# Personal Protective Equipment Challenge

*2021 NSW Small Business Innovation & Research Program*

## Background

The NSW Small Business Innovation & Research (SBIR) program is an initiative of the NSW Government that provides competitive grants to small and medium-sized enterprises (SMEs) to find and commercialise innovative solutions to well-defined problems for NSW Government agencies. Further information about the SBIR program is available on the Office of the NSW Chief Scientist & Engineer website. This document sets out the Personal Protective Equipment (PPE) Challenge for the 2021 SBIR program.

## Challenge summary

The NSW Ministry of Health is seeking a solution to minimise waste associated with discarded PPE and sterile wrap. Operational requirements mean that unused PPE must be discarded after use or by its 'use by' date. The NSW Ministry of Health wants a solution to reduce the waste streams associated with PPE and sterile wrap.

Technology solutions might include, but are not limited to:

- Technologies and processes to recycle or recover PPE and sterile wrap back to raw plastic form for ready resale into other markets
- Resource separation systems to generate an uncontaminated material stream that can be reprocessed
- Technologies to reduce the volume of PPE or sterile wrap generated in medical settings.

## Overview of challenge

Personal protective equipment (PPE) provides protection against transmission of infectious diseases. Primary PPE includes masks, impervious gowns, eye protection and gloves. Sterile wrap is used in hospitals in the sterilisation of clinical tools and equipment. PPE and sterile wrap is typically made from polypropylene. Used PPE and sterile wrap is discarded and ends up in landfill.

The COVID-19 pandemic has increased use of PPE, not just in health care settings, but in the community more generally. While increased use of this equipment is important for controlling the pandemic, it is increasing the volume of waste produced. The NSW Ministry of Health, as a major user of PPE and sterile wrap, is seeking sustainable solutions to reduce waste associated with these products.

## Solution requirements

The solution should comprise both the technology and the method for applying that technology in NSW healthcare settings, to reduce the volume of PPE and sterile wrap associated waste that goes to landfill.

Proposals must:

- demonstrate that the technology and method:
    - can comply with infection control and healthcare operating requirements
    - can cost effectively reduce waste in a healthcare setting
    - is robust, practical, scalable and functional in a healthcare setting.

- describe how the solution impacts the whole of life of PPE and sterile wrap considering raw materials, procurement, operations, waste management, recovery, and if applicable, recycling or reuse,
- describe how the solution would comply with the Whole of Government Waste Contract (c9698): buy.nsw.gov.au/contracts/waste-management.

This challenge is agnostic to the type of technology used and is seeking the most effective and efficient technology and methodology. Applicants may propose a single technology or device, or an integrated suite of technologies and devices.

Proposed solutions that can also be deployed in non-healthcare settings will be highly regarded.

## Benefits of the solution

Solutions for reducing PPE and sterile wrap waste would provide environmental and economic benefits for NSW, Australia and globally. In healthcare settings, waste management is a major cost and minimising waste would reduce these costs while also reducing the impact of waste disposal on the environment.

The COVID-19 pandemic has also dramatically increased demand for PPE outside healthcare settings in hospitality, transport and government services. For example, during the pandemic, demand for masks has risen to over 120 billion masks per month. This enlarges the potential end markets for any solution developed in response to this challenge, increasing the potential environmental and economic benefits. Further, as more consumers, companies and governments become aware of the impacts of waste, solutions to reduce waste are likely to be in increased demand. This demand, coupled with the introduction of more price signals in the waste market (for example, the container deposit scheme), will also enhance the commercial attractiveness of these solutions.

### How to apply

For more information please visit www.chiefscientist.nsw.gov.au/sbir