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Classifying deaths from COVID-19: Why the official statistics will never reflect the true mortality from coronavirus, and how future studies could try to address this

The COVID-19 pandemic has significantly impacted our hepatopancreaticobiliary unit. Because of the need to ring fence critical care facilities, our theatre lists have been reduced; HPB surgery is only proceeding in patients likely to become inoperable before normal service resumes. Unfortunately, many patients will develop inoperable disease before theatre capacity is reinstated. Whilst many would have developed postoperative cancer recurrence, there will be a number of patients who would have been cured of their disease had they undergone surgery more promptly. Access to palliative chemotherapy for patients with inoperable disease has also been severely restricted. Life expectancy in these patients will be significantly reduced if they do not have access to locoregional or systemic treatments for their cancer.

Mortality statistics for COVID-19 capture patients who die as a direct result of coronavirus infection, but not patients who die indirectly as a result of the pandemic. To better capture the true mortality including additional and premature deaths secondary to impacted clinical services, we suggest the following classification:

- Primary death: Patients who died from COVID-19 infection.
- Secondary death: Patients with potentially curable diseases who died due to a lack of access to medical interventions.

- Tertiary death: Patients with incurable diseases who died earlier than would be expected due to a lack of access to medical interventions.

To capture these secondary and tertiary deaths, researchers will need to use data sets from primary and secondary care. Comparisons must be made with previous years to calculate how COVID-19 has impacted access to surgery and palliative therapies. Mortality data pre- and post-pandemic will need to be compared to see if there has been a permanent impact secondary to the reorganisation of healthcare services due to COVID-19. Only when more expanded definitions of COVID-19-related mortality are used will the true impact of the pandemic be known.