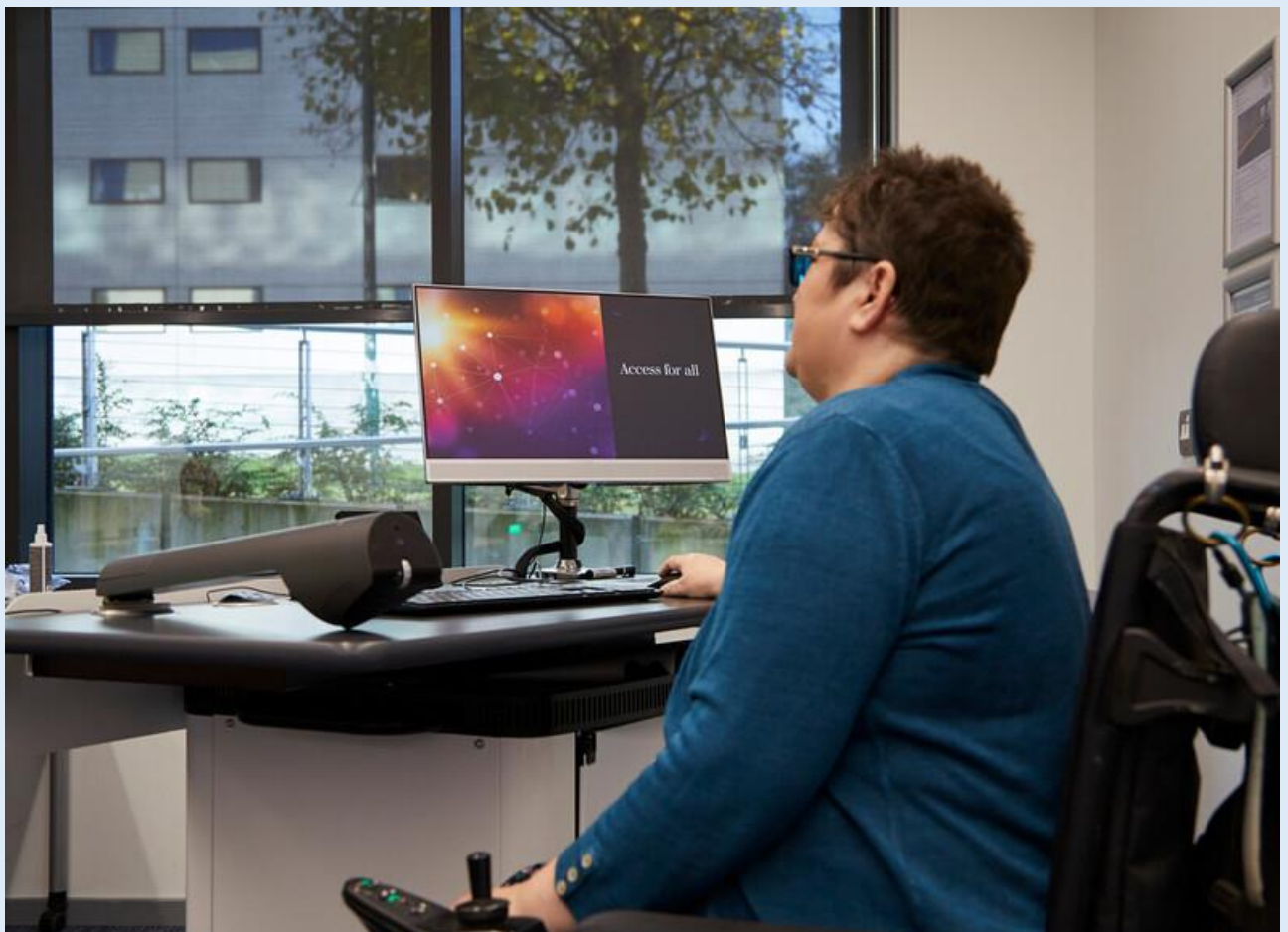


Access All Areas in Labs Dissemination Access Guidelines

Version 1.1 (July 2023)

Deane KHO and the Access All Areas in Labs Team



Purpose of Guidelines

These guidelines focus on the key accessibility considerations when disseminating the work conducted in a lab environment. This includes considerations about consultations, meetings, conferences, and public engagement events, whether in person, online, or hybrid in format.

Disclaimer

These guidelines are provided in good faith and are intended as an aid to good practice in accessibility. They cannot replace sound judgement, professional care, or common sense. They should be read and applied in conjunction with appropriate standards, and all relevant local regulations, codes of practice, and laws.

These guidelines constitute a live document and may be subject to change in the future where the authors consider it appropriate in the light of new information or developments in the field of accessibility.

Comments and Corrections

We welcome comments and corrections on these guidelines that will allow us to enhance the next version's quality and relevancy. If you have suggestions for changes, please email Dr Katherine Deane k.deane@uea.ac.uk

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About the Cell and Gene Therapy Catapult

The Cell and Gene Therapy Catapult is an independent innovation and technology organisation committed to the advancement of cell and gene therapies with a vision of a thriving industry delivering life changing advanced therapies to the world. Its aim is to create powerful collaborations which overcome challenges to the advancement of the sector. With over 400 experts covering all aspects of advanced therapies, it applies its unique capabilities and assets, collaborates with academia, industry and healthcare providers to develop new technology and innovation. The Cell and Gene Therapy Catapult works with Innovate UK. For more information, please visit <https://ct.catapult.org.uk/> or <http://www.gov.uk/innovate-uk>.

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East of England**

Our Mission:

*To remove the barriers
to accessing life, so
people can express their
brilliance.*

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1. Key ideas informing these guidelines

1.1 Dissemination Access Principles

Dissemination of the information created in laboratories requires accessible websites, consultation events, meetings, and conferences. We will discuss access in the context of online, in-person and hybrid information and events.

1. Organisations should ensure they celebrate diversity, and embed anti-ableist principles to ensure equity of access for disabled people (AIE 2020)
 - a. When considering access to information and events the aim should be to have access solutions built-in and provided as a default. The aim should be to remove the need for a disabled person to have to request disability accommodations wherever possible.
2. All events must comply with the requirements of The Equality Act (2010) and make reasonable adjustments to operating practice that ensure disabled people are not unlawfully discriminated against (AIE 2020)
3. All actions relating to disabled people should be undertaken in accordance with the Social Model of Disability and aim to combat and eliminate ableism (AIE 2020)
4. Co-production with disabled people: disabled people should be consulted when organisations develop bespoke operating plans, and undertake Equality Impact Assessments before making decisions (AIE 2020)
 - a. Respect participant's needs and be open to accommodate other accessibility issues (WAI 2022)
5. The entire journey of attending your event for disabled people should be thoroughly mapped, ensuring it is equality impact assessed, clearly communicated in multiple formats (AIE 2020)
 - a. Be aware of issues with
 - Vision
 - Hearing
 - Mobility
 - Speech
 - Understanding information presented in some ways well or at all
 - Mental wellbeing
 - Energy limitations
 - Dietary restrictions
 - Toileting needs

- b. If you know there will be a barrier that cannot be avoided (e.g., steps, gravel paths, no hearing loop), or a service that cannot be provided (e.g., sign language interpretation) please state this clearly so as to avoid frustration and disappointment from participants.

1.2 The social model of disability

These guidelines are informed by the Social Model of Disability (Oliver 1990, Scope n.d.). This proposes that the majority of disability is caused by a lack of accommodation for impairments and differences. For example, a wheelchair user cannot get into a building because there are steps before the entrance. This is disabling not because the person is using a wheelchair but due to a lack of provision of a ramp. The responsibility for access lies with the owners of the building, not with the disabled person.

“Barriers can make it impossible or very difficult to access jobs, buildings or services, but the biggest barrier of all is the problem of people’s attitude to disability. Removing the barriers is the best way to include millions of disabled people in our society” (TUC 2019).

1.3 The duty to make reasonable adjustments

All employers have a legal duty under the Equality Act 2010 to proactively make reasonable adjustments to remove, reduce or prevent any disadvantages that disabled workers face (TUC 2019). In order to achieve equity for disabled people, work may need to be organised differently, support provided, and barriers removed.

1.4 The benefits of accessible labs

Labs are often designed without consideration to disability access due to the historic assumption that disabled scientists could not work safely in such environments. If disabled people’s needs are not designed into work and workplaces, then few disabled people will be able to work there. This is part of why there is a significant under representation of disabled people working in science, technology, engineering, and maths (STEM). Whilst approximately 22% of the UK adult population of working age are disabled, only around 3.8% of UK STEM academics are identified as disabled (Joice 2021). The lack of diversity in research participants and scientists is a factor in wasteful research due to serious flaws in prioritisation, design, sampling, analysis and interpretation, etc. (Glasziou 2018; Macleod 2014; JLA 2023). Research that is informed by a diverse multidisciplinary team is better able to ensure practicality, utility, and impact (Deane 2014 and 2019, Schroeder 2022). The opportunity cost of not having disabled scientists with their diversity of experience and expertise is likely to be significant. Additionally, most disabilities are acquired; the loss of highly qualified scientists from the field when they acquire a disability is a substantial loss on the investment in their training.

We start with the assumption that all disabled scientists are able to work in labs, if the labs are designed with their access needs met. Safety issues can be designed “out” of the labs;

either in the structural or equipment design or in the protocols used. Accessibility also includes the design of the work processes, staff knowledge and attitudes. Accessible labs will allow a greater proportion of disabled scientists to be trained and work in lab settings in a safe and comfortable manner. We genuinely believe this improved diversity in the workforce will enhance the quality and potential profitability of the work done in laboratory settings.

2 Key access considerations

- Embrace the all-access attitude.
- You have to test for accessibility with real users.
- Accessibility is cheaper when it's done up front. (Mortensen 2023).

2.1 Document access

- Simple text, short sentences, with use of images to aid comprehension (FPLD 2023)
- Text should be provided in a sans serif font, at least 12 point size, left aligned, 1.5 line spacing, on a pastel coloured background.
- Large print versions (at least 16 point size) should be available.
- Text should have a plain background (don't place text over pictures) (NTR 2019).

2.2 Web page and electronic document access

- Prioritise visual access; covers 80% of web accessibility issues.
- Ideally text size and contrast should be changeable.
- Remember to create good ALT text (text that describes images).
- Videos should have closed caption options. Consideration should be given to sign language interpretation and audio description of videos (see section 5.1).
- Don't place important content out of the way where screen readers won't find it.
- Check mobile and screen reader accessibility separately.
- Don't disable zoom in mobile interfaces. (Mortensen 2023).

2.3 Event access

- Plan ahead for access, including a budget.
- Make it explicit that you welcome disabled people to your event
 - Ask about access needs prominently, but keep disclosures confidential.
 - Provide detailed information about access accommodations.
- Virtual or hybrid events need to particularly consider visual and hearing access.
 - Auto transcription should always be an option that can be selected.
 - Consideration should be given to providing sign language interpretation, audio description, and note takers (see section 5.1).
- Remember that speakers may be disabled, as well as audience members.
- Train your staff and provide information to speakers about expected standards of behaviour to promote access.
- Everyone uses a microphone in group events (speakers and audience).
- Consider the whole journey of accessing the event; transport, accommodation etc.
- Quiet rooms are incredibly helpful for many disabilities.
- Assistance dogs must be admitted and having water and spend pounds is helpful.
- Carer tickets should be free. The proofs needed to access these should be simple.

3 Document access

Documents may be produced for hard copy or for electronic format. Documents that are placed on web pages should follow the advice in section 4.

3.1 Keep the language simple

Use clear simple language. This particularly helps those with cognitive impairments and learning disabilities. However, this helps everyone understand and process the information quickly (GOV.UK 2020).

There you need to use technical terms, abbreviations or acronyms, explain what they mean the first time you use them (GOV.UK 2020)

3.2 Easy Read Format

You should consider making your documents default to an easy read format. If you don't do this, you should consider providing an easy read version of your documents. In general, the following recommendations should be followed:

- Text should be broken down into short sentences.
- Images should be selected to represent each sentence of text where possible.
- Language should be simplified wherever possible, and any necessary complicated words or terms should be explained.
- Avoid fancy fonts and italics.
- Design elements should be kept to a minimum to stop them detracting from the information. (FPLD 2023).

3.3 Text Format

Use sans serif fonts, e.g. Arial, Comic Sans, Verdana, Tahoma, Century Gothic, Trebuchet, Calibri, Open Sans. Try not to use serif or 'handwritten' fonts or capital letters for long, continuous blocks of text – they are hard to read. Avoid underlining and italics, as this can make the text appear to run together and causes crowding. If further emphasis is required, **use bold**. Avoid continuous uppercase or capital letter text (NTR 2019).

Font size: 12pt is the absolute minimum. 14pt is best. For headings, use a font size that is at least 20% larger than the normal text (GOV.UK 2020; NTR 2019).

Larger inter-letter / character spacing (sometimes called tracking) improves readability. (In MS Word: Home - Font – Expand – Advanced – Spacing – Expanded – 0.8pt). Larger line spacing improves readability and should be proportional to inter-word spacing; 1.5 / 150% is preferable. Add extra space around headings and between paragraphs (NTR 2019).

3.4 Design and Production

Keep designs clear, simple and clutter-free. ('White space' is great.)

Left align text, without justification. Avoid multiple columns (as used in newspapers). Lines should not be too long: 60 to 70 characters. Break up the text with regular section headings in long documents and include a table of contents.

Images support meaning when chosen well. Illustrate your commitment to equality with images that include disabled people and show off your access provisions. All images should have a brief description underneath them, for visually impaired people using text readers. Do not put text over images.

Where possible, or when the document will be in circulation for the publication for long periods of time, create an EasyRead version of the document, to make the information accessible to people with Learning Disabilities.

Offer multiple formats of the information. Provide an option for the document in Word/Plain Text format and PDF format, this allows people to choose how they interact with the information. Consider providing brief videos of the text being read out. Consider providing BSL videos of text. Consider Sign-A-Long or Makaton videos of text for information relevant to communities that use these forms of communication.

Always include information about disabled access within any space where an event is taking place (e.g. level access, lifts, toilets, hearing loops etc.) See Section 5 Event access for more information.

3.5 Writing Style

Use active rather than passive voice. Be concise; avoid using long, dense paragraphs. Use short, simple sentences in a direct style.

Use images to support text. Flow charts are ideal for explaining procedures. Pictograms and graphics can help to locate and support information in the text.

Consider bullet points & numbering rather than continuous prose.

Give instructions clearly. Avoid double negatives. Avoid abbreviations where possible; always provide the expanded form when first used. Provide a glossary of abbreviations and jargon.

3.6 Colour

Use single colour backgrounds. Avoid background patterns or pictures and distracting surrounds. Use sufficient contrast levels between background and text. Use dark coloured text on a light background.

Avoid green and red/pink, as these colours are difficult for those who have colour blindness.

Consider alternatives to white backgrounds for paper, computer and visual aids such as whiteboards. White can appear too dazzling. Use cream or a soft pastel colour. Some dyslexic people will have their own colour preference.

With long documents, offer the document as a word file, electronically, so that readers can determine their own colour, size, spacing and contrast preferences.

For colour blindness it is best to avoid these colour combinations (Collinge 2017):

- Green and Red
- Green and Brown
- Blue and Purple
- Green and Blue
- Light Green and Yellow
- Blue and Grey
- Green and Grey
- Green and Black

Other colour combinations that can be difficult:

- Yellow and Purple
- White writing on bright backgrounds
- White writing on pale backgrounds

Photoshop can simulate the experience of viewing a document with colour blindness with these two proofing commands:

View > Proof Setup > Color Blindness - Protanopia Type

View > Proof Setup > Color Blindness - Deuteranopia Type

3.7 Paper

Gloss finish on paper is often too reflective, and sheen can be too, so use matt. Paper should be thick enough to prevent the other side showing through.

4 Web page and electronic document access

4.1 W3C WAI Web accessibility standards (2019)

This is a summary, further details of examples, standards, and implementation guidance is available from the W3C WAI web pages.

Web accessibility relies on several components that work together. Some of these include:

Web content - refers to any part of a website, including text, images, forms, and multimedia, as well as any markup code, scripts, applications, and such.

User agents - software that people use to access web content, including desktop graphical browsers, voice browsers, mobile phone browsers, multimedia players, plug-ins, and some assistive technologies.

Authoring tools - software or services that people use to produce web content, including code editors, document conversion tools, content management systems, blogs, database scripts, and other tools.

4.2 Perceivable information and user interface

4.2.1 Text alternatives for non-text content

Text alternatives are equivalents for non-text content. Examples include:

- Short equivalents for images, including icons, buttons, and graphics
- Description of data represented on charts, diagrams, and illustrations
- Brief descriptions of non-text content such as audio and video files
- Labels for form controls, input, and other user interface components

4.2.2 Captions and other alternatives for multimedia

People who cannot hear audio or see video need alternatives. Examples include:

- Text transcripts and captions for audio content, such as recordings of a radio interview
- Audio descriptions, which are narrations to describe important visual details in a video
- Sign language interpretation of audio content, including relevant auditory experiences (see section 5.1).

4.2.3 Content can be presented in different ways

For users to be able to change the presentation of content, it is necessary that:

- Headings, lists, tables, input fields, and content structures are marked-up properly
- Sequences of information or instructions are independent of any presentation

- Browsers and assistive technologies provide settings to customize the presentation

4.2.4 Content is easier to see and hear

Distinguishable content is easier to see and hear. Such content includes:

- Colour is not used as the only way of conveying information or identifying content
- Default foreground and background colour combinations provide sufficient contrast
- When users resize text up to 400% or change text spacing, no information is lost
- Text reflows in small windows (“viewports”) and when users make the text larger
- Images of text are resizable, replaced with actual text, or avoided where possible
- Users can pause, stop, or adjust the volume of audio that is played on a website
- Background audio is low or can be turned off, to avoid interference or distraction

4.3 Operable user interface and navigation

4.3.1 Functionality is available from a keyboard

Many people do not use the mouse and rely on the keyboard to interact with the Web. This requires keyboard access to all functionality, including form controls, input, and other user interface components.

Keyboard accessibility includes:

- All functionality that is available by mouse is also available by keyboard
- Keyboard focus does not get trapped in any part of the content
- Web browsers, authoring tools, and other tools provide keyboard support

4.3.2 Users have enough time to read and use the content

Some people need more time than others to read and use the content. For instance, some people require more time to type text, understand instructions, operate controls, or to otherwise complete tasks on a website.

Examples of providing enough time include providing mechanisms to:

- Stop, extend, or adjust time limits, except where necessary
- Pause, stop, or hide moving, blinking, or scrolling content
- Postpone or suppress interruptions, except where necessary
- Re-authenticate when a session expires without losing data

4.3.3 Content does not cause seizures and physical reactions

Content that flashes at certain rates or patterns can cause photosensitive reactions, including seizures. Flashing content is ideally avoided entirely or only used in a way that

does not cause known risks. Also, animations and moving content can cause discomfort and physical reactions.

Examples of avoiding causing seizures and physical reactions:

- Do not include content that flashes at particular rates and patterns
- Warn users before flashing content is presented, and provide alternatives
- Provide mechanisms to switch off animations, unless they are essential

4.3.4 Users can easily navigate, find content, and determine where they are

Well organized content helps users to orient themselves and to navigate effectively. Such content includes:

- Pages have clear titles and are organized using descriptive section headings
- There is more than one way to find relevant pages within a set of web pages
- Users are informed about their current location within a set of related pages
- There are ways to bypass blocks of content that are repeated on multiple pages
- The keyboard focus is visible, and the focus order follows a meaningful sequence
- The purpose of a link is evident, ideally even when the link is viewed on its own

4.3.5 Users can use different input modalities beyond keyboard

Input modalities beyond keyboard, such as touch activation, voice recognition (speech input), and gestures make content easier to use for many people. Yet not everyone can use each of these input modalities, and to the same degree. Particular design considerations maximize the benefit of these input modalities. This includes:

- Gestures that require dexterity or fine movement have alternatives that do not require high dexterity
- Components are designed to avoid accidental activation, for example by providing undo functionality
- Labels presented to users match corresponding object names in the code, to support activation by voice
- Functionality that is activated by movement can also be activated through user interface components
- Buttons, links, and other active components are large enough to make them easier to activate by touch

Understandable information and user interface

4.3.6 Text is readable and understandable

Content authors need to ensure that text content is readable and understandable to the broadest audience possible, including when it is read aloud by text-to-speech. Such content includes:

- Identifying the primary language of a web page, such as Arabic, Dutch, or Korean
- Identifying the language of text passages, phrases, or other parts of a web page
- Providing definitions for any unusual words, phrases, idioms, and abbreviations
- Using the clearest and simplest language possible, or providing simplified versions
- Consider providing Plain Language Summaries or Easy Read options (FPLD 2023)

4.3.7 Content appears and operates in predictable ways

Many people rely on predictable user interfaces and are disoriented or distracted by inconsistent appearance or behaviour. Examples of making content more predictable include:

- Navigation mechanisms that are repeated on multiple pages appear in the same place each time
- User interface components that are repeated on web pages have the same labels each time
- Significant changes on a web page do not happen without the consent of the user

4.3.8 Users are helped to avoid and correct mistakes

Forms and other interaction can be confusing or difficult to use for many people, and, as a result, they may be more likely to make mistakes. Examples of helping users to avoid and correct mistakes include:

- Descriptive instructions, error messages, and suggestions for correction
- Context-sensitive help for more complex functionality and interaction
- Opportunity to review, correct, or reverse submissions if necessary

4.4 Robust content and reliable interpretation

4.4.1 Content is compatible with current and future user tools

Robust content is compatible with different browsers, assistive technologies, and other user agents. Examples of how this can be achieved include:

- Ensuring markup can be reliably interpreted, for instance by ensuring it is valid
- Providing a name, role, and value for non-standard user interface components

5 Meeting Access

This guideline will advise on access requirements for meetings, consultations, seminars, and conferences. These events may be held in person, online, or in hybrid form.

The nine key categories of impairments you need to consider when organising your fully accessible event are as follows.

1. Vision
2. Hearing
3. Mobility
4. Communication
5. Energy limitation
6. Cognitive and neurodiversity issues (e.g., dementia, autism, learning disability)
7. Mental wellbeing (e.g., anxiety and depression)
8. Dietary restrictions
9. Toileting needs

5.1 Venue Access Information Guide

5.1.1 Adapted from Access Starts Online 2016

Events need to provide comprehensive and clear disability access information.

Events should prominently ask about access requirements and have a single point of contact for disabled attendees or speakers.

5.1.2 Where to put your access information

We recommend providing information on a dedicated webpage that is easy to find from the front page of the venue's or event's website.

5.1.3 What to include in your access information

5.1.3.1 Introduction

1-2 lines on behalf of the venue or event to welcome Deaf and disabled attendees. The introduction text is a chance to communicate your ethos when it comes to being inclusive.

5.1.3.2 Contact Details

If possible, a named person as a point of contact + their job role i.e., 'Access Officer'. Provide contact details for

- Email
- Phone
- Postal
- Give estimate of response time

Aim to provide a named person and have that person be responsible for all access-related communications.

5.1.3.3 Download link for all access info

- Provide a link to a downloadable word file.

This is really useful, especially for people who use screen readers because of a vision impairment, as they can download this and not have to navigate back to the access info page.

5.1.3.4 Venue Description

- State whether or not there is step-free access to the toilets, auditorium, stage, meeting rooms, and poster display space(s) from the street.
- If the entrance / venue spaces are not step-free give the number of steps and whether this is up or down.
- If a temporary ramp or alternative entrance is used, then describe how this works.
- Provide a map that clearly shows step free access routes, transport drop off points, accessible parking, toilets etc.
- It is useful to know the capacity of the access facilities available e.g., two accessible toilets, 4 accessible parking bays. At events where larger numbers of disabled attendees are expected or declare themselves to the organisers, consideration should be given to temporary additional capacity e.g., mark out additional accessible parking bays in the car park.

5.1.3.5 Bookable Access Facilities

- Free tickets for personal assistants.

Providing free tickets in order to enable a disabled person to bring a personal assistant / support worker is a form of reasonable adjustment that enables disabled people who require support to attend your event.

- Accessible parking (if applicable)

Describe any venue-specific accessible parking that can be booked. If it is not possible to book accessible parking, provide information about public parking in the Travel Guide section.

5.1.3.6 Travel Guide

Provide any relevant information regarding:

- › Accessible parking.
- › Taxi / drop-off for customers.
- › Nearest accessible public transport hubs or stops.

Provide information on parking barriers and how you use them e.g., they dispense a ticket that you need to take from your car window. If payment is required for parking specify if

this is by cash or card and check that that the payment machine is accessible e.g., are there dropped curbs to the machine, can you reach the payment slots from a seated position. If the facilities are inaccessible you will need to speak to the venue for alternate provision e.g., prior posting of a parking pass to the attendee.

Provide map and distance to nearest accessible public parking and provide information about any restrictions on Blue Badge parking.

Consider the most accessible drop-off location and public transport stops for your venue and describe route including distances.

5.1.3.7 Arrival Guide

- Provide venue opening times
- Arriving at the venue
 - Describe what customers should expect upon arrival at the venue – who will direct them, who they should approach if they have any questions etc.
 - Describe any early entrance options, step free access routes etc.
 - If possible, provide photos or a video of accessing the venue from the street to the reception area. This is particularly helpful if a step free route is other than via the main entrance.

5.1.3.8 Toilets

- Describe accessible toilet provision. If possible, provide information on the size of toilets, transfer side, and photos of the facilities.
- If the toilets are fitted with a Radar / National Key Scheme lock make sure this is specified and that the location of a spare key is described in access information packs and on the door of the accessible toilet e.g., the reception desk next to the accessible toilets is always manned and the receptionist holds a spare key. It is essential that a spare key is available immediately for the duration of the event.
- Describe route and provide distance from the auditorium, meeting rooms, poster hall etc to the nearest accessible toilet.

5.1.3.9 Customers with Medical Requirements

- State that you welcome attendees who need to bring medicines, food or drink to manage a medical condition, or medical equipment.
- Invite people to contact you if they have any concerns.
- Describe any services on site or who to approach in an emergency.

Staff should be briefed on the policies and procedures in place. All venues are legally obliged to set up systems to ensure that people can gain access with the necessary medical supplies. It is important that self-management of conditions is not questioned by staff in an inappropriate manner i.e., door staff questioning why someone with Type 1 diabetes wishes to bring a glucose drink into a venue or refusing entry to someone with an Epi-Pen to manage potential anaphylaxis shock.

5.1.3.10 Access to Event

- Describe any services offered – Audio Enhancement such as loops, intra red or mobile connect systems / British Sign Language / Captioning / Audio Description / Relaxed Performances
- If you know there will be a barrier that cannot be avoided (e.g., steps, gravel paths, no hearing loop), or a service that will not be offered, please state this so as to avoid frustration and disappointment from participants.
- Describe the weight limit on any stair lifts.

5.1.3.11 Assistance Dogs

Describe policy and facilities available.

It is a legal requirement to accommodate an assistance dog. We recommend asking that people inform you in advance and that the dog wears a tabard for easy identification. However, customers may arrive without informing the venue they are an assistance dog user.

5.1.3.12 Other Info

Mention any other services or facilities that might be relevant, for example the presence of any lowered counters to access refreshments, or the availability of food suitable for those on restricted diets.

If you are delivering the event online provide links to introductory information about how to use the software, particularly any access-specific aspects. For example, information on how to turn on and off the captioning, or how to “pin” the video-link picture of the sign language interpreter (see section 5.1 for more information on sign language interpreters).

6 Event Access

6.1 Planning the Event

- Finding an accessible venue. Websites such as Euan's Guide (<https://www.euansguide.com/>) and DisabledGo (<https://www.accessable.co.uk/>), or the Snowball access app (available from Google Play and the App Store) can help identify potential venues in your area. You must visit the venue and check all issues to ensure your meeting or event is accessible – do not trust the venue's reports on access – they can be “optimistic”.
- Ensure that promotional and registration information is available in a variety of formats including electronic format (ADCET 2017).
- Ensure that participants are provided with multiple options for registration including phone, email, and online. Ensure that online forms are accessible to screen readers (ADCET 2017).
- At the time of registration, ask about any accessibility requirements that participants may have (ADCET 2017).
- Ensure that registration is available at no charge for carers (ADCET 2017).
- Take care to ensure all the tools used in an online environment ensure access for all participants. For example, white board software which allow participants to contribute comments may not be compatible with screen readers.
- Sign Language interpreters should be provided as a default for larger events and must be provided anytime sign language interpretation is requested. For British Sign Language interpreters should be above Level 4 in skill and on one of the following registers: The National Registers of Communication Professionals working with Deaf and Deafblind People (NRCPD), The Regulatory Body for Sign Language Interpreters and Translators (RBSLI), or the Scottish Register of Language Professionals with the Deaf Community (SRLPDC).
- Scripts of pre-prepared talks should be provided to the sign language interpreters sufficiently in advance to allow them to prepare. This is particularly important if you will be using technical terms.
- Consideration should be given to providing live captioning. Whilst auto-generated closed captions are now available for video calling software packages their accuracy can be poor for technical topics.

6.1.1 Check venue access

Ensure that the planned location for the event is accessible. Check the following:

- Is it close to public transport or car parking or is there a drop off point? (ADCET 2017)
- Is there a clear path of travel to the building? Is it well signposted? Easy entry? Automatic doors? (ADCET 2017)

- Does it have step free access – to meeting room, the stage, accessible toilets, quiet room, breakout rooms, dining areas, poster rooms? (Thresholds should not be greater than 3cm high).
- Are there stairs and if so, do they have handrails? Is there an accessible lift as an alternative to the stairs? (ADCET 2017)
- Does the venue have sufficient space? Wheelchair users need space. Always provide generous turning circles etc, as tight spaces mean damage e.g., to doorways and wheelchairs. Additionally, whilst a single wheelchair user will usually take up “2 people spaces”, when two wheelchair users are in a single space they will need around “6 people spaces” in order to circulate freely.
- Is there a hearing loop or similar hearing technology? If none is available, consider providing a portable hearing loop.
- Are accessible bathroom facilities in close proximity to the venue? (ADCET 2017). And that they are of an appropriate size (EDF 2019) with suitable size bins for incontinence pads.
- Are the accessible toilets free of clutter e.g., cleaning materials, spare chairs, etc.
- Are there Changing Place accessible toilets (with hoist and bench) available at or near the venue. (Such facilities can be found at <https://www.changing-places.org/find>). If a Changing Place accessible toilet is not available close to the venue consideration should be given to the hire of portable facilities e.g. <https://www.mobiloo.org.uk> is a Changing Place in the back of a van that can be parked by your venue.
- Is there a quiet space available? (ADCET 2017) This is a room separate to the rest of the event, with chairs, and ideally a bench, cushions, and adjustable lighting.
- Is there a place for assistance animals to rest, be toileted and watered? (ADCET 2017)
- Does the venue have good ventilation target CO₂ concentrations below 800ppm or typically 10 l/s/person (CIBSE 2021).

6.1.2 Training Volunteers and Event Managers

Train your team to be confident asking people with visible disabilities if they need assistance – and to listen to the answer. The team need to know where the accessible toilet is, the best place to sit to have good lines of sight for lip readers or wheelchair users, the fire evacuation routes, how to work the lift etc. The team need to have knowledge of where access equipment is kept e.g., mobile hearing loop, or the Radar key for the accessible toilet, or the code for the platform lift etc. They should know who to contact in the event of equipment or facilities developing a fault. Purple Reach can provide disability awareness and equality training <https://www.purplereach.co.uk/>.

Your team should know that assistance dogs have a legal right to access all venues and how to interact with them.

(https://www.guidedog.org/PuppyRaising/PuppyRaiserManual/Resources/Assistance_Dog_Etiquette.aspx).

Ideally teach your team a few British Sign Language signs e.g., hello, welcome, thank you, sorry, and drink? (<https://actiononhearingloss.org.uk/wp-content/uploads/2020/05/Learning-British-Sign-Language-leaflet.pdf>).

Your team should be confident in prioritising the needs of those with disabilities i.e., asking audience members to move seats to allow better access for someone in a wheelchair or who needs to be close to the presenter to lip read or use the portable hearing loop.

Do your team know how to respond to first aid issues when associated with disability? E.g., responding appropriately to an epileptic fit (<https://www.epilepsy.org.uk/info/firstaid>).

Do your team know how to assist in the evacuation of a disabled person? Further information on such fire evacuation protocols are described in the Protocol Access Guidelines (Deane 2023b)

6.1.3 Speaker Preparation

You also need to prepare your speakers. If you are using sign language interpreters, ask that they provide a script of their talk at least a week in advance to allow the interpreters to prepare. Let them know that you expect a diverse audience. Speakers should be asked to use a microphone (if available) for all of their talk – irrespective of their vocal volume – as amplified speech is easier for hearing aids to pick up, and easier to feed into hybrid meetings. They should consider this when asking for audience participation e.g., a Deaf person invited to participate may need a friend to do BSL interpretation for them; not everyone may be able to “stand up and take part” in an activity. Also, audience members may be more “distracting” than usual, e.g., vocal outbursts from someone with Tourette’s, or stimming (e.g., flapping hands, or rocking back and forth) for autistic people. Obviously, you need to ask your speaker to be accommodating of these differences.

6.2 Prior to Event

Ensure that all requested accessibility requirements are arranged. This may include the following:

- Arranging sign language interpreters (ADCET 2017).
- Arranging for any video material to be captioned (ADCET 2017).
- Arranging for live captioning services (ADCET 2017).
- Provision of written material in an appropriately accessible format prior to the event (ADCET 2017) i.e., black text on pastel coloured paper, sans serif font, left justified. 12 points for standard text and 16 points for enlarged text formats. Repeat for electronic documents and provide both word and pdf formats.

- Ensure that participants are provided with accessible maps in an appropriate format. This may include visual, text and audio maps (ADCET 2017).
- Check access equipment is in working order e.g., lifts, stair lifts, hearing loops etc. Ensure the venue knows they must contact you urgently if any of these facilities fail prior to the event. Have a communications plan to contact attendees who need these facilities as soon as possible and offer full refunds if access cannot be guaranteed.
- Check the red cord alarms in the accessible toilets work, that they will be responded to promptly, and that they are not tied up. Red cord cards are highly effective in preventing cords being tied up <https://www.euansguide.com/news/red-cord-card/>.



- **FIGURE 1** A picture of Euan's Guide's Red Cord Card
- Check accessible evacuation routes and whether personal emergency evacuation plans (PEEPs) should be created. There may be a maximum number of wheelchair users or mobility impaired people allowed in a given space.

6.2.1 For online or hybrid meetings

- Ensure that participants are provided with a simple guide (possibly with videos demonstrating use) to using the online meeting software, with particular emphasis on the access tools e.g., how to access the transcript, how to pin the sign language interpreter's picture.
- Ensure your guidance covers the online meeting software and any other software planned to be used (voting, whiteboard etc). Ensure the guidance is up to date with the latest version of the software you intend to use.

6.3 On the day of the event

Ensure that venue, facilities, and event signage is:

- Clear (ADCET 2017). Uses text and pictograms where appropriate.
- Utilises accessible contrast (ADCET 2017).

- Is at an appropriate height to be seen (ADCET 2017) i.e., 700-1000mm above floor level (Building Regulations 2010).
- Includes raised tactile and/ or braille information where required (e.g., on doors and bathrooms) (ADCET 2017).

Ensure that participants are provided with accessible maps in an appropriate format, which indicate the location of event venues and accessible facilities (ADCET 2017).

Ensure that access to and location of venue facilities is communicated to participants. This might include:

- The presence of a hearing induction loop or infrared hearing assistance system (ADCET 2017).
- The location of accessible bathroom facilities (ADCET 2017).
- The location of assistance animal rest areas (ADCET 2017).
- The location of quiet spaces (ADCET 2017).

Ensure that clear paths of travel are provided both outside and within the venue. The venue and environs should be clear of obstacles and trip hazards such as electrical cables should be moved or taped down (ADCET 2017).

Ensure that the venue is well lit throughout, and that glare is minimised. (ADCET 2017).

Ensure the venue has good temperature control which can be adjusted according to need. Provision of hot or cold drinks can also aid a disabled person's ability to regulate their temperature.

Ensure the venue is well ventilated and will maintain a good standard of ventilation with the number of attendees planned i.e., target CO₂ concentrations below 800ppm or typically 10 l/s/person (CIBSE 2021).

Face masks are effective at preventing the spread of respiratory infections such as COVID-19 (Cheng 2021). Many disabled people are at disproportionately high risk from such infections therefore having a policy of proactively supporting them is helpful. You can do this by specifically asking about this issue at registration. If you do have someone attending who is at high risk, you should let everyone else attending know this (but obviously do not name the delegate), and strongly encouraging everyone (except for those who are medically exempt), to wear masks. However, we do recognise that face masks can reduce ease of communication for people who are hard of hearing and who lip read. In these instances, removing the face mask whilst speaking is acceptable.

For outdoor events, ensure that shaded areas are provided for people who are sensitive to heat or who experience light or glare sensitivity. (ADCET 2017).

Ensure that the registration table is at an appropriate height for all participants including wheelchair users and people of short stature. (ADCET 2017).

Ensure all speakers are required to use the microphone.

Roving audience microphones are provided where audience participation is anticipated. (ADCET 2017).

Lapel microphones or adjustable height microphones should be used to accommodate people at different heights. (ADCET 2017).

Ensure that the presenters and any participants who need to, can access the stage or equivalent (ADCET 2017). Ramps to the stage should not exceed 1:10 slope and should be at least 900mm wide.

Ensure that there is an emergency plan for the event, that staff are aware of the plan and that emergency procedures address how people with disability will be assisted. (ADCET 2017).

6.3.1 For events providing refreshments and food

Ensure that buffet lunch tables are at an appropriate height for all participants including wheelchair users and people of short stature. (ADCET 2017).

Ensure that food for people with allergies, intolerances etc can be served up separately from the buffet to prevent cross-contamination.

Food should be well labelled, and staff should be able to access detailed information on allergens etc.

Can the venue provide facilities to warm pureed food? (Some disabled people have very restricted dietary options and can only eat pureed food).

Ensure the venue will provide straws for customers on request?

Ensure there are servers available to assist with buffets, to carry food to tables etc.

Ensure that there are tables at an appropriate height for wheelchair users to put food and drinks on.

Ensure that there is a lowered counter to allow payments. Ensure card readers have sufficiently long cables to allow easy reach from a chair or by people of restricted growth.

6.3.2 For lecture style events/sessions

Reserve some seating at the front of the venue for wheelchair users, people who lip read or need to be close to the interpreters. (ADCET 2017).

6.3.3 For workshop style events/sessions

Ensure that discussion tables are at an appropriate height for wheelchair users. (ADCET 2017).

Ensure that there is sufficient space between tables and furniture for people using wheelchairs, walking frames and other mobility aids to navigate around (ADCET 2017). In practice this means you need corridors of at least 1m width to navigate the space.

6.3.4 For standing events

Provide some chairs for people who may not be able to stand for extended periods or who may experience fatigue. (ADCET 2017).

For *both* of the above, ensure that some seating with arms is available. (ADCET 2017).

6.3.5 For online or hybrid events

Online or hybrid events can create improved disability access by removing the risk of infection, reducing the energy required to participate, and removing the challenge of travelling to the venue. However these types of events do bring their own access challenges that must be accommodated.

- Ensure you have a chairperson and someone else to manage the chat and solve technical difficulties.
- For events with more than about 10 participants it is usual best to turn off video and sound for participants unless they are speaking to ensure good call quality for everyone, including those with low bandwidth.
- Ask those speaking to be well lit and close to their camera to ensure those who lip read can see their faces.
- Ask presenters to introduce themselves with a brief visual description of themselves e.g. “I am a white woman, with short brown hair, wearing a blue floral dress.”
- Those presenting should be aware of the need to provide a clear description of visual information such as graphs.
- Participants must be able to “pin” the picture with the BSL interpreter alongside the main presentation. Note that with longer events you may have more than one interpreter, in more than one location, who need to swap in and out smoothly. Look at how you are going to ensure this change-over happens seamlessly for the audience. If you split into virtual breakout rooms, ensure the BSL interpreter will be in the same room as the Deaf person(s).
- If the event is hybrid, it is best practice to have one person to focus on the online participants and another on the in-person participants.

6.3.6 For Relaxed Events

Have you considered providing a “relaxed” event – where it is expected that the audience may be talking, stimming, moving around etc. This is particularly useful for events with a subject matter that is relevant to communities for whom a relaxed performance is beneficial e.g., those with autism, learning disability, or Tourette’s. In fact, have you considered making all your events “relaxed”?

6.4 After the event

Follow up: Seek feedback from attendees regarding the accessibility of the event and any suggested improvements. (ADCET 2017).

Ensure that any written materials from the event (e.g., conference papers) are provided to participants in appropriate accessible formats. (ADCET 2017) i.e., black text on pastel coloured paper, sans serif font, left justified, 12 points for standard text and 16 points for enlarged text formats. Repeat this accessible format for electronic documents and provide both word and pdf formats.

7 Venue Access Checklist

An Accessible Venue needs all yellow items to be positive for it to be described as “fully” accessible.		Please remember to let your events team know all details of the venue’s access (good or bad) for dissemination.
Getting into and around venue		Comments
Is there a step free entrance to venue? (Thresholds should not be greater than 3cm high). It is acceptable that this is not the front door but if so, extra signage should be considered.	Yes/No	
Are there 1m wide routes from step free entrance to bar/food service area, to toilet and to room for the meeting or event? (You may need to reduce the capacity of the venue to ensure these routes are available).	Yes/No	
If there is lift or stair lift access to the venue or the room the meeting or event will be in, does it work? (And provide weight limit on venue description). Check venue knows to contact your team if lift goes out of order.	Yes/No/not applicable	
Access in the room for the meeting or event		
Is there step free access to room for the meeting or event?	Yes/No	
Is there a PA system? If not, can you bring one in?	Yes/No	
Good lighting on speaker	Yes/No	
Step free access to any stage	Yes/No/Not applicable	
Hearing loop / hearing technology	Yes/No	

Good ventilation (<800ppm CO ₂ or typically 10 l/s/person)	Yes/No	
Temporary issues? e.g. building works, that need alternate access routes	Yes/No	
Refreshments		
Is there a lowered counter for serving people in wheelchairs?	Yes/No/Not applicable	
Is the card payment machine reachable if you are seated in a wheelchair? (NB check it can be reached from a seated position if you cannot raise your arms above shoulder height)	Yes/No/Not applicable	
Is there a hearing loop / hearing technology at the serving counter?	Yes/No/Not applicable	
Is there information on allergens in any food or drink served	Yes/No/Not applicable	
Are there facilities to reheat pureed food?	Yes/No/Not applicable	
Will they provide straws on request?	Yes/No/Not applicable	
Toilets		
Is there an accessible toilet?	Yes/No	
Step free access to accessible toilet?	Yes/No	
Check no extra furniture stored in toilet. This includes baby changing tables.	Clear / Cluttered	
Red alarm cord? (Check this is not tied up, the alarm works, and that the alarm will be responded to)	Yes/No	

Check which side the toilet transfers to (as you face it) and provide that information on your venue guide	Right / left / centre	
Is the accessible toilet well signposted? (If not consider putting up signs at the event)	Yes/No	
Does it have bins suitable to accommodate incontinence pads?	Yes/No	
Are the toilets clean? (All types and genders)	Yes/No	
Does the venue have a Changing Place accessible toilet? (If not, is there one nearby that will be open at the time of the meeting or event?)	Yes/No	
Fire Safety		
Have you had a discussion with the venue's fire officer about safe evacuation of people with impaired mobility/hearing/vision? (This may lead to restrictions e.g., a maximum number of people using wheelchairs allowed).	Yes/No	
Parking		
Is there accessible parking nearby? (Please provide info on location and number of spaces for venue guide)	Yes / No	
Quiet Room		
Is it possible to have a quiet room?	Yes/No	
Is access to the quiet room step free?	Yes/No	

8 Useful Resources

8.1 General Access Advice

Web access <https://www.w3.org/standards/webdesign/accessibility>

Low Vision web access <https://www.w3.org/TR/low-vision-needs/>

Common web access problems for VIPs <https://www.rnib.org.uk/rnibconnect/web-accessibility-people-disabilities>

Attitude is Everything resources for making music events accessible
<http://www.attitudeiseverything.org.uk/resources>

Disability Awareness Training <https://www.purplereach.co.uk/>

8.3 Toilets

Changing Places <http://www.changing-places.org/>

Mobiloo Changing Place Van <https://www.mobiloo.org.uk>

8.4 British Sign Language

Ensign Interpreting: <http://www.ensigninterpreting.co.uk>.

Involve Interpreter: <https://involveinterpreter.co.uk/>

A few basic BSL signs <https://actiononhearingloss.org.uk/wp-content/uploads/2020/05/Learning-British-Sign-Language-leaflet.pdf>

8.5 Assistance Animals

Guide dog etiquette

https://www.guidedog.org/PuppyRaising/PuppyRaiserManual/Resources/Assistance_Dog_Etiquette.aspx

8.6 First Aid

Epilepsy first aid <https://www.epilepsy.org.uk/info/firstaid>

8.7 Access Guides

Euan's Guide <https://www.euansguide.com/>

AccessAble <https://www.accessable.co.uk/>

Snowball App – available from Google Play and App Store
<https://apps.apple.com/gb/app/snowball-community/id1624679548>

Wheelmap, for ratings for wheelchair access <https://wheelmap.org/>

8.8 Journey Planning

Moovit <https://moovitapp.com/>

City Mapper <https://citymapper.com> (only some UK cities)

Transport for London <https://tfl.gov.uk/plan-a-journey/>

8.9 Transport

National Rail Assistance https://www.nationalrail.co.uk/stations_destinations/passenger-assist.aspx

Transport for All (has a London focus but does provide national information)
<https://www.transportforall.org.uk/information-advice/travel-information/>

National Express <https://www.nationalexpress.com/en/help/accessibility>

First Bus <https://www.firstbus.co.uk/bus-accessibility>

Transport for London <https://tfl.gov.uk/transport-accessibility/>

9 How these guidelines were created

9.1 Mission

To remove the barriers to accessing life, so people can express their brilliance.

9.2 Our paradigms

We genuinely believe that anyone can work in science. We believe that having a diverse workforce enhances the quality and utility of the science created.

9.3 Key definitions

The core workplace of science is the laboratory. In these guidelines "Labs" refers to laboratories, manufacturing and production lines, engineering facilities, etc.

"Scientists" refers to scientists, technologists, engineers, mathematicians, and healthcare professionals etc.

"Disabled" relates to people who are disabled, D/deaf, or have long term health conditions (both physical and mental), illnesses, or injuries, which have a significant impact on their ability to carry out everyday tasks.

9.4 Aim

The aim was to create a set of documents that would provide a pragmatic and useful guide on to how to create an accessible lab workplace. We wished to accumulate relevant guidelines for lab contexts, edit them for relevancy, expand them in order to be as comprehensive as possible, and share them with the scientific community. The guidelines are mostly created from previously published work, which we cite.

We wanted to provide guidelines for the whole of the lab work ecosystem, and to consider all types of impairments and disabilities.

1. Structural access – physical design of laboratory and fixed equipment (e.g., hoods, sinks etc.)
2. Equipment access – design and use of movable equipment (e.g., microscopes, centrifuges, PCR machines etc.)
3. Protocol access – adaptation of lab protocols to accommodate access needs (e.g., seated working, evacuation protocols, lone working etc.)
4. Dissemination access – work done in laboratories must be shared with the wider world. Access issues can be encountered in consultation and dissemination events, meetings, conferences, the publication of work on web pages and in journal articles.

5. General working practices access – adaptation of usual HR and working practices (e.g., part time or flexible hours), assisting disabled staff to access to relevant benefits, accessible transport and parking etc.

9.5 Team expertise

A significant proportion of the Access All Areas in Labs team have disabilities themselves, with lived experience of impairments in mobility, vision, stamina, dexterity, mental wellbeing, cognitive focus, and a range of neurodiversities. They have worked in microbiological, immunological, engineering, electronic, clinical trial, and pharmacy settings as students, researchers, principal investigators, technicians, and administrators.

9.6 Methods

We searched scientific databases (MEDLINE, EMBASE); grey literature; professional magazines; online resources; relevant charities and trade unions; centres for disability studies; consultants that support disabled researchers and employers. We snowballed contacts and resources from the originally identified literature.

We also conducted a survey of people with an interest in lab access about barriers and solutions to lab access (Deane 2023a) along with a set of case study interviews examining solutions to lab access (AAAILabs 2023).

We identified a key guideline or two at the start of the creation of each of our guidelines. This would then be combined with information from other guidelines, data from the survey and case studies, and combined with the team's lived expertise to allow us to provide comprehensive guidelines with exemplars of implementation solutions across a range of settings and impairments.

9.7 Amendments

Version 1.1: Amended to clarify funding sources. Section 3 added to cover document access.

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