Journal of Paediatrics and Child Health

doi:10.1111/jpc.15507

VIEWPOINT

Rare diseases research and policy in Australia: On the journey to equitable care

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Almost exactly 10 years after the publication of 'Call for a national plan for rare diseases' in this journal, the Federal Government launched the National Strategic Action Plan for Rare Diseases (the Action Plan) on the 26th of February 2020, in the lead up to Rare Disease Day on the 29th of February – a rare day for rare diseases. The Action Plan is the culmination of effective advocacy by Rare Voices Australia (RVA) and other stakeholders in the rare disease (RD) sector. RVA is the peak body for Australians living with a RD. The organisation works collaboratively with RD organisations, researchers and clinicians. Since the initial call for a RD plan, a number of health-care initiatives and policy changes have gathered apace including expanded antenatal and newborn screening, the increasing application of next generation sequencing and advances in gene and cell therapeutics. The development of new models of care, diagnostic and treatment pathways, and communities of practice have started to ease the considerable burden and inequitable access to care experienced by RD patients and their families. However, much work remains to be done. The Action Plan outlines the actions to bring about the best possible health and well-being outcomes for Australians living with RD. It is centred around three pillars – awareness and education, care and support, research and data – and will be delivered against the principles of person centredness, equity, and sustainable systems and workforce.

Key words: children; equitable access; national policy; rare disease.

The Challenges

Individually rare but cumulatively common, rare diseases (RDs) are estimated to affect approximately 2 million Australians,[1–7] similar to the number that suffer from diabetes. Although, by definition, RDs occur infrequently (most have a prevalence of less than one in 2000), it is estimated that there are approximately 7000 RDs that collectively affect 5–8% of Australians.[8,9] Many of these diseases are genetic and the majority (82%) have their onset in childhood and continue throughout life; they may be disabling or life threatening and difficult to diagnose and treat. Patients and their families often complain of a poor health-care experience. Up to 40% of Australian families with a RD reported the diagnosis is often not made, is inaccurate or delayed. Before receiving the correct RD diagnosis, 38% of Australian children with RD consulted ≥ 6 different doctors, with many waiting for more than 3 years for a correct diagnosis to enable access to the right treatment and 27% reported a misdiagnosis.[10] A major contributing factor is the lack of health professional training and knowledge about RD together with lack of clear health-care pathways and access to geneticists, specialised clinics and centres of excellence compared to more common diseases.[11] Such multidisciplinary specialised clinics enable access to specialists and research and decrease health costs, yet they themselves are rare. The problem is further compounded in Australia due to the remote location of many families. Lack of awareness and education about RDs by professionals is often exacerbated by the lack of workforce capacity particularly in an era of rapid advancements in genomics and precision medicine. In 2006, the Productivity Commission's report on health workforce supply identified general gaps that have broad applicability to the RD context; however, matters of direct relevance to RDs were not included in that report.[12]

The inequity in health-care provision that patients with RD receive is further highlighted by lack of access to clinical trials and treatment which is often high cost; this is usually due to small numbers of patients making it financially non-viable for companies to develop drugs or make these drugs available in Australia.[13] Recruitment of trial participants is difficult as many rare conditions are inadequately coded in medical records and RD registries are lacking.[14] Often, case numbers are too low to perform classically designed trials due to small numbers leading to reliance on composite endpoints or open label treatment.[15] In some cases, such as with autologous gene-corrected haematopoietic stem-cell transplant, the experimental treatment can only be given once, without blinding.[16] These types of trials are resource intensive, requiring the care of highly specialised teams for very few patients. Fundraising by NGOs for individual conditions rarely produces sufficient funds for the pipeline of novel therapeutics. A Childhood Dementia Initiative white paper estimated that 1 in 2800 Australian babies are born

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Conflict of interest: None declared.

Accepted for publication 5 April 2021.

with 1 of 70 different genetic conditions with less than 5% having access to definitive treatment.[17] The rapidly evolving genomic landscape requires an agile health-care system that can deliver the most accurate results and hopefully, treatment delivered to the right person by a clinician experienced in the field.

Working Towards a Solution

The need for a coordinated response to meet the needs of RD patients, families and clinicians who care for them was explored by Australian researchers in a 2008 publication.[18] In 2010 Jaffe *et al.*, further called for a national plan for RDs in Australia, citing similar RD national plans that had been adopted in the preceding decade in European countries and North America.[1] The formal study of the epidemiology and impacts of rare childhood conditions by The Australian Paediatric Surveillance Unit (APSU) resulted in a number of important published outcomes, including clarification of paediatricians' perspectives of what information, education and services are required to care for RD patients,[19] and family perceptions of the impact of diagnostic delays.[10,19,20]

In 2018, Rare Voices Australia (RVA) was tasked by the Federal Government to lead the collaborative development of policy infrastructure to provide better health and wellbeing outcomes for people living with a RD. Guided by a multi-stakeholder Steering Committee, this work was informed by an extensive consultation process, including a series of workshops across the country, an online survey and targeted interviews. The National Strategic Action Plan for Rare Diseases (the Action Plan) was published by the Commonwealth Department of Health and Ageing and was launched by the Minister for Health with bipartisan support, on 26th of February 2020.

The Action Plan centres around three interrelated Pillars: Awareness and Education; Care and Support; and Research and Data (Fig. 1). The pillars are not limited to a single governmental portfolio but span health and social care, education and employment. Paediatricians and other clinicians who care for children with RDs have a role in advocating for the implementation of the Action Plan in their local jurisdictions and in their clinics and hospitals. The key to success is identifying the patient's needs irrespective of the specific rare condition. For paediatricians today, holistic patient-centred care is not an esoteric concept but part of the modus operandi. However, for rare conditions, the primary team need to know who to access to provide the most appropriate support, care and treatment, whatever the disorder or location of the patient. The workforce delivering specialised care needs to be sustainable to provide such locally driven outreach care.

A sustainable workforce extends to performing quality research. Novel therapeutics, particularly genetic therapeutics, need to be managed carefully. There was recognition of this in the UK assessment of metabolic services in 2005 – 'Metabolic Pathways – Networks of Care'.[21] The introduction of genomic diagnostics and treatments requires medical and allied health teams experiencing the complex range of presentations of a rare disorder. For instance, a mitochondrial point mutation such as m.3243A > G mean a completely different issue for every member of the family tested ranging from degenerative neuroencephalopathy in childhood, cardiac conduction defects, diabetes to migraines in adult life or asymptomatic carriage of low mutant load.[22] The counselling team need to be able to relay this information effectively. Through national and international networks, they can also provide realistic counselling for supportive treatments, moving into coordination of clinical trials should they arise. Models of care often refer to a 'hub and spoke', model implying a centralised delivery of care. However, in Australia, we will be reliant on networks of regional centres connected both to tertiary/quaternary units and the individual within their community. Supporting the individual in their community empowers the individual, community and local supporting team.

What Can We Do Now?

The huge impact of the COVID-19 global pandemic has had far-reaching consequences with devastating morbidity and mortality rates across the world. Containment processes in Australia have had an impact on patients with RDs, with reduced access to hospitals, delayed elective treatments and isolation at home. Clinical research has also been impacted with research contacts limited. However, the requirement to change delivery of health care allowed for the increased use of virtual medicine which can be leveraged for creating networks of care, even for those living remote to centres of excellence. Patients with rare or severe disorders, with disability requiring multi-disciplinary care, or who live remotely or in a palliative phase of care, can all access care through integrated virtual medicine. The opportunity arises that various specialists at different locations can link into an entire family in their home environment, allowing more seamless holistic care. This can also be applied to virtual multi-disciplinary case conferences, both interstate or internationally. The positives of virtual medicine are clear, yet the implementation of virtual medicine is labour-intensive and limited by the capacity and capability of the clinical workforce. Nevertheless, the greater uptake of virtual care during the pandemic aligns with the recommendations covered in Pillar 2 of the Action Plan and provides momentum to continue providing access to virtual care for patients and families living with RD. Those that have benefitted from this, patients and clinicians alike, could become involved in ongoing advocacy on how this type of model may be implemented long term.

What Happens Next?

The Action Plan marks the beginning of much future work to improve equitable access to care and to improve health outcomes for children with RDs. Strong policy is only effective if it is implemented. Just as the Action Plan was developed collaboratively by the RD sector, for the RD sector, its implementation must be driven by the whole sector. Clinicians and other stakeholders are encouraged to refer to the Action Plan when lodging submissions into inquiries (relevant Parliamentary Inquiries), writing research grants, project proposals, policy submissions and when developing health service plans.

A range of Action Plan implementation activities is underway. The Commonwealth Government announced funding of $3.3 million for RD awareness and education as part of its initial response to the Action Plan. The Standing Committee of Health, Aged Care and Sport are conduction a Parliamentary Inquiry into approval processes for new drugs and novel medical technologies in

Fig 1 The National Strategic Action Plan for Rare Diseases: the plan on a page.

Australia that has a particular focus on RD. The scope of this Inquiry incorporates key priorities from the Action Plan's Care and Support, and Research and Data pillars. The RD sector has actively participated in this Inquiry and RVA has had a key role in the public hearings which commenced in March 2021. The Action Plan highlights urgent funding gaps in Newborn

Bloodspot Screening (NBS). The Australian Government has moved to increase funding sustainability through repositioning NBS as Health Technology Assessment under the National Health Reform Agreement. It is critical that all Governments work together to progress RD centres of excellence. These centres are vital to accumulating knowledge and expertise, to prioritising diagnostics and pathways, to delivering integrated care and support, to clinical trials and research.

There is an abundance of RD expertise around Australia to make the Action Plan a reality, with experts across multiple sectors working together with patients to ensure a person-centred approach to care and support. The Action Plan provides the much-needed scaffolding to support ongoing development of awareness and education, care and support, research and data use through interdisciplinary partnerships with RD patients at the centre, establishment of networked communities of practice, centres of excellence and comprehensive data platforms.

Australia is at a critical time in the field of RDs, we need to get the foundations right given the accelerating pace of precision medicine. We need critical infrastructure and investment to support our patients in getting a timely diagnosis. We need to be able to measure clinical outcomes, including meaningful patient centred outcomes, by using integrated health-care data and registries. We need novel approaches to precision medicine including novel trial designs, a Health Technology Assessment (HTA) process that is agile and able to respond to this area, increased access to drugs using new technologies to ensure patients get equitable access to treatments and we need to support patients and families to help them navigate the complex medical system through care integration and coordination. We also need to create a sustainable workforce with expertise in RDs. If we do not do this now, we will lament the missed critical opportunities in years to come to the detriment of the patients with RD we care for; the Action Plan gives us that framework.

Acknowledgement

We wish to acknowledge the in-kind support of Rare Voices Australia.

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