

Review of the South Australian Coroner's Inquest Finding Into the death of Lucas Latouche Mazzei on 27 March 2017

On Monday 27 March 2017, thirteen days after his 5th birthday, Lucas Latouche Mazzei choked on a nectarine stone and suffered a severe upper airway obstruction leading to a significant period of cerebral hypoxia that resulted in his death. Attempts by teachers and ambulance paramedics failed to save Lucas. The South Australian Coroner conducted an inquiry into the circumstances of this tragic death and made several determinations and recommendations in 2023 as a result.

During the inquiry and as a basis for many of the recommendations, the coroner in this case relied heavily on the expert testimony of Professor Anne-Maree Kelly. It should be noted that while a hospital-based emergency medical specialist and academic, there is no evidence from her qualifications, experience, or published work that Professor Kelly has a specific and detailed understanding of the international evidence and guidelines development for the application of pre-hospital measures in the management of choking.

While the coroner must rely on expert evidence to understand the technical aspects of a case of death and inform their decisions and recommendations, it is unfortunate that the advice and input provided by Professor Kelly was simplistic and clichéd for the most part, rather than coming from a deeper understanding of the subject of first aid for choking, evidence for and training at a BLS level. The opinion did not consider the possibility that the first aid measures used (regardless of training) were (and are) ineffective in cases of severe upper airway obstruction and that this may be a fundamental flaw in the guidance rather than a technical issue and “bad luck” as suggested. Secondly, the suggestion that Lucas was “unsavable” under the circumstances and there is nothing more that could have been done to remove the obstruction. This also demonstrates a lack of deeper knowledge about the evidence for first-aid measures and ignorance as to the existence of suction-based airway clearance devices.

This paper will specifically address the shortcomings of the coroner's inquiry, the errors in the expert advice relied upon, and how the recommendations made will not prevent future deaths in schools from choking, without an appropriate review.

On Wednesday, July 19, 2023, 7-year-old Decklan Haywood choked on a cocktail frankfurt at his local school near Orange NSW. Staff (trained regularly in first-aid measures) and responding paramedics tried unsuccessfully to save Decklan who was unconscious for approximately 20 minutes. Having suffered a significant brain injury his parents decided to withdraw his life support. This tragedy was almost identical to that of Lucas Latouche Mazzei. Likewise, despite the best efforts of first-aid-trained teachers, all efforts failed. The oversimplistic assumption made by the coroner in Lucas' case, was that doing more of the same thing would result in a different outcome. The case of Decklan is proof that the coroner missed an opportunity to examine the issues thoroughly rather than taking a naïve approach, based on limited expert advice, and that recommendations (already in place in NSW) were not the root cause of this death.

- 1.3 **“Moments later, he silently choked on the nectarine's stone”** – the coroner correctly identified that in the incident involving Lucas, the choking episode was “severe/complete” in nature (as defined in the ARC Guidelines), however in the coroner's findings and expert testimony cited there was no distinction made in the first-aid management of partial v complete (severe) upper airway obstruction nor was there any consideration of the disparity in the evidence of proven efficacy of various first-aid interventions for these treatment pathways. Instead, there was an obvious conflation and inappropriate generalisation of first-

aid measures. This conflation and over-generalisation seemed to come from the expert witness and then influenced the coroner's subsequent understanding and recommendations. Although citing the ARC Guideline for Choking, the expert witness was unable to differentiate suitable treatment options e.g. "encouraging to cough" as a first step in instances of silent, severe (complete) upper airway obstruction.

- 1.6 **"Mr Misso's CPR efforts"** – while the timing of the commencement of CPR, in this case, was questioned due to its delay, there is no relevant research evidence that suggests that the application of CPR after the failure of other choking measures has any efficacy in severe upper airway obstruction of relieving obstructions or providing perfusion. While Professor Kelly acknowledged that CPR would likely not have changed the outcome, the reality is that given that after 4 minutes in cases of severe/complete upper airway obstruction, brain injury is likely, the uncertainty around timely would indicate that (as in most cases of severe UAO) by the time CPR is instituted after repeated failure of current recommendations, the patient is already deceased. This was likely the case with Lucas.
- 2.2 **"Expert evidence was that the stone probably moved to that area during attempts to save Lucas at HBPS. I am prepared to find that this nectarine stone was the cause of Lucas choking based on Dr Wills' report and Mr Misso's actions of holding him upside down which was the most likely way the nectarine stone moved to the nasal area."**

This finding adds weight to the conclusion that Lucas was probably deceased by this stage of the management of the choking incident given the length of time that ineffective measures were repeated, as even though the unconventional measure of inverting the patients is not taught, it successfully dislodged the stone into the nasopharynx i.e. not in a position to obstruct the airway or block the endotracheal intubation tube or noted by the treating paramedic.

- 3.1 (vii) **"The adequacy of first aid training of teaching staff employed by the Department for Education."** – the false assumption made by the expert witness and the coroner was that first aid training would have resulted in a different outcome, given the best measure in the world (abdominal thrusts/Heimlich manoeuvre) after the failure of back blows in a patient over the age of one (as recommended by the International Liaison Committee on Resuscitation – ILCOR based on evidence review), was attempted and also failed. The ARC guidelines are divergent from the worldwide consensus and evidence and the ARC "chest thrusts" have no clinical evidence or proof of any efficacy. These facts were not part of the expert testimony by Professor Kelly to the coroner.
- 4.1 **"I warn myself concerning two vital considerations in the assessment of the evidence and any potential criticisms of witnesses in this Inquest, namely hindsight bias and outcome bias."** – the coroner in making these findings and recommendations is somewhat right to be cautious of the negative influence of hindsight and outcome bias; however, the issue with this and other coronial inquiries in choking deaths in Australia, is that to avoid these, the full spectrum of root causes and contributing factors is not examined. Assumptions, like those presented by the expert witness, that failed to identify the gaps in the proof of the efficacy and utility of first aid measures or the exploration of more effective measures with higher efficacy were not investigated.

6.8 **“Dr Smith was of the opinion that Lucas’ condition of SSADH would not have affected his ability to clear his airway or make choking more likely for him. This is based on the lack of recorded history concerning Lucas having any swallowing or coughing difficulties. Based on this evidence, I find that SSADH was not a causative factor in his death.”** – this finding by Dr. Smith that SSADH was not a contributing factor in the death of Lucas is an important one, but the implications were not highlighted by the coroner i.e. that this incident could have happened to any school child with or without a health issue and the result would have been the same (given the same ineffective treatment). It is therefore evident that the degree of minimalization by the SAED and to some degree the coroner as characterising this event as an “unlikely one-off event” due to the patient's special needs, was unjustified and cannot be used as a mitigator for recommendations.

12.7 **“I set out below a flowchart concerning airway obstructions from the well-recognised and respected ‘Australian Resuscitation Council Guidelines’. Professor Kelly highlighted this flowchart from the ARC Guidelines as being appropriate for situations of choking.”** - it should be noted that ARC is a non-government, voluntary, member representative organisation with no government oversight or representation or legislated authority to set standards. The expert statements as to the “appropriateness” of the ARC guideline on choking is a purely subjective opinion, and not based on evidence; considering that this guideline is divergent from the worldwide resuscitation consensus and detailed evidence review conducted by the ILCOR. There are two critical statements made by the ARC on their own website, that contradict the commonly held belief, shared by Professor Kelly in the rigor and strength of the ARC guidelines:

“Guidelines are produced after consideration of all available scientific and published material and are only issued after acceptance by all member organisations. This does not imply, however, that methods other than those recommended are ineffective.”

“ARC provides the content on this website and all associated material for general information purposes only as they may not be relevant to particular circumstances or situations. ARC makes the information available on the basis that it is not providing professional advice.”

Contrary to Professor Kelly’s opinion the ILCOR does not consider the ARC guideline on choking to be consistent with their treatment recommendations and evidence. More importantly, Professor Kelly neglected to mention that the “chest thrusts” described by ILCOR are a wholly different technique than is supported by evidence (and ILCOR), whereas the ARC “chest thrust” techniques have no supporting evidence. In addition, at the time of the incident, the description for applying the ARC chest thrusts was so unclear and poorly described that the Department of Health and Aging (TGA) clinical group could not determine the actual technique being recommended in the guideline. To this day there is not a specific method clearly described in the ARC guidelines for “chest thrusts” but rather a series of possible alternatives, presumably for the reader to decide what they feel is right, however, none have clinical evidence of efficacy. The weak essential message from the ARC is that the first-aider can do anything involving the chest as long as it is not the abdomen. This apparently includes blows to the solar plexus that would inhibit the ability of the victim to cough for several minutes.

12.8. **The simplicity of the ARC flowchart belies the absolute stress involved in trying to assist someone else who is choking. It does not differentiate between choking by a child compared with an adult. The ARC flowchart emphasises the importance to ‘encourage coughing’, if feasible.** – despite claiming to have an expert understanding of first-aid measures, Professor Kelly has confused the ARC treatment path for a partial/incomplete obstruction with that of a complete/severe obstruction. Testimony already established 1.3

that this was a “silent obstruction” (i.e. severe/complete) and therefore the encouragement to cough is not in the treatment pathway

- 12.9. **Professor Kelly explained that a cough is ‘...the most effective method of removing an obstruction outside of a hospital environment’. She continued that ‘The best outcome is when the person coughs it up themselves. There’s good survival when that happens. When that doesn’t happen, survival really drops off very, very quickly’.** – Professor Kelly in her testimony has confused the efficacy of first aid measures in cases of partial/incomplete obstruction vs. complete/severe obstruction. While coughing in partial obstructions is successful in most cases, the efficacy of coughing or even first aid measures is between 50-70% (the higher being for use of abdominal thrusts, the lower for other techniques). It is clear that Professor Kelly has little experience in the management of upper airway obstruction outside of a hospital, clinical setting.
- 12.10. **Professor Kelly further explained the significance of back blows and their recommendation due to ‘The idea is that increasing the pressure in the chest might pop the foreign body out like a cork’. She continued that the ‘recommended’ order is to perform back blows prior to chest thrusts but that the evidence supporting that recommended sequence is ‘weak’.** – although the expert witness correctly identified the “chest thrust” sequence as “weak”, there is no reference to its lack of clinical evidence of efficacy or its divergence for ILCOR.
- 13.1 **Contrary to his*(*Dr. Heimlich, inventor of the Heimlich manoeuvre/abdominal thrusts) beliefs, this manoeuvre is not recommended under the ARC Guidelines. It is not mentioned in the ARC flowchart.** – the opinions of Professor Kelly here are contrary to the evidence and worldwide resuscitation consensus (including of the ILCOR). The ARC guideline on choking is divergent from the evidence and ILCOR treatment recommendations. The omission of abdominal thrusts from the ARC guideline has nothing to do with a lack of evidence supporting the efficacy of the technique. Professor Kelly seems to be referring to an external opinion or rhetoric, rather than advice to the coroner based on the clinical evidence.
- 13.2 **When asked if it was appropriate to perform a Heimlich manoeuvre on a choking child, Professor Kelly explained:**
‘I personally would not unless I was not at my hospital and I had tried back blows and chest thrusts and they hadn't worked and I was getting desperate. The risk here is that - there's not strong evidence that it works, but there is reasonably strong evidence that it causes damage, particularly in children, such as lacerations of the liver and other things which can be fatal, so I wouldn't be using that technique unless the risk outweighed the benefit, you know, where the benefit outweighed the risk. I think you've got to get to a point. The Americans like the Heimlich manoeuvre and that's fine. The evidence is not particularly strong for any of these individuals.’ - it is very clear from this series of statements that Professor Kelly is not familiar with the worldwide evidence and practice, (where abdominal thrusts are used every day around the world by lay-people, with proven success and without harm); nor is she aware of the basis for the divergent recommendations of the ARC vs. the entire world. The ARC and ILCOR both assessed the studies done in the early 2000’s regarding injuries resulting from the use of abdominal thrusts(Heimlich Manoeuvre); some 30 out of thousands of successful applications. The ILCOR using a risk management methodology identified correctly that the overwhelming majority of these reports occurred in application on children < 12 months of age and by individuals with no specific training in the technique who used the wrong landmarks resulting in injury. In response to this identified risk the ILCOR introduced effective mitigation strategies in

response. They changed the guideline to restrict recommended use for patients over the age of 12 months and they included specific training in the technique in all CPR courses. As a result of these strategies, the technique is used safely and effectively around the world every day and is recognised as the most effective technique after the failure of back blows in severe upper airway obstruction, creating significant airway pressure with a prolonged duration over back blows (necessary for severely impacted objects). In stark contrast, the ARC (which does not operate under a risk management methodology) decided that rather than change the guidelines they would supplant abdominal thrust with their own bespoke and untested methods (“chest thrusts” a name taken from the only chest thrust method with clinical evidence applied from behind the patient and used in case of patient pregnancy and/or obesity to replace abdominal thrusts). Professor Kelly seems to be under the illusion that the ARC guidelines are superior, safer, more effective, and have greater evidence. This is simply untrue. The only citation used by the ARC to support the use of their bespoke and untested chest thrust method is a single study on deceased patients. Additionally, at the time of the incident the ARC guideline description of “chest thrust” was too vague for the reader to understand any recommended method. The expert witness also failed to inform the coroner that ARC first aid measures have no post-implementation monitoring for effectiveness or complications.

- 14.2 **“First phone call from the SNC classroom to SAAS - ‘the first call’ This was recorded to have been made at 2:16:37pm.”** – it is important to note here that by 2:16 pm, some 10 minutes had already elapsed with a hypoxia patient + the time unaccounted for from the time the supervisor left the room and the time they returned, identified Lucas was choking and started treatment.
- 14.3 **“After the SAAS operator obtained the details of where the call was coming from, namely HBPS, Ms. Hutton reported that ‘A little boy is choking’ and that he was ‘Just’ awake. He was breathing ‘...slightly but he’s not very well’. ‘Actually, I think he has collapsed now...He’s alert but he is still choking’. When it was indicated the landline phone could not reach Mr Misso, SAAS arranged to call Ms Hutton back on her mobile phone.** – the detail supplied to SAAS was confusing and contradictory, but not unusual for a non-clinical reporter with extreme anxiety in a situation they had little idea how to remedy past what they were already attempting. There was considerable confusion by the caller as to Lucas’ level of consciousness during the call e.g. ‘just awake’, ‘slightly breathing’, ‘he’s alert’, he’s collapsed’.
- 14.4 **Return phone call by SAAS - ‘the return call’**
SAAS called Ms Hutton at 2:18:05pm. This call lasted 7 minutes and 13 seconds. The return call was played in open court and I heard it subsequently in private. At the start of the return call, the SAAS operator had to twice ascertain whether Lucas was choking or having a seizure. At the end of the return call, SAAS had arrived to assist and take over from the rescue efforts of Mr Misso. – it is clear from this information supplied by SAAS that the arrival of paramedics to the patient’s side took at least 15 minutes. This response time, if reliant on the ambulance to provide advanced airway care is outside the window for likely death (10 minutes). It should be noted that the ‘on scene’ time and the ‘at patient’s side’ time (particularly in a large facility like a school, can be very different). In consideration of its response to this anomaly in getting ambulance assistance in a defined time-critical emergency (like severe upper airway obstruction), teachers are unlikely to get professional assistance before the death or permanent brain injury of a student. This fact is regardless of how many teachers are trained in first aid (only <50% successful in severe obstruction) or which first aid measures have been employed. This places teachers in an invidious position,

where they are helpless to prevent death or serious catastrophic injury. Even without access to the report from SAAS, it is most likely that considering CPR was in progress, the ambulance arrival time, the patient-down time, Lucas was unsalvageable by ambulance paramedics, who intubated and transported knowing that the patient was deceased. Again, Professor Kelly was unaware of other evidenced and proven measures (like a suction airway clearance device e.g. LifeVac™ with a (100% success rate with no harm in over 1900 saves, including over 1100 children) that could have been utilised by trained or untrained bystanders and changed the outcome for Lucas. The presence of seizure-like activity often accompanies cerebral hypoxia.

- 15.9 Based on her summary of the situation, Professor Kelly believed that Lucas ‘...unfortunately suffered a complication of choking which is called negative pressure pulmonary oedema which inhibited his resuscitation outcomes’. She explained that NPPO occurs when a build-up of fluid in the lungs is combined with a blocked airway. This produces a situation where attempted clearing of the airway creates a lot of negative pressure in the chest. It also causes a further build-up of fluids into the lungs from blood vessels. Professor Kelly further explained that this would make it ‘...almost impossible for any air from a normal breath given mouth to mouth to actually get through that system to get into the bloodstream’. – one can only surmise that the autopsy report identified the presence of oedema in Lucas’ lungs. While it is possible that this was caused by the rare complication of NPPO, the appropriate treatment in the field (without access to drugs or ventilation equipment) is intermittent positive-pressure ventilation (IPPV). Thereby the increase in lung pneumatic pressure forces the fluids through the lining of the lungs (semi-permeable membrane) and into the circulatory system. This is hard to achieve with mouth-to-mouth methods. Any complications from first aid could have been alleviated by the deployment of a suction airway clearance device, where instances of NPPO have not been ever reported.**
- 15.11 Issue 1 - The adequacy of the first aid response provided by the HBPS staff**
Professor Kelly stated:
'In my opinion, the administration of back blows by school staff was appropriate and consistent with the guidelines. It would appear that chest thrusts were not administered by school staff, which is not consistent with the guideline.' I refer again to Professor Kelly’s evidence that a cough is the most effective method to remove an airway obstruction. I interpreted the overall evidence of Professor Kelly to mean that the failure to perform chest thrusts as recommended, did not change Lucas’ chances of survival. – the evidence presented by Professor Kelly and the inferences made by the coroner are inconsistent. The “cough” presumes that Lucas has the ability to create an effective cough and since the choking type was cited as “silent” i.e. severe/complete this is unlikely. Cough is only recommended under the ARC choking guideline if there is an effective cough i.e. incomplete/partial obstruction and is not the most effective method in severe upper airway obstruction. Consistency with “the guidelines” is misrepresented as a measure of effectiveness, however, there is little evidence to support this assumption with divergent measures. Professor Kelly rightly assumes that ARC-type chest thrusts would not have made any difference to the outcome. Lucas’ best chance in the absence of emergency assistance was the application of abdominal thrusts after the failure of back blows. This is supported by international research and evidence.
- 15.16 Issue 4 - Whether Lucas’ death was preventable at any point in time prior to his death that day Professor Kelly’s evidence and her report concluded that once Lucas had developed severe airway obstruction, together with the rare but known NPPO and cardiac arrest, his death was not preventable.** – there is no doubt that in this case, due to the recognition

delay, ineffective first aid measures, ambulance response time, and the unavailability of a suction airway clearance device, the outcome from Lucas' incident or any other child with a severe upper airway obstruction will not be preventable. However, to suggest that this death was not preventable is not based on the evidence. As in the case of Decklan Hayward, if staff are relying on the implementation of historical measures with poor or no evidence of efficacy in severe obstructions, the outcome is likely to be the same. The LifeVac™ has already saved over 1900 lives (including over 1100 children). It has never failed or caused harm (including NPPO) and has a 100% success rate (as recorded by the device regulators) after first aid has failed. There is no doubt that if staff at the school in both cases we equipped with this device, the outcomes would have been much different.

- 19.1 **“I refer again to Mr Misso’s evidence and his high level of first aid training. He explained in his evidence that as part of his training: ‘Chest thrusts were reserved for CPR, that’s my memory, and back thrusts were the preferred option for choking and there was always the stipulation don’t follow what you see on American TV and do the reverse grab and pull (DEMONSTRATES) because of the damage that can cause to internal organs.’** – the notion that Mr Misso possessed a “high level of first aid training is not supported by his qualifications or understanding of choking management in his testimony. Regardless of any time spent with the Country Fire Service or SES, Mr Misso’s first aid training would be classified clinically as a basic life support level, a wholly generic public standard. His inability to distinguish between “chest thrusts” and “chest compression” (even considering the vagaries of the ARC descriptions) and their application, along with his recital of unevicenced rhetoric about abdominal thrusts demonstrated a very rudimentary knowledge of first aid and choking science.
- 19.2 **“After Lucas died he arranged for the DECD to grant his staff members, including himself, to complete a more advanced training course called ‘Provide an emergency first aid response in an education and care setting’. This advanced course concerned primary school-aged children with emphasis on a higher level of CPR skills. The course involved six hours of practical application of the skills from adult through to infant-sized mannequins.”** – assuming these statements came from the testimony of Mr Misso they demonstrate a lack of understanding of VET first aid training standards and content in Australia and overestimate the competencies of the now numbered HLTAID011 [Provide First Aid] vs. HLTAID012 [Provide First Aid in a Childcare or Educational Setting]. The HLTAID012 is not considered an “advanced course” and the only differences between this and HLTAID011 are the review of some childhood illnesses and the inclusion of a child-size training manikin. As to why in Australia in a Provide First Aid course, an individual (including someone involved with children does not do any practical elements on a child (only an adult and an infant) is a question that the coroner should be asking of ASQA. These courses do not involve a “higher level of CPR skills” (only at a BLS level) and do not provide any additional training in choking management. The scenarios used may favour the use of child patients, but the skills taught are the same.
- 20.26 **“The advice given by SAAS was hampered with difficulties involved in the introduction of the possibility of a seizure, rather than purely choking as reported in the first call. This led to the advice to aid Lucas not being as effective as it should have been.”** – it is likely that the confusion was created by the SAAS operator being non-clinical and wholly driven by AMPDS word prompts for actions. As seizure-like activity is often present in hypoxic events (including simple syncopal episodes i.e. faints) this was a red-herring to a non-clinical operator and confused the response.

20.27 **“Even if CPR commenced immediately, I accept Professor Kelly’s evidence that Lucas’ survival was still highly improbable from that point.”** – this opinion by Professor Kelly points to the real issue in the death of Lucas, i.e. that first aid measures, regardless of how many are trained and whether they have a first aid certificate that suggests some review of child emergencies; would not have made a significant difference. In severe upper airway obstructions, even the best first aid measure in the world scientifically (abdominal thrusts/Heimlich Manoeuvre) is only successful in $\approx 70\%$ of cases¹ (LifeVac 100%) when undertaken by health professionals and there is no evidence that chest compression i.e. CPR chest compressions have any value in either relieving severe airway obstruction, prior to death², or acting to adequately perfuse a patient. The coroner in this case seemed to gloss over this important fact and the impact this statement has on preventing a reoccurrence i.e. that simply doing the same thing over and over will not produce a different outcome. It is unclear from the published report as to whether the lack of recognition of this fact was down to the coroner’s unfamiliarity with the subject and/or the message from the testimony of Professor Kelly.

1. Patterson E, Tang HT, Ji C, Perkins GD, Couper K. The efficacy and usability of suction-based airway clearance devices for foreign body airway obstruction: a manikin randomised crossover trial. *Resusc Plus*. 2021 Jan 8;5:100067. doi: 10.1016/j.resplu.2020.100067. PMID: 34223337; PMCID: PMC8244487.
2. Langhelle K, Sunde L, Wik PA. Steen, airway pressure with chest compressions versus Heimlich manoeuvre in recently dead adults with complete airway obstruction. *Resuscitation*. 2000;44(2):105-108.

20.28 **“I rely significantly on the expert evidence of Professor Kelly to make the following findings concerning the adequacy of the response provided by HBPS staff on the following issues, namely:**

- i) Back blows administered by Ms Reddick were appropriate, however, chest thrusts were not administered as recommended by the ARC Guidelines.**
- ii) I accept the opinion of Professor Kelly that the effect of chest thrusts would have been negligible.**
- iii) CPR should have been commenced as soon as Lucas was not responding to the back blows.”**

It is clear that while the coroner did not have knowledge and expertise in this area, there was a heavy reliance on Professor Kelly. However, it is also clear that Professor Kelly likewise did not have a thorough understanding of the ARC guidelines, their underpinning evidence, or the pathophysiology of choking and choking measures. As the obstruction had already been determined to be complete/silent/severe (see 1.3), the ARC protocol suggests multiple back blows, followed by multiple chest thrusts and then CPR if the patient becomes unresponsive. The advice from Professor Kelly was that “the effect of chest thrusts would have been negligible’ i.e. those described by the ARC and without evidence of efficacy. The reason for back blows primarily in the treatment of complete upper airway obstruction is that they create a high peak airway pressure for a relatively small time interval. This is most effective in the most common upper airway obstructions involving objects that are smooth and round and easily dislodged e.g. lolly, nut, or ball. For objects that are not relieved by this pressure waveform i.e. objects that are impacted, or irregular, the waveform needs to be more sustained, in an attempt to shunt the object up the airway into the oro-pharynx. The best first aid measure to produce this waveform are abdominal thrusts (Heimlich manoeuvre) and the ILCOR-style chest thrusts from behind the patient. There is no like evidence that alternative, bespoke chest thrust techniques suggested by the ARC have any clinical evidence of efficacy that even approaches that of the ILCOR treatment recommendations. Part of the issue for the first aiders on the scene of the incident is that despite “accredited” training, they did not confidently understand how to apply chest thrusts due to the vague advice in

the ARC guidelines. If the coroner or Professor Kelly had read the ARC guideline in a critical evaluation, rather than accepting the treatment opinions as facts, they would have noticed (as the TGA clinical group also did when conducting a post-market/clinical review of the LifeVac™ airway clearance device) that the descriptions do not give the reader (first aider) any clear idea of what “chest thrusts” are. Once again Professor Kelly has conflated the treatment requirements of a partial vs. a complete obstruction.

- 20.29 **“Despite all of the issues about first aid for Lucas above, I find that his death was not preventable at the point he was discovered in distress.”** – this conclusion by the coroner based on the opinion of Professor Kelly is fundamentally untrue. At the time of discovering Lucas in distress, conscious, with a silent (complete) upper airway obstruction there was a window of opportunity for saving his life. The unrecognised issue is that even trained staff placed their faith in measures that were not effective in this situation. Abdominal thrusts and the use of an airway clearance device if used early enough, (rather than endlessly repeating back blows and perhaps attempting unproven methods of chest thrusts) would have resulted in an entirely different outcome as both these interventions have scientific proof of efficacy and safety. (in severe/complete UAO, abdominal thrusts 71% success rate vs. LifeVac 100% success rate). Both techniques save lives daily (without harm) in very similar circumstances and therefore the suggestion by the coroner is both unfounded and erroneous.
- 20.37 **“I was impressed by St Patrick’s regime of first aid training and the requirements of staff to be trained to a high level for this important safety issue.”** – the notion that there is a significant improvement in the quality and content of training from a HLTAID011 to a HLTAID012 that would improve the management of a similar incident and result in a different outcome is unfounded and erroneous. The NSW Education Department already has this requirement and it made no difference in the recent case of Decklan Hayward, as the fundamental issues had not been addressed i.e. the current training in unevidenced techniques e.g. ARC chest thrusts, the absence (via divergent opinion rather than evidence) of abdominal thrusts in the management of severe/complete UAO; and the availability of a suction airway clearance device in schools e.g. LifeVac ARTG #285082. Again, it must be stressed that more people doing the same thing over and over again will result in the same outcome as it has in NSW. There was a fundamental failure of the coroner to look at the contributing root cause instead of focusing on the easy but illogical “solution”; if in fact the elimination of these types of deaths is the goal.
- 20.47 **“Professor Kelly was very concerned about the SAAS instruction to perform the Heimlich manoeuvre on a conscious and choking child.”**
- 20.48 **“She stated there was cogent evidence that some interventions, including the Heimlich manoeuvre, can cause serious damage, in particular to children.”**

These statements by Professor Kelly are not only out of context but fundamentally untrue. The application of the Heimlich Manoeuvre after the failure of back-blows in the conscious child (< 1 y.o.) in complete UAO, is international best practice and backed by the ILCOR after detailed evidence review. To suggest otherwise is divergent from the evidence and worldwide scientific consensus. The statement that “cogent evidence” exists that the Heimlich manoeuvre can cause serious injury in the choking child, is taken out of context and belies the fact that this generalised conclusion made by the ARC was alleviated by changes to the ILCOR treatment recommendations (see 13.2 – response). The ILCOR found that back blows, chest thrusts, and abdominal thrusts all had a risk of harm but LifeVac™ did not. It is clear, that Professor Kelly was citing the opinion of the ARC rather than her own critical

assessment of the cogent evidence by greater minds. The recommendations therefore made in **21.5 1) and 2)** regarding bringing SAAS into line with local divergent, unevidenced opinions over international systematic evidence review, are at best misguided and naïve. Local guidelines are not legislated instruments nor produced by a body with any legislated authority, government representation, or oversight and they are not “by their own admission (see 12.7) not always the best technique or suitable in every circumstance. The question of abdominal thrusts and the ARC guidelines is wholly an opinion-related argument rather than a scientific or safety issue. The evidence and science are very clear regarding abdominal thrusts (Heimlich manoeuvre) and has been settled by the ILCOR, that it is *“the most effective technique in the relief of severe upper airway obstruction after the failure of back blows, in all patients over the age of 1 year”* – ILCOR. A blind defence of ARC guidelines and rhetoric, without an understanding of the nature of the supporting evidence is reckless.

The recent response from the SA Government (6 years after the incident)³ that, “more than 2,500 South Australian public-school staff will get first aid training in response to a coronial inquest into the choking death of a five-year-old student”; will not change the outcome in a future incident involving a severe upper airway obstruction. The NSW coroner is yet to investigate the death of Decklan Hayward, however, in NSW, where the first aid training measures are already a requirement, it did not make any difference in severe/complete obstruction.

³<https://www.abc.net.au/news/2024-02-20/lucas-mazzei-inquest-findings-accepted-sa-government/103490244>

LifeVac Australia, the Orange City Council (where the death of Decklan Hayward occurred), and Decklan’s parents, have been lobbying the NSW Education Minister and the NSW Education Department to implement (beyond doing the same thing over and over again) to stop these types of unnecessary deaths. Disappointingly, the push-back from the NSW Education Department has also been based on a poor understanding of the law, poor knowledge (beyond rhetoric) of the efficacy and evidence supporting local training recommendations, poor knowledge of WHS legislation, poor research (largely based on an unevidenced tabloid article) and the notion that Decklan’s death was just “bad luck” and other than doing more of the same failed first aid, there is nothing that can be done.

The evidence in Decklan’s case is that even full compliance with locally produced first aid measures makes no difference in cases of severe obstructions. LifeVac™ is used around the world (including every school in Northern Ireland) and has saved over 1100 children (out of over 1900 saves) after even the best first aid has failed and has never caused harm, including NPPO. All these case reports are part of an international multi-institutional study and usage is monitored by the regulators (in Australia the TGA) for failure or harm.

The SA coroner has missed a significant opportunity to change the future outcome of severe choking in schools, in particular. This was partly due to some confused and unevidenced opinions provided by the expert witness Professor Kelly and partly due to the failure of the coroner to look more deeply at the long-term contributing factors and solutions in this case. While raising awareness, 6 years after the tragic death of Lucas Latouche Mazzei, the incident has resulted in no real solutions to preventing its recurrence.

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