

abcd Guidance on Risk Assessment – document 2

This is one of three documents published by *abcd* to assist conductors and their choirs in their planning and risk assessments for returning to singing in light of the current COVID-19 pandemic. They are published on our website and all three should be read in conjunction with each other:

1. Practical considerations for choirs and conductors
2. Guidance on Risk Assessment
3. Risk Assessment templates

Separate government guidelines are in place for [England](#), [Scotland](#), [Wales](#) and [Northern Ireland](#). Our risk assessment guidance is applicable to all of them, but you should ensure you read the relevant guidelines for your nation in detail when you make your own risk assessment.

Purpose of this document/preamble

As the conductor, director or manager of a choir you have a responsibility to conduct a risk assessment to ensure that hazards that could reasonably have been foreseen have been identified and minimised. A 'hazard' is defined as "anything that has the potential to cause actual harm" and there are various hazards associated with choral performance and rehearsal that might result in singers getting hurt or ill under normal circumstances. You have an ongoing duty to protect your singers from these. For professional choirs, this is a legal requirement. For amateur choirs, there is an expectation that similar procedures will be followed. At the present time, there is an additional hazard - the SARS-CoV-2 virus. The potential harm that this might cause is such that you must show that you have foreseen the outcomes of the transmission of this virus and taken all reasonable steps to prevent them occurring.

It is not possible to provide a 'copy and paste' approach to this, nor would this be a demonstration that you have thought through your plans with sufficient care. Your organisation needs to take an active part in the risk assessment process through production of a bespoke document that is responsive to:

- The specific nature of your choir
- Changing local circumstances
- Updated government advice/instruction
- New scientific information as and when it becomes available.

The purpose of this document is to help you do that.

Enabling Choral Singing

The purpose of risk assessment is to *enable* choral singing, not to prevent or obstruct it. This is what *abcd* wishes to encourage whenever it is sanctioned by government, albeit with significant restrictions.

Risk should not be confused with fear or precaution

- *Fear* is an irrational response arising from the failure to evaluate actual risk. Responses arising through fear are almost certain to be more risk-averse than they need be.

- *Precaution* is a rational response arising from scientific uncertainty. Precautionary responses may often turn out to have been more risk-averse than they need to have been as scientific understanding increases.
- *Risk* is a rational response based on the most comprehensive scientific information available and is, by definition, permissive of an activity.

There is always risk. It is impossible to eliminate risk from human existence. It must be considered also that there are risks to *not* singing. For example, singers may suffer psychological distress or find alternative activities and not return to choir. Our research has shown that there have been many problems and difficulties with venues.

The best we can do is ask three fundamental questions:

1. Is the level of risk acceptable?
2. Does it outweigh the alternatives?
3. Have we done all we can to minimise it?

Mitigations for Controlling risk

There have been rapid advances in understanding of the SARS-CoV-2 virus and the means through which it is transmitted since the initial national lockdown of March 2020. Enough is now known to compile a list of control measures or mitigations that should be implemented by choirs until further notice. The first duty of the person(s) responsible for risk assessment is to minimise the risk inherent in any planned choral event through familiarity with these mitigations.

Current understanding is that the greatest transmission is via the air in enclosed spaces. Priority must be given to measures that minimise the possibility for this. *Ventilation* and *space* are key and must be the priorities in any risk assessment.

Nevertheless, other mitigations cannot be ignored. You need to implement *all* the measures below unless any is genuinely impossible. None is effective without the support of the others.

- The R number (transmission rate) in your area is an important factor, but largely outside your control. You will in any case only be permitted to meet if the government and health authority are satisfied with the local conditions pertaining to R.
- The demographic make-up of your group is significant. Older age groups are more likely to fall seriously ill whilst younger age groups are more likely to transmit the virus. You may already have considered this in deciding whether and how to rehearse. You should share your risk assessment with all your singers. Older singers and other vulnerable groups may make their own decision regarding attendance and this should, of course, be respected.
- It is extremely important to control who comes to your event through receiving health declarations. QR codes are unlikely to be used by closed groups with known membership so your record keeping must be meticulous. Some organisations implement additional measures such as sign-in declarations at entry or temperature testing. The use of public transport may be an issue for some choirs that you might like to consider or, indeed, shared private transport.
- The larger the space you have available, the lower will be the risk. A small, enclosed space would be high risk. A cavernous church would be lower risk. Outdoors is the least risky by some margin. Therefore, consideration of available space must feature prominently in your risk assessment.
- The size, or volume, of available space matters for two reasons. First, it takes longer for viral particles to accumulate in dangerous concentrations in larger spaces. Second, the larger the space, the easier it is to maintain social distance. Numbers must be reduced in proportion to the available space.

- The more often and quickly the air is changed in the space is important, but the way in which this is done matters. The wrong kind of ventilation can be counter-productive if it results in concentrated pockets or the movement of the hazard from one part of the room to another. Be particularly wary of portable fans or systems that recycle internal air. In general, steady movement of the whole air volume upwards and then out of the building presents the least risk. Natural circulation resulting from hot water pipes and radiators can help with this – a consideration for the winter. Your risk assessment should identify how you are managing ventilation.
- Risk management may well require you to reduce the number of performers at your event. This may be necessary to maintain distancing in the available space for as a general rule, risk decreases in proportion to numbers present. You may have strategies such as sectional rehearsals in place of normal full rehearsals. Whatever you decide should avoid performers waiting with nothing to do. Your arrangements to ensure this need to be clear and explicit.
- Similarly, reducing the length of the event obviously helps. The less time people are there, the less time they have to contract an infection and the less time there is for dangerous particle concentrations to build in the air.
- Raised or forced use of the voice has a strong impact upon the rate of aerosol production. Given what is known about loud singing, there is a case to ask and expect singers to exercise restraint and to rehearse fortissimo passages quietly. It is wise to include mention of this in your risk assessment.
- Social distancing remains important, as does the way you enforce it. For example, are markers or stickers in use to remind people where to sit or stand? Have you got measures to control movement such as marked one-way systems or timed entry and exit? Are these described in your risk assessment?
- In addition to physical distance, the disposition of performers matters. Anything involving face to face disposition has been explicitly proscribed by government, with side to side positioning to be preferred. It follows from this that a circular or semi-circular disposition would be high risk whilst well-spaced rows, particularly with staggering, would be lower risk. If your space is large enough, distribution of singers as individuals across the whole available area has been a popular strategy that seems to work.
- The wearing of masks continues to generate controversy. The general principle is that risk decreases in proportion to the amount they are worn and this needs to be reflected in your risk assessment. For example, are they to be worn all the time or removed to sing? What exceptions do you make and why? Similarly, the type of mask and the way in which it is fitted are important. Will you be requiring any particular type of mask (e.g. surgical, cloth, home-made, framed mask for singers etc?)
- There is sometimes talk of a trade-off between social distancing and mask wearing. This counters the general message that *all* the mitigations are needed, so is not recommended as a principle.
- The element of discipline and your responsibility to ensure that measures are adhered to by all cannot be sidestepped. This particularly applies to the wearing of masks.
- Although it is now recognised that airborne transmission is the main route of infection, it is still important to maintain hand hygiene and enhanced cleaning of surfaces, not least because these can be contaminated by airborne particles.
- You need to be vigilant against beliefs that persist from the early days of the pandemic (e.g. vigorous washing of hands and surfaces with 2m distancing matter, whilst loud vocalisation or poor ventilation do not.) Earlier measures should not be ignored, but *ventilation, space and intensity of voice use come first.*

Evaluating risk

Evaluation in this case means making a judgement of relative efficiency – “this is better than that”. The quantification of probability is not the same as making a value judgement as to whether a risk is acceptable. Ultimately, it is all but impossible to escape the ‘lives versus livelihoods’ dilemma. Much of the thinking about risk assessment has been influenced by conventional workplace methods, as advocated by the Health and Safety Executive. There is sometimes confusion between what is a risk and what is a hazard. Close analysis of workplace risk assessments can reveal that the relationship between risks and hazards is seldom clear. The Society for Risk Analysis (SRA) point out that hazards can be associated with several different contexts. For example, with energy (e.g., explosion, fire), materials (toxic or eco-toxic), biota (pathogens) or information (panic communication). You are clearly dealing with a form of biota, but communication of wrong information (and thereby panic) is also a significant hazard in the age of social media and rapid communication.

It is important in this respect to emphasise the point made by the Society for Risk Analysis that there are not two but three elements to be computed. These are Likelihood (probability), Consequence and Knowledge. The point about knowledge is illustrated through the example that whilst a lay person and a geologist might give the same likelihood of a rock fall occurring, significantly less authority can be attached to the judgement of the former than the latter. A risk assessment therefore has three dimensions:

- The likelihood or probability of the event occurring (L number)
- The consequence of the event occurring (C number)
- The knowledge of the event (K number)

Risk is then commonly computed by multiplying the L and C numbers together and reading from a table that assigns risk categories to the product.

L value	Meaning	C value	Meaning
1	Very unlikely	1	Inconvenience – absent singer
2	Unlikely	2	Pattern of significant absence
3	Fairly likely	3	All associated with choir must quarantine
4	Likely	4	Several hospitalisations
5	Very likely	5	Catastrophic – ventilation needed; possible death

The consequent possible numbers from 1 – 25 are then interpreted through a table such as this:

High ↑ L I K E L I H O O D ↓ Low	5	5	10	15	20	25
	4	4	8	12	16	20
	3	3	6	9	12	15
	2	2	4	6	8	10
	1	1	2	3	4	5
		1	2	3	4	5
	CONSEQUENCES					
	Low ← → High					

R Value	ACTION TO BE TAKEN
20–25	Stop – stop activity and take immediate action
15–16	Urgent action – take immediate action and stop activity if necessary, maintain existing controls rigorously
8–12	Action – improve within specified timescale
3–6	Monitor – look to improve at next review or if there is a significant change
1–2	No action – no further action but ensure controls are maintained and reviewed

This works well when the risk is a well-known one, such as working at heights where statistics on the various fall hazards are readily available to any assessor who is knowledgeable and experienced in the industrial use of ladders and platforms. But who is knowledgeable about a novel virus and its effects on choirs? The suggestion of the SRA is for a three-dimensional approach in which the knowledge level is also considered. The level of knowledge of the assessor can be plotted as a colour. The example below shows a borderline acceptable risk. The likelihood of the hazard occurring is 3, but the consequences only 2. (2x3=6) The person making the assessment was a lay individual who had carefully studied a good amount of published, reliable scientific information.

	5					
	4					
Consequence	3					
	2					
	1					
		1	2	3	4	5
						Likelihood

	Relevant scientific expertise
	Well informed understanding
	Uninformed opinion

It is important to understand that we have not quantified risk by doing this. We have not made any measurements of probability. We have made subjective ‘this is better than that’ judgements and the important thing is that in so doing we have constructed an ordinal scale – we have rank ordered things by goodness (or badness if you prefer). It is true that something that is unlikely to occur is not as bad as something that is likely to occur. It is *not* true that a death is five times as bad as a singer missing a rehearsal. That would be a nonsense. An ordinal scale does not have that level of statistical power.

No absolute, measured value has been ascribed. We have not measured *how* likely and we could not because many detailed, complex measurements would need to be made as the basis of advanced statistical formulae. Such a process would challenge the most able scientific minds as indeed it is in many different but related areas. An ordinal scale in this context only has any real value if we *perform our assessment twice* and show that our second assessment is better than our first because of the *control measures* that we have applied. Remember, we are *evaluating our actions in relative terms*. If we can show that we have moved from fairly likely to unlikely, or that we have reduced the expected consequence from quarantine to significant absence from choir, we have shown that we have done what we can to make things better. That is what is required of us. We cannot be expected to quantify the risks we are taking in absolute terms. The second assessment is better than the first, although risk has not been eliminated.

Here is an example:

At Risk		L	C	R	Action
Hazard	Transmission of the virus through contaminated air in enclosed space	4	3	12	Unacceptable risk. Stop activity and devise control measures
Control	Rehearse in the nave of a large church Reduce the number of singers Reduce the length of the rehearsal Keep doors open Avoid singing above <i>mp</i>	2	3	6	Acceptable risk. Continue the activity whilst monitoring any changes. Set review date.
Assessor	Franz Haydn				

The tables below have been retained from the previous edition of **abcd** guidance and will help you select the measures that you judge will work best in your circumstances. They are still relevant and such updates as there have been reflect new understandings of relative priorities. Space and ventilation now come first. Remember though, it's not 'pick and mix' the most attractive or easiest to implement! Your aim must be to cover all bases.

The tables are informed by:

- Ongoing review of the relevant scientific literature
- Control measures required by various administrations across Europe
- The experience of choirs that returned to singing early during the covid pandemic
- Reports of outbreaks that have occurred in choirs since control measures became the norm

Note that there are some risks over which you can and should exercise a relatively high degree of control. These are shown in Table A. Other risks, shown in Table B, you will have less ability to control, but you will need to take account of them in other ways. Note also that the use of specific measurements such as '2m social distancing' are not suggested. There is a good reason for this. Once again, a precision that does not really exist is avoided. It is not true to say that there is no risk at 2.1m social distancing but a significant risk at 1.9m distancing. This would be nonsense. It *is* true to say that a greater social distance poses less risk than a close social distance. Remember, we are reducing risk in relative terms by control measures for which there is scientific justification. We are not acting on calculated probabilities.

Table A

Hazard	Why a hazard?	Possible Controls
Airborne transmission	<p>Large concentrations of the virus travel through the air over short distances in exhalation clouds</p> <p>The virus travels further through the air in particles small enough to remain in suspension (aerosols).</p> <p>Aerosols evaporate leading to increased concentration of the virus.</p> <p>Aerosols travel over unpredictable distances in difficult to predict patterns.</p> <p>Aerosols accumulate in spaces where the air is stationary or slow moving</p>	<p>Sing outdoors</p> <p>Move to the largest possible indoor space</p> <p>Position singers as far apart as is practical</p> <p>Reduce the number of singers</p> <p>If there is a floor to ceiling air mechanical ventilation system, ensure it is turned on and functioning efficiently</p> <p>Avoid air conditioning systems that recirculate air</p> <p>Keep doors and windows open</p> <p>Reduce the length of rehearsal time</p> <p>Vacate the rehearsal space for periods long enough to allow a complete air change</p> <p>Limit audience size</p> <p>Discourage/prohibit audience participation (including congregational singing in acts of worship).</p>
Intensity of voice use	<p>Aerosol production increases rapidly in proportion to vocal power or loudness</p> <p>Although quiet singing produces fewer aerosols than shouting or sustained loud talking, loud singing produces the most of all</p> <p>Choral singing can result in simultaneous use of many voices for protracted periods. This results in more aerosol production than more selective use of voices in drama or conferencing</p>	<p>Avoid socialisation in noisy environments</p> <p>Rehearse quietly as much as possible</p> <p>Use electronic amplification where practicable</p> <p>Reduce the number of singers</p> <p>Reduce the length of the event</p> <p>Wear masks as much as possible</p>

Close personal contact	<p>High levels of transmission occur between persons close together through either direct touch or respiratory clouds.</p> <p>Respiratory clouds travel further forwards than sideways</p> <p>Sharing confined spaces such as the home or a car forces people to be close together for protracted periods.</p>	<p>Facilitate social distancing through floor markers and one-way systems</p> <p>Reduce the number of singers</p> <p>Configure singers in lines, avoiding placing one singer in front of another</p> <p>Avoid singers facing each other (e.g. through a circular formation)</p> <p>Discourage car sharing</p> <p>Wearing of masks</p>
Poor hygiene	<p>The virus is readily and directly transmitted by touching any part of the body proximal to an airway (i.e. particularly the face).</p> <p>Singers may forget the importance of washing or become complacent.</p>	<p>Provide sanitising liquid in prominent places such as doorways.</p> <p>Issue regular reminders</p> <p>Supervise children and require handwashing before and after rehearsal/performance</p>
Contaminated surfaces	<p>The virus travels through the air in respiratory droplets that fall onto surfaces where they evaporate, leaving behind viable loads of the virus or viral particles.</p> <p>The virus remains viable for different lengths of time according to the surface material -up to 72 hours on some kinds of plastic.</p>	<p>Remove unnecessary furniture</p> <p>Regular deep cleaning/ Sanitisation of walls, table tops, door handles</p> <p>Issue singers with personal copies or learn music by rote if appropriate</p> <p>Wearing of masks</p>
Vulnerable groups	<p>Susceptibility to the virus increases rapidly with age</p> <p>Susceptibility to the virus significantly higher in persons with co-morbidities or underlying health conditions.</p> <p>Associations between susceptibility and ethnicity have been shown.</p> <p>Although children are a low risk category, they can still transmit the virus in their homes. Older teenagers have been shown to be similar in susceptibility to adults.</p>	<p>The elderly or persons with known vulnerabilities may self-exclude. Accept this.</p> <p>Consider other ways of discouraging attendance by vulnerable groups.</p> <p>Prohibit attendance by elderly if justified.</p> <p>Treat teenagers as adults</p> <p>Caution children and their families</p>

Symptomatic carriers	Symptoms can be mild enough for singers still to feel well enough to attend. Symptoms in children often very mild, but the virus is still dangerous to higher risk groups.	Require all singers to self-declare good health. Make attendance conditional on being entirely symptom free. Require and provide for removal of singers who feel unwell. Wearing of masks
Asymptomatic carriers	Prevalence of asymptomatic carriers higher than first thought. Singers look and feel perfectly well so will be unlikely to quarantine or declare symptoms.	Ensure attendance records well kept and contain up-to-date contact records to facilitate tracing. Participate in local test and trace schemes where these are available to persons appearing fit

Table B shows risks that are largely beyond your control, of which the ‘R number’ or transmission rate in your region or area is the most significant. If the R number rises to above 1, a risk assessment that was valid when the R number was below 0.5 might no longer be valid. This problem has largely been taken out of your hands as government is taking the necessary measures through the tiered system introduced in December. The published criteria for decisions about placing areas into tiers are:

- The case detection rate in all age groups
- The case detection rate in the over-60s
- The rate at which cases are rising or falling
- The positivity rate (the number of positive cases detected as a percentage of tests taken)
- The pressure on the NHS, including current and projected occupancy

There has been and continues to be much speculation on social media, some of it ill-informed, some of it politically motivated. *Remember that the Society for Risk Analysis classifies communication of wrong information (and thereby panic) as a significant hazard.* To question decisions made about tiers you need to be fully informed about such matters as how many spare beds there are in your local hospital as compared with the hospitals in another area. Few social media commentators are. It remains the case that close contact in the home will do more to transmit the virus than anything you do in choir unless you are careless about the control measures. The previous edition stated: “viral potency and contagion likely rise in colder, wetter months”. Sadly, this has been amended to “significantly higher in colder, wetter months”. We do face a long, hard beginning to 2021.

Table B

Hazard	Why a hazard?	Why hard to control?
A high level of community infection rate (R number above 1)	Increased risk of infected individuals attending, including asymptomatic carriers	R number depends on public behaviour, e.g. illegal rave, noisy, overcrowded pub, gym failing to apply COVID secure measures
Transmission in the home	Close contact in the home reported as one of the most potent means of transmission	We cannot really dictate how people behave in their own homes
Climate and weather	Viral potency and contagion significantly higher in colder, wetter months	Cannot control the weather or climate, though there is some scope to plan concerts for warmer months.
Cross-contamination from other activity	Risk proportionate to the diversity of activity. Amateur singers perhaps more than professionals may engage in multiple other activities where virus could be transmitted.	We must rely on and trust the actions of other activities and businesses.
Ethnicity	Higher transmission and infection reported amongst ethnic minority communities and individuals	We cannot discriminate on grounds of ethnicity. We must rely on and respect judgments of singers from ethnic minorities.

Other risks

The kind of risk *you* need to anticipate and manage would be the financial and other consequences of an event cancelled or postponed under such circumstances. Remember also that what happens in your choir could have consequences for other activities and businesses in your area. This has indeed proved the case as many choirs have reported various kinds of difficulty with their customary venues in our research. You need to plan for and manage the hazard of losing singers, as indeed many choir managers are doing. There may be new risks arising from misuse of copyright in streamed performances. Be wary also of hazards associated with exposure through media such as YouTube virtual choirs, particularly where minors or other vulnerable groups may be participants. A good number of choirs are, with sound justification, planning outdoor singing events, particularly around Christmas. To sing outdoors is probably the most effective of all control measures, but it introduces new hazards ranging from road safety (including icy pavements) to the impact of cold and wet upon less robust singers. A positive outcome of the present pandemic has already been a workforce significantly upskilled in its ability to conduct risk assessment – and this is no bad thing.

Professor Martin Ashley
December 2020

*Prepared by **abcd** to help, advise and guide members. This advice is for general guidance only and does not represent any instruction or encouragement to return to or begin singing. abcd can accept no liability for the consequences of your decision, including any illness or other adverse impact. We strongly recommend that you and your choir ensure you have adequate insurance.*