



# FIELDLAB

## EVENEMENTEN

Recommendation Request

REOPENING EVENTS

TYPE II

INDOORS, ACTIVE

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## Management summary

The main goal of Fieldlab Events is to bring the events industry back to the old normal. Fieldlab is a joint initiative from the events sector, united in the EventPlatform and the Alliance of Events Builders and the Government. The programme is supported by the Dutch Ministries of Health, Welfare and Sport, of Education, Culture and Science, of Economic Affairs and Climate and of Justice and Security (*VWS, OCW, EZK and JenV*).

A research programme was developed in order to investigate the possibilities of organizing safe events and collecting data to this end; whilst waiving the 1.5-meter measure. This programme focuses on four different types of events:

- Type I - Indoor events with a passive audience
- Type II - Indoor events with an active audience
- Type III - Outdoor events with an active audience
- Type IV - Outdoor events with an audience that can move around freely (festivals)

This distinction has been introduced so that generic recommendations can be made for the different types of events, taking air quality and visitor dynamics into account. In this document we present the data collected during the Type II pilot events of Fieldlab Events, i.e. the indoor active events.

By means of the earlier tested risk model that has been developed in favour of the Fieldlab Events, a risk analysis has been made for visiting a Type II event.

In collaboration with our research partners Radboudumc, BUAS, TU Delft, UTwente and TNO and supported by parties such as Bureau Franken, Bureau Brandeis, BBA Binnenmilieu and DCM, we have been able to collect relevant data and incorporate it in the risk model.

Based on our data and the risk model, we draw the following conclusions for Type II events.

With the right set of measures in place, Type II events can take place safely, even with high prevalence of SARSCoV-2 or COVID-19. The maximum numbers as indicated in older versions of the roadmap should be replaced with Fieldlab's recommendations. The generic measures, including the 1.5-meter distance, can be substituted within the location by pre-event or access tests and other recommended measures.

TU Delft's risk model demonstrates that the hourly risk at Type II events, during Fieldlabs (measures and pretests), is equal to the risks of social situations at home or home visits (without a test).

The proposal is that Type II events resume as soon as possible, even with a high prevalence, provided that the conditions of the following set of measures are met:

- Rapid test at a decentralized location, close to home
- Rapid test within up to 24 hours before the end of the event
- Use of an app or alternative access control for a negative test result
- Occupancy rate depending on the risk level:
  - In the risk level 'very severe', we would recommend to not have a standing audience
  - In the risk level 'severe', standing audience at a 50% capacity rate is possible, with clear separation into different zones
  - From 'worrisome', 100% occupancy is possible, with other measures
- Use of group separation options based on capacity and the design of the location
- Use of a mask during the movement phase on location
- Active communication with the visitors, in order to share relevant information and to draw attention to compliance with the measures.

Based on the data collected and the risk model, we will demonstrate that these measures, supplemented by the recommendations at the end of this document, do not present an additional risk of an increased spread of the virus or increased hospitalizations for Type II events. These measures are based on the building blocks as applied and described in Fieldlab Events' research approach entitled **Pilots for 'Low-Contact Events'**.

Given the importance for the events sector, we are now submitting the findings and the recommendation request for Type II events. Based on the results of other pilot events, we will make a similar request at a follow-up stage for Type IV events.

We call upon the Dutch ministries concerned to consider this document with the results and the proposal and to submit it to the OMT within the shortest possible delay for it be assessed or to have it broadly evaluated, including societal considerations and the consequences of implementation on a large scale.

Steering Committee and Programme Team

Fieldlab Events

## Type II events

This document relates to the events described in **Pilots for 'LowContact Events'** as Type II, Indoor Active.

These are events that take place at an indoor location, where the public behaves enthusiastically, pleasantly or exuberantly and mainly experiences the event from one fixed seat or standing place.

For the purpose of researching the options for organizing this type of event in a safe, responsible, but also economically viable way, two pilot events were set up:

- March 6th – Dance Event in Ziggo Dome in Amsterdam
- March 7th – Concert by André Hazes in Ziggo Dome Amsterdam

At the time of the pilots, the risk level was 'very severe' with a prevalence of above 250 per 100,000.



## Demand for events

As the survey conducted in September 2020 already showed, there is a strong demand for events<sup>1</sup>. 97.5% of visitors wants to go to entertainment events again. Eight in ten indicated that they wanted to go to an indoor concert or festival, a Type II event, again.

With more than 160,000 requests for the available tickets for the Type II events, it became clear how strong that need is. These results show how important entertainment is to society and that it is part of the essential necessities of life.

The visitors that went to the events rated their experience at the event with an average of **8.7**, whereby letting go of the 1.5 meters during the event does not seem to be a problem and is rated with an **8.9**. This shows that people quickly feel safe again within 1.5 meters.

## Safety Measures

A number of precautionary and safety measures were introduced in order to make these pilots possible. These consist of:

- PCR test in advance, up to 48 prior to the event
- Triage questions
- Temperature readings
- Group size limitations (in six bubbles)
- Events logistics (good in- and outflow and separation of the bubbles)
- Rapid test on location (also logistics research) in 1:10 ratio
- PCR post-test on day 5 after the visit to the event
- Refrain from visiting vulnerable groups for up to 10 days after the event, or until in receipt of a negative test result on day five
- Exclusion of vulnerable groups
- Request installation of CoronaMelder app.

In the pre-tests (PCR conducted at a maximum of 48 hours before the event or rapid test on the day of the event), approximately 0.59% (18 visitors) of the visitors tested positive.

<sup>1</sup> See Appendix 1 – Survey results  
Versie dd. 30 april 2021

Event	Pre-tests	Positive	Indetermined	Post-tests	Positive	Rapid tests
6-3	1.589	11	0	1.328 (84%)	8	143
7-3	1.489	7	0	1.275 (86%)	6	169

There were no positive cases in the on-site rapid tests.

The PCR post-test was also introduced to measure the visitor's willingness to test. The PCR was carried out among approx. 85% of the visitors afterwards<sup>2</sup>. The fact that this result is achieved, despite the fact that there are only four test locations available for the visitors, for one half-day session, to undergo this test, presents a very positive picture of the willingness to test. In order to have a complete picture of the positive indexes, the notifications via the GGD have also been included in the overview.

In the pre-tests, 0.69% and 0.47% of people tested positive, respectively. From the 14 people with a positive test result after the event (from a test on the day of and the GGD), source and contact research has shown that 4 infections are possibly related to the event.

## Building blocks

As can be seen in the research plan drawn up for these pilots, research was carried out into the following building blocks for the pilots.

1. Behaviour
2. Triage, Tracking and Tracing
3. Visitor dynamics
4. Air quality
5. Personal protection
6. Cleaning and disinfection of surfaces and materials
7. Vulnerable groups
8. Rapid tests

For each building block, we investigated how data can be collected that contribute to improving the risk model.

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<sup>2</sup> See Appendix 2 – test results Type II events.

## Classification and measures bubbles

In this pilot, we work with six bubbles:

Bubble	Number of persons	Masks	Catering	Seating	Seating placement	Rapid tests	Arrival
1	250 (100%)	Mask Continuous	Before Intermission Afterwards	Standing	Self 3 pers/m2	Yes, minimum 1:10	15.00
2	250 (75%)	Mask In Motion	Before Intermission	Standing	Enough space for 1.5 meters		14.45
3	250 (50%)	Mask Continuous	Before Intermission	Standing	Pre-designated spaces		15.30
4	250	Mask Continuous	Continuous	Sitting	Placed	Yes, minimum 1:10	14.30
5	250	Mask In Motion	Before Intermission	Sitting Standing in place	Placed		15.15
6	50	None	Continuous	Standing or sitting	Arrange it yourself	Yes, minimum 1:10	15.00

## Behaviour

For this building block, research focused on whether people adhere to the prescribed measures.

### Research question

- Compliance regarding the question: "Does the visitor keep his/her mask on?"

### Result

In the setting where people were closest to each other, this question was not followed up. The mouth-nose masks were very quickly taken off and for almost the entire event kept off. It was striking that when people went to facilities such as catering or the bathroom, the mask was worn.

### Recommendation

- Given the lack of compliance at this type of event and the impossibility of enforcing this when the concert is going on, it is recommended that masks be made mandatory at this time when in motion (walking from and to catering, entrance and exit, wardrobe and bathroom) and to use active reminders for this.

## Triage, tracking and tracing

For the triage, tracking and tracing building block, research focused on whether good triage could prevent people from coming to the event whilst infectious and how people with a positive test result afterwards can be found post event.

### Research questions

- Can we ensure that each visitor registers individually for source and contact research (*BCO*) afterwards?
- How can a health check based on RIVM triage questions take place most efficiently?
- What result does a temperature reading (37.5 degrees) have at the entrance?
- How large is the percentage of visitors who are refused access to the event as a result of:
  - The pre-test (PCR) in the 48 hours before the event?
  - The results from the health check?
  - The rapid test conducted on site?
  - The temperature reading upon entering?

During the design of the Fieldlab pilot events, several focus areas were added:

- What is the legal framework for exchanging data for source and contact research?
- What readings or data are important to test on-site infectiousness?
- Can we persuade visitors to install the Corona Melder app?

We deal with these aspects in the recommendations.

### Results

By setting up ticket sales and registration correctly, we ensured that we had contact details of all individuals. The starting point is that one person can purchase multiple tickets but will then personalize the tickets for communication on an individual basis. Adding an app (in the case of the pilots the Close App) to establish the communication on an individual basis served to facilitate this. For both Type II events, 99% of the visitors installed the app.

- 99% of all visitors for both Ziggo Dome events install the communication app
- 100% of visitors are individually registered (including staff)

A health check based on the triage questions took place via the communication app four hours prior to the event. Due to privacy legislation, the data of the answers are not stored. The question is repeated at the entrance. In both cases, no visitors are known to have pulled out based on the triage questions.

- Health check by triage questions 0% cancellations at the entrance.

The temperature check took place by means of entrance pillars. No visitors with raised temperature were found.

- Based on the temperature readings, no visitors were refused entry.

Cancellation rates based on:

- Pre-test: 18 out of 3,078 tests for both Ziggo Dome events (**0.48%**)
- Health check at the entrance: 0 people
- On-site rapid tests: 0 positive tests



- Temperature reading on entry: 0 people

## Recommendation

### Triage

2. Given the fact that the percentage of positive tests among asymptomatic visitors to Type II events comes down to 487 per 100,000, which is a lot higher than the incidence estimated by the RIVM, access tests prior to an event should be made a requirement. The advice is to include a rapid test close to home in the customer journey at high risk levels, to ensure a protective effect on the travel movements.
3. In the customer journey, the triage questions at about four hours before the event work as a reminder to make an informed choice whether or not to travel. We recommend this as part of the communication with the visitor.
4. Triage questions at the event itself and temperature readings do not detect infected persons. Rather, they are found to have a counterproductive effect, by causing congestion in the influx of visitors and thus generating additional contact moments. Working with passive reminders seems sufficient in this respect.

### Tracking

5. Outside the scope of a research study, it is not permitted to track visitors to conduct a very detailed BCO, in the event of a possible contamination<sup>3</sup>. We therefore recommend beginning with the separation options that locations naturally offer in order to be able to sub-divide into smaller groups within the proposed maximum capacity.
6. By making it clear to the visitor which subcategory he or she belongs to, the BCO can be limited to that subcategory in the event of a contamination and not all visitors need to be contacted.

### Tracing

7. A call to download the Coronamelder app leads to an increase from **57%** to **83%** of the visitors who have downloaded this app<sup>4</sup>. We would encourage this when communicating with visitors, to simplify BCO.
8. As a precautionary measure, another PCR test was carried out on day 5 after the Fieldlab pilot events. This resulted in 14 positive indexes, of which four of these are possibly related to the event. Eight positive indexes were found to be old infections based on BCO. Extensive BCO also indicated that other sources of the possible contamination probably lay elsewhere<sup>5</sup>. We advise you to discuss a protocol with the national GGDs that includes: Ask about visits to events, including the visitor's 'bubble/subcategory'. Check for CT values related to old infections. Events organizer offers local GGD to email visitors in support of BCO. The basis for this protocol has already been developed by GGD and Fieldlab Events in collaboration with RIVM and GGD Amsterdam. Event organizers must be facilitated to be able to contact visitors at the request of the GGD for BCO.

<sup>3</sup> Research privacy Bureau Brandeis commissioned by Fieldlab events

<sup>4</sup> Research data Close communication app

<sup>5</sup> Appendix 2 – Report Radboud UMC – Test results Type II events

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## Visitor dynamics

For the visitor dynamics building block, the study centered on how many contact moments are created when visiting a Type II event, and the duration and distancing involved. To be able to test different methodologies, a classification in bubbles<sup>6</sup> was used, which looked at differences in:

- Inflow and outflow processes
- Seating configurations
- Use of catering

The study was conducted by BUAS, support by Bureau Franken and video analysis by DCM. Each visitor is equipped with an Ultra Wide Band tag, which continuously stored the distance, duration and number of contacts with other visitors.

## Research questions

- How does the visitor arrive at his/her allocated seat?
  - How much contact is there with others?
  - Is everyone in their own seat?
- What are the contact moments and what is the contact duration?
- What are the contact dynamics?
- Do the prevention measures work?
  - Routes and arrowing
  - Does the stimulation of desirable behaviour work?

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<sup>6</sup> Appendix 3 - Bubble layout at the time of the research  
 Versie dd. 30 april 2021

## Result

### Dance event

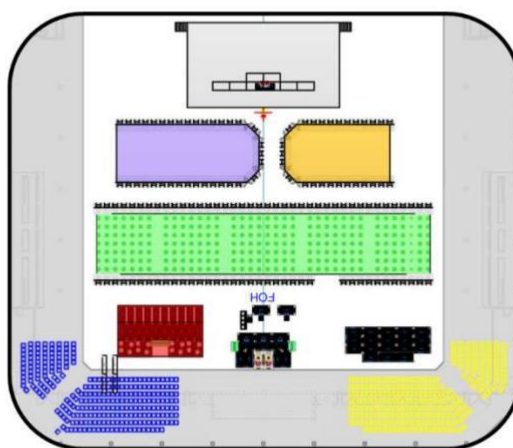
The visitors were divided into six bubbles, of which the most important characteristics are shown here.

<b>Bubbel 2</b>	<b>250 p</b>
Mondkapje	Continue
Horeca	Continue
Zitplaats	Staan
Placeren	Voldoende ruimte voor 1,5 meter afstand
Sneltesten	Nee

<b>Bubbel 6</b>	<b>50 p</b>
Mondkapje	Geen
Horeca	Continue
Zitplaats	Staan of zitten
Placeren	Zelf regelen
Sneltesten	Nee

<b>Bubbel 5</b>	<b>250 p</b>
Mondkapje	In beweging
Horeca	Continue
Zitplaats	Staan op plaats of zitten
Placeren	Geplaceerd, 2 stoelen afstand, dambord
Sneltesten	Nee

## Ziggo Dome events



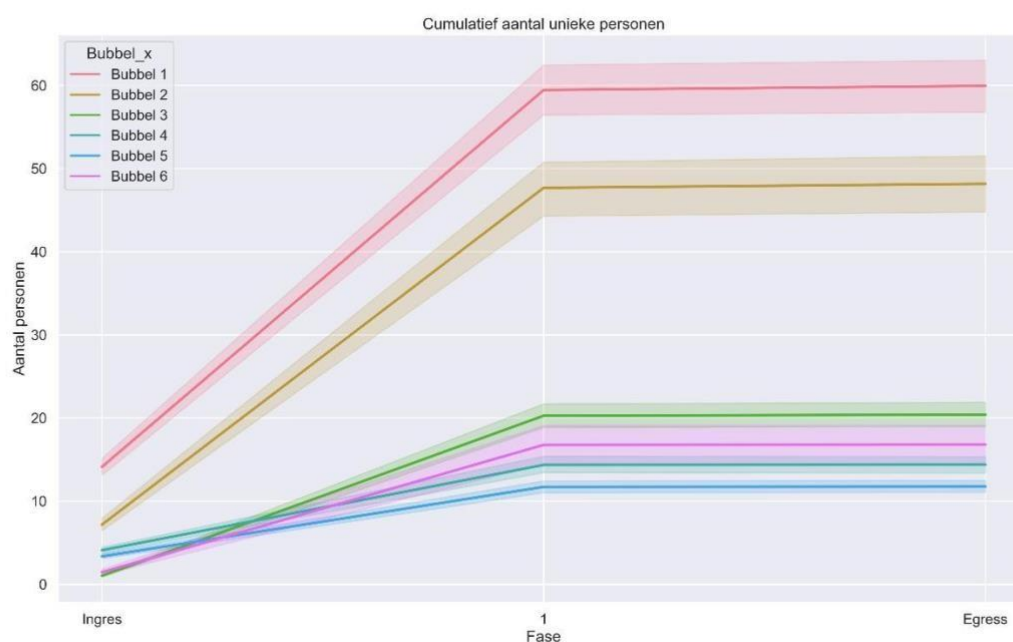
<b>Bubbel 1</b>	<b>250 p</b>
Mondkapje	Continue
Horeca	Continue
Zitplaats	Staan
Placeren	Zelf, 3 pers/m²
Sneltesten	Nee

<b>Bubbel 3</b>	<b>250 p</b>
Mondkapje	In beweging
Horeca	Continue
Zitplaats	Staan
Placeren	Aangewezen stippen
Sneltesten	Nee

<b>Bubbel 4</b>	<b>250 p</b>
Mondkapje	Continue
Horeca	Continue
Zitplaats	Zitten
Placeren	Vrij
Sneltesten	Ja



The number of long-term contacts (>15 minutes cumulative) at a short distance (<1.5 meters) that the visitors had on average is indicated below per bubble. Note that the color per bubble differs from the scheme above.



What is striking is that, although compliance with the dots was not great based on perception, there is a dampening effect of providing a larger space to the standing visitors.

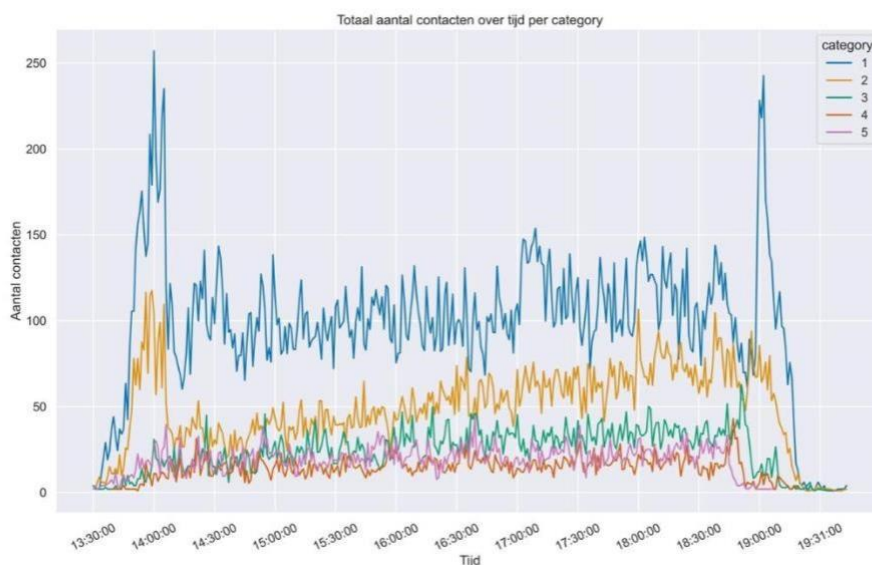
This offers a starting point for making standing places with sufficient space possible at higher risk levels.



*Standing area with dots at the start of the event.*



*Standing area with dots at the start of the event.*

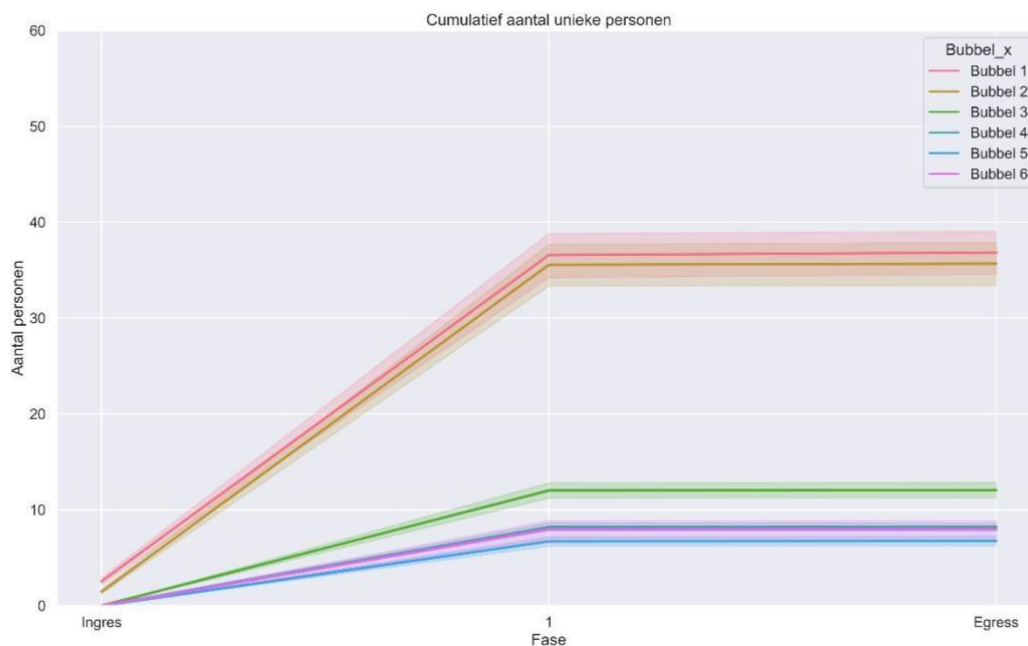


Finally, it is striking that the number of short contacts, despite the strict bubble separation, peaks at entry and exit.

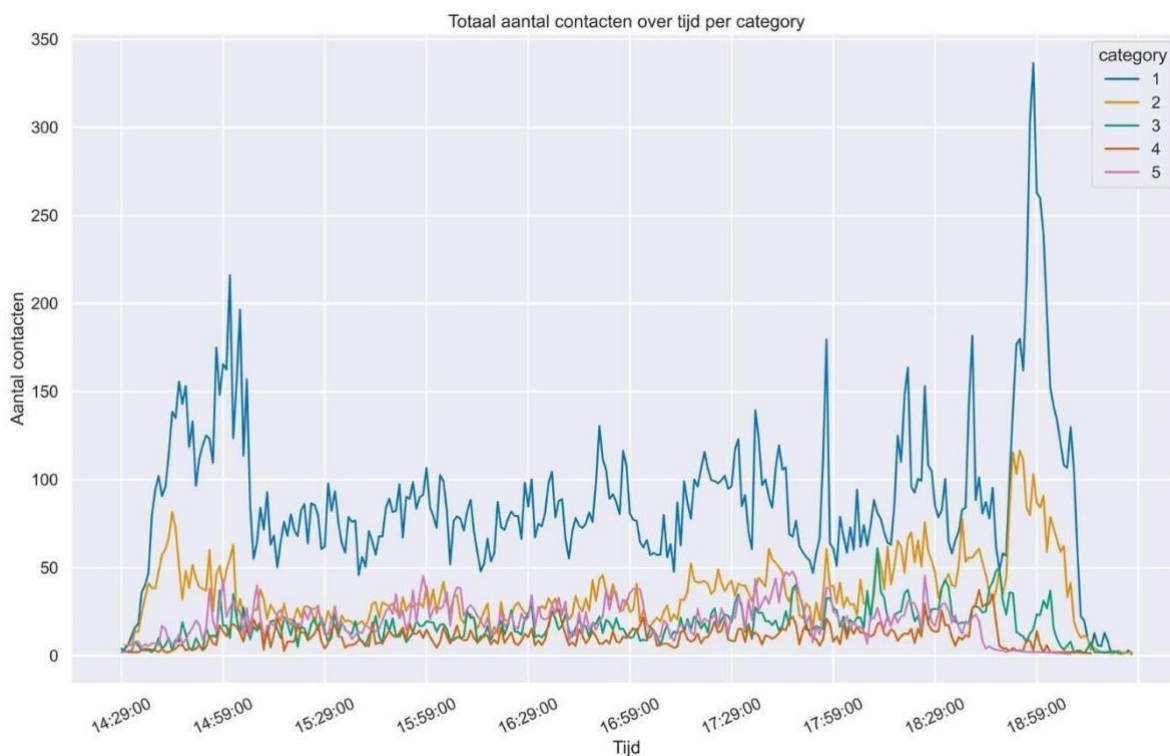
*Concert Ziggo Dome*  
Versie dd. 30 april 2021

The division into bubbles was identical to the dance event.

The average number of longer contacts (> 15 minutes cumulative) at a short distance (<1.5 meters) shows an identical image as the dance event. However, it is noticeable that they are a factor of 1.5 lower than at the dance event.



At the concert, it is striking that the number of contacts over time is much more erratic than at the dance event, where there is a more gradual increase over the entire event. This is due to the structure of the events: a gradual build-up compared to the support act and peak moment at the concert.



## Recommendation

9. Based on the results, we recommend making a distinction between risk levels.

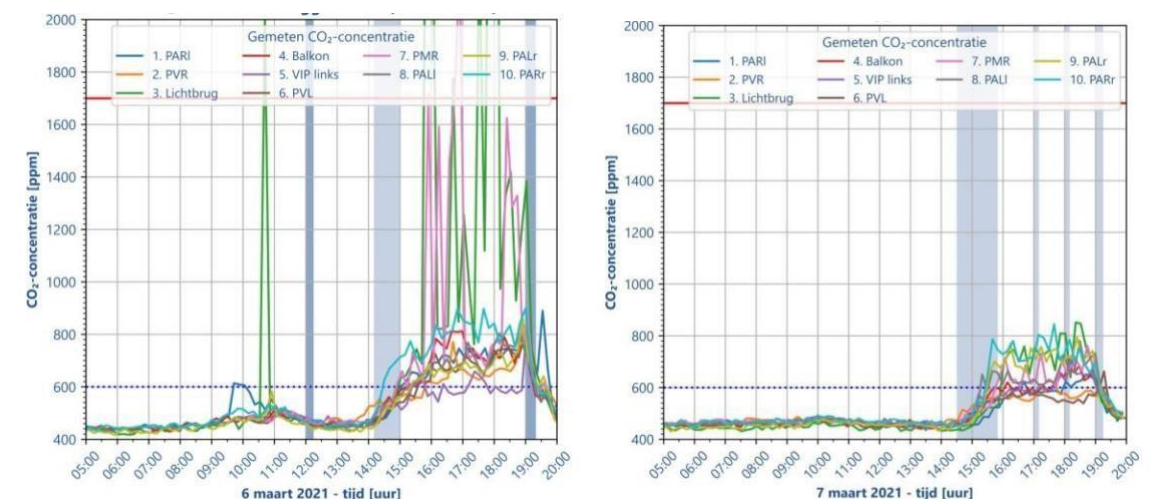
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- a. In the 'very serious' risk level, we would recommend not to use a standing audience.
  - b. At the risk level 'serious', a standing audience is possible at a 50% capacity rate, with clear divisions in zones for standing audiences.
  - c. When the risk level is 'worrisome', 100% occupancy is possible, with other measures, as outlined in our proposal for the different phases of the opening plan.
10. In the high prevalence phase, we recommend not to create spaces where people stay longer prior to the show, to ensure that they move quickly towards the grandstand / standing area. By subsequently keeping catering open, you can ensure a good spread of visitors. Given the fact that a visit to catering will make little difference in the number of risky contact moments, no additional measures are necessary here.

## Air quality

For the air quality building block, the influence of the presence of visitors on CO<sup>2</sup> values in the Ziggo Dome was researched. The starting point is the ventilation guideline of 24m<sup>3</sup>/hour per person.



As can be seen in the report of BBA Binnenmilieu<sup>7</sup>, the standard has remained well within the norm. With the use of CO<sup>2</sup> cannons at the dance event, peak scan be seen in the observations, but these do not have a negative effect on safety.

## Personal protection

For this building block, research was conducted into the effect of a mask on the event experience and the influence on the emission and inhalation of aerosols in an event environment. The research was conducted by BUAS and DCM and focused on compliance and experience. In addition, research has been conducted into aerosol dispersion in talking and singing by the University of Twente<sup>8</sup>

<sup>7</sup> See Appendix 6 – Report BBA Binnenmilieu

<sup>8</sup> See Appendix 7 – Report Universiteit Twente  
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## Research questions

- How does the visitor experience wearing a mask?
- Use of disinfection at entrance and impact on flow?
- What is the aerosol dispersion for different settings and what effect do the different personal protective equipment have on this?

## Result

### Mask

The effect of masks was measured by means of a study on the day of the dance event, with a separate group of people, by the University of Twente.

The findings of this study:

- Most drops fall to the ground within 1 meter
- No drops were found on the upper body of person at a 0.5-1 meter distance
- Drops were found on 'touch' surfaces
- Masks are effective in preventing droplet spreading
- 'Drink' activities make masks less effective

Different variants were used in the bubbles. Three bubbles were asked to wear their mask throughout the entire stay, the other bubbles only wore a mask when moving around.

	Very negative	Negative	Neutral	Positive	Very positive
Entire stay	9%	34%	48%	6%	2%
On the move	2%	12%	69%	15%	2%

It is noticeable here that the group that had to wear their masks during the entire stay has a much more negative experience than the other group.

### Disinfection

The use of disinfection is 100% enforceable for smaller locations with fewer visits by using an entry procedure in which this is mandatory. However, this results in a delay at the entrance and can lead to additional contact moments when entering the event.

### Face shield

The survey conducted in September 2020 by Radboudumc found that 49% of visitors turned down the face shield, while 76% accept the mask as an option. That is why we have not taken the face shield into account as an option.

## Recommendation

11. Masks influence the aerosol dispersion and should therefore be made mandatory in the movement phase. Given that they are hardly used in the most active phase, during the show itself, and that it is not easily enforceable, we would recommend letting this phase be free.
12. Based on the results, we recommend that disinfectants be made available at the entrance of the event and at various locations in the building. However, due to the flow and chance of increasing contact moments, we would not make this mandatory at, for example, the entrance of the building.

## Cleaning and disinfection of surfaces and materials

No research was conducted on this subject in the Type II pilots.

## Vulnerable groups

Vulnerable groups were excluded from participating in Type II events. However, this is the type of event that the 70+ age group would normally attend.

### Recommendation

14. Given the fact that it is not yet 100% certain whether a vaccinated person is still able to transmit the virus, we recommend that a test also remains a requirement for vaccinated persons.
15. If a person from a high-risk group has not been vaccinated, we advise him or her to exclude him-/herself from attending events with high prevalence.

## Rapid testing

For the building block of rapid testing, a percentage of visitors are subjected to a rapid on-site test to analyze the logistics of testing. This investigation was carried out by the Rapid Testing Task Force. A comprehensive report can be found in the final report prepared by the Task Force<sup>9</sup>.

### Research questions

- Is the rapid test logistically deployable?
- Are there any discrepancies between rapid test results and negative PCR tests?
- How do visitors react to the test and a potentially positive test result?

### Result

The deployment of on-site rapid testing is only limited. The fact that people have to keep a distance of 1.5 meters until the moment that the result is known means that almost all locations can only use this option on a very small scale. An additional disadvantage is that visitors have already travelled when they have a rapid test carried out on location. In the event of a positive test, they must make the return journey again before quarantining. The rapid test results did not yield any positive tests and therefore showed no deviation from the PCR tests carried out 48 hours earlier.

The people who had to undergo a rapid test rated it with an 8.9. The sense of security is clearly appreciated. Almost 9 out of 10 visitors to the theatre performance are willing to have themselves retested in advance for each event, with a clear preference for a rapid test<sup>10</sup>.

### Recommendation

16. Based on the results, we recommend the decentralized organization of rapid tests. It must be possible for the visitors to be tested as close to home as possible. An important reason being the avoidance of unnecessary travel in the event of an infection. In this way, the capacity can also be more evenly spread, and this does not affect the logistics or visitor flows at the location of the event.
17. On location or in the immediate vicinity, we recommend a rapid test capacity, so that in extreme cases there is an opportunity to test someone who must enter the event unexpectedly, or where the result is not available.

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<sup>9</sup> See Appendix 4 – Endreport Taskforce Rapid tests

<sup>10</sup> See for both results – Appendix 1 Survey results RadboudUMC

*Versie dd. 30 april 2021*



Based on Track 2A, this rapid test capacity combined with the controlled environment of a Type II event would soon create an opportunity for these events to resume.

## Risico analysis model

Ultimately, the research in the Fieldlab Events pilots revolves around answering the main question: "How do we reduce the residual risk that arises from events?"

### Impact of building blocks on risk

TU Delft has developed a risk analysis model<sup>11</sup> for this purpose, which answers this question based on the building blocks. To this end, the impact of the building blocks on contamination risk and hospitalization risk per hour was initially compared to the BCO setting 'at home'.

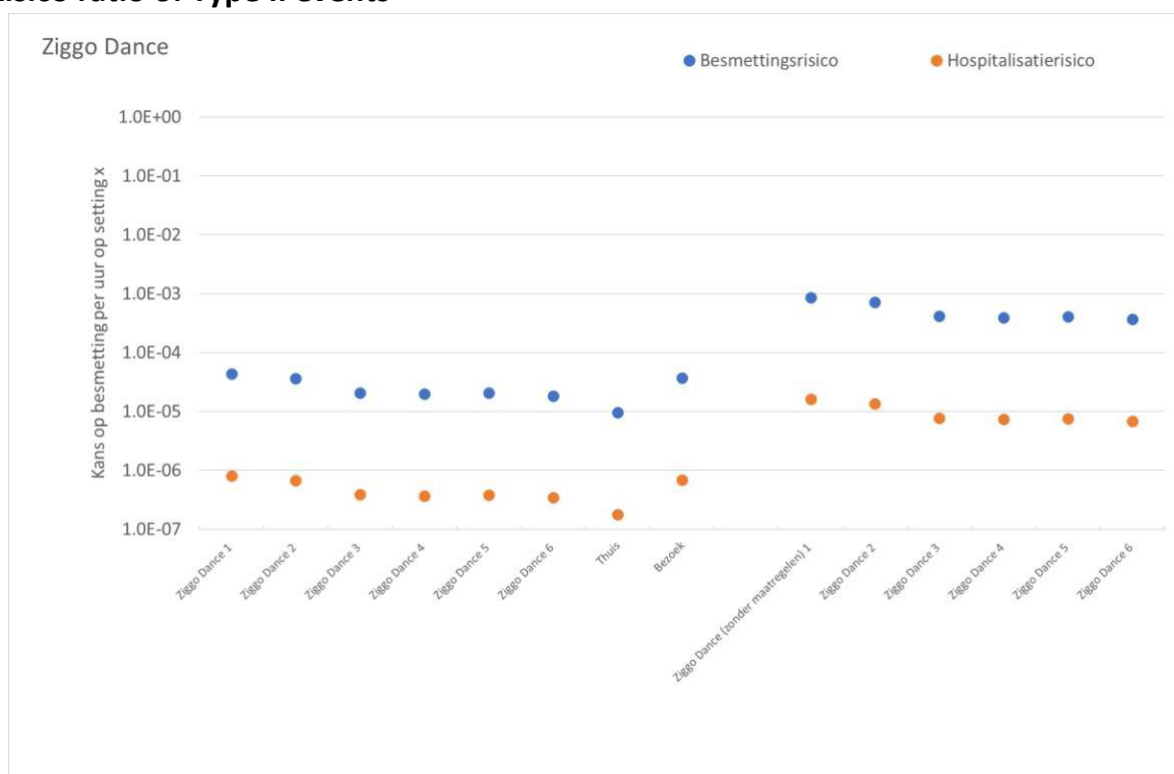
#### Result

The risk model shows the impact of the building blocks and measures taken during the events on the risk of contamination and hospitalization per hour. Whilst there is a significantly higher risk at an event without any measures, with a factor 37 to 87 compared to the hypothesis, there is a significant improvement with the measures.

The greatest impact is achieved by a high-quality rapid test, with additional impact of intelligent design and logistics of the event, where good in- and outflow is possible, and adequate ventilation or fresh air.

Based on the current risk model, the value of the BCO setting at home in the incidence that matches the risk level 'very serious' / lockdown is not reached anywhere. In the more passive bubbles, where the audience has a seat or remains standing far apart from others, the range is reached.

### Risico ratio of Type II events



<sup>11</sup> See Appendix 5 – TU Delft Risk model  
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Figure 1 Expected contamination and hospitalization risk for Ziggo Dance on a logarithmic scale compared to home and visitors at home and a situation without any measures.

Results Ziggo Dance	Contamination risk	Hospitalization risk	Infections per 100,000 people per hour
Ziggo Dance 1	4.3E-05	8.1E-07	4.3
Ziggo Dance 2	3.6E-05	6.8E-07	3.6
Ziggo Dance 3	2.1E-05	3.9E-07	2.1
Ziggo Dance 4	2.0E-05	3.7E-07	2.0
Ziggo Dance 5	2.1E-05	3.8E-07	2.1
Ziggo Dance 6	1.8E-05	3.4E-07	1.8
Home	8.82E-06	1.64E-07	1,0
Visitors	3.44E-05	6.14E-07	3.7
Ziggo Dance (without measures) 1	8.7E-04	1.6E-05	86.5
Ziggo Dance (without measures) 2	7.3E-04	1.4E-05	72.6
Ziggo Dance (without measures) 3	4.2E-04	7.7E-06	41.6
Ziggo Dance (without measures) 4	4.0E-04	7.4E-06	39.5
Ziggo Dance (without measures) 5	4.1E-04	7.6E-06	41.0
Ziggo Dance (without measures) 6	3.7E-04	6.9E-06	36.9

Table 1 Expected infection and hospitalization risk for Ziggo Dance and the number of infections expressed per 100,000 visitors per hour

	Average contacts near per hour	Average contacts far per hour	Contamination from nearby (large droplets)	Contaminations from afar (small droplets)
Ziggo Dance 1	15.9	43.6	70%	30%
Ziggo Dance 2	12.4	42.2	66%	34%
Ziggo Dance 3	5.9	31.9	55%	45%
Ziggo Dance 4	6.1	27.2	59%	41%
Ziggo Dance 5	6.0	30.8	56%	44%
Ziggo Dance 6	5.3	28.2	55%	45%

Table 2 Contacts (per hour) near and far and the contribution of contacts near and far in the number of Ziggo Dance destinations.

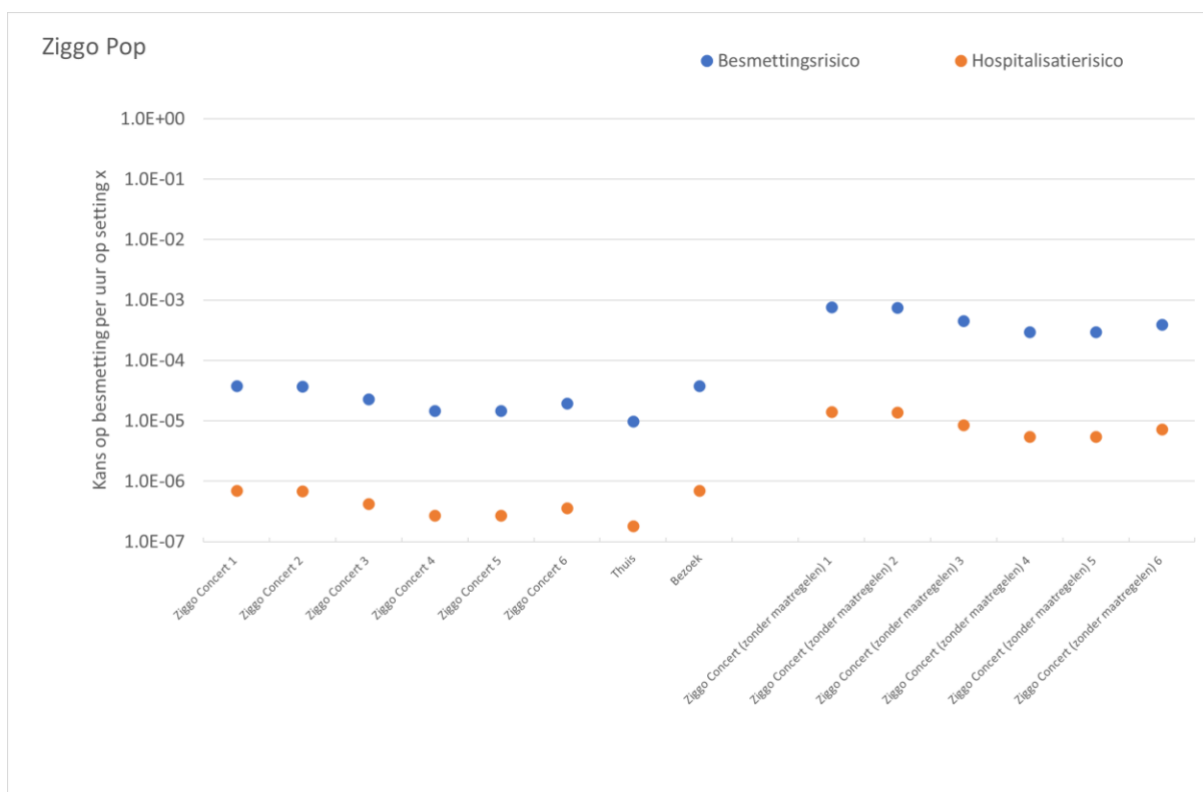


Figure 2 Expected risk of infection and hospitalization for Ziggo Pop on a logarithmic scale compared to home and visit and the situation without measures

Results Ziggo Pop	Contamination risk	Hospitalization risk	Infections per 100,000 people per hour
Ziggo Pop 1	3.8E-05	7.1E-07	3.8
Ziggo Pop 2	3.7E-05	6.9E-07	3.7
Ziggo Pop 3	2.3E-05	4.2E-07	2.3
Ziggo Pop 4	1.5E-05	2.7E-07	1.5
Ziggo Pop 5	1.5E-05	2.7E-07	1.5
Ziggo Pop 6	2.0E-05	3.6E-07	2.0
Home	8.82E-06	1.64E-07	1,0
Visitors	3.44E-05	6.14E-07	3.8
Ziggo Pop (without measures) 1	7.6E-04	1.4E-05	76.1
Ziggo Pop (without measures) 2	7.4E-04	1.4E-05	74.2
Ziggo Pop (without measures) 3	4.5E-04	8.5E-06	45.4
Ziggo Pop (without measures) 4	2.9E-04	5.5E-06	29.4
Ziggo Pop (without measures) 5	2.9E-04	5.5E-06	29.3
Ziggo Pop (without measures) 6	3.9E-04	7.3E-06	39.1

*Table 3 Expected infection and hospitalization risk for Ziggo Pop and the number of infections expressed per 100,000 visitors per hour*

	Average contacts near per hour	Average contacts far per hour	Contamination from nearby (large droplets)	Contaminations from afar (small droplets)
Ziggo Pop 1	13.2	40.7	68%	32%
Ziggo Pop 2	12.4	42.8	65%	35%
Ziggo Pop 3	5.8	37.5	50%	50%
Ziggo Pop 4	4.9	17.4	64%	36%
Ziggo Pop 5	4.4	20.1	59%	41%
Ziggo Pop 6	5.2	31.4	51%	49%

*Table 4 Contacts (per hour) near and far and the contribution of contacts near and far in the number of Ziggo Pop destinations.*

## Result

The complete freedom of the public creates an increased risk at both an indoor dance event and an indoor concert. Even though the risk value does not exceed the BCO setting 'Visit', the hypothesis "as safe as at home" is not met. There are clear risk differences between the different bubbles, however. In the bubble with 100% occupation, the risk is higher than 'Visit' at the dance event and equal to 'Visit' at the concert. This clearly does not meet the hypothesis.

## Recommendation

17. Based on the risk model, events are possible, also with the substitution of generic measures, including the 1.5 meters. We recommend using the measures from the building blocks included in the risk model for the organisation of events. Pre-testing, ventilation in accordance with building regulations and intelligent design of the event based on the location provide a sufficiently safe environment.
18. In the case of an indoor concert of dance event, for the highest risk level it can be chosen to not allow a standing audience, making it a Type I event. The risk here is considerably higher than for previously studied events.

## Recommendations

No. and building block	Recommendation
<b>1. Behaviour</b>	Make masks mandatory when in motion (walking from and to catering, entrance and exit, wardrobe and bathroom) and to use active reminders for this.
<b>2. Triage</b>	<p>Mandatory COVID-19 test prior to the event. In case of high prevalence, adhere to the current VWS recommendation of a rapid test up to 24 hours before the end of the event.</p> <p>The advice is to include a rapid test close to home in the customer journey at high risk levels, to ensure a protective effect on the travel movements.</p>
<b>3. Triage</b>	In the customer journey, the triage questions at about four hours before the event work as a reminder to make an informed choice whether or not to travel. This must be part of the communication with the visitor.
<b>4. Triage</b>	Triage questions at the event itself and temperature readings do not detect infected persons. Rather, they have a counterproductive effect, by causing congestion in the influx of visitors and thus generating additional contact moments. Allow these measures to lapse.
<b>5. Tracking</b>	Due to legal restrictions (privacy) on the exchange of detailed personal data, to support very detailed BCO in the event of a possible contamination, it is recommended to assume the separation options that locations naturally offer in order to be able to sub-divide into smaller groups, within the proposed maximum capacity.
<b>6. Tracking</b>	By making it clear to the visitor which subcategory he or she falls into, the BCO can be limited to that subcategory in the event of an infection and not all visitors need to be contacted.
<b>7. Tracing</b>	Routinely urge visitors to download the Corona detector app to simplify BCO, immediately after purchasing an admission ticket.
<b>8. Tracing</b>	<p>Establish protocol with GGD to discuss approach including: Questions about visits to events, including which subcategory the visitor belonged to. Check for CT values related to old infections.</p> <p>Arrangement between event's organizer and GGD to email visitors to facilitate BCO. Event's organizers must have the means at their disposal to be able to easily contact visitors at the request of the GGD for BCO.</p>

<b>9. Visitor dynamics</b>	<p>Make a distinction between risk levels.</p> <ul style="list-style-type: none"> <li>a. In the 'very serious' risk level, we would recommend not to use a standing audience.</li> <li>b. At the risk level 'serious', a standing audience is possible at a 50% capacity rate, with clear divisions in zones for standing audiences.</li> </ul>
	<ul style="list-style-type: none"> <li>c. When the risk level is 'worrisome', 100% occupancy is possible, with other measures, as outlined in our proposal for the different phases of the opening plan.</li> </ul>
<b>10. Visitor dynamics</b>	<p>In the high prevalence phase, we recommend not to create spaces where people stay longer prior to the show, to ensure that they move quickly towards the grandstand / standing area. By subsequently keeping catering open, you can ensure a good spread of visitors. Given the fact that a visit to catering will make little difference in the number of risky contact moments, no additional measures are necessary here.</p>
<b>11. Personal protection</b>	<p>Make masks mandatory in the movement phase. It is an advice, but no reinforcement in the most active phase, during the show itself.</p>
<b>12. Personal protection</b>	<p>Make disinfectants available at the entrance of the event and at various locations in the building. Due to the flow and chance of increasing contact moments, do not make it mandatory at, for example, the entrance of the building.</p>
<b>13. Vulnerable Groups</b>	<p>Given that it is not yet 100% certain whether a vaccinated person can still transmit the virus, a test is also a requirement for vaccinated persons.</p>
<b>14. Vulnerable Groups</b>	<p>As long as a person from a high-risk group is not vaccinated, he/she is excluded from attending events at high prevalence.</p>
<b>15. Rapid testing</b>	<p>Rapid testing to be organized in a decentralized way. Test visitor as close to home as possible. As a result, no unnecessary travel movement is made in case of possible contamination. This way, the capacity can also be deployed in a more even spread and will not affect the logistics or visitor flows at the location of the event.</p>
<b>16. Rapid testing</b>	<p>Rapid testing on site or in the immediate vicinity, so that in extreme cases there is an opportunity to test someone who has to enter the event unexpectedly.</p>

## **17. Risk model**

Based on the risk model, events are possible, also with the substitution of generic measures, including the 1.5 meters. We recommend using the measures from the building blocks included in the risk model for the organisation of events. Pretesting, ventilation in accordance with building regulations and intelligent design of the event based on the location provide a sufficiently safe environment.

In the case of an indoor concert or dance event, for the highest risk level it can be chosen to not allow a standing audience, making it a Type I event..