadence as new information becomes available. Some information will be broad and generalized and some information will be detailed and specific. The VMM will provide the foundation on which our VIKAND Medical Operations Team will collaborate with each client to manage and customize their individual ship needs.

Initial Guidelines and Recommendations

Making guests and crew feel safe onboard again is the ultimate goal going forward. COVID-19 has presented the industry with a learning curve that could not have been anticipated one year ago. In order to prevent that from happening again, we will make very effort, above and beyond what was done in the past, effecting all aspects of sailing, including medical operations, onboard medical technology and ship response to a medical outbreak. These changes will have a ripple effect within the industry and through the public, instilling a new level of confidence in the cruising public as well as travel agents, first-time cruisers and the experienced cruiser.

1. Screening and Prevention– Crew

A healthy ship starts with a healthy crew. The health of the crew should be acknowledged and confirmed at the time of hire and should be re-checked prior to transfer to another ship. The Pre-Employment Medical Exam (PEME) is the first medical encounter crew has with a cruise line.

The PEME of all new crew should include the following testing and education:

- i. Mandatory COVID PCR testing / vaccination to become part of the PEME with additional PCR testing prior to flight to join the ship
 - i. PEME facility must communicate PCR test findings to the cruise line and/or provide the crew member with documentation of testing and results.
- ii. At the time of the PEME, the crew should be provided with the necessary PPE they would require to travel, and this should be in a sealed package.
- iii. The Manning Agency will be tasked with scheduling and reporting PCR testing, if available, to be completed on all crew prior to traveling for their flight.
 - i. Reports of same should be forwarded immediately upon receipt to the ships Medical Center
 - ii. The crew member should also be provided with an original result document, to be provided upon presentation to the ship.
- iv. In collaboration with the Manning Agency, the cruise line should provide the crew member with the appropriate information needed on how the crew member should utilize that PPE in order to travel safely to the ship I.e. using right PPE during the flight etc.
- v. Completion of medical questionnaire prior to boarding
- vi. Crew screening should be performed in an area which provides the ability to maintain appropriate distancing (preferably 6 feet) from all additional crew being screened.
 - i. Should include temperature, pulse, respirations and oxygen saturation
- vii. Luggage to be sanitized/disinfected prior to loading onboard and into crew cabin
- viii. Upon boarding, all embarking crew should immediately change out of any clothes worn to travel, shower and change into new clothes/uniforms.

- i. Crew should not “explore” any parts of the ship in the clothes worn to travel. They should proceed to cabins upon embarkation.
 - ii. Housekeeping/Laundry should provide plastic “boarding bags” to all crew cabins for use upon embarkation. Travel clothing should be deposited in these bags and washed immediately and separately from any other laundry being handled.
- ix. Crew members should be placed into quarantine for 14 days unless PCR testing can be readily available, and two PCR tests performed within several days apart to confirm a true negative test result.
- i. PCR testing application is subject to local availability and client preference and must be interpreted in conjunction with clinical evaluation and exposure risk before the crewmember is released from quarantine.
 - ii. The crew member shall be not permitted to work during this period.
 - iii. The crew member shall self-isolate in their cabins not leaving their cabin for any reason.
 - iv. The crew shall receive room service crew meals, dropped and collected outside their cabin door, a minimum of 3 times per day.
 - ± Food waste and other trash should be collected and bagged by the quarantined crew member and placed outside the cabin during designated times for transport to the waste management center for incineration or off-loading.
 - v. Designated medical staff or other personnel should wear proper personal protective equipment (PPE) per CDC guidance when in proximity to quarantined crew members.
 - i. For 14 days newly joined crew members are to have their temperature checked twice daily.
 - ii. The medical team must conduct twice daily checks using non touch thermometers and wearing appropriate PPE.
 - vi. Once a crew member has completed 14 days of quarantine without any symptoms they may be released from quarantine and standard arrangements apply, cabin to be deep cleaned and crew member to move into normal allocated cabin, if necessary.
 - vii. Release from quarantine shall be authorized by the ship’s doctor or allocated medical personnel.

- x. In all situations of quarantine, testing and re-testing, release from isolation shall be authorized by the ships doctor.

Once onboard, all new and existing crew members should be made aware of regular, routine temperature monitoring onboard, the availability of PPE for use when on duty, special precautions for the disposal of PPE and any changes to the hygiene processes onboard.

- xi. Each time a crew member returns from shore they should have their temperature checked.
- xii. Regular temperature checks 14 days after joining the ship and maintained in a log on the medical department
- xiii. Regular and routine temperature checks for all crew members
- xiv. Comprehensive training of crew in case of outbreak, the need for isolation, readying rooms for isolation and locations of all pertinent outbreak/isolation equipment. This should include suspected GI illness as well as ILI of unknown contagion.
- xv. Reduction of crew movement in public areas as well as possible reduction of crew movement going ashore.
- xvi. Specific monitoring guidelines for crew members transferring from ship to ship
 - i. At the time of transfer, crew members should be placed into quarantine for 14 days unless PCR testing can be readily available, and two PCR tests performed within several days apart to confirm a true negative test result.
 - i. PCR testing application is subject to local availability and client preference and must be interpreted in conjunction with clinical evaluation and exposure risk before the crewmember is released from quarantine.
 - ii. The crew member shall be not permitted to work during this period.
 - iii. The crew member shall self-isolate in their cabins not leaving their cabin for any reason.
 - iv. The crew shall receive room service crew meals, dropped and collected outside their cabin door, a minimum of 3 times per day.
 - i. Food waste and other trash should be collected and bagged by the quarantined crew member and placed outside the cabin

during designated times for transport to the waste management center for incineration or off-loading.

- v. Designated medical staff or other personnel should wear proper personal protective equipment (PPE) per CDC guidance when in proximity to quarantined crew members.
 - i. For 14 days newly joined crew members are to have their temperature checked twice daily.
 - ii. The medical team must conduct twice daily checks using non touch thermometers and wearing appropriate PPE.
- vi. Once a crew member has completed 14 days of quarantine without any symptoms they may be released from quarantine and standard arrangements apply, cabin to be deep cleaned and crew member to move into normal allocated cabin, if necessary.
- vii. Release from quarantine shall be authorized by the ship's doctor or allocated medical personnel.

In addition, the prevention of contagion for crew should include consideration of non-permeable and antimicrobial fabrics to be chosen for all crew uniforms including, Housekeeping, Laundry, Bar and Restaurant staff. Medical staff should be outfitted with antimicrobial scrubs in a wicking and antimicrobial fabric. These elements provide an additional protective barrier for both guests and crew.

2. Screening and Prevention – Visitors and Vendors

Safely monitoring the crew prior to joining and while onboard is an initial step to providing a safe sailing environment for day visitors, vendors and guests who are also onboard. Having processes in place for the prevention of contagion to and from Crew is also an important in providing a feeling of confidence for all guests, vendors and guests who come onboard for a day pass, to perform work or the delivery of goods

Recommendations include allowing only essential workmen and vendors onboard, and those persons should be declared to the cruise line 14 days prior to boarding. Boarding with less than 14 days' notice will only be approved for company staff, authority staff on duty, pilots and port agents.

- i. Visitors must complete a health declaration form and submit a copy to the ship no less than 48 hours prior to signing on.
 - i. The original form should be brought with the visitor and presented upon boarding.
 - ii. Company staff, authority staff, pilots and port agents should complete the ships pre-boarding questionnaire prior to boarding.
 - i. Pilots should complete the screening form/health declaration in advance of their arrival to the ship. Copies of the document should be sent directly to the Captain and Medical Center.
 - ii. Upon arrival to the bridge, the Pilot should provide the original documents should be provided to the Captain.
 - iii. A copy of the declaration and questionnaire should be kept in the medical center for future reference
 - iv. Vendors requiring a letter from the ship declaring a COVID-19 free environment should make those requests 72 hours in advance of their visit, and include all contact information for the recipient of the documents.
- ii. Visitors should be screened by medical staff prior to boarding, including a full set of vital signs including pulse ox
- iii. Visitors with a history of travel in high risk areas, close contact with persons infected with COVID-19 and or a temperature greater than 38 degrees Celsius will be denied boarding.
- iv. Hands should be cleaned and sanitized prior to boarding

- v. Face masks must be worn throughout their time on the ship
- vi. Movement onboard should be limited to only those areas necessary for their visit.
- vii. Social distancing guidelines should be maintained as much as possible including:
 - i. Maintaining distance between persons working in the same proximity
 - ii. No personal interactions i.e. Handshakes, sharing of equipment
 - iii. If visitors are dining onboard, a specific dining room/dining area/mess room should be designated for use

3. Screening and Prevention – Guests

Guests not only want to know that the staff and crew are being monitored before and while onboard, but they will also want to know what's being done to protect them while on board. Providing guests with a specific set of interventions and processes will instill that sense of confidence and feeling of ease throughout their cruise. Conversely, ensuring the health of guests allows that same sense of confidence for the crew who work with and interact with guests daily.

It is recommended that the following guidelines are put in place and followed:

- i. Mandatory COVID testing prior to cruising, at a minimum PCR testing completed no more than 3-5 days before embarkation.
 - i. A copy of the results of testing should be presented as part of the embarkation documentation and will be maintained by the medical staff
- ii. Pre-existing conditions must be medically managed at the time of embarkation and documentation of same from a licensed physician provided prior to boarding.
 - i. All guests traveling with pre-existing conditions and co-morbidities must be made aware of all the medical risks prior to cruise.
- iii. Guests above the age of 70 traveling in the United States may be required provide a doctors certificate regarding their fitness to travel.
- iv. UK Public Health has not removed that restriction, and guests traveling in the UK still be required to provide a doctor's certificate regarding their fitness to travel, if above the age of 70.
- v. Guests should travel with medication equal to the number of days of their itinerary, as well as an additional 2-week supply of all prescribed and PRN (as needed) medications
- vi. Guests to be advised of required immunizations and prophylactics well in advance of their cruise and must meet requirements
- vii. Include Covid-19 specific questions on pre-boarding health declaration for the guest as well as questioning any possible contact they may have had within the prior 14 days

- viii. Guests must acknowledge that they are expected to provide honest and accurate answers to all screening questions as well as any and all questions posed by medical personnel at any time from pre-embarkation to disembarkation.
 - i. Untrue or dishonest responses on pre- boarding documents may result in the guest being denied embarkation.
 - ii. Dishonest or untrue medical facts discovered while onboard will result in the guest being disembarked at the next available port.
- ix. Staggered check in to avoid bigger crowds.
- x. Guest screening should be performed in an area which provides the ability to maintain appropriate distancing (preferably 6 feet) from other guests being screened.
 - i. Screening should include temperature, pulse, respirations and oxygen saturation
 - ii. **Consider COVID testing as new reliable FDA approved technology becomes readily available**
- xi. Luggage to be sanitized/disinfected prior to loading onboard and into guest cabins

4. Screening Equipment

Researching, vetting and procuring the equipment that best meets the unique needs of each cruise line and ship is of the utmost importance. Both crew, guests and visitors onboard will rely on that equipment to provide the most accurate results needed in the screening process.

The screening equipment would not only consist of PCR or Testing machines, but would also include the necessary equipment needed to continue the hygiene, prevention and monitoring processes throughout the embarkation, sailing itinerary and disembarkation periods. These would include:

- i. Pre-boarding PCR or Quick Test as new, reliable FDA approved technology becomes available
- ii. Thermo testing – if implemented guests need to be well informed of the protocol in order to avoid surprises and fear
- iii. Updated Temperature and/or Thermo scanners
- iv. PATHSPOT for hand cross-contamination
- v. Emerging Contact Tracing Technology

5. Medical Operations –PPE

Another aspect of re-entry that will be greatly affected will be the materials and logistics aspect of preparing for a cruise. Cruise lines will now need to obtain and maintain Personal Protective Equipment (PPE) that they may not have utilized in the past.

Materials managers will be responsible for procuring updated amounts and PAR levels of equipment that will now be considered standard in the industry. These preparations would begin with obtaining, loading and storing.

- i. Significant increase of proper par levels of PPE (based on pax / crew ratio)
- ii. Masks (surgical and N95 depending on use)
- iii. Increase inventory of disposable gloves – not only for medical staff
- iv. Face shields
- v. Tyvek coveralls or gowns – wicking and anti-microbial
- vi. Safety glasses,
- vii. Proper PPE needed for guests and crew onboard during outbreak as well as required for air evacuations etc.
- viii. PPE clearly labeled for use in each location to prevent overuse, egregious use and inappropriate use by both guests and crew.

PPE should be made available for all crew from a centralized station which allows for effective monitoring and prevents egregious overuse or hoarding of supplies. The appropriate PPE for each crew member will be dependent on their job responsibility, level of interaction with the public and level of interaction in public areas.

Guest cabins should be equipped, prior to sailing, with PPE located within closed packaging. A video for proper donning and doffing of PPE should be available on the ships information channel on TV. To allow guests the ability to self-check, disposable thermometers should also be provided within the guest cabins (1 per guest), and these which should also be maintained within the closet in the stateroom with the PPE.

Additionally, available PPE should be maintained and located at the hospitality /purser/activities desks throughout the ship, and available for guests upon request.

Prior to going ashore, guests and crew members should be reminded to take the appropriate PPE with them, and to dispose of same in the appropriate bins located ashore.

6. Medical Operations –DME

Personal Protective Equipment is not the only change cruise lines should expect for future sailings. In addition to PPE, ships will now have a need for additional Durable Medical Equipment (DME) to meet the new standards being discussed.

- i. Ventilators and respiratory equipment
- ii. Medical monitors
- iii. IV equipment
- iv. Vital sign equipment

This new and additional medical equipment would require some changes to the management of the medical center, as well as outfit of the ship, which is addressed later in this document.

7. Storage Solutions

It is well known that storage space is at a premium onboard a ship. The new standards for equipment and supplies could propose a problem for most ships.

A solution to this storage problem would be to work with a maritime manager, such as VIKAND, and utilize a readily available stockpile of all necessary PPE. This PPE would be managed and stored at geographically strategic locations that would allow for the request for release to be managed diligently and expediently, lowering the logistical problems of deploying same to the ship. Expiration dates would be monitored and a rotating shipment utilized as needed, with replenishment happening on a continued basis as stores are utilized.

In addition to the storage of PPE and supplies, the same principle could be applied to DME and sanitation/disinfecting equipment.

A solution to this storage problem would be to utilize Medical Equipment Sets (MES).

Medical Equipment Sets, would consist of the equipment and durable medical equipment necessary to create an additional isolation ward and/or manage an outbreak.

These MES and additional medical equipment would be managed and stored at geographically strategic locations that would allow for the request to be managed diligently and expediently, lowering the logistical problems of deploying same to the ship.

Biomedical equipment would be serviced on an annual basis, as is being done onboard, batteries replaced every 2 years and replacements done as necessary.

This type of shore side storage can provide deployment of the requested MES with a single coordinated phone call.

8. Medical Center(s)

The changes brought about by the recent COVID-19 pandemic will require system-wide changes to the medical care provided onboard ships. Ultimately this may pose the most difficult for ships to implement as space is limited onboard and instituting and outfitting a secondary ICU, isolation rooms and medical facility will require extensive review and planning.

Some of the updates being discussed throughout the multiple agencies include:

- i. Implementation of secondary mobile isolation ward / ICU with full set up to be used in case of outbreak
 - i. This will require additional medical equipment and thus, additional available medical staff onboard.
 - ii. Additionally, additional emergency electrical outlets will need to be made available.
 - iii. HVAC and air flow issues will also need to be addressed, with changes implemented or approved work-around available should activation of the secondary unit/isolation units need to happen.
- ii. Proposing certain number of cabins depending on # guests onboard to be permanently assigned for isolation or be made available when needed.
 - i. Identify isolation areas - certain number of cabins in close proximity to each other
- iii. Repurpose HVAC system to these areas to provide the necessary airflow, negative air flow and pressure
- iv. Add all essential medical equipment for secondary ward
- v. Enhance secondary medical center
- vi. Increase number of ventilators in order to support more than one patient at the time
 - i. This will require enhanced staffing, and training, which is addressed in the sections below
- vii. Center to be able to provide antiviral treatment in case of other outbreaks / pandemics

- viii. Increased frequency of cleaning, sanitizing and disinfecting of the medical center.
 - i. The hospital steward to wear the correct PPE whenever working in the Medical Center or Secondary Medical Center
 - ii. Should include a thorough cleaning of all surfaces and equipment including medical equipment, computer equipment, keyboards, telephones, cabinets including pulls, garbage bins, chairs and beds, and any additional hard surfaces within the Medical Center.
- ix. Consider implementation of technology to be able to provide on-demand oxygen onboard for use as needed in an outbreak, pandemic or isolation situation.
 - i. Consideration should be made for oxygen generation technology including equipment that provides for the capability to refill oxygen tanks onboard
- x. Implement diagnostic capabilities with required lab equipment
- xi. Access to certain vaccines and rapid tests for various viruses

9. Medical Operations –Staffing

Staffing the medical operations onboard as well as shoreside will need to be updated. Increased screening procedures at the time of embarkation will require additional medical personnel to perform the screens appropriately and thoroughly. Additionally, in the event of an outbreak or isolation which may require more invasive care and treatment, additional medical personnel will be necessary to maintain equipment I.e. ventilators.

- i. Recommendations based on best medical practice
- ii. Increase number of medical staff for back up, increased temp screenings, monitor isolation cases, water testing etc. etc. (ENT, medical receptionist, nurse practitioners – a little bit more affordable from a financial standpoint)
 - i. Ships should consider a pool of available “on call” physicians or Physician Assistants to be available in the event of an outbreak requiring ventilator management for more than two people.
 - ii. Also consider an “on call” pool of nurses who are located within the geographical area of the port of embarkation to assist with the pre-board screening process.
 - iii. Only one medical staff onboard a vessel carrying guests should not be permitted
- iii. When working with 2 or more medical professionals onboard, shifts should be staggered to prevent cross contamination and maintain social distancing.
- iv. Wage increases to employee compensation packages may be necessary to attract appropriately trained and competent staff
- v. Reconsider current competency standards for medical staff
- vi. Consider cross training Hotel personnel to the role of medical receptionist to provide additional available hands in the event of an outbreak or necessary isolation situation.

10. Public Health Adjustments

Cleaning ships and the air onboard. Screening crew and guests. Ordering additional supplies. While all of these are essential to resuming itineraries and sailing, there are many additional things that will need to be done onboard to maintain shipboard life.

This starts with ships in their current state and the need to sanitize and disinfect appropriately.

Cleaning and sanitizing processes should include:

- i. Higher frequency with increased levels of sanitation and disinfection
- ii. Routine air purification and air scrubbing throughout the ship
- iii. Remove the buffets from being self-service and provide staff to assist guests with their choices
- iv. Consider changes to the layout of dining rooms to allow for greater levels of distance between tables
- v. Easy access to hand sanitizer located throughout the ship, quantity and quality
- vi. Comprehensive training of crew including proper PPE use and disposal
- vii. **Specific trash receptacles for use when disposing of PPE**
- viii. CDC Donning and Doffing video COVID-19, yes there is a right way and a wrong way.
 - i. <https://www.youtube.com/watch?v=t1lxq2OUy-U>
- ix. Foggers and equipment to decontaminate
- x. Air ventilation systems such as Hygensea
- xi. Disinfecting both crew and guest luggage prior to loading onto ship and into cabins

11. New Policies and Procedures /Training and Education

Any recommendations, guidelines or adjustments to the process of booking, embarking, sailing and disembarking a cruise will involve multiple levels of updated training and education, for both shoreside staff, onboard crew members and also guests who wish to sail. Many of the new policies and procedures that cruise lines implement will begin at the time of booking and include informing guests of those changes, expectations and guidelines that will be in effect for their itinerary.

- i. Cruise lines to recommend travel insurance requirement which should include a medical evacuation rider in order to prepare the guest for any eventualities
- ii. Require guests to travel with medications sufficient for the length of the itinerary, as well as an additional two-week supply of medication for chronic diseases
- iii. Guests will need to be educated/informed as to the medical documentation that will be required to travel and board the ship
- iv. Guests will need to be educated/informed as to the embarkation process including all pending screening at the port.

Information that will need to be developed for the crew onboard will include:

- v. Outbreak protocol to be included into emergency response
- vi. Include PPE and DME protocols in OPRP policy
- vii. Handwashing training via the CDC. While it may sound “simple” there is a proper method for proper effectiveness.
 - i. <https://www.youtube.com/watch?v=d914EnpU4Fo>
- viii. Training and education in proper utilization of PPE, including donning, doffing and disposal.
 - i. <https://www.youtube.com/watch?v=bG6zISnenPg>
- ix. Consider CPR training or Hands Only CPR training for crew that are not medical
 - i. <https://www.redcross.org/take-a-class/cpr/performing-cpr/hands-only-cpr>
 - ii. <https://www.redcross.org/take-a-class/cpr/performing-cpr/cpr-steps>

- x. Consider cross training Hotel personnel to the role of medical receptionist to provide additional available hands in the event of an outbreak or necessary isolation situation.
- xi. Utilizing the OPRP to develop a list of competencies for crew including:
 - i. Communicable disease
 - ii. Isolation and/or outbreak management and role
- xii. Creation of a mandatory continuing education program for all medical staff to maintain competency in:
 - i. Public health disease management
 - ii. Ventilator use and management
 - iii. Isolation procedures and PPE use
 - iv. Testing equipment and results management
- xiii. It will be important to provide the necessary updated training and education needed to ensure all roles are managed capably and with the require skill expectation.

What Does the Future Hold

It is difficult to predict the future in almost any circumstance, and post pandemic makes that even tougher. Some things we do know should happen, will need to happen and are happening.....

- i. Regulatory changes
- ii. New policies and procedures
- iii. New and additional equipment, formulary supplies, PPE, volume
- iv. New and emerging contact tracing technology for guests and crew.
 - i. Identify and track all close contacts.
 - ii. Provides real-time contact tracing in the event of an outbreak requiring intervention
 - iii. Contact Tracing staff for monitoring, alerting and reporting.
- v. New facilities onboard – static and dynamic (portable)
- vi. New and updated regulatory expectations
- vii. Changes to onboard outbreak and isolation management
- viii. Updated reporting requirements to authoritative agencies
- ix. Higher level of education and competency training to crew and staff
- x. Increased numbers of medical staff onboard
- xi. Increase in onboard medical staffing and potential for shoreside medical staff utilization
- xii. Meet and surpass guest expectations related to onboard cleaning and sanitation