australian nursing federation

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Public Submissions
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## 1. INTRODUCTION

**1.1** The Australian Nursing Federation (ANF) welcomes the opportunity to make a submission to the National Nanotechnology Strategy Taskforce.

**1.2** The ANF is the national union for nurses in Australia with branches in each state and territory. The ANF is also the largest professional nursing organisation in Australia. The ANF's core business is the industrial and professional representation of nurses and nursing in Australia.

**1.3** The ANF's 150,000 members are employed in a wide range of enterprises in urban, rural and remote locations in the public, private and aged care sectors, including hospitals, health services, schools, universities, the armed forces, statutory authorities, local government, offshore territories and industries.

**1.4** The ANF participates in the development of policy in nursing, nursing regulation, health, community services, veterans affairs, education and training, occupational health and safety, industrial relations, immigration and law reform.

## SUBMISSION

**2.1** The ANF recognises that nanotechnology is an emerging technology with diverse current and potential applications. The ANF is interested in the advantages of nanotechnology in improving the health and wellbeing of the community, and also in the impact it may have on the environment.

**2.2** One of the areas nanotechnology is said to have considerable application is in the provision of health care. This includes utilising nanotechnology in the production of medical devices; potential applications in surgery; disease diagnosis and therapy; implant technology; tissue engineering; as well as in devices for drug delivery.

**2.3** There are medical devices which utilise nanotechnology already commercially available in the United States of America, including surgical blades, suture needles, bone replacement materials, wound dressings, anti-microbial textiles and coatings and other devices. While some medical devices are now in use, other applications of nanotechnology in a medical context are still in their infancy.

**2.4** There are a range of stakeholders in the production, use and disposal of medical and other nanotechnology products, including manufacturers, regulating authorities, health care providers and health care consumers. As well as that there are implications for the broader community from both health and environmental points of view. The risks to all stakeholders in developing and using nanotechnology products needs to be monitored carefully and balanced against the benefits, which means there needs to be strong risk management strategies in place.

**2.5** The risks and hazards to human health and the environment in the production, use and disposal of nanoparticles are yet to be thoroughly ascertained. The potential hazards of nanoparticles to the human body, indicated by research, include:

- Toxicity due to their minute size and their ability to be absorbed by the body through the skin, respiratory and digestive systems. This may be a risk particularly during manufacture, where particles are not fastened to a surface, and also during use and disposal.
- The ability of nanoparticles to transport other chemicals that, if absorbed by the body, could have toxic effects.
- The as yet unpredictable behaviour of nanoparticles due to their small size and increased surface area compared to regular sized particles of the same nature.
- The lack of information information as yet about how nanoparticles affect other species, or how they may behave in the air, water or soil. At this stage, nanoparticles should be treated as hazardous.

**2.6** The development of nanotechnology is an international phenomenon and research being conducted into the applications and impacts of nanotechnology are also international, so the ANF would recommend that the Australian bodies charged with examining the impacts of nanotechnology participate in and utilise overseas research efforts.

Those Australian bodies and the bodies that approve and regulate the use of drugs and medical devices for the Australian community need to be properly resourced and equipped to thoroughly assess the safety and impact of products utilising nanotechnology.

**CONCLUSION**

**3.0** In their report to the UK Government, the Royal Society and the Royal Academy of Engineers say that there is a lack of evidence about the risk posed by manufactured nanoparticles which results in considerable uncertainty. They emphasise the need for immediate further research into the potential adverse impacts of nanotechnology, and suggest ways this might be conducted. In addition, they recommend that full, adequately funded public dialogue around the development of nanotechnology take place. The ANF acknowledges the Royal Society's observations, and supports those recommendations.

Please contact Fiona Armstrong (03-9639 5211 fiona@anf.org.au) if you have any questions regarding this submission.

**REFERENCES**

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