**INTRODUCTION**

The presence of large numbers of individuals in close proximity to each other facilitates transmission of infectious diseases, often through person-to-person spread or via contaminated food or water. An infectious agent introduced into the environment of a cruise ship has the potential to be distributed widely across the ship and to cause significant illness. The average cruise ship passenger is over 45 years old and often has chronic medical problems. It is important that in order to have a safe cruise ship experience, any potential for the introduction of an infecting agent as well as its transmission be minimized. The majority of cruise ship infections involve respiratory and gastrointestinal infections.

There are 3 primary functions of microbial surveillance and control :

* To perform comprehensive surveillance for cruise ship based infections and

epidemiologically significant organisms

* To create, implement, support, and sustain evidence-based interventions to

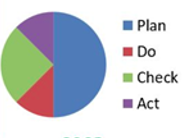
prevent cruise ship infections and organism transmissions

* Verify the effectiveness of the above

The company shall establish and maintain procedures to ensure measures required for an effective microbial surveillance program are identified and implemented (as required by DNV CIP-M SD10/CR.1). The process of microbial surveillance shall follow the PLAN DO CHECK ACT CYCLE (PDCA).



This will ensure that there are formal processes that regularly examine performance and ensures that the system continues to provide benefits. More than 50% of the time shall be spent during the planning phase as illustrated in the below graphic.



# PDCA TABLE OF MICROBIAL SURVEILLANCE



# CONCLUSION

The PDCA process provides a continuous loop of planning, doing, checking and acting. The iterative pro-cess of the PDCA cycle enables and promotes a continuous improvement and learning culture. It provides a comprehnesive and effective approach for solving problems and managing change. The PDCA helps the company to recognize an opportunity and plan a change, test the change, review the test and analyse the results and identify strengths and weaknesses.

If the results show that there is a clear improvement in the operations of the organization from the imple-mentation of PDCA, then a continuation of the same action is required in the future. Lessons learned with PDCA shall be implemented into the standard operational routine of the company. This becomes the new norm for how things are done, unless there is a problem and further changes are required in the future. In that case, a specifc PDCA can be undertaken until desired results are achieved and improvement noted.

Using PDCA cycle analysis tool to manage microbial surveillance and infection prevention can improve the efficiency and efficacy of the microbial surveillance. Prevention of illness spread is the ultimate goal. Consistently applying the above actions correctly, illness spread shall be mitigated. Continuous correct hand hygiene application, monitoring and training, effective and correct application of chemical use during cleaning; frequency of cleaning; focus on cleaning of high touch surfaces; microbial surveillance and routine testing of potable water; trained crew to proactively detect, identify and report potential infection early all lends to an effective microbial surveillance program. Utilizing training tools such as glow germ and the application of ATP testing on both hands and surfaces produces reports, tracks, and trends data that highlights efficacy of cleaning but also the necessity of education and training. Improvements can be tracked and proactive action to deficiencies can be applied immediately, gap analysis targeting and emphasizing weaknesses. Tracking and logging of sanitizing pro-cedures and cross referencing with any illness logged will prove whether actions are effective against in-fection and potential infection spread. As all actions are logged and are retained for a minimum period of 12 months, sufficient data is present to review and manage risk. Should potential risk of infection be ele-vated due to location, global pandemic such as COVID-19 then proactive actions will be immediately im-plemented and sanitation measures enhanced and taken to prevent, mitigate and contain any potential threat to the vessel. Planning for continuous improvement in proactive actions and application to prevent the spread of illness is a daily activity.