

10 JAN 2017

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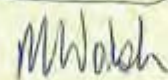
# Director-General Brief for Approval

Department RecFind No:	BR065584
Division/HHS:	Cairns & Hinterland
File Ref No:	

Requested by:

- Department       Minister's office

**SUBJECT: Director-General approval to access line-listed cancer registry data for Tropical Public Health Service (Cairns) to facilitate assessment of a possible cancer cluster**

<b>Recommendation</b>	
It is recommended the Director-General:	
<ol style="list-style-type: none"> <li><b>Approve</b> access to line-listed Queensland Cancer Registry data for Dr Richard Gair, Director and Ms Sally Rubenach, Acting Epidemiologist, Tropical Public Health Service Cairns, to facilitate the assessment of a possible cancer cluster in Cairns.</li> </ol>	
<p><b>APPROVED</b> / <del>NOT APPROVED</del></p> 	
<p><b>MICHAEL WALSH</b> Director-General</p>	<p>Date: 11 / 1 / 2017</p>

Ministerial Brief for Approval required

Director-General's comment

Ministerial Brief for Noting required

Please provide update on outcome once assessment is completed

## Issues

- The Queensland Department of Education and Training (DET) has advised the Cairns and Hinterland Hospital and Health Service (CHHHS) of concerns expressed by a parent regarding several former students of the Redlynch State School in Cairns who have been diagnosed with brain cancer.
- DET is seeking advice from CHHHS regarding the existence of the cancer cluster and whether any relationships between the affected persons, their conditions and the schools they attended are more than coincidental.
- The Tropical Public Health Service (TPHS) Cairns, will undertake a Type 1 cluster assessment as per the Queensland Health Guidelines for the assessment of clusters of non-communicable diseases to determine if the cases reported are potentially a cancer cluster.
- TPHS Cairns requires access to line-list data from the Queensland Cancer Registry (QCR) to confirm that the persons named have been diagnosed with cancer, and to determine if the cancers are the same or similar.
- Under the *Public Health Act 2005* the Director-General's approval is required for the TPHS Cairns to access the following line list data from the QCR: Name of person, date of birth, date of diagnosis, address at time of notification, cancer site and morphology and date and cause of death if relevant/known.
- If this assessment concludes that the persons may potentially be a cancer cluster, a Type 2 cluster assessment will be undertaken to determine whether or not there is an excess of cancer cases meeting the case definition, and if there has been sufficient exposure to a biologically plausible causal agent for the cancers diagnosed.

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## Vision

- The investigation of a potential cancer cluster aligns with the direction to promote wellbeing and improve the health of Queenslanders through the prevention of illness and injury as set out in the 10 year vision My health, Queensland's future: Advancing health 2026: Promoting wellbeing, Delivering healthcare, Connecting healthcare, and Pursuing innovation.

## Results of Consultation

- Mr James Roche, Director, Organisational Safety and Wellbeing, DET, has been advised that TPHS Cairns will undertake an assessment to determine if the persons named represent a potential cancer cluster.
- TPHS Cairns has been advised that Director-General approval is required to access line list data by the Registrar, QCR, the Preventative Health Branch, Department of Health, and the Cancer Systems Coordinator, QCCAT, Cancer Services.

## Resource Implications (including Financial)

- Funding to make an assessment of whether or not the persons may represent a potential cancer cluster is within the existing allocation for the TPHS Cairns.

## Background

- The TPHS Cairns has been advised by an informant that five persons who attended the Redlynch State School in Cairns (now aged 22 to 23 years) have been diagnosed with brain cancer. The informant has indicated that three of the five persons named have died, one in 2015 and two in 2016.
- Two of the named persons were reported by the Cairns Post in an article published on 4 January 2016 (Attachment 1).

## Attachments

- Attachment 1: Article published in the Cairns Post, 4 January 2016 'Cancer battle for two Cairns school friends'.

Author	Cleared by:	Content verified by:
Sally Rubenach	Dr Richard Gair	Clare Douglas
A/Manager, Health Surveillance	Director	Chief Executive Officer
Tropical Public Health Service Cairns	Tropical Public Health Service Cairns	Cairns and Hinterland HHS
07 4226 5611	07 4226 5572	07 4226 3205
9 December 2016	9 December 2016	23 December 2016

**Andrea Casasola**

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**From:** Kari Jarvinen  
**Sent:** Wednesday, 30 May 2018 10:56 AM  
**To:** Suzanne Huxley  
**Cc:** Brad McCall; Sophie Dwyer  
**Subject:** RE: FYI: Investigation into [REDACTED] cancer cluster allegation

Thanks Suzanne,

We're on the same page! We'll keep you posted of any significant developments.

Regards,

Kari

**Dr Kari Jarvinen**

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**From:** Suzanne Huxley  
**Sent:** Wednesday, 30 May 2018 10:44 AM  
**To:** Kari Jarvinen  
**Cc:** Sophie Dwyer  
**Subject:** RE: FYI: Investigation into [REDACTED] cancer cluster allegation

Hi Kari

I believe HPB received a call about this today and I suggested the correct route was to speak with the PHU investigating, so thanks for the update.

Regards

Suzanne

---

**From:** Kari Jarvinen  
**Sent:** Wednesday, 30 May 2018 10:33 AM  
**To:** Sophie Dwyer <[Sophie.Dwyer@health.qld.gov.au](mailto:Sophie.Dwyer@health.qld.gov.au)>; Suzanne Huxley <[Suzanne.Huxley@health.qld.gov.au](mailto:Suzanne.Huxley@health.qld.gov.au)>  
**Cc:** Brad McCall <[Brad.McCall@health.qld.gov.au](mailto:Brad.McCall@health.qld.gov.au)>; Bhakti Vasant <[Bhakti.Vasant@health.qld.gov.au](mailto:Bhakti.Vasant@health.qld.gov.au)>; Vicki Slinko <[Vicki.Slinko@health.qld.gov.au](mailto:Vicki.Slinko@health.qld.gov.au)>  
**Subject:** FYI: Investigation into [REDACTED] cancer cluster allegation

Hi Sophie and Suzanne,

Just giving you a bit of a heads-up about this, which has unfortunately created quite a lot of interest and concern in the [REDACTED] this morning.

We were informed last week of a small number of staff working at the [REDACTED], with various types of cancers diagnosed since 2014. We have followed the usual alleged cluster investigation process, starting with initial enquiry and obtaining more detailed information. In the meanwhile the informant from [REDACTED] briefed [REDACTED] about this investigation, who apparently has also briefed the (?Deputy-)Premier. They were set to undertake urgent action today, but have fortunately liaised with us and we tried to allay unnecessary anxieties. At their request, we provided the following summary information this morning:

- 11 employees of [REDACTED] have been reported to have developed cancers over the past several years. The cancers are of multiple different types, therefore linked to different risk factors.
- Based on initial assessment of received details, there is no indication of an actual clustering of cancer in the workplace.
- As further details are received, the situation will be reviewed in more detail.
- There is no indication at this stage of any cause for alarm or concern for employees at the [REDACTED].

We have asked for some more clarifying information on details, as we proceed with this investigation – still really a preliminary enquiry with no red flags identified.

We have also informed our Chief Executive, and will be drafting a DG Brief this afternoon.

Regards,

Kari

**Dr Kari Jarvinen**

Public Health Physician | Metro South Public Health Unit | Division of Medicine

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**Andrea Casasola**

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**From:** Kari Jarvinen  
**Sent:** Wednesday, 30 May 2018 12:43 PM  
**To:** Sophie Dwyer  
**Cc:** Suzanne Huxley; Brad McCall; Bhakti Vasant; Vicki Slinko  
**Subject:** RE: FYI: Investigation into [REDACTED] cancer cluster allegation

Great to hear, many thanks indeed, Sophie!

Regards,

Kari

**Dr Kari Jarvinen**

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**From:** Sophie Dwyer  
**Sent:** Wednesday, 30 May 2018 12:38 PM  
**To:** Kari Jarvinen  
**Cc:** Suzanne Huxley; Brad McCall; Bhakti Vasant; Vicki Slinko  
**Subject:** Re: FYI: Investigation into [REDACTED] cancer cluster allegation

Ta Kari  
 Yes it made it back to the CHO.

She is comfortable with your approach  
 Regards  
 Sophie

Sent from my iPhone

On 30 May 2018, at 10:33 am, Kari Jarvinen <[Kari.Jarvinen@health.qld.gov.au](mailto:Kari.Jarvinen@health.qld.gov.au)> wrote:

Hi Sophie and Suzanne,

Just giving you a bit of a heads-up about this, which has unfortunately created quite a lot of interest and concern in the [REDACTED] this morning.

We were informed last week of a small number of staff working at the [REDACTED], [REDACTED], with various types of cancers diagnosed since 2014. We have followed the usual alleged cluster investigation process, starting with initial enquiry and obtaining more detailed information. In the meanwhile the informant from [REDACTED] briefed [REDACTED] about this investigation,

who apparently has also briefed the (?Deputy-)Premier. They were set to undertake urgent action today, but have fortunately liaised with us and we tried to allay unnecessary anxieties. At their request, we provided the following summary information this morning:

- 11 employees of the [REDACTED] have been reported to have developed cancers over the past several years. The cancers are of multiple different types, therefore linked to different risk factors.
- Based on initial assessment of received details, there is no indication of an actual clustering of cancer in the workplace.
- As further details are received, the situation will be reviewed in more detail.
- There is no indication at this stage of any cause for alarm or concern for employees at the [REDACTED].

We have asked for some more clarifying information on details, as we proceed with this investigation – still really a preliminary enquiry with no red flags identified.

We have also informed our Chief Executive, and will be drafting a DG Brief this afternoon.

Regards,

Kari

**Dr Kari Jarvinen**

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**Director-General Brief for Noting**

RM folder reference No:	C-ECTF-18/4570
Division/HHS:	MSHHS
File Ref No:	PAH_1140

Requested by:

 Department**SUBJECT:** Allegation of suspected cancer cluster – [REDACTED], [REDACTED] a**NOTED****MICHAEL WALSH**  
Director-General

Date: 06 / 06 / 2018

Ministerial Brief for Approval required Ministerial Brief for Noting required 

Director-General's comment

**Issues**

1. Urgent. Metro South Public Health Unit (MSPHU) is investigating an alleged cancer cluster among workers of the [REDACTED].
2. Information provided to MSPHU has been assessed by the MSPHU epidemiologist and public health physician. The MSPHU will be assessing this report using Queensland Health Guidelines: Assessment of Clusters of Non Communicable Disease. Preliminary assessment of early information is that this situation is unlikely to meet the criteria for classification as a true cancer cluster.
3. The issue has generated interest and concern at a high level in the [REDACTED] as well as the Department of the Premier and Cabinet. Preliminary assurance has been provided to [REDACTED] Human Resources staff whilst further investigations are completed. MSPHU will continue to support [REDACTED] within the limits of available resources.

**Vision**

4. This brief aligns with one of the four directions set out in the 10 year vision *My health, Queensland's future: Advancing health 2026*: Promoting wellbeing, Delivering healthcare, Connecting healthcare, and Pursuing innovation.

**Background**

5. MSPHU was notified on 22 May 2018 of the potential concern by the Manager, Human Resources ([REDACTED]).
6. MSPHU is following standard Queensland Health guidelines for cluster investigations in investigating this allegation in a logical, step-by-step manner. The preliminary enquiry at this stage has sought for details of the cancer cases and their employment history within the [REDACTED]. Noting the cancers are of multiple different types, explanation and Queensland Health fact sheet information has been provided on most alleged clusters not being related, true clusters, as well as basic data on expected cancer frequency in the population.
7. The findings of the preliminary assessment to date indicates that:
  - 7.1 the cancers are of multiple different types, therefore linked to different risk factors;
  - 7.2 there is no indication of an actual clustering of cancer in the workplace; and
  - 7.3 that there is no indication at this stage of any cause for alarm or concern for employees at the [REDACTED]

<b>RM folder reference No:</b>	<b>C-ECTF-18/4570</b>
<b>Division/HHS:</b>	<b>MSHHS</b>
<b>File Ref No:</b>	<b>PAH_1140</b>

8. Further information has been and will be sought from [REDACTED] to assess potential risks and likelihood of a “true” clustering of cancers (which seems unlikely at this stage).

### Results of Consultation

9. The investigation is currently conducted by MSPHU, with information updates to the Health Protection Unit, Department of Health as appropriate in keeping with the Queensland Health cluster investigation guidelines.

### Resource Implications (including Financial)

10. No predictable resource implications.

### Attachments

11. Nil.

Author	Cleared by: (SD/Dir)	Content verified by: (CEO/DDG/Div Head)
Dr Brad McCall	Dr Michael Cleary	Dr Stephen Ayre
Director	Executive Director PAH-QEII Health Network	Chief Executive
Public Health Unit Metro South Health		Metro South Health
3176 4000	3176 2374	3156 4949
[REDACTED]		[REDACTED]
30 May 2018	30 May 2018	31 May 2018



**Andrea Casasola**

---

**From:** Brad McCall  
**Sent:** Monday, 11 June 2018 12:32 PM  
**To:** Sophie Dwyer  
**Cc:** Gayle Pollard; Bonnie Macfarlane; Bhakti Vasant; Jerisha Ellerstrand; Vicki Slinko; Paula Seal  
**Subject:** Alleged cancer cluster - [REDACTED]

Hi Sophie

I'm writing to provide you with information on a recent approach to MSPHU by a member of the community about an alleged cancer cluster. Although we are in the initial inquiry phase, I felt it appropriate to provide you with this initial information as per para 1.3.1 of the QH Guidelines, Assessment of clusters of non-communicable disease 2018.

On 25 May 2018, MSPHU was contacted by a member of the public, residing in [REDACTED], Logan City, to raise concerns regarding a number of cases of brain cancer within their local area. MSPHU epidemiologists contacted the informant the same day to discuss their concerns and were provided with the following information:

- Total of four cases of glioblastoma grade 4 within the informant's 'local area/suburb'
  - Case 1: [REDACTED]
  - Case 2: Male [REDACTED]
  - Case 3: Male [REDACTED]
  - Case 4: Male [REDACTED]

The informant was unable to provide detailed case information during this initial phone call. They were asked to gather and provide more detailed case information to aid the assessment.

To date the informant has not responded with any additional information. The informant was followed up by email on Wednesday 30 May and will be followed up again this week on Wednesday 13 June if no communication is forthcoming.

Epidemiologists have done some preliminary statistical investigations using cancer data from OASys (however, data on this system is only available up to 2014). These investigations indicate that if all four cases are glioblastoma and are from the SA1 covering [REDACTED] then the standardised incidence and mortality ratios would be extremely high. However, further clarification from the informant is required before conclusions can be drawn.

A preliminary investigation into land use in the area undertaken by MSPHU Environmental Health Officers with the assistance of Logan City Council staff has not identified any issues of potential concern regarding environmental contamination or ionising radiation sources. The original land use of the area was pastoral.

MSPHU will continue to investigate this alleged cancer cluster as further information becomes available from the informant.

Please let me know if you have any questions or concerns.

Thanks  
Regards  
Brad

**Dr Brad McCall**

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RTI RELEASE

**Epidemiological assessment of cases of  
brain cancer, and specifically  
glioblastoma multiforme grade 4,  
among residents of [REDACTED]**

***Interim report***

**July 2018**

## An assessment of cases of brain cancer, and specifically glioblastoma multiforme grade 4, among residents of [REDACTED]

Prepared by Metro South Public Health Unit  
July 2018

### Summary

To be added

### Background to alleged cluster

Metro South Public Health Unit (MSPHU) was contacted on 25 May 2018 by [REDACTED]. [REDACTED] was diagnosed with glioblastoma grade 4 in [REDACTED] 2015 and died [REDACTED] 2016. Information was provided about possibly three other cases of glioblastoma multiforme grade 4 over the past 8 years also resident in [REDACTED].

MSPHU interviewed and emailed the informant, requesting further information about the four alleged cases. The informant subsequently supplied the following information about three cases of glioblastoma multiforme grade 4 (all deceased):

Case	Sex	Cancer	Date of diagnosis	Age at diagnosis	Years lived in [REDACTED]	Occupation	Family history of brain cancer
1	M	Glioblastoma grade 4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	None
2	M	Glioblastoma grade 4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	Unknown
3	M	Glioblastoma grade 4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	None

It was noted that the informant originally reported that there was a fourth case of glioblastoma grade 4 from the area that had died around eight years ago. However, in a follow-up email the informant stated that the family of this case had “not been forthcoming and I would not like to pursue it at this stage”. As a result, no details or clarification regarding the alleged fourth case are available so they cannot be included in the review at this point.

A review of the geography of the area identified the following points:

- the suburb of [REDACTED] is contained within the SA2 of Greenbank
- Greenbank SA2 has a population of approximately 12,000 while [REDACTED] has a population of approximately [REDACTED]

- The cases all resided on connected roads ( [REDACTED] ) that run the length of a pocket in a bend of the Logan River
- The road in question is slightly less than 2 km in length with the cases living within 1.1km of each other
- The area is rural residential in character with large blocks of land (approx. 2.5 to over 5 acres)
- Most houses are situated close to the road and relatively close to each other with the blocks long and narrow or wedge shaped.
- The road follows a high ridgeline with the blocks sloping down to the flood plain and the Logan River
- There are no high tension powerlines within the local area
- There is a single mobile phone tower located near the intersection of [REDACTED] [REDACTED], approximately [REDACTED] from the address of the closest reported case

### Background to cancer clusters

Cancers are a diverse group of diseases, and there is no one single cause. There are a variety of known risk factors, including lifestyle factors and environmental factors (such as exposure to sunlight and some chemicals), which have been identified for individual cancers. However, the presence of risk factors does not imply that the person will necessarily get cancer. There are also genetic factors that predispose individuals to some forms of cancer.

The term cancer cluster is usually defined as a greater number of cases of cancer (usually of the same type), identified within a certain group of people, geographical area, and time period, than are expected, based on the size and age of the population. A cluster assessment is the scientific process used to determine whether there is an increased number of cases of a specific disease **and** whether there is a biologically plausible causal agent/s for that disease.

Clusters where environmental causes have been found have tended to:

- Be a rare type of cancer
- Consist of a large number of cases of one particular cancer rather than several types
- Occur in a well-defined group or setting, or a group where the cancer is not usually seen, and where there has been intense and sustained exposure to an unusual chemical, occupation, infection or drug
- Have been initiated by an alert from a health surveillance system

The cancers reported in this current investigation were all glioblastoma multiforme grade 4.

### Methodology

An Expert Advisory Group (EAG) was convened to review available information and statistics, advise on appropriate investigation processes and draw conclusions from the investigation results. Membership of the EAG included:

- Public Health Physicians;
- Public Health Unit Advanced Epidemiologists;
- Public Health Unit Environmental Health Officers;
- Director, Metro South Public Health Unit;

- Manager, Population Epidemiology Unit;
- Director, Radiation Health Unit; and
- Director, Environmental Hazards Unit.

A literature review was conducted into the epidemiology of glioblastoma in particular and brain cancer in general, with a focus on aetiology and latency period. A review of available cancer statistics for Queensland and local areas was undertaken using the online portal OASys to determine incidence rates of brain cancer and glioblastoma. Reviews of the Environmental Management Register, Contaminated Land Register and a Queensland Health register of radiation contamination were conducted to determine whether there were records of the land in the vicinity of the reported cases being contaminated with radiation or chemicals.

### **Literature Review: Epidemiology of glioblastoma**

Glioblastoma multiforme grade 4 is a type of glioma. Glioma is the most common type of primary brain tumour. The cause of most brain tumours is unknown and for the vast majority of people diagnosed with a brain tumour, no outside cause can be clearly identified<sup>1</sup>.

The known risk factors for gliomas include ageing, being male, a genetically inherited tendency (rare) and ionising radiation (x-rays and gamma rays)<sup>1,2</sup>. Dose levels of ionising radiation from CT scans are in the range of risk factor concern, however the individual risk of developing cancer from a single procedure is extremely small<sup>2</sup>. The possibility of a link between long-term mobile phone usage and the development of brain cancer is highly debated with some studies reporting a significant positive association with glioma<sup>3</sup> while others find no evidence of an association<sup>2</sup>. A significant association between brain tumours and military occupation has also been reported<sup>4</sup>.

Allergic conditions including asthma, hay fever, eczema and food allergies have been found to be protective against the development of brain tumours<sup>2</sup>.

No association has been found between brain tumour development and any of the following:

- Cumulative years of use of any farm pesticide<sup>2</sup>
- Herbicide or insecticide exposure among men<sup>5</sup>
- Cumulative exposure or duration of exposure to combustion products (diesel and gasoline exhaust emissions, benzo(a)pyrene)<sup>6</sup>
- Cumulative exposure or duration of exposure to dusts (animal dust, asbestos, crystalline silica, wood dust)<sup>6</sup>
- Cumulative exposure or duration of exposure to chemical agents (formaldehyde, oil mist, sulphur dioxide)<sup>6</sup>
- Chlorinated solvents and cytotoxic metabolites of chlorinated solvents<sup>2,7</sup>
- Occupations in the agricultural, construction, transport, chemical, electrical/electronic and metal sectors<sup>8</sup>

Brain cancer takes many years to develop to a point at which diagnosis is possible. The latency period is in the range of 15 to 45 years depending on the age at exposure, type and intensity of exposure<sup>9,10</sup>. Therefore, any exposure relevant to the diagnosis of glioma in an individual aged approximately 70 years (at diagnosis) may have occurred at almost any time in the individual's adult life.

## Incidence statistics

The smallest geographical area for which cancer incidence data are available is the statistical area 2 (SA2). Because of the very small numbers of incident cases, calculating age standardised incidence rates for rare/uncommon cancers in areas as small as a single SA2 is not generally recommended. More reliable statistics are generated by combining a number of SA2s into a geographical area of interest (GAI).

The locality of [REDACTED] is within the SA2 of Greenbank. The surrounding area encompasses the SA2s of Greenbank, Jimboomba, Logan Village, Boronia Heights – Park Ridge, Chambers flat – Logan Reserve and Munruben – Park Ridge South. These six SA2s have been combined to form a GAI for this investigation.

The incidence age standardised rate (ASR) of all brain cancer over the period 2005 to 2014 (most recent 10 years data available in OASys) in Metro South HHS was 7.1/100,000 (95% CI = 6.6-7.7) and in Queensland was 6.8/100,000 (95% CI = 6.5-7.0). The incidence ASR of brain cancer in the local GAI was 6.7/100,000 (95% CI = 4.6-9.3). There was no significant difference in the rate of incidence of brain cancer in the local GAI when compared with all of Metro South HHS or all of Queensland.

If incidence ASRs of all cancers was considered, the rate in Metro South HHS was 512/100,000 (95% CI = 507-516), in Queensland was 534/100,000 (95% CI = 532-536) and in the local GAI was 521/100,000 (95% CI = 501-542). Again, there was no significant difference in the rate of incidence of all cancers in the local GAI when compared with all of Metro South or all of Queensland.

The OASys online portal does not currently contain data beyond 2014, therefore the cases reported as part of this investigation do not appear in this dataset. However, a search for glioblastoma cases in the Greenbank SA2 indicated that there were three cases recorded in the 10 year period 2005 to 2014. This equated to a crude rate of 2.7 cases per 100,000 population in Greenbank SA2 which was not significantly different from the crude rate of 2.6 cases per 100,000 population in the local GAI. The rate in Greenbank SA2 was slightly lower than the crude rates in Metro South HHS (3.1/100,000) and Queensland (3.2/100,000).

## Reviews of Registers

Details of Lot and RP numbers of all properties on [REDACTED] Rds (the roads on which cases resided) at [REDACTED] were provided to staff of the Department of Environment and Science for comparison with the Environmental Management Register and the Contaminated Land Register.

None of these properties were listed on either of these Registers. This indicates that there are no records of environmental contamination at these properties.

Staff of the Environmental Hazards Unit, Queensland Health, searched for this locality in Queensland Health's register of radiation contaminated sites and no match was found. This indicates that there is no record of radiation contamination in the immediate area of this investigation. In addition, there has been no known radioactive contamination by mining of radioactive mineral sands in the Logan area.

## Conclusions

The conclusion of the EAG is that the reported occurrence of these cases of glioblastoma multiforme grade 4 does constitute a geographical cluster in that the number of reported cases does exceed the number that would be expected in that immediate area of [REDACTED] based on population numbers and Queensland cancer rates. However, based on current knowledge of cancer causation, this investigation has not identified any plausible environmental exposure which would be likely to cause cases of this cancer in this local setting.

Current knowledge identifies exposure to ionising radiation as a potential risk factor for glioblastoma. Investigation of individual lifetime exposure histories to ionising radiation, e.g. via medical procedures, may assist in understanding the occurrence of cancer in these cases. However, the detail of the cases' lifetime personal risk factors is not available. Even if this information were available it would not alter the conclusion that these cases are a rare but likely unassociated occurrence of a specific cancer in individuals without a contributing geographically linked cause.



## References

1. Cancer Council Australia. Adult gliomas (astrocytomas and oligodendrogliomas): a guide for patients. Their families and carers. Sydney: Cancer Council Australia / Clinical Oncological Society of Australia; 2011.
2. Ostrom, Q., *et al.* 2015. CBTRUS Statistical Report: Primary brain and central nervous system tumors diagnosed in the United States in 2008-2012. *Neuro-Oncology* **17**:iv1-iv62.
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4. Fallahi, P., *et al.*, 2017. High risk of brain tumors in military personnel: a case control study. *Clin Ter* **168**(6): e376-e379.
5. Samanic, C.M., *et al.*, 2008. Occupational exposure to pesticides and risk of adult brain tumors. *Am J. Epidemiol.* **167**(8): 976-985.
6. Lacourt, A., *et al.*, 2013. INTEROCC case-control study: lack of association between glioma tumors and occupational exposure to selected combustion products, dusts and other chemical agents. *BMC Public Health* **13**:340.
7. Ruder, A.M., *et al.*, 2013. The Upper Midwest health Study: gliomas and occupational exposure to chlorinated solvents. *Occup Environ Med* **70**(2): 73-80.
8. Samkange-Zeeb, F., *et al.*, 2010. Occupation and risk of glioma, meningioma and acoustic neuroma: results from a German case-control study (interphone study group, Germany). *Cancer Epidemiol.* **34**(1): 55-61.
9. Stein, Y., *et al.*, 2011. A sentinel case series of cancer patients with occupational exposures to electromagnetic non-ionising radiation and other agents. *European Journal of Oncology*, **16**/1: 21-54.
10. Shibata, Y., *et al.*, 1994. Intercranial meningiomas among Nagasaki atomic bomb survivors. *Lancet*, **344**: 1 770

**Suzanne Huxley**

---

**From:** Vicki Slinko  
**Sent:** Tuesday, 19 June 2018 4:41 PM  
**To:** Andrew Langley; Anne Maree Baldwin; Margaret Bright; Gayle Pollard; Bonnie Macfarlane; Brad McCall; Paula Seal; Bhakti Vasant; Clive Paige; Uma Rajappa; Suzanne Huxley; Paula Veevers  
**Subject:** Notes from Cluster Investigation Expert Advisory Group 19062018.2  
**Attachments:** Notes from Cluster Investigation Expert Advisory Group 19062018.2.doc

G'day All,

I've attached some notes as a record of our EAG this morning. If you would like any changes, could I ask that you get back to me in the document as "Track changes".

Cheers,

Vicki

**Dr Vicki Slinko**

Public Health Fellow | Metro South Public Health Unit | Division of Medicine

Princess Alexandra Hospital | **Metro South Health**

39 Kessels Rd Coopers Plains QLD 4108

t. 07 3176 4000

m. [REDACTED]

e. [vicki.slinko@health.qld.gov.au](mailto:vicki.slinko@health.qld.gov.au) | [www.metrosouth.health.qld.gov.au](http://www.metrosouth.health.qld.gov.au)



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**Please be aware that I work part-time: each Thursday and Friday and alternate Wednesdays.**

## Notes from Cluster Investigation Expert Advisory Group: Glioblastoma in [REDACTED]

Tuesday 19 June 2018, 10 am

**Attendees:** MSPHU: Brad McCall, Bhakti Vasant, Vicki Slinko, Paula Seal, Gayle Pollard

HPB: Suzanne Huxley, Paula Veevers, Uma Rajappa, Clive Page

Epidemiology (PHB): Margaret Bright

SCPHU: Andrew Langley, Anne Maree Baldwin

**Summary information:** as previous except that all three recent brain cancers (2015, 2016 and 2017) have been confirmed as glioblastomas (one was categorised as glioma: metastatic cancer previously).

### Discussion:

#### The environment

Simon Critchley (Radiation Safety, HPB; apology for this meeting and represented by PV) formally responded to MSPHU by email to advise that radiation sources have been very tightly regulated for the last 60 years and that it was "most unlikely that the area in Logan has been a dumping ground for radioactive waste and, even if it had been, the concentrations of radioactive material would have been so low as to be indiscernible from the surrounding area". In addition, there has been no known radioactive contamination by mining of radioactive mineral sands in the Logan area.

Since 1860, the [REDACTED] area has historically been used for grazing/dairying and cropping (potatoes, maize, sugarcane) until this area became rural residential. It is one of the few areas in Logan allowed to have horses.

Greenbank Military Reserve is a considerable distance from the [REDACTED] suburb with several suburbs in between so this area is unlikely to have been affected by any military activities.

#### The literature

There was discussion about the latency period for glioblastoma. An informal search found that the latency period is unknown and assumed to be greater than 10 years. No association was found with farm pesticide exposure. FSS librarians are continuing to assist with a literature search.

#### Epidemiology

[REDACTED] (population [REDACTED]) is located within the SA2 of Greenbank (population ~12000 people).

Oasis data was searched. One incident case of glioblastoma was identified in the SA2 of Greenbank in 2007, 2012 and 2013. There was no significant difference between the rate of glioblastoma in Greenbank compared with the rest of the Queensland population. It was

noted that the data may be limited because cases are assigned according to postcode. Some postcodes may represent more than one SA2 area.

**Decisions:** Consensus from the group that:

1. Should continue to pursue about any possible contamination of the Lots along the roads concerned ( [REDACTED] ) by searching:
  - the Contaminated Lands Register (for substances that pose a serious health risk and need to be remediated; will then be removed from the register once the owner has complied)
  - Environmental Management Register (for other possible contaminations).

**Action: PS to ask Logan City Council to provide Lot/RP numbers for all blocks along these roads; then MSPHU to submit to Department of Environment and Science (DES) to search registers.**

2. No other likely exposures could be identified and there should be no requirement for any Geiger counter investigation.
3. Currently appears to be a random clustering of uncommon cancers.
4. Should make contact with informant this week to advise of progress of investigation and that are awaiting the results of some other searches.

## Suzanne Huxley

---

**From:** Gayle Pollard  
**Sent:** Friday, 22 June 2018 9:19 AM  
**To:** Bonnie Macfarlane; Vicki Slinko; Brad McCall; Bhakti Vasant; Andrew Langley; Anne Maree Baldwin; Margaret Bright; Paula Seal; Greg Shillig; Paula Veevers; Suzanne Huxley; Uma Rajappa; Clive Paige  
**Subject:** FW: Request for search of EMR and CLR  
**Attachments:** Lots & RPs in [REDACTED].xls; MSH Bulk Search Results [REDACTED] 20180621.xlsx

Dear Expert Advisory Group Members,

Attached are the results of the search of the Environmental Management and Contaminated Land Registers the regard to all of the lots on the road associated with the alleged cancer cluster in [REDACTED].

You will see that none of the lots appear on either of the registers.

This completes the action from our last meeting regarding searches of possible contaminants on the relevant land areas.

I am now proceeding to write up the findings of the investigation and will forward a draft of this to the group upon completion for comment.

Please let myself or my job-share Bonnie Macfarlane know if you feel there are any additional actions we should be taking. [REDACTED]

Kind regards  
 Gayle

**Dr Gayle Pollard B.Sc.(Hons) Ph.D.**

Advanced Epidemiologist | Metro South Public Health Unit  
 Division of Medicine | Princess Alexandra Hospital | **Metro South Health**  
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 PO Box 333, Archerfield 4108

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**From:** HALL Christine [mailto:Christine.Hall@des.qld.gov.au] **On Behalf Of** EMR CLR Registry  
**Sent:** Thursday, 21 June 2018 9:14 AM  
**To:** Gayle Pollard  
**Cc:** EMR CLR Registry  
**Subject:** FW: Request for search of EMR and CLR

Good Morning Gayle,



**Queensland  
Government**

As requested, please find attached the EMR/CLR Bulk Search Results that apply to the sites on the attached spreadsheet

If you have any queries please don't hesitate to contact me on the number listed below.

Kind Regards

**Chris Hall**

Customer Service Officer

**Waste and Contaminated Land | Industry & Development Assessment**

Department of Environment and Science

P 07 3330 5375

Level 8, 400 George Street Brisbane Q 4000

GPO Box 2454 Brisbane Q 4001



*...make the move*

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If you are an existing DES customer, your details are already in Connect and you can get your Connect DES Customer Reference by emailing [connecthelp@ehp.qld.gov.au](mailto:connecthelp@ehp.qld.gov.au).

---

**From:** Gayle Pollard [<mailto:Gayle.Pollard@health.qld.gov.au>]

**Sent:** Wednesday, 20 June 2018 4:20 PM

**To:** EMR CLR Registry <[EMR.CLR.Registry@des.qld.gov.au](mailto:EMR.CLR.Registry@des.qld.gov.au)>

**Cc:** Bonnie Macfarlane <[Bonnie.Macfarlane@health.qld.gov.au](mailto:Bonnie.Macfarlane@health.qld.gov.au)>

**Subject:** Request for search of EMR and CLR

Dear Registry staff,

Following discussions with Christine Hall I have attached a spreadsheet with lot and plan numbers for a total of 47 lots for which we would like to request a search of the Environmental Management and Contaminated Land registers.

If you require any further information or clarification please don't hesitate to contact either myself or my job-share colleague Bonnie Macfarlane (copied into this email).

Kind regards

Gayle Pollard

**Dr Gayle Pollard B.Sc.(Hons) Ph.D.**

Advanced Epidemiologist | Metro South Public Health Unit

Division of Medicine | Princess Alexandra Hospital | Metro South Health  
39 Kessels Road Coopers Plains QLD 4108  
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Lot No    RP



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AMA or AN Exis	AMA/AN Base d	AMA/AN Bace f	AMA/AN New	AMA/AN Comr	EMR or CLR



**Simon Critchley**

---

**From:** Brad McCall  
**Sent:** Friday, 6 July 2018 2:12 PM  
**To:** Gayle Pollard; Vicki Slinko; Bhakti Vasant; Kari Jarvinen; Andrew Langley; Margaret Bright; Anne Maree Baldwin; Simon Critchley; Uma Rajappa  
**Subject:** Draft report Cluster investigation - [REDACTED]\_v3  
**Attachments:** Draft report\_[REDACTED]\_v3.docx

Dear colleague,

Thank you for your participation to date in the assessment process for the alleged cancer cluster at [REDACTED].

Attached is a draft report for your review into the process we have undertaken to date.

We would like to convene another teleconference meeting of the EAG to consider this report and a number of remaining questions as follows:

1. Consideration of whether to conduct a field survey of background radiation levels in the area? Given that radiation exposure is the only known risk factor for this type of cancer, such a survey would enable the report to include a categorical statement regarding radiation in the area of concern
2. Is there benefit in going to the Cancer Registry and getting definitive details of all cases of glioblastoma multiforme grade 4 in the Logan LGA in the last 10 years (or other appropriate time period)
3. Is there benefit in contracting an external provider (University) to review this cluster assessment to provide independent confirmation that all bases have been covered?

I would like to suggest Wed 11<sup>th</sup> July at 2pm for our next teleconference pending your availability and would request that you review the attached draft report prior to the discussion.

Dial in details: [REDACTED]; code [REDACTED]

regards

Brad

**Dr Brad McCall**

Director, Metro South Public Health Unit | Division of Medicine  
Princess Alexandra Hospital | **Metro South Health**  
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**Epidemiological assessment of cases of  
brain cancer, and specifically  
glioblastoma multiforme grade 4,  
among residents of [REDACTED]**

**July 2018**

## An assessment of cases of brain cancer, and specifically glioblastoma multiforme grade 4, among residents of [REDACTED]

Prepared by Metro South Public Health Unit  
June 2018

### Summary

*To be added*

### Background to alleged cluster

Metro South Public Health Unit (MSPHU) was contacted on 25 May 2018 by [REDACTED] whose [REDACTED] was diagnosed with glioblastoma grade 4 in [REDACTED] 2015 and died [REDACTED] 2016. Information was provided about possibly three other cases of glioblastoma multiforme grade 4 over the past 8 years also resident in [REDACTED].

MSPHU interviewed and emailed the informant, requesting further information about the four alleged cases. The informant subsequently supplied the following information about three cases of glioblastoma multiforme grade 4 (all deceased):

Case	Sex	Cancer	Date of diagnosis	Age at diagnosis	Years lived in [REDACTED]	Occupation	Family history of brain cancer
1	M	Glioblastoma grade 4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	None
2	M	Glioblastoma grade 4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	Unknown
3	M	Glioblastoma grade 4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	None

It was noted that the informant originally reported that there was a fourth case of glioblastoma grade 4 from the area that had died around eight years ago. However, in a follow-up email the informant stated that the family of this case had “not been forthcoming and I would not like to pursue it at this stage”. As a result, no details or clarification regarding the alleged fourth case are available so they cannot be included in the review at this point.

A review of the geography of the area identified the following points:

- the suburb of [REDACTED] is contained within the SA2 of Greenbank
- Greenbank SA2 has a population of approximately 12,000 while [REDACTED] has a population of approximately [REDACTED]

- The cases all resided on connected roads ( [REDACTED] ) that run the length of a pocket in a bend of the Logan River
- The road in question is slightly less than 2 km in length with the cases living within 1.1km of each other
- The area is rural residential in character with large blocks of land (approx. 2.5 to over 5 acres)
- Most houses are situated close to the road and relatively close to each other with the blocks long and narrow or wedge shaped.
- The road follows a high ridgeline with the blocks sloping down to the flood plain and the Logan River
- There are no high tension powerlines within the local area
- There is a single mobile phone tower located near the intersection of [REDACTED] [REDACTED], approximately [REDACTED] from the address of the closest reported case

### Background to cancer clusters

Cancers are a diverse group of diseases, and there is no one single cause. There are a variety of known risk factors, including lifestyle factors and environmental factors (such as exposure to sunlight and some chemicals), which have been identified for individual cancers. However, the presence of risk factors does not imply that the person will necessarily get cancer. There are also genetic factors that predispose individuals to some forms of cancer.

The term cancer cluster is usually defined as a greater number of cases of cancer (usually of the same type), identified within a certain group of people, geographical area, and time period, than are expected, based on the size and age of the population. A cluster assessment is the scientific process used to determine whether there is an increased number of cases of a specific disease **and** whether there is a biologically plausible causal agent/s for that disease.

Clusters where environmental causes have been found have tended to:

- Be a rare type of cancer
- Consist of a large number of cases of one particular cancer rather than several types
- Occur in a well-defined group or setting, or a group where the cancer is not usually seen, and where there has been intense and sustained exposure to an unusual chemical, occupation, infection or drug
- Have been initiated by an alert from a health surveillance system

The cancers reported in this current investigation were all glioblastoma multiforme grade 4.

### Methodology

An Expert Advisory Group (EAG) was convened to review available information and statistics, advise on appropriate investigation processes and draw conclusions from the investigation results. Membership of the ESG included Public Health Physicians, Public Health Unit Advanced Epidemiologists, Public Health Unit Environmental Health Officers, Director, Metro South Public Health Unit, Manager, Population Epidemiology Unit, Director, Radiation Health Unit, Director, Environmental Hazards Unit.

A literature review was conducted into the epidemiology of glioblastoma in particular and brain cancer in general, with a focus on aetiology and latency period. A review of available cancer statistics for

Queensland and local areas was undertaken using the online portal OASys to determine incidence rates of brain cancer and glioblastoma. Reviews of the Environmental Management Register, Contaminated Land Register and a Queensland Health register of radiation contamination were conducted to determine whether there were records of the land in the vicinity of the reported cases being contaminated with radiation or chemicals.

### Literature Review: Epidemiology of glioblastoma

Glioblastoma multiforme grade 4 is a type of glioma. Glioma is the most common type of primary brain tumour. The cause of most brain tumours is unknown and for the vast majority of people diagnosed with a brain tumour, no outside cause can be clearly identified<sup>1</sup>.

The known risk factors for gliomas include ageing, being male, a genetically inherited tendency (rare) and ionising radiation (x-rays and gamma rays)<sup>1,2</sup>. Dose levels of ionising radiation from CT scans are in the range of risk factor concern, however the individual risk of developing cancer from a single procedure is extremely small<sup>2</sup>. The possibility of a link between long-term mobile phone usage and the development of brain cancer is highly debated with some studies reporting a significant positive association with glioma<sup>3</sup> while others find no evidence of an association<sup>2</sup>. A significant association between brain tumours and military occupation has also been reported<sup>4</sup>.

Allergic conditions including asthma, hay fever, eczema and food allergies have been found to be protective against the development of brain tumours<sup>2</sup>.

No association has been found between brain tumour development and any of the following:

- Cumulative years of use of any farm pesticide<sup>2</sup>
- Herbicide or insecticide exposure among men<sup>5</sup>
- Cumulative exposure or duration of exposure to combustion products (diesel and gasoline exhaust emissions, benzo(a)pyrene)<sup>6</sup>
- Cumulative exposure or duration of exposure to dusts (animal dust, asbestos, crystalline silica, wood dust)<sup>6</sup>
- Cumulative exposure or duration of exposure to chemical agents (formaldehyde, oil mist, sulphur dioxide)<sup>6</sup>
- Chlorinated solvents and cytotoxic metabolites of chlorinated solvents<sup>2,7</sup>
- Occupations in the agricultural, construction, transport, chemical, electrical/electronic and metal sectors<sup>8</sup>

Brain cancer takes many years to develop to a point at which diagnosis is possible. The latency period is in the range of 15 to 45 years depending on the age at exposure, type and intensity of exposure<sup>9,10</sup>.

Therefore, any exposure relevant to the diagnosis of glioma in an individual aged approximately 70 years (at diagnosis) may have occurred at almost any time in the individual's adult life.

### Incidence statistics

The smallest geographical area for which cancer incidence data are available is the statistical area 2 (SA2). Because of the very small numbers of incident cases, calculating age standardised incidence rates for rare cancers in areas as small as a single SA2 is not generally recommended. More reliable statistics are generated by combining a number of SA2s into a geographical area of interest (GAI).



The locality of [REDACTED] is within the SA2 of Greenbank. The surrounding area encompasses the SA2s of Greenbank, Jimboomba, Logan Village, Boronia Heights – Park Ridge, Chambers flat – Logan Reserve and Munruben – Park Ridge South. These six SA2s have been combined to form a GAI for this investigation.

The incidence age standardised rate (ASR) of all brain cancer over the period 2005 to 2014 (most recent 10 years data available in OASys) in Metro South HHS was 7.1/100,000 (95% CI = 6.6-7.7) and in Queensland was 6.8/100,000 (95% CI = 6.5-7.0). The incidence ASR of brain cancer in the local GAI was 6.7/100,000 (95% CI = 4.6-9.3). There was no significant difference in the rate of incidence of brain cancer in the local GAI when compared with all of Metro South HHS or all of Queensland.

If incidence ASRs of all cancers was considered, the rate in Metro South HHS was 512/100,000 (95% CI = 507-516), in Queensland was 534/100,000 (95% CI = 532-536) and in the local GAI was 521/100,000 (95% CI = 501-542). Again, there was no significant difference in the rate of incidence of all cancers in the local GAI when compared with all of Metro South or all of Queensland.

The OASys online portal does not currently contain data beyond 2014, therefore the cases reported as part of this investigation do not appear in this dataset. However, a search for glioblastoma cases in the Greenbank SA2 indicated that there were three cases recorded in the 10 year period 2005 to 2014. This equated to a crude rate of 2.7 cases per 100,000 population in Greenbank SA2 which was not significantly different from the crude rate of 2.6 cases per 100,000 population in the local GAI. The rate in Greenbank SA2 was slightly lower than the crude rates in Metro South HHS (3.1/100,000) and Queensland (3.2/100,000).

### Reviews of Registers

Details of Lot and RP numbers of all properties on [REDACTED] Rds (the roads on which cases resided) at [REDACTED] were provided to staff of the Department of Environment and Science for comparison with the Environmental Management Register and the Contaminated Land Register.

None of these properties were listed on either of these Registers. This indicates that there are no records of environmental contamination at these properties.

Staff of the Environmental Hazards Unit, Queensland Health, searched for this locality in Queensland Health's register of radiation contaminated sites and no match was found. This indicates that there is no record of radiation contamination in the immediate area of this investigation. In addition, there has been no known radioactive contamination by mining of radioactive mineral sands in the Logan area.

### Conclusions

The conclusion of the EAG is that the reported occurrence of these cases of glioblastoma multiforme grade 4 does constitute a geographical cluster in that the number of reported cases does exceed the number that would be expected in that immediate area of [REDACTED] based on population numbers and Queensland cancer rates. However, based on current knowledge of cancer causation, this investigation has not identified any plausible environmental exposure which would be likely to cause cases of this cancer in this local setting.

Current knowledge identifies exposure to ionising radiation as a potential risk factor for glioblastoma. Investigation of individual lifetime exposure histories to ionising radiation, e.g. via medical procedures, may assist in understanding the occurrence of cancer in these cases. However, the detail of the cases' lifetime personal risk factors is not available. Even if this information were available it would not alter the conclusion that these cases are a rare but likely unassociated occurrence of a specific cancer in individuals without a contributing geographically linked cause.

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## References

1. Cancer Council Australia. Adult gliomas (astrocytomas and oligodendrogliomas): a guide for patients. Their families and carers. Sydney: Cancer Council Australia / Clinical Oncological Society of Australia; 2011.
2. Ostrom, Q., *et al.* 2015. CBTRUS Statistical Report: Primary brain and central nervous system tumors diagnosed in the United States in 2008-2012. *Neuro-Oncology* **17**:iv1-iv62.
3. Yang, M., *et al.*, 2017. Mobile phone use and glioma risk: A systematic review and meta-analysis. *PLoS ONE* **12**(5): e0175136.
4. Fallahi, P., *et al.*, 2017. High risk of brain tumors in military personnel: a case control study. *Clin Ter* **168**(6): e376-e379.
5. Samanic, C.M., *et al.*, 2008. Occupational exposure to pesticides and risk of adult brain tumors. *Am J. Epidemiol.* **167**(8): 976-985.
6. Lacourt, A., *et al.*, 2013. INTEROCC case-control study: lack of association between glioma tumors and occupational exposure to selected combustion products, dusts and other chemical agents. *BMC Public Health* **13**:340.
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8. Samkange-Zeeb, F., *et al.*, 2010. Occupation and risk of glioma, meningioma and acoustic neuroma: results from a German case-control study (interphone study group, Germany). *Cancer Epidemiol.* **34**(1): 55-61.
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10. Shibata, Y., *et al.*, 1994. Intracranial meningiomas among Nagasaki atomic bomb survivors. *Lancet*, **344**: 1 770

**Simon Critchley**

---

**From:** Gayle Pollard  
**Sent:** Tuesday, 10 July 2018 2:14 PM  
**To:** Brad McCall; Vicki Slinko; Bhakti Vasant; Jerisha Ellerstrand; Andrew Langley; Anne Maree Baldwin; Margaret Bright; Simon Critchley; Uma Rajappa  
**Subject:** [REDACTED] alleged cancer cluster investigation: Map of case residences  
**Attachments:** [REDACTED].png

Dear EAG members,

Please find attached a simple map (generated in Epi Info) of the locations of the residences of the cases in the current investigation.

Kind regards  
Gayle

**Dr Gayle Pollard B.Sc.(Hons) Ph.D.**

Advanced Epidemiologist | Metro South Public Health Unit  
Division of Medicine | Princess Alexandra Hospital | **Metro South Health**  
39 Kessels Road Coopers Plains QLD 4108  
PO Box 333, Archerfield 4108

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Mon, Tues, Wed, alt. Fridays

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E. [gayle.pollard@health.qld.gov.au](mailto:gayle.pollard@health.qld.gov.au) | [www.metrosouth.health.qld.gov.au](http://www.metrosouth.health.qld.gov.au)

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RTI RELEASE

**Simon Critchley**

---

**From:** Andrew Langley  
**Sent:** Tuesday, 10 July 2018 3:26 PM  
**To:** Brad McCall; Gayle Pollard; Vicki Slinko; Bhakti Vasant; Kari Jarvinen; Margaret Bright; Anne Maree Baldwin; Simon Critchley; Uma Rajappa  
**Subject:** RE: Draft report Cluster investigation - [REDACTED]\_v3  
**Attachments:** QH Cluster Guidelines - 2018 review\_final.doc

Hi Brad

#1 Simon Critchley may be best able to comment on this. From my perspective there would be significant problems with undertaking a survey to prove radiation is not an issue (boundaries, extent of monitoring and other methodological issues, cost, timelines) with no direct evidence to date that radiation is an issue. Such a survey would be equivalent to escalating to a Type 3 assessment ((see p 52 of updated QH guidelines)  
 #2 Group should consider consequences of escalating to a Type 1 assessment. For a rare cancer, classical epidemiological techniques would be problematic; 'multiple comparisons' techniques would be more useful ((see p 57 of updated QH guidelines)  
 #3 If review is considered appropriate by our current group, consider using the 'Expert Review Committee on Cluster Assessment (Chair ED – HP) (see p 12 of updated QH guidelines) though this would be equivalent to escalating to a Type 2 assessment.

Regards

Andrew

---

**From:** Brad McCall  
**Sent:** Friday, 6 July 2018 2:12 PM  
**To:** Gayle Pollard; Vicki Slinko; Bhakti Vasant; Kari Jarvinen; Andrew Langley; Margaret Bright; Anne Maree Baldwin; Simon Critchley; Uma Rajappa  
**Subject:** Draft report Cluster investigation - [REDACTED]\_v3

Dear colleague,

Thank you for your participation to date in the assessment process for the alleged cancer cluster at [REDACTED].

Attached is a draft report for your review into the process we have undertaken to date.

We would like to convene another teleconference meeting of the EAG to consider this report and a number of remaining questions as follows:

1. Consideration of whether to conduct a field survey of background radiation levels in the area? Given that radiation exposure is the only known risk factor for this type of cancer, such a survey would enable the report to include a categorical statement regarding radiation in the area of concern
2. Is there benefit in going to the Cancer Registry and getting definitive details of all cases of glioblastoma multiforme grade 4 in the Logan LGA in the last 10 years (or other appropriate time period)
3. Is there benefit in contracting an external provider (University) to review this cluster assessment to provide independent confirmation that all bases have been covered?

I would like to suggest Wed 11<sup>th</sup> July at 2pm for our next teleconference pending your availability and would request that you review the attached draft report prior to the discussion.

Dial in details: [REDACTED]; code [REDACTED]

regards

Brad

**Dr Brad McCall**

Director, Metro South Public Health Unit | Division of Medicine

Princess Alexandra Hospital | **Metro South Health**

39 Kessels Rd, Coopers Plains QLD 4108

t. 07 3176 4000

e. [brad.mccall@health.qld.gov.au](mailto:brad.mccall@health.qld.gov.au) | [www.metrosouth.health.qld.gov.au](http://www.metrosouth.health.qld.gov.au)

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RTI RELEASED

**Suzanne Huxley**

---

**From:** Suzanne Huxley  
**Sent:** Thursday, 12 July 2018 1:48 PM  
**To:** Brad McCall  
**Subject:** RE: Draft report Cluster investigation - [REDACTED]\_v3

Hi Brad

Sorry I missed this meeting. I didn't receive the earlier email and was on a PFAS teleconference which clashed with this meeting.

Regards

Suzanne

---

**From:** Brad McCall  
**Sent:** Wednesday, 11 July 2018 1:53 PM  
**To:** Suzanne Huxley <Suzanne.Huxley@health.qld.gov.au>  
**Subject:** FW: Draft report Cluster investigation - [REDACTED]\_v3

Hi Suzanne

I'm not sure you received this email earlier but we wanted to have a quick discussion about the three points in the email below at 2pm today please if you were available

Thanks and apologies for late notice.

Regards  
 Brad

**Dr Brad McCall**

Director, Metro South Public Health Unit | Division of Medicine  
 Princess Alexandra Hospital | **Metro South Health**  
 39 Kessels Rd, Coopers Plains QLD 4108  
 t. 07 3176 4000  
 e. [brad.mccall@health.qld.gov.au](mailto:brad.mccall@health.qld.gov.au) | [www.metrosouth.health.qld.gov.au](http://www.metrosouth.health.qld.gov.au)

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---

**From:** Brad McCall  
**Sent:** Friday, 6 July 2018 2:12 PM  
**To:** Gayle Pollard <[Gayle.Pollard@health.qld.gov.au](mailto:Gayle.Pollard@health.qld.gov.au)>; Vicki Slinko <[Vicki.Slinko@health.qld.gov.au](mailto:Vicki.Slinko@health.qld.gov.au)>; Bhakti Vasant <[Bhakti.Vasant@health.qld.gov.au](mailto:Bhakti.Vasant@health.qld.gov.au)>; Kari Jarvinen <[Kari.Jarvinen@health.qld.gov.au](mailto:Kari.Jarvinen@health.qld.gov.au)>; Andrew Langley <[Andrew.Langley@health.qld.gov.au](mailto:Andrew.Langley@health.qld.gov.au)>; Margaret Bright <[Margaret.Bright@health.qld.gov.au](mailto:Margaret.Bright@health.qld.gov.au)>; Anne Maree Baldwin <[AnneMaree.Baldwin@health.qld.gov.au](mailto:AnneMaree.Baldwin@health.qld.gov.au)>; Simon Critchley <[Simon.Critchley@health.qld.gov.au](mailto:Simon.Critchley@health.qld.gov.au)>; Uma Rajappa <[Uma.Rajappa@health.qld.gov.au](mailto:Uma.Rajappa@health.qld.gov.au)>  
**Subject:** Draft report Cluster investigation - [REDACTED]\_v3

Dear colleague,



Thank you for your participation to date in the assessment process for the alleged cancer cluster at [REDACTED].

Attached is a draft report for your review into the process we have undertaken to date.

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3. Is there benefit in contracting an external provider (University) to review this cluster assessment to provide independent confirmation that all bases have been covered?

I would like to suggest Wed 11<sup>th</sup> July at 2pm for our next teleconference pending your availability and would request that you review the attached draft report prior to the discussion.

Dial in details: [REDACTED]; code [REDACTED]

regards

Brad

**Dr Brad McCall**

Director, Metro South Public Health Unit | Division of Medicine

Princess Alexandra Hospital | **Metro South Health**

39 Kessels Rd, Coopers Plains QLD 4108

t. 07 3176 4000

e. [brad.mccall@health.qld.gov.au](mailto:brad.mccall@health.qld.gov.au) | [www.metrosouth.health.qld.gov.au](http://www.metrosouth.health.qld.gov.au)

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**Notes from teleconference to discuss approach to allegation of cancer cluster****Date:** Wed 13 June 2018**Time:** 10:10am**Participants:** Dr Brad McCall, Dr Vicki Slinko, Dr Andrew Langley, Margaret Bright, Dr Gayle Pollard, Bonnie Macfarlane, Anne-Maree Baldwin

Meeting was convened to:

- present the information available to date regarding three reported cases of brain cancer in the [REDACTED] area
- discuss the approach taken to date by MSPHU in reviewing this information
- determine whether the non-MSPHU participants agreed with the conclusions drawn to date and whether they considered that any additional measures should be undertaken

Information was presented on the three reported cases (all deceased) as follows:

Case	Sex	Cancer	Date of diagnosis	Age at diagnosis	Years lived in [REDACTED]	Occupation	Family history of brain cancer
1	M	Glioblastoma grade 4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	None
2	M	Glioblastoma grade 4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	Unknown
3	M	Glioma, metastatic carcinoma	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	None

It was noted that the informant originally stated that there was a fourth case of glioblastoma grade 4 who had died around eight years ago. However in a follow-up email the informant stated that the family of this case had “not been forthcoming and I would not like to pursue it at this stage”. As a result no details or clarification regarding the alleged fourth case are available so they cannot be included in the review at this point.

MSPHU epidemiologist have made preliminary investigations using ABS (population) and OASys (cancer incidence and mortality) data and presented the following points:

- the suburb of [REDACTED] sits within the SA2 of Greenbank
- Greenbank SA2 has a population in the vicinity of 12,000 while [REDACTED] has a population of approximately [REDACTED]
- The cases all resided on what is effectively the same road which runs the length of a pocket in a bend of the Logan River

- The road in question is less than 2 km in length with the cases living within 1.1km of each other
- The area is rural residential in character with large blocks of land (probably 5 acres and over)
- The houses are all situated close to the road and mostly relatively close to each other with the blocks long and narrow or wedge shaped.
- The road follows a high ridgeline with the blocks sloping down to the flood plain and the Logan River
- OASys data indicates 1 incident case of glioblastoma in Greenbank SA2 in 2007, one in 2012 and one in 2013 (data available to 2014 only)
- Based on the number of glioblastoma cases recorded in Metro South over the past 15 years, the approximate standardised incidence ratio for [REDACTED] is very high and significant, based upon the two reported definite glioblastoma cases

The teleconference participants discussed factors including:

- Likelihood of any plausible environmental exposure(s)
- Latency periods for brain cancer
- Possibility of contaminated land in the vicinity e.g. cattle/sheep dips
- Risk factors for brain cancer
- Importance of personal history of radiation exposure e.g. childhood x-rays as a risk factor
- Possibility of any history of dumping of radioactive material in the vicinity

Based on the evidence available there are two possible theories for the explanation of the apparent cluster:

1. Local environmental exposure (known or unknown)
2. Personal history of exposure to one or more risk factors

All participants agreed that, that, in the absence of any plausible identifiable environmental exposure, the most likely explanation for the apparent cluster was a rare but unassociated coincidence of a number of individuals with (unknown) potential personal history as regards risk factors or exposure to known carcinogens such as ionising radiation. Brain tumours are more common in males and risk increases with increasing age. All cases are male and aged 58 to 74 years.

It was agreed that prior to finalising the investigation MSPHU would

- undertake a literature review of the aetiology and latency period for brain cancer in adults
- take steps to check with the Environmental Protection Agency regarding any contaminated sites in the area concerned
- take steps to check with Radiation Health regarding any sites in the area concerned where dumping of radioactive materials was known to have occurred

Once this information has been gathered and assuming no further issues of concern are identified, it was agreed by all participants that the best course of action was to provide a reasoned response to the original informant detailing the review that has been undertaken and the conclusion that no plausible environmental cause had been identified. The response would also state that the cases were more likely to be the result of exposure to risk factors early in life rather than local environmental exposure. It should also be reiterated that any conclusion(s) are based upon all available information presented at the time of this investigation.

RTI RELEASE

**Andrea Casasola**

**From:** Brad McCall  
**Sent:** Friday, 13 July 2018 11:16 AM  
**To:** Sophie Dwyer  
**Subject:** RE: Alleged cancer cluster investigation MSH

Thanks Sophie

Regards  
 Brad

**Dr Brad McCall**

Director, Metro South Public Health Unit | Division of Medicine  
 Princess Alexandra Hospital | **Metro South Health**  
 39 Kessels Rd, Coopers Plains QLD 4108  
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---

**From:** Sophie Dwyer  
**Sent:** Friday, 13 July 2018 11:15 AM  
**To:** Brad McCall <[Brad.McCall@health.qld.gov.au](mailto:Brad.McCall@health.qld.gov.au)>  
**Cc:** Suzanne Huxley <[Suzanne.Huxley@health.qld.gov.au](mailto:Suzanne.Huxley@health.qld.gov.au)>; Gayle Pollard <[Gayle.Pollard@health.qld.gov.au](mailto:Gayle.Pollard@health.qld.gov.au)>; Vicki Slinko <[Vicki.Slinko@health.qld.gov.au](mailto:Vicki.Slinko@health.qld.gov.au)>; Bhakti Vasant <[Bhakti.Vasant@health.qld.gov.au](mailto:Bhakti.Vasant@health.qld.gov.au)>; Andrew Langley <[Andrew.Langley@health.qld.gov.au](mailto:Andrew.Langley@health.qld.gov.au)>; Anne Maree Baldwin <[AnneMaree.Baldwin@health.qld.gov.au](mailto:AnneMaree.Baldwin@health.qld.gov.au)>; Margaret Bright <[Margaret.Bright@health.qld.gov.au](mailto:Margaret.Bright@health.qld.gov.au)>; Bonnie Macfarlane <[Bonnie.Macfarlane@health.qld.gov.au](mailto:Bonnie.Macfarlane@health.qld.gov.au)>; Simon Critchley <[Simon.Critchley@health.qld.gov.au](mailto:Simon.Critchley@health.qld.gov.au)>; Uma Rajappa <[Uma.Rajappa@health.qld.gov.au](mailto:Uma.Rajappa@health.qld.gov.au)>; Judy Flores <[Judy.Flores@health.qld.gov.au](mailto:Judy.Flores@health.qld.gov.au)>; Kari Jarvinen <[Kari.Jarvinen@health.qld.gov.au](mailto:Kari.Jarvinen@health.qld.gov.au)>; Harold Figueroa <[Harold.Figueroa@health.qld.gov.au](mailto:Harold.Figueroa@health.qld.gov.au)>; Greg Shillig <[Greg.Shillig@health.qld.gov.au](mailto:Greg.Shillig@health.qld.gov.au)>  
**Subject:** RE: Alleged cancer cluster investigation MSH

Thanks for the update Brad  
 We will get back to you regarding your questions.  
 Regards  
 Sophie

**Sophie Dwyer PSM**

*Executive Director*

Health Protection Branch, **Department of Health**

**p:** 07 3328 9266 | **m:** [REDACTED]  
**a:** 15 Butterfield Street, Herston, Qld, 4006  
**w:** [Queensland Health](http://Queensland Health) | **e:** [Sophie.dwyer@health.qld.gov.au](mailto:Sophie.dwyer@health.qld.gov.au)



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---

**From:** Brad McCall

**Sent:** Friday, 13 July 2018 11:13 AM

**To:** Sophie Dwyer <[Sophie.Dwyer@health.qld.gov.au](mailto:Sophie.Dwyer@health.qld.gov.au)>

**Cc:** Suzanne Huxley <[Suzanne.Huxley@health.qld.gov.au](mailto:Suzanne.Huxley@health.qld.gov.au)>; Gayle Pollard <[Gayle.Pollard@health.qld.gov.au](mailto:Gayle.Pollard@health.qld.gov.au)>; Vicki Slinko <[Vicki.Slinko@health.qld.gov.au](mailto:Vicki.Slinko@health.qld.gov.au)>; Bhakti Vasant <[Bhakti.Vasant@health.qld.gov.au](mailto:Bhakti.Vasant@health.qld.gov.au)>; Andrew Langley <[Andrew.Langley@health.qld.gov.au](mailto:Andrew.Langley@health.qld.gov.au)>; Anne Maree Baldwin <[AnneMaree.Baldwin@health.qld.gov.au](mailto:AnneMaree.Baldwin@health.qld.gov.au)>; Margaret Bright <[Margaret.Bright@health.qld.gov.au](mailto:Margaret.Bright@health.qld.gov.au)>; Bonnie Macfarlane <[Bonnie.Macfarlane@health.qld.gov.au](mailto:Bonnie.Macfarlane@health.qld.gov.au)>; Simon Critchley <[Simon.Critchley@health.qld.gov.au](mailto:Simon.Critchley@health.qld.gov.au)>; Uma Rajappa <[Uma.Rajappa@health.qld.gov.au](mailto:Uma.Rajappa@health.qld.gov.au)>; Judy Flores <[Judy.Flores@health.qld.gov.au](mailto:Judy.Flores@health.qld.gov.au)>; Kari Jarvinen <[Kari.Jarvinen@health.qld.gov.au](mailto:Kari.Jarvinen@health.qld.gov.au)>; Harold Figueroa <[Harold.Figueroa@health.qld.gov.au](mailto:Harold.Figueroa@health.qld.gov.au)>; Greg Shillig <[Greg.Shillig@health.qld.gov.au](mailto:Greg.Shillig@health.qld.gov.au)>

**Subject:** Alleged cancer cluster investigation MSH

Hi Sophie,

I notified you by email on 11 June of an investigation being conducted by MSPHU into an alleged cluster of glioblastoma multiforme grade 4 cases in the area of [REDACTED], Logan City.

An Expert Advisory Group (EAG) has been convened to progress this cluster investigation including PHP, EHO and Epi staff from MSPHU; the Director, Radiation Health; the Manager, Population Epidemiology; Director, Environmental Hazards; Clinical Director, Sunshine Coast PHU and Advanced Epidemiologist Sunshine Coast PHU and I would like to acknowledge the time and expertise of this group in assisting us. MSPHU has now produced a draft interim report into the cluster investigation (attached).

The conclusion of the EAG is that the reported occurrence of these cases of glioblastoma multiforme grade 4 does constitute a geographical cluster in that the number of reported cases does exceed the number that would be expected in that immediate area of [REDACTED] based on population numbers and Queensland cancer rates. However, based on current knowledge of cancer causation, this investigation has not identified any plausible environmental exposure which would be likely to cause cases of this cancer in this local setting.

The EAG further considered the issues of:

- environmental monitoring of ionising radiation;
- complete case ascertainment via the Queensland Cancer Registry; and
- whether there should be an (external) review of the investigation to confirm these findings.

The EAG has deferred the decision regarding field assessments of ionising radiation to be reviewed at the next EAG (20 Jun 2018 at 1100hrs).

However, prior to that meeting I would appreciate your guidance regarding the appropriate process to undertake to gain approval to access data pertaining to all glioblastoma multiforme cases in the Logan area over a 10 year period from the Queensland Cancer Registry.

I also seek your consideration of a review of the investigation process undertaken to date by the Expert Review Committee on Cluster Assessment.

Please let me know if you require further information.

Regards  
Brad

**Dr Brad McCall**

Director, Metro South Public Health Unit | Division of Medicine

Princess Alexandra Hospital | **Metro South Health**

39 Kessels Rd, Coopers Plains QLD 4108

t. 07 3176 4000

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RTI RELEASE

**Simon Critchley**

---

**From:** Brad McCall  
**Sent:** Friday, 13 July 2018 11:13 AM  
**To:** Sophie Dwyer  
**Cc:** Suzanne Huxley; Gayle Pollard; Vicki Slinko; Bhakti Vasant; Andrew Langley; Anne Maree Baldwin; Margaret Bright; Bonnie Macfarlane; Simon Critchley; Uma Rajappa; Judy Flores; Kari Jarvinen; Harold Figueroa; Greg Shillig  
**Subject:** Alleged cancer cluster investigation MSH  
**Attachments:** Alleged cancer cluster - [REDACTED]; Draft report\_[REDACTED]\_v3.docx

Hi Sophie,

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Please let me know if you require further information.

Regards  
Brad



**Dr Brad McCall**

Director, Metro South Public Health Unit | Division of Medicine  
Princess Alexandra Hospital | **Metro South Health**  
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t. 07 3176 4000

e. [brad.mccall@health.qld.gov.au](mailto:brad.mccall@health.qld.gov.au) | [www.metrosouth.health.qld.gov.au](http://www.metrosouth.health.qld.gov.au)

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RTI RELEASE

## Suzanne Huxley

---

**From:** Sue Cornes  
**Sent:** Tuesday, 17 July 2018 2:26 PM  
**To:** Suzanne Huxley  
**Subject:** RE: Queensland Cancer Register access

Yes, it's impossible to find on QHEPS search!



### Sue Cornes

*Executive Director*

Statistical Services Branch, **Department of Health**

**p:** 07 3708 5627 | **m:** [REDACTED]  
**a:** Level 10, 33 Charlotte Street, Brisbane, QLD 4000  
**w:** [Queensland Health](#) | **e:** sue.cornes@health.qld.gov.au



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*Queensland Health acknowledges the Traditional Owners of the land, and pays respect to Elders past, present and future.*

---

**From:** Suzanne Huxley  
**Sent:** Tuesday, 17 July 2018 2:23 PM  
**To:** Sue Cornes <Sue.Cornes@health.qld.gov.au>  
**Subject:** RE: Queensland Cancer Register access

Thanks Sue

It would probably have taken me ages to work that out!

Regards

Suzanne

---

**From:** Sue Cornes  
**Sent:** Tuesday, 17 July 2018 2:22 PM  
**To:** Suzanne Huxley <[Suzanne.Huxley@health.qld.gov.au](mailto:Suzanne.Huxley@health.qld.gov.au)>  
**Subject:** RE: Queensland Cancer Register access

Hi Suzanne

I haven't had the QCR for 10 years now (thankfully). It's now come back in to QH, in QCCAT. You'll have to contact them direct. <https://qccat.health.qld.gov.au/>

Regards

Sue



## Sue Cornes

*Executive Director*

Statistical Services Branch, **Department of Health**

**p:** 07 3708 5627 | **m:** [REDACTED]

**a:** Level 10, 33 Charlotte Street, Brisbane, QLD 4000

**w:** [Queensland Health](http://Queensland Health) | **e:** [sue.cornes@health.qld.gov.au](mailto:sue.cornes@health.qld.gov.au)



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---

**From:** Suzanne Huxley  
**Sent:** Tuesday, 17 July 2018 1:58 PM  
**To:** Sue Cornes <[Sue.Cornes@health.qld.gov.au](mailto:Sue.Cornes@health.qld.gov.au)>  
**Subject:** Queensland Cancer Register access

Hi Sue

Metro South PHU is investigating an alleged cluster of glioblastoma multiforme grade 4 cases. The Expert Advisory Group involved in this investigation has recommended complete case ascertainment via the Queensland Cancer Registry and has asked HPB to assist.

What do we need to do to progress this action in terms of accessing specific data from the Cancer Register?

Thanks

Suzanne

Dr Suzanne Huxley  
Senior Medical Officer  
Health Protection Branch  
Prevention Division  
Ph: 3328 9606

**From:** [Julie Moore](#)  
**To:** [Margaret Bright](#); [Brad McCall](#)  
**Cc:** [Gayle Pollard](#); [Mark West](#); [Cancer Data Qld](#); [Danica Cossio](#)  
**Subject:** RE: Accessing patient details from Queensland Cancer Registry  
**Date:** Friday, 20 July 2018 2:06:46 PM  
**Attachments:** [image001.png](#)  
[11012017 Approved DG BR065584.pdf](#)

---

Hi Margaret and Brad,

As discussed Director General approval will be required for the release of identifiable information from the Queensland Cancer Register (QCR) for the investigation of a suspected cancer cluster.

I have attached an example of a DG brief for approval that QCR received last year in which you can use as an example of content. Once the DG has approved please contact me and we can identify the cancer cases required for investigation.

Please don't hesitate to contact me if you would like me to review the brief before you submit for approval or if you have any further questions.

Thanks

**Julie Moore**

Cancer Control Information Manager | Cancer Alliance Queensland| QCCAT| Cancer Services PAH | **Metro South Health**  
Burke Street Centre, Level 1, B2, 2 Burke St, Woolloongabba QLD 4102  
t. 07 3176 4436  
e. [Julie.moore2@health.qld.gov.au](mailto:Julie.moore2@health.qld.gov.au) | [www.metrosouth.health.qld.gov.au](http://www.metrosouth.health.qld.gov.au)

---

**From:** Margaret Bright  
**Sent:** Friday, 20 July 2018 1:22 PM  
**To:** Julie Moore <[Julie.Moore2@health.qld.gov.au](mailto:Julie.Moore2@health.qld.gov.au)>  
**Cc:** Brad McCall <[Brad.McCall@health.qld.gov.au](mailto:Brad.McCall@health.qld.gov.au)>; Gayle Pollard <[Gayle.Pollard@health.qld.gov.au](mailto:Gayle.Pollard@health.qld.gov.au)>; Mark West <[Mark.West@health.qld.gov.au](mailto:Mark.West@health.qld.gov.au)>  
**Subject:** RE: Accessing patient details from Queensland Cancer Registry

Hello Julie,

As discussed the advisory group for assessment of cancer cases in the nominated area, wish to undertake case ascertainment, consistent with the Non-communicable disease cluster assessment guidelines:

[https://www.health.qld.gov.au/\\_data/assets/pdf\\_file/0018/442602/cluster\\_assessment.pdf](https://www.health.qld.gov.au/_data/assets/pdf_file/0018/442602/cluster_assessment.pdf)

Thank you for your verbal advice on the process for obtaining case details from Queensland Cancer Registry.

Could you describe the requirements and process in a reply email, so that Dr Brad McCall is fully informed of requirements, as he is managing the assessment.

Many thanks,

Margaret



## Margaret Bright

Manager Epidemiology

Preventive Health Branch, **Department of Health**

**p:** 07 3328 9277

**a:** Level 1, 15 Butterfield Street, Herston, QLD 4006

**e:** [Margaret.Bright@health.qld.gov.au](mailto:Margaret.Bright@health.qld.gov.au)

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---

**From:** Julie Moore

**Sent:** Friday, 20 July 2018 11:31 AM

**To:** Margaret Bright <[Margaret.Bright@health.qld.gov.au](mailto:Margaret.Bright@health.qld.gov.au)>

**Subject:** RE: Accessing client details from QCR

Hi Margaret,

Nathan has passed your query to me to help you.

Could you please provide some background and where in the process you are with the Cancer Cluster investigation?

Thanks

**Julie Moore**

Cancer Control Information Manager | Cancer Alliance Queensland | QCCAT | Cancer Services

PAH | **Metro South Health**

Burke Street Centre, Level 1, B2, 2 Burke St, Woolloongabba QLD 4102

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---

**From:** Nathan Dunn

**Sent:** Friday, 20 July 2018 11:28 AM

**To:** Margaret Bright <[Margaret.Bright@health.qld.gov.au](mailto:Margaret.Bright@health.qld.gov.au)>

**Cc:** Julie Moore <[Julie.Moore2@health.qld.gov.au](mailto:Julie.Moore2@health.qld.gov.au)>

**Subject:** RE: Accessing client details from QCR

Hi Margaret,

I will pass this query onto Julie, who will be able to help you with the process to access patient data.

Cheers,  
Nathan.

---

**From:** Margaret Bright  
**Sent:** Friday, 20 July 2018 11:24 AM  
**To:** Nathan Dunn <[Nathan.Dunn@health.qld.gov.au](mailto:Nathan.Dunn@health.qld.gov.au)>  
**Subject:** Accessing client details from QCR

Hello again Nathan,

I am involved in a cancer cluster investigation and we will need to undertake case ascertainment. Can you tell me what the process is for making an application for patient data from the Registry?

Margaret



## Margaret Bright

Manager Epidemiology

Preventive Health Branch, **Department of Health**

**p:** 07 3328 9277

**a:** Level 1, 15 Butterfield Street, Herston, QLD 4006

**e:** [Margaret.Bright@health.qld.gov.au](mailto:Margaret.Bright@health.qld.gov.au)

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---

**From:** Nathan Dunn  
**Sent:** Thursday, 19 July 2018 3:57 PM  
**To:** Margaret Bright <[Margaret.Bright@health.qld.gov.au](mailto:Margaret.Bright@health.qld.gov.au)>  
**Cc:** Danielle Herbert <[Danielle.Herbert2@health.qld.gov.au](mailto:Danielle.Herbert2@health.qld.gov.au)>  
**Subject:** RE: CHO 2018 report

Hi Margaret,

Please see my attached feedback on the cancer section/numbers. Everything mostly looks fine, just a couple of queries on percentages and commentary on rates being higher/lower in certain HHS.

Pleased to 'meet' you Danielle, feel free to contact me regarding any cancer related data/info

you need. ☺

Once you've got the Indigenous section tidied up just flick it across and I will go over that as well.

Cheers,  
Nathan.

---

**From:** Margaret Bright  
**Sent:** Thursday, 19 July 2018 10:48 AM  
**To:** Nathan Dunn <[Nathan.Dunn@health.qld.gov.au](mailto:Nathan.Dunn@health.qld.gov.au)>  
**Cc:** Danielle Herbert <[Danielle.Herbert2@health.qld.gov.au](mailto:Danielle.Herbert2@health.qld.gov.au)>  
**Subject:** RE: CHO 2018 report

Excellent, many thanks Nathan.

We have cancer incidence data in two chapters:

- Chapter 4: lifetime health. Incidence data in age course sections
- Chapter 8: risk and protective factors. Incidence data in Cancer screening section and Sun Safety section.

I will attach the relevant sections and yellow the relevant text. Note that in doing so, I have just seen a gap in the Indigenous section. We are updating that and will send it again separately.

Can I also introduce my colleague Dr Danielle Herbert who joined us in January this year and is working in my old position. Together, we are the CHO report champs!

Very much appreciate your assistance,

Margaret



## Margaret Bright

Manager Epidemiology  
Preventive Health Branch, **Department of Health**

**p:** 07 3328 9277

**a:** Level 1, 15 Butterfield Street, Herston, QLD 4006

**e:** [Margaret.Bright@health.qld.gov.au](mailto:Margaret.Bright@health.qld.gov.au)

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**From:** Nathan Dunn  
**Sent:** Thursday, 19 July 2018 9:22 AM  
**To:** Margaret Bright <[Margaret.Bright@health.qld.gov.au](mailto:Margaret.Bright@health.qld.gov.au)>  
**Cc:** Danielle Herbert <[Danielle.Herbert2@health.qld.gov.au](mailto:Danielle.Herbert2@health.qld.gov.au)>  
**Subject:** RE: CHO 2018 report

Hi Margaret,

Good to hear from you. My apologies, I have just found that email which I don't remember seeing. I'm not sure what happened there.

I'd be happy to review the text, feel free to send through now!

Cheers,  
 Nathan.

---

**From:** Margaret Bright  
**Sent:** Thursday, 19 July 2018 8:29 AM  
**To:** Nathan Dunn <[Nathan.Dunn@health.qld.gov.au](mailto:Nathan.Dunn@health.qld.gov.au)>  
**Cc:** Danielle Herbert <[Danielle.Herbert2@health.qld.gov.au](mailto:Danielle.Herbert2@health.qld.gov.au)>  
**Subject:** CHO 2018 report

Hi Nathan,

I thought I sent the an email to you about three weeks ago, but I'm wondering whether you received it as I haven't heard back.

Anyway, what I wanted to ask is whether you would review the text relating to cancer incidence for accuracy in CHO 2018 report. It is a very small amount of information. If so, I could send it today. We would need your feedback by Friday week ie 27/7.

Let me know if you can do this.

Kind regards,

Margaret



## Margaret Bright

*Manager Epidemiology*  
 Preventive Health Branch, **Department of Health**

**p:** 07 3328 9277

**a:** Level 1, 15 Butterfield Street, Herston, QLD 4006

**e:** [Margaret.Bright@health.qld.gov.au](mailto:Margaret.Bright@health.qld.gov.au)



*the world.*

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Margaret Bright

Manager Epidemiology

Preventive Health Branch, Department of Heal

**Attachments:**

image001.png

(10 KB)

**Andrea Casasola**

---

**From:** Brad McCall  
**Sent:** Friday, 20 July 2018 8:57 AM  
**To:** Suzanne Huxley; Sophie Dwyer  
**Subject:** RE: EAG Meeting today: cancer cluster investigation

Thanks Suzanne, Sophie

Will table these points later this morning.

Thanks as always for your support

Regards

Brad

**Dr Brad McCall**

Director, Metro South Public Health Unit | Division of Medicine  
Princess Alexandra Hospital | **Metro South Health**  
39 Kessels Rd, Coopers Plains QLD 4108  
t. 07 3176 4000  
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---

**From:** Suzanne Huxley  
**Sent:** Friday, 20 July 2018 8:48 AM  
**To:** Brad McCall <[Brad.McCall@health.qld.gov.au](mailto:Brad.McCall@health.qld.gov.au)>; Sophie Dwyer <[Sophie.Dwyer@health.qld.gov.au](mailto:Sophie.Dwyer@health.qld.gov.au)>  
**Subject:** EAG Meeting today: cancer cluster investigation

Hi Brad

I am not able to attend this meeting as I have a clash.

Regarding the points in the email you sent Sophie and as per our conversation this week:

- environmental monitoring of ionising radiation – Sophie is supportive of this being undertaken if it is deemed necessary by the EAG and would ensure completeness of this investigation;
- complete case ascertainment via the Queensland Cancer Registry – Sophie is also supportive of MSPHU undertaking complete case ascertainment. We have no special means of accessing the cancer registry data so application would need to be made directly to qccat (web address <https://qccat.health.qld.gov.au/> )
- whether there should be an (external) review of the investigation to confirm these findings – Sophie also agreed that once these aspects of the investigation are complete external expert review should be undertaken.

Regards

Suzanne.

Dr Suzanne Huxley

RTI RELEASE

**Simon Critchley**

---

**From:** Gayle Pollard  
**Sent:** Wednesday, 18 July 2018 2:42 PM  
**To:** Brad McCall; Vicki Slinko; Kari Jarvinen; Simon Critchley; Suzanne Huxley; Paula Veevers; Uma Rajappa; Margaret Bright; Andrew Langley; Anne Maree Baldwin  
**Subject:** Cluster Investigation EAG: Notes from previous teleconference and agenda for teleconference Friday 20 July  
**Attachments:** Notes from Cluster Investigation Expert Advisory Group 11072018.doc; TC Agenda - 20 July 11am.doc

Dear EAG members,

Please find attached notes from our last teleconference on Wed 11 July and an agenda for the short teleconference we have scheduled for 11am this Friday 20 July.

Kind regards  
Gayle

**Dr Gayle Pollard B.Sc.(Hons) Ph.D.**

Advanced Epidemiologist | Metro South Public Health Unit  
Division of Medicine | Princess Alexandra Hospital | **Metro South Health**  
39 Kessels Road Coopers Plains QLD 4108  
PO Box 333, Archerfield 4108

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**Notes from Cluster Investigation Expert Advisory Group: Glioblastoma in [REDACTED]****Wednesday 11 July 2018, 2 pm****Attendees:** MSPHU: Brad McCall, Vicki Slinko, Gayle Pollard

HPB: Simon Critchley, Paula Veevers

Epidemiology (PHB): Margaret Bright

**Discussion:**

Meeting was convened to address three points:

1. Whether it would be of benefit to conduct a field survey of background radiation levels in the area. Given that radiation exposure is the only known risk factor for this type of cancer, such a survey would enable the report to include a categorical statement regarding radiation in the area of concern
2. Whether it would be of benefit to access the Qld Cancer Registry and obtain definitive details of all cases of glioblastoma multiforme grade 4 in the Logan LGA in the last 10 years (or other appropriate time period)
3. Whether it would be of benefit to contract an external provider (University) to review this cluster assessment to provide independent confirmation that all bases have been covered.

Simon Critchley provided the information that Ross Kleinschmidt from the labs had the equipment to assess and map gamma radiation. However, this would not identify alpha or beta radiation, only gamma and was very unlikely to make significant findings.

**Decisions:** Consensus from the group that:

1. The investigation should currently be considered to be a Type 2 investigation
2. The EAG members would give consideration to whether there was likely to be sufficient benefit to warrant a request for an assessment and mapping of gamma radiation. Decision to be made at next meeting.
3. MSPHU would investigate the process to gain approval for access to Qld Cancer Registry records of glioblastoma multiforme. Decision whether to progress with this to be made at next EAG meeting.
4. Rather than an external provider, MSPHU would request the Expert Review Committee on Cluster Assessment assess the investigation undertaken.
5. Brad McCall to contact the Executive Director, Health Protection Branch to progress points 3 and 4.

**Next Meeting:** 11am Friday 20 July via teleconference

**Teleconference agenda****Cluster Investigation Expert Advisory Group: Glioblastoma in [REDACTED]****Date: Friday 20 July 2018, 11am**

**Invitees:** MSPHU: Brad McCall, Vicki Slinko, Kari Jarvinen, Gayle Pollard  
HPB: Simon Critchley, Suzanne Huxley, Paula Veevers, Uma Rajappa  
Epidemiology (PHB): Margaret Bright  
SCPHU: Andrew Langley, Anne Maree Baldwin

**Point for discussion/decisions:**

1. Proposal to conduct a field survey of background gamma radiation levels in the area ([REDACTED]).
2. Proposal to request approval to access the Qld Cancer Registry and obtain definitive details of all cases of glioblastoma multiforme grade 4 in the Logan LGA in the last 10 years.
3. Proposal to contract an external provider (University) to review this cluster assessment to provide independent confirmation that investigation has been thorough.
4. Nature and timing of communication with original informant.

**Simon Critchley**

---

**From:** Gayle Pollard  
**Sent:** Friday, 20 July 2018 2:01 PM  
**To:** Brad McCall; Kari Jarvinen; Vicki Slinko; Margaret Bright; Simon Critchley; Harold Figueroa  
**Cc:** Bonnie Macfarlane; Andrew Langley; Anne Maree Baldwin; Suzanne Huxley  
**Subject:** Notes from EAG meeting today (20/7)  
**Attachments:** Notes from Cluster Investigation Expert Advisory Group 20-07-2018.doc

Dear EAG Members,

Thank you for your time this morning for our brief teleconference. Attached are the draft notes from this meeting. Please review and reply with any suggested alterations or points I have missed.

Kind regards  
Gayle

**Dr Gayle Pollard B.Sc.(Hons) Ph.D.**

Advanced Epidemiologist | Metro South Public Health Unit  
Division of Medicine | Princess Alexandra Hospital | **Metro South Health**  
39 Kessels Road Coopers Plains QLD 4108  
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**Notes from Cluster Investigation Expert Advisory Group: Glioblastoma in [REDACTED]****Friday 20 July 2018, 11 am****Attendees:** MSPHU: Brad McCall, Vicki Slinko, Kari Jarvinen, Gayle Pollard, Harold Figuaroa

HPB: Simon Critchley

Epidemiology (PHB): Margaret Bright

**Apologies:** HPB: Suzanne Huxley**Discussion:**

Meeting convened to address four points:

1. Proposal to conduct a field survey of background gamma radiation levels in the area of the alleged cluster ( [REDACTED] )
2. Proposal to request approval to access the Qld Cancer Registry and obtain definitive details of all cases of glioblastoma multiforme grade 4 in the Logan LGA in the last 10 years (case ascertainment)
3. Proposal to contract an external provider (University) to review this cluster assessment to provide independent confirmation that investigation has been thorough
4. Nature and timing of communication with original informant

Brad McCall presented an email from Suzanne Huxley in which she stated that Sophie Dwyer was supportive of points 1 to 3, above.

Margaret Bright suggested that it may be prudent to proceed with the case ascertainment via the Qld Cancer Registry prior to making a final decision on the proposal to conduct a field survey of background radiation. Final decision could be guided by the proximity of any additional cases identified to those currently included in the investigation.

Simon Critchley supported this approach of gathering further information before deciding to proceed with a field survey.

**Decisions:** Consensus from the group that/to:

1. The investigation should proceed with further case ascertainment in the Logan LGA area
2. Defer decision on any radiation field survey until after the results of the case ascertainment process have been analysed



3. Defer the provision of the cluster assessment to an independent group/provider until case ascertainment, and possibly a radiation field survey, have been completed
4. The original informant should be contacted to maintain communication regarding the general progress of the continuing assessment process

**Actions:**

1. Margaret Bright to obtain details of the case ascertainment approvals process from Qld Cancer Registry contacts and communicate back to MSPHU members
2. Brad McCall and Gayle Pollard to contact the original informant with a general progress report
3. MSPHU members to undertake the case ascertainment process

**Next Meeting:** TBA, following case ascertainment process completion

**Director-General Brief for Approval**

RM folder reference No:	C-ECTF-18/6345
Division/HHS:	Metro South
File Ref No:	PAH_1207

Requested by:

 Department       Minister's office

**SUBJECT: Access to line-listed cancer registry data for Metro South Public Health Unit to facilitate assessment of a possible cancer cluster in [REDACTED]**

**Recommendation/s**

It is recommended the Director-General:

- Approve** access to line-listed Queensland Cancer Registry data for Dr Brad McCall, Director, Dr Kari Jarvinen and Dr Vicki Slinko, Public Health Physicians, and Dr Gayle Pollard, Epidemiologist, Metro South Public Health Unit, to facilitate the assessment of a possible cancer cluster in [REDACTED].

**APPROVED / NOT APPROVED**


**MICHAEL WALSH**  
Director-General

Date: 20 / 08 / 2018

Ministerial Brief for Approval required 

Director-General's comment

Ministerial Brief for Noting required **Issue/s**

- URGENT.** A member of the [REDACTED] community approached Metro South Public Health Unit (MSPHU) on 25 May 2018 with concerns about the number of people diagnosed with brain cancer in their street/neighbourhood.
- MSPHU commenced a Type 1 cluster assessment as per the *Queensland Health Guidelines for the assessment of clusters of non-communicable diseases*. The findings are:
  - There are at least three confirmed cases of *glioblastoma multiforme* grade 4 (GBM4) in long term residents of connected streets in the suburb of [REDACTED];
  - Review of medical literature identifies male gender, age, genetic syndromes and ionising radiation as potential risk factors in the causation of GBM4.
  - Searches of environmental land registers and contaminated land registers have not identified any potential contamination sources in the vicinity
  - The reported occurrence of these cases of GBM4 does constitute a geographical cluster in that the number of reported cases does exceed the number that would be expected in that immediate area of [REDACTED] based on population numbers and Queensland cancer rates. However, based on current knowledge of cancer causation, this investigation has not identified any plausible environmental exposure which would be likely to cause cases of this cancer in this local setting.
- An expert advisory group (EAG) has supported the MSPHU enquiry. The EAG has recommended that complete case ascertainment using the details requested of the Queensland Cancer Registry (QCR) is required to fully complete the assessment.
- Under the *Public Health Act 2005* the Director-General's approval is required for MSPHU to access the following line list data from the QCR: Name of person, date of birth, date of diagnosis, address at time of notification, cancer site and morphology and date and cause of death if applicable/known.

<b>RM folder reference No:</b>	<b>C-ECTF-18/6345</b>
<b>Division/HHS:</b>	<b>Metro South</b>
<b>File Ref No:</b>	<b>PAH_1207</b>

- If this assessment concludes that there is further evidence of a cancer cluster, a type 2 cluster assessment will be extended to determine if there is an excess of cancer cases meeting the case definition, and if there has been sufficient exposure to a biologically plausible causal agent for the cancers diagnosed.

### Vision

- The investigation of a potential cancer cluster aligns with the Direction: Promote wellbeing and improve the health of Queenslanders through the prevention of illness and injury as described in the 10 year vision My health, Queensland's future: Advancing health 2026: Promoting wellbeing, Delivering healthcare, Connecting healthcare, and Pursuing innovation.

### Results of Consultation

- Consultation has occurred with Directors of Radiation Health Unit and Environmental Hazards Unit, Health Protection Branch, Manager Population Epidemiology Unit, Preventive Health Branch and Public Health Unit Physicians and Epidemiologists.

### Resource Implications (including Financial)

- Funding for cancer cluster assessments up to Type 2 is within the existing allocation for MSPHU.
- Extension into Type 3 investigations is beyond the resource allocation of MSPHU and may require additional financial support.

### Background

- The MSPHU was contacted by a member of the [REDACTED] community on 25 May 2018 regarding concerns about a potential cluster of brain cancer in their neighbourhood.
- MSPHU investigations have assessed the available information and concluded that the number of cases does exceed the number expected in that location
- Literature search and searches of relevant registers have not identified a plausible environmental cause to account for this cluster.
- An EAG has recommended that MSPHU undertake complete case ascertainment using the information in the QCR to more accurately describe the situation and to complete the assessment.

### Attachments

- Nil.

Author	Cleared by: (SD/Dir)	Content verified by: (CEO/DDG/Div Head)
Dr Brad McCall	Dr Michael Cleary	Dr Stephen Ayre
Director	Executive Director	Chief Executive
Metro South Public Health Unit	PAH-QEII Hospital Network	Metro South Hospital and Health Service
3176 4000	3176 5703	3156 4949
[REDACTED]	[REDACTED]	[REDACTED]
23 Jul 2018	26 July 2018	1 August 2018

**Simon Critchley**

---

**From:** Kari Jarvinen  
**Sent:** Tuesday, 11 September 2018 3:31 PM  
**To:** Simon Critchley  
**Subject:** RE: MSH Cluster investigation: Maps and notes on analysis of cancer data

Hi Simon,

Thanks very much; fully understand! We should have notes from the meeting ready for circulation tomorrow, and agreed to seek Sophie Dwyer's confirmation that she supports (or otherwise) the direction taken. In short, we reviewed the received cancer data and mapped it in multiple ways, and concluded that the cases in the area of stated concern were not particularly unusual (similar small "clusters" and individual cases scattered across the map along populated areas of Metro South). The meeting was of the view that further investigations such as radiation level monitoring is not warranted and aim to wind up the investigation (pending Sophie's views).

Hopefully more tomorrow! (Suzanne Huxley did dial in as well)

Regards,

Kari

**Dr Kari Jarvinen**

**Director and Public Health Physician** | Metro South Public Health Unit | Division of Medicine

Princess Alexandra Hospital | **Metro South Health**

39 Kessels Rd Coopers Plains QLD 4108

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---

**From:** Simon Critchley  
**Sent:** Tuesday, 11 September 2018 2:31 PM  
**To:** Kari Jarvinen <Kari.Jarvinen@health.qld.gov.au>  
**Subject:** RE: MSH Cluster investigation: Maps and notes on analysis of cancer data

Hello Kari,

Despite your best efforts, I still missed this meeting. My apologies. I have been up to my eyeballs in other matters and I simply didn't look at my diary until now. I am so sorry. I hope you had a productive meeting.

Regards,

Simon.

**Simon Critchley | Director, Radiation Health Unit**

FRACI CChem FAIP FARPS CPhys MInstP MACPSEM MEHA

Health Protection Branch | Queensland Department of Health  
 Level 3, 15 Butterfield Street, Herston, QLD., 4006, Australia  
 PO Box 2368, Fortitude Valley BC, QLD., 4006, Australia  
 T +617 3328 9200 | M + [REDACTED]

E [simon.critchley@health.qld.gov.au](mailto:simon.critchley@health.qld.gov.au)W [www.health.qld.gov.au/radiationhealth](http://www.health.qld.gov.au/radiationhealth)**From:** Kari Jarvinen**Sent:** Tuesday, 11 September 2018 10:52 AM

**To:** Suzanne Huxley <[Suzanne.Huxley@health.qld.gov.au](mailto:Suzanne.Huxley@health.qld.gov.au)>; Simon Critchley <[Simon.Critchley@health.qld.gov.au](mailto:Simon.Critchley@health.qld.gov.au)>; Anne Maree Baldwin <[AnneMaree.Baldwin@health.qld.gov.au](mailto:AnneMaree.Baldwin@health.qld.gov.au)>; Andrew Langley <[Andrew.Langley@health.qld.gov.au](mailto:Andrew.Langley@health.qld.gov.au)>; Uma Rajappa <[Uma.Rajappa@health.qld.gov.au](mailto:Uma.Rajappa@health.qld.gov.au)>; Margaret Bright <[Margaret.Bright@health.qld.gov.au](mailto:Margaret.Bright@health.qld.gov.au)>; Bhakti Vasant <[Bhakti.Vasant@health.qld.gov.au](mailto:Bhakti.Vasant@health.qld.gov.au)>; Gayle Pollard <[Gayle.Pollard@health.qld.gov.au](mailto:Gayle.Pollard@health.qld.gov.au)>; Bonnie Macfarlane <[Bonnie.Macfarlane@health.qld.gov.au](mailto:Bonnie.Macfarlane@health.qld.gov.au)>; Vicki Slinko <[Vicki.Slinko@health.qld.gov.au](mailto:Vicki.Slinko@health.qld.gov.au)>

**Subject:** MSH Cluster investigation: Maps and notes on analysis of cancer data

Good morning all,

In preparation for our EAG t/conf this afternoon, please see attached slides on mapping of QCCAT-provided data, as well as brief commentary. We will run through these as part of the discussion to guide decision making by the group.

Thank you for your involvement!

Regards,

Kari

**Dr Kari Jarvinen****Director and Public Health Physician** | Metro South Public Health Unit | Division of MedicinePrincess Alexandra Hospital | **Metro South Health**

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m. [REDACTED]

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## Simon Critchley

---

**From:** Kari Jarvinen  
**Sent:** Wednesday, 12 September 2018 6:11 PM  
**To:** Sophie Dwyer  
**Cc:** Suzanne Huxley; Simon Critchley; Uma Rajappa; Margaret Bright; Andrew Langley; Anne Maree Baldwin; Bhakti Vasant; Gayle Pollard; Bonnie Macfarlane  
**Subject:** Cluster investigation [REDACTED]  
**Attachments:** Notes from Cluster Investigation Expert Advisory Group 11-09-2018.doc; Maps for EAG.pptx; Notes on Line list provided by QCCAT.docx

Hi Sophie,

Brad and colleagues from the Health Protection Branch (copied in) have liaised with you previously regarding our investigation of an alleged cluster of brain cancers (glioblastoma) around a street in [REDACTED] in the Metro South area. As you know, an Expert Advisory Group was convened to help guide the investigation. It was previously agreed by the group that additional case ascertainment should be undertaken using Qld Cancer Registry data, which we have now done.

The EAG reconvened yesterday (11/09/2018, notes from the meeting attached) and concluded upon reviewing the findings of the data analysis (please see attached Maps and Notes on Linelist), that there is nothing particularly unusual in the cluster of cases in the [REDACTED] area, with numerous areas across MSH also having multiple numbers of cases over the relevant time periods.

The confident consensus from the group was that based on the data presented:

1. There was no indication that any further environmental investigation, including radiation field survey, was warranted
2. There was no need to refer the assessment onto external experts for further review

Could I please see if you are comfortable with the decision reached? Please let me know if you would like to discuss any of this further.

Regards,

Kari

### Dr Kari Jarvinen

**Director and Public Health Physician** | Metro South Public Health Unit | Division of Medicine

Princess Alexandra Hospital | **Metro South Health**

39 Kessels Rd Coopers Plains QLD 4108

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**Notes from Cluster Investigation Expert Advisory Group: Glioblastoma in [REDACTED]****Tuesday 11 September 2018, 1pm****Attendees:** MSPHU: Kari Jarvinen (chair), Gayle Pollard, Bhakti Vasant

HPB: Suzanne Huxley

Epidemiology (PHB): Margaret Bright

**Apologies:** SCPHU: Andrew Langley, Anne Maree Baldwin**Discussion:**

Meeting convened to:

1. Discuss line list provided by QCCAT and the analysis and mapping thereof
2. Decide whether or not the analysis of the QCCAT line list data indicates that a radiation field survey of the [REDACTED] area of [REDACTED] could be warranted
3. Decide whether to refer the cluster assessment to an independent group/provider for review

Kari Jarvinen provided a brief overview of the cluster assessment process to date and the actions from the previous meeting (20 July 2018).

Gayle Pollard presented summary notes regarding the line list of glioblastoma cases in MSH provided by QCCAT and a series of maps covering different year ranges of both all of the of the glioblastoma cases identified and those with a grade of 4.

The EAG members reviewed the maps and agreed on the following points:

- Glioblastoma is an uncommon rather than a rare cancer, with over 1,000 incident cases resident in the MSH area from 1982 to the present
- There is nothing particularly unusual in the cluster of cases in the [REDACTED] area, with numerous areas across MSH also having multiple numbers of cases over the relevant time periods
- Cases appear to occur randomly throughout MSH in both space and time and this cluster is part of the random distribution

**Decisions:** Confident consensus from the group that based on the data presented:

1. There was no indication that any further environmental investigation, including radiation field survey, was warranted
2. There was no need to refer the assessment onto external experts for further review

**Actions:**

1. Kari Jarvinen to email Sophie Dwyer with a brief precis of the expected results of the assessment and include copies of the maps
2. Kari Jarvinen and Gayle Pollard to contact the original informant with a final verbal report
3. MSPHU members to completed the cluster assessment report, for internal distribution and records only

**Next Meeting:** No further meetings required



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**Notes on Line list provided by QCCAT**

Specifications: All cases of glioblastoma resident in the Metro South HHS area at time of diagnosis from start of records (1982) to present (2018)

Total number of records provided: 1,018

Duplicates: 10 individuals with more than 1 record (9 with a single duplicate and 1 with 2 duplicates)

Duplicate records removed for these individuals

Total cases on file: 1,007

Years covered: 1982 to 2018 (2016-18 not fully cleaned)

Number of cases/year: Range from 4 (1984) to 52 (2011); mean = 27 cases, median = 28 cases

Differentiation: cases coded as either grade 1-4 or "not stated/unknown"

Grade 1: 2 cases

Grade 2: 2 cases

Grade 3: 42 cases

Grade 4: 391 cases

Not stated: 570 cases

<b>Year of diagnosis</b>	<b>Count of Grade 4</b>	<b>Year of diagnosis</b>	<b>Count of Grade 4</b>
1983	1	2006	14
1985	2	2007	18
1988	1	2008	17
1991	1	2009	21
1992	4	2010	26
1993	6	2011	33
1994	1	2012	34
1995	3	2013	35
1996	1	2014	27
2000	1	2015	37
2002	1	2016	39
2003	5	2017	34
2004	5	2018	15
2005	9	<b>Grand Total</b>	<b>391</b>

Year of diagnosis	Count of Not stated	Year of diagnosis	Count of not stated
1982	5	2001	30
1983	5	2002	15
1984	3	2003	28
1985	3	2004	18
1986	9	2005	24
1987	17	2006	14
1988	12	2007	18
1989	17	2008	9
1990	18	2009	21
1991	23	2010	8
1992	15	2011	19
1993	17	2012	10
1994	20	2013	11
1995	8	2014	6
1996	29	2015	8
1997	30	2016	9
1998	20	2017	4
1999	34	2018	6
2000	27	<b>Grand Total</b>	<b>570</b>

Informed cases: The 3 cases about whom the cluster informant provided information all appear on the file

The additional case from [REDACTED] to whom the informant alluded but could not provide information also appears on the file

- Cases MH & GB appear as grade 4 (matching information provided)
- Case DB appears as 'not stated / unknown'
- Additional case EC appears as 'not stated / unknown'

As a result, any maps of only grade 4 cases will only show 2 of the 4 cases from [REDACTED]

**Simon Critchley**

---

**From:** Kari Jarvinen  
**Sent:** Thursday, 11 October 2018 9:38 AM  
**To:** Sophie Dwyer  
**Cc:** Suzanne Huxley; Simon Critchley; Uma Rajappa; Margaret Bright; Andrew Langley; Anne Maree Baldwin; Bhakti Vasant; Gayle Pollard; Bonnie Macfarlane  
**Subject:** RE: Cluster investigation [REDACTED]

Dear Sophie,

Thank you very much for your support, much appreciated. We will now brief the informant and finalise the project report to conclude the investigation.

Regards,

Kari

**Dr Kari Jarvinen**

**Director and Public Health Physician** | Metro South Public Health Unit | Division of Medicine  
 Princess Alexandra Hospital | **Metro South Health**

39 Kessels Rd Coopers Plains QLD 4108

t. 07 3176 4007

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---

**From:** Sophie Dwyer  
**Sent:** Thursday, 11 October 2018 9:37 AM  
**To:** Kari Jarvinen <Kari.Jarvinen@health.qld.gov.au>  
**Cc:** Suzanne Huxley <Suzanne.Huxley@health.qld.gov.au>; Simon Critchley <Simon.Critchley@health.qld.gov.au>; Uma Rajappa <Uma.Rajappa@health.qld.gov.au>; Margaret Bright <Margaret.Bright@health.qld.gov.au>; Andrew Langley <Andrew.Langley@health.qld.gov.au>; Anne Maree Baldwin <AnneMaree.Baldwin@health.qld.gov.au>; Bhakti Vasant <Bhakti.Vasant@health.qld.gov.au>; Gayle Pollard <Gayle.Pollard@health.qld.gov.au>; Bonnie Macfarlane <Bonnie.Macfarlane@health.qld.gov.au>  
**Subject:** RE: Cluster investigation [REDACTED]

Dear Kari

I note the detailed work done by the group and concur with the conclusions reached. The evidence supports concluding the investigation at this point.

Regards

Sophie



## Sophie Dwyer PSM

Executive Director

Health Protection Branch, **Department of Health**

p: 07 3328 9266 | m: [REDACTED]  
 a: 15 Butterfield Street, Herston, Qld, 4006  
 w: [Queensland Health](#) | e: [Sophie.dwyer@health.qld.gov.au](mailto:Sophie.dwyer@health.qld.gov.au)



Queensland's health vision | By 2026 Queenslanders will be among the healthiest people in the world.

Queensland Health acknowledges the Traditional Owners of the land, and pays respect to Elders past, present and future.

**From:** Kari Jarvinen

**Sent:** Tuesday, 2 October 2018 11:57 AM

**To:** Sophie Dwyer <[Sophie.Dwyer@health.qld.gov.au](mailto:Sophie.Dwyer@health.qld.gov.au)>

**Cc:** Suzanne Huxley <[Suzanne.Huxley@health.qld.gov.au](mailto:Suzanne.Huxley@health.qld.gov.au)>; Simon Critchley <[Simon.Critchley@health.qld.gov.au](mailto:Simon.Critchley@health.qld.gov.au)>; Uma Rajappa <[Uma.Rajappa@health.qld.gov.au](mailto:Uma.Rajappa@health.qld.gov.au)>; Margaret Bright <[Margaret.Bright@health.qld.gov.au](mailto:Margaret.Bright@health.qld.gov.au)>; Andrew Langley <[Andrew.Langley@health.qld.gov.au](mailto:Andrew.Langley@health.qld.gov.au)>; Anne Maree Baldwin <[AnneMaree.Baldwin@health.qld.gov.au](mailto:AnneMaree.Baldwin@health.qld.gov.au)>; Bhakti Vasant <[Bhakti.Vasant@health.qld.gov.au](mailto:Bhakti.Vasant@health.qld.gov.au)>; Gayle Pollard <[Gayle.Pollard@health.qld.gov.au](mailto:Gayle.Pollard@health.qld.gov.au)>; Bonnie Macfarlane <[Bonnie.Macfarlane@health.qld.gov.au](mailto:Bonnie.Macfarlane@health.qld.gov.au)>

**Subject:** RE: Cluster investigation [REDACTED]

Hi Sophie,

Very sorry, I know you are very busy with SHECC at the moment, but just wanted to see if by chance you had had a chance to have a look at the notes in my previous e-mail regarding this (alleged-) cluster investigation? The EAG concluded essentially that no further investigations were warranted (more details below).

Would you be able to indicate if you are comfortable with this position, please? Depending on this, we would like to communicate with the informant (and potentially close the investigation).

Many thanks indeed, Sophie!

Regards,

Kari

### Dr Kari Jarvinen

**Director and Public Health Physician** | Metro South Public Health Unit | Division of Medicine

Princess Alexandra Hospital | **Metro South Health**

39 Kessels Rd Coopers Plains QLD 4108

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**From:** Kari Jarvinen  
**Sent:** Wednesday, 12 September 2018 6:11 PM  
**To:** Sophie Dwyer <[Sophie.Dwyer@health.qld.gov.au](mailto:Sophie.Dwyer@health.qld.gov.au)>  
**Cc:** Suzanne Huxley <[Suzanne.Huxley@health.qld.gov.au](mailto:Suzanne.Huxley@health.qld.gov.au)>; Simon Critchley <[Simon.Critchley@health.qld.gov.au](mailto:Simon.Critchley@health.qld.gov.au)>; Uma Rajappa <[Uma.Rajappa@health.qld.gov.au](mailto:Uma.Rajappa@health.qld.gov.au)>; Margaret Bright <[Margaret.Bright@health.qld.gov.au](mailto:Margaret.Bright@health.qld.gov.au)>; Andrew Langley; Anne Maree Baldwin <[AnneMaree.Baldwin@health.qld.gov.au](mailto:AnneMaree.Baldwin@health.qld.gov.au)>; Bhakti Vasant; Gayle Pollard <[Gayle.Pollard@health.qld.gov.au](mailto:Gayle.Pollard@health.qld.gov.au)>; Bonnie Macfarlane <[Bonnie.Macfarlane@health.qld.gov.au](mailto:Bonnie.Macfarlane@health.qld.gov.au)>  
**Subject:** Cluster investigation [REDACTED]

Hi Sophie,

Brad and colleagues from the Health Protection Branch (copied in) have liaised with you previously regarding our investigation of an alleged cluster of brain cancers (glioblastoma) around a street in [REDACTED] in the Metro South area. As you know, an Expert Advisory Group was convened to help guide the investigation. It was previously agreed by the group that additional case ascertainment should be undertaken using Qld Cancer Registry data, which we have now done.

The EAG reconvened yesterday (11/09/2018, notes from the meeting attached) and concluded upon reviewing the findings of the data analysis (please see attached Maps and Notes on Linelist), that there is nothing particularly unusual in the cluster of cases in the [REDACTED] area, with numerous areas across MSH also having multiple numbers of cases over the relevant time periods.

The confident consensus from the group was that based on the data presented:

1. There was no indication that any further environmental investigation, including radiation field survey, was warranted
2. There was no need to refer the assessment onto external experts for further review

Could I please see if you are comfortable with the decision reached? Please let me know if you would like to discuss any of this further.

Regards,

Kari

**Dr Kari Jarvinen**

**Director and Public Health Physician** | Metro South Public Health Unit | Division of Medicine

Princess Alexandra Hospital | **Metro South Health**

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**Simon Critchley**

---

**From:** Andrew Langley  
**Sent:** Thursday, 18 October 2018 6:56 PM  
**To:** Kari Jarvinen; Suzanne Huxley; Simon Critchley; Uma Rajappa; Margaret Bright; Anne Maree Baldwin; Bhakti Vasant; Gayle Pollard; Bonnie Macfarlane; Vicki Slinko  
**Subject:** RE: Draft report for comment: Cluster investigation [REDACTED]  
**Attachments:** Draft report\_[REDACTED]\_v5.docx

Hi Kari

I've only had time for a very quick look. Some comments are:

- Page 2. To avoid misinterpretation by a lay audience you may wish to consider changing ' While the occurrence of three cases within the much smaller locality of [REDACTED] did constitute an apparent 'cluster' of cases, such localised 'clustering' of some cases is consistent with a random disease distribution model wherein cases are not uniformly distributed.' to '.While the occurrence of three cases within the much smaller locality of [REDACTED] has the appearance of a 'cluster' of cases, such localised 'clustering' of some cases is consistent with disease distribution models in which cases of disease, for biological reasons, are not uniformly distributed across a geographic area.
- Page 3. The inclusion of the last two points suggests the possibility of causation. It may be worth considering prefacing the last two points with: 'There is public concerns about powerlines and mobile phone towers. WHO's IARC has considered the issues and has concluded ... (words from e.g. <http://www.emfs.info/health/reviews/iarc/>. + words could be added to the list of dot points on page 5) It is noted that:
  - There are no high tension powerlines...
  - There is a single mobile phone tower...'
- 'Sulphur' should be 'sulfur'. There are sound etymological reasons because of an Arabic rather than Greek origin but also see <https://www.nature.com/articles/nchem.301>

Regards

Andrew

<http://www.emfs.info/health/reviews/iarc/>

---

**From:** Kari Jarvinen  
**Sent:** Wednesday, 17 October 2018 2:49 PM  
**To:** Suzanne Huxley <Suzanne.Huxley@health.qld.gov.au>; Simon Critchley <Simon.Critchley@health.qld.gov.au>; Uma Rajappa <Uma.Rajappa@health.qld.gov.au>; Margaret Bright <Margaret.Bright@health.qld.gov.au>; Andrew Langley <Andrew.Langley@health.qld.gov.au>; Anne Maree Baldwin <AnneMaree.Baldwin@health.qld.gov.au>; Bhakti Vasant <Bhakti.Vasant@health.qld.gov.au>; Gayle Pollard <Gayle.Pollard@health.qld.gov.au>; Bonnie Macfarlane <Bonnie.Macfarlane@health.qld.gov.au>; Vicki Slinko <Vicki.Slinko@health.qld.gov.au>  
**Subject:** Draft report for comment: Cluster investigation [REDACTED]

Dear all,

Many thanks for your involvement in the EAG for this alleged cluster investigation. Please see attached a draft report of the investigation for any comments or feedback, please. Could I please request these **by Friday 26<sup>th</sup> October**, after

which we'll consider the report (with any appropriate edits) as the final version, which will be submitted to Sophie Dwyer as per the guidelines for these investigations.

We will summarise key content of this report verbally for the informant.

Regards,

Kari

**Dr Kari Jarvinen**

**Director and Public Health Physician** | Metro South Public Health Unit | Division of Medicine

Princess Alexandra Hospital | **Metro South Health**

39 Kessels Rd Coopers Plains QLD 4108

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RTI RELEASE

**Epidemiological assessment of cases of  
brain cancer, and specifically  
glioblastoma multiforme grade 4,  
among residents of [REDACTED]**

**October 2018**



## **An assessment of cases of brain cancer, and specifically glioblastoma multiforme grade 4, among residents of [REDACTED]**

**Prepared by Metro South Public Health Unit  
October 2018**

### **Summary**

In May 2018 a resident of [REDACTED] raised a concern with Metro South Public Health Unit (MSPHU) about the number of cases of glioblastoma multiforme grade 4 in their local area.

MSPHU conducted an epidemiological assessment of reported cases of glioblastoma multiforme in [REDACTED] from 1982 to 2018, in accordance with Queensland Health Guidelines: Assessment of cluster of non-communicable disease 2018.

This assessment found that the observed rate of reported brain cancer and of glioblastoma in the Statistical Area 2 of Greenbank (in which [REDACTED] is located) was not significantly different from the rate in all of Metro South Hospital and Health Service (HHS) or in all of Queensland. While the occurrence of three cases within the much smaller locality of [REDACTED] did constitute an apparent 'cluster' of cases, such localised 'clustering' of some cases is consistent with a random disease distribution model wherein cases are not uniformly distributed.

Based on current knowledge of cancer causation, this investigation has not identified any plausible environmental exposure which would be likely to cause cases of this cancer in this local setting.

The recommendations arising from the epidemiological assessment can be summarised as:

1. No further epidemiological assessment is currently required
2. Information about the results of the investigation should be provided to the original informant

## Background to alleged cluster

Metro South Public Health Unit (MSPHU) was contacted on 25 May 2018 by [REDACTED] whose [REDACTED] was diagnosed with glioblastoma grade 4 in [REDACTED] 2015 and died [REDACTED] 2016. Information was provided about possibly three other cases of glioblastoma multiforme grade 4 over the past 8 years also resident in [REDACTED].

MSPHU interviewed and emailed the informant, requesting further information about the four alleged cases. The informant subsequently supplied the following information about three cases of glioblastoma multiforme grade 4 (all deceased):

Case	Sex	Cancer	Date of diagnosis	Age at diagnosis	Years lived in [REDACTED]	Occupation	Family history of brain cancer
1	M	Glioblastoma grade 4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	None
2	M	Glioblastoma grade 4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	Unknown
3	M	Glioblastoma grade 4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	None

It was noted that the informant originally reported that there was a fourth case of glioblastoma grade 4 from the area that had died around eight years ago. However, in a follow-up email the informant stated that the family of this case had “not been forthcoming and I would not like to pursue it at this stage”. As a result, no details or clarification regarding the alleged fourth case are available so they cannot be included in the review at this point.

A review of the geography of the area identified the following points:

- the suburb of [REDACTED] is contained within the SA2 of Greenbank
- Greenbank SA2 has a population of approximately 12,000 while [REDACTED] has a population of approximately [REDACTED]
- The cases all resided on connected roads ([REDACTED]) that run the length of a pocket in a bend of the Logan River
- The road in question is slightly less than 2 km in length with the cases living within 1.1km of each other
- The area is rural residential in character with large blocks of land (approx. 2.5 to over 5 acres)
- Most houses are situated close to the road and relatively close to each other with the blocks long and narrow or wedge shaped.
- The road follows a high ridgeline with the blocks sloping down to the flood plain and the Logan River
- There are no high tension powerlines within the local area
- There is a single mobile phone tower located near the intersection of [REDACTED], approximately [REDACTED] from the address of the closest reported case

## Background to cancer clusters

Cancers are a diverse group of diseases, and there is no one single cause. There are a variety of known risk factors, including lifestyle factors and environmental factors (such as exposure to sunlight and some chemicals), which have been identified for individual cancers. However, the presence of risk factors does not imply that the person will necessarily get cancer. There are also genetic factors that predispose individuals to some forms of cancer.

The term cancer cluster is usually defined as a greater number of cases of cancer (usually of the same type), identified within a certain group of people, geographical area, and time period, than are expected, based on the size and age of the population. A cluster assessment is the scientific process used to determine whether there is an increased number of cases of a specific disease **and whether** there is a biologically plausible causal agent/s for that disease.

Clusters where environmental causes have been found have tended to:

- Be a rare type of cancer
- Consist of a large number of cases of one particular cancer rather than several types
- Occur in a well-defined group or setting, or a group where the cancer is not usually seen, and where there has been intense and sustained exposure to an unusual chemical, occupation, infection or drug
- Have been initiated by an alert from a health surveillance system

The cancers reported in this current investigation were all glioblastoma multiforme grade 4.

## Methodology

An Expert Advisory Group (EAG) was convened to review available information and statistics, advise on appropriate investigation processes and draw conclusions from the investigation results. Membership of the EAG included:

- Public Health Physicians;
- Public Health Unit Advanced Epidemiologists;
- Public Health Unit Environmental Health Officers;
- Director, Metro South Public Health Unit;
- Manager, Population Epidemiology Unit;
- Director, Radiation Health Unit; and
- Director, Environmental Hazards Unit.

The following processes were undertaken for this investigation:

1. A literature review was conducted into the epidemiology of glioblastoma in particular and brain cancer in general, with a focus on aetiology and latency period.
2. A review of available cancer statistics for Queensland and local areas was undertaken using the online portal OASys to determine incidence rates of brain cancer and glioblastoma in Queensland and the geographical area of interest.
3. Reviews of the Environmental Management Register, Contaminated Land Register and a Queensland Health register of radiation contamination were conducted to determine whether

there were records of the land in the vicinity of the reported cases being contaminated with radiation or chemicals.

4. A line list of all cases of glioblastoma resident in the Metro South Hospital and Health Service (MSHHS) area at the time of their diagnosis was obtained from the Queensland Cancer Registry. This information was analysed and mapped.

### Literature Review: Epidemiology of glioblastoma

Glioblastoma multiforme grade 4 is a type of glioma. Glioma is the most common type of primary brain tumour. The cause of most brain tumours is unknown and for the vast majority of people diagnosed with a brain tumour, no outside cause can be clearly identified<sup>1</sup>.

The known risk factors for gliomas include ageing, being male, a genetically inherited tendency (rare) and ionising radiation (x-rays and gamma rays)<sup>1,2</sup>. Dose levels of ionising radiation from CT scans are in the range of risk factor concern, however the individual risk of developing cancer from a single procedure is extremely small<sup>2</sup>. The possibility of a link between long-term mobile phone usage and the development of brain cancer is highly debated with some studies reporting a significant positive association with glioma<sup>3</sup> while others find no evidence of an association<sup>2</sup>. A significant association between brain tumours and military occupation has also been reported<sup>4</sup>.

Allergic conditions including asthma, hay fever, eczema and food allergies have been found to be protective against the development of brain tumours<sup>2</sup>.

No association has been found between brain tumour development and any of the following:

- Cumulative years of use of any farm pesticide<sup>2</sup>
- Herbicide or insecticide exposure among men<sup>5</sup>
- Cumulative exposure or duration of exposure to combustion products (diesel and gasoline exhaust emissions, benzo(a)pyrene)<sup>6</sup>
- Cumulative exposure or duration of exposure to dusts (animal dust, asbestos, crystalline silica, wood dust)<sup>6</sup>
- Cumulative exposure or duration of exposure to chemical agents (formaldehyde, oil mist, sulphur dioxide)<sup>6</sup>
- Chlorinated solvents and cytotoxic metabolites of chlorinated solvents<sup>2,7</sup>
- Occupations in the agricultural, construction, transport, chemical, electrical/electronic and metal sectors<sup>8</sup>

Brain cancer takes many years to develop to a point at which diagnosis is possible. The latency period is in the range of 15 to 45 years depending on the age at exposure, type and intensity of exposure<sup>9,10</sup>.

Therefore, any exposure relevant to the diagnosis of glioma in an individual aged approximately 70 years (at diagnosis) may have occurred at almost any time in the individual's adult life.

## Incidence statistics

The smallest geographical area for which cancer incidence data are available is the statistical area 2 (SA2). Because of the very small numbers of incident cases, calculating age standardised incidence rates for rare/uncommon cancers in areas as small as a single SA2 is not generally recommended. More reliable statistics are generated by combining a number of SA2s into a geographical area of interest (GAI).

The locality of [REDACTED] is within the SA2 of Greenbank. The surrounding area encompasses the SA2s of Greenbank, Jimboomba, Logan Village, Boronia Heights – Park Ridge, Chambers flat – Logan Reserve and Munruben – Park Ridge South. These six SA2s were combined to form a GAI for this investigation.

The incidence age standardised rate (ASR) of all brain cancer over the period 2005 to 2014 (most recent 10 years data available in OASys) in Metro South HHS was 7.1/100,000 (95% CI = 6.6-7.7) and in Queensland was 6.8/100,000 (95% CI = 6.5-7.0). The incidence ASR of brain cancer in the local GAI was 6.7/100,000 (95% CI = 4.6-9.3). There was no significant difference in the rate of incidence of brain cancer in the local GAI when compared with all of Metro South HHS or all of Queensland.

If incidence ASRs of all cancers was considered, the rate in Metro South HHS was 512/100,000 (95% CI = 507-516), in Queensland was 534/100,000 (95% CI = 532-536) and in the local GAI was 521/100,000 (95% CI = 501-542). Again, there was no significant difference in the rate of incidence of all cancers in the local GAI when compared with all of Metro South HHS or all of Queensland.

At the time the analysis was undertaken, data beyond 2014 was not published in the OASys online portal. As a result the cases reported as part of this investigation did not appear in this dataset. However, a search for glioblastoma cases in the Greenbank SA2 indicated that there were three cases recorded in the 10 year period 2005 to 2014. This equated to a crude rate of 2.7 cases per 100,000 population in Greenbank SA2 which was not significantly different from the crude rate of 2.6 cases per 100,000 population in the local GAI. The rate in Greenbank SA2 was slightly lower than the crude rates in Metro South HHS (3.1/100,000) and Queensland (3.2/100,000).

## Reviews of Registers

Details of Lot and RP numbers of all properties on [REDACTED] (the roads on which cases resided) at [REDACTED] were provided to staff of the Department of Environment and Science for comparison with the Environmental Management Register and the Contaminated Land Register.

None of these properties were listed on either of these Registers. This indicates that there are no records of environmental contamination at these properties.

Staff of the Environmental Hazards Unit, Queensland Health, searched for this locality in Queensland Health's register of radiation contaminated sites and no match was found. This indicates that there is no record of radiation contamination in the immediate area of this investigation. In addition, there has been no known radioactive contamination by mining of radioactive mineral sands in the Logan area.

## Analysis of line list of glioblastoma cases in Metro South HHS

Upon granting of appropriate approvals, a line list with details (including name, address and differentiation/grade of cancer) of all cases of glioblastoma resident in the Metro South HHS area at the time of diagnosis, from the start of records (1982) to the present (August 2018) was provided by the Queensland Cancer Registry (QCR) to MSPHU for analysis.

A total of 1,007 individuals with glioblastoma were included in the line list. The number of cases per year ranged from 4 (1982) to 52 (2011) with a mean of 27 cases and a median of 28 cases.

Cases were coded as the cancer differentiation being one of grades 1 to 4 or “not stated/unknown”. The grading of the 1,007 cases was as follows:

Grade 1:	2 cases
Grade 2:	2 cases
Grade 3:	42 cases
Grade 4:	391 cases
Not stated:	570 cases

The proportion of cases with a differentiation of “not stated/unknown” generally decreased with increasing time.

The three cases about whom the cluster informant provided information all appear on the line list. Two of the three appear as a grade 4 cancer thereby matching the information provided by the informant. However the third case has a differentiation of “not stated/unknown” which does not match the information received from the informant. An additional case from [REDACTED] to whom the informant alluded but could not provide information also appears on the file (year of diagnosis = 2009) and is classified as differentiation “not stated/unknown”.

The addresses of the 1,007 cases were geocoded using EpiInfo v.7.2.2.1 and then mapped using the same software program. Eight separate maps are contained within Appendix 1. Figures 1 to 4 each map all cases of glioblastoma, but using increasingly restricted years of data from 1982 to 2018 (Figure 1) to 2015 to 2018 (Figure 4). Figures 5 to 8 map only those cases classified as grade 4 glioblastoma, again using increasingly restricted years of data from 1982 to 2018 (Figure 5) to 2015 to 2018 (Figure 8). The [REDACTED] area is highlighted in each of these maps.

The mapping exercise illustrates clearly that the apparent clustering of cases in the [REDACTED] area is not a pattern unique to that locality. Cases appear to be scattered randomly throughout Metro South HHS both spatially and temporally. As a result of the fact that a random distribution does not equate to an evenly spread or uniform distribution, numerous localities can be found which feature multiple cases in close proximity to each other in space and/or time. The small cluster of cases in the [REDACTED] area is thus typical of the localised variations in density of cases to be found in any randomly distributed disease model.

## Conclusions

The conclusion of the EAG is that the reported occurrence of these cases of glioblastoma multiforme grade 4 does not constitute a geographical cluster, in that the number of reported cases does not exceed the number that would be expected in the general area (Greenbank SA2) based on population numbers and Queensland cancer rates. However, the occurrence of three reported cases in the much smaller area of [REDACTED] does constitute an apparent localised geographical cluster.

Mapping of all cases of glioblastoma in the Metro South HHS area from 1982 onwards shows that cases are randomly distributed both spatially and temporally. Such random disease distribution models do not equate to spatial or temporal uniformity; rather the appearance of localised 'clusters' of cases, such as that observed in [REDACTED], is a typical feature of the random model. Therefore, the apparent localised geographical cluster is likely to be an artifact of random distribution chance.

In addition to this, based on current knowledge of cancer causation, this investigation has not identified any plausible environmental exposure which would be likely to cause cases of this cancer in this local setting.

Current knowledge identifies exposure to ionising radiation as a potential risk factor for glioblastoma. Investigation of individual lifetime exposure histories to ionising radiation, e.g. via medical procedures, may assist in understanding the occurrence of cancer in these cases. However, the detail of the cases' lifetime personal risk factors is not available. Even if this information were available it would not alter the conclusion that these cases are a rare but likely unassociated occurrence of a specific cancer in individuals without a contributing geographically linked cause.

## Recommendations

1. No further epidemiological assessment of the alleged cancer cluster at [REDACTED] is required.
2. Information about the results of the investigation be provided to the original informant.

## References

1. Cancer Council Australia. Adult gliomas (astrocytomas and oligodendrogliomas): a guide for patients. Their families and carers. Sydney: Cancer Council Australia / Clinical Oncological Society of Australia; 2011.
2. Ostrom, Q., *et al.* 2015. CBTRUS Statistical Report: Primary brain and central nervous system tumors diagnosed in the United States in 2008-2012. *Neuro-Oncology* **17**:iv1-iv62.
3. Yang, M., *et al.*, 2017. Mobile phone use and glioma risk: A systematic review and meta-analysis. *PLoS ONE* **12**(5): e0175136.
4. Fallahi, P., *et al.*, 2017. High risk of brain tumors in military personnel: a case control study. *Clin Ter* **168**(6): e376-e379.
5. Samanic, C.M., *et al.*, 2008. Occupational exposure to pesticides and risk of adult brain tumors. *Am J. Epidemiol.* **167**(8): 976-985.
6. Lacourt, A., *et al.*, 2013. INTEROCC case-control study: lack of association between glioma tumors and occupational exposure to selected combustion products, dusts and other chemical agents. *BMC Public Health* **13**:340.
7. Ruder, A.M., *et al.*, 2013. The Upper Midwest health Study: gliomas and occupational exposure to chlorinated solvents. *Occup Environ Med* **70**(2): 73-80.
8. Samkange-Zeeb, F., *et al.*, 2010. Occupation and risk of glioma, meningioma and acoustic neuroma: results from a German case-control study (interphone study group, Germany). *Cancer Epidemiol.* **34**(1): 55-61.
9. Stein, Y., *et al.*, 2011. A sentinel case series of cancer patients with occupational exposures to electromagnetic non-ionising radiation and other agents. *European Journal of Oncology*, **16**/1: 21-54.
10. Shibata, Y., *et al.*, 1994. Intercranial meningiomas among Nagasaki atomic bomb survivors. *Lancet*, **344**: 1 770



Appendix 1

RTI DRAFT PLEASE

Figure 1: All glioblastoma cases in Metro South HHS, January 1982 to August 2018



Figure 2: All glioblastoma cases in Metro South HHS, January 2000 to August 2018



RTI RELEASE

RTI RELEASE



Figure 6: Glioblastoma grade 4 cases only in Metro South HHS, January 2000 to August 2018

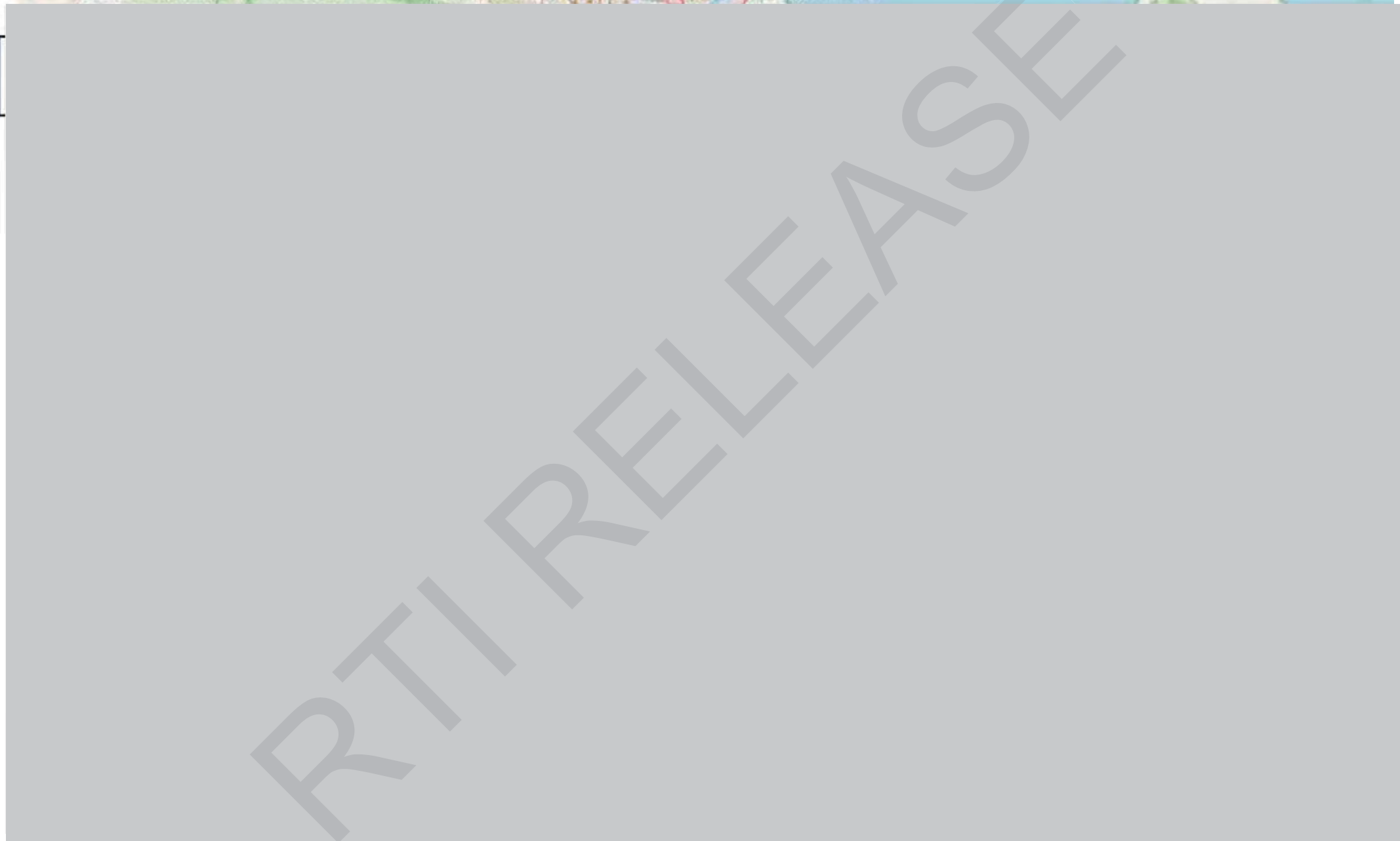
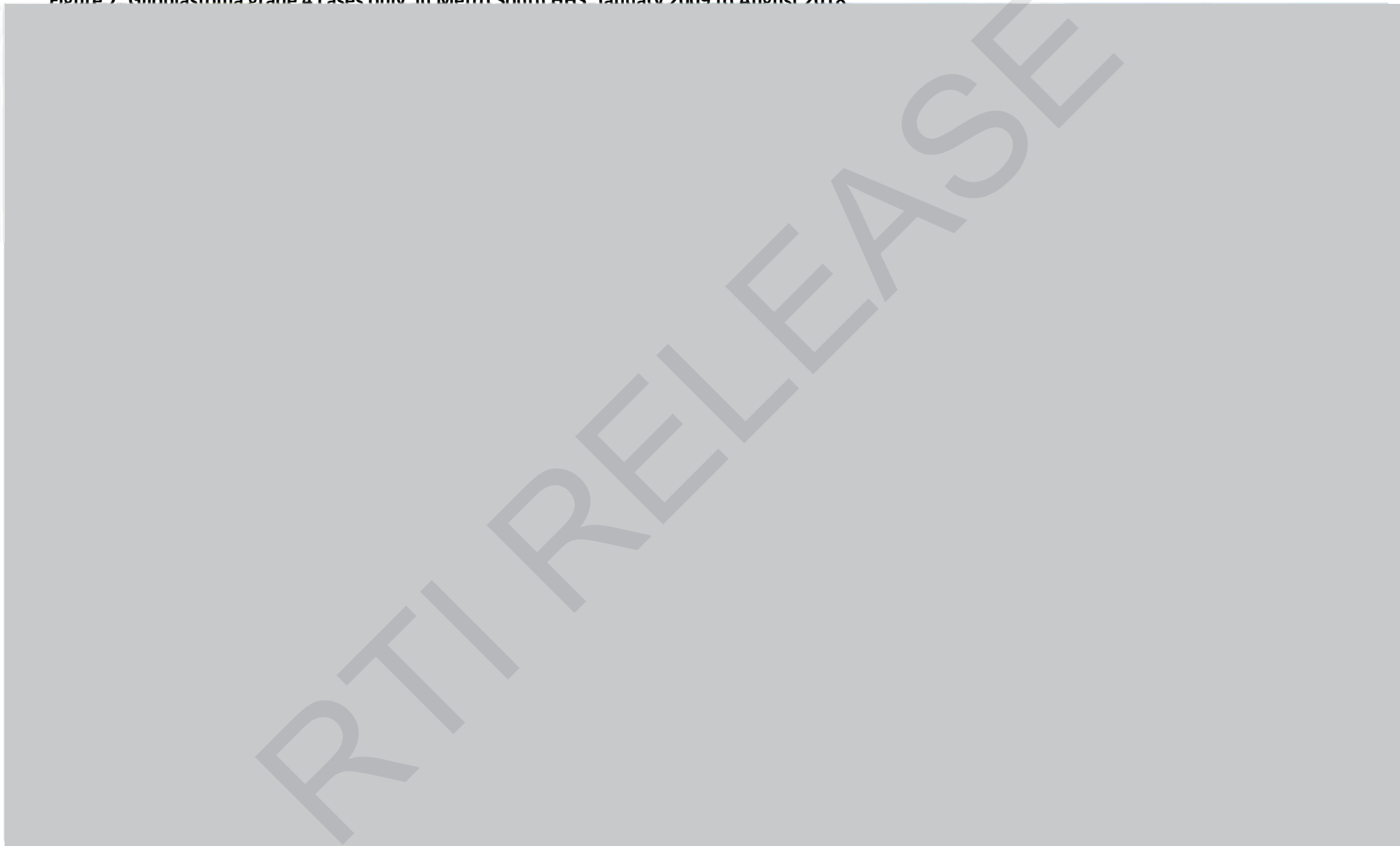


Figure 7: Glioblastoma grade 4 cases only in Metro South HHS January 2009 to August 2018





**Simon Critchley**

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**From:** Kari Jarvinen  
**Sent:** Tuesday, 23 October 2018 1:39 PM  
**To:** Sophie Dwyer  
**Cc:** Suzanne Huxley; Simon Critchley; Uma Rajappa; Margaret Bright; Andrew Langley; Anne Maree Baldwin; Bhakti Vasant; Gayle Pollard; Bonnie Macfarlane; Vicki Slinko  
**Subject:** Report: Cluster investigation [REDACTED]  
**Attachments:** Report [REDACTED] Cluster Assessment - Oct 2018.docx

Dear Sophie,  
(and cc: to EAG members)

Please find attached the final report prepared on investigation of the alleged cluster in [REDACTED].

Many thanks again for your support, as well as the support of the whole EAG team called together for this purpose.

Regards,

Kari

**Dr Kari Jarvinen**

**Director and Public Health Physician** | Metro South Public Health Unit | Division of Medicine  
Princess Alexandra Hospital | **Metro South Health**  
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 [facebook.com/MetroSouthHealth](https://facebook.com/MetroSouthHealth)

*Your feedback is important to the Metro South Public Health Unit so if you have any suggestions, compliments or concerns about the service or advice provided to you, please send an email to [MSPHU-CORRO@health.qld.gov.au](mailto:MSPHU-CORRO@health.qld.gov.au)*

**Epidemiological assessment of cases of  
brain cancer, and specifically  
glioblastoma multiforme grade 4,  
among residents of [REDACTED]**

**October 2018**

## **An assessment of cases of brain cancer, and specifically glioblastoma multiforme grade 4, among residents of [REDACTED]**

**Prepared by Metro South Public Health Unit  
October 2018**

### **Summary**

In May 2018 a resident of [REDACTED] raised a concern with Metro South Public Health Unit (MSPHU) about the number of cases of glioblastoma multiforme grade 4 in their local area.

MSPHU conducted an epidemiological assessment of reported cases of glioblastoma multiforme in [REDACTED] from 1982 to 2018, in accordance with Queensland Health Guidelines: Assessment of cluster of non-communicable disease 2018.

This assessment found that the observed rate of reported brain cancer and of glioblastoma in the Statistical Area 2 of Greenbank (in which [REDACTED] is located) was not significantly different from the rate in all of Metro South Hospital and Health Service (HHS) or in all of Queensland. While the occurrence of three cases within the much smaller locality of [REDACTED] has the appearance of a 'cluster' of cases, such localised 'clustering' of some cases is consistent with a disease distribution model in which disease cases are not uniformly distributed across a geographic area.

Based on current knowledge of cancer causation, this investigation has not identified any plausible environmental exposure which would be likely to cause cases of this cancer in this local setting.

The recommendations arising from the epidemiological assessment can be summarised as:

1. No further epidemiological assessment is currently required
2. Information about the results of the investigation should be provided to the original informant

## Background to alleged cluster

Metro South Public Health Unit (MSPHU) was contacted on 25 May 2018 by a resident of the suburb of [REDACTED] whose spouse was diagnosed with glioblastoma grade 4 in June 2015 and died February 2016. Information was provided about possibly three other cases of glioblastoma multiforme grade 4 over the past 8 years also resident in [REDACTED].

MSPHU interviewed and emailed the informant, requesting further information about the four alleged cases. The informant subsequently supplied the following information about three cases of glioblastoma multiforme grade 4 (all deceased):

Case	Sex	Cancer	Date of diagnosis	Age at diagnosis	Years lived in [REDACTED]	Occupation	Family history of brain cancer
1	M	Glioblastoma grade 4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	None
2	M	Glioblastoma grade 4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	Unknown
3	M	Glioblastoma grade 4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	None

It was noted that the informant originally reported that there was a fourth case of glioblastoma grade 4 from the area that had died around eight years ago. However, in a follow-up email the informant stated that the family of this case had “not been forthcoming and I would not like to pursue it at this stage”. As a result, no details or clarification regarding the alleged fourth case are available so they cannot be included in the review at this point.

A review of the geography of the area identified the following points:

- the suburb of [REDACTED] is contained within the SA2 of Greenbank
- Greenbank SA2 has a population of approximately 12,000 while [REDACTED] has a population of approximately [REDACTED]
- The cases all resided on connected roads ([REDACTED]) that run the length of a pocket in a bend of the Logan River
- The road in question is slightly less than 2 km in length with the cases living within 1.1km of each other
- The area is rural residential in character with large blocks of land (approx. 2.5 to over 5 acres)
- Most houses are situated close to the road and relatively close to each other with the blocks long and narrow or wedge shaped.
- The road follows a high ridgeline with the blocks sloping down to the flood plain and the Logan River

There has been general public concern about possible links between cancer and powerlines and mobile phone towers. The World Health Organisation's International Agency for Research on Cancer (IARC) has considered these issues and has concluded that power-frequency magnetic fields should be classified as "possibly carcinogenic"<sup>1</sup>. This was on the basis of the IARC finding that there is "limited evidence" for the carcinogenicity of extremely low-frequency magnetic fields in relation to childhood leukaemia. However there was "inadequate evidence" in relation to all other cancers<sup>1</sup>. It is noted that:

- There are no high tension powerlines within the [REDACTED] area in which the cases resided
- There is a single mobile phone tower located near the intersection of [REDACTED], approximately [REDACTED] from the address of the closest reported case.

### Background to cancer clusters

Cancers are a diverse group of diseases, and there is no one single cause. There are a variety of known risk factors, including lifestyle factors and environmental factors (such as exposure to sunlight and some chemicals), which have been identified for individual cancers. However, the presence of risk factors does not imply that the person will necessarily get cancer. There are also genetic factors that predispose individuals to some forms of cancer.

The term cancer cluster is usually defined as a greater number of cases of cancer (usually of the same type), identified within a certain group of people, geographical area, and time period, than are expected, based on the size and age of the population. A cluster assessment is the scientific process used to determine whether there is an increased number of cases of a specific disease **and** whether there is a biologically plausible causal agent/s for that disease.

Clusters where environmental causes have been found have tended to:

- Be a rare type of cancer
- Consist of a large number of cases of one particular cancer rather than several types
- Occur in a well-defined group or setting, or a group where the cancer is not usually seen
- Occur in a group or setting where there has been intense and sustained exposure to an unusual chemical, occupation, infection or drug
- Have been initiated by an alert from a health surveillance system

The cancers reported in this current investigation were all glioblastoma multiforme grade 4.

### Methodology

An Expert Advisory Group (EAG) was convened to review available information and statistics, advise on appropriate investigation processes and draw conclusions from the investigation results. Membership of the EAG included:

- Director, Metro South Public Health Unit (Chair)
- Public Health Physicians, Metro South Public Health Unit;
- Director and Public Health Physician, Sunshine Coast Public Health Unit;
- Senior Medical Officer, Health Protection Branch, Department of Health;
- Manager, Epidemiology, Preventive Health Branch, Department of Health;
- Advanced Epidemiologist, Metro South Public Health Unit;
- Advanced Epidemiologist, Sunshine Coast Public Health Unit;

- Environmental Health Team Leader, Metro South Public Health Unit;
- Director, Radiation Health Unit, Health Protection Branch, Department of Health; and
- Director, Environmental Hazards Unit, Health Protection Branch, Department of Health.

The following processes were undertaken for this investigation:

1. A literature review was conducted into the epidemiology of glioblastoma in particular and brain cancer in general, with a focus on aetiology and latency period.
2. A review of available cancer statistics for Queensland and local areas was undertaken using the online portal OASys to determine incidence rates of brain cancer and glioblastoma in Queensland and the geographical area of interest.
3. Reviews of the Environmental Management Register, Contaminated Land Register and a Queensland Health register of radiation contamination were conducted to determine whether there were records of the land in the vicinity of the reported cases being contaminated with radiation or chemicals.
4. A line list of all cases of glioblastoma resident in the Metro South Hospital and Health Service (MSHHS) area at the time of their diagnosis was obtained from the Queensland Cancer Registry. This information was analysed and mapped.

### Literature Review: Epidemiology of glioblastoma

Glioblastoma multiforme grade 4 is a type of glioma. Glioma is the most common type of primary brain tumour. The cause of most brain tumours is unknown and for the vast majority of people diagnosed with a brain tumour, no outside cause can be clearly identified<sup>2</sup>.

The known risk factors for gliomas include ageing, being male, a genetically inherited tendency (rare) and ionising radiation (x-rays and gamma rays)<sup>2,3</sup>. Dose levels of ionising radiation from CT scans are in the range of risk factor concern, however the individual risk of developing cancer from a single procedure is extremely small<sup>3</sup>. The possibility of a link between long-term mobile phone usage and the development of brain cancer is highly debated with some studies reporting a significant positive association with glioma<sup>4</sup> while others find no evidence of an association<sup>3</sup>. A significant association between brain tumours and military occupation has also been reported<sup>5</sup>.

Allergic conditions including asthma, hay fever, eczema and food allergies have been found to be protective against the development of brain tumours<sup>3</sup>.

No association has been found between brain tumour development and any of the following:

- Cumulative years of use of any farm pesticide<sup>3</sup>
- Herbicide or insecticide exposure among men<sup>6</sup>
- Cumulative exposure or duration of exposure to combustion products (diesel and gasoline exhaust emissions, benzo(a)pyrene)<sup>7</sup>
- Cumulative exposure or duration of exposure to dusts (animal dust, asbestos, crystalline silica, wood dust)<sup>7</sup>
- Cumulative exposure or duration of exposure to chemical agents (formaldehyde, oil mist, sulphur dioxide)<sup>7</sup>
- Chlorinated solvents and cytotoxic metabolites of chlorinated solvents<sup>3,8</sup>
- Occupations in the agricultural, construction, transport, chemical, electrical/electronic and metal sectors<sup>9</sup>

Brain cancer takes many years to develop to a point at which diagnosis is possible. The latency period is in the range of 15 to 45 years depending on the age at exposure, type and intensity of exposure<sup>10,11</sup>. Therefore, any exposure relevant to the diagnosis of glioma in an individual aged approximately 70 years (at diagnosis) may have occurred at almost any time in the individual's adult life.

### **Incidence statistics**

The smallest geographical area for which cancer incidence data are available is the statistical area 2 (SA2). Because of the very small numbers of incident cases, calculating age standardised incidence rates for rare/uncommon cancers in areas as small as a single SA2 is not generally recommended. More reliable statistics are generated by combining a number of SA2s into a geographical area of interest (GAI).

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## Conclusions

The conclusion of the EAG is that the reported occurrence of these cases of glioblastoma multiforme grade 4 does not constitute a geographical cluster, in that the number of reported cases does not exceed the number that would be expected in the general area (Greenbank SA2) based on population numbers and Queensland cancer rates. However, the occurrence of three reported cases in the much smaller area of [REDACTED] does constitute an apparent localised geographical cluster.

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Current knowledge identifies exposure to ionising radiation as a potential risk factor for glioblastoma. Investigation of individual lifetime exposure histories to ionising radiation, e.g. via medical procedures, may assist in understanding the occurrence of cancer in these cases. However, the detail of the cases' lifetime personal risk factors is not available. Even if this information were available it would not alter the conclusion that these cases are a rare but likely unassociated occurrence of a specific cancer in individuals without a contributing geographically linked cause.

## Recommendations

1. No further epidemiological assessment of the alleged cancer cluster at [REDACTED] is required.
2. Information about the results of the investigation be provided to the original informant.

## References

1. World Health Organisation International Agency for Research on Cancer, 2002. IARC Monographs on the evaluation of carcinogenic risk to humans. Non-ionising radiation, part 1: static and extremely low-frequency (ELF) electric and magnetic fields. Lyon, France.
2. Cancer Council Australia, 2011. Adult gliomas (astrocytomas and oligodendrogliomas): a guide for patients. Their families and carers. Sydney: Cancer Council Australia / Clinical Oncological Society of Australia.
3. Ostram, Q., *et al.* 2015. CBTRUS Statistical Report: Primary brain and central nervous system tumors diagnosed in the United States in 2008-2012. *Neuro-Oncology* **17**:iv1-iv62.
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11. Shibata, Y., *et al.*, 1994. Intracranial meningiomas among Nagasaki atomic bomb survivors. *Lancet*, **344**: 1 770

Appendix 1 Figure 1: All glioblastoma cases in Metro South HHS, January 1982 to August 2018



Figure 2: All glioblastoma cases in Metro South HHS, January 2000 to August 2018

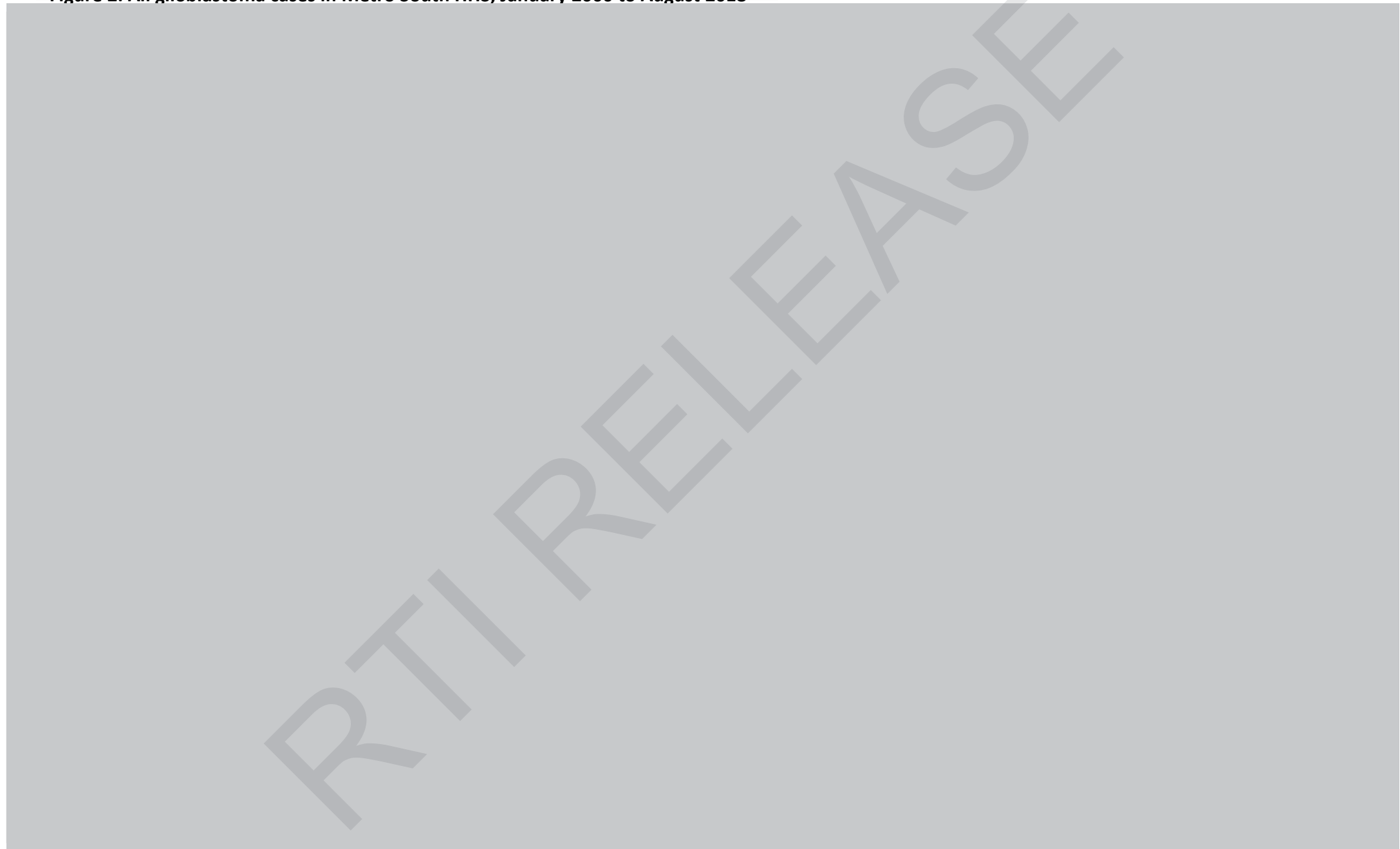


Figure 3: All glioblastoma cases in Metro South HHS, January 2009 to August 2018



Figure 4: All glioblastoma cases in Metro South HHS, January 2015 to August 2018



Figure 5: Glioblastoma grade 4 cases only in Metro South HHS, January 1982 to August 2018



Figure 6: Glioblastoma grade 4 cases only in Metro South HHS, January 2000 to August 2018





Figure 7: Glioblastoma grade 4 cases only in Metro South HHS, January 2009 to August 2018



Figure 8: Glioblastoma grade 4 cases only in Metro South HHS, January 2015 to August 2018

