

Tale of Two Bubbles: A Narrative Review of Biosecure Bubbles in Cricket

Akshai Mansingh¹, Oba Gulston², Praimanand M Singh³, Israel K Dowlat⁴, Virgil R Best⁵, Donovan K Bennett⁶

ABSTRACT

Biosecure Bubbles have enabled the return of sports during the COVID-19 pandemic. West Indies Cricket was involved in the first international sporting event with a tour to England. The Caribbean Premier League (CPL) was the first Cricket League and was held in Trinidad and Tobago. Extensive planning and adaptation to local conditions were required, and all involved had to be constantly updated and provide consent. The English Bubble was “contained” in that all facilities resided within one area: hotel, training, and match facilities. Persons were moved from one geographical area into the bubble. The CPL Bubble was “Water in glove” in which it had to extend to different areas. A single hotel housed the cohort but separate training and playing locations required managed movement. Interactions between those in the Bubble and those outside had to be coordinated and separated. This review describes the functioning of the two Bubbles and highlights the differences between the two models. Both were predicated on cohort education, repeated testing, and adherence to social distancing and hygiene. Yet both differed significantly in their construct and execution.

Keywords: Corona pandemic, COVID-19, Cricket, Narrative review, Sports medicine.

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INTRODUCTION

International sport came to a standstill by late April 2020 due to the COVID-19 pandemic. Major events like the Olympics were postponed and all professional leagues ground to a halt. West Indies cricket has been involved in the first International Series in sports and in holding the first International Cricket league competition, the Caribbean Premier League (CPL), since the onset of the pandemic. Both have involved careful planning and maintaining of a “Biosecure Bubble” which isolates participants from the community. The Bubbles differed. That in England was a “contained” Bubble where all facilities were within a single location: hotel, gym, and ground. The CPL was a “water in glove” Bubble in that the hotel was central but the bubble extended to training facilities and playing grounds. Whereas the former is easier to manage, few places have such facilities. Variations of the second model are more likely as sporting events return.

The use of Social Bubbles was recognized as an effective strategy for increasing social contact while limiting some of the associated increase in epidemic risk.¹ The Biosecure Bubble in Sport is an athlete-centered approach recognizing athletes as a community.² Recognizing that public health is of foremost concern, many attempts at risk stratification have been used to inform the return of certain sports. Those with minimal contact are deemed safest, with sports like cricket falling in a medium risk group.³⁻⁵ Already there have been three revisions by the National Collegiate Athletic Association in the United States of America to address return to the sport in that country.⁴ The World Health Organization has also published guidelines.⁶ However, the planning of both of these events predated those recommendations and was held successfully without any positive COVID-19 cases.

The West Indies tour of England for three Tests involved persons from the Caribbean, which had a low incidence of infections into one of the highest infected countries at the time. The Bubble was to keep the touring party safe from exposure to the community.

^{1,3}Faculty of Sport, The University of the West Indies, Kingston, Jamaica

^{2,4-6}Cricket West Indies, St. Johns Antigua and Barbuda

Corresponding Author: Akshai Mansingh, Faculty of Sport, The University of the West Indies, Kingston, Jamaica, Phone: +18769706921, e-mail: akshai.mansingh@uwimona.edu.jm

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The CPL was played in Trinidad and Tobago, which had no reported infection for almost 3 months. Participants were from all continents, 18 countries, many of which were among the highest infected countries. The challenge was to keep the community safe from exposure to the Bubble cohort. However, while their 2-week quarantine was taking place, Trinidad experienced a second wave. The Bubble was extended and flipped to keep the community away from the cohort.

This is a narrative review of the two Bubbles in terms of its construct and function. Both were significantly different and had to adapt with time. Being some of the first of its kind it is descriptive rather than comparative with other similar Bubbles. Its objective is to provide a template of others proposing Bubbles for sporting events. Permission was granted by Cricket West Indies and the CPL but no funding was received.

TOUR OF ENGLAND

The West Indies tour of England was initially scheduled for May 2020. At that time, England was going through the heaviest part of their crisis, and it was clear that the tour would have to be postponed. The English Cricket Board, in conjunction with Cricket

West Indies, held a series of meetings to ensure that a Bubble could be maintained, whereby no one coming from the Caribbean would come in contact with anybody who had not been tested for COVID-19 and was in isolation for at least 2 weeks. The Test Matches were rescheduled to start in July 2020. Most West Indian players were unable to do any form of training at home and it was decided that the team would leave a month before the first Test Match to allow adequate preparation while incorporating the mandatory 2-week quarantine period.

Players had to be convinced that their safety was paramount, and the risks were minimal. Their fears had to be allayed. A series of group video conferences were held between medical personnel from both Cricket Boards and the players, and this was followed by individual calls. Educational material was produced through brochures and fact sheets. Senior players were encouraged to speak to their teammates and the Captain was included in preparatory meetings. Players were assured that if they were free to opt-out of the tour without repercussion, and three players did so. Player contracts were adjusted to include a medical waiver and the insurance providers included coverage for COVID-19-related illnesses.

Two grounds were selected on the basis that they had hotels situated within the premises. This would allow for the squad from the Caribbean to remain within the confines of the ground for the entire period while in England. As most countries in the Caribbean had shut their borders, a chartered airlift had to be arranged, picking up players from their individual islands and taking them to Antigua, where a chartered plane would carry them to Manchester. While on board everyone would maintain social distancing.

Isolation meant no practice matches could be played against County teams. Were a player to get injured and require substitution, this would not be likely due to lack of airlift and a 2-week quarantine for the substitute player. As a result, the touring squad was increased from 16 to 25 players.

In addition to players, coaches, and managers, a team doctor, two physiotherapists, a sports psychologist, a massage therapist, and a strength and conditioning expert accompanied the team. Before leaving the Caribbean, all players were asked to self-isolate for 2 weeks and monitor their temperatures. All had a negative PCR test within a week of leaving. On arrival in Manchester and were transported by dedicated buses into the Bubble and underwent a COVID-19 test instantly. The entire squad had tests performed every week with the proviso that if more frequent testing was required for any person it would be available.

The hotel had areas sealed off where players were confined. For the first 2 weeks, clusters of three or four persons with different skill sets were allowed to co-mingle. Though the risk of them having COVID-19 was extremely low, it was felt that were a cluster to get infected, they could be isolated without affecting the rest of the squad. However within the cluster individuals could interact, maintaining social distancing. Meals were initially delivered to the rooms within the 2-week quarantine period and training was limited to each cluster. A Team room and a Games room were outfitted for use after the quarantine period. This would be the sole areas of entertainment outside of the cricket ground.

At a remote area of the hotel, rooms were fitted with external ventilation, in case a member of the squad should exhibit symptoms of COVID-19. Additionally, green zone hospitals (which did not cater to patients with COVID-19 and only saw patients who had confirmed negative tests, tended to by COVID-19 negative tested staff) were

identified were a player to require external medical help. These hospitals would also serve were there a need to hospitalize any member of the touring party. Players would leave in full personal protective equipment (PPE) if they were to access these facilities. Happily, this was not necessary.

Protocols were set up if any person needed to leave the Bubble. Low-risk areas would require a PCR test on re-entry, isolation for 5 days, and a test done thereafter. If both tests were negative the person could re-join other members within the Bubble. If they went to areas with a high risk of infection, that period was extended to 7 days.

The team was able to practice and play practice games within this Bubble setup. All members of the culinary staff and housekeeping in the hotel were tested but did not reside in the Bubble. They wore requisite PPE and maintained a distance from members of the squad. Despite this, the players had weekly tests to ensure they were negative. After the quarantine period, the squad used the further 2 weeks to intensify their preparation.

The First Test was played in Southampton and the team traveled from Manchester in three buses, which enabled adequate distancing of members of the squad. Southampton was selected because that venue also contained a hotel. For 2 weeks before the arrival of the West Indies Team, the English team had assembled and were themselves isolating in their dedicated section of the hotel, as did Match Officials and the Press.

The Test Match was played without spectators and without anyone entering or leaving the Bubble. At the end of the Test match, both squads and all other personnel were to transfer back to Manchester where the next two test matches would be played. The hotel allocations were similar to those in Southampton. The West Indies team traveled in several coaches, but the English players were allowed to drive their cars to the grounds. One of their players briefly detoured, which caused him to go into isolation for 5 days and miss the second Test Match.

Weekly tests continued and no member of the squad tested positive. Following the Third Test match at the same venue, they returned via charter to Antigua and then had fought for their individual countries. Most players had to then entered a 2-week isolation period in their home countries where the rate of COVID-19 infections remained very low, as mandated by the respective Ministries of Health.

CARIBBEAN PREMIER LEAGUE

The CPL was initially scheduled to start in late July but was pushed back to the middle of August to facilitate planning. It traditionally takes place in six or seven different countries with teams crisscrossing from one territory to another. In the 2020 version, it was clear that the entire competition would have to be played in one country and Trinidad and Tobago was selected. Trinidad had not seen any COVID-19 cases for over 80 days, and its borders remained closed since March 2020. Apart from six teams, match officials, media, management, broadcasters, and technical staff were also in the Bubble. Over 220 people were involved, emanating from 18 countries. They were stratified into those from the Caribbean who were considered low risk, and those from outside who was considered a higher risk.

Planning took place in conjunction with the Ministry of Health and the Government of Trinidad and Tobago, and two playing venues were identified. As neither had hotels on their premises a hotel that allowed exclusivity for the CPL Bubble was selected.

All persons had to maintain a 2-week temperature check and had to do COVID-19 testing just before departure. In this process, three persons who were all asymptomatic returned positive COVID-19 tests. They were excluded from travel, and two other players who were in close contact with one of these persons were likewise excluded. Whereas these persons could have been considered a week later with two negative tests, with no flights into Trinidad they would be unable to join the cohort. Caribbean players were picked up by two charter flights and flown into Trinidad. All non-Caribbean participants assembled in St Lucia and Barbados, where airports were open. A separate chartered plane then brought these persons into Trinidad. All documents were processed on the plane and everybody was transferred from their respective flights into busses which carried them straight to the hotel.

All persons went to their individual rooms where they remained in quarantine for 2 weeks. Caribbean persons were allocated rooms on separate floors from the non-Caribbean personnel. For the first week, there was no movement allowed outside of the room and temperatures were checked twice a day. COVID-19 tests were performed on arrival, after 7 and 14 days.

After the second negative COVID-19 test result (day 8), persons were allowed to move in clusters of four persons to allocate "hot zones". These were well ventilated open areas inclusive of Team rooms, gym area, and terraces. This allowed persons to interact and start conditioning work outside of their rooms. With the competition scheduled to start 2 days after the end of the quarantine period, it was necessary to accommodate training for the teams also after day 8.

A separate facility, which was secure and isolated, was selected. It was important to ensure that there was no contact between the ground staff and the players. Hence, pitch and field preparations were done before teams arrived, and with two teams scheduled for each day, preparations were also done after the departure of the first team and at the end of the day. Teams were advised to travel in training attire and keep their bags outside of the dressing room. Dressing rooms were only available for bathroom purposes. When the teams finished training, they took all their contents with them and the dressing room was sealed; the second dressing room was then opened for the second team. At the end of the day, both dressing rooms were fumigated and then cleaned by persons wearing the appropriate PPE. Were covers needed to be brought on the grounds due to rain while players were still in the vicinity, the ground staff would don PPE. Buses remained sanitized at the hotel but the drivers were not in the Bubble. However, they would don hazmat suits with full PPE while at work.

Included in the Bubble were television technical staff, who were required to outfit the playing venues with television equipment. During the second week, they too could enter the grounds, once it had been cleared of any local personnel and areas were sanitized.

Toward the end of the first week, it was clear that players were not able to cope with complete isolation within a room, and with all players testing negative, the hot zones were opened 2 days earlier to allow for individual training in the fresh air.

The senior author was Tournament Chief Medical Officer, embedded within the Bubble and another medic doubled up as a compliance officer especially at the grounds. Provisions were made to tend to medical requirements outside of the Bubble in pre-assigned green zone facilities. Minimal contact was maintained in these facilities, and players were kept in isolated areas. Two players

required surgical procedures; multiple dental referrals and imaging investigations were also done.

Rooms were identified within the hotel to isolate persons who may exhibit symptoms of COVID-19. These did not need to be utilized. Had anyone returned a positive test, they would be transferred to the Government facility.

The initial 14-day quarantine period was imposed by the Ministry of Health with the understanding that after this time and with three negative tests, the Bubble would be lifted. However, cases of community spread started to rise in Trinidad and Tobago, and there was a reversal in approach. It was now imperative to keep people within the Bubble protected from the community and the Bubble had to be extended for the entire tournament. Persons could intermingle within the hotel but were not permitted to leave. No visitors were allowed into the hotel. Food was permitted to be ordered in batches from designated providers. All packages were sanitized before entry into the hotel. Masks were worn in common areas and all hotel workers maintained social distancing with appropriate PPE.

Local Trinidadian players entered the Bubble on day 14, having had two negative tests in the preceding week. Once they entered the Bubble they were not allowed to leave.

The playing venues likewise maintained separation with local media isolated to one area and media within the Bubble to another. Players and match officials did not interact with any local staff. The grounds staff waited for players to move to one end of the field while they approached from another during breaks in play. No spectators were permitted to any game and this enabled the Bubble to be maintained, within the hotel, at the playing venues, and the training facilities throughout the competition (water in glove). All persons had their temperatures checked daily. This included those outside of the Bubble, who had separate entrances at the facilities.

During the competition, the Regional Antidoping Agency had to conduct tests. Their officers were tested and asked to self-isolate for 5 days before retesting them. Once both tests were negative, they were allowed to enter the Bubble in Hazmat suits and full PPE. They were facilitated in a testing room at the hotel and players were taken to them, where they were informed of the impending test.

All players leaving Trinidad and Tobago underwent a final PCR test within 48 hours of departure. No cases of positive tests were recorded throughout the competition.

This represents a report on the first two Biosecure Bubbles in Cricket since the onset of the COVID-19 Pandemic. Both were successfully completed without any COVID-19 cases. During this time, there have been other bubbles in many sports; the National Hockey League and National Basketball Leagues in North America have used a "water in glove" Bubble, as had the Indian Premier League of Cricket in Dubai. All have incorporated advanced tracking systems like the Oura ring which records movements and contacts of persons within the Bubble.^{4,7} However, the principles of athlete education, extensive, repeated testing, social distancing, and hygiene along with adequate PPE within a Bubble remain the tenets of success.

We highlight the differences and adaptations needed in response to the venues and circumstances, that changed dramatically in the CPL. Whereas we recognize that playing within a Bubble is likely to be the way forward for the near future, we must emphasize the mental toll this places on all in the Bubble.

Separation from family, friends, and fans, affects the mental health of all. Though attempts to alleviate this through games rooms, sports psychologists, and activities, it has a cumulative effect that needs to be considered as players move from Bubble to Bubble. That some players would be moving to their third consecutive Bubble over 6 months means no personal contact with people outside the Bubbles over this period. The mental toll may override the physical toll as time goes on and needs to be mitigated.

The “water in glove” model may lend to the inclusion of more green zones which can facilitate controlled socialization. For example, designated restaurants with controlled movement in and out, recreation activities within members of the bubble at external facilities could serve to break the monotony.

CONCLUSION

Biosecure Bubbles are likely to be the near term future for Sport during the COVID-19 pandemic. The “water in glove” model incorporating multiple green zones may be more practical for most events though the “contained” model is easier to manage. Considerations to Bubble fatigue are important in planning what to include in each bubble.

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