

GlobalSurg 3 National Leads online Meeting Minutes Wednesday August 19th 2020

This meeting covered two main topics: the GlobalSurg 3 study manuscript and the launch of the new GlobalSurg-CovidSurg Week Study.

We hope to now reinstate the GlobalSurg 3 National Leads meeting on a more regular basis.

GlobalSurg 3 Final Analysis and Manuscript Preparation:

Please refer to the draft manuscript circulated to all national leads prior to the meeting.

The GlobalSurg 3 has been a massive success in terms of its scope - the number of countries and patients that have been enrolled, the number of different types of hospitals that have been captured providing unique data on cancer care around the world. The study has closely adhered to the protocol.

The quality of the data is exceptionally high and the levels of missing data are incredibly low – thank and congratulations to everyone for their efforts on this.

Unfortunately, we were just about to finish and submit the manuscript in February when the Covid19 pandemic hit. Editors at the Lancet advised against submitting at that time due to the volume of Covid19 research that being prioritised for publication.

Thank you to everyone who has provided feedback on the manuscript – we are keen to incorporate views on the data and the message of the manuscript.

The protocol was designed to capture the short term outcomes and infrastructure available to drive high quality cancer care around the world. This has been achieved.

The GS1 paper was written very closely to the protocol examining outcomes after emergency laparotomies. As a very descriptive observational study it was not picked up by major journals – Lancet, NEJM, JAMA. This was because it didn't have a really clear message that would inform policy to improve surgical services around the world.

For GS3, we are therefore trying to use the data to give a clear message beyond simply describing the outcomes for cancer patients. The paper is therefore focused on capacity to rescue – if a patient has a complication what are the factors that determine the likelihood they will survive that complication. We are trying to avoid use of the term 'failure to rescue'. Similar to other studies examining capacity to rescue, the data shows the rates of complications are similar in different settings but there are marked differences in mortality in patients that have complications.

This offers researchers a point of intervention – what improvements can be made in perioperative care etc.

We hoping to get more people involved in the data analysis as we move towards some next stage sub-studies. We would welcome anyone to get involved with the data analysis work for these future studies– please get in touch.

With reference to the shared manuscript draft:

The interpretation and conclusion is around differences in mortality after cancer surgery, emphasising the potential to rescue patients from complications with better perioperative care. Data from the hospital level survey have been included to show differences in access to facilities.

Figure 3: this is a busy figure so we may try to reduce to amount of information being presented. The two most important panels in this figure are panel A & C.

Panel A shows that the stage of presentation of cancer in upper middle, and lower income countries is later than in high income countries. The lines are demonstrating as you go from high to upper middle, to low income countries, the proportion of patients presenting with stage 3 or 4 disease increases and the proportion of patients presenting with early stage disease decreases. This is expected generally, but there are few studies that actually capture this in the literature so it is important to demonstrate this.

Panel C shows the proportion of patients that die after a major complication – the pattern is similar in all income settings for example, complication after gastrectomy results in a 25% chance of mortality in a high income setting despite critical care and imaging infrastructure etc. That proportion increases as you move from upper to middle and low income settings. And it's this difference we are trying to explore in the manuscript – is that something that can be improved.

We are taking a view that patients factors can't be altered by the surgical team – for example, patients that are malnourished, frail, present late etc are all more likely to die after a complication but within the power of a surgical team working within a hospital there's little that the surgical team can do to influence those patient level factors.

The question to address is to what extend are these differences in mortality after complications explainable by what happens around the time of surgery.

Panels D,E,F are all related to separating stage of presentation to look for differences in complications and mortality based on sage of presentation.

D shows that the difference in mortality is the same across country income level at stage 1-4. The pattern is the same across stages of disease so it's not for example, that all patients that die in LMICs all have stage 4 disease.

E shows the complication rate is much more similar across country income level. The rest of the paper attempts to disprove this by examining whether this can be explained by confounding factors or other differences.

This is done by various means – adjusted regression models etc.

It has been suggested that patients are having different complications in different income settings and those complications are harder to recover from. Figure 5 aims to show the pattern of types of complications are similar across all income settings. There is little evidence in the data suggesting that patients are suffering different complications in different settings.

Figure 6 uses statistics to try to split up the different reasons causing death after a complication. This attempts to divide the factors into patient factors, hospital factors, country factors and country income factors.

About two thirds of the difference in mortality can be explained by patient or disease level factors (eg patients are malnourished, stage of presentation is later), with the remaining one third attributed to non-patient factors. For example, differences in hospital, country and income level. It's this one third that surgeons can intervene upon to improve patient care.

Figure 7 shows some of the data from the hospital level survey which represents the continuum of care from start to finish - eg the type of hospital, is there an organised cancer service, what sort of post-operative care is available, is imaging available etc,

The data is really high quality and we're optimistic a high impact journal will recognise it's value. A counter argument is that the paper is too complicated with too much information. Refinement of the discussion is required to address and input is welcomed as to how to improve this

Questions/ Comments from National Leads:

Q Please explain further capacity to rescue

A: Capacity to rescue, sometimes called failure to rescue, is a term that came out of work by Justine Dimmick in North America, published in the NEJM, which found that no matter what the hospital or setting, the complication rate for a given operation is broadly the same. However, there is large variation in the mortality rate for the same complication between hospitals. Why, if the complication rate is the same, are more patients dying in some hospitals. This raised the possibility of intervening in the post-operative care to improve outcomes – for example post-operative monitoring, imaging capacity etc.

Q The introduction should be focused to emphasise the manuscript is focusing on non-patient factors as other medical professionals such as public health professionals will be interested in pre-hospital factors.

A Thank you – we will emphasise this in the manuscript from the perspective of being a group of surgeons looking to intervene in processes in the peri-operative period rather than the pre-hospitalisation period over which we have little influence.

Q The hospital level factors are important, but the patient level factors shouldn't be overlooked entirely, particularly with a view to introducing our future work for example, in cancer and nutrition. Additionally, in the US, a lot of the discussion around capacity to rescue focus on volume – large volume centres tend to have better outcomes. Has this been examined in the analyses?

A Agree the patients factors should be discussed in the discussion section – we will add a paragraph to this effect.

The difficulty with looking at volume is we don't have a reliable denominator. It's difficult to know how many patients are operated on in a given center. This can be modelled based on the data collection period but the GlobalSurg 3 dataset is probably not the right dataset to examine this is. This may come back in the peer reviews and we could make some broad comments on this if required. Volume is really a surrogate for a different type of care and possible some of the volume related variables are actually things related to for example, access to 24hr CT scanners, access to better perioperative care etc. These tend to go hand in hand with high volume care in high resource settings, but this may not be true in low income settings. Volume in the global setting does need a bit of care.

Q Is it possible to generate some cancer-specific analyses and papers after this main paper?

A Definitely – we have data on colorectal, breast and gastric cancers. We felt that it would be good to have a strong, overall paper as the first high impact paper. But there is a lot of cancer specific information that can be analysed and brought out in future publications.

GlobalSurg-CovidSurg Week

We were planning on running a GlobalSurg study during the later part of 2020/early part of 2021 which would capture all surgical procedures around the world. With Covid19 hitting in the early part of 2020 it became clear that this plan need to change and a different approach was needed.

GlobalSurg-CovidSurg week is a study that will collect data for any single week during the month of October. Any hospital, any speciality can take part. Over 1500 hospitals have already registered. We are keen to encourage registrations from a range of hospitals, particularly including rural and district hospitals.

The aim is to capture surgical capacity around the world and to determine the optimal timing of surgery post Covid19 infection.

There will be 3 main groups of patients: patients with pre-operative Covid, patients with post-operative Covid, and patients with no Covid.

GLOBALSURG3
PROSPECTIVE INTERNATIONAL COHORT STUDY



NIHR Global Health Research Unit on
Global Surgery

The study is open to all hospitals, anywhere in the world – not just those operating on Covid patients.

There is an opportunity for GlobalSurg 3 National Leads to lead the new study within their country. Please contact enquiry@globalsurg.org