QUEENSLAND COURTS

# CORONERS COURT OF QUEENSLAND

# FINDINGS OF INVESTIGATION

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| CITATION: | **Non-inquest findings into the death of Child Q** |
| TITLE OF COURT: | Coroners Court |
| JURISDICTION: | BRISBANE |
| DATE: | 6/09/2024 |
| FILE NO(s): | 2023/2938 |
| FINDINGS OF: | Stephanie Gallagher, Deputy State Coroner |
| CATCHWORDS: | Bamaga Hospital, multiple presentations, appropriateness of care, bacterial chest infection |

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## Background

Child Q was a 2-year-old, female Aboriginal and Torres Strait Islander child born on 2 May 2021 and sadly passed away on 15 June 2023 at Bamaga Hospital (BH). Child Q is deeply missed by her family and community. Queensland Police Service (Police) reported Child Q's passing to the Coroner, because the cause of her passing was not known and fell within the definition of a reportable death in the Coroners Act 2003.

The role of a Coroner is to investigate reportable deaths to establish, if possible, the cause of death and how the person died. The purpose of a coronial investigation is to establish the facts, not to cast blame or determine criminal or civil liability.

Child Q first presented, with her mother, to the BH in the evening on 26 May 2023. Child Q re-presented on 3 June 2023. On 15 June 2023, she was at home with her mother when her mother became aware of her having troubles breathing and transported her to the BH. Whilst in the car, on route to the hospital, Child Q became unresponsive. Upon arrival at the BH emergency staff tried to resuscitate her but, she could not be resuscitated.

## Autopsy examination

An autopsy was ordered and performed. It comprised an external and internal examination (to the extent an internal examination was required to determine the cause of death), imaging, document review and toxicology studies.

The opinion of the forensic pathologist as to the cause of death is based on consideration of the circumstances of death and an autopsy including associated imaging and testing.

The forensic pathologist summarised the findings at autopsy as follows:

1. Well-developed 2-year-old Indigenous toddler.
2. Body weight at 3rd percentile for age and at 3rd percentile for height consistent with acute weight loss.
3. No injuries.
4. Left lung empyema.
5. Right and left lung abscesses in the background of resolving pneumonia.
6. Resolving bronchitis and bronchiolitis.
7. Right middle ear: Chronic otitis media (possibly resolved recent acute otitis media).
8. Left middle ear: Resolving (active, subacute) otitis media with a micro-abscess.
9. Enterobius vermicularis infestation.
10. Thymic involution (lymphoid parenchyma depletion).
11. Numerous oval and irregular areas of depigmentation over chest, abdomen, and limbs consistent with healed inflammatory skin lesions.
12. Right upper arm lesion: Non-specific histology; no fungi identified.
13. Microbiology:
    - RSV detected in nasopharynx.
    - Human Metapneumovirus (HMPV) detected in nasopharynx, trachea, and right lung.
    - Staphylococcus aureus (non-multi resistant MRSA) detected in nasopharynx, trachea.
    - Staphylococcus aureus detected in right lung abscess.
14. Vitreous humour biochemistry: Typical post-mortem changes.

15. Toxicology: Ibuprofen (non-steroidal anti-inflammatory drug) at subtherapeutic/non-toxic concentration; no other drugs or alcohol detected.

The forensic pathologist said:

> The most significant autopsy findings are left chest cavity empyema and several abscesses in both lungs. The empyema has been walled-off by a relatively thick fibrous membrane with foci of reepithelialisation. The walls of abscesses show variable thickness which suggests different ages or different speed of healing/resolution. There are infrequent foci of acute inflammation in the pulmonary parenchyma, predominantly in the left lung and most conspicuous in the vicinity of abscesses. Both lungs contain florid lymphohistiocytic alveolar infiltrates consistent with resolving pneumonia. Florid chronic inflammation is also present in the airways in both lungs but is more severe and in areas also acute in the right lung.
>
> The findings are consistent with a viral respiratory tract infection which has progressed to bacterial pneumonia, abscess formation and left empyema. However, concurrent but independent viral and bacterial infections, or even later post-bacterial viral infection cannot be entirely excluded. The bacterial infection shows signs of resolution consistent with antibiotic therapy.
>
> The most likely virus responsible for the initial respiratory tract infection is Human Metapneumovirus (HMPV). It has been detected in the nasopharynx, trachea, and right lung. The absence of the virus in left lung may reflect a sampling artefact (possible absence of airways in samples submitted for microbiology testing, which targeted the contents and walls of abscesses) or clearance of the virus from the left lung.
>
> The most likely bacterial pathogen responsible for the pneumonia, abscesses and empyema is Staphylococcus aureus which has been detected in the nasopharynx, trachea, and right lung abscess. Such a distribution of the bacterium can be explained by its clearance from well-vascularised tissues (both lungs) and low-density empyema and its persistence within dense necro-inflammatory debris within abscesses and on the mucosal surfaces. However, other causative pathogens, both viral and bacterial, cannot be entirely excluded.
>
> The empyema is at least one week old (based on histology and CT appearance of its wall) but may be several weeks old. The abscesses are also estimated to be between one to several weeks old.
>
> Sudden deterioration of child's condition prior to being transported to hospital is most likely due to spontaneous left pneumothorax in the background aerated lung abscesses (multiple pneumatocoeles noted on post-mortem CT scan). Pneumothorax caused by vigorous cardiopulmonary resuscitation is theoretically possible but is considered unlikely.
>
> In my opinion, the cause of death is complications of bacterial chest infection (Staphylococcus aureus). Human metapneumovirus infection is considered a contributing condition.

In the opinion of the forensic pathologist, the cause of death was:

1(a). Complications of bacterial chest infection (Staphylococcus aureus).

Other significant conditions

2. Human metapneumovirus infection.

## Independent Expert Review of the Care of Child Q at Bamaga Hospital

As part of the Coronial investigation into the deceased's passing, an independent expert, Dr Tjaart Grobbelaar, was asked to provide an opinion in relation to the care provided to Child Q at BH.

Dr Grobbelaar is the Director of Rural Medical Services for the Cairns and Hinterland Hospital and Health Service. He has approximately 40 years' experience as a doctor including, approximately 28 years in the delivery of care at rural hospitals.

Dr Grobbelaar undertook a review of the concerns of the family, the relevant medical records and clinical tools of the BH and The Royal Children's Hospital Melbourne, Clinical Practice Guidelines for respiratory

infections (the guidelines) to prepare his report. In addition, he also consulted a staff specialist paediatrician for his opinion of, specifically, the management of the second consultation.

He was asked to provide his response to a series of questions. The questions and his responses are set out in full below.

*A. The appropriateness of the assessment and care provided to the deceased by Bamaga Hospital on each presentation.*

A1. First Presentation (26 May 2023)

Child Q's mother took her to the Bamaga Hospital on 26 May 2023 at 19:10 hours with concerns of being unwell for 5 days - she was not eating much, vomited, had subjected fevers, and was grabbing at her ears. There was according to the mother a rash on her chest for the past two days.

The Medical Officer (MO) was called to examine the patient.

The MO has noted that she has examined Child Q's upper and lower respiratory systems (MO notes on 26 May). The MO made a diagnosis of Otitis Media (middle ear infection) because she observed the tympanums were red and the right tympanum was bulging, for which Amoxicillin was prescribed. The MO also listened to the Child Q's chest and noted the heart sounds were dual and there was no increased work of breathing at the time. The MO considered keeping Child Q overnight if the Ibuprofen and Ondansetron given in the Emergency Department (ED) did not improve the child's condition, but if the child settled down, she could be discharged home.

From the nursing notes it appeared the Children's Early Warning Tool (CEWT) score improved from 4 to 1. Child Q was alert and breastfeeding, and the antibiotics (Amoxicillin) prescribed with some Ibuprofen was given to the mother and she was told how to give it her child. She was also told to re-present to the Bamaga Hospital if there were any ongoing concerns (as per Nurse notes).

From a rural perspective this is a common presentation in children less than 4 years old and in my opinion the care presented was appropriate from both the nursing and medical staff.

A2. Second presentation (3 June 2023)

Child Q re-presented to the Bamaga Hospital 8 days later, on the 3rd of June 2023 with complaints of increased work of breathing. From the triage notes she was warm to touch, well perfused but had a tracheal tug and respiratory rate of 60 breaths per minute. She looked tired and as such was kept in the Bamaga Hospital Emergency Department for four hours, initially on "blow-by" oxygen, eating an ice block and later breast feeding.

Her observations stabilized and she was examined by the MO.

The MO's notes indicated she examined the respiratory system - she observed no cough, no sputum, no wheeze, and after she examined the child, she wrote: "Alert, sitting up in bed, watching TV. Increased work of breathing noted with mild intercostal recession. Chest clear on auscultation." These notes in my opinion demonstrate that the MO examined the chest as well as other relevant systems (gastro-intestinal, skin and ear, nose and throat).

Her temperature settled within the 4 hours, her oxygen saturation remained higher than 95% on room air and despite the deceased still scoring 4 on the CEWT score, she was discharged home after the nurse called the MO and discussed the Child Q's condition with the MO.

The nurse discussed "Red Flags" or signs of worsening with the child's mother and the mother was also told to return the following day for a review (from the nursing notes it appears that was a request from the MO).

I have considered the requirement for doing a chest X-ray on the second presentation, and while it would not have been inappropriate to request a chest X-ray at that stage, it would have confirmed a diagnosis of a chest infection and the requirement for antibiotics. The MO did prescribe antibiotics with a broader spectrum (Amoxicillin with Clavulanic Acid combination which also covers Staphylococcus Aureus) before the deceased was discharged home.

According to the Guidelines I consulted, cough is a no-specific symptom and young children develop 6 - 12 respiratory infections per year, usually accompanied by cough. In general, if a child presents with

a history of daily cough for greater than 3 weeks, further investigation is required. It also states that a productive cough (coughing up phlegm) is usually abnormal in children and has an identifiable specific cause. The Guidelines also states that a chest X-Ray and other investigations should be performed as indicated by clinical suspicion.

I have considered the CEWT score which remained at 4 despite management for 4 hours. The child's heart rate and respiratory rate were the two main contributors of the CEWT score, the "respiratory distress" score is not a measured value but a subjective rating by the nurse doing the observations. Her temperature was normal after the four hours in the Emergency department.

The trend in her respiratory rate was reassuringly downwards, and while the heart rate had a slightly upwards trend in the last hour of her ED stay, it would not have been alarming in a child of that age who could be easily escalated to crying or unhappiness.

The child breastfed, was well perfused, and was not requiring any supplementary oxygen at the time of discharge, so it was very reasonable for the MO to discharge the patient, specifically to review the following day. These were indeed specific instructions given to the mother by the nurse.

In my opinion, while an argument could be made regarding special investigations retrospectively, after considering all the notes and the Guidelines from the Royal Children's Hospital Melbourne, the care given on the second presentation was appropriate.

A3. Third presentation (14 June 2023)

Child Q was rushed by her family to the Bamaga Hospital after becoming suddenly unresponsive while playing in her bedroom. Resuscitation in the Bamaga Hospital ED was sadly unsuccessful, and Child Q passed away.

From reading the autopsy report the respiratory infection was quite advanced at that stage and an unsuccessful resuscitation outcome was not unexpected.

After reading the resuscitation notes, in my opinion the care afforded on the third presentation was appropriate.

*B. Did any aspect of the care afforded the deceased at Bamaga Hospital cause or hasten her death?*

B1. In my opinion the care afforded the deceased on all presentations did not cause or hasten her death.

*C. Did any failure to provide care to the deceased at Bamaga Hospital cause or hasten her death?*

C1. In my opinion the medical and nursing staff at Bamaga Hospital provided optimal rural care within their scope of practice and resources and did not fail to provide any care required.

**Family Concerns**

*D. In so far as it falls within your specialty, would you please address the concerns of the family in your report: The family raised the following concerns:*

*D1. When the Child Q presented at the Hospital for the second time, did the doctor check respiratory, listen to chest and back (lungs) for signs of any other infection or did the medical team only focus on the ear infection?*

I have studied all the notes provided for the second consultation and there is sufficient evidence that the MO included the respiratory system in her examination.
In my opinion the examination of the deceased was not restricted to the ear infection (Ear nose and throat system) but included the other systems (respiratory, gastro-intestinal and skin) as well.

*D2. Was the clinical care provided to Child Q appropriate at the time, could any additional testing be done like ultrasound or X-ray?*

As mentioned on page 4, it would not have been inappropriate to request a chest X-ray at the time, but a chest X-ray was not mandated by any guidelines with the second consultation, it was subject to clinical suspicion.

Although Ultrasound of the chest to diagnose pneumonia has gained traction since the SARS CoV-2 (Covid) pandemic, it is a highly specialized investigation performed by qualified sonographers and not usually performed in a rural setting, because the presence of tissues with high difference in acoustic impedance (bone in the ribcage and air in the alveoli) reflect up to 99% of the ultrasound and hinder the visualization of the lung. Acoustic artifacts generated by the interaction of ultrasound with air appear different depending on the air content and the homogeneity of its distribution, therefore, ultrasound of the lung tissue is now based on the study of artifacts and done by very experienced sonographers, usually not rural generalists, or General Practitioners. Ultrasound is widely used in the rural emergency setting to exclude a pneumothorax (air in the chest cavity) if suspected usually after chest trauma. This would not have been suspected in the deceased's case.

A chest X-ray is still the preferred rural investigation for suspected pathology in the lungs and could have confirmed a chest infection and the possible need for antibiotics. The MO prescribed an appropriate broad-spectrum antibiotic empirically upon the deceased's discharge from the ED, so a chest X-ray at the second presentation would not have changed the outcome.

In my opinion the MO still acted within an acceptable framework of rural practice.

*D3. Was adequate information and explanation of the change in the antibiotics explained to the mother at that time? Did the mother understand why they changed the antibiotics? Was there an explanation to the mother to watch for any signs of other symptoms that may indicate there was another infection? A review into the process of explanations from doctors and nurses when prescribing medications to young first-time mothers with no experience, to determine whether language was a barrier and the need for an indigenous liaison officer.*

There is evidence from the nursing notes that the nurse discharging the deceased after the second presentation, gave clear education regarding the change in antibiotics as well as 'red flags' and the need for a follow up visit the following day.

However, while clinical staff understand exactly what they say when speaking to a patient, they do not always appreciate the level of understanding from the patient's perspective. In my opinion the nurse provided sufficient information, but it remains unclear if the child's mother had total comprehension of the expectations around red flags, a change in antibiotics and follow up.

Indigenous Liaison Officers play a very important role in communicating specifically medical information to Indigenous patients and one can speculate that there might have been better understanding of the importance for follow up the following day and the change in antibiotics if the education was presented by an Indigenous Liaison Officer.

## Conclusion

After considering the material obtained during the coronial investigation, I consider that I have sufficient information to make the necessary findings in relation to the Child Q's passing. I am not satisfied that it is in the public interest to hold an Inquest as, I am of the view that drawing attention to the circumstances of this death is unlikely to prevent deaths in similar circumstances happening in the future. There is also no uncertainty or conflict of evidence as to justify the use of the judicial forensic process and no suspicious circumstances that have not been resolved or resulted in criminal charges. On that basis I have determined that an Inquest is not required.

I accept the opinion of the independent expert and find her care on the first two presentations was "appropriate" and on the third presentation find that "the medical and nursing staff at Bamaga Hospital provided optimal rural care within their scope of practice and resources and did not fail to provide any care required" to Child Q.

I accept the forensic pathologist's opinion as to the cause of death and find that the cause of the deceased's death was:

1(a). Complications of bacterial chest infection (Staphylococcus aureus).

Other significant conditions

2. Human metapneumovirus infection.

I extend my condolences to Child Q's family, friends and community for their loss.

## Findings required by s.45 *Coroners Act 2003*

**Identity of the deceased** – [de-identified for publication purposes]

**How she died** – 1(a) Complications of bacterial chest infection (Staphylococcus aureus)
2 Human metapneumovirus infection

**Place of death** – Bamaga Hospital 82 Sagaukaz Street BAMAGA QLD 4876 AUSTRALIA

**Date of death**– 15/06/2023

I close the investigations.

Stephanie Gallagher
Deputy State Coroner
CORONERS COURT OF QUEENSLAND
2 July 2024