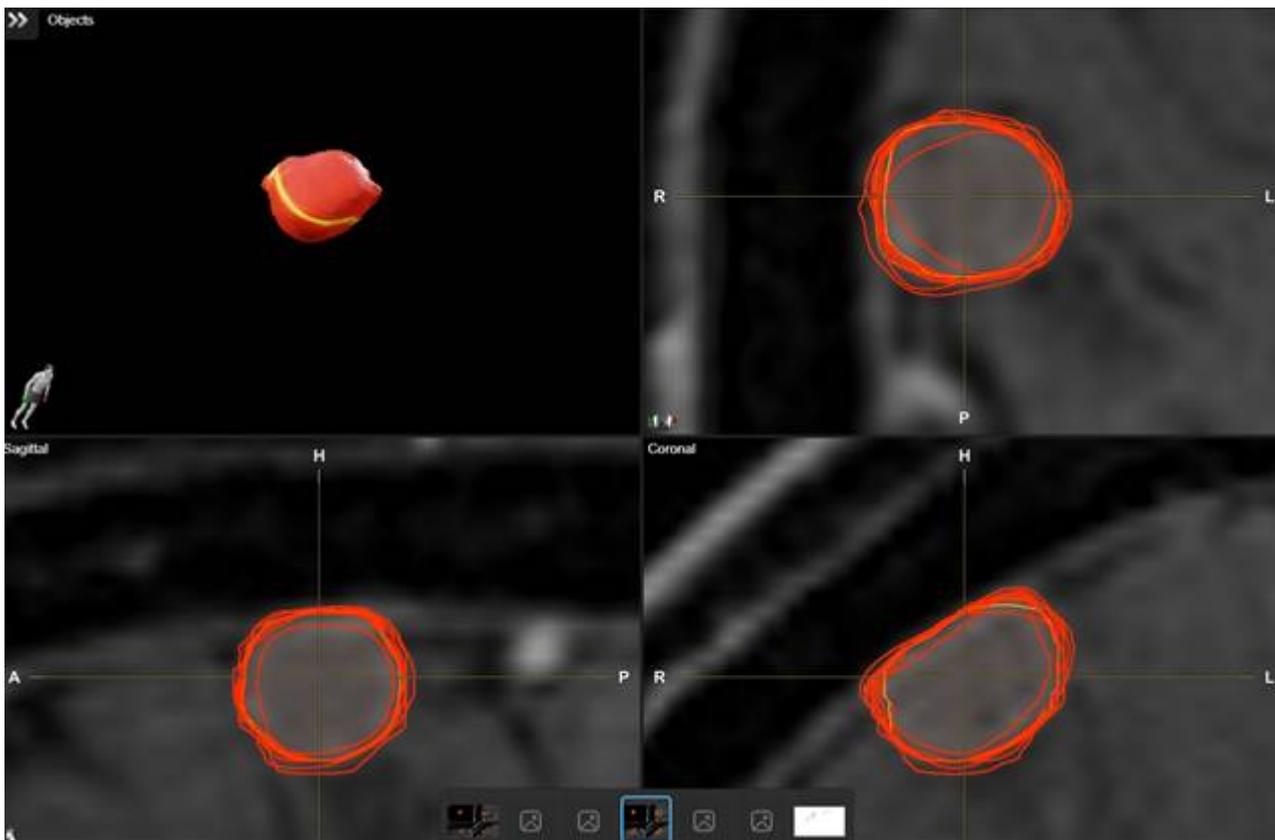


JENA, Rajesh (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST)

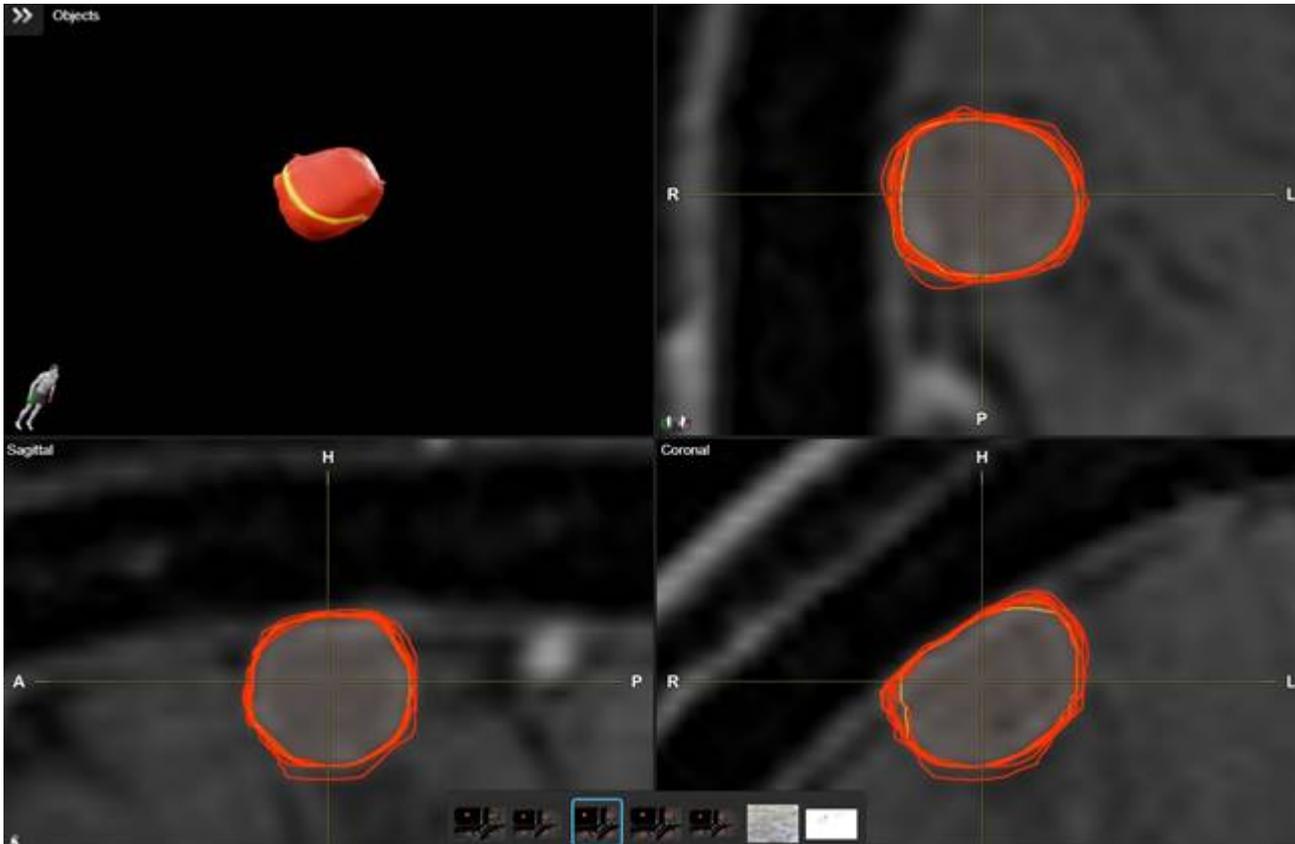
From: O'DOHERTY, David (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST)
Sent: 23 August 2023 11:03
To: JEFFERIES, Sarah (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST); JENA, Rajesh (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST); HARRIS, Fiona (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST); DUKE, Simon (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST); THOMPSON, Mareike (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST); BUCKLEY, Hannah (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST)
Cc: GEATER, Antony (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST); ROBINSON, Andrew (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST)
Subject: RE: Measuring delineation variation in SRS

Hi all,

I now have 15 outlines for the mets case:



I have removed 3 as outliers:



The range of the remaining 12 outlines is around 1.2 mm (in all directions).

This can be approximated to a standard deviation for a small sample size as $1.2 / 3.26 = \mathbf{0.37 \text{ mm}}$.

This is a little smaller than the value of 0.6 mm estimated from the national audit data.

I will use the same value for VS delineation error as there are only 5 outlines currently available (though the range of these appears similar), and this value agrees with the estimate from the national audit case.

Thanks and regards,
David

David O'Doherty
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From: O'DOHERTY, David (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST)

Sent: 17 July 2023 14:57

To: JEFFERIES, Sarah (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <sarah.jefferies@nhs.net>; JENA, Rajesh (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <rjena@nhs.net>; HARRIS, Fiona (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <f.harris3@nhs.net>; DUKE, Simon (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <simon.duke@nhs.net>; THOMPSON, Mareike (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <mareike.thompson3@nhs.net>; BUCKLEY, Hannah (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <hannah.buckley3@nhs.net>

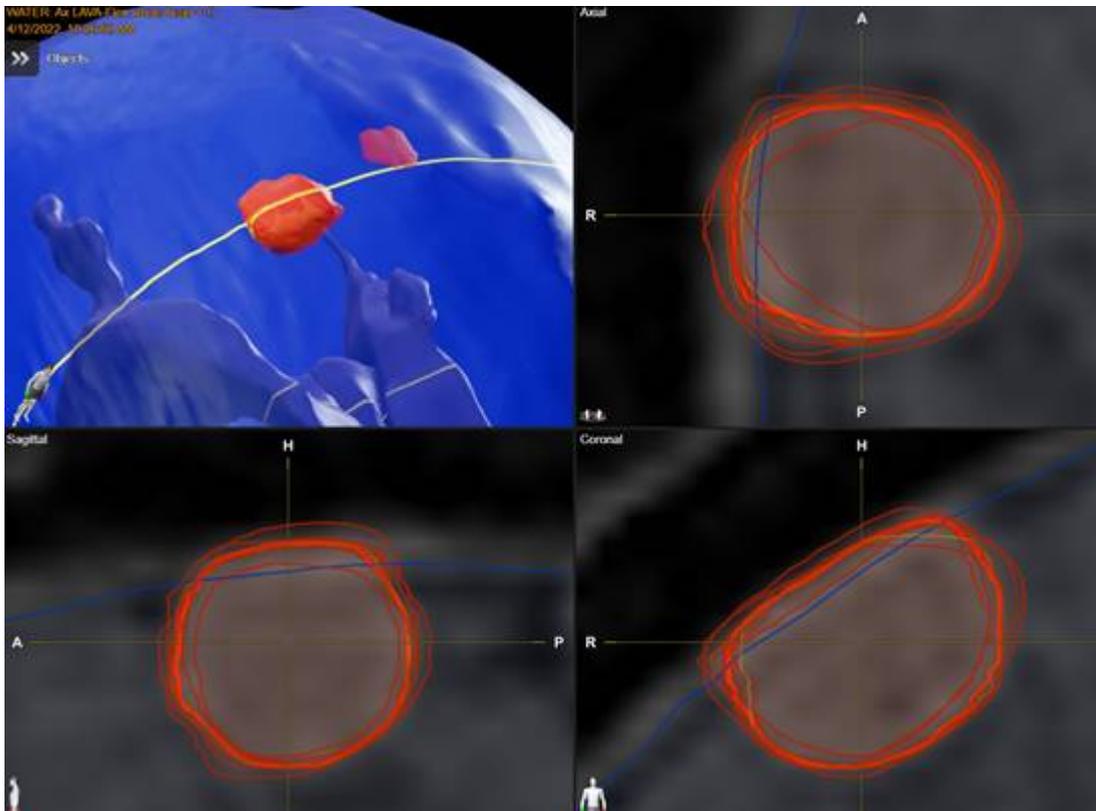
Cc: GEATER, Antony (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <antony.geater@nhs.net>

ROBINSON, Andrew (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST)
<andrew.robinson49@nhs.net>

Subject: RE: Measuring delineation variation in SRS

Hi all,

Just a quick indication of how the delineation variation is looking for the SRS Mets case.



The SD is somewhere between 0.3 and 0.7 mm but I need some more outlines so I can remove outliers and those by non-clinical outliners.

Using National SRS Audit volume data from the attached paper (assuming spherical volumes) the SD of variability for the mets cases comes out at around 0.6 mm.

So similar ballpark but obviously using a non-local audit MR dataset and many different outlining platforms.

The VS case in the national audit indicates better concordance (~0.4 mm) though the spherical assumption is less applicable here.

Thanks and regards,
David

David O'Doherty

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From: O'DOHERTY, David (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST)

Sent: 05 July 2023 14:37

To: JEFFERIES, Sarah (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <sarah.jefferies@nhs.net>; JENA, Rajesh (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <rjena@nhs.net>; HARRIS, Fiona (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <f.harris3@nhs.net>; DUKE, Simon (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <simon.duke@nhs.net>; THOMPSON, Mareike (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <mareike.thompson3@nhs.net>; BUCKLEY, Hannah (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <hannah.buckley3@nhs.net>

Cc: GEATER, Antony (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <antony.geater@nhs.net>; ROBINSON, Andrew (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <andrew.robinson49@nhs.net>

Subject: RE: Measuring delineation variation in SRS

Hi all,

Thanks to Mareike for contributing, we now have 8 outlines for the Met case which has taken the lead ahead of 5 for the VS.

If everyone could do 2 or 3 more outlines we should have enough for a reasonable estimate of the variation.

All contributions will of course be acknowledged in any resulting publication.

Simple instructions below and thanks again,

David

Outlining single Met In ELEMENTS:

1. Open patient ZZZDELINEATIONMET in ELEMENTS.
2. Choose folder/plan 'Delineation Error – START HERE'.
3. Create GTV outline and label with initials and date , e.g. GTV_DOD141122.
4. Save As with initials and date.

Outlining VS in Raystation:

1. Open patient ZZZDELINEATIONVS in Raystation.
2. Deselect viewing for all previously outlined GTVs.
3. Create GTV outline and label with initials and date , e.g. GTV_DOD141122.
4. Approve structure set as normal.

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From: O'DOHERTY, David (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST)

Sent: 24 May 2023 16:04

To: JEFFERIES, Sarah (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <sarah.jefferies@nhs.net>;

JENA, Rajesh (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <rjena@nhs.net>; HARRIS, Fiona (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <f.harris3@nhs.net>; DUKE, Simon (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <simon.duke@nhs.net>; THOMPSON, Mareike (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <mareike.thompson3@nhs.net>

Cc: GEATER, Antony (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <antony.geater@nhs.net>

Subject: RE: Measuring delineation variation in SRS

Hi Sarah, Raj, Fiona, Simon and Marieke,

This is a reminder of my request for assistance in the quantification of delineation variation in SRS. I just need 3 or 4 GTV outlines from each observer if that's possible.

Simple instructions below and please let me know if you have any questions,
Thanks in advance,
David

Outlining single Met In ELEMENTS:

1. Open patient ZZZDELINEATIONMET in ELEMENTS.
2. Choose folder/plan 'Delineation Error – START HERE'.
3. Create GTV outline and label with initials and date , e.g. GTV_DOD141122.
4. Save As with initials and date.

Outlining VS in Raystation:

1. Open patient ZZZDELINEATIONVS in Raystation.
2. Deselect viewing for all previously outlined GTVs.
3. Create GTV outline and label with initials and date , e.g. GTV_DOD141122.
4. Approve structure set as normal.

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From: O'DOHERTY, David (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST)

Sent: 01 March 2023 11:54

To: JEFFERIES, Sarah (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <sarah.jefferies@nhs.net>; JENA, Rajesh (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <rjena@nhs.net>; HARRIS, Fiona (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <f.harris3@nhs.net>; DUKE, Simon (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <simon.duke@nhs.net>; GRISBY, Aviva (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <a.grisby@nhs.net>

Cc: GEATER, Antony (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <antony.geater@nhs.net>

Subject: RE: Measuring delineation variation in SRS

Hi all,

In order to calculate a value for GTV delineation error we need several outlines on the same case from various observers, a minimum of around 12 in total (3 or 4 outlines each from 3 or 4 observers).

Currently for the Met case we have 7 outlines and for the VS case we only have 5.

If you could spare any time to outline the GTV only in the below test cases it would be much appreciated or if you'd prefer not to please also let me know.

Thanks and regards,
David

Outlining single Met In ELEMENTS:

1. Open patient ZZZDELINEATIONMET in ELEMENTS.
2. Choose folder/plan 'Delineation Error – START HERE'.
3. Create GTV outline and label with initials and date , e.g. GTV_DOD141122.
4. Save As with initials and date.

Outlining VS in Raystation:

1. Open patient ZZZDELINEATIONVS in Raystation.
2. Deselect viewing for all previously outlined GTVs.
3. Create GTV outline and label with initials and date , e.g. GTV_DOD141122.
4. Approve structure set as normal.

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From: O'DOHERTY, David (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST)

<david.odoherty1@nhs.net>

Sent: 25 January 2023 16:42

To: JEFFERIES, Sarah (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <sarah.jefferies@nhs.net>;

JENA, Rajesh (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <rjena@nhs.net>; HARRIS, Fiona

(CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <f.harris3@nhs.net>; GRISBY, Aviva (CAMBRIDGE

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HOSPITALS NHS FOUNDATION TRUST) <simon.duke@nhs.net>

Cc: GEATER, Antony (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <antony.geater@nhs.net>

Subject: Re: Measuring delineation variation in SRS

Hi all,

This is another request to please outline the below test cases to help us measure our delineation variation.

Thanks to both Aviva and Fiona for getting us started!

Thanks all,
David

From: O'DOHERTY, David (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST)

Sent: 14 November 2022 14:21

To: JEFFERIES, Sarah (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <sarah.jefferies@nhs.net>; JENA, Rajesh (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <rjena@nhs.net>; HARRIS, Fiona (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <f.harris3@nhs.net>; GRISBY, Aviva (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <a.grisby@nhs.net>; DUKE, Simon (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <simon.duke@nhs.net>

Cc: GEATER, Antony (CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST) <antony.geater@nhs.net>

Subject: Measuring delineation variation in SRS

Hi all,

As mentioned at the plan review meeting a couple of weeks back I have set up a single met and a VS case to measure delineation variation in SRS.

If you could please outline the GTV only in each case 4 times that would be great, I suggest doing so once per week for the next 4 weeks if that's possible.

Outlining a single **Met In ELEMENTS**:

1. Open patient **ZZZDELINATIONMET** in ELEMENTS.
2. Choose folder/plan 'Delineation Error – START HERE'.
3. Create GTV outline and label with initials and date , e.g. GTV_DOD141122.
4. Save As with initials and date.

Outlining a **VS in Raystation**:

1. Open patient **ZZZDELINATIONVS** in Raystation.
2. Deselect viewing for all previously outlined GTVs.
3. Create GTV outline and label with initials and date , e.g. GTV_DOD141122.
4. Approve structure set as normal.

Please don't hesitate to contact me if you have questions,

Thanks in advance,

David

David O'Doherty

Radiotherapy Physicist | Medical Physics

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