

An institutional framework for the 3Rs

Most institutions conducting animal research will have policies on animal research and the 3Rs. Institutional responsibilities for providing a framework and culture for the 3Rs should not be onerous or resource intensive and many organisations will already have the basics in place. The goal should be to ensure that the 3Rs are actively developed and applied at all stages of the research process – from the design and conduct of experiments through to dissemination and reporting.

The NC3Rs is committed to developing a range of resources to support the promotion and implementation of the 3Rs. Here we provide a simple checklist of seven related principles that all research institutions should adopt or consider.

1. Improving access to information and other resources

Providing easy access to online resources and information on events and training courses is essential for equipping all staff involved in animal research with contemporary and comprehensive information on the 3Rs.

Most institutions will have an intranet for project and personal licence holders and animal care staff, setting out internal policies and standard operating procedures. Internal online resources could be strengthened by providing a direct and visible link to the NC3Rs, including its Procedures with Care website, newsletters, free events and funding schemes.

2. Championing the 3Rs

There is a need to move the 3Rs 'out of the animal facility'. Responsibility for the 3Rs should not just be considered to be the domain of the vets and animal care staff. While these staff have a significant role to play on refinement and improving animal welfare, wide scientific engagement is required for the full adoption

of the 3Rs. This is particularly the case for replacement and reduction where detailed knowledge of the scientific objectives and experimental design are required.

Divisions (Departments or Schools as appropriate) should be encouraged to have scientific 3Rs champions who can help identify relevant 3Rs opportunities from the NC3Rs website, the scientific literature and conferences to share with colleagues. A programme of regular seminars or journal clubs focusing on the 3Rs should be instigated. The 3Rs should be a regular item on lab meeting agendas.

3. Involving the wider institutional community

Advances in the 3Rs are dependent on challenging existing models and procedures, and scientific and technological innovation. A multi-disciplinary approach is often required, including those not normally involved with animal research.

Many institutions have expertise in a wide range of disciplines from mathematics to material sciences. Providing a framework where biologists and those not directly involved in animal research come together to focus on 3Rs issues can be difficult. Nevertheless, providing opportunities for networking and knowledge exchange can accelerate the development of the 3Rs. Ideas to facilitate this include workshops focusing on a particular theme, for example, "can bioreactors be used for X". Setting ambitious 'blue sky' challenges relevant to Departmental research priorities such as "how could we replace

animal use in X" can be stimulating brainstorming exercises which help raise the profile of the 3Rs, identify new approaches, and provide greater scientific engagement. Novel collaborations can emerge with new opportunities for funding and publications.

4. Rewarding 3Rs developments

An annual 3Rs prize for individuals who have made a significant personal or scientific contribution to the 3Rs is an effective way of raising the profile of the 3Rs within the institution, and encouraging the collation and dissemination of ideas and techniques.

Rewards do not have to be huge or even monetary. For many the recognition is enough, particularly if the prize is sponsored by senior management. Providing additional funds to attend a conference is one option for reward.

5. Supporting 3Rs training

Opportunities should be provided for regular training that is relevant to the 3Rs. This could be attendance at an NC3Rs event or workshop for example. Training for PhD students in the life sciences should include a good understanding and appreciation of the scientific as well as

ethical aspects of the 3Rs. Ensuring staff are aware of training opportunities and resources, for example, on experimental design is critical.

6. Disseminating 3Rs advances

All staff should be encouraged to include information on the 3Rs in papers, posters and presentations as standard practice. It should be an institutional requirement to comply with the ARRIVE guidelines when reporting animal research. The guidelines also provide a useful checklist to consider when designing or reviewing experiments.

7. Taking a strategic approach

Ultimately institutions should take a strategic approach to the 3Rs, additional to project licence assessment - focusing on areas of particular concern, for example in terms of animal numbers, severity or utility of the models used within the institution. The approach taken should tap into local expertise, and foster wide scientific engagement at all levels. The Animal Welfare and Ethical Review Body (AWERB) is well placed to lead this if an organisation-wide approach is considered most appropriate. For some institutions, it may be more appropriate for individual Departments to take the lead.