Time submitted: 28/04/2020 04:57:36 PM

Submission Number: NND.001.01173

Submission Of: John Biviano

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What is your submission based on? I am making this submission based on my professional knowledge, qualifications or experience or on behalf of a group or organisation

What is your area of professional expertise?

If you are lodging your submission on behalf of a group or organisation, what is the name of the group or organisation? Royal Australasian College of Surgeons

Your Submission

In your experience, what areas of the bushfire emergency response worked well?

See comments under, 'Is there anything else you would like to tell the Royal Commission?'

In your experience, what areas of the bushfire emergency response didn't work well?

See comments under, 'Is there anything else you would like to tell the Royal Commission?'

In your experience, what needs to change to improve arrangements for preparation, mitigation, response and recovery coordination for national natural disaster arrangements in Australia?

See comments under, 'Is there anything else you would like to tell the Royal Commission?'

Is there anything else you would like to tell the Royal Commission?

Dear Commissioners,
Re: SUBMISSION TO THE ROYAL COMMISSION INTO NATURAL DISASTER ARRANGEMENTS - PLEASE NOTE THAT A FORMATTED PDF VERSION OF THIS SUBMISSION, INCLUDING ENDNOTE REFERENCES HAS BEEN ATTACHED TO THIS SUBMISSION.

Surgeons' involvement in treating the health impacts of bushfires & other natural disasters:
Surgeons play leading roles in treating the health impacts of disasters such as the major bushfires which occurred during 2019-20; the 'black summer'. In the immediate aftermath of such fires, specialty trained burn surgeons (plastic, paediatric and general) are key in the treatment of major burns. All surgeons trained and involved in Trauma are involved in the immediate management of injured firefighters and the public, as a result of traffic and other accidents in poor visibility due to smoke. Our trainees are often the first point of contact between patient and surgical service for initial triage, assessment and management.
Frontline health workers are subject to extraordinary physical, psychological and professional demands during emergency responses to natural disasters and other mass casualty events. Our surgeons exist in this space. Formal support structures are essential for disaster preparedness. An effective and holistic strategy is needed to ensure workforce sustainability and protection of staff at-risk of immediate and long-term effects of exposures including infectious diseases, severe trauma and system capacity overload.
RACS therefore provides the following comments as an important stakeholder in dealing with both the short-term and long-term impacts of bushfires & other natural disasters.

1. Burns surgery and the impact on surgeons and hospital systems during the 'black summer' fires
The two main issues from a burn surgery perspective that came out of the recent bushfires were:
• The lack of allograft stockpiles in skin banks which was raised at the 2009 Black Saturday Royal Commission.
• The lack of rehabilitation beds.
When a patient is severely burnt such that they have insufficient harvestable skin of their own, a temporary cover is required, either banked allograft (cadaver) skin or biodegradable temporizing matrix (BTM), but often both depending on clinical circumstance. With respect to skin banking, there is currently no national stockpile of donor skin essential for treating patients' severe burns in mass casualty events. During the New Zealand Whakaari/White Island volcano fires last year, most of the available Australian skin went to New Zealand as there was a delay in the supply of skin from the USA. When some of the severely burnt patients were then transferred back to Australia to be treated, many required allograft, which was no longer available. Then with the extensive severe summer fires in New South Wales, Victoria and South Australia, burns units needing to use allograft were still dependant on imported skin. Now with the COVID-19 lockdown, skin shortages are likely to become worse due to limited donors as well as limited capacity to import from overseas or between states.
This highlights a major problem in our preparation for future bushfires (and other multiple burn casualty events such as terrorist activity), which with climate change, are predicted to be more severe and frequent. If we were to have more than one bushfire in quick succession, or just one bushfire that involves multiple casualties, Australia does not have enough skin reserve in the tissue banks to manage mass casualties as occurred in the Black Saturday fires in 2009. This matter was raised at the Commission for those fires. Australia is exposed by its lack of self-sufficiency.
A second issue is the availability of downstream rehabilitation beds for burns patients. When a bushfire occurs resulting in burn casualties, they do not come in slowly over days, they come in en masse overwhelming limited resources. Currently there are only two rehab beds allocated to all burns patients in New South Wales. On average, during a normal year without a major event such as a bushfire, New South Wales would manage approximately 60 major burns patients a year. Add in a bushfire, and then resources are immediately inadequate. Victoria and South Australia face the same problem. An increase in the number of rehab beds for burns patients is essential.

2. Australian Trauma Verification and Registry
Whether in the delivery of day-to-day care of individual patients, within the context of mass casualty incidents, or natural disasters of the scale

just experienced via the bushfires, a verified trauma system is the best way for Australia to manage surgical casualties, whether they sustain penetrating, blunt or burn injuries. Trauma verification is a multidisciplinary process of evaluation of prehospital triage, transport, hospital management and rehabilitation of injured patients. The Australasian Trauma Verification program is led by the Royal Australasian College of Surgeons with direct support from the Australian and New Zealand College of Anaesthetists, the Australasian College of Emergency Medicine, College of Intensive care of Australian and New Zealand, registered nurses and allied health practitioners.
Key elements of the program pertinent to the recent fires are the integration of patient transport across jurisdictions, and the involvement of trauma expertise in the disaster planning response. The AUSBURNPLAN developed in response to the Bali bombings in 2002 was predicated on the established processes of Trauma Verification. In addition, the Australian Trauma Registry integrates data from 27 trauma centres around Australia. The emphasis is on quality control of management of the most severely injured patients. The registry has recently provided data pertaining to severe injuries following road crashes to the Bureau of Infrastructure Transport and Regional Economics, providing a snapshot of the burden of road crashes at a national level. The benefit of timely integration of national datasets was recently demonstrated in response to the COVID-19 pandemic.

3. Reduced surgical capacity in rural and regional areas of Australia
The 'black summer' fires were, and natural disasters are, principally a concern of rural and regional areas. Burns teams from metropolitan hospitals were deployed to regional towns to reinforce credentialled experts and resources. Of great concern to the Royal Australasian College of Surgeons is the long-term problem of geographic misdistribution of medical specialists and general practitioners predominating in metropolitan rather than rural and regional areas. RACS's 2018 census survey indicates that only 15.7 percent of surgeons are based in rural areas, whereas close to 30 percent of the overall population lives in those rural areas (MMM2-7 areas).
After drawing the attention of the jurisdictions to this misdistribution, RACS has been actively working with the Commonwealth and States to identify what structural issues have caused this, and how it might be overcome. Meanwhile, the College has been doing its part in appropriately training surgeons to fill these rural roles. It is essential that this collaboration ensures that rural areas are not left short of appropriately trained staff in an era of potentially more frequent and extreme natural disasters.

4. Prehospital triage issues
Trauma systems to manage severely injured patients save lives and prevent long-term disability. Critical to this is pre-hospital triage. We cannot at this point speak to the quality of prehospital triage during natural disasters in Australia such as the 'black summer' bushfires but a 2017 academic review examined the accuracy of protocol-based triage systems. It found that almost all protocols examined failed to identify severely injured patients. Whilst prehospital triage data is not available for Australia during times of natural disasters, it is imperative that we review current triaging standards, and ensure the highest quality of care for the most injured. For example, key to identifying and treating severely injured patients is communication, which includes specialists and surgeons. National natural disasters, likely to become more frequent and extreme are very stressful to first responders which include paramedics, firefighters, other emergency service personnel and rural surgical/nursing staff. They need to be trained to support accurate triage and report to the relevant health service and to be supported after the event. In the case of burns, participation in the Emergency Management of Severe Burns (EMSB) course is recommended, particularly for all rurally based surgeons.
Once the severely injured patient is identified, communication with specialists including surgeons in designated specialist centers is key. The immediate management of burns prior to transfer improves survival. This means accurate burn assessment, immediate fluid management and where necessary, escharotomy. These skills must be readily available in local district hospitals. The additional benefit of such skills is that it will enable local management of less severe burns avoiding transfer preventing the unnecessary overloading of Burns units as happened to the Alfred Hospital Burns Unit following the Black Saturday fires in 2009.

5. Telecommunications network failure disconnecting surgical services
One response to the maldistribution of surgical services has been to encourage the use of video telecommunication in rural and regional areas. However, last summer there were numerous reports of telecommunications infrastructure being damaged and becoming inactive due to the fires. With climate change and the bushfire season predicted to be more frequent and longer, infrastructure needs to be made more robust e.g. NBN, satellite to allow highly specialized urban surgeons to communicate with local rural service at the injury scene.

6. Increased domestic violence needing surgical treatment
A number of studies have found that domestic violence increases in the wake of disasters. Evidence of increased domestic violence following the Victorian Black Saturday in 2009 is described in the Australian Journal of Emergency Management article, 'The hidden disaster: domestic violence in the aftermath of natural disaster'. We do not have evidence of increased domestic violence following the summer fires but a February 2020 ABC report suggested it might be so.
Surgeons of all specialties are likely to interact with survivors of domestic violence. Workforce training in family violence and referrals to support service networks will enable surgeons to act as the key bridge for a domestic violence survivor to access support services such as policy, legal authorities and the social support systems.' While such training should be in place generally, in post-disaster situations, given the evidence of increased domestic violence, additional emphasis appears warranted.

7. Lack of surgical capacity in disaster-prone areas of the wider region.
Many countries in our region, particularly Pacific Island nations are already particularly vulnerable to natural disasters and we are told this vulnerability is likely to worsen. Further, for some, their health and surgical capacity is already not strong. To provide assistance to a natural disaster, the ability to rapidly deploy a mobile surgical taskforce for not only Australia and New Zealand but for our Pacific neighbours is essential.
Following the Bali Bombing in 2002; the National Trauma and Critical Care Response Centre (NTCCRC) was established. It manages Australian Medical Assistance Teams (AUSMAT). It has deployable teams based in all states/territories. Though originally established with an international focus, they are being turned to a domestic role when for the first time they were deployed to the January 2020 fires in New South Wales and Victoria. Lessons learnt from the Centre, particularly the ability to provide surge capacity and retrieval would be useful in planning for future events.
8. Retrieval of large numbers of casualties from natural disasters.
Video telecommunication as indicated above can assist in triage and patient management. However, those triaged for surgical intervention in a specialist centre need to be retrieved, which in the case of a fire front might be from a remote location. This means there must be established networks of services that have proven communication and transport ready to utilise at very short notice. To remain prepared, these networks would undergo frequent rehearsal. This is the value of NTCCRC/AUSMAT. Training standards of their teams have been credentialed by the World Health Organization and Australian Council for Health Care Standards. Hospitals must be able to have advanced warning and have hospital wide protocols in place to clear beds and theatres to receive casualties. This too is the value of Trauma verification (credentials training) and Trauma Registries which allows planning for future events.
Surgeons have demonstrated their capacity to work collaboratively. Examples are the Bali bombing referred to above as well as the New

Zealand Whakaari/White Island volcano disaster where Australian and New Zealand Surgeons of the Australian and New Zealand Burns Association (ANZBA) worked collaboratively together. Now with the COVID-19 pandemic, surgeons via the Royal Australasian College of Surgeons and Specialty Societies and Associations have rapidly adapted in preparing for treating COVID-19 patients (guidelines for treatment/PPE, elective surgery prioritization, training, equipment, skills). The collaborative network with all Specialist Colleges has assisted this. However, as was raised in the Letters Patent establishing this Royal Commission, what would support this collaboration is "an overall nationally consistent accountability and reporting framework with national standards."

9. Longer-term health impacts as a result of the 'black summer' fires which may require surgical intervention
It is yet to determined if there will be long-term consequences of prolonged smoke inhalation as a result of the fires. Only ongoing research will determine if this is the case and will require future resources.

10. Climate change and other global risks
The Royal Australasian College of Surgeons is concerned about Climate Change and in February 2018 published a position paper, 'Environmental Impact of Surgical Practice'. In mitigating the impact of surgical practice, it proposes initiatives to reduce, reuse, recycle, rethink and research. The College has established the Sustainability in Surgical Practice Working Group to provide advice on such initiatives. We note that the Australia-based Commission for Human Future recently identified global warming/climate change as just one of ten threats confronting the world. The recommendations they make is that these inter-related issues need to be resolved together. Healthcare is an important component and as surgeons we have been forced into this space by the bushfires. We are reporting back to the Royal Commission about our experience in the field and the challenges we face.

11. A final comment
During the 'black summer' fires the overall number of patients who required hospitalisation, with injuries requiring surgical care could have been far worst. This is a credit to the integrated actions of the emergency services in the impacted jurisdictions, the effective messaging to the communities under threat, and the appropriate actions taken by most community members.
Special credit must be paid to the state emergency services commissioners, Ms Carlene York, New South Wales, Mr Andrew Crisp, Victoria, Mr Chris Beattie, South Australia, and Ms Georgeina Whelan, Australian Capital Territory, who as a senior ranking general services army health officer and leader of an ANZAC field hospital with on the ground experience during the Asian tsunami of 2004, is a welcome addition.

WE RECOMMEND
1. Establish a framework of medical emergency systems, which are integrated, benchmarked for performance, based on national standards/guidelines including triage and regularly tested for capacity. Better use needs to be made of AUSMAT and its approved standards.
2. Commonwealth and State jurisdictions to be able to collaborate in declaring an emergency and overseeing the response.
3. Commonwealth funding to support the regular conduct of state trauma reviews via the Australasian Trauma Verification program
4. Material support for the maturation of the Australian Trauma Registry to benefit the timely provision of accurate detailed injury data
5. For the benefit of both emergency and medical teams, fire and flood proof rural video telecommunication systems.
6. To enhance surge capacity, utilise the skills/lessons learnt by the rapid deployment of AUSMAT surgical teams not only in the international environment but encourage an increasing role in the domestic environment.
7. Commonwealth and State Governments to work collaboratively with the Royal Australasian College of Surgeons to improve access to appropriately trained and resourced surgical services in rural/fire-prone areas. This will improve resilience.
8. Ensure first responders are trained to support accurate pre-hospital triage/provide immediate management and ensure systems exist for them to communicate with a network of surgeons and other medical specialists. All medical Practitioners in fire prone areas should attend the Emergency Management of Severe Burns course.
9. Workforce training in family violence recognition and referral to enable surgeons to act as the key bridge for a domestic violence survivor to access support services
10. Ensure adequate stockpiles of allograft and BTM (biodegradable temporary matrix) for mass burn casualty events.
11. Increase the number of rehabilitation beds dedicated to burns patients.

Yours sincerely,
Dr Tony Sparnon
President
Royal Australasian College of Surgeons

[redacted]
Royal Australasian College of Surgeons

Do you agree to your submission being published? Yes I agree to my submission being published in my name

Supporting material provided:

28_4_20_FINAL_RACS Submission Bushfire Royal Commission.pdf

Royal Australasian
College of Surgeons

28.04.20

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Air Chief Marshal Mark Binskin AC (Retd),
The Honourable Dr Annabelle Bennett AC SC,
& Professor Andrew Macintosh
Royal Commission into Natural Disaster Arrangements
Locked Bag 2000
Manuka, ACT 2603

Dear Commissioners,

Re: SUBMISSION TO THE ROYAL COMMISSION INTO NATURAL DISASTER ARRANGEMENTS

Surgeons' involvement in treating the health impacts of bushfires & other natural disasters

Surgeons play leading roles in treating the health impacts of disasters such as the major bushfires which occurred during 2019-20; the 'black summer'. In the immediate aftermath of such fires, specialty trained burn surgeons (plastic, paediatric and general) are key in the treatment of major burns. All surgeons trained and involved in Trauma are involved in the immediate management of injured firefighters and the public, as a result of traffic and other accidents in poor visibility due to smoke. Our trainees are often the first point of contact between patient and surgical service for initial triage, assessment and management.

Frontline health workers are subject to extraordinary physical, psychological and professional demands during emergency responses to natural disasters and other mass casualty events. Our surgeons exist in this space. Formal support structures are essential for disaster preparedness. An effective and holistic strategy is needed to ensure workforce sustainability and protection of staff at-risk of immediate and long-term effects of exposures including infectious diseases, severe trauma and system capacity overload.

RACS therefore provides the following comments as an important stakeholder in dealing with both the short-term and long-term impacts of bushfires & other natural disasters.

1. Burns surgery and the impact on surgeons and hospital systems during the 'black summer' fires

The two main issues from a burn surgery perspective that came out of the recent bushfires were:

- The lack of allograft stockpiles in skin banks which was raised at the 2009 Black Saturday Royal Commission.
- The lack of rehabilitation beds.

When a patient is severely burnt such that they have insufficient harvestable skin of their own, a temporary cover is required, either banked allograft (cadaver) skin or biodegradable temporizing matrix (BTM), but often both depending on clinical circumstance. With respect to skin banking, there is currently no national stockpile of donor skin essential for treating patients' severe burns in mass casualty events. During the New Zealand Whakaari/White Island volcano fires last year, most of the available Australian skin went to New Zealand as there was a delay in the supply of skin from the USA. When some of the severely burnt patients were then transferred back to Australia to be treated, many required allograft, which was no longer available. Then with the extensive severe summer fires in New South Wales, Victoria and South Australia, burns units needing to use allograft were still dependant on imported skin. Now with the COVID-19 lockdown, skin shortages are likely to become worse due to limited donors as well as limited capacity to import from overseas or between states.

This highlights a major problem in our preparation for future bushfires (and other multiple burn casualty events such as terrorist activity), which with climate change, are predicted to be more severe and frequent. If we were to

have more than one bushfire in quick succession, or just one bushfire that involves multiple casualties, Australia does not have enough skin reserve in the tissue banks to manage mass casualties as occurred in the Black Saturday fires in 2009. This matter was raised at the Commission for those fires. Australia is exposed by its lack of self-sufficiency.

A second issue is the availability of downstream rehabilitation beds for burns patients. When a bushfire occurs resulting in burn casualties, they do not come in slowly over days, they come in en masse overwhelming limited resources. Currently there are only two rehab beds allocated to all burns patients in New South Wales. On average, during a normal year without a major event such as a bushfire, New South Wales would manage approximately 60 major burns patients a year. Add in a bushfire, and then resources are immediately inadequate. Victoria and South Australia face the same problem. An increase in the number of rehab beds for burns patients is essential.

2. Australian Trauma Verification and Registry

Whether in the delivery of day-to-day care of individual patients, within the context of mass casualty incidents, or natural disasters of the scale just experienced via the bushfires, a verified trauma system is the best way for Australia to manage surgical casualties, whether they sustain penetrating, blunt or burn injuries. Trauma verification is a multidisciplinary process of evaluation of prehospital triage, transport, hospital management and rehabilitation of injured patients. The Australasian Trauma Verification program is led by the Royal Australasian College of Surgeons with direct support from the Australian and New Zealand College of Anaesthetists, the Australasian College of Emergency Medicine, College of Intensive care of Australian and New Zealand, registered nurses and allied health practitioners.

Key elements of the program pertinent to the recent fires are the integration of patient transport across jurisdictions, and the involvement of trauma expertise in the disaster planning response. The AUSBURNPLAN developed in response to the Bali bombings in 2002 was predicated on the established processes of Trauma Verification. In addition, the Australian Trauma Registry integrates data from 27 trauma centres around Australia. The emphasis is on quality control of management of the most severely injured patients. The registry has recently provided data pertaining to severe injuries following road crashes to the Bureau of Infrastructure Transport and Regional Economics, providing a snapshot of the burden of road crashes at a national level. The benefit of timely integration of national datasets was recently demonstrated in response to the COVID-19 pandemic.

3. Reduced surgical capacity in rural and regional areas of Australia

The ‘black summer’ fires were, and natural disasters are, principally a concern of rural and regional areas. Burns teams from metropolitan hospitals were deployed to regional towns to reinforce credentialled experts and resources. Of great concern to the Royal Australasian College of Surgeons is the long-term problem of geographic misdistribution of medical specialists and general practitioners predominating in metropolitan rather than rural and regional areas. RACS’s 2018 census survey indicates that only 15.7 percent of surgeons are based in rural areas, whereas close to 30 percent of the overall population lives in those rural areas (MMM2-7 areas).[i]

After drawing the attention of the jurisdictions to this misdistribution, RACS has been actively working with the Commonwealth and States to identify what structural issues have caused this, and how it might be overcome. Meanwhile, the College has been doing its part in appropriately training surgeons to fill these rural roles. It is essential that this collaboration ensures that rural areas are not left short of appropriately trained staff in an era of potentially more frequent and extreme natural disasters.

4. Prehospital triage issues

Trauma systems to manage severely injured patients save lives and prevent long-term disability. Critical to this is pre-hospital triage[ii]. We cannot at this point speak to the quality of prehospital triage during natural disasters in Australia such as the ‘black summer’ bushfires but a 2017 academic review[iii] examined the accuracy of protocol-based triage systems. It found that almost all protocols examined failed to identify severely injured patients. Whilst prehospital triage data is not available for Australia during times of natural disasters, it is imperative that we review current triaging standards, and ensure the highest quality of care for the most injured. For example, key to

identifying and treating severely injured patients is communication, which includes specialists and surgeons. National natural disasters, likely to become more frequent and extreme are very stressful to first responders which include paramedics, firefighters, other emergency service personnel and rural surgical/nursing staff. They need to be trained to support accurate triage and report to the relevant health service and to be supported after the event. In the case of burns, participation in the Emergency Management of Severe Burns (EMSB) course is recommended, particularly for all rurally based surgeons.

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Surgeons of all specialties are likely to interact with survivors of domestic violence. Workforce training in family violence and referrals to support service networks will enable surgeons to act as the key bridge for a domestic violence survivor to access support services such as policy, legal authorities and the social support systems.'[vii] While such training should be in place generally, in post-disaster situations, given the evidence of increased domestic violence, additional emphasis appears warranted.

7. Lack of surgical capacity in disaster-prone areas of the wider region.

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NTCCRC/AUSMAT. Training standards of their teams have been credentialed by the World Health Organization and Australian Council for Health Care Standards**.** Hospitals must be able to have advanced warning and have hospital wide protocols in place to clear beds and theatres to receive casualties. This too is the value of Trauma verification (credentials training) and Trauma Registries which allows planning for future events.

Surgeons have demonstrated their capacity to work collaboratively. Examples are the Bali bombing referred to above as well as the New Zealand Whakaari/White Island volcano disaster where Australian and New Zealand Surgeons of the Australian and New Zealand Burns Association (ANZBA) worked collaboratively together. Now with the COVID-19 pandemic, surgeons via the Royal Australasian College of Surgeons and Specialty Societies and Associations have rapidly adapted in preparing for treating COVID-19 patients (guidelines for treatment/PPE, elective surgery prioritization, training, equipment, skills). The collaborative network with all Specialist Colleges has assisted this. However, as was raised in the Letters Patent establishing this Royal Commission, what would support this collaboration is “an overall nationally consistent accountability and reporting framework with national standards.”

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It is yet to determined if there will be long-term consequences of prolonged smoke inhalation as a result of the fires. Only ongoing research will determine if this is the case and will require future resources.

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11. A final comment

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WE RECOMMEND

1. **Establish a framework of medical emergency systems, which are integrated, benchmarked for performance, based on national standards/guidelines including triage and regularly tested for capacity. Better use needs to be made of AUSMAT and its approved standards.**
2. **Commonwealth and State jurisdictions to be able to collaborate in declaring an emergency and overseeing the response.**
3. **Commonwealth funding to support the regular conduct of state trauma reviews via the Australasian Trauma Verification program**

4. **Material support for the maturation of the Australian Trauma Registry to benefit the timely provision of accurate detailed injury data**
5. **For the benefit of both emergency and medical teams, fire and flood proof rural video telecommunication systems.**
6. **To enhance surge capacity, utilise the skills/lessons learnt by the rapid deployment of AUSMAT surgical teams not only in the international environment but encourage an increasing role in the domestic environment.**
7. **Commonwealth and State Governments to work collaboratively with the Royal Australasian College of Surgeons to improve access to appropriately trained and resourced surgical services in rural/fire-prone areas. This will improve resilience.**
8. **Ensure first responders are trained to support accurate pre-hospital triage/provide immediate management and ensure systems exist for them to communicate with a network of surgeons and other medical specialists. All medical Practitioners in fire prone areas should attend the Emergency Management of Severe Burns course.**
9. **Workforce training in family violence recognition and referral to enable surgeons to act as the key bridge for a domestic violence survivor to access support services**
10. **Ensure adequate stockpiles of allograft and BTM (biodegradable temporary matrix) for mass burn casualty events.**
11. **Increase the number of rehabilitation beds dedicated to burns patients.**

Yours sincerely,

[redacted]

Dr Tony Sparnon
President
Royal Australasian College of Surgeons

[redacted]

[redacted]
Surgical Practice Working Group
Royal Australasian College of Surgeons
[redacted]

NOTE:

The RACS Environmental Sustainability in Surgical Practice Working Group would like to thank the following RACS groups and individuals for their contributions to the production of this submission; Professional Development and Standard Board (PDSB) and [redacted], Research, Audit and Academic Surgery (RAAS), Australian Safety and Efficacy Register of New Interventional Procedures-Surgical (ASERNIP-S), Rural Surgery Section (RSS) and [redacted], Censor in [redacted], Trainees' Association (RACSTA) and [redacted], Trauma Committee and Executive Committee [redacted], Australian Society of Plastic Surgeons (ASPS) and [redacted], Australian and New Zealand Society of Cardiac and Thoracic Surgeons (ANZSCTS) and [redacted], [redacted] Director Trauma National Critical Care & Trauma Response Centre Darwin, Consultant General Surgeon Royal Darwin Hospital, Policy and Advocacy Team

Follow on Page

[i] Australian Institute of Health and Welfare. Rural & remote health [Internet]. Canberra: Australian Institute of Health and Welfare, 2019 [cited 2020 Apr. 21]. Available from: https://www.aihw.gov.au/reports/rural-remote-australians/rural-remote-health

[ii] Cameron PA, Gabbe BJ, Smith K and Mitra B,'Triaging the right patient to the right place in the shortest time', *Br J Anaesth*, 113(2), 2014, 226-33. [10.1093/bja/aeu231

[iii] van Rein EAJ, Houwert RM, Gunning AC, Lichtveld RA, Leenen LPH and van Heijl M. 'Accuracy of prehospital triage protocols in selecting severely injured patients: A systematic review', *J Trauma Acute Care Surg*, 83(2), 328-39. 2017, [10.1097/TA.0000000000001516]

[iv] Cleland, H. J., Proud, D., Spinks, A., & Wasiak, J. (2011). 'Multidisciplinary team response to a mass burn casualty event: outcomes and implications', *The Medical Journal of Australia*, 194(11), 589–593.)

[v] Parkinson, Debra, Zara, Claire, 'The hidden disaster: domestic violence in the aftermath of natural disaster', *Australian Journal of Emergency Management,* 28 (2), April 2013 https://search.informit.com.au/documentSummary;dn=364519372739042;res=ielhss

[vi] Gleeson, Haley., 'A new bushfire crisis is emerging as experts brace for an imminent surge in domestic violence', *ABC Online*, 24 February 2020, https://www.abc.net.au/news/2020-02-24/domestic-violence-anticipated-spike-bushfires-crisis/11980112

[vii] Mukherjee, Payal, Tieu, Elaine, 'Addressing domestic violence: the surgeon's role', *ANZ Journal of Surgery,* 90 (4), April 2020

[viii] Environmental Impact of Surgical Practice, *Royal Australasian College of Surgeons Position Paper*, February 2018, ref REL-GOV-037 https://umbraco.surgeons.org/media/1641/2018-02-20_pos_rel-gov-037_environmental_impact_of_surgical_practice.pdf